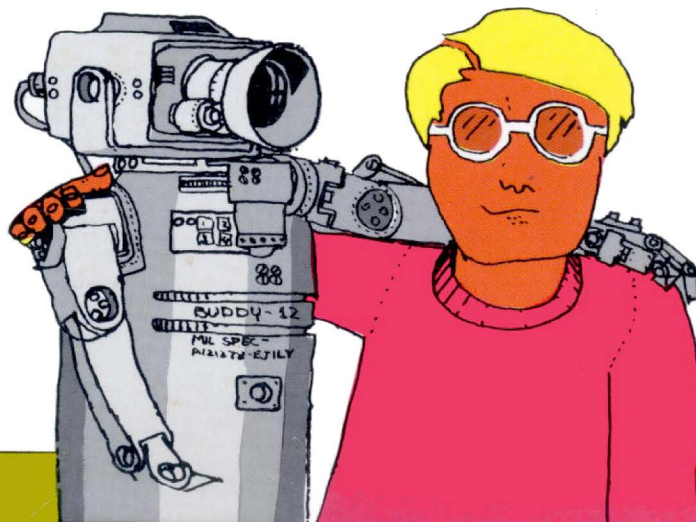


TRS-80 EDITION

# MORE BASIC COMPUTER GAMES

84 Fabulous Games for Your Personal Computer.  
All in BASIC with program listing and sample run.  
Edited by David H. Ahl      Preface by Chris Cerf



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Edited by David H. Ahl  
Program Conversion by Steve North  
Illustrations by George Beker  
Preface by Christopher Cerf

Creative Computing Press  
Morris Plains, New Jersey



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**To people everywhere who look back and wonder how  
they ever got along without a personal computer...**

## About the Editor

David Ahl has a BEE from Cornell University, MBA from Carnegie-Mellon University and has done further work in educational psychology at the University of Pittsburgh.

Two years in the Army Security Agency were followed by four years with Management Science Associates working on computer models and analysis of new consumer products. He continued work in computer analysis (of vocational education graduates) with Educational Systems Research Institute.

He joined Digital Equipment Corporation in early 1970. As Education Product Line Manager he formulated the concept of an educational computer system consisting of hardware, software, and courseware (Edu-System) and helped guide DEC into a leading position in the education market.

Mr. Ahl joined AT&T in 1974 as Education Marketing Manager and was later promoted to Manager of Marketing Communications where he was responsible for the development of sales promotional strategies and materials for the Bell System. Concurrent with this move, he started Creative Computing as a hobby in late 1974.

As Creative Computing grew, Mr. Ahl left AT&T in 1978 to devote full time to it. Creative Computing magazine today is number 1 in software and applications for small computers and a leader in publishing books, cassette and disk software, and related materials.

Mr. Ahl is the author of 6 books and over 70 articles on the use of computers. He is a frequent lecturer and workshop leader at colleges and professional conferences. He is a member of ACM, AEDS, AERA, COSMEP and NCTM.

## Acknowledgements

With a book like this one, it's difficult to know where to begin with acknowledgements. But here goes anyway....

**Game Authors.** Thank you, each and every one for creating your game in the first place.

**Dartmouth College.** For recognizing computers as an effective educational tool and for allowing games to be written and played on the Dartmouth timesharing system.

**Eric Van Horn** for managing and coordinating the conversion of the games from the original book into TRS-80 Basic.

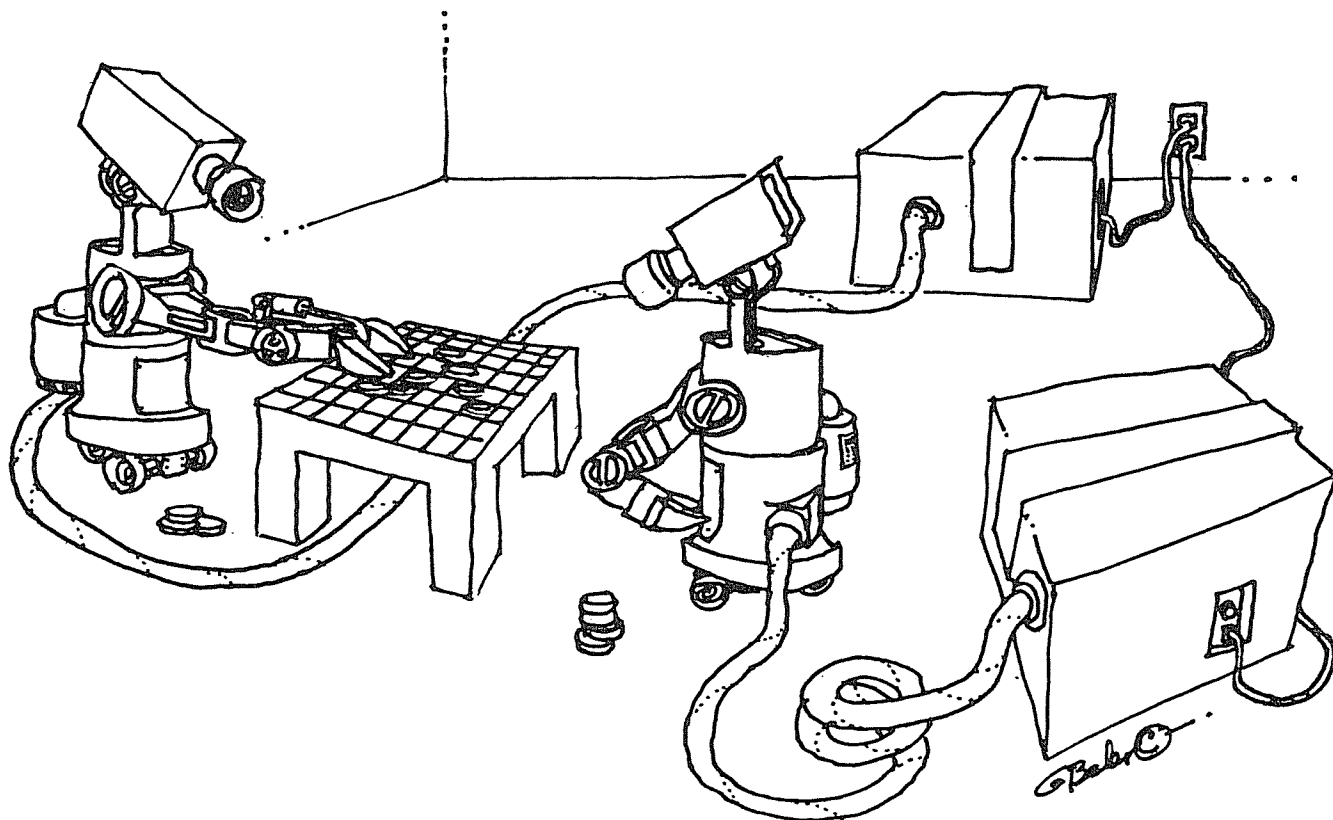
**Steve North, Chris Vogeli,** and others at Creative Computing who converted the games into TRS-80 Basic. Also **Mark Cusumano** who worked on the conversion effort.

**Bob Albrecht.** For his contribution to the world of computer games and for setting me straight as to who wrote what.

**Radio Shack.** For putting personal computers within the reach of hundreds of thousands of new, enthusiastic users.

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# Introduction

---

For most of my adult life I've pursued what some might consider a hopelessly disorganized diversity of projects. I've developed books, records, games and toys — and an occasional script or song — for the Children's Television Workshop (producers of *Sesame Street* and *The Electric Company*), and, on the side, I've written and edited satiric pieces for the *National Lampoon* and other publications. People often ask me if I think it's "sensible" to spread myself over so many media. "My activities really *are* all related," I answer, somewhat defensively. "At least somewhat..."

The truth is that it's the very variety of my work that's kept me interested and challenged. And, not coincidentally, I'm convinced that it's the unlikely mixture of media and people — of humor with curriculum content, of children's games with rock'n'roll music, of animation with phonics lessons; of child psychologists with puppeteers — that has made *Sesame Street* so vital, so exciting, and so successful.

One world that always *did* seem irrelevant to my pursuits, however, was computing. Oh sure, computers might store information, or generate lists of words recognizable to five-year-olds, or index research results, or handle accounts, or, of course, invade my privacy. In short, they might be a useful tool for *someone else* (probably someone pretty different from me). But computers as a *creative* medium—much less a medium I could actually feel comfortable with? Never!

Then, one day a few summers back, my wife, Genevieve—then an engineering student at Columbia—showed me a book called *Basic Computer Games*, by David Ahl. To my amazement, it had funny pictures in it. It was full of *games* — many of them delightfully silly. And — wonder of wonders! — at least some of it (sample runs of the games, for example) was not hopelessly beyond my comprehension.

I was intrigued, and when, months later, I visited the Boston Children's Museum and actually got to play with a computer, I was hooked. The terminals at the museum played many of the games in David Ahl's book. What's more, they actually called me by name, and made humorous comments about my playing skill. After several hours of trying to land a capsule on the moon (only to be told that I'd created several hundred new craters, and that Neil Armstrong "did it right the first time"), I had to be dragged away from the keyboard — it was past closing time, the museum personnel insisted.

From that day on, the development of computer games — to entertain *and* to educate — has been a high priority activity for us at CTW. (As I write this, we're designing a prototype computer game center to open, near Philadelphia, in 1980 — a project in which David Ahl has taken a pioneering role). For the computer combines the possibility of fun, education, challenge, personalization, humor and — most important — *interaction*, in a way that no other medium can. Computers are infinitely patient, not minding (unless they're *programmed* to mind) if you take all day to respond to a question or move a game "piece". If there's something you don't understand, you don't have to be embarrassed to ask a computer for help. A computer can adjust the difficulty level of a game or activity to suit your ability — some

programs even learn how to beat you as you continue to play against them. Armed with the proper software, a computer can play a song (or allow you to play one), paint a picture, write a poem or tell a story. Or it can plunge you into a whole new world, so you can learn by doing (or just escape, for a few moments, into a delightful fantasy).

The games in this, David Ahl's second collection, demonstrate many of these attributes. Try *Camel*, for example, in which you're left alone in the Gobi Desert with one quart of water and a bunch of Wild Berbers hot on your trail. (You'll learn something about resource management even if you don't escape to use your new knowledge.) Or type *Concentration* into the computer, and let your children perfect their matching and memory skills without showing you up. Become a starship captain and practice navigating a three-dimensional universe, in *Maneuvers*. Turn on *Father* so your kids can argue with the computer — instead of you — if they want to stay out late on Saturday night. Or — the ultimate trip — play *Millionaire* and start your whole life over again (complete with such decisions as what job to apply for, what investments to make, and what to do when an airplane crashed into your magnificent new home)!

The main point of all this is that whatever else computers are meant to be, they can be turned into magical multi-media machines that put *you* squarely in the center of the action. And, as Dave Ahl has continually demonstrated, they're an awful lot of fun. Turn the page and see.

Christopher Cerf

## About this edition

Since the TRS-80 is screen oriented, the sample output (which was printed on a line printer) is not always identical to what is seen on the screen. The up arrow (^) is printed in the runs as a left bracket ( [ ).

Where graphics are used, graphic pixels (blocks) are printed as a period (•). Each screen location can display either one ASCII character or six graphics pixels (blocks). In other words, a character (letter, number, etc.) is two pixels wide and three pixels high. If any of the six pixels is "lit," it is printed as a single dot (•) in the sample runs.

Clearing the entire screen in the sample run is indicated by:

CLS

Blank lines have not been retained in all cases, so the exact screen formatting is not shown. Nevertheless, the sample runs indicate how the program is executed.

It is the hope of the people here at Creative Computing who have worked on this book that you enjoy the games. We also hope that you will add your own enhancements. Graphics, personalization, additional skill levels and humorous remarks are obvious places to start. As you gain experience, try changing the playing algorithms or make a deterministic game into a heuristic one. Try new approaches, write your own variation, experiment, but above all, have fun!

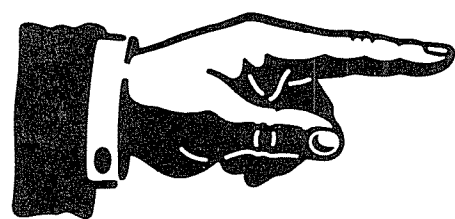
Morristown, New Jersey  
June 1979

David H. Ahl





# The Games



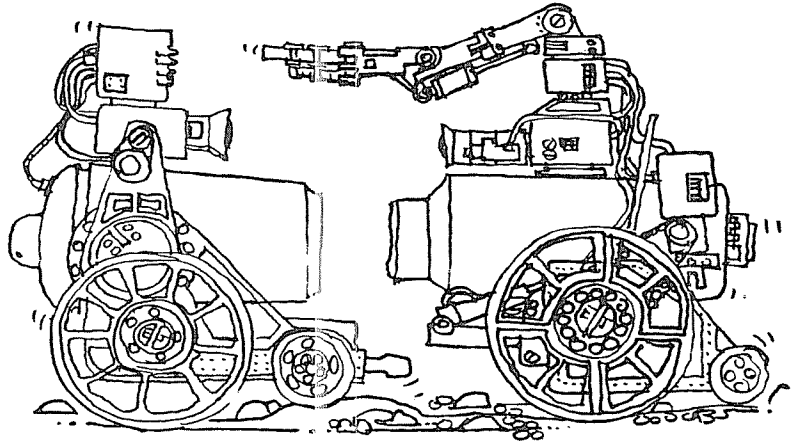
# Artillery 3

In this game, two or three humans may play. Each one of them has an artillery piece and is firing at an opponent. The first person to destroy his opponent wins that round of the game. The parameters for distances and muzzle velocities of the artillery pieces are set at the beginning of the game. The shots are fired by giving a firing angle expressed in degrees from the horizontal.

In a three player game, you may elect which player you are firing at; hence, player one and three could both be firing at player two. Once one of the players is eliminated, then it becomes a two player game and each of the remaining two players fires at each other.

Personally, I would prefer to think of this game as lobbing mudpies or snowballs or custard cream pies or something non-destructive. However, it was originally written as shoot-'em-up game so that's how it appears here.

This game was originally written by Mike Forman and further revised by N.E. Lyon and Brian West. It first appeared in *Creative Computing*, Jan/Feb 1976.



PLAYER 3 SHOOTING AT? 1  
FIRING ANGLE? 88.5  
YOU UNDERSHOT BY 973.341 FEET.  
PRESS ANY KEY TO CONTINUE  
cls

ROUND 2

PLAYER 1 SHOOTING AT? 2  
FIRING ANGLE? 78  
YOU OVERSHOT BY 807.63 FEET.  
PLAYER 2 SHOOTING AT? 3  
FIRING ANGLE? 84  
YOU UNDERSHOT BY 1204.44 FEET.  
PLAYER 3 SHOOTING AT? 1  
FIRING ANGLE? 73  
YOU OVERSHOT BY 297.64 FEET.  
PRESS ANY KEY TO CONTINUE  
cls

ROUND 3

PLAYER 1 SHOOTING AT? 2  
FIRING ANGLE? 68  
YOU OVERSHOT BY 1435.67 FEET.  
PLAYER 2 SHOOTING AT? 3  
FIRING ANGLE? 78  
YOU OVERSHOT BY 450.404 FEET.  
PLAYER 3 SHOOTING AT? 1  
FIRING ANGLE? 76  
YOU UNDERSHOT BY 152.922 FEET.  
PRESS ANY KEY TO CONTINUE  
cls

ROUND 4

PLAYER 1 SHOOTING AT? 2  
FIRING ANGLE? 74  
YOU OVERSHOT BY 490.891 FEET.  
PLAYER 2 SHOOTING AT? 3  
FIRING ANGLE? 73  
YOU OVERSHOT BY 141.325 FEET.  
PLAYER 3 SHOOTING AT? 1  
FIRING ANGLE? 72  
YOU OVERSHOT BY 438.631 FEET.  
PRESS ANY KEY TO CONTINUE  
cls

ROUND 5

PLAYER 1 SHOOTING AT? 2  
FIRING ANGLE? 76.5  
YOU OVERSHOT BY 277.366 FEET.  
PLAYER 2 SHOOTING AT? 3  
FIRING ANGLE? 75  
A HIT — 3 IS DEFUNCT.  
PRESS ANY KEY TO CONTINUE  
cls

ARTILLERY 3  
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ  
DO YOU NEED INSTRUCTION? YES.  
cls  
THIS IS A WAR GAME. TWO OR THREE PLAYERS ARE GIVEN  
(THEORETICAL) CANNONS WITH WHICH THEY ATTEMPT TO SHOOT EACH  
OTHER. THE PARAMETERS FOR DISTANCES AND MUZZLE VELOCITIES ARE  
SET AT THE BEGINNING OF THE GAME. THE SHOTS ARE FIRED BY  
GIVING A FIRING ANGLE, EXPRESSED IN DEGREES FROM HORIZONTAL.

THE COMPUTER WILL KEEP TRACK OF THE GAME AND REPORT ALL  
MOVES. A 'HIT' IS SCORED BY FIRING A SHOT WITHIN 5% OF THE  
TOTAL DISTANCE FIRED OVER. GOOD LUCK!

PRESS ANY KEY TO CONTINUE

cls  
NO. OF PLAYERS? 3

DISTANCE (FT.) 1. TO ? 1000  
DISTANCE (FT.) 2. TO ? 2000  
DISTANCE (FT.) 3. TO ? 2500

MUZZLE VELOCITY (FT./SEC.) OF 1 ? 300  
MUZZLE VELOCITY (FT./SEC.) OF 2 ? 350  
MUZZLE VELOCITY (FT./SEC.) OF 3 ? 400  
cls

ROUND 1

PLAYER 1 SHOOTING AT? 3  
FIRING ANGLE? 68  
YOU UNDERSHOT BY 547.021 FEET.  
PLAYER 2 SHOOTING AT? 3  
FIRING ANGLE? 79  
YOU UNDERSHOT BY 565.042 FEET.

ROUND 6

PLAYER 1 SHOOTING AT? 2  
FIRING ANGLE? 78  
YOU OVERSHOT BY 144.346 FEET.

PLAYER 2 SHOOTING AT? 1  
FIRING ANGLE? 78  
YOU OVERSHOT BY 556.619 FEET.

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

ROUND 7

PLAYER 1 SHOOTING AT? 2  
FIRING ANGLE? 79.4  
A HIT -- 2 IS DEFUNCT.

GAME OVER. 1 WINS.

\_\_\_\_\_ cls \_\_\_\_\_

```
10 CLS: PRINT@411, "ARTILLERY 3"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ"
30 PRINT@960, ":", INPUT "DO YOU NEED INSTRUCTIONS?";I$
40 T=0
50 DIM S(2,9)
60 DIM V(3),X(3),P(3),R(3,3)
70 DATA 1,2,2,3,3,1,1,3,3,2,2,1,2,3,3,1,1,2,0
80 IF LEFT$(I$,1)="Y" THEN 1240 ELSE CLS
90 PRINT
100 PRINT "NO. OF PLAYERS:"
110 INPUT N
120 IF N=2 THEN 170
130 IF N=3 THEN 200
140 PRINT "ERROR--TWO OR THREE PLAYERS!"
150 PRINT
160 GOTO 90
170 N1=1
180 PRINT ""
190 GOTO 220
200 N1=N
210 PRINT ""
220 FOR J=1 TO N1
230 READ A,B
240 PRINT "DISTANCE (FT.) ";A;" TO ";B;
250 INPUT R(A,B)
260 R(B,A)=R(A,B)
270 NEXT J
280 PRINT ""
290 RESTORE
300 IF N=2 THEN 390
310 FOR J=1 TO N
320 READ A,B,C,D,E,F
330 IF R(A,B)<R(C,D)+R(E,F) THEN 370
340 PRINT "ERROR--ILLEGAL TRIANGLE. RE-ENTER RANGES."
350 RESTORE
360 GOTO 220
370 NEXT J
380 PRINT
390 FOR J=1 TO N
400 PRINT "MUZZLE VELOCITY (FT./SEC.) OF ";J;
410 INPUT V(J)
420 NEXT J
430 PRINT ""
440 FOR J=1 TO N
450 X(J)=V(J)/2/32
460 NEXT J
470 FOR A=1 TO N
480 FOR B=1 TO N
490 IF X(A)>R(A,B) THEN 540
500 PRINT "ERROR--";A;" CANNOT REACH ";B
510 PRINT "WHAT IS THE MUZZLE VELOCITY OF ";A;
520 INPUT V(A)
530 GOTO 440
540 NEXT B
550 NEXT A
560 N1=N
```

```
570 PRINT ""
580 PRINT ""
590 CLS: PRINT "ROUND ";T+1
600 PRINT
610 FOR M=1 TO N
620 IF N=3 THEN 680
630 C=1
640 IF M<1 THEN 660
650 C=2
660 PRINT "PLAYER";M;"SHOOTING AT";C
670 GOTO 800
680 IF P(M)=12 THEN 1190
690 PRINT "PLAYER";M;"SHOOTING AT";
700 INPUT C
710 ON C GOTO 740,740,740
720 PRINT "ERROR--PLAYERS DESIGNATED 1,2,3."
730 GOTO 690
740 IF C=M THEN 770
750 PRINT "ERROR--CANNOT SHOOT SELF."
760 GOTO 690
770 IF P(C)<12 THEN 800
780 PRINT "ERROR --";C;"IS DEFUNCT."
790 GOTO 690
800 PRINT "FIRING ANGLE";
810 INPUT A3
820 IF A3<0 THEN 850
830 IF A3>180 THEN 850
840 GOTO 880
850 PRINT "ERROR -- FIRED INTO GROUND. ";M;"NOW DEFUNCT."
860 P(M)=12
870 GOTO 690
880 IF A3<90 THEN 910
890 PRINT "ERROR -- FIRED WRONG WAY, LOSE SHOT."
900 GOTO 690
910 Z=SIN(A3*.0349064)*V(M)/2/32
920 X=(R(M,C)/1000+RND(0))-(R(M,C)/1000+RND(0))
930 D=X+Z
940 D1=R(M,C)*.05
950 IF D<D1 THEN 990
960 IF ABS(D-R(M,C))<D1 THEN 1020
970 IF D<R(M,C) THEN 1050
980 IF D>R(M,C) THEN 1070
990 PRINT "TOO CLOSE --";M;"IS DEFUNCT."
1000 P(M)=12
1010 GOTO 1090
1020 PRINT "A HIT --";C;"IS DEFUNCT."
1030 P(C)=12
1040 GOTO 1090
1050 PRINT "YOU UNDERSHOT BY";ABS(D-R(M,C));"FEET."
1060 GOTO 1100
1070 PRINT "YOU OVERSHOT BY";ABS(D-R(M,C));"FEET."
1080 GOTO 1100
1090 N1=N1-1
1100 IF N1<1 THEN 1180
1110 FOR M1=1 TO N
1120 IF P(M1)=12 THEN 1160
1130 PRINT
1140 PRINT "GAME OVER. ";N1;" WINS."
1150 GOTO 1370
1160 NEXT M1
1170 STOP
1180 PRINT ""
1190 NEXT M
1200 T=T+1
1210 PRINT@979, "PRESS ANY KEY TO CONTINUE";
1220 IF INKEY$="" THEN 1220 ELSE CLS
1230 GOTO 580
1240 CLS: PRINT TAB(27)"ARTILLERY 3": PRINT
1250 PRINT "THIS IS A WAR GAME. TWO OR THREE PLAYERS ARE GIVEN"
1260 PRINT "(THEORETICAL) CANNONS WITH WHICH THEY ATTEMPT TO SHOOT EACH"
1270 PRINT "OTHER. THE PARAMETERS FOR DISTANCES AND MUZZLE VELOCITIES ARE"
1280 PRINT "SET AT THE BEGINNING OF THE GAME. THE SHOTS ARE FIRED BY"
1290 PRINT "GIVING A FIRING ANGLE, EXPRESSED IN DEGREES FROM HORIZONTAL."
1300 PRINT
1310 PRINT "THE COMPUTER WILL KEEP TRACK OF THE GAME AND REPORT ALL"
1320 PRINT "MOVES. A 'HIT' IS SCORED BY FIRING A SHOT WITHIN 5% OF THE"
1330 PRINT "TOTAL DISTANCE FIRED OVER. GOOD LUCK!"
1340 PRINT@979, "PRESS ANY KEY TO CONTINUE";
1350 IF INKEY$="" THEN 1350 ELSE CLS
1360 GOTO 90
1370 END
```

# Baccarat

Games of the baccarat and chemin de fer family originated in the baccarat that became popular in the French casinos in the 1830's. In the present century they have travelled from Europe to the United States, back to Europe, and to casinos throughout the world. This process has resulted in wide variations in playing rules and what is called "baccarat" in one casino may more nearly resemble the "chemin de fer" of another.

The computer game here is more nearly chemin de fer than it is baccarat. The rules, briefly, are as follows: Eight packs of cards are shuffled together and placed in a "shoe" from which the cards can be slid out one by one. Following this, the players make their bets. Any player may make any bet up to the amount of the bank. The player at the banker's right has the first choice to bet. Any part of the bank he does not take may be bet by the next player on his right, and so on in order until the entire bank is covered or until everyone has bet who wishes to. Any player may take the entire bank by saying, "Banco," but when two or more players wish to banco, the one nearest the banker's right has the privilege.

After the bets are placed, the banker deals two hands of two cards each, dealing one card at a time. The hand he deals first represents all the players betting against him; the other hand is the banker's. The player who has made the largest bet against the banker plays the opposition hand.

The object of the game is to hold two or three cards which count nine (9), or as nearly nine as possible. The values of the cards are: face cards and tens, zero; aces, one each; any other card, its number. Units of ten points are disregarded, so that nine plus seven count as six, not sixteen.

A player whose card is nine or eight in his first two cards shows his hand immediately. He has a natural and his hand wins (but a natural nine beats a natural eight). Naturals of the same number tie, and there is a new deal.

When the result is not decided by a natural, the banker must give a card to his opponent on request; or the opponent may stand. The opponent must stand on six or seven, must draw to a zero, one, two, three, or four, but has the option on five. The additional card, if given, is face up.

Then the banker decides whether to stand or take a card.

| IF BANKER GIVES  | BANKER STANDS ON  | BANKER DRAWS TO     |
|------------------|-------------------|---------------------|
| Face card or ten | 4, 5, 6, 7        | 3, 2, 1, 0          |
| Nine             | 4, 5, 6, 7 (or 3) | 2, 1, 0 (or 3)      |
| Eight            | 3, 4, 5, 6, 7     | 2, 1, 0             |
| Seven or six     | 7                 | 6, 5, 4, 3, 2, 1, 0 |
| Five or four     | 6, 7              | 5, 4, 3, 2, 1, 0    |
| Three or two     | 5, 6, 7           | 4, 3, 2, 1, 0       |
| Ace              | 4, 5, 6, 7        | 3, 2, 1, 0          |
| Opponent stands  | 6, 7              | 5, 4, 3, 2, 1, 0    |

Neither player may have more than one additional card, giving him three cards at the most. When each player has exercised his option, the cards are shown. If the totals are the same, the bets are off and may be withdrawn and new bets are placed exactly as before for another deal. If the opponent has a

higher number than the banker's, each player collects such portion of the bank as he has covered.

In the game of chemin de fer, the role of banker rotates among the players after each hand; in baccarat, it does not.

```

                                BACCARAT
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

_____
cls
DO YOU NEED INSTRUCTIONS? YES_
_____
cls
BACCARAT IS A VERY POPULAR GAME IN LAS
VEGAS. THE PLAYER AND BANKER EACH RECEIVE
TWO CARDS FROM A "SHOE" CONTAINING 8 DECKS
OF CARDS. ALL CARD COMBINATIONS TOTALING
TEN ARE NOT COUNTED. THE ONE THAT ENDS UP
CLOSER TO NINE WINS. THE STAKES ARE HIGH.
ALL OF THE PLAYERS START WITH TEN THOUSAND
DOLLARS. YOU CAN BET ON THE DEALER OR THE
PLAYER. A THIRD CARD IS GIVEN ONLY UNDER
CERTAIN CONDITIONS, AS YOU WILL SEE. LET
US BEGIN. GOOD LUCK!

PRESS ANY KEY TO CONTINUE
_____
cls
HOW MANY PLAYERS? 1

WHAT IS THE NAME OF PLAYER 1 ? CHRIS
_____
cls
CHRIS HAS $10,000. BET? 500
(1) BANKER OR (2) PLAYER? 1_
_____
cls
BANKER          PLAYER
-----
FOUR OF HEARTS  ACE OF CLUBS
FOUR OF SPADES  THREE OF DIAMONDS

PLAYER MUST DRAW. EIGHT OF DIAMONDS
PLAYERS TOTAL. 2

BANKER CANNOT DRAW. BANKERS TOTAL. 8
***** BANKER WINS!! *****
CHRIS WINS $ 500 - TOTAL $ 10500
PRESS ANY KEY TO CONTINUE
_____
cls
CHRIS HAS $10,500. BET? 1000
(1) BANKER OR (2) PLAYER? 2_
_____
cls

```

```

      cls
BANKER      PLAYER
-----
ACE OF HEARTS  JACK OF CLUBS
EIGHT OF SPADES  NINE OF DIAMONDS

```

PLAYER CANNOT DRAW. PLAYERS TOTAL: 9

BANKER CANNOT DRAW. BANKERS TOTAL: 9  
IT'S A TIE. THE HAND IS PLAYED OVER.  
PRESS ANY KEY TO ENTER

```

      cls
CHRIS HAS $10,500. BET? 1000
(1.) BANKER OR (2.) PLAYER? 1.

```

```

      cls
BANKER      PLAYER
-----
THREE OF DIAMONDS  QUEEN OF DIAMONDS
ACE OF SPADES      TEN OF DIAMONDS

```

PLAYER MUST DRAW. FIVE OF CLUBS  
PLAYER CANNOT DRAW. PLAYERS TOTAL: 5

BANKER MUST DRAW. QUEEN OF DIAMONDS  
BANKERS TOTAL: 4  
\*\*\*\*\* PLAYER WINS!! \*\*\*\*\*  
CHRIS LOSES \$ 1000 - TOTAL \$ 9500  
PRESS ANY KEY TO CONTINUE

```

10 CLEAR 1000:CLS:PRINT@412,"BACCARAT"
20 PRINT:PRINT TAB(7)"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960,"":INPUT "DO YOU NEED INSTRUCTIONS?";I$
40 IF LEFT$(I$,1)="" THEN 100
50 CLS:PRINT TAB(20);"BACCARAT":PRINT:AS=STRING$(10,22)
60 PRINT:PRINT AS;" BACCARAT IS A VERY POPULAR GAME IN LAS"
70 PRINT AS;"VEGAS. THE PLAYER AND BANKER EACH RECEIVE"
80 PRINT AS;"TWO CARDS FROM A 'SHOE' CONTAINING 8 DECKS"
90 PRINT AS;"OF CARDS. ALL CARD COMBINATIONS TOTALING"
100 PRINT AS;"TEN ARE NOT COUNTED. THE ONE THAT ENDS UP"
110 PRINT AS;"CLOSER TO NINE WINS. THE STAKES ARE HIGH."
120 PRINT AS;"ALL OF THE PLAYERS START WITH TEN THOUSAND"
130 PRINT AS;"DOLLARS. YOU CAN BET ON THE DEALER OR THE"
140 PRINT AS;"PLAYER. A THIRD CARD IS GIVEN ONLY UNDER"
150 PRINT AS;"CERTAIN CONDITIONS, AS YOU WILL SEE. LET"
160 PRINT AS;"US BEGIN. GOOD LUCK!"
170 PRINT@979,"PRESS ANY KEY TO CONTINUE";
180 IF INKEY="" THEN 100
190 CLS:DIM M(20),F(20),B$(13),V(13),G$(20)
200 DIM Z(9,10),O(4,13)
210 FOR X=3 TO 6
220 FOR Y=1 TO 10
230 READ Z(X,Y)
240 NEXT Y,X
250 FOR S1=1 TO 10:READ M(S1):NEXT
260 FOR S1=1 TO 4:READ AS(S1):NEXT
270 FOR S1=1 TO 13:READ B$(S1):NEXT
280 FOR S1=1 TO 13:READ V(S1):NEXT
290 PRINT
300 PRINT "HOW MANY PLAYERS?";
310 INPUT P1
320 IF P1>8 THEN PRINT "MAXIMUM OF 8 PLAYERS":GOTO 290
330 PRINT
340 FOR J=1 TO P1
350 PRINT "WHAT IS THE NAME OF PLAYER?";J;
360 INPUT G$(J)
370 M(J)=10000
380 NEXT J
390 PRINT
400 FOR S1=1 TO 4
410 FOR S2=1 TO 13
420 O(S1,S2)=0
430 NEXT S2
440 NEXT S1
450 FOR J=1 TO 6
460 C=INT(1+RND(8)+4)
470 D=INT(1+RND(8)+13)
480 O(C,D)=O(C,D)+1
490 IF O(C,D)=32 THEN 460
500 B(J)=V(D)
510 C$(J)=B$(D)+" OF "+AS(C)
520 NEXT J
530 N1=2
540 FOR J=1 TO P1
550 IF M(J)<1 THEN 670
560 CLS:PRINT G$(J);" HAS ";
570 PRINT USING "####,###";M(J);:PRINT" BET";

```

```

580 INPUT F(J)
590 IF F(J)>M(J) THEN 560
600 IF F(J)<INT(F(J)) THEN 560
610 IF F(J)<1 THEN 560
620 PRINT "(1) BANKER OR (2) PLAYER";
630 INPUT F1(J)
640 IF F1(J)=1000 THEN 560
650 IF (F1(J)-1)*(F1(J)-2)<0 THEN 620
660 PRINT
670 NEXT J
680 J=0
690 T1=B(1)+B(2)
700 T2=B(3)+B(4)
710 PRINT
720 CLS:PRINT "BANKER";TAB(20);"PLAYER"
730 PRINT "-----";TAB(20);"-----"
740 PRINT C$(2);TAB(20);C$(1)
750 PRINT C$(4);TAB(20);C$(2)
760 PRINT
770 IF T1<10 THEN 790
780 T1=T1-10
790 IF T2<10 THEN 810
800 T2=T2-10
810 IF M(T1+1)=0 THEN 880
820 PRINT "PLAYER MUST DRAW ";
830 PRINT C$(5)
840 T1=T1+B(5)
850 IF T1<10 THEN 880
860 T1=T1-10
870 GOTO 900
880 PRINT "PLAYER CANNOT DRAW ";
890 J=11
900 PRINT "PLAYERS TOTAL: ";T1
910 PRINT
920 IF T2<3 THEN 980
930 IF T2>6 THEN 1040
940 IF J<11 THEN 970
950 IF T2=6 THEN 1040
960 GOTO 980
970 IF Z(T2,B(5)+1)=0 THEN 1040
980 PRINT "BANKER MUST DRAW ";
990 PRINT C$(6)
1000 T2=T2+B(6)
1010 IF T2<10 THEN 1030
1020 T2=T2-10
1030 GOTO 1050
1040 PRINT "BANKER CANNOT DRAW ";
1050 PRINT "BANKERS TOTAL: ";T2
1060 IF T2<11 THEN 1100
1070 PRINT "IT'S A TIE. THE HAND IS PLAYED OVER."
1080 PRINT@979,"PRESS ANY KEY TO ENTER";
1090 IF INKEY="" THEN 1090 ELSE 450
1100 IF T2<T1 THEN 1140
1110 N1=1
1120 PRINT "***** BANKER WINS!! *****"
1130 GOTO 1150
1140 PRINT "***** PLAYER WINS!! *****"
1150 FOR J=1 TO P1
1160 IF M(J)<0 THEN 1240
1170 PRINT G$(J);" ";
1180 IF F1(J)=N1 THEN 1220
1190 M(J)=M(J)-F(J)
1200 PRINT "LOSES $";F(J);"- TOTAL $";M(J);
1210 GOTO 1240
1220 M(J)=M(J)+F(J)
1230 PRINT "WINS $";F(J);"- TOTAL $";M(J);
1240 NEXT J
1250 FOR J=1 TO P1
1260 IF M(J)<0 THEN 1300
1270 NEXT J
1280 PRINT@960,"THANK YOU FOR YOUR MONEY, AND ";
1290 GOTO 1420
1300 PRINT@979,"PRESS ANY KEY TO CONTINUE";
1310 IF INKEY="" THEN 1310
1320 FOR X=1 TO 4
1330 FOR Y=1 TO 10
1340 IF O(X,Y)<0 THEN 450
1350 NEXT Y,X
1360 GOTO 400
1370 DATA 1,1,1,1,1,1,1,1,1,0,0,1,1,1,1,1,1,0,0
1380 DATA 0,0,0,0,1,1,1,1,0,0,0,0,0,0,0,1,1,0,0
1390 DATA 1,1,1,1,1,1,0,0,0,0,0,0,0,0,0,1,1,0,0
1400 DATA CLUBS,ACE,TWO,THREE,FOUR,FIVE,SIX,SEVEN,EIGHT
1410 DATA NINE,TEN,JACK,QUEEN,KING,1,2,3,4,5,6,7,8,9,0,0,0,0
1420 PRINT "THANK YOU FOR PLAYING.";
1430 END

```



# Bible Quiz

BIBLE QUIZ is a program which administers up to 25 questions about the Bible to the user. If the answer given to a question is correct, the program proceeds to the next question. If an incorrect answer is given, the program gives the correct answer. In either case, the biblical reference is given.

Note that Statements 250 to 570 could serve as the basis for any type of CAI dialogue with instructions preceeding Statement 250 and the questions and answers in the data statements.

This program was written by Steve Wentworth of Muskingum College. It originally appeared in *Creative Computing*, Mar/Apr 1977.

## BIBLE QUIZ

COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ

\_\_\_\_\_ cls \_\_\_\_\_

DO YOU NEED INSTRUCTIONS? YES..

THIS GAME IS A QUIZ WHICH TESTS  
YOUR KNOWLEDGE OF BIBLICAL EVENTS, PLACES,  
AND PERSONS.

I WILL ASK YOU A QUESTION AND THEN WAIT  
FOR YOUR ANSWER. IF YOUR ANSWER IS CORRECT,  
I WILL PROCEED TO THE NEXT QUESTION. IF YOUR  
ANSWER IS INCORRECT, I WILL GIVE YOU THE  
CORRECT ANSWER AND THEN PROCEED TO THE  
NEXT QUESTION.

ALL ANSWERS ARE ONE WORD, AND MUST BE  
CORRECTLY SPOelled.

THERE ARE 25 QUESTIONS.

HOW MANY QUESTIONS DO YOU WISH TO TRY? 20..

\_\_\_\_\_ cls \_\_\_\_\_

QUESTION # 1

WHO WAS THE FIRST CHRISTIAN MARTYR? ZORBA THE GREEK

INCORRECT ANSWER.

THE CORRECT ANSWER IS STEPHEN. ACTS 7  
PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

QUESTION # 2

WHAT HEBREW SERVED A QUICK LUNCH UNDER A TREE? JOES BAR

INCORRECT ANSWER.

THE CORRECT ANSWER IS ABRAHAM. GENESIS 18:6-8  
PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

QUESTION # 3

WHO WAS BURIED IN A CAVE WITH HIS WIFE? AL HURT

INCORRECT ANSWER.

THE CORRECT ANSWER IS ABRAHAM. GEN. 25:9-10  
PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

QUESTION # 4

WHAT WAS THE NAME OF THE FIRST CITY EVER BUILT? BAYONE

INCORRECT ANSWER.

THE CORRECT ANSWER IS ENOCH. GEN. 4:17  
PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

QUESTION # 5

WHO WAS THE FIRST PERSON KILLED? JIMMY HOFFA

INCORRECT ANSWER.

THE CORRECT ANSWER IS ABEL. GEN. 4:8  
PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

QUESTION # 6

WHO ACCIDENTLY HANGED HIMSELF IN A TREE? TARZAN

INCORRECT ANSWER.

THE CORRECT ANSWER IS ABSALOM. 2 SAM. 18:9  
PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

QUESTION # 7

WHO KILLED GOLIATH? DAVID

CORRECT ANSWER -- VERY GOOD! 1 SAM. 17:49

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

QUESTION # 8

WHAT PHYSICIAN WAS AN AUTHOR? HOWARD THE DUCK

INCORRECT ANSWER.

THE CORRECT ANSWER IS LUKE. COL. 4:14  
PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

QUESTION # 9

WHO KILLED HIS BROTHER FOR HUMBLING HIS SISTER? UNCLE FLOYD

INCORRECT ANSWER.

THE CORRECT ANSWER IS ABSALOM. 2 SAM. 13  
PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

QUESTION # 10

WHO DROVE FURIOUSLY? NETTO

INCORRECT ANSWER.

THE CORRECT ANSWER IS JEHU. 2 KINGS 9:20  
PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

QUESTION # 11

WHAT BOY HAD A VARIEGATED COAT? THE INCREDIBLE HULK

INCORRECT ANSWER.

THE CORRECT ANSWER IS JOSEPH. GEN. 37:3  
PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

# QUESTION # 12

WHAT BLIND MAN KILLED THREE THOUSAND AT A RELIGIOUS FEAST? MOE  
 INCORRECT ANSWER.  
 THE CORRECT ANSWER IS SAMSON. JUDGES 16:23-30  
 PRESS ANY KEY TO CONTINUE

cls

# QUESTION # 13

WHO SLEPT ON AN IRON BEDSTEAD OVER THIRTEEN FEET LONG? 5. WHITE  
 INCORRECT ANSWER.  
 THE CORRECT ANSWER IS OG. DUET. 3:11  
 PRESS ANY KEY TO CONTINUE

cls

# QUESTION # 14

WHO FELL ASLEEP DURING A LONG SERMON? MR. BILL  
 INCORRECT ANSWER.  
 THE CORRECT ANSWER IS EUTYCHUS. ACTS 20:9  
 PRESS ANY KEY TO CONTINUE

cls

# QUESTION # 15

WHO CLIMBED A TREE TO SEE JESUS? BEN DOVER  
 INCORRECT ANSWER.  
 THE CORRECT ANSWER IS ZACCHAEUS. LUKE 19:4  
 PRESS ANY KEY TO CONTINUE

cls

# QUESTION # 16

WHAT CITY IS CALLED THE CITY OF PALM TREES? NEWARK  
 INCORRECT ANSWER.  
 THE CORRECT ANSWER IS JERICHO. DUET. 34:3  
 PRESS ANY KEY TO CONTINUE

```

10 CLS
20 PRINT @ 411, "BIBLE QUIZ"
30 PRINT
40 PRINT TAB(7); "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
50 PRINT @ 960, "";
60 INPUT "DO YOU NEED INSTRUCTIONS?"; I$
70 IF LEFT$(I$, 1) = "Y" THEN 100
80 CLS
90 GOTO 220
100 CLS
110 PRINT " THIS GAME IS A QUIZ WHICH TESTS "
120 PRINT "YOUR KNOWLEDGE OF BIBLICAL EVENTS, PLACES, "
130 PRINT "AND PERSONS. "
140 PRINT " I WILL ASK YOU A QUESTION AND THEN WAIT "
150 PRINT "FOR YOUR ANSWER. IF YOUR ANSWER IS CORRECT, "
160 PRINT "I WILL PROCEED TO THE NEXT QUESTION. IF YOUR "
170 PRINT "ANSWER IS INCORRECT, I WILL GIVE YOU THE "
180 PRINT "CORRECT ANSWER AND THEN PROCEED TO THE "
190 PRINT "NEXT QUESTION. "
200 PRINT " ALL ANSWERS ARE ONE WORD, AND MUST BE "
210 PRINT "CORRECTLY SPELLED. "
220 PRINT @ 760, "THERE ARE 25 QUESTIONS. "
230 PRINT
240 PRINT "HOW MANY QUESTIONS DO YOU WISH TO TRY?"; CHR$(31);
250 INPUT N
260 IF N > 25 OR N < 1 THEN 220
270 CLS

```

```

280 DIM S(25)
290 C=0
300 N1=0
310 PRINT CHR$(20);
320 RESTORE
330 IF C=N THEN 550
340 C=C+1
350 PRINT
360 PRINT "QUESTION #"; C
370 PRINT "-----"; CHR$(31)
380 PRINT
390 PRINT
400 X=RD(25)
410 IF S(X)=1 THEN 400
420 S(X)=1
430 FOR Q=1 TO X
440 READ Q$, A$, V$
450 NEXT Q
460 PRINT Q$;
470 INPUT R$
480 IF R$=A$ THEN 520
490 PRINT "INCORRECT ANSWER. "
500 PRINT "THE CORRECT ANSWER IS "; A$; ". "; V$
510 GOTO 960
520 PRINT "CORRECT ANSWER -- VERY GOOD! "; V$
530 N1=N1+1
540 GOTO 960
550 PRINT @ 832, "OUT OF"; N; "QUESTIONS YOU ANSWERED"; N1; "CORRECTLY. "
560 P=INT((N1/N)*100+.5)
570 PRINT "YOUR PERCENTAGE OF CORRECT ANSWERS IS"; P; CHR$(8); "%"
580 DATA "WHO SET FIRE TO THREE HUNDRED FOXES TAILS", "SAMSON"
590 DATA "1 JUDGES 15:4,5"
600 DATA "WHAT HEBREW SERVED A QUICK LUNCH UNDER A TREE"
610 DATA "ABRAHAM", " GENESIS 18:6-8"
620 DATA "WHAT HUNGRY MAN CURSED A FRUITLESS FIG TREE", "JESUS"
630 DATA " MARK 11:12-14"
640 DATA "WHO KILLED HIS BROTHER FOR HUMBLING HIS SISTER"
650 DATA "ABSALOM", "2 SAM. 13"
660 DATA "WHO HAD THREE HUNDRED CONCUBINES", "SOLOMON", "1 KINGS 11:1-3"
670 DATA "WHAT BOY HAD A VARIEGATED COAT", "JOSEPH", " GEN. 37:3"
680 DATA "WHO HAD A SEAMLESS COAT", "JESUS", " JOHN 19:23"
690 DATA "WHO TOOK OFF HIS SHOE TO BIND A CONTRACT", "BOAZ", "RUTH 4:7-9"
700 DATA "WHO SLEPT ON AN IRON BEDSTEAD OVER THIRTEEN FEET LONG"
710 DATA "OG", " DUET. 3:11"
720 DATA "WHO WAS THE FIRST CITY-BUILDER", "CAIN", " GEN. 4:17"
730 DATA "WHAT PHYSICIAN WAS AN AUTHOR", "LUKE", " COL. 4:14"
740 DATA "WHAT SONG-COMPOSER IS CREDITED WITH 1005 SONGS", "SOLOMON"
750 DATA "1 KINGS 4:32"
760 DATA "WHO WAS THE FIRST PERSON KILLED", "ABEL", " GEN. 4:8"
770 DATA "WHO WAS BURIED IN A CAVE WITH HIS WIFE", "ABRAHAM"
780 DATA " GEN. 25:9-10"
790 DATA "WHO ACCIDENTLY HANGED HIMSELF IN A TREE", "ABSALOM"
800 DATA "2 SAM. 18:9"
810 DATA "WHAT BLIND MAN KILLED THREE THOUSAND AT A RELIGIOUS FEAST"
820 DATA "SAMSON", " JUDGES 16:23-30"
830 DATA "WHAT WAS THE NAME OF THE FIRST CITY EVER BUILT"
840 DATA "ENOCK", " GEN. 4:17"
850 DATA "WHO WAS A MIGHTY HUNTER", "NIMROD", " GEN. 10:9-12"
860 DATA "WHO DROVE FURIOUSLY", "JEHU", "2 KINGS 9:20"
870 DATA "WHO WAS THE FIRST CHRISTIAN MARTYR", "STEPHEN", " ACTS 7"
880 DATA "WHO FELL ASLEEP DURING A LONG SERMON", "EUTYCHUS"
890 DATA " ACTS 20:9"
900 DATA "WHAT CITY IS CALLED THE CITY OF PALM TREES", "JERICHO"
910 DATA " DUET. 34:3"
920 DATA "WHO CLIMBED A TREE TO SEE JESUS", "ZACCHAEUS", " LUKE 19:4"
930 DATA "WHO KILLED GOLIATH", "DAVID", "1 SAM. 17:49"
940 DATA "WHO WAS CAST INTO A DEN OF LIONS", "DANIEL", " DAN. 6:16"
950 END
960 PRINT @ 531, "PRESS ANY KEY TO CONTINUE";
970 IF INKEY$ = "" THEN 970 ELSE 310

```

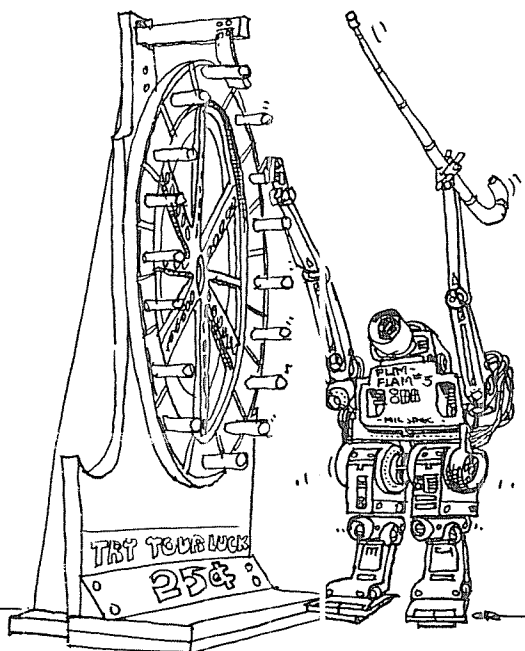
# Big 6

Big 6 is strictly an American invention from the casinos of Nevada. There is a very large wheel mounted vertically, generally four feet or more in diameter, that has the numbers one through six in a random arrangement around its periphery. Players place their bets on a roulette type of table in front of the wheel. The wheel is then spun and three numbers are declared the winners. These are the three numbers that appear at the top of the wheel. Most novice players looking at the wheel think that since here are three winners they have a very good chance of winning a large sum of money. Betting limits are generally up to \$500 and, as many players discover very quickly, the odds are very heavily in favor of the house.

If you feel that you must play Big 6, try it by computer first and then figure out how much you can afford to lose when you go to play it in Las Vegas or Atlantic City. The computer is a much better sport than the casino managers will be when you lose at either of those resort cities.

Big 6 was written by Steve Heywood and Dave Avey.

This program uses TRS-80 graphics which do not reproduce well on a line printer. Therefore the sample run does not give a true representation of the program. The only way this program can be truly appreciated is to run it.



```

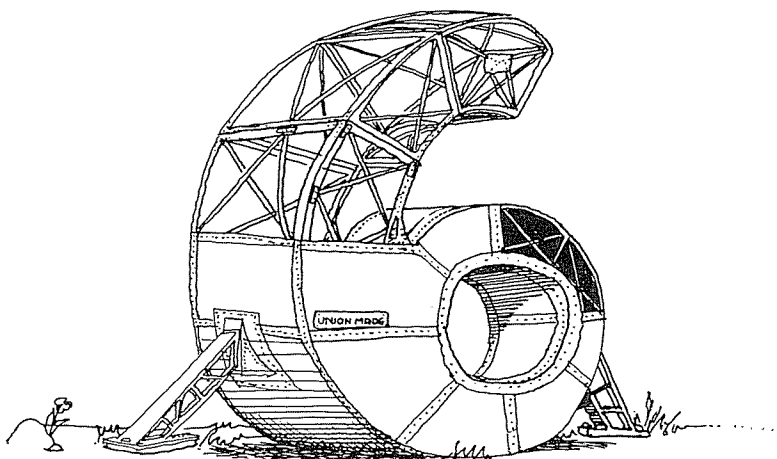
BIG 6
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ
cls
DO YOU NEED INSTRUCTIONS? YES_
cls
THIS PROGRAM IS A DICE WHEEL GAME IN WHICH
YOU CAN BET ON ANY NUMBER BETWEEN ONE AND SIX
AND UP TO THREE NUMBERS.
THE HOUSE LIMIT IS FROM $1 TO $500.
TO END THIS PROGRAM TYPE THE WORD 'STOP'
GOOD LUCK!
PRESS ANY KEY TO CONTINUE
cls
HOW MANY NUMBERS DO YOU WANT TO BET ON? _
WHAT NUMBER? 4
WAGER? 10
.....
YOU LOSE ON 4.
YOU'RE BEHIND $-10.
cls
HOW MANY NUMBERS DO YOU WANT TO BET ON? _
WHAT TWO NUMBERS? 2,4
WAGER ON BOTH? 5,10
.....
YOU WIN 1 TIME ON 2.
YOU LOSE ON 4.
YOU'RE BEHIND $-15.
cls
HOW MANY NUMBERS DO YOU WANT TO BET ON? _
WHAT THREE NUMBERS? 1,3,5
WAGER ON EACH OF THE THREE? 5,5,5
.....
YOU LOSE ON 1.
YOU LOSE ON 3.
YOU WIN 1 TIME ON 5.
YOU'RE BEHIND $-20.
cls
HOW MANY NUMBERS DO YOU WANT TO BET ON? _
WHAT TWO NUMBERS? 1,3
WAGER ON BOTH? 10,10
.....
YOU LOSE ON 1.
YOU WIN 1 TIME ON 3.
YOU'RE BEHIND $-20.
cls
HOW MANY NUMBERS DO YOU WANT TO BET ON? _
WHAT TWO NUMBERS? 2,4
WAGER ON BOTH? 25,25
.....
YOU LOSE ON 2.
YOU LOSE ON 4.
YOU'RE BEHIND $-70.
cls
HOW MANY NUMBERS DO YOU WANT TO BET ON? _
WHAT TWO NUMBERS? 2,4
WAGER ON BOTH? 10,10
.....
YOU LOSE ON 2.
YOU WIN 1 TIME ON 4.
YOU'RE BEHIND $-70.
cls
HOW MANY NUMBERS DO YOU WANT TO BET ON? STOP_
WHAT TWO NUMBERS? 2,4
WAGER ON BOTH? 10,10
.....
YOU LOSE ON 2.
YOU WIN 1 TIME ON 4.
YOU'RE BEHIND $-70.
cls
HOW MANY NUMBERS DO YOU WANT TO BET ON? STOP
SO YOU WANT TO CASH IN YOUR CHIPS, I SEE!!!
YOU DIDN'T WIN ANY MONEY, BUT I'M WILLING TO CALL IT EVEN!!
READY
2_
cls

```

```

10 CLS: CLEAR 1000: PRINT@412, "BIG 6"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@950, "": INPUT "DO YOU NEED INSTRUCTIONS?"; I$
40 CLS: GOSUB 1040
50 IF LEFT$(I$,1) <> "Y" THEN 180
60 PRINT TAB(28) "BIG 6": PRINT
70 PRINT " THIS PROGRAM IS A DICE WHEEL GAME IN WHICH"
80 PRINT "YOU CAN BET ON ANY NUMBER BETWEEN ONE AND SIX"
90 PRINT "AND UP TO THREE NUMBERS."
100 PRINT
110 PRINT " THE HOUSE LIMIT IS FROM $1 TO $500."
120 PRINT
130 PRINT " TO END THIS PROGRAM TYPE THE WORD 'STOP' "
140 PRINT
150 PRINT "GOOD LUCK!"
160 PRINT@979, "PRESS ANY KEY TO CONTINUE";
170 IF INKEY$="" THEN 170 ELSE CLS
180 DIM S(3)
190 GOTO 210
200 PRINT "YOU CANNOT BET ON LESS THAN ONE OR MORE THAN THREE NUMBERS."
210 PRINT@0, "HOW MANY NUMBERS DO YOU WANT TO BET ON?";
220 INPUT N$: IF N$="STOP" THEN PRINT CHR$(31);: GOTO 980
230 N=VAL(N$)
240 IF N=2 THEN 400
250 IF N=3 THEN 540
260 IF N>3 OR N<1 THEN 200
270 PRINT "WHAT NUMBER?";
280 INPUT V
290 IF V<=6 OR V>=1 THEN 320
300 PRINT "YOU CAN ONLY BET ON AN INTEGER FROM ONE TO SIX."
310 GOTO 270
320 PRINT "WAGER?";
330 INPUT F
340 IF F<=500 OR F >=1 THEN 370
350 PRINT "THE HOUSE LIMIT IS FROM $1 TO $500."
360 GOTO 320
370 GOSUB 690
380 S2=V: S3=F: GOSUB 830
390 GOTO 940
400 PRINT "WHAT TWO NUMBERS?";
410 INPUT V,P
420 IF V<=6 OR V>=1 OR P<=6 OR P>=1 THEN 450
430 PRINT "YOU CAN ONLY BET ON AN INTEGER FROM ONE TO SIX."
440 GOTO 400
450 PRINT "WAGER ON BOTH?";
460 INPUT F,I
470 IF F<=500 OR F=1 OR I<=500 OR I=1 THEN 500
480 PRINT "THE HOUSE LIMIT IS FROM $1 TO $500."
490 GOTO 450
500 GOSUB 690
510 S2=V: S3=F: GOSUB 830
520 S2=P: S3=I: GOSUB 830
530 GOTO 940
540 PRINT "WHAT THREE NUMBERS?";
550 INPUT V,P,S
560 IF V<=6 OR V>=1 OR P<=6 OR P>=1 OR S<=6 OR S>=1 THEN 590
570 PRINT "YOU CAN ONLY BET ON AN INTEGER FROM ONE TO SIX."
580 GOTO 540
590 PRINT "WAGER ON EACH OF THE THREE?";
600 INPUT F,I,J
610 IF F<=500 OR F=1 OR I<=500 OR I=1 OR J<=500 OR J=1 THEN 640
620 PRINT "THE HOUSE LIMIT IS FROM $1 TO $500."
630 GOTO 590
640 GOSUB 690
650 S2=V: S3=F: GOSUB 830
660 S2=P: S3=I: GOSUB 830
670 S2=S: S3=J: GOSUB 830
680 GOTO 940
690 X=-1
700 A=INT(6*RND(0)+1): B=INT(6*RND(0)+1): C=INT(6*RND(0)+1)
710 S(1)=A: S(2)=B: S(3)=C
720 FOR Y=1 TO 2
730 FOR X=1 TO 3-Y
740 IF S(X)<=S(X+1) THEN 760
750 TE=S(X): S(X)=S(X+1): S(X+1)=TE
760 NEXT X: NEXT Y
770 FOR TX=1 TO RND(10)+10
780 PRINT@256, A$(RND(6)) " A$(RND(6)) " A$(RND(6));
790 NEXT TX
800 PRINT@256, A$(S(1)) " A$(S(2)) " A$(S(3));
810 PRINT@512, CHR$(31);
820 RETURN
830 C1=0
840 IF S2=A THEN C1=C1+1
850 IF S2=B THEN C1=C1+1
860 IF S2=C THEN C1=C1+1
870 IF C1>0 THEN 900
880 S3=S3*(-1)
890 PRINT "YOU LOSE ON"; S2: CHR$(8); " " GOTO 920
900 S2=S3*C1
910 IF C1=1 THEN PRINT "YOU WIN 1 TIME ON"; S2: CHR$(8); " "
920 W=W+S2
930 RETURN
940 IF W=0 THEN PRINT "YOU'RE EVEN!!": PRINT: GOTO 210
950 IF W>0 THEN PRINT "YOU'RE AHEAD $"; W: CHR$(8); " " PRINT: GOTO 210
960 IF W<0 THEN PRINT "YOU'RE BEHIND $"; W: CHR$(8); " " PRINT: GOTO 210
970 REM
980 PRINT: PRINT "SO YOU WANT TO CASH IN YOUR CHIPS, I SEE!!!": PRINT
990 IF W>0 THEN 1020
1000 PRINT "YOU DIDN'T WIN ANY MONEY, BUT I'M WILLING TO CALL IT EVEN!!"
1010 GOTO 1030
1020 PRINT "YOU WON EXACTLY $"; W: "!! NOT BAD !!!"
1030 END
1040 FOR A=1 TO 6: FOR B=1 TO 3: FOR D=1 TO 5: READ C
1050 A$(A)=A$(A)+CHR$(C+100): NEXT D
1060 A$(A)=A$(A)+CHR$(26)+STRING$(5,8): NEXT B
1070 A$(A)=A$(A)+STRING$(5,32)+STRING$(3,27): NEXT A
1080 DATA 28,76,88,28,28,28,28,91,28,28,28,40,43,40,28
1090 DATA 76,40,40,40,76,76,40,40,40,31,43,40,40,40,31
1100 DATA 76,40,40,40,76,28,28,40,40,79,31,40,40,40,31
1110 DATA 28,28,76,88,28,88,79,76,91,76,28,28,28,43,28
1120 DATA 88,40,40,40,40,31,31,31,88,31,40,40,40,31
1130 DATA 28,76,40,28,28,91,40,40,40,76,31,40,40,40,31
1140 RETURN

```



# Binary

This game tests your skills in binary-to-decimal and decimal-to-binary conversion. You are given twenty conversion trials. Numbers are chosen randomly and your score is printed at the end. The answer to any conversion you miss is displayed; if the next conversion is presented, you may assume you got the previous one correct.

There are several possible modifications for this program such as timing the response, allowing the user to specify the number range, checking for duplicate numbers, or extending it to other bases.

This program was written by Ted Park of Pacific Union College. It originally appeared in *Creative Computing*, Mar/Apr 1975.

BINARY  
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```

      cls
HIT ENTER TO START? _
BINARY: 00111  DECIMAL: ? 7
BINARY: 00111  DECIMAL: ? 7
BINARY: 11100  DECIMAL: ? 27  CORRECT ANSWER: 28
BINARY: 01000  DECIMAL: ? 8
BINARY: 11110  DECIMAL: ? 32  CORRECT ANSWER: 30
BINARY: 00101  DECIMAL: ? 5
BINARY: 01111  DECIMAL: ? 15
BINARY: 00101  DECIMAL: ? 5
BINARY: 00001  DECIMAL: ? 1
BINARY: 01011  DECIMAL: ? _

      cls
DECIMAL: 31  BINARY: ? 11111
DECIMAL: 11  BINARY: ? 01011
DECIMAL: 30  BINARY: ? 11110
DECIMAL: 26  BINARY: ? 11010
DECIMAL: 6   BINARY: ? 00110
DECIMAL: 15  BINARY: ? 01100  CORRECT ANSWER: 01111
DECIMAL: 9   BINARY: ? 01001
DECIMAL: 14  BINARY: ? 01110
DECIMAL: 30  BINARY: ? 11110
DECIMAL: 27  BINARY: ? 10001  CORRECT ANSWER: 11011

YOUR SCORE: 75 %
TRY AGAIN? _

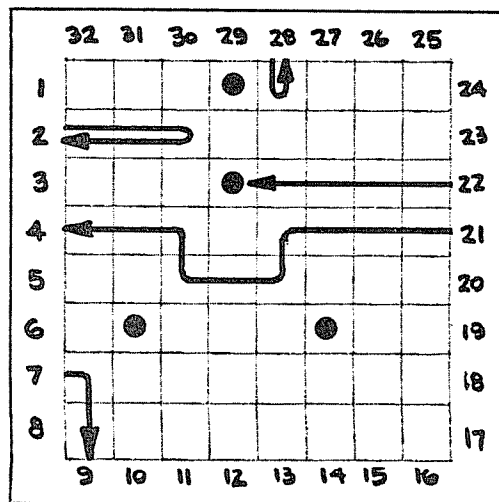
```

```

10 CLS: PRINT@413, "BINARY"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "HIT ENTER TO START"; I$
40 CLS
50 B$="01"
60 T0=20
70 FOR I=1 TO 10
80 GOSUB 480
90 P0=PEEK(16416)+PEEK(16417)*256-15360
100 PRINT "BINARY: ";
110 FOR J=1 TO 5
120 PRINT MID$(B$,B(J)+1,1);
130 NEXT J
140 PRINT "      DECIMAL: ";
150 INPUT A
160 IF A=D THEN 190
170 PRINT@P0+38, "CORRECT ANSWER: "; D
180 T0=T0-1
190 REM
200 NEXT I
210 FOR A=1 TO 500: NEXT CLS
220 FOR I=1 TO 10
230 GOSUB 480: F0=PEEK(16416)+PEEK(16417)*256-15360
240 PRINT "DECIMAL: "; D;
250 PRINT "      BINARY: ";
260 I$="00000"
270 INPUT I$
280 IF LEN(I$)>10 THEN 350
290 I$="00000"+I$
300 I$=RIGHT$(I$,5)
310 FOR J=1 TO 5
320 IF MID$(B$,B(J)+1,1)<>MID$(I$,J,1) THEN 350
330 NEXT J
340 GOTO 480
350 PRINT@P0+39, "CORRECT ANSWER: ";
360 FOR J=1 TO 5
370 PRINT MID$(B$,B(J)+1,1);
380 NEXT J: PRINT
390 T0=T0-1
400 REM
410 NEXT I
420 PRINT
430 PRINT
440 PRINT "YOUR SCORE: "; INT(T0/.2+5); "%
450 PRINT
460 INPUT "TRY AGAIN"; ANS$
470 IF LEFT$(ANS$,1)="" THEN CLS: GOTO 50 ELSE END
480 D=0
490 FOR J=1 TO 5
500 B(J)=INT(RND*.8)+5
510 D=D*2+B(J)
520 NEXT J
530 RETURN

```

# Blackbox



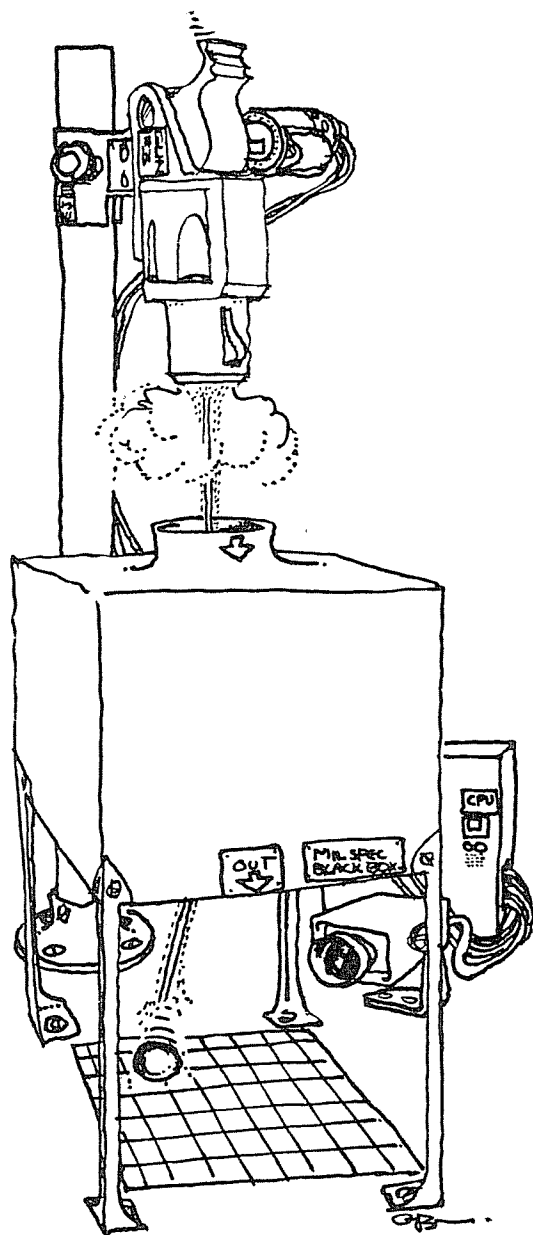
**Description:** Black Box is a computerized version of the game that appeared in the August 1977 issue of *Games and Puzzles*. The Black Box is an 8-by-8 square in which several atoms are hidden. The object of the game is to discover the positions of the atoms by projecting rays at them from the sides of the box and noticing how these rays are deflected, reflected, or absorbed. Rays enter the box across one of the four edges and travel horizontally or vertically. The entry points are numbered from 1 to 32, counterclockwise, starting at the top of the left edge.

To play the game, you first specify how many atoms to place in the Black Box. Then you type in the point at which you send the ray into the box, and you are told whether the ray was absorbed or where it emerged. Type a zero to end the game and print the board. The path of the ray is governed by the following rules:

- (1) Rays that strike an atom directly are absorbed.
- (2) Rays that come within one square of an atom in a diagonal direction (so that they would pass next to the atom if they continued) are deflected by 90 degrees.
- (3) Rays aimed between two atoms one square apart are reflected.
- (4) Rays that enter on either side of an atom on the edge of the box are reflected.
- (5) Rays otherwise travel in straight lines.

The game is pretty interesting with four or five atoms, but can get out of hand with too many more. Occasionally, an atom can be masked by others. This doesn't occur often, but sometimes the position is truly ambiguous (more often, there is only one place the atom can be). For competitive play, score one point for reflections and absorptions, two for rays which emerge from the box, and five points for each atom guessed incorrectly.

This program and description were written by Jeff Kenton. A previous version appeared in *Creative Computing*, May/June 1978.





BLACK BOX  
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----- cls -----

HIT ENTER TO START? \_

----- cls -----

NO. OF ATOMS? 2\_

----- cls -----

```

22 21 30 29 28 27 26 25
01 ..... 24
02 ..... 23
03 ..... 22
04 ..... 21 ]---- THE BLACK BOX
05 ..... 20
06 ..... 19
07 ..... 18
08 ..... 17
09 10 11 12 13 14 15 16

```

RAY? 1 ABSRD. RAY? 28 ABSRD. RAY? 11 TO 30 RAY? 6 TO 19  
RAY? 15 TO 3 RAY? 23 ABSRD. RAY? 26 ABSRD. RAY? 25 ABSRD.  
RAY? 0\_

----- cls -----

NOW TELL ME, WHERE DO YOU THINK THE ATOMS ARE?  
(IN ROW COLUMN FORMAT PLEASE.)

ATOM # 1 ? 1,5  
ATOM # 2 ? 2,8\_

----- cls -----

```

22 21 30 29 28 27 26 25
01 ..... 24
02 ..... 23
03 ..... 22
04 ..... 21 ]---- THE BLACK BOX
05 ..... 20
06 ..... 19
07 ..... 18
08 ..... 17
09 10 11 12 13 14 15 16

```

YOU GUESSED 2 OUT OF 2 ATOMS CORRECTLY!!  
YOUR SCORE FOR THIS ROUND WAS 11 POINTS.

CARE TO TRY AGAIN? NO\_

----- cls -----

```

10 CLS: PRINT@411 "BLACK BOX"
20 PRINT: PRINT T@8(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "HIT ENTER TO START?";I#
40 CLS: PRINT "NO. OF ATOMS?": INPUT N: CLS: GOSUB 560
50 FOR J=0 TO 9: FOR I=0 TO 9: B(I,J)=0: NEXT I,J
60 FOR I=1 TO N
70 X=RND(8): Y=RND(8): IF B(X,Y)>0 THEN 70
80 B(X,Y)=1: NEXT I
90 S=0: C=0
100 PO=PO+8: IF PO=960 THEN PO=11*64
110 PRINT@PO, "RAY?";CHR$(30): PO=PO+8: INPUT R: IF R<1 THEN 380
120 ON (R-1)/8+1 GOTO 140,150,160,170
130 PRINT "ERROR" GOTO 100
140 X=0: Y=R: U=1: V=0: GOTO 180
150 X=R-8: Y=9: U=0: V=-1: GOTO 180
160 Y=9: Y=25-R: U=-1: V=0: GOTO 180
170 X=33-R: Y=0: U=0: V=1
180 X1=X+U: Y1=Y+V
190 IF U=0 THEN X2=X1-1: X3=X1+1: Y2=Y1: Y3=Y1: GOTO 210
200 Y2=Y1-1: Y3=Y1+1: X2=X1: X3=X1
210 GOSUB 640: ON 8*B(X1,Y1)+8*(X2,Y2)+2*(X3,Y3)+1 GOTO 230,240,250,240
220 PRINT@PO, "ABSRD. ": S=S+1: GOTO 100
230 X=X1: Y=Y1: GOTO 280
240 Z=1: GOTO 260
250 Z=-1
260 IF U=0 THEN U=Z: V=0: GOTO 280
270 U=0: V=Z
280 ON (X+15)/8 GOTO 320,300,330
290 STOP
300 ON (Y+15)/8 GOTO 340,180,350
310 STOP
320 Z=Y: GOTO 360
330 Z=25-Y: GOTO 360
340 Z=33-X: GOTO 360
350 Z=8+X
360 IF Z=R THEN PRINT@PO, "RFLCTD. ": S=S+1: GOTO 100
370 PRINT@PO, "TO?": Z=S+2: GOTO 100
380 CLS: PRINT "NOW TELL ME, WHERE DO YOU THINK THE ATOMS ARE?"
390 PRINT "(IN ROW COLUMN FORMAT PLEASE.)"
400 FOR Q=1 TO N
410 PRINT "ATOM #":Q
420 INPUT I,J
430 IF B(J,I)=0 THEN S=S+5: GOTO 450
440 C=C+1
450 NEXT Q
460 CLS: GOSUB 560: FOR J=1 TO 8: FOR I=1 TO 8: FL=-1
470 IF B(I,J)=0 THEN 490
480 X1=I: Y1=J: GOSUB 640
490 NEXT I: NEXT J
500 PRINT@11*64, "YOU GUESSED";C;"OUT OF";N;"ATOMS CORRECTLY!!"
510 PRINT "YOUR SCORE FOR THIS ROUND WAS";S;"POINTS."
520 PRINT
530 INPUT "CARE TO TRY AGAIN?";A#
540 IF LEFT$(A#,1)="Y" THEN CLEAR: GOTO 40
550 END
560 PRINT: A#="01240223032204210520061907180817"
570 FOR L0=0 TO 7: FR#=MID$(A#,L0+4+1,2): LN#=MID$(A#,L0+4+3,2)
580 PRINT FR#;" ";CHR$(191);STRING$(23,32);CHR$(191);" ";LN#: NEXT
590 PRINT " ";CHR$(27);STRING$(23,176)
600 PRINT " 09 10 11 12 13 14 15 16"
610 PRINT@0, " ";CHR$(26);STRING$(23,131);
620 PRINT@0, " 22 31 30 29 28 27 26 25";
630 PRINT@292,CHR$(93);"---- THE BLACK BOX"; PO=11*64-8: RETURN
640 IF X1=0 OR X1=9 OR Y1=0 OR Y1=9 THEN RETURN
650 PR=PEEK(Y1*64+X1*3+1*15360): IF PR<32 THEN CR=12*PR ELSE CR=140
660 PRINT@Y1*64+X1*3+1, CHR$(CR): IF FL THEN RETURN
670 PRINT@Y1*64+X1*3+1, CHR$(PR): RETURN

```

# Bobstones

The idea for this number game was derived from a contest called "Bobstones" described in the novel *Watership Down*. The object of Bobstones is to guess three things about the roll of a pair of dice.

1. If the sum of the dice is odd or even..... 1 point
2. The sum of the dice ..... 2 points
3. The number on each of the two dice ..... 3 points

The winner is the first player to score eleven points. If a tie results, the winner is the first player to break the tie.

In this computer version of the game, you are playing against the computer. However, the computer makes its guess before the dice are "rolled." Hence, it has no real advantage over its human opponent.

This game was written by Dohn Addleman. It originally appeared in *Creative Computing* Mar/Apr 1976.

```

BOBSTONES
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ
cls
DO YOU NEED INSTRUCTIONS? YES.
cls
BOBSTONES

THIS IS A NUMBER GAME CALLED BOBSTONES. THE OBJECT OF
BOBSTONES IS TO GUESS THREE THINGS ABOUT THE ROLL OF A PAIR
OF DICE. ON EACH TURN, THE COMPUTER SIMULATES THE ROLL OF
THE DICE. THEN, YOU OR THE COMPUTER (YOUR OPPONENT) GUESS

SCORE
-----
1. IF THE SUM OF THE DICE IS ODD OR EVEN      1 POINT
2. THE SUM OF THE DICE                        2 POINTS
3. THE NUMBER ON EACH OF THE TWO DICE        3 POINTS

THE WINNER IS THE FIRST PLAYER TO SCORE 11 POINTS. IF A
TIE RESULTS, THE WINNER IS THE FIRST PLAYER TO BREAK THE TIE.
PRESS ANY KEY TO START
cls
YOU FIRST OR ME? ME
PRESS ANY KEY TO CONTINUE
cls
YOUR TURN
IS THE SUM ODD OR EVEN? ODD
SORRY, THE SUM IS 10.
PRESS ANY KEY TO CONTINUE
cls
MY TURN
*** ON THIS ROLL OF THE DICE, THE TWO NUMBERS ARE 5 AND 2.
*** THE SUM IS 7.
MY GUESS IS THAT THE SUM IS EVEN.
AM I RIGHT OR WRONG? WRONG

THE SCORE IS ME: 0 - YOU: 0.
PRESS ANY KEY TO CONTINUE
cls
YOUR TURN
IS THE SUM ODD OR EVEN? ODD
SORRY, THE SUM IS 8.
PRESS ANY KEY TO CONTINUE
cls

```

```

cls
MY TURN
*** ON THIS ROLL OF THE DICE, THE TWO NUMBERS ARE 5 AND 5.
*** THE SUM IS 10.
MY GUESS IS THAT THE SUM IS ODD.
AM I RIGHT OR WRONG? WRONG

THE SCORE IS ME: 0 - YOU: 0.
cls
YOUR TURN
IS THE SUM ODD OR EVEN? ODD
YOU ARE CORRECT.
NOW, GUESS THE SUM? 7
SORRY, THE SUM IS 9.
PRESS ANY KEY TO CONTINUE
cls
MY TURN
*** ON THIS ROLL OF THE DICE, THE TWO NUMBERS ARE 1 AND 1.
*** THE SUM IS 2.
MY GUESS IS THAT THE SUM IS ODD.
AM I RIGHT OR WRONG? WRONG

THE SCORE IS ME: 0 - YOU: 1.
PRESS ANY KEY TO CONTINUE
cls
YOUR TURN
IS THE SUM ODD OR EVEN? EVEN
YOU ARE CORRECT.
NOW, GUESS THE SUM? 6
YOU ARE CORRECT.
WHAT ARE THE TWO NUMBERS WHICH PRODUCED 6 ? 4
?? 2
SORRY, THE NUMBERS ARE 3 AND 3.
PRESS ANY KEY TO CONTINUE
cls
MY TURN
*** ON THIS ROLL OF THE DICE, THE TWO NUMBERS ARE 3 AND 4.
*** THE SUM IS 7.
MY GUESS IS THAT THE SUM IS ODD.
AM I RIGHT OR WRONG? RIGHT
MY GUESS OF THE SUM IS 7.
AM I RIGHT OR WRONG? RIGHT
MY GUESS IS THAT THE NUMBERS ARE 6 AND 1.
AM I RIGHT OR WRONG? WRONG

THE SCORE IS ME: 3 - YOU: 4.
cls

10 CLS
20 PRINT @ 411,"BOBSTONES"
30 PRINT
40 PRINT TAB(7)*"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
50 PRINT @ 960,"":
60 INPUT"DO YOU NEED INSTRUCTIONS?";I$
70 IF LEFT$(I$,1)="" THEN CLS:PRINT @ 27,"BOBSTONES":PRINT ELSE 230
80 PRINT" THIS IS A NUMBER GAME CALLED BOBSTONES. THE OBJECT OF"
90 PRINT"BOBSTONES IS TO GUESS THREE THINGS ABOUT THE ROLL OF A PAIR"
100 PRINT"OF DICE. ON EACH TURN, THE COMPUTER SIMULATES THE ROLL OF"
110 PRINT"THE DICE. THEN, YOU OR THE COMPUTER (YOUR OPPONENT) GUESS"
120 PRINT
130 PRINT"
SCORE"
-----"
140 PRINT"
150 PRINT" 1. IF THE SUM OF THE DICE IS ODD OR EVEN      1 POINT"
160 PRINT" 2. THE SUM OF THE DICE                        2 POINTS"
170 PRINT" 3. THE NUMBER ON EACH OF THE TWO DICE        3 POINTS"
180 PRINT
190 PRINT" THE WINNER IS THE FIRST PLAYER TO SCORE 11 POINTS. IF A"
200 PRINT"TIE RESULTS, THE WINNER IS THE FIRST PLAYER TO BREAK THE TIE."
210 PRINT @ 979,"PRESS ANY KEY TO START":
220 IF INKEY$="" THEN 220
230 DIM A(2)
240 A(1)=0
250 A(2)=0
260 Z1=-1
270 Z2=-1
280 Z3=-1
290 Z4=-1
300 Z5=-1
310 J1=0
320 CLS
330 PRINT"YOU FIRST OR ME?";
340 INPUT Z$
350 Z$=LEFT$(Z$,1)

```

```

360 IF Z$="Y" THEN 400
370 IF Z$="N" THEN 400
380 PRINT"/// TYPE THE WORD 'YOU' OR THE WORD 'ME' "
390 GOTO 320
400 D1=RD(6)
410 IF Z1=0 THEN 430
420 Z1=0
430 D2=RD(6)
440 S=D1+D2
450 IF J1=0 THEN 500
460 IF Z$<"M" THEN 530
470 IF J2<0 THEN 1120
480 PRINT
490 PRINT"THE SCORE IS ME:";A(2); " - YOU:";A(1); CHR$(8); " "
500 IF A(1)>=11 THEN 1920
510 IF A(2)>=11 THEN 1920
520 GOTO 610
530 IF Z$<"Y" THEN 2050
540 IF J2<1 THEN 610
550 PRINT
560 PRINT"THE SCORE IS Y:";A(1); " - ME:";A(2); CHR$(8); " "
570 IF A(1)>=11 THEN 1920
580 IF A(2)>=11 THEN 1920
590 J1=-1
600 IF Z$="Y" THEN 1120
610 PRINT @ 979,"PRESS ANY KEY TO CONTINUE";
620 IF INKEY$="" THEN 610
630 PRINT CHR$(20);CHR$(3);"YOUR TURN "
640 J2=1
650 R=S-(INT(S/2)*2)
660 PRINT"IS THE SUM ODD OR EVEN?";
670 INPUT A$
680 A$=LEFT$(A$, 1)
690 IF A$="O" THEN 730
700 IF A$="E" THEN 760
710 PRINT"/// TYPE THE WORD 'ODD' OR THE WORD 'EVEN' "
720 GOTO 660
730 IF R=1 THEN 780
740 PRINT"SORRY, THE SUM IS";S; CHR$(8); " "
750 GOTO 400
760 IF R=0 THEN 780
770 GOTO 740
780 PRINT"YOU ARE CORRECT "
790 A(1)=A(1)+1
800 PRINT"NOW GUESS THE SUM";
810 INPUT G1
820 IF G1<2 THEN 850
830 IF G1>12 THEN 850
840 GOTO 870
850 PRINT"/// THE SUM MUST BE BETWEEN 2 AND 12 "
860 GOTO 800
870 IF G1=5 THEN 900
880 PRINT"SORRY, THE SUM IS";S; CHR$(8); " "
890 GOTO 400
900 PRINT"YOU ARE CORRECT "
910 A(1)=A(1)+2
920 PRINT"WHAT ARE THE TWO NUMBERS WHICH PRODUCED";S;
930 INPUT N1, N2
940 IF N1<1 THEN 990
950 IF N2<1 THEN 990
960 IF N1>6 THEN 990
970 IF N2>6 THEN 990
980 GOTO 1010
990 PRINT"/// THE NUMBERS MUST BE BETWEEN 1 AND 6 "
1000 GOTO 920
1010 IF N1=D1 THEN 1050
1020 IF N2=D1 THEN 1070
1030 PRINT"SORRY, THE NUMBERS ARE";D1;"AND";D2; CHR$(8); " "
1040 GOTO 400
1050 IF N2=D2 THEN 1090
1060 GOTO 1030
1070 IF N1=D2 THEN 1090
1080 GOTO 1030
1090 PRINT"YOU ARE CORRECT "
1100 A(1)=A(1)+3
1110 GOTO 400
1120 J2=0
1130 PRINT @ 979,"PRESS ANY KEY TO CONTINUE";
1140 IF INKEY$="" THEN 1140
1150 CLS
1160 PRINT"MY TURN "

1170 PRINT"*** ON THIS ROLL OF THE DICE, THE TWO NUMBERS ";
1180 PRINT"ARE";D1;"AND";D2; CHR$(8); " "
1190 PRINT"*** THE SUM IS";S; CHR$(8); " "
1200 A1=INT(2*RD(6))+1
1210 IF Z2=0 THEN 1230
1220 Z2=0
1230 IF A1=1 THEN 1260
1240 PRINT"MY GUESS IS THAT THE SUM IS ODD."
1250 GOTO 1270
1260 PRINT"MY GUESS IS THAT THE SUM IS EVEN."
1270 PRINT"AM I RIGHT OR WRONG?";
1280 INPUT D$
1290 D$=LEFT$(D$, 1)
1300 IF D$="R" THEN 1340
1310 IF D$="W" THEN 400
1320 PRINT"/// TYPE THE WORD 'RIGHT' OR THE WORD 'WRONG' "
1330 GOTO 1270
1340 A(2)=A(2)+1
1350 IF A1=1 THEN 1410
1360 B1=INT(5*RD(6))+1
1370 IF Z3=0 THEN 1390
1380 Z3=0
1390 B2=B1+B1+1
1400 GOTO 1430
1410 B1=RD(6)
1420 B2=B1+B1
1430 PRINT"MY GUESS OF THE SUM IS";B2; CHR$(8); " "
1440 PRINT"AM I RIGHT OR WRONG?";
1450 INPUT D$
1460 D$=LEFT$(D$, 1)
1470 IF D$="R" THEN 1510
1480 IF D$="W" THEN 400
1490 PRINT"/// TYPE THE WORD 'RIGHT' OR THE WORD 'WRONG' "
1500 GOTO 1440
1510 A(2)=A(2)+2
1520 IF B2<2 THEN 1560
1530 C1=1
1540 C2=1
1550 GOTO 1820
1560 IF B2<3 THEN 1600
1570 C1=1
1580 C2=2
1590 GOTO 1820
1600 IF B2<11 THEN 1640
1610 C1=5
1620 C2=6
1630 GOTO 1820
1640 IF B2<12 THEN 1680
1650 C1=6
1660 C2=6
1670 GOTO 1820
1680 IF B2<7 THEN 1750
1690 K1=B2-1
1700 C1=INT(K1*RD(6))+1
1710 IF Z4=0 THEN 1730
1720 Z4=0
1730 C2=B2-C1
1740 GOTO 1820
1750 K1=B2-6
1760 K3=K1-1
1770 K2=7-K1
1780 C1=(INT(K2*RD(6))+1)+K3)
1790 IF Z5=0 THEN 1810
1800 Z5=0
1810 C2=B2-C1
1820 PRINT"MY GUESS IS THAT THE NUMBERS ARE";C1;"AND";C2; CHR$(8); " "
1830 PRINT"AM I RIGHT OR WRONG?";
1840 INPUT D$
1850 D$=LEFT$(D$, 1)
1860 IF D$="R" THEN 1900
1870 IF D$="W" THEN 400
1880 PRINT"/// TYPE THE WORD 'RIGHT' OR THE WORD 'WRONG' "
1890 GOTO 1820
1900 A(2)=A(2)+3
1910 GOTO 400
1920 IF A(1)<A(2) THEN 1950
1930 IF J2<0 THEN 1120
1940 GOTO 610
1950 IF A(1)>A(2) THEN 2060
1960 PRINT
1970 PRINT"I WIN! ANOTHER GAME";

1980 INPUT C$
1990 C$=LEFT$(C$, 1)
2000 IF C$="Y" THEN 240
2010 IF C$="N" THEN 2040
2020 PRINT"/// TYPE THE WORD 'YES' OR THE WORD 'NO' "
2030 GOTO 1980
2040 PRINT"SEE YOU LATER "
2050 END
2060 PRINT
2070 PRINT"YOU WIN! ANOTHER GAME";
2080 GOTO 1980

```

# Bocce

This program simulates the Italian game of Bocce also called "lawn bowls" or just "bowls."

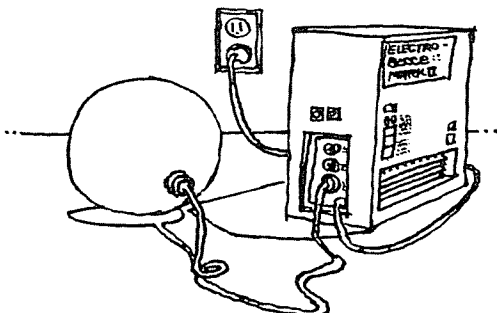
The instructions starting at the line 1280 explain the game.

This is the four-ball version (Q=5). Allowing more balls in the game (raising Q) will increase central processing time since the chances of collision will rise and the resulting position of each ball has to be recomputed. However, the delay is short and we routinely play six to eight balls. Increasing Q beyond 9 will require redimensioning the arrays at line 80.

It is important to remember that the object is to get close to the jack and not to hit it. Upon collision, the jack will move off more quickly than a ball because it is smaller and lighter. A careless shot can turn a good game into a disaster.

It requires some imagination to play the game well. It goes best if you imagine that you are standing at coordinates 0,0 and are looking out along the X-axis.

This game and the description above were written by Victor Bendall of Eastern Kentucky University. It originally appeared in *Creative Computing*, Jul/Aug 1977.



BOCCE  
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```

_____ cls _____
DO YOU NEED INSTRUCTIONS? YES.
_____ cls _____

IN THIS GAME YOU ROLL 4 BALLS SUCCESSIVELY AT A TARGET
BALL (CALLED A JACK). THE OBJECT IS TO GET THE BALLS AS CLOSE
TO THE JACK AS POSSIBLE. THE BALLS ARE 10 CM. IN DIAMETER AND
ARE WEIGHTED SO THAT THEY ROLL IN A CURVE. YOU WILL HAVE TO
ROLL THEM AT AN ANGLE TO THE LINE FROM YOU AT COORDINATES 0,0
TO THE JACK AT COORDINATES X,Y. A POSITIVE ANGLE WILL MAKE
THE BALL CURVE CLOCKWISE. A NEGATIVE ANGLE WILL MAKE IT CURVE
ANTI-CLOCKWISE. THE JACK IS 4 CM. WIDE AND WILL ROLL
STRAIGHT IF YOU HIT IT. BALLS HIT BY YOUR THROWN BALL MAY
CURVE IN EITHER DIRECTION.

HINT. TRY AN INITIAL VELOCITY OF 500 AND AN ANGLE OF 10.
PRESS ANY KEY TO CONTINUE
_____ cls _____
THE JACK IS LOCATED AT 2624,-21.

BALL 1
_____
VELOCITY? 500
ANGLE? 56. _____ cls _____

BALL VELOCITY = 2.07064
JACK AT COORDINATES 2624,-21.
BALL 1 AT COORDINATES 2434,-495 IT IS 503.662 FROM THE JACK

YECH! OVER 16 FEET AWAY!
SHORT AND TO THE RIGHT.

BALL 2
_____
VELOCITY? 500
ANGLE? 51. _____ cls _____

BALL VELOCITY = 2.07064
JACK AT COORDINATES 2624,-21.
BALL 1 AT COORDINATES 2434,-495 IT IS 503.662 FROM THE JACK
BALL 2 AT COORDINATES 2434,-495 IT IS 503.662 FROM THE JACK

YECH! OVER 16 FEET AWAY!
SHORT AND TO THE RIGHT.

BALL 3
_____
VELOCITY? 520
ANGLE? 60. _____ cls _____

BALL VELOCITY = 2.35058
JACK AT COORDINATES 2624,-21.
BALL 1 AT COORDINATES 2434,-495 IT IS 503.662 FROM THE JACK
BALL 2 AT COORDINATES 2434,-495 IT IS 503.662 FROM THE JACK
BALL 3 AT COORDINATES 2633,-535 IT IS 507.079 FROM THE JACK

YECH! OVER 16 FEET AWAY!
LONG AND TO THE RIGHT.

BALL 4
_____
VELOCITY? 5
ANGLE? 5. _____ cls _____

BALL VELOCITY = .0700002
JACK AT COORDINATES 2624,-21.
BALL 1 AT COORDINATES 2434,-495 IT IS 503.662 FROM THE JACK
BALL 2 AT COORDINATES 2434,-495 IT IS 503.662 FROM THE JACK
BALL 3 AT COORDINATES 2633,-535 IT IS 507.079 FROM THE JACK
BALL 4 AT COORDINATES 0,-1 IT IS 2617.00 FROM THE JACK

YECH! OVER 85 FEET AWAY!
SHORT AND TO THE LEFT.

THE TOTAL DISTANCE OF ALL BALLS FROM THE JACK IS 503.662 CM.
DON'T PLAY THIS GAME FOR MONEY!!

CARE TO TRY AGAIN? NO.
_____ cls _____

```

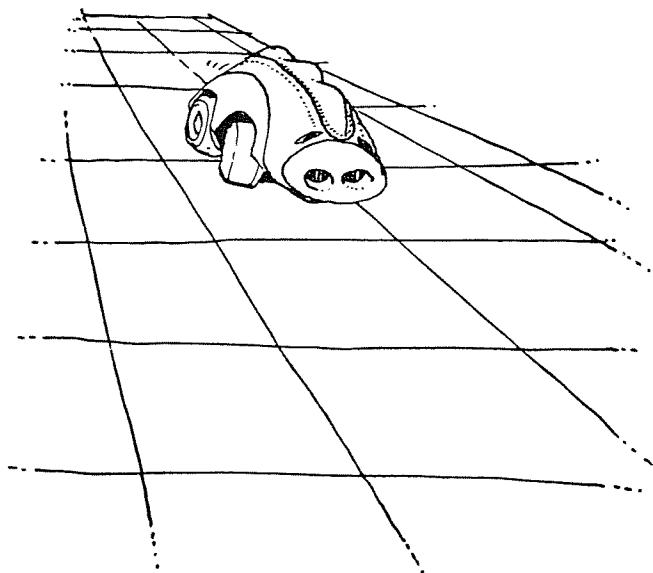
```

10 CLS
20 PRINT @ 413, "BOUCE"
30 PRINT
40 PRINT TAB(7)*"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ"
50 PRINT @ 960, "":
60 INPUT "DO YOU NEED INSTRUCTIONS?"; I$
70 GZ=5
80 DIM B!(9), B1!(9), D (9), V!(9), X!(9), Y!(9)
90 IF LEFT$(I$, 1) = "Y" THEN GOSUB 1270
100 P1=3.14159
110 S1=0
120 S2=0
130 A1=-49.3
140 XZ(1)=INT(2030+700*ND(8))
150 YZ(1)=INT(203-400*ND(8))
160 CLS
170 PRINT "THE JACK IS LOCATED AT"; XZ(1); CHR$(8); ", "; YZ(1); CHR$(8); ", "
180 PRINT
190 FOR PZ=2 TO GZ
200 JZ=PZ
210 GOSUB 960
220 NEXT PZ
230 FOR JZ=2 TO 9
240 D1=D1+D!(JZ)
250 NEXT JZ
260 PRINT
270 PRINT "THE TOTAL DISTANCE OF ALL BALLS FROM THE JACK IS";
280 PRINT D1; "CM "
290 IF D1<GZ/2 THEN PRINT "MAGNIFICENT BOWLING! WHAT AN EYE!!"
300 IF D1<GZ/2 THEN 370
310 IF D1<2*GZ/2 THEN PRINT "EXCELLENT, BUT COULD BE BETTER."; GOTO 370
320 IF D1<3*GZ/2 THEN PRINT "GOOD, BUT NEEDS SOME IMPROVEMENT."; GOTO 370
330 IF D1<4*GZ/2 THEN PRINT "FAIR - YOU NEED MORE PRACTICE."; GOTO 370
340 IF D1<5*GZ/2 THEN PRINT "POOR - TRY TO BE MORE CONSISTENT."; GOTO 370
350 IF D1<6*GZ/2 THEN PRINT "YOUR GAME NEEDS LOTS OF WORK."; GOTO 370
360 PRINT "DON'T PLAY THIS GAME FOR MONEY!!"
370 FOR JZ=1 TO GZ
380 B!(JZ)=0
390 B1!(JZ)=0
400 D!(JZ)=0
410 V!(JZ)=0
420 X!(JZ)=0
430 Y!(JZ)=0
440 NEXT JZ
450 PRINT
460 INPUT "WANT TO TRY AGAIN?"; Y$
470 PRINT
480 IF LEFT$(Y$, 1) = "Y" THEN 110
490 GOTO 1430
500 K1Z=-20
510 IF JZ=1 THEN K1Z=0
520 A1=A1+COS(B!(JZ))*H1Z+COS((P1/2)+B!(JZ))
530 A2=A1+SIN(B!(JZ))*H1Z+SIN((P1/2)+B!(JZ))
540 S3=V!(JZ)+COS(B!(JZ))*05+L25E-03*A1
550 S4=V!(JZ)+SIN(B!(JZ))*05+L25E-03*A2
560 B!(JZ)=ATN((V!(JZ)+SIN(B!(JZ))*05)/(V!(JZ)+COS(B!(JZ))*05))
570 IF B1!(JZ)<0 THEN S1=S1-S4!
580 S5=S1+S2!
590 S6=S2+S4!
600 IF JZ=1 THEN 620
610 IF ABS(S5!-X!(1))<7 AND ABS(S6!-Y!(1))<7 THEN K2=1: GOSUB 940
620 FOR KZ=2 TO GZ
630 IF KZ=JZ OR KZ(KZ)=4 THEN 650
640 IF ABS(S5!-X!(KZ))<3 AND ABS(S6!-Y!(KZ))<3 THEN GOSUB 850
650 NEXT KZ
660 PRINT @ 0, "BALL VELOCITY =" V!(JZ)
670 IF V!(JZ)<ABS(A1*05) THEN 730
680 V!(JZ)=V!(JZ)+(A1*05)
690 S1=S5!
700 S2=S6!
710 GOTO 500
720 GOTO 500

730 XZ(JZ)=XZ(JZ)+S5!
740 YZ(JZ)=YZ(JZ)+S6!
750 S1=0
760 S2=0
770 S5=0
780 S6=0
790 FOR LZ=1 TO GZ
800 IF V!(LZ)>ABS(A1*05) THEN JZ=LZ: GOTO 500
810 B!(LZ)=0
820 V!(LZ)=0
830 NEXT LZ
840 GOTO 1070
850 B!(KZ)=ATN((V!(KZ)-S2!)/(XZ(KZ)-S1!))
860 PRINT CHR$(7);
870 IF JZ=1 THEN V!(JZ)=V!(JZ)/5
880 V!(JZ)=ABS(V!(JZ)+SIN(B!(JZ)-B!(KZ)))
890 V!(KZ)=ABS(V!(JZ)+COS(B!(JZ)-B!(KZ)))
900 B!(JZ)=((P1/2)+B!(KZ))
910 S5=S1!
920 S6=S2!
930 IF KZ=1 THEN V!(KZ)=5*V!(KZ)
940 IF JZ=1 THEN V!(JZ)=5*V!(JZ)
950 RETURN
960 PRINT "BALL"; (JZ-1)
970 PRINT "-----"
980 INPUT "VELOCITY"; V!(JZ)
990 V!(JZ)=ABS(V!(JZ))
1000 IF V!(JZ)>1000 THEN PRINT "VELOCITY TOO HIGH."; GOTO 980
1010 INPUT "ANGLE"; B1!(JZ)
1020 CLS
1030 IF ABS(B1!(JZ))>89 THEN PRINT "ANGLE TOO BIG."; GOTO 500
1040 PRINT
1050 B!(JZ)=ABS(B!(JZ)+P1/180)
1060 GOTO 500
1070 PRINT "JACK AT COORDINATES"; XZ(1); CHR$(8); ", "; YZ(1); CHR$(8); ", "
1080 FOR HZ=2 TO FZ
1090 D1=(SQR((YZ(1)-YZ(HZ))^2+(XZ(1)-XZ(HZ))^2))-7
1100 D!(HZ)=D1
1110 IF D1<0 THEN D!(HZ)=0
1120 PRINT "BALL"; (HZ-1); "AT COORDINATES"; XZ(HZ); CHR$(8); ", "; YZ(HZ);
1130 PRINT "IT IS"; D!(HZ); "FROM THE JACK"
1140 NEXT HZ
1150 PRINT
1160 IF D!(PZ)<10 THEN PRINT TAB(15); "EXCELLENT SHOT! "; GOTO 1210
1170 IF D!(PZ)<20 THEN PRINT TAB(15); "GOOD SHOOTING! "; GOTO 1210
1180 IF D!(PZ)<30 THEN PRINT TAB(15); "NICE TRY! "; GOTO 1210
1190 IF D!(PZ)>500 THEN PRINT TAB(5); "VECH! OVER"; INT(D!(PZ)/30.48);
1200 IF D!(PZ)>500 THEN PRINT "FEET AWAY!"
1210 IF XZ(PZ)>XZ(1) THEN PRINT "LONG AND ";
1220 IF XZ(PZ)<XZ(1) THEN PRINT "SHORT AND ";
1230 IF YZ(PZ)>YZ(1) THEN PRINT "TO THE LEFT."
1240 IF YZ(PZ)<YZ(1) THEN PRINT "TO THE RIGHT."
1250 PRINT
1260 RETURN
1270 CLS
1280 PRINT "IN THIS GAME YOU ROLL"; GZ-1; "BALLS SUCCESSIVELY AT A TARGET"
1290 PRINT "BALL (CALLED A JACK). THE OBJECT IS TO GET THE BALLS AS CLOSE"
1300 PRINT "TO THE JACK AS POSSIBLE. THE BALLS ARE 10 CM. IN DIAMETER AND"
1310 PRINT "ARE WEIGHTED SO THAT THEY ROLL IN A CURVE. YOU WILL HAVE TO"
1320 PRINT "ROLL THEM AT AN ANGLE TO THE LINE FROM YOU AT COORDINATES 0,0"
1330 PRINT "TO THE JACK AT COORDINATES X,Y. A POSITIVE ANGLE WILL MAKE"
1340 PRINT "THE BALL CURVE CLOCKWISE. A NEGATIVE ANGLE WILL MAKE IT CURVE"
1350 PRINT "ANTI-CLOCKWISE. THE JACK IS 4 CM. WIDE AND WILL ROLL"
1360 PRINT "STRAIGHT IF YOU HIT IT. BALLS HIT BY YOUR THROWN BALL MAY"
1370 PRINT "CURVE IN EITHER DIRECTION "
1380 PRINT
1390 PRINT "HINT. TRY AN INITIAL VELOCITY OF 500 AND AN ANGLE OF 10."
1400 PRINT @ 979, "PRESS ANY KEY TO CONTINUE";
1410 IF INKEY$="" THEN 1410
1420 RETURN
1430 END

```

# Boga II



A Boga is a bogus animal or mythical beast in the Hurkle family. Like a Hurkle, the Boga hides on a grid with dimensions up to 16 by 16. It sends out clues that tell you which direction to move from where you are to where it is. However, one major difference between a Boga and a Hurkle is the Boga is also seeking you out at the same time you are looking for it. You don't have to tell it which directions to go after each of its guesses to get closer to you. It apparently has a very good nose and can tell on its own. However, it plays fairly and gives you the first guess, and then it takes its guess. Guesses continue alternately until one or the other, human or boga, find the opposing player. At the beginning of the game, you may print out the grid if you wish to make your guessing job slightly easier. Remember, directions in this game correspond to the diagram; that is, north is up and east is to the right.

This game was created by David Strickler.

N  
W                  E  
S

BOGA II  
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cls

DO YOU NEED INSTRUCTIONS? YES\_

cls

THE BOGA IS HIDING ON A GRID (YOU SPECIFY THE LENGTH AND WIDTH). TRY TO GUESS HIS POSITION USING THE HINTS I GIVE YOU. EACH GUESS IS TWO NUMBERS SEPARATED BY A COMMA. PLEASE KEEP IN MIND THAT THE BOGA IS ALSO SEARCHING FOR YOU!!!!

HOW BIG SHOULD THE GRID BE (12 MAXIMUM)? 10\_

cls

```

      1
    0 1 2 3 4 5 6 7 8 9 0
0 *****
1 *****
2 *****
3 *****
4 ***** ]--- THE GRID
5 *****
6 *****
7 *****
8 *****
9 *****
10 *****

```

cls

CHOOSE YOUR POSITION? 4,7  
THE BOGA PICKS HIS POSITION!  
GUESS # 1 ? 7,7\_

cls

YOU GUESSED 7 , 7.

HE'S MORE TO THE WEST.  
THE BOGA GUESSES 5 , 5.

GUESS # 2 ? 7,5\_

cls

YOU GUESSED 7 , 5.

HE'S MORE TO THE WEST.  
THE BOGA GUESSES 4 , 7.

THE BOGA GUESSED YOUR POSITION IN 2 GUESS(ES)!

THE BOGA WAS AT 7 , 4.

DO YOU WANT TO PLAY AGAIN? YES  
HOW BIG SHOULD THE GRID BE (12 MAXIMUM)? 5\_

cls

```

    0 1 2 3 4 5
0 *****
1 *****
2 *****
3 ***** ]--- THE GRID
4 *****
5 *****

```

cls

CHOOSE YOUR POSITION? 2,4  
THE BOGA PICKS HIS POSITION!  
GUESS # 1 ? 5,5\_

cls

YOU GUESSED 5 , 5.

HE'S MORE TO THE NORTHWEST.  
THE BOGA GUESSES 2 , 2.

GUESS # 2 ? 2,2\_

cls

YOU GUESSED 2 , 3.

HE'S MORE TO THE WEST.  
THE BOGA GUESSES 2 , 4.

THE BOGA GUESSED YOUR POSITION IN 2 GUESS(ES)!

THE BOGA WAS AT 2 , 2.

DO YOU WANT TO PLAY AGAIN? NO\_

cls



```

10 CLS: PRINT#413, "BOGA II"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 CLEAR 300: PRINT#960, "": INPUT "DO YOU NEED INSTRUCTIONS?"; I$
40 IF LEFT$(I$,1) <> "Y" THEN CLS: GOTO 120
50 CLS: PRINT#29, "BOGA I": PRINT
60 PRINT "THE BOGA IS HIDING ON A GRID (YOU SPECIFY THE LENGTH"
70 PRINT "AND WIDTH). TRY TO GUESS HIS POSITION USING THE HINTS"
80 PRINT "I GIVE YOU. EACH GUESS IS TWO NUMBERS SEPARATED BY"
90 PRINT "A COMMA. PLEASE KEEP IN MIND THAT THE BOGA IS ALSO"
100 PRINT "SEARCHING FOR YOU!!!!"
110 PRINT: PRINT
120 U=0
130 K=1
140 F=0
150 INPUT "HOW BIG SHOULD THE GRID BE (12 MAXIMUM)"; G
160 IF G>12 OR G<1 THEN PRINT: GOTO 150
170 S=G
180 REM: PRINTS THE GRID
190 CLS
200 A$=""
210 IF G<10 THEN 270
220 FOR X=10 TO G
230 X1=INT(X/10)
240 A$=A$+CHR$(X1+48)+""
250 NEXT X
260 PRINT TAB(25); A$
270 A$=""
280 FOR X=0 TO G
290 X1=X-INT(X/10)*10
300 A$=A$+CHR$(X1+48)+""
310 NEXT X
320 PRINT TAB(5); A$
330 A$=""
340 FOR X=0 TO G
350 A$=A$+"* "
360 NEXT X
370 FOR X=0 TO G
380 PRINT USING "##"; X; : PRINT TAB(5); A$
390 NEXT X
400 PRINT#INT(X/2+1)*64+1, CHR$(92); "—— THE GRID";
410 FOR TI=1 TO 2500: NEXT CLS
420 H=1
430 INPUT "CHOOSE YOUR POSITION"; X1,Y1
440 IF X1>G OR X1<0 OR Y1>G OR Y1<0 THEN PRINT: GOTO 430
450 PRINT "THE BOGA PICKS HIS POSITION!"
460 X2=INT(RND(8)*G)
470 Y2=INT(RND(8)*G)
480 PRINT "GUESS #"; K;
490 INPUT X3,Y3: CLS
500 IF X3>G OR X3<0 OR Y3>G OR Y3<0 THEN PRINT: GOTO 480
510 K=K+1
520 F=F+1
530 IF K=10 THEN 1030
540 IF ABS(X3-X2)+ABS(Y3-Y2)=0 THEN 1000
550 PRINT "YOU GUESSED "X ", "Y3; CHR$(8); ", "
560 PRINT
570 PRINT "HE'S MORE TO THE ";

580 IF X2=X3 THEN 630
590 IF X2>X3 THEN 620
600 PRINT "NORTH";
610 GOTO 630
620 PRINT "SOUTH";
630 IF Y2=Y3 THEN 690
640 IF Y2>Y3 THEN 670
650 PRINT "WEST";
660 GOTO 690
670 PRINT "EAST";
680 REM: LINES 700-970 AND 1110-1150=BOGA'S GUESSING FORMULA
690 PRINT "": IF H=0 THEN 720
700 X4=INT(.5*S)
710 Y4=INT(.5*S)
720 PRINT "THE BOGA GUESSES "X4", "Y4; CHR$(8); ", "
730 U=U+1
740 PRINT ""
750 Q=ABS(Y1-Y4)+ABS(X1-X4)
760 IF Q=0 THEN 970
770 H=0
780 IF Y4=Y1 THEN 870
790 A=1
800 IF ABS(Y4-Y1)/Q THEN 820
810 GOSUB 1120
820 IF Y4<Y1 THEN 850
830 Y4=INT(ABS(Y4-1))
840 GOTO 870
850 Y4=INT(ABS(Y4+1))
860 IF Y4>G THEN 1030
870 IF X4=X1 THEN 960
880 A=1
890 IF ABS(X4-X1)/Q THEN 910
900 GOSUB 1120
910 IF X4<X1 THEN 940
920 X4=INT(ABS(X4-1))
930 GOTO 960
940 X4=INT(ABS(X4+1))
950 IF X4>G THEN 1110
960 GOTO 480
970 PRINT "THE BOGA GUESSED YOUR POSITION IN "U"GUESSES!"
980 PRINT
990 GOTO 1040
1000 PRINT "YOU GUESSED THE BOGA'S POSITION IN "F"GUESSES!"
1010 PRINT
1020 GOTO 1040
1030 PRINT "YOU USED UP ALL OF YOUR GUESSES."
1040 PRINT "THE BOGA WAS AT "X2", "Y2; CHR$(8); ", "
1050 PRINT
1060 INPUT "DO YOU WANT TO PLAY AGAIN?"; Q$
1070 IF LEFT$(Q$,1) <="Y" THEN 120
1080 GOTO 1140
1090 Y4=.5*G
1100 GOTO 870
1110 X4=.5*G
1120 A=2
1130 RETURN
1140 END

```

# Bombrun

Bomb Run is an extremely accurate simulation of an aircraft dropping a bomb on a very small target. You may specify whether the aircraft is climbing, diving, and the angle in degrees. You may specify speed in feet per second; you may also specify at what point you wish to drop the bomb. The program gives you four passes over the target.

A perfect hit is possible but extremely difficult to achieve. A hit within 300 feet of the target is considered "threatening" while hits outside of that range may be considered a negative commentary on your knowledge of physics.

This program was originally written by Jim Prelesnik.

This program uses TRS-80 graphics which do not reproduce well on a line printer. Therefore the sample run does not give a true representation of the program. The only way this program can be truly appreciated is to run it.

BOMB RUN  
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cls  
DO YOU NEED INSTRUCTIONS? Y\_

cls  
YOU HAVE THE OPTION OF MAKING FOUR PASSES OVER THE TARGET WITH THE ABILITY TO DROP A BOMB ONCE DURING EACH OF THESE PASSES. ALTITUDE CHANGES MAYBE MADE THROUGH THE 'CLIMB/DIVE' COMMAND BY PRINTING 'CLIMB' OR 'DIVE', FOLLOWED BY A COMMA AND THE DESTRED ANGLE (IN DEGREES). NEW VELOCITIES (RANGING FROM 300 TO 900 FEET PER SECOND) MAY BE INPUT AFTER THE 'AIRSPEED' QUESTION MARK. 'CLIMB/DIVE' ANGLES, VARYING FROM 0 TO 15 DEGREES, WILL ADD AS SPECIFIED BY 'CLIMB' OR 'DIVE' COMMANDS TO YIELD A NET INCLINATION/DECLINATION ANGLE BETWEEN 0 TO 60 DEGREES, CLIMBING OR DIVING. A MINIMUM ALTITUDE OF 100 FEET MUST ALSO BE MAINTAINED. WILLFULLY EXCEEDING ANY OF THE MAX./MIN. SPECS WILL RESULT IN THE CRASH OF YOUR BOMBER. ALSO, A BOMB PRESS ANY KEY TO CONTINUE

cls  
COMMAND OF 'DROP' DURING A DIVE WILL GIVE YOUR BOMB AN INITIAL DOWNWARD VELOCITY, SHORTENING THE DROP TIME, AS A 'CLIMB' COMMAND WILL LENGTHEN THIS TIME. THE BOMB WILL BE LAUNCHED IMMEDIATELY FOLLOWING THE MOST RECENT 'STATS' READ-OUT UPON 'DROP' COMMAND, AND WILL BE HELD FOR FURTHER POSITIONING INFORMATION UPON THE COMMAND 'STAND BY'. THE TARGET IS 1 FOOT IN DIAMETER. GOOD LUCK!

PRESS ANY KEY TO CONTINUE

cls  
ELAPSED TIME..... 0 SECONDS VELOCITY..... 746.899 FT/SEC  
PRESENT ANGLE..... LEVEL 0 DEG ALTITUDE..... 118.821 FEET  
RESULTANT ANGLE... 0 DEG LEVEL DISTANCE FROM SITE... 4500 FEET  
ETA..... 6.0249 SEC  
BOMB COMMAND? STAND BY\_

cls

cls  
ELAPSED TIME..... 0 SECONDS VELOCITY..... 746.899 FT/SEC  
PRESENT ANGLE..... LEVEL 0 DEG ALTITUDE..... 118.821 FEET  
RESULTANT ANGLE... 0 DEG LEVEL DISTANCE FROM SITE... 4500 FEET  
ETA..... 6.0249 SEC

MAINTAIN RESULTANT ANGLE? YES\_ STANDING BY.

cls  
ELAPSED TIME..... 0 SECONDS VELOCITY..... 746.899 FT/SEC  
PRESENT ANGLE..... LEVEL 0 DEG ALTITUDE..... 118.821 FEET  
RESULTANT ANGLE... 0 DEG LEVEL DISTANCE FROM SITE... 4500 FEET  
ETA..... 6.0249 SEC

AIRSPEED? 800\_

cls  
ELAPSED TIME..... 1 SECOND VELOCITY..... 800.000 FT/SEC  
PRESENT ANGLE..... LEVEL 0 DEG ALTITUDE..... 118.821 FEET  
RESULTANT ANGLE... 0 DEG LEVEL DISTANCE FROM SITE... 3700 FEET  
ETA..... 4.6250 SEC

BOMB COMMAND? STAND BY\_

cls  
ELAPSED TIME..... 1 SECOND VELOCITY..... 800.000 FT/SEC  
PRESENT ANGLE..... LEVEL 0 DEG ALTITUDE..... 118.821 FEET  
RESULTANT ANGLE... 0 DEG LEVEL DISTANCE FROM SITE... 3700 FEET  
ETA..... 4.6250 SEC

MAINTAIN RESULTANT ANGLE? NO\_ STANDING BY.

cls  
ELAPSED TIME..... 1 SECOND VELOCITY..... 800.000 FT/SEC  
PRESENT ANGLE..... LEVEL 0 DEG ALTITUDE..... 118.821 FEET  
RESULTANT ANGLE... 0 DEG LEVEL DISTANCE FROM SITE... 3700 FEET  
ETA..... 4.6250 SEC

'CLIMB/DIVE' COMMAND? CLIMB,10\_

cls  
ELAPSED TIME..... 1 SECOND VELOCITY..... 800.000 FT/SEC  
PRESENT ANGLE..... LEVEL 0 DEG ALTITUDE..... 118.821 FEET  
RESULTANT ANGLE... 0 DEG LEVEL DISTANCE FROM SITE... 3700 FEET  
ETA..... 4.6250 SEC

AIRSPEED? 600\_

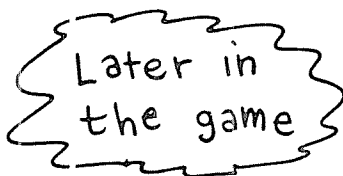
cls  
ELAPSED TIME..... 2 SECONDS VELOCITY..... 600.000 FT/SEC  
PRESENT ANGLE..... CLIMB 10 DEG ALTITUDE..... 223.009 FEET  
RESULTANT ANGLE 10 DEG CLIMBING DISTANCE FROM SITE... 3109 FEET  
ETA..... 5.2618 SEC

BOMB COMMAND? DROP\_

cls  
ELAPSED TIME..... 2 SECONDS VELOCITY..... 600.000 FT/SEC  
PRESENT ANGLE..... CLIMB 10 DEG ALTITUDE..... 223.009 FEET  
RESULTANT ANGLE 10 DEG CLIMBING DISTANCE FROM SITE... 3109 FEET  
ETA..... 5.2618 SEC

BOMB DROPPED.  
TIME TO EXPLOSION... 8.16732 SECONDS

cls



```
.....
ELAPSED TIME..... 2 SECONDS VELOCITY..... 600.000 FT/SEC
PRESENT ANGLE.... CLIMB 10 DEG ALTITUDE..... 223.009 FEET
RESULTANT ANGLE 10 DEG CLIMBING DISTANCE FROM SITE... 3109 FEET
ETA..... 5.2618 SEC
```

THE BOMB LANDED 171.83 FEET BEYOND THE TARGET'S CENTER.  
YOU HAVE THUS FAR COMPLETED 1 RUN. WOULD YOU LIKE TO  
MAKE ANOTHER PASS? L  
DURING YOUR 1-PASS BOMB RUN, YOU FAILED TO EVEN  
THREATEN THE TARGET WITH A HIT. BETTER LUCK NEXT TIME.

LOOK OVER THE PHYSICS LAWS GOVERNING FALLING BODIES,  
AND RETURN TO PLAY AGAIN SOON.

----- cls -----

```
10 CLS: CLEAR 500: OR$=STRING$(5,140)+CHR$(143)
20 F$="###.##"
30 PRINT#412, "BOMB RUN"
40 PRINT: PRINT TAB(7); "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
50 PRINT#960, "": INP$="DO YOU NEED INSTRUCTIONS?"; I$
60 X$=3000
70 IF LEFT$(I$,1)="Y" THEN 80 ELSE GOTO 330
80 CLS: PRINT TAB(20); "BOMB RUN": PRINT
90 PRINT "YOU HAVE THE OPTION OF MAKING FOUR PASSES OVER THE TARGET"
100 PRINT "WITH THE ABILITY TO DROP A BOMB ONCE DURING EACH OF"
110 PRINT "THESE PASSES! ALTITUDE CHANGES MAY BE MADE THROUGH THE"
120 PRINT "'CLIMB/DIVE' COMMAND BY PRINTING 'CLIMB' OR 'DIVE', FOLLOWING"
130 PRINT "THE PROMPT BY A COMMA AND THE DESIRED ANGLE (IN DEGREES). NEW"
140 PRINT "VELOCITIES RANGING FROM 300 TO 900 FEET PER SECOND MAY"
150 PRINT "BE INPUT AFTER THE 'AIRSPEED' QUESTION MARK. 'CLIMB/DIVE'"
160 PRINT "ANGLES, VARYING FROM 0 TO 15 DEGREES, WILL ADD AS SPEC-"
170 PRINT "IFIED BY 'CLIMB' OR 'DIVE' COMMANDS TO YIELD A NET INCLIN-"
180 PRINT "ATION/DECLINATION ANGLE BETWEEN 0 TO 60 DEGREES, CLIMBING"
190 PRINT "OR DIVING. A MINIMUM ALTITUDE OF 100 FEET MUST ALSO BE"
200 PRINT "MAINTAINED. WILLFULLY EXCEEDING ANY OF THE MAX/MIN SPECS"
210 PRINT "WILL RESULT IN THE CRASH OF YOUR BOMBER. ALSO, A BOMB"
220 PRINT#979, "PRESS ANY KEY TO CONTINUE":
230 IF INKEY$="" THEN 30 ELSE PRINT #128, CHR$(31);
240 PRINT "COMMAND OF DROP DURING A DIVE WILL GIVE YOUR BOMB AN"
250 PRINT "INITIAL DOWNWARD VELOCITY, SHORTENING THE DROP TIME, AS A"
260 PRINT "'CLIMB' COMMAND WILL LENGTHEN THIS TIME. THE BOMB WILL BE"
270 PRINT "LAUNCHED IMMEDIATELY FOLLOWING THE MOST RECENT 'STATS' READ-"
280 PRINT "OUT UPON 'DROP' COMMAND, AND WILL BE HELD FOR FURTHER"
290 PRINT "POSITIONING INFORMATION UPON THE COMMAND 'STAND BY' THE"
300 PRINT "TARGET IS 1 FOOT IN DIAMETER. GOOD LUCK!": PRINT: PRINT
310 PRINT#979, "PRESS ANY KEY TO CONTINUE":
320 IF INKEY$="" THEN 20 ELSE CLS
330 CLS: Z1=1000
340 Z2=1000
350 Z3=1000
360 Z4=1000
370 PRINT#448, STRING$(64,176): PRINT#448, CHR$(188); CHR$(191); CHR$(188);
380 R=R+1
390 W1=0
400 X2=0
410 W3=0
420 W4=0
430 T=0
440 R1=0
450 A=0
460 V1=RND(0)
470 V=V1*1000
480 IF V<300 OR V>900 THEN 460
490 V1=RND(0)
500 V=V1*500
510 IF V<100 THEN 490
520 X=4500
530 E=X/V
540 GOTO 1340
550 W1=0
```

```
560 W2=0
570 W3=0
580 W4=0
590 PRINT#832, "BACK COMMAND"; CHR$(31);
600 INPUT C$
610 IF LEFT$(C$,1)="S" THEN 620 ELSE IF LEFT$(C$,1)="D" THEN 1630
620 PRINT#864, "STANDING BY. ";
630 GOTO 670
640 A=A-R1
650 T=T-1
660 GOTO 700
670 PRINT#832, "MAINTAIN RESULTANT ANGLE";
680 INPUT P$
690 IF LEFT$(P$,1)="N" THEN 700 ELSE IF LEFT$(P$,1)="Y" THEN 1050
700 PRINT#832, "'CLIMB/DIVE' COMMAND"; CHR$(31);
710 INPUT A$, R1
720 IF R1<0 THEN 750
730 IF R1>15 THEN 790
740 GOTO 850
750 PRINT#832, "ANGLE INPUT MUST BE POSITIVE. IF NECESSARY, CHANGE THE"
760 PRINT "'DIVE' COMMAND TO 'CLIMB', OR VICE VERSA."
770 FOR I=1 TO 2000: NEXT: PRINT#832, CHR$(31)
780 GOTO 700
790 W1=W1+1
800 IF W1=2 THEN 2210
810 PRINT#832, "YOUR BOMBER CANNOT TOLERATE THE STRESS CAUSED BY ANGLE"
820 PRINT "INPUTS EXCEEDING 15 DEGREES. RECONSIDER YOUR CHOICE."
830 FOR I=1 TO 2000: NEXT: PRINT#832, CHR$(31)
840 GOTO 700
850 IF LEFT$(A$,1)="C" THEN 870
860 R1=-R1
870 A=A+R1
880 IF A<-60 THEN 910
890 IF A>60 THEN 980
900 GOTO 1060
910 W2=W2+1
920 IF W2=2 THEN 2250
930 PRINT#832, "YOUR PRESENT 'DIVE' COMMAND WILL EXCEED THE MAXIMUM RE-"
940 PRINT "SULTANT DIVE ANGLE OF 60 DEGREES, CAUSING AN IRREVERSIBLE"
950 PRINT "NOSEDIVE. RECONSIDER YOUR CHOICE.";
960 FOR I=1 TO 2000: NEXT: PRINT#832, CHR$(31)
970 GOTO 640
980 W3=W3+1
990 IF W3=2 THEN 2290
1000 PRINT#832, "YOUR PRESENT 'CLIMB' COMMAND WILL EXCEED THE MAXIMUM RE-"
1010 PRINT "SULTANT CLIMB ANGLE OF 60 DEGREES, CAUSING YOUR ENGINES"
1020 PRINT "TO FAIL AND YOUR PLANE TO CRASH. RECONSIDER YOUR CHOICE";
1030 FOR I=1 TO 2000: NEXT: PRINT#832, CHR$(31)
1040 GOTO 640
1050 REM
1060 PRINT#832, "AIRSPEED"; CHR$(31);
1070 INPUT V
1080 IF V>900 THEN 1110
1090 IF V<300 THEN 1150
1100 GOTO 1210
1110 PRINT#832, "YOUR BOMBER ISN'T CAPABLE OF ATTAINING THAT VELOCITY."
1120 PRINT "INPUT AN AIRSPEED LESS THAN 900 FEET PER SECOND.";
1130 FOR I=1 TO 2000: NEXT: PRINT#832, CHR$(31)
1140 GOTO 1060
1150 W4=W4+1
1160 IF W4=2 THEN 2330
1170 PRINT#832, "IF YOUR VELOCITY ISN'T INCREASED IMMEDIATELY, YOUR BOMBER"
1180 PRINT "WILL FALL TO EARTH AND BE DESTROYED.";
1190 FOR I=1 TO 2000: NEXT: PRINT#832, CHR$(31)
1200 GOTO 1060
1210 T=T+1
1220 B=A*3.14159/180
1230 Y=V*V*SIN(B)
1240 IF V>180 THEN 1310
1250 W5=W5+1
1260 IF W5=2 THEN 2370
1270 PRINT#832, "IF YOUR ALTITUDE ISN'T INCREASED IMMEDIATELY TO A MIN-"
1280 PRINT "IMUM OF 100 FEET, A CRASH IS IMMINENT.";
1290 FOR I=1 TO 2000: NEXT: PRINT#832, CHR$(31)
1300 GOTO 640
1310 X=X-V*COS(B)
1320 IF X<0 THEN 2420
1330 E=X/(V*COS(B))
1340 IF NOT(T=1) THEN 1370
1350 PRINT#512, "ELAPSED TIME..... 1 SECOND"
1360 GOTO 1380
```

```

1370 PRINT#512, "": PRINT USING "ELAPSED TIME..... ### SECONDS";T
1380 IF NOT(R1=0) THEN 1410
1390 PRINT#576, "PRESENT ANGLE.....LEVEL 0 DEG"
1400 GOTO 1450
1410 IF R#="CLIMB" THEN 1440
1420 PRINT#576, "": PRINT USING "PRESENT ANGLE.....DIVE ## DEG";-R1
1430 GOTO 1450
1440 PRINT#576, "": PRINT USING "PRESENT ANGLE.....CLIMB ## DEG";R1
1450 IF R0 THEN 1490
1460 IF R0 THEN 1510
1470 PRINT#640, "RESULTANT ANGLE... 0 DEG LEVEL"
1480 GOTO 1520
1490 PRINT#640, "": PRINT USING "RESULTANT ANGLE. ## DEG DIVING";-R1
1500 GOTO 1520
1510 PRINT#640, "": PRINT USING "RESULTANT ANGLE ## DEG CLIMBING";A
1520 PRINT#544, "": PRINT USING "VELOCITY..... ### ## FT/SEC";V;
1530 PRINT#608, "": PRINT USING "ALTITUDE..... ### ## FEET";V;
1540 PRINT#672, "": PRINT USING "DISTANCE FROM SITE... ### ## FEET";X;
1550 PRINT#00, STRING$(6,32);
1560 XX=INT(7-INT(V/100))*64+INT(X/100)+1: IF XX<0 THEN 1580
1570 PRINT#XX, CR$: 00=XX: GOTO 1600
1580 PRINT#15, "YOUR AIRCRAFT IS OFF OUR RADAR": FOR TI=1 TO 1500: NEXT
1590 PRINT#0, CHR$(30)
1600 PRINT#784, "": PRINT USING "ETA..... ### ## SEC";E
1610 PRINT
1620 GOTO 550
1630 PRINT#832, "BOMB DROPPED.": CHR$(31)
1640 T3=(50R((V*SIN(B))I2+64.4*V)+V*SIN(B))/32.2
1650 PRINT "TIME TO EXPLOSION.. ": T3: "SECONDS": X4=X
1660 X=X-V*COS(B)*T3
1670 X=INT(X*100)/100
1680 ON ERROR GOTO 1730: IF X$ABS(X5) THEN X5=ABS(X5): OR=4
1690 FOR TI=0 TO T3 STEP .3: AL=((32.2*TI-V*SIN(B))I2-(V*SIN(B))I2)/64.4
1700 D1=X4-V*COS(B)*TI: AL=INT(AL/10): AL=AL/10: D1=INT(D1/100)
1710 AL=Y-AL*100: AL=AL/100: RESET(1+00*2,24-0A*3): SET(1+D1*2,24-AL*3)
1720 00=D1: 0A=AL: NEXT: IF D1<0 OR 0A<0 THEN 1790 ELSE 1740
1730 RESUME 1720
1740 00=D1*2+1: 0A=24-AL*3: SET(00,0A-1): SET(00+1,0A-1)
1750 SET(00+1,0A): SET(00,0A-2): SET(00+2,0A-2)
1760 SET(00+2,0A): SET(00,0A): FOR X$=1 TO 40: NEXT
1770 RESET(00,0A-1): RESET(00+1,0A-1): RESET(00+1,0A): RESET(00,0A-2)
1780 RESET(00+2,0A-2): RESET(00+2,0A): RESET(00,0A)
1790 IF X<.5 THEN 1830
1800 IF X>.5 THEN 1850
1810 PRINT#832, "CONGRATULATIONS, YOU SCORED A PERFECT HIT."
1820 GOTO 2150
1830 PRINT#832, "THE BOMB LANDED*;-X: FEET BEYOND THE TARGET'S CENTER."
1840 GOTO 1860
1850 PRINT#832, "THE BOMB LANDED*;X: FEET IN FRONT OF THE TARGET'S CENTER."
1860 IF R=1 THEN 1900
1870 IF R=2 THEN 1920
1880 IF R=3 THEN 1940
1890 IF R=4 THEN 1960
1900 Z1=ABS(X)
1910 GOTO 2480
1920 Z2=ABS(Y)
1930 GOTO 2500
1940 Z3=ABS(X)
1950 GOTO 2520
1960 Z4=ABS(X)
1970 Z1=Z10(1):Z2=Z10(2):Z3=Z10(3):Z4=Z10(4)
1980 FOR I=1 TO 1500: NEXT
1990 FOR M=1 TO 4
2000 FOR M1=4 TO 1 STEP-1
2010 IF Z10(M)<Z10(M1) THEN Z10(M)=X5
2020 IF M=M1 AND M=1 THEN 2040
2030 NEXT M1
2040 NEXT M
2050 PRINT
2060 IF X$<= 300 THEN 2120
2070 CLS: PRINT "DURING YOUR": R: CHR$(8): "-PASS BOMBRUN, YOU FAILED TO EVEN"
2080 PRINT "THREATEN THE TARGET WITH A HIT. BETTER LUCK NEXT TIME."
2090 IF LEFT$(R$,1)="N" THEN 2670
2100 GOTO 2160
2110 GOTO 2690
2120 CLS: PRINT "DURING YOUR": R: CHR$(8): "-PASS BOMBRUN, YOU MANAGED TO STRIKE"
2130 PRINT "WITHIN": X$: "FEET OF THE TARGET.":
2140 PRINT
2150 IF R#="NO" THEN 2670
2160 PRINT "WOULD YOU LIKE TO RELOAD AND PLAY AGAIN":
2170 INPUT R#
2180 IF LEFT$(R$,1)="Y" THEN 2190 ELSE GOTO 2670
2190 R=0
2200 GOTO 330
2210 CLS: PRINT "YOU TORE THE WINGS OFF OF YOUR BOMBER BY EXCEEDING THE"
2220 PRINT "MAXIMUM ANGLE INPUT OF 15 DEGREES. NEXT TIME TAKE MY ADVICE."
2230 H=1
2240 GOTO 1970
2250 CLS: PRINT "THE STEEP DIVE ANGLE DESIRED CAUSED AN IRREVERSIBLE NOSE-"
2260 PRINT "DIVE, RESULTING IN THE DESTRUCTION OF YOUR BOMBER."
2270 H=1
2280 GOTO 1970
2290 CLS: PRINT "THE ENGINES OF YOUR BOMBER FAILED WHILE CLIMBING THE"
2300 PRINT "STEEP ANGLE INPUT DURING YOUR ANGLE COMMAND OPPORTUNITY."
2310 H=1
2320 GOTO 1970
2330 CLS: PRINT "THE VELOCITY OF YOUR BOMBER WAS INSUFFICIENT TO SUPPORT"
2340 PRINT "ITS WEIGHT, AND CONSEQUENTLY IT CRASHED."
2350 H=1
2360 GOTO 1970
2370 CLS: PRINT "YOUR BOMBER FAILED TO MAINTAIN THE LOW ALTITUDE YOU DE-"
2380 PRINT "SIRED AND SOON CRASHED."
2390 PRINT "BETTER LUCK NEXT TIME."
2400 H=1
2410 GOTO 1970
2420 CLS: PRINT "YOUR BOMBER JUST PASSED UP THE TARGET, AND NEEDLESS TO"
2430 PRINT "SAY, YOU NO LONGER THREATEN ITS EXISTANCE."
2440 PRINT
2450 IF R=2 THEN 2500
2460 IF R=3 THEN 2520
2470 IF R=4 THEN 1970
2480 Q$="SECOND"
2490 GOTO 2530
2500 Q$="THIRD"
2510 GOTO 2530
2520 Q$="FOURTH AND FINAL"
2530 IF R0 THEN 2570
2540 PRINT "YOU HAVE THUS FAR COMPLETED 1 RUN. WOULD YOU LIKE TO"
2550 PRINT "MAKE ANOTHER PASS":
2560 GOTO 2590
2570 PRINT "YOU HAVE THUS FAR COMPLETED": R: "RUNS. WOULD YOU LIKE TO"
2580 PRINT "MAKE ANOTHER PASS":
2590 INPUT R#
2600 IF LEFT$(R$,1)="Y" THEN 2610 ELSE IF LEFT$(R$,1)="N" THEN 1970
2610 CLS
2620 PRINT "YOUR PLANE HAS CIRCLED, AND IS NOW IN POSITION TO MAKE"
2630 PRINT "ITS ": Q$: "PASS.": PRINT
2640 PRINT "ENTER 'RETURN' WHEN YOU ARE READY. ":
2650 IF INKEY#="" THEN 2650
2660 CLS: GOTO 370
2670 PRINT: PRINT "LOOK OVER THE PHYSICS LAWS GOVERNING FALLING BODIES,"
2680 PRINT "AND RETURN TO PLAY AGAIN SOON."
2690 END

```

# Bridge-It

Bridge-it is a two-player pencil and paper logic game. One player is represented by X's, the other by O's. The X's and O's are arranged in an alternating grid pattern so that X's may be joined to one another by a line without crossing an O and O's may be joined to one another without crossing an X. The object of the game is for the X's to draw a line from the top to the bottom of the board. The O's must connect a continuous chain from the right to the left of the board. Players move alternately and may go any place on the grid. Any two of your symbols,

either X's or O's, may be connected together on a given move.

In this particular version of the game, the computer is your opponent. The computer plays the X's and you play the O's. The computer moves first, which gives it a very slight advantage. If you find it is too formidable an opponent you may wish to modify the program to allow the player to move first. At any point during the game you may ask for a printout of the board and see how the play is progressing.

This program was written by Michael Kass, Miles Barel, and Alan Segal.

```

      BRIDGE IT
COPYRIGHT : 1979 CREATIVE COMPUTING MORRISTOWN, NJ

      cls
DO YOU NEED INSTRUCTIONS? YES.

      cls

THE OBJECT OF THIS GAME IS FOR YOU TO GO FROM THE LEFT
COLUMN TO THE RIGHT COLUMN BY CONNECTING THE O'S. THE
COMPUTER MUST GO FROM THE TOP TO THE BOTTOM BY CONNECTING
THE X'S.
YOU MAKE YOUR MOVES BY TYPING IN THE COORDINATES (X, Y) OR
(COLUMN, ROW) OF THE 'O' YOU WISH TO MOVE FROM AFTER THE
COMPUTER TYPES:
YOUR MOVE FROM
AND BY TYPING IN THE COORDINATES OF THE 'O' YOU WISH TO MOVE
TO AFTER THE COMPUTER TYPES:
TO?
  
```

PRESS ANY KEY TO CONTINUE

```

      cls
YOU CAN MOVE EITHER VERTICALLY OR HORIZONTALLY, BUT NOT
DIAGONALLY. YOU CANNOT MOVE VERTICALLY IN EITHER THE FIRST
COLUMN OR THE THIRTEENTH COLUMN. THE COMPUTER WILL MOVE FIRST.
  
```

NOTE. ALL MOVES MUST BE ENTERED IN AS A TWO DIGIT NUMBER  
SUCH AS:

02,04 (FOR 2,4 ETC.)

PRESS ANY KEY TO CONTINUE

```

      cls
      1 2 3 4 5 6 7 8 9 10 11 12 13
13 X X X X X X X X X
12 O O O O O O O O O
11 X X X X X X X X X
10 O O O O O O O O O
9 X X X X X X X X X
8 O O O O O O O O O
7 X X X X X X X X X
6 O O O O O O O O O
5 X X X X X X X X X
4 O O O O O O O O O
3 X X X X X X X X X
2 O O O O O O O O O
1 X X X X X X X X X

YOUR MOVE FROM ---> 01,04 TO ---> 03,04
I MOVE FROM 2,1 TO 2,3
  
```

```

      cls
      1 2 3 4 5 6 7 8 9 10 11 12 13
13 X X X X X X X X X
12 O O O O O O O O O
11 X X X X X X X X X
10 O O O O O O O O O
9 X X X X X X X X X
8 O O O O O O O O O
7 X X X X X X X X X
6 O O O O O O O O O
5 X X X X X X X X X
4 O O O O O O O O O
3 X X X X X X X X X
2 O O O O O O O O O
1 X X X X X X X X X

YOUR MOVE FROM ---> 03,02 TO ---> 03,04
I MOVE FROM 4,1 TO 4,5
      cls
  
```

```

      cls
      1 2 3 4 5 6 7 8 9 10 11 12 13
13 X X X X X X X X X
12 O O O O O O O O O
11 X X X X X X X X X
10 O O O O O O O O O
9 X X X X X X X X X
8 O O O O O O O O O
7 X X X X X X X X X
6 O O O O O O O O O
5 X X X X X X X X X
4 O O O O O O O O O
3 X X X X X X X X X
2 O O O O O O O O O
1 X X X X X X X X X
  
```

INVALID MOVE -- TRY AGAIN

I MOVE FROM 4,1 TO 4,3

```

      cls
      1 2 3 4 5 6 7 8 9 10 11 12 13
13 X X X X X X X X X
12 O O O O O O O O O
11 X X X X X X X X X
10 O O O O O O O O O
9 X X X X X X X X X
8 O O O O O O O O O
7 X X X X X X X X X
6 O O O O O O O O O
5 X X X X X X X X X
4 O O O O O O O O O
3 X X X X X X X X X
2 O O O O O O O O O
1 X X X X X X X X X
  
```

YOUR MOVE FROM ---> 03,06 TO ---> 05,06

I MOVE FROM 4,1 TO 4,3

```

      cls
      1 2 3 4 5 6 7 8 9 10 11 12 13
13 X X X X X X X X X
12 O O O O O O O O O
11 X X X X X X X X X
10 O O O O O O O O O
9 X X X X X X X X X
8 O O O O O O O O O
7 X X X X X X X X X
6 O O O O O O O O O
5 X X X X X X X X X
4 O O O O O O O O O
3 X X X X X X X X X
2 O O O O O O O O O
1 X X X X X X X X X
  
```

YOUR MOVE FROM ---> 05,04 TO ---> 05,06

I MOVE FROM 6,5 TO 6,7

```

      cls
      1 2 3 4 5 6 7 8 9 10 11 12 13
13 X X X X X X X X X
12 O O O O O O O O O
11 X X X X X X X X X
10 O O O O O O O O O
9 X X X X X X X X X
8 O O O O O O O O O
7 X X X X X X X X X
6 O O O O O O O O O
5 X X X X X X X X X
4 O O O O O O O O O
3 X X X X X X X X X
2 O O O O O O O O O
1 X X X X X X X X X
  
```

```

      cls
      1 2 3 4 5 6 7 8 9 10 11 12 13
13   X   X   X   X   X   X   X   X
12  0   0   0   0   0   0   0   0   0
11   X   X   X   X   X   X   X   X
10  0   0   0   0   0   0   0   0   0
9    X   X   X   X   X   X   X   X
8    0   0   0   0   0   0   0   0   0
7    X   X   X   X   X   X   X   X
6    0   0   0   0   0   0   0   0   0
5    X   X   X   X   X   X   X   X
4    0   0   0   0   0   0   0   0   0
3    X   X   X   X   X   X   X   X
2    0   0   0   0   0   0   0   0   0
1    X   X   X   X   X   X   X   X
YOUR MOVE FROM ---> 05,08      TO ---> 07,08
I MOVE FROM 6 , 3 TO 6 , 5

```

```

      cls
      1 2 3 4 5 6 7 8 9 10 11 12 13
13   X   X   X   X   X   X   X   X
12  0   0   0   0   0   0   0   0   0
11   X   X   X   X   X   X   X   X
10  0   0   0   0   0   0   0   0   0
9    X   X   X   X   X   X   X   X
8    0   0   0   0   0   0   0   0   0
7    X   X   X   X   X   X   X   X
6    0   0   0   0   0   0   0   0   0
5    X   X   X   X   X   X   X   X
4    0   0   0   0   0   0   0   0   0
3    X   X   X   X   X   X   X   X
2    0   0   0   0   0   0   0   0   0
1    X   X   X   X   X   X   X   X
YOUR MOVE FROM ---> 07,10      TO ---> 09,10
I MOVE FROM 8 , 7 TO 8 , 9

```

```

      cls
      1 2 3 4 5 6 7 8 9 10 11 12 13
13   X   X   X   X   X   X   X   X
12  0   0   0   0   0   0   0   0   0
11   X   X   X   X   X   X   X   X
10  0   0   0   0   0   0   0   0   0
9    X   X   X   X   X   X   X   X
8    0   0   0   0   0   0   0   0   0
7    X   X   X   X   X   X   X   X
6    0   0   0   0   0   0   0   0   0
5    X   X   X   X   X   X   X   X
4    0   0   0   0   0   0   0   0   0
3    X   X   X   X   X   X   X   X
2    0   0   0   0   0   0   0   0   0
1    X   X   X   X   X   X   X   X
YOUR MOVE FROM ---> 09,08      TO ---> 09,10
I MOVE FROM 10 , 9 TO 10 , 11

```

```

      cls
      1 2 3 4 5 6 7 8 9 10 11 12 13
13   X   X   X   X   X   X   X   X
12  0   0   0   0   0   0   0   0   0
11   X   X   X   X   X   X   X   X
10  0   0   0   0   0   0   0   0   0
9    X   X   X   X   X   X   X   X
8    0   0   0   0   0   0   0   0   0
7    X   X   X   X   X   X   X   X
6    0   0   0   0   0   0   0   0   0
5    X   X   X   X   X   X   X   X
4    0   0   0   0   0   0   0   0   0
3    X   X   X   X   X   X   X   X
2    0   0   0   0   0   0   0   0   0
1    X   X   X   X   X   X   X   X
YOUR MOVE FROM ---> 07,06      TO ---> 07,08
I MOVE FROM 10 , 7 TO 10 , 9

```

```

      cls
      1 2 3 4 5 6 7 8 9 10 11 12 13
13   X   X   X   X   X   X   X   X
12  0   0   0   0   0   0   0   0   0
11   X   X   X   X   X   X   X   X
10  0   0   0   0   0   0   0   0   0
9    X   X   X   X   X   X   X   X
8    0   0   0   0   0   0   0   0   0
7    X   X   X   X   X   X   X   X
6    0   0   0   0   0   0   0   0   0
5    X   X   X   X   X   X   X   X
4    0   0   0   0   0   0   0   0   0
3    X   X   X   X   X   X   X   X
2    0   0   0   0   0   0   0   0   0
1    X   X   X   X   X   X   X   X
YOUR MOVE FROM ---> 09,12      TO ---> 11,12
I MOVE FROM 8 , 5 TO 8 , 7 9

```

```

      cls
      1 2 3 4 5 6 7 8 9 10 11 12 13
13   X   X   X   X   X   X   X   X
12  0   0   0   0   0   0   0   0   0
11   X   X   X   X   X   X   X   X
10  0   0   0   0   0   0   0   0   0
9    X   X   X   X   X   X   X   X
8    0   0   0   0   0   0   0   0   0
7    X   X   X   X   X   X   X   X
6    0   0   0   0   0   0   0   0   0
5    X   X   X   X   X   X   X   X
4    0   0   0   0   0   0   0   0   0
3    X   X   X   X   X   X   X   X
2    0   0   0   0   0   0   0   0   0
1    X   X   X   X   X   X   X   X
YOUR MOVE FROM ---> 09,12      TO ---> 11,12
I WIN!!!!

```

```

      cls
10 CLS: PRINT@411, "BRIDGE IT"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "DO YOU NEED INSTRUCTIONS?"; I$
40 I=I-2
50 IF LEFT$(I$,1)="N" THEN CLS: GOTO 290
60 CLS: PRINT TAB(26); "BRIDGE IT": PRINT
70 PRINT " THE OBJECT OF THIS GAME IS FOR YOU TO GO FROM THE LEFT"
80 PRINT " COLUMN TO THE RIGHT COLUMN BY CONNECTING THE O'S. THE"
90 PRINT " COMPUTER MUST GO FROM THE TOP TO THE BOTTOM BY CONNECTING"
100 PRINT " THE X'S."
110 PRINT " YOU MAKE YOUR MOVES BY TYPING IN THE COORDINATES (X, Y) OR"
120 PRINT " (COLUMN, ROW) OF THE 'O' YOU WISH TO MOVE FROM AFTER THE"
130 PRINT " COMPUTER TYPES:"
140 PRINT " YOUR MOVE FROM?"
150 PRINT " AND BY TYPING IN THE COORDINATES OF THE 'O' YOU WISH TO MOVE"
160 PRINT " TO AFTER THE COMPUTER TYPES:"
170 PRINT " TO?"
180 PRINT@979, "PRESS ANY KEY TO CONTINUE":
190 IF INKEY$="" THEN 190 ELSE PRINT@128, CHR$(31);
200 PRINT "YOU CAN MOVE EITHER VERTICALLY OR HORIZONTALLY, BUT NOT"
210 PRINT "DIAGONALLY. YOU CANNOT MOVE VERTICALLY IN EITHER THE FIRST"
220 PRINT "COLUMN OR THE THIRTEENTH COLUMN. THE COMPUTER WILL MOVE FIRST."
230 PRINT
240 PRINT "NOTE: ALL MOVES MUST BE ENTERED IN AS A TWO DIGIT NUMBER"
250 PRINT "SUCH AS:"
260 PRINT " 02,04 (FOR 2,4 ETC.)
270 PRINT@979, "PRESS ANY KEY TO CONTINUE":
280 IF INKEY$="" THEN 280 ELSE CLS
290 DIM X(20,20)
300 DIM O(20,20)

```

```

310 DIM T(20,20)
320 FOR X=1 TO 13 STEP 2
330 FOR Y=2 TO 12 STEP 2
340 O(X,Y)=1
350 X(Y,X)=1
360 NEXT Y
370 NEXT X
380 CLS: PRINT TAB(10);: FOR A=1 TO 13: PRINT USING "###"; A;
390 NEXT: PRINT: FOR A=13 TO 1 STEP -2: PRINT TAB(8);
400 PRINT USING "## X";A;: FOR A1=1 TO 5: PRINT" X";
410 NEXT A1: PRINT: PRINT TAB(8);: IF A=1 THEN 440
420 PRINT USING "## G";A-1;: FOR A1=1 TO 6: PRINT" O";
430 NEXT A1: PRINT
440 NEXT A
450 IF E<5 THEN 470
460 GOTO 2490
470 GOSUB 1010: REM COMPUTER MOVE
480 GOSUB 670: REM COMPUTER WIN SUBROUTINE
490 IF E=5 THEN 450
500 GOSUB 2180: REM PLAYER WIN SUBROUTINE
510 PRINT@96; "YOUR MOVE FROM ---> "; CHR$(30);
520 F=0: FOR X9=1 TO 8 STEP -1
530 A$=INKEY$: IF A$="" THEN 530
540 F=F+VAL(A$)*10/X9: PRINT A$;: NEXT X9: PRINT"; "
550 G=0: FOR X9=1 TO 8 STEP -1
560 A$=INKEY$: IF A$="" THEN 560
570 G=G+VAL(A$)*10/X9: PRINT A$;: NEXT X9
580 PRINT@920; "TO ---> "; CHR$(30);
590 F1=0: FOR X9=1 TO 8 STEP -1
600 A$=INKEY$: IF A$="" THEN 600
610 F1=F1+VAL(A$)*10/X9: PRINT A$;: NEXT X9: PRINT"; "
620 G1=0: FOR X9=1 TO 8 STEP -1
630 A$=INKEY$: IF A$="" THEN 630
640 G1=G1+VAL(A$)*10/X9: PRINT A$;: NEXT X9
650 GOSUB 1590: REM ERROR AND CHANGE BOARD SUBROUTINE
660 GOTO 450
670 REM WIN SUBROUTINE -----
680 REM FIRST TEST
690 FOR H=1 TO 11 STEP 2
700 J=12
710 IF O(H,J)=3 THEN 740
720 NEXT H
730 GOTO 1000
740 FOR I=1 TO 11 STEP 2
750 J=2
760 IF O(I,J)=3 THEN 790
770 NEXT I
780 GOTO 1000
790 REM OTHER TESTS
800 J=J+2
810 IF J=12 THEN 970
820 IF O(I,J)=3 THEN 900
830 IF O(I+1,J+1)=2 THEN 920
840 IF I-1<0 THEN 870
850 IF O(I-1,J-1)=2 THEN 950
860 IF X(I+1,J+1)=2 THEN 920
870 IF I-1<0 THEN 1000
880 IF X(I-1,J-1) THEN 920
890 GOTO 770
900 J=J+2
910 GOTO 810
920 J=J
930 I=I+2
940 GOTO 810
950 J=J
960 GOTO 1000
970 PRINT@960; "I WIN!!!"; CHR$(30);
980 GOTO 2490
990 E=5
1000 RETURN
1010 REM COMPUTER MOVE SUBROUTINE -----
1020 B=B+1
1030 IF B>1 THEN 1080
1040 O(1,2)=3: PRINT@783; CHR$(143);
1050 PRINT@960; "I MOVE FROM 2,1 TO 2,3";
1060 B1=B+1
1070 IF B1>1 THEN 1260
1080 FOR C=3 TO 11 STEP 2
1090 T(C,C+1)=1
1100 T(C-2,C+1)=1
1110 GOTO 1160

```

```

1120 NEXT C
1130 T(2,3)=3
1140 T(7,12)=2
1150 GOTO 1260
1160 FOR Q=C+3 TO 12 STEP 2
1170 T(C-2,Q)=2
1180 T(C-1,Q+1)=2
1190 T(C-1,Q-1)=2
1200 NEXT Q
1210 FOR S=C TO 3 STEP -2
1220 T(C-1,S)=3
1230 T(C,S-1)=3
1240 NEXT S
1250 GOTO 1120
1260 IF F>F1 THEN 1320
1270 IF F<F1 THEN 1290
1280 IF G>G1 THEN 1320
1290 X=F
1300 Y=G
1310 GOTO 1340
1320 X=F1
1330 Y=G1
1340 IF T(X,Y)=0 THEN 1580
1350 IF F<F1 THEN 1370
1360 ON T(X-1,Y+1) GOTO 1380,1450,1520
1370 ON T(X,Y) GOTO 1380,1450,1520
1380 IF X=Y-1 THEN 1420
1390 O(X+2,Y)=3: PRINT@14-Y)*64+15+(X+1)*3, CHR$(143);
1400 PRINT@960; "I MOVE FROM "; X+3; ", "; Y-1; "TO "; X+3; ", "; Y+1;
1410 GOTO 1580
1420 O(X-2,Y)=3: PRINT@14-Y)*64+15+(X-3)*3, CHR$(143);
1430 PRINT@960; "I MOVE FROM "; X-1; ", "; Y-1; "TO "; X-1; ", "; Y+1;
1440 GOTO 1580
1450 IF X(X-1,Y+1)=3 THEN 1490
1460 X(X+1,Y-1)=2: PRINT@15-Y)*64+14+X*3, STRING$(3,140);
1470 PRINT@960; "I MOVE FROM "; X+1; ", "; Y-1; "TO "; X+3; ", "; Y-1;
1480 GOTO 1580
1490 O(X-2,Y+2)=3: PRINT@12-Y)*64+15+(X-3)*3, CHR$(143);
1500 PRINT@960; "I MOVE FROM "; X-1; ", "; Y+1; "TO "; X-1; ", "; Y+3;
1510 GOTO 1580
1520 IF X(X-1,Y+1)=3 THEN 1560
1530 X(X-1,Y+1)=2: PRINT@13-Y)*64+14+(X-2)*3, STRING$(3,140);
1540 PRINT@960; "I MOVE FROM "; X-1; ", "; Y+1; "TO "; X+1; ", "; Y+1;
1550 GOTO 1580
1560 O(X,Y)=3: PRINT@14-Y)*64+15+(X-1)*3, CHR$(143);
1570 PRINT@960; "I MOVE FROM "; X+1; ", "; Y-1; "TO "; X+1; ", "; Y+1;
1580 RETURN
1590 F=INT(F): G=INT(G): G1=INT(G1): F1=INT(F1)
1600 IF F<F1 THEN 1650
1610 IF F=1 THEN 2000
1620 IF F=13 THEN 2000
1630 IF F1=13 THEN 2000
1640 IF G=G1 THEN 2000
1650 IF F/2=INT(F/2) THEN 2000
1660 IF F>13 THEN 2000
1670 IF G>12 THEN 2000
1680 IF G/2<INT(G/2) THEN 2000
1690 IF F<INT(F) THEN 2000
1700 IF F<1 THEN 2000
1710 IF G<1 THEN 2000
1720 IF F1/2=INT(F1/2) THEN 2000
1730 IF F1>13 THEN 2000
1740 IF G1>13 THEN 2000
1750 IF G1/2<INT(G1/2) THEN 2000
1760 IF F1<INT(F1) THEN 2000
1770 IF G1<1 THEN 2000
1780 IF F=F1 THEN 1900
1790 IF G>G1 THEN 2000
1800 IF ABS(F-F1)>2 THEN 2000: REM PRINT ERROR
1810 IF F>F1 THEN 1860
1820 IF O(F,G)=2 THEN 2000
1830 IF O(F,G)=3 THEN 2000
1840 O(F,G)=2: PRINT@14-G)*64+14+(F-1)*3, STRING$(3,140);
1850 GOTO 2170: REM RETURN
1860 IF O(F1,G1)=2 THEN 2000
1870 IF O(F1,G1)=3 THEN 2000
1880 O(F1,G1)=2: PRINT@14-G1)*64+14+(F1-1)*3, STRING$(3,140);
1890 GOTO 2170: REM RETURN
1900 IF ABS(G-G1)>2 THEN 1900: REM PRINT ERROR
1910 IF G>G1 THEN 1960
1920 IF X(F-1,G+1)=2 THEN 2000

```

```

1930 IF X(F-1,G+1)=3 THEN 2000
1940 X(F-1,G+1)=3: PRINT$(13-G)*64+15+(F-2)*3, CHR$(143);
1950 GOTO 2170: REM RETURN
1960 IF X(F1-1,G1+1)=2 THEN 2000
1970 IF X(F1-1,G1+1)=3 THEN 2000
1980 X(F1-1,G1+1)=3: PRINT$(13-G1)*64+15+(F1-2)*3, CHR$(143);
1990 GOTO 2170: REM RETURN
2000 PRINT$96, "INVALID MOVE -- TRY AGAIN": CHR$(30);
2010 FORA=1TO1000: NEXT
2020 PRINT$96, "YOUR MOVE FROM ---> "; CHR$(30);
2030 F=0: FOR X9=1 TO 0 STEP -1
2040 A$=INKEY$: IF A$="" THEN 2040
2050 F=F+VAL(A$)*10[X9: PRINT A$; : NEXT X9: PRINT", ";
2060 G=0: FOR X9=1 TO 0 STEP -1
2070 A$=INKEY$: IF A$="" THEN 2070
2080 G=G+VAL(A$)*10[X9: PRINT A$; : NEXT X9
2090 PRINT$96, "TO ---> "; CHR$(30);
2100 F1=0: FOR X9=1 TO 0 STEP -1
2110 A$=INKEY$: IFA$="" THEN 2110
2120 F1=F1+VAL(A$)*10[X9: PRINT A$; : NEXT X9: PRINT", ";
2130 G1=0: FOR X9=1 TO 0 STEP -1
2140 A$=INKEY$: IF A$="" THEN 2140
2150 G1=G1+VAL(A$)*10[X9: PRINT A$; : NEXT X9
2160 GOTO1590
2170 RETURN
2180 REM PLAYER WIN ROUTINE -----
2190 FOR H=1 TO11 STEP 2
2200 I=12
2210 IF X(I,H)=3 THEN 2240
2220 NEXT H
2230 GOTO 2480
2240 FOR J=1 TO 11 STEP 2
2250 I=2
2260 IF X(I,J)=3 THEN 2290
2270 NEXT J
2280 GOTO 2480
2290 I=I+2
2300 IF I=12 THEN 2440
2310 IF X(I,J)=3 THEN 2380
2320 IF X(I+1,J+1)=2 THEN 2400
2330 IF J-1<0 THEN 2360
2340 IF X(I-1,J-1)=2 THEN 2420
2350 IF 0(I+1,J+1)=2 THEN 2400
2360 IF J-1<0 THEN 2480
2370 GOTO 2300
2380 I=I+2
2390 GOTO 2300
2400 J=J+2
2410 GOTO 2300
2420 J=J-2
2430 GOTO 2300
2440 IF 0(L,2)>2 THEN 2480
2450 PRINT$96, "YOU WIN !!! CONGRATULATIONS!!!": CHR$(31);
2460 GOTO 2490
2470 E=5
2480 RETURN
2490 FOR XX=1 TO 2000:NEXT XX:END

```



# Camel

In this game of high adventure, your object is to travel 200 miles across the great Gobi Desert. You're being chased by a tribe of knock-kneed pygmies. You have one quart of water which will last you for six drinks; it may be renewed if you find an oasis or, if you are found by another traveller, you may get an additional half-quart of water. During your journey you encounter all types of hazards such as sand storms, wild Berbers and possible injuries to your camel.

Warning: this is a very hazardous and addictive game. It is also very difficult to win. In ten plays of the game, the maximum distance we were able to travel was 159 miles, and in many cases we managed to make only seven or eight miles before one of the hazards caused our demise.

This game was submitted by the Heath Users Group.

CAMEL  
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\_\_\_\_\_  
cls  
DO YOU NEED INSTRUCTIONS? YES.

\_\_\_\_\_  
cls  
WELCOME TO CAMEL. THE OBJECT IS TO TRAVEL  
200 MILES ACROSS THE GREAT GOBI DESERT.  
A TRIBE OF KNOCK-KNEED PYGMIES WILL BE CHASING YOU.  
YOU WILL BE ASKED FOR COMMANDS EVERY 50 FEET.

YOU HAVE ONE QUART OF WATER WHICH WILL LAST YOU SIX DRINKS.  
YOU HAVE RENOVATED YOUR WATER SUPPLY COMPLETELY AT AN OASES.  
YOU GET A HALF A QUART IF FOUND BY HELP.  
IF HELP DOES NOT FIND YOU AFTER COMMAND SIX, YOU LOSE.  
GOOD LUCK AND GOOD CAMELING !!

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls  
#1 DRINK FROM CANTEEN #4 STOP FOR THE NIGHT  
#2 AHEAD MODERATE SPEED #5 STATUS CHECK  
#3 AHEAD FULL SPEED #6 HOPE FOR HELP

YOU ARE IN THE MIDDLE OF THE DESERT AT AN OASIS.  
YOU HAVE TRAVELLED 0 MILES ALTOGETHER.  
WHAT IS YOUR COMMAND? 3.

\_\_\_\_\_  
cls  
#1 DRINK FROM CANTEEN #4 STOP FOR THE NIGHT  
#2 AHEAD MODERATE SPEED #5 STATUS CHECK  
#3 AHEAD FULL SPEED #6 HOPE FOR HELP

YOUR CAMEL IS BURNING ACROSS THE DESERT SANDS.  
YOU HAVE TRAVELLED 4 MILES ALTOGETHER.  
WHAT IS YOUR COMMAND? 2.

\_\_\_\_\_  
cls  
#1 DRINK FROM CANTEEN #4 STOP FOR THE NIGHT  
#2 AHEAD MODERATE SPEED #5 STATUS CHECK  
#3 AHEAD FULL SPEED #6 HOPE FOR HELP

YOU HAVE ARRIVED AT AN OASES ----- YOUR CAMEL IS  
FILLING YOUR CANTEEN AND EATING FIGS.  
YOUR CAMEL LIKES THIS PACE.  
YOU HAVE TRAVELLED 8 MILES ALTOGETHER.  
WHAT IS YOUR COMMAND? 2.

\_\_\_\_\_  
cls

\_\_\_\_\_  
cls  
#1 DRINK FROM CANTEEN #4 STOP FOR THE NIGHT  
#2 AHEAD MODERATE SPEED #5 STATUS CHECK  
#3 AHEAD FULL SPEED #6 HOPE FOR HELP

YOUR CAMEL LIKES THIS PACE.  
THE PYGMIES HAVE CAPTURED YOU. CAMEL AND PEOPLE SOUP IS  
THEIR FAVORITE DISH !!!!!  
WANT A NEW CAMEL AND A NEW GAME ? YES.

\_\_\_\_\_  
cls  
#1 DRINK FROM CANTEEN #4 STOP FOR THE NIGHT  
#2 AHEAD MODERATE SPEED #5 STATUS CHECK  
#3 AHEAD FULL SPEED #6 HOPE FOR HELP

YOU ARE IN THE MIDDLE OF THE DESERT AT AN OASIS.  
YOU HAVE TRAVELLED 0 MILES ALTOGETHER.  
WHAT IS YOUR COMMAND? 3.

\_\_\_\_\_  
cls  
#1 DRINK FROM CANTEEN #4 STOP FOR THE NIGHT  
#2 AHEAD MODERATE SPEED #5 STATUS CHECK  
#3 AHEAD FULL SPEED #6 HOPE FOR HELP

YOU HAVE ARRIVED AT AN OASES ----- YOUR CAMEL IS  
FILLING YOUR CANTEEN AND EATING FIGS.  
YOUR CAMEL IS BURNING ACROSS THE DESERT SANDS.  
YOU HAVE TRAVELLED 6 MILES ALTOGETHER.  
WHAT IS YOUR COMMAND? 3.

\_\_\_\_\_  
cls  
#1 DRINK FROM CANTEEN #4 STOP FOR THE NIGHT  
#2 AHEAD MODERATE SPEED #5 STATUS CHECK  
#3 AHEAD FULL SPEED #6 HOPE FOR HELP

YOUR CAMEL IS BURNING ACROSS THE DESERT SANDS.  
YOU HAVE TRAVELLED 16 MILES ALTOGETHER.  
WHAT IS YOUR COMMAND? 2.

\_\_\_\_\_  
cls  
#1 DRINK FROM CANTEEN #4 STOP FOR THE NIGHT  
#2 AHEAD MODERATE SPEED #5 STATUS CHECK  
#3 AHEAD FULL SPEED #6 HOPE FOR HELP

YOUR CAMEL LIKES THIS PACE.  
----- W A R N I N G ----- GET A DRINK  
THE PYGMIES ARE 16 MILES BEHIND YOU.  
YOU HAVE TRAVELLED 18 MILES ALTOGETHER.  
WHAT IS YOUR COMMAND? 1.

\_\_\_\_\_  
cls  
#1 DRINK FROM CANTEEN #4 STOP FOR THE NIGHT  
#2 AHEAD MODERATE SPEED #5 STATUS CHECK  
#3 AHEAD FULL SPEED #6 HOPE FOR HELP

BETTER WATCH FOR AN OASES !  
WHAT IS YOUR COMMAND? 4.

Later in  
the game

\_\_\_\_\_  
cls  
#1 DRINK FROM CANTEEN #4 STOP FOR THE NIGHT  
#2 AHEAD MODERATE SPEED #5 STATUS CHECK  
#3 AHEAD FULL SPEED #6 HOPE FOR HELP

YOUR CAMEL LIKES THIS PACE.  
THE PYGMIES ARE 14 MILES BEHIND YOU.  
YOU HAVE TRAVELLED 37 MILES ALTOGETHER.  
WHAT IS YOUR COMMAND? 5.

\_\_\_\_\_  
cls  
#1 DRINK FROM CANTEEN #4 STOP FOR THE NIGHT  
#2 AHEAD MODERATE SPEED #5 STATUS CHECK  
#3 AHEAD FULL SPEED #6 HOPE FOR HELP

YOUR CAMEL HAS 2 GOOD DAYS LEFT.  
YOU HAVE 5 DRINKS LEFT IN YOUR CANTEEN.  
YOU CAN GO 0 COMMANDS WITHOUT DRINKING.  
BETTER WATCH FOR AN OASES !  
WHAT IS YOUR COMMAND? 6.

\_\_\_\_\_  
cls  
#1 DRINK FROM CANTEEN #4 STOP FOR THE NIGHT  
#2 AHEAD MODERATE SPEED #5 STATUS CHECK  
#3 AHEAD FULL SPEED #6 HOPE FOR HELP

YOU DIED IN THE DESERT.  
THE NATIONAL CAMEL'S UNION IS NOT ATTENDING YOUR FUNERAL!!!  
WANT A NEW CAMEL AND A NEW GAME ? NO.

\_\_\_\_\_  
cls

```

10 CLS: PRINT@413; "CAMEL"
20 PRINT PRINT TAB(7); "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "DO YOU NEED INSTRUCTIONS"; I$
40 IF LEFT$(I$,1)="N" THEN CLS: GOTO 180
50 CLS: PRINT TAB(30); "CAMEL": PRINT
60 PRINT " WELCOME TO CAMEL. THE OBJECT IS TO TRAVEL"
70 PRINT "200 MILES ACROSS THE GREAT GOBI DESERT."
80 PRINT "A TRIBE OF KNOCK-KNEED PYGMIES WILL BE CHASING YOU."
90 PRINT "YOU WILL BE ASKED FOR COMMANDS EVERY 50 OFTEN."
100 PRINT
110 PRINT " YOU HAVE ONE QUART OF WATER WHICH WILL LAST YOU SIX DRINKS."
120 PRINT "YOU MAY RENEW YOUR WATER SUPPLY COMPLETELY AT AN OASIS."
130 PRINT "YOU GET A HALF A QUART IF FOUND BY HELP "
140 PRINT "IF HELP DOES NOT FIND YOU AFTER COMMAND SIX, YOU LOSE."
150 PRINT "GOOD LUCK AND GOOD CAMELING !!"
160 PRINT@979, "PRESS ANY KEY TO CONTINUE";
170 IF INKEY$="" THEN 170 ELSE CLS
180 PRINT "#1 DRINK FROM CANTEN"; TAB(32); "#4 STOP FOR THE NIGHT"
190 PRINT "#2 AHEAD MODERATE SPEED"; TAB(32); "#5 STATUS CHECK"
200 PRINT "#3 AHEAD FULL SPEED"; TAB(32); "#6 HOPE FOR HELP"
210 PRINT
220 PRINT "YOU ARE IN THE MIDDLE OF THE DESERT AT AN OASIS."
230 GOSUB 1550
240 IF C>199 THEN 1090
250 Z=Z-1
260 IF Z=1 THEN PRINT "----- W A R N I N G ----- GET A DRINK"
270 IF Z<0 THEN 1490
280 P=P+1
290 X2=INT(10*RND(0))+2.5)
300 IF Q>0 THEN 800
310 IF P<4 THEN 380
320 C1=C1+X2
330 IF C1<C THEN 370
340 PRINT "THE PYGMIES HAVE CAPTURED YOU. CAMEL AND PEOPLE SOUP IS"
350 PRINT "THEIR FAVORITE DISH !!!!!"
360 GOTO 1440
370 PRINT "THE PYGMIES ARE"; C-C1; "MILES BEHIND YOU."
380 PRINT "YOU HAVE TRAVELLED"; C; "MILES ALTOGETHER."
390 PRINT "WHAT IS YOUR COMMAND";
400 INPUT Y
410 PRINT@256, CHR$(31);
420 ON Y GOTO 690,490,560,630,660
430 T=INT(10*RND(0))
440 IF T<1 THEN 1080
450 PRINT "HELP HAS FOUND YOU IN A STATE OF UNCONSCIOUSNESS."
460 S=3
470 Z=4
480 GOTO 240
490 F=F+1
500 IF F=8 THEN 1070
510 GOSUB 740
520 X1=INT(10*RND(0))
530 C=C+X1
540 PRINT "YOUR CAMEL LIKES THIS PACE."
550 GOTO 240
560 F=F+3
570 IF F>7 THEN 1070
580 GOSUB 740
590 X1=2*INT(10*RND(0))
600 C=C+X1
610 PRINT "YOUR CAMEL IS BURNING ACROSS THE DESERT SANDS."
620 GOTO 240
630 PRINT "YOUR CAMEL THANKS YOU!"
640 F=0
650 GOTO 250
660 PRINT "YOUR CAMEL HAS"; 7-F; "GOOD DAYS LEFT."
670 PRINT "YOU HAVE"; S; "DRINKS LEFT IN YOUR CANTEN."
680 PRINT "YOU CAN GO"; Z; "COMMANDS WITHOUT DRINKING."
690 S=S-1
700 IF S<0 THEN 1080
710 PRINT "BETTER WATCH FOR AN OASES !"
720 Z=4
730 GOTO 390
740 A=INT(100*RND(0))
750 IF A>5 THEN 1000
760 PRINT "WILD BERBERS HIDDEN IN THE SAND HAVE CAPTURED YOU."
770 PRINT "LUCKILY THE LOCAL SHEIK HAS AGREED TO THEIR RANSOM-"
780 PRINT "DEMANDS.....BUT.....WATCH FOR THE PYGMIES !!"
790 PRINT "YOU HAVE A NEW CHOICE OF SUB-COMMANDS:"
800 PRINT "#7 - ATTEMPT AN ESCAPE"
810 PRINT "#8 - WAIT FOR PAYMENT"
820 PRINT "YOUR SUB-COMMAND ";
830 INPUT X
840 IF X=8 THEN 920
850 X1=INT(10*RND(0))
860 IF X1<5 THEN 900
870 PRINT "CONGRATULATIONS, YOU SUCCESSFULLY ESCAPED !!!!!"
880 Q=0
890 GOTO 240
900 PRINT "YOU WERE MORTALLY WOUNDED BY A PIG STABBER WHILE ESCAPING."
910 GOTO 1290
920 X1=INT(100*RND(0))
930 REM
940 IF X1>24 THEN 980
950 PRINT "YOUR RANSOM HAS BEEN PAID AND YOU ARE FREE TO GO."
960 Q=0
970 GOTO 240
980 PRINT "THE LOCAL SULTAN IS COLLECTING..... JUST WAIT....."
990 GOTO 240
1000 A=INT(10*RND(0))
1010 IF A>2 THEN 1120
1020 PRINT "YOU HAVE ARRIVED AT AN OASES ----- YOUR CAMEL IS"
1030 PRINT "FILLING YOUR CANTEN AND EATING FIGS."
1040 Z=4
1050 S=6
1060 RETURN
1070 PRINT "YOU DIRTY RAPSCALLION! YOU RAN YOUR POOR CAMEL TO DEATH !!"
1080 GOTO 1290
1090 PRINT "YOU WIN, A PARTY IS BEING GIVEN IN YOUR HONOR....."
1100 PRINT "..... THE PYGMIES ARE PLANNING TO ATTEND....."
1110 GOTO 1440
1120 X1=INT(100*RND(0))
1130 IF X1>5 THEN 1230
1140 PRINT "YOU HAVE BEEN CAUGHT IN A SANDSTORM.... GOOD LUCK!"
1150 X5=INT(10*RND(0))
1160 X6=INT(10*RND(0))
1170 IF X6<5 THEN 1200
1180 C=C+X5
1190 GOTO 1210
1200 C=C-X5
1210 PRINT "YOUR NEW POSITION IS"; C; "MILES SO FAR!"
1220 RETURN
1230 X1=INT(100*RND(0))
1240 IF X1>5 THEN RETURN
1250 C1=C1+1
1260 PRINT "YOUR CAMEL HURT HIS HUMP."
1270 PRINT "LUCKILY THE PYGMIES WERE FOOTWEARY !!"
1280 RETURN
1290 U=INT(10*RND(0))
1300 PRINT "YOU DIED IN THE DESERT."
1310 IF U>1 THEN 1340
1320 PRINT "THE NATIONAL CAMEL'S UNION IS NOT ATTENDING YOUR FUNERAL!!!"
1330 GOTO 1440
1340 IF U>3 THEN 1370
1350 PRINT "YOUR BODY WAS EATEN BY VULTURES AND IMPORTED CANNIBALS!!!"
1360 GOTO 1440
1370 IF U>5 THEN 1400
1380 PRINT "THE LOCAL SHEIK NOW USES YOUR SKULL FOR A CHANGE PURSE!!!"
1390 GOTO 1440
1400 IF U>7 THEN 1430
1410 PRINT "PEOPLE WITH LITTLE INTELLIGENCE SHOULD STAY OUT OF THE
1420 GOTO 1440 DESERT"
1430 PRINT "TURKEYS SHOULD FLY, NOT RIDE CAMELS !!!!!!!"
1440 REM
1450 PRINT "WANT A NEW CAMEL AND A NEW GAME ";
1460 INPUT D$
1470 IF LEFT$(D$,1)="Y" THEN 150
1480 GOTO 1510
1490 PRINT "YOU RAN OUT OF WATER..... SORRY CHUM!!!"
1500 GOTO 1290
1510 PRINT "-----"
1520 PRINT " CHICKEN"
1530 PRINT "-----"
1540 END
1550 Z=4
1560 S=6
1570 C=0
1580 C1=0
1590 Q=0
1600 F=0
1610 P=0
1620 RETURN

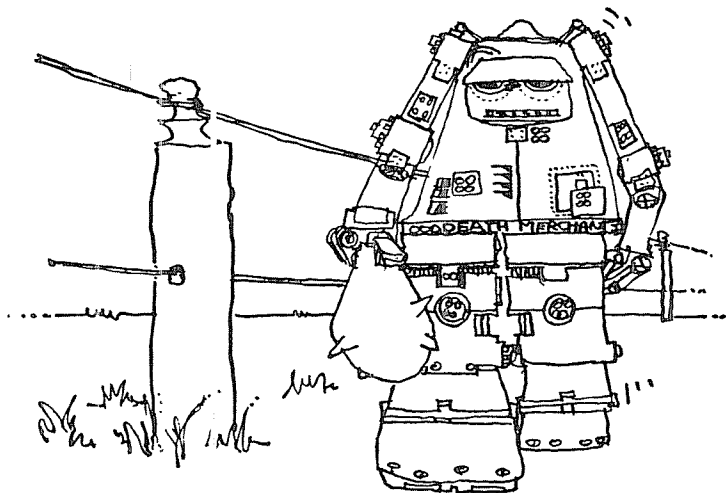
```

# Chase

CHASE puts you in a maze made up of high-voltage fences and posts. This in itself is not too unpleasant but there're also the five interceptor robots bent on just one thing—your destruction. If these robots touch you ... that's the end of the game (and you!). There's one hope—make the robots hit the maze, or each other (they're like people—sometimes they'd rather be alone). If you destroy them all, you win! If you find yourself in a totally hopeless situation, you have the option of making a tremendous leap to a random location (which may well be on top of a fence or a guard).

At the end of the game, you may replay with the same or different starting conditions.

I believe this game was originally created by Mac Oglesby. It was then modified by Bill Cotter and further improved by Arnold Loveridge. An intermediate version appeared in *Creative Computing*, Jan/Feb 1976.



CHASE  
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DO YOU NEED INSTRUCTIONS? YES.

YOU ARE WITHIN THE WALLS OF A HIGH VOLTAGE MAZE  
THERE ARE FIVE SECURITY MACHINES TRYING TO DESTROY YOU  
YOU ARE THE '\*' THE INTERCEPTORS ARE THE '+'  
THE AREAS MARKED '.' ARE HIGH VOLTAGE  
YOUR ONLY CHANCE FOR SURVIVAL IS TO MANEUVER EACH  
INTERCEPTOR INTO AN '.' -----GOOD LUCK-----

MOVES ARE 7, 8, 9  
4, \*, 6  
1, 2, 3

10 = NO MOVE FOR THE REST OF THE GAME

-1 = GAVE UP, SITUATION HOPELESS.

0 = A TREMENDOUS (BUT UNFORTUNATELY RANDOM) LEAP

PRESS ANY KEY TO CONTINUE

WHAT IS YOUR MOVE? 1.

```

graph TD
    Stack[Stack]
    Stack -- "push" --> S1[cls]
    S1 -- "pop" --> S2[ ]
    S2 -- "push" --> S3[++]
    S3 -- "pop" --> S4[ ]
    S4 -- "push" --> S5[++]
    S5 -- "pop" --> S6[ ]
    S6 -- "push" --> S7[++]
    S7 -- "pop" --> S8[ ]
    S8 -- "push" --> S9[++]
    S9 -- "pop" --> S10[ ]
    S10 -- "push" --> S11[++]
    S11 -- "pop" --> S12[ ]
    S12 -- "push" --> S13[++]
    S13 -- "pop" --> S14[ ]
    S14 -- "push" --> S15[++]
    S15 -- "pop" --> S16[ ]
    S16 -- "push" --> S17[++]
    S17 -- "pop" --> S18[ ]
    S18 -- "push" --> S19[++]
    S19 -- "pop" --> S20[ ]
    S20 -- "push" --> S21[++]
    S21 -- "pop" --> S22[ ]
    S22 -- "push" --> S23[++]
    S23 -- "pop" --> S24[ ]
    S24 -- "push" --> S25[++]
    S25 -- "pop" --> S26[ ]
    S26 -- "push" --> S27[++]
    S27 -- "pop" --> S28[ ]
    S28 -- "push" --> S29[++]
    S29 -- "pop" --> S30[ ]
    S30 -- "push" --> S31[++]
    S31 -- "pop" --> S32[ ]
    S32 -- "push" --> S33[++]
    S33 -- "pop" --> S34[ ]
    S34 -- "push" --> S35[++]
    S35 -- "pop" --> S36[ ]
    S36 -- "push" --> S37[++]
    S37 -- "pop" --> S38[ ]
    S38 -- "push" --> S39[++]
    S39 -- "pop" --> S40[ ]
    S40 -- "push" --> S41[++]
    S41 -- "pop" --> S42[ ]
    S42 -- "push" --> S43[++]
    S43 -- "pop" --> S44[ ]
    S44 -- "push" --> S45[++]
    S45 -- "pop" --> S46[ ]
    S46 -- "push" --> S47[++]
    S47 -- "pop" --> S48[ ]
    S48 -- "push" --> S49[++]
    S49 -- "pop" --> S50[ ]
    S50 -- "push" --> S51[++]
    S51 -- "pop" --> S52[ ]
    S52 -- "push" --> S53[++]
    S53 -- "pop" --> S54[ ]
    S54 -- "push" --> S55[++]
    S55 -- "pop" --> S56[ ]
    S56 -- "push" --> S57[++]
    S57 -- "pop" --> S58[ ]
    S58 -- "push" --> S59[++]
    S59 -- "pop" --> S60[ ]
    S60 -- "push" --> S61[++]
    S61 -- "pop" --> S62[ ]
    S62 -- "push" --> S63[++]
    S63 -- "pop" --> S64[ ]
    S64 -- "push" --> S65[++]
    S65 -- "pop" --> S66[ ]
    S66 -- "push" --> S67[++]
    S67 -- "pop" --> S68[ ]
    S68 -- "push" --> S69[++]
    S69 -- "pop" --> S70[ ]
    S70 -- "push" --> S71[++]
    S71 -- "pop" --> S72[ ]
    S72 -- "push" --> S73[++]
    S73 -- "pop" --> S74[ ]
    S74 -- "push" --> S75[++]
    S75 -- "pop" --> S76[ ]
    S76 -- "push" --> S77[++]
    S77 -- "pop" --> S78[ ]
    S78 -- "push" --> S79[++]
    S79 -- "pop" --> S80[ ]
    S80 -- "push" --> S81[++]
    S81 -- "pop" --> S82[ ]
    S82 -- "push" --> S83[++]
    S83 -- "pop" --> S84[ ]
    S84 -- "push" --> S85[++]
    S85 -- "pop" --> S86[ ]
    S86 -- "push" --> S87[++]
    S87 -- "pop" --> S88[ ]
    S88 -- "push" --> S89[++]
    S89 -- "pop" --> S90[ ]
    S90 -- "push" --> S91[++]
    S91 -- "pop" --> S92[ ]
    S92 -- "push" --> S93[++]
    S93 -- "pop" --> S94[ ]
    S94 -- "push" --> S95[++]
    S95 -- "pop" --> S96[ ]
    S96 -- "push" --> S97[++]
    S97 -- "pop" --> S98[ ]
    S98 -- "push" --> S99[++]
    S99 -- "pop" --> S100[ ]
    S100 -- "push" --> S101[++]
    S101 -- "pop" --> S102[ ]
    S102 -- "push" --> S103[++]
    S103 -- "pop" --> S104[ ]
    S104 -- "push" --> S105[++]
    S105 -- "pop" --> S106[ ]
    S106 -- "push" --> S107[++]
    S107 -- "pop" --> S108[ ]
    S108 -- "push" --> S109[++]
    S109 -- "pop" --> S110[ ]
    S110 -- "push" --> S111[++]
    S111 -- "pop" --> S112[ ]
    S112 -- "push" --> S113[++]
    S113 -- "pop" --> S114[ ]
    S114 -- "push" --> S115[++]
    S115 -- "pop" --> S116[ ]
    S116 -- "push" --> S117[++]
    S117 -- "pop" --> S118[ ]
    S118 -- "push" --> S119[++]
    S119 -- "pop" --> S120[ ]
    S120 -- "push" --> S121[++]
    S121 -- "pop" --> S122[ ]
    S122 -- "push" --> S123[++]
    S123 -- "pop" --> S124[ ]
    S124 -- "push" --> S125[++]
    S125 -- "pop" --> S126[ ]
    S126 -- "push" --> S127[++]
    S127 -- "pop" --> S128[ ]
    S128 -- "push" --> S129[++]
    S129 -- "pop" --> S130[ ]
    S130 -- "push" --> S131[++]
    S131 -- "pop" --> S132[ ]
    S132 -- "push" --> S133[++]
    S133 -- "pop" --> S134[ ]
    S134 -- "push" --> S135[++]
    S135 -- "pop" --> S136[ ]
    S136 -- "push" --> S137[++]
    S137 -- "pop" --> S138[ ]
    S138 -- "push" --> S139[++]
    S139 -- "pop" --> S140[ ]
    S140 -- "push" --> S141[++]
    S141 -- "pop" --> S142[ ]
    S142 -- "push" --> S143[++]
    S143 -- "pop" --> S144[ ]
    S144 -- "push" --> S145[++]
    S145 -- "pop" --> S146[ ]
    S146 -- "push" --> S147[++]
    S147 -- "pop" --> S148[ ]
    S148 -- "push" --> S149[++]
    S149 -- "pop" --> S150[ ]
    S150 -- "push" --> S151[++]
    S151 -- "pop" --> S152[ ]
    S152 -- "push" --> S153[++]
    S153 -- "pop" --> S154[ ]
    S154 -- "push" --> S155[++]
    S155 -- "pop" --> S156[ ]
    S156 -- "push" --> S157[++]
    S157 -- "pop" --> S158[ ]
    S158 -- "push" --> S159[++]
    S159 -- "pop" --> S160[ ]
    S160 -- "push" --> S161[++]
    S161 -- "pop" --> S162[ ]
    S162 -- "push" --> S163[++]
    S163 -- "pop" --> S164[ ]
    S164 -- "push" --> S165[++]
    S165 -- "pop" --> S166[ ]
    S166 -- "push" --> S167[++]
    S167 -- "pop" --> S168[ ]
    S168 -- "push" --> S169[++]
    S169 -- "pop" --> S170[ ]
    S170 -- "push" --> S171[++]
    S171 -- "pop" --> S172[ ]
    S172 -- "push" --> S173[++]
    S173 -- "pop" --> S174[ ]
    S174 -- "push" --> S175[++]
    S175 -- "pop" --> S176[ ]
    S176 -- "push" --> S177[++]
    S177 -- "pop" --> S178[ ]
    S178 -- "push" --> S179[++]
    S179 -- "pop" --> S180[ ]
    S180 -- "push" --> S181[++]
    S181 -- "pop" --> S182[ ]
    S182 -- "push" --> S183[++]
    S183 -- "pop" --> S184[ ]
    S184 -- "push" --> S185[++]
    S185 -- "pop" --> S186[ ]
    S186 -- "push" --> S187[++]
    S187 -- "pop" --> S188[ ]
    S188 -- "push" --> S189[++]
    S189 -- "pop" --> S190[ ]
    S190 -- "push" --> S191[++]
    S191 -- "pop" --> S192[ ]
    S192 -- "push" --> S193[++]
    S193 -- "pop" --> S194[ ]
    S194 -- "push" --> S195[++]
    S195 -- "pop" --> S196[ ]
    S196 -- "push" --> S197[++]
    S197 -- "pop" --> S198[ ]
    S198 -- "push" --> S199[++]
    S199 -- "pop" --> S200[ ]
    S200 -- "push" --> S201[++]
    S201 -- "pop" --> S202[ ]
    S202 -- "push" --> S203[++]
    S203 -- "pop" --> S204[ ]
    S204 -- "push" --> S205[++]
    S205 -- "pop" --> S206[ ]
    S206 -- "push" --> S207[++]
    S207 -- "pop" --> S208[ ]
    S208 -- "push" --> S209[++]
    S209 -- "pop" --> S210[ ]
    S210 -- "push" --> S211[++]
    S211 -- "pop" --> S212[ ]

```

WHAT IS YOUR MOVE? 4\_

[illegible]

WHAT IS YOUR MOVE? 4...

```

graph TD
    subgraph Stack
        direction TB
        S1[a]
        S2[b]
        S3[c]
        S4[d]
        S5[e]
    end
    S1 --> S2
    S2 --> S3
    S3 --> S4
    S4 --> S5
    
```

Diagram illustrating the sequence of operations on a stack:

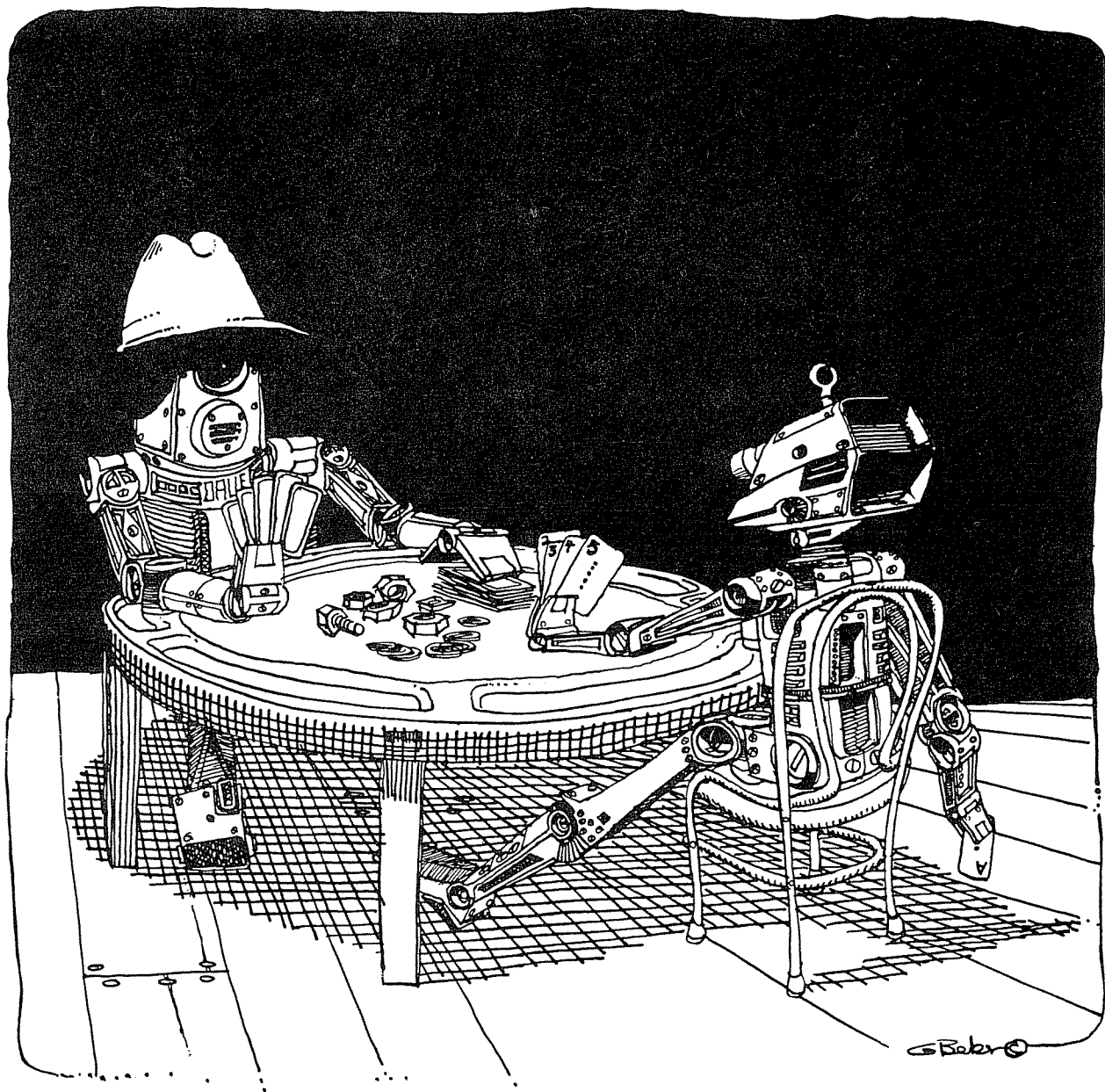
- Initial state: Stack contains `a` and `b`.
- Operation `c1s`: Stack contains `a`, `b`, and `c`.
- Operation `c2s`: Stack contains `a`, `b`, `c`, and `d`.
- Operation `c3s`: Stack contains `a`, `b`, `c`, `d`, and `e`.

#### WHAT IS YOUR MOVE? 4

[illegible]

WHAT IS YOUR MOVE? 4





# Chuck-A-Luck

CHUCK-A-LUCK  
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

```

_____cls_____
DO YOU NEED INSTRUCTIONS? YES_
_____cls_____
CHOOSE A NUMBER FROM 1 TO 6. I WILL ROLL 3 DICE.
IF YOUR NUMBER MATCHES 1 DIE, I PAY OFF EVEN MONEY.
TWO DICE, 2:1    3 DICE, 3:1

```

BET 0 TO QUIT. \_\_\_\_\_ c/s \_\_\_\_\_

PRESS ANY KEY TO CONTINUE

YOU HAVE \$ 400. MAKE A BET. ? \_

CHOOSE A NUMBER? 3

YOU DIDN'T MATCH AT ALL.  
YOU LOSE \$ 100.

YOU HAVE \$ 500. MAKE A BET. ? 100\_  
CHOOSE A NUMBER?

YOU'VE WON \$ 100.

YOU HAVE \$ 500. MAKE A BET. ? 100  
CHOOSE A NUMBER? 3\_

YOU'VE WON \$ 100.

YOU HAVE \$ 400. MAKE A BET. ? 300  
CHOOSE A NUMBER? 1\_

YOU DIDN'T MATCH AT ALL.  
YOU LOSE \$ 100

YOU HAVE \$ 700. MAKE A BET. ? 10  
CHOOSE A NUMBER? 1

YOU'VE WON \$ 300.

YOU HAVE \$ 690. MAKE A BET. ? 690  
CHOOSE A NUMBER? 1

YOU DIDN'T MATCH AT ALL.  
YOU LOSE \$ 10.

YOU HAVE \$ 690. MAKE A BET. ? 690

YOU DIDN'T MATCH AT ALL.  
YOU LOSE \$ 690.

C/S

```
10 CLEAR 500:CLS:PRINT@411,"CHUCK-A-LUCK"
20 PRINT:PRINT TAB(7)"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN,NJ"
30 PRINT@960,"*";INPUT"DO YOU NEED INSTRUCTIONS?":$
40 IF LEFT$(I$,1)="N" THEN CLS:GOTO 120
50 CLS:PRINT TAB(26)"CHUCK-A-LUCK":PRINT
```

Chuck-a-luck is generally found in fairgrounds, cheap casinos, and small gambling parlors. It flourished in frontier America, but dates back to European gaming houses of the eighteenth century. During its long history, chuck-a-luck has had many names including sweatcloth, chucker-luck, chuck luck, and bird cage.

Each player places his bets on one of the six numbers, one through six. When all bets have been placed, the operator tumbles three dice in a chuck cage until they come to rest face up or drop down a chute onto the table. If a player's number appears on one die, the operator pays him even money; if on two dice, two to one; if on three dice, three to one.

The computer version of Chuck-a-luck was originally written by Michael Tanoff.

```
60 PRINT "CHOOSE A NUMBER FROM 1 TO 6. I WILL ROLL 3 DICE."
70 PRINT "IF YOUR NUMBER MATCHES 1 DIE, I PAY OFF EVEN MONEY."
80 PRINT "TWO DICE; 2:1   3 DICE; 3:1": PRINT
90 PRINT "BET @ TO QUIT."
100 PRINT#79,"PRESS ANY KEY TO CONTINUE";
110 IF INKEY$="" THEN #0 ELSE CLS
120 GOSUB 420: M=500
130 PRINT@0,"YOU HAVE $%;M:CHR$(8);". MAKE A BET.";CHR$(38);
140 INPUT B
150 IF B=@ THEN END
160 IF B>M THEN 380
170 IF B>0 THEN IF B<100=INT(B+100) THEN 190
180 GOTO 390
190 PRINT "CHOOSE A NUMBER";CHR$(38);
200 INPUT N
210 IF INT(N)=N AND ND@ RAND NC7 THEN 230
220 PRINT "CHEATER!!!!!!": GOTO 190
230 A=RND(6): D=RND(6): C=RND(6): PRINT
240 FOR AS=1 TO RND(10)+5: PRINT#I92,AS(RND(6)),A$(RND(6)),A$(RND(6));
250 IF T.A1:PRINT#I92,A$(A),A$(D),A$(C):PRINT#O12,CHR$(31);
260 I=@
270 IF A=N THEN T=T+1
280 IF D=N THEN T=T+1
290 IF C=N THEN T=T+1
300 IF T=0 THEN PRINT "YOU DIDN'T MATCH AT ALL."
310 ON T GOTO 350,360,370
320 PRINT "YOU LOSE $%";B:CHR$(8);"."
330 M=M-B: IF MC=0 THEN 400
340 GOTO 130
350 PRINT "YOU'VE WON $%;B:CHR$(8);"." : M=M+B: GOTO 130
360 PRINT "YOU'VE WON $%;B=2:CHR$(8);"." : M=M+2*B: GOTO 130
370 PRINT "YOU'VE WON $%;B=3:CHR$(8);"." : M=M+3*B: GOTO 130
380 PRINT "I DON'T TAKE 1.0.U'S !!!!": GOTO 130
390 PRINT "DON'T GET CUTIE!!!": GOTO 130
400 PRINT
410 END
420 AS=CHR$(191)+CHR$(26)+STRING$(9,8): BS=STRING$(3,27)
430 FOR A=1 TO 6: FOR B=1 TO 3: AS(A)=AS(A)+CHR$(191)
440 FOR C=1 TO 7: NEXT D: AS(A)=AS(A)+CHR$(D+100): NEXT C
450 AS(A)=AS(A)+AS: REPT B: AS(A)=LEFT$(AS(A),48)+BS: NEXT A: RETURN
460 DATA 31,3L,3L,3L,3L,3L,3L,28,28,28,28,28,28,28,76,76,76,76,76,76,76,76
470 DATA 31,79,3L,3L,3L,3L,3L,28,28,28,28,28,28,28,76,76,76,76,76,76,76,76
480 DATA 31,79,3L,3L,3L,3L,3L,28,28,28,28,28,28,28,76,76,76,76,76,76,76,76
490 DATA 3L,79,3L,3L,3L,79,3L,28,28,28,28,28,28,28,76,79,76,76,76,76,79,76
500 DATA 3L,79,3L,3L,3L,79,3L,28,28,28,28,28,28,28,76,79,76,76,76,76,79,76
510 DATA 31,79,3L,3L,3L,3L,3L,28,40,28,28,28,28,40,28,76,79,76,76,76,79,76
```

# Close Encounters

In this game, you are situated at the center of a target area for a UFO. The program assigns coordinates 0,0 to your location. You are given information as to the course of the UFO in degrees longitude and degrees latitude and also its speed. You then have two alternatives. One, you can attempt to shoot the UFO out of the sky with an ICBM or you can do nothing and hope that air friction will cause the course of the UFO to deviate or to burn up.

A knowledge of mathematical coordinate systems will be of some assistance in winning this game, although you'll probably be able to discover a reasonably good strategy by yourself using trial and error if you play enough games.

This program was originally written by Chris Falco.

CLOSE ENCOUNTERS  
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ  
cls

HIT ENTER TO START? \_

cls

YOU ARE SITUATED AT COORDINATES (0,0). A UFO IS  
HEADING FOR IMPACT AT THAT LOCATION.

AT FIRST TRACK, THE UFO IS ON A COURSE OF 54 DEGREES LONGITUDE  
AND 135 DEGREES LATITUDE.

(ALSO IT'S FALLING AT A SPEED OF 6810 MILES/PER HOUR)

YOU HAVE THE FOLLOWING ALTERNATIVES:

- A) YOU CAN ATTEMPT TO SHOOT THE UFO OUT OF THE SKY. OR
- B) YOU CAN DO NOTHING, AND HOPE THAT AIR FRICTION  
WILL CAUSE THE COURSE OF THE UFO TO DEVIATE, AND THUS  
MISS YOUR LOCATION.

WHAT IS YOUR PLAN OF ACTION (A OR B)? B.

cls

| MILES   | SPEED | LONGITUDE | LATITUDE | COURSE |
|---------|-------|-----------|----------|--------|
| 12000   | 6810  | 54        | 135      | 86     |
| 11808.6 | 11432 | 52        | 126      | 99     |
| 11571.9 | 14231 | 43        | 120      | 102    |
| 11272.8 | 17946 | 41        | 118      | 102    |
| 10899.7 | 22339 | 33        | 112      | 104    |
| 10437.2 | 27746 | 30        | 103      | 98     |
| 9920.72 | 30932 | 26        | 98       | 97     |
| 9354.37 | 33931 | 26        | 93       | 92     |
| 8685.72 | 40119 | 21        | 89       | 93     |
| 7942.92 | 44558 | 21        | 87       | 91     |
| 7099.72 | 50592 | 18        | 85       | 92     |
| 6196.53 | 54191 | 9         | 81       | 97     |
| 5228.43 | 58036 | 7         | 74       | 92     |
| 4224.88 | 68213 | 3         | 67       | 89     |
| 3181.25 | 62618 | -6        | 62       | 93     |
| 2067.82 | 66805 | -10       | 60       | 95     |
| 896.266 | 70234 | -15       | 53       | 93     |

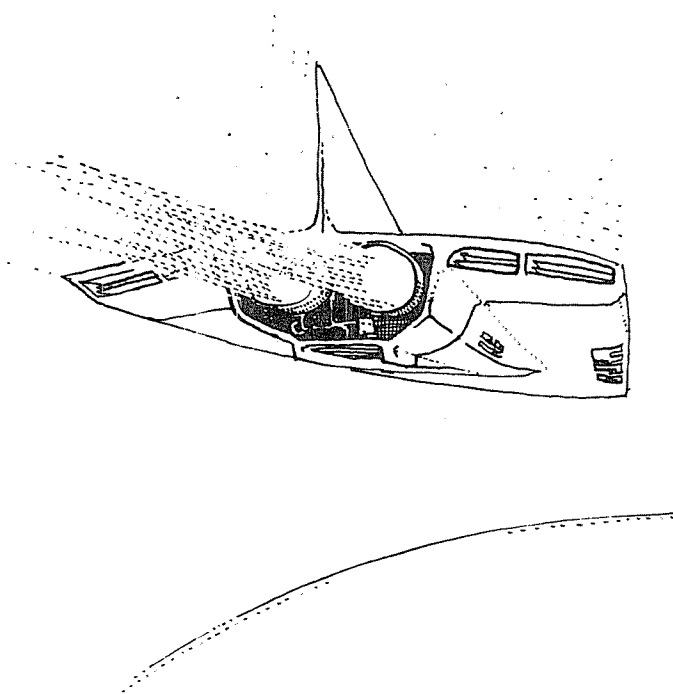
cls

IMPACT - AT - 74,988

UPT - WIRE - SERVICE -- ON - LINE - 5 10 15 --  
--- HAVE JUST OBSERVED EXPLOSION AT COORDINATES (-2, 0). ---

BLAST SEEN FROM 42875 MILES AWAY. NO SURVIVORS.

cls



TRY AGAIN? YES.

YOU ARE SITUATED AT COORDINATES (0,0). A UFO IS  
HEADING FOR IMPACT AT THAT LOCATION.

AT FIRST TRACK, THE UFO IS ON A COURSE OF 44 DEGREES LONGITUDE  
AND 125 DEGREES LATITUDE.

(ALSO IT'S FALLING AT A SPEED OF 3361 MILES/PER HOUR)

YOU HAVE THE FOLLOWING ALTERNATIVES:

- A) YOU CAN ATTEMPT TO SHOOT THE UFO OUT OF THE SKY. OR
- B) YOU CAN DO NOTHING, AND HOPE THAT AIR FRICTION  
WILL CAUSE THE COURSE OF THE UFO TO DEVIATE, AND THUS  
MISS YOUR LOCATION.

WHAT IS YOUR PLAN OF ACTION (A OR B)? A.

cls

LAUNCH AN I.C.B.M. ON A COURSE THAT WILL INTERCEPT THE UFO  
WITHOUT THE UFO BEING TOO CLOSE TO YOUR  
LOCATION. IF THE SPEED

OF THE UFO EXCEEDS 11361 M.P.H., YOUR MISSILES ARE USELESS!

--SCANNERS PREDICT YOU HAVE 4 MINUTES TO DESTROY THE UFO  
BEFORE IT IS TOO CLOSE TO IMPACT.

--COMPUTER INDICATES COURSE AT FIRST SIGHTING IS APPROX. 98

HIT ENTER TO LAUNCH ICBM? \_

cls

| TIME | SPEED | LONGITUDE | LATITUDE | COURSE |
|------|-------|-----------|----------|--------|
| 0    | 3361  | 44        | 125      | ? 60   |
| .5   | 5810  | 37        | 118      | ? 55   |
| 1    | 6659  | 30        | 111      | ? 40   |
| 1.5  | 8208  | 22        | 104      | ? 40   |
| 2    | 9957  | 16        | 97       | ? 40   |
| 2.5  | 11606 | 9         | 90       | ? 40   |

SORRY--THE SPEED OF THE UFO HAS EXCEEDED 11,361.

THIS SPEED IS TOO GREAT FOR YOUR DEFENSE SCREEN TO TRACK!  
THEREFORE, YOU ARE DOOMED!

TRY AGAIN? NO.

cls

```

10 CLS:PRINT@410,"CLOSE ENCOUNTERS"
20 PRINT:PRINT TAB(7)"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960,"":INPUT "HIT ENTER TO START";A$:CLS
40 GOSUB 1070
50 PRINT "YOU ARE SITUATED AT COORDINATES (0,0). A UFO IS"
60 PRINT "HEADING FOR IMPACT AT THAT LOCATION."
70 PRINT
80 PRINT "AT FIRST TRACK, THE UFO IS ON A COURSE OF "Y"DEGREES ";
90 PRINT "LONGITUDE"
100 PRINT "AND "Z"DEGREES LATITUDE."
110 PRINT " (ALSO IT'S FALLING AT A SPEED OF "X"MILES/PER HOUR)"
120 PRINT
130 PRINT "YOU HAVE THE FOLLOWING ALTERNATIVES:"
140 PRINT "A) YOU CAN ATTEMPT TO SHOOT THE UFO OUT OF THE SKY. OR"
150 PRINT "B) YOU CAN DO NOTHING, AND HOPE THAT AIR FRICTION"
160 PRINT " WILL CAUSE THE COURSE OF THE UFO TO DEVIATE, AND THUS"
170 PRINT " MISS YOUR LOCATION.":PRINT
180 PRINT "WHAT IS YOUR PLAN OF ACTION (A OR B)":INPUT D$:CLS
190 IF LEFT$(D$,1)="B" THEN 720
200 PRINT CHR$(26);"LAUNCH AN I. C. B. M. ON A COURSE THAT WILL INTERCEPT THE UFO"
210 PRINT "WITHOUT THE UFO BEING TOO CLOSE TO YOUR LOCATION. IF THE ";
220 PRINT "SPEED"
230 PRINT "OF THE UFO EXCEEDS "H"M.P.H., YOUR MISSILES ARE USELESS!"
240 PRINT "--SCANNERS PREDICT YOU HAVE "M"MINUTES TO DESTROY THE UFO"
250 PRINT "BEFORE IT IS TOO CLOSE TO IMPACT.":PRINT
260 C=Z-Y+I-INT(RND(0)*4)+1
270 PRINT "--COMPUTER INDICATES COURSE AT FIRST SIGHTING IS APPROX. ";C+
280 PRINT
290 INPUT "HIT ENTER TO LAUNCH ICBM";A$:CLS
300 PRINT
310 PRINT "TIME";TAB(10);"SPEED";TAB(21);"LONGITUDE";TAB(35);
320 PRINT "LATITUDE";TAB(40);"COURSE"
330 PRINT "-----";TAB(10);"-----";TAB(21);"-----";TAB(35);
340 PRINT "-----";TAB(40);"-----"
350 FOR T=0 TO 5 STEP .5
360 PRINT T TAB(10) X TAB(21) Y TAB(35) Z TAB(40);
370 INPUT A: IF T=M THEN 550
380 IF X<H THEN 420
390 PRINT "SORRY--THE SPEED OF THE UFO HAS EXCEEDED ":PRINT USING "##,###";H
400 PRINT "THIS SPEED IS TOO GREAT FOR YOUR DEFENSE SCREEN TO TRACK!"
410 PRINT "THEREFORE, YOU ARE DOOMED!":PRINT:GOTO 680
420 IF A=C THEN 650
430 IF A=D THEN 480
440 PRINT "AT THAT COURSE, YOU SHOT YOUR MISSILE STRAIGHT UP, SO WHEN"
450 PRINT "IT RUNS OUT OF FUEL IN ABOUT "F"HOURS, IT WILL FALL";
460 PRINT " THROUGH"
470 PRINT "YOUR ROOF!!!!!!!!!! GOODBYE!!!!!!!!":GOTO 590
480 IF A<200 GOTO 510
490 PRINT "GOOD WORK! THERE GOES THE MISSILE ----- RIGHT TOWARDS"
500 PRINT "RUSSIA!!!! NOW YOU'RE DEFINITELY IN TROUBLE!":GOTO 590
510 IF A=C-1 THEN 600
520 IF A=C+1 THEN 640
530 X=X+Y+1200:Y=Y-I+5:Z=Z-I+5:C=Z-Y+5
540 NEXT T
550 PRINT:PRINT "-----ATTENTION-----"
560 PRINT "ELAPSED - TIME - INDICATES - THAT -";M;"- MINUTES HAVE PASSED"
570 PRINT "IF - YOU - WERE - TO - HIT - THE - UFO - NOW - THE - FORCE - OF"
580 PRINT "THE - EXPLOSION - WOULD - DESTROY - BOTH - YOU - AND - THE - UFO!"
590 GOTO 680
600 PRINT "YOU ARE SHY OF THE UFO'S COORDINATES,"

```

```

610 PRINT "HOWEVER THIS IS ONLY A SLIGHT DEVIATION SO THE"
620 PRINT "UFO HAS BEEN DESTROYED!":PRINT
630 GOTO 680
640 PRINT "YOU OVERSHOT THE UFO'S COORDINATES.":GOTO 610
650 PRINT "FANTASTIC!!!! YOU HIT THE UFO EXACTLY ON PROJECTED COURSE"
660 PRINT "YOU MUST BE VERY SHARP!":PRINT
670 PRINT
680 PRINT "TRY AGAIN":INPUT J$:IF LEFT$(J$,1)="N" THEN 1190
690 GOSUB 1070
700 GOSUB 1040
710 PRINT:PRINT:GOTO 240
720 PRINT
730 F=0
740 A=INT(RND(0)*5)+1:C=Z-Y+A
750 M=12000:CLS:PRINT@120,"":GOSUB 760:GOTO 820
760 LB=PEEK(16416):MB=PEEK(16417)
770 PRINT@0,"MILES"TAB(10)"SPEED"TAB(21)"LONGITUDE"TAB(35);
780 PRINT "LATITUDE"TAB(40)"COURSE"
790 PRINT "-----"TAB(10)"-----"TAB(21)"-----"TAB(35);
800 PRINT "-----"TAB(40)"-----";
810 POKE16416,LB:POKE16417,MB:RETURN
820 P=X+1
830 PRINT M TAB(10) X TAB(21) Y TAB(35) Z TAB(40) C:GOSUB 760
840 C=Z-Y
850 X=X+INT(RND(0)*5000)+2000:M=M-X/60
860 Y=Y-INT(RND(0)*10):Z=Z-INT(RND(0)*10):C=Z-Y+AL2
870 IF X>5700 THEN F=F+1
880 IF M>0 THEN 820
890 PRINT "----- IMPACT - AT - ":PRINT USING "##,###";X;
900 PRINT "-----"
910 IF F<2 THEN 950
920 PRINT "GOOD WORK. FRICTION OF ";F;CHR$(8);"% HAS CAUSED THE COURSE"
930 PRINT "OF THE UFO TO DEVIATE. IMPACT COORDINATES ARE"
940 PRINT "NOW ("F", "0-F"). YOU MADE IT!":GOTO 990
950 PRINT "----- UPI - WIRE - SERVICE -- ON - LINE --";A;"A+5":"A+10"---
960 PRINT "--- HAVE JUST OBSERVED EXPLOSION AT COORDINATES ("0-F", 0). -----"
970 A=(A+2)*A
980 PRINT "BLAST SEEN FROM "AL3" MILES AWAY. NO SURVIVORS.":PRINT
990 INPUT "TRY AGAIN";J$
1000 IF LEFT$(J$,1)="N" THEN 1190
1010 GOSUB 1070
1020 GOSUB 1040
1030 PRINT:PRINT:GOTO 200
1040 INPUT "PLAN (A OR B)":D$:CLS
1050 IF LEFT$(D$,1)="B" THEN 720
1060 RETURN
1070 I=INT(RND(0)*20)+1:V=INT(RND(0)*400)+200:F=INT(RND(0)*5)+1
1080 X=INT(RND(0)*5000)+2001:H=X+8000:Q=INT(RND(0)*5)+1
1090 Z=INT(RND(0)*140):IF Z<100 THEN 1090
1100 Y=INT(RND(0)*60):IF Y<40 THEN 1100
1110 IF X>3000 THEN 1130
1120 H=5:GOTO 1100
1130 IF X>3700 THEN 1150
1140 M=4:GOTO 1100
1150 IF X>4700 THEN 1170
1160 H=3:GOTO 1100
1170 H=2
1180 RETURN
1190 END

```



# Column

This program is a computer version of an old card trick which never fails to get some oohs and aaahs from the uninitiated. The dealer, or magician, takes twenty-one random cards, deals them out in three piles of seven cards each. You then tell him which column (or which pile) contains your card. He then picks up the three columns from right to left, putting the right pile on the top, and then deals the deck out again horizontally. In other words the top card of the right column now becomes the top card of the left column; the second card in the right column now becomes the first card in the middle column; the third card of the right column becomes the first card in the third column, and so on. After he deals out all twenty-one cards in this way, you again tell him which column your card appears in. The magician then picks up the three piles in the same order and deals them out once again. Again you tell him which column contains your card. He then deals the cards out one by one face up and identifies yours when he comes to it. Don't ask me how he does it! Maybe you can figure it out from the program, but it works every time.

This program was originally written by Alan Barnes.

```

                                COLUMN
                                COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ
                                _____
                                c/s
                                _____

DO YOU NEED INSTRUCTIONS? YES.
                                _____
                                c/s
                                _____
                                COLUMN

THIS PROGRAM WILL SHOW YOU A CARD TRICK. AFTER THE FIRST DEAL
PICK A CARD AND TYPE THE NUMBER OF THE COLUMN CONTAINING IT.
THE DEALER WILL THEN PICK UP THE CARDS, A COLUMN AT A TIME,
AND WILL DEAL THEM OUT AGAIN HORIZONTALLY. WHEN HE FINISHES
EACH TIME, TYPE THE NUMBER OF THE NEW COLUMN CONTAINING YOUR

CARD. FOLLOWING THE LAST DEAL THE DEALER WILL TURN OVER THE
CARDS, ONE AT A TIME, UNTIL HE REACHES THE ONE YOU PICKED.

                                PRESS ANY KEY TO CONTINUE
                                _____
                                c/s
                                _____

                                COLUMN #1      COLUMN #2      COLUMN #3
                                -----
                                10 OF DIAMONDS  10 OF CLUBS      6 OF DIAMONDS
                                QUEEN OF HEARTS  5 OF DIAMONDS    8 OF DIAMONDS
                                9 OF SPADES     4 OF CLUBS        2 OF SPADES
                                8 OF CLUBS      KING OF HEARTS    9 OF DIAMONDS
                                7 OF SPADES     8 OF SPADES       5 OF CLUBS
                                KING OF SPADES  7 OF DIAMONDS    5 OF SPADES
                                JACK OF DIAMONDS 6 OF HEARTS       4 OF HEARTS
                                -----
                                WHICH COLUMN CONTAINS YOUR CARD? 2.
                                _____
                                c/s
                                _____

                                COLUMN #1      COLUMN #2      COLUMN #3
                                -----
                                10 OF DIAMONDS  QUEEN OF HEARTS  9 OF SPADES
                                8 OF CLUBS      7 OF SPADES      KING OF SPADES
                                JACK OF DIAMONDS 10 OF CLUBS      5 OF DIAMONDS
                                4 OF CLUBS      KING OF HEARTS   8 OF SPADES
                                7 OF DIAMONDS  6 OF HEARTS      6 OF DIAMONDS
                                8 OF DIAMONDS  2 OF SPADES      9 OF DIAMONDS
                                5 OF CLUBS      5 OF SPADES      4 OF HEARTS
                                -----
                                WHICH COLUMN CONTAINS YOUR CARD? 2.
                                _____
                                c/s
                                _____

                                COLUMN #1      COLUMN #2      COLUMN #3
                                -----
                                10 OF DIAMONDS  8 OF CLUBS       JACK OF DIAMONDS
                                4 OF CLUBS      7 OF DIAMONDS    8 OF DIAMONDS
                                5 OF CLUBS      QUEEN OF HEARTS  7 OF SPADES
                                10 OF CLUBS    KING OF HEARTS   6 OF HEARTS
                                2 OF SPADES    5 OF SPADES      9 OF SPADES
                                KING OF SPADES  5 OF DIAMONDS    8 OF SPADES
                                6 OF DIAMONDS  9 OF DIAMONDS    4 OF HEARTS
                                -----
                                WHICH COLUMN CONTAINS YOUR CARD? 1.
                                _____
                                c/s
                                _____

                                9 OF SPADES
                                8 OF SPADES
                                4 OF HEARTS
                                10 OF DIAMONDS
                                4 OF CLUBS
                                5 OF CLUBS

                                2 OF SPADES
                                KING OF SPADES
                                6 OF DIAMONDS
                                8 OF CLUBS
                                7 OF DIAMONDS
                                QUEEN OF HEARTS
                                KING OF HEARTS
                                5 OF SPADES
                                DO YOU WANT TO SEE IT AGAIN? NO.
                                _____
                                c/s
                                _____

```

OOPS!!! YOUR CARD IS THE 10 OF CLUBS

```

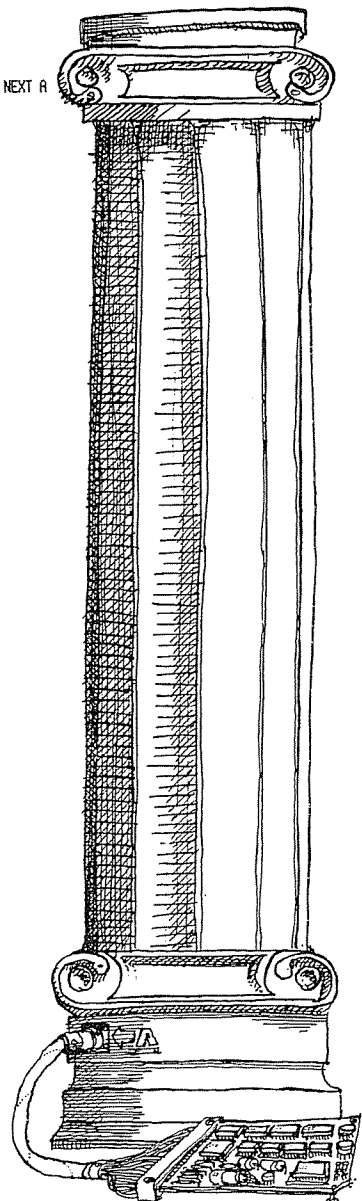
10 CLEAR 1000
20 CLS
30 PRINT @ 413, "COLUMN"
40 PRINT
50 PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
60 PRINT @ 960, "":
70 INPUT "DO YOU NEED INSTRUCTIONS?"; I$
80 IF LEFT$(I$, 1) = "N" THEN 210
90 CLS
100 PRINT TAB(29) "COLUMN"
110 PRINT
120 PRINT "THIS PROGRAM WILL SHOW YOU A CARD TRICK. AFTER THE FIRST DEAL"
130 PRINT "PICK A CARD AND TYPE THE NUMBER OF THE COLUMN CONTAINING IT."
140 PRINT "THE DEALER WILL THEN PICK UP THE CARDS, A COLUMN AT A TIME."
150 PRINT "AND WILL DEAL THEM OUT AGAIN HORIZONTALLY. WHEN HE FINISHES"
160 PRINT "EACH TIME, TYPE THE NUMBER OF THE NEW COLUMN CONTAINING YOUR"
170 PRINT "CARD. FOLLOWING THE LAST DEAL THE DEALER WILL TURN OVER THE"
180 PRINT "CARDS, ONE AT A TIME, UNTIL HE REACHES THE ONE YOU PICKED."
190 PRINT @ 979, "PRESS ANY KEY TO CONTINUE":
200 IF INKEY$ = "" THEN 200
210 CLS
220 PRINT CHR$(28);
230 DIM A(21), B(21)
240 FOR X=1 TO 21
250 J=0
260 T=INT(52*(RND(0)))
270 FOR Y=1 TO X-1
280 IF A(Y)=T THEN 260
290 NEXT Y
300 A(X)=T
310 NEXT X
320 N=0
330 FOR I=1 TO 3
340 PRINT TAB(2); "COLUMN #1"; TAB(23); "COLUMN #2"; TAB(44); "COLUMN #3"
350 PRINT STRING$(64, 140);
360 FOR Z=1 TO 21
370 IF A(Z)=4*(INT(A(Z)/4)) THEN 490
380 IF A(Z)=2+4*(INT(A(Z)/4)) THEN 460
390 IF A(Z)=3+4*(INT(A(Z)/4)) THEN 430
400 C$="SPADES"
410 D$=""
420 GOTO 510
430 C$="HEARTS"
440 D$=""
450 GOTO 510
460 C$="CLUBS"
470 D$=""
480 GOTO 510
490 C$="DIAMON"
500 D$="DS"
510 N=N+1
520 IF N<4 THEN 550
530 PRINT
540 N=1
550 IF A(Z)>35 THEN 590
560 CN$=STR$(INT(A(Z)/4)+2)
570 PRINT TAB((N-1)*21+2); RIGHT$(CN$, LEN(CN$)-1); " OF "; C$; D$;
580 IF J=5 THEN 1030 ELSE 710
590 IF INT(A(Z)/4)=9 THEN 680
600 IF INT(A(Z)/4)=10 THEN 660
610 IF INT(A(Z)/4)=11 THEN 640
620 A$="JACK"
630 GOTO 690
640 A$="QUEEN"
650 GOTO 690
660 A$="KING"
670 GOTO 690
680 A$="ACE"
690 PRINT TAB((N-1)*21+2); A$; " OF "; C$; D$;
700 IF J=5 THEN 1030
710 NEXT Z
720 PRINT
730 FOR A=4 TO 27
740 SET(0, A)
750 SET(42, A)
760 SET(84, A)
770 SET(127, A)
780 NEXT A
790 FOR A=0 TO 127
800 SET(A, 27)
810 NEXT

```

```

820 N=0
830 PRINT
840 PRINT "WHICH COLUMN CONTAINS YOUR CARD?";
850 INPUT K
860 CLS
870 IF K<1 OR K>3 THEN PRINT: PRINT "(1-3)": GOTO 830
880 T=1
890 S=K+2-3*INT((K+1)/3)
900 GOSUB 1210
910 S=K
920 GOSUB 1210
930 S=K+1-3*INT(K/3)
940 GOSUB 1210
950 FOR C=1 TO 21
960 A(C)=B(C)
970 NEXT C
980 NEXT I
990 J=5
1000 FOR Z=1 TO 19
1010 N=0
1020 GOTO 370
1030 PRINT
1040 NEXT Z
1050 PRINT @ 532, "OOPS!!! YOUR CARD IS THE ";
1060 FL=0
1070 A$=""
1080 FOR A=15746 TO 16383
1090 IF PEEK(A) < 32 THEN FL=0: A$=A$+CHR$(PEEK(A)): NEXT A
1100 IF FL=0 THEN A$=A$+" ": FL=1: NEXT A
1110 FOR A=385 TO 420
1120 PRINT @ A, " " A$;
1130 FOR B=1 TO 10
1140 NEXT B: A
1150 FOR A=428 TO 556 STEP 64
1160 PRINT @ A-64, " " STRING$(LEN(A$), 32);
1170 PRINT @ A, " " A$;
1180 FOR B=1 TO 10
1190 NEXT B: A
1200 GOTO 1260
1210 FOR R=5 TO 5+18 STEP 3
1220 B(T)=A(R)
1230 T=T+1
1240 NEXT R
1250 RETURN
1260 PRINT @ 960, "DO YOU WANT TO SEE IT AGAIN?";
1270 INPUT T$
1280 IF LEFT$(T$, 1) = "Y" THEN CLS: GOTO 240
1290 END

```



# Concentration

This children's card game for any number of players is also called memory, or pelmanism. It is easy to play and is an excellent test of memory and observation. The computer version here simulates the actual game except that it only allows one player to play. In the actual game, one player shuffles a deck of playing cards and lays them face down on a table in all directions and so that no card is touching another. Each player tries to collect as many cards as possible by turning up pairs with the same rank per a number or picture. The first player to go turns over two cards at random and allows the other players to see them. If the rank of the two cards is the same, for example, two aces or two kings, he takes them and may turn over two more cards. He continues in this way until he turns over two cards that do not match. These cards are then placed back down in their original positions, face down, and his turn then ends. The play then passes to the next player. This player turns up one card. If it matches one that has already been turned over, he must try to remember where that card is. If he is successful, he takes the pair. He continues his turn until he fails to turn over a matching pair. Play continues in turn until all the cards have been collected. The winner is the player with the most cards at the end of the game.

This game is good fun on a CRT terminal. Also, why not try modifying it to allow play by two or more players?

```
CONCENTRATION
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

_____ cls _____

HIT ENTER TO START? _

FIRST CARD? 1
SECOND CARD? 2
# 1 IS QC      # 2 IS AC

PRESS ANY KEY TO CONTINUE
_____ cls _____

FIRST CARD? 12
SECOND CARD? 2
# 12 IS QS     # 2 IS AC

PRESS ANY KEY TO CONTINUE
_____ cls _____

FIRST CARD? 53
THERE ARE ONLY 52 CARDS IN THE DECK, NOT 53.

FIRST CARD? 41
SECOND CARD? 37
# 41 IS 4C     # 37 IS 7S

PRESS ANY KEY TO CONTINUE
_____ cls _____

FIRST CARD? 28
SECOND CARD? 16
# 28 IS 5S     # 16 IS 6D

PRESS ANY KEY TO CONTINUE
_____ cls _____

FIRST CARD? 41
SECOND CARD? 25
# 41 IS 4C     # 25 IS 7S

PRESS ANY KEY TO CONTINUE
_____ cls _____

FIRST CARD? 37
SECOND CARD? 29
THAT'S A MATCH --7S      7S
YOUR SCORE IS NOW 1. YOU HAVE HAD 6 PICKS.

PRESS ANY KEY TO CONTINUE
_____ cls _____

FIRST CARD? 41
SECOND CARD? 6
THAT'S A MATCH --4C      4C
YOUR SCORE IS NOW 2. YOU HAVE HAD 7 PICKS.

PRESS ANY KEY TO CONTINUE
_____ cls _____

FIRST CARD? 12
SECOND CARD? 35
# 12 IS 6S     # 35 IS 7S

PRESS ANY KEY TO CONTINUE
_____ cls _____
```

```

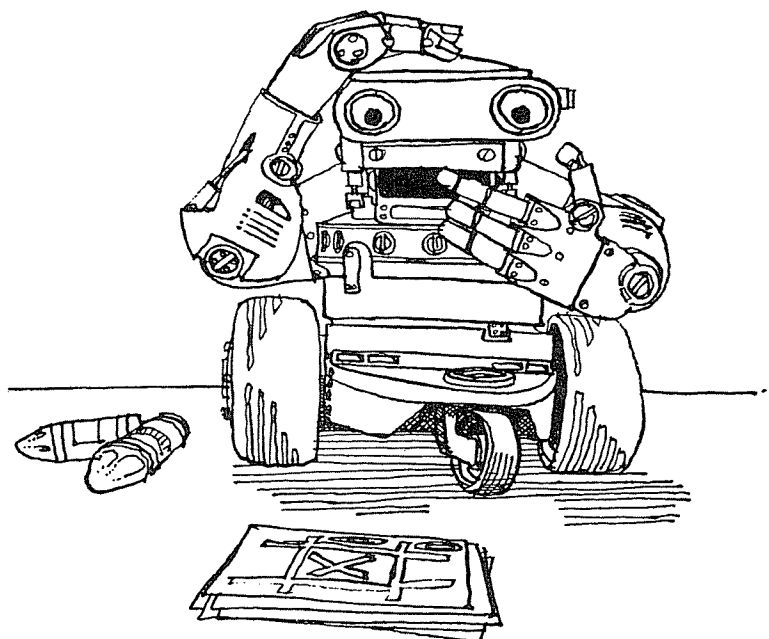
10 CLS
20 CLEAR 1000
30 PRINT @ 410, "CONCENTRATION"
40 PRINT
50 PRINT TAB(7)*"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
60 PRINT @ 960, "":
70 INPUT "HIT ENTER TO START"; I$
80 CLS
90 DIM C$(52)
100 FOR X=1 TO 52
110 READ E$
120 C$(X)=E$
130 NEXT X
140 REM --- SHUFFLE AND DEAL
150 FOR Z=1 TO 51
160 K$=C$(Z)
170 L=INT((53-Z)*RND(0)+1)
180 C$(Z)=C$(L+Z-1)
190 C$(L)=K$
200 NEXT Z
210 REM --- START TO PLAY
220 FOR N=1 TO 26
230 PRINT
240 PRINT "FIRST CARD":
250 INPUT U
260 IF U > 0 AND U < 53 THEN 290
270 PRINT "THERE ARE ONLY 52 CARDS IN THE DECK. NOT"; U; CHR$(0); " "
280 GOTO 230
290 LET G=1
300 IF C$(U)=" " THEN 760
310 PRINT "SECOND CARD":
320 INPUT H
330 IF H > 0 AND H < 53 THEN 360
340 PRINT "THERE ARE ONLY 52 CARDS IN THE DECK. NOT"; H; CHR$(0); " "
350 GOTO 310
360 LET G=2
370 IF C$(H)=" " THEN 760
380 IF U < H THEN 410
390 PRINT "YOU CAN'T PICK THE SAME CARD TWICE!"
400 GOTO 310
410 IF MID$(C$(U), 1, 1)=MID$(C$(H), 1, 1) THEN 470
420 PRINT "U; "IS "; C$(U), "H; "IS "; C$(H),
430 FOR I=1 TO 50
440 PRINT:
450 NEXT I
460 GOTO 520
470 PRINT "THAT'S A MATCH ---"; C$(U), C$(H)

```

```

480 LET C$(U)=" "
490 LET C$(H)=" "
500 LET S=S+1
510 PRINT "YOUR SCORE IS NOW"; S; CHR$(0); " YOU HAVE HAD"; N; "PICKS. "
520 PRINT @ 979, "PRESS ANY KEY TO CONTINUE":
530 IF INKEY$="" THEN 530
540 CLS
550 NEXT N
560 REM --- THE RESULTS
570 LET S1=S/(N/4)
580 PRINT "YOU SCORED"; S; "OUT OF"; N; CHR$(0); " THAT IS ":
590 ON S1+1.5 GOTO 600, 620, 640, 680
600 PRINT "POOR. "
610 GOTO 690
620 PRINT "FAIR. "
630 GOTO 690
640 PRINT "GOOD. "
650 GOTO 690
660 PRINT "EXCELLENT ! ! !"
670 GOTO 690
680 PRINT " AAHH UH... YOU MUST HAVE CHEATED!"
690 PRINT
700 PRINT "DO YOU WANT TO PLAY AGAIN";
710 INPUT Z$
720 IF LEFT$(Z$, 1)="" THEN 150
730 PRINT
740 PRINT "COME BACK AGAIN!!"
750 END
760 PRINT "YOU HAVE ALREADY MATCHED THAT CARD. "
770 IF G=1 THEN 230
780 GOTO 310
790 DATA "AS", "2S", "3S", "4S", "5S", "6S", "7S", "8S", "9S", "10S", "JS", "QS"
800 DATA "KS"
810 DATA "AH", "2H", "3H", "4H", "5H", "6H", "7H", "8H", "9H", "10H", "JH", "QH"
820 DATA "KH"
830 DATA "AD", "2D", "3D", "4D", "5D", "6D", "7D", "8D", "9D", "10D", "JD", "QD"
840 DATA "KD"
850 DATA "AC", "2C", "3C", "4C", "5C", "6C", "7C", "8C", "9C", "10C", "JC", "QC"
860 DATA "KC"
870 END
880 FOR XX=1 TO 4000
890 NEXT
900 RETURN
910 FOR YY=1 TO 2000
920 NEXT
930 RETURN

```



# Condot

This is the old childhood favorite of "connect the dots." The objective is to carve out squares of "real estate" with the computer as an able adversary. The player who connects the two dots which complete a square gets ownership of that square. In addition, the player gets the added bonus of moving once more. This can be quite advantageous in certain situations. A nine-square grid is provided as a playing board.

A sample of the grid follows with an identification of each coordinate where a line may be drawn.

|       |       |       |       |
|-------|-------|-------|-------|
| (1,2) | (1,4) | (1,6) |       |
| (2,1) | (2,3) | (2,5) | (2,7) |
| (3,2) | (3,4) | (3,6) |       |
| (4,1) | (4,3) | (4,5) | (4,7) |
| (5,2) | (5,4) | (5,6) |       |
| (6,1) | (6,3) | (6,5) | (6,7) |
| (7,2) | (7,4) | (7,6) |       |

You'll find it interesting to note that the computer mirrors the player's move in so far as possible. You may also find that the game moves rather slowly, especially for the first three or four moves. Be patient! Once squares begin to fall, the game moves swiftly to its conclusion.

There are some modifications that you may wish to consider if you are going to adopt this program for regular use. In addition to improving the REM statements in the program, I would suggest:

1. Modifying the program so that the grid is printed after *both* players have moved (rather than each time a move is made);
2. Modifying the program so that once a player had ownership of a majority of the squares, the game would end rather than proceed to its inevitable conclusion; and
3. Modify the program so that the player's initials appear in each square he captures.

The program is by Chuck Lund; the writeup by Pete Olivieri. It originally appeared in *Creative Computing*, Jan/Feb 1976.

CONNECT THE DOTS  
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

```

_____
cls
HIT ENTER TO START? _
_____
cls
THIS PROGRAM WILL PLAY CONNECT THE DOTS WITH YOU.
THE GAME IS PLAYED ON A 4 X 4 ARRAY. WHEN
YOU WANT TO MAKE A MOVE YOU MUST TYPE IN
THE COORDINATES OF THE SPACE BETWEEN THE TWO DOTS YOU
WANT TO CONNECT. ENTER EACH OF YOUR MOVES BY TYPING
THE ROW NUMBER, A COMMA AND THE COLUMN NUMBER.
THE UPPER LEFT HAND CORNER OF THE ARRAY IS 1,1.
HERE WE GO.

```

PRESS ANY KEY TO CONTINUE

```

_____
cls
  1  2  3  4  5  6  7
1
2
3
4
5
6
7

```

YOUR MOVE? 1,1  
YOU REALLY DON'T WANT TO PUT A LINE THERE!!!!

```

YOUR MOVE? 1,2_
_____
cls
  1  2  3  4  5  6  7
1
2
3
4
5
6
7

```

YOUR MOVE? 7,5  
YOU REALLY DON'T WANT TO PUT A LINE THERE!!!!

```

YOUR MOVE? 7,4_
_____
cls
  1  2  3  4  5  6  7
1
2
3
4
5
6
7

```

```

YOUR MOVE? 1,6_
_____
cls
  1  2  3  4  5  6  7
1
2
3
4
5
6
7

```

```

YOUR MOVE? 2,1_
_____
cls
  1  2  3  4  5  6  7
1
2
3
4
5
6
7

```

```

YOUR MOVE? 4,1_
_____
cls

```

```

_____
cls
  1  2  3  4  5  6  7
1
2
3
4
5
6
7

```

YOUR MOVE? 2,7\_

```

_____
cls
  1  2  3  4  5  6  7
1
2
3
4
5
6
7

```

YOUR MOVE? 4,3\_

```

_____
cls
  1  2  3  4  5  6  7
1
2
3
4
5
6
7

```

YOUR MOVE? 5,4\_

```

_____
cls
  1  2  3  4  5  6  7
1
2
3
4
5
6
7

```

YOUR MOVE? 2,3\_

```

_____
cls
  1  2  3  4  5  6  7
1
2
3
4
5
6
7

```

YOUR MOVE? 3,6\_

```

_____
cls

```

|   | cls               |
|---|-------------------|
|   | 1 2 3 4 5 6 7     |
| 1 | .....             |
| 2 | .....H.....H..... |
| 3 | .....             |
| 4 | .....C.....       |
| 5 | .....             |
| 6 | .....             |
| 7 | .....             |

|   | cls                     |
|---|-------------------------|
|   | 1 2 3 4 5 6 7           |
| 1 | .....                   |
| 2 | .....C.....H.....H..... |
| 3 | .....                   |
| 4 | .....C.....C.....C..... |
| 5 | .....                   |
| 6 | .....C.....             |
| 7 | .....                   |

YOUR MOVE? 6,3\_

|   | cls                     |
|---|-------------------------|
|   | 1 2 3 4 5 6 7           |
| 1 | .....                   |
| 2 | .....C.....H.....H..... |
| 3 | .....                   |
| 4 | .....C.....C.....       |
| 5 | .....                   |
| 6 | .....C.....             |
| 7 | .....                   |

MY MOVE

|   | cls                     |
|---|-------------------------|
|   | 1 2 3 4 5 6 7           |
| 1 | .....                   |
| 2 | .....C.....H.....H..... |
| 3 | .....                   |
| 4 | .....C.....C.....C..... |
| 5 | .....                   |
| 6 | .....C.....C.....C..... |
| 7 | .....                   |

MY MOVE

|  | cls |
|--|-----|
|--|-----|

I WON  
DO YOU WANT TO PLAY AGAIN? NO\_

|  | cls |
|--|-----|
|--|-----|

```

10 CLS: PRINT@400, "CONNECT THE DOTS"
20 PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING
MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "HIT ENTER TO START";I$: CLS
40 PRINT TAB(20) "CONNECT THE DOTS"
50 PRINT
60 PRINT "THIS PROGRAM WILL PLAY CONNECT THE DOTS WITH YOU."
70 PRINT "THE GAME IS PLAYED ON A 4 X 4 ARRAY. WHEN"
80 PRINT "YOU WANT TO MAKE A MOVE YOU MUST TYPE IN"
90 PRINT "THE COORDINATES OF THE SPACE BETWEEN THE TWO DOTS YOU"
100 PRINT "WANT TO CONNECT. ENTER EACH OF YOUR MOVES BY TYPING"
110 PRINT "THE ROW NUMBER, A COMMA AND THE COLUMN NUMBER."
120 PRINT "THE UPPER LEFT HAND CORNER OF THE ARRAY IS 1,1."
130 PRINT "HERE WE GO.": PRINT@979, "PRESS ANY KEY TO CONTINUE";
140 IF INKEY$="" THEN 140 ELSE CLS
150 DIM A(12,12)
160 V=0
170 FOR R=1 TO 12
180 FOR C=1 TO 12
190 IF R/2=INT(R/2) THEN 230
200 IF C/2=INT(C/2) THEN 230
210 A(R,C)=-50
220 GOTO 240
230 A(R,C)=0
240 NEXT C
250 NEXT R
260 IF V=1 THEN 270
270 GOSUB 1120
280 PRINT: PRINT "YOUR MOVE";
290 INPUT X,Y
300 IF X=INT(X) THEN 330
310 PRINT "YOU REALLY DON'T WANT TO PUT A LINE THERE!!!!"
320 GOTO 280
330 IF (X-1)*(X-7)>0 THEN 310
340 X=X+2
350 IF (Y-1)*(Y-7)>0 THEN 310
360 Y=Y+2
370 IF (X+Y+1)/2<INT((X+Y+1)/2) THEN 310
380 IF A(X,Y)<0 THEN 310
390 A(X,Y)=50
400 IF X/2=INT(X/2) THEN 470
410 IF A(X-2,Y)+A(X-1,Y+1)+A(X-1,Y-1)<150 THEN 440
420 P=1
430 A(X-1,Y)=1
440 IF A(X+2,Y)+A(X+1,Y+1)+A(X+1,Y-1)<150 THEN 530
450 A(X+1,Y)=1
460 GOTO 270
470 IF A(X,Y-2)+A(X+1,Y-1)+A(X-1,Y-1)<150 THEN 500
480 A(X,Y-1)=1
490 P=1
500 IF A(X,Y+2)+A(X+1,Y+1)+A(X-1,Y+1)<150 THEN 530
510 A(X,Y+1)=1
520 GOTO 270
530 IF P=1 THEN 270
540 GOSUB 1120
550 PRINT:PRINT "MY MOVE"
560 FOR R=4 TO 10 STEP 2
570 FOR C=4 TO 10 STEP 2
580 IF A(R-1,C)+A(R+1,C)+A(R,C-1)+A(R,C+1)<150 THEN 770
590 A(R,C)=-1

```

```

600 IF A(R-1,C)<0 THEN 640
610 A(R-1,C)=50
620 IF A(R-3,C)+A(R-2,C-1)+A(R-2,C+1)<150 THEN 540
630 LET A(R-2,C)=-1
640 IF A(R+1,C)<0 THEN 680
650 A(R+1,C)=50
660 IF A(R+3,C)+A(R+2,C-1)+A(R+2,C+1)<150 THEN 540
670 A(R+2,C)=-1
680 IF A(R,C-1)<0 THEN 720
690 A(R,C-1)=50
700 IF A(R,C-3)+A(R-1,C-2)+A(R+1,C+2)<150 THEN 540
710 A(R,C-2)=-1
720 IF A(R,C+1)<0 THEN 540
730 A(R,C+1)=50
740 IF A(R,C+3)+A(R-1,C+2)+A(R+1,C+2)<150 THEN 540
750 A(R,C+2)=-1
760 GOTO 540
770 NEXT C
780 NEXT R
790 IF E>1 THEN 840
800 IF A(12-X,12-Y)<0 THEN 840
810 A(12-X,12-Y)=50
820 IF E>1 THEN 980
830 GOTO 270
840 FOR R=3 TO 9
850 FOR C=3 TO 9
860 IF (R+C)/2=INT((R+C)/2) THEN 950
870 IF A(R,C)<0 THEN 950
880 IF R/2=INT(R/2) THEN 930
890 IF A(R-2,C)+A(R-1,C-1)+A(R-1,C+1)=100 THEN 950
900 IF A(R+2,C)+A(R+1,C-1)+A(R+1,C+1)=100 THEN 950
910 A(R,C)=50
920 GOTO 270
930 IF A(R,C-2)+A(R-1,C-1)+A(R+1,C-1)=100 THEN 950
940 IF A(R,C+2)+A(R-1,C+2)+A(R+1,C+1)<100 THEN 910
950 NEXT C
960 NEXT R
970 IF E>1 THEN 800
980 R=INT(RND(0)*7)+3
990 C=INT(RND(0)*7)+3
1000 IF R/2=INT(R/2) THEN 1030
1010 IF C/2=INT(C/2) THEN 1050
1020 GOTO 980
1030 IF C/2<INT(C/2) THEN 1050
1040 GOTO 980
1050 IF A(R,C)<0 THEN 980
1060 A(R,C)=50
1070 GOTO 270
1080 PRINT "DO YOU WANT TO PLAY AGAIN";
1090 INPUT B$
1100 IF LEFT$(B$,1)="Y" THEN 170
1110 END
1120 P=0: PRINT@0, " 1 2 3 4 5 6 7"
1130 D=0
1140 E=0
1150 FOR R=3 TO 9: PRINT " ";R-2; " ";
1160 FOR C=3 TO 9
1170 IF A(R,C)<0 THEN 1200
1180 PRINT " ";
1190 GOTO 1350
1200 IF A(R,C)<-50 THEN 1230
1210 PRINT " ";CHR$(140); " ";
1220 GOTO 1350
1230 IF A(R,C)<-1 THEN 1260
1240 PRINT " C ";
1250 GOTO 1280
1260 IF A(R,C)<1 THEN 1310
1270 PRINT " H ";
1280 D=D+A(R,C)
1290 E=E+1
1300 GOTO 1350
1310 IF R/2=INT(R/2) THEN 1340
1320 PRINT STRING$(3,140);
1330 GOTO 1350
1340 PRINT " ";CHR$(191); " ";
1350 NEXT C
1360 PRINT
1370 NEXT R
1380 IF E>9 THEN 1400
1390 PRINT: PRINT CHR$(31); RETURN
1400 PRINT: PRINT: IF D>0 THEN 1430
1410 PRINT "I WON"
1420 GOTO 1080
1430 PRINT "YOU WON!!!"
1440 GOTO 1080
1450 END

```

# Convoy

CONVOY  
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

— cls —  
DO YOU NEED INSTRUCTIONS? YES\_

— cls —  
THIS NAVAL WAR GAME IS PLAYED ON A 10 BY 10 MATRIX.  
YOU ARE THE SUB; THE COMPUTER IS A CARGO SHIP AND ITS TWO DESTROYERS. THE SHIP STARTS IN SQUARE 100 AND RANDOMLY MOVES TO SQUARE 1, MOVING 0, 1, 2, OR 3 SQUARES AT A TIME.  
ONE OF THE SHIP'S DESTROYERS STARTS AT SQUARE 78 AND MOVES RANDOMLY 0, 1, 2 OR 3 SQUARES AT A TIME SEARCHING FOR THE SUB. THE OTHER DESTROYER STAYS WITHIN ONE SQUARE OF THE SHIP AS AN ESCORT. THE SUB STARTS IN SQUARE 12. CAN MOVE UP, DOWN, LEFT OR RIGHT 1 SQUARE AT A TIME, 2 MOVES PER TURN, AND IT HAS TORPEDOES WHICH IT CAN FIRE 1 AT A TIME IN ANY STRAIGHT LINE. AFTER EACH SUB MOVE, THE PERISCOPE WILL SEARCH EACH ADJACENT SQUARE FOR THE SHIP. ALSO RANDOM RECONNAISSANCE REPORTS WILL BE MADE.

PRESS ANY KEY TO CONTINUE

— cls —  
THE SEQUENCE OF PLAY IS:  
1 - SHIP AND DESTROYERS MOVE  
2 - YOUR MOVE  
3 - YOU CAN FIRE A TORPEDO  
4 - PERISCOPE SEARCH  
5 - YOUR MOVE AGAIN  
6 - BACK TO NUMBER 1

THE SUB WINS IF IT SUCCEEDS IN HITTING THE SHIP WITHIN 4 TORPEDOES WITHOUT MOVING TO A SQUARE OCCUPIED BY A DESTROYER. TO 'FIRE?' ANSWER: 'N', 'L', 'R', 'U', 'D', 'LU', 'LD', 'RU', OR 'RD'.

'L' = LEFT, 'R' = RIGHT, 'U' = UP, 'D' = DOWN, 'LU' = LEFT UP, 'RU' = RIGHT UP, 'RD' = RIGHT DOWN.

PRESS ANY KEY TO CONTINUE

— cls —  
THE BOARD

|    |    |    |    |    |    |    |    |    |     |
|----|----|----|----|----|----|----|----|----|-----|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10  |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20  |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30  |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40  |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50  |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60  |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70  |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80  |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90  |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB IS NOW AT 12. DESTROYER LAST SIGHTED AT 78.  
SUB'S MOVE? 12\_

— cls —  
THE BOARD

|    |    |    |    |    |    |    |    |    |     |
|----|----|----|----|----|----|----|----|----|-----|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10  |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20  |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30  |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40  |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50  |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60  |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70  |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80  |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90  |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB IS NOW AT 12. DESTROYER LAST SIGHTED AT 78.  
SUB'S MOVE? 14\_

— cls —  
THE BOARD

|    |    |    |    |    |    |    |    |    |     |
|----|----|----|----|----|----|----|----|----|-----|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10  |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20  |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30  |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40  |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50  |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60  |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70  |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80  |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90  |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB IS AT 14. SHIP LAST SEEN AT 100.  
FIRE? NO\_

— cls —

This is a naval war game played on a 10 by 10 grid. You are a submarine and the computer plays the role of the convoy consisting of a cargo ship and two destroyers. One destroyer acts as the escort traveling alongside the cargo ship, while the other searches for the submarine and tries to destroy it. The destroyer which is searching for the submarine moves from zero to three squares at a time, searching. The other destroyer stays within one square of the ship. The submarine starts in square #12 and can move up, down, left, or right one square at a time with two moves per turn. It has four torpedoes which may be fired one at a time in any straight direction, horizontally, vertically, or diagonally.

The game ends when either the submarine destroys the cargo ship or when one of the two destroyers gets the submarine.

— cls —  
THE BOARD

|    |    |    |    |    |    |    |    |    |     |
|----|----|----|----|----|----|----|----|----|-----|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10  |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20  |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30  |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40  |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50  |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60  |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70  |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80  |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90  |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB IS NOW AT 14. DESTROYER LAST SIGHTED AT 78.  
SUB'S MOVE? 15\_

— cls —  
THE BOARD

|    |    |    |    |    |    |    |    |    |     |
|----|----|----|----|----|----|----|----|----|-----|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10  |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20  |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30  |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40  |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50  |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60  |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70  |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80  |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90  |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB IS NOW AT 14. DESTROYER LAST SIGHTED AT 78.  
SUB'S MOVE? 16\_

— cls —  
THE BOARD

|    |    |    |    |    |    |    |    |    |     |
|----|----|----|----|----|----|----|----|----|-----|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10  |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20  |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30  |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40  |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50  |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60  |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70  |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80  |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90  |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB IS NOW AT 16. DESTROYER LAST SIGHTED AT 78.  
SUB'S MOVE? 17\_

— cls —

cls

|       |    |    |    |    |    |     |    |    |    |     |
|-------|----|----|----|----|----|-----|----|----|----|-----|
|       | 1  | 2  | 3  | 4  | 5  | 6   | 7  | 8  | 9  | 10  |
| 11    | 12 | 13 | 14 | 15 | 16 | ... | 18 | 19 | 20 |     |
| 21    | 22 | 23 | 24 | 25 | 26 | 27  | 28 | 29 | 30 |     |
| 31    | 32 | 33 | 34 | 35 | 36 | 37  | 38 | 39 | 40 |     |
| THE   | 41 | 42 | 43 | 44 | 45 | 46  | 47 | 48 | 49 | 50  |
| BOARD | 51 | 52 | 53 | 54 | 55 | 56  | 57 | 58 | 59 | 60  |
|       | 61 | 62 | 63 | 64 | 65 | 66  | 67 | 68 | 69 | 70  |
|       | 71 | 72 | 73 | 74 | 75 | 76  | 77 | 78 | 79 | 80  |
|       | 81 | 82 | 83 | 84 | 85 | 86  | 87 | 88 | 89 | 90  |
|       | 91 | 92 | 93 | 94 | 95 | 96  | 97 | 98 | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB IS NOW AT 16. DESTROYER LAST SIGHTED AT 78.  
SUB'S MOVE? 18\_

cls

|       |    |    |    |    |    |    |     |    |    |     |
|-------|----|----|----|----|----|----|-----|----|----|-----|
|       | 1  | 2  | 3  | 4  | 5  | 6  | 7   | 8  | 9  | 10  |
| 11    | 12 | 13 | 14 | 15 | 16 | 17 | ... | 19 | 20 |     |
| 21    | 22 | 23 | 24 | 25 | 26 | 27 | 28  | 29 | 30 |     |
| 31    | 32 | 33 | 34 | 35 | 36 | 37 | 38  | 39 | 40 |     |
| THE   | 41 | 42 | 43 | 44 | 45 | 46 | 47  | 48 | 49 | 50  |
| BOARD | 51 | 52 | 53 | 54 | 55 | 56 | 57  | 58 | 59 | 60  |
|       | 61 | 62 | 63 | 64 | 65 | 66 | 67  | 68 | 69 | 70  |
|       | 71 | 72 | 73 | 74 | 75 | 76 | 77  | 78 | 79 | 80  |
|       | 81 | 82 | 83 | 84 | 85 | 86 | 87  | 88 | 89 | 90  |
|       | 91 | 92 | 93 | 94 | 95 | 96 | 97  | 98 | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB AT 18. SHIP LAST SEEN AT 79.  
FIRE? NO\_

cls

|       |    |    |    |    |    |    |     |    |    |     |
|-------|----|----|----|----|----|----|-----|----|----|-----|
|       | 1  | 2  | 3  | 4  | 5  | 6  | 7   | 8  | 9  | 10  |
| 11    | 12 | 13 | 14 | 15 | 16 | 17 | ... | 19 | 20 |     |
| 21    | 22 | 23 | 24 | 25 | 26 | 27 | 28  | 29 | 30 |     |
| 31    | 32 | 33 | 34 | 35 | 36 | 37 | 38  | 39 | 40 |     |
| THE   | 41 | 42 | 43 | 44 | 45 | 46 | 47  | 48 | 49 | 50  |
| BOARD | 51 | 52 | 53 | 54 | 55 | 56 | 57  | 58 | 59 | 60  |
|       | 61 | 62 | 63 | 64 | 65 | 66 | 67  | 68 | 69 | 70  |
|       | 71 | 72 | 73 | 74 | 75 | 76 | 77  | 78 | 79 | 80  |
|       | 81 | 82 | 83 | 84 | 85 | 86 | 87  | 88 | 89 | 90  |
|       | 91 | 92 | 93 | 94 | 95 | 96 | 97  | 98 | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB AT 18. SHIP LAST SEEN AT 79.  
UP PERISCOPE.

cls

|       |    |    |    |    |    |    |     |    |    |     |
|-------|----|----|----|----|----|----|-----|----|----|-----|
|       | 1  | 2  | 3  | 4  | 5  | 6  | 7   | 8  | 9  | 10  |
| 11    | 12 | 13 | 14 | 15 | 16 | 17 | ... | 19 | 20 |     |
| 21    | 22 | 23 | 24 | 25 | 26 | 27 | 28  | 29 | 30 |     |
| 31    | 32 | 33 | 34 | 35 | 36 | 37 | 38  | 39 | 40 |     |
| THE   | 41 | 42 | 43 | 44 | 45 | 46 | 47  | 48 | 49 | 50  |
| BOARD | 51 | 52 | 53 | 54 | 55 | 56 | 57  | 58 | 59 | 60  |
|       | 61 | 62 | 63 | 64 | 65 | 66 | 67  | 68 | 69 | 70  |
|       | 71 | 72 | 73 | 74 | 75 | 76 | 77  | 78 | 79 | 80  |
|       | 81 | 82 | 83 | 84 | 85 | 86 | 87  | 88 | 89 | 90  |
|       | 91 | 92 | 93 | 94 | 95 | 96 | 97  | 98 | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB IS NOW AT 18. DESTROYER LAST SIGHTED AT 78.  
SUB'S MOVE? 28\_ SHIP AT 70.

cls

|       |    |    |    |    |    |    |     |    |    |     |
|-------|----|----|----|----|----|----|-----|----|----|-----|
|       | 1  | 2  | 3  | 4  | 5  | 6  | 7   | 8  | 9  | 10  |
| 11    | 12 | 13 | 14 | 15 | 16 | 17 | 18  | 19 | 20 |     |
| 21    | 22 | 23 | 24 | 25 | 26 | 27 | ... | 29 | 30 |     |
| 31    | 32 | 33 | 34 | 35 | 36 | 37 | 38  | 39 | 40 |     |
| THE   | 41 | 42 | 43 | 44 | 45 | 46 | 47  | 48 | 49 | 50  |
| BOARD | 51 | 52 | 53 | 54 | 55 | 56 | 57  | 58 | 59 | 60  |
|       | 61 | 62 | 63 | 64 | 65 | 66 | 67  | 68 | 69 | 70  |
|       | 71 | 72 | 73 | 74 | 75 | 76 | 77  | 78 | 79 | 80  |
|       | 81 | 82 | 83 | 84 | 85 | 86 | 87  | 88 | 89 | 90  |
|       | 91 | 92 | 93 | 94 | 95 | 96 | 97  | 98 | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB IS NOW AT 18. DESTROYER LAST SIGHTED AT 78.  
SUB'S MOVE? 38\_

cls

cls

|       |    |    |    |    |    |    |     |    |    |     |
|-------|----|----|----|----|----|----|-----|----|----|-----|
|       | 1  | 2  | 3  | 4  | 5  | 6  | 7   | 8  | 9  | 10  |
| 11    | 12 | 13 | 14 | 15 | 16 | 17 | 18  | 19 | 20 |     |
| 21    | 22 | 23 | 24 | 25 | 26 | 27 | 28  | 29 | 30 |     |
| 31    | 32 | 33 | 34 | 35 | 36 | 37 | ... | 39 | 40 |     |
| THE   | 41 | 42 | 43 | 44 | 45 | 46 | 47  | 48 | 49 | 50  |
| BOARD | 51 | 52 | 53 | 54 | 55 | 56 | 57  | 58 | 59 | 60  |
|       | 61 | 62 | 63 | 64 | 65 | 66 | 67  | 68 | 69 | 70  |
|       | 71 | 72 | 73 | 74 | 75 | 76 | 77  | 78 | 79 | 80  |
|       | 81 | 82 | 83 | 84 | 85 | 86 | 87  | 88 | 89 | 90  |
|       | 91 | 92 | 93 | 94 | 95 | 96 | 97  | 98 | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB IS NOW AT 38. DESTROYER LAST SIGHTED AT 78.  
SUB'S MOVE? 48\_

cls

|       |    |    |    |    |    |    |    |     |    |     |
|-------|----|----|----|----|----|----|----|-----|----|-----|
|       | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8   | 9  | 10  |
| 11    | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19  | 20 |     |
| 21    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29  | 30 |     |
| 31    | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39  | 40 |     |
| THE   | 41 | 42 | 43 | 44 | 45 | 46 | 47 | ... | 49 | 50  |
| BOARD | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58  | 59 | 60  |
|       | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68  | 69 | 70  |
|       | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78  | 79 | 80  |
|       | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88  | 89 | 90  |
|       | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98  | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB IS NOW AT 38. DESTROYER LAST SIGHTED AT 78.  
SUB'S MOVE? 48\_ ESCORT VERY NEAR!

cls

|       |    |    |    |    |    |    |    |     |    |     |
|-------|----|----|----|----|----|----|----|-----|----|-----|
|       | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8   | 9  | 10  |
| 11    | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19  | 20 |     |
| 21    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29  | 30 |     |
| 31    | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39  | 40 |     |
| THE   | 41 | 42 | 43 | 44 | 45 | 46 | 47 | ... | 49 | 50  |
| BOARD | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58  | 59 | 60  |
|       | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68  | 69 | 70  |
|       | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78  | 79 | 80  |
|       | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88  | 89 | 90  |
|       | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98  | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB AT 48. SHIP LAST SEEN AT 70.  
FIRE? YES\_ ESCORT VERY NEAR!

cls

|       |    |    |    |    |    |    |    |     |    |     |
|-------|----|----|----|----|----|----|----|-----|----|-----|
|       | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8   | 9  | 10  |
| 11    | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19  | 20 |     |
| 21    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29  | 30 |     |
| 31    | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39  | 40 |     |
| THE   | 41 | 42 | 43 | 44 | 45 | 46 | 47 | ... | 49 | 50  |
| BOARD | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58  | 59 | 60  |
|       | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68  | 69 | 70  |
|       | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78  | 79 | 80  |
|       | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88  | 89 | 90  |
|       | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98  | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB AT 48. SHIP LAST SEEN AT 70.  
FIRE? RD\_

cls

|       |    |    |    |    |    |    |    |     |    |     |
|-------|----|----|----|----|----|----|----|-----|----|-----|
|       | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8   | 9  | 10  |
| 11    | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19  | 20 |     |
| 21    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29  | 30 |     |
| 31    | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39  | 40 |     |
| THE   | 41 | 42 | 43 | 44 | 45 | 46 | 47 | ... | 49 | 50  |
| BOARD | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58  | 59 | 60  |
|       | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68  | 69 | 70  |
|       | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78  | 79 | 80  |
|       | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88  | 89 | 90  |
|       | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98  | 99 | 100 |

DESTROYER HAS MOVED. SHIP HAS MOVED.  
SUB AT 48. SHIP LAST SEEN AT 70.  
MISS.

cls



```

10 CLEAR500:CLS:PRINT@413,"CONVOY"
20 PRINT:PRINT TAB(7)"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960,"":INF JT "DO YOU NEED INSTRUCTIONS";I$
40 IF LEFT$(I$,1)="N" THEN CLS:GOTO 350
50 CLS:PRINT TAB(29);"CONVOY":PRINT
60 PRINT " THIS NAVY WAR GAME IS PLAYED ON A 10 BY 10 MATRIX. "
70 PRINT"YOU ARE THE SUB. THE COMPUTER IS A CARGO SHIP AND ITS TWO"
80 PRINT"DESTROYERS. THE SHIP STARTS IN SQUARE 100 AND RANDOMLY MOVES"
90 PRINT"TO SQUARE 1. MOVING 0,1,2,OR 3 SQUARES AT A TIME. "
100 PRINT" ONE OF THE SHIP'S DESTROYERS STARTS AT SQUARE 78 AND MOVES"
110 PRINT"RANDOMLY 0,1,2 OR 3 SQUARES AT A TIME SEARCHING FOR THE SUB. "
120 PRINT"THE OTHER DESTROYER STAYS WITHIN ONE SQUARE OF THE SHIP AS"
130 PRINT"AN ESCORT. THE SUB STARTS IN SQUARE 12, CAN MOVE UP,DOWN, "
140 PRINT"LEFT OR RIGHT 1 SQUARE AT A TIME, 2 MOVES PER TURN, AND IT "
150 PRINT"HAS TORPEDOES WHICH IT CAN FIRE 1 AT A TIME IN ANY STRAIGHT"
160 PRINT"LINE. AFTER EACH SUB MOVE, THE PERISCOPE WILL SEARCH"
170 PRINT"EACH ADJACENT SQUARE FOR THE SHIP ALSO RANDOM RECONNAISSANCE"
180 PRINT"REPORTS WILL BE MADE. "
190 PRINT@979,"PRESS ANY KEY TO CONTINUE";
200 IF INKEY$="" THEN 200 ELSE PRINT@120,CHR$(31);
210 PRINT " THE SEQUENCE OF PLAY IS:"
220 PRINT" 1 - SHIP AND DESTROYERS MOVE"
230 PRINT" 2 - YOU MOVE"
240 PRINT" 3 - YOU CAN FIRE A TORPEDO"
250 PRINT" 4 - PERISCOPE SEARCH"
260 PRINT" 5 - YOU MOVE AGAIN"
270 PRINT" 6 - BACK TO NUMBER 1"
280 PRINT" THE SUB INS IF IT SUCCEEDS IN HITTING THE SHIP WITHIN 4 "
290 PRINT"TORPEDOES WITHOUT MOVING TO A SQUARE OCCUPIED BY A DESTROYER. "
300 PRINT"TO 'FIRE?' (ANSWER: 'NO','L','R','U','D','LU','LD','RU',OR 'RD'. "
310 PRINT"'L' = LEFT, 'R' = RIGHT, 'U' = UP, 'D' = DOWN, 'LU' = LEFT UP, "
320 PRINT"'RU' = RIGHT UP, 'RD' = RIGHT DOWN. "
330 PRINT@979,"PRESS ANY KEY TO CONTINUE";
340 IF INKEY$="" THEN 340 ELSE CLS
350 PRINT TAB(24); " 1 2 3 4 5 6 7 8 9 10"
360 FOR I=1 TO 9
370 PRINT TAB(24); " FOR J=1 TO 10
380 PRINT USING "### ";I*10+J;
390 NEXT J
400 NEXT I
410 PRINT@256,"THE":PRINT@320,"BOARD";PRINT@640,STRING$(64,191);
420 D=12
430 T=4
440 S=100
450 C=78
460 C2=78
470 L=100
480 IF C=-100 THEN 530
490 GOTO 2970
500 Y3=0
510 M1=0
520 GOTO560
530 M1=0
540 IF S=2 THEN 1220
550 Y3=1
560 IF S=3 THEN 1220
570 IF S=11 THEN 1220
580 IF S=12 THEN 1220
590 IF S=21 THEN 1220
600 X=RND(0)
610 IF X>.4 THEN 670
620 IF X>.2 THEN 690
630 IF X>.05 THEN 650
640 GOTO 1000
650 S1=0
660 GOTO 700
670 S1=2
680 GOTO 700
690 S1=1
700 X=RND(0)
710 IF X<.75 THEN 740
720 P1=1
730 GOTO 810
740 P1=-1
750 GOTO 810
760 IF S=10*INT(S/10) THEN 800
770 GOTO 840
780 IF S=1+(10*INT(S/10)) THEN 800
790 GOTO 840
800 P1=P1*(-1)
810 M2=P1*((INT(2*(RND(0)))+9)+1)
820 IF M2=1 THEN 760
830 IF M2=-1 THEN 780
840 IF M1=M2*(-1) THEN 800
850 C1=S+M2
860 IF C1=1 THEN 1220
870 IF C1=D THEN 2820
880 IF C1=C THEN 800
890 IF C1<1 THEN 800
900 IF C1>100 THEN 800
910 M1=M2
920 S=C1
930 C6=S+((INT(2*(RND(0)))+(-2))+1)*((INT(2*(RND(0)))+9)+1)
940 IF C6<2 THEN 930
950 IF C6>100 THEN 930
960 IF C6=D THEN 2800
970 IF S1=1 THEN 650
980 IF S1=2 THEN 690
990 C3=0
1000 PRINT@736,"SHIP HAS MOVED. ";
1010 IF Y3=0 THEN 1040
1020 X1=0
1030 GOTO 2390
1040 REM
1050 X1=1
1060 PRINT@760,"SUB AT";D;CHR$(8);";";CHR$(30);
1070 PRINT@800,"SHIP LAST SEEN AT";L;CHR$(8);";";CHR$(30);
1080 PRINT@832,"FIRE";CHR$(30);
1090 INPUT A$
1100 IF LEFT$(A$,1)="N" THEN 1780
1110 TP$=STRING$(3,140);IF A$="L" THEN 1240
1120 IF A$="R" THEN 1260
1130 TP$=" "+CHR$(191)+";":IF A$="U" THEN 1280
1140 IF A$="D" THEN 1300
1150 TP$=CHR$(131)+CHR$(140)+CHR$(176);IF A$="LU" THEN 1320
1160 IF A$="RD" THEN 1380
1170 TP$=CHR$(176)+CHR$(140)+CHR$(131);IF A$="RU" THEN 1360
1180 IF A$="LD" THEN 1340
1190 PRINT@832,"ANSWER NO, L, R, U, D, LU, LD, RU OR RD. ";CHR$(30);
1200 FOR TM=1 TO 500: NEXT
1210 GOTO 1000
1220 CLS:PRINT"SHIP'S IN PORT. "
1230 GOTO 2850
1240 P1=-1
1250 GOTO 1390
1260 F1=1
1270 GOTO 1390
1280 P1=-10
1290 GOTO 1390
1300 F1=10
1310 GOTO 1390
1320 P1=-11
1330 GOTO 1390
1340 F1=9
1350 GOTO 1390
1360 F1=-9
1370 GOTO 1390
1380 F1=11
1390 D1=D
1400 D1=D1+P1
1410 XC=INT(D1/10);YC=D1-XC*10;SP=XC*64+YC*4+20
1420 IF INT(D1/10)>D1/10 THEN 1440
1430 SP=(XC-1)*64+(YC+10)*4+20
1440 PRINT@5P,TP$;FOR TM=1 TO 20: NEXT TM
1450 PRINT@5P,"";PRINTUSING"###";D1;
1460 IF D1=5 THEN 1530
1470 IF D1=C THEN 1570
1480 IF D1<11 THEN 1650
1490 IF D1>90 THEN 1690
1500 IF D1=10*INT(D1/10) THEN 1610
1510 IF D1=1+(10*INT(D1/10)) THEN 1630
1520 GOTO 1400
1530 CLS:PRINT"KER-BOOM!! CARGO SHIP DESTROYED!"
1540 PRINT:PRINT"YOU WIN!!"
1550 G=1
1560 GOTO 2850
1570 PRINT@832,"WAAH!! DESTROYER SUNK. ";CHR$(30);
1580 FOR TM=1 TO 500: NEXT TM: C=-100
1590 T=T-1
1600 GOTO 1760
1610 IF D=10*INT(D/10) THEN 1400
1620 GOTO 1730
1630 IF D=1+(10*INT(D/10)) THEN 1400

```

```

1640 GOTO 1730
1650 IF D>10 THEN 1730
1660 IF D1<2 THEN 1730
1670 IF D1>9 THEN 1730
1680 GOTO 1400
1690 IF D<91 THEN 1730
1700 IF D1<92 THEN 1730
1710 IF D1>99 THEN 1730
1720 GOTO 1400
1730 T=T-1
1740 PRINT@832, "MISS. ";CHR$(30);
1750 FOR TM=1 TO 500: NEXT TM: IF T=0 THEN 2840
1760 PRINT@896, T, "TORPEDOES LEFT. ";CHR$(30);
1770 GOTO 1080
1780 PRINT
1790 Y=0
1800 PRINT@832, "UP PERISCOPE. ";CHR$(30);
1810 FOR TM=1 TO 500: NEXT TM
1820 Y2=0
1830 IF S=0 THEN 1980
1840 IF S=D-1 THEN 1980
1850 IF S=D+1 THEN 1980
1860 IF S=D-10 THEN 1980
1870 IF S=D+10 THEN 1980
1880 IF S=D-9 THEN 1980
1890 IF S=D+9 THEN 1980
1900 IF S=D-11 THEN 1980
1910 IF S=D+11 THEN 1980
1920 IF Y=1 THEN 2010
1930 PRINT@896, "SHIP NOT IN SIGHT. ";CHR$(30);
1940 X=RND(0)
1950 IF X<.35 THEN 2010
1960 REM
1970 Y2=-1
1980 PRINT@896, "SHIP AT";S;CHR$(8);" ";CHR$(30);
1990 Y2=Y2+1
2000 L=5
2010 IF C=D THEN 2330
2020 IF C=D THEN 2800
2030 IF C=D+1 THEN 2310
2040 IF C=D+1 THEN 2290
2050 IF C=D-1 THEN 2310
2060 IF C=D-1 THEN 2290
2070 IF C=D+9 THEN 2310
2080 IF C=D+9 THEN 2290
2090 IF C=D-9 THEN 2310
2100 IF C=D-9 THEN 2290
2110 IF C=D+10 THEN 2310
2120 IF C=D+10 THEN 2290
2130 IF C=D-10 THEN 2310
2140 IF C=D-10 THEN 2290
2150 IF C=D+11 THEN 2310
2160 IF C=D+11 THEN 2290
2170 IF C=D-11 THEN 2310
2180 IF C=D-11 THEN 2290
2190 IF C=D+2 THEN 2310
2200 IF C=D-2 THEN 2310
2210 IF C=D+20 THEN 2310
2220 IF C=D-20 THEN 2310
2230 IF C=-100 THEN 2370
2240 IF Y=1 THEN 2380
2250 X=RND(0)
2260 IF X<.6 THEN 2370
2270 PRINT@896, "RECON. PLANE SPOTS TIN CAN AT";C;CHR$(8);" ";CHR$(30);
2280 GOTO 2350
2290 PRINT@896, "ESCORT VERY NEAR!";CHR$(30);
2300 GOTO 2370
2310 PRINT@896, "DESTROYER CLOSING IN AT";C;CHR$(8);" ";CHR$(30);
2320 GOTO 2350
2330 PRINT@896, "DESTROYER DIRECTLY OVER HEAD. ";CHR$(30);
2340 GOTO 2760
2350 C2=C
2360 C3=1
2370 IF Y=0 THEN 2390
2380 RETURN
2390 REM
2400 PRINT@768, "SUB IS NOW AT";D;CHR$(8);" ";CHR$(30);
2410 IF C3=1 THEN 2440
2420 IF C=-100 THEN 2440
2430 PRINT@800, "DESTROYER LAST SIGHTED AT";C2;CHR$(8);" ";CHR$(30);
2440 D2=0
2450 PRINT@832, "SUB'S MOVE";CHR$(30);
2460 Y=1

2470 INPUT X: GOTO 2510
2480 XC=INT(P0/10): YC=P0-XC*10: PA=XC*64+YC*4+20
2490 IF INT(P0/10)=P0/10 THEN PA=(XC-1)*64+(YC+10)*4+20
2500 RETURN
2510 IF X=D THEN 2640
2520 IF X<2 THEN 2730
2530 IF X>100 THEN 2730
2540 IF X=INT(X) THEN 2560
2550 GOTO 2730
2560 IF X=D+1 THEN 2610
2570 IF X=D-1 THEN 2630
2580 IF X=D+10 THEN 2640
2590 IF X=D-10 THEN 2640
2600 GOTO 2730
2610 IF D=10*INT(D/10) THEN 2730
2620 GOTO 2640
2630 IF X=10*INT(X/10) THEN 2730
2640 P0=D: GOSUB 2480: PRINT@PA, "": PRINTUSING"###";D;
2650 D=X: P0=D: GOSUB 2480: PRINT@PA, STRING$(2,140);
CHR$(143);
2660 GOSUB 1820
2670 IF D2=1 THEN 2700
2680 D2=1
2690 GOTO 2450
2700 IF X1=0 THEN 3250
2710 IF C=-100 THEN 530
2720 GOTO 2970
2730 PRINT@832, "CAN'T DO. ";CHR$(30);
2740 FOR TM=1 TO 500: NEXT TM
2750 GOTO 2450
2760 X=RND(0)
2770 IF X<.8 THEN 2800
2780 PRINT@896, "DEPTH CHARGE JUST MISSED!";CHR$(30);
2790 GOTO 2350
2800 CLS: PRINT"VAROOM!" SUB DEPTH CHARGED!"
2810 GOTO 2850
2820 PRINT@896, "SHIP NOW OVERHEAD. ";CHR$(30);
2830 GOTO 530
2840 CLS: PRINT"AMMO DEPLETED. "
2850 PRINT
2860 IF Q=0 THEN 2890
2870 Q1=Q1+1
2880 GOTO 2900
2890 Q2=Q2+1
2900 PRINT"SCORE: COMPUTER";Q2;" - SUB";Q1;CHR$(8);" "
2910 PRINT
2920 Q=0
2930 PRINT "NEW GAME";
2940 INPUT N$
2950 IF LEFT$(N$,1)="N" THEN 3270
2960 CLS: GOTO 350
2970 M1=0
2980 S1=0
2990 X=RND(0)
3000 IF X<.6 THEN 3030
3010 P1=1
3020 GOTO 3040
3030 P1=-1
3040 M2=(P1*((INT(2*RND(0)))+9)+1)
3050 IF M2=1 THEN 3190
3060 IF M2=-1 THEN 3210
3070 IF M1=M2*(-1) THEN 3230
3080 C1=C+M2
3090 IF C1=D THEN 2800
3100 IF C1=S THEN 3230
3110 IF C1<2 THEN 3230
3120 IF C1>100 THEN 3230
3130 M1=M2
3140 C=C1
3150 IF S1=1 THEN 530
3160 S1=1
3170 PRINT@704, "DESTROYER HAS MOVED. ";
3180 GOTO 2990
3190 IF C=10*INT(C/10) THEN 3230
3200 GOTO 3070
3210 IF C=1+(10*INT(C/10)) THEN 3230
3220 GOTO 3070
3230 P1=P1*(-1)
3240 GOTO 3040
3250 IF Y2=0 THEN 1040
3260 GOTO 500
3270 FOR XX=1 TO 1000:NEXT XX:END

```

# CORRAL

CORRAL is a game program inspired by Harry (short for Aragon), a horse acquired in a rash moment of indulgence for a teen-age daughter. Harry, in his own inimitable style, taught us much about the care, feeding and psychology of the equine species. Some of that hard-won psychology has found its way into CORRAL, which is a one-dimensional simulation of the two-(and almost three-) dimensional problem of catching Harry for anything other than food. The main reason for confining Harry's ego in the computer to only one dimension is simply to conserve paper on hard-copy terminals. Even so, the presentation is very effective on a video display unit.

The corral itself is bounded by a pair of siderails represented by graphics blocks separated by 21 spaces. The cowboy C always enters beside the leftmost rail while the horse H is happily mousing somewhere between positions 10 and 18 with a bias towards the right. This bias and the various other behavioral peculiarities of the horse are governed by two data matrices (statements 90 and 100) which may be altered to vary the beast's temperament from wild to docile depending on the data distribution.

If the horse bolts, a check is made (line 410) to ensure that it does not reach a position less than one space away from the cowboy. Occasionally, the horse bolts to a position more advantageous to the cowboy, just as in real life, but usually the opposite is true, particularly when it bolts as a result of an incautious approach by the cowboy. So heed with care the advice for the cowboy not to advance by more than half the separation in any one move except when adjacent to the horse, of course!

The probability that the horse may kick when the cowboy moves close is set by the IF statement at line 440. The cowboy is immobilized for from one to five moves, while the horse canters happily away from the scene of his triumph. If this happens more than a certain (random) number of times the round-up is terminated by the departure of the cowboy in an ambulance.

Occasionally the horse decides to engage in a friendly dance around the cowboy, but remember that random number generators have no soul and the result is often vile treachery as the horse delivers a fatal kick at the very moment when a successful catch seems assured. On the other hand, the skill of an accomplished CORRAL cowboy can result in a catch within three moves with no injuries sustained. You either have it or you have not, as the saying goes. In the latter case the program allows

a maximum of 100 moves before relegating the luckless cowboy to cookhouse chores.

Computer freaks with multi-color graphics will no doubt be dissatisfied with such prosaic symbols as H and C for the horse and cowboy. A fully animated CORRAL in living color (with sound effects by a music or speech synthesizer—a talking horse yet!) should not be too difficult to achieve.

Program and description are by Colin Keay.

CORRAL  
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```

----- cls -----
DO YOU NEED INSTRUCTIONS? Y_
----- cls -----

YOU ARE THE COWBOY. GO CATCH YOUR HORSE IN THE CORRAL!

YOU MOVE TOWARD YOUR HORSE 1 TO 5 STEPS AT A TIME.
IF YOU MORE THAN HALVE THE SEPERATION HE WILL BOLT!
HE MAY ALSO BOLT WHEN HE IS CLOSE TO THE RAIL.
WHEN YOU COME WITHIN 2 STEPS HE MAY KICK. BE CAREFUL!

AFTER '?' TYPE IN A DIGIT FROM 1 TO 5 FOR THE COWBOY'S NEXT MOVE

PRESS ANY KEY TO CONTINUE
----- cls -----
*****
***** CORRAL *****
*****
0      C          H          ? 5
1      C          H          ? 4
2      C          H          ? 3
3      C          H          ? 3
4      C          H          ? 2
5      C          H          ? 1
6      C          H          ? 1
7      C          H          ? 1
8      H          C          ? 2
9      H          C          ? 4
10     H          C          ? 3
----- cls -----
8      H          C          ? 2
9      H          C          ? 4
10     H          C          ? 3
11     H          C          ? 3
12     H          C          ? 2
13     H          C          ? 1
14     H          C          ? 1
15     H          C          ? 1
16     H          C          ? 1
17     H          C          ? 1
18     H          C          ? 1
#

VIPPEE!! NOW SEE IF YOU CAN CATCH HIM IN FEWER MOVES.

ANOTHER ROUNDUP? Y_
----- cls -----

```

```

      cls
*****
*****  C O R R A L  *****
*****

```

```

0      C      H
1      C      H
2      C      H
3      C      H
4      C      H
5      C      H
6      H      C      BOLTED
7      H      C
8      H      C
9      H      C
10     H      C

```

```

11     C      H      BOLTED
12     C      H
13     C      H
14     C      H
15     C      H
16     C      H
17     C      H
18     C      H
19     C      H

```

```

ILLEGAL MOVE. TRY AGAIN.
20     C      H
21     H      C      BOLTED
22     H      C
23     H      C
24     H      C

```

```

25     H      C
26     H      C
27     H      C
28     C      H      BOLTED
29     C      H
30     C      H
31     C      H
32     C      H
33     C      H
34     H      C      KICKED
35     H      C
36     H      C
37     H      C
38     H      C
39     H      C

```

```

40     H      C
41     H      C
42     H      C
43     H      C
44     H      C
45     C      H      KICKED
46     C      H
47     C      H
48     C      H
49     C      H
50     C      H
51     C      H
52     C      H
53     C      H
54     C      H
55     C      H

```

```

55     C      H
ILLEGAL MOVE. TRY AGAIN.
56     C      H
57     H      C      BOLTED
58     H      C
59     H      C
60     H      C
61     H      C
62     H      C
63     H      C

```

VIPPEE!! NOW SEE IF YOU CAN CATCH HIM IN FEWER MOVES.  
ANOTHER ROUNDUP? N.

cls

```

10 CLS: PRINT@413, "CORRAL"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "DO YOU NEED INSTRUCTIONS?"; I$
40 DIM A(21)
50 DIM S(2,9)
60 FOR I=1 TO 2: FOR J=0 TO 9
70 READ S(I,J): NEXT J: NEXT I
80 DATA 0,1,2,3,3,2,2,1,0,-1
90 DATA 1,2,3,4,5,4,3,2,1,0
100 IF LEFT$(I$,1)="N" THEN 210
110 CLS: PRINT TAB(29); "CORRAL": PRINT
120 PRINT " YOU ARE THE COWBOY. GO CATCH YOUR HORSE IN THE CORRAL!"
130 PRINT: PRINT "YOU MOVE TOWARD YOUR HORSE 1 TO 5 STEPS AT A TIME."
140 PRINT "IF YOU MORE THAN HALVE THE SEPARATION HE WILL BOLT!"
150 PRINT "HE MAY ALSO BOLT WHEN HE IS CLOSE TO THE RAIL."
160 PRINT "WHEN YOU COME WITHIN 2 STEPS HE MAY KICK. BE CAREFUL!"
170 PRINT
180 PRINT "AFTER '?' TYPE IN A DIGIT FROM 1 TO 5 FOR THE COWBOY'S NEXT MOVE"
190 PRINT@979, "PRESS ANY KEY TO CONTINUE";
200 IF INKEY$="" THEN 200
210 CLS: PRINT TAB(16); "***** C O R R A L *****"
220 PRINT TAB(16); "***** C O R R A L *****"
230 PRINT TAB(16); "***** C O R R A L *****"
240 PRINT
250 C=1: L=1: K=0: M=0: N=0: GOSUB 640
260 IF R/5 THEN G=-Q
270 H=L+Q: GOSUB 650
280 T=2+P: PRINT
290 B$=""
300 FOR J=1 TO 21: A(J)=32: NEXT
310 A(C)=67: A(H)=72
320 PRINT USING "###": N: PRINT "": PRINT CHR$(191);
330 FOR J=1 TO 21: PRINT CHR$(A(J));: NEXT
340 PRINT CHR$(191); B$;
350 X=ABS(H-C): L=SGN(H-C)
360 N=N+1: IF K/8 THEN 590
370 IF N/100 THEN 790
380 INPUT D
390 IF D/8 AND D/6 THEN 410
400 PRINT "ILLEGAL MOVE. TRY AGAIN.": GOTO 370
410 E=C+L*D: IF E/1 OR E/21 THEN 400
420 C=E: GOSUB 640
430 G=P: H=H+G: GOSUB 650
440 IF X/2+D AND D/1 THEN 490
450 IF H/1 AND H/20 THEN 530
460 GOSUB 640
470 IF R/2 THEN 530
480 IF X/7 THEN 290
490 G=9+2*P: H=H+L*G: L=L: GOSUB 650
500 IF ABS(H-C)/1 THEN 520
510 H=H-3*L: GOSUB 650
520 B$="BOLTED": GOTO 300
530 IF ABS(H-C)/2 THEN 290
540 GOSUB 640
550 IF R/3 THEN 620
560 GOSUB 640
570 K=P/2: M=M+1: H=H-5*L: GOSUB 650
580 B$="KICKED": GOTO 300
590 IF N/1 THEN 600
600 K=K-1: PRINT: GOSUB 640
610 H=H+L*(P+1): GOSUB 650: GOTO 290
620 IF H=C THEN 700
630 GOTO 290
640 R=INT(10*RND(0)): P=S(1,R): Q=S(2,R): RETURN
650 IF H/1 THEN H=1
660 IF H/21 THEN H=21
670 RETURN
680 PRINT: PRINT "THOSE KICKS LANDED YOU IN THE HOSPITAL!"
690 PRINT "GET WELL SOON!": GOTO 760
700 FOR J=1 TO 21: A(J)=32: NEXT: A(C)=35
710 PRINT, CHR$(191);
720 FOR J=1 TO 21: PRINT CHR$(A(J));: NEXT
730 PRINT CHR$(191);
740 PRINT: PRINT "VIPPEE!! NOW SEE IF YOU CAN CATCH HIM IN FEWER MOVES."
750 PRINT
760 INPUT "ANOTHER ROUNDUP?"; F$
770 IF LEFT$(F$,1)="Y" THEN 210
780 GOTO 810
790 PRINT: PRINT "ENOUGH! YOU'D DO BETTER AS THE CAMP COOK!"
800 GOTO 760
810 END

```

# Countdown

The program Countdown is based on the program Guess in which the computer chooses a random number and then gives you clues whether you are too high or too low until you finally get the number. In Countdown, the program adds a little interest to this guessing game by giving you a certain number of tries to get the mystery number between one and ten before your school building explodes. Using a good guessing strategy should allow you to get any number in four or fewer tries. If you take more than four tries, the building goes "boom." To add a little more interest to the game, you may want to make the maximum number of tries three. To do this change the value of T in statement 150 from 4 to 3.

Countdown was written by Mark Chambers.

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```

_____ cls _____
HIT ENTER TO START? _

```

```

_____ cls _____
YOU HAVE ACTIVATED THE SELF-DESTRUCT MECHANISM IN THIS SCHOOL.
IF YOU WISH, YOU MAY STOP THE MECHANISM.
TO DO SO, JUST TYPE IN THE CORRECT NUMBER,
WHICH WILL STOP THE COUNT-DOWN.
PLEASE HURRY!! THERE IS NO TIME TO WASTE!!!!!!

```

WHAT'LL IT BE? 3\_

```

_____ cls _____
YOU HAVE ACTIVATED THE SELF-DESTRUCT MECHANISM IN THIS SCHOOL.
IF YOU WISH, YOU MAY STOP THE MECHANISM.
TO DO SO, JUST TYPE IN THE CORRECT NUMBER,
WHICH WILL STOP THE COUNT-DOWN.
PLEASE HURRY!! THERE IS NO TIME TO WASTE!!!!!!

```

CORRECT!!!!  
THE COUNTDOWN HAS STOPPED.  
YOU HAVED SAVED THE SCHOOL!  
(HAVE YOU SEEN YOUR SHRINK LATELY ?)  
TRY AGAIN? \_

```

_____ cls _____
YOU HAVE ACTIVATED THE SELF-DESTRUCT MECHANISM IN THIS SCHOOL.
IF YOU WISH, YOU MAY STOP THE MECHANISM.
TO DO SO, JUST TYPE IN THE CORRECT NUMBER,
WHICH WILL STOP THE COUNT-DOWN.
PLEASE HURRY!! THERE IS NO TIME TO WASTE!!!!!!

```

WHAT'LL IT BE? 1\_

```

_____ cls _____
YOU HAVE ACTIVATED THE SELF-DESTRUCT MECHANISM IN THIS SCHOOL.
IF YOU WISH, YOU MAY STOP THE MECHANISM.
TO DO SO, JUST TYPE IN THE CORRECT NUMBER,
WHICH WILL STOP THE COUNT-DOWN.
PLEASE HURRY!! THERE IS NO TIME TO WASTE!!!!!!

```

TOO SMALL!!!!  
YOUR NUMBER DOES NOT COMPUTE!!  
PLEASE TRY AGAIN!!!!

WHAT'LL IT BE? 4\_

```

_____ cls _____

```

```

_____ cls _____
YOU HAVE ACTIVATED THE SELF-DESTRUCT MECHANISM IN THIS SCHOOL.
IF YOU WISH, YOU MAY STOP THE MECHANISM.
TO DO SO, JUST TYPE IN THE CORRECT NUMBER,
WHICH WILL STOP THE COUNT-DOWN.
PLEASE HURRY!! THERE IS NO TIME TO WASTE!!!!!!

```

TOO SMALL!!!!  
YOUR NUMBER DOES NOT COMPUTE!!  
PLEASE TRY AGAIN!!!!  
TIME GROWS SHORT, PLEASE HURRY!!!!!!!!

WHAT'LL IT BE? 2\_

```

_____ cls _____
YOU HAVE ACTIVATED THE SELF-DESTRUCT MECHANISM IN THIS SCHOOL.
IF YOU WISH, YOU MAY STOP THE MECHANISM.
TO DO SO, JUST TYPE IN THE CORRECT NUMBER,
WHICH WILL STOP THE COUNT-DOWN.
PLEASE HURRY!! THERE IS NO TIME TO WASTE!!!!!!

```

TOO SMALL!!!!  
YOUR NUMBER DOES NOT COMPUTE!!  
PLEASE TRY AGAIN!!!!  
HURRY, THE COUNT-DOWN IS APPROACHING ZERO!!!!!!!!

WHAT'LL IT BE? 1\_

```

_____ cls _____
TOO LATE

```

```

\ **** \
-- BOOM --
[ **** [

```

TRY AGAIN? NO\_

```

_____ cls _____

```

```

10 CLS: PRINT@412, "COUNTDOWN"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@560, " "; INPUT "HIT ENTER TO START"; I$
40 CLS
50 A=INT(RND(0)*10)
60 T=0
70 N=0
80 PRINT "YOU HAVE ACTIVATED THE SELF-DESTRUCT MECHANISM ";
90 PRINT "IN THIS SCHOOL. "
100 PRINT "IF YOU WISH, YOU MAY STOP THE MECHANISM. "
110 PRINT "TO DO SO, JUST TYPE IN THE CORRECT NUMBER, "
120 PRINT "WHICH WILL STOP THE COUNT-DOWN. "
130 PRINT "PLEASE HURRY!! THERE IS NO TIME TO WASTE!!!!!!"
140 PRINT PRINT "WHAT'LL IT BE? "; INPUT X:PRINT@384, CHR$(31);
150 IF T=4 THEN 310
160 GOTO 390
170 REM
180 PRINT "YOUR NUMBER DOES NOT COMPUTE!!"
190 PRINT "PLEASE TRY AGAIN!!!!!!" T=T+1
200 IF T=2 THEN 290
210 IF T=3 THEN 370
220 GOTO 140
230 PRINT "CORRECT!!!!!!" LET N=5
240 PRINT "THE COUNTDOWN HAS STOPPED. "
250 PRINT "YOU HAVED SAVED THE SCHOOL!"
260 PRINT "(HAVE YOU SEEN YOUR SHRINK LATELY ?)"
270 LET T=10
280 INPUT "TRY AGAIN"; A$: IF LEFT$(A$,1)="Y" THEN 40 ELSE 420
290 PRINT "TIME GROWS SHORT, PLEASE HURRY!!!!!!!!!!"
300 GOTO 140
310 CLS
320 PRINT TAB(28); "TOO LATE"
330 PRINT PRINT PRINT PRINT TAB(28); CHR$(92); " **** "; CHR$(92)
340 PRINT TAB(27); "-- BOOM --"
350 PRINT TAB(28); "[ **** ["
360 INPUT "TRY AGAIN"; A$: IF LEFT$(A$,1)="Y" THEN 40 ELSE 420
370 PRINT "HURRY, THE COUNT-DOWN IS APPROACHING ZERO!!!!!!!!!!"
380 GOTO 140
390 IF X<A THEN PRINT "TOO SMALL!!!!!!" GOTO 170
400 IF X>A THEN PRINT "TOO BIG!!!!!!" GOTO 170
410 IF X=A THEN 230
420 END

```

Cup is a cute little game in which a cup is located thirty “Y” coordinates down the video display and a random number of spaces from one to sixty to the right of the left margin. The pull of gravity varies from one to ten lines per second per second. You are then asked in this program what push you would like to give the ball from left to right across the paper in spaces per second. The program then traces the path of the ball from the left margin of the paper as it falls down and hopefully into the cup.

A knowledge of physics is helpful if you wish to get the ball in the cup on the first try. However, you can fiddle with it by trial and error and generally hit the cup on your fourth or fifth try.

Cup was written by Jonathan Freidin.

CUP  
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```

c18
HIT ENTER TO START? _
THE CUP IS 30 LINES DOWN AND 23 SPACES OVER.
THE PULL OF GRAVITY IS 4 LINES/SECOND/SECOND.
WHAT IS THE PUSH YOU WOULD LIKE TO GIVE THE BALL
ACROSS THE PAPER (IN SPACES/SECOND)? 4_

```

\_\_\_\_\_ c/s \_\_\_\_\_

| Percentage of respondents who believe that the use of force is justified in the circumstance | Percentage of respondents who believe that the use of force is justified in the circumstance |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| 0                                                                                            | 0                                                                                            |
| 10                                                                                           | 10                                                                                           |
| 20                                                                                           | 20                                                                                           |
| 30                                                                                           | 30                                                                                           |
| 40                                                                                           | 40                                                                                           |
| 50                                                                                           | 50                                                                                           |
| 60                                                                                           | 60                                                                                           |
| 70                                                                                           | 70                                                                                           |
| 80                                                                                           | 80                                                                                           |
| 90                                                                                           | 90                                                                                           |
| 100                                                                                          | 100                                                                                          |

YOU MISSED. TRY AGAIN.

\_\_\_\_\_ c/s \_\_\_\_\_

```

10 CLS: PRINT@415, "CUP"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "HIT ENTER TO START";A$
40 CLEAR 500: DIM S(30,61)
50 LET L=RND(60)
60 IF L=60 OR L=1 THEN 50
70 CLS: LET G=RND(10)
80 PRINT "THE CUP IS 30 LINES DOWN AND";L;"SPACES OVER."
90 PRINT "THE PULL OF GRAVITY IS";G;"LINES/SECOND/SECOND."
100 PRINT "WHAT IS THE PUSH YOU WOULD LIKE TO GIVE THE BALL"
110 PRINT "ACROSS THE PAPER (IN SPACES/SECOND)";
120 INPUT T
130 PRINT
140 PRINT "THE RESULTS MAY TAKE ANYWHERE BETWEEN 5 AND 20 SECONDS."
150 PRINT: PRINT
160 FOR Z=1 TO 50R(60*G)/G STEP .1
170 LET Y=T*Z*2
180 LET X=G/2*Z(2
190 IF X>30.5 OR X<.5 OR Y>60.5 OR Y<.5 THEN 320
200 IF INT(X)=29 AND INT(Y)=L THEN 330
210 IF INT(X)+1=29 AND INT(Y)+1=L THEN 330
220 IF INT(X)=29 AND INT(Y)=L-1 THEN 330
230 IF INT(X)+1=29 AND INT(Y)+1=L-1 THEN 330
240 IF INT(X)=29 AND INT(Y)=L+1 THEN 350
250 IF INT(X)+1=29 AND INT(Y)+1=L+1 THEN 350
260 LET S(X,Y)=2
270 FOR D=1 TO 5
280 IF Y<6 THEN 310
290 LET S(X,Y-D)=0
300 NEXT D
310 NEXT Z
320 GOTO 380
330 LET W=1
340 GOTO 360
350 LET W=2
360 LET S(29,L)=2
370 GOTO 390
380 LET W=0
390 LET P$=" * "
400 CLS: PRINT@704, STRING$(64,"#");
410 FOR A=(L-2)*2 TO L*2+1. SET(A,30): NEXT
420 SET((L-2)*2,29)
430 SET(L*2+1,29)
440 FOR X=1 TO 30
450 FOR X1=1 TO 60
460 IF S(X,X1)>0 THEN S(X,X1)=0: GOTO 490
470 NEXT X1
480 GOTO 520
490 REM
500 SET((X1-1)*2,X): SET((X1-1)*2+1,X)
510 REM
520 REM
530 NEXT X
540 PRINT
550 IF W=1 THEN 590
560 IF W=2 THEN 610
570 PRINT@960, "YOU MISSED. TRY AGAIN.": FOR A=1 TO 1500: NEXT
580 CLS: GOTO 80
590 PRINT@896, "RIGHT IN !!!!!!!";
600 GOTO 620
610 PRINT@896, "YOU ALMOST DIDN'T MAKE IT, BUT IT BOUNCED IN."
620 PRINT@960, "DO YOU WANT TO PLAY AGAIN ";
630 INPUT A$
640 IF LEFT$(A$,1)="Y" THEN CLEAR 500: GOTO 40
650 END

```

# Dealer's Choice

This game is based on the TV quiz/chance show, Dealer's Choice. You, the player, are given \$100 to start with. You then play five card games loosely modeled on casino gambling games but with variations peculiar to the TV game making it, hopefully, more interesting to the TV audience. The five games are well-explained in the rules. This game was written by Thomas Carey.

```

DEALER'S CHOICE
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cls

HIT ENTER WHEN READY? _

cls

THIS PROGRAM WILL SIMULATE THE T.V. SHOW, DEALER'S CHOICE.
YOU HAVE $100 TO START WITH. ENJOY THE GAME.
FOR THE FIRST GAME, WE WILL PLAY ON THE WHEEL OF CHANCE.
THE OBJECT IS SIMPLE. GUESS WHAT SUIT WILL APPEAR ON THE
WHEEL AND YOU WILL GET PAID AT THOSE ODDS IF YOU ARE RIGHT.
THE ODDS ARE AS FOLLOWS:

1 = DIAMONDS AT 11 TO 1 ODDS    2 = SPADES AT 1 TO 1 ODDS.
3 = HEARTS AT 3 TO 1 ODDS      4 = CLUBS AT 3 TO 1 ODDS.

YOU MAY BET UP TO $25. GOOD LUCK!

WHAT SUIT DO YOU WANT? 1
WHAT IS THE BET? 25_

cls

O.K. NOW THAT YOUR BET IS IN, WE WILL SPIN
THE WHEEL. GOOD LUCK!
THE WHEEL IS SLOWING DOWN.
THE WHEEL IS STOPPING.
THE SUIT IS * * * 2 * * *
YOU LOSE.

AT THE END OF PART 1, YOU HAVE $ 75.
PRESS ANY KEY TO CONTINUE

cls

THIS IS THE GAME OF IN BETWEEN. THE OBJECT IS: 5 CARDS WILL
BE DEALT OUT. IF ANY CARD IS LESS THAN A 3 OR GREATER THAN A
10, THE GAME IS OVER. YOU MAY BET UP TO $30. YOUR MONEY
WILL BE DOUBLED EACH TIME YOU ARE RIGHT. GOOD LUCK!

WHAT IS THE BET? 30
CARD NUMBER 1 IS A 7.
YOU ARE STILL IN THE GAME. YOU HAVE $ 60.
STOP OR GO? G_

cls

THIS IS THE GAME OF IN BETWEEN. THE OBJECT IS: 5 CARDS WILL
BE DEALT OUT. IF ANY CARD IS LESS THAN A 3 OR GREATER THAN A
10, THE GAME IS OVER. YOU MAY BET UP TO $30. YOUR MONEY
WILL BE DOUBLED EACH TIME YOU ARE RIGHT. GOOD LUCK!

CARD NUMBER 2 IS A 1.
YOU LOST. AT THE END OF PART 2, YOU HAVE $ 45
PRESS ANY KEY TO CONTINUE

cls

THIS IS THE GAME OF BLACKJACK (DEALER'S CHOICE STYLE)

THE OBJECT IS TO BEAT THE DEALER WITH OVER 17 OR 21 OR
UNDER. YOU MAY BET UP TO $50. YOU MAY STOP WHEN YOU WISH.
IF YOU MAKE BLACKJACK, YOUR MONEY IS DOUBLED.
IF THE HOUSE DEALS OUT LESS THAN A TOTAL OF 17 IN 6 TRIES,
YOU WILL KEEP THE MONEY YOU BET. GOOD LUCK!
THE DEALER WILL GET HIS CARDS FIRST
ARE YOU READY? YES.

cls

```

```

cls

HERE I GO:
THE CARD IS A 7.
DEALER'S TOTAL SO FAR: 7.
THE CARD IS A 9.
DEALER'S TOTAL SO FAR: 16.
THE CARD IS A 10.
DEALER'S TOTAL SO FAR: 26.

I BLEW IT. YOU WIN THE GREATEST AMOUNT ALLOWED TO BE
BET BY THE HOUSE.
YOU KEEP IT WITH OUR BEST WISHES.

AT THE END OF PART 3, YOU HAVE $ 95.

PRESS ANY KEY TO CONTINUE

NOW WE ENTER THE LAST CHANCE ROUND. IF YOU MAKE UP TO
$300 YOU WILL BE ABLE TO GO INTO THE BONUS ROUND. THE
OBJECT IS TO GUESS INTO WHICH CATEGORY THE TOTAL OF 5 CARDS
WILL ADD UP TO. THESE ARE THE CATEGORIES:

1 = 31-40 AT 1 TO 1 ODDS    2 = 41-50 AT 3 TO 1 ODDS
3 = 21-31 AT 3 TO 1 ODDS    4 = 6-20 AT 20 TO 1 ODDS

GOOD LUCK!!

AT THIS POINT IN THE GAME YOU HAVE $ 95.

WHAT CATEGORY DO YOU WANT? 1
WHAT IS THE BET? 55_

cls

THE CARDS ARE NOW BEING ADDED UP.
GOOD LUCK!
CARD NUMBER 1 IS A 12. YOUR TOTAL SO FAR: 13.
CARD NUMBER 2 IS A 8. YOUR TOTAL SO FAR: 21.
CARD NUMBER 3 IS A 3. YOUR TOTAL SO FAR: 24.
CARD NUMBER 4 IS A 1. YOUR TOTAL SO FAR: 25.
CARD NUMBER 5 IS A 10. YOUR TOTAL SO FAR: 35.
YOU WIN!!

AT THE END OF THE GAME YOU HAVE A GRAND TOTAL OF $ 150
THIS IS THE END OF THE GAME. I HOPE YOU ENJOYED IT.
READY
Y_

cls

10 CLS: PRINT@409, "DEALER'S CHOICE"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, " "; INPUT "HIT ENTER WHEN READY"; I$: CLS
40 PRINT " THIS PROGRAM WILL SIMULATE THE T.V. SHOW, DEALER'S CHOICE. "
50 PRINT "YOU HAVE $100 TO START WITH. ENJOY THE GAME. "
60 GOTO 100
70 PRINT " FOR THE FIRST GAME, WE WILL PLAY ON THE WHEEL OF CHANCE. "
80 PRINT "THE OBJECT IS SIMPLE. GUESS WHAT SUIT WILL APPEAR ON THE"
90 PRINT "WHEEL AND YOU WILL GET PAID AT THOSE ODDS IF YOU ARE RIGHT. "
100 PRINT "THE ODDS ARE AS FOLLOWS:" PRINT
110 PRINT "1 = DIAMONDS AT 11 TO 1 ODDS", "2 = SPADES AT 1 TO 1 ODDS. "
120 PRINT "3 = HEARTS AT 3 TO 1 ODDS", "4 = CLUBS AT 3 TO 1 ODDS. "
130 PRINT
140 PRINT "YOU MAY BET UP TO $25. GOOD LUCK!"; PRINT
150 PRINT "WHAT SUIT DO YOU WANT?"; INPUT A
160 IF A<4 OR A<1 THEN 180
170 IF A<4 THEN 190
180 PRINT "*** YOU PICKED A WRONG SUIT ***" GOTO 150
190 PRINT "WHAT IS THE BET?"; INPUT B$: CLS
200 IF B$<25 OR B$<0 THEN 220
210 IF B$<25 THEN 230
220 PRINT "*** YOU BET OVER THE HOUSE LIMIT ***" GOTO 190
230 PRINT: PRINT "O.K. NOW THAT YOUR BET IS IN, WE WILL SPIN"
240 PRINT "THE WHEEL. GOOD LUCK!"; FOR B1=1 TO 10*100: NEXT B1
250 PRINT "THE WHEEL IS SLOWING DOWN "
260 FOR B1=1 TO 7*100: NEXT B1: PRINT "THE WHEEL IS STOPPING. "
270 FOR B1=1 TO 4*100: NEXT B1
280 PRINT "THE SUIT IS "; FOR B1=1 TO 4*100
290 NEXT B1
300 Z=INT(4*RND(0)+1): PRINT"****";Z;"****"
310 IF Z=A THEN 330
320 IF Z<A THEN 380

```

```

330 ON Z GOTO 340,350,360,370
340 O=0+(11*B8): PRINT "YOU WIN ON DIAMONDS!": GOTO 390
350 O=0+(11*B8): PRINT "YOU WIN ON SPADES!": GOTO 390
360 O=0+(2*B8): PRINT "YOU WIN ON HEARTS!": GOTO 390
370 O=0+(2*B8): PRINT "YOU WIN ON CLUBS!": GOTO 390
380 O=0-(1*B8): PRINT "YOU LOSE ": GOTO 390
390 PRINT: PRINT "AT THE END OF PART 1, YOU HAVE $";O;CHR$(8);" "
400 GOSUB 1920
410 PRINT "THIS IS THE GAME OF IN BETWEEN. THE OBJECT IS: 5 CARDS WILL"
420 PRINT "BE DEALT OUT. IF ANY CARD IS LESS THAN A 3 OR GREATER THAN A"
430 PRINT "10, THE GAME IS OVER. YOU MAY BET UP TO $30. YOUR MONEY"
440 PRINT "WILL BE DOUBLED EACH TIME YOU ARE RIGHT. GOOD LUCK!": PRINT
450 PRINT "WHAT IS THE BET?": INPUT A
460 IF A>30 THEN PRINT "*** YOU BET OVER THE HOUSE LIMIT ***": GOTO 450
470 T=T+1: Z=INT(12*RND(0)+1)
480 PRINT "CARD NUMBER";T;" IS A";Z;CHR$(8);" " :B=B+(2*A)
490 IF Z<3 OR Z>10 THEN 550
500 IF T=5 THEN 570
510 PRINT "YOU ARE STILL IN THE GAME. YOU HAVE $";B;CHR$(8);" "
520 PRINT "STOP OR GO?": INPUT A$
530 IF LEFT$(A$,1)="S" THEN 570
540 PRINT@320, CHR$(31); GOTO 470
550 O=O-A
560 PRINT "YOU LOST. AT THE END OF PART 2, YOU HAVE $";O;" " : GOTO 580
570 PRINT "YOU WIN. AT THE END OF PART 2, YOU HAVE $";B+O;" " : O=B+O
580 GOSUB 1920
590 PRINT "THIS IS THE GAME OF BLACKJACK (DEALER'S CHOICE STYLE)"
600 PRINT
610 PRINT "THE OBJECT IS TO BEAT THE DEALER WITH OVER 17 OR 21 OR"
620 PRINT "UNDER. YOU MAY BET UP TO $50. YOU MAY STOP WHEN YOU WISH."
630 PRINT
640 PRINT "IF YOU MAKE BLACKJACK, YOUR MONEY IS DOUBLED."
650 PRINT "IF THE HOUSE DEALS OUT LESS THAN A TOTAL OF 17 IN 6 TRIES,"
660 PRINT "YOU WILL KEEP THE MONEY YOU BET. GOOD LUCK!":PRINT
670 Z=0: Z1=0: PRINT "THE DEALER WILL GET HIS CARDS FIRST": PRINT
680 INPUT "ARE YOU READY?";R$: CLS
690 C=0: C3=0
700 PRINT "HERE I GO:"
710 O=INT(12*RND(0)+1)
720 Z5=O+Z5
730 PRINT "THE CARD IS A ";O;CHR$(8);" " : C=C+1
740 PRINT "DEALER'S TOTAL SO FAR: ";Z5;CHR$(8);" " : IF C=6 THEN 800
750 IF Z5<17 THEN 710
760 IF Z5>21 THEN 860
770 IF Z5=21 THEN 830
780 IF Z5<21 THEN 820
790 IF Z5=17 THEN 820
800 IF Z5<17 THEN 840
810 IF Z5=17 THEN 750
820 PRINT "I STOP. THE TOTAL FOR ME IS";Z5;CHR$(8);" " : GOTO880
830 PRINT "I GOT BLACKJACK!": GOTO 880
840 PRINT: PRINT "THE HOUSE DELT OUT LESS THAN 17. NOW YOU MUST TRY TO"
850 PRINT "BEAT ME.": PRINT: GOTO 880
860 PRINT: PRINT "I BLEW IT. YOU WIN THE GREATEST AMOUNT ALLOWED TO BE"
870 PRINT "BET BY THE HOUSE.": GOTO 1110
880 PRINT "WHAT IS YOUR BET?": INPUT A: CLS
890 IF A=0 THEN 930
900 IF A>50 OR A<=0 THEN 920
910 IF A<=50 THEN 940
920 PRINT "*** YOU BET OVER THE HOUSE LIMIT ***": GOTO 880
930 PRINT "*** YOU BET OVER WHAT YOU HAVE ***": GOTO 880
940 O1=INT(12*RND(0)+1): PRINT "YOUR CARD IS A";O1;CHR$(8);" " : C3=C3+1
950 Z1=O1+Z1: PRINT "SO FAR THE TOTAL FOR YOU IS";Z1;CHR$(8);" "
960 IF Z1>21 THEN 1070
970 PRINT "STOP OR GO?": INPUT A$
980 IF LEFT$(A$,1)="S" THEN 1000
990 IF LEFT$(A$,1)="G" THEN 940
1000 IF Z1=25 THEN 1050
1010 IF Z1<25 THEN 1070
1020 IF Z1=21 THEN 1060
1030 IF Z5<Z1 THEN 1080
1040 IF Z1<17 THEN 1090
1050 CLS: PRINT "WE HAVE THE SAME TOTAL, SO WE WILL PLAY AGAIN.":GOTO 670
1060 CLS: O=O+(2*A): PRINT "YOU BEAT THE DEALER WITH BLACKJACK!":GOTO 1120
1070 CLS: O=O-(1*A): PRINT "THE DEALER BEAT YOU. YOU LOSE.":GOTO 1120
1080 CLS: O=O+(1*A): PRINT "THE DEALER LOST. YOU WIN!":GOTO 1120
1090 CLS: O=O+(1*A): PRINT "THE HOUSE DELT OUT LESS THAN 17 IN"
1100 PRINT "6 TRIES. YOU GET THE MONEY YOU BET!":GOTO 1120
1110 O=O+50:PRINT "YOU KEEP IT WITH OUR BEST WISHES.":GOTO 1120
1120 PRINT:PRINT "AT THE END OF PART 3, YOU HAVE $";O;CHR$(8);" "
1130 IF O<=0 THEN 1530
1140 GOSUB 1920
1150 PRINT "NOW WE ENTER THE LAST CHANCE ROUND. IF YOU MAKE UP TO"
1160 PRINT "$300 YOU WILL BE ABLE TO GO INTO THE BONUS ROUND. THE"
1170 PRINT "OBJECT IS TO GUESS INTO WHICH CATEGORY THE TOTAL OF 5 CARDS"
1180 PRINT "WILL ADD UP TO. THESE ARE THE CATEGORIES":PRINT
1190 PRINT "1 = 31-40 AT 1 TO 1 ODDS 2 = 41-50 AT 3 TO 1 ODDS"
1200 PRINT "3 = 21-31 AT 3 TO 1 ODDS 4 = 6-20 AT 20 TO 1 ODDS"
1210 PRINT:PRINT "GOOD LUCK!":PRINT
1220 PRINT "AT THIS POINT IN THE GAME YOU HAVE $";O;CHR$(8);" " :PRINT
1230 PRINT "WHAT CATEGORY DO YOU WANT?":INPUT A
1240 IF A<=4 THEN 1270
1250 IF A>4 THEN 1260
1260 PRINT "*** YOU BET ON A WRONG CATEGORY ***":GOTO 1230
1270 PRINT "WHAT IS THE BET?":INPUT B: CLS
1280 IF B<=0 THEN 1310
1290 IF B>0 THEN 1300
1300 PRINT "*** YOU BET OVER WHAT YOU HAVE ***":GOTO 1270
1310 PRINT "THE CARDS ARE NOW BEING ADDED UP.":PRINT "GOOD LUCK!"
1320 O=INT(12*RND(0)+1):C1=C1+1
1330 PRINT "CARD NUMBER";C1;" IS A";O;CHR$(8);" " :
1340 Z=Z+O:PRINT "YOUR TOTAL SO FAR: ";Z;CHR$(8);" "
1350 IF C1=5 THEN 1370
1360 GOTO 1320
1370 ON A GOTO 1380,1410,1440,1470
1380 IF Z<31 THEN 1490
1390 IF Z<40 THEN 1500
1400 IF Z>40 THEN 1490
1410 IF Z<41 THEN 1490
1420 IF Z<50 THEN 1510
1430 IF Z>50 THEN 1490
1440 IF Z<21 THEN 1490
1450 IF Z<31 THEN 1510
1460 IF Z>31 THEN 1490
1470 IF Z<6 THEN 1490
1480 IF Z<20 THEN 1520
1490 O=O-(1*B):PRINT "YOU LOSE.":GOTO 1530
1500 O=O+(1*B):PRINT "YOU WIN!":GOTO 1530
1510 O=O+(3*B):GOTO 1530
1520 O=O+(20*B):PRINT "YOU WIN!":GOTO 1530
1530 PRINT:PRINT "AT THE END OF THE GAME YOU HAVE A GRAND TOTAL OF $";O;
1540 IF O<300 THEN 1900
1550 FOR X=1 TO 6:PRINT CHR$(7);:FOR B1=1 TO 100:NEXT B1:NEXT X
1560 PRINT CHR$(26)
1570 PRINT "YOU ARE ELIGIBLE FOR THE BONUS ROUND."
1580 PRINT "DO YOU WANT TO PLAY IT?":INPUT A$:PRINT
1590 IF LEFT$(A$,1)="N" THEN 1900
1600 CLS: PRINT "THIS IS THE BONUS ROUND. IF YOU GET A TOTAL OF 1,000"
1610 PRINT "WITHOUT GETTING A SPADE IN THE ROLLS, YOU WILL GET"
1620 PRINT "A GRAND PRIZE OF $10,000.00. YOU MAY STOP AT ANY POINT"
1630 PRINT "DURING THE GAME. YOU WILL KEEP WHAT YOU MADE. GOOD LUCK!"
1640 PRINT:INPUT "ARE YOU READY?";S$: CLS
1650 DIM A(5),B(4):A$="SPADES"
1660 PRINT "THE DICE ARE ROLLING.":PRINT "GOOD LUCK."
1670 PRINT "THE DICE ARE"
1680 FOR B1=1 TO 100*5:NEXT B1
1690 X=INT(5*RND(0)+1)
1700 A(1)=50:A(2)=100:A(3)=150:A(4)=200:A(5)=0
1710 Y=INT(4*RND(0)+1)
1720 B(1)=50:B(2)=100:B(3)=150:B(4)=200
1730 IF A(X)=0 THEN 1750
1740 PRINT "**** ";A(X);B(Y);"****":GOTO 1770
1750 PRINT "**** ";A$;B(Y);"****":GOTO 1830
1760 PRINT "TOTAL SO FAR: ";B(Y);CHR$(8);" " :GOTO 1830
1770 B7=B7+(A(X)+B(Y)):PRINT "YOU NOW HAVE";B7;CHR$(8);" " :PRINT:
1775 IF B7=1000 THEN 1850
1780 PRINT "STOP OR GO?":INPUT B$
1790 IF LEFT$(B$,1)="G" THEN CLS: GOTO1660
1800 PRINT "SMART MOVE. YOU GET THE MONEY FROM THE BEGINNING OF"
1810 PRINT "THE GAME PLUS THE BONUS ROUND. AT THE END OF THE GAME"
1820 PRINT "YOU HAVE THE GRAND TOTAL OF $";B7+O;CHR$(8);" " :GOTO 1900
1830 PRINT "YOU LOSE THE MONEY FROM THE LAST CHANCE"
1840 PRINT "ROUND BUT YOU STILL HAVE A GRAND TOTAL OF $";O;CHR$(8);" " : GOTO 1900
1850 FOR T=1 TO 3:PRINT CHR$(7);:FOR B1=1 TO 100:NEXT B1:NEXT T
1860 B7=O+10000:PRINT TAB(15);"**** CONGRATULATIONS ****"
1870 PRINT "YOU WON THE GRAND PRIZE. AT THE END OF THE GAME, YOU HAVE"
1880 PRINT
1890 PRINT TAB(18) "***** $";B7;"*****"
1900 PRINT:PRINT "THIS IS THE END OF THE GAME. I HOPE YOU ENJOYED IT."
1910 END
1920 PRINT@979, "PRESS ANY KEY TO CONTINUE":
1930 IF INKEY="" THEN 1930 ELSE CLS: RETURN

```



# Deepspace

DEEPSPACE is another version of a space battle. You become the commander of either a scout ship, cruiser, or battleship. You then pick the weapons, and planetary system to patrol, and it's time to do battle.

The closer you get to the enemy, the better your chance of destroying him. Unfortunately, his chance of destroying you also improves. If you get too close, you can damage yourself; when a vessel's damage rating reaches or exceeds 100, it's destroyed.

**Suggestion:** Change the time between reports—this will shorten the game by allowing you to get closer faster.

Deepspace originally appeared in *Creative Computing*, Mar/Apr 1976.

DEEP SPACE  
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DO YOU NEED INSTRUCTIONS? YES.

YOU ARE ONE OF A GROUP OF CAPTAINS ASSIGNED TO PATROL A SECTION OF YOUR STAR EMPIRE'S BORDER AGAINST HOSTILE ALIENS. ALL YOUR ENCOUNTERS HERE WILL BE AGAINST HOSTILE VESSELS. YOU WILL FIRST BE REQUIRED TO SELECT A VESSEL FROM ONE OF THREE TYPES, EACH WITH ITS OWN CHARACTERISTICS.

| TYPE          | SPEED | CARGO SPACE | PROTECTION |
|---------------|-------|-------------|------------|
| 1- SCOUT      | 18X   | 16          | 1          |
| 2- CRUISER    | 4X    | 24          | 2          |
| 3- BATTLESHIP | 2X    | 30          | 5          |

PRESS ANY KEY TO CONTINUE

SPEED IS GIVEN RELATIVE TO THE OTHER SHIPS.  
CARGO SPACE IS IN UNITS OF SPACE ABOARD SHIP WHICH CAN BE FILLED WITH WEAPONS.  
PROTECTION IS THE RELATIVE STRENGTH OF THE SHIP'S ARMOR AND FORCE FIELDS.

ONCE A SHIP HAS BEEN SELECTED, YOU WILL BE INSTRUCTED TO ARM IT WITH WEAPONRY FROM THE FOLLOWING LIST  
PRESS ANY KEY TO CONTINUE

| TYPE                            | CARGO SPACE | REL. STRENGTH |
|---------------------------------|-------------|---------------|
| 1- PHASER BANKS                 | 12          | 4             |
| 2- ANTI-MATTER MISSILE          | 4           | 20            |
| 3- HYPERSPACE LANCE             | 4           | 16            |
| 4- PHOTON TORPEDO               | 2           | 10            |
| 5- HYPERON NEUTRALIZATION FIELD | 20          | 6             |

WEAPONS #1 & #5 CAN BE FIRED 100 TIMES EACH. ALL OTHERS CAN BE FIRED ONCE FOR EACH ON BOARD.  
PRESS ANY KEY TO CONTINUE

A TYPICAL LOAD FOR A CRUISER MIGHT CONSIST OF:  
1-#1 PHASER BANK = 12  
2-#3 HYPERSPACE LANCES = 8  
2-#4 PHOTON TORPEDOES = 4

24 UNITS OF CARGO

A WORD OF CAUTION: FIRING HIGH YIELD WEAPONS AT CLOSE (<100) RANGE CAN BE DANGEROUS TO YOUR SHIP AND MINIMAL DAMAGE CAN OCCUR AS FAR OUT AS 2X IN SOME CIRCUMSTANCES.

RANGE IS GIVEN IN THOUSANDS OF KILOMETERS.  
DO YOU WISH A MANEUVER CHART?

MANEUVER CHART

- 1 FIRE PHASERS
- 2 FIRE ANTI-MATTER MISSILE
- 3 FIRE HYPERSPACE LANCE
- 4 FIRE PHOTON TORPEDO
- 5 ACTIVE HYPERON NEUTRALIZATION FIELD
- 6 SELF-DESTRUCT
- 7 CHANGE VELOCITY
- 8 DISENGAGE
- 9 PROCEED

PRESS ANY KEY TO CONTINUE

YOU HAVE A CHOICE OF THREE SYSTEMS TO PATROL.

- 1 - ORION
- 2 - DENEBA
- 3 - ARCTURUS

SELECT A SYSTEM (1-3)? 3

WHICH SPACECRAFT WOULD YOU LIKE (1-3)? 2.

YOU HAVE 24 UNITS OF CARGO SPACE TO FILL WITH WEAPONRY.  
CHOOSE A WEAPON AND THE AMOUNT YOU WISH? 1,1.

YOU HAVE 12 UNITS OF CARGO SPACE TO FILL WITH WEAPONRY.  
CHOOSE A WEAPON AND THE AMOUNT YOU WISH? 2,1.

YOU HAVE 8 UNITS OF CARGO SPACE TO FILL WITH WEAPONRY.  
CHOOSE A WEAPON AND THE AMOUNT YOU WISH? 3,1.

YOU HAVE 4 UNITS OF CARGO SPACE TO FILL WITH WEAPONRY.  
CHOOSE A WEAPON AND THE AMOUNT YOU WISH? 4,2.

YOU HAVE 4 UNITS OF CARGO SPACE TO FILL WITH WEAPONRY.  
CHOOSE A WEAPON AND THE AMOUNT YOU WISH? 4,2

RANGE TO TARGET: 778.492

RELATIVE VELOCITY: 1.00061

ACTION? 9.

RANGE TO TARGET: 747.449

RELATIVE VELOCITY: 1.00061

ACTION? 7.

CHANGE TO BE EFFECTED? .5

RANGE TO TARGET: 747.449

RELATIVE VELOCITY: 1.50061

ACTION? 4.

SCANNERS REPORT ENEMY DAMAGE NOW: 3.87234

DAMAGE CONTROL REPORTS YOUR VESSEL DAMAGE AT: 1.03076

RANGE TO TARGET: 722.481

RELATIVE VELOCITY: 1.50061

ACTION? 1.

SCANNERS REPORT ENEMY DAMAGE NOW: 4.43741

DAMAGE CONTROL REPORTS YOUR VESSEL DAMAGE AT: 2.08484

RANGE TO TARGET: 697.514

RELATIVE VELOCITY: 1.50061

ACTION? 3.

SCANNERS REPORT ENEMY DAMAGE NOW: 11.3564

DAMAGE CONTROL REPORTS YOUR VESSEL DAMAGE AT: 5.52437

RANGE TO TARGET: 672.546

RELATIVE VELOCITY: 1.50061

ACTION? 2.

SCANNERS REPORT ENEMY DAMAGE NOW: 18.0373

DAMAGE CONTROL REPORTS YOUR VESSEL DAMAGE AT: 7.60276

RANGE TO TARGET: 647.578

RELATIVE VELOCITY: 1.50061

ACTION? 7.

CHANGE TO BE EFFECTED? -2

RANGE TO TARGET: 647.578

RELATIVE VELOCITY: -419388

ACTION? 1.

SCANNERS REPORT ENEMY DAMAGE NOW: 20.6032

DAMAGE CONTROL REPORTS YOUR VESSEL DAMAGE AT: 8.09969

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10 CLS: PRINT#411, "DEEP SPACE"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT#960, "": INPUT "DO YOU NEED INSTRUCTIONS?";I$
40 IF LEFT$(I$,1)="N" THEN 490
50 CLS: PRINT TAB(27) "DEEP SPACE": PRINT
60 PRINT "YOU ARE ONE OF A GROUP OF CAPTAINS ASSIGNED TO PATROL A"
70 PRINT "SECTION OF YOUR STAR EMPIRE'S BORDER AGAINST HOSTILE"
80 PRINT "ALIENS. ALL YOUR ENCOUNTERS HERE WILL BE AGAINST HOSTILE"
90 PRINT "VESSELS. YOU WILL FIRST BE REQUIRED TO SELECT A VESSEL"
100 PRINT "FROM ONE OF THREE TYPES, EACH WITH ITS OWN CHARACTERISTICS:"
110 PRINT: PRINT "TYPE", "SPEED", "CARGO SPACE", "PROTECTION"
120 PRINT "-----", "-----", "-----", "-----"
130 PRINT "1- SCOUT", "18X", "16", "1"
140 PRINT "2- CRUISER", "4X", "24", "2"
150 PRINT "3- BATTLESHIP", "2X", "30", "5"
160 PRINT#979, "PRESS ANY KEY TO CONTINUE";
170 IF INKEY$="" THEN 170 ELSE PRINT#128, CHR$(31);
180 PRINT "SPEED IS GIVEN RELATIVE TO THE OTHER SHIPS."
190 PRINT "CARGO SPACE IS IN UNITS OF SPACE ABOARD SHIP WHICH CAN BE"
200 PRINT "FILLED WITH WEAPONS."
210 PRINT "PROTECTION IS THE RELATIVE STRENGTH OF THE SHIP'S ARMOR"
220 PRINT "AND FORCE FIELDS."
230 PRINT: PRINT "ONCE A SHIP HAS BEEN SELECTED, YOU WILL BE INSTRUCTED TO ARM"
240 PRINT "IT WITH WEAPONRY FROM THE FOLLOWING LIST"
250 PRINT#979, "PRESS ANY KEY TO CONTINUE";
260 IF INKEY$="" THEN 260 ELSE PRINT#128, CHR$(31);
270 PRINT
280 PRINT "TYPE" "CARGO SPACE" "REL. STRENGTH"
290 PRINT "-----" "-----" "-----"
300 PRINT "1- PHASER BANKS" "12" "4"
310 PRINT "2- ANTI-MATTER MISSILE" "4" "20"
320 PRINT "3- HYPERSPACE LANCE" "4" "16"
330 PRINT "4- PHOTON TORPEDO" "2" "10"
340 PRINT "5- HYPERON NEUTRALIZATION FIELD" "20" "6"
350 PRINT: PRINT "WEAPONS #1 & #5 CAN BE FIRED 100 TIMES EACH. ALL OTHERS CAN"
360 PRINT "BE FIRED ONCE FOR EACH ON BOARD."
370 PRINT#979, "PRESS ANY KEY TO CONTINUE";
380 IF INKEY$="" THEN 380 ELSE PRINT#128, CHR$(31);
390 PRINT "A TYPICAL LOAD FOR A CRUISER MIGHT CONSIST OF:"
400 PRINT "1-#1 PHASER BANK = 12"
410 PRINT "2-#3 HYPERSPACE LANCES = 8"
420 PRINT "2-#4 PHOTON TORPEDOES = 4"
430 PRINT "-----"
440 PRINT "24 UNITS OF CARGO"
450 PRINT "A WORD OF CAUTION: FIRING HIGH YIELD WEAPONS AT CLOSE (<100)"
460 PRINT "RANGE CAN BE DANGEROUS TO YOUR SHIP AND MINIMAL DAMAGE CAN"
470 PRINT "OCCUR AS FAR OUT AS 200 IN SOME CIRCUMSTANCES."
480 PRINT: PRINT "RANGE IS GIVEN IN THOUSANDS OF KILOMETERS."
490 PRINT "DO YOU WISH A MANEUVER CHART?": INPUT M$
500 IF LEFT$(M$,1)="N" THEN 630
510 CLS: PRINT "MANEUVER CHART": PRINT "-----"
520 PRINT "1 FIRE PHASERS"
530 PRINT "2 FIRE ANTI-MATTER MISSILE"
540 PRINT "3 FIRE HYPERSPACE LANCE"
550 PRINT "4 FIRE PHOTON TORPEDO"
560 PRINT "5 ACTIVE HYPERON NEUTRALIZATION FIELD"
570 PRINT "6 SELF-DESTRUCT"
580 PRINT "7 CHANGE VELOCITY"
590 PRINT "8 DISENGAGE"
600 PRINT "9 PROCEED"
610 PRINT#979, "PRESS ANY KEY TO CONTINUE";
620 IF INKEY$="" THEN 620 ELSE CLS
630 CLS: PRINT "YOU HAVE A CHOICE OF THREE SYSTEMS TO PATROL."
640 PRINT "1 - ORION"
650 PRINT "2 - DENEEN"
660 PRINT "3 - ARCTURUS"
670 PRINT "SELECT A SYSTEM (1-3)": INPUT S9
680 IF S9=1 THEN 2060
690 IF S9=2 THEN 2110
700 GOTO 2160
710 D0=0
720 D1=0
730 N1=0
740 N2=0
750 N3=0
760 N4=0
770 D=0
780 PRINT "WHICH SPACECRAFT WOULD YOU LIKE (1-3)": INPUT S
790 ON S GOTO 1400,1520,1560
800 GOTO 780
810 C=0
820 CLS: PRINT "YOU HAVE";C;"UNITS OF CARGO SPACE TO FILL WITH WEAPONRY."

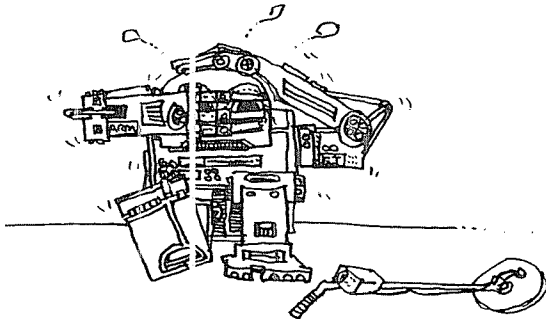
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830 PRINT "CHOOSE A WEAPON AND THE AMOUNT YOU WISH": INPUT W,N
840 ON W GOTO 1600,1690,1780,1870,1960
850 GOTO 820
860 IF N<C1 THEN 2210
870 C=C-N*W
880 ON W GOTO 1670,1760,1850,1940
890 GOTO 2040
900 IF C<1 THEN 820
910 REM
920 S1=S0+RND(0)
930 R=(3+RND(0)+5)*100
940 PRINT "RANGE TO TARGET:";R
950 PRINT "RELATIVE VELOCITY:";S1
960 PRINT "ACTION": INPUT M: CLS
970 ON M GOTO 1620,1710,1800,1890,1990,1350,1000,2430
980 IF R<S00 THEN 1190
990 IF S1<0 THEN 1020
1000 R=R+(S1+8.3)/1.25
1010 GOTO 1030
1020 R=R-(S1+8.3)/1.25
1030 IF R<1500 THEN 2270
1040 IF R<0 THEN 1060
1050 R=R-
1060 PRINT
1070 GOTO 940
1080 PRINT "CHANGE TO BE EFFECTED": INPUT S2
1090 IF (S1+S2)>S0 THEN 2230
1100 S1=S1+S2
1110 GOTO 940
1120 F0=P1*(Z/R)/1.5
1130 REM
1140 D0=(2+F0+3+F0+RND(0))/5
1150 D=D+D0
1160 PRINT "SCANNERS REPORT ENEMY DAMAGE NOW:";D
1170 IF D>99 THEN 2400
1180 GOTO 1200
1190 D0=0
1200 REM
1210 K=E1+E2+RND(0)
1220 REM
1230 E=E3+E4+RND(0)+5/P0+RND(0)
1240 REM
1250 F3=E*(K/R)/1.85
1260 D2=(3+F3+3+F3+RND(0))/5.5
1270 D1=D1+D2
1280 IF (Z+D0)/(R+500)>2.2 THEN 1310
1290 D3=D0+2/(R+2*P0)
1300 D1=D1+D3
1310 PRINT "DAMAGE CONTROL REPORTS YOUR VESSEL DAMAGE AT:";D1
1320 IF D1>99 THEN 2420
1330 IF D1>99 THEN 2430
1340 GOTO 990
1350 PRINT "SELF DESTRUCT FAILSAFE ACTIVATED!!"
1360 PRINT "INPUT 1 TO RELEASE FAILSAFE": INPUT U
1370 IF U=1 THEN 1390
1380 GOTO 990
1390 PRINT "SELF DESTRUCT ACCOMPLISHED."
1400 IF R<0 THEN 1430
1410 PRINT "ENEMY VESSEL ALSO DESTROYED."
1420 GOTO 2430
1430 D4=3200/R
1440 D=D+D4
1450 IF D>99 THEN 1410
1460 PRINT "ENEMY VESSEL SURVIVES WITH";D;"DAMAGE"
1470 GOTO 2430
1480 S0=10
1490 C0=16
1500 P0=1
1510 GOTO 810
1520 S0=4
1530 C0=24
1540 P0=2
1550 GOTO 810
1560 S0=2
1570 C0=30
1580 P0=5
1590 GOTO 810
1600 C1=12
1610 GOTO 860
1620 P1=4
1630 IF N1=0 THEN 1040
1640 N1=N1-1
1650 Z=200
1660 GOTO 1120
1670 N1=N1+N
1680 GOTO 900
1690 C1=4
1700 GOTO 860
1710 P1=20
1720 IF N2=0 THEN 2320
1730 N2=N2-1
1740 Z=500
1750 GOTO 1120
1760 N2=N2+N
1770 GOTO 900
1780 C1=4
1790 GOTO 860
1800 P1=16
1810 IF N3=0 THEN 2340
1820 N3=N3-1
1830 Z=550
1840 GOTO 1120
1850 N3=N3+N
1860 GOTO 900
1870 C1=2
1880 GOTO 860
1890 P1=10
1900 IF N4=0 THEN 2360
1910 N4=N4-1
1920 Z=400
1930 GOTO 1120
1940 N4=N4+N
1950 GOTO 900
1960 C1=2
1970 N=100
1980 GOTO 860
1990 P1=6
2000 IF N5=0 THEN 2380
2010 N5=N5-1
2020 Z=250
2030 GOTO 1120
2040 N5=N5+N
2050 GOTO 900
2060 E1=150
2070 E2=500
2080 E3=3
2090 E4=4
2100 GOTO 710
2110 E1=200
2120 E2=350
2130 E3=4
2140 E4=3
2150 GOTO 710
2160 E1=150
2170 E2=400
2180 E3=5
2190 E4=2
2200 GOTO 710
2210 PRINT "NOT ENOUGH SPACE. RESELECT.": FOR TI=1 TO 1500: NEXT
2220 GOTO 820
2230 PRINT "CHANGE BEYOND MAXIMUM POSSIBLE."
2240 PRINT "INCREASING TO MAXIMUM."
2250 S1=50
2260 GOTO 990
2270 PRINT "OUT OF SENSOR RANGE. AUTOMATIC DISENGAGE."
2280 GOTO 2430
2290 PRINT "PHASER BANKS DRAINED."
2300 PRINT "SELECT ANOTHER COURSE OF ACTION."
2310 GOTO 960
2320 PRINT "ALL ANTI-MATTER MISSILES EXPENDED."
2330 GOTO 2300
2340 PRINT "ALL HYPERSPACE LANCES EXPENDED."
2350 GOTO 2300
2360 PRINT "ALL PHOTON TORPEDO TUBES EMPTY."
2370 GOTO 2300
2380 PRINT "HYPERON NEUTRALIZATION FIELD DRAINED."
2390 GOTO 2300
2400 PRINT "ENEMY VESSEL DESTROYED!"
2410 GOTO 1200
2420 PRINT "YOUR VESSEL HAS BEEN DESTROYED!"
2430 PRINT "ANOTHER BATTLE": INPUT R$
2440 IF LEFT$(R$,1)="Y" THEN 670
2450 PRINT: PRINT "TRY AGAIN LATER!": PRINT
2460 FOR X=1 TO 2000: NEXT: END

```

# Defuse



DEFUSE  
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

\_\_\_\_\_  
cls  
DO YOU NEED INSTRUCTIONS? YES.

\_\_\_\_\_  
cls  
YOU ARE IN A GOVERNMENT EXPERIMENTAL BUILDING WITH  
1,000,000 ROOMS IN IT. THE BUILDING IS 100 ROOMS  
LONG (0-99), 100 ROOMS WIDE (0-99), AND 100 ROOMS HIGH (0-99).

IN IT A BOMB IS HIDDEN. THE BOMB SENDS OUT SIGNALS THAT  
GET STRONGER AS YOU GET CLOSER. YOU HAVE 200 SECONDS  
TO DEACTIVATE IT.

PRESS ANY KEY TO CONTINUE

| SIGNAL  | L  | W  | H  | SEC | COORDINATES (L,W,H) |
|---------|----|----|----|-----|---------------------|
| 7353.98 | 0  | 0  | 0  | 0   | ? 90,90,90          |
| 3555.12 | 90 | 90 | 90 | 10  | ? 80,80,90          |
| 3565.22 | 80 | 80 | 90 | 20  | ? 80,80,80          |
| 4565.22 | 80 | 80 | 80 | 30  | ? 80,80,70          |
| 5565.22 | 80 | 80 | 70 | 40  | ? 80,80,60          |
| 4965.22 | 80 | 80 | 60 | 50  | ? 80,80,50          |
| 3965.22 | 80 | 80 | 50 | 60  | ? 80,70,50          |
| 4975.22 | 80 | 70 | 50 | 70  | ? 80,60,50          |
| 5585.22 | 80 | 60 | 50 | 80  | ? 70,45,80          |
| 4980.32 | 70 | 45 | 80 | 90  | ? 60,45,80          |
| 4980.42 | 60 | 45 | 80 | 100 | ? 75,75,75          |
| 5970.27 | 75 | 75 | 75 | 110 | ? 60,60,60          |
| 6585.42 | 60 | 60 | 60 | 120 | ? 50,50,50          |

BOOOOOOMM!!!  
YOU BLEW IT. THE BUILDING BLEW UP.  
THE BOMB WAS LOCATED AT THE COORDINATES (L,W,H): 2 46 26

\_\_\_\_\_  
cls  
WANT TO PLAY AGAIN? YES.

| SIGNAL  | L  | W  | H  | SEC | COORDINATES (L,W,H) |
|---------|----|----|----|-----|---------------------|
| 6386.94 | 0  | 0  | 0  | 0   | ? 0,0,50            |
| 6693.06 | 0  | 0  | 50 | 10  | ? 0,0,60            |
| 7693.06 | 0  | 0  | 60 | 20  | ? 0,0,40            |
| 5693.06 | 0  | 0  | 40 | 30  | ? 0,0,70            |
| 6693.06 | 0  | 0  | 70 | 40  | ? 0,50,60           |
| 7643.06 | 0  | 50 | 60 | 50  | ? 0,90,60           |
| 7683.06 | 0  | 90 | 60 | 60  | ? 50,0,60           |
| 7692.56 | 50 | 0  | 60 | 70  | ? 0,10,60           |
| 7683.06 | 0  | 10 | 60 | 80  | ? 1,0,60            |
| 7693.05 | 1  | 0  | 60 | 90  | ? 1,0,50            |
| 6693.05 | 1  | 0  | 50 | 100 | ? 10,0,50           |
| 6692.96 | 10 | 0  | 50 | 110 | ? 30,0,50           |
| 6692.76 | 30 | 0  | 50 | 120 | ? 50,50,50          |
| 6642.56 | 50 | 50 | 50 | 130 | ? 60,50,50          |

BOOOOOOMM!!!  
YOU BLEW IT. THE BUILDING BLEW UP.  
THE BOMB WAS LOCATED AT THE COORDINATES (L,W,H): 6 93 36

\_\_\_\_\_  
cls  
WANT TO PLAY AGAIN? NO.

\_\_\_\_\_  
cls

In this game, you are in an experimental building with one million rooms in it. The building is one hundred rooms long, one hundred rooms wide, and one hundred rooms high.

You have just received a telephone call from a mad bomber who tells you he has planted a bomb someplace in the building. Fortunately you are armed with a bomb detector that registers a stronger and stronger signal as you get closer to the bomb. You start at the bottom right-hand door of the building, at the room 0,0,0. In response to the signals from your detector, every ten seconds you may try a new room to search for the bomb. You have two hundred seconds or twenty trials to find it.

It's fairly easy to find the bomb once you get the knack of how your detector works. However, we're not going to spoil it for you and tell the secret.

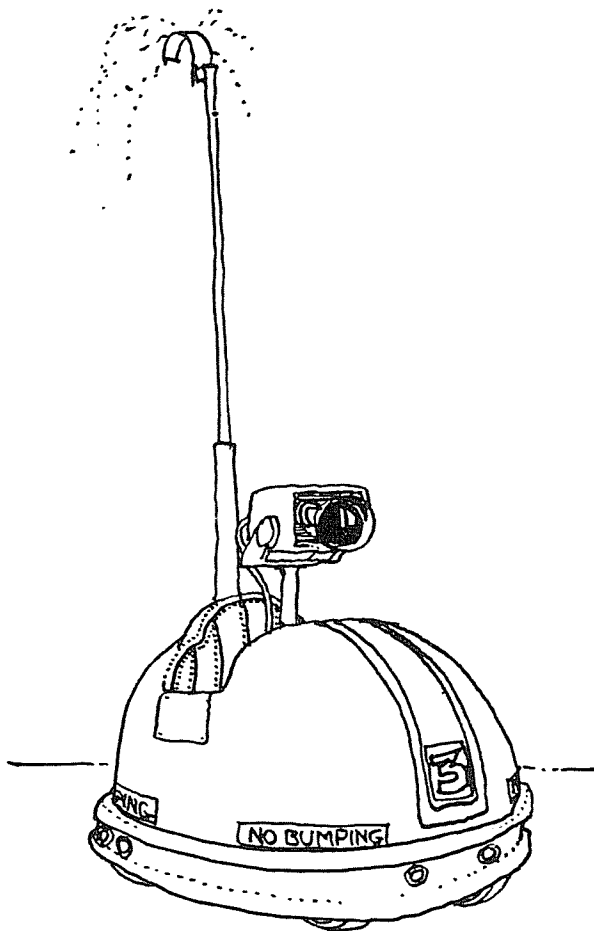
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10 CLS: PRINT#413, "DEFUSE"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT#990, "": INPUT "DO YOU NEED INSTRUCTIONS?"; I$
40 IF LEFT$(I$,1) = "N" THEN CLS: GOTO 140
50 CLS: PRINT TAB(29); "DEFUSE": PRINT
60 PRINT "YOU ARE IN A GOVERNMENT EXPERIMENTAL BUILDING WITH"
70 PRINT "1,000,000 ROOMS IN IT. THE BUILDING IS 100 ROOMS"
80 PRINT "LONG (0-99), 100 ROOMS WIDE (0-99), AND 100 ROOMS HIGH (0-99)."
90 PRINT: PRINT "IN IT A BOMB IS HIDDEN. THE BOMB SENDS OUT SIGNALS THAT"
100 PRINT "GET STRONGER AS YOU GET CLOSER. YOU HAVE 200 SECONDS"
110 PRINT "TO DEACTIVATE IT."
120 PRINT#979, "PRESS ANY KEY TO CONTINUE":
130 IF INKEY$="" THEN 130 ELSE CLS
140 A=INT(.00*RN(0)): B=INT(.00*RN(0))
150 C=INT(.00*RN(0)): IF A=0 THEN 180
160 IF B=0 THEN 180
170 IF C=0 THEN 150
180 D=0: E=0: F=0: G=0: PRINT#128, "": GOSUB 190: GOTO 250
190 LB=PEEK(16416): HB=PEEK(16417): PRINTCHR$(28);
200 PRINT "SIGNAL"; TAB(15); "L"; TAB(20); "W"; TAB(25); "H";
210 PRINT TAB(35); "SEC"; TAB(45); "COORDINATES (L,W,H)":
220 PRINT "-----"; TAB(14); "-----"; TAB(19); "-----"; TAB(24); "-----";
230 PRINT TAB(34); "-----"; TAB(44); "-----";
240 POKE 16416, LB: POKE 16417, HB: RETURN
250 REM
260 IM$="####.##.###.###.###.###"
270 SI=100.0-ABS((A/100+B/100+C/100)-(D/100+E/100))
280 PRINT USING IM$; SI, D, E, F, G: PRINT TAB(45); GOSUB 190
290 INPUT D, E, F, G: G=10: IF A=0 THEN 320
300 IF B=0 THEN 320
310 IF C=0 THEN 390
320 IF G=200 THEN 340
330 GOTO 430
340 CLS: PRINT "BOOOOOOMM!!!": PRINT "YOU BLEW IT. THE BUILDING BLEW UP."
350 PRINT "THE BOMB WAS LOCATED AT THE COORDINATES (L,W,H):"; A; B; C
360 PRINT: PRINT: PRINT "WANT TO PLAY AGAIN?";
370 INPUT I$: IF LEFT$(I$,1) = "Y" THEN CLS: GOTO 140
380 GOTO 570
390 CLS: PRINT "BOMB DEACTIVATED AT"; G; "SECONDS!!!": GOTO 360
400 IF D>9 THEN 470
410 IF D=0 THEN 470
420 IF E>9 THEN 470
430 IF E=0 THEN 470
440 IF F>9 THEN 510
450 IF F=0 THEN 520
460 GOTO 230
470 CLS: PRINT "YOU WALKED OUT A WINDOW ON THE"; IF F<4 THEN 530
480 PRINT "TH FLOOR!!!"
490 PRINT "YOU WERE KILLED AND"; 200-G; "SECONDS LATER THE BUILDING"
500 PRINT "BLEW UP!!!": GOTO 360
510 CLS: PRINT "YOU ARE NOW"; F+9; "FEET IN THE AIR!!!": GOTO 490
520 CLS: PRINT "YOU ARE NOW"; -1*(F+9); "FEET UNDERGROUND!!!": GOTO 490
530 ON F GOTO 540,550,560
540 PRINT "1ST FLOOR!!!": GOTO 490
550 PRINT "2ND FLOOR!!!": GOTO 490
560 PRINT "3RD FLOOR!!!": GOTO 490
570 END

```



# Dodgem



DODGEM is a game originally devised in 1972 by Colin Vout, then a student at the University of Cambridge, England. It got its major publicity from Martin Gardner who discussed it in the June 1975 issue of *Scientific American*. Complete instructions are in the sample run.

It may be played by two players in which case the computer is the referee, or by one player against the computer. The computer, incidentally, plays uncommonly well. This is not surprising since Dodgem was written by the very talented and prolific Mac Oglesby.

```

DODGE 'EM
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ
cls
DO YOU NEED INSTRUCTIONS? YES_
cls
HERE'S A SAMPLE PLAYING BOARD:

1
2
3
4
A B C D
TWO SETS OF PIECES (DIGITS AND LETTERS) RACE AT RIGHT ANGLES
ACROSS A SQUARE BOARD. VACANT LOCATIONS ARE SHOWN AS PERIODS.
YOU CHOOSE THE BOARD SIZE (THE ONE ABOVE IS SIZE 5.)
PRESS ANY KEY TO CONTINUE
cls
N
H-----E
|
S

THE OBJECT IS TO MOVE ALL OF YOUR PIECES ACROSS THE BOARD
AND OFF THE OPPOSITE EDGE. DIGITS LEAVE THE BOARD ONLY AT
THE EASTERN EDGE, LETTERS ONLY AT THE NORTHERN. THE WINNER
IS THE PLAYER WHOSE PIECES HAVE ALL LEFT THE BOARD.
PRESS ANY KEY TO CONTINUE
cls
THE PLAYERS GO IN TURN MOVING ONE OF THEIR PIECES TO AN
ADJACENT LOCATION WHICH IS EITHER OFF THE BOARD OR CURRENTLY
VACANT. THERE ARE NO DIAGONAL MOVES, NO JUMPS AND NO CAPTURES.
DIGITS CANNOT MOVE WEST, NOR LETTERS MOVE SOUTH.

TO MOVE A PIECE, TYPE ITS NAME AND THE FIRST LETTER OF THE
DESIRED DIRECTION. EXAMPLES:
2E MEANS THAT PIECE 2 WANTS TO GO EAST
BH MEANS THAT PIECE B WANTS TO GO WEST.
NOTE: YOU FORFEIT THE GAME IF YOUR MOVE LEAVES YOUR OPPONENT
WITHOUT ANY LEGAL MOVE.

LASTLY, YOU MAY TYPE R TO RESIGN AND H FOR HELP.
PRESS ANY KEY TO CONTINUE
cls
BOARD SIZE (3-6)? 4
HOW MANY PLAYERS (1 OR 2)? 1
OK, THE COMPUTER WILL MOVE THE DIGITS.
WHO MOVES FIRST (1=COMPUTER, 2=YOU)? 2
cls
BOARD ---^
1 . . .
2 . . .
3 . . .
. A B C

LETTERS MOVE? CNL
cls
BOARD ---^
. 1 . .
. 2 . .
. 3 . C
. A B .

LETTERS MOVE? CNL
cls
BOARD ---^
. 1 . .
. 2 . C
. 3 . .
. A B .

LETTERS MOVE? BNL
cls
BOARD ---^
. . 1
. . C
. 3 B
. A .

LETTERS MOVE? RE_
cls
BOARD ---^
. . 1
. . C
. 3 B
. A .

LETTERS MOVE? RE_
cls
BOARD ---^
. . 1
. . C
. 3 B
. A .

LETTERS MOVE? ANL
cls

```

```

BOARD ---^          1
                   2 C
                   3 B A

```

THE DIGITS HAVE NO LEGAL MOVES FOR THE LETTERS!  
THE LETTERS WIN!!!

TRY AGAIN? YES\_

cls

```

10 CLS: CLEAR 300: PRINT@413, "DODGE 'EM"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ"
30 I$="NO": PRINT@960, "": INPUT "DO YOU NEED INSTRUCTIONS"; I$
40 CLS
50 A$=I$: GOSUB 2230
60 IF LEFT$(I$,1) <> "Y" THEN 80
70 GOSUB 2440
80 PRINT: PRINT "BOARD SIZE (3-6)";
90 INPUT A
100 LET A=INT(A)
110 IF (6-A)*(A-3)=0 THEN 130
120 GOTO 80
130 LET P(1,0)=A-1: LET P(2,0)=A-1
140 FOR J=1 TO A-1
150 LET P(1,J)=10*J+1
160 NEXT J
170 FOR J=1 TO A-1
180 LET P(2,J)=10*A+J+1
190 NEXT J
200 LET F=1
210 LET M$(1)="NES"
220 LET M$(2)="NE W"
230 LET C$(1)="DIGITS"
240 LET C$(2)="LETTERS"
250 LET A$(1)="1234567"
260 LET A$(2)="ABCDEFGH"
270 FOR J=1 TO A
280 IF J=A THEN 340
290 LET D$(J,1)=CHR$(4+3*J)
300 FOR K=2 TO A
310 LET D$(J,K)=CHR$(110)
320 NEXT K
330 GOTO 380
340 LET D$(J,1)=CHR$(110)
350 FOR K=2 TO A
360 LET D$(J,K)=CHR$(110)
370 NEXT K
380 NEXT J
390 PRINT "HOW MANY PLAYERS (1 OR 2)";
400 INPUT B
410 IF B=2 THEN 500
420 IF B=1 THEN 440
430 GOTO 390
440 PRINT "OK, THE COMPUTER WILL MOVE THE DIGITS."
450 PRINT "WHO MOVES FIRST (1=COMPUTER, 2=YOU)";
460 INPUT F
470 IF (2-F)*(1-F)=0 THEN 500
480 PRINT "PLEASE TYPE 1 OR 2 NOW ";
490 GOTO 450

```

```

500 PRINT
510 PRINT "HERE WE GO..."
520 PRINT
530 PRINT@0, X$="BOARD ---"+CHR$(94)+STRING$(22-A/2,32)
540 FOR J=1 TO A: PRINT X$:
550 X$=STRING$(32-A/2,32): FOR K=1 TO A: PRINT " "; D$(J,K);
560 NEXT K
570 PRINT
580 NEXT J
590 PRINT CHR$(32);
600 FOR J=F TO 3-F STEP 3-2*F
610 REM
620 FOR J1=1 TO 11-1
630 LET R=INT(P(1,J1)/10)
640 LET C=P(1,J1)-10*R
650 ON J GOTO 660,710
660 IF C=A THEN 700
670 IF C>A THEN 690
680 GOTO 760
690 GOTO 870
700 GOTO 910
710 IF R=1 THEN 750
720 IF R=0 THEN 740
730 GOTO 760
740 GOTO 870
750 GOTO 910
760 REM
770 IF D$(R-1,C)=CHR$(140) THEN 850
780 IF D$(R,C+1)=CHR$(140) THEN 850
790 IF J=2 THEN 830
800 IF D$(R+1,C)=CHR$(140) THEN 820
810 GOTO 870
820 GOTO 910
830 IF D$(R,C-1)=CHR$(140) THEN 850
840 GOTO 870
850 GOTO 910
860 PRINT "BBS---1245", J1
870 NEXT J1
880 PRINT "THE "; C$(3-J); " HAVE NO LEGAL MOVES FOR THE "; C$(J); "!"
890 PRINT "THE "; C$(J); " WIN!!!"
900 GOTO 2880: WBS STOP
910 IF B=2 THEN 1250
920 IF J=2 THEN 1250
930 LET L1=2
940 FOR L0=1 TO 3
950 ON L0 GOTO 1020,960,1010
960 IF RND(0)<5 THEN 990
970 LET L1=1
980 GOTO 1020
990 LET L1=3
1000 GOTO 1020
1010 LET L1=4-L1
1020 LET P1=INT(RND(0)*A)
1030 FOR L2=1 TO A-1
1040 LET P1=P1+1
1050 IF P1<=A-1 THEN 1070
1060 LET P1=P1-(A-1)
1070 LET R=INT(F*(J,P1)/10)
1080 LET C=P(1,P1)-10*R
1090 IF C>A THEN 1220
1100 ON L1 GOTO 1110,1140,1190
1110 IF D$(R-1,C)=CHR$(140) THEN 1130
1120 GOTO 1220
1130 GOTO 1500
1140 IF D$(R,C+1)=CHR$(140) THEN 1180
1150 IF C=A THEN 1170
1160 GOTO 1220
1170 LET P(J,0)=P(J,0)-1
1180 GOTO 1630
1190 IF D$(R+1,C)=CHR$(140) THEN 1210
1200 GOTO 1220
1210 GOTO 1680
1220 NEXT L2
1230 NEXT L0
1240 GOTO 880
1250 PRINT C$(J); " MOVE";
1260 INPUT A$
1270 GOSUB 2230
1280 IF LEFT$(A$,1)="R" THEN 2100
1290 IF LEFT$(A$,1)="H" THEN 1800
1300 LET A$=MID$(A$,1,2)

```

```

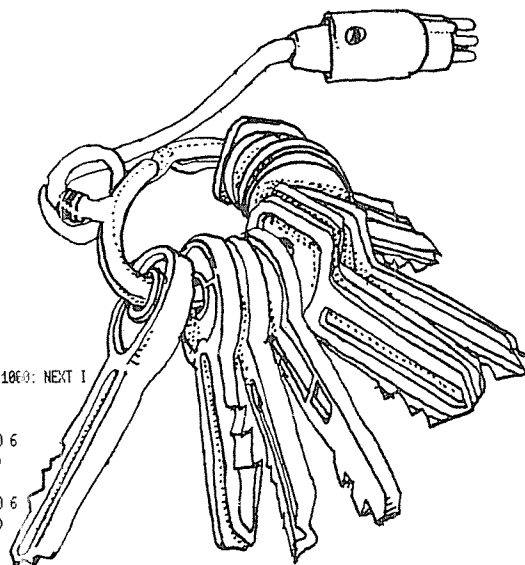
1210 P1=0
1320 FOR B0=1 TO A-1
1330 IF MID$(A$(J),B0,1)=MID$(A$,1,1) THEN P1=B0
1340 NEXT B0
1250 IF P1=0 THEN 1850
1360 LET P2=0
1370 FOR B0=1 TO 4
1380 IF MID$(M$(J),B0,1)=MID$(A$,2,1) THEN P2=B0
1390 NEXT B0
1400 IF P2=0 THEN 1850
1410 LET R=INT(P(J,P1)/10)
1420 LET C=P(J,P1)-10*R
1430 IF R=0 THEN 1850
1440 IF C>A THEN 1850
1450 ON J GOTO 1460,1510
1460 IF C>A THEN 1500
1470 IF P2<2 THEN 1500
1480 LET P(1,0)=P(1,0)-1
1490 GOTO 1630
1500 GOTO 1550
1510 IF R<1 THEN 1550
1520 IF P2<1 THEN 1550
1530 LET P(2,0)=P(2,0)-1
1540 GOTO 1580
1550 ON P2 GOTO 1560,1610,1660,1710
1560 IF D$(R-1,C)=CHR$(140) THEN 1580
1570 GOTO 1850
1580 LET D$(R-1,C)=MID$(A$(J),P1,1)
1590 LET P(J,P1)=P(J,P1)-10
1600 GOTO 1750
1610 IF D$(R,C+1)=CHR$(140) THEN 1630
1620 GOTO 1850
1630 LET D$(R,C+1)=MID$(A$(J),P1,1)
1640 LET P(J,P1)=P(J,P1)+1
1650 GOTO 1750
1660 IF D$(R+1,C)=CHR$(140) THEN 1680
1670 GOTO 1850
1680 LET D$(R+1,C)=MID$(A$(J),P1,1)
1690 LET P(J,P1)=P(J,P1)+10
1700 GOTO 1750
1710 IF D$(R,C-1)=CHR$(140) THEN 1730
1720 GOTO 1850
1730 LET D$(R,C-1)=MID$(A$(J),P1,1)
1740 LET P(J,P1)=P(J,P1)-1
1750 LET D$(R,C)=CHR$(140)
1760 IF B=2 THEN 1800
1770 IF J=2 THEN 1800
1780 PRINT "THE DIGITS MOVE: ";MID$(A$(J),P1,1);
1790 PRINT MID$(M$(J),L1,1)
1800 IF P(J,0)<0 THEN 1840
1810 PRINT
1820 PRINT "*** THE ";C$(J);" WIN!!! ***"
1830 GOTO 2880' WAS END
1840 GOTO 2210
1850 PRINT "ILLEGAL MOVE OR BAD INPUT."
1860 PRINT "INPUT IGNORED. TYPE H FOR HELP."
1870 GOTO 1250
1880 PRINT "THE ";C$(J);" HAVE THESE LEGAL MOVES:"
1890 FOR J3=1 TO A-1
1900 LET P4=MID$(A$(J),J3,1)
1910 LET R=INT(P(J,J3)/10)
1920 LET C=P(J,J3)-10*R
1930 ON J GOTO 1940,2000
1940 IF C=A THEN 1980
1950 IF C>A THEN 1970
1960 GOTO 2050
1970 GOTO 2150
1980 PRINT " ";P4;"E";
1990 GOTO 2050
2000 IF R=1 THEN 2040
2010 IF R=0 THEN 2030
2020 GOTO 2050
2030 GOTO 2150
2040 GOTO 2060
2050 IF D$(R-1,C)<>CHR$(140) THEN 2070
2060 PRINT " ";P4;"N";
2070 IF D$(R,C+1)<>CHR$(140) THEN 2080
2080 PRINT " ";P4;"E";
2090 IF J=2 THEN 2130
2100 IF D$(R+1,C)<>CHR$(140) THEN 2120
2110 PRINT " ";P4;"S";
2120 GOTO 2150
2130 IF D$(R,C-1)<>CHR$(140) THEN 2150
2140 PRINT " ";P4;"W";
2150 NEXT J3
2160 PRINT
2170 GOTO 1250
2180 PRINT "THE ";C$(J);" GIVE UP!!!"
2190 PRINT "*** THE ";C$(3-J);" WIN!!! ***"
2200 GOTO 2880' WAS END
2210 NEXT J
2220 GOTO 520
2230 IF LEN(A$)>10 THEN 2430
2240 LET C1=0
2250 FOR B0=1 TO LEN(A$)
2260 LET A(B0)=ASC(MID$(A$,B0,1))
2270 NEXT B0
2280 LET A(0)=LEN(A$)
2290 FOR J2=1 TO A(0)
2300 IF A(J2)<96 THEN 2320
2310 LET A(J2)=A(J2)-32
2320 IF (57-A(J2))*(A(J2)-48)=0 THEN 2350
2330 IF (98-A(J2))*(A(J2)-65)=0 THEN 2350
2340 GOTO 2370
2350 LET C1=C1+1
2360 LET A(C1)=A(J2)
2370 NEXT J2
2380 LET A(0)=C1
2390 LET A$=""
2400 FOR B0=1 TO A(0)
2410 LET A$=A$+CHR$(A(B0))
2420 NEXT B0
2430 RETURN
2440 CLS: PRINT TAB(20) "DODGE EM". PRINT
2450 PRINT "HERE'S A SAMPLE PLAYING BOARD:"
2460 PRINT
2470 A$="" FOR TM=1 TO 4: A$=A$+" "+CHR$(140): NEXT TM
2480 PRINT "1";A$
2490 PRINT "2";A$
2500 PRINT "3";A$
2510 PRINT "4";A$
2520 PRINT CHR$(140);" A B C D"
2530 PRINT
2540 PRINT "TWO SETS OF PIECES (DIGITS AND LETTERS) RACE AT RIGHT ANG";
2550 PRINT "LES"
2560 PRINT "ACROSS A SQUARE BOARD. VACANT LOCATIONS ARE SHOWN AS PERI";
2570 PRINT "005."
2580 PRINT "YOU CHOOSE THE BOARD SIZE (THE ONE ABOVE IS SIZE 5.)"
2590 GOSUB 2900
2600 PRINT TAB(30) " N"
2610 PRINT TAB(30) " ["
2620 PRINT TAB(30) "W";CHR$(93);"+";CHR$(94);"E"
2630 PRINT TAB(30) " ";CHR$(92)
2640 PRINT TAB(30) " S"
2650 PRINT
2660 PRINT "THE OBJECT IS TO MOVE ALL OF YOUR PIECES ACROSS THE BOARD"
2670 PRINT "AND OFF THE OPPOSITE EDGE. DIGITS LEAVE THE BOARD ONLY AT"
2680 PRINT "THE EASTERN EDGE, LETTERS ONLY AT THE NORTHERN. THE WINNER"
2690 PRINT "IS THE PLAYER WHOSE PIECES HAVE ALL LEFT THE BOARD."
2700 GOSUB 2900
2710 PRINT "THE PLAYERS GO IN TURN, MOVING ONE OF THEIR PIECES TO AN"
2720 PRINT "ADJACENT LOCATION WHICH IS EITHER OFF THE BOARD OF CURRENT";
2730 PRINT "LY"
2740 PRINT "VACANT. THERE ARE NO DIAGONAL MOVES, NO JUMPS AND NO CAPT";
2750 PRINT "URES."
2760 PRINT "DIGITS CANNOT MOVE WEST, NOR LETTERS MOVE SOUTH."
2770 PRINT
2780 PRINT "TO MOVE A PIECE, TYPE ITS NAME AND THE FIRST LETTER OF THE"
2790 PRINT "DESIRED DIRECTION. EXAMPLES:"
2800 PRINT " 2E MEANS THAT PIECE 2 WANTS TO GO EAST"
2810 PRINT " 8W MEANS THAT PIECE 8 WANTS TO GO WEST."
2820 PRINT "NOTE. YOU FORGET THE GAME IF YOUR MOVE LEAVES YOUR OPPONENT"
2830 PRINT "WITHOUT ANY LEGAL MOVE."
2840 PRINT
2850 PRINT "LASTLY, YOU MAY TYPE R TO RESIGN AND H FOR HELP."
2860 GOSUB 2900
2870 RETURN
2880 PRINT: INPUT "TRY AGAIN";ANS$
2890 IF LEFT$(ANS$,1)="" THEN 40 ELSE END
2900 PRINT@979, "PRESS ANY KEY TO CONTINUE";
2910 IF INKEY="" THEN 2910 ELSE PRINT@128, CHR$(31);
2920 RETURN

```

# DOORS

In this cute little game, there are several doors in succession and you must open them to get the prize behind the last one. You have a key ring containing a random number of keys and you have a random number of tries to open all four doors. As an added hooler, some keys may open more than one door. If at first you don't succeed, try, try again. The prizes behind the fourth door are well worth the patience in trying to get them all open.

Doors was conceived and written by Bill Ingram.



DOORS  
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```

      cls
THERE ARE 4 LOCKED DOORS AND THERE ARE 12 KEYS
(NUMBERED 0 TO 11).
YOU WILL HAVE 30 TRIES TO OPEN THEM ALL.
(SOME KEYS MAY OPEN MORE THAN ONE DOOR).
```

```

TRIES LEFT: 30      DOOR # 1 KEY? 12
TRIES LEFT: 29      DOOR # 1 KEY? 11
TRIES LEFT: 28      DOOR # 1 KEY? 10
TRIES LEFT: 27      DOOR # 1 KEY? 9
TRIES LEFT: 26      DOOR # 1 KEY? 8
TRIES LEFT: 25      DOOR # 1 KEY? 6
TRIES LEFT: 24      DOOR # 1 KEY? 7
```

```

      cls
TRIES LEFT: 23      DOOR # 1 KEY? 4
TRIES LEFT: 22      DOOR # 1 KEY? 3
TRIES LEFT: 21      DOOR # 1 KEY? 1
TRIES LEFT: 20      DOOR # 1 KEY? 7
TRIES LEFT: 19      DOOR # 1 KEY? 5
TRIES LEFT: 18      DOOR # 1 KEY? 6
TRIES LEFT: 17      DOOR # 1 KEY? 11
TRIES LEFT: 16      DOOR # 1 KEY? 10
```

```

      cls
TRIES LEFT: 15      DOOR # 1 KEY? 8
TRIES LEFT: 14      DOOR # 1 KEY? 7
TRIES LEFT: 13      DOOR # 1 KEY? 6
TRIES LEFT: 12      DOOR # 1 KEY? 5
TRIES LEFT: 11      DOOR # 1 KEY? 0
C-R-E-E-E-E-E-A-A-K!
TRIES LEFT: 10      DOOR # 2 KEY? 4
TRIES LEFT: 9       DOOR # 2 KEY? 11
TRIES LEFT: 8       DOOR # 2 KEY? 12
```

```

      cls
SORRY, YOU LOSE, THE REST OF THE KEYS ARE:
DOOR 2:  KEY: 9
DOOR 3:  KEY: 7
DOOR 4:  KEY: 11
```

```

      cls
DO YOU WANT TO PLAY AGAIN (YES SIR! OR NO SIR!)
? NO.
```

```

      cls
DO YOU WANT TO PLAY AGAIN (YES SIR! OR NO SIR!)
? NO
```

```

      cls
HEY, I DIDN'T JUST FALL OFF A TURNIP TRUCK, YA KNOW!!!!
```

```

      cls
10 CLS
20 RANDOM
30 CLEAR 1000
40 PRINT @ 413,"DOORS
50 PRINT
60 PRINT TAB(7),"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
70 PRINT @ 960,"";
```

```

80 FOR I=1 TO 1000: NEXT I
90 CLS
100 DIM K(20)
110 FOR X=0 TO 6
120 READ R$(X)
130 NEXT X
140 FOR X=0 TO 6
150 READ S$(X)
160 NEXT X
170 D=1
180 T=10+RND(21)
190 N=3+RND(3)
200 K2=8+RND(5)
210 PRINT
220 PRINT"THERE ARE";N;"LOCKED DOORS AND THERE ARE";K3;"KEYS"
230 PRINT"      (NUMBERED 0 TO ";K3;" )."
240 PRINT "YOU WILL HAVE";T-1;"TRIES TO OPEN THEM ALL ."
250 PRINT "(SOME KEYS MAY OPEN MORE THAN ONE DOOR). "
260 PRINT
270 FOR X=2 TO N
280 K(X)=RND(K3)
290 NEXT X
300 T=T-1
310 AZ=AZ+1:IF AZ=8 THEN GOSUB 640
320 IF T=0 THEN :60
330 PRINT "TRIES LEFT: ";
340 PRINT USING "##";T;
350 PRINT TAB(24);"DOOR #";D;"KEY:";
360 INPUT K2
370 IF K2<K(X) THEN 300
380 PRINT S$( RND(7))"!!"
390 D=D+1
400 IF D<N+1 THEN 300
410 PRINT
420 CLS
430 PRINT "YOU DID IT, BEHIND DOOR #";N;"IS....."
440 PRINT R$( RND(7))"!!!"
450 GOTO 520
460 CLS
470 PRINT
480 PRINT "SORRY, YOU LOSE, THE REST OF THE KEYS ARE:"
490 FOR X=0 TO 11
500 PRINT "DOOR";X;" CHR$(8);" KEY:";K(X)
510 NEXT X
520 PRINT
530 PRINT "DO YOU WANT TO PLAY AGAIN (YES SIR! OR NO SIR!)"
540 INPUT Q$
550 IF Q$="YES SIR!" THEN 170
560 IF Q$="NO SIR!" THEN 630
570 PRINT "HEY, I DIDN'T JUST FALL OFF A TURNIP TRUCK, YA KNOW!!!!"
580 FOR TQ=1 TO 1000:NEXT TQ:CLS:GOTO 520
590 DATA "A POT OF GOLD","A BEAUTIFUL MAIDEN","A MAN EATING TIGER"
600 DATA "NOTHING!","$22.59","A ROLLS ROYCE","THE KEYS TO THE WORLD"
610 DATA "OPEN SESAME","C-R-E-E-E-E-E-A-A-K!","WA LAH!","TA-DAH!"
620 DATA "ABRACADABRA","CLICK !!!!!!!!!!!!!!!","SURPRISE!"
630 END
640 FOR SN=1 TO 1000: NEXT SN
650 AZ=0
660 CLS
670 RETURN
```

# Drag

DRAG allows the user to design his own dragster and then race it against a dragster designed by another player or the computer. You must specify the horsepower, rear end ratio, tire width, and tire diameter. There are no limits to these parameters.

Aha! you say, "I'll just design a two million horsepower dragster!" But it doesn't work that way, because your mass is related to your engine size, and so you usually end up with a top speed of something like 33 MPH. The computer is extremely hard to beat, but it's rumored that it can be done. Note: on some systems the amount of time between printouts can be aggravatingly long.

This program came from the Hewlett-Packard User Library. It also appeared in *Creative Computing*, Jan/Feb 1977.

DRAG RACE  
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\_\_\_\_\_ cls \_\_\_\_\_

DO YOU NEED INSTRUCTIONS? YES.

\_\_\_\_\_ cls \_\_\_\_\_

YOU MAY RACE AGAINST ONE OF YOUR FRIENDS OR YOU MAY RACE  
AGAINST MY DRAGSTER. YOU WILL BE ASKED TO DESIGN YOUR  
OWN MACHINE, SPECIFYING HORSEPOWER, REAR END RATIO (X:1),  
TIRE WIDTH IN INCHES AND TIRE DIAMETER IN FEET.

DO YOU WANT TO RACE AGAINST ME? YES

DESIGN CAR #2:  
HORSEPOWER=? 790  
REAR END RATIO=? 4.5  
TIRE WIDTH=? 22  
TIRE DIAMETER=? 5.

\_\_\_\_\_ cls \_\_\_\_\_

| ELAPSED<br>TIME<br>(SEC)     | CAR #1         |                  | CAR #2         |                  |
|------------------------------|----------------|------------------|----------------|------------------|
|                              | SPEED<br>(MPH) | DISTANCE<br>(FT) | SPEED<br>(MPH) | DISTANCE<br>(FT) |
| CAR # 2 STOPS BURNING RUBBER |                |                  |                |                  |
| 1.00                         | 22.071         | 16.302           | 14.882         | 10.965           |
| 2.00                         | 43.575         | 64.783           | 30.093         | 44.037           |
| 3.00                         | 64.002         | 143.982          | 45.307         | 99.463           |
| 4.00                         | 82.929         | 252.079          | 60.166         | 176.984          |
| 5.00                         | 100.107        | 386.669          | 74.311         | 275.813          |
| 6.00                         | 115.256        | 545.024          | 87.424         | 394.658          |
| CAR # 1 STOPS BURNING RUBBER |                |                  |                |                  |
| 7.00                         | 128.639        | 724.299          | 99.263         | 531.815          |

\_\_\_\_\_ cls \_\_\_\_\_

CAR #1 IS THE WINNER !!!!!

DO YOU WANT TO TRY AGAIN? NO.

\_\_\_\_\_ cls \_\_\_\_\_

```

10 CLS: PRINT@411, "DRAG RACE"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "DO YOU NEED INSTRUCTIONS? I$
40 DIM P(2),E(2),W(2),S(2),X(2),M(2),C(2),B(2),Y(2)
50 DIM Q(2)
60 IF LEFT$(I$,1)="N" THEN CLS: GOTO 120
70 CLS: PRINT TAB(27)"DRAG RACE": PRINT
80 PRINT "YOU MAY RACE AGAINST ONE OF YOUR FRIENDS OR YOU MAY RACE"
90 PRINT "AGAINST MY DRAGSTER. YOU WILL BE ASKED TO DESIGN YOUR"
100 PRINT "OWN MACHINE, SPECIFYING HORSEPOWER, REAR END RATIO (X:1),"
110 PRINT "TIRE WIDTH IN INCHES AND TIRE DIAMETER IN FEET.":PRINT
120 PRINT "DO YOU WANT TO RACE AGAINST ME?";
130 INPUT I$
140 IF LEFT$(I$,1)="N" THEN 210
150 PRINT:PRINT "I WILL HAVE CAR #1."
160 P(1)=600
170 E(1)=5.9
180 W(1)=22
190 D(1)=3.9
200 GOTO 300
210 PRINT: PRINT "DESIGN CAR #1:"
220 PRINT "HORSEPOWER=";
230 INPUT P(1)
240 PRINT "REAR END RATIO=";
250 INPUT E(1)
260 PRINT "TIRE WIDTH=";
270 INPUT W(1)
280 PRINT "TIRE DIAMETER=";
290 INPUT D(1)
300 PRINT: PRINT@576, "DESIGN CAR #2: ";CHR$(31)
310 PRINT "HORSEPOWER=";
320 INPUT P(2)
330 PRINT "REAR END RATIO=";
340 INPUT E(2)
350 PRINT "TIRE WIDTH=";
360 INPUT W(2)
370 PRINT "TIRE DIAMETER=";
380 INPUT D(2)
390 CLS
400 PRINT "GO!": PRINT@320, " ";
410 K1=500
420 K2=1.6
430 K3=2
440 K4=6E-04
450 K5=6E-05
460 K6=.2
470 K7=4
480 K8=1.5E-04
490 Q(1)=0: Q(2)=0
500 S(1)=0: S(2)=0
510 X(1)=0: X(2)=0
520 REM: M IS MASS
530 FOR J=1 TO 2
540 M(J)=(K1+K2*P(J)+K3*W(J)*D(J)+K7*D(J)^2)/32.2
550 REM: C IS DRAG FROM WIND.
560 C(J)=(K4+M(J)^.2/3)+K8*W(J)*D(J)
570 REM: B IS THE MAX ACCELERATION WITHOUT BURNING
580 B(J)=15+20*W(J)*D(J)/((W(J)+6)*D(J)+1)
590 REM: Y IS THE SCALE FACTOR FOR RPM VS POWER.
600 Y(J)=3.7-3.3E-03*P(J)
610 NEXT J
620 GOTO 700
630 LB=PEEK(16416): HB=PEEK(16417):PRINT@0, " ";
640 PRINT TAB(19); "CAR #1"; TAB(42); "CAR #2"
650 PRINT "ELAPSED"; TAB(19); "-----"; TAB(42); "-----"
660 PRINT "TIME" SPEED DISTANCE "TIME" SPEED DISTANCE
670 PRINT "(SEC) (MPH) (FT) (MPH) (FT)"
680 PRINT "-----"
690 POKE 16416, LB: POKE 16417, HB: RETURN
700 FOR T=0 TO 100
710 FOR T1=1 TO 100
720 FOR J=1 TO 2
730 REM: R IS RPM
740 R=60*S(J)*E(J)/(3.14159*D(J))
750 REM: L0 IS ENGINE TORQUE
760 L0=(P(J)/42.5)*(50+7.8E-03*(R/Y(J))-4E-10*(R/Y(J))^3)
770 REM: L1 IS TORQUE FROM FRICTION
780 L1=P(J)*(K5+R/K6)
790 REM: R2 IS REAR AXLE TORQUE.

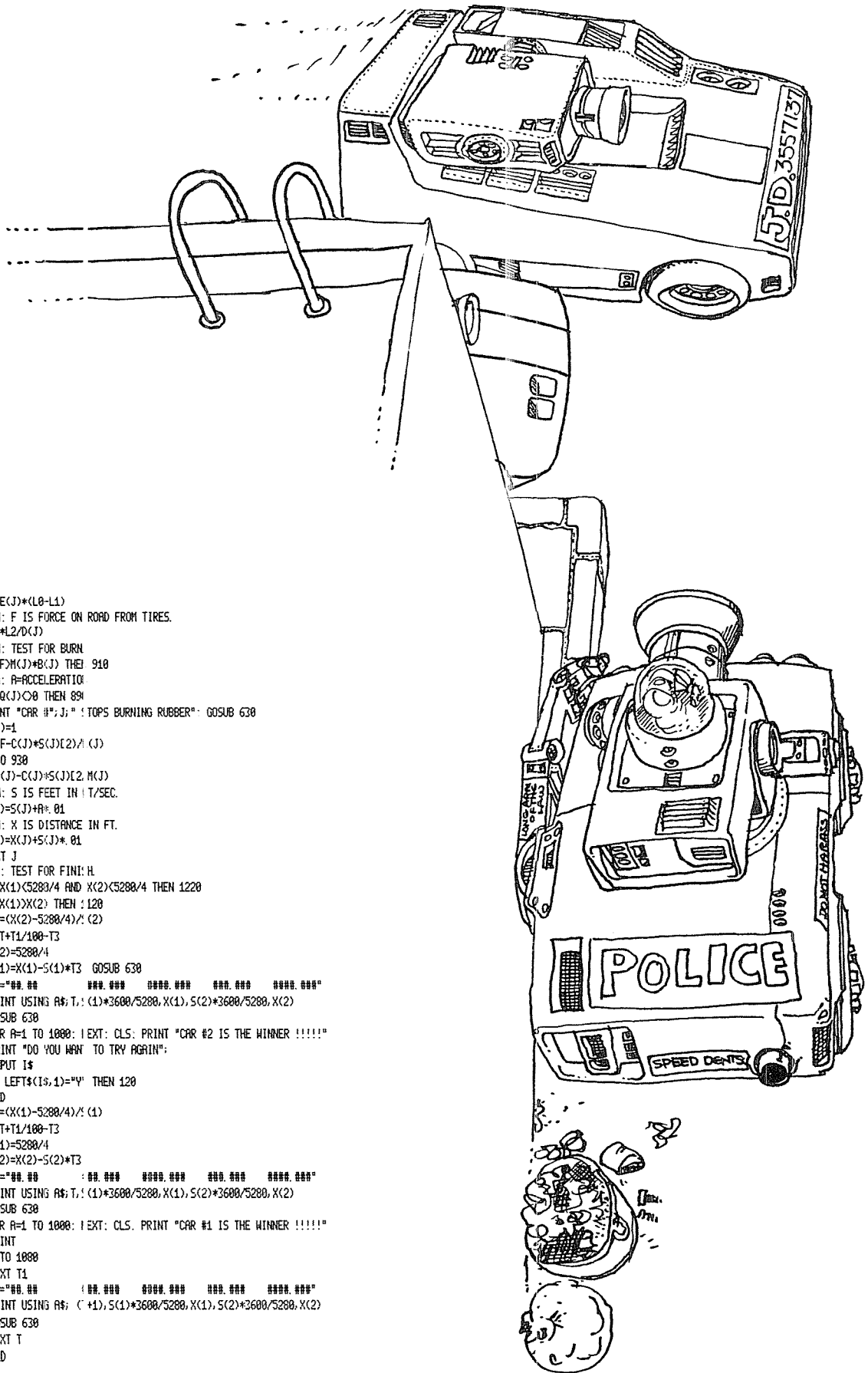
```



```

800 L2=E(J)*(L0-L1)
810 REM: F IS FORCE ON ROAD FROM TIRES.
820 F=2*L2/D(J)
830 REM: TEST FOR BURN
840 IF F>M(J)*B(J) THEN 910
850 REM: A=ACCELERATION
860 IF Q(J)>0 THEN 890
870 PRINT "CAR #";J;" : TOPS BURNING RUBBER": GOSUB 630
880 Q(J)=1
890 A=(F-C(J))*S(J)/2/(J)
900 GOTO 930
910 A=B(J)-C(J)*S(J)/2/(J)
920 REM: S IS FEET IN 1/T/SEC.
930 S(J)=S(J)+A*.01
940 REM: X IS DISTANCE IN FT.
950 X(J)=X(J)+S(J)*.01
960 NEXT J
970 REM: TEST FOR FINISH
980 IF X(1)<5280/4 AND X(2)<5280/4 THEN 1220
990 IF X(1)>X(2) THEN 120
1000 T3=(X(2)-5280/4)/A(2)
1010 T=T+T1/100-T3
1020 X(2)=5280/4
1030 X(1)=X(1)-S(1)*T3 GOSUB 630
1040 A$="###.##      ###.##      ###.##      ###.##"
1050 PRINT USING A$;T:(1)*3600/5280,X(1),S(2)*3600/5280,X(2)
1060 GOSUB 630
1070 FOR A=1 TO 1000: IEXT:CLS:PRINT "CAR #2 IS THE WINNER !!!!!"
1080 PRINT "DO YOU WANT TO TRY AGAIN":
1090 INPUT I$
1100 IF LEFT$(I$,1)="Y" THEN 120
1110 END
1120 T3=(X(1)-5280/4)/A(1)
1130 T=T+T1/100-T3
1140 X(1)=5280/4
1150 X(2)=X(2)-S(2)*T3
1160 A$="###.##      ###.##      ###.##      ###.##"
1170 PRINT USING A$;T:(1)*3600/5280,X(1),S(2)*3600/5280,X(2)
1180 GOSUB 630
1190 FOR A=1 TO 1000: IEXT:CLS:PRINT "CAR #1 IS THE WINNER !!!!!"
1200 PRINT
1210 GOTO 1080
1220 NEXT T1
1230 A$="###.##      ###.##      ###.##      ###.##"
1240 PRINT USING A$;T:(1)*3600/5280,X(1),S(2)*3600/5280,X(2)
1250 GOSUB 630
1260 NEXT T
1270 END

```



# Dr. Z

Using DR.Z your computer "interacts" with you in true Rogerian form, never making a value judgment of your response.

DR.Z is multi-lingual and "professional confidence" is guaranteed, especially with a video display terminal. However, if you have a printer, try employing a unique language known only to you and Dr.Z.

If you would prefer to employ DR.Z in an educational mode, you might consider the following sequence of activities.

1. Discuss communication, exploring:
  - a. The role of spoken language
  - b. The role of written language
  - c. Non-verbal language
    1. facial expressions
    2. posture of body
    3. hand gestures
2. Experience a session with DR.Z.
3. Develop computerizations of other "purely human" situations.

Note: Don't mistake DR.Z for Eliza (or Doctor). In DR.Z, all the responses are "canned" and the computer makes no attempt to analyze your input in any way.

DR.Z was submitted to us anonymously by some students of Dr. Melvin Zeddies of San Diego.

DOCTOR Z  
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

```
_____ cls _____
HIT ENTER TO BEGIN? _

_____ cls _____
HELLO THERE, I'M YOUR COMPUTER THERAPIST.
WHAT IS YOUR NAME? AND TELL ME SOMETHING ABOUT YOURSELF.
HOWEVER, DON'T TYPE MORE THAN ONE LINE. I TIRE EASILY.
? HI. MY NAME IS CHRIS AND I DONT LIKE GIRLS.
WHAT DID YOU SAY YOUR NAME WAS AGAIN? CHRIS
HOW DO YOU FEEL TODAY? GOOD. THE SUN IS SHINING
HAVE YOU TALKED TO ANYONE ABOUT THIS? YES. MANY PEOPLE
WHY ARE YOU HERE? BECAUSE OF THE WEATHER
DO YOU FEEL COMFORTABLE WITH THIS FEELING? YES ALL THE TIME
DO YOU THINK THIS IS REASONABLE IN LIGHT OF YOUR INTERESTS? YES
DO YOUR FRIENDS FIND THIS ACCEPTABLE? NO
WHY ARE YOU HERE? TO SEE THE SHAH
DO YOU FEEL COMFORTABLE WITH THIS FEELING? NO WE DONT
DO YOU THINK THIS IS REASONABLE IN LIGHT OF YOUR INTERESTS? YES.

_____ cls _____
I THINK YOU ARE MAKING A GREAT ATTEMPT TO SOLVE YOUR
DIFFICULTIES, AND I SEE NO NEED TO CONTINUE THIS
SESSION ANY FURTHER.

CHRIS, WOULD YOU MAKE ANOTHER APPOINTMENT WITH MY COMPUTER
FOR SOMETIME IN THE NEXT FEW WEEKS. WHAT DATE WOULD YOU
PREFER? NEVER

THAT WILL BE FINE.
I'VE ENJOYED COMMUNICATING WITH YOU.
HAVE A NICE DAY.

_____ cls _____
```

```
10 CLS: PRINT#412, "DOCTOR Z"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT#960, "": INPUT "HIT ENTER TO BEGIN"; I$
40 CLS: PRINT "HELLO THERE, I'M YOUR COMPUTER THERAPIST."
50 PRINT "WHAT IS YOUR NAME? AND TELL ME SOMETHING ABOUT YOURSELF."
60 PRINT "HOWEVER, DON'T TYPE MORE THAN ONE LINE. I TIRE EASILY."
70 INPUT A$
80 PRINT "WHAT DID YOU SAY YOUR NAME WAS AGAIN";
90 INPUT B$
100 PRINT "HOW DO YOU FEEL TODAY?";
110 LET C=0: U=0: V=0
120 INPUT A$
130 IF C=10 THEN 420
140 LET Z=INT(10*RD(0))
150 IF U=Z THEN 140
160 IF V=Z THEN 140
170 LET U=Z
180 ON Z+1 GOTO 390, 220, 240, 260, 280, 300, 320, 340, 360, 380
190 GOTO 390
200 PRINT "THAT'S VERY INTERESTING, TELL ME MORE."
210 GOTO 390
220 PRINT "HAVE YOU FELT THIS WAY LONG";
230 GOTO 390
240 PRINT "DO YOU THINK THIS IS REASONABLE IN LIGHT OF YOUR INTERESTS";
250 GOTO 390
260 PRINT "DO YOUR FRIENDS FIND THIS ACCEPTABLE";
270 GOTO 390
280 PRINT "DO YOU FEEL COMFORTABLE WITH THIS FEELING";
290 GOTO 390
300 PRINT "DO YOU THINK THAT THIS IS A NORMAL FEELING";
310 GOTO 390
320 PRINT "WHY DO YOU THINK YOU FEEL THIS WAY";
330 GOTO 390
340 PRINT "HAVE YOU TALKED TO ANYONE ABOUT THIS";
350 GOTO 390
360 PRINT "WHY ARE YOU HERE";
370 GOTO 390
380 PRINT "ARE YOU SATISFIED WITH THE WAY YOUR IDEAS ARE DEVELOPING";
390 LET C=C+1
400 LET U=Z
410 GOTO 120
420 CLS: PRINT "I THINK YOU ARE MAKING A GREAT ATTEMPT TO SOLVE YOUR"
430 PRINT "DIFFICULTIES, AND I SEE NO NEED TO CONTINUE THIS"
440 PRINT "SESSION ANY FURTHER."
450 PRINT
460 PRINT B$; ", WOULD YOU MAKE ANOTHER APPOINTMENT WITH MY COMPUTER"
470 PRINT "FOR SOMETIME IN THE NEXT FEW WEEKS. WHAT DATE WOULD YOU"
480 PRINT "PREFER?"; INPUT A$
490 PRINT
500 PRINT "THAT WILL BE FINE."
510 PRINT "I'VE ENJOYED COMMUNICATING WITH YOU."
520 PRINT "HAVE A NICE DAY."
530 END
```

# Eliza

**Description:** ELIZA is a program that accepts natural English as input and carries on a reasonably coherent conversation based on the psychoanalytic techniques of Carl Rogers. You will have to forgive ELIZA for being a poor English student. You'll find that it is best not to use punctuation in your input, and you'll have to carry the conversation. But it does work!

**How it works:** In order to speak to you, ELIZA must: (1) get a string from the user, and prepare it for further processing; (2) find the keywords in the input string; (3) if a keyword is found, take the part of the string following the keyword and "translate" all the personal pronouns and verbs ("I" becomes "YOU", "ARE" becomes "AM", etc.); (4) finally, look up an appropriate reply based on the keyword which was found, print it and, if necessary, the "translated" string. ELIZA uses four types of program data to accomplish this:

(1) 36 keywords, such as "I AM", "WHY DONT YOU", and "COMPUTER". The keywords must be in order of priority, so ELIZA will key on "YOU ARE" before "YOU".

(2) 12 strings used for the translation or conjugation process. These are in pairs such that if one member of the pair is found, the other is substituted for it. Examples: "Y", "YOU", "AM", "ARE", etc.

(3) 112 reply strings. The strings are arranged in groups corresponding to the keywords. There is no fixed number of different replies for each keyword. Replies ending in a "\*" are to be followed by the translated string, while the strings ending in normal punctuation are to be printed alone.

(4) Numerical data to determine which replies to print for each keyword. For each keyword there is a pair of numbers signifying (start of reply strings, number of reply strings). Thus the fifth pair of number, (10,4), means that the replies for the fifth keyword ("I DONT") start with the tenth reply string, and that there are four replies.

## Detailed Explanation:

**Lines 10-160:** Initialization. Arrays and strings are dimensioned. N1, N2, and N3, which represent the number of keywords, number of translation strings, and number of replies respectively, are defined. Then the arrays are filled. S(keyword number) is the ordinal number of the start of the reply strings for a given keyword, R(keyword number)

is the actual reply to be used next, and N(keyword number) is the last reply for that keyword. Finally an introduction is printed.

**Lines 170-255:** User input section. This part of the program gets a string from the user, places a space at the start of the string and two at the end (to make it easier to correctly locate keywords and to prevent subscripting out of bounds), throws out all the apostrophes (so DONT and DON'T are equivalent), and stops if the word SHUT is found in the input string (which it takes to mean SHUT UP). ELIZA also checks for repetitive input by the user.

**Lines 260-370:** Keyword-finding section. ELIZA scans the input string for keywords and saves the keyword of highest priority temporarily in S, T, and F\$. If no keyword is found, the keyword defaults to number 36, NOKEYFOUND (which causes ELIZA to say something noncommittal) and it skips the next section.

**Lines 380-555:** Translation or Conjugation section. The part of the input string following the keyword is saved. Then pairs of translation strings, as described above, are read and upon the occurrence of one of these strings, the other is substituted for it. When this is done ELIZA makes sure there is only one leading space in the translated string.

**Lines 560-640:** Reply printing section. Using R(keyword number), S(keyword number), and N(keyword number), the correct reply is located. The pointer for the next reply is bumped and reset if it is too large. If the reply string ends in a "\*" it is printed with the translated string, otherwise it is printed alone. The previously entered input string is saved to permit checking for repetitive input, and then ELIZA goes back for more input.

**Limitations:** Runs in 16K of memory.

**Modifications:** You can easily add, change, or delete any of the keywords, translation words, or replies. Remember, you will also have to change N1, N2, N3, and/or the numerical data. Just as a suggestion, if you decide to insert "ME" and "YOU" in the translation string list, put a nonprinting (control) character in YOU to prevent ELIZA from substituting I→YOU→ME. This means that YOU will always be assumed to be the subject of a verb, never the object, but resolving that difficulty is a whole different problem.

**What it all means:** we'll leave to you. Although this program is an inferior imitation of the original, it does work. It is pretty farfetched to believe that a psycholanalyst is nothing but a sentence-input-keyword-finder-conjugator-reply finder, but if you really think so, you can buy your computer a speech-recognition unit, a Computalker and a green couch, and charge \$75/hr! My computer, the doctor!

**Geneology:** ELIZA was originally programmed in LISP by Joseph Weizenbaum at MIT. It was converted to BASIC by Jeff Shrager and further modified to work in Microsoft BASIC by Steve North, who also wrote these notes.

| Name           | Usage                                                                                     |
|----------------|-------------------------------------------------------------------------------------------|
| R(X),S(X),N(X) | See Text                                                                                  |
| I\$            | Input string                                                                              |
| K\$            | Keyword string                                                                            |
| C\$            | Translated or conjugated string                                                           |
| F\$            | Reply string, also used to save K\$ in scanning for keyword                               |
| R\$,S\$        | Strings used in conjugation process                                                       |
| P\$            | Previous input string                                                                     |
| Z\$            | Scratch (used for simulating RESTORE NNNN statement).                                     |
| N1             | Number of keywords                                                                        |
| N2             | Number of conjugation strings                                                             |
| N3             | Number of replies                                                                         |
| K              | Keyword number                                                                            |
| S,T            | Used to save K and L when scanning for keyword                                            |
| X,L            | X,L Scratch. X is generally used for looping while L is used for scanning through strings |
| V              | V Used for scanning for keyword string                                                    |

ELIZA  
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cls  
PRESS ENTER TO START SESSION? \_  
cls

HI! I'M ELIZA. WHAT'S YOUR PROBLEM?  
STRANGE WOMEN  
SAY, DO YOU HAVE ANY PSYCHOLOGICAL PROBLEMS?  
NO, NOT A ONE HOW ABOUT YOU  
WE WERE DISCUSSING YOU -- NOT ME.  
NO WE WERENT, YOU LIED  
OH, I LIED  
SO, YOU ADMIT IT I ALWAYS KNEW YOU WERE DEFECTIVE  
YOU'RE NOT REALLY TALKING ABOUT ME, ARE YOU?  
LOOK, WHY DO YOU ALWAYS SAY THAT, MAYBE I LIKE TALKING ABOUT YOU

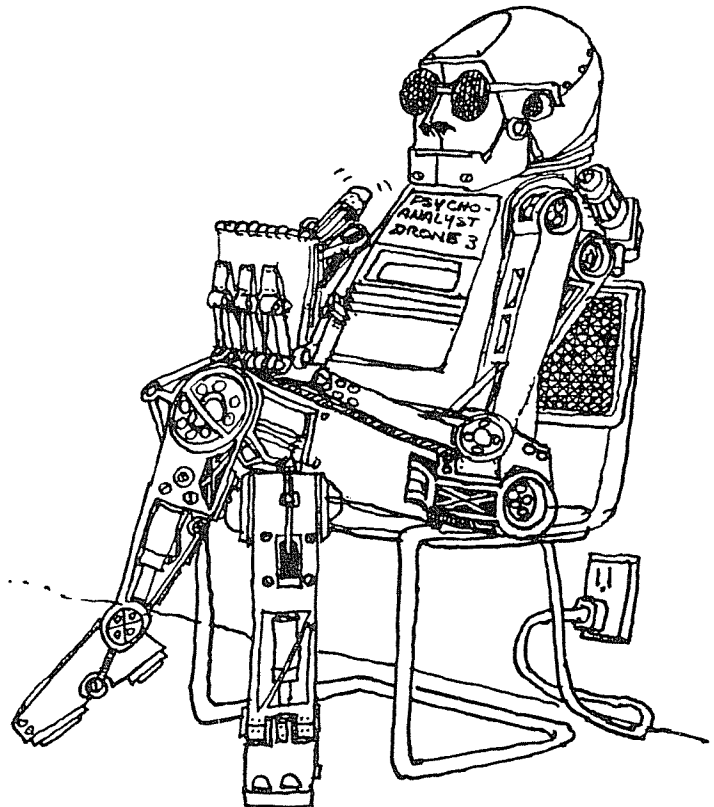
WE WERE DISCUSSING YOU -- NOT ME.  
AGAIN, BOY YOU SURE REPEAT YOURSELF ALOT  
OH, I SURE REPEAT YOURSELF ALOT  
RIGHT, BOY ARENT WE SPEAKING GOOD TODAY, WHO ARE YOU LEON SPINKS  
cls

WHY ARE YOU INTERESTED IN WHETHER OR NOT I AM LEON SPINKS  
WELL ON THE SURFACE YOU APPEAR SOMEWHAT LIKE HIM  
DID YOU COME TO ME BECAUSE YOU ARE  
BECAUSE I AM WHAT YOU SIR ARE A MINDLESS CRETIN  
DID YOU COME TO ME BECAUSE YOU ARE WHAT I SIR AM A MINDLESS CRET  
IN  
WHAT THE HECK, YOU MAKE ABOUT AS MUCH SENSE AS SPINACH  
YOU'RE NOT REALLY TALKING ABOUT ME, ARE YOU?  
LOOK PAL I WOULD NOT TRUST YOU WITH OUR NATIONAL DEFENCES  
WE WERE DISCUSSING YOU -- NOT ME.  
AND WHO ARE YOU TO MAKE THE RULES HERE  
WOULD YOU PREFER IF I WERE NOT TO MAKE THE RULES HERE  
IT WOULD HELP ABIT

cls  
I SEE.  
WE ALL SEE BUCKO  
I'M NOT SURE I UNDERSTAND YOU FULLY.  
WELL THE FEELING IS MUTUAL  
COME, COME, ELUCIDATE YOUR THOUGHTS.  
LOOK YOUR PRINTER IS BROKEN  
WHY ARE YOU CONCERNED ABOUT MY PRINTER IS BROKEN  
BECAUSE I BOUGHT THE BLOODY THING  
IS THAT THE REAL REASON?  
DO YOU MEAN THE HARRY REASON  
OH, I MEAN THE HARRY REASON

CAN YOU ELABORATE ON THAT?  
NOT A CHANCE SAY, DO YOU LIKE MUSIC OR FOOD  
YOU'RE NOT REALLY TALKING ABOUT ME, ARE YOU?  
SHUT UP.

cls



```
10 CLS: PRINT @ 413, "ELIZA"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ"
30 PRINT @ 960, **: INPUT "PRESS ENTER TO START SESSION*";A$: CLS
40 CLEAR 2000
50 REM -----INITIALIZATION-----
60 DIM S(36),R(36),N(36)
70 N1=36:N2=14:N3=112
80 FOR X=1 TO N1+N2+N3:READ Z$:NEXT X:REM SAME AS RESTORE
90 FORX=1 TO N1
100 READ S(X),L:R(X)=S(X):N(X)=S(X)+L-1
110 NEXT X
120 X$="HI! I'M ELIZA. WHAT'S YOUR PROBLEM?": GOSUB 2140
130 REM
140 REM -----USER INPUT SECTION-----
150 A$=""
160 X=PEEK(16416)+PEEK(16417)*256
170 POKE X,140: FOR CN=1 TO 10: B$=INKEY$: IF B$="" THEN 200
180 NEXT CN: POKE X,32: FOR CN=1 TO 10: B$=INKEY$
190 IF B$="" THEN 200 ELSE NEXT CN: GOTO 170
200 POKE X,32: IF ASC(B$)=13 THEN 250
210 IF ASC(B$)=8 AND LEN(A$)>0 THEN A$=LEFT$(A$,LEN(A$)-1): PRINT B$:
220 IF ASC(B$)=24 THEN A$="": PRINT CHR$(29) CHR$(30):
230 IF ASC(B$)=31 AND ASC(B$)<91 THEN PRINT B$: A$=A$+B$
240 GOTO 160
250 PRINT: I$=A$: I$=" "+I$+" "
260 REM GET RID OF APOSTROPHES
270 FOR L=1 TO LEN(I$)
```

```
280 IF MID$(I$,L,1)="/" THEN I$=LEFT$(I$,L-1)+RIGHT$(I$,LEN(I$)-L):GOTO 280
290 IFL+4<=LEN(I$) THEN IF MID$(I$,L,4)="/" THEN END
300 NEXT L
310 IF I$=P$ THEN X$="PLEASE DON'T REPEAT YOURSELF!": GOSUB 2140: GOTO 130
320 REM
330 REM -----FIND KEYWORD IN I$-----
340 REM
350 RESTORE
360 S=0
370 FOR K=1 TO N1
380 READ K$
390 IF S=0 THEN H430
400 FOR L=1 TO LEN(I$)-LEN(K$)+1
410 IF MID$(I$,L,LEN(K$))=K$ THEN S=K: T=L: F$=K$
420 NEXT L
430 NEXT K
440 IF S=0 THEN K=S:L=T:GOTO 470
450 K=36:GOTO 630:REM WE DIDN'T FIND ANY KEYWORDS
460 REM
470 REM TAKE RIGHT PART OF STRING AND CONJUGATE IT
480 REM USING THE LIST OF STRINGS TO BE SHAPPED
490 REM
500 RESTORE:FORX=1 TO N1:READ Z$:NEXT X:REM SKIP OVER KEYWORDS
510 C$="" +RIGHT$(I$,LEN(I$)-LEN(F$)-L+1)
520 FOR X=1 TO N2/2
530 READ S$,R$
540 FOR L=1 TO LEN(C$)
```

```

550 IF L+LEN(S$)>LEN(C$) THEN 600
560 IF MID$(C$,L,LEN(S$))<>S$ THEN 600
570 C$=LEFT$(C$,L-1)+R$+RIGHT$(C$,LEN(C$)-L-LEN(R$)+1)
580 L=L+LEN(R$)
590 GOTO 640
600 IF L+LEN(R$)>LEN(C$) THEN 640
610 IF MID$(C$,L,LEN(R$))<>R$ THEN 640
620 C$=LEFT$(C$,L-1)+S$+RIGHT$(C$,LEN(C$)-L-LEN(R$)+1)
630 L=L+LEN(S$)
640 NEXT L
650 NEXT X
660 IF MID$(C$,2,1)="" THEN C$=RIGHT$(C$,LEN(C$)-1):REM ONLY 1 SPACE
670 REM
680 REM NOW USING THE KEYWORD NUMBER (K) GET REPLY
690 REM
700 RESTORE:FOR X=1 TO H+N2:READ Z$:NEXT X
710 FOR%:=1TOR(K):READ F$:NEXT X:REM READ RIGHT REPLY
720 R(K)=R(K)+1:IF R(K)>5(K) THEN R(K)=5(K)
730 IF RIGHT$(F$,1)<>"*" THEN X=F$:P$=I$:GOSUB 2140:GOTO 130
740 X$=LEFT$(F$,LEN(F$)-1)+C$:GOSUB 2140
750 P$=I$:GOTO 130
760 REM
770 REM -----PROGRAM DATA FOLLOWS-----
780 REM
790 REM KEYWORDS
800 REM
810 DATA "CAN YOU","CAN ","YOU ARE","YOU'RE","I DON'T","I FEEL"
820 DATA "WHY DON'T YOU","WHY CAN'T I","ARE YOU","I CAN'T","I AM","I'M"
830 DATA "YOU ","I WANT","WHAT","HOW","WHO","WHERE","WHEN","WHY"
840 DATA "NAME","CRUISE","SORRY","DREAM","HELLO","HI ","MAYBE"
850 DATA "NO","YOUR","A WAY","THINK","ALIKE","YES","FRIEND"
860 DATA "COMPUTER","NO:YFOUND"
870 REM
880 REM STRING DATA FOR CONJUGATIONS
890 REM
900 DATA "ARE ","AM ","WERE ","WAS ","YOU ","I ","YOUR ","MY "
910 DATA "I'VE ","YOU'VE ","I'M ","YOU'RE ","HE ","YOU "
920 REM
930 REM REPLIES
940 REM
950 DATA "DON'T YOU BELIEVE THAT I CAN?"
960 DATA "PERHAPS YOU WOULD LIKE TO BE ABLE TO?"
970 DATA "YOU WANT ME TO BE ABLE TO?"
980 DATA "PERHAPS YOU DON'T WANT TO?"
990 DATA "DO YOU WANT TO BE ABLE TO?"
1000 DATA "WHAT MAKES YOU THINK I AM?"
1010 DATA "DOES IT PLEASE YOU TO BELIEVE I AM?"
1020 DATA "PERHAPS YOU WOULD LIKE TO BE?"
1030 DATA "DO YOU SOMETIMES WISH YOU WERE?"
1040 DATA "DON'T YOU REFLECT?"
1050 DATA "WHY DON'T YOU?"
1060 DATA "DO YOU WISH TO BE ABLE TO?"
1070 DATA "DOES THAT TROUBLE YOU?"
1080 DATA "TELL ME MORE ABOUT SUCH FEELINGS."
1090 DATA "DO YOU OFTEN FEEL?"
1100 DATA "DO YOU ENJOY FEELING?"
1110 DATA "DO YOU REALLY BELIEVE I DON'T?"
1120 DATA "PERHAPS IN GOOD TIME I WILL?"
1130 DATA "DO YOU WANT TO DO?"
1140 DATA "DO YOU THINK YOU SHOULD BE ABLE TO?"
1150 DATA "WHY CAN'T YOU?"
1160 DATA "WHY ARE YOU INTERESTED IN WHETHER OR NOT I AM?"
1170 DATA "WOULD YOU PREFER IF I WERE NOT?"
1180 DATA "PERHAPS IN YOUR FANTASIES I AM?"
1190 DATA "HOW DO YOU KNOW YOU CAN'T?"
1200 DATA "HAVE YOU TRIED?"
1210 DATA "PERHAPS YOU COULD NOW?"
1220 DATA "DID YOU COME TO ME BECAUSE YOU ARE?"
1230 DATA "HOW LONG HAVE YOU BEEN?"
1240 DATA "DO YOU BELIEVE IT IS NORMAL TO BE?"
1250 DATA "DO YOU ENJOY BEING?"
1260 DATA "WE WERE DISCUSSING YOU -- NOT ME."
1270 DATA "OH, I?"
1280 DATA "YOU'RE NOT REALLY TALKING ABOUT ME, ARE YOU?"
1290 DATA "WHAT WOULD IT MEAN TO YOU IF YOU GOT?"
1300 DATA "WHY DO YOU WANT IT?"
1310 DATA "SUPPOSE YOU COULD GET?"
1320 DATA "WHAT IF YOU NEVER GOT?"
1330 DATA "I SOMETIMES FEEL WHAT?"
1340 DATA "WHY DO YOU CARE?"
1350 DATA "DOES THAT QUESTION INTEREST YOU?"

```

```

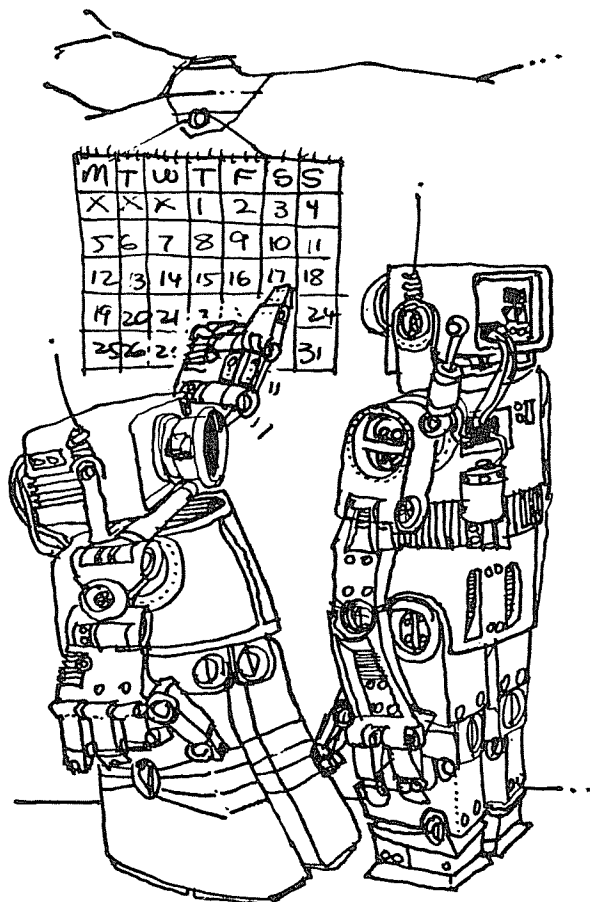
1360 DATA "WHAT ANSWER WOULD PLEASE YOU THE MOST?"
1370 DATA "WHAT DO YOU THINK?"
1380 DATA "ARE SUCH QUESTIONS ON YOUR MIND OFTEN?"
1390 DATA "WHAT IS IT THAT YOU REALLY WANT TO KNOW?"
1400 DATA "HAVE YOU ASKED ANYONE ELSE?"
1410 DATA "HAVE YOU ASKED SUCH QUESTIONS BEFORE?"
1420 DATA "WHAT ELSE COMES TO MIND WHEN YOU ASK THAT?"
1430 DATA "NAMES DON'T INTEREST ME."
1440 DATA "I DON'T CARE ABOUT NAMES -- PLEASE GO ON."
1450 DATA "IS THAT THE REAL REASON?"
1460 DATA "DON'T ANY OTHER REASONS COME TO MIND?"
1470 DATA "DOES THAT REASON EXPLAIN ANYTHING ELSE?"
1480 DATA "WHAT OTHER REASONS MIGHT THERE BE?"
1490 DATA "PLEASE DON'T APOLOGIZE!"
1500 DATA "APOLOGIES ARE NOT NECESSARY."
1510 DATA "WHAT FEELINGS DO YOU HAVE WHEN YOU APOLOGIZE?"
1520 DATA "DON'T BE SO DEFENSIVE!"
1530 DATA "WHAT DOES THAT DREAM SUGGEST TO YOU?"
1540 DATA "DO YOU DREAM OFTEN?"
1550 DATA "WHAT PERSONS APPEAR IN YOUR DREAMS?"
1560 DATA "ARE YOU DISTURBED BY YOUR DREAMS?"
1570 DATA "HOW DO YOU DO... PLEASE STATE YOUR PROBLEM."
1580 DATA "YOU DON'T SEEM QUITE CERTAIN."
1590 DATA "WHY THE UNCERTAIN TONE?"
1600 DATA "CAN'T YOU BE MORE POSITIVE?"
1610 DATA "YOU AREN'T SURE?"
1620 DATA "DON'T YOU KNOW?"
1630 DATA "ARE YOU SAYING NO JUST TO BE NEGATIVE?"
1640 DATA "YOU ARE BEING A BIT NEGATIVE."
1650 DATA "WHY NOT?"
1660 DATA "ARE YOU SURE?"
1670 DATA "WHY NO?"
1680 DATA "WHY ARE YOU CONCERNED ABOUT MY?"
1690 DATA "WHAT ABOUT YOUR OWN?"
1700 DATA "CAN YOU THINK OF A SPECIFIC EXAMPLE?"
1710 DATA "WHEN?"
1720 DATA "WHAT ARE YOU THINKING OF?"
1730 DATA "REALLY, ALWAYS?"
1740 DATA "DO YOU REALLY THINK SO?"
1750 DATA "BUT YOU ARE NOT SURE YOU?"
1760 DATA "DO YOU DOUBT YOU?"
1770 DATA "IN WHAT WAY?"
1780 DATA "WHAT RESEMBLANCE DO YOU SEE?"
1790 DATA "WHAT DOES THE SIMILARITY SUGGEST TO YOU?"
1800 DATA "WHAT OTHER CONNECTIONS DO YOU SEE?"
1810 DATA "COULD THERE REALLY BE SOME CONNECTION?"
1820 DATA "HOW?"
1830 DATA "YOU SEEM QUITE POSITIVE."
1840 DATA "ARE YOU SURE?"
1850 DATA "I SEE."
1860 DATA "I UNDERSTAND."
1870 DATA "WHY DO YOU BRING UP THE TOPIC OF FRIENDS?"
1880 DATA "DO YOUR FRIENDS WORRY YOU?"
1890 DATA "DO YOUR FRIENDS PICK ON YOU?"
1900 DATA "ARE YOU SURE YOU HAVE ANY FRIENDS?"
1910 DATA "DO YOU IMPOSE ON YOUR FRIENDS?"
1920 DATA "PERHAPS YOUR LOVE FOR FRIENDS WORRIES YOU."
1930 DATA "DO COMPUTERS WORRY YOU?"
1940 DATA "ARE YOU TALKING ABOUT ME IN PARTICULAR?"
1950 DATA "ARE YOU FRIGHTENED BY MACHINES?"
1960 DATA "WHY DO YOU MENTION COMPUTERS?"
1970 DATA "WHAT DO YOU THINK MACHINES HAVE TO DO WITH YOUR PROBLEM?"
1980 DATA "DON'T YOU THINK COMPUTERS CAN HELP PEOPLE?"
1990 DATA "WHAT IS IT ABOUT MACHINES THAT WORRIES YOU?"
2000 DATA "SAY, DO YOU HAVE ANY PSYCHOLOGICAL PROBLEMS?"
2010 DATA "WHAT DOES THAT SUGGEST TO YOU?"
2020 DATA "I SEE."
2030 DATA "I'M NOT SURE I UNDERSTAND YOU FULLY."
2040 DATA "COME, COME, ELUCIDATE YOUR THOUGHTS."
2050 DATA "CAN YOU ELABORATE ON THAT?"
2060 DATA "THAT IS QUITE INTERESTING."
2070 REM
2080 REM DATA FOR FINDING RIGHT REPLIES
2090 REM
2100 DATA 1,3,4,2,6,4,6,4,10,4,14,3,17,3,20,2,22,3,25,3
2110 DATA 28,4,28,4,32,3,35,5,40,9,40,9,40,9,40,9,40,9
2120 DATA 49,2,51,4,55,4,59,4,63,1,63,1,64,5,69,5,74,2,76,4
2130 DATA 80,3,83,7,90,3,93,6,99,7,106,6
2140 IF PEEK(16416)+PEEK(16417)*256=16256 THEN CLS
2150 PRINT CHR$(147):FOR X=1 TO LEN(X$):PRINT MID$(X$,X,1);
2160 FOR TM=1 TO 20:NEXT TM:X:PRINT CHR$(15):RETURN

```

# Father

This program loosely simulates a debate with your father about going out on Saturday night. After you win or lose the debate, then Saturday night approaches and you must decide whether or not to actually go out. When all is said and done, the computer will give you a score on a scale of minus seven to plus four. (This could have been a scale of zero to ten, but computers have this magic ability to give us scales of anything we want).

This program originated in the dungeons of Digital Equipment Corporation and was whipped into its present form by Victor Nahigian.



FATHER  
 COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ  
 \_\_\_\_\_  
 cls  
 DO YOU NEED INSTRUCTIONS? YES. \_\_\_\_\_  
 \_\_\_\_\_  
 cls  
 FATHER

YOU ARE GOING TO PLAY A GAME IN WHICH YOU WILL DISCUSS  
 A PROBLEM WITH YOUR FATHER AND ATTEMPT TO GET HIM TO AGREE WITH  
 YOU IN THREE TRIES

FOR EACH STATEMENT YOU MAKE, I WILL TELL YOU WHAT YOUR  
 FATHER REPLIED.

WHEN A QUESTION MARK APPEARS, TYPE THE NUMBER OF YOUR  
 RESPONSE FOLLOWED BY THE <ENTER> BUTTON. YOU WILL RECEIVE  
 POINTS BASED ON HOW GOOD YOU ARE AT CONVINCING YOUR FATHER.

A LIST OF THE RESPONSES WILL FOLLOW

\_\_\_\_\_ PRESS ANY KEY TO CONTINUE \_\_\_\_\_  
 \_\_\_\_\_  
 cls

1) O.K. I WILL STAY AT HOME  
 2) BUT I'D REALLY LIKE TO GO. ALL MY FRIENDS ARE GOING.  
 3) IF ALL MY WORK IS DONE, I SHOULD BE ABLE TO GO.  
 4) IF YOU LET ME GO OUT I'LL BABYSIT ALL NEXT WEEK.  
 5) YOU NEVER LET ME DO WHAT I WANT TO DO.  
 6) I'M GOING ANYWAY

.....

THE ISSUE - YOU WANT TO GO OUT, BUT YOUR FATHER OPPOSES YOU

WHEN YOU FIRST BRING UP THE IDEA, YOUR FATHER STATES  
 NO YOU CAN'T GO OUT ON A DATE SATURDAY NITE AND THAT'S THAT.  
 WHAT WOULD YOU SAY FIRST ? 2. \_\_\_\_\_  
 \_\_\_\_\_  
 cls

1) O.K. I WILL STAY AT HOME  
 2) BUT I'D REALLY LIKE TO GO. ALL MY FRIENDS ARE GOING.  
 3) IF ALL MY WORK IS DONE, I SHOULD BE ABLE TO GO.  
 4) IF YOU LET ME GO OUT I'LL BABYSIT ALL NEXT WEEK.  
 5) YOU NEVER LET ME DO WHAT I WANT TO DO.  
 6) I'M GOING ANYWAY

.....

THE ISSUE - YOU WANT TO GO OUT, BUT YOUR FATHER OPPOSES YOU  
 YOUR FATHER SAID  
 I DON'T THINK YOU DESERVE TO GO OUT SATURDAY NITE.  
 WHAT IS YOUR REPLY ? 3. \_\_\_\_\_  
 \_\_\_\_\_  
 cls

1) O.K. I WILL STAY AT HOME  
 2) BUT I'D REALLY LIKE TO GO. ALL MY FRIENDS ARE GOING.  
 3) IF ALL MY WORK IS DONE, I SHOULD BE ABLE TO GO.  
 4) IF YOU LET ME GO OUT I'LL BABYSIT ALL NEXT WEEK.  
 5) YOU NEVER LET ME DO WHAT I WANT TO DO.  
 6) I'M GOING ANYWAY

.....

THE ISSUE - YOU WANT TO GO OUT, BUT YOUR FATHER OPPOSES YOU  
 YOUR FATHER SAID  
 O.K. IF YOU DO THAT YOU CAN GO OUT ON SATURDAY NITE.

ON A SCALE OF -7 TO 4 (<?>), YOUR SCORE WAS 3 POINTS.  
 WELL IT'S SATURDAY NITE, DO YOU  
 1) GO OUT  
 2) STAY HOME WHICH DO YOU DO ? 1. \_\_\_\_\_  
 \_\_\_\_\_  
 cls

1) O.K. I WILL STAY AT HOME  
 2) BUT I'D REALLY LIKE TO GO. ALL MY FRIENDS ARE GOING.  
 3) IF ALL MY WORK IS DONE, I SHOULD BE ABLE TO GO.  
 4) IF YOU LET ME GO OUT I'LL BABYSIT ALL NEXT WEEK.  
 5) YOU NEVER LET ME DO WHAT I WANT TO DO.  
 6) I'M GOING ANYWAY

.....

THE ISSUE - YOU WANT TO GO OUT, BUT YOUR FATHER OPPOSES YOU  
 YOUR FATHER CHECKED UP ON YOU.  
 YOUR SCORE IS NOW 3 POINTS.  
 WELL DONE !!

WOULD YOU LIKE TO TRY AGAIN ? NO. \_\_\_\_\_  
 \_\_\_\_\_  
 cls

```

10 CLS: CLEAR 1000
20 PRINT @ 413, "FATHER"
30 PRINT
40 PRINT TAB(7)*"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ"
50 PRINT @ 960, "";
60 INPUT "DO YOU NEED INSTRUCTIONS?";I$
70 IF LEFT$(I$, 1)="" THEN 220
80 CLS
90 PRINT TAB(29)"FATHER"
100 PRINT
110 PRINT " YOU ARE GOING TO PLAY A GAME IN WHICH YOU WILL DISCUSS"
120 PRINT "A PROBLEM WITH YOUR FATHER AND ATTEMPT TO GET HIM TO AGREE WITH"
130 PRINT "YOU IN THREE TRIES"
140 PRINT CHR$(13); " FOR EACH STATEMENT YOU MAKE, I WILL TELL YOU WHAT YOUR"
150 PRINT "FATHER REPLIED."
160 PRINT CHR$(12); " WHEN A QUESTION MARK APPEARS, TYPE THE NUMBER OF YOUR"
170 PRINT "RESPONSE FOLLOWED BY THE <ENTER> BUTTON. YOU WILL RECEIVE"
180 PRINT "POINTS BASED ON HOW GOOD YOU ARE AT CONVINCING YOUR FATHER."
190 PRINT CHR$(12); " A LIST OF THE RESPONSES WILL FOLLOW"
200 PRINT @ 979, "PRESS ANY KEY TO CONTINUE";
210 IF INKEY$="" THEN 2:0
220 CLS
230 PRINT"1) O.K. I WILL STAY AT HOME"
240 PRINT"2) BUT I'D REALLY LIKE TO GO. ALL MY FRIENDS ARE GOING."
250 PRINT"3) IF ALL MY WORK IS DONE, I SHOULD BE ABLE TO GO."
260 PRINT"4) IF YOU LET ME GO OUT I'LL BABYSIT ALL NEXT WEEK."
270 PRINT"5) YOU NEVER LET ME DO WHAT I WANT TO DO."
280 PRINT"6) I'M GOING ANYWAY" CHR$(13)STRING$(64, 140);
290 PRINT"THE ISSUE - YOU WANT TO GO OUT, BUT YOUR FATHER OPPOSES YOU"
300 PRINT CHR$(12)"WHEN YOU FIRST BRING UP THE IDEA, YOUR FATHER STATES"
310 P1=-1
320 P2=3
330 P3=-1
340 C=1
350 P6=-2
360 X=0
370 I6=0
380 PRINT " NO YOU CAN'T GO OUT ON A DATE SATURDAY NITE AND THAT'S THAT."
390 INPUT " WHAT WOULD YOU SAY FIRST ";I1
400 PRINT @ 512, CHR$(31);
410 ON I1 GOTO 520, 560, 870, 550, 500
420 PRINT" NO, YOU CAN NOT GO OUT ON SATURDAY NITE."
430 X=X+2
440 I6=I6+11
450 IF I6=12 THEN 630
460 C=C+1
470 IF C=3 THEN 850
480 IF I2=6 THEN 530
490 GOTO 500
500 PRINT"YOUR FATHER SAID"
510 GOTO 420
520 PRINT"AGREEMENT REACHED"
530 X=X+P1
540 GOTO 850
550 X=X+P5
560 PRINT"YOUR FATHER SAID"
570 PRINT" I DON'T THINK YOU DESERVE TO GO OUT SATURDAY NITE."
580 INPUT " WHAT IS YOUR REPLY ";I2
590 PRINT @ 512, CHR$(31);
600 ON I2 GOTO 520, 770, 820, 820, 760, 500
610 PRINT"YOUR FATHER SAID"
620 X=X+P2
630 INPUT " WHAT IS YOUR REPLY ";I3
640 PRINT @ 512, CHR$(31);
650 ON I3 GOTO 710, 850, 690, 820, 670, 660
660 X=X+P1
670 X=X+P1
680 GOTO 850
690 X=X+2
700 GOTO 850
710 X=X-1
720 GOTO 850
730 X=X-2
740 PRINT"DISCUSSION ENDED. NO AGREEMENT REACHED."
750 GOTO 850
760 X=X+P5
770 PRINT"YOUR FATHER SAID"
780 PRINT" NO, I'M SORRY, BUT YOU REALLY DON'T DESERVE TO GO OUT"
790 INPUT " WHAT IS YOUR REPLY ";I3
800 PRINT @ 512, CHR$(31);
810 ON I3 GOTO 520, 690, 820, 820, 670, 660
820 PRINT"YOUR FATHER SAID"
830 X=X+P2
840 PRINT" O.K. IF YOU DO THAT YOU CAN GO OUT ON SATURDAY NITE."
850 PRINT CHR$(13)"ON A SCALE OF -7 TO 4 (?), YOUR SCORE WAS" X"POINTS."
860 GOTO 910
870 PRINT"YOUR FATHER SAID"
880 X=X+P3
890 PRINT" WELL, MAYBE, BUT I DON'T THINK YOU SHOULD GO."
900 GOTO 500
910 PRINT"WELL IT'S SATURDAY NITE. DO YOU"
920 PRINT" 1) GO OUT"
930 PRINT" 2) STAY HOME WHICH DO YOU DO ";
940 INPUT Q3
950 PRINT @ 512, CHR$(31);
960 IF Q3=1 THEN 9:0
970 GOTO 1020
980 IF I2=1 THEN 1:00
990 GOTO 1020
1000 IF I3=5 THEN 1020
1010 GOTO 1030
1020 IF RND(0)>.5 THEN 1050
1030 PRINT"YOUR FATHER CHECKED UP ON YOU."
1040 GOTO 1070
1050 PRINT"YOUR FATHER DIDN'T CHECK UP ON YOU."
1060 GOTO 1070
1070 ON Q3 GOTO 11:0, 1080
1080 PRINT" YOUR SCORE IS NOW" X"POINTS."
1090 GOTO 1210
1100 IF I2=3 THEN 1130
1110 IF I2=4 THEN 1130
1120 GOTO 1150
1130 X=X+1
1140 GOTO 1080
1150 ON I3 GOTO 1030, 1080, 1130, 1130, 1080, 1080
1160 IF I1=1 THEN 1190
1170 ON I2 GOTO 11:0, 1180, 1080, 1080, 1180, 1180
1180 ON I3 GOTO 11:0, 1190, 1080, 1080, 1190, 1190
1190 X=X-1
1200 GOTO 1080
1210 ON X+8 GOTO 1230, 1230, 1230, 1230, 1250, 1250, 1250, 1270
1220 GOTO 1290
1230 PRINT" YOU DIDN'T SUCCEED IN CONVINCING YOUR FATHER AT ALL."
1240 GOTO 1300
1250 PRINT" YOU DIDN'T SUCCEED IN CONVINCING YOUR FATHER."
1260 GOTO 1300
1270 PRINT" YOU CONVINCED YOUR FATHER, BUT IT TOOK TOO MANY TRIES."
1280 GOTO 1300
1290 PRINT" WELL DONE !!!"
1300 PRINT
1310 T1=T1+1
1320 INPUT"WOULD YOU LIKE TO TRY AGAIN ";Q5$
1330 IF LEFT$(Q5$, 1)="" THEN 220
1340 END

```

# Flip

This game may be the only one so easy that even an animal could play it, yet hard for people to play even as well as random chance. It may be useful in training the intuition, and improving gamesmanship in speculation-type activities, where each player is trying to outguess the other's behavior and stay one step ahead.

On each turn, the program first selects 'yes' or 'no', but gives you no information about its decision. Therefore your guess on the first turn is pure chance, there is no skill involved. But soon the program starts using patterns in your behavior, making its decisions to increase the chance of your next guess being wrong. And to make it harder for you, the program doesn't strictly maximize its chances, but throws a little randomness into its decisions.

## Variations

There are endless strategies for programming this game, for there could be almost infinitely many definitions of what a "pattern" is. No single algorithm could be "best", because it must assume a model of the human player, and people are different, even the same person from moment to moment. Any good algorithm must build or refine its model of the player, during the course of the game.

This particular program keeps an array of 16 probability estimates; the person's last two guesses, and whether they were right or wrong (16 situations altogether) determine which estimate is selected. The array (which depends on all previous play within the game) becomes a model or profile of the player, and it can be printed at end of game. Any probabilities far from .5 indicate predictable behavior in the corresponding situations. The profiles can be compared over time, or used to study strategy differences between people. They can also be compared with random profiles developed by playing games with random input such as coin flips, or (more easily) by modifying the program so that BASIC statements replace the human player and make guesses randomly (or by some other rule). In fact, different algorithms could play each other.

This particular implementation has two parameters: a memory factor (F1) which controls the decay rate of old learning when it is overridden by recent experience, and a randomness factor (F2) influencing the program's likelihood of making the decision suggested by the probability estimate. These are just two of innumerable optional parameters which could be used in programming FLIP.

The program and description were written by John S. James. They originally appeared in *Creative Computing*, Mar/Apr 1977.

```

FLIP
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ

cls

DO YOU NEED INSTRUCTIONS? YES_
cls
ON EACH TURN, YOU GUESS YES ('Y') OR NO ('N').
ONLY ONE IS CORRECT, AND THE PROGRAM HAS DECIDED
WHICH ONE, BEFORE YOU MAKE YOUR GUESS. AT FIRST
YOUR ODDS ARE 50% PURE CHANCE. BUT LATER THE
PROGRAM WILL TRY TO TAKE ADVANTAGE OF PATTERNS
IN YOUR GUESSING.

THE GAME ENDS AFTER 50 TURNS. A SCORE OF 24 OR MORE
IS GOOD. THE PROGRAM TELLS WHEN YOU WIN A TURN,
BY TYPING AN ASTERISK ('*') AS THE FIRST
CHARACTER OF THE FOLLOWING LINE.

PRESS ANY KEY TO CONTINUE
cls

BEGIN
? N ? Y *? Y *? N *? Y *? Y ? Y *? N
*? Y ? Y ? Y *? N ? N ? Y *? Y ? Y
? Y ? Y ? Y ? Y ? Y ? N *? N ? Y
? N ? N *? Y *? Y ? N *? N ? Y ? Y
*? Y *? N ? Y *? Y ? Y ? N *? N ? N
*? Y ? Y ? N *? Y *? Y ? Y ? Y *? Y
*? Y *? Y *
END OF GAME.

YOU GOT 23 OUT OF 50 CORRECT.
PLAY AGAIN (Y OR N)? NO_
cls

```

```

10 CLS
20 PRINT @ 412, "FLIP"
30 PRINT
40 PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ"
50 PRINT @ 960, ""
60 INPUT "DO YOU NEED INSTRUCTIONS?";I$
70 B1=50
80 IF LEFT$(I$, 1) <> "Y" THEN 270
90 CLS
100 PRINT TAB(30); "FLIP"
110 PRINT
120 PRINT "ON EACH TURN, YOU GUESS YES ('Y') OR NO ('N')."
130 PRINT "ONLY ONE IS CORRECT, AND THE PROGRAM HAS DECIDED"
140 PRINT "WHICH ONE, BEFORE YOU MAKE YOUR GUESS. AT FIRST"
150 PRINT "YOUR ODDS ARE 50% PURE CHANCE. BUT LATER THE"
160 PRINT "PROGRAM WILL TRY TO TAKE ADVANTAGE OF PATTERNS"
170 PRINT "IN YOUR GUESSING."
180 PRINT
190 PRINT "THE GAME ENDS AFTER";B1;"TURNS. A SCORE OF";
200 PRINT INT(B1/2-1); "OR MORE"
210 PRINT "IS GOOD. THE PROGRAM TELLS WHEN YOU WIN A TURN."
220 PRINT "BY TYPING AN ASTERISK ('*') AS THE FIRST"
230 PRINT "CHARACTER OF THE FOLLOWING LINE."
240 PRINT @ 979, "PRESS ANY KEY TO CONTINUE";
250 IF INKEY$="" THEN 250
260 REM
270 REM INITIALIZE: 16 PROBABILITIES, 4 RESPONSES (X),
280 REM OLD-MEMORY FACTOR (F1), RANDOMNESS FACTOR (F2),
290 REM SCORES (S1,S2) AND RIGHT-ANSWER FLAG.
300 DIM P(16), X(4)
310 CLS
320 PRINT "BEGIN"
330 P0=8+64
340 FOR I=1 TO 16
350 P(I)=.5
360 NEXT I
370 FOR I=1 TO 4
380 X(I)=0
390 IF RND(0)<.5 THEN 410
400 X(I)=1
410 NEXT I
420 F1=.8
430 F2=.3

```



```

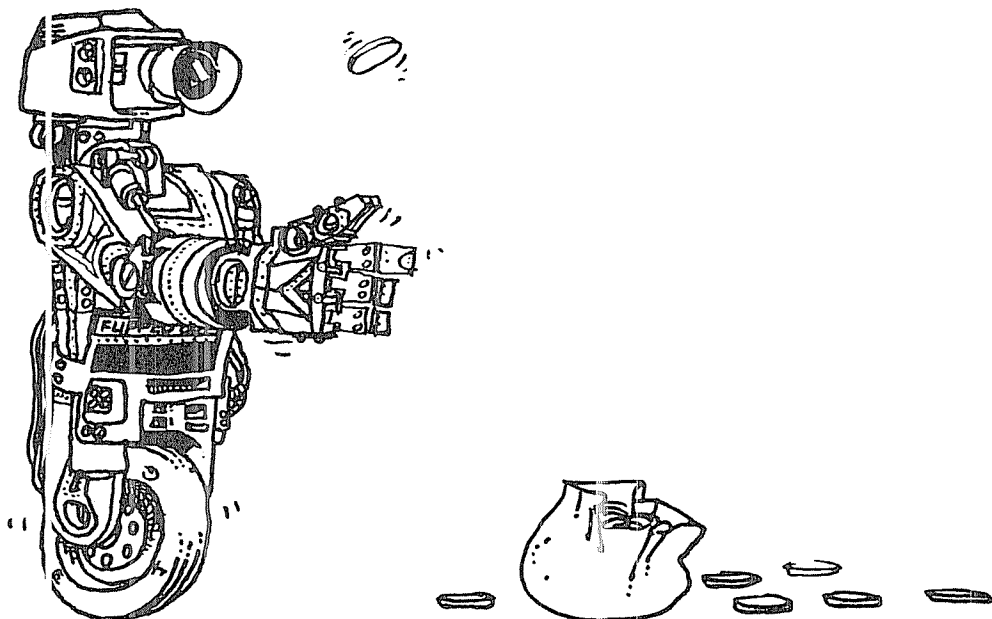
440 S1=0
450 S2=0
460 A$=" "
470 REM
480 REM TAKE THE ESTIMATE OF PROBABILITY (Z1)
490 REM OF THE PERSON GUESSING YES.
500 REM USE AN ADJUSTED PROBABILITY (Z2).
510 I9=0+X(4)+4*X(3)+2*X(2)+X(1)+1
520 Z1=P(I9)
530 Z2=Z1
540 IF Z2<.5 THEN 570
550 Z2=RND(0)
560 GOTO 610
570 IF Z2<.5 THEN 600
580 Z2=Z2+F2+0*(1-F2)
590 GOTO 610
600 Z2=Z2+F2+1*(1-F2)
610 Z5=0
620 IF RND(0)<Z2 THEN 650
630 Z5=1
640 REM
650 REM INTERACT WITH PERSON. GET HIS RESPONSE (Z3).
660 REM UPDATE RESPONSE HISTORY (X), APPROPRIATE PROB. (P(I9)).
670 PRINT A$;
680 Z3=0
690 INPUT H$
700 PRINT @ PO, CHR$(31);

```

```

710 PO=PO+8
720 IF LEFT$(H$, 1)=""V" THEN 750
730 IF LEFT$(H$, 1)=""N" THEN 760
740 GOTO 690
750 Z3=1
760 A$=" "
770 S2=S2+1
780 IF Z3<Z5 THEN 810
790 A$="*"
800 S1=S1+1
810 REM UPDATE X - THE LAST 4 CHOICES.
820 X(1)=X(3)
830 X(2)=X(4)
840 X(3)=Z3
850 X(4)=Z5
860 REM UPDATE THE PROBABILITY USING OLD I9.
870 P(I9)=F1*P(I9)+(1-F1)*X(3)
880 IF S2<S1 THEN 470
890 PRINT A$;
900 PRINT
910 PRINT @ PO+16, "END OF GAME."
920 PRINT "YOU GOT";S1;"OUT OF";S2;"CORRECT."
930 PRINT
940 PRINT
950 PRINT "PLAY AGAIN (Y OR N)";
960 INPUT T$
970 IF LEFT$(T$, 1)=""Y" THEN 310
980 END

```



# Four In A Row

In this game, eight pegs are put in a row, each one of which can hold eight rings. Each ring is marked with either an X or an O. You and an opponent alternate turns; in this case the opponent is the computer. On each turn you place a ring over one of the pegs, one through eight. The object is to get four X's or O's in a row, vertically, horizontally or diagonally. A glance at the sample run will show you how this process works.

While the computer already plays rather well, you may wish to experiment with improving the computer's play by changing the values in the data statements in lines 100 and 110. The first four values are awarded if a position yields one, two, three, or four in a row respectively, for the computer. The next four values are bonus points for making one, two, three, or four in a row in more than one direction with the same move. The next eight values (line 110) are dealt with in the same way for the human player; thus, these values are for defense.

If you become addicted to this game, Milton Bradley markets it commercially under the name "Connect Four." The computer version of the game was written by James L. Murphy.

FOUR IN A ROW

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DO YOU NEED INSTRUCTIONS? YES\_

cls

FOUR IN A ROW

THE GAME CONSISTS OF STACKING X'S AND O'S (THE COMPUTER HAS O) UNTIL ONE OF THE PLAYERS GETS FOUR IN A ROW VERTICALLY, HORIZONTALLY, OR DIAGONALLY.

PRESS ANY KEY TO CONTINUE

DO YOU WANT TO GO FIRST? YES\_

cls

```

- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
1 2 3 4 5 6 7 8

```

PICK A NUMBER BETWEEN 1 AND 8? 1\_

cls

```

- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - X O - - -
1 2 3 4 5 6 7 8
PICK A NUMBER BETWEEN 1 AND 8? 1_

```

cls

```

- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - 0 - - -
X - - X O - - -
1 2 3 4 5 6 7 8
PICK A NUMBER BETWEEN 1 AND 8? 2_

```

cls

```

- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - 0 0 - - -
X - - X O - - X
1 2 3 4 5 6 7 8
PICK A NUMBER BETWEEN 1 AND 8? 2_

```

cls

```

- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - 0 0 - - -
X O X X O - - X
1 2 3 4 5 6 7 8
PICK A NUMBER BETWEEN 1 AND 8? 2_

```

cls

```

- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - 0 - - -
- - X O 0 - - -
X O X X O - - X
1 2 3 4 5 6 7 8
PICK A NUMBER BETWEEN 1 AND 8? 2_

```

cls

```

- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - 0 - - - -
- X X O 0 - - -
X O X X O - - X
1 2 3 4 5 6 7 8
COMPUTER PICKS COLUMN 2

```

cls

```

- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - 0 0 - - -
- X X O 0 - - -
X O X X O - - X
1 2 3 4 5 6 7 8
PICK A NUMBER BETWEEN 1 AND 8? 1_

```

cls

```

- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - - - -
- - 0 0 - - -
X X X O 0 - - -
X O X X O - - X
1 2 3 4 5 6 7 8
COMPUTER PICKS COLUMN 2

```

cls

```

- - - - -
- - - - -
- - - - -
- - - - -
- - 0 - - - -
- 0 0 - - - -
X X X O 0 - - -
X O X X O - - X
1 2 3 4 5 6 7 8
COMPUTER WINS !!!

```

```

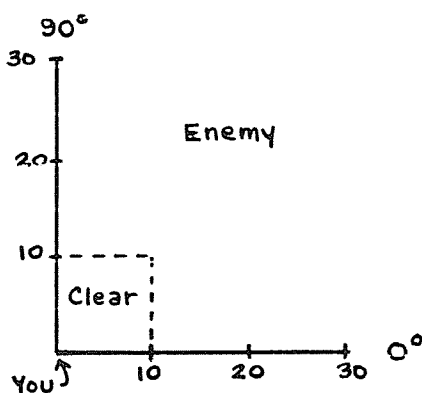
10 CLS:DEFINT A-Z
20 CLEAR 1000
30 PRINT @ 409,"FOUR IN A ROW"
40 PRINT
50 PRINTAB(7)"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN,NJ"
60 PRINT @ 960,"";
80 DIM B$(3, 8), L(8), S(4), F(4)
90 DIM V(16), N(4)
100 DATA 1, 100, 500, 1E20, 1, 800, 4000, 1E20
110 DATA 1, 75, 900, 1E18, 1, 450, 3000, 1E18
120 FOR Z1=1 TO 16
130 READ V(Z1)
140 NEXT Z1
145 INPUT"DO YOU NEED INSTRUCTIONS";I$
150 CLS:IF LEFT$(I$, 1)="" THEN 250
170 PRINT TAB(25)"FOUR IN A ROW" CHR$(13)
180 PRINT"THE GAME CONSISTS OF STACKING X'S"
190 PRINT"AND O'S (THE COMPUTER HAS O) UNTIL"
200 PRINT"ONE OF THE PLAYERS GETS FOUR IN A"
210 PRINT"ROW VERTICALLY, HORIZONTALLY, OR "
220 PRINT"DIAGONALLY."
230 PRINT @ 979,"PRESS ANY KEY TO CONTINUE";
240 IF INKEY$="" THEN 24: ELSECLS
250 X$="X"
260 O$="O"
270 FOR I=1 TO 8
280 FOR J=1 TO 8
290 B$(I, J)="-"
300 NEXT J
310 NEXT I
320 FOR Z1=1 TO 8
330 L(Z1)=0
340 NEXT Z1
360 INPUT"DO YOU WANT TO GO FIRST";A$
380 CLS:IF LEFT$(A$, 1)="" THEN 760
400 GOSUB 420
410 GOTO 580
420 PRINTCHR$(20);:FOR I=: TO 1 STEP -1
430 FOR J=1 TO 8
440 PRINT" ";B$(I, J);
450 NEXT J
460 PRINT
470 NEXT I
480 PRINT" ";
490 FOR I=1 TO 8
500 PRINT I;
510 NEXT I
520 PRINT:PRINT
540 RETURN
550 PRINT"ILLEGAL MOVE, TRY AGAIN."
560 FOR A=1 TO 800
570 NEXT
580 PRINT@576,"PICK A NUMBER BETWEEN 1 AND 8";CHR$(21);:INPUTM
590 M=INT(M)
600 IF M<1 OR M>8 THEN 583
610 L=L(M)
620 IF L>7 THEN 550
630 L(M)=L+1
640 L=L+1
650 B$(L, M)=X$
660 GOSUB 420
690 P$=X$
700 GOSUB 1410
710 FOR Z=1 TO 4
720 IF S(Z)<4 THEN 750
730 PRINT"YOU WIN !!!"
740 GOTO 1830
750 NEXT Z
760 M9=0
770 V1=0
780 N1=1
790 FOR M4=1 TO 8
800 L=L(M4)+1
810 IF L>8 THEN 1200
820 V=1
830 P$=O$
840 W=0
850 M=M4
860 GOSUB 1410
870 FOR Z1=1 TO 4
880 N(Z1)=0
890 NEXT Z1
900 FOR Z=1 TO 4
910 S=S(Z)
920 IF S=403 THEN 1250
930 T=S+F(Z)
940 IF T<4 THEN 970
950 V=V+4
960 N(S)=N(S)+1
970 NEXT Z
980 FOR I=1 TO 4
990 N=N(I)-1
1000 IF N=-1 THEN 1030
1010 I1=8*M+4+S*(N+1)
1020 V=V+V(I1)+V(8*M+1)
1030 NEXT I
1040 IF W=1 THEN 1000
1050 W=1
1060 P$=X$
1070 GOTO 860
1080 L=L+1
1090 IF L>8 THEN 1140
1100 GOSUB 1410
1110 FOR Z=1 TO 4
1120 IF S(Z)>2 THEN V=2
1130 NEXT Z
1140 IF V<V1 THEN 1200
1150 IF V>V1 THEN N1=1: GOTO 1180
1160 N1=N1+1
1170 IF RND(0)>1/N1 THEN 1200
1180 V1=V
1190 M9=M4
1200 NEXT M4
1210 IF M9<0 THEN 1240
1220 PRINT"THE GAME..."
1230 GOTO 1830
1240 M=M9
1250 PRINT@576,"COMPUTER PICKS COLUMN";M
1260 FOR A=1 TO 1000
1270 NEXT
1280 L=L(M)+1
1290 L(M)=L(M)+1
1300 B$(L, M)=O$
1310 P$=O$
1320 GOSUB 420
1340 GOSUB 1410
1350 FOR Z=1 TO 4
1360 IF S(Z)<4 THEN 1390
1370 PRINT"COMPUTER WINS !!!"
1380 GOTO 1830
1390 NEXT Z
1400 GOTO 580
1410 O$=X$
1420 IF P$=X$ THEN O$=O$
1430 D2=1
1440 D1=0
1450 Z=0
1460 GOSUB 1570
1470 D1=1
1480 D2=2
1490 GOSUB 1570
1500 D2=0
1510 D1=1
1520 GOSUB 1570
1530 D2=-1
1540 D1=1
1550 GOSUB 1570
1560 RETURN
1570 D=1
1580 S=1
1590 T=0
1600 Z=Z+1
1610 C=0
1620 FOR K=1 TO 3
1630 M5=M+K*D1
1640 L1=L+K*D2
1650 IF M5<1 OR L1>8 OR M5>8 OR L1>8 THEN 1740
1660 B$=B$(L1, M5)
1670 IF C=0 THEN 1710
1680 IF B$=O$ THEN K=4: GOTO 1740
1690 T=T+1
1700 GOTO 1740
1710 IF B$=P$ THEN S=S+1: GOTO 1740
1720 C=1
1730 GOTO 1680
1740 NEXT K
1750 IF D=0 THEN 1800
1760 D=0
1770 D1=-D1
1780 D2=-D2
1790 GOTO 1610
1800 S(Z)=5
1810 F(Z)=T
1820 RETURN
1830 END

```

# Geowar

This program very loosely represents a battlefield in which you, the player, are located at point 0,0. There are five enemy installations that may be located anywhere from 0,0 to 30,30 except for a clear zone from 0,0 to 10,10. The accompanying diagram should make this clear. Instead of the normal artillery type of game where you are lobbing projectiles onto your enemy installations, in this game you are firing some sort of laser missile in a very straight path which destroys everything in its path. If the missile flies within one unit either northwest or southeast of the target, or, of course, over the target directly, that target is destroyed. If it is within two units of the target, the missile will be shot down and that target will relocate to a new position one unit away from its previous position in some random direction.

Geowar is largely a guessing game with incomplete information given in its clues. Nevertheless it's fun to play and is a nice switch from just a plain guess the mystery number game. It was written by Gary Lorenc and originally appeared in *Creative Computing* May/-Jun 1975.



GEOWAR

COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ

DO YOU NEED INSTRUCTIONS? YES.

\_\_\_\_\_ cls \_\_\_\_\_

THE FIRST QUADRANT OF A REGULAR COORDINATE GRAPH WILL SERVE AS THE BATTLEFIELD. FIVE ENEMY INSTALLATIONS ARE LOCATED WITHIN A 30 BY 30 UNIT AREA. NO TARGET IS INSIDE THE 10 BY 10 UNIT AREA ADJACENT TO THE ORIGIN AS THIS IS THE LOCATION OF OUR BASE. WHEN THE MACHINE ASKS FOR THE DEGREE OF THE SHOT, RESPOND WITH A NUMBER BETWEEN 1 AND 90.

PRESS ANY KEY TO CONTINUE

- \_\_\_\_\_ cls \_\_\_\_\_
1. A DIRECT HIT IS A HIT WITHIN 1 DEGREE OF THE TARGET.
  2. A HIT MUST PASS BETWEEN THE FIRST SET OF INTEGRAL POINTS NW AND SE OF THE TARGET.
  3. A SCORE MUST PASS BETWEEN THE NEXT SET OF INTEGRAL POINTS NW AND SE OF THE TARGET, AND CAUSES THE ENEMY TO RELOCATE A MAXIMUM OF 1 UNIT IN ANY DIRECTION.

MISSILES HAVE INFINITE RANGE AND MAY HIT MORE THAN ONE TARGET. A MISSILE THAT NEARLY MISSES AN INSTALLATION (A SCORE) WILL BE IMMEDIATELY SHOT DOWN. ANY HITS BEFORE THIS TIME WILL NOT BE COUNTED UNLESS A DIRECT HIT WAS MADE.

PRESS ANY KEY TO CONTINUE  
\_\_\_\_\_ cls \_\_\_\_\_

READY TO GO? YES

GOOD LUCK!

\_\_\_\_\_ cls \_\_\_\_\_

ENTER DEGREE OF SHOT? 25.

\_\_\_\_\_ cls \_\_\_\_\_

NO LUCK -- TRY AGAIN.

ENTER DEGREE OF SHOT? 35.

\_\_\_\_\_ cls \_\_\_\_\_

NO LUCK -- TRY AGAIN.

ENTER DEGREE OF SHOT? 47.

\_\_\_\_\_ cls \_\_\_\_\_

\*\*\* CONGRATULATIONS \*\*\* A HIT.  
1 DOWN -- 4 TO GO.

ENTER DEGREE OF SHOT? 37.

\_\_\_\_\_ cls \_\_\_\_\_

NO LUCK -- TRY AGAIN.

ENTER DEGREE OF SHOT? 58.

\_\_\_\_\_ cls \_\_\_\_\_

\*\*\* BULLS EYE \*\*\* A DIRECT HIT!  
2 DOWN -- 3 TO GO.

ENTER DEGREE OF SHOT? 75.

\_\_\_\_\_ cls \_\_\_\_\_

A NEAR HIT. ENEMY HAS RELOCATED.

ENTER DEGREE OF SHOT? 77.

\_\_\_\_\_ cls \_\_\_\_\_

A NEAR HIT. ENEMY HAS RELOCATED.

ENTER DEGREE OF SHOT? 75.

\_\_\_\_\_ cls \_\_\_\_\_

\*\*\* CONGRATULATIONS \*\*\* A HIT.  
4 DOWN -- 1 TO GO.

ENTER DEGREE OF SHOT? 10.

\_\_\_\_\_ cls \_\_\_\_\_

\*\*\* CONGRATULATIONS \*\*\* A HIT.

GAME TOTALS: 4 HITS AND 1 DIRECT HITS ON 17 SHOTS.

READY FOR A NEW GAME? NO TH

\_\_\_\_\_ cls \_\_\_\_\_

```
10 CLS
20 CLEAR 1000
30 PRINT @ 413, "GEOWAR"
40 PRINT
50 PRINT TAB(7)"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
60 PRINT @ 960, ""
70 INPUT "DO YOU NEED INSTRUCTIONS? I#
80 IF LEFT$(I$, 1) = "N" THEN CLS: GOTO 420
```

```

90 CLS
100 PRINT "THE FIRST QUADRANT OF A REGULAR COORDINATE GRAPH WILL:"
110 PRINT "SERVE AS"
120 PRINT "THE BATTLEFIELD. FIVE ENEMY INSTALLATIONS ARE LOCATED:"
130 PRINT "WITHIN A"
140 PRINT "30 BY 30 UNIT AREA. NO TARGET IS INSIDE THE 10 BY 10 "
150 PRINT "UNIT AREA"
160 PRINT "ADJACENT TO THE ORIGIN, AS THIS IS THE LOCATION OF OUR "
170 PRINT "BASE. WHEN:"
180 PRINT "THE MACHINE FIRES FOR THE DEGREE OF THE SHOT, RESPOND WITH A"
190 PRINT "NUMBER BETWEEN 1 AND 90."
200 PRINT @ 979, "PRESS A KEY TO CONTINUE:"
210 IF INKEY$="" THEN 230
220 CLS
230 PRINT "1. A DIRECT HIT IS A HIT WITHIN 1 DEGREE OF"
240 PRINT "THE TARGET."
250 PRINT "2. A HIT MUST PASS BETWEEN THE FIRST SET OF"
260 PRINT "INTEGRAL POINTS NN AND SE OF THE TARGET."
270 PRINT "3. A SCORE MUST PASS BETWEEN THE NEXT SET OF"
280 PRINT "INTEGRAL POINTS NN AND SE OF THE TARGET."
290 PRINT "AND CAUSE THE ENEMY TO RELOCATE A"
300 PRINT "MAXIMUM OF 1 UNIT IN ANY DIRECTION."
310 PRINT
320 PRINT "MISSILES HAVE INFINITE RANGE AND MAY HIT MORE THAN "
330 PRINT "ONE TARGET:"
340 PRINT "A MISSILE THAT NEARLY MISSES AN INSTALLATION (A SCORE) "
350 PRINT "WILL BE"
360 PRINT "IMMEDIATELY SHOT DOWN. ANY HITS BEFORE THIS TIME WILL "
370 PRINT "NOT BE"
380 PRINT "COUNTED UNLESS A DIRECT HIT WAS MADE."
390 PRINT @ 979, "PRESS A KEY TO CONTINUE:"
400 IF INKEY$="" THEN 410
410 CLS
420 PRINT "READY TO GO:"
430 INPUT R$
440 IF LEFT$(R$, 1)="" THEN 1920
450 PRINT
460 PRINT "GOOD LUCK!"
470 PRINT
480 DIM C(10), H(20), D(0), S(20), F(5)
490 DEF FN V(V1)=INT((180/3.14159)*ATN(V1)+.5)
500 X=250
510 Y1=RND(0)
520 G2=0
530 S2=0
540 D2=0
550 H2=0
560 FOR K=1 TO 10
570 GOSUB 1560
580 IF INT(K/2)/K/2 THEN 1650
590 IF C(K-1)>10 THEN 651
600 IF C(K)>10 THEN 650
610 FOR L=K-1 TO K
620 GOSUB 1560
630 NEXT L
640 GOTO 580
650 NEXT K
660 S=0
670 FOR L=1 TO 5
680 D(L)=(C(2*L)/C(2*L-1))
690 D(L)=INT((180/3.14159)*ATN(D(L))+.5)
700 NEXT L
710 A=2
720 L1=10
730 TS=5
740 D5=0
750 H5=0
760 GOSUB 1450
770 PRINT
780 PRINT "ENTER DEGREE (° SHOT):"
790 D1=0
800 H1=0
810 FOR Q=1 TO 5
820 F(Q)=20
830 NEXT Q
840 INPUT D
850 CLS
860 IF D=>90 THEN 770
870 ON SIGN(D)+2 GOTO 179, 1920
880 S=S+1
890 FOR A=2 TO 10 STEP 2
900 IF D>S(A) THEN 1000
910 IF D>S(A-1) THEN 100
920 IF D>H(A) THEN 1020
930 IF D>H(A-1) THEN 1021
940 IF D>D(A/2)+1 THEN 90
950 IF D>D(A/2)-1 THEN 90
960 D1=D1+1
970 GOTO 990
980 H1=H1+1
990 F(D1+H1)=A
1000 NEXT A
1010 GOTO 1050
1020 IF D1>0 THEN 1070
1030 GOSUB 1350
1040 GOTO 770
1050 IF D1+H1<0 THEN 1090
1060 IF TS=1 THEN 1610
1070 PRINT "NO LUCK -- TRY AGAIN."
1080 GOTO 770
1090 IF D1>0 THEN 1150
1100 IF H1>1 THEN 1120
1110 PRINT "*** CONGRATULATIONS *** A HIT."
1120 GOTO 1210
1130 PRINT "*** CONGRATULATIONS ***";H1;"HITS."
1140 GOTO 1210
1150 PRINT "**** BULLS EYE ****";
1160 IF D1>1 THEN 1200
1170 IF H1>0 THEN 1200
1180 PRINT "A DIRECT HIT!"
1190 GOTO 1210
1200 PRINT D1+H1;"HITS -- A DIRECT HIT ON";D1;"OF THEM!"
1210 TS=TS-(D1+H1)
1220 D5=D5+D1
1230 H5=H5+H1
1240 IF TS=0 THEN 1690
1250 FOR J=1 TO H1+D1
1260 Z=F(J)
1270 D(Z/2)=0
1280 H(Z)=0
1290 H(Z-1)=0
1300 S(Z)=0
1310 S(Z-1)=0
1320 NEXT J
1330 PRINT S-TS;"DOWN --";TS;"TO GO."
1340 GOTO 770
1350 PRINT "A NEAR HIT. ENEMY HAS RELOCATED."
1360 FOR I=1 TO 2
1370 X2=INT(RND(0)*100)
1380 IF ABS(C(A-(R-1))-X2)>1 THEN 1370
1390 IF C(A-(R-1))<2 THEN 1370
1400 C(A-(R-1))=X2
1410 NEXT R
1420 D(A/2)=(C(A)/C(A-1))
1430 D(A/2)=INT((180/3.14159)*ATN(D(A/2))+.5)
1440 L1=A
1450 FOR I=A TO L1 STEP 2
1460 H(I-1)=(C(I)-1)/(C(I-1)+1)
1470 H(I-1)=INT((180/3.14159)*ATN(H(I-1))+.5)
1480 H(I)=(C(I)+1)/(C(I-1)-1)
1490 H(I)=(180/3.14159)*ATN(H(I))+.5)
1500 S(I-1)=(C(I)-2)/(C(I-1)+2)
1510 S(I-1)=INT((180/3.14159)*ATN(S(I-1))+.5)
1520 S(I)=(C(I)+2)/(C(I-1)-2)
1530 S(I)=INT((180/3.14159)*ATN(S(I))+.5)
1540 NEXT I
1550 RETURN
1560 R=INT(RND(0)*100)
1570 IF R>30 THEN 1560
1580 IF R<3 THEN 1560
1590 C(K)=R
1600 RETURN
1610 FOR Z1=1 TO 5
1620 IF D(Z1)>1 THEN 1640
1630 NEXT Z1
1640 IF D1>Z1 THEN 1670
1650 PRINT "TOO HIGH -- TRY AGAIN."
1660 GOTO 770
1670 PRINT "TOO LOW -- TRY AGAIN."
1680 GOTO 770
1690 PRINT
1700 PRINT "GAME TOTALS:";H5;"HITS AND";D5;"DIRECT HITS ON";S;"SHOTS."
1710 PRINT
1720 PRINT "READY FOR A NEW GAME:"
1730 G2=G2+1
1740 S2=S2+S
1750 D2=D2+D5
1760 H2=H2+H5
1770 INPUT G$
1780 IF LEFT$(G$, 1)="" THEN 1870
1790 PRINT
1800 PRINT
1810 PRINT
1820 PRINT "FIVE NEW INSTALLATIONS HAVE BEEN BUILT AT DIFFERENT "
1830 PRINT "LOCATIONS."
1840 PRINT
1850 PRINT "GOOD LUCK!"
1860 GOTO 560
1870 PRINT
1880 PRINT
1890 PRINT "TOTALS FOR:";G2;"GAMES:";H2;"HITS AND";D2
1900 PRINT "DIRECT HITS ON";S2;"SHOTS."
1910 PRINT "AN AVERAGE OF";S2/D2+H2;"SHOTS PER TARGET."
1920 END

```

# Grand Prix

In this program, you are attempting to complete one lap around a grand prix circuit against one of six opponents, everything from a US Postal delivery truck to a 1974 Ferrari. The track consists of four straightaways and four curves with different maximum speeds possible for each one. Depending on which car you select for your own, you can take these curves and straights at different speeds. Also, the car you select will have different braking characteristics which may

allow you to head into a curve at a higher speed and then apply the brakes at the last minute.

It may sound like it's easy to win by simply selecting a Porsche or Ferrari for your car and racing against a US Mail truck or a well-used Ford Mustang, but beware, it isn't really that easy.

The origin of this game is a bit hazy. The only thing that identifies it is PUC. Could this be Pacific Union College? Perhaps, but we're not really sure.

GRAND PRIX  
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DO YOU NEED INSTRUCTIONS? YES\_

cls

GRAND PRIX

THE TOTAL LENGTH OF ONE LAP IS 3200 YARDS. DURING THE STRAIGHTAWAYS YOU WILL BE ABLE TO CONTROL THE ACCELERATION AND BRAKING OF THE CAR. THE CURVES WILL BE TAKEN AT WHATEVER SPEED YOU ENTER THEM.

BELOW THE BREAKAWAY SPEED, THE CURVES MAY BE TAKEN WITH NO DIFFICULTY. ABOVE THE FASTEST SPEED INDICATED, YOU MAY CRASH!!

WITHIN THE SPEED RANGE THERE IS A POSSIBILITY THAT YOU MIGHT LOSE TIME OR SPEED BY SWINGING WIDE OR BY SPINNING OUT.

THE FASTER YOU TAKE THE CURVES, THE GREATER THE RISKS, AND THE LESS THE TIME !!!!!

PRESS ANY KEY TO CONTINUE

cls

WELCOME TO THE PUC GRAN PRIX

YOUR CAR MAY BE ONE OF THE FOLLOWING:

1. PORSCHE
2. FERRARI
3. MASERATI
4. LOTUS FORD

WHICH CAR WOULD YOU LIKE? 4\_

cls

YOUR CAR HAS A MAXIMUM ACCELERATION OF 8 MPH/SEC.  
AND A MAXIMUM BRAKING OF -30 MPH/SEC.

YOU WILL RACE AGAINST ONE OF THE FOLLOWING:

1. U.S. POSTAL DELIVERY TRUCK
2. 1970 BEAT PONTIAC GTO
3. 1966 WELL USED FORD MUSTANG
4. LOTUS FORD
5. 1974 FERRARI
6. THE PHYSICS SUPERCHARGED LIGHTBEAM SPECIAL

CHOOSE ONE OPPONENT BY ENTERING NUMBER? 2\_

cls

|              |       |                     |
|--------------|-------|---------------------|
| TRACK LIMITS | 2     | 1                   |
| 2-3 (80-100) | ..... | .....               |
| 4-5 (20-35)  | 3..   | PUC GRAND PRIX RACE |
| 6-7 (90-110) | ..    | .....               |
| 8-1 (50-70)  | ..... | .....               |
|              | 6     | 7 8                 |

|       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|       |       |       |       |       |       |       |       |       |       |
| 4..   | 5     | E/T   | MPH   | YOU   | OPP   | ACC   |       |       |       |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| ..... | ..... | 0.0   | 0     | 0     | 0     | 0     | ?     | 8_    |       |

|                    |       |  |  |  |  |  |  |                     |   |
|--------------------|-------|--|--|--|--|--|--|---------------------|---|
| CURVE #1 800 YRDS  |       |  |  |  |  |  |  |                     |   |
| CURVE #3 1900 YRDS |       |  |  |  |  |  |  |                     |   |
| TRACK LIMITS       | 2     |  |  |  |  |  |  | 1                   |   |
| 2-3 (80-100)       | ..... |  |  |  |  |  |  | .....               |   |
| 4-5 (20-35)        | 3..   |  |  |  |  |  |  | PUC GRAND PRIX RACE |   |
| 6-7 (90-110)       | ..    |  |  |  |  |  |  | .....               |   |
| 8-1 (50-70)        | ..... |  |  |  |  |  |  | .....               |   |
|                    | 6     |  |  |  |  |  |  | 7                   | 8 |

|       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|       |       |       |       |       |       |       |       |       |       |
| 4..   | 5     | E/T   | MPH   | YOU   | OPP   | ACC   |       |       |       |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| ..... | ..... | 2.0   | 16    | 7     | 3     | ?     | 8_    |       |       |

cls

|                    |       |  |  |  |  |  |  |                     |   |
|--------------------|-------|--|--|--|--|--|--|---------------------|---|
| CURVE #1 800 YRDS  |       |  |  |  |  |  |  |                     |   |
| CURVE #3 1900 YRDS |       |  |  |  |  |  |  |                     |   |
| TRACK LIMITS       | 2     |  |  |  |  |  |  | 1                   |   |
| 2-3 (80-100)       | ..... |  |  |  |  |  |  | .....               |   |
| 4-5 (20-35)        | 3..   |  |  |  |  |  |  | PUC GRAND PRIX RACE |   |
| 6-7 (90-110)       | ..    |  |  |  |  |  |  | .....               |   |
| 8-1 (50-70)        | ..... |  |  |  |  |  |  | .....               |   |
|                    | 6     |  |  |  |  |  |  | 7                   | 8 |

|       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|       |       |       |       |       |       |       |       |       |       |
| 4..   | 5     | E/T   | MPH   | YOU   | OPP   | ACC   |       |       |       |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| ..... | ..... | 20.0  | 98    | 697   | 752   | ?     | -2_   |       |       |

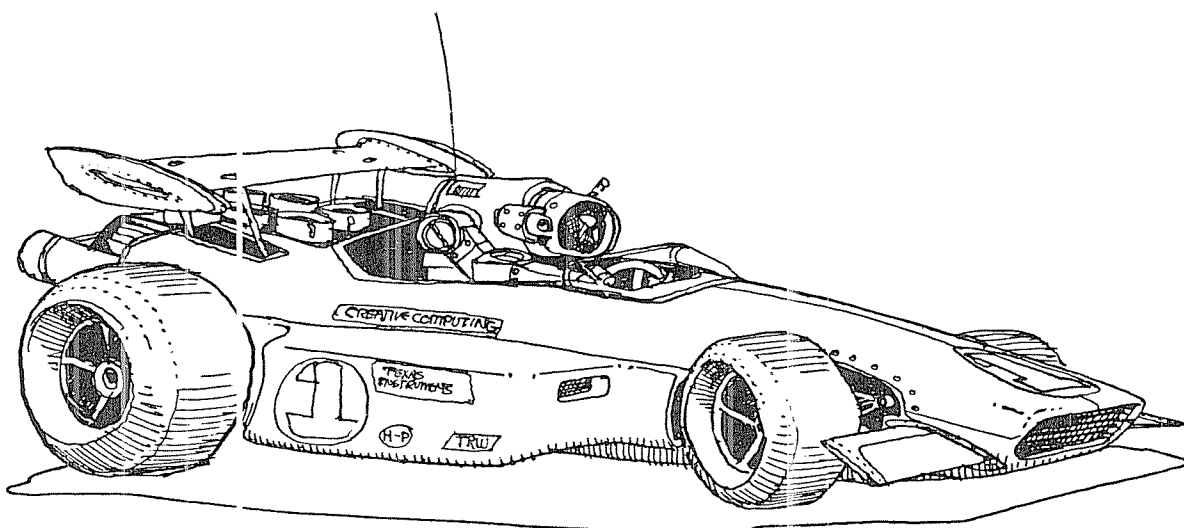
cls

|                    |       |  |  |  |  |  |  |                     |   |
|--------------------|-------|--|--|--|--|--|--|---------------------|---|
| CURVE #1 800 YRDS  |       |  |  |  |  |  |  |                     |   |
| CURVE #3 1900 YRDS |       |  |  |  |  |  |  |                     |   |
| TRACK LIMITS       | 2     |  |  |  |  |  |  | 1                   |   |
| 2-3 (80-100)       | ..... |  |  |  |  |  |  | .....               |   |
| 4-5 (20-35)        | 3..   |  |  |  |  |  |  | PUC GRAND PRIX RACE |   |
| 6-7 (90-110)       | ..    |  |  |  |  |  |  | .....               |   |
| 8-1 (50-70)        | ..... |  |  |  |  |  |  | .....               |   |
|                    | 6     |  |  |  |  |  |  | 7                   | 8 |

|       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|       |       |       |       |       |       |       |       |       |       |
| 4..   | 5     | E/T   | MPH   | YOU   | OPP   | ACC   |       |       |       |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| ..... | ..... | 34.5  | 146   | 1451  | 1454  | ?     | 8     |       |       |

LOST CONTROL AT 151 MPH. YOUR CAR CRASHED!!  
YOUR OPPONENT FINISHED IN 86.7622 SECONDS!

DO YOU WISH TO TRY AGAIN? NO\_



```

10 CLS
20 PRINT @ 411, "GRAND PRIX"
30 PRINT
40 PRINT TAB(7); "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
50 PRINT @ 968, " ";
60 INPUT "DO YOU NEED INSTRUCTIONS"; I$
70 IF LEFT$(I$, 1) = "N" THEN 120
80 CLS
90 PRINT TAB(27); "GRAND PRIX"
100 PRINT
110 PRINT "THE TOTAL LENGTH OF ONE LAP IS 3200 YARDS. DURING THE"
120 PRINT "STRAIGHTAWAYS YOU WILL BE ABLE TO CONTROL THE ACCELERATION AND"
130 PRINT "BRAKING OF THE CAR THE CURVES WILL BE TAKEN AT WHATEVER SPEED"
140 PRINT "YOU ENTER THEM."
150 PRINT "BELOW THE BREAKAWAY SPEED, THE CURVES MAY BE TAKEN WITH"
160 PRINT "NO DIFFICULTY. ABOVE THE FASTEST SPEED INDICATED, YOU MAY"
170 PRINT "CRASH!!!"
180 PRINT "WITHIN THE SPEED RANGE THERE IS A POSSIBILITY THAT YOU"
190 PRINT "MIGHT LOSE TIME OR SPEED BY SWINGING WIDE OR BY SPINNING OUT."
200 PRINT "THE FASTER YOU TAKE THE CURVES, THE GREATER THE RISKS."
210 PRINT "AND THE LESS THE TIME!!!!!"
220 DIM P(9), F(4), G(4), H(2)
230 REM
240 FOR X=1 TO 9
250 READ P(X)
260 NEXT X
270 FOR I=1 TO 4
280 READ G(I), F(I)
290 G(I)=G(I)/2.04545
300 F(I)=(F(I)+.61/2.04545)
310 NEXT I
320 FOR X=1 TO 82
330 READ H(X)
340 NEXT X
345 IF LEFT$(I$, 1) = "N" THEN 170
350 PRINT @ 979, "PRESS ANY KEY TO CONTINUE";
360 IF INKEY$ = "" THEN 360
370 D=2
380 CLS
390 PRINT "WELCOME TO THE PUC GRAND PRIX"
400 PRINT
410 REM
420 PRINT "YOUR CAR MAY BE ONE OF THE FOLLOWING:"
430 PRINT "1. PORSCHE"
440 PRINT "2. FERRARI"
450 PRINT "3. MASERATI"
460 PRINT "4. LOTUS FORD"
470 PRINT
480 PRINT "WHICH CAR WOULD YOU LIKE";
490 INPUT Z
500 PRINT

```

```

510 ON Z GOTO 540, 570, 600, 630
520 PRINT "WE DON'T HAVE THAT CAR IN STOCK, PLEASE CHOOSE AGAIN.";
530 GOTO 490
540 M=15
550 B=-20
560 GOTO 650
570 M=10
580 B=-25
590 GOTO 650
600 M=12
610 B=-22
620 GOTO 650
630 M=8
640 B=-30
650 CLS
660 PRINT "YOUR CAR HAS A MAXIMUM ACCELERATION OF"; M; "MPH/SEC."
670 PRINT "AND A MAXIMUM BRAKING OF"; B; "MPH/SEC."
680 PRINT
690 PRINT "YOU WILL RACE AGAINST ONE OF THE FOLLOWING:"
700 PRINT "1. U.S. POSTAL DELIVERY TRUCK"
710 PRINT "2. 1970 BEAT PONTIAC GTO"
720 PRINT "3. 1956 WELL USED FORD MUSTANG"
730 PRINT "4. LOTUS FORD"
740 PRINT "5. 1974 FERRARA"
750 PRINT "6. THE PHYSICS SUPERCHARGED LIGHTBEAM SPECIAL"
760 PRINT
770 PRINT "CHOOSE ONE OPPONENT BY ENTERING NUMBER";
780 INPUT R1
790 IF R1>6 AND R1<6 THEN 830
800 IF R1=6 THEN 850
810 PRINT "WHICH CAR DID YOU SAY";
820 GOTO 780
830 R=2+R1-5
840 GOTO 860
850 R=2.5E+08
860 R=(90+2*R)/100+7*RD(0)/100
870 PRINT
880 REM BEGIN THE RACE!!
890 CLS
900 PRINT "TRACK LIMITS" TAB(28); "2" TAB(57); "1"
910 PRINT @ 896, "CURVE #1 800 YRDS", "CURVE #2 1500 YRDS"
920 PRINT "CURVE #3 1900 YRDS", "CURVE #4 2800 YRDS";
930 PRINT @ 64, "2-3 (80-100)"
940 PRINT "4-5 (20-35)" TAB(22); "3" TAB(32); "PUC GRAND PRIX RACE"
950 PRINT "6-7 (90-110)"
960 PRINT "8-1 (50-70)"
970 PRINT @ 588, "4" TAB(19); "5"
980 PRINT @ 345, "6" TAB(46); "7" TAB(57); "8"
990 FOR A=29 TO 3 STEP -1
1000 SET(55-A, R)
1010 NEXT A

```

```

1020 FOR A=52 TO 115
1030 SET(R, 3)
1040 NEXT A
1050 FOR A=4 TO 6
1060 SET(112+A, A)
1070 SET(122-A, A+6)
1080 SET(118, A+3)
1090 NEXT A
1100 FOR A=29 TO 33
1110 SET(A-3, A)
1120 NEXT A
1130 FOR A=33 TO 13 STEP -1
1140 SET(63-A, A)
1150 NEXT A
1160 FOR A=51 TO 61
1170 SET(R, 13)
1180 SET(A+20, 13)
1190 SET(A+10, 14)
1200 SET(A+30, 12)
1210 NEXT A
1220 FOR A=91 TO 115
1230 SET(R, 13)
1240 NEXT A
1250 J=1
1260 PRINT @ 600, "E/T      MPH      YOU      OPP      ACC";
1270 PRINT @ 555, "POSITION";
1280 PRINT @ 664, "#####";
1290 X=0
1300 S=0
1310 T=0
1320 T9=0
1330 X9=0
1340 REM
1350 IF J<9 THEN 1450
1360 CLS
1370 PRINT"COMPLETED LAP";", ELAPSED TIME"; INT(T*10+.5)/10; "SEC."
1380 PRINT"YOUR OPPONENT FINISHED IN"; 80/R; "SECONDS"
1390 K1=INT(T*10+.5)/10-80/R
1400 IF K1>0 THEN 1430
1410 PRINT"CONGRATULATIONS, YOU WON BY"; -K1; "SECONDS"
1420 GOTO 2200
1430 PRINT"SORRY, YOU LOST BY"; K1; "SECONDS"
1440 GOTO 2200
1450 FR=T*R-INT(T*R)
1460 FC=-( INT(T*R)+2)*( INT(T*R)+2<82)-82*(82<INT(T*R)+2)
1470 FB=-( INT(T*R)+1)*( INT(T*R)+1<82)-82*(82<INT(T*R)+1)
1480 FQ=H(FC)-H(FB)
1490 FP=INT(H(FB)+FQ*FR+.5)
1500 IF FP>3200 THEN 1550
1510 IM$="###. #   ###   ###   "
1520 PRINT @ 727, CHR$(30);
1530 PRINT USING IM$: INT(T*10+.5)/10, INT(S*2.04545+.05), INT(X), FP;
1540 GOTO 1580
1550 PRINT @ 727, CHR$(30);
1560 IM$=LEFT$(IM$, 25)+"FINISH "
1570 PRINT USING IM$: INT(T*10+.5)/10, INT(S*2.04545+.05), INT(X);
1580 INPUT A1
1590 A=A1/2.04545
1600 IF A1=0 THEN 1800
1610 IF A1=B THEN 1640
1620 PRINT"MAXIMUM BRAKING IS "; B; "MPH/SEC";
1630 GOTO 1450
1640 T1=-S/A
1650 IF T1>0 THEN 1820
1660 X1=X+S*T1+A/2*T1*T1
1670 IF X1>P(J+1) THEN 1730
1680 PRINT"YOU STOPPED"; INT(P(J+1)-X1); "YARDS FROM POINT"; J+1;
1690 S=0
1700 X=X1
1710 T=T+T1
1720 GOTO 1350
1730 Y=P(J+1)-X
1740 IF A<0 THEN 1770
1750 T=T+Y/S
1760 GOTO 1800
1770 S1=SQR(S*5+2*A*Y)
1780 T=T-(S-S1)/A
1790 S=S1
1800 J=J+1
1810 GOTO 1940
1820 X1=X+S*D+A/2*D*D
1830 IF X1>P(J+1) THEN 1730
1840 T=T+D
1850 S=S+A*D
1860 X=X1
1870 GOTO 1350
1880 IF A1<=M THEN 1910
1890 PRINT"MAXIMUM ACCELERATION IS"; M; "MPH/SEC"
1900 GOTO 1450
1910 X1=X+S*D+A/2*D*D
1920 IF X1>P(J+1) THEN 1730
1930 GOTO 1820
1940 REM *** SUB CURVE ***
1950 REM
1960 I=INT(J/2)
1970 T1=(P(J+1)-P(J))/5
1980 S1=G(I)+(F(I)-G(I))*RND(0)
1990 IF S>S1 THEN 2050
2000 PRINT"CURVE"; J; -J-1; ", SPEED"; INT(S*2.04545+.05); "MPH"
2010 J=J+1
2020 X=P(J)
2030 T=T+T1
2040 GOTO 1350
2050 IF S>S1+(F(I)-S1)/2 THEN 2110
2060 T2=T1*RND(0)*.4
2070 PRINT"SPEED IN CURVE"; INT(S*2.04545+.05); "MPH, TOOK CURVE WIDE, LOST";
2080 PRINT INT(T2*10+.5)/10; "SEC."
2090 T1=T1+T2
2100 GOTO 2010
2110 IF S>F(I) THEN 2170
2120 S2=S-S*RND(0)*.9
2130 T1=T1*S/S2
2140 PRINT"SPUN OUT AT"; INT(S*2.04545+.05); "MPH, LOST SPEED AND TIME"
2150 S=S2
2160 GOTO 2010
2170 PRINT"LOST CONTROL AT"; INT(S*2.04545+.05); "MPH YOUR CAR CRASHED!!"
2180 PRINT"YOUR OPPONENT FINISHED IN"; 82/R; "SECONDS!"
2190 REM
2200 PRINT
2210 PRINT"DO YOU WISH TO TRY AGAIN";
2220 INPUT A#
2230 IF LEFT$(A#, 1)="Y" THEN CLS: GOTO 420
2240 END
2250 REM
2260 DATA 0, 800, 1000, 1500, 1600, 1900, 2400, 2800, 3200
2270 DATA 85, 100
2280 DATA 20, 35
2290 DATA 90, 110
2300 DATA 50, 70
2310 REM
2320 DATA 0, 1, 3, 9, 21, 39, 62, 87, 120, 156, 196, 244, 293, 351, 410
2330 DATA 479, 550, 625, 700, 758, 800, 847, 894, 942, 990, 1030, 1080
2340 DATA 1135, 1200, 1260, 1330, 1382, 1425, 1470, 1490, 1505, 1519
2350 DATA 1539, 1548, 1563, 1578, 1512, 1610, 1632, 1658, 1683, 1718
2360 DATA 1750, 1800, 1850, 1890, 1943, 1997, 2050, 2104, 2057, 2210
2370 DATA 2294, 2317, 2370, 2420, 2480, 2535, 2600, 2670, 2725, 2768, 2799, 2830
2380 DATA 2861, 2892, 2920, 2951, 2982, 3013, 3044, 3075, 3106, 3137, 3168, 3199
2390 DATA 10000

```



# Guess-It

Many, if not most, two person games that are played on a computer are based on fixed rules that assure that if one player uses these rules and a rational playing strategy then that player wins. If both players use these rules and rational playing strategies then the winner is usually determined by who goes first. Tic-Tac-Toe, Batnum and Even are examples of games of this type.

A more interesting type of game is one where the playing strategy is of mixed type. This means that the best move, in most cases, depends on what moves have already been made and a player can only determine the probability of the best move. Standard card games (Bridge, Poker etc.) are usually games of mixed type.

Most two person games of mixed type are either so complicated that the best strategies are not known or they are so simple that they are not interesting to play. The game of Guess It is an exception to this pattern. The element of bluffing, which plays a central role in this game, makes the game interesting. The optimal strategy for playing this two person game of

mixed type has been determined by Rufus Isaacs<sup>2</sup>.

This program simulates the game of Guess It. The computer plays according to the optimal strategy determined by Isaacs. Lines 1850 to 2090 give instructions on how to play the game. The number of numbers in each hand is determined in line 30. (It is set at 5. This is the value Isaacs used in his analysis of the game.) To change the number of numbers in each hand only the value of H in line 30 needs to be changed.

To play the game in an optimal way decisions need to be made based on the win probabilities  $P(m,n)$  where  $m$  is the number of numbers in your hand and  $n$  is the number of numbers in your opponents hand. The matrix of these win probabilities is computed in lines 120 to 210.

To match the optimal strategy of the computer some type of randomizing device based on the win probabilities  $P(m,n)$  is required. (See (1) and (2) for descriptions of how to make and use such devices. These devices only work when there is a maximum of 5 numbers in each hand.)

The decision as to whether or not a number asked about by a player was a bluff is made in line 800. The decision to bluff or not when asking about a number is made in line 990.

The program gives the player the option of going first. The win probability,  $P(5,5)$ , in this case is .538. Therefore the player going first has a slightly better than even chance of winning assuming that both players use the optimal strategy.

There are two reasons why bluffing is important in any strategy. If a player never bluffs, then any "ask" about a number that is not in the opponent's hand will result in a loss since the other player will know that it must be the down number. A successful bluff can lead the other player to make an incorrect guess of the down number.

The program and description were written by Gerard Kiernan of Manhattanville College, Purchase, NY.

## References

1. Mathematical Magic Show. Martin Gardner. Alfred A. Knopf, 1977.
2. "A Card Game With Bluffing." Rufus Isaacs, The American Mathematical Monthly, Vol. 62, February 1955 pages 99-108.

```

      GUESS IT
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      cls
DO YOU NEED INSTRUCTIONS? YES.
      cls
THE OBJECT OF THIS GAME IS TO GUESS AN UNKNOWN NUMBER CALLED
THE 'DOWN NUMBER'. THE GAME IS PLAYED WITH THE NUMBERS FROM 1
TO 11. YOU WILL BE GIVEN A HAND OF 5 RANDOMLY SELECTED NUMBERS
BETWEEN 1 AND 11. THE COMPUTER WILL HAVE A SIMILAR HAND. THE
DOWN NUMBER WILL ALWAYS BE THE NUMBER NOT IN EITHER
PLAYERS' HAND.
      PRESS ANY KEY TO CONTINUE
      cls
YOU ALTERNATE MOVES WITH THE COMPUTER. ON ANY MOVE THERE
ARE TWO OPTIONS - GUESS THE DOWN NUMBER OR ASK ABOUT SOME
NUMBER.

WHEN A PLAYER GUESSES THE DOWN NUMBER THE GAME STOPS.
IF THE GUESS IS CORRECT THAT PLAYER WINS.
IF THE GUESS IS NOT CORRECT THAT PLAYER LOSES.
      PRESS ANY KEY TO CONTINUE
      cls
ALL QUESTIONS ABOUT NUMBERS IN THE OTHER PLAYERS HAND
MUST BE ANSWERED TRUTHFULLY. A PLAYER MAY 'BLUFF' BY
ASKING ABOUT A NUMBER IN HIS OWN HAND (THE COMPUTER
WILL SOMETIMES DO THIS).

A NUMBER MAY BE ASKED ABOUT ONLY ONCE.
      GOOD LUCK!
      PRESS ANY KEY TO CONTINUE
      cls
YOUR HAND IS
.....
4 2 8 3 9
.....

DO YOU WANT TO GO FIRST? YES.
      cls

```

```

YOUR HAND IS
.....
4 2 8 3 9
.....
DO YOU WANT TO GUESS THE DOWN NUMBER? NO

WHAT NUMBER DO YOU WANT TO ASK ABOUT? 1
1 IS IN MY HAND.

DO YOU HAVE 3? YES.
      cls
YOUR HAND IS
.....
4 2 8 3 9
.....
DO YOU WANT TO GUESS THE DOWN NUMBER? NO

WHAT NUMBER DO YOU WANT TO ASK ABOUT? 5
5 IS IN MY HAND.

DO YOU HAVE 4? YES.
      cls
YOUR HAND IS
.....
4 2 8 3 9
.....
DO YOU WANT TO GUESS THE DOWN NUMBER? NO

WHAT NUMBER DO YOU WANT TO ASK ABOUT? 7
7 IS IN MY HAND.

DO YOU HAVE 8? YES.
      cls

```

```

_____ cls _____
YOUR HAND IS
.....
 4 2 8 3 9
.....
DO YOU WANT TO GUESS THE DOWN NUMBER? NO

WHAT NUMBER DO YOU WANT TO ASK ABOUT? 11

11 IS IN MY HAND.

DO YOU HAVE 9 ? YES.
_____ cls _____
THE DOWN NUMBER IS 6.
YOUR GUESS OF 6 IS CORRECT. YOU WIN!

DO YOU WANT TO PLAY AGAIN? NO.
_____ cls _____

```

```

100 CLS
20 Z=11
30 H=5
40 DIM P(10,10),U(Z),N(Z)
50 PRINT @ 411,"GUESS IT"
60 PRINT
70 PRINT TAB(7);"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
80 PRINT @ 896,"";
90 INPUT"DO YOU NEED INSTRUCTIONS?";I$
100 G1=0
110 C1=0
120 FOR K=1 TO H
130 P(K,0)=1
140 P(0,K)=1/(K+1)
150 NEXT K
160 FOR I=1 TO H
170 FOR J=1 TO H
180 P(I,J)=(1+J)*P(J,I-1)*(1-P(J-1,I))/(1+(J+2)*P(J,I-1))
190 P(J,I)=(1+I)*P(I,J-1)*(1-P(I-1,J))/(1+(I+1)*P(I,J-1))
200 NEXT J
210 NEXT I
220 IF LEFT$(I$,1)="Y" GOSUB 1810
230 CLS
240 G1=G1+1
250 FOR J=2 TO Z
260 U(J)=0
270 NEXT J
280 E=0
290 T=0
300 C=0
310 P=0
320 L=0
330 GOSUB 1710
340 REM N(1) TO N(H)= COMP HAND N(H+1)=TO N(Z)= OTHER HAND
350 D=N(Z)
360 PRINT"YOUR HAND IS"
370 FOR A=1 TO 5
380 PRINT CHR$(188)STRING$(3,140);
390 NEXT
400 PRINT CHR$(188)
410 FOR I=H+1 TO Z-1
420 PRINT CHR$(191)N(I);
430 IF N(I)>9 THEN PRINT CHR$(8);
440 NEXT I
450 PRINT CHR$(191)
460 PRINT STRING$(21,131)
470 PRINT
480 PRINT @ 512,"DO YOU WANT TO GO FIRST" CHR$(31);
490 INPUT A$
500 IF LEFT$(A$,1)="Y" THEN 540
510 IF LEFT$(A$,1)="" THEN 470
520 K=1
530 GOTO 550
540 K=0
550 K=K+1
560 M=H-C
570 N=H-P
580 PRINT

```

```

590 IF K=(INT(K/2))*2 THEN 910
600 PRINT @ 256,"DO YOU WANT TO GUESS THE DOWN NUMBER" CHR$(31);
610 INPUT A$
620 IF LEFT$(A$,1)="Y" THEN 1310
630 IF LEFT$(A$,1)="" THEN 680
640 PRINT
650 PRINT"WHAT NUMBER DO YOU WANT TO ASK ABOUT?";
660 INPUT E
670 FOR I=1 TO Z
680 IF E=U(I) THEN 710
690 NEXT I
700 GOTO 730
710 PRINT E;"WAS ASKED BEFORE. TRY AGAIN."
720 GOTO 640
730 FOR J=1 TO H
740 IF N(J)=E THEN 850
750 NEXT J
760 PRINT E;"IS NOT IN MY HAND."
770 IF M=0 THEN 1530
780 IF N=0 THEN 1510
790 V=((H+1)*P(M,N-1)-M*P(M-1,N))/(1+(H+1)*P(M,N-1))
800 IF RND(0)<V THEN 1450
810 GOSUB 1280
820 IF (H-P)=1 THEN 1530
830 P=P+1
840 GOTO 550
850 PRINT
860 PRINT E;"IS IN MY HAND."
870 C=C+1
880 GOSUB 1280
890 GOTO 550
900 REM COMP SEQ STARTS
910 IF T=0 THEN 1400
920 IF H-C=0 THEN 940
930 GOTO 1530
940 IF H-P=0 THEN 960
950 GOTO 1530
960 IF (2*H-2)-(P+C)=0 THEN 980
970 GOTO 1530
980 REM RND DECISION TO BLUFF OR NOT ON ASKING FOR CARD
990 IF RND(0)<1/(1+(H+1)*P(N,H-1)) THEN 1120
1000 PRINT: PRINT: PRINT
1010 PRINT
1020 A=INT((H*RND(0))+1)
1030 FOR J=1 TO Z
1040 IF N(A)=U(J) THEN 1020
1050 NEXT J
1060 PRINT"DO YOU HAVE";N(A);
1070 C=C+1
1080 INPUT A$
1090 E=N(A)
1100 GOSUB 1280
1110 GOTO 550
1120 GOSUB 1230
1130 PRINT
1140 PRINT"DO YOU HAVE";N(A);
1150 INPUT A$
1160 IF LEFT$(A$,1)="Y" THEN 1190
1170 T=1
1180 GOTO 550
1190 E=N(A)
1200 P=P+1
1210 GOSUB 1280
1220 GOTO 550
1230 A=INT((H+1)*RND(0))+H+1
1240 FOR J=1 TO Z
1250 IF N(A)=U(J) THEN GOTO 1230
1260 NEXT J
1270 RETURN
1280 L=L+1
1290 U(L)=E
1300 RETURN
1310 PRINT
1320 PRINT"WHAT DO YOU THINK THE DOWN NUMBER IS?";
1330 INPUT B
1340 PRINT
1350 CLS
1360 PRINT"THE DOWN NUMBER IS";N(Z); CHR$(8);" "
1370 IF B=N(Z) THEN GOTO 1430
1380 PRINT
1390 PRINT"YOUR GUESS OF";B;"IS NOT CORRECT. YOU LOSE"

```

```

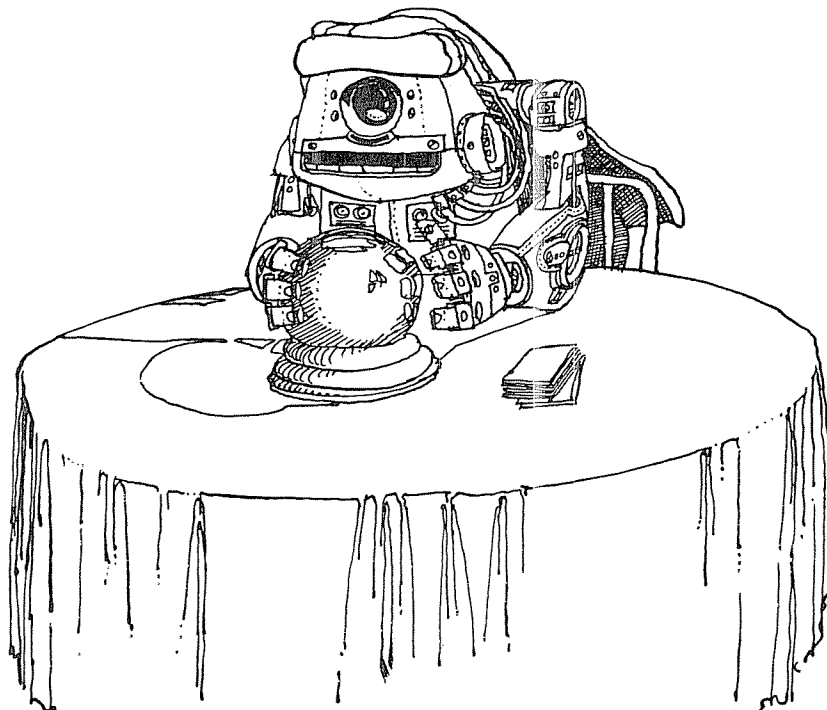
1400 C1=C1+1
1410 GOTO 1590
1420 PRINT
1430 PRINT"YOUR GUESS OF ";B;" IS CORRECT. YOU WIN!"
1440 GOTO 1590
1450 PRINT"I THINK YOU WERE NOT BLUFFING WHEN YOU ASKED ABOUT";E; CHR$(8);". "
1460 G=E
1470 GOTO 1550
1480 PRINT N(A);"WAS NO A BLUFF. "
1490 G=I(A)
1500 GOTO 1550
1510 G=I(Z)
1520 GOTO 1550
1530 GOSUB 1230
1540 G=I(A)
1550 PRINT"I GUESS THE DOWN NUMBER IS";G; CHR$(8);". "
1560 IF G=N(Z) THEN 167:
1570 PRINT
1580 PRINT"THE DOWN NUMBER IS";N(Z); CHR$(8);". I WAS WRONG... YOU WIN. "
1590 PRINT
1600 PRINT "DO YOU WANT TO PLAY AGAIN?"
1610 INPUT A$
1620 IF LEFT$(A$, 1)=""Y" THEN I$=""N": GOTO 120
1630 IF LEFT$(A$, 1)=""O" THEN 1590
1640 PRINT
1650 PRINT"YOU PLAYED"; J; "GAMES. YOU LOST"; C1; CHR$(8);", YOU WON"; G1-C1
1660 END
1670 PRINT
1680 PRINT"THE DOWN NUMBER IS";N(Z); CHR$(8);". I WAS CORRECT... YOU LOSE. "
1690 C1=C1+1
1700 GOTO 1590
1710 FOR I=1 TO Z
1720 N(I)=I
1730 NEXT I
1740 FOR I=1 TO Z
1750 R=INT(RND(8)*((Z+1)-I))+1
1760 H=N(R)
1770 N(R)=N(1)

```

```

1780 N(1)=H
1790 NEXT I
1800 RETURN
1810 CLS
1820 PRINT
1830 PRINT
1840 PRINT
1850 PRINT"THE OBJECT OF THIS GAME IS TO GUESS AN UNKNOWN NUMBER CALLED"
1860 PRINT"THE 'DOWN NUMBER'. THE GAME IS PLAYED WITH THE NUMBERS FROM 1"
1870 PRINT"TO";Z; CHR$(8);". YOU WILL BE GIVEN A HAND OF";H;"RANDOMLY SELECTED NUMBERS"
1880 PRINT"BETWEEN 1 AND";Z; CHR$(8);
1890 PRINT " THE COMPUTER WILL HAVE A SIMILAR HAND. THE"
1900 PRINT "DOWN NUMBER WILL ALWAYS BE THE NUMBER NOT IN EITHER"
1910 PRINT "PLAYERS' HANDS. "
1920 GOSUB 2120
1930 PRINT
1940 PRINT
1950 PRINT
1960 PRINT"YOU ALTERNATE MOVES WITH THE COMPUTER. ON ANY MOVE THERE"
1970 PRINT"ARE TWO OPTIONS - GUESS THE DOWN NUMBER OR ASK ABOUT SOME"
1980 PRINT "NUMBER. ": PRINT
1990 PRINT"WHEN A PLAYER GUESSES THE DOWN NUMBER THE GAME STOPS. "
2000 PRINT"IF THE GUESS IS CORRECT THAT PLAYER WINS. "
2010 PRINT"IF THE GUESS IS NOT CORRECT THAT PLAYER LOSES. "
2020 GOSUB 2120
2030 PRINT: PRINT: PRINT
2040 PRINT"ALL QUESTIONS ABOUT NUMBERS IN THE OTHER PLAYERS HAND"
2050 PRINT"MUST BE ANSWERED TRUTHFULLY. A PLAYER MAY 'BLUFF' BY"
2060 PRINT"ASKING ABOUT A NUMBER IN HIS OWN HAND (THE COMPUTER"
2070 PRINT"WILL SOMETIMES DO THIS). "
2080 PRINT
2090 PRINT"A NUMBER MAY BE ASKED ABOUT ONLY ONCE. "
2100 PRINT: PRINT
2110 PRINT " GOOD LUCK!"
2120 PRINT @ 979;"PRESS ANY KEY TO CONTINUE";
2130 IF INKEY$="" THEN 2130
2140 CLS
2150 RETURN
2160 END

```



# ICBM

Your radar station picks up an enemy ICBM heading your way, telling you its coordinates (in miles north and miles east of your location). You launch a surface-to-air missile (SAM) to intercept it.

Your only control over the SAM is that you can aim it in any direction, both at launch, and in mid-air. Using the coordinates of the ICBM as a guide, you INPUT the direction (measured CCW from North) in which you want the SAM to travel.

At the next radar scan one minute later, you are given the new coordinates of the ICBM, the coordinates of your SAM, and the distance between the two. You can now make corrections in the course of your SAM by entering a new direction.

You have no control over the altitude of your SAM, as it is assumed that it will seek the same altitude as the ICBM.

As the two missiles draw closer, you make adjustments in the direction of the SAM so as to intercept the ICBM. It's not easy to hit, because the ICBM is programmed to make evasive maneuvers, by taking random deviations from the straight line course to your location. Also, its speed is not known, although it does not vary after being randomly selected at the start of the run.

You can destroy the ICBM by coming within 5 miles of it, at which time your SAM's heat-seeking sensors will come into action and direct it to its target. If you overshoot

the ICBM it's possible to turn the SAM around and chase the ICBM back towards your location. But be careful; you may get both missiles in your lap.

There is also some element of chance involved, as several accidents have been programmed to occur randomly. These can work for you or against you.

Some ways to improve and expand the program are:

1. Operator control over SAM speed: In the present version the speed of the SAM is randomly selected by the computer at the start of the run, and remains constant thereafter. This often results in overshooting the ICBM. Modify the program so that you can input a new speed (within limits) at the same time you input the new direction.

2. Three dimensional version: Have the computer print the altitude of the ICBM, as well as its coordinates. The operator will then have to INPUT the angle his SAM is to make with the horizontal, when entering the other quantities.

3. Extend to all Quadrants. In the present version, the ICBM approaches only from the Northeast. You can expand this to include approach from any compass direction.

This game is derived from a program submitted by Chris Falco. The writeup is by Paul Calter and originally appeared in *Creative Computing*, May/June 1975.

```

      ICBM
      COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ
      cls
PRESS ENTER TO START? _
      cls

N.
O.
R.
T.
H.

      RADAR SCOPE

      -----
      E A S T
      -----
      -----MISSLE-----      -----SAM-----
      MILES      MILES      MILES      MILES      DIR
      NORTH      EAST      NORTH      EAST      ?
      -----
      220          770          0          0          ? 15_
      -----
      cls

N.
O.
R.
T.
H.

      RADAR SCOPE

      -----
      E A S T
      -----
      -----MISSLE-----      -----SAM-----
      MILES      MILES      MILES      MILES      DIR
      NORTH      EAST      NORTH      EAST      ?
      -----
      ICBM & SAM NOW 734 MILES APART
      215          734          62          16          ? 85_
      -----
      cls

N.
O.
R.
T.
H.

      RADAR SCOPE

      -----
      E A S T
      -----
      -----MISSLE-----      -----SAM-----
      MILES      MILES      MILES      MILES      DIR
      NORTH      EAST      NORTH      EAST      ?
      -----
      ICBM & SAM NOW 621 MILES APART
      203          686          67          80          ? 75_
      -----
      cls
  
```

```

      cls

N.
O.
R.
T.
H.

      RADAR SCOPE

      -----
      E A S T
      -----
      -----MISSLE-----      -----SAM-----
      MILES      MILES      MILES      MILES      DIR
      NORTH      EAST      NORTH      EAST      ?
      -----
      922          314          0          0          ? 12_
      -----
      cls

N.
O.
R.
T.
H.

      RADAR SCOPE

      -----
      E A S T
      -----
      -----MISSLE-----      -----SAM-----
      MILES      MILES      MILES      MILES      DIR
      NORTH      EAST      NORTH      EAST      ?
      -----
      ICBM & SAM NOW 867 MILES APART
      872          299          54          11          ? 14_
      -----
      cls

N.
O.
R.
T.
H.

      RADAR SCOPE

      -----
      E A S T
      -----
      -----MISSLE-----      -----SAM-----
      MILES      MILES      MILES      MILES      DIR
      NORTH      EAST      NORTH      EAST      ?
      -----
      ICBM & SAM NOW 765 MILES APART
      825          291          100          24          ? 45_
      -----
      cls
  
```

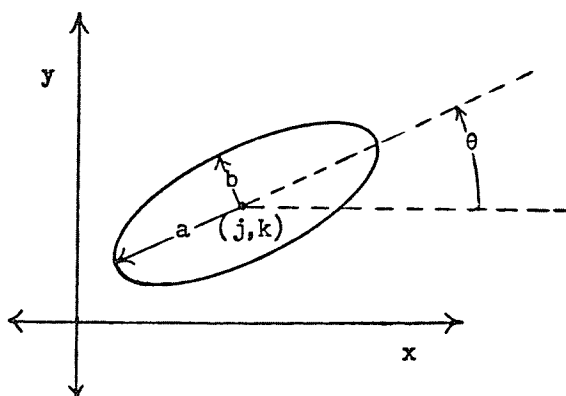


# Inkblot

INKBLOT is a program that creates "inkblots" similar to those used in the famous Rorschach Inkblot Test. The program generates these inkblots randomly so that literally millions of different patterns can be produced. Many of these patterns are quite interesting and serve not only as conversation pieces, but also as good examples of computer "art."

In addition, INKBLOT is interesting from a mathematical point of view. This is because INKBLOT actually creates inkblots by plotting ellipses on the left side of the page and their mirror-images on the right side. The program first chooses the ellipses to be plotted by randomly selecting the values a, b, j, k and 0 in the equation for a rotated ellipse:

$$\frac{[(x-j)\cos\theta + (y-k)\sin\theta]^2}{a^2} + \frac{[(y-k)\cos\theta - (x-j)\sin\theta]^2}{b^2} = 1$$



where

- a = the horizontal radius of the ellipse
- b = the vertical radius of the ellipse
- j = the distance from the ellipse center to the y-axis
- k = The distance from the ellipse center to the x-axis
- 0 = the angle of rotation in radians

Since the actual method by which the program plots the ellipses is quite complicated, it won't be discussed here.

INKBLOT could be enhanced in several ways. For example, it could have an option to print the "negative" of an inkblot by filling in the area around the ellipses rather than the ellipses themselves. It is also possible to build in a "repeatable randomness" feature so that exceptional outputs could be reproduced at any time. These enhancements are left for the ambitious programmer to make.

Program and description are by Scott Costello.

This program uses TRS-80 graphics which do not reproduce well on a line printer. Therefore the sample run does not give a true representation of the program. The only way this program can be truly appreciated is to run it.

INK BLOT

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DO YOU NEED INSTRUCTIONS? YES\_

\_\_\_\_\_ cls \_\_\_\_\_

INKBLOT

THIS PROGRAM DRAWS AN INKBLOT ON THE SCREEN. THE PROGRAM WILL TAKE FROM 30 SECS. TO 5 MINUTES DEPENDING ON THE NUMBER OF ELLIPSES YOU SPECIFY. THE MORE ELLIPSES THE BETTER THE BLOT (AND THE LONGER THE TIME).

WHEN THE INKBLOT IS FINISHED HIT ANY KEY TO END THE PROGRAM.

NUMBER OF ELLIPSES TO BE PLOTTED ? 7\_

\_\_\_\_\_ cls \_\_\_\_\_

[illegible]

Figure 1 shows a schematic diagram of a 2D lattice. The lattice is represented as a 10x10 grid of small squares. The top and bottom edges of the grid are marked with dots. The left and right edges are also marked with dots. The grid is divided into four quadrants by a vertical line and a horizontal line. The quadrants are labeled 1, 2, 3, and 4. The grid is also labeled with 'x' and 'y' axes. The grid is labeled with 'x' and 'y' axes. The grid is labeled with 'x' and 'y' axes.

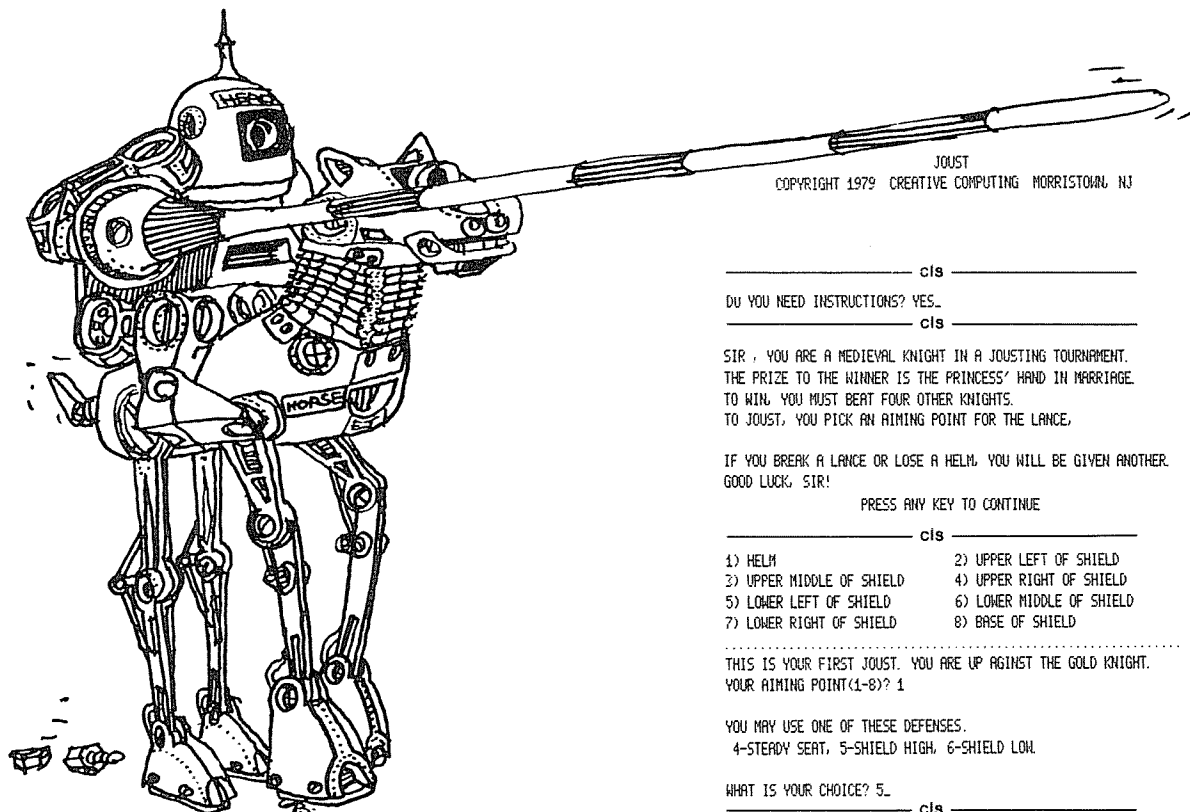
```

1
2
3
4
5
6
7
8
9
10
11
12
13
14
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# Joust



Joust  
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\_\_\_\_\_  
cls  
DO YOU NEED INSTRUCTIONS? YES.  
\_\_\_\_\_  
cls

SIR, YOU ARE A MEDIEVAL KNIGHT IN A JOUSTING TOURNAMENT.  
THE PRIZE TO THE WINNER IS THE PRINCESS' HAND IN MARRIAGE.  
TO WIN YOU MUST BEAT FOUR OTHER KNIGHTS.  
TO JOUST, YOU PICK AN AIMING POINT FOR THE LANCE.

IF YOU BREAK A LANCE OR LOSE A HELM YOU WILL BE GIVEN ANOTHER.  
GOOD LUCK, SIR!

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls  
1) HELM 2) UPPER LEFT OF SHIELD  
3) UPPER MIDDLE OF SHIELD 4) UPPER RIGHT OF SHIELD  
5) LOWER LEFT OF SHIELD 6) LOWER MIDDLE OF SHIELD  
7) LOWER RIGHT OF SHIELD 8) BASE OF SHIELD

THIS IS YOUR FIRST JOUST. YOU ARE UP AGAINST THE GOLD KNIGHT.  
YOUR AIMING POINT(1-8)? 1

YOU MAY USE ONE OF THESE DEFENSES.  
4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW.

WHAT IS YOUR CHOICE? 5.  
\_\_\_\_\_  
cls  
1) HELM 2) UPPER LEFT OF SHIELD  
3) UPPER MIDDLE OF SHIELD 4) UPPER RIGHT OF SHIELD  
5) LOWER LEFT OF SHIELD 6) LOWER MIDDLE OF SHIELD  
7) LOWER RIGHT OF SHIELD 8) BASE OF SHIELD

THIS IS YOUR FIRST JOUST. YOU ARE UP AGAINST THE GOLD KNIGHT.  
YOUR AIMING POINT(1-8)? 5

YOU MAY USE ONE OF THESE DEFENSES.  
4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW.

WHAT IS YOUR CHOICE? 4.  
\_\_\_\_\_  
cls  
1) HELM 2) UPPER LEFT OF SHIELD  
3) UPPER MIDDLE OF SHIELD 4) UPPER RIGHT OF SHIELD  
5) LOWER LEFT OF SHIELD 6) LOWER MIDDLE OF SHIELD  
7) LOWER RIGHT OF SHIELD 8) BASE OF SHIELD

HE BROKE HIS LANCE.

YOU MISSED HIM <HISS>!

YOU ARE NOW READY TO TRY AGAIN.

\_\_\_\_\_  
cls  
1) HELM 2) UPPER LEFT OF SHIELD  
3) UPPER MIDDLE OF SHIELD 4) UPPER RIGHT OF SHIELD  
5) LOWER LEFT OF SHIELD 6) LOWER MIDDLE OF SHIELD  
7) LOWER RIGHT OF SHIELD 8) BASE OF SHIELD

YOUR AIMING POINT(1-8)? 7

YOU MAY USE ONE OF THESE DEFENSES.  
4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW.

WHAT IS YOUR CHOICE? 6.  
\_\_\_\_\_  
cls

In this program you are a medieval knight in a jousting tournament. The prize to the winner of the tournament is the princess' hand in marriage. To win you must beat four other knights, the gold knight, the silver knight, the red knight, and the fierce black knight. On each pass of your opponent you must select one of eight different aiming points, such as the helm, lower left, face of shield, et cetera, and, based on your aiming point, you may select from three to six different defense positions such as a right lean or shield low.

As you proceed in the jousting tournament there are different intermediate outcomes such as getting knocked on the shield, breaking a spear, and so on. There are also some outcomes which end the contest such as your getting killed, or getting knocked from your horse.

This program was conceived and written by Alan Yarbrough.



```

      cls
1) HELM                2) UPPER LEFT OF SHIELD
3) UPPER MIDDLE OF SHIELD  4) UPPER RIGHT OF SHIELD
5) LOWER LEFT OF SHIELD  6) LOWER MIDDLE OF SHIELD
7) LOWER RIGHT OF SHIELD  8) BASE OF SHIELD
.....
HE MISSED YOU!

YOU HIT HIS SHIELD BUT GLANCED OFF.

YOU ARE NOW READY TO TRY AGAIN.
      PRESS ANY KEY TO CONTINUE
      cls

10 CLEAR 1000
20 CLS
30 PRINT @ 413, "JOUST"
40 PRINT
50 PRINT TAB(7); "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
60 PRINT @ 960, " ";
70 INPUT "DO YOU NEED INSTRUCTIONS?"; I$
80 IF LEFT$(I$, 1) = "I" THEN 180
90 CLS
100 PRINT "SIR "A$; " YOU ARE A MEDIEVAL KNIGHT IN A JOUSTING TOURNAMENT. "
110 PRINT "THE PRIZE OF THE WINNER IS THE PRINCESS' HAND IN MARRIAGE. "
120 PRINT "TO WIN, YOU MUST BEAT FOUR OTHER KNIGHTS. "
130 PRINT "TO JOUST, YOU PICK AN AIMING POINT FOR THE LANCE. "
140 PRINT
150 PRINT "IF YOU BREAK A LANCE OR LOSE A HELM, YOU WILL BE GIVEN ANOTHER. "
160 PRINT "GOOD LUCK, SIR!"
170 GOSUB 1470
180 CLS
190 PRINT "1) HELM" TAB(32); "2) UPPER LEFT OF SHIELD"
200 PRINT "3) UPPER MIDDLE OF SHIELD" TAB(32); "4) UPPER RIGHT OF SHIELD"
210 PRINT "5) LOWER LEFT OF SHIELD" TAB(32); "6) LOWER MIDDLE OF SHIELD"
220 PRINT "7) LOWER RIGHT OF SHIELD" TAB(32); "8) BASE OF SHIELD"
230 PRINT STRING$(64, " ");
240 FOR A=1 TO 4
250 ON A GOTO 260, 280, 300, 320
260 PRINT "THIS IS YOUR FIRST JOUST. YOU ARE UP AGAINST THE GOLD KNIGHT. "
270 GOTO 340
280 PRINT "THIS IS YOUR SECOND JOUST. YOUR OPPONENT IS THE SILVER KNIGHT. "
290 GOTO 340
300 PRINT "YOU ARE DOING WELL! YOUR THIRD JOUST IS AGAINST THE RED KNIGHT. "
310 GOTO 340
320 PRINT "THIS IS YOUR FINAL TEST!! IF YOU WIN THIS ONE THE PRINCESS"
330 PRINT "IS YOURS!!! THIS FIGHT IS AGAINST THE FIERCE BLACK KNIGHT!!!"
340 INPUT "YOUR AIMING POINT(1-8)"; B
350 PRINT
360 IF B<1 OR B>8 THEN 340
370 PRINT "YOU MAY USE ONE OF THESE DEFENSES: "
380 ON B GOTO 390, 410, 430, 460, 390, 430, 390, 400
390 PRINT "4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW "
400 GOTO 490
410 PRINT "3-LEFT LEAN, 4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW "
420 GOTO 490
430 PRINT "1-LOWER HELM, 2-RIGHT LEAN, 3-LEFT LEAN, 4-STEADY SEAT, "
440 PRINT "5-SHIELD HIGH, 6-SHIELD LOW. "
450 GOTO 490
460 PRINT "2-RIGHT LEAN, 4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW. "
470 GOTO 490
480 PRINT "1-LOWER HELM, 4-STEADY SEAT, 5-SHIELD HIGH, 6-SHIELD LOW. "
490 PRINT
500 INPUT "WHAT IS YOUR CHOICE?"; C
510 PRINT @ 320, CHR$(31);
520 D=INT(RND(0)*8)+1
530 ON D GOTO 540, 550, 560, 570, 580, 590, 600, 610
540 ON C GOTO 620, 620, 620, 680, 740, 620
550 ON C GOTO 740, 710, 620, 710, 710, 620
560 ON C GOTO 770, 740, 650, 710, 830, 800
570 ON C GOTO 650, 620, 710, 650, 650, 740
580 ON C GOTO 710, 730, 620, 710, 620, 710
590 ON C GOTO 830, 750, 710, 830, 770, 710
600 ON C GOTO 650, 620, 830, 650, 650, 650
610 ON C GOTO 710, 750, 770, 710, 770, 710
620 PRINT "HE MISSED YOU!"
630 S=0
640 GOTO 850
650 PRINT "HE HIT YOUR SHIELD BUT IT GLANCED OFF. "
660 S=0
670 GOTO 850
680 PRINT "HE KNOCKED OFF YOUR HELM!"
690 S=0
700 GOTO 850

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710 PRINT "HE BROKE HIS LANCE. "
720 S=0
730 GOTO 850
740 PRINT "HE HAS UNSEATED YOU (THUD)!"
750 S=5
760 GOTO 850
770 PRINT "HE HAS BROKEN HIS LANCE, INJURED AND UNSEATED YOU (OUCH)!"
780 S=5
790 GOTO 850
800 PRINT "HE HAS INJURED AND UNSEATED YOU (CRASH)!"
810 S=5
820 GOTO 850
830 PRINT "HE HAS BROKEN HIS LANCE AND UNSEATED YOU (CLANG)!"
840 S=5
850 PRINT
860 E=INT(RND(3)*6)+1
870 ON D GOTO 880, 900, 910, 920, 880, 910, 880, 940
880 IF E<4 THEN 850
890 GOTO 950
900 IF E<3 THEN 850
910 GOTO 950
920 IF E=1 OR E=3 THEN 850
930 GOTO 950
940 IF E=2 OR E=3 THEN 850
950 ON E GOTO 960, 970, 980, 990, 1000, 1010
960 ON B GOTO 1020, 1140, 1170, 1050, 1110, 1230, 1050, 1110
970 ON B GOTO 1020, 1110, 1140, 1020, 1230, 1050, 1020, 1050
980 ON B GOTO 1020, 1020, 1050, 1110, 1020, 1110, 1230, 1140
990 ON B GOTO 1000, 1110, 1110, 1050, 1110, 1230, 1050, 1110
1000 ON B GOTO 1140, 1110, 1230, 1050, 1020, 1170, 1050, 1170
1010 ON B GOTO 1020, 1020, 1200, 1140, 1110, 1050, 1110
1020 PRINT "YOU MISSED HIM (HISS)!"
1030 T=0
1040 GOTO 1260
1050 PRINT "YOU HIT HIS SHIELD BUT GLANCED OFF. "
1060 T=0
1070 GOTO 1260
1080 PRINT "YOU KNOCKED OFF HIS HELM (CHEERS)!"
1090 T=0
1100 GOTO 1260
1110 PRINT "YOU BROKE YOUR LANCE (CRACK...)"
1120 T=0
1130 GOTO 1260
1140 PRINT "YOU UNSEATED HIM (LOUD CHEERS AND HUIZZAS)!!"
1150 T=5
1160 GOTO 1260
1170 PRINT "YOU BROKE YOUR LANCE, BUT UNSEATED AND INJURED YOUR FOE. "
1180 T=5
1190 GOTO 1260
1200 PRINT "YOU INJURED AND UNSEATED YOUR OPPONENT. "
1210 T=5
1220 GOTO 1260
1230 PRINT "YOU BROKE YOUR LANCE BUT UNSEATED YOUR OPPONENT. "
1240 T=5
1250 GOTO 1260
1260 IF S=T AND S=0 THEN 1430
1270 IF S=T THEN 1400
1280 IF S<T THEN 1300
1290 IF S>T THEN 1370
1300 PRINT
1310 PRINT "YOU HAVE WON THIS JOUST. "
1320 PRINT
1330 GOTO 1340
1340 GOSUB 1470
1350 NEXT A
1360 GOTO 1540
1370 PRINT
1380 PRINT "TOO BAD, YOU LOST. HOPE YOUR INSURANCE WAS PAID UP. "
1390 GOTO 1510
1400 PRINT
1410 PRINT "TOO BAD, YOU BOTH LOST. AT LEAST YOUR HONOR IS INTACT. "
1420 GOTO 1510
1430 PRINT
1440 PRINT "YOU ARE NOW READY TO TRY AGAIN. "
1450 GOSUB 1470
1460 GOTO 340
1470 PRINT @ 379, "PRESS ANY KEY TO CONTINUE";
1480 IF INKEY$="" THEN 1480
1490 PRINT @ 320, CHR$(31);
1500 RETURN
1510 PRINT
1520 PRINT "SORRY, BETTER LUCK NEXT JOUST. "
1530 GOTO 1560
1540 PRINT
1550 PRINT "HOOORAY! YOU ARE THE WINNER. HERE COMES THE BRIDE!"
1555 PRINT
1560 INPUT "DO YOU WANT TO PLAY AGAIN?"; A$
1570 IF LEFT$(A$, 1) = "Y" THEN 180
1580 END

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# Jumping Balls

Jumping balls is a solitaire board game played with a board having nine holes in a line that can be filled with four white balls to the right end and four black balls to the left end. Without a board, it can be played with coins or chips. The object of the game is to reverse the position of the balls (or other objects) from one end of the board to the other.

You may make a move by moving a ball to the immediately adjacent empty hole or by jumping one other ball. You may not jump two or more balls. Holes are numbered from left to right. At the beginning of the game, hole number five is free. Consequently, a legitimate first move would be six to five, four to

five, three to five, which would be a jump, or seven to five, another jump.

The computer does not rank your playing ability but, as a hint, you ought to be able to complete the game in fewer moves than are shown in our example run.

The original author if this game was Anthony Rizzolo.

IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD. YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS A PERIOD ON THE BOARD. GOOD LUCK!! HERE IS THE BOARD:

S S S G G S . G G  
1 2 3 4 5 6 7 8 9

MOVE (FROM,TO)? 6,7.

cls

IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD. YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS A PERIOD ON THE BOARD. GOOD LUCK!! HERE IS THE BOARD:

S S S G G . S G G  
1 2 3 4 5 6 7 8 9

MOVE (FROM,TO)? 5,6.

cls

IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD. YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS A PERIOD ON THE BOARD. GOOD LUCK!! HERE IS THE BOARD:

S S S G . G S G G  
1 2 3 4 5 6 7 8 9

MOVE (FROM,TO)? 3,5.

cls

IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD. YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS A PERIOD ON THE BOARD. GOOD LUCK!! HERE IS THE BOARD:

S S . G S G S G G  
1 2 3 4 5 6 7 8 9

MOVE (FROM,TO)? 4,3.

cls

IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD. YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS A PERIOD ON THE BOARD. GOOD LUCK!! HERE IS THE BOARD:

S S G . S G S G G  
1 2 3 4 5 6 7 8 9

MOVE (FROM,TO)? 6,4K.

cls

IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD. YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS A PERIOD ON THE BOARD. GOOD LUCK!! HERE IS THE BOARD:

S S G G S . S G G  
1 2 3 4 5 6 7 8 9

MOVE (FROM,TO)? 8,6.

cls

JUMPING BALLS  
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cls

HIT ENTER TO START? \_

cls

IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD. YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS A PERIOD ON THE BOARD. GOOD LUCK!! HERE IS THE BOARD:

S S S S . G G G G  
1 2 3 4 5 6 7 8 9

MOVE (FROM,TO)? 6,5.

cls

IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD. YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS A PERIOD ON THE BOARD. GOOD LUCK!! HERE IS THE BOARD:

S S S S G . G G G  
1 2 3 4 5 6 7 8 9

MOVE (FROM,TO)? 4,6.

cls

IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD. YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS A PERIOD ON THE BOARD. GOOD LUCK!! HERE IS THE BOARD:

S S S . G S G G G  
1 2 3 4 5 6 7 8 9

MOVE (FROM,TO)? 5,4.

cls

IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD. YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS A PERIOD ON THE BOARD. GOOD LUCK!! HERE IS THE BOARD:

S S S G . S G G G  
1 2 3 4 5 6 7 8 9

MOVE (FROM,TO)? 7,5.

cls

```

      cls
      IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE
      BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS
      THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD.
      YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND
      THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS
      A PERIOD ON THE BOARD.
      GOOD LUCK!! HERE IS THE BOARD:

```

```

S S G G S G S G
1 2 3 4 5 6 7 8 9
MOVE (FROM,TO)? 7,1

```

```

      cls
      IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE
      BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS
      THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD.
      YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND
      THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS
      A PERIOD ON THE BOARD.
      GOOD LUCK!! HERE IS THE BOARD:

```

```

S S G G S G S G
1 2 3 4 5 6 7 8 9
MOVE (FROM,TO)? 5,1

```

```

      cls
      IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE
      BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS
      THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD.
      YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND
      THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS
      A PERIOD ON THE BOARD.
      GOOD LUCK!! HERE IS THE BOARD:

```

```

S S G G S G S G
1 2 3 4 5 6 7 8 9
MOVE (FROM,TO)? 4,1

```

```

      cls
      IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE
      BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS
      THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD.
      YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND
      THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS
      A PERIOD ON THE BOARD.
      GOOD LUCK!! HERE IS THE BOARD:

```

```

S S G G S G S G
1 2 3 4 5 6 7 8 9
MOVE (FROM,TO)? 2,1

```

```

      cls
      IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE
      BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS
      THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD.
      YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND
      THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS
      A PERIOD ON THE BOARD.
      GOOD LUCK!! HERE IS THE BOARD:

```

```

G G G G S S S S
1 2 3 4 5 6 7 8 9
MOVE (FROM,TO)? 5,4

```

```

      cls
      IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE
      BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS
      THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD.
      YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND
      THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS
      A PERIOD ON THE BOARD.
      GOOD LUCK!! HERE IS THE BOARD:

```

```

G G G G S S S S
1 2 3 4 5 6 7 8 9

```

```

YOU WIN!!!
YOU COMPLETED THE GAME IN 32 MOVES!!!!
AGAIN? NO.

```

```

      cls

```

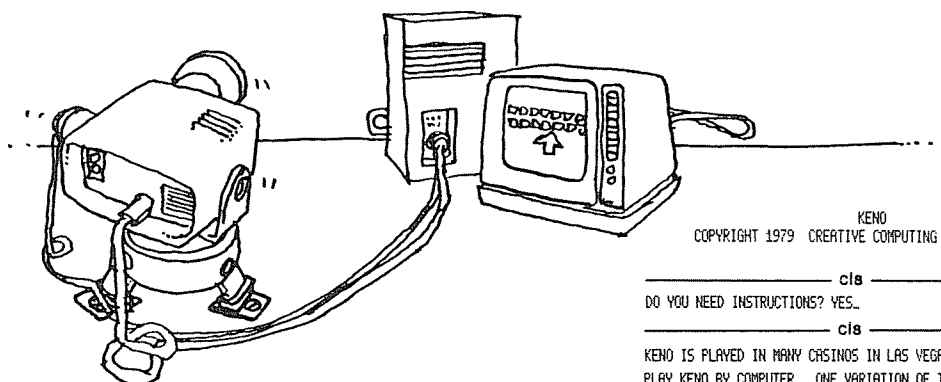
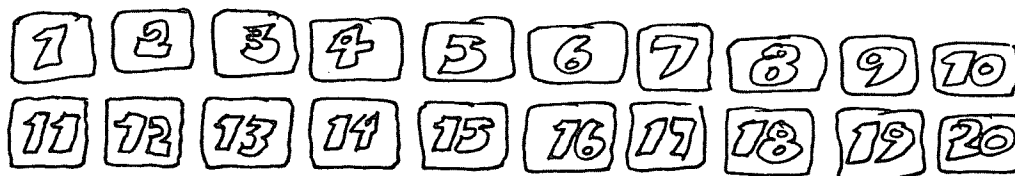
```

10 CLEAR 400
20 CLS
30 PRINT @ 410, "JUMPING BALLS"
40 PRINT
50 PRINT TAB(7)*"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
60 PRINT @ 960, ""
70 INPUT "HIT ENTER TO START":A$
80 DIM Q(9, 1)
90 IF A$="N" THEN 180
100 CLS
110 PRINT
120 PRINT"      IN THIS GAME YOU ARE GIVEN 8 BALLS ON A 9 HOLE"
130 PRINT"BOARD. THE OBJECT IS TO REVERSE THE ORDER OF THE BALLS"
140 PRINT"THE 'S' ARE SILVER BALLS AND THE 'G' ARE GOLD. "
150 PRINT"YOU MUST GET THE SILVER TO WHERE THE GOLD ARE AND"
160 PRINT"THE GOLD TO WHERE THE SILVER ARE. THE SPACE IS"
170 PRINT"A PERIOD ON THE BOARD. "
180 PRINT"GOOD LUCK!! HERE IS THE BOARD:"
190 PRINT @ 576, CHR$(31);
200 S=0
210 FOR X=1 TO 9
220 Q(X, 1)=1
230 NEXT X
240 Q(5, 1)=0
250 FOR X=6 TO 9
260 Q(X, 1)=2
270 NEXT X
280 A$="".50"
290 PRINT @ 576, CHR$(31);
300 FOR X=1 TO 9
310 PRINT MID$(A$, Q(X, 1)+1, 1);
320 PRINT" ";
330 NEXT X
340 PRINT
350 PRINT "1 2 3 4 5 6 7 8 9"
360 S=S+1
370 PRINT @ 704, " MOVE (FROM,TO)";
380 INPUT M, ML
390 IF M<=9 AND M>=1 AND ML<=9 AND ML>=1 THEN 420
400 PRINT"ILLEGAL MOVE "
410 GOTO 370
420 REM: (CHECK FOR LEGAL MOVE
430 IF M+1=ML OR M-1=ML THEN 530
440 REM SUBROUTINE FOR CHECKING JUMPS, - MAKES YOUR BALLS JUMP
450 IF M=9 THEN 490
460 IF M=1 THEN 510
470 IF Q(M+1, 1)=0 OR Q(M-1, 1)=0 THEN 400
480 GOTO 520
490 IF Q(M-1, 1)=0 THEN 400
500 GOTO 520
510 IF Q(M+1, 1)=0 THEN 400
520 IF M+2<=9 AND M-2<=1 THEN 400
530 IF Q(M, 1)<0 THEN 560
540 PRINT @ 768, "NOTHING AT SPACE";M; CHR$(8); " "
550 GOTO 370
560 IF Q(ML, 1)=0 THEN 590
570 PRINT @ 768, "SPACE";ML;"IS OCCUPIED. "
580 GOTO 370
590 Q(ML, 1)=Q(M, 1)
600 Q(M, 1)=0
610 X9=Q(1, 1)+Q(2, 1)+Q(3, 1)+Q(4, 1)
620 Y9=Q(6, 1)+Q(7, 1)+Q(8, 1)+Q(9, 1)
630 IF X9=8 AND Y9=4 THEN 650
640 GOTO 590
650 PRINT @ 704, STRING$(63, " ")
660 PRINT"YOU WIN!!!"
670 PRINT"YOU COMPLETED THE GAME IN";S;"MOVES!!!!"
680 PRINT"AGAIN?";
690 INPUT A$
700 IF LEFT$(A$,1)="N" THEN END
710 PRINT @ 576, STRING$(255, " ")
720 GOTO 190

```

LATER  
IN THE  
RUN

# Keno



KENO  
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

```
cls
DO YOU NEED INSTRUCTIONS? YES.
```

```
cls

KENO IS PLAYED IN MANY CASINOS IN LAS VEGAS.
PLAY KENO BY COMPUTER. ONE VARIATION OF THE GAME, UTILIZES
THE RANDOM NUMBER GENERATOR.
```

```
THE PLAYER CHOOSES 8 DIFFERENT NUMBERS FROM 1 TO 80
INCLUSIVE, AND BETS $1.20. THE COMPUTER WILL SELECT
20 NUMBERS AT RANDOM AND WILL ELIMINATE DUPLICATES WHICH
MAY OCCUR. ANOTHER NUMBER WILL BE INSERTED IN ITS PLACE
SO THAT THE COMPUTER WILL OUTPUT 20 DIFFERENT NUMBERS.
```

PRESS ANY KEY TO CONTINUE

```
cls
HERE WE GO!!!!
THE COMPUTER WILL OUTPUT 8 '?' MARKS. TYPE A NUMBER FROM
1 TO 80, INCLUSIVE, AND PRESS THE RETURN KEY. REPEAT THIS
PROCESS UNTIL THE '?' MARK IS NO LONGER SHOWN.
? 1 ? 23 ? 24 ? 35 ? 46 ? 77 ? 65 ? 2
```

```
THE COMPUTER WILL SELECT 20 NUMBERS AT RANDOM. THE '?'
INDICATES IT IS IN THE PROCESS OF SELECTING THE NUMBERS.
```

```
cls
HERE WE GO!!!!
THE COMPUTER WILL OUTPUT 8 '?' MARKS. TYPE A NUMBER FROM
1 TO 80, INCLUSIVE, AND PRESS THE RETURN KEY. REPEAT THIS
PROCESS UNTIL THE '?' MARK IS NO LONGER SHOWN.
? 1 ? 23 ? 24 ? 35 ? 46 ? 77 ? 65 ? 2
```

```
YOUR NUMBERS ARE:
1,23,24,35,46,77,65, 2
THE COMPUTER HAS SELECTED THE FOLLOWING NUMBERS:
61,77, 2,73,65,79,46,50,54,22,72,60,48,14,64, 3,35,52,40
THE PROGRAM WILL COMPARE YOUR NUMBERS WITH THE
NUMBERS THE COMPUTER HAS SELECTED.
YOU HAVE GUESSED THE FOLLOWED NUMBERS:
?23?35?46?77?65YOU CAUGHT 5 NUMBERS OUT OF 8 -- YOU WIN $10.00
DO YOU WANT TO PLAY KENO AGAIN ?
```

```
cls
HERE WE GO!!!!
THE COMPUTER WILL OUTPUT 8 '?' MARKS. TYPE A NUMBER FROM
1 TO 80, INCLUSIVE, AND PRESS THE RETURN KEY. REPEAT THIS
PROCESS UNTIL THE '?' MARK IS NO LONGER SHOWN.
? 21 ? 34 ? 12 ? 5 ? 1 ? 6 ? 7 ? 45
```

```
THE COMPUTER WILL SELECT 20 NUMBERS AT RANDOM. THE '?'
INDICATES IT IS IN THE PROCESS OF SELECTING THE NUMBERS.
```

```
cls
HERE WE GO!!!!
THE COMPUTER WILL OUTPUT 8 '?' MARKS. TYPE A NUMBER FROM
1 TO 80, INCLUSIVE, AND PRESS THE RETURN KEY. REPEAT THIS
PROCESS UNTIL THE '?' MARK IS NO LONGER SHOWN.
? 21 ? 34 ? 12 ? 5 ? 1 ? 6 ? 7 ? 45
```

```
YOUR NUMBERS ARE:
21,34,12, 5, 1, 6, 7,45
```

Keno is strictly an American invention that originated in the casinos in Nevada, perhaps in Reno. During the game, twenty numbers from one to eighty are selected at random. Prior to each game at the casino, the player may choose from one to fifteen numbers, or "spots" he thinks will be selected during the game. The player enters, or "marks," the desired spots and places a bet. At the end of each game, the spots marked by the player are compared with the twenty numbers and the payoff is computed accordingly. Keno seems to have a high attraction in Las Vegas because the betting is very simple and the maximum payoff is very high (\$25,000). Nevertheless, the probability of winning is extremely low; indeed, Keno returns more to the house than virtually any other game.

In this particular computersized version of Keno, there is only one player and he has the option only of betting eight different spots. In Nevada the normal bet is in multiples of 60¢; however, in this game the bet will be \$1.20 with no multiples possible. The payoff with eight spots marked is as follows:

| Spots | Payoff      |
|-------|-------------|
| 5     | \$10.00     |
| 6     | \$100.00    |
| 7     | \$2,200.00  |
| 8     | \$25,000.00 |

There is no payoff for zero, one, two, three, or four correct.

This version of Keno was originally written by Vincent Fazio.

```

THE COMPUTER HAS SELECTED THE FOLLOWING NUMBERS.
51,57,58,46,76,29,18, 6,59,22, 3,35,52,55,48,73,65,13,39,15
THE PROGRAM WILL COMPARE YOUR NUMBERS WITH THE
NUMBERS THE COMPUTER HAS SELECTED.
YOU HAVE GUESSED THE FOLLOWED NUMBERS.
^ 6 YOU CAUGHT 1 NUMBERS OUT OF 8 --
NOT ENOUGH CORRECT GUESSES -- 'SO SOLL', NO PAYOFF.
DO YOU WANT TO PLAY KENO AGAIN ?_

```

```

_____ cls _____
THAT'S ALL FOR NOW. PLAY KENO AGAIN. BE SEEING YOU.
_____ cls _____

```

```

10 CLS
20 PRINT @ 414,"K3NO"
30 PRINT
40 PRINT TAB(7)"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
50 PRINT @ 960,""
60 INPUT"DO YOU NEED INSTRUCTIONS?";I$
70 DIM N(21), M(23), A(8)
80 IF LEFT$(I$, 1) = "N" THEN 210
90 CLS
100 PRINT"KENO IS PLAYED IN MANY CASINOS IN LAS VEGAS."
110 PRINT "PLAY KENO BY COMPUTER. ONE VARIATION OF THE GAME UTILIZES"
120 PRINT"THE RANDOM NUMBER GENERATOR."
130 PRINT
140 PRINT"THE PLAYER CHOOSES 8 DIFFERENT NUMBERS FROM 1 TO 80"
150 PRINT"INCLUSIVE, AND BETS $1.20. THE COMPUTER WILL SELECT"
160 PRINT"20 NUMBERS AT RANDOM AND WILL ELIMINATE DUPLICATES WHICH"
170 PRINT"MAY OCCUR. ANOTHER NUMBER WILL BE INSERTED IN ITS PLACE"
180 PRINT"SO THAT THE COMPUTER WILL OUTPUT 20 DIFFERENT NUMBERS."
190 PRINT @ 979,"PRESS ANY KEY TO CONTINUE";
200 IF INKEY$ = "" THEN 200
210 CLS
220 PRINT TAB(25)"HERE WE GO!!!!"
230 PRINT"THE COMPUTER WILL OUTPUT 8 '?' MARKS. TYPE A NUMBER FROM "
240 PRINT"1 TO 80, INCLUSIVE, AND PRESS THE RETURN KEY. REPEAT THIS"
250 PRINT"PROCESS UNTIL THE '?' MARK IS NO LONGER SHOWN."
260 FOR I=1 TO 8
270 PRINT @ 384, CHR$(21);
280 PRINT @ 256+(I-1)*6,"";
290 INPUT A(I)
300 IF A(I)>80 THEN 320
310 IF A(I)<=0 THEN 330
320 GOTO 370
330 PRINT @ 384,"TYPE A NUMBER FROM 1 TO 80, INCLUSIVE, PLEASE."
340 FOR AA=1 TO :800
350 NEXT AA
360 GOTO 270
370 NEXT I
380 C=0
390 FOR K=1 TO 7
400 FOR J=K TO 7
410 X=A(K)
420 Y=A(J+1)
430 IF X<Y THEN 570
440 C=C+1
450 PRINT @ 384,"A DUPLICATE NUMBER HAS BEEN DETECTED."
460 PRINT"PLEASE TYPE ANOTHER NUMBER."
470 INPUT Y
480 IF Y=0 THEN :30
490 IF Y>80 THEN 530
500 IF Y<0 THEN :30

```

```

510 A(J+1)=Y
520 GOTO 430
530 PRINT "TYPE A NUMBER FROM 1 TO 80, INCLUSIVE, PLEASE."
540 FOR AA=1 TO 1000
550 NEXT AA
560 GOTO 460
570 NEXT J
580 NEXT K
590 IF C=0 THEN 510
600 GOTO 380
610 PRINT @ 384,"THE COMPUTER WILL SELECT 20 NUMBERS AT RANDOM. THE ";CHR$(131)""
620 PRINT"INDICATES IT IS IN THE PROCESS OF SELECTING THE NUMBERS."
630 PRINT @ 320,"";
640 FOR L=1 TO :20
650 N(L)=RND(80)
660 M(L)=N(L)
670 NEXT L
680 L=21
690 FOR K=1 TO :20
700 FOR J=K TO L-1
710 X=M(K)
720 Y=M(J+1)
730 IF X<Y THEN 770
740 M(J+1)=M(K)
750 Y=M(J+1)
760 GOTO 730
770 NEXT J
780 PRINT CHR$(131);" ";
790 NEXT K
800 PRINT @ 384,"YOUR NUMBERS ARE:" CHR$(131)
810 FOR I=1 TO :3
820 PRINT USING"##!";A(I);" ";
830 NEXT I
840 PRINT CHR$(13)
850 PRINT"THE COMPUTER HAS SELECTED THE FOLLOWING NUMBERS:"
860 FOR L=1 TO :20
870 PRINT USING"##!";M(L);" ";
880 FOR T=1 TO :300
890 NEXT T, L
900 PRINT CHR$(13)
910 PRINT"THE PROGRAM WILL COMPARE YOUR NUMBERS WITH THE "
920 PRINT"NUMBERS THE COMPUTER HAS SELECTED."
930 PRINT "YOU HAVE GUESSED THE FOLLOWED NUMBERS:"
940 G=0
950 I=1
960 FOR J=1 TO :20
970 X=A(I)
980 Y=M(J)
990 IF X=Y THEN 1020
1000 NEXT J
1010 GOTO 1070
1020 PRINT CHR$(94);
1030 FOR V1=1 TO 400
1040 NEXT V1
1050 PRINT USING"###";A(I);
1060 G=6+1
1070 I=I+1
1080 IF I<8 THEN 960
1090 ON G+1 GOTO 1100, 1100, 1100, 1100, 1100, 1100, 1200, 1220, 1240
1100 PRINT"YOU CAUGHT";G;"NUMBERS OUT OF 8 --"
1110 PRINT"NOT ENOUGH CORRECT GUESSES -- 'SO SOLL', NO PAYOFF."
1120 PRINT"DO YOU WANT TO PLAY KENO AGAIN ?";CHR$(95);
1130 A$=INKEY$
1140 A$=INKEY$
1150 IF A$="" THEN 1140
1160 IF A$="Y" THEN 210 ELSE 1270
1170 PRINT "TYPE YES OR NO PLEASE!!"
1180 PRINT "YOU CAUGHT";G;"NUMBERS OUT OF 8 -- YOU WIN $10.00"
1190 GOTO 1120
1200 PRINT "YOU CAUGHT";G;"NUMBERS OUT OF 8 -- YOU WIN $100.00"
1210 GOTO 1120
1220 PRINT "YOU CAUGHT ";G;"NUMBERS OUT OF 8 -- YOU WIN $2,200.00"
1230 GOTO 1120
1240 PRINT "YOU CAUGHT ";G;"NUMBERS OUT OF 8 -- YOU WIN $25,000.00"
1250 PRINT "8 OUT OF 8 DOES NOT OCCUR TOO OFTEN, LUCKY."
1260 GOTO 1120
1270 CLS
1280 PRINT @ 384,"THAT'S ALL FOR NOW. PLAY KENO AGAIN. BE SEEING YOU."
1290 FOR I=1 TO 1000
1300 NEXT I
1310 END

```

# L Game

The L-game is a 2-player strategic game played on a 4x4 grid. It was originally devised by Edward de Bono and appeared in the book, "The Five-Day Course in Thinking." In the game, each player has one 'L' which covers four squares (3 high x 2 across). The two L's are labelled differently to avoid confusion. There are also two neutral 'boxes' each the size of a single square on the grid. To play the game with the computer the grid positions must be numbered as follows:

|    |    |    |    |
|----|----|----|----|
| 1  | 2  | 3  | 4  |
| 5  | 6  | 7  | 8  |
| 9  | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 |

Play always begins with all the pieces on the board in this position:

|    |  |  |    |
|----|--|--|----|
|    |  |  | 4  |
| 5  |  |  | 8  |
| 9  |  |  | 12 |
| 13 |  |  |    |

The object of the game is simply to position one's L and the neutral boxes to pin the other player's L. Each move is a mixture of offense and defense, for one is not only trying to pin the other player's L, but also trying to prevent his own L from being pinned.

Either player may move first. To move, one must pick up his L and move it to a different position on the

board. The player may flip his L over, rotate it 90 degrees, etc. The L must not cover any other pieces or hang off the edge of the board. If a player is unable to move his L, or simply cannot find a move, he loses the game. Once the player has successfully moved his L to a new position on the board, he then has the option of moving the neutral boxes. He may move the boxes only to unoccupied positions and he has the option of moving one box, both boxes, or leaving the boxes where they are. By using the boxes effectively, one can block off moves for the other player's L and possibly pin him. After the player moves the boxes (or decides not to move one or both) it is the other player's turn and play continues in the same manner.

The computer version of the L Game was written by Bill Gardner.

This program uses TRS-80 graphics which do not reproduce well on a line printer. Therefore the sample run does not give a true representation of the program. The only way this program can be truly appreciated is to run it.

```

L - GAME
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

      cls
DO YOU NEED INSTRUCTIONS? YES_
      cls

L-GAME IS A SIMPLE STRATEGIC GAME PLAYED ON A 4X4
GRID BY TWO OPPOSING PLAYERS, IN THIS CASE BETWEEN YOU
AND THE COMPUTER. THE GRID IS NUMBERED AS FOLLOWS.
      PRESS ANY KEY TO CONTINUE

      cls

=====
1:: 2:: 3:: 4:
=====
5:: 6:: 7:: 8:
=====
9::10::11::12:
=====
13::14::15::16:
=====

      PRESS ANY KEY TO CONTINUE

      cls

THE GAME IS PLAYED WITH FOUR PIECES; BOTH
YOU AND THE COMPUTER HAVE ONE 'L', AND THERE ARE
TWO 'BOXES' WHICH ARE USED BY BOTH PLAYERS.
PLAY ALWAYS BEGINS WITH THE PIECES ON THE BOARD
IN THE FOLLOWING POSITION:
      PRESS ANY KEY TO CONTINUE

      cls

=====
1:..... 4:
2:.....
3:.....
4:.....
5:..... 8:
6:.....
7:.....
8:.....
9:.....12:
10:.....
11:.....
12:.....
13:.....
14:.....
15:.....
16:.....
=====

```

```

(COMPUTER IS ., YOU ARE #)

      PRESS ANY KEY TO CONTINUE

      cls

THE OBJECT OF THE GAME IS TO POSITION YOUR OWN
L AND THE BOXES TO PREVENT THE COMPUTER FROM MOVING
ITS L. OF COURSE, IT IS TRYING TO DO THE SAME TO YOU!
TO MOVE, YOU MUST SIMPLY ENTER THE FOUR COORDINATES
WHERE YOU WANT TO PLACE YOUR L. IT MUST REMAIN ON THE
BOARD AND MUST NOT COVER ANY OTHER PIECES. YOU MUST
MOVE YOUR L! IF YOU CANNOT FIND A NEW POSITION
FOR YOUR L, THEN THE COMPUTER HAS EFFECTIVELY PINNED YOUR
L AND IT WINS THE GAME.

      PRESS ANY KEY TO CONTINUE

      cls

ASSUMING YOU HAVE SUCCESSFULLY MOVED YOUR L, YOU NOW
HAVE THE OPTION OF MOVING THE BOXES. YOU MAY MOVE ONE,
TWO, OR NONE OF THE BOXES BY SIMPLY ENTERING THE COORDINATES
WHERE YOU WANT TO PUT THEM. TO LEAVE A BOX WHERE IT IS,
ENTER ITS PRESENT POSITION.

AFTER YOU MOVE THE BOXES, IT IS UP TO THE COMPUTER
TO FIND A MOVE FOR ITS L AND PLAY CONTINUES IN THE SAME
MANNER. REMEMBER THAT YOU MUST NOT ONLY TRY TO PIN THE
COMPUTER'S L BUT ALSO KEEP YOUR OWN L FROM BEING PINNED.
ALSO, IT IS EASIER TO PLAY THE GAME WITH YOUR OWN BOARD
THAN THE COMPUTER PRINTOUT. TO RESIGN, ENTER 0,0,0,0
IN PLACE OF YOUR MOVE. GOOD LUCK!
DO YOU WISH TO START? NO_

      cls

HAVE THE OPTION OF MOVING THE BOXES. YOU MAY MOVE ONE,
TWO, OR NONE OF THE BOXES BY SIMPLY ENTERING THE COORDINATES
WHERE YOU WANT TO PUT THEM. TO LEAVE A BOX WHERE IT IS,
ENTER ITS PRESENT POSITION.

AFTER YOU MOVE THE BOXES, IT IS UP TO THE COMPUTER
TO FIND A MOVE FOR ITS L AND PLAY CONTINUES IN THE SAME
MANNER. REMEMBER THAT YOU MUST NOT ONLY TRY TO PIN THE
COMPUTER'S L BUT ALSO KEEP YOUR OWN L FROM BEING PINNED.
ALSO, IT IS EASIER TO PLAY THE GAME WITH YOUR OWN BOARD
THAN THE COMPUTER PRINTOUT. TO RESIGN, ENTER 0,0,0,0
IN PLACE OF YOUR MOVE. GOOD LUCK!
DO YOU WISH TO START? NO_

COMPUTER MOVES TO 2 6 10 9

      cls

```

```

      cls
=====
1:..... 4:
=====
5:..... 8:
=====
:13:..... 16:
=====
YOUR MOVE FOR L? 8,7,11,13
      cls
=====
1:..... 4:
=====
5:..... 8:
=====
:13:..... 16:
=====
YOUR MOVE FOR L? 8,7,11,13
YOUR MOVE FOR THE BOXES? 4,16
      cls
=====
1:..... 3:
=====
5:.....
=====
:13:..... 14:
=====
COMPUTER MOVES TO 2 6 10 1
      cls
=====
3:..... 4:
=====
5:.....
=====
9:.....
=====
:12:..... 16:
=====
YOUR MOVE FOR L? 3,4,7,1
YOUR MOVE FOR THE BOXES? 13,16
      cls
=====
1:.....
=====
5:..... 8:
=====
:12:..... 16:
=====
COMPUTER WINS!
PLAY AGAIN? NO
      cls
=====
10 CLEAR 1000
20 CLS
30 PRINT @ 412 "L - GAME"
40 PRINT
50 PRINT TAB(7)"COPYRIGHT 1979
   CREATIVE COMPUTING PARRISTOWN, NJ

```

```

60 PRINT @ 968,"";
70 INPUT "DO YOU NEED INSTRUCTIONS?";I$
80 DIM C(4), O(4), T(4), B(16), N(16), M(100)
90 IF LEFT$(I$, 1) = "Y" THEN 2180
100 CLS
110 A$ = "Y"
120 IF LEFT$(A$, 1) = "N" THEN 150
130 LET F2 = 0
140 GOTO 160
150 LET F2 = 1
160 GOSUB 180
170 GOTO 190
180 REM INITIALIZE DATA
190 REM B1,B2 = POSITIONS OF BOXES
200 REM C(1,2,3,4) = COMPUTER'S POSITION (L)
210 REM O(1,2,3,4) = OPPONENT'S POSITION (L)
220 REM T(1,2,3,4) = 6,7,10,11 = CENTER POSITIONS
230 REM B(1...16) = BOARD:
240 REM B(X)=0 EMPTY
250 REM B(X)=1 OPPONENT'S L
260 REM B(X)=2 COMPUTER'S L
270 REM B(X)=3 BOX
280 RESTORE
290 DATA 1, 16, 2, 7, 6, 6, 11, 7, 10, 15, 10, 3, 14, 11
300 DATA 3, 2, 2, 0, 0, 0, 2, 1, 0, 0, 2, 1, 0, 0, 1, 1, 3
310 READ B1, B2
320 FOR X=1 TO 4
330 READ C(X), O(X), T(X)
340 NEXT X
350 FOR X=1 TO 16
360 READ B(X)
370 NEXT X
380 RETURN
390 PRINT "DO YOU WISH TO START?";
400 INPUT A$
410 IF LEFT$(A$, 1) = "N" THEN 900
420 REM OPPONENT'S MOVE
430 GOSUB 2860
440 PRINT
450 PRINT "YOUR MOVE FOR L";
460 INPUT D(1), D(2), D(3), D(4)
470 IF ABS(D(1))+ABS(D(2))+ABS(D(3))+ABS(D(4))=0 THEN 1780
480 REM BUBBLE SORT
490 FOR X=1 TO 4
500 FOR Y=2 TO 4
510 IF D(Y)>D(Y-1) THEN 550
520 LET Z=D(Y)
530 LET D(Y)=D(Y-1)
540 LET D(Y-1)=Z
550 NEXT Y
560 NEXT X
570 REM CHECK LEGALITY
580 FOR X=1 TO 4
590 LET N(X)=D(X)
600 NEXT X
610 LET N1=4
620 LET F1=0
630 GOSUB 2390
640 IF M1<4 THEN 1720
650 FOR X=1 TO 4
660 IF B(N(X))>1 THEN 1720
670 NEXT X
680 FOR X=1 TO 4
690 LET B(O(X))=0
700 NEXT X
710 FOR X=1 TO 4
720 LET B(N(X))=1
730 LET O(X)=M(X)
740 NEXT X
750 LET B(B1)=0
760 LET B(B2)=0
770 PRINT "YOUR MOVE FOR THE BOXES";
780 INPUT X, Y
790 IF ABS(X)+ABS(Y)>X+Y THEN 1750
800 IF X=Y THEN 1750
810 IF B(X)+B(Y)>0 THEN 1750
820 LET B1=X
830 LET B2=Y
840 LET B(B1)=3
850 LET B(B2)=3
860 PRINT "O.K."
870 GOSUB 2860
880 REM COMPUTER'S MOVE

```

```

890 REM REMOVE C(1-4) FROM BOARD
900 FOR X=1 TO 4
910 LET B(C(X))=0
920 NEXT X
930 GOSUB 1930
940 LET F1=1
950 LET N1=2
960 GOSUB 2390
970 IF M1=0 THEN 1800
980 REM FIND MOVE WITH BEST CENTER COVERAGE
990 GOSUB 1880
1000 FOR E=0 TO M1-4 STEP 4
1010 FOR F=1 TO 4
1020 FOR G=1 TO 4
1030 IF M(E+F)>OT(G) THEN 1050
1040 LET N(E/4+1)=N(E/4+1)+1
1050 NEXT G
1060 NEXT F
1070 NEXT E
1080 GOSUB 2020
1090 REM PUT MOVE IN C(1-4)
1100 LET Y=(Z-1)*4
1110 FOR X=1 TO 4
1120 LET C(X)=M(X+Y)
1130 LET B(C(X))=2
1140 NEXT X
1150 PRINT
1160 PRINT "COMPUTER MOVES TO ";C(1);"
   ";C(2);" ";C(3);" ";C(4)
1170 REM FIND MOVES FOR BOXES
1180 REM REMOVE BOXES FROM BOARD
1190 LET B(B1)=0
1200 LET B(B2)=0
1210 REM IS OPPONENT IN CORNER?
1220 FOR I=1 TO 4
1230 FOR J=1 TO 4
1240 IF O(I)=T(J) THEN 1300
1250 NEXT J
1260 NEXT I
1270 REM OPPONENT IN CORNER, IGNORE CENTER
1280 GOTO 1470
1290 REM OPPONENT NOT IN CORNER, FILL CENTER WITH BOXES
1300 FOR X=1 TO 4
1310 IF B(T(X))>0 THEN 1350
1320 LET B1=T(X)
1330 LET B(B1)=3
1340 GOTO 1380
1350 NEXT X
1360 REM NO SPACES IN CENTER
1370 GOTO 1470
1380 FOR X=1 TO 4
1390 IF B(T(X))>0 THEN 1430
1400 LET B2=T(X)
1410 LET B(B2)=3
1420 GOTO 1540
1430 NEXT X
1440 REM CENTER FILLED
1450 GOTO 1510
1460 REM BOTH BOXES TO BE POSITIONED
1470 GOSUB 2150
1480 LET B1=B3
1490 LET B(B1)=3
1500 REM ONE BOX TO BE POSITIONED
1510 GOSUB 2150
1520 LET B2=B3
1530 LET B(B2)=3
1540 PRINT TAB(9);"MOVES BOXES TO ";B1;" AND ";B2
1550 FOR X=1 TO 4
1560 LET B(O(X))=1
1570 NEXT X
1580 GOSUB 2860
1590 REM CHECK FOR WIN
1600 FOR X=1 TO 4
1610 LET B(O(X))=0
1620 NEXT X
1630 GOSUB 1930
1640 LET F1=2
1650 LET M1=2
1660 GOSUB 2390
1670 IF M1=0 THEN 1780
1680 FOR X=1 TO 4
1690 LET B(O(X))=1
1700 NEXT X
1710 GOTO 440

```

```

1720 PRINT "ILLEGAL MOVE FOR L."
1730 PRINT
1740 GOTO 440
1750 PRINT "ILLEGAL MOVE FOR BOX."
1760 PRINT
1770 GOTO 770
1780 PRINT "COMPUTER WINS!"
1790 GOTO 1810
1800 PRINT "CONGRATULATIONS! YOU HAVE WON."
1810 PRINT
1820 PRINT "PLAY AGAIN";
1830 INPUT A$
1840 IF LEFT$(A$, 1)="" THEN 160
1850 GOTO 3640
1860 REM *** SUBROUTINES ***
1870 REM ERASE N(X)
1880 FOR X=1 TO 16
1890 LET N(X)=0
1900 NEXT X
1910 RETURN
1920 REM STORE LOCATIONS OF UNOCCUPIED POSITIONS IN N(X)
1930 LET Z=0
1940 FOR X=1 TO 16
1950 IF B(X)=0 THEN 1980
1960 LET Z=Z+1
1970 LET N(Z)=X
1980 NEXT X
1990 RETURN
2000 REM THIS SUBROUTINE RETURNS THE LOCATION OF THE LARGEST
2010 REM VALUE IN N(X). IF A TIE EXISTS A RANDOM CHOICE IS MADE.
2020 LET V=0
2030 LET Z=1
2040 FOR Y=1 TO 16/4
2050 IF N(X)<Y THEN 2100
2060 IF N(X)>Y THEN 2080
2070 IF RND(1)>.5 THEN 2100
2080 LET V=N(X)
2090 LET Z=X
2100 NEXT Y
2110 RETURN
2120 REM BOX-FIND
2130 REM THIS SUBROUTINE FINDS THE MOVE FOR A BOX THAT WILL
2140 REM MOST RESTRICT THE OPPONENT'S L IN TERMS OF MOVES POSSIBLE.
2150 FOR X=1 TO 4
2160 LET B(O(X))=0
2170 NEXT X
2180 GOSUB 1930
2190 LET F1=2
2200 LET M1=2
2210 GOSUB 2390
2220 GOSUB 1980
2230 FOR X=1 TO M1
2240 LET N(M(X))=N(M(X))+1
2250 NEXT X
2260 FOR X=1 TO 4
2270 LET N(O(X))=0
2280 NEXT X
2290 LET M1=64
2300 GOSUB 2020
2310 LET B3=2
2320 RETURN
2330 REM L-FIND
2340 REM THIS SUBROUTINE CALCULATES ALL POSSIBLE MOVES FOR AN L GIVEN ALL
2350 REM EMPTY POSITIONS IN N(X). IF F1=L, THE CURRENT POSITION OF THE
2360 REM COMPUTER'S L IS OMITTED. OTHERWISE, THE CURRENT POSITION OF THE
2370 REM OPPONENT'S L IS OMITTED. MOVES ARE RETURNED IN M(X), AND
2380 REM M1 IS THE LENGTH OF M(X). (M1 = NUMBER OF MOVES * 4)
2390 LET M1=0
2400 LET J=4
2410 LET K=1
2420 GOSUB 2470
2430 LET J=1
2440 LET K=4
2450 GOSUB 2470
2460 RETURN
2470 LET P=0
2480 LET P=P+1
2490 LET A(1)=N(P)
2500 LET X=P
2510 LET X=X+1
2520 IF X>M1 THEN 2640
2530 IF N(X)-A(1)<J THEN 2510
2540 LET A(2)=N(X)
2550 LET X=X+1
2560 IF X>M1 THEN 2640
2570 IF N(X)-A(2)<J THEN 2550
2580 LET A(3)=N(X)
2590 FOR E=1 TO M1
2600 IF ABS(N(E)-A(1))=K THEN 2660
2610 IF ABS(N(E)-A(3))=K THEN 2660
2620 NEXT E
2630 GOTO 2480
2640 IF P=M1-2 THEN 2480
2650 RETURN
2660 LET A(4)=N(E)
2670 FOR F=1 TO 4
2680 IF A(F)/4<INT(A(F)/4) THEN 2720
2690 FOR G=1 TO 4
2700 IF A(G)=A(F)+1 THEN 2620
2710 NEXT G
2720 NEXT F
2730 FOR Y=1 TO 4
2740 IF F1=1 THEN 2780
2750 IF A(Y)<O(Y) THEN 2800
2760 NEXT Y
2770 GOTO 2620
2780 IF A(Y)>O(Y) THEN 2800
2790 GOTO 2760
2800 FOR V=1 TO 4
2810 LET N(M1+V)=A(Y)
2820 NEXT V
2830 LET M1=M1+4
2840 GOTO 2620
2850 REM BOARD PRINTOUT SUBROUTINE
2860 CLS
2870 IF F2=1 THEN 3160
2880 FOR E=1 TO 13 STEP 4
2890 FOR F=1 TO 3
2900 FOR G=E TO E+3
2910 ON B(G)+1 GOTO 2920, 3010, 3030, 3050
2920 IF F=2 THEN 2950
2930 PRINT "====";
2940 GOTO 3120
2950 PRINT " . . .";
2960 IF G>9 THEN 2990
2970 PRINT " ";CHR$(48+G);"- ";
2980 GOTO 3120
2990 PRINT "1";CHR$(38+G);"- ";
3000 GOTO 3120
3010 PRINT "####";
3020 GOTO 3120
3030 PRINT STRING$(4, 191);
3040 GOTO 3120
3050 IF F=2 THEN 3110
3060 IF F=1 THEN 3090
3070 PRINT CHR$(143)STRING$(2, 140)CHR$(143);
3080 GOTO 3120
3090 PRINT CHR$(188)STRING$(2, 140)CHR$(188);
3100 GOTO 3120
3110 PRINT CHR$(191)" " CHR$(191);
3120 NEXT G
3130 PRINT
3140 NEXT F
3150 NEXT E
3160 PRINT
3170 RETURN
3180 REM INSTRUCTIONS
3190 CLS
3200 PRINT " L-GAME IS A SIMPLE STRATEGIC GAME PLAYED ON A 4X4"
3210 PRINT "GRID BY TWO OPPOSING PLAYERS, IN THIS CASE BETWEEN YOU"
3220 PRINT "AND THE COMPUTER. THE GRID IS NUMBERED AS FOLLOWS:"
3230 LET F2=0
3240 FOR X=1 TO 16
3250 LET B(X)=0
3260 NEXT X
3270 GOSUB 3650
3280 GOSUB 2860
3290 GOSUB 3650
3300 PRINT " THE GAME IS PLAYED WITH FOUR PIECES; BOTH"
3310 PRINT "YOU AND THE COMPUTER HAVE ONE 'L', AND THERE ARE"
3320 PRINT "TWO 'BOXES' WHICH ARE USED BY BOTH PLAYERS."
3330 PRINT "PLAY ALWAYS BEGINS WITH THE PIECES ON THE BOARD"
3340 PRINT "IN THE FOLLOWING POSITION:"
3350 GOSUB 180
3360 GOSUB 3650
3370 GOSUB 2860
3380 PRINT "(COMPUTER IS " CHR$(191)" , YOU ARE #)"
3390 GOSUB 3650
3400 PRINT " THE OBJECT OF THE GAME IS TO POSITION YOUR OWN"
3410 PRINT "L AND THE BOXES TO PREVENT THE COMPUTER FROM MOVING"
3420 PRINT "ITS L. OF COURSE, IT IS TRYING TO DO THE SAME TO YOU!"
3430 PRINT "TO MOVE, YOU MUST SIMPLY ENTER THE FOUR COORDINATES"
3440 PRINT "WHERE YOU WANT TO PLACE YOUR L. IT MUST REMAIN ON THE"
3450 PRINT "BOARD AND MUST NOT COVER ANY OTHER PIECES. YOU MUST"
3460 PRINT "MOVE YOUR L! IF YOU CANNOT FIND A NEW POSITION"
3470 PRINT "FOR YOUR L, THEN THE COMPUTER HAS EFFECTIVELY PINNED YOUR"

```



# Life Expectancy

This program is a life-expectancy test derived from Peter Passell's book "How To." The test asks you a series of questions dealing with your life-style and environment. At the end of the questioning, the program gives your estimated life-expectancy and the percentage of the population you should outlive.

You may wish to experiment with certain variables to see what effect they will have on your lifespan. It's unlikely that you want to change your sex, but you may wish to check out the effect of smoking, drinking, mental attitude or weight.

This program was written by John E. Rogers.

## LIFE EXPECTANCY

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DO YOU NEED INSTRUCTIONS? YES.

\_\_\_\_\_ cls \_\_\_\_\_

THIS IS A TEST TO PREDICT YOUR LIFE EXPECTANCY. I WILL ASK YOU A SERIES OF SHORT QUESTIONS, WHICH YOU WILL REPLY BY TYPING IN THE CORRESPONDING ANSWER TO THE QUESTION.

EXAMPLE: WHAT IS YOUR SEX?

M=MALE

F=FEMALE

'M' AND 'F' ARE THE POSSIBLE REPLIES TO THE QUESTION. ANSWER LIKE THIS:

CHOOSE ONE OF THE LETTERS ABOVE? M

TYPING AN 'M' SIGNIFIES THAT YOU ARE A MALE.

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

+++SEX+++

ARE YOU MALE OR FEMALE?

M = MALE

F = FEMALE

CHOOSE ONE OF THE LETTERS ABOVE? M.

\_\_\_\_\_ cls \_\_\_\_\_

+++LIFE STYLE+++

WHERE DO YOU LIVE?

G = IF YOU LIVE IN AN URBAN AREA WITH A POPULATION OVER 2 MIL.

K = IF YOU LIVE IN A TOWN UNDER 10,000 OR ON A FARM.

I = NEITHER

CHOOSE ONE OF THE LETTERS ABOVE? K.

\_\_\_\_\_ cls \_\_\_\_\_

HOW DO YOU WORK?

M = IF YOU WORK BEHIND A DESK.

L = IF YOUR WORK REQUIRES HEAVY PHYSICAL LABOR.

I = NONE OF THE ABOVE.

CHOOSE ONE OF THE LETTERS ABOVE? M.

\_\_\_\_\_ cls \_\_\_\_\_

HOW LONG DO YOU EXERCISE STRENUOUSLY,

(TENNIS, RUNNING, SWIMMING, ETC.)?

F = FIVE TIMES A WEEK FOR AT LEAST A HALF HOUR.

K = JUST TWO OR THREE TIMES A WEEK.

I = DO NOT EXERCISE IN THIS FASHION.

CHOOSE ONE OF THE LETTERS ABOVE? K.

\_\_\_\_\_ cls \_\_\_\_\_

WHO DO YOU LIVE WITH?

N = IF YOU LIVE WITH A SPOUSE, FRIEND, OR IN A FAMILY.

H = IF YOU'VE LIVED ALONE FOR 1-10 YEARS SINCE AGE 25.

G = FOR 11-20 YEARS.

M = FOR 21-30 YEARS.

E = FOR 31-40 YEARS.

D = MORE THAN 40 YEARS.

CHOOSE ONE OF THE LETTERS ABOVE? N.

\_\_\_\_\_ cls \_\_\_\_\_

+++PSYCHE+++

DO YOU SLEEP MORE THAN 10 HOURS A NIGHT?

I = NO.

E = YES.

CHOOSE ONE OF THE LETTERS ABOVE? I.

\_\_\_\_\_ cls \_\_\_\_\_

++MENTAL STATE++

M = IF YOU ARE INTENSE, AGGRESSIVE, OR EASILY ANGERED.

L = IF YOU ARE EASY GOING, RELAXED, OR A FOLLOWER.

I = NEITHER.

CHOOSE ONE OF THE LETTERS ABOVE? I.

\_\_\_\_\_ cls \_\_\_\_\_

+++HOW YOU FEEL+++

ARE YOU HAPPY OR UNHAPPY?

J = HAPPY.

G = UNHAPPY.

I = NEITHER.

CHOOSE ONE OF THE LETTERS ABOVE? J.

\_\_\_\_\_ cls \_\_\_\_\_

+++FACTORS+++

HAVE YOU HAD A SPEEDING TICKET IN THE LAST YEAR?

H = YES.

I = NO.

CHOOSE ONE OF THE LETTERS ABOVE? I.

\_\_\_\_\_ cls \_\_\_\_\_

+++INCOME+++

DO YOU EARN MORE THAN \$50,000 A YEAR?

G = YES.

I = NO.

CHOOSE ONE OF THE LETTERS ABOVE? I.

\_\_\_\_\_ cls \_\_\_\_\_

+++SCHOOLING+++  
 J = IF YOU HAVE FINISHED COLLEGE.  
 L = IF YOU HAVE FINISHED COLLEGE WITH A GRADUATE  
 OR PROFESSIONAL DEGREE.  
 I = NOTHING LISTED.  
 CHOOSE ONE OF THE LETTERS ABOVE? I\_

\_\_\_\_\_ cls \_\_\_\_\_

+++AGE+++  
 ARE YOU 65 OR OLDER AND STILL WORKING?  
 L = YES.  
 I = NO  
 CHOOSE ONE OF THE LETTERS ABOVE? I\_

\_\_\_\_\_ cls \_\_\_\_\_

+++HEREDITY+++  
 K = IF ANY GRANDPARENTS LIVED TO 85 YEARS OLD.  
 O = IF ALL FOUR GRANDPARENTS LIVED TO BE 80 YEARS OLD.  
 I = NO GRANDPARENTS QUALIFY IN THE ABOVE.  
 CHOOSE ONE OF THE LETTERS ABOVE? I\_

\_\_\_\_\_ cls \_\_\_\_\_

HAS ANY PARENT DIED OF A STROKE OR HEART ATTACK  
 BEFORE THE AGE OF 50?  
 E = YES.  
 I = NO.  
 CHOOSE ONE OF THE LETTERS ABOVE? I\_

\_\_\_\_\_ cls \_\_\_\_\_

+++FAMILY DISEASES+++  
 ANY PARENT, BROTHER, OR SISTER UNDER 50 HAS (OR HAD)  
 CANCER, A HEART CONDITION, OR DIABETES SINCE CHILDHOOD?  
 M = YES  
 I = NO  
 CHOOSE ONE OF THE LETTERS ABOVE? I\_

\_\_\_\_\_ cls \_\_\_\_\_

+++HEALTH+++  
 HOW MUCH DO YOU SMOKE?  
 A = IF YOU SMOKE MORE THAN TWO PACKS A DAY.  
 C = ONE TO TWO PACKS A DAY.  
 M = ONE HALF TO ONE PACK A DAY.  
 I = DON'T SMOKE.  
 CHOOSE ONE OF THE LETTERS ABOVE? I\_

\_\_\_\_\_ cls \_\_\_\_\_

+++DRINKING+++  
 DO YOU DRINK THE EQUIVALENT OF A  
 QUARTER BOTTLE OF ALCOHOLIC BEVERAGE A DAY?  
 H = YES  
 I = NO  
 CHOOSE ONE OF THE LETTERS ABOVE? I\_

\_\_\_\_\_ cls \_\_\_\_\_

+++WEIGHT+++  
 A = IF YOU ARE OVERWEIGHT BY 50 POUNDS OR MORE.  
 E = OVER BY 30-50 POUNDS.  
 G = OVER BY 10-30 POUNDS.  
 I = NOT OVERWEIGHT.  
 CHOOSE ONE OF THE LETTERS ABOVE? I\_

\_\_\_\_\_ cls \_\_\_\_\_

+++CHECKUPS+++  
 IF YOU ARE A MALE OVER 40 DO YOU HAVE AN ANNUAL CHECKUP?  
 K = YES.  
 I = NO, OR NOT A MALE OVER 40 YEARS OLD.  
 CHOOSE ONE OF THE LETTERS ABOVE? I\_

\_\_\_\_\_ cls \_\_\_\_\_

IF YOU ARE A WOMAN DO YOU SEE A GYNECOLOGIST ONCE A YEAR?  
 K = YES.  
 I = NO, OR NOT A WOMAN.  
 CHOOSE ONE OF THE LETTERS ABOVE? I\_

\_\_\_\_\_ cls \_\_\_\_\_

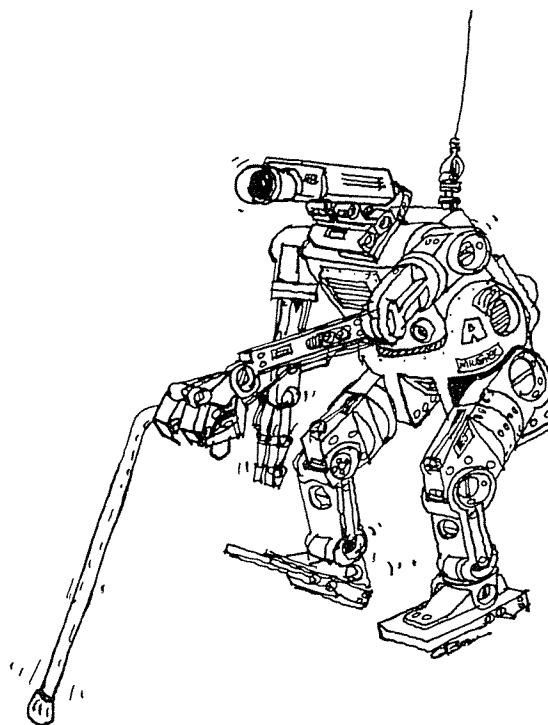
+++CURRENT AGE+++  
 K = IF YOU ARE BETWEEN 30 AND 40 YEARS OLD.  
 L = BETWEEN 40 AND 50.  
 F = BETWEEN 50 AND 70.  
 N = OVER 70.  
 I = UNDER 30.  
 CHOOSE ONE OF THE LETTERS ABOVE? I\_

\_\_\_\_\_ cls \_\_\_\_\_

YOU ARE EXPECTED TO LIVE TO THE AGE OF 80 YEARS.  
 OUTLIVING 75% OF THE MEN AND 53% OF THE WOMEN.  
 WOULD YOU LIKE ANOTHER ESTIMATE? NO.

\_\_\_\_\_ cls \_\_\_\_\_

```
10 CLS
20 CLEAR 1000
30 PRINT @ 409,"LIFE EXPECTANCY"
40 PRINT
50 PRINT TAB(7)*"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
60 PRINT @ 960,"";
70 INPUT"DO YOU NEED INSTRUCTIONS";I$
80 IF LEFT$(I$, 1)="N" THEN 230
90 CLS
100 PRINT " THIS IS A TEST TO PREDICT YOUR LIFE EXPECTANCY. I"
110 PRINT "WILL ASK YOU A SERIES OF SHORT QUESTIONS, WHICH YOU WILL"
120 PRINT "REPLY BY TYPING IN THE CORRESPONDING ANSWER TO THE"
130 PRINT "QUESTION."
140 PRINT " EXAMPLE: WHAT IS YOUR SEX?"
150 PRINT " M=MALE"
160 PRINT " F=FEMALE"
170 PRINT "'M' AND 'F' ARE THE POSSIBLE REPLIES TO THE QUESTION, ANSWER"
180 PRINT "LIKE THIS:"
190 PRINT " CHOOSE ONE OF THE LETTERS ABOVE? M"
200 PRINT "TYPING AN 'M' SIGNIFIES THAT YOU ARE A MALE."
210 PRINT @ 979,"PRESS ANY KEY TO CONTINUE";
220 IF INKEY$="" THEN 220
230 RS=1
```

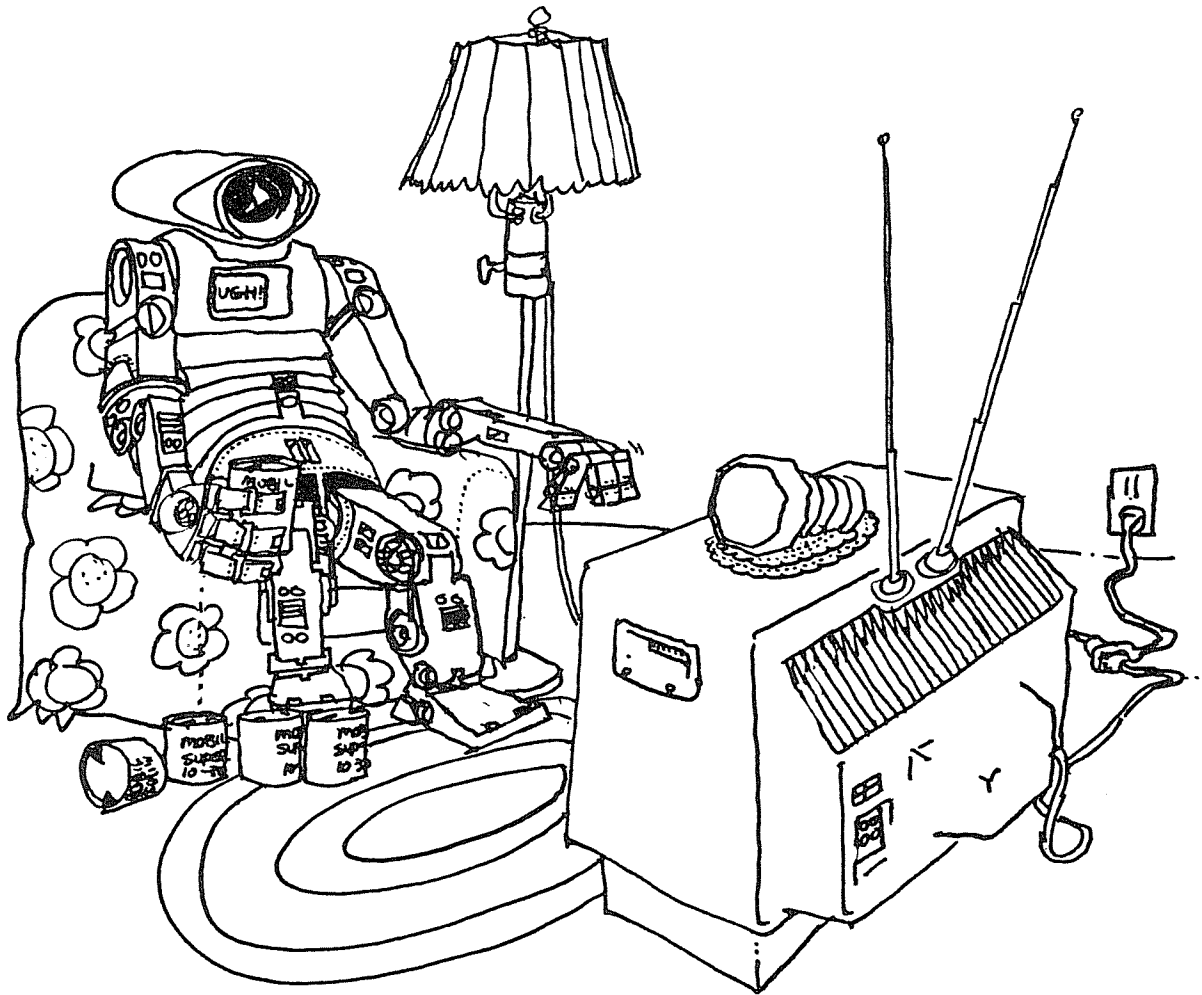


```

240 Z=72
250 R$="ABCDEFGHIJKL NO"
260 GOTO 1470
270 R5=R5+1
280 IF R5>21 THEN 16 0
290 DATA "+++SEX+++"
300 DATA "ARE YOU MALE OR FEMALE?"
310 DATA "M = MALE "
320 DATA " F = FEMALE "
330 DATA 2,"MF"
340 DATA "+++LIFE STYLE+++"
350 DATA "WHERE DO YOU LIVE?"
360 DATA "G = IF YOU LIVE IN AN URBAN AREA WITH A POPULATION OVER 2 MIL."
370 DATA "K = IF YOU LIVE IN A TOWN UNDER 10,000 OR ON A FARM."
380 DATA " I = NEITHER"
390 DATA 3,"GKI"
400 DATA "HOW DO YOU WORK?"
410 DATA "M = IF YOU WORK BEHIND A DESK."
420 DATA "L = IF YOUR WORK REQUIRES HEAVY PHYSICAL LABOR"
430 DATA " I = NONE OF THE ABOVE."
440 DATA 2,"MLI"
450 DATA "HOW LONG ( ) YOU EXERCISE STRENUOUSLY,"
460 DATA "<TENNIS, RUNNING, SWIMMING, ETC. >?"
470 DATA "F = FIVE TIMES A WEEK FOR AT LEAST A HALF HOUR."
480 DATA "K = JUST 140 OR THREE TIMES A WEEK."
490 DATA " I = DO NOT EXERCISE IN THIS FASHION."
500 DATA 3,"FKI"
510 DATA "WHO DO YOU LIVE WITH?"
520 DATA "N = IF YOU LIVE WITH A SPOUSE, FRIEND, OR IN A FAMILY."
530 DATA "H = IF YOU'VE LIVED ALONE FOR 1-10 YEARS SINCE AGE 25."
540 DATA "G = FOR 1-20 YEARS."
550 DATA "M = FOR 2-30 YEARS."
560 DATA "E = FOR 3-40 YEARS."
570 DATA " D = MORE THAN 40 YEARS."
580 DATA 6,"HMGED"
590 DATA "+++PSYCHE++"
600 DATA "DO YOU SLEEP MORE THAN 10 HOURS A NIGHT?"
610 DATA "I = NO."
620 DATA " E = YES."
630 DATA 2,"IE"
640 DATA "+++MENTAL STATE+++"
650 DATA "M = IF YOU ARE INTENSE, AGGRESSIVE, OR EASILY ANGERED."
660 DATA "L = IF YOU ARE EASY GOING, RELAXED, OR A FOLLOWER."
670 DATA " I = NEITHER"
680 DATA 3,"MLI"
690 DATA "+++HOW YOU FEEL+++"
700 DATA "ARE YOU HAPPY OR UNHAPPY?"
710 DATA "J = HAPPY "
720 DATA "G = UNHAPPY."
730 DATA " I = NEITHER"
740 DATA 2,"JGI"
750 DATA "+++FACTOR+++"
760 DATA "HAVE YOU HAD A SPEEDING TICKET IN THE LAST YEAR?"
770 DATA "H = YES."
780 DATA " I = NO."
790 DATA 2,"HI"
800 DATA "+++INCOME++"
810 DATA "DO YOU EARN MORE THAN $50,000 A YEAR?"
820 DATA "G = YES."
830 DATA " I = NO."
840 DATA 2,"GI"
850 DATA "+++SCHOOLING+++"
860 DATA "J = IF YOU HAVE FINISHED COLLEGE."
870 DATA "L = IF YOU HAVE FINISHED COLLEGE WITH A GRADUATE"
880 DATA "OR PROFESSIONAL DEGREE."
890 DATA " I = NOTHING LISTED."
900 DATA 3,"JLI"
910 DATA "+++AGE+++"
920 DATA "ARE YOU 65 OR OLDER AND STILL WORKING?"
930 DATA "L = YES."
940 DATA " I = NO"
950 DATA 2,"LI"
960 DATA "+++HEREDITY+++"
970 DATA "K = IF ANY GRANDPARENTS LIVED TO 85 YEARS OLD."
980 DATA "G = IF ALL FOUR GRANDPARENTS LIVED TO BE 80 YEARS OLD."
990 DATA " I = NO (GRANDPARENTS QUALIFY IN THE ABOVE."
1000 DATA 3,"KGI"
1010 DATA "HAS ANY PARENT DIED OF A STROKE OR HEART ATTACK"
1020 DATA "BEFORE THE AGE OF 50?"
1030 DATA "E = YES."
1040 DATA " I = NO."

1050 DATA 2,"EI"
1060 DATA "+++FAMILY DISEASES+++"
1070 DATA "ANY PARENT, BROTHER, OR SISTER UNDER 50 HAS (OR HAD)"
1080 DATA "CANCER, A HEART CONDITION, OR DIABETES SINCE CHILDHOOD?"
1090 DATA "M = YES"
1100 DATA " I = NO"
1110 DATA 2,"MI"
1120 DATA "+++HEALTH+++"
1130 DATA "HOW MUCH DO YOU SMOKE?"
1140 DATA "A = IF YOU SMOKE MORE THAN TWO PACKS A DAY."
1150 DATA "C = ONE TO TWO PACKS A DAY."
1160 DATA "M = ONE HALF TO ONE PACK A DAY."
1170 DATA " I = DON'T SMOKE."
1180 DATA 4,"ACHI"
1190 DATA "+++DRINKING+++"
1200 DATA "DO YOU DRINK THE EQUIVALENT OF A"
1210 DATA "QUARTER BOTTLE OF ALCOHOLIC BEVERAGE A DAY?"
1220 DATA "H = YES"
1230 DATA " I = NO"
1240 DATA 2,"HI"
1250 DATA "+++WEIGHT+++"
1260 DATA "A = IF YOU ARE OVERWEIGHT BY 50 POUNDS OR MORE."
1270 DATA "E = OVER BY 30-50 POUNDS."
1280 DATA "G = OVER BY 10-30 POUNDS."
1290 DATA " I = NOT OVERWEIGHT."
1300 DATA 4,"REGI"
1310 DATA "+++CHECKUPS+++"
1320 DATA "IF YOU ARE A MALE OVER 40 DO YOU HAVE AN ANNUAL CHECKUP?"
1330 DATA "K = YES."
1340 DATA " I = NO, OR NOT A MALE OVER 40 YEARS OLD."
1350 DATA 2,"KI"
1360 DATA "IF YOU ARE A WOMAN DO YOU SEE A GYNECOLOGIST ONCE A YEAR?"
1370 DATA "K = YES."
1380 DATA " I = NO, OR NOT A WOMAN."
1390 DATA 2,"KI"
1400 DATA "+++CURRENT AGE+++"
1410 DATA "K = IF YOU ARE BETWEEN 30 AND 40 YEARS OLD."
1420 DATA "L = BETWEEN 40 AND 50."
1430 DATA "F = BETWEEN 50 AND 70."
1440 DATA "N = OVER 70."
1450 DATA " I = UNDER 30."
1460 DATA 5,"KLFNI"
1470 CLS
1480 PRINT @ 256,"";
1490 FOR Q=1 TO 7
1500 READ Q$
1510 IF LEFT$(Q$, 1)=" " THEN 1540
1520 PRINT " ";Q$
1530 NEXT Q
1540 PRINT " ";Q$
1550 READ C, C$
1560 PRINT "CHOOSE ONE OF THE LETTERS ABOVE";
1570 INPUT G$
1580 FOR C2=1 TO C
1590 IF LEFT$(G$, 1)=MID$(C$, C2, 1) THEN 1620
1600 NEXT C2
1610 GOTO 1560
1620 FOR N=1 TO 15
1630 IF LEFT$(G$, 1)=MID$(A$, N, 1) THEN 1650
1640 NEXT N
1650 M=N-9
1660 Z=Z+M
1670 CLS
1680 GOTO 270
1690 PRINT @ 256,"YOU ARE EXPECTED TO LIVE TO THE AGE OF";
1700 FOR Z9=1 TO 1000
1710 NEXT
1720 PRINT Z;
1730 FOR Z9=1 TO 500
1740 NEXT
1750 PRINT"YEARS."
1760 IF Z<60 THEN 1830
1770 FOR Y=60 TO Z STEP 5
1780 READ M$, F$
1790 NEXT Y
1800 DATA "26%", "15%", "36%", "20%", "48%", "30%", "61%", "39%"
1810 DATA "75%", "53%", "87%", "70%", "96%", "88%", "99.9%", "99.6%"
1820 PRINT "OUTLIVING ",M$;" OF THE MEN AND ",F$;" OF THE WOMEN."
1830 INPUT "WOULD YOU LIKE ANOTHER ESTIMATE?";RESP$
1840 IF LEFT$(RESP$, 1)="Y" THEN RESTORE: GOTO 230
1850 END

```

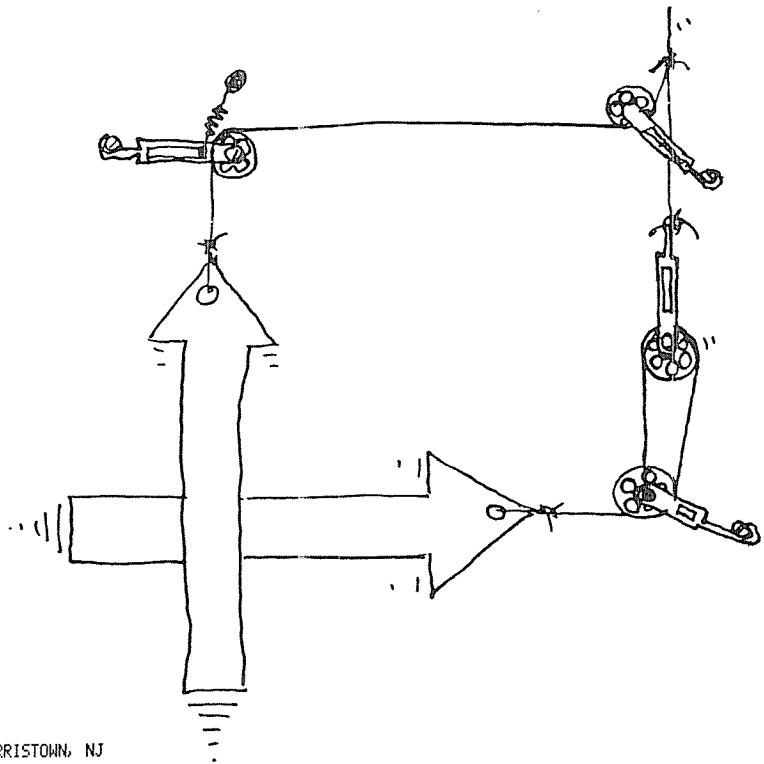


# Lissajous

This program prints Lissajous patterns. You enter relative X and Y frequencies and the Y phase of pi. The relative frequencies for X and Y must be a positive number one or greater. The phase may be between zero and any number you want.

We have experimented with a wide range of relative frequencies and phases and come up with some startlingly beautiful patterns. Some are starkly plain while others are amazingly complex. If the frequencies go much beyond nine or ten the patterns generally become jumbled and difficult to decipher particularly if they are being printed out on the normal hard copy terminal. Nevertheless, it's fun to experiment.

This program was originally written by Larry Ruane and modified by several other people along the line. It appeared first in *Creative Computing*, Sep/Oct 1977.

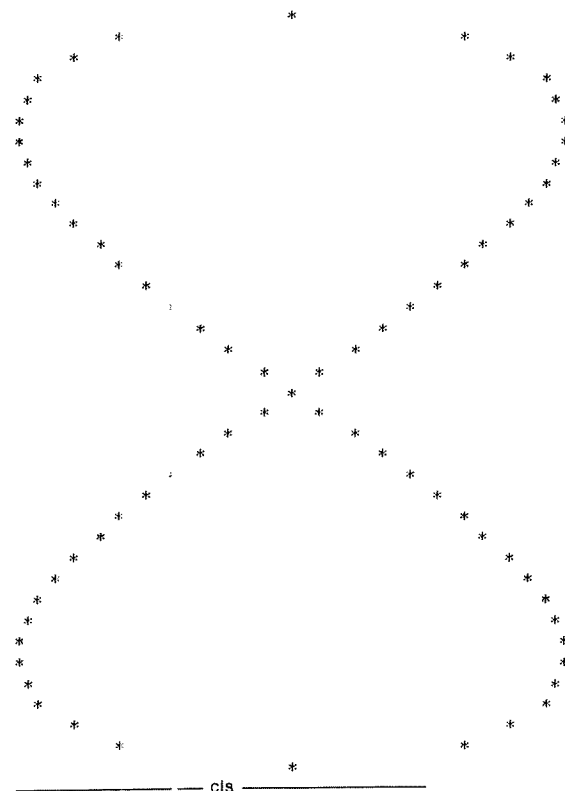


LISSAJOUS  
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```

_____ cls _____
RELATIVE FREQUENCY FOR X? 3
RELATIVE FREQUENCY FOR Y? 6
Y PHASE, MULTIPLE OF PI? 0.
_____ cls _____

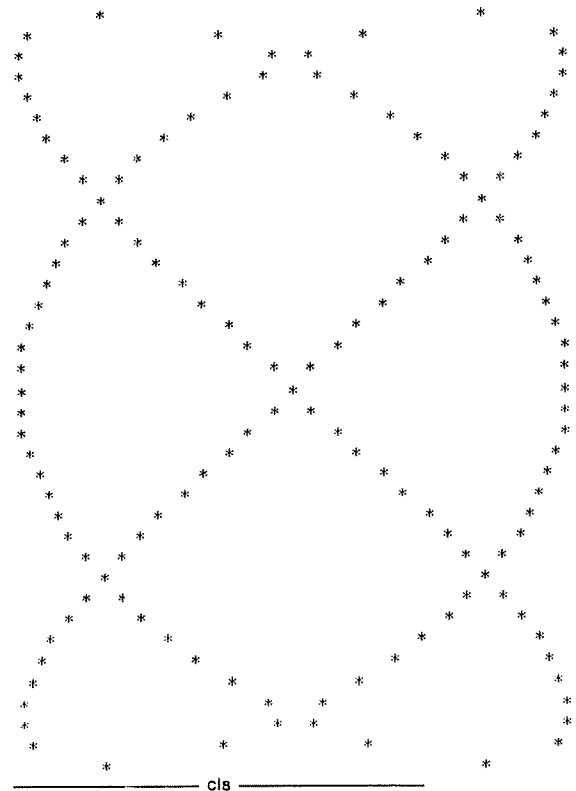
```



```

_____ cls _____
RELATIVE FREQUENCY FOR X? 2
RELATIVE FREQUENCY FOR Y? 3
Y PHASE, MULTIPLE OF PI? 0.
_____ cls _____

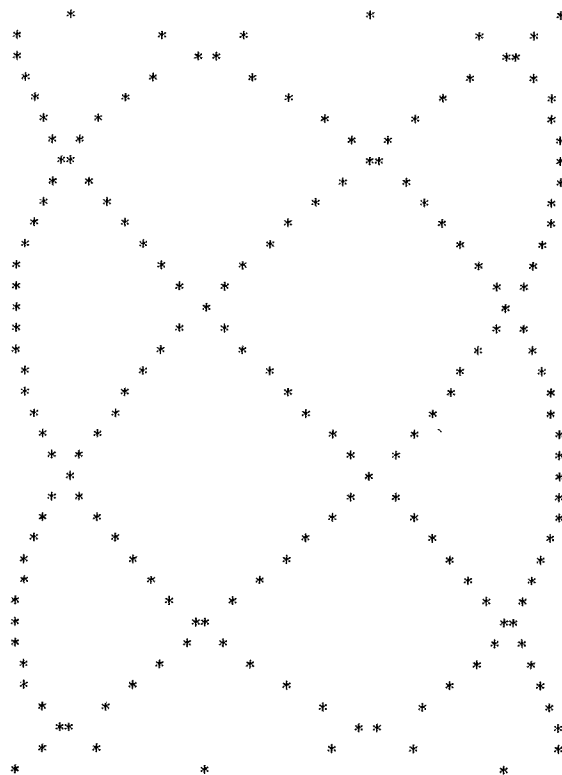
```



```

cls
RELATIVE FREQUENCY FOR X? 5
RELATIVE FREQUENCY FOR Y? 7
Y PHASE, MULTIPLE OF PI? 0_
cls

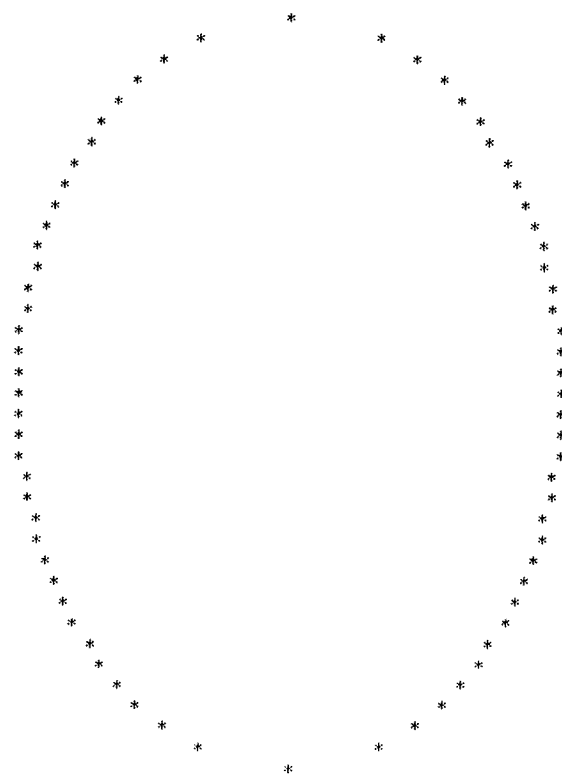
```



```

cls
RELATIVE FREQUENCY FOR X? 1
RELATIVE FREQUENCY FOR Y? 1
Y PHASE, MULTIPLE OF PI? 5_
cls

```



```

10 CLS
20 PRINT @ 412, "LISSAJOUS"
30 PRINT
40 PRINT TAB(7)"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
50 DEFDBL P
60 DIM Y(10)
70 P=3.14159265
80 PRINT @ 768, "RELATIVE FREQUENCY FOR X";
90 INPUT F1
100 IF INT(F1)<F1 THEN 80
110 IF F1<1 THEN 80
120 F=F1
130 F1=2*P*F1
140 PRINT"RELATIVE FREQUENCY FOR Y";
150 INPUT F2
160 IF INT(F2)<F2 THEN 140
170 IF F2<1 THEN 140
180 PRINT"Y PHASE, MULTIPLE OF PI";
190 INPUT P2
200 P2=P*P2
210 PRINT"OUTPUT TO (P)RINTER OR (S)CREEN ?";CHR$(95);
220 A$=INKEY$
230 IF A$="" THEN 220
240 CLS
250 F2=2*P*F2
260 FOR X1=-18 TO 18
270 X=X1/18
280 GOSUB 610
290 T1=X
300 T2=P-X
310 FOR I=0 TO F-1
320 T3=(T1+2*I*P)/F1
330 T4=(T2+2*I*P)/F1
340 Y1=30*SIN(F2*T3+P2)
350 Y2=30*SIN(F2*T4+P2)
360 Y1=SGN(Y1)*INT(ABS(Y1)+.5)
370 Y2=SGN(Y2)*INT(ABS(Y2)+.5)
380 Y(2*I)=Y1
390 Y(2*I+1)=Y2
400 NEXT I
410 FOR J=1 TO 2*F-1
420 I=J-1
430 T=Y(I)
440 IF T=Y(I) THEN 480
450 Y(I+1)=Y(I)
460 I=I-1
470 IF I>0 THEN 440
480 Y(I+1)=T
490 NEXT J
500 FOR I=0 TO 2*F-1
510 IF I=0 THEN 530
520 IF Y(I)=Y(I-1) THEN 540
530 IF A$<>"P" THEN SET(64+Y(I)*2, X1+18) ELSE LPRINT TAB(30+Y(I)); "*";
540 NEXT I
550 IF A$="P" THEN LPRINT " "
560 NEXT X1
570 PRINT @ 960, "DO YOU WANT ANOTHER PICTURE ?";
580 A$=INKEY$
590 IF A$="N" THEN END
600 IF A$="Y" THEN CLS. CLEAR: GOTO 50 ELSE 580
610 IF ABS(X)<.1 THEN 660
620 X=X/(SQRT(1+X)+SQRT(1-X))
630 GOSUB 610
640 X=2*X
650 RETURN
660 X=X+X/3/6+.075*X/5+X/7/22.4
670 RETURN
680 END

```



|               |   |   |   |
|---------------|---|---|---|
|               | 1 | 2 | 3 |
| CELL NUMBER - | 4 | 5 | 6 |
| NUMBER -      | 7 | 8 | 9 |

I MOVE TO CELL 2 WITH A 2

cls

|                 |   |   |   |
|-----------------|---|---|---|
|                 | 1 | 2 | 3 |
| CELL NUMBER - 9 | 4 | 5 | 6 |
| NUMBER - 9      | 7 | 8 | 9 |

I LOSE --- YOU WIN!!

PLAY AGAIN? N

cls

```

10 CLEAR 500:CLS:PRINT@410,"MAGIC SQUARE"
20 PRINT:PRINT TAB(7)"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960,"":INPUT "DO YOU NEED INSTRUCTIONS?";I$
40 IF LEFT$(I$,1)="N" THEN 280 ELSE CLS:PRINT TAB(26)"MAGIC SQUARE":PRINT
50 PRINT "PLAYERS ALTERNATELY CHOOSE AN INTEGER (1 TO 9)"
60 PRINT "THAT HAS NOT BEEN PREVIOUSLY USED AND PLACE IT"
70 PRINT "IN ANY UNFILLED CELL OF A TIC-TAC-TOE BOARD."
80 PRINT "THE GOAL IS TO MAKE THE SUM OF EACH ROW, COLUMN, "
90 PRINT "AND DIAGONAL EQUAL TO 15."
100 PRINT "THAT PLAYER LOSES WHO FIRST MAKES THE SUM OF THE"
110 PRINT "THREE FIGURES IN ANY ROW, COLUMN, OR DIAGONAL"
120 PRINT "SOMETHING OTHER THAN 15."
130 PRINT
140 PRINT "A TIE GAME DRAWS A MAGIC SQUARE!!"
150 PRINT@979,"PRESS ANY KEY TO CONTINUE";
160 IF INKEY$="" THEN 160 ELSE PRINT@128,CHR$(31);
170 PRINT "THE COMPUTER WILL ASK YOU ON EACH MOVE WHICH"
180 PRINT "CELL YOU WISH TO OCCUPY, AND THE NUMBER YOU WISH"
190 PRINT "LIKE 3 AND 7 IF YOU WISHED TO PUT A 7 IN CELL 3."
200 PRINT
210 PRINT "HERE ARE THE CELL NUMBERS:"
220 PRINT
230 PRINT "1 - 2 - 3"
240 PRINT "4 - 5 - 6"
250 PRINT "7 - 8 - 9"
260 PRINT@979,"PRESS ANY KEY TO CONTINUE";
270 IF INKEY$="" THEN 270 ELSE CLS
280 CLS:B$=CHR$(26)+STRING$(5,8):RESTORE
290 FOR I=42 TO 127:SET(I,1):SET(I,13):SET(I,25):SET(I,37):NEXT
300 FOR I=1 TO 37:SET(42,I):SET(43,I):SET(70,I):SET(71,I)
310 SET(98,I):SET(99,I):SET(126,I):SET(127,I):NEXT
320 PRINT@86,"1":PRINT@100,"2":PRINT@114,"3";
330 PRINT@342,"4":PRINT@356,"5":PRINT@370,"6";
340 PRINT@598,"7":PRINT@612,"8":PRINT@626,"9";
350 DATA 32,176,188,32,32,32,191,32,32,140,143,140,32
360 DATA 176,140,140,140,176,176,140,140,140,131,143,140,140,140,140
370 DATA 176,140,140,140,176,32,32,140,140,179,131,140,140,140,131
380 DATA 32,32,176,188,32,188,179,176,191,176,32,32,143,32
390 DATA 188,140,140,140,140,131,131,131,131,188,131,140,140,140,131
400 DATA 32,176,140,140,32,191,140,140,140,176,131,140,140,140,131
410 DATA 140,140,140,140,188,32,176,140,131,32,143,32,32,32,32
420 DATA 176,140,140,140,176,179,140,140,140,179,131,140,140,140,131
430 DATA 176,140,140,140,176,131,140,140,140,191,32,140,140,131,32
440 FOR CH=1 TO 9:FOR RO=1 TO 3:FOR CO=1 TO 5
450 READ PO:A$(CH)=A$(CH)+CHR$(PO)
460 NEXT CO:A$(CH)=A$(CH)+B$:NEXT RO
470 A$(CH)=LEFT$(A$(CH),27):NEXT CH
480 FOR I=1 TO 9:A(I)=0
490 B(I)=0
500 NEXT I
510 M=0:W=0
520 PRINT@521,"":PRINT@256,"CELL NUMBER - ";CHR$(8);CHR$(8);
530 A$=INKEY$:IF A$="" THEN 530 ELSE I=VAL(A$):PRINT I;
540 PRINT@512,"NUMBER - ";CHR$(8);CHR$(8);
550 A$=INKEY$:IF A$="" THEN 550 ELSE N=VAL(A$):PRINT N;
560 IF I<1 OR I>9 OR N<1 OR N>9 THEN 580
570 IF A(I)=0 AND B(N)=0 THEN 610
580 PRINT@768,"ILLEGAL MOVE...AGAIN";
590 FOR A=1 TO 1000:NEXT:PRINT@768,STRING$(20,32);
600 GOTO 520
610 A(I)=N:B(N)=1:M=M+1
620 GOSUB 1090
630 GOSUB 930
640 IF W=0 THEN 670
650 PRINT@853,"SORRY, YOU LOSE -- NICE TRY."
660 GOTO 870
670 IF M<5 THEN 710
680 PRINT@853,"A TIE GAME"
690 PRINT@917,"BUT WE'VE DRAWN A MAGIC SQUARE !"
700 GOTO 880
710 FOR Q=1 TO 9
720 IF A(Q)>0 THEN 800
730 FOR R=1 TO 9
740 IF B(R)>0 THEN 790
750 A(Q)=R
760 GOSUB 930
770 IF W=0 THEN 820
780 Q1=Q:R1=R:W=0:A(Q)=0
790 NEXT R
800 NEXT Q
810 W=1:R=R1:Q=Q1:A(Q)=R
820 B(R)=1
830 PRINT@896,"I MOVE TO CELL";Q:"WITH A";R;
840 GOSUB 1090
850 IF W=0 THEN 520
860 PRINT@853,"I LOSE --- YOU WIN!!"
870 PRINT
880 FOR I=1 TO 15
890 PRINT CHR$(7);
900 NEXT I
910 INPUT "PLAY AGAIN";AN$
920 IF LEFT$(AN$,1)="Y" THEN 280 ELSE CLS:END
930 FOR X=1 TO 8
940 ON X GOTO 950,960,970,980,990,1000,1010,1020
950 J=1:K=2:L=3:GOTO 1030
960 K=4:L=7:GOTO 1030
970 K=5:L=9:GOTO 1030
980 J=4:L=6:GOTO 1030
990 J=2:L=8:GOTO 1030
1000 J=3:L=7:GOTO 1030
1010 K=6:L=9:GOTO 1030
1020 J=7:K=8
1030 IF A(J)=0 OR A(K)=0 OR A(L)=0 THEN 1050
1040 IF A(J)+A(K)+A(L)>15 THEN 1070
1050 NEXT X
1060 GOTO 1080
1070 W=1
1080 RETURN
1090 PRINT@90,A$(A(1));PRINT@104,A$(A(2));PRINT@118,A$(A(3));
1100 PRINT@346,A$(A(4));PRINT@360,A$(A(5));PRINT@374,A$(A(6));
1110 PRINT@602,A$(A(7));PRINT@616,A$(A(8));PRINT@630,A$(A(9));
1120 RETURN

```

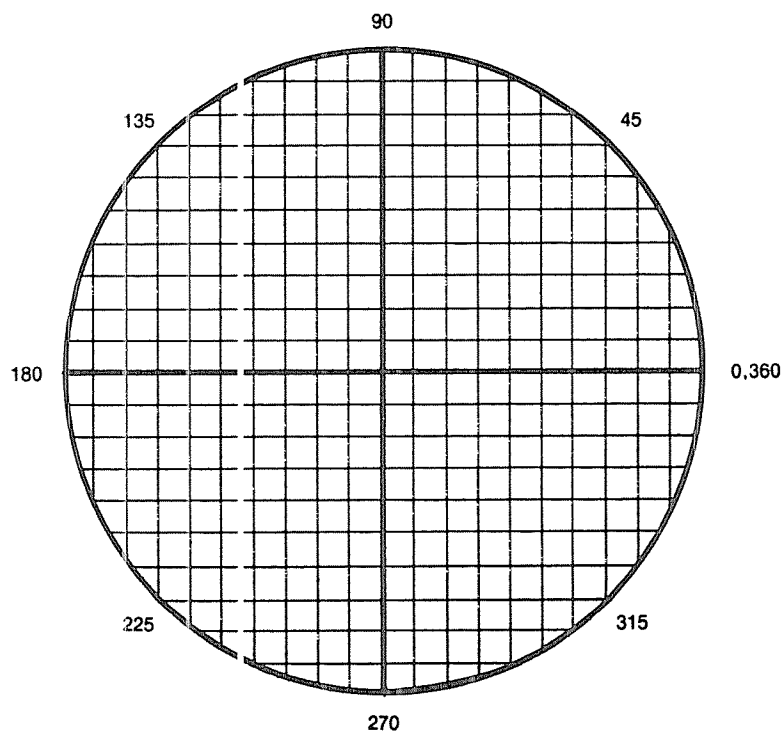


# Man-Eating Rabbit

In this game you are in a pit with a man-eating rabbit. The center of the pit, appropriately enough, is at 0,0, and it has a radius of ten. On each move, you can move in any one of eight different angles, 0, 45, 90, 135 ... etc. Unlike you, the rabbit can take more than one hop on a move. The object of the game is to avoid the rabbit for ten moves. If you do this successfully you'll be released and set free.

We're not sure what race of people on what planet dreamed up this diabolical sport, but we've found that it's extremely difficult to get away from the rabbit in more than about one out of ten games. You may, therefore, want to improve the odds somewhat by limiting the number of moves the rabbit can make on each turn to one or two. You'll find it interesting to graph the results of the program as you go along. To do this, you'll need a piece of quadrille paper at least 21 squares in each direction. Draw a circle with your compass ten units in diameter and then number the grid from minus ten to plus ten along the X and Y axes. Plot your moves as you go along and you'll see some interesting patterns develop.

This program was conceived and written by Philip Stanway.



## MAN-EATING RABBIT

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DO YOU NEED INSTRUCTIONS? YES\_

\_\_\_\_\_ cls \_\_\_\_\_

## MAN-EATING RABBIT

YOU ARE IN A PIT WITH A MAN-EATING RABBIT.  
THE CENTER IS (0,0) AND IT HAS A RADIUS OF 10.  
IF YOU CAN AVOID THE RABBIT FOR 10 MOVES YOU WILL BE  
RELEASED. YOU AND THE RABBIT CAN MOVE ONLY 1 SPACE EACH.  
HOWEVER, THE RABBIT CAN DO MULTIPLE JUMPS.

YOU CAN TRAVEL AT THESE ANGLES:  
0, 45, 90, 135, 180, 225, 270, 315, 360

WHERE WOULD YOU LIKE TO BE DROPPED? 2,3\_

\_\_\_\_\_ cls \_\_\_\_\_

RABBIT AT (-1,-9) HUMAN AT (2,3) DISTANCE 12.3693  
AT WHAT ANGLE WILL YOU RUN? 270\_

TURN # 1  
RUNNING ..... HUMAN, YOU ARE NOW AT (2,2)  
THE RABBIT IS POUNCING AT ANGLE..... 90  
THE RABBIT IS POUNCING AT ANGLE..... 90  
RABBIT AT (-1,-7) HUMAN AT (2,2) DISTANCE 9.48683  
AT WHAT ANGLE WILL YOU RUN? 0\_

\_\_\_\_\_ cls \_\_\_\_\_

TURN # 2  
RUNNING ..... HUMAN, YOU ARE NOW AT (3,2)  
THE RABBIT IS POUNCING AT ANGLE..... 45  
THE RABBIT IS POUNCING AT ANGLE..... 90  
RABBIT AT (0,-5) HUMAN AT (3,2) DISTANCE 7.61577  
AT WHAT ANGLE WILL YOU RUN? 315\_

\_\_\_\_\_ cls \_\_\_\_\_

TURN # 3  
RUNNING ..... HUMAN, YOU ARE NOW AT (4,1)  
THE RABBIT IS POUNCING AT ANGLE..... 45  
THE RABBIT IS POUNCING AT ANGLE..... 45  
THE RABBIT IS POUNCING AT ANGLE..... 45  
RABBIT AT (3,-2) HUMAN AT (4,1) DISTANCE 3.16228  
AT WHAT ANGLE WILL YOU RUN? 315\_

\_\_\_\_\_ cls \_\_\_\_\_

TURN # 4  
RUNNING ..... HUMAN, YOU ARE NOW AT (5,0)  
THE RABBIT IS POUNCING AT ANGLE..... 45  
RABBIT AT (4,-1) HUMAN AT (5,0) DISTANCE 1.41421  
AT WHAT ANGLE WILL YOU RUN? 180\_

\_\_\_\_\_ cls \_\_\_\_\_

TURN # 5  
RUNNING ..... HUMAN, YOU ARE NOW AT (4,0)  
THE RABBIT IS POUNCING AT ANGLE..... 90  
RABBIT AT (4,0)  
\*\*\* CRUNCH \*\*\* WELL, R.I.P.

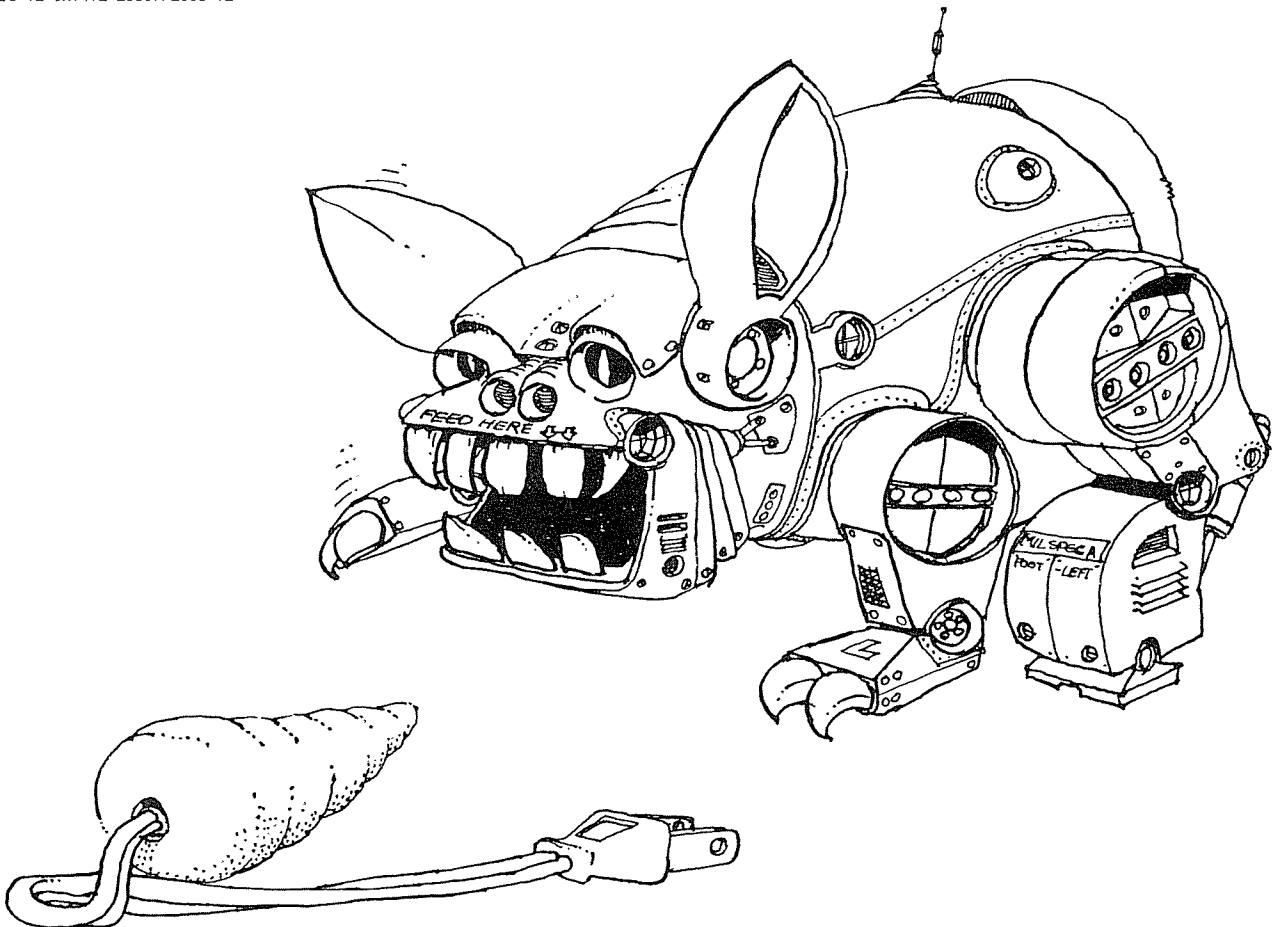
TRY AGAIN? NO\_

\_\_\_\_\_ cls \_\_\_\_\_

```

10 CLS: PRINT@400, "MAN-EATING RABBIT"
20 PRINT PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "DO YOU NEED INSTRUCTIONS":I$
40 IF LEFT$(I$,1)="N" THEN CLS: GOTO 130
50 CLS: PRINT TAB(25) "MAN-EATING RABBIT": PRINT
60 PRINT "YOU ARE IN A PIT WITH A MAN-EATING RABBIT."
70 PRINT "THE CENTER IS (0,0) AND IT HAS A RADIUS OF 10."
80 PRINT "IF YOU CAN AVOID THE RABBIT FOR 10 MOVES YOU WILL BE"
90 PRINT "RELEASED. YOU AND THE RABBIT CAN MOVE ONLY 1 SPACE EACH."
100 PRINT "HOWEVER, THE RABBIT CAN DO MULTIPLE JUMPS. ":PRINT
110 PRINT "YOU CAN TRAVEL AT THESE ANGLES:"
120 PRINT "0, 45, 90, 135, 180, 225, 270, 315, 360"
130 X=INT(21*RND(0))-10
140 Y=INT(21*RND(0))-10
150 D=SQR(ABS((X-X1)^2+(Y-Y1)^2))
160 IF D>10 THEN 130
170 PRINT
180 PRINT
190 PRINT "WHERE WOULD YOU LIKE TO BE DROPPED?";
200 INPUT X1,Y1,CLS
210 IF SQR(ABS(X1^2+Y1^2))>10 THEN 190
220 IF X<X1 THEN 260
230 IF Y<Y1 THEN 260
240 PRINT "*****SQUISH*****"
250 PRINT "THE RABBIT IS DEAD! YOU ARE SET FREE!": GOTO 830
260 FOR G=1 TO 10
270 D=SQR(ABS((X-X1)^2+(Y-Y1)^2))
280 PRINT "RABBIT AT (":X:",";Y:"); ";
290 IF D=0 THEN 820
300 PRINT"HUMAN AT (":X1:",";Y1:"); DISTANCE":D
310 PRINT "AT WHAT ANGLE WILL YOU RUN ";
320 INPUT A: CLS: PRINT "TURN #":G
330 IF A/45<INT(A/45) THEN 310
340 PRINT "RUNNING ... ": P1=1
350 M=1:IF ABS((INT(A/10)*10)-A)>5 THEN 370
360 M=SQR(2)
370 X2=(M*COS(A*(3.14159/180)))
380 Y2=(M*SIN(A*(3.14159/180)))
390 IF SQR((X1+X2)^2+(Y1+Y2)^2)<=10 THEN 420
400 PRINT "YOU CAN'T GO INTO A WALL!!"
410 GOTO 310
420 X1=INT(X1*1000)/1000+X2
430 Y1=INT(Y1*1000)/1000+Y2
440 X1=INT(X1+ 5)
450 Y1=INT(Y1+ 5)
460 PRINT "HUMAN, YOU ARE NOW AT (":X1:",";Y1:");"
470 IF X<X1 THEN 510
480 IF Y<Y1 THEN 510
490 PRINT "YOU RAN RIGHT INTO THE RABBIT!!"
500 GOTO 820
510 PRINT "THE RABBIT IS POUNCING AT ANGLE. ... ":P1=P1+1
520 X2=X1-X: Y2=Y1-Y
530 IF X2=0 THEN 710
540 IF Y2=0 THEN 740
550 B=INT(ATN(ABS((Y2/X2)))/(3.14159/180))
560 ON SGN(X2)+2 GOTO 580,60,570
570 ON SGN(Y2)+2 GOTO 610,60,620
580 ON SGN(Y2)+2 GOTO 600,60,590
590 B=180-B: GOTO 620
600 B=B+180: GOTO 570
610 B=360-B
620 B=INT(B/45+ 5)*45: PRINT B
630 M=1
640 IF ABS((INT(B/10)*10)-B)>5 THEN 660
650 M=1.5
660 X2=(M*COS(B*(3.14159/180)))
670 Y2=(M*SIN(B*(3.14159/180)))
680 X=INT(X+X2+ 5)
690 Y=INT(Y+Y2+ 5)
700 GOTO 770
710 IF Y2<0 THEN 730
720 B=90: GOTO 620
730 B=270: GOTO 620
740 IF X2<0 THEN 760
750 B=1: GOTO 620
760 B=180: GOTO 620
770 IF SQR((X-X1)^2+(Y-Y1)^2)=0 THEN 810
780 P=INT(P1*RND(0)+1)
790 IF P<1 THEN 810
800 GOTO 510
810 NEXT G: PRINT PRINT "YOU ARE RELEASED!": PRINT GOTO 830
820 PRINT PRINT "*** CRUNCH *** WELL, R. I. P ": PRINT
830 INPUT "TRY AGAIN":ANS$
840 IF LEFT$(ANS$,1)="Y" THEN 130
850 END

```



# Maneuvers

In this game you are maneuvering in a corner of space shaped, interestingly enough, like a cube. The dimensions of the cube are ten parsecs on a side. The bases are at the corners as shown on the diagram with the sample run. There are four star bases located at corners of the cube which you must visit in order, A, B, C, and D, to deliver a message to them. While it is a fairly simple matter to get to Base A, the other bases sometimes prove somewhat elusive. One possibility would be to use a second computer to compute your course, or even compute the course before you start the game and then feed it in. Would this be cheating? I don't think so because the learning value in writing a program to compute your course will teach you more about the game than probably fifty plays of it. On the other hand, which is more fun? That's for you to find out.

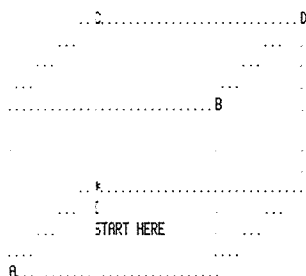
This program was written by John C. Russ.

MANEUVERS  
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DO YOU NEED INSTRUCTIONS? YES.

YOU ARE THE PILOT OF THE ENTERPRISE'S SPACE SHUTTLE. YOU MUST DELIVER A MESSAGE TO EACH OF FOUR STARBASES, IN THE LEAST TOTAL TIME. YOUR INITIAL POSITION IS AT ONE CORNER OF A CUBE, TEN PARSECS ON A SIDE. THE BASES ARE AT THE CORNERS SHOWN BELOW, MARKED A, B, C, AND D IN THE ORDER IN WHICH YOU MUST VISIT THEM.

PRESS ANY KEY TO CONTINUE



PRESS ANY KEY TO CONTINUE

FOR YOUR SUBSPACE RADIO TO DELIVER THE MESSAGE, YOU MUST PASS WITHIN ONE PARSEC OF EACH STARBASE. YOUR PROPULSION SYSTEM IS ALWAYS ON, GIVING YOU A CONSTANT ACCELERATION OF 0.2 PARSECS PER STARDATE PER STARDATE. YOU CAN ONLY CONTROL THE ORIENTATION OF YOUR SHIP, TO DIRECT YOUR THRUST AND ACCELERATION. YOU SPECIFY YOUR SHIP'S ATTITUDE BY THE ANGLE THETA (THE CLOCKWISE ANGLE IN THE X-Y PLANE STARTING AT THE X-AXIS) AND THE ANGLE PSI (THE ANGLE OF INCLINATION ABOVE THE X-Y PLANE). YOU INPUT NEW ANGLES EACH STARDATE.

PRESS ANY KEY TO CONTINUE

| cls          |                      |       |       |                        |
|--------------|----------------------|-------|-------|------------------------|
| ELAPSED TIME | POSITION COORDINATES |       |       | ORIENTATION THETA, PSI |
|              | X                    | Y     | Z     |                        |
| 0            | 0.000                | 0.000 | 0.000 | ? 0.0                  |
| 1            | 0.100                | 0.000 | 0.000 | ? 0.0                  |
| 2            | 0.400                | 0.000 | 0.000 | ? 0.0                  |
| 3            | 0.900                | 0.000 | 0.000 | ? 0.0                  |
| 4            | 1.600                | 0.000 | 0.000 | ? 0.0                  |
| 5            | 2.500                | 0.000 | 0.000 | ? 0.0                  |
| 6            | 3.600                | 0.000 | 0.000 | ? 0.0                  |
| 7            | 4.900                | 0.000 | 0.000 | ? 100.0                |
| 8            | 6.200                | 0.000 | 0.000 | ? 100.0                |
| 9            | 7.300                | 0.000 | 0.000 | ? 100.0                |
| 10           | 8.200                | 0.000 | 0.000 | ? 100.0                |

| cls                           |                      |       |       |                        |
|-------------------------------|----------------------|-------|-------|------------------------|
| ELAPSED TIME                  | POSITION COORDINATES |       |       | ORIENTATION THETA, PSI |
|                               | X                    | Y     | Z     |                        |
| 11                            | 8.900                | 0.000 | 0.000 | ? 100.0                |
| 12                            | 9.400                | 0.000 | 0.000 | ? 100.0                |
| MESSAGE DELIVERED TO BASE # 1 |                      |       |       |                        |
| AT TIME 12                    |                      |       |       |                        |
| 13                            | 9.700                | 0.000 | 0.000 | ? 100.0                |
| 14                            | 9.800                | 0.000 | 0.000 | ? 90.90                |
| 15                            | 9.800                | 0.000 | 0.100 | ? 90.90                |
| 16                            | 9.800                | 0.000 | 0.400 | ? 90                   |
| ??                            |                      |       |       |                        |
| 17                            | 9.800                | 0.000 | 0.900 | ? 90.45                |
| 18                            | 9.800                | 0.071 | 1.571 | ? 90.0                 |
| 19                            | 9.800                | 0.312 | 2.312 | ? 90.0                 |
| 20                            | 9.800                | 0.754 | 3.054 | ? 90.270               |

```

10 CLS
20 PRINT @ 411, "MANEUVERS"
30 PRINT
40 PRINT TAB(7); "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
50 PRINT @ 960, " ";
60 INPUT "DO YOU NEED INSTRUCTIONS?"; X$
70 IF LEFT$(X$, 1) = "N" THEN 530
80 CLS
90 PRINT @ 27, "MANEUVERS"
100 PRINT
110 PRINT "YOU ARE THE PILOT OF THE ENTERPRISE'S SPACE SHUTTLE."
120 PRINT "YOU MUST DELIVER A MESSAGE TO EACH OF FOUR STARBASES."
130 PRINT "IN THE LEAST TOTAL TIME. YOUR INITIAL POSITION IS AT"
140 PRINT "ONE CORNER OF A CUBE, TEN PARSECS ON A SIDE. THE BASES"
150 PRINT "ARE AT THE CORNERS SHOWN BELOW, MARKED A, B, C, AND D IN"
160 PRINT "THE ORDER IN WHICH YOU MUST VISIT THEM."
170 GOSUB 1150
180 FOR A=24 TO 80
190 SET(A+24, 6)
200 SET(A, 18)
210 SET(A+24, 30)
220 SET(A, 42)

```

```

230 NEXT A
240 FOR A=6 TO 30
250 SET(24, A+12)
260 SET(40, A)
270 SET(82, A+12)
280 SET(106, A)
290 NEXT A
300 FOR A=1 TO 12
310 SET(24+A*2, 18-A)
320 SET(82+A*2, 18-A)
330 SET(24+A*2, 42-A)
340 SET(82+A*2, 42-A)
350 NEXT A
360 PRINT @ 900, "A";
370 PRINT @ 425, "B";
380 PRINT @ 152, "C";
390 PRINT @ 181, "D";
400 PRINT @ 664, "*" CHR$(26)CHR$(8)"[" CHR$(26)CHR$(8)"START HERE";
410 GOSUB 1150
420 PRINT"FOR YOUR SUBSPACE RADIO TO DELIVER THE MESSAGE, YOU"
430 PRINT"MUST PASS WITHIN ONE PARSEC OF EACH STARBASE.  YOUR"
440 PRINT"PROPULSION SYSTEM IS ALWAYS ON, GIVING YOU A CONSTANT"
450 PRINT"ACCELERATION OF 0.2 PARSECS PER STARDATE PER STARDATE. "
460 PRINT"YOU CAN ONLY CONTROL THE ORIENTATION OF YOUR SHIP, TO"
470 PRINT"DIRECT YOUR THRUST AND ACCELERATION.  YOU SPECIFY YOUR"
480 PRINT"SHIP'S ATTITUDE BY THE ANGLE THETA (THE CLOCKWISE ANGLE"
490 PRINT"IN THE X-Y PLANE STARTING AT THE X-AXIS) AND THE ANGLE"
500 PRINT"PSI (THE ANGLE OF INCLINATION ABOVE THE X-Y PLANE). "
510 PRINT"YOU INPUT NEW ANGLES EACH STARDATE. "
520 GOSUB 1150
530 CLS
540 PRINT @ 192, "";
550 CLEAR
560 P=3.14159/180
570 J=1
580 DIM T(4, 3), C(3)
590 FOR X=1 TO 4
600 FOR Y=1 TO 3
610 READ T(X, Y)
620 NEXT Y
630 NEXT X
640 DATA 10, 0, 0, 10, 10, 10, 0, 0, 10, 0, 10, 10
650 A=2
660 B1=1E-03
670 B2=1E-03
680 GOSUB 700
690 GOTO 800
700 P1=PEEK(16416)

```

```

710 P2=PEEK(16417)
720 PRINT @ 0, "ELAPSED   POSITION COORDINATES:";
730 PRINT TAB(38); "ORIENTATION"
740 PRINT"  TIME      X      Y      Z";
750 PRINT TAB(39); "THETA, PSI"
760 PRINT"-----";
770 POKE 16416, P1
780 POKE 16417, P2
790 RETURN
800 PRINT USING" ### ##.### ##.### ##.###      ", T0, X1, Y1, Z1;
810 C(1)=X+K*V1+A/2*K*K*COS(B2*P)*COS(B1*P)
820 FOR K=0 TO 1 STEP.2
830 C(2)=Y+K*V2+A/2*K*K*COS(B2*P)*SIN(B1*P)
840 C(3)=Z+K*V3+A/2*K*K*SIN(B2*P)
850 D=0
860 FOR L=1 TO 3
870 D=D+(T(J, L)-C(L))*(T(J, L)-C(L))
880 NEXT L
890 IF SQR(D)>1 THEN 960
900 PRINT
910 PRINT"MESSAGE DELIVERED TO BASE #";J
920 PRINT"AT TIME";T0+K; TAB(38);
930 IF J=4 THEN 1100
940 J=J+1
950 GOTO 970
960 NEXT K
970 X=X1
980 Y=Y1
990 Z=Z1
1000 T0=T0+1
1010 INPUT B1, B2
1020 X1=X+V1+A/2*COS(B2*P)*COS(B1*P)
1030 Y1=Y+V2+A/2*COS(B2*P)*SIN(B1*P)
1040 Z1=Z+V3+A/2*SIN(B2*P)
1050 V1=V1+A*COS(B2*P)*COS(B1*P)
1060 V2=V2+A*COS(B2*P)*SIN(B1*P)
1070 V3=V3+A*SIN(B2*P)
1080 GOSUB 700
1090 GOTO 800
1100 PRINT"GOOD JOB.  DO YOU WANT TO"
1110 PRINT"TRY TO IMPROVE YOUR TIME";
1120 INPUT X$
1130 IF LEFT$(X$, 1)="Y" THEN 530
1140 END
1150 PRINT @ 979, "PRESS ANY KEY TO CONTINUE";
1160 IF INKEY$="" THEN 1160
1170 PRINT @ 120, CHR$(21);
1180 RETURN

```

# Masterbagels

This is a fascinating, general-purpose, deductive logic game. It rolls Bagels, Mastermind, bulls and cows, et cetera, into one general deductive logic game. If you want to play Bagels, set the inputs to N,3,9 (N is the number of games you wish to play). If you want to play mastermind, set the inputs to N,4,6. Of course, many of the games that it plays are entirely new altogether such as N,7,4 or N,5,5.

To make it into a really general-purpose game, you might want to put in a modification in the digit selection routine (statements 310-330) with a

parameter that either allows or disallows duplicate digits. As it is right now, the game does allow duplicate digits so that, for example, it could select a three digit number such as 223 or even 444. Another change you might want to add is in statement 770; it sets the maximum allowable trials for getting the answer. You may find that it is not giving you enough tries and you might want to increase the value of I.

Master Bagels was created by H.R. Hamilton and originally appeared in *Creative Computing*, Jan/Feb 1977.

```
MASTER BAGELS

COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

DO YOU NEED INSTRUCTIONS? YES_
```

\_\_\_\_\_ cls \_\_\_\_\_

MASTER BAGELS

```
HI, THIS IS A LOGIC GAME DESIGNED TO TEST YOUR DEDUCTIVE
ABILITY. I WILL CHOOSE A RANDOM NUMBER AND YOU ISOLATE IT.
WHEN PROMPTED, ENTER A VALID NUMBER, AND I WILL THEN RESPOND
WITH THE # OF DIGITS THAT ARE RIGHT AND IN THE RIGHT POSITION
AND THE # RIGHT BUT IN THE WRONG POSITION. IF I THINK YOU
ARE HOPELESSLY LOST, I WILL TELL YOU THE ANSWER AND WE
WILL GO ON TO THE NEXT NUMBER. TO RECAP YOUR ENTRIES
ENTER A 0, TO QUIT ON A NUMBER ENTER 1, AND TO STOP ENTER 2.

HOW MANY #'S (1-100), # DIGITS (2-6), AND MAX VALUE (2-9)? 2,2,4
```

\_\_\_\_\_ cls \_\_\_\_\_

```
GUESS? 12      0 , 1
GUESS? 31      0 , 1
GUESS? 24      1 , 0
GUESS? 41      0 , 0
GUESS? 56
BAD NUMBER IN 56.
GUESS? 12      0 , 1
GUESS? 32      0 , 2
GUESS? 22      1 , 0
```

\_\_\_\_\_ cls \_\_\_\_\_

```
6 TRIES, 6 AVERAGE FOR 1
GUESS? 32      0 , 0
GUESS? 23      0 , 0
GUESS? 22      0 , 0
GUESS? 13      1 , 0
GUESS? 14      1 , 0
GUESS? 31      1 , 0
GUESS? 23      0 , 0
```

\_\_\_\_\_ cls \_\_\_\_\_

6 TRIES, 6 AVERAGE FOR 2

RUN AGAIN? YES

HOW MANY #'S (1-100), # DIGITS (2-6), AND MAX VALUE (2-9)? 1,4,6

\_\_\_\_\_ cls \_\_\_\_\_

```
GUESS? 1122      0 , 1
GUESS? 1234      1 , 1
GUESS? 3456      1 , 1
GUESS? 1265      0 , 2
GUESS? 2134      2 , 0
GUESS? 0_
```

\_\_\_\_\_ cls \_\_\_\_\_

```
0 , 0 = 1122
0 , 1 = 1234
2 , 0 = 1265
0 , 1 = 2134
GUESS? 1_
```

\_\_\_\_\_ cls \_\_\_\_\_

ANSWER IS 6262.  
10 TRIES, 10 AVERAGE FOR 1

RUN AGAIN? NO\_

\_\_\_\_\_ cls \_\_\_\_\_

```

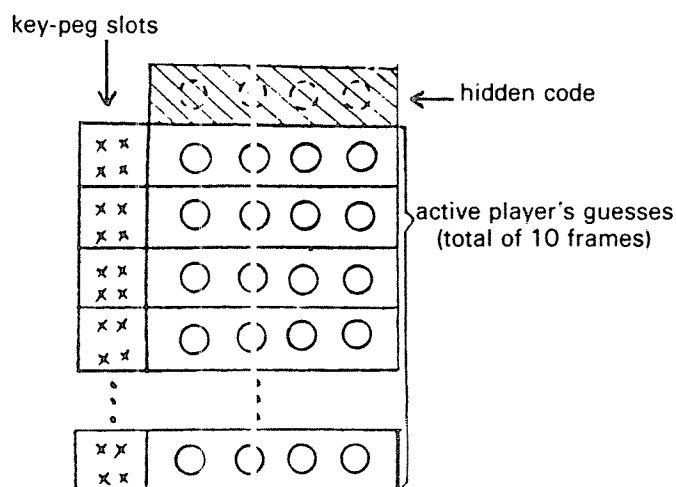
10 CLS: PRINT@410, "MASTER BAGELS"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "DO YOU NEED INSTRUCTIONS"; I$
40 DIM F(9), M(9), T(9), H(18, 3)
50 IF LEFT$(I$, 1) = "N" THEN CLS: GOTO 150
60 CLS: PRINT@26, "MASTER BAGELS": PRINT
70 PRINT " HI, THIS IS A LOGIC GAME DESIGNED TO TEST YOUR DEDUCTIVE"
80 PRINT "ABILITY. I WILL CHOOSE A RANDOM NUMBER AND YOU ISOLATE IT."
90 PRINT "WHEN PROMPTED, ENTER A VALID NUMBER, AND I WILL THEN RESPOND"
100 PRINT "WITH THE # OF DIGITS THAT ARE RIGHT AND IN THE RIGHT POSITION"
110 PRINT "AND THE # RIGHT BUT IN THE WRONG POSITION. IF I THINK YOU"
120 PRINT "ARE HOPELESSLY LOST, I WILL TELL YOU THE ANSWER AND WE"
130 PRINT "WILL GO ON TO THE NEXT NUMBER. TO RECAP YOUR ENTRIES"
140 PRINT "ENTER A 0, TO QUIT ON A NUMBER ENTER 1, AND TO STOP ENTER 2."
150 S=0
160 PRINT
170 PRINT "HOW MANY #'S (1-100), # DIGITS (2-6), AND MAX VALUE (2-9)";
180 INPUT J, A, B
190 IF A<=0 THEN 230
200 IF A>6 THEN 230
210 IF B<2 THEN 230
220 IF B<10 THEN 250
230 PRINT "ILLEGAL RANGE, RE-ENTER RUN PARAMETERS."
240 GOTO 180
250 CLS: IF J<100 THEN 270
260 J=100
270 FOR X=0 TO J+A+B
280 I=RND(0)
290 NEXT X
300 FOR N=1 TO J
310 FOR X=0 TO A
320 T(X)=INT(RND(0)*B+1)
330 NEXT X
340 FOR I=1 TO A+B+1
350 FOR X=1 TO A
360 F(X)=0
370 NEXT X
380 F1=0
390 F2=0
400 P0=PEEK(16416)+PEEK(16417)*256-15360: IF P0=960 THEN CLS
410 INPUT "GUESS"; V
420 IF V<0 THEN 470
430 CLS: P0=0: FOR X=1 TO I-1
440 PRINT@P0+32, H(X, 1), "H(X, 2)"=H(X, 3)
450 P0=P0+32: NEXT X
460 GOTO 410
470 IF V=1 THEN 770
480 IF V=2 THEN 930
490 T1=V
500 FOR X=1 TO A
510 M(X)=INT(T1/(10[(A-X)]))
520 T1=T1-M(X)*(10[(A-X)]+((SGN(A-(X+1))-1)*- 5)
530 IF M(X)<1 THEN 550
540 IF M(X)>B+1 THEN 570
550 PRINT "BAD NUMBER IN"V; CHR$(8); " "
560 GOTO 350
570 IF M(X)>T(X) THEN 600
580 F(X)=1
590 F1=F1+1
600 NEXT X
610 IF F1=A THEN 830
620 FOR V=1 TO A
630 IF T(V)=M(V) THEN 710
640 FOR X=1 TO A
650 IF M(V)>T(X) THEN 700
660 IF F(X)=1 THEN 700
670 F(X)=1
680 F2=F2+1
690 GOTO 710
700 NEXT X
710 NEXT V
720 PRINT@P0+32, F1, "F2
730 H(1, 1)=F1
740 H(1, 2)=F2
750 H(1, 3)=V
760 NEXT I
770 I=A-1+B+1
780 V=0
790 FOR X=1 TO A
800 V=V+T(X)*(10[(A-X)]
810 NEXT X
820 FOR TI=1 TO 1000: NEXT: CLS: PRINT "ANSWER IS"V; CHR$(8); " "
830 S=S+I
840 PRINT I; "TRIES,"; S/N; "AVERAGE FOR"; N
850 V=INT(RND(R)*I)
860 V=INT(H(V, 2)/1024+4*RND(0))
870 FOR X=1 TO V+1
880 I=RND(0)
890 NEXT X
900 NEXT N
910 PRINT: INPUT "RUN AGAIN"; S$
920 IF LEFT$(S$, 1) = "Y" THEN 150
930 END

```

# Mastermind

The original invention of Mastermind is credited to an amateur mathematician, Mordechai Meirovich, who first displayed it at the 1971 Nuremberg Toy Fair.\* Rights to the game were bought by Invicta who had moderate success with the game for 2½ years until the Christmas season of 1975 when it was the most popular packaged game. Sales surpassed even the old standby, Monopoly.

In its most basic form, Mastermind consists of a plastic game board, a dozen or so pegs which can be grouped into six basic colors, and two groups of black and white key pegs (sometimes called "inference pegs".) The game board resembles the figure below.



The game is played by two people, whom we shall designate as the "active" player and the "passive" player. The first step before play actually commences is to have the passive player (in our case, the computer) choose a total of four colored pegs at random from any of the six basic color groups (duplicate colors allowed, of course.) He then conceals these colors from the active player by placing the four pegs in the "hidden code" portion of the game board. It is now up to the active player to determine, in ten moves or less, the exact color and location of each of the four pegs comprising the hidden code.

To aid the active player in determining the hidden code, the passive player must award the active player a number of key pegs (inference pegs) after each guess, according to the following scheme: for *each* peg in the active player's current guess which corresponds exactly (in color *and* posi-

tion) to a peg in the hidden code, the passive person places one *black* peg in the key-peg square adjacent to the passive player's current guess frame. Placing of the key pegs within the square is arbitrary since the relative position of the key peg carries no meaning. Clearly, when four black pegs are obtained, the hidden code is broken.

Secondly, the passive player must place one *white* key peg in the current key-peg square for *each* peg in the active player's current guess which matches (in color, but *not* position) a peg in the hidden code. Keep in mind that once a color peg in the player's current guess has been awarded a key peg, its function in determining the remaining number of key pegs to award for the current guess is finished. For example, suppose the hidden code were:

R B Y G

corresponding to red, blue, yellow, green, and the active player's current guess were:

G B B P

corresponding to green, blue, blue and purple.

The passive player should subsequently award one black and one white key peg for the following reasons: the blue color peg in position 2 of the current guess matches exactly in color and position with the hidden code. Secondly, the green color peg in position 1 of the current guess matches the color of the peg in position 4 of the hidden code. But since the *location* of the green peg is not exact, only a white peg is awarded. The blue and purple pegs in positions 3 and 4, respectively, of the current guess do not match either the color or position of the remaining pegs in the hidden code (positions 1 and 3) and hence, no other key pegs are awarded.

The game proceeds in this manner until the hidden code is broken or all ten frames have been filled. As noted earlier, the computer will play the passive player in our computer version, generating a hidden code and awarding the black and white key pegs after each guess.

The program offers the user two options, QUIT and BOARD, which may be entered at any time *after* the first move. QUIT instructs the program that you are fed up with playing Mastermind for the time being and wish to terminate the session. BOARD instructs the program to print out a summary of the moves prior to the time that the BOARD command was issued, including the guesses and key pegs awarded for each frame. Some players find that an arrangement of frames such as that provided by BOARD is easier to visualize and subsequently analyze. Beginners will find it most useful.

The program and this description were written by David G. Struble of the University of Dayton. It first appeared in *Creative Computing*, Mar/Apr 1976.

\*Ed. Note—

To anyone familiar with children's games, it is obvious that Mastermind is simply a commercial adaptation (using colors rather than numbers) of the game Bulls and Cows. This game, much more popular in England than the U.S. is not, to my knowledge, commercially packaged —DHA.

```

MASTERMIND
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ
_____ cls _____
HIT ENTER TO START? _
_____ cls _____
THE GAME OF MASTERMIND

```

COLOR CODES.

|         |          |          |
|---------|----------|----------|
| R=RED   | O=ORANGE | Y=YELLOW |
| G=GREEN | B=BLUE   | P=PURPLE |

```

MOVE NUMBER 1 ^ RGG
0 BLACK PEGS 1 WHITE PEGS
MOVE NUMBER 2 ^ OGBB
0 BLACK PEGS 0 WHITE PEGS
MOVE NUMBER 3 ^ YVPP
1 BLACK PEGS 2 WHITE PEGS
MOVE NUMBER 4 ^ YVPR
1 BLACK PEGS 3 WHITE PEGS
MOVE NUMBER 5 ^ GYPP_
_____ cls _____

```

COLOR CODES.

|         |          |          |
|---------|----------|----------|
| R=RED   | O=ORANGE | Y=YELLOW |
| G=GREEN | B=BLUE   | P=PURPLE |

```

MOVE NUMBER 3 ^ YVPP
1 BLACK PEGS 2 WHITE PEGS
MOVE NUMBER 4 ^ YVPR
1 BLACK PEGS 3 WHITE PEGS
MOVE NUMBER 5 ^ GYPP
0 BLACK PEGS 2 WHITE PEGS
MOVE NUMBER 6 ^ PYVR
0 BLACK PEGS 4 WHITE PEGS
MOVE NUMBER 7 ^ YPRY
YOU WIN!!
_____ cls _____
WANT TO PLAY AGAIN? NO_
_____ cls _____

```

```

10 CLS: PRINT@412, "MASTERMIND"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "HIT ENTER TO START";A$: CLS
40 GOSUB 50: PRINT@320, GOTO 120
50 LB=PEEK(16416): HB=PEEK(16417)
60 PRINT@0, "THE GAME OF MASTERMIND"
70 PRINT
80 PRINT "COLOR CODES:"
90 PRINT "          R=RED      O=ORANGE      Y=YELLOW"
100 PRINT "          G=GREEN     B=BLUE      P=PURPLE"
110 POKE16416, LB: POKE16417, HB: RETURN
120 DIM B$(10), Y$(10), Z$(10)
130 C(0)=4
140 FOR N=1 TO 4
150 C(N)=INT(6*RND(0)+1)
160 NEXT N
170 FOR N=1 TO 4
180 X=C(N)
190 GOSUB 750
200 C(N)=X
210 NEXT N
220 P$=""

```

```

230 FOR X1=1 TO 4
240 P$=P$+CHR$(C(X1))
250 NEXT X1
260 FOR P=1 TO 10
270 REM
280 PRINT "MOVE NUMBER";P;
290 INPUT G$: GOSUB 50
300 IF G$= "BOARD" THEN 930
310 IF G$="QUIT" THEN CLS: GOTO420
320 B$(P)=G$
330 GOSUB 500
340 IF B=4 THEN 1020
350 GOSUB 600
360 PRINT B: "BLACK PEGS",
370 Y(P)=B
380 PRINT W: "WHITE PEGS": GOSUB 50
390 Z(P)=W
400 NEXT P: CLS
410 PRINT "SORRY, YOU LOSE."
420 PRINT "THE CORRECT CODE WAS. ",P$
430 PRINT:PRINT "WANT TO PLAY AGAIN";
440 INPUT A$
450 CLS
460 IF LEFT$(A$,1)="Y" THEN CLEAR: GOSUB 50: GOTO 40
470 PRINT
480 END
490 REM COMPUTE BLACK PEGS
500 FOR X1=1 TO 4
510 G(X1)=ASC(MID$(G$,X1,1))
520 NEXT X1
530 B=0
540 FOR K=1 TO 4
550 IF G(K) = C(K) THEN 570
560 B=B+1
570 NEXT K
580 RETURN
590 REM COMPUTE WHITE PEGS
600 FOR X1=1 TO 4
610 R(X1)=ASC(MID$(P$,X1,1))
620 NEXT X1
630 W=0
640 FOR I=1 TO 4
650 FOR J=1 TO 4
660 IF G(I) = R(J) THEN 700
670 W=W+1
680 R(J)=0
690 GOTO 710
700 NEXT J
710 NEXT I
720 W=W-B
730 RETURN
740 REM TRANSLATE COLOR CODES TO NUMERICS
750 IF X < 1 THEN 780
760 X=89
770 RETURN
780 IF X < 2 THEN 810
790 X=82
800 RETURN
810 IF X < 3 THEN 840
820 X=80
830 RETURN
840 IF X < 4 THEN 870
850 X=79
860 RETURN
870 IF X < 5 THEN 900
880 X=71
890 RETURN
900 X=66
910 RETURN
920 REM PRINT BOARD SUMMARY
930 V=P-1
940 CLS: PRINT "GUESS", "BLACKS", "WHITES"
950 PRINT "-----", "-----", "-----"
960 FOR I=1 TO V
970 PRINT B$(I), " ", Y(I), " ", Z(I)
980 NEXT I
990 PRINT@979, "PRESS ANY KEY TO CONTINUE":
1000 IF INKEY$="" THEN 1000 ELSE CLS: PRINT@340,
1010 GOSUB 50: GOTO 270
1020 PRINT "YOU WIN!!"
1030 GOTO 430

```



# Matpuzzle

Ready to try something new? A game that isn't like STARTREK or Slot Machine? Then try MATPUZZLE and enjoy the art of puzzle-making.

One benefit of puzzles is that they help develop a pattern of logic in one's thinking. In this puzzle you are given a matrix of letters, up to 6x6, and a board with dashes and a number above each of the dashes.

The matrix represents the letters of the words you typed in, each having the same length. The number of words and the length of the words are both limited to six, six words each six letters in length, but, both values don't have to be the same. The letters are then put in a matrix and randomly rearranged in lines 210-480.

The dashes on the board form the places for each letter of each word to be written in after it has been deciphered. The number above each dash, determined in lines 510-790, is the sum of the coordinates of where the letter of that dash is located in the matrix. The problem in solving the puzzle is that several coordinates have the same sum.

Since the answers appear above the puzzle itself, rip them off before you give it to a friend to try. They will have a great time trying to figure out your puzzle. Then let them make one for you or set up a relay. The possibilities are almost endless.

The program and description were written by Dave Schroeder.

## MATPUZZLE

COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

DO YOU NEED INSTRUCTIONS? YES\_

cls

## MATPUZZLE

THIS IS A PUZZLE-MAKING GAME.  
YOU INPUT UP TO SIX WORDS, UP TO SIX  
LETTERS EACH, ALL EQUAL IN LENGTH.  
THE COMPUTER WILL SCRAMBLE THEM AND  
PRINT THEM IN A MATRIX. THE COMPUTER  
WILL ALSO PRINT A CORRESPONDING NUMBER  
BOARD. WHEN IT STOPS TEAR IT AND GIVE IT  
TO A FRIEND.

HOW MANY WORDS DO YOU WANT (UP TO 6)? 6  
HOW MANY LETTERS IN EACH WORD (MUST BE SAME, 6 LETTERS MAX)? 6\_

TYPE ONE 6 LETTER WORD ON EACH LINE

? PARITY  
? DUPLEX  
? MATRIX  
? NUMBER  
? LENGTH  
? MOTHER\_

cls

|               |               |
|---------------|---------------|
| 10 5 3 5 9 7  | 1 2 3 4 5 6   |
| 4 2 10 6 8 7  | 1 U R R I H X |
| 6 12 5 4 5 7  | 2 H D A M X L |
| 8 6 8 7 9 7   | 3 O T E R N T |
| 8 6 8 11 3 9  | 4 I L R E T P |
| 11 4 9 6 10 7 | 5 U B N E E H |
|               | 6 Y M T P G A |

THE NUMBER ABOVE EACH DASH IS THE SUM OF TWO COORDINATES OF  
THE POINT ON THE MATRIX WHERE THE CORRECT LETTER FOR THAT  
SPOT WILL APPEAR. THE PROBLEM IS THAT THE SUM OF SOME

cls

|               |               |
|---------------|---------------|
| 10 5 3 5 9 7  | 1 2 3 4 5 6   |
| 4 2 10 6 8 7  | 1 U R R I H X |
| 6 12 5 4 5 7  | 2 H D A M X L |
| 8 6 8 7 9 7   | 3 O T E R N T |
| 8 6 8 11 3 9  | 4 I L R E T P |
| 11 4 9 6 10 7 | 5 U B N E E H |
|               | 6 Y M T P G A |

SPOT WILL APPEAR. THE PROBLEM IS THAT THE SUM OF SOME  
COORDINATES ARE THE SAME SO SEVERAL LETTERS COULD FIT. SO  
TRY NOW TO FIND WHAT WORDS WERE USED AND SOLVE THE PUZZLE.  
(PRESS ANY KEY TO END PROGRAM)

DO YOU WANT ANOTHER RUN? NO  
READY  
Y\_

cls

```

10 CLEAR 1000:CLS:PRINT@412,"MATPUZZLE"
20 PRINT:PRINT TAB(7)"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960,"":INPUT "DO YOU NEED INSTRUCTIONS?";I$
40 DIM A$(6),B$(6,6),C$(6,6),D$(6,6)
50 IF LEFT$(I$,1)="N" THEN CLS:GOTO 160
60 CLS:PRINT TAB(28);"MATPUZZLE":PRINT
70 PRINT "THIS IS A PUZZLE-MAKING GAME."
80 PRINT "YOU INPUT UP TO SIX WORDS, UP TO SIX"
90 PRINT "LETTERS EACH, AND EQUAL IN LENGTH."
100 PRINT "THE COMPUTER WILL SCRAMBLE THEM AND"
110 PRINT "PRINT THEM IN A MATRIX. THE COMPUTER"
120 PRINT "WILL ALSO PRINT A CORRESPONDING NUMBER"
130 PRINT "BOARD. WHEN IT STOPS TEAR IT AND GIVE IT"
140 PRINT "TO A FRIEND."
150 PRINT
160 PRINT "HOW MANY WORDS DO YOU WANT (UP TO 6)";
170 INPUT W
180 PRINT "HOW MANY LETTERS IN EACH WORD (MUST BE SAME, 6 LETTERS MAX)";
190 INPUT L
200 CLS:PRINT "TYPE ONE";L;"LETTER WORD ON EACH LINE"
210 FOR X=1 TO W
220 INPUT A$(X)
230 NEXT X
240 FOR X=1 TO W
250 FOR Y=1 TO L
260 C$(X,Y)=MID$(A$(X),Y,1):B$(X,Y)=MID$(A$(X),Y,1)
270 NEXT Y
280 NEXT X
290 PRINT
300 FOR Z=1 TO 60
310 F=INT(RND(8)*#+1)
320 D=INT(RND(8)*#+1)
330 G=INT(RND(8)*#+1)
340 E=INT(RND(8)*#+1)
350 J$=B$(F,G)
360 B$(F,G)=B$(D,E)
370 B$(D,E)=J$
380 NEXT Z
390 CLS:PRINT TAB(42);
400 FOR Z1=1 TO L
410 PRINT Z1;CHR$(8);
420 NEXT Z1
430 PRINT
440 FOR Z2=1 TO W
450 PRINT TAB(40);Z2;
460 FOR Z3=1 TO L
470 PRINT B$(Z2,Z3);" ";
480 NEXT Z3
490 PRINT
500 NEXT Z2

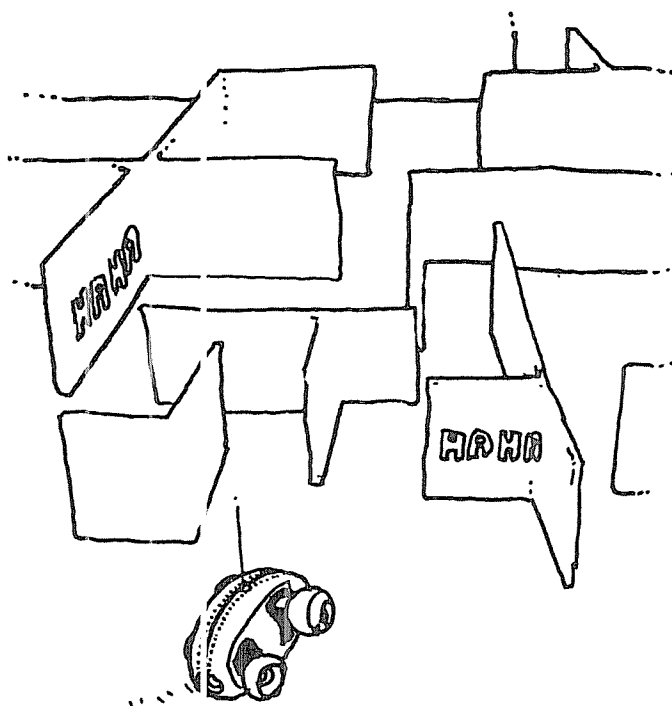
```

```

510 FOR P=1 TO L
520 FOR Q=1 TO W
530 T=0
540 FOR R=1 TO W
550 FOR S=1 TO L
560 IF T=1 THEN 610
570 IF B$(R,S)OC$(Q,P)THEN 610
580 C(Q,P)=R+S
590 T=1
600 B$(R,S)=" "
610 NEXT S
620 NEXT R
630 NEXT Q
640 NEXT P
650 PRINT @0,"":FOR X=1 TO W
660 PRINT TAB(3)
670 FOR M=1 TO L
680 IF C$(M)>9 THEN 710
690 PRINT C$(M);" ";
700 GOTO 720
710 PRINT C$(M);
720 NEXT M
730 PRINT CHR$(26);CHR$(29);
740 PRINT TAB(3);
750 FOR M1=1 TO L
760 PRINT"— ";
770 NEXT M1
780 PRINT CHR$(26);CHR$(29);
790 NEXT X
800 'PRINT@979,"PRESS ANY KEY TO CONTINUE";
810 'IF INKEY$="" THEN 810 ELSE CLS
820 D$(1)="THE NUMBER ABOVE EACH DASH IS THE SUM OF TWO COORDINATES OF "
830 D$(2)="THE POINT ON THE MATRIX WHERE THE CORRECT LETTER FOR THAT "
840 D$(3)="SPOT WILL APPEAR. THE PROBLEM IS THAT THE SUM OF SOME "
850 D$(4)="COORDINATES ARE THE SAME SO SEVERAL LETTERS COULD FIT. SO "
860 D$(5)="TRY NOW TO FIND WHAT WORDS WERE USED AND SOLVE THE PUZZLE."
870 JJ=0
880 FOR II=1 TO 3
890 PRINT @ 704 + (II*64),STRING$(63," ");
900 PRINT @ 704 + (II*64),D$(JJ+II)
910 NEXT II
920 JJ=JJ+1
930 FOR II=1 TO 2000: NEXT II
940 IF JJ>3 THEN 880
950 PRINT " (PRESS ANY KEY TO END PROGRAM)";
960 AI$=INKEY$:IF AI$="" THEN 960
970 CLS:PRINT:PRINT "DO YOU WANT ANOTHER RUN?";
980 INPUT V$
990 IF LEFT$(V$,1)="Y" THEN CLS:GOTO 160
1000 END

```

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This is actually a two part game. In the first part, the program generates a maze through which you can try to find your way

In the second part of the program a near-sighted mouse is let loose in the maze and explores until he finds his way through. If you want to know what near-sighted means, run the program and ask to see the solution step by step as the mouse goes through the maze. If you elect not to see each step, you'll simply get a total solution for the maze itself.

With or without the mouse, it's a fun program and the larger mazes are frequently a real challenge to solve.

Maze is another program which utilizes TRS-80 graphics, so do not be too confused by the sample run.

MAZE

COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

- cls

DO YOU NEED INSTRUCTIONS? YES.

 $\rightarrow c/s$ 

THIS PROGRAM WILL SIMULATE A NEAR-SIGHTED MOUSE IN  
A MAZE. YOU SELECT THE DIFFICULTY FACTOR - SIZE!  
THE DIMENSIONS MUST FALL IN THE RANGE HORIZ: (5-20)  
VERT: (3-6). DIMENSIONS LESS THAN 5 ARE TOO TRIVIAL.  
EACH MAZE IS DIFFERENT, AND HAS ONLY ONE WAY THROUGH IT.

WHAT ARE YOUR DIMENSIONS (HORIZONTAL, VERTICAL)? 20, 6

- c/s

DO YOU WANT THE SOLUTION

- c/s

DO YOU WANT TO SEE EACH STEP

- cis

[illegible]

DO YOU WANT ANOTHER MAZE?

- clg

```

10 CLS
20 CLEAR 1000
30 PRINT @ 414, "MAZE"
40 PRINT
50 PRINT TAB(7)"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
60 PRINT @ 960, "":
70 INPUT "DO YOU NEED INSTRUCTIONS?"; I$
80 REM MOUSE IN MAZE - SOLUTION SECTION BY RICHARD SCHAAL FMCC
90 REM ORIGINAL MAZE PROGRAM FROM "101 BASIC COMPUTER GAMES"
100 IF LEFT$(I$, 1) = "Y" THEN CLS: GOTO 260
110 CLS
120 GOTO 190
130 PRINT
140 PRINT "THIS PROGRAM WILL SIMULATE A NEAR-SIGHTED MOUSE IN"
150 PRINT "A MAZE. YOU SELECT THE DIFFICULTY FACTOR - SIZE!"
160 PRINT "THE DIMENSIONS MUST FALL IN THE RANGE HORIZ: (5-20)"
170 PRINT "VERT: (3-6). DIMENSIONS LESS THAN 5 ARE TOO TRIVIAL."
180 PRINT "EACH MAZE IS DIFFERENT, AND HAS ONLY ONE WAY THROUGH IT."
190 PRINT
200 PRINT "WHAT ARE YOUR DIMENSIONS (HORIZONTAL, VERTICAL)";
210 CLEAR 100: REM ERASE ALL ARRAYS AND VARIABLE VALUES
220 INPUT H, V
230 PRINT CHR$(26)
240 H=INT(RND*(H))
250 V=INT(RND*(V))
260 IF H<5 AND H<20 AND V<3 AND V<6 THEN 280
270 GOTO 130
280 DIM W(H, V), V(H, V)
290 CLS
300 Q=0
310 Z=0
320 X=INT(RND*(H)+1)
330 FOR I=1 TO H
340 IF I=X THEN 370
350 PRINT STRING$(3, 191);
360 GOTO 380
370 PRINT CHR$(191) " ";
380 NEXT I
390 PRINT CHR$(191)
400 C=1
410 W(X, 1)=C
420 C=C+1
430 R=X
440 S=1
450 GOTO 560
460 IF R<H THEN 540
470 IF S<V THEN 510
480 R=R+1
490 S=1
500 GOTO 550
510 R=1
520 S=S+1
530 GOTO 550
540 R=R+1
550 IF W(R, S)=0 THEN 460
560 IF R=1 THEN 920
570 IF W(R-1, S)>0 THEN 920
580 IF S=1 THEN 730
590 IF W(R, S-1)>0 THEN 730
600 IF R=H THEN 640
610 IF W(R+1, S)>0 THEN 640
620 X=INT(RND*(H)+1)
630 ON X GOTO 1290, 1360, 1430
640 IF S<V THEN 680
650 IF Z=1 THEN 710
660 Q=1
670 GOTO 690
680 IF W(R, S+1)>0 THEN 710
690 X=INT(RND*(H)+1)
700 ON X GOTO 1290, 1360, 1530
710 X=INT(RND*(H)+1)
720 ON X GOTO 1290, 1360
730 IF R=H THEN 840
740 IF W(R+1, S)>0 THEN 840
750 IF S<V THEN 790
760 IF Z=1 THEN 820
770 Q=1
780 GOTO 800
790 IF W(R, S+1)>0 THEN 820
800 X=INT(RND*(H)+1)
810 ON X GOTO 1290, 1430, 1530
820 X=INT(RND*(H)+1)
830 ON X GOTO 1290, 1430
840 IF S<V THEN 880
850 IF Z=1 THEN 910
860 Q=1
870 GOTO 890
880 IF W(R, S+1)>0 THEN 910
890 X=INT(RND*(H)+1)

```

```

900 ON X GOTO 1290, 1530
910 GOTO 1290
920 IF S=1 THEN 1130
930 IF W(R, S-1)>0 THEN 1130
940 IF R=H THEN 1050
950 IF W(R+1, S)>0 THEN 1050
960 IF S<V THEN 1000
970 IF Z=1 THEN 1030
980 Q=1
990 GOTO 1010
1000 IF W(R, S+1)>0 THEN 1030
1010 X=INT(RND*(H)+1)
1020 ON X GOTO 1360, 1430, 1530
1030 X=INT(RND*(H)+1)
1040 ON X GOTO 1360, 1430
1050 IF S<V THEN 1090
1060 IF Z=1 THEN 1120
1070 Q=1
1080 GOTO 1100
1090 IF W(R, S+1)>0 THEN 1120
1100 X=INT(RND*(H)+1)
1110 ON X GOTO 1360, 1530
1120 GOTO 1360
1130 IF R=H THEN 1230
1140 IF W(R+1, S)>0 THEN 1230
1150 IF S<V THEN 1190
1160 IF Z=1 THEN 1220
1170 Q=1
1180 GOTO 1200
1190 IF W(R, S+1)>0 THEN 1220
1200 X=INT(RND*(H)+1)
1210 ON X GOTO 1430, 1530
1220 GOTO 1430
1230 IF S<V THEN 1270
1240 IF Z=1 THEN 460
1250 Q=1
1260 GOTO 1280
1270 IF W(R, S+1)>0 THEN 460
1280 GOTO 1530
1290 W(R-1, S)=C
1300 C=C+1
1310 V(R-1, S)=2
1320 R=R-1
1330 IF C=H+V+1 THEN 1730
1340 Q=0
1350 GOTO 560
1360 W(R, S-1)=C
1370 C=C+1
1380 V(R, S-1)=1
1390 S=S-1
1400 IF C=H+V+1 THEN 1730
1410 Q=0
1420 GOTO 560
1430 W(R+1, S)=C
1440 C=C+1
1450 IF V(R, S)=0 THEN 1480
1460 V(R, S)=3
1470 GOTO 1490
1480 V(R, S)=2
1490 R=R+1
1500 IF C=H+V+1 THEN 1730
1510 Q=0
1520 GOTO 920
1530 IF Q=1 THEN 1630
1540 W(R, S+1)=C
1550 C=C+1
1560 IF V(R, S)=0 THEN 1590
1570 V(R, S)=3
1580 GOTO 1600
1590 V(R, S)=1
1600 S=S+1
1610 IF C=H+V+1 THEN 1730
1620 GOTO 560
1630 Z=1
1640 IF V(R, S)=0 THEN 1680
1650 V(R, S)=3
1660 Q=0
1670 GOTO 460
1680 V(R, S)=1
1690 Q=0
1700 R=1
1710 S=1
1720 GOTO 550
1730 IF Z=1 THEN 1770
1740 R=INT(RND*(H)+1)
1750 S=V
1760 V(R, S)=V(R, S)+1
1770 GOSUB 2820
1780 PRINT @ 960, "DO YOU WANT THE SOLUTION";

```

```

1790 GOSUB 3160
1800 IF LEFT$(A$, 1) < "V" THEN 3120
1810 PRINT @ 960 "DO YOU WANT TO SEE EACH STEP?";
1820 GOSUB 3160
1830 CLS
1840 FOR I=1 TO 1
1850 IF W(I, 1) = . THEN S=1: GOTO 2000
1860 NEXT I
1870 REM NOW WE CAN CLEAR W ARRAY AS ENTRY POINT IS FOUND.
1880 REM ELEMENT IN V ARE EITHER 0,1,2 OR 3
1890 REM 0 IS CLOSED ON THE RIGHT AND AT THE BOTTOM
1900 REM 1 IS CLOSED ON THE RIGHT
1910 REM 2 IS CLOSED ON THE BOTTOM
1920 REM 3 IS OPEN ON THE RIGHT AND AT THE BOTTOM
1930 REM DIRECTIONS WILL BE CODED:
1940 REM 1 UP
1950 REM 2 DOWN
1960 REM 4
1970 RIGHT
1980 REM 8 LEFT
1990 REM SCAN V ARRAY FOR POSSIBLE MOVES IN ALL DIRECTIONS
2000 FOR I=1 TO 1
2010 FOR J=1 TO 1
2020 W(I, J)=0
2030 REM TRY UP
2040 IF J=1 THEN 2070
2050 IF V(I, J-1) = 1 OR V(I, J-1)=3 THEN W(I, J)=W(I, J)+1
2060 REM TRY DOWN
2070 IF J=V THEN 2100
2080 IF V(I, J)=0 OR V(I, J)=3 THEN W(I, J)=W(I, J)+2
2090 REM TRY RIGHT
2100 IF I=H THEN 2130
2110 IF V(I, J)=0 OR V(I, J)=3 THEN W(I, J)=W(I, J)+4
2120 REM TRY LEFT
2130 IF I=1 THEN 2150
2140 IF V(I-1, J) = 2 OR V(I-1, J)=3 THEN W(I, J)=W(I, J)+8
2150 NEXT J
2160 NEXT I
2170 FOR I=1 TO 1
2180 IF V(I, V)=0 OR V(I, V)=3 THEN W(I, V)=W(I, V)+2: E=1: GOTO 2210
2190 NEXT I
2200 REM HAVE TO GO DOWN FIRST
2210 V=1
2220 X=S
2230 V(X, Y)=V(X, Y)+4
2240 REM CHECK FOR POSSIBLE DIRECTIONS NOW...
2250 IF V=V AND =E THEN PRINT: GOSUB 2750: GOTO 3120
2260 GOSUB 2730
2270 REM CHECK POSSIBLE DIRECTIONS
2280 IF (W(X, Y) AND 2) < 0 THEN 2330
2290 IF (W(X, Y) AND 4) < 0 THEN 2430
2300 IF (W(X, Y) AND 8) < 0 THEN 2530
2310 IF (W(X, Y) AND 1) < 0 THEN 2630
2320 GOTO 2250
2330 IF (V(X, Y) > 3) AND ((W(X, Y) AND 13)=0) THEN 2380
2340 IF V(X, Y+1) > 3 THEN 2290
2350 Y=Y+1
2360 V(X, Y)=V(X, Y)+4
2370 GOTO 2250
2380 V(X, Y)=V(X, Y)-4
2390 W(X, Y)=(W(X, Y) AND 13)
2400 Y=Y+1
2410 W(X, Y)=(W(X, Y) AND 14)
2420 GOTO 2250
2430 IF (V(X+1, Y) > 3) AND ((W(X, Y) AND 11)=0) THEN 2480
2440 IF V(X+1, Y) > 3 THEN 2380
2450 X=X+1
2460 V(X, Y)=V(X, Y)+4
2470 GOTO 2250
2480 V(X, Y)=V(X, Y)-4

```

```

2490 W(X, Y)=(W(X, Y) AND 11)
2500 X=X+1
2510 W(X, Y)=(W(X, Y) AND 7)
2520 GOTO 2250
2530 IF (V(X-1, Y) > 3) AND ((W(X, Y) AND 7)=0) THEN 2580
2540 IF V(X-1, Y) > 3 THEN 2310
2550 X=X-1
2560 V(X, Y)=V(X, Y)+4
2570 GOTO 2250
2580 V(X, Y)=V(X, Y)-4
2590 W(X, Y)=(W(X, Y) AND 7)
2600 X=X-1
2610 W(X, Y)=(W(X, Y) AND 11)
2620 GOTO 2250
2630 IF (V(X, Y-1) > 3) AND ((W(X, Y) AND 14)=0) THEN 2680
2640 IF V(X, Y-1) > 3 THEN 2280
2650 Y=Y-1
2660 V(X, Y)=V(X, Y)+4
2670 GOTO 2250
2680 V(X, Y)=V(X, Y)-4
2690 W(X, Y)=(W(X, Y) AND 14)
2700 Y=Y-1
2710 W(X, Y)=(W(X, Y) AND 13)
2720 GOTO 2250
2730 IF LEFT$(A$, 1) < "V" THEN RETURN
2740 PRINT
2750 FOR I=1 TO H
2760 IF I=5 THEN 2790
2770 PRINT STRING$(3, 191);
2780 GOTO 2800
2790 PRINT CHR$(191) "###";
2800 NEXT I
2810 PRINT CHR$(191)
2820 FOR J=1 TO V
2830 PRINT CHR$(191);
2840 FOR I=1 TO H
2850 IF V(I, J) > 3 THEN Z=V(I, J)-4: GOTO 2870
2860 Z=V(I, J)
2870 IF Z<2 THEN 2920
2880 IF Z<V(I, J) AND V(I+1, J) > 3 THEN PRINT "###";: GOTO 2940
2890 IF Z<V(I, J) THEN PRINT "## ";: GOTO 2940
2900 PRINT " ";
2910 GOTO 2940
2920 IF Z<V(I, J) THEN PRINT "##" CHR$(191):: GOTO 2940
2930 PRINT " " CHR$(191);
2940 NEXT I
2950 PRINT
2960 FOR I=1 TO H
2970 IF V(I, J) > 3 THEN Z=V(I, J)-4: GOTO 2990
2980 Z=V(I, J)
2990 IF Z=0 THEN 3060
3000 IF Z=2 THEN 3060
3010 IF Z<V(I, J) AND J=V THEN PRINT CHR$(191) "###";: GOTO 3070
3020 IF J=V THEN 3040
3030 IF Z<V(I, J) AND V(I, J+1) > 3 THEN PRINT CHR$(191) "###";: GOTO 3070
3040 PRINT CHR$(191) " ";
3050 GOTO 3070
3060 PRINT STRING$(3, 191);
3070 NEXT I
3080 PRINT CHR$(191)
3090 NEXT J
3100 PRINT @ 0, "";
3110 RETURN
3120 PRINT @ 960, "DO YOU WANT ANOTHER MAZE?";
3130 INPUT A$
3140 IF LEFT$(A$, 1) < "V" THEN PRINT: GOTO 280
3150 END
3160 A$=INKEY$
3170 IF A$="" THEN 3160
3180 RETURN

```

# Millionaire

In this game, the computer takes you through your life from birth to death. Along the way, you're asked to make some petty and some other rather crucial decisions. Some of these decisions regard what kind of job you want, how much you bet in Las Vegas, whether you buy a valuable coin, whether you elect to take a vacation or a second job, stock purchases—buying and selling, automobile accidents, tornadoes, and the like.

At the end of your life (it goes by in a flash!) the computer tallies up your gains and your losses and tells you where you stand relative to becoming a millionaire. In ten plays of the game, the most we ever got was \$379,000, somewhat short of being a millionaire, but probably, all things considered, more realistic.

Millionaire was conceived and written by Craig Gunnett, a dreamer to the very end.

MILLIONAIRE  
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```

_____
cls
DO YOU NEED INSTRUCTIONS? YES_
_____
cls
THIS IS THE GAME OF 'MILLIONAIRE'. ALL YOU MUST DO IS
TYPE IN YOUR NAME AND ANSWER SOME QUESTIONS. THE
DECISIONS YOU MAKE WILL DETERMINE HOW MUCH MONEY YOU
MAKE. AT THE TIME OF YOUR DEATH, YOUR LIFE WILL BE
RATED BY THE AMOUNT OF MONEY YOU MADE THROUGHOUT
YOUR LIFE. IF YOU HAVE MADE $1,000,000, YOU WILL BE
A MILLIONAIRE AND WIN THE GAME.
PRESS ANY KEY TO CONTINUE
_____
cls
WHAT IS YOUR NAME ? CHRIS_
_____
cls
O.K., CHRIS, THIS IS YOUR NEW LIFE!
IN A SMALL TOWN, ON JUL 17, 1980, CHRIS IS BORN.
YOUR PARENTS ARE VERY RICH. ON APR 8, 1999, YOU
LEAVE HOME WITH $ 11099 YOU GOT A JOB AS A TEACHER.
YOU EARN $ 28878 A YEAR.
YOU ADJUST YOUR EXPENSES TO $ 20353 A YEAR.
PRESS ANY KEY TO CONTINUE
_____
cls
DEC 25, 2000
YOU ARE OFFERED ANOTHER JOB FOR WOULD YOU LIKE TO MOONLIGHT? YES
_____
cls
DEC 25, 2000
YOU ARE OFFERED ANOTHER JOB FOR WOULD YOU LIKE TO MOONLIGHT? YES
YOU NOW HAVE $ 11099
PRESS ANY KEY TO CONTINUE
_____
cls
JUL 25, 2005
YOU ARE OFFERED A COIN SUPPOSEDLY WORTH $100,000.
DO YOU BUY IT? YES
_____
THE VALUE OF THE COIN IS $ 49837
YOU NOW HAVE $-39064
YOUR EARNINGS AND EXPENSES LEAVE YOU WITH $ 31416
PRESS ANY KEY TO CONTINUE
_____
cls
FEB 23, 2014
YOU GO TO LAS VEGAS TO GAMBLE. HOW MUCH DO YOU BET? 10000
_____
HA! HA! YOU LOST $ 5625
YOU NOW HAVE $ 25791
YOUR EARNINGS AND EXPENSES LEAVE YOU WITH $ 152655
PRESS ANY KEY TO CONTINUE
_____
cls
DEC 12, 2023
YOU ARE SERIOUSLY SICK. (COULDN'T TELL, COULD YOU?)
YOU HAVE COMPUTERITIS.
HEALTH EXPENSES COST YOU $ 835
YOU NOW HAVE $ 151820
YOUR EARNINGS AND EXPENSES LEAVE YOU WITH $ 278684
PRESS ANY KEY TO CONTINUE
_____
cls
OCT 21, 2031
OH! YOU JUST GOT LEUKEMIA. MEDICAL BILLS ARE $ 2306
YOU NOW HAVE $ 276378
YOUR EARNINGS AND EXPENSES LEAVE YOU WITH $ 389146
PRESS ANY KEY TO CONTINUE
_____
cls
JUL 9, 2039
THE DOCTOR SAYS YOU NEED A VACATION. DO YOU GO? YES
_____
GOOD, THE VACATION COSTS $ 2967
YOU NOW HAVE $ 386179
YOUR EARNINGS AND EXPENSES LEAVE YOU WITH $ 498947
PRESS ANY KEY TO CONTINUE
_____
cls
SEP 8, 2048
_____
# STOCK NAME PRICE SHARES OWNED
---
1 IBM (INCREDIBLY BAD MACHINES) 143 0
2 USS (USELESS & STINKY STEEL) 136 0
3 NCR (NO CASH RETURN) 141 0
4 TWA (TOTAL WRECK AIRLINES) 146 0
_____
cls

```

CBUY, <SELL(\$100 FE), OR DO <DOOTHING ?>  
STOCK # AND QUANTITY? 1,25.

| # | STOCK NAME                    | PRICE | SHARES OWNED |
|---|-------------------------------|-------|--------------|
| 1 | IBM (INCREDIBLY BAD MACHINES) | 143   | 25           |
| 2 | USS (USELESS & STINY STEEL)   | 136   | 0            |
| 3 | NCR (NO CASH RETURN)          | 141   | 0            |
| 4 | TWA (TOTAL WRECK AIRLINES)    | 146   | 0            |

cls

CBUY, <SELL(\$100 FE), OR DO <DOOTHING ?>  
STOCK # AND QUANTITY? 4,10.

| # | STOCK NAME                    | PRICE | SHARES OWNED |
|---|-------------------------------|-------|--------------|
| 1 | IBM (INCREDIBLY BAD MACHINES) | 143   | 25           |
| 2 | USS (USELESS & STINY STEEL)   | 136   | 0            |
| 3 | NCR (NO CASH RETURN)          | 141   | 0            |
| 4 | TWA (TOTAL WRECK AIRLINES)    | 146   | 10           |

cls

CBUY, <SELL(\$100 FE), OR DO <DOOTHING ?>  
STOCK # AND QUANTITY? 2,50.

| # | STOCK NAME                    | PRICE | SHARES OWNED |
|---|-------------------------------|-------|--------------|
| 1 | IBM (INCREDIBLY BAD MACHINES) | 143   | 25           |
| 2 | USS (USELESS & STINY STEEL)   | 136   | 50           |
| 3 | NCR (NO CASH RETURN)          | 141   | 0            |
| 4 | TWA (TOTAL WRECK AIRLINES)    | 146   | 10           |

cls

CBUY, <SELL(\$100 FE), OR DO <DOOTHING ?>  
YOUR EARNINGS AND EXPENSES LEAVE YOU WITH \$ 613676  
PRESS ANY KEY TO CONTINUE

| # | STOCK NAME                    | PRICE | SHARES OWNED |
|---|-------------------------------|-------|--------------|
| 1 | IBM (INCREDIBLY BAD MACHINES) | 139   | 25           |
| 2 | USS (USELESS & STINY STEEL)   | 124   | 50           |
| 3 | NCR (NO CASH RETURN)          | 136   | 0            |
| 4 | TWA (TOTAL WRECK AIRLINES)    | 132   | 10           |

WITH STOCK VALUE YOU HAVE \$ 624671.  
CLOSE, CHRIS. MAYBE NEXT LIFE.  
THANKS FOR PLAYING 'MILLIONAIRE', CHRIS!!!!

READY  
>

```

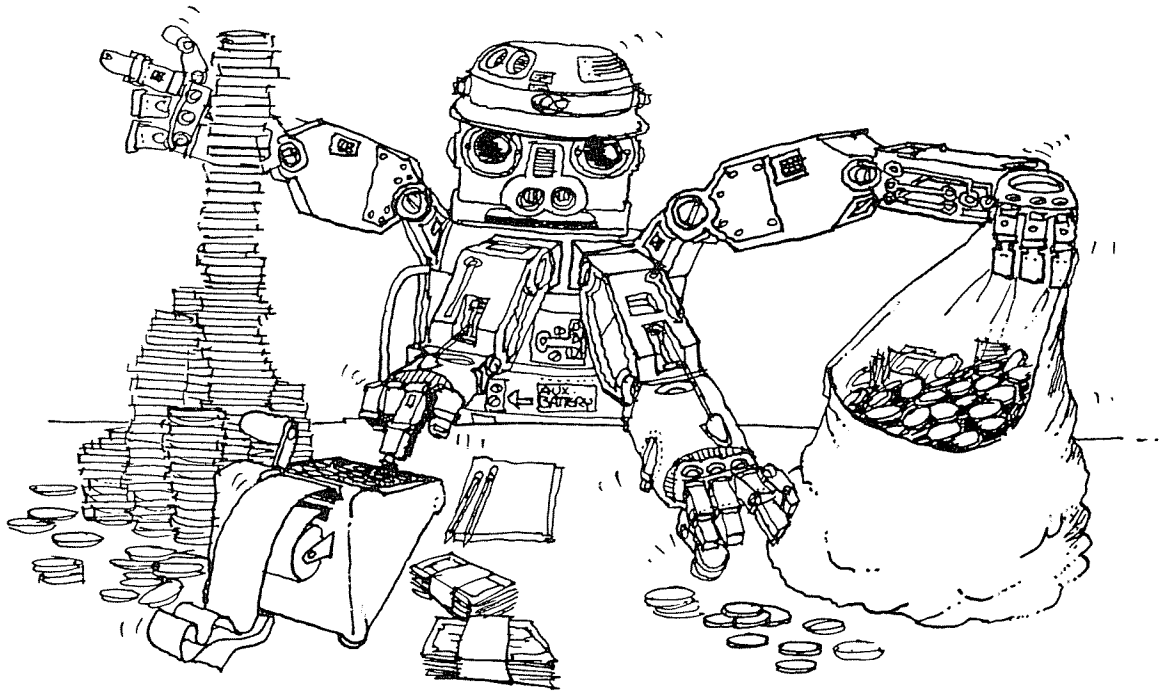
10 CLS
20 PRINT @ 410, "MILLIONAIRE"
30 PRINT
40 PRINT TAB(7)*"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
50 PRINT @ 500, ""
60 INPUT "DO YOU NEED INSTRUCTIONS?"; I$
70 IF LEFT$(I$, 1) = "N" THEN 210
80 REM MILLIONAIRE BY CRAIG GUNNETT
90 CLS
100 PRINT TAB(20)*"MILLIONAIRE *"
110 PRINT
120 PRINT "THIS IS THE GAME OF 'MILLIONAIRE'. ALL YOU MUST DO IS"
130 PRINT "TYPE IN YOUR NAME AND ANSWER SOME QUESTIONS. THE"
140 PRINT "DECISIONS YOU MAKE WILL DETERMINE HOW MUCH MONEY YOU"
150 PRINT "MAKE. IF THE TIME OF YOUR DEATH, YOUR LIFE WILL BE"
160 PRINT "DATED BY THE AMOUNT OF MONEY YOU MADE THROUGHOUT"
170 PRINT "YOUR LIFE. IF YOU HAVE MADE $1,000,000, YOU WILL BE"
180 PRINT "A MILLIONAIRE AND WIN THE GAME."
190 PRINT @ 979, "PRESS ANY KEY TO CONTINUE";
200 IF INKEY$ = "" THEN 200
210 CLS
220 PRINT @ 256, ""
230 INPUT "WHAT IS YOUR NAME?"; A$
240 LET D=-1
250 DIM A$(20), Z$(1), M$(36), S(9), Q(16)
260 FOR I=1 TO 4
270 LET S(I)=150

```

```

280 NEXT I
290 CLS
300 PRINT "O.K., "; A$; ", THIS IS YOUR NEW LIFE!"
310 LET M$="JAN/FEB/MAR/APR/MAY/JUN/JUL/AUG/SEPT/OCT/NOV/DEC"
320 IF RND(0) > .5 GOTO 350
330 PRINT "ON A BIG FARM";
340 GOTO 360
350 PRINT "IN A SMALL TOWN";
360 LET T=INT((RND(0)+12)*1
370 PRINT "ON "; MID$(M$, 3*T-2, 3); INT(RND(0)*28)+1; CHR$(0); ", 1980, ";
380 PRINT " "; A$; " IS BORN."
390 PRINT "YOUR PARENTS ARE VERY ";
400 IF RND(0) > .5 GOTO 440
410 PRINT "RICH ";
420 LET M=INT((RND(0)+5000)+10000
430 GOTO 460
440 PRINT "POOR ";
450 LET M=INT((RND(0)+RND(0))/2+1000)
460 LET T=INT((RND(0)+12)*1
470 LET Y=1996-INT(RND(0)+10)
480 PRINT "ON "; MID$(M$, T+3-2, 3); T*2; CHR$(0); ", "; Y; CHR$(0); ", YOU"
490 PRINT "LEAVE HOME WITH ";
500 PRINT "$"; INT(M+100)/100;
510 LET Y=Y+INT(RND(0)+3)+1
520 GOSUB 870
530 FOR J=1 TO 13
540 IF (J/3)-INT(J/3)+E=0 THEN GOSUB 870
550 LET D=INT(28*RND(0))+1
560 LET M1=(INT(12*RND(0))+1)*3
570 GOSUB 320
580 PRINT MID$(M$, M1-2, 3); D; CHR$(0); ", "; Y
590 IF Y=1980 GOTO 640
600 IF RND(0) > .5 GOTO 640
610 PRINT "YOU ARE DEAD (COULDN'T TELL, COULD YOU?) AT THE"
620 PRINT "AGE OF"; Y-1980; CHR$(0); ". "
630 GOTO 290
640 IF D=0 GOTO 690
650 LET I=INT(.07*Y*(M-M1))
660 LET M=M-I
670 PRINT "THE INTEREST ON YOUR LOAN IS ";
680 PRINT "$"; INT(100*I)/100
690 LET Q=INT(13*RND(0)+1)
700 IF Q(0)=1 GOTO 690
710 LET Q(Q)=1
720 ON Q GOTO 1120, 1200, 1400, 1540, 1640, 1880, 2010
730 ON (Q-7) GOTO 2360, 2470, 2620, 2700, 2820, 2860
740 PRINT "YOU NOW HAVE ";
750 PRINT "$"; INT(M+100)/100;
760 PRINT ". "
770 IF D=-2 GOTO 2010
780 IF J=1 GOTO 830
790 LET M=M-(E-C)*Y
800 PRINT "YOUR EARNINGS AND EXPENSES LEAVE YOU WITH ";
810 PRINT "$"; INT(M+100)/100;
820 PRINT ". "
830 LET Y9=INT(RND(0)+6)+5
840 LET Y=Y+Y9
850 NEXT J
860 GOTO 610
870 REM JOB SUB
880 PRINT "YOU GOT A JOB AS A ";
890 ON RND(5) GOTO 900, 930, 960, 990, 1020
900 PRINT "TEACHER";
910 LET E=INT((RND(0)+4000)+17000
920 GOTO 1040
930 PRINT "LIBRARIAN";
940 LET E=INT((RND(0)+40000!)+80000!
950 GOTO 1040
960 PRINT "COMPUTER PROGRAMMER";
970 LET E=INT((RND(0)+5000)+20000
980 GOTO 1040
990 PRINT "BUS DRIVER";
1000 LET E=INT((RND(0)+2000)+16000
1010 GOTO 1040
1020 PRINT "FOOTBALL PLAYER";
1030 LET E=INT((RND(0)+100000!)+100000!
1040 LET C=-10000+INT((RND(0)+RND(0))*5000)
1050 PRINT " "; CHR$(13)*"YOU EARN ";
1060 PRINT "$"; INT(E+100)/100;
1070 PRINT " A YEAR."
1080 PRINT "YOU ADJUST YOUR EXPENSES TO ";
1090 PRINT "$"; INT(100+C)/100;

```



```

1100 PRINT " A YEAR. "
1110 RETURN
1120 PRINT "YOU GO TO LAS VEGAS TO GAMBLE.  HOW MUCH DO YOU BET?";
1130 INPUT S
1140 PRINT
1150 IF S<=0 GOTO 1270
1160 IF RND(0)>.7 GOTO 1220
1170 LET S2=-INT(RND(0)*S)
1180 PRINT "HA! HA! YOU LOST ";
1190 PRINT "$"; INT(S2*100)/100*-1;
1200 PRINT " "
1210 GOTO 1260
1220 LET S2=INT(( RND(0)+RND(0))*S)
1230 PRINT "YOU WON ";
1240 PRINT "$"; INT(S2*100)/100;
1250 PRINT " "
1260 LET M=M+S2
1270 GOTO 740
1280 PRINT "YOU ARE OFFERED A COIN SUPPOSEDLY WORTH $100,000. "
1290 PRINT "DO YOU BUY IT?";
1300 INPUT Z$
1310 Z$=LEFT$(Z$, 1)
1320 PRINT
1330 LET V7=INT(RND(0)*200000!)+1
1340 IF Z$<>"Y" GOTO 1360
1350 LET M=M-100000!+V7
1360 PRINT "THE VALUE OF THE COIN IS ";

```

```

1370 PRINT "$"; INT(V7*100)/100;
1380 PRINT " "
1390 GOTO 740
1400 PRINT "YOU ARE SERIOUSLY SICK.  (COULDN'T TELL,  COULD YOU?)"
1410 PRINT "YOU HAVE ";
1420 ON (INT(RND(0)*3)+1) GOTO 1450, 1470
1430 PRINT "THE AS10-DISPEPSIA REGIONALLY HYPNOTIC FLU! (OH!)."
1440 GOTO 1480
1450 PRINT "COMPUTERITIS. "
1460 GOTO 1480
1470 PRINT "INFECTIOUS FATALY REOCCURRING CHRONIC BAD BREATH. "
1480 LET U=INT(RND(0)*1000)+500
1490 LET M=M-U
1500 PRINT "HEALTH EXPENSES COST YOU ";
1510 PRINT "$"; INT(U*100)/100;
1520 PRINT " "
1530 GOTO 740
1540 LET F=INT(RND(0)*100000!)
1550 LET C8=INT(F/2)-INT(RND(0)*(F/2))
1560 PRINT "YOUR GRANDFATHER GROVERS JUST DIED.  (OH!) HE LEFT"
1570 PRINT "YOU ";
1580 PRINT "$"; INT(F*100)/100;
1590 PRINT " ", BUT FUNERAL EXPENSES ARE ";
1600 PRINT "$"; INT(C8*100)/100;
1610 PRINT " "
1620 LET M=M-C8+F
1630 GOTO 740
1640 IF E=0 GOTO 1120

```



```

1650 PRINT "NEWS FROM YOUR BOSS:"
1660 ON (INT(RND(0)*3)+1) GOTO 1760, 1800
1670 LET L=INT(RND(0)*1000)+1
1680 LET E=E-L
1690 PRINT "YOU GOT A ";
1700 PRINT " $";INT(L*10)/100;
1710 PRINT " DECREASE I I PAY."
1720 PRINT "YOU NOW ERF I ";
1730 PRINT " $";INT(E*10)/100;
1740 PRINT " "
1750 GOTO 740
1760 PRINT "YOU'RE FIRED! (HA!!)"
1770 LET E=0
1780 LET C=INT(C/4)
1790 GOTO 740
1800 LET R6=INT(RND(0)*5000)+1
1810 LET E=E+R6
1820 PRINT "YOU GOT A RAISE OF ";
1830 PRINT " $";INT(R6/100)/100;
1840 PRINT " ";CHR$(10);"YOU NOW EARN ";
1850 PRINT " $";INT(E*10)/100;
1860 PRINT " "
1870 GOTO 740
1880 PRINT "THE DOCTOR SAYS YOU NEED A VACATION DO YOU GO?";
1890 INPUT Z$
1900 Z$=LEFT$(Z$,1)
1910 PRINT
1920 LET V=INT(RND(0)*2000)+1000
1930 IF Z$="N" GOTO 1980
1940 PRINT "GOOD, THE VACATION COSTS ";
1950 PRINT " $";INT(V*.00)/100;
1960 PRINT " "
1970 GOTO 1990
1980 PRINT "YOU JUST HAD A NERVOUS BREAKDOWN! MEDICAL COSTS " V
1990 LET H=H-V
2000 GOTO 740
2010 FOR I=1 TO 4
2020 LET S(I)=INT((INT(RND(0)*100)+100+2*S(I))/3)
2030 NEXT I
2040 FOR I=1 TO 1000
2050 NEXT
2060 PRINT @ 64,"# STOCK NAME PRICE SHARES OWNED"
2070 PRINT"-----"
2080 PRINT"1 IBM (INCREDIBLY BAD MACHINES)";S(1);" ";S(5)
2090 PRINT"2 USS (USELESS & STINKY STEEL) ";S(2);" ";S(6)
2100 PRINT"3 HCR (NO CASH RETURN) ";S(3);" ";S(7)
2110 PRINT"4 TWA (TOTAL WRECK AIRLINES) ";S(4);" ";S(8)
2120 PRINT CHR$(31);
2130 IF S(9)=1 GOTO 2040
2140 PRINT @ 832,"CR JV, (S)ELL($100 FEE), OR DO (N)OTHING ?" CHR$(95);
2150 Z$=INKEY$;
2160 IF Z$="" THEN 2150
2170 PRINT CHR$(8);";$
2180 IF Z$="S" GOTO 2260
2190 IF Z$="N" GOTO 320
2200 PRINT "STOCK # AND QUANTITY";
2210 INPUT S3, S(0)
2220 LET S(4+S3)=S(4-S3)+S(0)
2230 LET O=-2
2240 LET M=H-S(53)*S(0)-100
2250 GOTO 2060
2260 PRINT "STOCK # AND QUANTITY";
2270 INPUT S2, S5
2280 IF S5(S(4+S2)) GOTO 2260
2290 LET S(4+S2)=S(4-S2)-S5
2300 LET M=H+S(52)*S5-100
2310 GOTO 2140
2320 LET S1=S(5)+S(6)+S(7)+S(8)
2330 IF S1=0 GOTO 70
2340 LET O=-1
2350 GOTO 780
2360 PRINT "NEWS FLASH!!!"
2370 IF RND(0)>.5 THEN 2400
2380 PRINT "A TORNADO HAS JUST HIT THE HOME OF ";A$;" "
2390 GOTO 2410
2400 PRINT "AN AIRPLANE HAS JUST CRASHED INTO THE HOME OF ";A$;" "
2410 LET D0=INT(RND(1)*50000)+1
2420 LET M=H-D0
2430 PRINT "DAMAGES HAVE BEEN ESTIMATED AT ";
2440 PRINT " $";INT((M*100)/100);
2450 PRINT " "

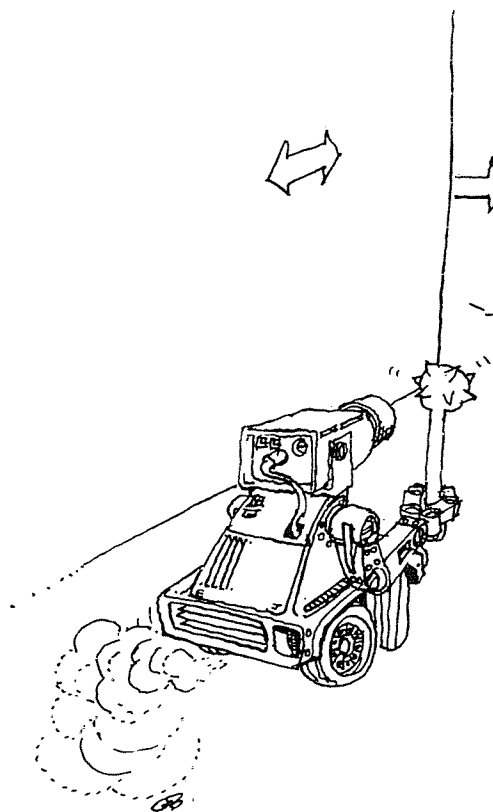
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2460 GOTO 740
2470 PRINT "OH! YOU JUST GOT ";
2480 IF Y-1980<55 GOTO 2540
2490 IF RND(0)>.4 GOTO 2520
2500 PRINT "CANCER";
2510 GOTO 2550
2520 PRINT "A HEART ATTACK";
2530 GOTO 2550
2540 PRINT "LEUKEMIA";
2550 LET M2=INT(RND(1)*5000)+1000
2560 LET M=H-M2
2570 PRINT " MEDICAL BILLS ARE ";
2580 PRINT " $";INT(M2*100)/100;
2590 PRINT " "
2600 IF RND(0)<.5 GOTO 610
2610 GOTO 740
2620 PRINT "YOU JUST HAD A CAR ACCIDENT! MEDICAL COSTS"
2630 LET M3=INT(RND(1)*3000)+1000
2640 LET M7=INT(RND(1)*5000)+100
2650 PRINT "ARE ";
2660 PRINT " $";INT(M3+M7)/100;
2670 PRINT " REPAIRS COST ";
2680 LET M=H-M3-M7
2690 GOTO 740
2700 IF E=0 GOTO 1200
2710 LET E2=10000+INT(RND(0)*5000)
2720 PRINT "YOU ARE OFFERED ANOTHER JOB FOR ";
2730 PRINT "WOULD YOU LIKE TO MOONLIGHT?";
2740 INPUT Z$
2750 PRINT
2760 IF LEFT$(Z$,1)="" THEN 740
2770 ON INT(RND(0)*3) GOTO 1760, 2800
2780 LET E=E+E2
2790 GOTO 740
2800 PRINT "FROM OVERTHROW YOU GET "
2810 GOTO 2520
2820 LET R2=INT(RND(0)*10000)+5000
2830 LET M=H-R2
2840 PRINT "YOUR HOME HAS BEEN ROBBED OF GOODS WORTH ";
2850 GOTO 740
2860 IF O=-1 GOTO 1300
2870 IF RND(0)>.7 GOTO 1800
2880 LET B4=INT(RND(0)*4)
2890 PRINT "STOCK MARKET CRASH!!! EACH OF YOUR";S1;"SHARES OF"
2900 PRINT "STOCK IS WORTH ";
2910 PRINT " $";INT((B4*100)/100;
2920 PRINT " FOR A TOTAL OF ";
2930 PRINT " $";INT((S1*B4)*100)/100;
2940 PRINT " "
2950 LET M=H+S1*B4
2960 LET O=-1
2970 GOTO 740
2980 PRINT "YOU HAD ";
2990 PRINT " $";INT(M*100)/100;
3000 PRINT " "
3010 IF O=-1 GOTO 3080
3020 LET S(9)=1
3030 GOTO 2010
3040 LET M=H+S(1)*S(5)+S(2)*S(6)+S(3)*S(7)+S(4)*S(8)
3050 PRINT "WITH STOCK VALUE YOU HAVE ";
3060 PRINT " $";INT(M*100)/100;
3070 PRINT " "
3080 IF M=0 GOTO 3130
3090 IF M<500000 GOTO 3160
3100 IF M<1000000 GOTO 3180
3110 PRINT A$;" WO!!! YOU ARE A MILLIONAIRE!!"
3120 GOTO 3190
3130 PRINT "YOU LOU!SY #424*!!! NOW YOUR POOR FAMILY HAS TO PAY"
3140 PRINT "OFF YOUR DEBTS....."
3150 GOTO 3190
3160 PRINT "NOT BAD, ";A$;" "
3170 GOTO 3190
3180 PRINT "CLOSE, ";A$;" MAYBE NEXT LIFE."
3190 PRINT "THANKS FOR PLAYING 'MILLIONAIRE', ";A$;"!!!!"
3200 PRINT
3210 PRINT
3220 END
3230 PRINT @ 979,"PRESS ANY KEY TO CONTINUE";
3240 IF INKEY$="" THEN 3240
3250 CLS
3260 RETURN

```

# Minotaur



In this game, you are in a three level cavern. Inside the cavern are ten pillars which stretch through all three levels; they're electrified so that if you touch them you are immediately vaporized. Furthermore, there are trap doors which appear randomly and drop you down one level. The top level is three, the second level down is two, the first or lowest level is one. If a trap door appears in level one you are dropped into a bottomless pit and that ends the game. The minotaur itself also poses a hazard. If you wound him with your spear, he will charge you. Also, he randomly charges for no reason at all. However, he only charges in a straight line. Hint: keep at a slight diagonal from the minotaur until you are ready to throw your spear at him and you have a better chance of avoiding his charges. If you ask for a map, the axes are drawn in with X's. This does not indicate a barrier or fence; you are free to move across the X and Y coordinate planes. However, you are advised not to move out of any of the four edges as this represents yet a different form of bottomless pit and also ends the game. There are many, many additional hazards which are not shown in the sample run. Try it, and be surprised!

This program was conceived and written by Pete Klausler.

```

MINOTAUR
CREATIVE COMPUTING, MORRISTOWN, NEW JERSEY
cls
DO YOU WANT TO BE THE MINOTAUR CHAMPION? Y_
cls
YOU MUST BEAT A SCORE OF 20.
..... MINOTAUR .....

DO YOU NEED INSTRUCTIONS? Y_
cls
THE OBJECT OF THE GAME IS TO KILL THE MINOTAUR
..... CAVERN .....

THE CAVERN OF THE MINOTAUR IS IN THREE
LEVELS. EACH LEVEL IS A COORDINATE PLANE
OUTSIDE OF THE LEVELS THERE IS NOTHING BUT
VACUUM. THE PLANES STRETCH OUT 10 ON EACH
AXIS FROM THE ORIGIN.
(PRESS ANY KEY TO CONTINUE)
cls
..... HAZARDS .....

BARRIERS

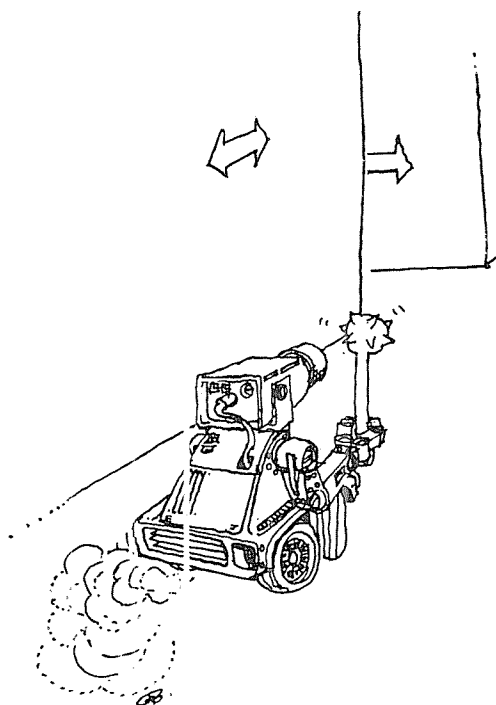
INSIDE THE CAVERN ARE 10 ELECTRIFIED
PILLARS STRETCHING THROUGH THE THREE
LEVELS. THEY WILL DESTROY ANYTHING THAT
TOUCHES THEM!!
(PRESS ANY KEY TO CONTINUE)
cls
..... TRAPDOORS .....

TRAPDOORS WILL APPEAR OUT OF NOWHERE
AND DROP YOU DOWN ONE LEVEL. IF YOU WERE
ON LEVEL ONE, YOU LOSE!!

CHARGING MINOTAUR

THE MINOTAUR WILL CHARGE YOU IF YOU
WOUND HIM WITH YOUR SPEAR. ALSO, HE
MAY CHARGE FOR NO REASON AT ALL!!!!
(PRESS ANY KEY TO CONTINUE)
cls
HERE ARE YOUR CONTROL FUNCTIONS
1) MOVING EAST
2) MOVING WEST
3) MOVING NORTH
4) MOVING SOUTH
5) MOVING UP A LEVEL
6) MOVING DOWN A LEVEL
7) THROWING YOUR SPEAR
8) GETTING A MAP
(PRESS ANY KEY TO CONTINUE)
cls
..... HAVE FUN .....
(PRESS ANY KEY TO CONTINUE)
cls

```



I WILL NOW SET THE BARRIERS.

BARRIER # 1 : (-6 , -9 )  
 BARRIER # 2 : (-9 , -5 )  
 BARRIER # 3 : (-4 , -3 )  
 BARRIER # 4 : (-10 , -7 )  
 BARRIER # 5 : (-7 , -6 )  
 BARRIER # 6 : (-5 , -5 )  
 BARRIER # 7 : (-4 , 1 )  
 BARRIER # 8 : (-5 , -6 )  
 BARRIER # 9 : ( 3 , -8 )  
 BARRIER # 10 : ( 1 , 13 )

(PRESS ANY KEY TO CONTINUE)

\_\_\_\_\_  
 ON WHICH LEVEL DO YOU WANT TO START? 3

WHICH POINT? 2, -2

HOW FAR DO YOU WANT TO MOVE PER TURN? 1

TURN 1. MINOTAUR IS AT (-10 , 0 ) , ON LEVEL 3 ? 6  
 YOU ARE AT ( 2 , -2 ) , ON LEVEL 2.

TURN 2. MINOTAUR IS AT (-10 , 1 ) , ON LEVEL 3 ? 1  
 YOU ARE AT ( 3 , -2 ) , ON LEVEL 2.

TURN 3. MINOTAUR IS AT (-10 , 1 ) , ON LEVEL 2 ? 1  
 YOU ARE AT ( 4 , -2 ) , ON LEVEL 2.

TURN 4. MINOTAUR IS AT (-10 , 1 ) , ON LEVEL 3 ? 1  
 YOU ARE AT ( 5 , -2 ) , ON LEVEL 2.

TURN 5. MINOTAUR IS AT (-10 , 1 ) , ON LEVEL 3 ? 3  
 YOU ARE AT ( 5 , -1 ) , ON LEVEL 2.

TURN 6. MINOTAUR IS AT (-10 , 1 ) , ON LEVEL 2 ? 3  
 YOU ARE AT ( 5 , 0 ) , ON LEVEL 2.

(-1 , 2 )  
 ( 0 , 2 )  
 ( 1 , 2 )  
 ( 2 , 2 )  
 ( 3 , 2 )

( 4 , 2 )  
 ( 5 , 2 )  
 ( 5 , 1 )  
 ( 5 , 0 )  
 BITE  
 CHEW  
 CHOMP  
 GULP  
 YOU LOSE, SUCKER

WOULD YOU LIKE TO PLAY AGAIN? \_  
 \_\_\_\_\_  
 cls

```
10 CLEAR 80
20 CLS
30 PRINT @ 411, "MINOTAUR"
40 PRINT
50 PRINT TAB(11): "CREATIVE COMPUTING, MORRISTOWN, NEW JERSEY"
60 PRINT:PRINT:PRINT:PRINT
70 DIM B%(15), C%(15)
80 GOSUB 1280
90 REM INSTRUCTIONS
100 GOSUB 1460
110 L3%=1
120 L1%=INT(RND(0)*3)+1
130 X1%=INT(RND(0)*(-21))+11
140 Y1%=INT(RND(0)*(-21))+11
150 PRINT
160 REM BARRIER:
170 GOSUB 2130
180 REM PLACE PLAYER
190 GOSUB 2230
200 REM START GAME
210 REM SPEAR
220 IF X2%<S1% AND Y2%=S2% AND L2%=S3% AND T%>1 THEN 3780
230 REM IS HE EATEN?
240 IF X1%<X2% AND Y2%=Y1% AND L1%=L2% THEN 3760
250 REM CHARGING
260 IF RND(0)<.1 THEN 2680
270 REM TURN #
280 T%=T%+1
290 PRINT"TURN";T%;CHR$(0);": MINOTAUR IS AT (";X1%;", ";Y1%;", ON LEVEL";L1%;
300 INPUT Z%
310 S1%=PEEK(16192)
320 S2%=PEEK(16256)
330 IF S1%>54 OR S2%>54 THEN CLS
340 ON Z% GOTO 350,380,400,430,450,480,500,3110
350 X2%=X2%+F%
360 IF ABS(X2%)>10 THEN 1090
370 GOTO 1110
380 X2%=X2%-F%
390 GOTO 360
400 Y2%=Y2%+F%
410 IF ABS(Y2%)>10 THEN 1090
420 GOTO 370
430 Y2%=Y2%-F%
440 GOTO 410
450 L2%=L2%+1
460 IF L2%>3 OR L2%<1 THEN 1260
470 GOTO 370
480 L2%=L2%-1
490 GOTO 460
500 REM SPEAR-THROWING
510 IF L1%<L2% THEN 1010
520 IF X1%<X2% AND Y1%<Y2% THEN 1030
530 IF X1%<X2% AND ABS(Y1%-Y2%)>10 THEN 1050
540 IF ABS(X1%-X2%)>10 THEN 1050
550 IF S3%=1 THEN 3010
560 PRINT"IN WHICH DIRECTION WOULD YOU LIKE TO THROW (USE 1,2,3,4)";
570 INPUT H%
580 PRINT"HOW FAR";
590 INPUT H2%
600 CLS
610 S5%=X2%
620 S6%=Y2%
630 FOR H3%=1 TO H2%
640 ON H1% GOTO 650,680,700,730
```

```

650 S5%=S5%+1
660 IF ABS(S5%>>10 THEN 820
670 GOTO 750
680 S5%=S5%-1
690 GOTO 660
700 S6%=S6%+1
710 IF ABS(S6%>>10 THEN 820
720 GOTO 750
730 S6%=S6%-1
740 GOTO 710
750 PRINT"SPEAR IS AT (";S5%;";S6%)."
760 REM TEST FOR BARRIERS
770 FOR A2=1 TO 10
780 IF S5%=B2(A2) AND S6%=C2(A2) THEN 810
790 NEXT A2
800 GOTO 830
810 PRINT "SMASHED SPEAR SPLINTERED AGAINST BARRIER #";A2;CHR$(8);" "
820 GOTO 1070
830 NEXT A32
840 IF S5%<0% OR S6%<0% THEN 940
850 X2=INT(RND(8)*3)+1
860 ON X2 GOTO 870,940,1000
870 PRINT"YOU KILLED THE MINOTAUR IN";T2;"TURNS. "
880 GOTO 1370
890 PRINT"WOULD YOU LIKE TO PLAY AGAIN";
900 INPUT X$
910 IF LEFT$(X$,1)<>"Y" THEN 3850
920 CLS: T2=0
930 GOTO 110
940 PRINT"YOU MISSED. SPEAR IS AT (";S5%;";S6%)." YOU MUST GET IT. "
950 S1%=S5%
960 S2%=S6%
970 S3%=L2%
980 S9%=1
990 GOTO 210
1000 GOSUB 2670
1010 PRINT"YOU ARE NOT ON THE SAME LEVEL. YOU CANNOT THROW. "
1020 GOTO 370
1030 PRINT"YOU ARE NOT ON THE SAME X OR Y LINE. YOU CANNOT THROW. "
1040 GOTO 370
1050 PRINT"YOU ARE NOT WITHIN 10. YOU CANNOT THROW. "
1060 GOTO 370
1070 PRINT"YOU ARE NOW WEAPONLESS. YOU LOSE. SUCKER!"
1080 GOTO 890
1090 PRINT"YAAAAAAAAAAAAAAAH YOU FELL OFF THE EDGE!"
1100 GOTO 1080
1110 PRINT"YOU ARE AT (";X2%;";Y2%)." ON LEVEL";L2%;CHR$(8);" "
1120 REM TEST FOR BARRIERS
1130 FOR A2=1 TO 10
1140 IF X2%=B2(A2) AND Y2%=C2(A2) THEN 1170
1150 NEXT A2
1160 GOTO 1190
1170 PRINT"YOU HAVE JUST FRIED YOURSELF ON AN ELECTRIFIED BARRIER. "
1180 GOTO 1080
1190 REM TRAPDOORS
1200 X2=INT(RND(8)*10)+1
1210 IF X2=5 THEN 1230
1220 GOTO 2340
1230 PRINT"YAAAAAAAAAAAAAAH TRAPDOOR. YOU FELL DOWN ONE LEVEL!"
1240 L2%=L2%-1
1250 IF L2%<0 THEN 1220
1260 PRINT"YOU FELL OUT OF THE CAVERN. YOU LOSE. "
1270 GOTO 1080
1280 PRINT "DO YOU WANT TO BE THE MINOTAUR CHAMPION";
1290 INPUT X$
1300 IF LEFT$(X$,1)<>"Y" THEN CLS: GOTO 1360
1310 CLS
1320 C2%=20
1330 PRINT"YOU MUST BEAT A SCORE OF 20. "
1340 DIM C3$(72)
1350 DIM C4$(72)
1360 RETURN
1370 IF LEFT$(X$,1)<>"Y" THEN 890
1380 IF T2=0 THEN T2=1
1390 C3%=1/T2*100
1400 IF C3%<20 THEN 1430
1410 PRINT"YOU ARE NOW A QUALIFIED CHAMPION!"
1420 GOTO 890
1430 PRINT "SORRY, YOU DID NOT BEAT THE CHAMPION. "
1440 PRINT "DO YOU WANT TO PLAY AGAIN";
1450 GOTO 900

```

```

1460 REM INSTRUCTIONS
1470 PRINT
1480 FOR M2=1 TO 127: SET(M2,4):NEXT M2
1490 PRINT @ 9L "MINOTAUR"
1500 PRINT
1510 PRINT
1520 PRINT "DO YOU NEED INSTRUCTIONS";
1530 INPUT X$
1540 IF LEFT$(X$,1)<>"Y" THEN CLS: GOTO 2120
1550 CLS
1560 PRINT
1570 PRINT "THE OBJECT OF THE GAME IS TO KILL THE MINOTAUR"
1580 PRINT
1590 FOR ED2=1 TO 127: SET(ED2,10):NEXT ED2
1600 PRINT @ 219, "CAVERN";
1610 PRINT
1620 PRINT
1630 PRINT TAB(12) " THE CAVERN OF THE MINOTAUR IS IN THREE"
1640 PRINT TAB(12) "LEVELS. EACH LEVEL IS A COORDINATE PLANE. "
1650 PRINT TAB(12) "OUTSIDE OF THE LEVELS THERE IS NOTHING BUT"
1660 PRINT TAB(12) "VACUUM. THE PLANES STRETCH OUT 10 ON EACH"
1670 PRINT TAB(12) "AXIS FROM THE ORIGIN. "
1680 PRINT
1690 GOSUB 3860
1700 CLS
1710 FOR ED2=1 TO 127: SET(ED2,4): NEXT ED2
1720 PRINT @ 9L "HAZARDS"
1730 PRINT: PRINT
1740 PRINT TAB(28) "BARRIERS"
1750 PRINT
1760 PRINT TAB(12) " INSIDE THE CAVERN ARE 10 ELECTRIFIED"
1770 PRINT TAB(12) "PILLARS STRETCHING THROUGH THE THREE"
1780 PRINT TAB(12) "LEVELS. THEY WILL DESTROY ANYTHING THAT"
1790 PRINT TAB(12) "TOUCHES THEM!!"
1800 PRINT
1810 GOSUB 3860
1820 CLS
1830 PRINT TAB(28) "TRAPDOORS"
1840 PRINT
1850 PRINT TAB(12) "TRAPDOORS WILL APPEAR OUT OF NOWHERE"
1860 PRINT TAB(12) "AND DROP YOU DOWN ONE LEVEL. IF YOU WERE"
1870 PRINT TAB(12) "ON LEVEL ONE, YOU LOSE!!"
1880 PRINT:PRINT
1890 PRINT TAB(24) "CHARGING MINOTAUR"
1900 PRINT
1910 PRINT TAB(12) " THE MINOTAUR WILL CHARGE YOU IF YOU"
1920 PRINT TAB(12) "HOUND HIM WITH YOUR SPEAR. ALSO, HE"
1930 PRINT TAB(12) "MAY CHARGE FOR NO REASON AT ALL!!!"
1940 GOSUB 3860
1950 CLS
1960 PRINT: PRINT
1970 PRINT TAB(21) "HERE ARE YOUR CONTROL FUNCTIONS"
1980 PRINT TAB(27) "1) MOVING EAST"
1990 PRINT TAB(27) "2) MOVING WEST"
2000 PRINT TAB(27) "3) MOVING NORTH"
2010 PRINT TAB(27) "4) MOVING SOUTH"
2020 PRINT TAB(27) "5) MOVING UP A LEVEL"
2030 PRINT TAB(27) "6) MOVING DOWN A LEVEL"
2040 PRINT TAB(27) "7) THROWING YOUR SPEAR"
2050 PRINT TAB(27) "8) GETTING A MAP"
2060 GOSUB 3860
2070 CLS
2080 PRINT: PRINT
2090 FOR ED2=1 TO 127: SET(ED2,10): NEXT ED2
2100 PRINT @ 219, "HAVE FUN"
2110 GOSUB 3860: CLS
2120 RETURN
2130 REM BARRIERS
2140 PRINT "I WILL NOW SET THE BARRIERS. "
2150 FOR A2=1 TO 10
2160 B2(A2)= INT(RND(8)*(-21))+11
2170 C2(A2)= INT(RND(8)*(-21))+11
2180 PRINT "BARRIER #";A2;":(";B2(A2);";";C2(A2);"). "
2190 NEXT A2
2200 PRINT
2210 GOSUB 3860
2220 RETURN
2230 REM PLACE PLAYER
2240 CLS
2250 PRINT "ON WHICH LEVEL DO YOU WANT TO START";
2260 INPUT L2%

```



# Motocycle Jump

This program, originally titled EVILK permits you to act out your fantasies of being a motorcycle daredevil! The game is a simple motorcycle jump over several busses, which takes into account both gravity and drag forces. The ramp angle and motorcycle speed determine the distance jumped. Note that the injury penalty is greater for long jumps than for short ones, and that there is a chance for a crash even on a jump of the right length. This probability, initially set at .20, can be modified in line 450 to make survival more or less likely.

This program was written by Charles Aylworth and originally appeared in *Creative Computing*, Jul/Aug 1978.

MOTORCYCLE JUMP  
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```

_____ cls _____
WE'RE AT THE SCENE OF THE BIG MOTORCYCLE JUMP!
HOW MANY BUSES WILL YOU TRY TO JUMP? 5
5 BUSES! THAT'S 75 FEET!
WHAT RAMP ANGLE WILL YOU USE? 22
HOW FAST WILL YOU LEAVE THE RAMP? 10

*** GOOD LUCK ***
_____ cls _____
THERE HE GOES!!!!
**HE'S SHORT OF THE RAMP ....
I THINK HE'S HURT.....
WELL, KILLER, THE DOCTOR SAYS YOU BROKE YOUR:
R LEG RIBS PELVIS R ARM BIKE FACE BACK L LEG
NECK PRIDE L ARM SKULL KNEE BUTT
WANT TO JUMP AGAIN? YES_
_____ cls _____
WE'RE AT THE SCENE OF THE BIG MOTORCYCLE JUMP!
HOW MANY BUSES WILL YOU TRY TO JUMP? 5
5 BUSES! THAT'S 75 FEET!
WHAT RAMP ANGLE WILL YOU USE? 22
HOW FAST WILL YOU LEAVE THE RAMP? 46

*** GOOD LUCK ***
_____ cls _____
THERE HE GOES!!!!
*****HE'S SHORT OF THE RAMP .....
I THINK HE'S HURT.....
WELL, KILLER, THE DOCTOR SAYS YOU BROKE YOUR:
FACE KNEE NECK BUTT
WANT TO JUMP AGAIN? YES_
_____ cls _____
WE'RE AT THE SCENE OF THE BIG MOTORCYCLE JUMP!
HOW MANY BUSES WILL YOU TRY TO JUMP? 5
5 BUSES! THAT'S 75 FEET!
WHAT RAMP ANGLE WILL YOU USE? 22
HOW FAST WILL YOU LEAVE THE RAMP? 48

*** GOOD LUCK ***
_____ cls _____
THERE HE GOES!!!!
*****HE MADE IT! GREAT JUMP, KILLER!
WANT TO JUMP AGAIN? NO_
_____ cls _____

```

```

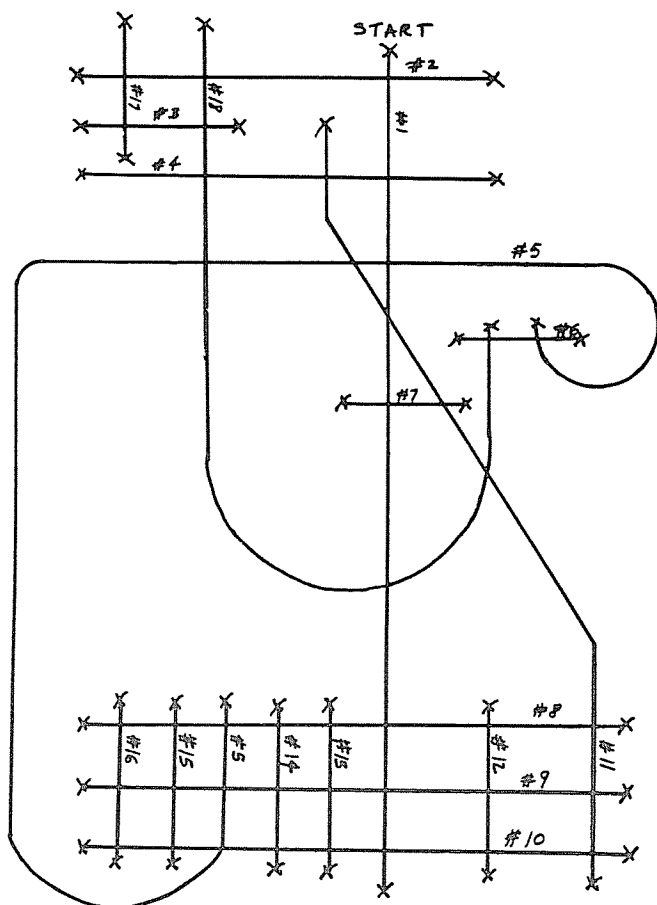
10 CLS: PRINT@409, "MOTORCYCLE JUMP"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 FOR A=1 TO 3000: NEXT
40 CLEAR 200: DIM I2(14), I$(84)
50 I$="R. ARM L. ARM R. LEG L. LEG BACK NECK SKULL RIBS KNEE BUTT "
60 I$=I$+"FACE PELVISPRIDE BIKE "
70 T= 1
80 T2=0
90 T3=0
100 CLS: PRINT "WE'RE AT THE SCENE OF THE BIG MOTORCYCLE JUMP!"
110 PRINT@64, CHR$(31);: INPUT "HOW MANY BUSES WILL YOU TRY TO JUMP";N
120 J=N*15
130 PRINT@128, N; "BUSES! THAT'S";J; "FEET!"
140 PRINT@192, CHR$(31);: INPUT "WHAT RAMP ANGLE WILL YOU USE";A2
150 IF A2<90 AND A2>0 THEN 180
160 PRINT@192, A2; "DEGREES? THAT'S IMPOSSIBLE. COME ON NOW, "
170 FOR A=1 TO 500: NEXT A: GOTO 140
180 A=A2*.01745
190 PRINT@256, CHR$(31);: INPUT "HOW FAST WILL YOU LEAVE THE RAMP";S
200 IF S<0 THEN 190
210 PRINT: PRINT "*** GOOD LUCK ***": PRINT
220 H=6
230 D=0
240 G=6
250 R2=0
260 S2=0
270 S=S*1.5
280 PRINT "THERE HE GOES!!!!"
290 S=S-S2
300 F=S*T
310 D2=F*COS(A)
320 R=F*SIN(A)
330 R2=R2+(32*T)
340 R3=R2*T
350 H=H-R3
360 D=D+D2
370 PRINT " ";
380 S2=(S/120)*32*T
390 IF D>J THEN G=G-R
400 IF G<0 THEN G=0
410 IF H>G THEN 290
420 IF D<J THEN 490
430 IF D>J+20 THEN 520
440 L=((D-J)/30)+RND(0)
450 IF L>.8 THEN 530
460 PRINT "HE MADE IT! GREAT JUMP, KILLER!"
470 T2=T2+1
480 GOTO 760
490 PRINT "HE'S SHORT OF THE RAMP ...."
500 L2=INT(((D-J)/S)*2)+(RND(0)*5)+.5)
510 GOTO 550
520 PRINT "HE JUMPED TOO FAR!"
530 PRINT "HE MISSED THE RAMP. "
540 L2=INT(((D+20-J)/20)+(RND(0)*5))
550 PRINT "I THINK HE'S HURT....."
560 FOR K=1 TO 14
570 I2(K)=K
580 NEXT K
590 K2=14
600 IF L2>14 THEN L2=14
610 IF L2<0 THEN L2=1
620 FOR K=1 TO L2
630 V=INT(RND(0)*1000)
640 V=(V-(INT(V/K2)*K2))+1
650 H2=I2(V)
660 I2(V)=I2(K2)
670 I2(K2)=H2
680 K2=K2-1
690 NEXT K
700 PRINT "WELL, KILLER, THE DOCTOR SAYS YOU BROKE YOUR:"
710 FOR K=(15-L2) TO 14
720 P=(6*I2(K))-5
730 A$=MID$(I$,P,6)
740 PRINT A$; " ";
750 NEXT K
760 T3=T3+1
770 PRINT: INPUT "WANT TO JUMP AGAIN";A$
780 IF LEFT$(A$,1)="Y" THEN 100
790 CLS: PRINT "YOU MADE IT";T2; "OUT OF";T3; "ATTEMPTS. "
800 PRINT "BE CAREFUL, NOW. "
810 END

```

# Nomad

"Gramma Nomad" is a person who doesn't really know where she wants to live, so she moves to a new house every game. Then she sends you a telegram asking you to visit her. The object of the game is to successfully navigate your way through the streets of Garbonzo City to Gramma's house. See the game for more details. A map of Garbonzo City is provided for your reference.

Nomad was written by Steve Trapp and first appeared in *Creative Computing*, Sep/Oct 1977.



NOMAD  
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\_\_\_\_\_ c/s \_\_\_\_\_  
DO YOU NEED INSTRUCTIONS? YES.  
\_\_\_\_\_ c/s \_\_\_\_\_

GRAMMA NOMAD IS A NICE OLD LADY WHO HAS NOT QUITE  
MADE UP HER MIND WHERE SHE WANTS TO LIVE.  
SHE HAS NARROWED IT DOWN TO SOMEWHERE IN GARBONZO CITY  
AND ON A STREET CORNER.

AT THE BEGINNING, THE MAILMAN GIVES YOU A TELEGRAM WRITTEN  
BY GRAMMA TELLING YOU WHERE SHE LIVES.  
(I WILL READ IT TO YOU).

YOU GET INTO YOUR CAR AT LRAC NILKNARF NAMGREB LODGE.  
FROM THERE YOU GO TO GRAMMA'S HOUSE.  
PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ c/s \_\_\_\_\_  
GRAMMA NOMAD IS A NICE OLD LADY WHO HAS NOT QUITE  
MADE UP HER MIND WHERE SHE WANTS TO LIVE.  
SHE HAS NARROWED IT DOWN TO SOMEWHERE IN GARBONZO CITY  
AND ON A STREET CORNER.

AT THE BEGINNING, THE MAILMAN GIVES YOU A TELEGRAM WRITTEN  
BY GRAMMA TELLING YOU WHERE SHE LIVES.  
(I WILL READ IT TO YOU).

YOU GET INTO YOUR CAR AT LRAC NILKNARF NAMGREB LODGE.  
FROM THERE YOU GO TO GRAMMA'S HOUSE.  
PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ c/s \_\_\_\_\_  
YOU TRY TO GET THERE WITHOUT:  
CRASHUPS  
TICKETS  
FLAT TIRES  
RUNNING OUT OF GAS  
DEAD ENDS

THERE IS AN 8-MAN POLICE FORCE ENFORCING THE LAWS  
OF GARBONZO CITY.

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ c/s \_\_\_\_\_  
THERE ARE 2-DRUNKS ON THE STREETS OF GARBONZO  
CITY.  
IF A POLICEMAN CATCHES A DRUNK, HE HAS TO  
TESTIFY IN COURT  
(WHICH TAKES THE REST OF THE GAME)

IF A DRUNK DRIVER HITS YOU, YOU LOSE.  
AT EACH JUNCTION, I WILL TELL YOU:  
THE DIRECTION YOU ARE GOING  
THE ROAD YOU ARE ON  
THE ROAD CROSSING

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ c/s \_\_\_\_\_  
I WILL ASK YOU:  
THE WAY YOU WANT TO TURN (I.E., LEFT)  
SPEED (IN MPH)  
AN OVERPASS IS NOT A JUNCTION, SO IT IS  
MERELY SKIPPED OVER. IT IS UNANNOUNCED.

\*THAT IS ALL\*  
WHAT IS YOUR NAME? CHRIS

\*\*\* GOOD LUCK \*\*\*

\_\_\_\_\_ c/s \_\_\_\_\_

DEAR CHRIS,  
HOW ARE YOU? I LIVE AT THE CORNER  
OF ROAD # 16 & # 9 !!!  
COME ON OVER.

LOVE,  
GRAMMA  
<<TELEGRAMMA CORP. TELEGRAM CO.>>  
SHOOOSH...BUS FLATTENED YOUR CAR.

AGAIN? YES.

\_\_\_\_\_ cls \_\_\_\_\_  
DEAR CHRIS,  
HOW ARE YOU? I LIVE AT THE CORNER  
OF ROAD # 14 & # 8 !!!  
COME ON OVER.

LOVE,  
GRAMMA  
<<TELEGRAMMA CORP. TELEGRAM CO.>>  
GOING SOUTH ON ROAD # 1  
JUNCTION: ROAD # 1 & # 2  
FORWARD, LEFT, RIGHT OR U-TURN? F.

\_\_\_\_\_ cls \_\_\_\_\_  
DEAR CHRIS,  
HOW ARE YOU? I LIVE AT THE CORNER  
OF ROAD # 14 & # 8 !!!  
COME ON OVER.

LOVE,  
GRAMMA  
<<TELEGRAMMA CORP. TELEGRAM CO.>>  
GOING SOUTH ON ROAD # 1  
JUNCTION: ROAD # 1 & # 2  
FORWARD, LEFT, RIGHT OR U-TURN? F  
SPEED? 40.

\_\_\_\_\_ cls \_\_\_\_\_  
GOING SOUTH ON ROAD # 1  
JUNCTION: ROAD # 1 & # 4  
FORWARD, LEFT, RIGHT OR U-TURN? F  
SPEED? 45.

\_\_\_\_\_ cls \_\_\_\_\_  
POP... BULLDOG ATE YOUR TIRE!

AGAIN? YES.

\_\_\_\_\_ cls \_\_\_\_\_  
DEAR CHRIS,  
HOW ARE YOU? I LIVE AT THE CORNER  
OF ROAD # 15 & # 10 !!!  
COME ON OVER.

LOVE,  
GRAMMA  
<<TELEGRAMMA CORP. TELEGRAM CO.>>  
GOING SOUTH ON ROAD # 1  
JUNCTION: ROAD # 1 & # 2  
FORWARD, LEFT, RIGHT OR U-TURN? F  
SPEED? 60.

\_\_\_\_\_ cls \_\_\_\_\_  
\*\*\* SPEEDING \*\*\*  
NOT CAUGHT

\_\_\_\_\_ cls \_\_\_\_\_  
GOING SOUTH ON ROAD # 1  
JUNCTION: ROAD # 1 & # 4  
FORWARD, LEFT, RIGHT OR U-TURN? F  
SPEED? 55.

\_\_\_\_\_ cls \_\_\_\_\_  
GOING SOUTH ON ROAD # 1  
JUNCTION: ROAD # 1 & # 5  
FORWARD, LEFT, RIGHT OR U-TURN? F  
SPEED? 70.

\_\_\_\_\_ cls \_\_\_\_\_  
\*\*\* SPEEDING \*\*\*  
NOT CAUGHT  
\*\*\* OUT OF GAS \*\*\*

AGAIN? NO.

```

10 CLS
20 PRINT @ 413, "NOMAD"
30 PRINT
40 PRINT TAB(7)*"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
50 PRINT @ 960, "":
60 INPUT "DO YOU NEED INSTRUCTIONS?"; I$
70 DIM K$(30), D(2, 2), R(30, 30), E(30, 30), P(8, 2), C(30)
80 DIM W(30)
90 DIM N$(30)
100 REM GOSUB RULES
110 GOSUB 2270
120 REM RANDOM NUMBERS
130 REM DEF FNC(X)=INT(RND(0)*X)+1
140 REM # OF ROADS
150 READ N
160 FOR R=1 TO N
170 REM # OF INTERSEC
180 READ Q
190 C(R)=ABS(Q)
200 IF Q<0 THEN 230
210 W(R)=1
220 GOTO 240
230 W(R)=-1
240 REM DIREC, ROAD
250 FOR J=1 TO C(R)
260 READ E(R, J), R(R, J)
270 NEXT J
280 NEXT R
290 REM NAME?
300 PRINT "WHAT IS YOUR NAME";
310 INPUT N$
320 REM OPENING STATEMENT
330 PRINT
340 PRINT "*** GOOD LUCK ***"
350 REM GRAMMA'S HOUSE
360 H1=RND(N)
370 H2=RND(C(H1))
380 REM DRUNK DRIVERS
390 REM POLICE
400 FOR A=1 TO 8
410 P(A, 1)=RND(N)
420 P(A, 2)=RND(C(P(A, 1)))
430 NEXT A
440 REM LRAC NILKNARF NAMGREB LODGE
450 R=1
460 J=0
470 I=1
480 REM GOSUB CHECK
490 GOSUB 1450
500 REM GOSUB TELEGRAM
510 GOSUB 1500
520 REM ADD INCREMENT
530 J=J+1
540 REM NEED REPAIR?
550 IF RND(10)=1 THEN 1800
560 REM DEAD END?
570 IF J=C(R) OR J=0 THEN 2000
580 REM DIRECTION
590 IF I=-1 THEN 620
600 D=E(R, J)
610 GOTO 630
620 D=9-E(R, J)
630 REM ROAD CROSSING
640 C=R(R, J)
650 REM SKIP LINE
660 PRINT
670 REM GOSUB *DIREC, ROAD ON* PRINT
680 GOSUB 1620
690 REM AT GRAMMA'S?
700 IF H1=R AND R(R, J)=R(H1, H2) THEN 1820
710 IF H1=R(R, J) AND R=R(H1, H2) THEN 1820
720 REM JUNCTION
730 PRINT "JUNCTION: ROAD #";R;" & #";C
740 REM ASK WHAT WAY TO TURN
750 PRINT "FORWARD, LEFT, RIGHT OR U-TURN";
760 INPUT I$
770 IF LEFT$(I$, 1)="F" THEN 970
780 IF LEFT$(I$, 1)="R" THEN 860
790 IF LEFT$(I$, 1)="L" THEN 880
800 IF LEFT$(I$, 1)="U" THEN 840
810 REM GOOFED
820 PRINT "*** YOU GOOFED ***"
830 GOTO 750
840 I=I+1
850 GOTO 970
860 I=W(R)+1
870 GOTO 890
880 I=-1+W(R)+1
890 FOR A=1 TO C(C)
900 IF R(C, A)=R THEN 930
910 NEXT A
920 GOTO 2980
930 R=C
940 J=A
950 REM DARE?
960 IF RND(4)=1 THEN 1260
970 REM SPEED
980 PRINT "SPEED";
990 INPUT S
1000 CLS
1010 REM DANGEROUSITY CRASH CHECKS
1020 IF S>100 THEN 2130
1030 IF S<30 THEN 2160
1040 REM ILLEGAL?
1050 IF S>55 THEN 2030
1060 REM DRUNK DRIVERS DRIVE.
1070 FOR A=1 TO 2
1080 IF D(A, 1)=0 THEN 1110
1090 D(A, 1)=RND(N)
1100 D(A, 2)=RND(C(D(A, 1)))
1110 NEXT A
1120 REM HIT BY DRUNK DRIVER?
1130 FOR A=1 TO 2
1140 IF D(A, 1)=0 THEN 1170
1150 IF D(A, 1)=R AND R(R, J)=R(D(A, 1), D(A, 2)) THEN 1850
1160 IF D(A, 1)=R(R, J) AND R(D(A, 1), D(A, 2))=R THEN 1850
1170 NEXT A
1180 REM IS DRIVER CAUGHT?
1190 FOR A=1 TO 2
1200 IF D(A, 1)=0 THEN 1240
1210 FOR B=1 TO 8
1220 IF D(A, 1)=P(B, 1) AND D(A, 2)=P(B, 2) THEN 1300
1230 NEXT B
1240 NEXT A
1250 GOTO 520
1260 REM SPEED DARE PRINT
1270 ON RND(3) GOTO 1280, 1300, 1320
1280 PRINT "I DARE YOU TO SPEED ** (DAREDEVIL)"
1290 GOTO 1330
1300 PRINT "*SPEEDING* IS FUN (SO DO IT)!!"
1310 GOTO 1330
1320 PRINT "*SPEED* I DARE YOU *SPEED* I DARE YOU"

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1330 GOTO 970
1340 REM DRUNK CAUGHT
1350 PRINT "A DRUNK DRIVER HAS BEEN CAUGHT. THE POLICEMAN WHO"
1360 PRINT "ARRESTED HIM WILL BE TESTIFYING AT COURT FOR"
1370 PRINT "THE REST OF THE GAME."
1380 PRINT
1390 D(R, 1)=0
1400 D(R, 2)=0
1410 P(B, 1)=0
1420 P(B, 2)=0
1430 GOTO 520
1440 REM CHECK
1450 FOR A=1 TO 8
1460 IF H1=P(R, 1) AND R(H1, H2)=R(P(R, 1), P(R, 2)) THEN 350
1470 IF H1=R(P(R, 1), P(R, 2)) AND R(H1, H2)=P(R, 1) THEN 350
1480 NEXT A
1490 RETURN
1500 REM TELEGRAM PRINT-UP
1510 PRINT
1520 CLS
1530 PRINT "DEAR ";H$;" ,"
1540 PRINT "HOW ARE YOU? I LIVE AT THE CORNER"
1550 PRINT "OF ROAD #1;H1;" & #";R(H1, H2);"!!!!"
1560 PRINT "COME ON OVER."
1570 PRINT "          LOVE,"
1580 PRINT "          GRAMMA"
1590 PRINT "((TELEGRAM CORP. TELEGRAM CO.))"
1600 PRINT
1610 RETURN
1620 REM *DIRECT, ROAD ON* PRINT-UP
1630 PRINT "GOING ";
1640 ON D GOTO 1650, : 670, 1690, 1710, 1730, 1750, 1770, 1790
1650 PRINT "NORTH";
1660 GOTO 1800
1670 PRINT "WEST";
1680 GOTO 1800
1690 PRINT "NORTHEAST";
1700 GOTO 1800
1710 PRINT "SOUTHEAST";
1720 GOTO 1800
1730 PRINT "NORTHWEST";
1740 GOTO 1800
1750 PRINT "SOUTHWEST";
1760 GOTO 1800
1770 PRINT "EAST";
1780 GOTO 1800
1790 PRINT "SOUTH";
1800 PRINT "ON ROAD ";R
1810 RETURN
1820 REM AT GRAMMA'S *PRINT*
1830 PRINT "YOU HAVE GOT TO GRAMMA'S HOUSE !!!!!!!!!!"
1840 GOTO 2100
1850 REM DRUNK HIT YOUR CAR *PRINT*
1860 PRINT "KERSPLATT -DRUNK DRIVER HIT YOUR CAR."
1870 GOTO 2100
1880 REM CAR NEEDS FIXING *PRINT-UP*
1890 ON RND(5) GOTO 1900, 1920, 1940, 1960, 1980
1900 PRINT "POP...FLAT TIRE"
1910 GOTO 1990
1920 PRINT "FLIP...YOUR CAR DID A SUMERSALT"
1930 GOTO 1990
1940 PRINT "*** OUT OF GAS ***"
1950 GOTO 1990
1960 PRINT "SMOOSH...US FLATTENED YOUR CAR."
1970 GOTO 1990
1980 PRINT "POP...BULL DOG ATE YOUR TIRE!"
1990 GOTO 2100
2000 REM DEAD END PRINT
2010 PRINT "*** DEAD END ***"
2020 GOTO 2100
2030 REM SPEEDING
2040 PRINT "*** SPEEDING ***"
2050 REM CAUGHT BY POLICE?
2060 FOR X=1 TO 8
2070 IF P(X, 1)=R AND P(X, 1)=J THEN 2110
2080 NEXT X
2090 PRINT "NOT CAUGHT"
2100 GOTO 1060
2110 PRINT "CAUGHT SPEEDING BY THE POLICE!!!"
2120 GOTO 2180
2130 REM TOO FAST *CRASH*
2140 PRINT "KERSHOUSH IEEEE...WENT TOO FAST !!!!!"
2150 GOTO 2180
2160 REM TOO SLOW *CRASH*
2170 PRINT "=<<<(KRUNG D)*- TOO SLOW...CAR BEHIND RAN INTO YOU!"

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```

2180 REM AGAIN?
2190 PRINT
2200 PRINT "AGAIN";
2210 INPUT I$
2220 IF LEFT$(I$, 1)="#" THEN 290
2230 REM CLOSING STATEMENT
2240 PRINT
2250 PRINT "*** SEE YOU ***"
2260 GOTO 2980
2270 REM RULES?
2280 REM RULES
2290 IF LEFT$(I$, 1)="#" THEN CLS: GOTO 2760
2300 CLS
2310 PRINT "GRAMMA HOWARD IS A NICE OLD LADY WHO HAS NOT QUITE"
2320 PRINT "MADE UP HER MIND WHERE SHE WANTS TO LIVE."
2330 PRINT "SHE HAS NARROWED IT DOWN TO SOMEWHERE IN GARSONZO CITY"
2340 PRINT "AND ON A STREET CORNER."
2350 PRINT
2360 PRINT "AT THE BEGINNING, THE MAILMAN GIVES YOU A TELEGRAM WRITTEN"
2370 PRINT "BY GRAMMA TELLING YOU WHERE SHE LIVES."
2380 PRINT "(I WILL READ IT TO YOU)."
2390 PRINT
2400 PRINT "YOU GET INTO YOUR CAR AT LARC NILKNARF NANGREB LODGE."
2410 PRINT "FROM THERE YOU GO TO GRAMMA'S HOUSE."
2420 GOSUB 2990
2430 PRINT "YOU TRY TO GET THERE WITHOUT:"
2440 PRINT "CRASHES:"
2450 PRINT "TICKETS"
2460 PRINT "FLAT TIRES"
2470 PRINT "RUNNING OUT OF GAS"
2480 PRINT "DEAD ENDS"
2490 PRINT
2500 PRINT "THERE IS AN 8-MAN POLICE FORCE ENFORCING THE LAWS"
2510 PRINT "OF GARSONZO CITY."
2520 GOSUB 2990
2530 PRINT "THERE ARE 2-DRUNKS ON THE STREETS OF GARSONZO"
2540 PRINT "CITY."
2550 PRINT
2560 PRINT "IF A POLICEMAN CATCHES A DRUNK, HE HAS TO"
2570 PRINT "TESTIFY IN COURT"
2580 PRINT "(WHICH TAKES THE REST OF THE GAME)"
2590 PRINT
2600 PRINT "IF A DRUNK DRIVER HITS YOU, YOU LOSE."
2610 PRINT
2620 PRINT "AT EACH JUNCTION, I WILL TELL YOU:"
2630 PRINT "THE DIRECTION YOU ARE GOING"
2640 PRINT "THE ROAD YOU ARE ON"
2650 PRINT "THE ROAD CROSSING"
2660 GOSUB 2990
2670 PRINT "I WILL ASK YOU:"
2680 PRINT "THE WAY YOU WANT TO TURN (I.E., LEFT)"
2690 PRINT "SPEED (IN MPH)"
2700 PRINT
2710 PRINT "AN OVERPASS IS NOT A JUNCTION, SO IT IS"
2720 PRINT "HERELY SKIPPED OVER. IT IS UNANNOUNCED."
2730 PRINT
2740 PRINT "THAT IS ALL*"
2750 PRINT
2760 RETURN
2770 REM DATA LINES
2780 DATA 18
2790 DATA -8, 8, 2, 8, 4, 8, 5, 8, 11, 8, 7, 8, 8, 8, 9, 8, 10
2800 DATA 3, 7, 17, 7, 18, 7, 1
2810 DATA 2, 7, 17, 7, 18
2820 DATA 3, 7, 18, 7, 11, 7, 1
2830 DATA 7, 8, 8, 9, 8, 10, 7, 18, 7, 11, 7, 1, 1, 6
2840 DATA -2, 7, 18, 7, 5
2850 DATA 2, 7, 1, 7, 11
2860 DATA 8, 7, 16, 7, 15, 7, 5, 7, 14, 7, 13, 7, 1, 7, 12, 7, 11
2870 DATA 8, 7, 16, 7, 15, 7, 5, 7, 14, 7, 13, 7, 1, 7, 12, 7, 11
2880 DATA 8, 7, 16, 7, 15, 7, 5, 7, 14, 7, 13, 7, 1, 7, 12, 7, 11
2890 DATA -7, 4, 4, 4, 5, 4, 1, 4, 7, 8, 8, 8, 9, 8, 10
2900 DATA -3, 8, 8, 8, 9, 8, 10
2910 DATA -3, 8, 8, 8, 9, 8, 10
2920 DATA -3, 8, 8, 8, 9, 8, 10
2930 DATA -3, 8, 8, 8, 9, 8, 10
2940 DATA -3, 8, 8, 8, 9, 8, 10
2950 DATA -2, 8, 2, 8, 3
2960 DATA -5, 8, 2, 8, 3, 8, 4, 8, 5, 1, 6
2970 DATA 8, 8, 8, 8, 8, 8, 8, 8
2980 END
2990 PRINT @ 970; "PRESS ANY KEY TO CONTINUE";
3000 IF INKEY$="" THEN 3000
3010 CLS
3020 RETURN

```

# Not One

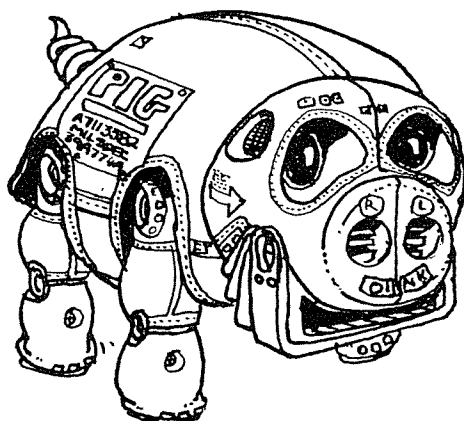
The game, Not One, sometimes known as Pig, is played with two players and a pair of dice. There are ten rounds in the game; one round consisting of one turn for each player. Players add the score that they attain on each round and the player with the highest score after ten rounds is the winner.

On each turn, the player may roll the two dice from one to as many times as he wishes. If the total of the dice on any roll after the first equals the total shown on the first roll, his score is then zero for that entire turn and the dice pass to the other player. On the other hand, if the total on his dice is anything

different from the total on the first turn, he continues to roll and adds the totals of the dice to his score. After each successful roll, the player can decide whether to roll again or stop and score the number of points already obtained.

You'll find that the computer plays a surprisingly good game of Not One. To beat it, you'll need some knowledge of probabilities and a little bit of luck on your side.

Not One was written in response to a challenge that appeared in the charter issue of *Creative Computing*. The game was written by Robert Puopolo and first appeared in *Creative Computing*, Mar/Apr 1975.



NOT-ONE

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DO YOU NEED INSTRUCTIONS? YES..

cls

NOT-ONE

THE GAME OF NOT-ONE IS PLAYED WITH TWO PLAYERS AND A PAIR OF DICE. THERE ARE TEN ROUNDS IN THE GAME, EACH ROUND CONSISTING OF ONE TURN FOR EACH PLAYER. PLAYERS (YOURSELF AND THE COMPUTER) ADD THE SCORE THEY ATTAIN ON EACH ROUND, AND THE PLAYER WITH THE HIGHEST SCORE AFTER TEN ROUNDS IS THE WINNER.

PRESS ANY KEY TO CONTINUE

cls

NOT-ONE

ON EACH TURN THE PLAYER MAY ROLL THE TWO DICE FROM 1 TO N TIMES. IF T1 IS THE TOTAL OF DICE ON THE 1TH ROLL, THEN THE PLAYERS SCORE FOR THE TURN IS T(1)+T(2)+T(3)+.....+T(N). HOWEVER, AND HERE'S THE CATCH, IF ANY T(I) IS EQUAL TO T(1) THEN THE TURN IS OVER AND HIS SCORE FOR THAT ROUND IS ZERO. AFTER EACH ROLL THAT DOESN'T EQUAL T(1), THE PLAYER CAN DECIDE WHETHER TO ROLL AGAIN OR STOP AND SCORE THE NUMBER OF POINTS ALREADY OBTAINED.

PRESS ANY KEY TO CONTINUE

cls

ROUND 1

4 ROLL AGAIN? Y  
6 ROLL AGAIN? Y  
10 ROLL AGAIN? Y  
6 ROLL AGAIN? Y  
4 YOU GET A ZERO FOR THIS ROUND.

cls

ROUND 1

COMPUTER'S ROLL # 1: 9  
COMPUTER'S ROLL # 2: 8  
COMPUTER'S ROLL # 3: 7  
COMPUTER'S ROLL # 4: 9  
THE COMPUTER GETS A ZERO FOR THE TURN!!

cls

ROUND 2 COMPUTER: 0 YOU: 0

11 ROLL AGAIN? Y  
7 ROLL AGAIN? Y  
6 ROLL AGAIN? Y  
8 ROLL AGAIN? Y  
7 ROLL AGAIN? Y  
8 ROLL AGAIN? Y  
6 ROLL AGAIN? Y  
10 ROLL AGAIN? Y  
4 ROLL AGAIN? Y  
7 ROLL AGAIN? Y  
10 ROLL AGAIN? NO.

cls

ROUND 2 COMPUTER: 0 YOU: 0

COMPUTER'S ROLL # 1: 6  
COMPUTER'S ROLL # 2: 9  
COMPUTER'S ROLL # 3: 5  
COMPUTER'S ROLL # 4: 7  
COMPUTER'S ROLL # 5: 5  
COMPUTER'S ROLL # 6: 10

cls

ROUND 3 YOU: 84 COMPUTER: 42

7 ROLL AGAIN? Y  
8 ROLL AGAIN? Y  
6 ROLL AGAIN? Y  
3 ROLL AGAIN? Y  
11 ROLL AGAIN? Y  
6 ROLL AGAIN? Y  
5 ROLL AGAIN? Y  
6 ROLL AGAIN? Y  
8 ROLL AGAIN? NO.

cls

ROUND 3 YOU: 84 COMPUTER: 42

COMPUTER'S ROLL # 1: 7  
COMPUTER'S ROLL # 2: 4  
COMPUTER'S ROLL # 3: 5  
COMPUTER'S ROLL # 4: 9  
COMPUTER'S ROLL # 5: 4  
COMPUTER'S ROLL # 6: 6

cls

ROUND 4 YOU: 144 COMPUTER: 77

11 ROLL AGAIN? Y  
3 ROLL AGAIN? Y  
8 ROLL AGAIN? Y  
10 ROLL AGAIN? Y  
10 ROLL AGAIN? Y  
4 ROLL AGAIN? Y  
6 ROLL AGAIN? Y  
6 ROLL AGAIN? Y  
7 ROLL AGAIN? Y  
9 ROLL AGAIN? Y  
9 ROLL AGAIN? NO.

cls

ROUND 4 YOU: 144 COMPUTER: 77

COMPUTER'S ROLL # 1: 4  
COMPUTER'S ROLL # 2: 6  
COMPUTER'S ROLL # 3: 7  
COMPUTER'S ROLL # 4: 12  
COMPUTER'S ROLL # 5: 8  
COMPUTER'S ROLL # 6: 4  
THE COMPUTER GETS A ZERO FOR THE TURN!!

cls

ROUND 6 YOU: 227 COMPUTER: 77

5 ROLL AGAIN? Y  
10 ROLL AGAIN? Y  
11 ROLL AGAIN? Y  
11 ROLL AGAIN? Y  
6 ROLL AGAIN? Y  
7 ROLL AGAIN? Y  
10 ROLL AGAIN? Y  
10 ROLL AGAIN? Y  
8 ROLL AGAIN? NO.

cls



ROUND 6 YOU: 227 COMPUTER: 77  
 -----  
 COMPUTER'S ROLL # 1: 10  
 COMPUTER'S ROLL # 2: 9  
 COMPUTER'S ROLL # 3: 4  
 COMPUTER'S ROLL # 4: 7  
 COMPUTER'S ROLL # 5: 5  
 COMPUTER'S ROLL # 6: 8  
 COMPUTER'S ROLL # 7: 10  
 THE COMPUTER GETS A ZERO FOR THE TURN!!  
 -----  
 cls

ROUND 7 YOU: 305 COMPUTER: 77  
 -----  
 6 ROLL AGAIN? Y  
 6 YOU GET A ZERO FOR THIS ROUND.  
 -----  
 cls

ROUND 7 YOU: 305 COMPUTER: 77  
 -----  
 COMPUTER'S ROLL # 1: 7  
 COMPUTER'S ROLL # 2: 7  
 THE COMPUTER GETS A ZERO FOR THE TURN!!  
 -----  
 cls

ROUND 8 YOU: 305 COMPUTER: 77  
 -----  
 8 ROLL AGAIN? Y  
 7 ROLL AGAIN? Y  
 11 ROLL AGAIN? Y  
 5 ROLL AGAIN? Y  
 8 YOU GET A ZERO FOR THIS ROUND.  
 -----  
 cls

ROUND 9 YOU: 305 COMPUTER: 77  
 -----  
 7 ROLL AGAIN? Y  
 8 ROLL AGAIN? Y  
 9 ROLL AGAIN? Y  
 9 ROLL AGAIN? Y  
 2 ROLL AGAIN? Y  
 12 ROLL AGAIN? Y  
 10 ROLL AGAIN? Y  
 8 ROLL AGAIN? Y  
 9 ROLL AGAIN? NO  
 -----  
 cls

ROUND 9 YOU: 305 COMPUTER: 77  
 -----  
 COMPUTER'S ROLL # 1: 8  
 COMPUTER'S ROLL # 2: 11  
 COMPUTER'S ROLL # 3: 12  
 COMPUTER'S ROLL # 4: 7  
 COMPUTER'S ROLL # 5: 6  
 COMPUTER'S ROLL # 6: 8  
 THE COMPUTER GETS A ZERO FOR THE TURN!!  
 -----  
 cls

ROUND 10 YOU: 379 COMPUTER: 77  
 -----  
 9 ROLL AGAIN? Y  
 8 ROLL AGAIN? Y  
 4 ROLL AGAIN? Y  
 8 ROLL AGAIN? Y  
 2 ROLL AGAIN? Y  
 5 ROLL AGAIN? Y  
 4 ROLL AGAIN? NO  
 -----  
 cls

ROUND 10 YOU: 379 COMPUTER: 77  
 -----  
 COMPUTER'S ROLL # 1: 7  
 COMPUTER'S ROLL # 2: 5  
 COMPUTER'S ROLL # 3: 11  
 COMPUTER'S ROLL # 4: 7  
 THE COMPUTER GETS A ZERO FOR THE TURN!!  
 -----  
 cls

| ROUND   | YOU   | COMPUTER |
|---------|-------|----------|
| 1       | 0     | 0        |
| 2       | 84    | 42       |
| 3       | 60    | 35       |
| 4       | 83    | 0        |
| 5       | 0     | 0        |
| 6       | 78    | 0        |
| 7       | 0     | 0        |
| 8       | 0     | 0        |
| 9       | 74    | 0        |
| 10      | 40    | 0        |
| =====   | ===== | =====    |
| TOTALS: | 419   | 77       |

PLAY AGAIN? NO

```

10 CLS: PRINT#413: "NOT-ONE"
20 PRINT: PRINT TAB(1): "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT#960: "": IF PUT "DO YOU NEED INSTRUCTIONS?"; I$
40 DIM T(50),R(10),C(10),L(20)
50 IF LEFT$(I$,1)="Y" THEN 60 ELSE 260
60 CLS: PRINT TAB(28): "NOT-ONE": PRINT: PRINT "THE GAME OF NOT-ONE IS"
70 PRINT "PLAYED WITH TWO PLAYERS AND A PAIR OF DICE. THERE ARE"
80 PRINT "TEN ROUNDS IN THE GAME, EACH ROUND CONSISTING"
90 PRINT "OF ONE TURN FOR EACH PLAYER. PLAYERS"
100 PRINT "(YOURSELF AND THE COMPUTER) ADD THE SCORE"
110 PRINT "THEY ATTAIN ON EACH ROUND, AND THE PLAYER"
120 PRINT "WITH THE HIGHEST SCORE AFTER TEN ROUNDS IS THE WINNER"
130 PRINT#979: "PRES: ANY KEY TO CONTINUE"
140 IF INKEY$="" THEN 140 ELSE PRINT#128: CHR$(31)
150 PRINT "ON EACH TURN THE PLAYER MAY ROLL THE TWO"
160 PRINT "DICE FROM 1 TO N TIMES. IF T1 IS THE TOTAL OF DICE ON"
170 PRINT "THE ITH ROLL, THEN THE PLAYERS SCORE FOR THE TURN IS"
180 PRINT "T(1)+T(2)+.....+T(N). HOWEVER,"
190 PRINT "AND HERE'S THE CATCH. IF ANY T(1) IS EQUAL TO T(1) THEN"
200 PRINT "THE TURN IS OVER AND HIS SCORE FOR THAT ROUND IS ZERO."
210 PRINT "AFTER EACH ROLL THAT DOESN'T EQUAL T(1), THE PLAYER CAN"
220 PRINT "DECIDE WHETHER TO ROLL AGAIN OR STOP AND "
230 PRINT "SCORE THE NUMBER OF POINTS ALREADY OBTAINED."
240 PRINT#979: "PRES: ANY KEY TO CONTINUE"
250 IF INKEY$="" THEN 1250
260 CLS: FOR T=1 TO 10: PRINT#0: "ROUND";T: PRINT#64: "-----";CHR$(31)
270 X=X+1:R1=INT(64#RND(0))+1
280 R2=INT(64#RND(0))+1
290 IF PEEK(16416)+PEEK(16417)*256=16320 THEN PRINT#192: CHR$(31)
300 PRINT R1+R2
310 IF X=1 THEN 330
320 T(1)=R1+R2: GOTO 370
330 T(X)=R1+R2
340 IF T(1)<T(X) THEN 370
350 PRINT "YOU GET A ZERO FOR THIS ROUND."
360 X=0: T1=0: GOTO 410
370 T1=T1+T(X)

```

```

380 INPUT "ROLL AGAIN?";B$
390 IF LEFT$(B$,1)="Y" THEN 270
400 R(T)=T1: X=0: T1=0: FOR A=1 TO 50: T(A)=0: NEXT: GOTO 410
410 FOR TM=1 TO 1000: NEXT TM: PRINT#128: CHR$(31)
420 RESTORE
430 R1=INT(64#RND(0))+1: R2=INT(64#RND(0))+1
440 FOR D=1 TO R1+R2: READ L(D): NEXT: D=R1+R2
450 FOR C=1 TO L(D): IF C=1 THEN 480
460 R1=INT(64#RND(0))+1: R2=INT(64#RND(0))+1
470 IF PEEK(16416)+PEEK(16417)*256=16320 THEN PRINT#192: CHR$(31)
480 PRINT "COMPUTER'S ROLL #";C:CHR$(8): "":R1+R2
490 IF C=1 THEN 510
500 T(1)=R1+R2: GOTO 550
510 T(C)=R1+R2
520 IF T(C)>T(1) GOTO 560
530 PRINT "THE COMPUTER GETS A ZERO FOR THE TURN!!"
540 T1=0: GOTO 560
550 T1=T1+T(C): NEXT C
560 FOR TM=1 TO 1000: NEXT TM: C(T)=T1: T1=0: X=0
570 C2=C2+C(T): C1=C1+R(T)
580 PRINT: FOR D=1 TO 50: T(D)=0: NEXT
590 REM
600 IF C2<C1 THEN 620
610 PRINT#32: "COMPUTER: ";C2:"YOU: ";C1:CHR$(30): GOTO 630
620 PRINT#32: "YOU: ";C1:"COMPUTER: ";C2:CHR$(30)
630 NEXT T
640 DATA 13,18,9,9,6,6,6,9,9,18,18
650 CLS
660 PRINT "ROUND";TAB(15):"YOU";TAB(25):"COMPUTER"
670 PRINT "-----";TAB(15):"-----";TAB(25):"-----"
680 FOR E=1 TO 10: PRINT USING " ##" #####;E:R(E):C(E)
690 NEXT E: PRINT"====";TAB(14):"====";TAB(27):"===="
700 PRINT "TOTALS: ";TAB(14):C1:TAB(26):C2:PRINT
710 INPUT "PLAY AGAIN?";ANS$
720 IF LEFT$(ANS$,1)="Y" THEN CLEAR: I$="N": GOTO 40
730 END

```

# Obstacle

The game OBSTACLE is an obstacle course game played on a 9x40 grid.

A car is represented by the character ‘**^**’, the obstacles are the walls (represented by exclamation points and hyphens) and spaces are where the car may travel. The car may not pass over or occupy a wall or obstacle. The character ‘**S**’ at the upper left corner, indicates where the car starts from, and the character in the lower right corner, the ‘**F**’, is the space the car must occupy at the finish to win. If the car tries to occupy or pass through a wall the game is lost. When the car lands on the space occupied by the character ‘**F**’, the car has finished the course, and the game is over, and a time is calculated.

Line-by-line, here's how the program works:

Line 480 dimensions the matrix M for 15 rows by 50 columns (allowing an adequate margin for modification).

Line 490-550 initializes all necessary variables.

Line 570-650, through the use of a random number generator, generates the obstacle course, where I is the row matrix index and J is the column matrix index and R1 is the random number. Line 590 generates a random number between 0 and 1, multiplies it by a density of 1.2 (to increase density factor by a few decimal points) and removes everything right of the decimal point. R1 is now either 0 or 1. If it is 0 the matrix memory location M (I,J) inside the For-Next Loop is assigned the value of a space, if it is 1, it is assigned the value of an exclamation point.

Lines 710 and 720 assign the walls to the course.

Line 760 stores the values of I and J into K and L, these act as value holders.

After the print routine has been executed, I and J are reassigned their old values stored in K and L at line 840.

Lines 780-830, through use of a For-Next Loop (as in the initialization course set up routine), print out the characters represented by values in matrix M. Line 800, the CHR\$

Function turns the values of the memory location into their ASCII character equivalent.

Line 860 checks if the car has moved yet, by checking D1. If D1 = 0 then it skips the query option and continues with the main body. If D1=0 then it executes the option query, asking whether a new course, or this course or end the game and then executes the respective option.

Line 1010 checks if D1 is not equal to 1 and if so continues with the movement routine. If not then it starts the car at matrix position 2.2 and continues with the movement routine.

Line 950 starts the main program body, 970 queries the direction and 980 checks the input D if it is a valid direction. Line 1000 inputs the speed 'S' and Line 1010 initializes the counters S1 and D1. Lines 1040-1060 direct control to the proper movement routine (1 is up, 2 is right to left, 3 is down).

Line 1070-1110 is the movement routine for direction 1. Line 1070 erases the car from the previous position keeping track of I and J. Line 1080 and 1090 check each character position between matrix position I,J, and I-S,J for a wall (exclamation or hyphen); if one is encountered the game is over. If no walls are encountered, the move is legal and Line 1110 assigns the car to matrix position I-1,J and jumps to 1220 to check matrix position 10,41 if it contains a car. If so, the game is won and the End of Run routine is executed. If matrix position 10,41 is not occupied the game is not over and control jumps to 740, the matrix print routine. The Loop can only be exited by losing (crashing into an obstacle) or by getting the car to matrix position 10,41 where it executes the End of Run routine.

Line 1290 calculates the time by dividing total number of turns by total number of character spaces covered by the car and multiplies it by 100. Line 1300 prints the time and Line 1310 and 1320 query as to whether to play the game again.

The program and these notes were written by Eric Erickson.

## OBSTACLE

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DO YOU NEED INSTRUCTIONS? YES.

OBSTACLE

THE OBJECT OF THIS GAME IS TO MOVE YOUR CAR '\*' BEGINNING AT 'S' AND NAVIGATE THROUGH THE OBSTACLES ' ' WALLS TO THE SPACE MARKED 'F' YOU MUST LAND ON THE SPACE MARKED 'F' ON THE EXACT AMOUNT OF SPACES.

THERE ARE NO DIAGONAL MOVES.  
THERE ARE NO RIGHT TO LEFT MOVES.

DIRECTION NO. 1 IS UP. (↑)  
DIRECTION NO. 2 IS LEFT TO RIGHT. (→)  
DIRECTION NO. 3 IS DOWN. (↓)

SPEED IS THE NUMBER OF SPACES IN A GIVEN DIRECTION.

— cis

• •

1

OPTION: (A = CONTINUE, B = NEW COURSE, C = STOP)? A

- 5/8

3.

F

DIRECTION? 3\_

— cis

3

F

DIRECTION? 3  
SPEED? 5\_

— cis

LATER  
IN THE  
GAME.

```

*
DIRECT ON? 2
SPEED? 9_

```

cls

```

*
DIRECT ON? 2
SPEED? 10_

```

```

*
DIRECTION? 3
SPEED? 3_

```

cls

ILLEGAL MOVE..... YOU LOSE!!

DO YOU WISH TO PLAY AGAIN? NO\_

```

10 CLS: PRINT@412, "OBSTACLE"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "DO YOU NEED INSTRUCTIONS"; I$
40 REM VARIABLES          USAGE
50 REM -----
60 REM A1      DECIMAL VALUE FOR THE CHARACTER '*'
70 REM A2      DECIMAL VALUE FOR THE CHARACTER '/'
80 REM A3      DECIMAL VALUE FOR THE CHARACTER '.'
90 REM A4      DECIMAL VALUE FOR THE CHARACTER 'S'
100 REM A5     DECIMAL VALUE FOR THE CHARACTER 'F'
110 REM A6     DECIMAL VALUE FOR THE CHARACTER '-'
120 REM D      DIRECTION
130 REM D1     TOTAL NO. OF TURNS TAKEN
140 REM I      ROW MATRIX
150 REM J      COLUMN MATRIX INDEX
160 REM K      PLACE HOLDER FOR THE VARIABLE I
170 REM L      PLACE HOLDER FOR THE VARIABLE J
180 REM M      MATRIX VARIABLE
190 REM N$     INPUT TO YES-NO QUESTIONS
200 REM R1     RANDOM NUMBER GENERATOR VARIABLE
210 REM S      SPEED
220 REM S1     TOTAL SPEED COUNTER
230 REM T      'TIME' RATIO (D1/S1)*100
240 REM
250 REM          START PROGRAM
260 REM
270 REM
280 REM          INSTRUCTIONS
290 REM
300 CLS: IF LEFT$(I$,1) <> "Y" THEN 480
310 PRINT TAB(28) "OBSTACLE": PRINT
320 PRINT "THE OBJECT OF THIS GAME IS TO MOVE YOUR CAR '*'
330 PRINT "BEGINNING AT 'S' AND NAVIGATE THROUGH THE OBSTACLES"
340 PRINT "CHR$(191) 'WALLS TO THE SPACE MARKED 'F'. YOU MUST LAND"
350 PRINT "ON THE SPACE MARKED 'F' ON THE EXACT AMOUNT OF SPACES."
360 PRINT
370 PRINT "THERE ARE NO DIAGONAL MOVES."
380 PRINT "THERE ARE NO RIGHT TO LEFT MOVES."
390 PRINT
400 PRINT "DIRECTION N.1 IS UP (":CHR$(91);":)"
410 PRINT "DIRECTION N.2 IS TO RIGHT. (":CHR$(94);":)"
420 PRINT "DIRECTION N.3 IS DOWN. (":CHR$(92);":)"
430 PRINT
440 PRINT "SPEED IS THE NUMBER OF SPACES IN A GIVEN DIRECTION."
450 REM
460 REM          INITIATION
470 REM
480 DIM M(15,50)
490 A1=ASC("*")
500 A2=191
510 A3=ASC(".")
520 A4=ASC("S")
530 A5=ASC("F")
540 A6=191
550 D1=0: S1=0
560 REM *** NOTE - COURSE SET UP ROUTINE
570 FOR I=1 TO 10
580 FOR J=1 TO 42
590 R1=INT(RND(0)*1.2)
600 IF R1=0 THEN 630
610 M(I,J)=A2
620 GOTO 640
630 M(I,J)=A3
640 NEXT J
650 NEXT I
660 M(2,2)=A4
670 M(10,40)=A3

```

```

680 M(10,41)=A5
690 M(2,3)=A3
700 M(3,2)=A3
710 FOR I=1 TO 10: M(I,1)=A2: M(I,42)=A2: NEXT I
720 FOR J=1 TO 42: M(1,J)=A6: M(11,J)=A6: NEXT J
730 GOSUB 760: GOTO 850
740 REM          ** PRINTING ROUTINE **
750 GOTO 850
760 K=I: L=J
770 CLS
780 FOR I=1 TO 11: PRINT TAB(11);
790 FOR J=1 TO 42
800 PRINT CHR$(M(I,J));
810 NEXT J
820 PRINT
830 NEXT I
840 I=K: J=L: RETURN
850 REM          88 NOTE- NEW COURSE OPTION**
860 IF D1>0 THEN 950
870 PRINT "OPTION: (A = CONTINUE, B = NEW COURSE, C = STOP)";
880 INPUT N$
890 IF N$="A" THEN 950
900 IF N$="B" THEN 540
910 IF N$="C" THEN END
920 PRINT "INVALID OPTION."
930 GOTO 870
940 REM
950 REM          ** MAIN PROGRAM BODY **
960 REM
970 PRINT@704, "DIRECTION"; CHR$(31); INPUT D: D=INT(ABS(D))
980 IF D<1 THEN 970
990 IF D>3 THEN 970
1000 PRINT "SPEED"; INPUT S: S=INT(ABS(S))
1010 D1=D1+1: S1=S1+S: IF D1>1 THEN 1040
1020 REM          ** NOTE - CAR STARTS AT POSITION 2,2
1030 J=2: I=2
1040 IF D=1 THEN 1070
1050 IF D=2 THEN 1120
1060 IF D=3 THEN 1170
1070 M(I,J)=A3: REM          ** WIPES OUT PREVIOUS CHARACTER **
1080 FOR C=1 TO S: GOSUB 1330: I=ABS(I-1): IF M(I,J)=A2 THEN 1250
1090 IF M(I,J)=A6 THEN 1250
1100 GOSUB 1340: NEXT C
1110 M(I,J)=A1: GOTO 1220
1120 M(I,J)=A3
1130 FOR C=1 TO S: GOSUB 1330: J=J+1: IF M(I,J)=A2 THEN 1250
1140 IF M(I,J)=A6 THEN 1250
1150 GOSUB 1340: NEXT C
1160 M(I,J)=A1: GOTO 1220
1170 M(I,J)=A3
1180 FOR C=1 TO S: GOSUB 1330: I=I+1: IF M(I,J)=A2 THEN 1250
1190 IF M(I,J)=A6 THEN 1250
1200 GOSUB 1340: NEXT C
1210 M(I,J)=A1
1220 REM          ** NOTE - WINNING CHECK**
1230 IF M(10,41)<>A1 THEN 740
1240 GOTO 1270
1250 PRINT@704, "ILLEGAL MOVE..... YOU LOSE!!"; CHR$(31): GOTO 1310
1260 REM
1270 REM          ** END OF RUN ROUTINE **
1280 REM
1290 T=(D1/S1)*100
1300 PRINT@704, "YOU WON!! AND YOUR TIME IS"; T;CHR$(31)
1310 PRINT: PRINT "DO YOU WISH TO PLAY AGAIN?"; INPUT N$
1320 IF LEFT$(N$,1)="" THEN 540 ELSE END
1330 PRINT@I*64-54+J, " ": RETURN
1340 PRINT@I*64-54+J, "*"; RETURN

```

# Octrix

OCTRIX

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DO YOU NEED INSTRUCTIONS? YES.

cls

THIS IS A GAME CALLED OCTRIX. EACH PLAYER IS DEALT 8 CARDS RANGING FROM ACE THROUGH EIGHT. THE CARDS ARE RANKED ACCORDING TO BRIDGE SUITS WITH THE ACE OF CLUBS THE LOWEST AND THE EIGHT OF SPADES HIGHEST. THE OBJECT IS TO WIN AS MANY OF THE EIGHT TRICKS AS POSSIBLE. EACH TRICK PLAYED DETERMINES THE PLAY OF THE NEXT TRICK. IF THE HIGH AND LOW CARDS PLAYED MATCH COLOR THE NEXT TRICK WILL BE HIGH AND IF THEY DO NOT MATCH IT WILL BE LOW. IT IS IMPORTANT TO SET STRATEGY TO WIN CONSECUTIVE TRICKS IN THAT SCORING IS 1 POINT PER TRICK, 4 FOR TWO IN A ROW, 9 FOR 3, UP TO 64 FOR ALL EIGHT.

RESPOND TO THE INPUT PROMPT WITH THE CARD YOU WANT TO PLAY IN A TWO CHARACTER FORMAT WITH THE VALUE (A-8) AS THE FIRST CHARACTER, AND SUIT (C,D,H,S) AS THE SECOND CHARACTER.

PRESS ANY KEY TO CONTINUE

cls

HOW MANY POINTS (0 ENTRY GIVES STANDARD 88)? 0

HOW MANY PLAYERS? 3

ENTER NAME OF PLAYER # 1? CHRIS

ENTER NAME OF PLAYER # 2? ERIC

ENTER NAME OF PLAYER # 3? STEVE

SHOULD I PLAY TOO (Y OR N)? Y.

cls

| CHRIS | ERIC   | STEVE | COMPUTER  |
|-------|--------|-------|-----------|
| CDHS  | CDHS   | CDHS  | CDHS      |
| ..A   | *..A   | ..A   | *..A**..A |
| ..2   | ..2    | *..2* | *..2*..2  |
| ..3*  | ..3    | *..3* | *..3*..3  |
| ..4   | ..4*   | *..4* | *..4*..4  |
| ..5   | *..5   | *..5* | *..5*..5  |
| ..6   | **..6* | *..6* | *..6*..6  |
| ..7*  | *..7   | *..7* | *..7*..7  |
| ..8*  | ..8    | *..8  | *..8*..8  |

TRICK # 1 (HIGH CARD WINS)

WHAT CARD, CHRIS

#

cls

| CHRIS | ERIC   | STEVE | COMPUTER  |
|-------|--------|-------|-----------|
| CDHS  | CDHS   | CDHS  | CDHS      |
| ..A   | *..A   | ..A   | *..A**..A |
| ..2   | ..2    | *..2* | *..2*..2  |
| ..3*  | ..3    | *..3* | *..3*..3  |
| ..4   | ..4*   | *..4* | *..4*..4  |
| ..5   | *..5   | *..5* | *..5*..5  |
| ..6   | **..6* | *..6* | *..6*..6  |
| ..7*  | *..7   | *..7* | *..7*..7  |
| ..8*  | ..8    | *..8  | *..8*..8  |

TRICK # 1 (HIGH CARD WINS)

WHAT CARD, ERIC

#

cls

| CHRIS | ERIC   | STEVE | COMPUTER  |
|-------|--------|-------|-----------|
| CDHS  | CDHS   | CDHS  | CDHS      |
| ..A   | *..A   | ..A   | *..A**..A |
| ..2   | ..2    | *..2* | *..2*..2  |
| ..3*  | ..3    | *..3* | *..3*..3  |
| ..4   | ..4*   | *..4* | *..4*..4  |
| ..5   | *..5   | *..5* | *..5*..5  |
| ..6   | **..6* | *..6* | *..6*..6  |
| ..7*  | *..7   | *..7* | *..7*..7  |
| ..8*  | ..8    | *..8  | *..8*..8  |

TRICK # 1 (HIGH CARD WINS)

WHAT CARD, STEVE

#

cls

| CHRIS | ERIC   | STEVE | COMPUTER  |
|-------|--------|-------|-----------|
| CDHS  | CDHS   | CDHS  | CDHS      |
| ..A   | *..A   | ..A   | *..A**..A |
| ..2   | ..2    | *..2* | *..2*..2  |
| ..3*  | ..3    | *..3* | *..3*..3  |
| ..4   | ..4*   | *..4* | *..4*..4  |
| ..5   | *..5   | *..5* | *..5*..5  |
| ..6   | **..6* | *..6* | *..6*..6  |
| ..7*  | *..7   | *..7* | *..7*..7  |
| ..8*  | ..8    | *..8  | *..8*..8  |

CHRIS PLAYED THE EIGHT OF CLUBS.

ERIC PLAYED THE EIGHT OF DIAMONDS.

STEVE PLAYED THE EIGHT OF HEARTS.

I PLAYED THE EIGHT OF SPADES.

I WON TRICK # 1.

cls

| CHRIS | ERIC   | STEVE | COMPUTER  |
|-------|--------|-------|-----------|
| CDHS  | CDHS   | CDHS  | CDHS      |
| ..A   | *..A   | ..A   | *..A**..A |
| ..2   | ..2    | *..2* | *..2*..2  |
| ..3*  | ..3    | *..3* | *..3*..3  |
| ..4   | ..4*   | *..4* | *..4*..4  |
| ..5   | *..5   | *..5* | *..5*..5  |
| ..6   | **..6* | *..6* | *..6*..6  |
| ..7*  | *..7   | *..7* | *..7*..7  |
| ..8   | ..8    | *..8  | *..8*..8  |

TRICK # 2 (HIGH CARD WINS)

WHAT CARD, CHRIS

#

cls

| CHRIS | ERIC   | STEVE | COMPUTER  |
|-------|--------|-------|-----------|
| CDHS  | CDHS   | CDHS  | CDHS      |
| ..A   | *..A   | ..A   | *..A**..A |
| ..2   | ..2    | *..2* | *..2*..2  |
| ..3*  | ..3    | *..3* | *..3*..3  |
| ..4   | ..4*   | *..4* | *..4*..4  |
| ..5   | *..5   | *..5* | *..5*..5  |
| ..6   | **..6* | *..6* | *..6*..6  |
| ..7*  | *..7   | *..7* | *..7*..7  |
| ..8   | ..8    | *..8  | *..8*..8  |

TRICK # 2 (HIGH CARD WINS)

WHAT CARD, ERIC

#

cls

This is a card game for up to four players, or three players plus the computer. A deck of 32 cards is used with ace through eight in each of the four suits. All 32 of the cards are dealt out at the beginning of the game, eight to each player. On each hand, each player discards one card depending on the rules of the game (see the rules at the beginning of the sample game) either the high card discard or the low card discard wins that trick. After eight tricks a new hand is dealt and play proceeds as before. Perhaps the easiest way to learn Octrix is to play a few games with you and the computer or with several people and the computer. Observe what happens and before long you'll be able to work out a reasonable strategy for playing the game.

Octrix was written by Rogers Hamilton.

| CHRIS | ERIC   | STEVE | COMPUTER  |
|-------|--------|-------|-----------|
| CDHS  | CDHS   | CDHS  | CDHS      |
| ..A   | *..A   | ..A   | *..A**..A |
| ..2   | ..2    | *..2* | *..2*..2  |
| ..3*  | ..3    | *..3* | *..3*..3  |
| ..4   | ..4*   | *..4* | *..4*..4  |
| ..5   | *..5   | *..5* | *..5*..5  |
| ..6   | **..6* | *..6* | *..6*..6  |
| ..7*  | *..7   | *..7* | *..7*..7  |
| ..8   | ..8    | *..8  | *..8*..8  |

TRICK # 2 (HIGH CARD WINS)

WHAT CARD, STEVE

#

cls

| CHRIS | ERIC   | STEVE | COMPUTER  |
|-------|--------|-------|-----------|
| CDHS  | CDHS   | CDHS  | CDHS      |
| ..A   | *..A   | ..A   | *..A**..A |
| ..2   | ..2    | *..2* | *..2*..2  |
| ..3*  | ..3    | *..3* | *..3*..3  |
| ..4   | ..4*   | *..4* | *..4*..4  |
| ..5   | *..5   | *..5* | *..5*..5  |
| ..6   | **..6* | *..6* | *..6*..6  |
| ..7*  | *..7   | *..7* | *..7*..7  |
| ..8   | ..8    | *..8  | *..8*..8  |

CHRIS PLAYED THE SEVEN OF CLUBS.

ERIC PLAYED THE SIX OF CLUBS.

STEVE PLAYED THE SEVEN OF DIAMONDS.

I PLAYED THE FIVE OF DIAMONDS.

STEVE WON TRICK # 2.

cls

| CHRIS | ERIC   | STEVE | COMPUTER  |
|-------|--------|-------|-----------|
| CDHS  | CDHS   | CDHS  | CDHS      |
| ..A   | *..A   | ..A   | *..A**..A |
| ..2   | ..2    | *..2* | *..2*..2  |
| ..3*  | ..3    | *..3* | *..3*..3  |
| ..4   | ..4*   | *..4* | *..4*..4  |
| ..5   | *..5   | *..5* | *..5*..5  |
| ..6   | **..6* | *..6* | *..6*..6  |
| ..7*  | *..7   | *..7* | *..7*..7  |
| ..8   | ..8    | *..8  | *..8*..8  |

TRICK # 3 (HIGH CARD WINS)

WHAT CARD, CHRIS

#

cls

| CHRIS | ERIC  | STEVE | COMPUTER  |
|-------|-------|-------|-----------|
| CDHS  | CDHS  | CDHS  | CDHS      |
| ..A   | *..A  | ..A   | *..A**..A |
| ..2   | ..2   | *..2* | *..2*..2  |
| ..3*  | ..3   | *..3  | **..3..3  |
| ..4   | ..4*  | **..4 | ..4*..4   |
| ..5   | *..5  | *..5* | ..5..5    |
| ..6   | **..6 | ..6   | ..6..6*   |
| ..7   | *..7  | ..7   | ..7*..7   |
| ..8   | ..8   | ..8   | ..8..8    |

TRICK # 3 (HIGH CARD WINS)  
WHAT CARD, ERIC  
#

cls

| CHRIS | ERIC  | STEVE | COMPUTER  |
|-------|-------|-------|-----------|
| CDHS  | CDHS  | CDHS  | CDHS      |
| ..A   | *..A  | ..A   | *..A**..A |
| ..2   | ..2   | *..2* | *..2*..2  |
| ..3*  | ..3   | *..3  | **..3..3  |
| ..4   | ..4*  | **..4 | ..4*..4   |
| ..5   | *..5  | *..5* | ..5..5    |
| ..6   | **..6 | ..6   | ..6..6*   |
| ..7   | *..7  | ..7   | ..7*..7   |
| ..8   | ..8   | ..8   | ..8..8    |

TRICK # 3 (HIGH CARD WINS)  
WHAT CARD, STEVE  
#

cls

| CHRIS | ERIC  | STEVE | COMPUTER  |
|-------|-------|-------|-----------|
| CDHS  | CDHS  | CDHS  | CDHS      |
| ..A   | *..A  | ..A   | *..A**..A |
| ..2   | ..2   | *..2* | *..2*..2  |
| ..2*  | ..2   | *..3  | **..2..2  |
| ..4   | ..4*  | **..4 | ..4*..4   |
| ..5   | *..5  | *..5* | ..5..5    |
| ..6   | **..6 | ..6   | ..6..6*   |
| ..7   | *..7  | ..7   | ..7*..7   |
| ..8   | ..8   | ..8   | ..8..8    |

CHRIS PLAYED THE SEVEN OF SPADES.  
ERIC PLAYED THE FIVE OF SPADES.  
STEVE PLAYED THE FIVE OF CLUBS.  
I PLAYED THE SEVEN OF HEARTS.  
CHRIS WON TRICK # 3.

cls

| CHRIS | ERIC  | STEVE | COMPUTER  |
|-------|-------|-------|-----------|
| CDHS  | CDHS  | CDHS  | CDHS      |
| ..A   | *..A  | ..A   | *..A**..A |
| ..2   | ..2   | *..2* | *..2*..2  |
| ..3*  | ..3   | *..3  | **..3..3  |
| ..4   | ..4*  | **..4 | ..4*..4   |
| ..5   | *..5  | *..5* | ..5..5    |
| ..6   | **..6 | ..6   | ..6..6*   |
| ..7   | *..7  | ..7   | ..7*..7   |
| ..8   | ..8   | ..8   | ..8..8    |

TRICK # 4 (HIGH CARD WINS)  
WHAT CARD, CHRIS  
#

cls

| CHRIS | ERIC  | STEVE | COMPUTER  |
|-------|-------|-------|-----------|
| CDHS  | CDHS  | CDHS  | CDHS      |
| ..A   | *..A  | ..A   | *..A**..A |
| ..2   | ..2   | *..2* | *..2*..2  |
| ..3*  | ..3   | *..3  | **..3..3  |
| ..4   | ..4*  | **..4 | ..4*..4   |
| ..5   | *..5  | *..5* | ..5..5    |
| ..6   | **..6 | ..6   | ..6..6*   |
| ..7   | *..7  | ..7   | ..7*..7   |
| ..8   | ..8   | ..8   | ..8..8    |

TRICK # 4 (HIGH CARD WINS)  
WHAT CARD, ERIC  
#

cls

| CHRIS | ERIC  | STEVE | COMPUTER  |
|-------|-------|-------|-----------|
| CDHS  | CDHS  | CDHS  | CDHS      |
| ..A   | *..A  | ..A   | *..A**..A |
| ..2   | ..2   | *..2* | *..2*..2  |
| ..3*  | ..3   | *..3  | **..3..3  |
| ..4   | ..4*  | **..4 | ..4*..4   |
| ..5   | *..5  | *..5* | ..5..5    |
| ..6   | **..6 | ..6   | ..6..6*   |
| ..7   | *..7  | ..7   | ..7*..7   |
| ..8   | ..8   | ..8   | ..8..8    |

TRICK # 4 (HIGH CARD WINS)  
WHAT CARD, STEVE  
#

cls

| CHRIS | ERIC  | STEVE | COMPUTER  |
|-------|-------|-------|-----------|
| CDHS  | CDHS  | CDHS  | CDHS      |
| ..A   | *..A  | ..A   | *..A**..A |
| ..2   | ..2   | *..2* | *..2*..2  |
| ..3*  | ..3   | *..3  | **..3..3  |
| ..4   | ..4*  | **..4 | ..4*..4   |
| ..5   | *..5  | *..5* | ..5..5    |
| ..6   | **..6 | ..6   | ..6..6*   |
| ..7   | *..7  | ..7   | ..7*..7   |
| ..8   | ..8   | ..8   | ..8..8    |

CHRIS PLAYED THE SIX OF DIAMONDS.  
ERIC PLAYED THE FOUR OF CLUBS.  
STEVE PLAYED THE THREE OF DIAMONDS.  
I PLAYED THE SIX OF SPADES.  
I WON TRICK # 4.

cls

```

10 CLEAR 1000
20 CLS
30 PRINT @ 413, "OCTRIX"
40 PRINT
50 PRINT TAB(7)*"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
60 PRINT @ 960, ""
70 INPUT "DO YOU NEED INSTRUCTIONS?"; I$
80 DIM A(32), P(4, 9), C$(255), Q(4, 11), T:(72)
90 DIM N$(72), Y(72)
100 RESTORE
110 FOR X=0 TO 7
120 READ Y$(X)
130 NEXT X
140 FOR X=0 TO 3
150 READ X$(X)
160 NEXT X
170 DATA "ACE", "TWO", "THREE", "FOUR", "FIVE", "SIX", "SEVEN", "EIGHT"
180 DATA "CLUBS", "DIAMONDS", "HEARTS", "SPADES"
190 FOR X=0 TO 9
200 READ T$(X)
210 DATA "A", "2", "3", "4", "5", "6", "7", "8", "LO", "HIGH"
220 NEXT X
230 IF LEFT$(I$, 1)="N" THEN 410
240 CLS
250 PRINT " THIS IS A GAME CALLED OCTRIX. EACH PLAYER IS DEALT 8"
260 PRINT "CARDS RANGING FROM ACE THROUGH EIGHT. THE CARDS ARE"
270 PRINT "RANKED ACCORDING TO BRIDGE SUITS WITH THE ACE OF CLUBS THE"
280 PRINT "LOWEST AND THE EIGHT OF SPADES HIGHEST. THE OBJECT IS TO"
290 PRINT "WIN AS MANY OF THE EIGHT TRICKS AS POSSIBLE. EACH TRICK"
300 PRINT "PLAYED DETERMINES THE PLAY OF THE NEXT TRICK. IF THE HIGH"
310 PRINT "AND LOW CARDS PLAYED MATCH COLOR THE NEXT TRICK WILL BE"
320 PRINT "HIGH AND IF THEY DO NOT MATCH IT WILL BE LOW. IT IS IM-"
330 PRINT "PORTANT TO SET STRATEGY TO WIN CIRCULATED TRICKS IN THAT"
340 PRINT "SCORING IS 1 POINT PER TRICK. 4 FOR TWO IN A ROW, 9 FOR 3,"
350 PRINT "UP TO 64 FOR ALL EIGHT."
360 PRINT " RESPOND TO THE INPUT PROMPT WITH THE CARD YOU WANT TO"
370 PRINT "PLAY IN A TWO CHARACTER FORMAT WITH THE VALUE (A-8) AS THE"
380 PRINT "FIRST CHARACTER, AND SUIT (C,D,H,S) AS THE SECOND CHARACTER."
390 PRINT @ 979, "PRESS ANY KEY TO CONTINUE"
400 IF INKEY$="" THEN 400
410 CLS
420 FOR X=1 TO 15
430 READ Z
440 N$=N$+CHR$(Z)
450 NEXT X
460 DATA 35, 35, 35, 35, 13, 72, 72, 72, 72, 13, 73, 73, 73, 73, 13
470 Z$=88
480 PRINT "HOW MANY POINTS (0 ENTRY GIVES STANDARD 88)";
490 INPUT Z
500 IF Z=0 THEN 520
510 Z$=Z

```

```

520 FOR X=0 TO 31
530 A(X)=X
540 NEXT X
550 PRINT "HOW MANY PLAYERS";
560 INPUT N
570 N=INT(N)
580 IF N=4 THEN 600
590 IF N=0 THEN 620
600 PRINT "ONLY ONE TO FOUR PLAYERS ALLOWED, RE-ENTER."
610 GOTO 550
620 FOR X=0 TO N-1
630 Q(X, 0)=0
640 PRINT "ENTER NAME OF PLAYER #"; X+1;
650 INPUT N$(X)
660 Y=LEN(N$(X))
670 FOR Z=1 TO Y
680 T$=MID$(N$(X), 1, Z-1)
690 IF T$=" " THEN 710
700 NEXT Z
710 IF Z=1 THEN 740
720 PRINT "DON'T START NAME WITH SPACE, RE-";
730 GOTO 640
740 S$(X)=MID$(N$(X), 1, Z-1)
750 NEXT X
760 FOR J=0 TO 127
770 C$(J)=" "
780 NEXT J
790 IF N=4 THEN 890
800 IF N=1 THEN 850
810 PRINT "SHOULD I PLAY TOO (Y OR N)";
820 INPUT Z$
830 Z$=LEFT$(Z$, 1)
840 IF Z$="Y" THEN 890
850 S$(N)="COMPUTER"
860 N$(N)="I"
870 Q(N, 0)=0
880 N=N+1
890 FOR I=0 TO 31
900 X=R(I)
910 Y=INT(RND(0)*(32-1))+1
920 A(I)=A(Y)
930 A(Y)=X
940 NEXT I

```

```

950 FOR Y=0 TO 7
960 FOR X=0 TO N-1
970 P(X, Y)=A(Y+4*X)
980 C$(X*32+P(X, Y))="*"
990 NEXT X
1000 NEXT Y
1010 H=1

```

```

1020 FOR R=1 TO 7
1030 GOSUB 1790
1040 PRINT @ 704; "TRICK #";R; "(" T$(8+H) " CARD WINS)" CHR$(31)
1050 FOR X=0 TO N-1
1060 IF S$(X)="COMPUTER" THEN 2230
1070 Z=Z+Z
1080 PRINT @ 760; "WHAT CARD, " S$(X)
1090 Q1$=INKEY$
1100 IF Q1$="" THEN 1090
1110 PRINT"#";
1120 Q2$=INKEY$
1130 IF Q2$="" THEN 1120
1140 PRINT"#";
1150 E$=Q1$+Q2$
1160 IF E$<>"P" THEN 1190
1170 GOSUB 1790
1180 GOTO 1080
1190 V=LEN(E$)
1200 IF V=2 THEN 1230
1210 PRINT"BAD INPUT, RE-ENTER "
1220 GOTO 1080
1230 V$=MID$(E$, 1, 1)
1240 Z$=MID$(E$, 2, 1)
1250 IF VAL(V$)>0 THEN 1280
1260 IF V$<>"A" THEN 1210
1270 V$="1"
1280 V=VAL(V$)
1290 IF V=0 THEN 1210
1300 IF V>8 THEN 1210
1310 Z=0
1320 Q(X, 10)=0
1330 IF Z$="C" THEN 1410
1340 Z=3
1350 IF Z$="S" THEN 1410
1360 Q(X, 10)=1
1370 Z=1
1380 IF Z$="D" THEN 1410
1390 Z=2
1400 IF Z$<>"H" THEN 1210
1410 V=(V-1)*4+Z
1420 IF C$(X*32+V)<>"*" THEN 1210
1430 Q(X, 9)=V
1440 NEXT X
1450 GOSUB 1980
1460 NEXT R
1470 FOR X=0 TO N-1
1480 FOR Z=0 TO 31
1490 IF C$(32*X+Z)="*" THEN 1520
1500 NEXT Z
1510 PRINT"BAD SCANL "
1520 C$(32*X+Z)=" "
1530 Q(X, 9)=Z
1540 NEXT X
1550 R=0
1560 GOSUB 1980
1570 H1=0
1580 CLS
1590 PRINT"THAT HAND ";
1600 FOR X=0 TO N-1
1610 Q(X, 9)=0
1620 V=0
1630 Z=0
1640 FOR R=1 TO 8
1650 Z=Z+Q(X, R)
1660 Q(X, R)=0
1670 IF Q(X, R+1)<0 THEN 1700
1680 V=V+Z*Z
1690 Z=0
1700 NEXT R
1710 Q(X, 0)=Q(X, 0)+V
1720 PRINT N$(X) " SCORED";V;"POINTS FOR A";Q(X, 0); "TOTAL "
1730 IF Q(H1, 0)>Q(X, 0) THEN 1750
1740 H1=X
1750 NEXT X
1760 IF Q(H1, 0)>=29 THEN 2620
1770 PRINT @ 979; "PRESS ANY KEY TO CONTINUE";
1780 IF INKEY$="" THEN 1780 ELSE 890
1790 CLS
1800 FOR S=0 TO N-1
1810 PRINT TAB(5+11+3)S$(S);
1820 NEXT S
1830 PRINT
1840 FOR S=0 TO N-1
1850 PRINT " C D H S";
1860 NEXT S

```

```

1870 PRINT
1880 FOR S=0 TO 7
1890 FOR V=0 TO N-1
1900 Z=V*32+S*4
1910 PRINT STRING$(2, 191)T$(S)CHR$(191)C$(Z)CHR$(191)C$(Z+1);
1920 PRINT CHR$(191)C$(Z+2)CHR$(191)C$(Z+3);
1930 NEXT V
1940 PRINT CHR$(191)T$(S)STRING$(2, 191)
1950 NEXT S
1960 PRINT
1970 RETURN
1980 L1=0
1990 H1=0
2000 PRINT @ 704;"";
2010 FOR X=0 TO N-1
2020 V=INT(Q(X, 9)/4)
2030 Z=Q(X, 9)-V*4
2040 PRINT N$(X) " PLAYED THE " V$(V) " OF " X$(Z) " "
2050 C$(X*32+Q(X, 9))=" "
2060 IF Q(X, 9)>Q(L1, 9) THEN 2080
2070 L1=X
2080 IF Q(X, 9)<Q(H1, 9) THEN 2100
2090 H1=X
2100 NEXT X
2110 IF H=1 THEN 2150
2120 Q(L1, R)=1
2130 PRINT N$(L1) " WON TRICK #";R; CHR$(8); " ";
2140 GOTO 2170
2150 Q(H1, R)=1
2160 PRINT N$(H1) " WON TRICK #";R; CHR$(8); " ";
2170 H=0
2180 IF Q(L1, 10)>Q(H1, 10) THEN 2200
2190 H=1
2200 FOR A=1 TO 1000
2210 NEXT A
2220 RETURN
2230 L1=0
2240 L2=0
2250 H1=0
2260 H2=0
2270 FOR S=0 TO N-2
2280 FOR S1=0 TO 7
2290 IF P(S, S1)>P(L1, L2) THEN 2330
2300 IF C$(S*43+P(S, S1))=" " THEN 2330
2310 L1=S
2320 L2=S1
2330 IF P(S, S1)<P(H1, H2) THEN 2370
2340 IF C$(S*32+P(S, S1))=" " THEN 2370
2350 H1=S
2360 H2=S1
2370 NEXT S1
2380 NEXT S
2390 FOR S=R-1 TO 7
2400 IF H=1 THEN 2450
2410 IF P(N-1, S)<P(L1, L2) THEN 2430
2420 GOTO 2460
2430 IF RND(0).3 THEN 2550
2440 GOTO 2470
2450 IF P(N-1, S)>P(H1, H2) THEN 2430
2460 NEXT S
2470 H1=32
2480 V=INT(RND(0)*16+H*16)
2490 FOR S1=R-1 TO 7
2500 L1=ABS(P(N-1, S1)-V)
2510 IF H1<L1 THEN 2540
2520 H1=L1
2530 S=S1
2540 NEXT S1
2550 Q(X, 9)=P(N-1, S)
2560 P(N-1, S)=P(N-1, R-1)
2570 Z=Q(X, 9)-< INT(Q(X, 9)/4)*4)
2580 IF Z<2 THEN 2600
2590 Z=ABS(Z-3)
2600 Q(X, 10)=Z
2610 GOTO 1450
2620 IF H1>N-2 THEN 2680
2630 FOR X=H1+1 TO N-1
2640 IF Q(H1, 0)>Q(X, 0) THEN 2670
2650 PRINT"GAME TIED AFTER REGULATION, ENTERING SUDDEN DEATH "
2660 GOTO 890
2670 NEXT X
2680 PRINT N$(H1) " WON THE GAME. CONGRATULATIONS, " S$(H1) " "
2690 PRINT
2700 PRINT
2710 END

```



# Pasart

**Description:**

This program generates artistic patterns based on Pascal's triangle.

**Comments:**

Pascal's triangle is one of the most famous number patterns in mathematics. The triangle is very easy to construct. The first two rows consist of only 1's. Each of the subsequent have a 1 at either end of the row, but all other numbers in the pattern are the sum of the two numbers to the right and left in the row above. An example, illustrating the first 6 rows of the triangle, is shown below:

$$\begin{array}{ccccccc}
 & & & & 1 & & & & & & \\
 & & & & 1 & & 1 & & & & \\
 & & & 1 & & 2 & & 1 & & & \\
 & & 1 & & 3 & & 3 & & 1 & & \\
 & & & 4 & & 6 & & 4 & & 1 & \\
 1 & & 5 & & 10 & & 10 & & 5 & & 1
 \end{array}$$

The program provides the user with three options during the course of a RUN.

They are:

1. A single "Pascal's triangle"
2. Two "Pascal's triangles"
3. Four "Pascal's triangles"

A user may also specify the size of the array and the multiples of the number to be eliminated.

Option 1 simply allows a user to examine an artistic picture of the relative positions of the multiples of any number in the array. The apex of the array will appear in the upper left corner of the page.

An example of how the machine uses a "triangle" to create a design based on eliminating the multiples of two is shown below.

|   |   |    |    |
|---|---|----|----|
| 1 | 1 | 1  | 1  |
| 1 | 2 | 3  | 4  |
| 1 | 3 | 6  | 10 |
| 1 | 4 | 10 | 20 |

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☆ ☆  
☆

## Before Printing

## After Printing

Option 2 allows a user to create a picture based on two Pascal's triangles in opposite corners of a square array. An example of how the machine uses two Pascal's triangles in the corners of a square to create a design based on eliminating the multiples of 2 is shown below:

|   |   |   |   |   |
|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 0 |
| 1 | 2 | 3 | 0 | 1 |
| 1 | 3 | 0 | 3 | 1 |
| 1 | 0 | 3 | 2 | 1 |
| 0 | 1 | 1 | 1 | 1 |

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☆ ☆ ☆ ☆  
☆ ☆ ☆ ☆  
☆ ☆ ☆ ☆

## Before Printing

## After Printing

Option 3 creates a design based on Pascal's triangles in the four corners of a square. An example of how the machine uses four Pascal's triangles in the corners of an 8x8 array to create an artistic design based on eliminating the multiples of 2 is shown below.

```

1 1 1 1 1 1 1 1
1 2 3      3 2 1
1 3          3 1
1              1
1 3              3 1
1 2 3          3 2 1
1 1 1 1 1 1 1 1

```

## Before Printing

### After Printing

PASART and this description written by Charles A. Lund. They first appeared in *Creative Computing*, Mar/Apr 1977.

Because PASART was run on a line printer, the sample runs are not representative of the true output. The only way to appreciate the graphics output is to run the program.

PASART

COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

DO YOU NEED INSTRUCTIONS? YES\_

c18

PASART

THIS PROGRAM CREATES ARTIST DESIGNS BASED ON PASCAL'S TRIANGLE.

YOU HAVE 3 BASIC TYPES OF DESIGNS TO SELECT FROM:

1. A SINGLE PASCAL'S TRIANGLE (PLAYED WITH AN ARTISTIC FLARE)
2. TWO 'ARTSY' PASCAL'S TRIANGLES PRINTED BACK TO BACK
3. FOUR 'ARTSY' TRIANGLES IN THE CORNER OF  
A SQUARE ARRAY.

WHAT'S YOUR PLEASURE (1, 2 OR 3)? 2

WHICH MULTIPLES DO YOU WANT REPRESENTED WITH BLANKS? 2

HOW MANY ROWS AND COLUMNS IN THE ARRAY (45 IS MAXIMUM)? 36

## ARTIST AT WORK

THIS WILL TAKE SOME TIME

- c/s

- 618

```

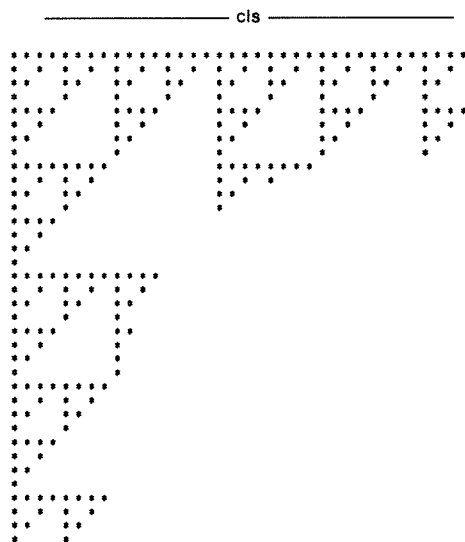
WHAT'S YOUR PLEASURE (1, 2 OR 3)? 1
WHICH MULTIPLES DO YOU WANT REPRESENTED WITH BLANKS? 2
HOW MANY ROWS AND COLUMNS IN THE ARRAY (45 IS MAXIMUM)? 45

```

```

..... ARTIST AT WORK .....
THIS WILL TAKE SOME TIME

```



```

10 CLS: PRINT@413, "PASART"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 CLEAR 1000: PRINT@960, "": INPUT "DO YOU NEED INSTRUCTIONS?"; I$
40 DIM PA$(15), P(45, 45): IF LEFT$(I$, 1) = "Y" THEN 60
50 CLS: GOTO 170
60 CLS: PRINT TAB(29); "PASART": PRINT
70 PRINT "THIS PROGRAM CREATES ARTIST DESIGNS BASED ON PASCAL'S TRIAN";
80 PRINT "GLE. "
90 PRINT
100 PRINT "YOU HAVE 3 BASIC TYPES OF DESIGNS TO SELECT FROM:"
110 PRINT "1. A SINGLE PASCAL'S TRIANGLE (PLAYED WITH AN ARTISTIC FLAR";
120 PRINT "E)"
130 PRINT "2. TWO 'ARTSY' PASCAL'S TRIANGLES PRINTED BACK TO BACK"
140 PRINT "3. FOUR 'ARTSY' TRIANGLES IN THE CORNER OF"
150 PRINT "   A SQUARE ARRAY. "
160 PRINT
170 PRINT "WHAT'S YOUR PLEASURE (1, 2 OR 3)";
180 INPUT Q
190 IF (Q-1)*(Q-2)*(Q-3) <> 0 THEN 170
200 PRINT "WHICH MULTIPLES DO YOU WANT REPRESENTED WITH BLANKS";
210 INPUT Q
220 PRINT "HOW MANY ROWS AND COLUMNS IN THE ARRAY (45 IS MAXIMUM)";
230 INPUT T
240 PRINT: PRINT STRING$(24, 140); " ARTIST AT WORK "; STRING$(24, 140);
250 PRINT TAB(20); "THIS WILL TAKE SOME TIME";
260 IF T*(45-T)<0 THEN 220
270 ON Q GOTO 320, 530, 780
280 REM
290 REM
300 REM TIME TO CREATE AND PRINT A SINGLE PIECE OF PASART
310 REM FIRST BUILD THE PASCALS TRIANGLE
320 FOR R=1 TO T
330 FOR C=1 TO T
340 IF (R-1)*(C-1)=0 THEN 370
350 P(R, C)=P(R, C-1)+P(R-1, C)
360 GOTO 380
370 P(R, C)=1
380 NEXT C
390 NEXT R
400 REM TIME TO PLAY BACK THE TRIANGLE WITH AN ARTISTIC FLARE.
410 FOR R=1 TO T STEP 3
420 FOR C=1 TO T
430 IF (P(R, C)/Q)=INT(P(R, C)/Q) THEN P(R, C)=0
440 IF (P(R+1, C)/Q)=INT(P(R+1, C)/Q) THEN P(R+1, C)=0
450 IF (P(R+2, C)/Q)=INT(P(R+2, C)/Q) THEN P(R+2, C)=0
460 AE=(R-1)/3
470 PA$(AE)=PA$(AE)+CHR$(128-3*(P(R, C)>0)-12*(P(R+1, C)>0)-48*(P(R+2, C)>0))
480 NEXT C
490 NEXT R
500 CLS. FOR A=0 TO 14: PRINT PA$(A): NEXT A
510 GOTO 1340

```

```

520 REM TIME TO CREATE AND PRINT DOUBLE PIECE OF PASART
530 Z=T
540 REM BUILD THE UPPER LEFT HAND HALF OF THE ARRAY.
550 LET N=Z
560 FOR R=1 TO N
570 FOR C=1 TO Z-1
580 IF (R-1)*(C-1)=0 THEN 610
590 P(R, C)=P(R, C-1)+P(R-1, C)
600 GOTO 620
610 P(R, C)=1
620 NEXT C
630 Z=Z-1
640 NEXT R
650 REM BUILD THE LOWER RIGHT HALF OF THE ARRAY.
660 Z=N
670 N=Z
680 FOR R=Z TO 1 STEP -1
690 FOR C=Z TO N STEP -1
700 IF (R-2)*(C-Z)=0 THEN 730
710 P(R, C)=P(R, C+1)+P(R+1, C)
720 GOTO 740
730 P(R, C)=1
740 NEXT C
750 N=N+1
760 NEXT R
770 GOTO 410
780 M=Q
790 REM BUILD THE UPPER LEFT HALF CORNER OF THE ARRAY.
800 Y=T
810 Z=INT(Y/2)
820 B5=Z*2
830 Z1=Z
840 Z2=Z1
850 Z3=Z2
860 X4=Z3
870 X5=X4
880 FOR I=1 TO Z1
890 FOR J=1 TO Z
900 IF (J-1)*(I-1)=0 THEN 930
910 P(I, J)=P(I, J-1)+P(I-1, J)
920 GOTO 940
930 P(I, J)=1
940 NEXT J
950 Z=Z-1
960 NEXT I
970 N=Z1
980 REM BUILD THE UPPER RIGHT HAND CORNER OF THE ARRAY.
990 FOR I=1 TO Z1
1000 FOR J=Y TO X5+1 STEP -1
1010 IF I=1 THEN 1050
1020 IF J=Y THEN 1050
1030 P(I, J)=P(I, J+1)+P(I-1, J)
1040 GOTO 1060
1050 P(I, J)=1
1060 NEXT J
1070 X5=X5+1
1080 NEXT I
1090 N=Z2
1100 REM BUILD THE LOWER LEFT CORNER OF THE ARRAY
1110 FOR I=Y TO X4+1 STEP -1
1120 FOR J=1 TO Z2
1130 IF J=1 THEN 1170
1140 IF I=Y THEN 1170
1150 P(I, J)=P(I, J-1)+P(I+1, J)
1160 GOTO 1180
1170 P(I, J)=1
1180 NEXT J
1190 Z2=Z2-1
1200 NEXT I
1210 N=Z3
1220 REM BUILD THE LOWER RIGHT CORNER OF THE ARRAY.
1230 FOR I=Y TO N+1 STEP -1
1240 FOR J=Y TO Z3+1 STEP -1
1250 IF J=Y THEN 1290
1260 IF I=Y THEN 1290
1270 P(I, J)=P(I+1, J)+P(I, J+1)
1280 GOTO 1300
1290 P(I, J)=1
1300 NEXT J
1310 Z3=Z3+1
1320 NEXT I
1330 GOTO 410
1340 PRINT@960, "": INPUT "WANT ANOTHER "; AN$
1350 IF LEFT$(AN$, 1) = "N" THEN END
1360 CLS: CLEAR 1000: DIM PA$(15), P(45, 45): GOTO 170

```

# Pasart 2

This program is a major extension of the original Pasart program. It incorporates many new options including printing a calendar for any year from 1600 to 2300. It allows a user to enter any desired pair of printing characters. The size of the output is expanded to 72 by 72 with an option to expand it further by dividing the final triangle into 72 by 72 chunks that may be taped together. Another option provides the user with the opportunity to create a picture based on four Pascal's tables (option 5).

There wasn't room to show the output from all of these options on these pages. Try them out yourself and we're sure you'll be pleased with the rather spectacular results.

Pasart 2 was also written by Charles H. Lund.

PASART2

COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ  
(PRESS ANY KEY TO CONTINUE)

cls

THIS PROGRAM CREATES ARTIST DESIGNS BASED ON  
PASCAL'S TRIANGLE.  
DO YOU WANT A LIST OF OPTIONS? YES  
TEAR OFF THE LIST AND SAVE IT POST FOR FUTURE REFERENCE  
WHAT'S YOUR PLEASURE (1,2,3,4,5 OR 6)? 3.

cls

YOUR PICTURE SHOULD HIGHLIGHT THE MULTIPLES OF WHAT NUMBER? 4

WHAT CHARACTER WOULD YOU LIKE TO PRINT OUT REPRESENTING  
THE MULTIPLES OF 4 (ENTER " " FOR A BLANK)? " "

WHAT CHARACTER WOULD YOU LIKE TO PRINT OUT REPRESENTING EACH  
OF THE OTHER NUMBERS IN THE PATTERN (ENTER " " FOR A BLANK)? \*

HOW MANY ROWS AND COLUMNS IN THE ARRAY (MAX = 36)? 36.

cls

WOULD YOU LIKE A CALENDAR PRINTED WITH YOUR PICTURE? YES  
WHAT YEAR BETWEEN 1600 AND 2300 WOULD YOU LIKE? 1682

cls

1. A SINGLE PASCALS TRIANGLE PLAYED BACK LIKE THIS:

| BEFORE PRINTING | AFTER PRINTING |
|-----------------|----------------|
| 1 1 1           | ***            |
| 1 2 3           | **             |
| 1 3 6           | *              |

2. A SINGLE PASCALS TRIANGLE PLAYED BACK LIKE THIS:

| BEFORE PRINTING | AFTER PRINTING |
|-----------------|----------------|
| 1               | *              |
| 1 1             | **             |
| 1 2 1           | **             |

3. TWO PASCALS TRIANGLE PRINTED BACK TO BACK LIKE THIS:

| BEFORE PRINTING | AFTER PRINTING |
|-----------------|----------------|
| 1 1 1 0         | ***            |
| 1 2 0 1         | * *            |
| 1 0 2 1         | * *            |
| 0 1 1 1         | ***            |

4. FOUR PASCALS TRIANGLES PRINTED IN A SQUARE LIKE THIS:

| BEFORE PRINTING | AFTER PRINTING |
|-----------------|----------------|
| 1 1 1 1 1 1     | ***            |
| 1 2 2 1         | * *            |
| 1 3 3 1         | * *            |
| 1 4 6 4 1       | * *            |
| 1 5 10 10 5 1   | ***            |

5. FOUR PASCALS TRIANGLES PRINTED IN A SQUARE LIKE THIS:

| BEFORE PRINTING | AFTER PRINTING |
|-----------------|----------------|
| 1 1 1 1 1 1     | ***            |
| 1 2 3 3 2 1     | * **           |
| 1 3 6 6 3 1     | ** **          |
| 1 4 10 10 4 1   | ** **          |
| 1 5 15 15 5 1   | * **           |
| 1 6 21 21 6 1   | ***            |

6. START PASCALS TRIANGLES IN ANY ROW AND COLUMN  
SO THAT A USER CAN TAPE TOGETHER SEVERAL PICTURES  
TO MAKE A LARGER DESIGN. THIS OPTION EXTENDS  
PICTURES LIKE THOSE SHOWN IN OPTION 1 IN 36 X 36  
CHARACTER CHUNKS. ENTRIES OF UP TO 1000 ROWS AND COLUMNS  
ARE ACCEPTED.

```

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*** ** ** ** ** ** ** ** ** ** ** ** ** 
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```

FEBRUARY 1682

| SUN | MON | TUE | WED | THU | FRI | SAT |
|-----|-----|-----|-----|-----|-----|-----|
| 1   | 2   | 3   | 4   | 5   | 6   | 7   |
| 8   | 9   | 10  | 11  | 12  | 13  | 14  |
| 15  | 16  | 17  | 18  | 19  | 20  | 21  |
| 22  | 23  | 24  | 25  | 26  | 27  | 28  |

MARCH 1682

| SUN | MON | TUE | WED | THU | FRI | SAT |
|-----|-----|-----|-----|-----|-----|-----|
| 1   | 2   | 3   | 4   | 5   | 6   | 7   |
| 8   | 9   | 10  | 11  | 12  | 13  | 14  |
| 15  | 16  | 17  | 18  | 19  | 20  | 21  |
| 22  | 23  | 24  | 25  | 26  | 27  | 28  |
| 29  | 30  | 31  |     |     |     |     |

APRIL 1682

| SUN | MON | TUE | WED | THU | FRI | SAT |
|-----|-----|-----|-----|-----|-----|-----|
|     |     |     | 1   | 2   | 3   | 4   |
| 5   | 6   | 7   | 8   | 9   | 10  | 11  |
| 12  | 13  | 14  | 15  | 16  | 17  | 18  |
| 19  | 20  | 21  | 22  | 23  | 24  | 25  |
| 26  | 27  | 28  | 29  | 30  |     |     |

MAY 1682

| SUN | MON | TUE | WED | THU | FRI | SAT |
|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     | 1   | 2   |
| 3   | 4   | 5   | 6   | 7   | 8   | 9   |
| 10  | 11  | 12  | 13  | 14  | 15  | 16  |
| 17  | 18  | 19  | 20  | 21  | 22  | 23  |
| 24  | 25  | 26  | 27  | 28  | 29  | 30  |
| 31  |     |     |     |     |     |     |

JUNE 1682

| SUN | MON | TUE | WED | THU | FRI | SAT |
|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |     |
|     | 1   | 2   | 3   | 4   | 5   | 6   |
| 7   | 8   | 9   | 10  | 11  | 12  | 13  |
| 14  | 15  | 16  | 17  | 18  | 19  | 20  |
| 21  | 22  | 23  | 24  | 25  | 26  | 27  |
| 28  | 29  | 30  |     |     |     |     |

JANUARY 1682

| SUN | MON | TUE | WED | THU | FRI | SAT |
|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |     |
|     |     |     |     | 1   | 2   | 3   |
| 4   | 5   | 6   | 7   | 8   | 9   | 10  |
| 11  | 12  | 13  | 14  | 15  | 16  | 17  |
| 18  | 19  | 20  | 21  | 22  | 23  | 24  |
| 25  | 26  | 27  | 28  | 29  | 30  | 31  |

JULY 1682

| SUN | MON | TUE | WED | THU | FRI | SAT |
|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |     |
|     |     |     |     |     |     |     |
|     |     |     | 1   | 2   | 3   | 4   |
| 5   | 6   | 7   | 8   | 9   | 10  | 11  |
| 12  | 13  | 14  | 15  | 16  | 17  | 18  |
| 19  | 20  | 21  | 22  | 23  | 24  | 25  |
| 26  | 27  | 28  | 29  | 30  | 31  |     |

```

10 CLEAR 100
20 CLS
30 PRINT @ 411,"PASART2"
40 PRINT
50 PRINT TAB(7)*"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
60 GOSUB 3540
70 REM THIS PROGRAM REQUIRES ABOUT 16K FREE WORK SPACE
80 REM AND A LINE PRINTER.
90 REM TO OBTAIN LARGER PICTURES EXPAND THE ARRAY IN LINE
100 REM #880 TO P(72,72)
110 REM OPTION #6 REQUIRES 48K AND TAKES ABOUT AN HOUR TO RUN
120 PRINT @ 384,"THIS PROGRAM CREATES ARTIST DESIGNS BASED ON"
130 PRINT "PASCAL'S TRIANGLE."
140 PRINT "DO YOU WANT A LIST OF OPTIONS?";
150 INPUT S1$
160 IF LEFT$(S1$,1)="" THEN 590
170 PRINT "TEAR OFF THE LIST AND SAVE OR POST FOR FUTURE REFERENCE"
180 LPRINT STRING$(58,"-")
190 LPRINT "1. A SINGLE PASCALS TRIANGLE PLAYED BACK LIKE THIS:"
200 LPRINT "      BEFORE PRINTING      AFTER PRINTING"
210 LPRINT "      1 1 1      ***"
220 LPRINT "      1 2 3      * *"
230 LPRINT "      1 3 6      **"
240 LPRINT "2. A SINGLE PASCALS TRIANGLE PLAYED BACK LIKE THIS:"
250 LPRINT "      BEFORE PRINTING      AFTER PRINTING"
260 LPRINT "      1      *"
270 LPRINT "      1 1      **"
280 LPRINT "      1 2 1      ***"
290 LPRINT "3. TWO PASCALS TRIANGLE PRINTED BACK TO BACK LIKE THIS:"
300 LPRINT "      BEFORE PRINTING      AFTER PRINTING"
310 LPRINT "      1 1 1 0      ***"
320 LPRINT "      1 2 0 1      * *"
330 LPRINT "      1 0 2 1      * *"
340 LPRINT "      0 1 1 1      ***"
350 LPRINT "4. FOUR PASCALS TRIANGLES PRINTED IN A SQUARE LIKE THIS:"
360 LPRINT "      BEFORE PRINTING      AFTER PRINTING"
370 LPRINT "      1 1 1 1 1 1      *****"
380 LPRINT "      1 2 2 1      * *"
390 LPRINT "      1 1 1      * *"
400 LPRINT "      1 1 1      * *"
410 LPRINT "      1 2 2 1      * *"
420 LPRINT "      1 1 1 1 1 1      *****"
430 LPRINT "5. FOUR PASCALS TRIANGLES PRINTED IN A SQUARE LIKE THIS:"
440 LPRINT "      BEFORE PRINTING      AFTER PRINTING"
450 LPRINT "      1 1 1 1 1 1      *****"
460 LPRINT "      1 2 3 3 2 1      * * *"
470 LPRINT "      1 3 6 6 3 1      ** **"
480 LPRINT "      1 3 6 6 3 1      ** **"
490 LPRINT "      1 2 3 3 2 1      * * *"
500 LPRINT "      1 1 1 1 1 1      *****"
510 LPRINT "6. START PASCALS TRIANGLES IN ANY ROW AND COLUMN"
520 LPRINT "SO THAT A USER CAN TAPE TOGETHER SEVERAL PICTURES"
530 LPRINT "TO MAKE A LARGER DESIGN. THIS OPTION EXTENDS"
540 LPRINT "PICTURES LIKE THOSE SHOWN IN OPTION 1 IN 36 X 36"
550 LPRINT "CHARACTER CHUNKS. ENTRIES OF UP TO 1000 ROWS AND COLUMNS"
560 LPRINT "ARE ACCEPTED."
570 LPRINT STRING$(58,"-")
580 PRINT
590 PRINT "WHAT'S YOUR PLEASURE (1,2,3,4,5 OR 6)";
600 INPUT QZ
610 IF QZ<7 AND QZ>0 THEN 630
620 PRINT "I'M SUPPOSED TO BE YOUR FRIEND. SO HOW ABOUT IT?"; GOTO 590
630 CLS
640 PRINT "YOUR PICTURE SHOULD HIGHLIGHT THE MULTIPLES OF WHAT NUMBER";
650 INPUT QZ
660 PRINT
670 PRINT "WHAT CHARACTER WOULD YOU LIKE TO PRINT OUT ";
680 PRINT "REPRESENTING"; PRINT "THE MULTIPLES OF"; QZ;
690 PRINT "(ENTER ;CHR$(34); " ";CHR$(34); " FOR A BLANK)";
700 INPUT S$
710 PRINT
720 PRINT "WHAT CHARACTER WOULD YOU LIKE TO PRINT OUT REPRESENTING EACH"
730 PRINT "OF THE OTHER NUMBERS IN THE PATTERN ";
740 PRINT "(ENTER ;CHR$(34); " ";CHR$(34); " FOR A BLANK)";
750 INPUT T$
760 PRINT
770 IF QZ=6 THEN 820
780 PRINT "HOW MANY ROWS AND COLUMNS IN THE ARRAY (MAX = 36)";
790 INPUT T2
800 IF T2>36 PRINT "BE REASONABLE!"; GOTO 790
810 CLS
820 PRINT "WOULD YOU LIKE A CALENDAR PRINTED WITH YOUR PICTURE?";
830 INPUT R$
840 IF LEFT$(R$,1)="" THEN 880
850 PRINT "WHAT YEAR BETWEEN 1600 AND 2000 WOULD YOU LIKE?";
860 INPUT Y2
870 IF Y2*(3899-Y2)<=0 THEN PRINT "EVEN I MAKE MISTAKES!"; GOTO 880
880 IF QZ<6 THEN DIM P(36,36) ELSE DIM P(72,72)
890 ON QZ GOTO 920, 2170, 1190, 1480, 1490, 2310
900 REM TIME TO CREATE AND PRINT A SINGLE PIECE OF PASART
910 REM FIRST BUILD THE PASCALS TRIANGLE
920 FOR RZ=1 TO T2
930 FOR CZ=1 TO T2
940 IF (RZ-1)*(CZ-1)=0 THEN 990
950 P(RZ,CZ)=P(RZ-1,CZ)+P(RZ,CZ-1)
960 IF P(RZ,CZ)<QZ THEN 1000
970 P(RZ,CZ)=P(RZ,CZ)-QZ+QZ
980 GOTO 960
990 P(RZ,CZ)=1
1000 NEXT CZ
1010 NEXT RZ
1020 REM TIME TO PLAY BACK THE TRIANGLE WITH AN ARTISTIC FLAIR
1030 IF QZ<3 THEN 1050
1040 T2=T2*2-1
1050 FOR RZ=1 TO T2
1060 FOR CZ=1 TO T2
1070 IF P(RZ,CZ)=0 THEN 1110
1080 IF (P(RZ,CZ)/QZ-INT(P(RZ,CZ)/QZ))*QZ<.95 THEN 1110
1090 LPRINT T$;
1100 GOTO 1120
1110 LPRINT S$;
1120 NEXT CZ
1130 LPRINT " "
1140 NEXT RZ
1150 IF LEFT$(R$,1)="" THEN 3880
1160 GOTO 3530
1170 REM OPTION 4: LINES 1170-1470
1180 REM TIME TO CREATE AND PRINT A DOUBLE PIECE OF PASART
1190 Z2=T2
1200 REM BUILD THE UPPER LEFT HAND CORNER OF THE ARRAY
1210 N2=Z2
1220 FOR RZ=1 TO N2
1230 FOR CZ=1 TO Z2-1
1240 IF (RZ-1)*(CZ-1)=0 THEN 1290
1250 P(RZ,CZ)=P(RZ-1,CZ)+P(RZ,CZ-1)
1260 IF P(RZ,CZ)<QZ THEN 1300
1270 P(RZ,CZ)=P(RZ,CZ)-QZ+QZ
1280 GOTO 1260
1290 P(RZ,CZ)=1
1300 NEXT CZ
1310 Z2=Z2-1
1320 NEXT RZ
1330 REM BUILD THE LOWER RIGHT HALF OF THE ARRAY
1340 Z2=N2
1350 N2=2
1360 FOR RZ=Z2 TO 1 STEP -1
1370 FOR CZ=Z2 TO N2 STEP -1
1380 IF (RZ-Z2)*(CZ-Z2)=0 THEN 1430
1390 P(RZ,CZ)=P(RZ,CZ+1)+P(RZ+1,CZ)
1400 IF P(RZ,CZ)<QZ THEN 1440
1410 P(RZ,CZ)=P(RZ,CZ)-QZ+QZ
1420 GOTO 1400
1430 P(RZ,CZ)=1
1440 NEXT CZ
1450 N2=N2+1
1460 NEXT RZ
1470 GOTO 1050
1480 REM OPTIONS 4 & 5: LINES 1490-2160
1490 N2=QZ
1500 REM BUILD THE UPPER LEFT CORNER OF THE ARRAY
1510 Y2=T2
1520 Z2=INT(Y2/2)
1530 B2=Z2*2
1540 Z1=Z2
1550 Z2=Z1Z2
1560 Z3=Z2Z2
1570 X4=Z3Z2
1580 X5=X4Z2
1590 FOR IZ=1 TO Z1Z2
1600 FOR JZ=1 TO Z2
1610 IF (JZ-1)*(IZ-1)=0 THEN 1660
1620 P(IZ,JZ)=P(IZ,JZ-1)+P(IZ-1,JZ)
1630 IF P(IZ,JZ)<QZ THEN 1670
1640 P(IZ,JZ)=P(IZ,JZ)-QZ+QZ
1650 GOTO 1630
1660 P(IZ,JZ)=1
1670 NEXT JZ
1680 IF QZ=5 THEN 1700
1690 Z2=Z1-1
1700 NEXT IZ
1710 N2=Z1Z2
1720 REM BUILD THE UPPER RIGHT CORNER OF THE ARRAY
1730 FOR IZ=1 TO Z1Z2
1740 FOR JZ=Y2 TO X5Z1 STEP -1
1750 IF IZ=1 THEN 1810
1760 IF JZ=Y2 THEN 1810
1770 P(IZ,JZ)=P(IZ,JZ+1)+P(IZ+1,JZ)
1780 IF P(IZ,JZ)<QZ THEN 1820
1790 P(IZ,JZ)=P(IZ,JZ)-QZ+QZ
1800 GOTO 1780

```

```

1810 PZ(I% J%)=1
1820 NEXT J%
1830 IF Q%>5 THEN 1350
1840 XZ=XZ+1
1850 NEXT I%
1860 NZ=ZZ
1870 REM BUILD THE LOWER LEFT CORNER OF THE ARRAY
1880 FOR I%=Y% TO Y%+1 STEP -1
1890 FOR J%=1 TO Z%
1900 IF J%=1 THEN 1960
1910 IF I%=Y% THEN 1960
1920 PZ(I% J%)=PZ(I% J%-1)+PZ(I%-1 J%)
1930 IF PZ(I% J%)<Q I3 THEN 1970
1940 PZ(I% J%)=PZ(I% J%)-Q I2
1950 GOTO 1930
1960 PZ(I% J%)=1
1970 NEXT J%
1980 IF Q%>5 THEN 2100
1990 ZZ=ZZ+1
2000 NEXT I%
2010 NZ=ZZ
2020 REM BUILD THE LOWER RIGHT CORNER OF THE ARRAY
2030 FOR I%=Y% TO Y%+1 STEP -1
2040 FOR J%=Y% TO 2 Y%+1 STEP -1
2050 IF J%=Y% THEN 2110
2060 IF I%=Y% THEN 2110
2070 PZ(I% J%)=PZ(I%+1 J%)+PZ(I% J%+1)
2080 IF PZ(I% J%)<Q I3 THEN 2120
2090 PZ(I% J%)=PZ(I% J%)-Q I2
2100 GOTO 2080
2110 PZ(I% J%)=1
2120 NEXT J%
2130 IF Q%>5 THEN 2150
2140 ZZ=ZZ+1
2150 NEXT I%
2160 GOTO 1850
2170 REM TRANSFORM C OPTION 2: LINES 2180-2300
2180 FOR R%=1 TO T%
2190 FOR C%=1 TO T%
2200 IF C%<R% THEN 2280
2210 IF (C%-1)=0 THEN 2270
2220 IF R%=C% THEN 2270
2230 PZ(R% C%)=PZ(R%-1 C%-1)+PZ(R%-1 C%)
2240 IF PZ(R% C%)<Q I3 THEN 2280
2250 PZ(R% C%)=PZ(R% C%)-Q I2
2260 GOTO 2240
2270 PZ(R% C%)=1
2280 NEXT C%
2290 NEXT R%
2300 GOTO 1820
2310 REM OPTION 6 LINES 2340-3070
2320 REM PUSHES THE BOUNDARIES WAY OUT
2330 REM NOTE THE PROTECTION AGAINST THE TIME OUT UNIV 1110
2340 PRINT
2350 PRINT "WHAT WILL BE THE COORDINATES (R,C) OF THE UPPER LEFT HAND CORNER";
2360 PRINT "OF THIS SECTION";
2370 INPUT R1% C1%
2380 DIM RZ(1000),CZ(1000)
2390 REM ***T=TIM(1)
2400 FOR L1%=1 TO 3
2410 FOR L2%=1 TO 3
2420 PZ(L1% L2%)=0
2430 NEXT L2%
2440 NEXT L1%
2450 FOR L2%=1 TO 100
2460 RZ(L2%)=1
2470 CZ(L2%)=1
2480 NEXT L2%
2490 IF R1%=1 THEN 2500
2500 FOR R2%=2 TO R1%
2510 FOR C2%=2 TO C1%+72
2520 RZ(C2%)=CZ(C2%)+Z(C2%-1)
2530 IF RZ(C2%)<Q I3 THEN 2560
2540 RZ(C2%)=RZ(C2%)-I2
2550 GOTO 2530
2560 NEXT C%
2570 REM *** IF TIM(1)-T<6 THEN 2770
2580 GOSUB 3030
2590 NEXT R%
2600 IF C1%=1 THEN 2720
2610 FOR C2%=2 TO C1%
2620 CZ(R1% C2%)=RZ(C2%)
2630 FOR R2%=R1%+1 TO R1%+72
2640 CZ(R2%)=CZ(R2%)+Z(R2%+1)
2650 IF CZ(R2%)<Q I3 THEN 2680
2660 CZ(R2%)=CZ(R2%)-I2
2670 GOTO 2630
2680 NEXT R%
2690 REM *** IF TIM(1)-T<6 THEN 2890
2700 GOSUB 3030
2710 NEXT C%
2720 FOR C2%=1 TO 72
2730 PZ(1 C2%)=RZ(C2%+1)
2740 PZ(C2% 1)=CZ(C2%+1)
2750 NEXT C%
2760 FOR R2%=2 TO 72
2770 FOR C2%=2 TO 72
2780 PZ(R2% C2%)=PZ(R2%-1 C2%)+PZ(R2% C2%-1)
2790 IF PZ(R2% C2%)<Q I3 THEN 2820
2800 PZ(R2% C2%)=PZ(R2% C2%)-Q I2
2810 GOTO 2790
2820 NEXT C%
2830 REM *** IF TIM(1)-T<6 THEN 3030
2840 GOSUB 3030
2850 NEXT R%
2860 GOSUB 3030
2870 LPRINT " "
2880 LPRINT " "
2890 FOR R2%=1 TO 70
2900 FOR C2%=1 TO 70
2910 IF (PZ(R2% C2%)-INT(PZ(R2% C2%)/Q I2))*Q I2<.90 THEN 2940
2920 LPRINT T%
2930 GOTO 2950
2940 LPRINT S%
2950 NEXT C%
2960 REM *** IF TIM(1)-T<6 THEN 3160
2970 GOSUB 3030
2980 LPRINT " "
2990 NEXT R%
3000 LPRINT " "
3010 LPRINT " "
3020 GOTO 1150
3030 LPRINT " ";
3040 REM *** LINPUT A$
3050 REM *** T=TIM(1)
3060 RETURN
3070 GOTO 1150
3080 REM CALENDAR
3090 LET X=Y%
3100 REM LINES 3080-3510 PRODUCE A CALENDAR
3110 REM PROGRAM IS A SUBROUTINE THAT USES VARIABLE X=YEAR
3120 REM OF CALENDAR
3130 C%=6
3140 FOR J%=1000 TO X%
3150 IF J%=X% THEN 3210
3160 IF J%/4 <> INT(J%/4) THEN 3200
3170 IF (J%-1700)*(J%-1800)*(J%-1900)*(J%-2100)*(J%-2200)*(J%-2300)=0 THEN 3200
3180 C%=C%+2
3190 GOTO 3210
3200 C%=C%+1
3210 IF C%<7 THEN 3230
3220 C%=C%-7
3230 NEXT J%
3240 LPRINT " "
3250 FOR R2%=1 TO 12
3260 READ A$
3270 LPRINT TAB(17);A$;" ";X%
3280 READ B%
3290 IF X%/4 <> INT(X%/4) THEN 3320
3300 IF A$<"FEBRUARY" THEN 3320
3310 B%=B%+1
3320 REM TIME TO PRINT THE CALENDAR FOR THE YEAR X
3330 LPRINT STRING$(41," ")
3340 LPRINT "SUN MON TUE WED THU FRI SAT!"
3350 LPRINT STRING$(41," ")
3360 FOR D2%=1 TO B%
3370 LPRINT TAB(6+C%);D2%
3380 C%=C%+1
3390 IF C%<7 THEN 3420
3400 LPRINT " "
3410 C%=0
3420 NEXT D%
3430 LPRINT " "
3440 LPRINT STRING$(41," ")
3450 FOR P2%=1 TO 3
3460 LPRINT " "
3470 NEXT P%
3480 NEXT R%
3490 DATA "JANUARY",31,"FEBRUARY",28,"MARCH",31,"APRIL",30
3500 DATA "MAY",31,"JUNE",30,"JULY",31,"AUGUST",31,"SEPTEMBER",
3510 DATA 31,"OCTOBER",31,"NOVEMBER",30,"DECEMBER",31
3520 REM MY PROGRAM ENDS HERE
3530 END
3540 PRINT @ 575; "(PRESS ANY KEY TO CONTINUE)";
3550 A$=INKEY$
3560 IF A$="" THEN 3550
3570 CLS
3580 RETURN
3590 PRINT @ 534;""
3600 RETURN

```

# Pinball

PINBALL is, naturally enough, a simulated pinball game—complete with bells if your terminal has them—in which the computer serves as the pinball machine. However, you don't need any quarters! The program is divided up into ten small routines contained within the whole. Each subprogram performs one task in simulating a pinball game.

Details on each task/subprogram are as follows.

## 1) Starting and monitoring the game.

This task is performed by the master function PINBAL, which is contained in lines 1-600 of the program. Pinbal asks if the user wants instructions or a picture at the start of the game, puts each new ball into play, moves the ball until it comes into contact with an object on the table, and tells the user when he is finished and if he has broken the table record.

## 2) Printing instructions.

This subprogram is on the lines numbered 1010-1999, and its major task is to print the instructions of the pinball game and then to branch to the picture program to print a picture of the table (see below). After the picture of the table is completed, this subroutine explains the function of each figure on the table.

## 3) Registering "hits" and computing new scores.

Lines 2010-3999 are in charge of taking action each time the space occupied by the ball on the table is not blank. These lines also prepare the table to take action on the next task, namely flipping the table's flippers when the ball approaches them.

## 4) Flipping the flippers.

This task is accomplished by the lines in the four thousand range. These lines also set up indicators for the monitor routine (1 above) to put the next ball into play if necessary and branch to the routine that adds bonus points for tags (letters A-J) knocked down during that ball's play.

## 5) Bonus points at the end of a ball's play.

Lines in the five thousand range handle this task and then branch back to the monitor routine to put the next ball into play. If all ten tabs are knocked down in one ball, the program immediately awards a bonus of 250 points and an extra ball to the player and resets the tabs for further play. Normally, bonus points are awarded at the rate of ten per tab at the end of a ball.

## 6) Printing pictures of the table.

Lines in the six thousand range print a picture of the pinball table, either at the beginning of play or randomly, at the rate of one picture for every twenty-five "hits."

## 7) Bouncing the ball off bumpers and the jackpot.

The ball is "bounced" by the routine beginning at line 7850.

## 8) Initializing the table.

The table is initialized at the beginning of the game by lines in the nine thousand range.

## Suggestions for improvement and change.

- 1) Change the table as you wish by inserting or deleting bumpers, jackpot(s), gates (numbers, now 1-9 and 0), etc. You may also move the positions of any item on the table except the three flippers.
- 2) Program in new sorts of table objects.
- 3) If your system is so equipped, rig in the program with some synthesizer music to heighten realism!

Pinball was conceived and written by Donald-Bruce Abrams.

PINBALL

COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

DO YOU NEED INSTRUCTIONS? YES..

cls

PINBALL

THE RULES OF COMPUTER PINBALL ARE FAIRLY SIMPLE. YOU GET A TOTAL FIVE BALLS. IF YOU SCORE MORE THAN 1600, YOU GET A 6TH BALL. IF YOUR SIX BALL SCORE IS MORE THAN 2,200, YOU GET A SEVENTH BALL.

THIS TABLE HAS THREE FLIPPERS, EACH OF WHICH PROTECT AN OUT CHUTE. HOWEVER, THIS SET DIFFERS FROM OTHER SETS, SINCE YOU MAY ONLY FLIP TWO OF THE FLIPPERS ANY TIME THE BALL APPROACHES THE CHUTE. NOTA BENE: YOU DO NOT!!! KNOW FOR SURE WHERE THE BALL IS!! SO, IF YOU FLIP THE WRONG TWO FLIPPERS, YOU LOSE THE BALL, AND THE NEXT BALL IS PUT INTO PLAY.

PRESS ANY KEY TO CONTINUE

cls

PINBALL

THERE IS SOME LOGIC TO THE CHOICE OF FLIPPERS. THE FLIPPERS ARE NUMBERED 1, 2, 3 FROM LEFT TO RIGHT. SINCE LUCK PLAYS A SMALL PART IN CHOOSING THE CORRECT FLIPPER, YOU WILL DO POORLY IF YOU JUST GUESS WHICH FLIPPER THE BALL IS HEADED TOWARD...

PRESS ANY KEY TO CONTINUE

cls

PINBALL

THE CENTER BUMPER(\$ ) IS THE JACKPOT! THE BALL IS PUT INTO PLAY IN THE LOWER LEFT CORNER AND GOES UP AND AROUND. WHERE IT IS DEPOSITED IN THE UPPER HALF OF THE TABLE. THE BALL MAY BOUNCE FROM THE SIDE OF THE TABLE, AND MAY BOUNCE UP FROM THE LINE ON THE SIDE AND FROM THE DIAGONALS (REFER TO PICTURE OF PINBALL TABLE) OF THE TABLE. THE BUMPERS ARE INDICATED BY STARS (\*).

PRESS ANY KEY TO CONTINUE

cls

PINBALL

THE BALL MAY GO OUT OF PLAY THROUGH ONE OF THE 4 HOLES IN THE BOARD IN WHICH CASE A BONUS IS SCORED.

THE GATES ARE NUMBERED 1-9. AND KNOCK DOWN TABS ARE SHOWN AS THE LETTERS A-J. YOU GET A BONUS FOR THESE AT THE END OF EACH BALL. KNOCKING DOWN ALL OF THEM SCORES A SPECIAL BONUS

PRESS ANY KEY TO CONTINUE

cls

```

.....
..  AA  BB  CC  DD  ..
..      $$      ..
..  EE  FF  GG  HH  ..
..  01 02 03 04 05  ..
..  06 07 08 09  ..
..      00      ..
..  00      00      ..
..      I  J      ..
.....

```

BALL AT: 0 , 0  
PRESS ANY KEY TO CONTINUE

cls

THE BALL IS NOW AT ( 2 , 7 ).  
TAB B DOWN..  
YOU RECEIVE 4 POINTS FROM THE BUMPER AT 7 , 10 .  
SCORE: 4  
BALL APPROACHING FLIPPERS. ENTER FLIPPER CHOICE  
IN THE FORM: X,Y ? 2,3..

cls

THE BALL IS NOW AT ( 8 , 10 ).  
TAB G DOWN..  
TAB I DOWN..  
BALL APPROACHING FLIPPERS. ENTER FLIPPER CHOICE  
IN THE FORM: X,Y ? 4,6..

cls

NO, YOU HAVE CHOSEN TO PROTECT THE WRONG FLIPPERS. YOU NOW HAVE  
4 BALLS LEFT.  
YOUR BALL KNOCKED DOWN 3 TAGS!!  
FOR THIS STELLAR PERFORMANCE, YOU ARE AWARDED  
\*\*\*\*\* 30 \*\*\*\*\* POINTS!!  
SCORE: 34  
THE BALL IS NOW AT ( 3 , 10 )  
TAB C DOWN..  
BALL APPROACHING FLIPPERS. ENTER FLIPPER CHOICE  
IN THE FORM: X,Y ? 6,9..

cls

NO, YOU HAVE CHOSEN TO PROTECT THE WRONG FLIPPERS. YOU NOW HAVE  
3 BALLS LEFT.  
YOUR BALL KNOCKED DOWN 1 TAGS!  
FOR THIS STELLAR PERFORMANCE, YOU ARE AWARDED  
\*\*\*\*\* 10 \*\*\*\*\* POINTS!!  
SCORE: 44  
THE BALL IS NOW AT ( 6 , 8 ).

cls

PRESS ANY KEY FOR PICTURE

COMPUTER PINBALL

```

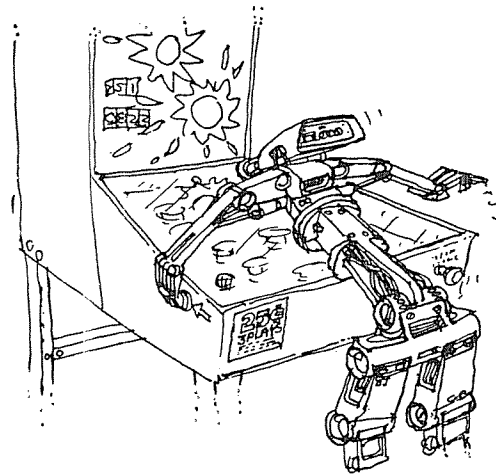
.....
..  AA  BB  CC  DD  ..
..      C       ..
..  EE  FF  GG  HH  ..
..  01 02 03 04 05  ..
..  06 07 08 09  ..
..      00      ..
..  00      00      ..
..      I  J      ..
.....

```

BALL AT: 6 , 8  
PRESS ANY KEY TO CONTINUE

cls

YOU HAVE HIT THE JACKPOT!!!! YOU HAVE JUST WON 147 POINTS!!  
YOU NOW HAVE 191 POINTS!



```

0 CLEAR 120
10 CLS: PRINT@413, "PINBALL"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "DO YOU NEED INSTRUCTIONS?"; I$
40 FMS=" B,### "
50 DIM R$(10),P$(20),L(2)
60 GOSUB 2200
70 R1=0:A0=0:X9=0
80 IF LEFT$(I$,1)="-Y" THEN GOSUB 560:CLS
90 GOSUB 1820
100 B=5
110 S=0:P=0
120 T$="ABCDEFGHIL"
130 FOR Z=1 TO 10:R$(Z)=" ":NEXT Z:Z3=0
140 R1=0
150 A7=0
160 IF B<0 THEN Z30
170 L(1)=2+INT(RND(0)*6):L(2)=INT(RND(0)*14)+1
180 C=1+INT(RND(0)*7):R1=0
190 PRINT "THE BALL IS NOW AT (";L(1);",";L(2);"). "
200 IF MID$(P$(L(1)),L(2),1)="" THEN Z20
210 GOSUB 840
220 IF A7=7 THEN Z50
230 IF R1<4 THEN Z50
240 GOTO 330
250 L(1)=L(1)+1
260 R1=0
270 L(2)=L(2)+INT(1+RND(0)*3)-2
280 IF L(2)<2 OR L(2)>15 THEN L(1)=L(1)+INT(1+RND(0)*3)-2
290 IF L(2)<2 OR L(2)>15 THEN L(2)=INT(2+RND(0)*13)
300 IF L(1)>2 AND L(1)<=20 THEN GOTO 280
310 L(1)=INT(1+RND(0)*7)
320 GOTO 280
330 GOSUB 1580
340 IF A0=1 THEN Z30
350 ON X9+1 GOTO 120,450
360 PRINT"YOU HAVE PLAYED YOUR SEVENTH BALL AND SCORED";:PRINT USING FMS;P
370 PRINT"YOU'RE VERY GOOD!":GOTO 2430
380 PRINT "YOU HAVE PLAYED YOUR FIVE BALLS, AND HAVE SCORED"
390 PRINT "A TOTAL OF";:PRINT USING FMS;P;:PRINT "POINTS. "
400 IF P<1600 THEN Z430
410 PRINT "*** BONUS BALL ***"
420 B=B+1
430 X9=1
440 GOTO 120
450 PRINT "YOU HAVE PLAYED YOUR SIXTH BALL AND SCORED";:PRINT USING FMS;P
460 X9=2
470 IF P<2200 THEN Z430
480 PRINT "*** BONUS BALL ***"
490 B=B+1:S=3
500 GOTO 120

```

```

510 GOTO 840
520 GOTO 220
530 L(1)=2+INT(RND(0)*7)
540 L(2)=2+INT(RND(0)*13):X=0:Y=0
550 GOTO 180
560 CLS:PRINT TAB(28)"PINBALL":PRINT
570 PRINT "THE RULES OF COMPUTER PINBALL ARE FAIRLY SIMPLE. YOU GET A TOTAL";
580 PRINT "FIVE BALLS. IF YOU SCORE MORE THAN 1600, YOU GET A 6TH BALL. IF"
590 PRINT "YOUR SIX BALL SCORE IS MORE THAN 2,200, YOU GET A SEVENTH BALL."
600 PRINT "PRINT THIS TABLE HAS THREE FLIPPERS, EACH OF WHICH PROTECT AN OUT CHUTE";
610 PRINT "HOWEVER, THIS SET DIFFERS FROM OTHER SETS, SINCE YOU MAY ONLY FLIP";
620 PRINT "TWO OF THE FLIPPERS ANY TIME THE BALL APPROACHES THE CHUTE."
630 PRINT "NOTA BENE: YOU DO NOT!!! KNOW FOR SURE WHERE THE BALL IS!!!"
640 PRINT "SO, IF YOU FLIP THE WRONG TWO FLIPPERS, YOU LOSE THE BALL, AND THE";
650 PRINT "NEXT BALL IS PUT INTO PLAY.":GOSUB 2440
660 PRINT "THERE IS SOME LOGIC TO THE CHOICE OF FLIPPERS"
670 PRINT "THE FLIPPERS ARE NUMBERED 1,2,3 FROM LEFT TO RIGHT"
680 PRINT "SINCE LUCK PLAYS A SMALL PART IN CHOOSING THE CORRECT FLIPPER,"
690 PRINT "YOU WILL DO POORLY IF YOU JUST GUESS WHICH FLIPPER THE BALL IS"
700 PRINT "HEADED TOWARD...":PRINT:GOSUB 2440
710 PRINT "THE CENTER BUMPER(5) IS THE JACKPOT!"
720 PRINT "THE BALL IS PUT INTO PLAY IN THE LOWER LEFT CORNER AND GOES UP"
730 PRINT "AND AROUND, WHERE IT IS DEPOSITED IN THE UPPER HALF OF THE"
740 PRINT "THE TABLE. THE BALL MAY BOUNCE FROM THE SIDE OF THE TABLE,"
750 PRINT "AND MAY BOUNCE UP FROM THE LINE ON THE SIDE AND FROM THE"
760 PRINT "DIAGONALS (REFER TO PICTURE OF PINBALL TABLE)"
770 PRINT "OF THE TABLE. THE BUMPERS ARE INDICATED BY STARS (*).":GOSUB 2440
780 PRINT "THE BALL MAY GO OUT OF PLAY THROUGH ONE OF THE 4 HOLES IN THE"
790 PRINT "BOARD IN WHICH CASE A BONUS IS SCORED."
800 PRINT "THE GATES ARE NUMBERED 1-9, AND KNOCK DOWN TABS ARE SHOWN AS"
810 PRINT "THE LETTERS A-J. YOU GET A BONUS FOR THESE AT THE END OF EACH"
820 PRINT "BALL. KNOCKING DOWN ALL OF THEM SCORES A SPECIAL BONUS":GOSUB 2440
830 RETURN
840 IF MID$(P$(L(1)),L(2),1)="0" THEN 920
850 IF INT(RND(0)+.5)=0 THEN 870
860 IF MID$(P$(L(1)),L(2),1)="0"OR MID$(P$(L(1)),L(2),1)="\" THEN 1020
870 S0=INT(RND(0)*6+1)
880 FOR S7=1 TO S0:PRINT CHR$(7):NEXT S7
890 IF MID$(P$(L(1)),L(2),1)<="J"AND MID$(P$(L(1)),L(2),1)="A" THEN 1050
900 GOSUB 1140
910 RETURN
920 REM
930 PRINT "TO CONSOLE YOU, I WILL GIVE YOU AN EXTRA"
940 Q=INT(RND(0)*141)
950 P=P+Q
960 PRINT Q;"POINTS, TO BRING YOUR TOTAL TO":PRINT USING FM#P;P
970 PRINT "YOU NOW HAVE HAVE";B-1;"BALLS LEFT."
980 B=B-1
990 A7=7
1000 GOSUB 1700
1010 RETURN
1020 L(1)=L(1)+(1+INT(RND(0)*4))-(1+INT(RND(0)*4))
1030 L(2)=2+INT(RND(0)*14)
1040 RETURN
1050 REM
1060 FOR Q=1 TO 10
1070 IF R$(Q)=MID$(P$(L(1)),L(2),1) THEN 1130
1080 NEXT Q
1090 Z3=Z3+1:R$(Z3)=MID$(P$(L(1)),L(2),1)
1100 PRINT "TAB ";R$(Z3);" DOWN..."
1110 IF Z3=10 THEN GOSUB 1700
1120 RETURN
1130 RETURN
1140 IF MID$(P$(L(1)),L(2),1)=CHR$(8) THEN RETURN
1150 IF MID$(P$(L(1)),L(2),1)="J" THEN RETURN
1160 IF MID$(P$(L(1)),L(2),1)="I" THEN RETURN
1170 IF MID$(P$(L(1)),L(2),1)="\" THEN 1280
1180 A1=0
1190 IF MID$(P$(L(1)),L(2),1)="=" THEN 1550
1200 C=C-1
1210 IF C=0 THEN 1280
1220 IF MID$(P$(L(1)),L(2),1)="!"OR MID$(P$(L(1)),L(2),1)="\" THEN 1280
1230 IF MID$(P$(L(1)),L(2),1)="/"OR MID$(P$(L(1)),L(2),1)="-" THEN 1280
1240 IF INT(1+RND(0)*2)=2 THEN GOSUB 1900
1250 IF MID$(P$(L(1)),L(2),1)="*" THEN 1380
1260 IF MID$(P$(L(1)),L(2),1)="*" THEN 1430
1270 GOTO 1470
1280 A1=4
1290 GOTO 1530
1300 IF L(2)<6 THEN GOTO 1340
1310 IF L(2)<11 THEN 1360
1320 D=2:IF INT(1+RND(1)*2)=1 THEN D=D+(1+INT(RND(1)*3))-2:IF D>3 THEN D=D-3
1330 RETURN
1340 D=1:IF INT(1+RND(0)*2)=1 THEN D=INT(RND(0)*3)+0
1350 RETURN
1360 D=2:IF INT(1+RND(0)*2)=1 THEN D=D+INT(RND(0)*3):IF D>3 THEN D=D-3
1370 RETURN
1380 Q=45+INT(RND(0)*146)
1390 PRINT "YOU HAVE HIT THE JACKPOT!!!! YOU HAVE JUST WON";Q;"POINTS!!!"
1400 P=P+Q
1410 PRINT "YOU NOW HAVE":PRINT USING FM#P;P:PRINT "POINTS!"
1420 GOTO 1500
1430 Q=INT(RND(0)*64)+1:P=P+Q
1440 PRINT "YOU RECEIVE";Q;"POINTS FROM THE BUMPER AT ";L(1);", ";L(2);"."
1450 PRINT "SCORE":PRINT USING FM#P;P
1460 GOTO 1500
1470 Q=15*(1+INT(RND(0)*6)):P=P+Q
1480 PRINT "YOU GET";Q;"POINTS FROM GATE ";MID$(P$(L(1)),L(2),1)

```

```

1490 PRINT "SCORE":PRINT USING FM#P;P
1500 L(1)=L(1)-INT(1+RND(0)*3)-INT(1+RND(0)*2)
1510 L(2)=L(2)-3+INT(RND(0)*5)+1
1520 RETURN
1530 GOSUB 2170
1540 GOTO 1300
1550 L(1)=L(1)-(1+INT(RND(0)*5))
1560 L(2)=L(2)-2+(1+INT(RND(0)*4))
1570 RETURN
1580 PRINT "BALL APPROACHING FLIPPERS. ENTER FLIPPER CHOICE"
1590 INPUT "IN THE FORM: X,Y ";V,W:CLS
1600 IF V=0 OR W=0 THEN 1670
1610 PRINT "NO, YOU HAVE CHOSEN TO PROTECT THE WRONG FLIPPERS. YOU NOW HAVE"
1620 PRINT B-1;"BALLS LEFT."
1630 B=B-1
1640 A0=0
1650 GOSUB 1700
1660 RETURN
1670 A0=1
1680 C=INT(1+RND(0)*5)
1690 RETURN
1700 IF Z3=10 THEN 1770
1710 IF Z3=0 THEN RETURN
1720 PRINT "YOUR BALL KNOCKED DOWN";Z3;"TAGS!!!"
1730 PRINT "FOR THIS STELLAR PERFORMANCE, YOU ARE AWARDED "
1740 PRINT "*****";10*Z3;"*****":PRINT "POINTS!!!"
1750 P=P+10*Z3
1760 GOTO 1810
1770 P=P+250
1780 PRINT "***** YOU KNOCKED DOWN ALL 10 TAGS!!! *****"
1790 PRINT "YOU ARE AWARDED 250 POINTS AND AN EXTRA BALL!!!"
1800 B=B+1
1810 PRINT "SCORE":PRINT USING FM#P;P:RETURN
1820 GOTO 1900
1830 PRINT "P I C T U R E ":PRINT"*****"
1840 FOR Q=1 TO L(1)-1:PRINT P$(Q):NEXT Q
1850 PRINT MID$(P$(L(1)),L(2)-1);MID$(P$(L(1)),L(2)+L(16)-L(2))
1860 FOR Q=L(1)+1 TO 20:PRINT P$(Q):NEXT Q
1870 PRINT:PRINT "THE BALL WAS AT THE '#':PRINT:PRINT"*****"
1880 GOSUB 2440
1890 RETURN
1900 IF L(1)+L(2)=0 THEN 1930 ELSE PRINT@979,"PRESS ANY KEY FOR PICTURE";
1910 IF INKEY="" THEN 1910
1920 CLS:PRINT@42,"COMPUTER PINBALL"
1930 A$=STRING$(2,191):B$=STRING$(2,143):C$=STRING$(2,176)
1940 E$=STRING$(2,140):F$=STRING$(2,131):G$=STRING$(2,179)
1950 PRINT@0,"";C$;STRING$(24,140);C$
1960 PRINT A$;" ";B$;" ";B$;" ";B$;" ";A$
1970 PRINT A$;" AA BB CC DD ";A$
1980 PRINT A$;" ";B$;" ";B$;" ";B$;" ";A$
1990 PRINT A$;" ";B$;" ";B$;" $";B$;" ";B$;" ";A$
2000 PRINT A$;" ";B$;" ";B$;" ";B$;" ";A$
2010 PRINT A$;" ";B$;" EE FF GG HH ";B$;" ";A$
2020 PRINT A$;" ";B$;" ";B$;" ";B$;" ";A$
2030 PRINT A$;STRING$(6,140);STRING$(16,32);STRING$(6,140);A$
2040 PRINT A$;" 01 02 03 04 05 ";A$
2050 PRINT A$;" ";B$;" 06 07 08 09 ";B$;" ";A$
2060 PRINT A$;STRING$(6,140)" 00 "STRING$(6,140);A$
2070 PRINT A$;" 00 00 00 ";A$
2080 PRINT A$;B$;B$;C$;STRING$(16,32);C$;B$;B$;A$
2090 PRINT A$;" ";F$;E$;C$;" I ";J$;C$;E$;F$;" ";A$
2100 PRINT B$;STRING$(28,140);B$
2110 PRINT@485,"BALL AT:"L(1);", ";L(2);
2120 IF L(1)=0 OR L(2)=0 THEN 2140
2130 PRINT@L(1)-2)*64+(L(2)-1)*2+L(1);"(");
2140 PRINT@549,"PRESS ANY KEY TO CONTINUE";
2150 IF INKEY="" THEN 2150 ELSE CLS
2160 PRINT@0,"";RETURN
2170 L(2)=ABS(L(2)-2+INT(1+RND(0)*4))
2180 IF L(2)<=15 THEN RETURN
2190 L(2)=1+INT(RND(0)*15):RETURN
2200 P$(1)=" "
2210 FOR Q=1 TO 12:P$(1)=P$(1)+CHR$(8)+CHR$(8)+CHR$(8):NEXT Q
2220 P$(1)=P$(1)+""
2230 P$(2)=" 0 0 "
2240 P$(3)="0 * * * 0"
2250 P$(4)="0 A B C D 0"
2260 P$(5)="0 * * 0"
2270 P$(6)="0 * * $ * 0"
2280 P$(7)="0 * * 0"
2290 P$(8)="0 * E F G H * 0"
2300 P$(9)="0 * * * 0"
2310 P$(10)="0====="
2320 P$(11)="0 1 2 3 4 5 0"
2330 P$(12)="0 * 6 7 8 9 * 0"
2340 P$(13)="0==== 0"
2350 P$(14)="0 0 0 0 0"
2360 P$(15)="!!!!"
2370 P$(16)="0 \ / 0"
2380 P$(17)="0 \ I J / 0"
2390 P$(18)="0 \ / 0"
2400 P$(19)="0 \ / 0"
2410 P$(20)="0-----!!-----~/"
2420 RETURN
2430 PRINT "COME PLAY AGAIN SOMETIME!!":GOSUB 2440:END
2440 PRINT@979,"PRESS ANY KEY TO CONTINUE";
2450 IF INKEY="" THEN 2450 ELSE PRINT@128,CHR$(31):RETURN
2460 RETURN

```



# Rabbit Chase

Seemingly, the purpose of this game is to chase-down and catch a rabbit. Now this rabbit is an elusive little devil—it can hop randomly in any direction. You can run at least as fast as the rabbit, maybe even faster (the computer will decide). You must get within 20 units of the rabbit to be able to catch him. Before each hop, the computer will print out your position, the rabbit's position, the direction the rabbit is going to jump, and your closest approach on the last hop. You are to tell the computer which direction you wish to run. All coordinates and directions are as a geometer would mark them on a standard Cartesian Coordinate System.

In addition to being good fun, this game gives you practice in using and visualizing an x-y coordinate plane. After each hop, consider the output and try to run the right direction. Try to do all the figuring in your head. Using scratch paper is considered to be cheating (except for maybe the first time you play).

## Suggested Modifications

1. Change the program so that you can choose your own speed.
2. The game is much more challenging when the "capture distance" can be varied. A distance of 50 units is a cinch, 15 units may make you wish for scratch paper, 5 units will require

you to use a protractor and graph paper.

3. See if you can invent a way to extend this game to 3 dimensions! 4 dimensions! etc.!
4. You might try limiting the total number of hops and/or having the computer give hints when requested.

Rabbit Chase was written by Ted C. Park of Pacific Union College. It first appeared in *Creative Computing*, Mar/Apr 1975.

```

RABBIT CHASE:
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HIT ENTER TO START? _

SPEEDS (UNITS/HOP):
RABBIT - 130 YOU - 390
HOP#: 1 DISTANCE TO RABBIT: 82 CLOSEST APPROACH: 382
RABBIT --- POSITION: ( 158, 3 8) AND DIRECTION: 165
YOU ----- POSITION: ( 0, 0) AND DIRECTION: ? 135
c/s

SPEEDS (UNITS/HOP):
RABBIT - 130 YOU - 390
HOP#: 2 DISTANCE TO RABBIT: 126 CLOSEST APPROACH: 318
RABBIT --- POSITION: ( 32, 3 12) AND DIRECTION: 238
YOU ----- POSITION: ( -276, 2 6) AND DIRECTION: ? 135
c/s

SPEEDS (UNITS/HOP):
RABBIT - 130 YOU - 390
HOP#: 3 DISTANCE TO RABBIT: 386 CLOSEST APPROACH: 326
RABBIT --- POSITION: ( -36, 2 1) AND DIRECTION: 259
YOU ----- POSITION: ( -552, 5 32) AND DIRECTION: ? 98
c/s

SPEEDS (UNITS/HOP):
RABBIT - 130 YOU - 390
HOP#: 4 DISTANCE TO RABBIT: 336 CLOSEST APPROACH: 586
RABBIT --- POSITION: ( -61, 1 14) AND DIRECTION: 91
YOU ----- POSITION: ( -552, 5 12) AND DIRECTION: ? 135
c/s

SPEEDS (UNITS/HOP):
RABBIT - 130 YOU - 390
HOP#: 5 DISTANCE TO RABBIT: 1214 CLOSEST APPROACH: 936
RABBIT --- POSITION: ( -64, 7 74) AND DIRECTION: 282
YOU ----- POSITION: ( -827, 1 17) AND DIRECTION: ? 8
c/s

SPEEDS (UNITS/HOP):
RABBIT - 130 YOU - 390
HOP#: 6 DISTANCE TO RABBIT: 826 CLOSEST APPROACH: 1826
RABBIT --- POSITION: ( -182, 23) AND DIRECTION: 82
YOU ----- POSITION: ( -437, 1 17) AND DIRECTION: ? 225
c/s

SPEEDS (UNITS/HOP):
RABBIT - 130 YOU - 390
HOP#: 7 DISTANCE TO RABBIT: 885 CLOSEST APPROACH: 885
RABBIT --- POSITION: ( -165, 52) AND DIRECTION: 62
YOU ----- POSITION: ( -712, 42) AND DIRECTION: ? 135
c/s

SPEEDS (UNITS/HOP):
RABBIT - 130 YOU - 390
HOP#: 8 DISTANCE TO RABBIT: 158 CLOSEST APPROACH: 885
RABBIT --- POSITION: ( -186, 168) AND DIRECTION: 62
YOU ----- POSITION: ( -989, 1 17) AND DIRECTION: ? 178
c/s

```

```

10 CLS: PRINT@411, "RABBIT CHASE"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979
   CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@968, "": INPUT "HIT ENTER TO START":A$
40 CLS
50 REM ('T' IS THE SQUARE OF THE CAPTURE DISTANCE)
60 LET T=400
70 REM -- INITIALIZE VELOCITIES AND POSITIONS
80 LET V1=INT(RND(0)*10+.5)*10*50
90 LET V2=(INT(RND(0)*2+.5)*1)*V1
100 LET X1=(INT(RND(0)*400)+100)*SGN(RND(0)-.5)
110 LET Y1=(INT(RND(0)*400)+100)*SGN(RND(0)-.5)
120 IF Y1=0 OR X1=0 THEN 180
130 LET X2=0
140 LET Y2=0
150 PRINT "SPEEDS (UNITS/HOP):"
160 PRINT "RABBIT -":V1,"YOU -":V2
170 PRINT
180 PRINT
190 PRINT
200 LET C=(X2-X1)^2+(Y2-Y1)^2
210 LET P1=.3,141592653589#*180
220 LET H=1
230 REM -- PRINT OUT
240 LET D1=INT(RND(0)*359)
250 PRINT@256, "HOP#: ";
260 LET Z=H
270 GOSUB 800
280 PRINT "DISTANCE TO RABBIT: ";
290 LET Z=SQR((X2-X1)^2+(Y2-Y1)^2)
300 GOSUB 800
310 PRINT "CLOSEST APPROACH: ";
320 LET Z=SQR(C)
330 GOSUB 800
340 PRINT
350 PRINT "RABBIT --- POSITION: ("
360 LET Z=X1
370 GOSUB 810
380 PRINT ", ";
390 LET Z=Y1
400 GOSUB 810
410 PRINT ") AND DIRECTION: ";
420 LET Z=D1
430 GOSUB 800
440 PRINT
450 PRINT "YOU ----- POSITION: ("
460 LET Z=X2
470 GOSUB 810
480 PRINT ", ";
490 LET Z=Y2
500 GOSUB 810

```

```

510 PRINT ") AND DIRECTION: ";
520 INPUT D2
530 IF D2<0 OR D2>=360 THEN 520
540 PRINT
550 PRINT
560 REM -- COMPUTE PATHS AND SEE IF THEY INTERSECT
570 LET X3=X1+COS(D1*PI)/180
580 LET Y3=Y1+SIN(D1*PI)/180
590 LET X4=X2+COS(D2*PI)/180
600 LET Y4=Y2+SIN(D2*PI)/180
610 LET C=(X2-X1)^2+(Y2-Y1)^2
620 FOR I=1 TO 180
630 LET X1=X1+X3
640 LET Y1=Y1+Y3
650 LET X2=X2+X4
660 LET Y2=Y2+Y4
670 IF C<(X2-X1)^2+(Y2-Y1)^2 THEN 690
680 C=(X2-X1)^2+(Y2-Y1)^2
690 NEXT I
700 LET H=H+1
710 IF C>T THEN 240
720 CLS: PRINT
730 PRINT
740 PRINT "*****"
750 PRINT "* GOT YA *"
760 PRINT "*****"
770 PRINT
780 PRINT
790 END
800 REM -- CONVERTS NUMBERS TO STRINGS FOR CLEANER OUTPUT
810 Z=INT(Z+.5)
820 PRINT RIGHT$(" "+STR$(Z),5);
830 RETURN
840 END

```

# Roadrace

You are the driver of a race car on the notorious NY Route 20. You'll have to drive 5 miles with  $\frac{1}{2}$  gallon of gas, while keeping alert for changes in the road conditions, other cars, etc.

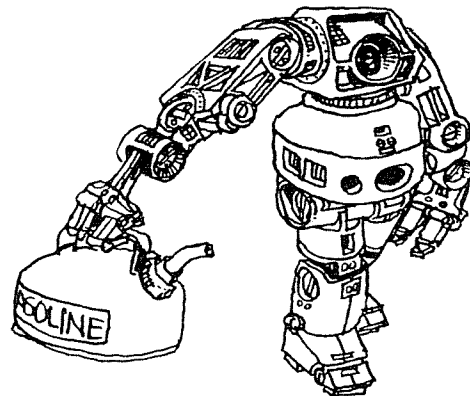
At the start you pick your car and course. During the race you control braking and acceleration.

Watch out for passing another car! If you try to go the same speed he's going, you're going to meet a Greyhound bus head-on!

The game is tough to win. I usually wipe out in a curve or run out of gas. You might want to increase your MPG rating...look at line 800.

Good luck!

This program originally appeared in *Creative Computing*, Jan/Feb 1975.



ROADRACE  
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HIT ENTER TO START? \_

THIS IS THE PITTSFIELD-ALBANY ROAD RALLY  
WELCOME TO THE FIRST ANNUAL PITTSFIELD-ALBANY ROAD RALLY.  
YOU'LL BE DRIVING ROUTE 20, TRYING TO WIN THE RACE AND  
STAY ALIVE IN THE BARGIN. GOOD LUCK!!

YOU HAVE YOUR CHOICE OF: (1) A VW; (2) TRIUMPH TR3;  
(3) DATSUN 280-Z; OR (4) FERRARI  
CHOOSE THE CAR YOU WANT BY THE NUMBER IN FRONT OF IT.  
REMEMBER, THE BETTER THE CAR, THE MORE GAS IT USES.  
WHICH CAR? 3\_

NOW YOU CHOOSE WHICH COURSE YOU WANT TO RACE ON.  
THE EASIEST COURSE IS NUMBER 1, AND IS THE STRAIGHTEST  
ROUTE. NUMBER 5 CONSISTS MOSTLY OF TURNS AND TWISTS.  
WHICH ROUTE DO YOU WANT? 1\_

YOU WILL NEED TO TRAVEL 5 MILES WITH .5 GALLONS OF GAS.  
YOUR STATUS WILL BE SHOWN EACH 10 SECONDS. AFTER EACH  
STATUS CHECK YOU WILL BE ASKED FOR A NEW RATE OF GAS  
A RATE OF +10 IS HARD ACCELERATION, AND -10 IS HARD BRAKING.  
ANY NUMBER IN BETWEEN IS ALLOWABLE.

PRESENT VELOCITY = 0 NO. OF GALLONS = .5  
NO. OF MILES = 0 TIME PASSED = 0 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 10\_

ROAD CONDITIONS:VEHICLE AHEAD 1000 FEET

PRESENT VELOCITY = 70 NO. OF GALLONS = .47  
NO. OF MILES = .152174 TIME PASSED = 10 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 2\_

ROAD CONDITIONS:VEHICLE PASSED BY 21 MPH

PRESENT VELOCITY = 55 NO. OF GALLONS = .464  
NO. OF MILES = .271739 TIME PASSED = 20 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 10\_

ROAD CONDITIONS:VEHICLE AHEAD 1000 FEET

PRESENT VELOCITY = 102 NO. OF GALLONS = .434  
NO. OF MILES = .493478 TIME PASSED = 30 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 8\_

ROAD CONDITIONS:VEHICLE PASSED BY 79 MPH

PRESENT VELOCITY = 116 NO. OF GALLONS = .41  
NO. OF MILES = .745652 TIME PASSED = 40 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 10\_

ROAD CONDITIONS:VEHICLE AHEAD 1000 FEET

PRESENT VELOCITY = 138 NO. OF GALLONS = .38  
NO. OF MILES = 1.04565 TIME PASSED = 50 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 10\_

ROAD CONDITIONS:VEHICLE PASSED BY 95 MPH

PRESENT VELOCITY = 151 NO. OF GALLONS = .35  
NO. OF MILES = 1.37391 TIME PASSED = 60 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 10\_

ROAD CONDITIONS:VEHICLE AHEAD 1000 FEET

PRESENT VELOCITY = 159 NO. OF GALLONS = .32  
NO. OF MILES = 1.71957 TIME PASSED = 70 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 10\_

ROAD CONDITIONS:VEHICLE PASSED BY 124 MPH

PRESENT VELOCITY = 149 NO. OF GALLONS = .296  
NO. OF MILES = 2.04348 TIME PASSED = 80 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 20\_

NOT VALID. NEW RATE? 10\_

ROAD CONDITIONS:CLEAR AND STRAIGHT

PRESENT VELOCITY = 157 NO. OF GALLONS = .266  
NO. OF MILES = 2.38478 TIME PASSED = 90 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 10\_

ROAD CONDITIONS:VEHICLE AHEAD 1000 FEET

PRESENT VELOCITY = 162 NO. OF GALLONS = .236  
NO. OF MILES = 2.73696 TIME PASSED = 100 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 8\_

ROAD CONDITIONS:VEHICLE PASSED BY 102 MPH

PRESENT VELOCITY = 151 NO. OF GALLONS = .212  
NO. OF MILES = 3.06522 TIME PASSED = 110 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 10\_

ROAD CONDITIONS:VEHICLE AHEAD 1000 FEET

PRESENT VELOCITY = 159 NO. OF GALLONS = .182  
NO. OF MILES = 3.41087 TIME PASSED = 120 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 10\_

ROAD CONDITIONS:VEHICLE PASSED BY 133 MPH

PRESENT VELOCITY = 163 NO. OF GALLONS = .152  
NO. OF MILES = 3.76522 TIME PASSED = 130 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 10\_

ROAD CONDITIONS:VEHICLE AHEAD 1000 FEET

PRESENT VELOCITY = 166 NO. OF GALLONS = .122  
NO. OF MILES = 4.12689 TIME PASSED = 140 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 10\_

ROAD CONDITIONS:VEHICLE PASSED BY 130 MPH

PRESENT VELOCITY = 167 NO. OF GALLONS = .092  
NO. OF MILES = 4.48913 TIME PASSED = 150 SECONDS  
WHAT IS YOUR NEW RATE OF GAS? 10\_

YOUR ENGINE BLEW. YOU GOT HIT BY A PISTON.  
WHERE IS YOUR FUNERAL BEING HELD?

YOU WANT TO TRY AGAIN, RIGHT? WRONG\_

```

10 CLS
20 PRINT @ 412, "ROADRACE"
30 PRINT
40 PRINT TAB(7)*"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
50 PRINT @ 960, "":
60 INPUT "HIT ENTER TO START";A$
70 CLS
80 PRINT "      THIS IS THE PITTSFIELD-ALBANY ROAD RALLY"
90 PRINT "WELCOME TO THE FIRST ANNUAL PITTSFIELD-ALBANY ROAD RALLY."
100 PRINT "YOU'LL BE DRIVING ROUTE 28, TRYING TO WIN THE RACE AND"
110 PRINT "STAY ALIVE IN THE BARGAIN. GOOD LUCK!!"
120 PRINT
130 PRINT "YOU HAVE YOUR CHOICE OF: (1) A VW; (2) TRIUMPH TR3;"
140 PRINT "(3) DATSUN 280-Z; OR (4) FERRARI"
150 PRINT "CHOOSE THE CAR YOU WANT BY THE NUMBER IN FRONT OF IT."
160 PRINT "REMEMBER, THE BETTER THE CAR, THE MORE GAS IT USES."
170 PRINT "WHICH CAR?";
180 INPUT C1
190 C1=INT(C1)
200 IF C1>4 THEN 220
210 IF C1<1 THEN 220 ELSE 240
220 PRINT "INVALID CAR NUMBER. NEW CAR ";
230 GOTO 180
240 CLS
250 IF N2=1 THEN 280
260 PRINT "NOW YOU CHOOSE WHICH COURSE YOU WANT TO RACE ON."
270 PRINT "THE EASIEST COURSE IS NUMBER 1, AND IS THE STRAIGHTEST"
280 PRINT "ROUTE. NUMBER 5 CONSISTS MOSTLY OF TURNS AND TWISTS."
290 PRINT "WHICH ROUTE DO YOU WANT?";
300 INPUT C2
310 C2=INT(C2)
320 IF C2<1 THEN 340
330 IF C2>5 THEN 340 ELSE 360
340 PRINT "INVALID COURSE NUMBER. NEW CHOICE ";
350 GOTO 300
360 IF N2=1 THEN 430
370 PRINT
380 PRINT "YOU WILL NEED TO TRAVEL 5 MILES WITH .5 GALLONS OF GAS."
390 PRINT "YOUR STATUS WILL BE SHOWN EACH 10 SECONDS AFTER EACH"
400 PRINT "STATUS CHECK YOU WILL BE ASKED FOR A NEW RATE OF GAS"
410 PRINT "A RATE OF +10 IS HARD ACCELERATION, AND -10 IS HARD BRAKING."
420 PRINT "ANY NUMBER IN BETWEEN IS ALLOWABLE."
430 FOR I=1 TO C1
440 READ B, M, S
450 D=B/10
460 NEXT I
470 R1=.5
480 R1=0
490 C1=C1/2
500 V=0
510 PRINT
520 R1=0
530 T=0
540 D=0
550 C1=0
560 PRINT "PRESENT VELOCITY =";V;" NO. OF GALLONS =";R1
570 PRINT "NO. OF MILES =";M1;" TIME PASSED =";T;" SECONDS"
580 IF M1>5 THEN 130
590 PRINT "WHAT IS YOUR NEW RATE OF GAS?";
600 INPUT G
610 CLS
620 IF G<-10 THEN 641
630 IF G>10 THEN 640 ELSE 660
640 PRINT "NOT VALID. NEW RATE";
650 GOTO 600
660 IF G<9 THEN 710
670 Z=Z+1
680 IF Z>4 THEN 690 ELSE 720
690 PRINT "YOUR ENGINE BLEW. YOU GOT HIT BY A PISTON."
700 GOTO 1200
710 Z=0
720 V=INT(B*G-M*V+V)
730 T=T+10
740 PRINT
750 PRINT "ROAD CONDITIONS:";
760 IF V>0 THEN 780
770 V=0
780 M1=M1+V/400
790 IF G<0 THEN 820
800 R1=R1-(G*5)/5000
810 IF R1<0 THEN 130
820 IF R1=1 THEN 900

```

```

830 IF Q1=1 THEN 910
840 Q=INT((C2+1)*RND(0))
850 R=INT((3.75-C2)*RND(0))
860 IF R>0 THEN 1220
870 IF Q>0 THEN 1270
880 PRINT "CLEAR AND STRAIGHT"
890 PRINT
900 GOTO 560
910 H=INT(15+35*RND(0))
920 H=H+5+C1
930 IF V>H THEN 1430
940 PRINT "THROUGH CURVE"
950 PRINT
960 Q1=0
970 GOTO 560
980 E=E-(V-D)*3!
990 IF E<0 THEN 1030
1000 PRINT "VEHICLE";E;" FEET AHEAD"
1010 PRINT
1020 GOTO 560
1030 IF V-D<5 THEN 1110
1040 PRINT "VEHICLE PASSED BY";
1050 D=V-D
1060 PRINT D;
1070 PRINT "MPH"
1080 PRINT
1090 R1=0
1100 GOTO 560
1110 PRINT "VEHICLE BEING PASSED "
1120 D=INT(25+40*RND(0))
1130 PRINT "GREYHOUND BUS IN OTHER LANE ";
1140 PRINT "DOING";
1150 PRINT D;
1160 PRINT "MPH ";
1170 D=V+D
1180 PRINT "CRASH VELOCITY =";D
1190 PRINT
1200 PRINT "WHERE IS YOUR FUNERAL BEING HELD?"
1210 GOTO 1490
1220 PRINT "VEHICLE AHEAD 1000 FEET"
1230 PRINT
1240 D=INT(25+35*RND(0))
1250 R1=1
1260 GOTO 560
1270 PRINT "WARNING: CURVE AHEAD "
1280 Q1=1
1290 PRINT
1300 GOTO 560
1310 PRINT "EXCELLENT, BUT WAIT!"
1320 PRINT
1330 PRINT "YOU RAN OUT OF GAS"
1340 GOTO 1400
1350 PRINT "BUT SOME HOW YOU MADE IT"
1360 PRINT
1370 R1=0
1380 GOTO 560
1390 PRINT
1400 PRINT
1410 PRINT "YOU MADE IT (LUCKY) !!!!!!!"
1420 GOTO 1490
1430 PRINT "ARE TERRIBLE"
1440 H=H-5+C1
1450 PRINT H;" WAS THE SPEED THROUGH THE CURVE"
1460 PRINT V;" WAS YOUR SPEED, BY THE WAY ";
1470 GOTO 1200
1480 PRINT "YOU LEAF FOOTED $%&'/%&*&&((&*&*&)*$((($&'/%&*&*&))"
1490 PRINT
1500 PRINT "YOU WANT TO TRY AGAIN, RIGHT?";
1510 INPUT V$
1520 IF LEFT$(V$, 1)="" THEN 1550
1530 N2=1
1540 GOTO 1590
1550 PRINT
1560 PRINT "CHICKEN"
1570 PRINT
1580 GOTO 1650
1590 RESTORE
1600 GOTO 170
1610 DATA 45, .53, .10
1620 DATA 60, .5, .1
1630 DATA 70, .41, .15
1640 DATA 80, .39, .18
1650 END

```

# Rotate

The game of Rotate is played on a four-by-four board filled randomly with the letters A through P. In a sense it is like the little plastic games with sliding pieces bearing the numbers 1-15 or letters A-O.

The object of the game is to put the letters in alphabetical order. This is done by rotating groups of four letters clockwise one position. The group to be rotated is specified by the positional number of the letter in the upper left-hand corner of the group. You are also given one special move which permits you to exchange any two adjacent

letters. You probably don't want to use this move too early in the game; indeed, sometimes it's not necessary at all, and since you get it only one time, once you use it you can't recover. Your only move then is to type a zero to give up.

Typically, a game will take from 20 to 30 moves to win. I haven't figured out the worst possible case (assuming an intelligent method of play); I'd be happy to hear from a reader on this. Have fun!

Rotate was written by me, David Ahl, and first appeared in *Creative Computing*, Sep/Oct 1977.

## ROTATE

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DO YOU NEED INSTRUCTIONS? YES\_

cls

## ROTATE

IN THIS GAME THE BOARD IS LAID OUT AS FOLLOWS:

```
1 2 3 4
5 6 7 8
9 10 11 12
13 14 15 16
```

BOARD POSITIONS ARE OCCUPIED RANDOMLY BY THE LETTERS A TO P. THE OBJECT OF THE GAME IS TO ORDER THE LETTERS BY ROTATING ANY FOUR LETTERS CLOCKWISE ONE POSITION. YOU SPECIFY THE UPPER LEFT POSITION OF THE FOUR YOU WISH TO ROTATE, I.E., VALID MOVES ARE 1, 2, 3, 5, 6, 7, 9, 10, 12 AND 11.

PRESS ANY KEY TO CONTINUE

cls

## ROTATE

CONSEQUENTLY, IF THE BOARD LOOKED LIKE:

```
A C G D
E B F H
I J K L
M N O P
```

AD YOU ROTATED POSITION 2, THE BOARD WOULD BE:

```
A B C D
E F G H
I J K L
M N O P
```

AND YOU WOULD WIN!

PRESS ANY KEY TO CONTINUE\_

cls

## ROTATE

YOU ALSO GET ONE 'SPECIAL' MOVE PER GAME WHICH YOU MAY OR MAY NOT NEED. THE SPECIAL MOVE ALLOWS YOU TO EXCHANGE ANY TWO ADJACENT LETTERS IN A ROW. TO MAKE THIS MOVE, INPUT A '-1' AS YOUR MOVE AND YOU WILL BE ASKED FOR THE POSITIONS OF THE TWO LETTERS TO EXCHANGE. REMEMBER -- ONLY ONE SPECIAL MOVE PER GAME!

TO GIVE UP AT ANY TIME, TYPE A '0'.

PRESS ANY KEY TO CONTINUE\_

cls

```
J H D G
C L M P
N A K O
F I B E
```

POSITION TO ROTATE? 1\_

cls

```
C J D G
L H M P
N A K O
F I B E
```

POSITION TO ROTATE? 4\_

cls

```
L C D G
H J M P
N A K O
F I B E
```

POSITION TO ROTATE? 3\_

cls

```
L C M D
H J P G
N A K O
F I B E
```

POSITION TO ROTATE? 2.

cls

```
L J C D
H P M G
N A K O
F I B E
```

POSITION TO ROTATE? 7.

cls

```
L J C D
H P K M
N A O G
F I B E
```

POSITION TO ROTATE? 3.

cls

```
L J K C
H P M D
N A O G
F I B E
```

POSITION TO ROTATE? 6.

cls

```
L J K C
H A P D
N O M G
F I B E
```

POSITION TO ROTATE? 3.

cls

```
L J P K
H A D C
N O M G
F I B E
```

POSITION TO ROTATE? 7.

cls

```
L J P K
H A H D
N O G C
F I B E
```

POSITION TO ROTATE? 6.

cls

```
L J P K
H O A D
N G M C
F I B E
```

POSITION TO ROTATE? 2.

cls

```
10 CLS: PRINT@413, "ROTATE"
20 PRINT: PRINT TAB(7); "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, " "; INPUT "DO YOU NEED INSTRUCTIONS?"; I$
40 DIM B(16), B$(16)
50 IF LEFT$(I$, 1) = "N" THEN CLS: GOTO 360
60 CLS: PRINT TAB(23); "ROTATE": PRINT
70 PRINT "IN THIS GAME THE BOARD IS LAID OUT AS FOLLOWS:"
80 FOR I=1 TO 16: B(I)=1: NEXT I
90 PRINT: FOR I=1 TO 13 STEP 4
100 PRINT USING "## "; B(I), B(I+1), B(I+2), B(I+3)
110 NEXT I: PRINT
120 PRINT "BOARD POSITIONS ARE OCCUPIED RANDOMLY BY THE LETTERS A TO P."
130 PRINT "THE OBJECT OF THE GAME IS TO ORDER THE LETTERS BY ROTATING"
140 PRINT "ANY FOUR LETTERS CLOCKWISE ONE POSITION. YOU SPECIFY THE"
150 PRINT "UPPER LEFT POSITION OF THE FOUR YOU WISH TO ROTATE, I.E.,"
160 PRINT "VALID MOVES ARE 1, 2, 3, 5, 6, 7, 9, 10 AND 11."
170 PRINT@979, "PRESS ANY KEY TO CONTINUE";
180 IF INKEY$="" THEN 180 ELSE PRINT@128, CHR$(31);
190 PRINT "CONSEQUENTLY, IF THE BOARD LOOKED LIKE:"
220 PRINT "AND YOU ROTATED POSITION 2, THE BOARD WOULD BE:"
210 B$(6)="B": B$(7)="F": GOSUB 590
220 PRINT "AND YOU ROTATED POSITION 2, THE BOARD WOULD BE:"
230 FOR I=2 TO 7: B$(I)=CHR$(I+64): NEXT I: GOSUB 590
240 PRINT "AND YOU WOULD WIN!"
250 PRINT@979, "PRESS ANY KEY TO CONTINUE";
260 IF INKEY$="" THEN 260 ELSE PRINT@128, CHR$(31);
270 PRINT "YOU ALSO GET ONE 'SPECIAL' MOVE PER GAME WHICH YOU MAY OR"
280 PRINT "MAY NOT NEED. THE SPECIAL MOVE ALLOWS YOU TO EXCHANGE"
290 PRINT "ANY TWO ADJACENT LETTERS IN A ROW TO MAKE THIS MOVE:"
300 PRINT "INPUT A '-1' AS YOUR MOVE AND YOU WILL BE ASKED FOR THE"
310 PRINT "POSITIONS OF THE TWO LETTERS TO EXCHANGE. REMEMBER ---"
320 PRINT "ONLY ONE SPECIAL MOVE PER GAME!":PRINT
330 PRINT "TO GIVE UP AT ANY TIME, TYPE A '0'."
340 PRINT@979, "PRESS ANY KEY TO CONTINUE";
350 IF INKEY$="" THEN 350 ELSE CLS
360 FOR I=1 TO 16: B$(I)="0": NEXT I
370 FOR I=1 TO 16
380 T$=CHR$(INT(16*(RND(0)+.65)))
390 FOR J=1 TO I
400 IF B$(J)=T$ THEN 380
410 NEXT J
420 B$(I)=T$: NEXT I
430 M=0: S=0: CLS: PRINT "HERE'S THE STARTING BOARD...": GOSUB 590
440 INPUT "POSITION TO ROTATE?"; I: CLS: IF I=0 THEN PRINT: PRINT: GOTO 550
450 IF I=-1 THEN 620
460 IF I=4 OR I=8 OR I=12 THEN 440
470 M=M+1: T$=B$(I)
480 B$(I)=B$(I+4): B$(I+4)=B$(I+5): B$(I+5)=B$(I+1): B$(I+1)=T$
490 GOSUB 590
500 FOR I=1 TO 16
510 IF CHR$(I+64)=B$(I) THEN 440
520 NEXT I
530 PRINT: PRINT "YOU ORDERED THE BOARD IN"; M; "MOVES.": M1=M1+M: G=G+1
540 PRINT CHR$(7)
550 PRINT: INPUT "PLAY AGAIN?"; A$: IF LEFT$(A$, 1) = "Y" THEN 360
560 PRINT: PRINT "YOU PLAYED"; G; "GAMES AND ORDERED THE BOARD IN AN AVERAGE"
570 IF G=0 THEN G=1
580 PRINT "OF"; M1/G; "MOVES PER GAME.": PRINT: GOTO 660
590 FOR I=1 TO 13 STEP 4
600 PRINT USING " "; B$(I), B$(I+1), B$(I+2), B$(I+3)
610 NEXT I: PRINT: RETURN
620 INPUT "EXCHANGE WHICH TWO POSITIONS?"; X, Y
630 IF X<Y+1 AND Y<X-1 THEN PRINT "ILLEGAL. AGAIN...": GOTO 620
640 S=S+1: IF S>1 THEN PRINT "ONLY ONE SPECIAL MOVE PER GAME.": GOTO 440
650 T$=B$(X): B$(X)=B$(Y): B$(Y)=T$: GOTO 490
660 END
```

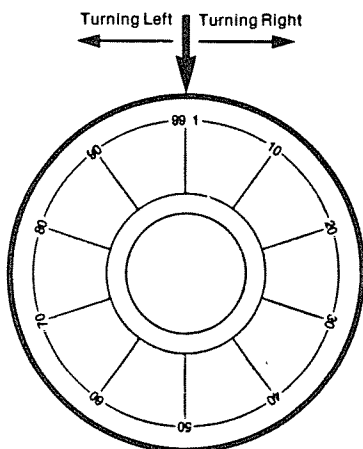
# Safe

---

In a sense, this is another game in the "guess a mystery number" family. However, it has quite a different "twist." In this game, you are trying to open a safe by turning or twisting a dial back and forth between one and ninety-nine or ninety-nine and one.

The instructions shown in the sample run are very complete. However, one hint that will help you when you start playing is that it is usually best to start at ninety-nine when going to the right because if you get a click, the number must be close. If not, you can step it down by eights or tens until you get the first click and then judge from there.

Safe was created and written by Kevin Ashley.



NOTE: There is no spot 0 (zero) and it spins back past the last number automatically as in most locks.

SAFE

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DO YOU NEED INSTRUCTIONS? YES.

cls

SAFE

YOU ARE A BURGLAR AND HAVE ENCOUNTERED A SAFE. YOU MUST OPEN THE SAFE TO GET THE SECRET PLANS THAT YOU CAME FOR.

TO DO THIS, YOU MUST ENTER THE NUMBER OF WHAT YOU WANT THE DIAL TURNED TO. THE COMPUTER WILL ACT AS THE SAFE AND WILL HELP YOU BY GIVING A SORT OF CLUE: YOU WILL 'HEAR' A CLICK AT EVENLY SPACED NOTCHES AS YOU MOVE TO THE PROPER NUMBER. THERE ARE FOUR OF THEM BEFORE THE FINAL CLICK IS 'HEARD'. AFTER THE FINAL ONE IS HEARD, YOU WILL GO ON TO THE NEXT NUMBER. THE COMPUTER WILL 'SAY' 'CLICK' FOR EACH NOTCH THAT YOU PASS AND '\*\*CLICK\*\*' WHEN YOU REACH THE PROPER NUMBER. IF YOU PASS IT OR TAKE LONGER THAN TEN TRIES ON ANY ONE NUMBER, YOU WILL ACTIVATE THE ALARM.

PRESS ANY KEY TO CONTINUE

cls

SAFE

REMEMBER THAT WHEN YOU TURN THE DIAL TO THE LEFT, THE NUMBERS GO FROM 1-99, AND WHEN YOU GO TO THE RIGHT, THE NUMBERS GO FROM 99-1.

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

OKAY, START TO THE RIGHT, SHHHHHH!!!!!!!!!!!!!!  
? 90\_

\_\_\_\_\_ cls \_\_\_\_\_

OKAY, START TO THE RIGHT, SHHHHHH!!!!!!!!!!!!!!  
CLICK  
CLICK  
CLICK  
CLICK  
? 70\_

\_\_\_\_\_ cls \_\_\_\_\_

OKAY, START TO THE RIGHT, SHHHHHH!!!!!!!!!!!!!!  
THE SENSOR HAS BEEN TRIGGERED!  
LEAVE WHILE YOU CAN BEFORE THE  
POLICE GET HERE.

WANT TO TRY THE SAME SAFE? YES\_

\_\_\_\_\_ cls \_\_\_\_\_

OKAY, START TO THE RIGHT, SHHHHHH!!!!!!!!!!!!!!  
CLICK  
CLICK  
CLICK  
? 73\_

\_\_\_\_\_ cls \_\_\_\_\_

OKAY, START TO THE RIGHT, SHHHHHH!!!!!!!!!!!!!!  
CLICK  
CLICK  
CLICK  
? 72\_

\_\_\_\_\_ cls \_\_\_\_\_

OKAY, START TO THE RIGHT, SHHHHHH!!!!!!!!!!!!!!  
CLICK  
CLICK  
CLICK  
? 70\_

\_\_\_\_\_ cls \_\_\_\_\_

OKAY, START TO THE RIGHT, SHHHHHH!!!!!!!!!!!!!!  
CLICK  
CLICK  
CLICK  
CLICK  
? 50\_

\_\_\_\_\_ cls \_\_\_\_\_

OKAY, START TO THE RIGHT, SHHHHHH!!!!!!!!!!!!!!  
THE SENSOR HAS BEEN TRIGGERED!  
LEAVE WHILE YOU CAN BEFORE THE  
POLICE GET HERE

WANT TO TRY THE SAME SAFE? NO\_

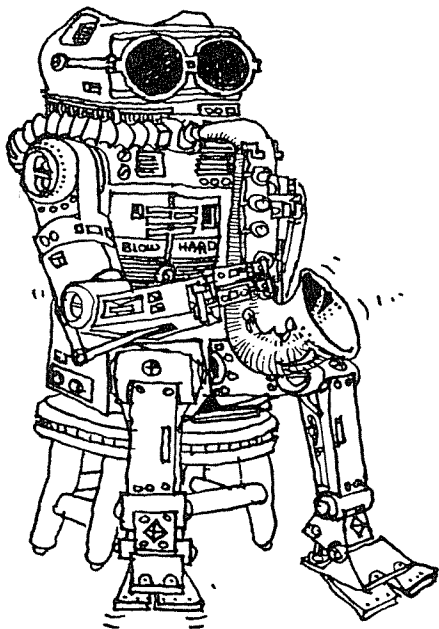
\_\_\_\_\_ cls \_\_\_\_\_

```

10 CLS: PRINT@414, "SAFE"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, " "; INPUT "DO YOU NEED INSTRUCTIONS"; I$
40 DIM A$(4)
50 IF LEFT$(I$,1)="Y" THEN 60 ELSE 270
60 CLS: PRINT@30, "SAFE": PRINT
70 PRINT "YOU ARE A BURGLAR AND HAVE ENCOUNTERED A SAFE. YOU MUST"
80 PRINT "OPEN THE SAFE TO GET THE SECRET PLANS THAT YOU CAME FOR."
90 PRINT
100 PRINT "TO DO THIS, YOU MUST ENTER THE NUMBER OF WHAT YOU WANT THE"
110 PRINT "DIAL TURNED TO. THE COMPUTER WILL ACT AS THE SAFE AND WILL"
120 PRINT "HELP YOU BY GIVING A SORT OF CLUE: YOU WILL 'HEAR'"
130 PRINT "A CLICK AT EVENLY SPACED NOTCHES AS YOU MOVE TO THE PROPER"
140 PRINT "NUMBER. THERE ARE FOUR OF THEM BEFORE THE FINAL CLICK IS"
150 PRINT "'HEARD'. AFTER THE FINAL ONE IS HEARD, YOU WILL GO ON TO"
160 PRINT "THE NEXT NUMBER. THE COMPUTER WILL 'SAY' 'CLICK' FOR EACH"
170 PRINT "NOTCH THAT YOU PASS AND '**CLICK**' WHEN YOU REACH THE"
180 PRINT "PROPER NUMBER. IF YOU PASS IT OR TAKE LONGER THAN TEN TRIES"
190 PRINT "ON ANY ONE NUMBER, YOU WILL ACTIVATE THE ALARM."
200 PRINT@979, "PRESS ANY KEY TO CONTINUE";
210 IF INKEY$="" THEN 210 ELSE PRINT@120, CHR$(31);
220 PRINT "REMEMBER THAT WHEN YOU TURN THE DIAL TO THE LEFT, THE"
230 PRINT "NUMBERS GO FROM 1-99, AND WHEN YOU GO TO THE RIGHT, THE"
240 PRINT "NUMBERS GO FROM 99-1. "; PRINT: PRINT
250 PRINT@979, "PRESS ANY KEY TO CONTINUE";
260 IF INKEY$="" THEN 260
270 CLS: PRINT"OKAY, START TO THE RIGHT, SHHHHHH!!!!!!!!!!!!!!"
280 A=INT(RND(0)*81)+10
290 B=INT(RND(0)*81)+10
300 C=INT(RND(0)*81)+10
310 L=100-A
320 FOR M=1 TO 4
330 A1(M)=(5-M)*L/5+A
340 NEXT M
350 J=1
360 INPUT M: PRINT@64, CHR$(31);
370 ON SGN(M-A)+2 GOTO 450,520,380
380 FOR K=1 TO 4
390 IF MDAL(K) THEN 410
400 PRINT "CLICK"
410 NEXT K
420 IF J=10 THEN 450
430 J=J+1
440 GOTO 360
450 PRINT "THE SENSOR HAS BEEN TRIGGERED!"
460 PRINT "LEAVE WHILE YOU CAN BEFORE THE"
470 PRINT "POLICE GET HERE."
480 PRINT: PRINT "WANT TO TRY THE SAME SAFE?";
490 INPUT A$
500 IF LEFT$(A$,1)="Y" THEN 310
510 GOTO 270
520 PRINT "** CLICK **"; AA=M: FOR A=1 TO 500: NEXT
530 L=L+B
540 FOR K=1 TO 4
550 A1(K)=K*L/5+B
560 NEXT K
570 CLS: PRINT "AND NOW TO THE LEFT."
580 J=1
590 INPUT M: PRINT@64, CHR$(31);
600 PRINT@960, "CORRECT NUMBERS:"; AA; : PRINT@64, " ";
610 ON SGN(M-A)+2 GOTO 620,450,640
620 ON SGN(M-B)+2 GOTO 630,720,450
630 M=M+100
640 FOR K=1 TO 4
650 IF MDAL(K) THEN 680
660 PRINT "CLICK"
670 A1(K)=200
680 NEXT K
690 IF J=10 THEN 450
700 J=J+1
710 GOTO 590
720 PRINT "** CLICK **"; BB=M: FOR A=1 TO 500: NEXT
730 L=(100-C)+B
740 FOR K=1 TO 4
750 A1(K)=B+100-K*L/5
760 NEXT K
770 CLS: PRINT "AND NOW TO THE RIGHT AGAIN."
780 J=1
790 INPUT M: PRINT@64, CHR$(31);
800 PRINT@960, "CORRECT NUMBERS:"; AA; BB; : PRINT@64, " ";
810 ON SGN(M-B)+2 GOTO 830,450,820
820 ON SGN(M-C)+2 GOTO 450,920,840
830 M=M+100
840 FOR K=1 TO 4
850 IF MDAL(K) THEN 880
860 PRINT "CLICK"
870 A1(K)=-200
880 NEXT K
890 IF J=10 THEN 450
900 J=J+1
910 GOTO 790
920 PRINT: PRINT "** CLICK **...YOU OPENED IT!"
930 PRINT "BUT UH OH, HE MUST HAVE MOVED IT."
940 INPUT "TRY THE ONE OVER THERE "; A$
950 IF LEFT$(A$,1)="Y" THEN 270 ELSE END

```

# Scales



This program tests your knowledge of different types of musical scales. It generates 11 types of scales: major, natural minor, harmonic minor, Hungarian minor, dorian, phrygian, lydian, mixolydian, locrian, and whole tone.

Prior to running the program, test yourself off line on a sheet of paper by writing down several types of scales and 8 notes starting at a note chosen by you. Then run the program to check your answers.

When you run this program, you will be asked, "Which type of scale is wanted?" Respond by typing the first two letters of the name of the desired scale followed immediately by the desired key. Use a B for the flat and use '#' for the sharp. Sample inputs would be PHE for phrygian starting on E, MAF# for major on F-sharp, and WHG for whole tone on G.

The author, Marvin S. Thostenson, is at the School of Music, University of Iowa. Scales first appeared in *Creative Computing*, Mar/Apr 1977.

## SCALES

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DO YOU NEED INSTRUCTIONS? YES\_

\_\_\_\_\_ cls \_\_\_\_\_

SCALES

ELEVEN SCALE TYPES -- MAJOR, MINOR, MODAL, AND WHOLE TONE

THIS PROGRAM PRINTS IN LETTER NAMES ONE OCTAVE UPWARD, THE MAJOR, THE NATURAL, HARMONIC, MELODIC, AND HUNGARIAN MINORS, THE DORIAN, PHRYGIAN, LYDIAN, MIXOLYDIAN, AND LOCRIAN MODES, AND THE WHOLE TONE SCALES.

USE A 3- OR 4-CHARACTER INPUT: THE FIRST 2 CHAR'S ARE THE SCALE TYPE, AND THE 3RD CHAR'R IS THE SINGLE LETTER TONIC, OR THE LAST TWO CHAR'S ARE THE TONIC DEGREE OR THE KEY SIGNATURE. SCALE TYPES-- MA NA HA ME DO PH LY MI LO HU AND WH INPUT EITHER A TONIC OR A SIGNATURE.

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

SCALES

EXAMPLES. MACB LYDB MIEB WHGB NAF# HAG# MEA# LOC# DOC PHD HUE

WHICH TYPE OF SCALE IS WANTED? WHF#\_

\_\_\_\_\_ cls \_\_\_\_\_

SCALE ASKED -----WHOLE TONE SCALE ON F#

ANSWER (IN LETTER NAMES) -----

F# G# A# B# D E F#

WHICH TYPE OF SCALE IS WANTED? NAE\_

\_\_\_\_\_ cls \_\_\_\_\_

SCALE ASKED -----NAT'L MINOR SCALE ON E

ANSWER (IN LETTER NAMES) -----

E F# G A B C D E

WHICH TYPE OF SCALE IS WANTED? WHC\_

\_\_\_\_\_ cls \_\_\_\_\_

SCALE ASKED -----WHOLE TONE SCALE ON C

ANSWER (IN LETTER NAMES) -----

C D E F# AB BB C

WHICH TYPE OF SCALE IS WANTED? HU2#\_

\_\_\_\_\_ cls \_\_\_\_\_

SCALE ASKED -----HUNG'N MINOR SCALE ON B

ANSWER (IN LETTER NAMES) -----

B C# D E# F# G A# B

WHICH TYPE OF SCALE IS WANTED? STOP\_



```

10 CLEAR 500:CLS:PRINT@413,"SCALES"
20 PRINT PRINT TAB(7) "COF/RIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960,"":INPUT "DO YOU NEED INSTRUCTIONS";I$:CLS
40 A=0:B=0:C=0:D=0:E=0:H=0:K=0:L=0:M=0:N=0:O=0
50 W=4
60 IF LEFT$(I$,1)="N" THEN 230
70 CLS:PRINT TAB(29) "SCALES":PRINT
80 PRINT "ELEVEN SCALE TYPES -- MAJOR, MINOR, MODAL, AND WHOLE TONE"
90 PRINT
100 PRINT "THIS PROGRAM PRINTS IN LETTER NAMES ONE OCTAVE UPWARD,";
110 PRINT "THE MAJOR,";
120 PRINT "THE NATURAL, HARMONIC, MELODIC, AND HUNGARIAN MINORS, THE"
130 PRINT "DORIAN, PHRYGIAN, LYDIAN, MIXOLYDIAN, AND LOCRIAN MODES, AND"
140 PRINT "THE WHOLE TONE SCALES.":PRINT
150 PRINT "USE A 3- OR 4-CHARACTER INPUT: THE FIRST 2 CHAR'S ARE THE SCALE"
160 PRINT "TYPE, AND THE 3RD CHAR'R IS THE SINGLE LETTER TONIC, OR THE"
170 PRINT "LAST TWO CHAR'S ARE THE TONIC DEGREE OR THE KEY SIGNATURE."
180 PRINT "SCALE TYPES-- M I N A H A M E D O P H L Y M I L O H U A N D W H"
190 PRINT "INPUT EITHER A TONIC OR A SIGNATURE."
200 PRINT@979,"PRESS ANY KEY TO CONTINUE";
210 IF INKEY$="" THEN 210 ELSE PRINT@128,CHR$(31);
220 PRINT "EXAMPLES: MACB LYDB MIEB WHGB NAF# HAG# MEA# LOC# DOC PHD HUE"
230 B$="SCALE ASKED -----"
240 C$="ANSWER (IN LETTER NAMES) -----"
250 O$="STRUCTURE-----"
260 K$="TETRACHORDS"
270 U=1
280 PRINT PRINT TAB(8);"WHICH TYPE OF SCALE IS WANTED";
290 INPUT A$:CLS
300 N=LEN(A$)
310 IF A$="STOP" THEN 1290
320 E$="MANAHAMEDOPHYMILLOUWH"
330 FOR X=1 TO 22 STEP 2
340 IF LEFT$(A$,2)=MID$(E$,X,2) THEN 360
350 NEXT X
360 Q=(X+1)/2
370 A0$=A$
380 X=ASC(LEFT$(A0$,1))-32
390 A0$=CHR$(X)+MID$(A0$,2,N)
400 READ D$
410 A0$=A$
420 X=ASC(LEFT$(A0$,1))
430 A0$=CHR$(X)+MID$(A0$,2,N)
440 IF LEFT$(D$,2)=LEFT$(F$,2) THEN 460
450 GOTO 400
460 J$=D$
470 RESTORE
480 IF N<3 THEN 500
490 A$=LEFT$(A$,3)+" "
500 IF Q=1 OR Q=7 OR Q=11 THEN 520
510 IF Q=2 AND Q<6 OR Q=3 OR Q=10 THEN 540
520 V=1
530 GOTO 550
540 V=2
550 F$="BXEXAXDXGXCFXB#E#A#D#G#C#F#B E A D G C F "
560 F$=F$+"BBEBABDBGBCBFB#EDADDDGDCD"
570 G$="BXEXAXDXGXCFXB#E#A#D#G#C#F#B E A D G C F "
580 G$=G$+"BBEBABDBGBCBFB#EDADDDGDCD"
590 ON V GOTO 600,630
600 H$="5T4T3T2T1T7X6X5X4:3X2X1X7#6#5#4#3#2#1#0#1B2B3B4B5B6B7B1D2D3D4D"
610 H$=H$+"5D6D7D"
620 GOTO 650
630 H$="2T1T7X6X5X4:3X2X1:7#6#5#4#3#2#1#0#1B2B3B4B5B6B7B1D2D3D4D"
640 H$=H$+"5D6D7D8D9D "
650 FOR V=1 TO 68 STEP 2
660 IF MID$(A$,3,2)=MID$(F$,V,2) THEN 690
670 IF MID$(A$,3,2)=MID$(H$,V,2) THEN 690
680 NEXT V
690 C1$=MID$(G$,V,2)
700 T=T+1
710 IF T=9 THEN 1170
720 ON T GOTO 730,750,800,850,900,950,1000,1050
730 R=0
740 GOTO 1050
750 IF Q=6 OR Q=9 THEN 780
760 R=-4
770 GOTO 1050
780 R=10
790 GOTO 1050
800 IF Q=1 OR Q=7 OR Q=8 OR Q=11 THEN 830
810 R=6
820 GOTO 1050
830 R=-8
840 GOTO 1050
850 IF Q=7 OR Q=10 OR Q=11 THEN 880
860 R=2
870 GOTO 1050
880 R=-12
890 GOTO 1050
900 IF Q=9 OR Q=11 THEN 930
910 R=-2
920 GOTO 1050
930 R=12
940 GOTO 1050
950 IF Q=1 OR Q=4 OR Q=5 OR Q=7 OR Q=8 THEN 980
960 R=8
970 GOTO 1050
980 R=-6
990 GOTO 1050
1000 IF Q=1 OR Q=3 OR Q=4 OR Q=7 OR Q=10 THEN 1030
1010 R=4
1020 GOTO 1060
1030 R=-10
1040 GOTO 1060
1050 R=0
1060 IF Q=11 AND T=5 THEN 1100
1070 IF U=1 THEN I$=MID$(G$,V+R,2):GOTO 1110
1080 I$=LEFT$(I$,U-1)+MID$(G$,V+R,2)
1090 GOTO 1110
1100 GOTO 700
1110 I$=LEFT$(I$,U+1)+" "
1120 IF MID$(I$,U+1,1)="D" THEN 1140
1130 GOTO 1150
1140 I$=LEFT$(I$,U)+"BB"
1150 U=U+4
1160 GOTO 700
1170 PRINT PRINT TAB(3),B$;J$;C1$:PRINT
1180 PRINT TAB(3);C$:PRINT
1190 PRINT PRINT TAB(8);I$
1200 C1$="":I$="":G$=""
1210 Q=0:T=0:R=0
1220 PRINT
1230 GOTO 270
1240 DATA "MAJOR SCALE ON ","NAT'L MINOR SCALE ON "
1250 DATA "HARM'IC MINOR SCALE ON ","MEL'IC MINOR SCALE ON "
1260 DATA "DORIAN MODE ON ","PHRYGIAN MODE ON "
1270 DATA "LYDIAN MODE ON ","MIXOLYDIAN MODE ON ","LOCRIAN MODE ON "
1280 DATA "HUNG'N MINOR SCALE ON ","WHOLE TONE SCALE ON "
1290 END

```

# Schmoo

## SCHMOO

COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ  
DO YOU NEED INSTRUCTIONS? YES\_

SCHMOO

THIS IS A NEW SCHMOO GAME. SCHMOOS ARE IMAGINARY CREATURES WHO LOVE BEING SPLATTED WITH JUICY MUD BALLS. YOU, BEING A SCHMOO LOVER, TRY TO MAKE SCHMOOS HAPPY BY TOSSING MUD BALLS AT THEM. YOU HAVE A MECHANICAL MUD SLINGER THAT WILL SLING MUD TO A MAXIMUM DISTANCE OF 46,500 INCHES. YOUR JOB IS TO SET THE MUD SLINGER AT THE CORRECT ELEVATION (0-90) AND THE CORRECT DIRECTIONAL ANGLE (0-360) TO SPLAT THE SCHMOO. A HIT WITHIN 100 INCHES OF THE SCHMOO WILL SPLATTER HIM.

PRESS ANY KEY TO CONTINUE

cls

SCHMOO

COORDINATES OF THE SCHMOO ARE (-29184, -14571).

MUD SLINGER ELEVATION? 20  
DIRECTIONAL ANGLE OF MUD SLINGER? 34\_

cls

YOU MISSED THE SCHMOO AT (-29184, -14571).  
YOUR MUD HIT ( 24779, 16713 ).

MUD SLINGER ELEVATION? 20  
DIRECTIONAL ANGLE OF MUD SLINGER? 276\_

cls

YOU MISSED THE SCHMOO AT (-29184, -14571).  
YOUR MUD HIT ( 3124, -29726 ).

MUD SLINGER ELEVATION? 15  
DIRECTIONAL ANGLE OF MUD SLINGER? 295\_

cls

YOU MISSED THE SCHMOO AT (-29184, -14571).  
YOUR MUD HIT ( 9825, -21072 ).

MUD SLINGER ELEVATION? 270  
DIRECTIONAL ANGLE OF MUD SLINGER? 270\_

cls

THE ELEVATION MUST BE BETWEEN 1 AND 90.

MUD SLINGER ELEVATION? 90  
DIRECTIONAL ANGLE OF MUD SLINGER? 360\_

cls

YOU DOPE! YOU SPLATTED YOURSELF.

COORDINATES OF THE SCHMOO ARE ( 18597, 5696 ).

MUD SLINGER ELEVATION? 24  
DIRECTIONAL ANGLE OF MUD SLINGER? 45\_

cls

YOU MISSED THE SCHMOO AT ( 18597, 5696 ).  
YOUR MUD HIT ( 24434, 24434 ).

MUD SLINGER ELEVATION? 30  
DIRECTIONAL ANGLE OF MUD SLINGER? 45\_

cls

YOU MISSED THE SCHMOO AT ( 18597, 5696 ).  
YOUR MUD HIT ( 28475, 28475 ).

MUD SLINGER ELEVATION? 27  
DIRECTIONAL ANGLE OF MUD SLINGER? 17\_

cls

YOU MISSED THE SCHMOO AT ( 18597, 5696 ).  
YOUR MUD HIT ( 35975, 10998 ).

MUD SLINGER ELEVATION? 13  
DIRECTIONAL ANGLE OF MUD SLINGER? 13\_

cls

YOU MISSED THE SCHMOO AT ( 18597, 5696 ).  
YOUR MUD HIT ( 19861, 4585 ).

MUD SLINGER ELEVATION? 13  
DIRECTIONAL ANGLE OF MUD SLINGER? 12\_

cls

YOU MISSED THE SCHMOO AT ( 18597, 5696 ).  
YOUR MUD HIT ( 19938, 4238 ).

MUD SLINGER ELEVATION? 11  
DIRECTIONAL ANGLE OF MUD SLINGER? 15\_

cls

YOU MISSED THE SCHMOO AT ( 18597, 5696 ).  
YOUR MUD HIT ( 16825, 4588 ).

MUD SLINGER ELEVATION? 12  
DIRECTIONAL ANGLE OF MUD SLINGER? 14\_

cls

YOU MISSED THE SCHMOO AT ( 18597, 5696 ).  
YOUR MUD HIT ( 18351, 4575 ).

MUD SLINGER ELEVATION? 12.5  
DIRECTIONAL ANGLE OF MUD SLINGER? 14.5\_

cls

YOU MISSED THE SCHMOO AT ( 18597, 5696 ).  
YOUR MUD HIT ( 19025, 4920 ).

MUD SLINGER ELEVATION? 12  
DIRECTIONAL ANGLE OF MUD SLINGER? 14.67\_

cls

YOU MISSED THE SCHMOO AT ( 18597, 5696 ).  
YOUR MUD HIT ( 18296, 4789 ).

MUD SLINGER ELEVATION? 12.23  
DIRECTIONAL ANGLE OF MUD SLINGER? 14.89\_

cls

YOU MISSED THE SCHMOO AT ( 18597, 5696 ).  
YOUR MUD HIT ( 18686, 4947 ).

MUD SLINGER ELEVATION? 12.2  
DIRECTIONAL ANGLE OF MUD SLINGER? 14.99\_

cls

YOU MISSED THE SCHMOO AT ( 18597, 5696 ).  
YOUR MUD HIT ( 18555, 4968 ).

MUD SLINGER ELEVATION? 12.2  
DIRECTIONAL ANGLE OF MUD SLINGER? 15.19\_

cls

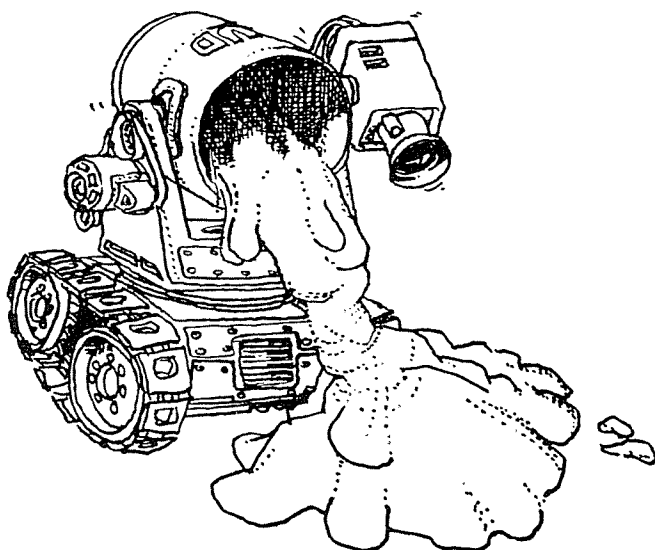
YOU MISSED THE SCHMOO AT ( 18597, 5696 ).  
YOUR MUD HIT ( 18537, 5033 ).

MUD SLINGER ELEVATION? 12.24  
DIRECTIONAL ANGLE OF MUD SLINGER? 15.27\_

cls

YOU MISSED THE SCHMOO AT ( 18597, 5696 ).  
YOUR MUD HIT ( 18587, 5074 ).

MUD SLINGER ELEVATION? 12.24  
DIRECTIONAL ANGLE OF MUD SLINGER? 15.7\_



```

_____ cls _____

YOU MISSED THE SCHMOO AT ( 18597 , 5696 ).
YOUR MUD HIT ( 18549 , 5213 ).

MUD SLINGER ELEVATION? 12.26
DIRECTIONAL ANGLE OF MUD SLINGER? 16.2.

_____ cls _____

YOU MISSED THE SCHMOO AT ( 18597 , 5696 ).
YOUR MUD HIT ( 18538 , 5383 ).

MUD SLINGER ELEVATION? 12.28
DIRECTIONAL ANGLE OF MUD SLINGER? 16.67.

_____ cls _____

YOU MISSED THE SCHMOO AT ( 18597 , 5696 ).
YOUR MUD HIT ( 18514 , 5544 ).

MUD SLINGER ELEVATION? 12.3
DIRECTIONAL ANGLE OF MUD SLINGER? 16.79.

_____ cls _____

YOU MISSED THE SCHMOO AT ( 18597 , 5696 ).
YOUR MUD HIT ( 18531 , 5591 ).

MUD SLINGER ELEVATION 12.43
DIRECTIONAL ANGLE OF MUD SLINGER? 16.84.

_____ cls _____

YOU MISSED THE SCHMOO AT ( 18597 , 5696 ).
YOUR MUD HIT ( 18789 , 5663 ).

MUD SLINGER ELEVATION 12.4
DIRECTIONAL ANGLE OF MUD SLINGER? 16.85.

_____ cls _____

*SCHMOO SPLATTED* 19 MUD BALLS TOSSED.

I SEE ANOTHER SCHMOO. TO SPLAT
HIM, TYPE MUD. TO QUIT, TYPE QUIT.

? QUIT.

_____ cls _____

10 CLS
20 PRINT @ 413, "SCHMOO"
30 PRINT
40 PRINT TAB(7)*"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
50 PRINT @ 960, ""
60 INPUT "DO YOU NEED INSTRUCTIONS?"; I$
70 IF LEFT$(I$, 1) = "I" THEN CLS: GOTO 220
80 CLS
90 PRINT TAB(38); "SCHMOO"
100 PRINT
110 PRINT " THIS IS A NEW SCHMOO GAME. SCHMOOS ARE IMAGINARY CREATURES"
120 PRINT "WHO LOVE BEING SPLATTED WITH JUICY MUD BALLS. YOU, BEING A"

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130 PRINT "SCHMOO LOWER. TRY TO MAKE SCHMOOS HAPPY BY TOSSING MUD BALLS"
140 PRINT "AT THEM. YOU HAVE A MECHANICAL MUD SLINGER THAT WILL SLING"
150 PRINT "MUD TO A MAXIMUM DISTANCE OF 46,500 INCHES. YOUR JOB IS TO"
160 PRINT "SET THE MUD SLINGER AT THE CORRECT ELEVATION (0-90) AND THE"
170 PRINT "CORRECT DIRECTIONAL ANGLE (0-360) TO SPLAT THE SCHMOO. A HIT"
180 PRINT "WITHIN 100 INCHES OF THE SCHMOO WILL SPLATTER HIM."
190 GOSUB 940
200 PRINT
210 PRINT
220 K1=0
230 Z=INT(1+RND(0)*4-1E-08)
240 ON Z GOTO 250, 280, 310, 340
250 P=-1
260 Q=-1
270 GOTO 360
280 P=-1
290 Q=-1
300 GOTO 360
310 P=1
320 Q=-1
330 GOTO 360
340 P=1
350 Q=1
360 X=(INT(26000*RND(0)+5000))*P
370 Y=(INT(26000*RND(0)+5000))*Q
380 S=0
390 K1=K1+1
400 IF K1<2 THEN 620
410 R=INT(7*RND(0)+5)
420 GOTO 620
430 PRINT "THE ELEVATION MUST BE BETWEEN 1 AND 90."
440 GOTO 690
450 PRINT "DIRECTIONAL ANGLE MUST BE FROM 0 TO 360."
460 GOTO 690
470 PRINT "SCHMOO SPLATTED*"; S; "MUD BALLS TOSSED."
480 PRINT
490 PRINT "I SEE ANOTHER SCHMOO. TO SPLAT"
500 PRINT "HIM, TYPE MUD. TO QUIT, TYPE QUIT."
510 PRINT
520 INPUT C$
530 IF C$="MUD" THEN 230
540 END
550 PRINT "YOU MISSED THE SCHMOO AT ("; X; ", "; Y; ")."
560 PRINT "YOUR MUD HIT ("; INT(X1); ", "; INT(Y1); ")."
570 PRINT
580 IF K1<2 THEN 690
590 IF S>R THEN 910
600 PRINT "SCHMOO MUD HIT"; R2; "INCHES FROM YOU."
610 GOTO 690
620 PRINT
630 PRINT "COORDINATES OF THE SCHMOO ARE ("; X; ", "; Y; ")."
640 IF K1<2 THEN 680
650 PRINT "THE SCHMOO IS HAPPY TO BE SPLATTED."
660 PRINT "TO MAKE YOU HAPPY TOO."
670 PRINT "HE WILL THROW MUD AT YOU."
680 PRINT
690 PRINT "MUD SLINGER ELEVATION";
700 INPUT B
710 PRINT "DIRECTIONAL ANGLE OF MUD SLINGER";
720 INPUT C
730 CLS
740 IF B=90 THEN 890
750 IF B>90 THEN 430
760 IF B<1 THEN 430
770 IF C<0 THEN 450
780 IF C>(360-(1E-08)) THEN 450
790 S=S+1
800 IF K1<2 THEN 820
810 R2=INT(ABS(3000*RND(0)*(11-2*5))+90)
820 J=3.14159265358/180
830 D=ABS(INT(3000!*SIN(B*J))*COS(B*J))
840 X1=D*COS(C/3.14159265358/180)
850 Y1=D*SIN(C/3.14159265358/180)
860 D1=50R((X-X1)^2+(Y-Y1)^2)
870 IF 100>D1 THEN 470
880 GOTO 550
890 PRINT "YOU DOPE! YOU SPLATTED YOURSELF."
900 END
910 PRINT "THE SCHMOO HAS SPLATTED YOU!"
920 PRINT "CLEAR! UP AND GOODBYE!"
930 END
940 PRINT @ 970; "PRESS ANY KEY TO CONTINUE";
950 IF INKEY$="" THEN 950
960 PRINT @ 123; CHR$(31);
970 RETURN

```

# Seabattle

---

The object of the game of SEA BATTLE is quite simple. You are a submarine with a mission to seek out and destroy all of the enemy ships in your area, using whatever means are available. This includes torpedoes, Polaris missiles, sabotage, and suicide. The enemy, in turn, throws out depth charges in an attempt to destroy you. There are also some underwater mines which have a nasty habit of blowing you up when you run into them. Other hazards are some very hungry sea monsters lurking about who have a taste for submarine sandwiches.

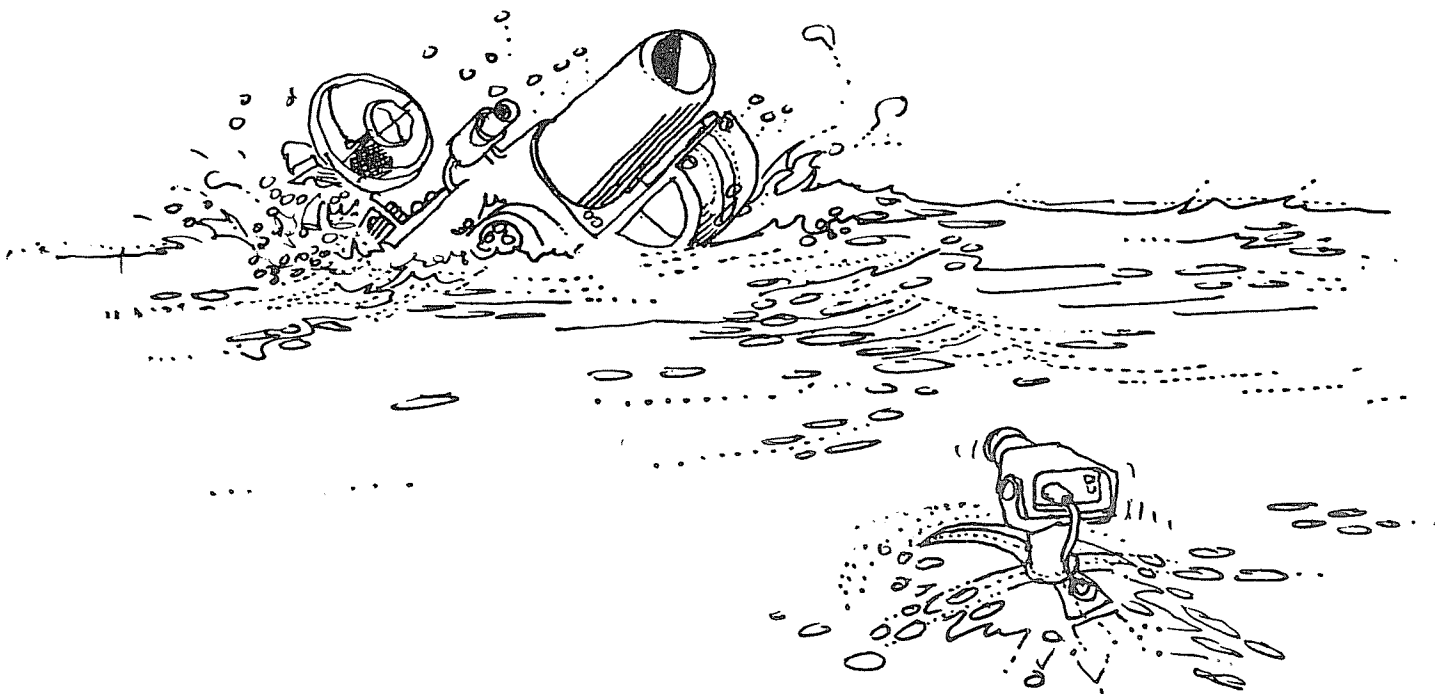
I started writing this program two years ago, and just finished my last modifications just recently. Of course, this doesn't mean I worked on it continuously for two years. There were some long 4-6 month stretches when I didn't do anything to it. It started out as a very simple program, and I just kept thinking of things to add to it.

I am currently a senior in Simley Senior High School in Inver Grove

Heights, Minnesota, and am 18 years old. I have been working with computers since the ninth grade, and have written many programs, including this one.

This program always draws a crowd in our school computer room, even from kids who don't even know which end of a teletype to type on. I built every possible inconvenience into it, to keep people from winning too easily. I am happy to say that when a person wins now, it's headline news. There are always muttered oaths to beat the computer next time, and this alone brings me more enjoyment than playing the program.

**Note:** Program and writeup are by Vincent Erickson. The original version of Sea Battle was written in HP Basic converted to microsoft basic by Steve North.



WHAT IS YOUR NAME? DERRIER.

SETTING UP BOARD...  
YOU MUST DESTROY 21 ENEMY SHIPS TO WIN, CAPTAIN DERRIER.

WHAT ARE YOUR ORDERS, CAPTAIN DERRIER? 1  
OPTION #? 0.

```

      (S)      $      !H!      $
    (S)      (S)      $
  -B-(S)      (S)      -
                $
                (S)      (S)
          *****
          $ *****
          *****
    (S) ***** (X) -B-(S) (S)
    (S)*****      $
    (S) ***** ***
    (S)      *** $
    (S)      (S) (S) (S) $
  
```

PRE SS ANY KEY TO CONTINUE

WHAT ARE YOUR ORDERS, CAPTAIN DERRIER? 0  
COURSE (1-8)? 3  
POWER AVAILABLE= 5950. POWER TO USE? 100  
NAVIGATION COMPLETE. FUEL LEFT= 5850.  
DEPTH CHARGES OFF PORT SIDE, CAPTAIN DERRIER!!!  
MODERATE DAMAGE. REPAIRS NEEDED.

PRESS ANY KEY TO CONTINUE

---\*\* RESULTS OF LAST ENEMY MANUEVER \*\*---

WHAT ARE YOUR ORDERS, CAPTAIN DERRIER? 1  
OPTION #? 0.

```

      (S)      $      !H!      $
    (S)      (S)-B- $
                $
                (S)      (S)
          $
          *****
          $ *****
    (S) ***** -B- (S) (S)
    (S)***** (X)
    (S) ***** $
    (S)      *****
    (S)      ***
    (S)      (S) (S) (S) $
    (S)      $
  
```

PRESS ANY KEY TO CONTINUE

WHAT ARE YOUR ORDERS, CAPTAIN DERRIER? 1  
OPTION #? 1

| DIRECTION | # OF SHIPS | DISTANCES |
|-----------|------------|-----------|
| 2         | 1          | 5         |
| 6         | 1          | 3         |
| 7         | 1          | 7         |

PRESS ANY KEY TO CONTINUE

WHAT ARE YOUR ORDERS, CAPTAIN DERRIER? 2.

COURSE (1-8)? 2

OUCH!!! YOU GOT ONE, CAPTAIN DERRIER!!  
DEPTH CHARGES OFF PORT SIDE, CAPTAIN DERRIER!!!  
HEAVY DAMAGE!! REPAIRS IMMEDIATE, CAPTAIN DERRIER!!!

PRESS ANY KEY TO CONTINUE

---\*\* RESULTS OF LAST ENEMY MANUEVER \*\*---

WHAT ARE YOUR ORDERS, CAPTAIN DERRIER? 4.

NEW DEPTH? 2500  
MANUEVER COMPLETE. POWER LOSS= 1199  
DEPTH CHARGES OFF PORT SIDE, CAPTAIN DERRIER!!!  
HEAVY DAMAGE!! REPAIRS IMMEDIATE, CAPTAIN DERRIER!!!

PRESS ANY KEY TO CONTINUE

---\*\* RESULTS OF LAST ENEMY MANUEVER \*\*---

WHAT ARE YOUR ORDERS, CAPTAIN DERRIER? 5.

|                            |       |
|----------------------------|-------|
| # OF ENEMY SHIPS LEFT..... | 20    |
| # OF POWER UNITS LEFT..... | 3,861 |
| # OF TORPEDOS LEFT.....    | 9     |
| # OF MISSILES LEFT.....    | 3     |
| # OF CREWMEN LEFT.....     | 30    |
| LBS. OF FUEL LEFT.....     | 2,500 |

WANT DAMAGE REPORT? Y.

| ITEM         | DAMAGE (+ GOOD, 0 NEUTRAL, - BAD) |
|--------------|-----------------------------------|
| ENGINES      | 4,1432                            |
| SONAR-14     | 5,373                             |
| TORPEDOS     | 6,7023                            |
| MISSILES     | 4,7619                            |
| MANUEVERING  | 1,3122                            |
| STATUS       | 8,0000                            |
| HEADQUARTERS | 3,5847                            |
| SABOTAGE     | 9,6646                            |
| CONVERTER    | 3,5310                            |

YOU ARE AT LOCATION ( 10 , 11 ).



WHAT ARE YOUR ORDERS, CAPTAIN DERRIER? 0  
 COURSE (1-8)? 3  
 POWER AVAILABLE= 3254. POWER TO USE? 300  
 NAVIGATION COMPLETE. POWER LEFT= 2954.  
 NO SHIPS IN RANGE TO DEFEAT CHARGE YOU, CAPTAIN DERRIER!!

PRESS ANY KEY TO CONTINUE

cls

---\*\*\* RESULTS OF LAST BATTLE MANUEVER ---\*\*\*

WHAT ARE YOUR ORDERS, CAPTAIN DERRIER? 1  
 OPTION #? 1.

cls

---\*\*\* RESULTS OF LAST BATTLE MANUEVER ---\*\*\*

WHAT ARE YOUR ORDERS, CAPTAIN DERRIER? 1  
 OPTION #? 1

| DIRECTION | # OF SHIPS | DISTANCES |
|-----------|------------|-----------|
| 1         | 1          | 10        |
| 3         | 1          | 6         |

PRESS ANY KEY TO CONTINUE

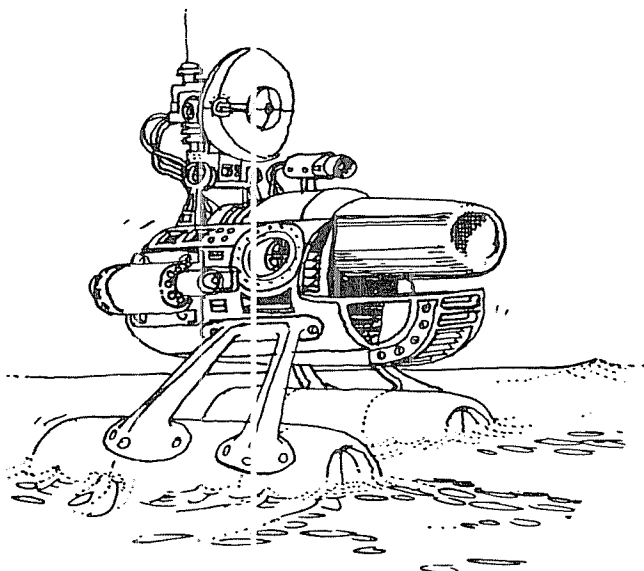
cls

WHAT ARE YOUR ORDERS, CAPTAIN DERRIER? 2.

cls

PRESSURE IMPLODES SUB UP IN FIRING...YOU'RE CRUSHED!!  
 THERE ARE STILL 19 ENEMY SHIPS LEFT, CAPTAIN DERRIER.  
 YOU WILL BE DENOTED TO FUNK OF DECK SCRUBBER!!!  
 WANT ANOTHER GAME? N  
 READY  
 >.

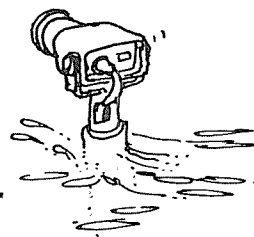
cls



```

10 CLS
20 PRINT @ 411,"SEA BATTLE"
30 PRINT TAB(7)*"CO"RIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ"
40 PRINT @ 960,"": INPUT "WHAT IS YOUR NAME?";N$:N$="CAPTAIN "+N$
50 IF N$="CAPTAIN CHRIS" THEN G240
60 DD$="####":DIM A(15,20),D(9):CLS
70 PRINT "SETTING UP BOARD..."
80 FOR I=1 TO 15:FOR J=1 TO 20:A(I,J)=0:NEXT J,I
90 RESTORE:FOR JK=1 TO 25:READ JK$:NEXT JK
100 FOR X=7 TO 13:FOR Y=5 TO 10:READ A(X,Y):NEXT Y,X
110 S1=10:S2=10:A(S1,S2)=2:5=INT(RND(16))+7
120 RESTORE:FOR JK=1 TO 9:READ JK$:NEXT JK
130 FOR X=1 TO INT(RND(8)+4)+1+2-1
140 READ D8,D9
150 NEXT X
160 FOR X=1 TO 5
170 X1=INT(RND(8)+15)+1
180 X2=INT(RND(8)+20)+1
190 IF A(X1,X2) < 0 THEN H=170
200 A(X1,X2)=3
210 NEXT X
220 PRINT "YOU MUST DESTROY";S;"ENEMY SHIPS TO WIN. ";N$;"."
230 S3=INT(RND(8)+15)+1
240 S4=INT(RND(8)+20)+1
250 IF A(S3,S4) < 0 THEN H=230
260 A(S3,S4)=4
270 FOR X=1 TO INT(RND(8)+8)+8
280 X1=INT(RND(8)+15)+1
290 X2=INT(RND(8)+20)+1
300 IF A(X1,X2) < 0 THEN H=280
310 A(X1,X2)=5
320 NEXT X
330 FOR X=1 TO 4
340 X1=INT(RND(8)+14)+2
350 X2=INT(RND(8)+18)+2
360 IF A(X1,X2) < 0 THEN H=340
370 A(X1,X2)=6
380 RESTORE
390 FOR JK=1 TO 9
400 READ JK$
410 NEXT JK
420 FOR Y=1 TO INT(RND(8)+3)+1
430 READ D1,D2
440 NEXT Y
450 NEXT X
460 FOR I=1 TO 9
470 D(1)=0
480 NEXT I
490 C=30
500 P=6000
510 F=2500
520 T=10
530 H=3
540 D=100
550 D2=2
560 PRINT
570 PRINT "WHAT ARE YOUR ORDERS. ";N$;
580 INPUT O
590 IF O=1 OR O=0 THEN G80
590 CLS
600 ON INT(O+1)*GOTO 740,1350,1920,2390,3000,3150,3540,3710,4240,4470
610 CLS
620 PRINT "THE COMMANDS ARE:"
630 PRINT " 00. NAVIGATION"
640 PRINT " 01. SONAR"
650 PRINT " 02. TORPEDO CONTROL"
660 PRINT " 03. POLARIS MISSILE CONTROL"
670 PRINT " 04. MANEUVERING"
680 PRINT " 05. STATUS/DAMAGE REPORT"
690 PRINT " 06. HEADQUARTERS"
700 PRINT " 07. SABOTAGE"
710 PRINT " 08. POWER CONVERSION"
720 PRINT " 09. SURRENDER"
730 GOTO 560
740 IF D(1) < 0 THEN G70
750 PRINT "ENGINES ARE UNDER REPAIR. ";N$;"."
760 GOTO 560
770 IF C < 0 THEN H=800
780 PRINT "NOT ENOUGH CREW TO MAN THE ENGINES. ";N$;"."
790 GOTO 560
800 D1=1-((23+RND(8)/10)*(-D(1)=50))
810 GOSUB 5990
820 PRINT "POWER AVAILABLE=";P;" CHR$(8)";" POWER TO USE:"
830 INPUT P1
840 IF P1 < 0 OR P1 > 100 THEN G820

```



```

850 IFP1<=1000THEN900
860 IFRND(0)<43THEN900
870 PRINT"ATOMIC PILE GOES SUPERCRITICAL. ";N$;"!!! HEADQUARTERS"
880 PRINT"WILL WARN ALL SUBS TO STAY FROM RADIOACTIVE AREA!!!"
890 GOTO6110
900 X=S1
910 Y=S2
920 Q1=1
930 FORX2=1TOINT((INT(PI/100+.5)*Q1+.5))
940 IFX=X1+RND*(X1<16ANDY+Y1<21)ANDY+Y1<21THEN970
950 PRINT"YOU CAN'T LEAVE THE AREA. ";N$;"!!!"
960 GOTO1030
970 ONR(X+X1,Y+Y1)+1GOTO 980,1020,1300,1080,1130,1160,1180
980 X=X+X1
990 Y=Y+Y1
1000 P=P-100
1010 GOTO1200
1020 PRINT"YOU ALMOST RAN AROUND. ";N$;"!!!"
1030 A(X,Y)=2
1040 A(S1,S2)=0
1050 S1=X
1060 S2=Y
1070 GOTO4490
1080 IFD>50THEN900
1090 PRINT"YOU RAMMED A SHIP!!! YOU'RE BOTH SUNK. ";N$;"!!!"
1100 S=S-1
1110 IF S=0THEN6180
1120 GOTO6110
1130 IFD>50THEN900
1140 PRINT"YOU RAMMED YOUR HEADQUARTERS!! YOU'RE SUNK!!!"
1150 GOTO6110
1160 PRINT"YOU'VE BEEN BLOWN UP BY A MINE. ";N$;"!!!"
1170 GOTO6110
1180 IFRND(0)<21THEN1300
1190 GOTO6110
1200 FORX3=X-2TOX+2
1210 FORY3=Y-2TOY+2
1220 IFX3<10RXC3<15ORY3<10RY3>20THEN1280
1230 IFX(X,Y)>06THEN1280
1240 IFRND(0)<25THEN1270
1250 IFQ1=0THEN1280
1260 PRINT"YOU JUST HAD A NARROW ESCAPE WITH A SEA MONSTER. ";N$;"!!!"
1270 Q1=0
1280 NEXTY3
1290 NEXTX3
1300 NEXTX2
1310 PRINT"NAVIGATION COMPLETE. POWER LEFT=";P;CHR$(8);". "
1320 IFP>0THEN1030
1330 PRINT"ATOMIC PILE HAS GONE DEAD!!! SUB SINKS, CREW SUFFOCATES!"
1340 GOTO6110
1350 IFD(2)=0THEN1380
1360 PRINT"SONAR IS UNDER REPAIR. ";N$;". "
1370 GOTO560
1380 IFC>5THEN1410
1390 PRINT"NOT ENOUGH CREW TO WORK SONAR. ";N$;". "
1400 GOTO560
1410 PRINT"OPTION #";
1420 INPUT 0
1430 ONINT(0+1)GOTO1450,1660
1440 GOTO1410
1450 CLS
1460 FORX=1TO15
1470 FORY=1TO20
1480 G$="" *** (X) (S) ! $ - $ -
1490 IFX(X,Y)>06THEN1530
1500 IFX<1ANDX<15ANDY<1ANDY<20THEN1530
1510 PRINT " ";
1520 GOTO1570
1530 A$=MID$(G$,A(X,Y)+3+1,3)
1540 IFD<50ANDRND(1)<23ANDX(X,Y)<1ANDX(X,Y)>2THEN1510
1550 IFRND(0)<15ANDX(X,Y)>2THEN1510
1560 PRINTA$;
1570 NEXTY
1580 PRINT
1590 NEXTX
1600 P=P-50
1610 PRINT0979,"PRESS ANY KEY TO CONTINUE";
1620 IFINKEY$=""THEN1620
1630 CLS
1640 IFP>0THEN560
1650 GOTO1330
1660 FORI=1TO5
1670 B(I)=0
1680 NEXTI
1690 PRINT"DIRECTION # OF SHIPS DISTANCES"
1700 PRINT"_____ "
1710 RESTORE
1720 FORJK=1TO9
1730 READJK$
1740 NEXTJK

```

```

1750 FORX=1TO8
1760 READ XL,Y1
1770 X3=0
1780 FORX4=1TO20
1790 IF S1+X1+X4<10R S1+X1+X4<15OR S2+Y1+Y4<10R S2+Y1+Y4>20THEN1840
1800 IF A(S1+X1+X4, S2+Y1+Y4)>03 THEN 1830
1810 X3=X3+1
1820 B(X3)=X4
1830 NEXTX4
1840 IFX3=0THEN1900
1850 PRINT" ";X, X3,
1860 FORX4=1TOX3
1870 PRINTB(X4);
1880 NEXTX4
1890 PRINT
1900 NEXTX
1910 GOTO1600
1920 IFD(3)=0THEN1950
1930 PRINT"TORPEDO TUBES ARE UNDER REPAIR. ";N$;". "
1940 GOTO560
1950 IFC>10THEN1980
1960 PRINT"NOT ENOUGH CREW TO FIRE TORPEDO. ";N$;". "
1970 GOTO560
1980 IFTHEN2010
1990 PRINT"NO TORPEDOS LEFT. ";N$;". "
2000 GOTO560
2010 IFD<2000THEN2050
2020 IFRND(0)>.5THEN2050
2030 PRINT"PRESSURE IMPLODES SUB UPON FIRING... YOU'RE CRUSHED!!"
2040 GOTO6110
2050 GOSUB5990
2060 X=S1
2070 Y=S2
2080 FORX2=1TOINT((7+.5*(-D(50)))-RND(0)*4+.5)
2090 IFX=X1+RND*(X1<16ANDY+Y1<21)ANDY+Y1<21THEN2150
2100 PRINT"TORPEDO OUT OF SONAR RANGE... INEFFECTUAL. ";N$;". "
2110 T=T-1
2120 P=P-150
2130 IFP>0THEN4490
2140 GOTO1330
2150 ONR(X+X1,Y+Y1)+1GOTO2160,2200,2360,2230,2270,2320,2340
2160 X=X+X1
2170 Y=Y+Y1
2180 PRINT"... ";
2190 GOTO 2360
2200 PRINT"YOU TOOK OUT SOME ISLAND. ";N$;"!!"
2210 A(X+X1,Y+Y1)=0
2220 GOTO2110
2230 PRINT"OUCH!!! YOU GOT ONE. ";N$;"!!!"
2240 S=S-1
2250 IF S=0THEN2210
2260 GOTO6180
2270 PRINT"YOU BLEW UP YOUR HEADQUARTERS. ";N$;"!!!!"
2280 S3=0
2290 S4=0
2300 D2=0
2310 GOTO2210
2320 PRINT"BLAM!! SHOT WASTED ON A MINE. ";N$;"!!!"
2330 GOTO2210
2340 PRINT"A SEA MONSTER HAD A TORPEDO FOR LUNCH. ";N$;"!!!"
2350 GOTO2110
2360 NEXTX2
2370 PRINT"DID. "
2380 GOTO2110
2390 IF D(4)=0 THEN 2420
2400 PRINT"MISSILE SILOS ARE UNDER REPAIR. ";N$;". "
2410 GOTO560
2420 IFC>23THEN2450
2430 PRINT"NOT ENOUGH CREW TO LAUNCH A MISSILE. ";N$;". "
2440 GOTO560
2450 IFK<0THEN2480
2460 PRINT"NO MISSILES LEFT. ";N$;". "
2470 GOTO560
2480 IFD>50ANDD<2000THEN2550
2490 PRINT"RECOMMEND THAT YOU DO NOT FIRE AT THIS DEPTH... PROCEED";
2500 INPUT A$
2510 IFLEFT$(A$,1)="N"THEN560
2520 IFRND(0)<5THEN2550
2530 PRINT"MISSILE EXPLODES UPON FIRING. ";N$;"!!! YOU'RE DEAD!!!"
2540 GOTO6110
2550 GOSUB5990
2560 PRINT"FUEL (LBS. )";
2570 INPUT F1
2580 IF F1<0ANDF1<=FTHEN2610
2590 PRINT"YOU HAVE";F;"LBS. LEFT. ";N$;". "
2600 GOTO2560
2610 F2=INT(F1/75+.5)
2620 IF S1+X1+X4<20AND S1+X1+X4<216AND S2+Y1+Y4<20AND S2+Y1+Y4<21THEN 2680
2630 PRINT"MISSILE OUT OF SONAR TRACKING. ";N$;". MISSILE LOST. "
2640 M=M-1

```



```

2650 F=F-F1
2660 P=P-300
2670 GOTO 2130
2680 D3=0
2690 D4=0
2700 D5=0
2710 D6=0
2720 FORX=S1+X1+F2:1T051+X1+F2+1
2730 FORY=S2+Y1+F2:1T052+Y1+F2+1
2740 IFX<1000<1500:CLORY<20THEN2890
2750 D3=D3-(R(X,Y):3)
2760 D4=D4-(R(X,Y):6)
2770 D5=D5-(R(X,Y):5)
2780 D6=D6-(R(X,Y):1)
2790 IF(R(X,Y)>0.4TH:12850
2800 PRINT"YOU'VE DESTROYED YOUR HEADQUARTERS, ";N$;"!!!"
2810 D3=0
2820 D4=0
2830 D2=0
2840 GOTO2690
2850 IF(R(X,Y)>0.2TH:12880
2860 PRINT"YOU JUST DESTROYED YOURSELF, ";N$;"!!! DUNNY!!"
2870 GOTO6110
2880 R(X,Y)=0
2890 NEXTV
2900 NEXTX
2910 IFD6=0THEN2931
2920 PRINT"YOU BLEW OUT SOME ISLAND, ";N$;"."
2930 IFD5=0THEN2951
2940 PRINT"YOU DESTROYED";D5;"MINES, ";N$;"."
2950 IFD4=0THEN2971
2960 PRINT"YOU GOT ";D4;"SEA MONSTERS, ";N$;"!!! GOOD WORK!!"
2970 PRINT"YOU DESTROYED";D3;"ENEMY SHIPS, ";N$;"!!!"
2980 S=S-D3
2990 GOTO2640
3000 IFD(5)=0THEN:3030
3010 PRINT"BALLAST CONTROLS ARE BEING REPAIRED, ";N$;"."
3020 GOTO560
3030 IFC>12THEN3061
3040 PRINT"THERE ARE NOT ENOUGH CREW TO WORK THE CONTROLS, ";N$;"."
3050 GOTO560
3060 PRINT"NEW DEFCON";
3070 INPUTD1
3080 IFD1=0ANDD1<1000THEN3110
3090 PRINT"HULL CRUSHED BY PRESSURE, ";N$;"!!!"
3100 GOTO6110
3110 P=P-INT(ABS((D1-2)/5))
3120 PRINT"MINORVEGETABLE COMPLETE. POWER LOSS=";INT(ABS((D1-2)/5))
3130 D=D1
3140 GOTO4490
3150 IFD(6)=0THEN:100
3160 PRINT"NO REPORTS ARE ABLE TO GET THROUGH, ";N$;"."
3170 GOTO560
3180 IFC>3THEN3210
3190 PRINT"NO ONE LEFT TO GIVE THE REPORT, ";N$;"."
3200 GOTO560
3210 PRINT
3220 PRINT
3230 PRINT"# OF ENEMY SHIPS LEFT..... ";
3240 PRINTUSINGD01:S
3250 PRINT"# OF POWER UNITS LEFT..... ";
3260 PRINTUSING"###,###";P
3270 PRINT"# OF TORPEDOS LEFT..... ";
3280 PRINTUSINGD01:T
3290 PRINT"# OF MISSILES LEFT..... ";
3300 PRINTUSINGD01:M
3310 PRINT"# OF CREWMEN LEFT..... ";
3320 PRINTUSINGD01:C
3330 PRINT"LBS. OF FUEL LEFT..... ";
3340 PRINTUSING"###,###";F
3350 PRINT
3360 PRINT"WANT DANGER REPORT?";
3370 INPUTA$
3380 IFLLEFT$(A$;1)="N"THEN3510
3390 CLS
3400 PRINT"ITEM DAMAGE (+ GOOD, 0 NEUTRAL, - BAD)"
3410 PRINT"
3420 DATA"ENGINES","SONAR","TORPEDOS","MISSILES","HMMMERING"
3430 DATA"STATUS","HEADQUARTERS","SABOTAGE","CONVERTER"
3440 RESTORE
3450 FORX=1T09
3460 READR$
3470 PRINTR$;
3480 PRINTUSING"###,###";D(X)
3490 NEXTX
3500 PRINT
3510 PRINT"YOU ARE AT LOCATION (S1;";S1;";S2;";). "
3520 PRINT
3530 GOTO560
3540 IFD(7)=0THEN:3570
3550 PRINT"HEADQUARTERS IS DAMAGED. UNABLE TO HELP, ";N$;"."
3560 GOTO560
3570 IFD(8)=0THEN3600
3580 PRINT"HEADQUARTERS IS DESERTED, ";N$;"."
3590 GOTO560
3600 IFSOR((S1-S3)/2+(S2-S4)/2)<2AND(S1THEN3630
3610 PRINT"UNABLE TO COMPLY WITH DOCKING ORDERS, ";N$;"."
3620 GOTO560
3630 PRINT"DIVERS FROM HEADQUARTERS BRING OUT SUPPLIES AND MEN."
3640 P=4000
3650 T=0
3660 H=2
3670 F=1500
3680 C=25
3690 D2=D2-1
3700 GOTO4490
3710 IFD(8)=0THEN3740
3720 PRINT"HATCHES INACCESSIBLE, ";N$;"." NO SABOTAGES POSSIBLE."
3730 GOTO560
3740 IFC>10T:103770
3750 PRINT"NOT ENOUGH CREW TO GO ON A MISSION, ";N$;"."
3760 GOTO560
3770 D3=0
3780 D4=0
3790 FORX=S1-2T051+2
3800 FORY=S2-2T052+2
3810 IFX<1000<1500Y<10RY<20THEN3840
3820 D3=D3-(R(X,Y):3)
3830 D4=D4-(R(X,Y):6)
3840 NEXTV
3850 NEXTX
3860 IFD3=0THEN3890
3870 PRINT"NO SHIPS IN RANGE, ";N$;"."
3880 GOTO560
3890 PRINT"THERE ARE";D3;"SHIPS IN RANGE, ";N$;"."
3900 PRINT"HOW MANY MEN ARE GOING, ";N$;
3910 INPUTC1
3920 IFC=0<10THEN3950
3930 PRINT"YOU MUST LEAVE AT LEAST 10 MEN ON BOARD, ";N$;"."
3940 GOTO3960
3950 D5=INT(D3/01+.5)
3960 D6=0
3970 FOR X=S1-2 TO S1+2
3980 FOR Y=S2-2 TO S2+2
3990 IFD3/01>1-RND(0)AND RND(0)>D3/01<9THEN4050
4000 IF(R(X,Y)>0.3THEN4050
4010 D6=D6+1
4020 R(X,Y)=0
4030 S=S-1
4040 IF S=0 THEN GOTO 6100
4050 NEXTV
4060 NEXTX
4070 PRINTD6;"SHIPS WERE DESTROYED, ";N$;"."
4080 D6=0
4090 D7=0
4100 FORX=1T001
4110 D7=D7-(RND(0)).6)
4120 NEXTX
4130 FORX=1T001-07
4140 D6=D6-(RND(0)<.15)
4150 NEXTX
4160 IFD4=0THEN4200
4170 PRINT"SEA MONSTER SHELLS THE MEN ON THE WAY BACK!!!"
4180 PRINT"1/7; MEN WERE EATEN, ";N$;"!!!"
4190 C=C-D7
4200 PRINT"1/5; MEN WERE LOST THROUGH ACCIDENTS, ";N$;"."
4210 C=C-D6
4220 P=P-INT(10+01+RND(0)*10)
4230 GOTO4490
4240 IFD(9)=0THEN4270
4250 PRINT"POWER CONVERTER IS DAMAGED, ";N$;"."
4260 GOTO560
4270 IFC>5THEN4300
4280 PRINT"NOT ENOUGH MEN TO WORK THE CONVERTER, ";N$;"."
4290 GOTO560
4300 PRINT"OPTION? (1=FUEL TO POWER, 2=POWER TO FUEL);
4310 INPUTI
4320 ONOGOTO(4340,4400
4330 GOTO4310
4340 PRINT"FUEL AVAILABLE=";F;CHR$(8);". CONVERT";
4350 INPUTC1
4360 IF (C1=F)OR(C1=0)THEN4340
4370 F=F-C1
4380 P=P+INT(C1/3)
4390 GOTO4490
4400 PRINT"POWER AVAILABLE=";P-1;CHR$(8);". CONVERT";
4410 INPUTC1
4420 IFC1P=10RCL0THEN4480
4430 P=P-C1
4440 F=F+INT(C1*3)

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4450 PRINT"CONVERSION COMPLETE. POWER=";P; CHR$(8);". FUEL=";F; CHR$(8);". "
4460 GOTO 4490
4470 PRINT"COARRD!! YOU'RE NOT VERY PATRIOTIC, ";N$;"!!!"
4480 GOTO6110
4490 Q=0
4500 FORX=S1-4TOS1+4
4510 FORY=S2-4TOS2+4
4520 IFX<10RND(150RY<10RY)20THEN4550
4530 IFA(X,Y)O3THEN4550
4540 Q=Q+(RND(8)/50R((S1-X)I2+(S2-Y)I2))
4550 NEXTY
4560 NEXTX
4570 IFQTHEN4600
4580 PRINT"NO SHIPS IN RANGE TO DEPTH CHARGE YOU, ";N$;"!!!"
4590 GOTO5040
4600 PRINT"DEPTH CHARGES OFF ";
4610 IFRND(8)>.5THEN4640
4620 PRINT"PORT SIDE, ";N$;"!!!"
4630 GOTO4650
4640 PRINT"STARBOARD SIDE, ";N$;"!!!"
4650 IFQ.130RND(8)>.92THEN4680
4660 PRINT"NO REAL DAMAGE SUSTAINED, ";N$;". "
4670 GOTO5040
4680 IFQ.360RND(8)>.96THEN4730
4690 PRINT"LIGHT, SUPERFICIAL DAMAGE, ";N$;". "
4700 P=P-50
4710 LETD(INT(RND(8)*9)+1)=RND(8)*2
4720 GOTO5040
4730 IFQ.600RND(8)>.975THEN4810
4740 PRINT"MODERATE DAMAGE. REPAIRS NEEDED. "
4750 P=P-75+INT(RND(8)*30)
4760 FORX=1TO2
4770 X=INT(RND(8)*9)+1
4780 D(X)=D(X)-RND(8)*8
4790 NEXTX
4800 GOTO5040
4810 IFQ.900RND(8)>.983THEN4890
4820 PRINT"HEAVY DAMAGE!! REPAIRS IMMEDIATE, ";N$;"!!!"
4830 P=P-(200+INT(RND(8)*76))
4840 FORX=1TO4+INT(RND(8)*2)
4850 Y=INT(RND(8)*9)+1
4860 D(Y)=D(Y)-RND(8)*11
4870 NEXTX
4880 GOTO5040
4890 PRINT"DAMAGE CRITICAL!!!! WE NEED HELP!!!"
4900 A$="VRYUKXCNPCWFDRSAYQLRTRRYVCFZYITLCBSSVYKQIPCRGGPCNOTSIO"
4910 X=INT(RND(8)*16)+1
4920 PRINT"SEND 'HELP' IN CODE. HERE IS THE CODE:";MID$(A$,X,4);
4930 REM
4940 FORI=1TO1500
4950 NEXTI
4960 PRINTSTRING$(4,8);STRING$(4,143)
4970 INPUT"ENTER CODE";B$
4980 PRINT
4990 IF B$O MID$(A$,X,4)THEN 5020
5000 PRINT"FAST WORK, ";N$;"!! HELP ARRIVES IN TIME TO SAVE YOU!!!"
5010 GOTO 4830
5020 PRINT"MESSAGE GARBLED, ";N$;"...NO HELP ARRIVES!!!"
5030 GOTO 6110
5040 IF D(1)>=0 OR D(3)>=0 OR D(4)>=0 OR D(5)>=0 OR D(7)>=0 THEN 5080
5050 IFD(8)>=0RND(9)>=0THEN5080
5060 PRINT"DAMAGE TOO MUCH, ";N$;"!!! YOU'RE SUNK!!!"
5070 GOTO6110
5080 PRINT@979,"PRESS ANY KEY TO CONTINUE";
5090 IFINKEY$=""THEN5090
5100 CLS
5110 PRINT"----- RESULTS OF LAST ENEMY MANUEVER -----"
5120 FORX=1TO15
5130 FORY=1TO20
5140 IFA(X,Y)O3THEN5300
5150 H=D8
5160 V=D9
5170 IFX+H+D8ANDX+H<16ANDY+V<21THEN5260
5180 FORX=19TO15STEP-1
5190 IFA(X-H*X0+14/19,Y-V*Y0)O8THEN5240
5200 LETACX-H*X0+14/19,Y-V*Y0)=3
5210 REM *****
5220 A(X,Y)=0
5230 GOTO5920
5240 NEXTX
5250 GOTO 570
5260 ONA(X+H,Y+V)+1GOTO5270,5300,5390,5300,5420,5490,5540
5270 A(X+H,Y+V)=3
5280 A(X,Y)=0
5290 GOTO5920
5300 RESTORE
5310 FORJK=1TO9
5320 READJK$
5330 NEXTJK
5340 FORX=1TOINT(RND(8)*8)+1
5350 READX,Y
5360 NEXTX
5370 IFX+H<10RND(150RY+Y<10RY+Y)20THEN5380
5380 GOTO5260
5390 IFD(8)O8THEN5300
5400 PRINT"*** YOU'VE BEEN RANMED BY A SHIP, ";N$;"!!!"
5410 GOTO6110
5420 IFRND(8)<.15THEN5300
5430 PRINT"*** YOUR HEADQUARTERS WAS RANMED, ";N$;"!!!"
5440 S3=0
5450 S4=0
5460 D2=0
5470 A(X+H,Y+V)=0
5480 GOTO5510
5490 IFRND(8)<.7THEN5300
5500 PRINT"*** SHIP DESTROYED BY A MINE, ";N$;"!!!"
5510 S=5-1
5520 IFSO8THEN5280
5530 GOTO6180
5540 IFRND(8)<.8THEN5300
5550 PRINT"*** SHIP EATEN BY A SEA MONSTER, ";N$;"!!!"
5560 S=5-1
5570 GOTO5520
5580 IFA(X,Y)O6THEN5920
5590 IFX+H<10RND(150RY+H2<10RY+H2)20THEN5640
5600 ONA(X+H,Y+H2)+1GOTO5610,5640,5730,5750,5800,5610,5850
5610 A(X+H,Y+H2)=6
5620 A(X,Y)=0
5630 GOTO5920
5640 RESTORE
5650 FORJK=1TO9
5660 READJK$
5670 NEXTJK
5680 FORX=1TOINT(RND(8)*8)+1
5690 READ X1,X2
5700 NEXTX
5710 IFX+H<10RND(150RY+H2<10RY+H2)20THEN5640
5720 GOTO5600
5730 PRINT"*** YOU'VE BEEN EATEN BY A SEA MONSTER, ";N$;"!!!"
5740 GOTO6110
5750 IFRND(8)>.2THEN5640
5760 PRINT"*** SHIP EATEN BY A SEA MONSTER, ";N$;"!!!"
5770 S=5-1
5780 IFSO8THEN5610
5790 GOTO6180
5800 PRINT"*** A SEA MONSTER ATE YOUR HEADQUARTERS, ";N$;"!!!"
5810 S3=0
5820 S4=0
5830 D2=0
5840 GOTO5610
5850 IFRND(8)<.75THEN5640
5860 PRINT"*** A SEA MONSTER FIGHT, ";N$;"!!! ";
5870 IFRND(8)<.8THEN5900
5880 PRINT"AND ONE DIES!!"
5890 GOTO5610
5900 PRINT"IT'S A TIE!!!"
5910 GOTO5640
5920 NEXTV
5930 NEXTX
5940 FORX=1TO9
5950 X=INT(RND(8)*9)+1
5960 D(X)=D(X)+(RND(1)*(2+RND(1)*2))*(1+(-D(51)OR-(D(2000)))*(-D(X)/3))
5970 NEXTV
5980 GOTO560
5990 DATA-1,0,-1,1,0,1,1,1,1,0,1,-1,0,-1,-1,-1
6000 PRINT" COURSE (1-8)";
6010 INPUT C1
6020 IFC1<10RND(1)8THEN6000
6030 RESTORE
6040 FORJK=1TO9
6050 READJK$
6060 NEXTJK
6070 FORX=1TOINT(C1+.5)
6080 READX1,Y1
6090 NEXTX
6100 RETURN
6110 PRINT"THESE ARE STILL";S;"ENEMY SHIPS LEFT, ";N$;". "
6120 PRINT"YOU WILL BE DEMOTED TO RANK OF DECK SCRUBBER!!!"
6130 PRINT"HAHT ANOTHER GAME";
6140 INPUT A$
6150 ILEFT$(A$,1)O"Y"THEN6170
6160 CLS: GOTO 70
6170 END
6180 PRINT"GOOD WORK, ";N$;"!!! YOU GOT THEM ALL!!!"
6190 PRINT"PROMOTION AND COMMENDATIONS WILL BE GIVEN IMMEDIATELY!!!"
6200 GOTO6130
6210 DATA 0,1,1,1,0,0,0,1,1,1,1,0,1,1,1,1,0,0,0,1
6220 DATA 1,1,0,0,1,1,0,1,1,0,0,0,0,1,0,0,0
6230 END
6240 CLS:PRINT@411,"YOU LOSE"

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# SEAWAR

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SEA WAR

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You are the commander of a fleet of ships operating in enemy territory. Your task force consists of 9 ships, and the enemy has 9 ships. Whoever sinks all of the opponent's ships first wins the campaign.

You, as the commander, must provide the angle of elevation at which the guns will be fired, neglecting air resistance. Your instruments will read the range to the target, and the initial velocity is held constant at about 675 meters per second.

SEAWAR will help you learn about the paths of projectiles and what happens as the angle of elevation varies.

1. First, what do you think the path of the projectile looks like. Make a sketch. (If you're still not sure, do some research in the library—it will help you win the battle, commander!)
  - a. What angle of elevation do you think will give the maximum range?
  - b. What will happen if you fire the guns at 0°?
  - c. What will happen to the projectile if you fire it straight up?
2. After becoming proficient at winning the battle change the initial velocity of the projectile. How does this affect the range?

The original SEAWAR had a timing function that allowed only about 7 seconds to make your next move. If your computer has a timer, this would be a neat addition.

The origin of SEAWAR is unknown. It was revised and submitted to us by David S. Paxton. It was further revised and the writeup prepared by Mary T. Dobbs, Mathematics and Science Center, Glen Allen, Virginia. It first appeared in *Creative Computing*, May/June 1975.

DO YOU NEED INSTRUCTIONS? YES.

cls

SEAWAR

YOU TELL YOUR GUN CREWS THE ELEVATION TO SET THEIR GUNS.  
ELEVATION IS IN DEGREES FROM 0 TO 360.

YOUR TASK FORCE CONSISTS OF 3 DESTROYERS, 2 CRUISERS,  
2 BATTLESHIPS, AND 2 HEAVY AIRCRAFT CARRIERS.  
THE ENEMY HAS 9 SHIPS FOR HIS DEFENSE.

IF YOU SUCCEED IN SINKING ALL HIS SHIPS BEFORE HE SINKS  
YOURS, YOU HAVE WON. HOWEVER, IF HE SINKS ALL YOUR SHIPS  
BEFORE YOU HAVE DEFEATED HIM, YOU HAVE LOST!!

PRESS ANY KEY TO CONTINUE

cls

LET US BEGIN!!!

YOUR FLAGSHIP HAS DETECTED A U-BOAT APPROACHING AT 5 FATHOMS.  
YOUR SUBMARINE DETECTION EQUIPMENT READS THE RANGE TO THE TARGET  
AS 17220 METERS.  
THE U-BOAT HAS COMMENCED FIRING TORPEDOES AT YOUR SHIPS.  
HIS FIRST TORPEDO EXPLODED 139 METERS BEHIND YOUR SHIP.  
WHAT ELEVATION \* \* ? 30.

-----FIRE!!!

DEPTH CHARGE EXPLODED 27898 METERS AFT OF TARGET.  
THE ENEMY TORPEDO EXPLODED 56 METERS IN  
FRONT OF YOUR SHIP.  
WHAT ELEVATION \*\* ? 37.4.

cls

-----FIRE!!!

DEPTH CHARGE EXPLODED 27653 METERS AFT OF TARGET.  
THE ENEMY U-BOAT SANK ONE OF YOUR DESTROYERS!!  
WHAT ELEVATION \*\* ? 29.7.

cls

-----FIRE!!!

DEPTH CHARGE EXPLODED 22883 METERS AFT OF TARGET.  
THE ENEMY U-BOAT SANK YOUR HEAVY CRUISER!!  
WHAT ELEVATION \*\* ? 31.

cls

-----FIRE!!!

DEPTH CHARGE EXPLODED 23836 METERS AFT OF TARGET.  
THE ENEMY TORPEDO EXPLODED 252 METERS IN  
FRONT OF YOUR SHIP.  
WHAT ELEVATION \*\* ? 54.

cls

-----FIRE!!!

DEPTH CHARGE EXPLODED 27887 METERS AFT OF TARGET.  
THE ENEMY TORPEDO EXPLODED 185 METERS IN  
FRONT OF YOUR SHIP.  
BAD SHOT, THE TARGET HAS MOVED OUT OF  
RANGE!!! LET'S TRY IT AGAIN!!!

YOUR FLAGSHIP HAS DETECTED A U-BOAT APPROACHING AT 5 FATHOMS.  
YOUR SUBMARINE DETECTION EQUIPMENT READS THE RANGE TO THE TARGET  
AS 38661 METERS.  
THE U-BOAT HAS COMMENCED FIRING TORPEDOES AT YOUR SHIPS.  
HIS FIRST TORPEDO EXPLODED 68 METERS BEHIND YOUR SHIP.  
WHAT ELEVATION \*\* ?

cls

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10 CLS. PRINT@413, "SEA WAR"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "DO YOU NEED INSTRUCTIONS?";I$
40 IF LEFT$(I$,1)="Y" THEN 50 ELSE GOTO 180
50 CLS: PRINT TAB(29); "SEAWAR": PRINT
60 PRINT "YOU TELL YOUR GUN CREWS THE ELEVATION TO SET THEIR GUNS."
70 PRINT "ELEVATION IS IN DEGREES FROM 0 TO 360."
80 PRINT
90 PRINT "YOUR TASK FORCE CONSISTS OF 3 DESTROYERS, 2 CRUISERS,"
100 PRINT "2 BATTLESHIPS, AND 2 HEAVY AIRCRAFT CARRIERS."
110 PRINT "THE ENEMY HAS 9 SHIPS FOR HIS DEFENSE."
120 PRINT
130 PRINT "IF YOU SUCCEED IN SINKING ALL HIS SHIPS BEFORE HE SINKS"
140 PRINT "YOURS, YOU HAVE WON. HOWEVER, IF HE SINKS ALL YOUR SHIPS"
150 PRINT "BEFORE YOU HAVE DEFEATED HIM, YOU HAVE LOST!!"
160 PRINT@979, "PRESS ANY KEY TO CONTINUE";
170 IF INKEY$="" THEN 170
180 CLS: PRINT "LET US BEGIN!!!"
190 PRINT ""
200 READ Z$
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210 A=A+1
220 GOTO 300
230 RESTORE
240 IF 0=9 OR A=9 THEN 760
250 FOR X=1 TO A
260 READ Z$
270 NEXT X
280 READ Z$
290 A=A+1
300 IF Z$="AIRCRAFT CARRIER" THEN 350
310 IF Z$="U-BOAT" THEN 1750
320 IF Z$="TORPEDO BOAT" THEN 340
330 P=1
340 GOTO 360
350 RESTORE
360 PRINT: PRINT "YOUR FLAGSHIP REPORTS THE SIGHTING OF AN ENEMY ";Z$
370 T=43000-30000*RND(0)+(RND(0)*10)*.987654+182
380 IF T<10000 THEN 370
390 S=0: P2=0
400 T=INT(T)
410 IF Z$="U-BOAT" THEN 1790
420 PRINT "YOUR INSTRUMENTS READ THE RANGE TO THE TARGET AS";T;"METERS."
430 IF P=1 THEN 1290
440 IF S>4 THEN 460
450 GOTO 500
460 PRINT "BAD SHOT, THE TARGET HAS MOVED OUT OF"
470 PRINT "RANGE!!! LET'S TRY IT AGAIN!!!"
480 S1=S1+5
490 GOTO 300
500 PRINT "WHAT ELEVATION ** ";
510 INPUT B: CLS
520 PRINT
530 PRINT ""
540 PRINT "-----FIRE!!!"
550 S=S+1
560 IF B>360 THEN 1240
570 IF B<0 THEN 690
580 IF B=0 THEN 710
590 IF B=90 THEN 870
600 IF B>330 THEN 710
610 IF B>180 THEN 1180
620 IF B>150 THEN 1110
630 IF B>90 THEN 900
640 V1=675.285
650 E=INT(T-(V1/2/9.80665*SIN(2*PI/57.3)))
660 IF ABS(E)<=100 THEN 920
670 IF E>100 THEN 1050
680 IF E<=100 THEN 1080
690 PRINT "GUN BACKFIRED, KILLING CREW!"
700 GOTO 740
710 PRINT "WHAT ARE YOU TRYING TO DO? KILL SOME FISH? THE SHELL"
720 PRINT "EXPLODED UNDER WATER FIFTY METERS FROM YOUR SHIP!!!"
730 GOTO 1380
740 PRINT "ADMIRAL PLEASE !!!!"
750 GOTO 1380
760 FOR A=1 TO 1000: NEXT: CLS: PRINT TAB(13); "***** PEACE *****"
770 PRINT: PRINT: PRINT
780 PRINT "YOU FIRED";S1;"ROUNDS. THE ENEMY FIRED";S2;"ROUNDS."
790 IF 0=9 THEN 810
800 IF A=9 THEN 840
810 PRINT "ALL OF YOUR SHIPS HAVE BEEN SUNK. SO SORRY."
820 PRINT "THE BATTLE IS OVER.....THE ENEMY WINS!"
830 GOTO 1960
840 PRINT "YOU HAVE DECIMATED THE ENEMY.....THAT'S NICE."
850 PRINT "THE BATTLE IS OVER.....YOU WIN!!!!!"
860 GOTO 1960
870 PRINT "YOU IDIOT!! YOU SHOT STRAIGHT UP, AND THE SHELL"
880 PRINT "LANDED ON YOUR OWN GUN POSITION, DESTROYING IT!!!"
890 GOTO 1380
900 PRINT "HEY STUPID, YOU'RE FIRING ON YOUR OWN SHIPS!!!"
910 GOTO 1380
920 IF Z$="U-BOAT" THEN 940
930 GOTO 960
940 PRINT "DEPTH CHARGE EXPLODED RIGHT ON TOP OF THAT BABY!!!"
950 GOTO 970
960 PRINT " ** BOOM **"
970 PRINT ""
980 M$="TARGET DESTROYED!!!"
990 N$=" ** ROUNDS EXPENDED."
1000 PRINT M$;S:N$
1010 PRINT "YOU HAVE LOST";0;"SHIPS, AND THE ENEMY HAS LOST";A;CHR$(8);". "
1020 S1=S1+5
1030 P1=0
1040 GOTO 230
1050 IF Z$="U-BOAT" THEN 1890
1060 PRINT "SHOT FELL";ABS(E);"METERS SHORT OF TARGET."
1070 GOTO 1380
1080 IF Z$="U-BOAT" THEN 1910
1090 PRINT "SHELL OVERSHOT TARGET BY";ABS(E);"METERS."
1100 GOTO 1380
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1110 REM
1120 PRINT " YOU SHOT A PROJECTILE INTO THE AIR."
1130 PRINT " IT FELL TO THE WATER, YOU KNOW NOT WHERE..."
1140 PRINT "BUT I DO, YOU IDIO, YOU JUST SANK YOUR OWN FLEET TANKER!!"
1150 S1=S1+1
1160 IF P=1 THEN 1380
1170 GOTO 440
1180 PRINT "WHAT ARE YOU TRYIN' TO DO?? DRILL A NEW HATCH?? THE SHELL"
1190 PRINT "EXPLODED IN YOUR SHIP, DESTROYING IT!!!"
1200 O=O+1
1210 IF O=9 THEN 760
1220 IF P=1 THEN 1380
1230 GOTO 740
1240 PRINT "WHERE DID YOU LEARN TO TYPE? ";B;"DEGREES EXCEEDS 360 BY"
1250 PRINT B-360;"DEGREES."
1260 S1=S1+1
1270 IF P=1 THEN 1380
1280 GOTO 440
1290 PRINT "THE ENEMY ";Z$;" IS FIRING ON YOUR SHIPS!"
1300 P4=1234+RND(RND(0))+RND(1)*10
1310 IF P4>500 THEN 1380
1320 IF P2=1 THEN 1390
1330 IF INT(P4)<100 THEN 1560
1340 IF Z$="U-BOT" THEN 1860
1350 PRINT "HIS FIRST ROUND FELL";INT(P4);"METERS SHORT."
1360 S2=S2+1
1370 GOTO 440
1380 IF P2=1 THEN 1380
1390 P1=1250+RND(RND(0))+RND(1)*10
1400 IF P1>P4 THEN 1390
1410 IF P1<(P4-400) THEN 1390
1420 IF P1<100 THEN 1480
1430 P4=P1
1440 S2=S2+1
1450 IF Z$="U-BOT" THEN 1930
1460 PRINT "THE ENEMY ROUNDFELL";INT(P1);"METERS SHORT."
1470 GOTO 440
1480 S2=S2+1
1490 P2=1
1500 GOSUB 1610
1510 PRINT "THE ENEMY ";Z$;" SANK ";D$
1520 O=O+1
1530 IF O=9 THEN 760

1540 IF D$="YOUR LAST BATTLESHIP!!" THEN 760
1550 GOTO 440
1560 P2=1
1570 GOSUB 1610
1580 PRINT "IN FACT, HE JUST SANK ";D$
1590 O=O+1
1600 GOTO 1530
1610 RESTORE
1620 FOR C=1 TO (9+O)
1630 READ D$
1640 NEXT C
1650 READ D$
1660 DATA "U-BOT","210 MM SHORE GUN","70,000 TON CRUISER"
1670 DATA "BATTLESHIP","TORPEDO BOAT","HEAVY FRIGATE"
1680 DATA "E-TYPE DESTROYER","GUIDED-MISSILE SHIP","AIRCRAFT CARRIER"
1690 DATA "ONE OF YOUR DESTROYERS!!","YOUR HEAVY CRUISER!!"
1700 DATA "ANOTHER ONE OF YOUR DESTROYERS!!","ONE OF YOUR BATTLESHIPS!!"
1710 DATA "YOUR LAST DESTROYER!!","YOUR AIRCRAFT CARRIER!!"
1720 DATA "YOUR LIGHT CRUISER!!","YOUR LAST AIRCRAFT CARRIER!!"
1730 DATA "YOUR LAST BATTLESHIP!!"
1740 RETURN
1750 PRINT:PRINT "YOUR FLAGSHIP HAS DETECTED A U-BOT APPROACHING AT 5 ";
1760 PRINT "FATHOMS."
1770 P=1
1780 GOTO 370
1790 PRINT "YOUR SUBMARINE DETECTION EQUIPMENT READS THE RANGE TO THE";
1800 PRINT "TARGET";
1810 T=INT(T-1500)
1820 IF T<0 THEN 370
1830 PRINT "AS";T;"METERS."
1840 PRINT "THE U-BOT HAS COMMENCED FIRING TORPEDOES AT YOUR SHIPS."
1850 GOTO 1380
1860 PRINT "HIS FIRST TORPEDO EXPLODED";(INT(P4)-50);"METERS BEHIND";
1870 PRINT "YOUR SHIP."
1880 GOTO 1360
1890 PRINT "DEPTH CHARGE EXPLODED";ABS(E);"METERS SHORT OF TARGET."
1900 GOTO 1380
1910 PRINT "DEPTH CHARGE EXPLODED";ABS(E);"METERS AFT OF TARGET."
1920 GOTO 1380
1930 PRINT "THE ENEMY TORPEDO EXPLODED";(INT(P1)-50);"METERS IN"
1940 PRINT "FRONT OF YOUR SHIP."
1950 GOTO 440
1960 END

```

# Shoot

---

The scene is some time in the near future. You and another individual on the other side of the planet are the only survivors of a total atomic war. (Yes, I know it's corny.) This war was fought totally with ground based atomic missiles. Both you and the surviving enemy have found the last missile bases left from each side. Fortunately (for me anyway), these missile grids are made and operated identically.

Each player moves on and is restricted to a 10 by 10 missile matrix. Every co-ordinate on the grid corresponds to a mini-missile base. At every base, there is a terminal tied into the main scanner computer, located safely many miles away. From each terminal, the player obtains information relevant to the current situation. Because of the way the missiles are constructed, the area left after lift-off is exposed to high doses of raw radiation and may not be occupied by life. The same is true of an area that has been struck by a missile, it is extremely lethal and would kill anything entering the vicinity.

Due to the fact that everyone else is dead, all machinery must be operated manually. This means that the players must set the target co-ordinates and latch the fuse for the missile to be shot off. After that, the players must flee the area. This is done in a small shuttle car, equipped with sensor devices to avoid dangerous areas. But due to its limited power reserves, it can go only two units in any direction, up, down, or diagonally, and no more or less. The danger involved is that while in flight, the player is away from a scanner computer terminal and will not know where the enemy missile is aimed to land.

In the time it takes to move to the new base, the missiles will be at the apex of their flight above the earth. There the computer will give out tracking information as to whether you hit the enemy, or he hit you, or both. If the missile is coming down to hit the player, there is no escape. The time required to recharge the shuttle car is

longer than the time it takes for the missile to hit the ground. If either player is unfortunate enough to get trapped into a corner, the seeping radiation will eventually kill him.

So it is plainly a game of kill or be killed. However, don't be misled into thinking that it is simply a game of luck, several different strategies may be applied to destroy the enemy.

## Line by line explanation.

Lines 440-490. I assemble three commonly used print strings. S\$ becomes a string of fourteen spaces.

Lines 500-530. Here is the dimensioning of the four matrices, and the start-up and circle check data. The matrices "I" and "H" stand for player and enemy playing fields (I and HE). the "T" matrix is a temporary list for use by the enemy, and is part of the "smart" algorithm. It is loaded up during each pass with the possible places he could move to, or looking at the possible places where the player could move. The "P" matrix is filled with the eight possible co-ordinates that one may move to. I might say here that the program may be modified for a longer and more challenging game by changing the data in line 530. Change all the twos to ones and the two players may move only one unit away from their previous position, instead of the two used now.

Lines 540-730. I set up a random number to decide which pair of corner co-ordinates the enemy will be started in. I then proceed to set the pair from 550 to 570. I then digress to zero my matrices. Picking up where I left off, lines 640 to 680 peel away any unused, but unwanted data, keying on the unique first number of the last pair. From there the remaining data is dumped into "P."

Lines 740-820. Make the report that the enemy has been "fooling around." The starting co-ordinates for the player are then obtained and checked. From there the valid loop switch is set, a map is printed, and the program is thrust headlong into the main routine.

Lines 830-920. Here the co-ordinates for the missile and the new spot to sit on are obtained and verified of their validity.

Lines 930-1080. "Enemy" decides where player might be going from last position, and aims his missile in that direction.

Lines 1090-1280. The "enemy" looks for place to go. If he has cornered himself, say so, prepare him for his execution, and make it look like he hasn't fired a missile. Otherwise, he chooses a new co-ordinate to rest upon.

Lines 1290-1480. Now we move everyone around (where we can), and start to find out who got who, if anyone at all. Then from 1430-1480 there is a check to discover whether the player has a place to go or not. If not, another message is printed and player will die quietly after output.

Lines 1490-1780. Here the printing of the two matrices is done. A value of one or zero is tested for making the proper symbol. After the output is complete "Z" is checked to see if anyone died on the way. If no one had, return for another pass, else terminate the program.

I spent a lot of time debugging this program. After I finally got it to work, I found that it became somewhat addictive. The tension does seem to build when the game reaches the final possible moves. I found there are two different useful strategies that may be applied.

My favorite is building a fence around the enemy with missile shots. The idea is to cut off his movements while trying to keep out of his way. The other method is the one the enemy uses. Here the player shoots at where he thinks the opponent may be each time. Quite often the game is ended early, the odds of being hit become too great.

Any method you use, or another you may think of, will lend long hours of enjoyment. Have fun!

The program and description were written by David Spencer.



```

130 PRINT
140 PRINT " HOWEVER IT HAS BECOME APPARENT THAT HE FEELS HIS PEACE"
150 PRINT "THREATENED AND IS PREPARING AN ATTACK. BOTH YOU AND HE HAVE"
160 PRINT "SCANNERS THAT WILL WARN YOU OF HIS MOVEMENTS AND TRACK THE"
170 PRINT "FLIGHT OF HIS ATOMIC MISSILES, THUS HE IS WORKING SLOWLY."
180 PRINT "THE ENEMY, LIKE YOURSELF, HAS A MISSILE GRID NEARLY"
190 PRINT "IDENTICAL IN STRUCTURE AND OPERATION TO YOURS."
200 PRINT@979; "PRESS ANY KEY TO CONTINUE";
210 IF INKEY$="" THEN 210 ELSE PRINT@128; CHR$(31);
220 PRINT "YOU ARE THE ONLY ONE LEFT, IT WILL BE NECESSARY TO FIRE ALL YOUR";
230 PRINT "MISSILES MANUALLY. ONCE THE FUSE IS SET, YOU MUST FLEE THE"
240 PRINT "AREA AND GET TWO GRID UNITS AWAY. YOU MAY NEVER RETURN TO"
250 PRINT "THIS SPOT, OR A SPOT WHERE A MISSILE HAS LANDED; THE"
260 PRINT "RADIATION IS INTENSE AND WOULD MEAN AN INSTANT, PAINFUL"
270 PRINT "DEATH."
280 PRINT " SO THE STAGE HAS BEEN SET. THERE IS PEACE UNTIL THE"
290 PRINT "SIGN THAT THE ENEMY HAS MOVED TO HIS MISSILE RANGE. HE WILL"
300 PRINT "FIRE EVERY TIME YOU WILL, AND DO SO UNTIL ONE OF YOU IS"
310 PRINT "DESTROYED."
320 PRINT@979; "PRESS ANY KEY TO CONTINUE";
330 IF INKEY$="" THEN 330 ELSE PRINT@128; CHR$(31);
340 PRINT " EACH TIME A ROUND OF MISSILES HAS BEEN FIRED, THE"
350 PRINT "SCANNERS WILL REPORT THE STATUS OF BOTH YOUR'S AND THE ENEMY'S"
360 PRINT "GRID TERRITORY. IT WILL SHOW ALL AREAS THAT HAVE HAD EITHER"
370 PRINT "A MISSILE HIT OR A MISSILE FIRED FROM IT. WITH THIS"
380 PRINT "CONTINUALLY UPDATED MAP, YOU MAY BE ABLE TO INDUCTIVELY"
390 PRINT "DISCOVER OR TRAP YOUR OPPONENT. BEWARE, HE WILL BE TRYING TO"
400 PRINT "DO THE SAME TO YOU."
410 PRINT@979; "PRESS ANY KEY TO CONTINUE";
420 IF INKEY$="" THEN 420 ELSE CLS
430 G$=" 12345678910"
440 C$="SCANNER COMPUTER: "
450 S$=""
460 FOR X=1 TO 14
470 S$=S$+" "
480 NEXT X
490 DIM I(10,10),H(10,10),T(8,2),P(8,2): GOSUB 1470
500 DATA 10,10 , 1,1 , 10,1 , 1,10 , 10,9 , 9,10 , 1,2 , 2,1
510 DATA -2,-2 , 0,-2 , 2,-2, 2,0 , 2,2 , 0,2 ,-2,2 ,-2,0
520 R=INT(RND(0)*8+1)
530 FOR X=1 TO R
540 READ A,B
550 NEXT X
560 FOR X=1 TO 10
570 FOR Y=1 TO 10
580 I(X,Y)=0
590 H(X,Y)=0
600 NEXT Y
610 NEXT X
620 IF A=2 GOTO 670
630 FOR X=1 TO 8
640 READ C,D
650 IF C=2 GOTO 670
660 NEXT X
670 FOR X=1 TO 8
680 FOR Y=1 TO 2
690 READ P(X,Y)
700 NEXT Y
710 NEXT X
720 PRINT C$;"ENEMY ACTIVITY ON GRID AT";A;" ";B
730 INPUT "YOUR STARTING CO-ORDINATES";E,F
740 IF E<1 OR E>10 OR F<1 OR F>10 GOTO 730
750 Z=1
760 I(E,F)=1
770 H(A,B)=1
780 GOSUB 1470
790 INPUT "MISSILE CO-ORDINATES";M,N
800 IF M<1 OR M>10 OR N<1 OR N>10 GOTO 790
810 INPUT "WHERE TO MOVE TO";S,T
820 IF S<1 OR S>10 OR T<1 OR T>10 GOTO 810
830 IF I(S,T)=1 GOTO 810
840 FOR X=1 TO 8
850 IF P(X,1)+E=5 AND P(X,2)+F=T GOTO 880
860 NEXT X
870 GOTO 810
880 REM
890 L=1
900 FOR X=1 TO 8
910 IF P(X,1)+E=10 OR P(X,1)+E<1 OR P(X,2)+F>10 OR P(X,2)+F<1 GOTO 960
920 IF 1<P(X,1)+E,P(X,2)+F)=1 GOTO 960
930 T(L,1)=P(X,1)+E
940 T(L,2)=P(X,2)+F
950 L=L+1
960 NEXT X
970 L=L-1
980 IF L<1 GOTO 1020
990 C=T(L,1)
1000 D=T(L,2)
1010 GOTO 1050
1020 G=INT(RND(0)*L+1)
1030 C=T(G,1)
1040 D=T(G,2)
1050 L=1
1060 FOR X=1 TO 8
1070 IF P(X,1)+A>10ORP(X,1)+A<1 OR P(X,2)+B>10ORP(X,2)+B<1 GOTO 1120
1080 IF H(P(X,1)+A,P(X,2)+B)=1 GOTO 1120
1090 T(L,1)=P(X,1)+A
1100 T(L,2)=P(X,2)+B
1110 L=L+1
1120 NEXT X
1130 L=L-1
1140 IF L<0 GOTO 1200
1150 PRINT C$;"THE ENEMY HAS CORNERED HIMSELF IN!!"
1160 Z=0
1170 C=E
1180 D=F
1190 GOTO 1270
1200 IF L<1 GOTO 1240
1210 J=T(L,1)
1220 K=T(L,2)
1230 GOTO 1270
1240 G=INT(RND(0)*L+1)
1250 J=T(G,1)
1260 K=T(G,2)
1270 I(E,F)=1
1280 H(A,B)=1
1290 I(C,D)=1
1300 H(M,N)=1
1310 IF H<0 OR DOT GOTO 1370
1320 PRINT C$;"HEY! YOU GOT HIM!!"
1330 Z=0
1340 IF C<0 OR DOT GOTO 1370
1350 PRINT C$;"YOU MOVED RIGHT UNDER HIS MISSILE!!"
1360 Z=0
1370 E=5
1380 F=T
1390 A=J
1400 B=K
1410 FOR X=1 TO 8
1420 IF P(X,1)+E>10ORP(X,1)+E<1 OR P(X,2)+F>10ORP(X,2)+F<1 GOTO 1440
1430 IF 1<P(X,1)+E,P(X,2)+F)=0 GOSUB 1470: GOTO 790
1440 NEXT X
1450 PRINT C$;"FOOL! YOU HAVE BOXED YOURSELF INTO A CORNER!!"
1460 Z=0
1470 PRINT@0; " YOUR TERRITORY ";STRING$(3,8); "ENEMY TERRITORY"
1480 PRINT G$;S$;G$
1490 FOR X=1 TO 10
1500 IF X=10 GOTO 1530
1510 PRINT X;
1520 GOTO 1540
1530 PRINT "10 ";
1540 FOR Y=1 TO 10
1550 IF I(X,Y)=1 GOTO 1580
1560 PRINT " ";
1570 GOTO 1590
1580 PRINT "*";
1590 NEXT Y
1600 PRINT " ";S$;
1610 IF X=10 GOTO 1640
1620 PRINT X;
1630 GOTO 1650
1640 PRINT "10 ";
1650 FOR Y=1 TO 10
1660 IF H(X,Y)=1 GOTO 1690
1670 PRINT " ";
1680 GOTO 1700
1690 PRINT "*";
1700 NEXT Y
1710 PRINT
1720 NEXT X
1730 RETURN
1740 END

```



# Smash

This game is a one-lap jalopy race. There is one big problem: you don't know the shape of the course or the safe speed with which you can go around the corners. Consequently you're likely to smash up fairly frequently or else go so slowly that you don't earn a good placing among the winners. However, after four or five plays of the game you'll begin to get the hang of it and you'll be able to whip around the course in grand fashion. The instructions in the program are quite detailed. Have fun!

```

SMASH
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ
_____
cls
DO YOU NEED INSTRUCTIONS? YES.
_____
cls

```

```

SMASH
THIS IS SMASH -- THE GAME THAT SIMULATES A CAR RACE.

```

YOU WILL RESPOND WITH ONE OF THE FOLLOWING MANEUVERS  
WHEN A '?' IS TYPED. THE POSITION NUMBERS REFER TO THE  
POINT AT WHICH YOU ARE ON THE TRACK - THEY GO AS FOLLOWS:

- 1 - THE START LINE
- 2 - MID STRAIGHT-AWAY
- 3 - COMING UP ON A LEFT TURN
- 4 - MID LEFT TURN
- 5 - COMING UP ON A RIGHT TURN
- 6 - MID-RIGHT TURN
- 7 - THE FINISH LINE

PRESS ANY KEY TO CONTINUE

## MANEUVERS

- 1 - FLOOR IT
- 2 - ACCELERATE (MODERATE)
- 3 - BRAKE SLIGHT
- 4 - JAM ON THE BRAKES
- 5 - SHARP RIGHT
- 6 - MODERATE RIGHT
- 7 - SHARP LEFT
- 8 - MODERATE LEFT

PRESS ANY KEY TO CONTINUE

```

_____
cls

```

| TIME | MILES TO GO | MPH     | POSITION | MOVE |
|------|-------------|---------|----------|------|
| 0    | 12          | 0       | 1        | ? 1  |
| 30   | 11.7675     | 27.9    | 6        | ? 2  |
| 60   | 11.3163     | 54.15   | 5        | ? 2  |
| 90   | 10.5719     | 89.325  | 6        | ? 6  |
| 120  | 9.75155     | 98.4389 | 5        | ? 6  |
| 150  | 8.88295     | 104.232 | 6        | ? 2  |
| 180  | 7.49806     | 167.147 | 5        | ? 3  |
| 210  | 6.30128     | 142.654 | 6        | ? 8  |

SMASH -- YOU WENT RIGHT INTO THE WALL!

DO YOU WANT TO PLAY AGAIN? YES.

```

_____
cls

```

| TIME | MILES TO GO | MPH   | POSITION | MOVE |
|------|-------------|-------|----------|------|
| 0    | 11          | 0     | 1        | ? 1  |
| 30   | 10.777      | 27.4  | 5        | ? 1  |
| 60   | 9.9097      | 102.5 | 6        | ? 1  |

SMASH -- YOU WENT RIGHT INTO THE WALL!

DO YOU WANT TO PLAY AGAIN? YES.

```

_____
cls

```

| TIME | MILES TO GO | MPH     | POSITION | MOVE |
|------|-------------|---------|----------|------|
| 0    | 12          | 0       | 1        | ? 1  |
| 30   | 11.7675     | 27.9    | 6        | ? 2  |
| 60   | 11.3163     | 54.15   | 5        | ? 2  |
| 90   | 10.5719     | 89.325  | 6        | ? 6  |
| 120  | 9.75155     | 98.4389 | 5        | ? 6  |
| 150  | 8.88295     | 104.232 | 6        | ? 2  |
| 180  | 7.49806     | 167.147 | 5        | ? 3  |
| 210  | 6.30128     | 142.654 | 6        | ? 8  |

BAD MOVE!

SMASH -- YOU WENT RIGHT INTO THE WALL!

DO YOU WANT TO PLAY AGAIN? NO.

```

_____
cls

```

```

10 CLS
20 PRINT @ 413, "SMASH"
30 PRINT
40 PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ"
50 PRINT @ 960, " ";
60 INPUT "DO YOU NEED INSTRUCTIONS? "; I$
70 DIM A(7), J(6)
80 FOR X=1 TO 7
90 READ A(X)
100 NEXT X
110 FOR J=1 TO 6
120 READ J(X)
130 NEXT J
140 IF LEFT$(I$, 1)="" THEN CLS: GOTO 470
150 CLS
160 PRINT TAB(29); "SMASH"
170 PRINT
180 PRINT "THIS IS SMASH -- THE GAME THAT SIMULATES A CAR RACE."
190 PRINT
200 PRINT "YOU WILL RESPOND WITH ONE OF THE FOLLOWING MANEUVERS"
210 PRINT "WHEN A '?' IS TYPED. THE POSITION NUMBERS REFER TO THE"
220 PRINT "POINT AT WHICH YOU ARE ON THE TRACK - THEY GO AS FOLLOWS:"
230 PRINT
240 PRINT " 1 - THE START LINE"
250 PRINT " 2 - MID STRAIGHT-AWAY"
260 PRINT " 3 - COMING UP ON A LEFT TURN"
270 PRINT " 4 - MID LEFT TURN"
280 PRINT " 5 - COMING UP ON A RIGHT TURN"
290 PRINT " 6 - MID-RIGHT TURN"
300 PRINT " 7 - THE FINISH LINE"
310 PRINT @ 979, "PRESS ANY KEY TO CONTINUE:"
320 IF INKEY$="" THEN 320
330 PRINT @ 128, CHR$(31)
340 PRINT " MANEUVERS"
350 PRINT " _____"
360 PRINT " 1 - FLOOR IT"
370 PRINT " 2 - ACCELERATE (MODERATE)"
380 PRINT " 3 - BRAKE SLIGHT"
390 PRINT " 4 - JAM ON THE BRAKES"
400 PRINT " 5 - SHARP RIGHT"
410 PRINT " 6 - MODERATE RIGHT"
420 PRINT " 7 - SHARP LEFT"
430 PRINT " 8 - MODERATE LEFT"
440 PRINT @ 979, "PRESS ANY KEY TO CONTINUE:"
450 IF INKEY$="" THEN 450
460 CLS
470 CLS
480 PRINT @ 128, CHR$(31);
490 GOSUB 510
500 GOTO 610
510 LB=PEEK(16416)
520 HB=PEEK(16417)
530 PRINT CHR$(28);
540 PRINT "TIME"; TAB(12); "MILES TO GO"; TAB(30); "MPH"; TAB(40);
550 PRINT "POSITION"; TAB(55); "MOVE"
560 PRINT "-----"; TAB(12); "-----"; TAB(30); "-----"; TAB(40);
570 PRINT "-----"; TAB(55); "-----";
580 POKE 16416, LB
590 POKE 16417, HB
600 RETURN
610 LET A=INT(10+RND(0)*5)
620 Y=A
630 LET B=0

```

```

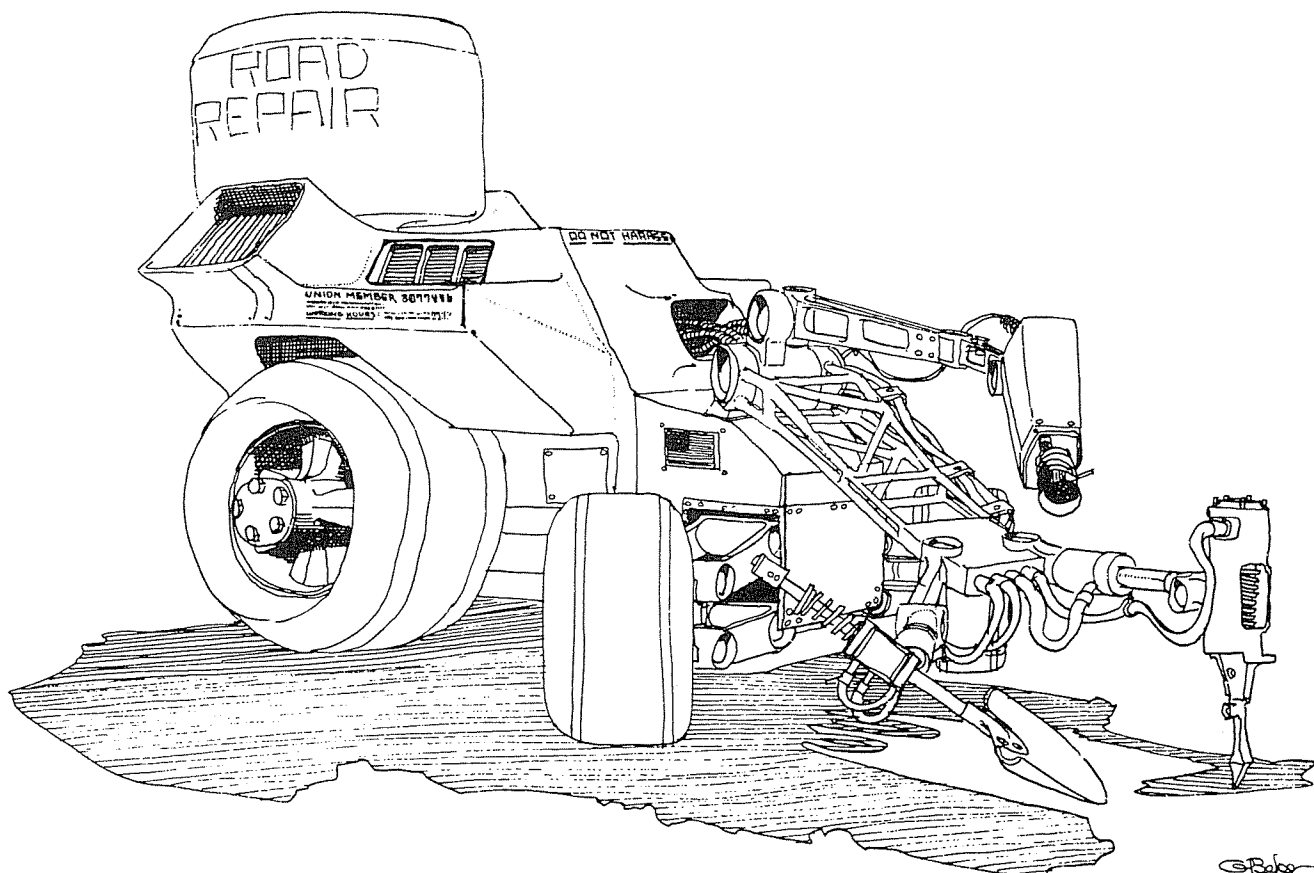
640 T=0
650 LET C=1
660 GOTO 680
670 LET C=(INT(2+RND(0)*5))
680 PRINT T; TAB(12); A; TAB(30); B; TAB(42); C; TAB(55);
690 INPUT D
700 GOSUB 510
710 IF D<INT(D) THEN 740
720 IF D>8 THEN 740
730 IF D=1 THEN 760
740 PRINT "ONE THRU EIGHT ONLY."
750 GOTO 680
760 IF D<1 THEN 780
770 LET B=3*B+20+INT(10+RND(0)*91)/10
780 IF D<2 THEN 800
790 LET B=3*B/2+7+INT(10+RND(0)*61)/10
800 IF D<3 THEN 820
810 LET B=7*B/8-6+INT(10+RND(0)*41)/10
820 IF D<4 THEN 840
830 LET B=4*B/7-26+INT(10+RND(0)*81)/10
840 IF D=7 THEN 860
850 IF D<5 THEN 870
860 LET B=9*B/10*(.7+RND(0)*.6)
870 IF D=8 THEN 890
880 IF D<6 THEN 900
890 LET B=13*B/14*(.7+RND(0)*.6)
900 IF B>8 THEN 920
910 LET B=0
920 IF A-B/120>8 THEN 1010
930 LET T=T+A*3600/B
940 PRINT CHR$(27); T; TAB(12); 0; TAB(30); B; TAB(42); 7
950 PRINT
960 PRINT"THAT ENDS THE RACE. YOU PLACED #" INT(T/(20*Y)*.5)
970 PRINT "YOUR AVERAGE SPEED WAS" Y*3600/T" M. P. H."

```

```

980 IF INT(T/(20*Y)*.5)<1 THEN 1260
990 PRINT"THAT WAS A PERFECT RACE, CHAMP!"
1000 GOTO 1260
1010 IF C<2 THEN 1040
1020 IF D=7 THEN 1240
1030 IF D=5 THEN 1240
1040 IF C=3 THEN 1060
1050 IF C<4 THEN 1080
1060 IF D=5 THEN 1240
1070 IF D=6 THEN 1240
1080 IF C=6 THEN 1100
1090 IF C<5 THEN 1120
1100 IF D=7 THEN 1240
1110 IF D=8 THEN 1240
1120 IF B>J(C) THEN 1250
1130 IF INT(1+RND(0)*77)<40 THEN 1160
1140 PRINT "SMASH -- YOU HAVE BEEN HIT BY ANOTHER CAR!!"
1150 GOTO 1260
1160 LET T=T+30
1170 LET A=A-B/120
1180 IF C=1 THEN 670
1190 IF C=4 THEN 670
1200 IF C=2 THEN 670
1210 IF C=6 THEN 670
1220 LET C=C+1
1230 GOTO 680
1240 PRINT"BAD MOVE!"
1250 PRINT "SMASH -- YOU WENT RIGHT INTO THE WALL!"
1260 PRINT
1270 PRINT"DO YOU WANT TO PLAY AGAIN";
1280 GOSUB 510
1290 INPUT Z$
1300 IF LEFT$(Z$, 1)="Y" THEN 470
1310 DATA 2, 3, 5, 2, 3, 5, 2, 200, 240, 180, 170, 180, 170
1320 END

```



# Strike 9

This is a simple game based on the numbers 1 through 9, and a pair of dice. First, the computer rolls a random number for your "dice." Then you must take that number from the total of your board numbers 1-9. To win you must remove all of your board numbers. With each roll you must remove the total number of that roll from the board or you lose.

One strategy is to remove the largest numbers possible with each roll, or you can try to get the most numbers removed. For example, if the roll is 10, you might want to remove the 1, 2, 3 and 4 instead of the 1 and 9.

You may want to have competition and players can alternate with rolls. Then the player who can't remove all numbers from his/her roll loses.

Strike 9 was conceived by Bruce Grembowski and first appeared in Creative Computing, Jan/Feb 1977.

Because of the way TRS-80 graphics are represented on a line printer, the sample run shown here is a little confusing. All those periods (.) you see are actually the numbers 1-9 represented by graphics blocks, or pixels. Every time you remove a number, it will be erased from the screen.

STRIKE 9

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DO YOU NEED INSTRUCTIONS? YES\_

cls

STRIKE 9

STRIKE NINE IS PLAYED WITH A PAIR OF DICE AND A BOARD WITH NINE NUMBERS: 1 2 3 4 5 6 7 8 9. YOU ARE GIVEN A ROLL AND CAN KNOCK OFF UP TO 4 NUMBERS.

NEXT YOU INPUT HOW MANY NUMBERS YOU WANT TO REMOVE, AND THEN INPUT THE NUMBERS YOU WANT TO TAKE OFF, ONE AT A TIME. THE NUMBERS YOU TAKE OFF MUST ADD UP TO THE ROLL. YOU WIN BY REMOVING EVERY NUMBER FROM THE BOARD. YOU LOSE IF YOU CANNOT REMOVE ALL NUMBERS WITH THE ROLL YOU HAVE.

PRESS ANY KEY TO CONTINUE

cls

```

..      .....      .....      .....      .....
..      .....      .....      .....      .....
...     .....      .....      .....      .....
STRIKE 9 .....      .....      .....      .....
..      .....      .....      .....      .....

```

YOUR ROLL IS 7.  
# OF NUMBERS TO REMOVE? 2  
WHAT ARE THE NUMBERS  
2 4\_

cls

```

..      .....      .....      .....      .....
..      .....      .....      .....      .....
...     .....      .....      .....      .....
STRIKE 9 .....      .....      .....      .....
..      .....      .....      .....      .....

```

YOUR ROLL IS 7.  
# OF NUMBERS TO REMOVE? 2  
WHAT ARE THE NUMBERS  
2 3\_

cls

```

..      .....      .....      .....      .....
..      .....      .....      .....      .....
...     .....      .....      .....      .....
STRIKE 9 .....      .....      .....      .....
..      .....      .....      .....      .....

```

YOUR ROLL IS 6.  
# OF NUMBERS TO REMOVE? 1  
WHAT IS THE NUMBER  
2 6\_

cls

```

..      .....      .....      .....      .....
..      .....      .....      .....      .....
...     .....      .....      .....      .....
STRIKE 9 .....      .....      .....      .....
..      .....      .....      .....      .....

```

YOUR ROLL IS 4.  
SORRY, YOU LOST THIS TIME.  
THERE ARE 6 NUMBERS LEFT ON THE BOARD: 1 2 5 7 8 9  
WANT TO TRY AGAIN (YES OR NO)? NO\_

```

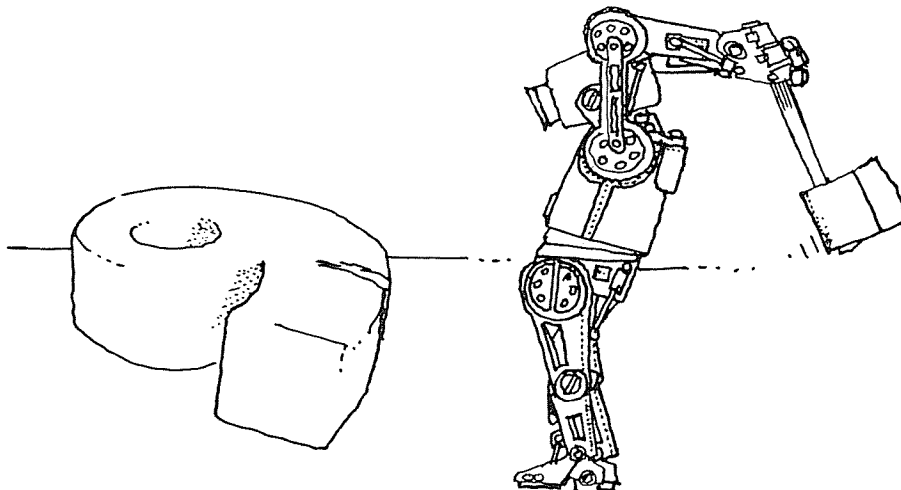
10 CLS
20 CLEAR 1000
30 PRINT @ 412, "STRIKE 9"
40 PRINT
50 PRINT TAB(7)"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN NJ"
60 PRINT @ 960, "":
70 INPUT "DO YOU NEED INSTRUCTIONS?"; I$
80 DIM A(12), D(4)
90 IF LEFT$(I$, 1) = "N" THEN 240
100 CLS
110 PRINT TAB(28)"STRIKE 9"
120 PRINT
130 PRINT "STRIKE NINE IS PLAYED WITH A PAIR OF DICE AND A"
140 PRINT "BOARD WITH NINE NUMBERS: 1 2 3 4 5 6 7 8 9. YOU"
150 PRINT "ARE GIVEN A ROLL AND CAN KNOCK OFF UP TO 4 NUMBERS."
160 PRINT "NEXT YOU INPUT HOW MANY NUMBERS YOU WANT"
170 PRINT "TO REMOVE, AND THEN INPUT THE NUMBERS YOU WANT TO "
180 PRINT "TAKE OFF, ONE AT A TIME. THE NUMBERS YOU TAKE OFF"
190 PRINT "MUST ADD UP TO THE ROLL. YOU WIN BY REMOVING EVERY"
200 PRINT "NUMBER FROM THE BOARD. YOU LOSE IF YOU CANNOT"
210 PRINT "REMOVE ALL NUMBERS WITH THE ROLL YOU HAVE."
220 PRINT @ 979, "PRESS ANY KEY TO CONTINUE";
230 IF INKEY$ = "" THEN 230
240 CLS
250 FOR A=1 TO 9
260 A(A)=A
270 NEXT A
280 FOR A=1 TO 67
290 READ Y
300 PRINT CHR$(100+Y);
310 NEXT A
320 PRINT
330 FOR A=1 TO 57
340 READ Y
350 PRINT CHR$(100+Y);
360 NEXT
370 PRINT @ 256, "STRIKE 9":
380 PRINT @ 384, STRINGS$(64, 143)
390 FOR A=1 TO 5
400 READ D(A)
410 NEXT A

```

```

420 C=INT(RND(8)*6+1)+INT(RND(8)*6+1)
430 PRINT @ 512, "YOUR ROLL IS"; C, CHR$(8); " " CHR$(31)
440 T=0
450 TT=0
460 FOR X=1 TO 9
470 T=T+A(X)
480 TT=TT-(A(X)/C/0)
490 NEXT X
500 IF C>T THEN 1010
510 IF C=T THEN 1100
520 IF A(C)=C THEN 630
530 IF C/2 OR TT=1 THEN 1010
540 FOR A=1 TO C-1
550 IF A(A)=0 OR A(C-A(A))=0 OR C=2*A THEN NEXT A ELSE 630
560 IF TT=2 OR C/6 THEN 1010
570 FOR A=1 TO C-5
580 FOR B=A+1 TO C-4
590 IF A(A)=0 OR A(B)=0 THEN 620
600 X=C-A-B
610 IF X=A OR X=B OR A(X)=0 THEN 620 ELSE 630
620 NEXT B, A
630 FOR X=1 TO 4
640 D(X)=0
650 NEXT X
660 PRINT " # OF NUMBERS TO REMOVE";
670 INPUT E
680 IF INT(E)/0 THEN 720
690 IF E<1 THEN 720
700 IF E>4 THEN 660
710 GOTO 740
720 PRINT "ANSWER 1, 2, 3 OR 4 (5 FOR THE BOARD). "
730 GOTO 660
740 IF E=1 THEN PRINT "WHAT IS THE NUMBER"; ELSE PRINT "WHAT ARE THE NUMBERS";
750 FOR F=1 TO E
760 PRINT @ 704, CHR$(31);
770 INPUT D(F)
780 IF A(D(F))/0 THEN 810
790 PRINT "YOU REMOVED IT BEFORE, TRY AGAIN."
800 GOTO 660
810 IF D(F)>5 THEN Q0=3 ELSE Q0=0

```



# Tennis

Tennis is, as its name implies, a tennis match. In this game you have several options available to you as the position on the court that you wish to play from, the placement of your shot that you're trying for, and the speed or type of shot. As in normal tennis, you don't always make the shot that you try for. The program lets you play, more or less, at the intermediate level. If you think that it allows you to play too well or too poorly, you could always change some of the random factors that determine how often a shot is missed.

Tennis was written by Victor Nahigian and David Ahl.

## TENNIS MATCH

COPYRIGHT © 1979 CREATIVE COMPUTING MORRISTOWN, NJ  
DO YOU NEED INSTRUCTIONS? YES.

\_\_\_\_\_  
cls  
THERE ARE SEVERAL OPTIONS AVAILABLE TO YOU AS TO POSITION, PLACEMENT OF SHOT, AND SPEED (TYPE) OF SHOT. THE KEY THAT YOU WILL USE IS...

POSITION (PLACEMENT, TOO): L BACKCOURT (1); R BACKCOURT (2); L FORECOURT (3); R FORECOURT (4).

\_\_\_\_\_  
cls

SPEED (TYPE) OF SHOT: FAST-SLAM (5); SLOW-LOB (L).

BACKHANDS AND FOREHANDS WILL HEREBY BE ASSUMED AS YOU SHOOT FROM A CERTAIN SECTION OF THE COURT.

ON SERVES, YOU CANNOT HAVE PLACEMENT OPTIONS, BUT YOU WILL BE ABLE TO ALTER THE SPEED OF IT. BY THE WAY, YOU WILL BE ALLOWED TO SERVE FIRST IN ALL GAMES.

PRESS ANY KEY TO CONTINUE  
\_\_\_\_\_  
cls

HERE WE GO .....

SERVE IS BAD.

SERVE AGAIN! TYPE ?5

SERVE HAS BEEN RETURNED...

WHAT IS YOUR POSITION ? 1

WHAT TYPE OF SHOT ARE YOU MAKING ?5

WHAT PART OF THE COURT ARE YOU AIMING FOR ? 3

YOUR RETURN IS BAD...

HIT INTO NET.

SCORE: LOVE - 15

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

HERE WE GO .....

SERVE HAS BEEN RETURNED.

WHAT IS YOUR POSITION ? 1

NICE TRY - YOU WERE UNABLE TO REACH THAT SHOT - COURT # 4

SCORE: LOVE - 30

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

HERE WE GO .....

SERVE IS BAD.

SERVE AGAIN! TYPE ?5

SERVE IS BAD... DOUBLE FAULT!

SCORE: LOVE - 40

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

SERVE HAS BEEN RETURNED.

WHAT IS YOUR POSITION ? 2

WHAT TYPE OF SHOT ARE YOU MAKING ?1

WHAT PART OF THE COURT ARE YOU AIMING FOR ? 2

YOUR RETURN IS GOOD!

COMPUTER'S RETURN IS GOOD!

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

SERVE HAS BEEN RETURNED...

WHAT IS YOUR POSITION ? 3

WHAT TYPE OF SHOT ARE YOU MAKING ?1

WHAT PART OF THE COURT ARE YOU AIMING FOR ? 2

YOUR RETURN IS GOOD!

NICE SHOT- THE COMPUTER COULDN'T REACH IT.

SCORE: 15 - 15

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

SERVE HAS BEEN RETURNED...

WHAT IS YOUR POSITION ? 3

WHAT TYPE OF SHOT ARE YOU MAKING ?2

WHAT PART OF THE COURT ARE YOU AIMING FOR ? 3

YOUR RETURN IS GOOD!

COMPUTER'S RETURN IS GOOD!

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

SERVE HAS BEEN RETURNED...

WHAT IS YOUR POSITION ? 2

WHAT TYPE OF SHOT ARE YOU MAKING ?1

WHAT PART OF THE COURT ARE YOU AIMING FOR ? 3

YOUR RETURN IS GOOD!

COMPUTER'S RETURN IS GOOD!

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

SERVE HAS BEEN RETURNED...

WHAT IS YOUR POSITION ? 2

NICE TRY - YOU WERE UNABLE TO REACH THAT SHOT - COURT # 3

SCORE: 15 - 30

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

SERVE IS GOOD... ACE!!

SCORE: DEUCE

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

SERVE IS BAD.

SERVE AGAIN! TYPE ?1

SERVE IS BAD... DOUBLE FAULT!

SCORE: ADD OUT

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

SERVE IS GOOD... CAN'T RETURN IT!!

SCORE: DEUCE

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

SERVE IS BAD.

SERVE AGAIN! TYPE ?5

SERVE IS BAD... DOUBLE FAULT!

SCORE: ADD OUT

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

SERVE IS BAD.

SERVE AGAIN! TYPE ?1

SERVE IS GOOD... CAN'T RETURN IT!!

SCORE: DEUCE

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

SERVE IS BAD.

SERVE AGAIN! TYPE ?1

SERVE IS GOOD... CAN'T RETURN IT!!

SCORE: ADD IN

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

SERVE HAS BEEN RETURNED...

WHAT IS YOUR POSITION ? 2

WHAT TYPE OF SHOT ARE YOU MAKING ?3

WHAT PART OF THE COURT ARE YOU AIMING FOR ? 1

YOUR RETURN IS GOOD!

COMPUTER'S RETURN IS GOOD!

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

SERVE HAS BEEN RETURNED...

WHAT IS YOUR POSITION ? 3

NICE TRY - YOU WERE UNABLE TO REACH THAT SHOT - COURT # 2

SCORE: DEUCE

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

WHAT IS YOUR POSITION ? 3

NICE TRY - YOU WERE UNABLE TO REACH THAT SHOT - COURT # 2

SCORE: DEUCE

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_  
cls

10 CLS

20 PRINT @ 410, "TENNIS MATCH"

30 PRINT

40 PRINT TAB(7)\*"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"

50 PRINT @ 960, ""

```

60 INPUT "DO YOU NEED INSTRUCTIONS?"; I$
70 IF LEFT$(I$, 1) = "N" THEN 260
80 CLS
90 PRINT TAB(3); "THERE ARE SEVERAL OPTIONS AVAILABLE TO YOU AS TO POSITION."
100 PRINT "PLACEMENT OF SHOT, AND SPEED (TYPE) OF SHOT. THE KEY THAT"
110 PRINT "YOU WILL USE IS..."
120 PRINT
130 PRINT TAB(5); "POSITION (PLACEMENT, TOO): L BACKCOURT (1); R BACK-"
140 PRINT TAB(5); "COURT (2); L FORECOURT (3); R FORECOURT (4)."
150 PRINT
160 PRINT TAB(5); "SPEED (TYPE) OF SHOT: FAST-SLAM (5); SLOW-LOB (L)."
170 PRINT
180 PRINT TAB(3); "BACKHANDS AND FOREHANDS WILL MERELY BE ASSUMED AS YOU"
190 PRINT "SHOOT FROM A CERTAIN SECTION OF THE COURT."
200 PRINT TAB(3); "ON SERVES, YOU CANNOT HAVE PLACEMENT OPTIONS, BUT YOU"
210 PRINT "WILL BE ABLE TO ALTER THE SPEED OF IT. BY THE WAY, YOU"
220 PRINT "WILL BE ALLOWED TO SERVE FIRST IN ALL GAMES."
230 PRINT
240 PRINT @ 979; "PRESS ANY KEY TO CONTINUE";
250 IF INKEY$ = "" THEN 250
260 CLS
270 PRINT "HERE WE GO ...."
280 Y=0
290 Z=0
300 PRINT @ 64; "SERVE! TYPE ?"; CHR$(95); CHR$(31);
310 A$=INKEY$
320 B$=INKEY$
330 IF A$="" THEN 320
340 PRINT CHR$(8); A$;
350 IF A$="L" AND B$="5" THEN PRINT: PRINT "L' OR 'S'": GOTO 1480
360 A=100*RND(0)
370 PRINT @ 128; CHR$(31);
380 PRINT @ 64; "";
390 IF A$="L" THEN 500
400 C=6
410 D=51
420 IF A<C THEN 460
430 IF A<D THEN 720
440 PRINT "SERVE IS BAD. "; CHR$(31);
450 GOTO 530
460 PRINT "LET SERVE... TAKE 2"
470 FOR I=1 TO 500
480 NEXT
490 GOTO 300
500 C=4
510 D=66
520 GOTO 420
530 PRINT @ 128; "SERVE AGAIN! TYPE ?"; CHR$(95); CHR$(31);
540 B$=INKEY$
550 B$=INKEY$
560 IF B$="" THEN 550
570 PRINT CHR$(8); B$;
580 IF B$="L" AND B$="5" THEN PRINT "L' OR 'S'": GOTO 530
590 E=100*RND(0)
600 IF B$="L" THEN 630
610 G=5
620 H=41
630 IF E<G THEN 670
640 IF E<H THEN 720
650 PRINT "SERVE IS BAD... DOUBLE FAULT!"
660 GOTO 1430
670 PRINT "LET SERVE... TAKE 1"
680 GOTO 530
690 G=3
700 H=76
710 GOTO 630
720 I=100 * RND(0)
730 IF I>6 THEN 760
740 PRINT TAB(10); "SERVE IS GOOD... ACE!!"
750 GOTO 1410
760 K=100*RND(0)
770 IF A$="L" THEN 830
780 IF B$="L" THEN 830
790 N=61
800 IF K<N THEN 850
810 PRINT "SERVE IS GOOD... CAN'T RETURN IT!!"
820 GOTO 1410
830 N=76
840 GOTO 800
850 PRINT "SERVE HAS BEEN RETURNED..."
860 O=INT(44*RND(0))+1
870 PRINT @ 256; CHR$(31);
880 PRINT TAB(10); "WHAT IS YOUR POSITION ?"; CHR$(95);
890 Q$=INKEY$
900 Q$=INKEY$
910 IF Q$="" THEN 980
920 Q=VAL(Q$)
930 IF Q=0 THEN 980
940 PRINT CHR$(8); Q;
950 IF Q=5 THEN 1380
960 PRINT @ 338; CHR$(31); "WHAT TYPE OF SHOT ARE YOU MAKING ?" CHR$(95);
970 C$=INKEY$
980 C$=INKEY$
990 IF C$="" THEN 980

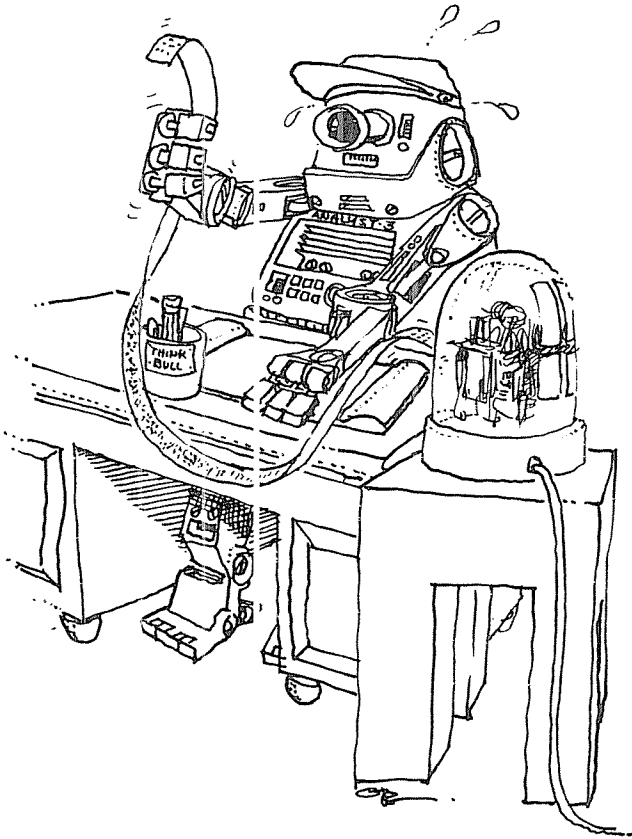
```

```

1000 PRINT CHR$(8); C$;
1010 PRINT @ 394; CHR$(31); "WHAT PART OF THE COURT ARE YOU AIMING FOR ?" CHR$(95);
1020 R$=INKEY$
1030 R$=INKEY$
1040 IF R$="" THEN 1030
1050 R=VAL(R$)
1060 PRINT CHR$(8); R;
1070 S=100*RND(0)
1080 IF C$="L" THEN 1110
1090 IF S<81 THEN 1190
1100 GOTO 1120
1110 IF S<91 THEN 1190
1120 U=4*RND(0)
1130 PRINT TAB(15); "YOUR RETURN IS BAD..."
1140 IF U<2 THEN 1170
1150 PRINT TAB(15); "HIT OUT-OF-BOUNDS."
1160 GOTO 1430
1170 PRINT TAB(15); "HIT INTO NET."
1180 GOTO 1430
1190 PRINT TAB(15); "YOUR RETURN IS GOOD!"
1200 R1=INT(44*RND(0))
1210 IF R+R1=5 THEN 1400
1220 W=100*RND(0)
1230 IF C$="L" THEN 1240
1240 IF W<84 THEN 1340
1250 GOTO 1270
1260 IF W<84 THEN 1340
1270 C1=44*RND(0)
1280 PRINT TAB(15); "COMPUTER'S RETURN IS BAD."
1290 IF C<2 THEN 1320
1300 PRINT TAB(15); "HIT OUT-OF-BOUNDS."
1310 GOTO 1410
1320 PRINT TAB(15); "HIT INTO NET."
1330 GOTO 1410
1340 PRINT TAB(15); "COMPUTER'S RETURN IS GOOD!"
1350 PRINT
1360 PRINT TAB(19); "PRESS ANY KEY TO CONTINUE";
1370 IF INKEY$ = "" THEN 1370 ELSE 860
1380 PRINT "NICE TRY - YOU WERE UNABLE TO REACH THAT SHOT - COURT # " O
1390 GOTO 1430
1400 PRINT "NICE SHOT- THE COMPUTER COULDN'T REACH IT."
1410 Y=Y+1
1420 GOTO 1440
1430 Z=Z+1
1440 GOSUB 1770
1450 PRINT TAB(15); "SCORE: " S$;
1460 IF Y=4 AND Y<Z+1 THEN 1510
1470 IF Z=4 AND Z<Y+1 THEN 1530
1480 PRINT
1490 PRINT TAB(19); "PRESS ANY KEY TO CONTINUE";
1500 IF INKEY$ = "" THEN 1500 ELSE 300
1510 Y1=Y+1
1520 GOTO 1540
1530 Z1=Z+1
1540 PRINT
1550 PRINT "GAME OVER"
1560 PRINT
1570 Y=0
1580 Z=0
1590 PRINT TAB(15); "SCORE-GAMES: YOU...ME"
1600 PRINT TAB(32); Y1; " "; Z1
1610 FOR A=1 TO 1000
1620 NEXT
1630 CLS
1640 IF Y1>6 AND Y1<Z1+1 THEN 1670
1650 IF Z1>6 AND Z1<Y1+1 THEN 1700
1660 GOTO 1480
1670 PRINT
1680 PRINT "***** CONGRATULATIONS... YOU WON *****"
1690 GOTO 1720
1700 PRINT
1710 PRINT "***** AS PREDICTED, THE COMPUTER IS AGAIN TRIUMPHANT! *****"
1720 PRINT
1730 PRINT "I'D LIKE TO PLAY YOU AGAIN SOMETIME, BUT RIGHT NOW, I"
1740 PRINT "HAVE TO REST.....BYE!!!"
1750 PRINT
1760 END
1770 IF Y=2 AND Z=2 THEN 1890
1780 IF Y=4 OR Z=4 THEN S$="GAME": GOTO 1930
1790 IF Y=0 THEN V$="LOVE -"
1800 IF Y=1 THEN V$="15 -"
1810 IF Y=2 THEN V$="30 -"
1820 IF Y=3 THEN V$="40 -"
1830 IF Z=0 THEN Z$="LOVE"
1840 IF Z=1 THEN Z$="15"
1850 IF Z=2 THEN Z$="30"
1860 IF Z=3 THEN Z$="40"
1870 S$=V$+Z$
1880 GOTO 1930
1890 IF Y=2 THEN S$="DEUCE": GOTO 1930
1900 IF Y=Z+1 THEN S$="ADD IN " GOTO 1930
1910 IF Y=Z-1 THEN S$="ADD OUT" GOTO 1930
1920 IF Y=Z+2 OR Z=Y+2 THEN S$="GAME"
1930 RETURN

```

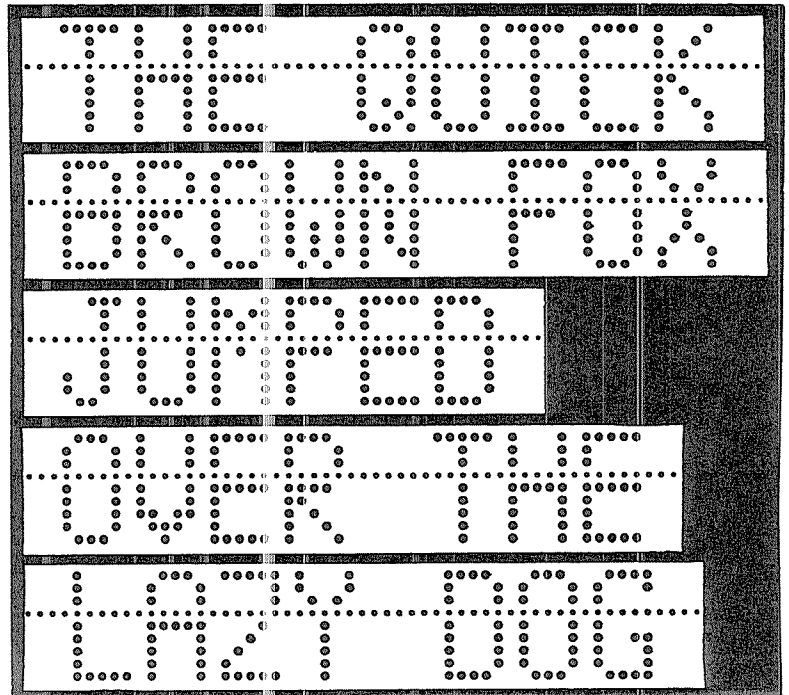
# Tickertape



The operation of this program is fairly straightforward. After each character is converted to a number equivalent to its place in the alphabet (A=1, B=2, Z=26, Space=27), a simple table look-up is performed to find the correct numbers to punch onto the tape. These numbers are stored in the DATA statements.

Written by Bill Gardner and Jim Larus, Tickertape first appeared in Creative Computing, May/June 1977.

This program uses TRS-80 graphics which do not reproduce well on a line printer. Therefore the sample run does not give a true representation of the program. The only way this program can be truly appreciated is to run it.



```

10 CLS
20 PRINT @ 410, "TICKETAPE"
30 PRINT
40 PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
50 PRINT @ 960, "";
60 INPUT "PRESS ENTER TO START"; I$
70 CLS
80 CLEAR 1000
90 MV$=STRING$(26, 32)
100 FOR A=1 TO 26
110 READ Y
120 MID$(MV$, A, 1)=CHR$(Y)
130 NEXT A
140 POKE 16526, PEEK(VARPTR(MV$))+1)
150 POKE 16527, PEEK(VARPTR(MV$))+2)
160 IF PEEK(16548)=186 THEN DEF USR 0=PEEK(16526)+PEEK(16527)*256+216*( PEEK(16527)>127)
170 DIM LT(27, 3, 5)
180 FOR A=1 TO 27
190 FOR B=1 TO 3
200 FOR C=1 TO 5
210 READ Y
220 LT(A, B, C)=Y+100
230 NEXT C, B, A
240 GOTO 700
250 DATA 33, 193, 61, 17, 192, 61, 1, 63, 0, 237, 176, 35, 19
260 DATA 1, 63, 0, 237, 176, 35, 19, 1, 63, 0, 237, 176, 201
270 DATA 88, 31, 31, 31, 88, 91, 40, 40, 40, 91, 91, 28, 28, 28, 91
280 DATA 91, 31, 31, 31, 88, 91, 40, 40, 40, 79, 91, 76, 76, 76, 43
290 DATA 88, 31, 31, 31, 40, 91, 28, 28, 28, 28, 43, 76, 76, 76, 40
300 DATA 91, 31, 31, 31, 88, 91, 28, 28, 28, 91, 91, 76, 76, 76, 43
310 DATA 91, 31, 31, 31, 31, 91, 40, 40, 28, 28, 91, 76, 76, 76, 76
320 DATA 91, 31, 31, 31, 31, 91, 40, 40, 28, 28, 91, 28, 28, 28, 28
330 DATA 88, 31, 31, 31, 40, 91, 28, 28, 40, 88, 43, 76, 76, 76, 43
340 DATA 91, 28, 28, 28, 91, 91, 40, 40, 40, 91, 91, 28, 28, 28, 91
350 DATA 31, 31, 91, 31, 31, 28, 28, 91, 28, 28, 76, 76, 91, 76, 76
360 DATA 28, 28, 31, 91, 31, 28, 28, 28, 91, 28, 43, 76, 76, 43, 28
370 DATA 91, 28, 76, 40, 31, 91, 43, 76, 28, 28, 91, 28, 28, 31, 88
380 DATA 91, 28, 28, 28, 28, 91, 28, 28, 28, 91, 76, 76, 76, 76
390 DATA 91, 40, 76, 40, 91, 91, 28, 31, 28, 91, 91, 28, 28, 28, 91
400 DATA 91, 40, 76, 28, 91, 91, 28, 91, 28, 91, 91, 28, 31, 40, 91
410 DATA 88, 31, 31, 31, 88, 91, 28, 28, 28, 91, 43, 76, 76, 76, 43
420 DATA 91, 31, 31, 31, 88, 91, 40, 40, 40, 31, 91, 28, 28, 28, 28
430 DATA 88, 31, 31, 31, 88, 91, 28, 28, 28, 91, 43, 76, 79, 40, 79
440 DATA 91, 31, 31, 31, 88, 91, 88, 40, 40, 31, 91, 28, 31, 40, 76
450 DATA 88, 31, 31, 31, 31, 40, 40, 40, 76, 76, 76, 76, 76, 43
460 DATA 31, 31, 91, 31, 31, 28, 28, 91, 28, 28, 28, 91, 28, 28
470 DATA 91, 28, 28, 28, 91, 91, 28, 28, 28, 91, 43, 76, 76, 76, 43
480 DATA 91, 28, 28, 28, 91, 91, 28, 28, 28, 91, 31, 43, 88, 43, 31
490 DATA 91, 28, 28, 28, 91, 91, 28, 28, 28, 91, 43, 76, 43, 76, 43
500 DATA 91, 28, 28, 28, 91, 28, 79, 40, 79, 28, 91, 28, 28, 28, 91
510 DATA 91, 28, 28, 28, 91, 28, 31, 88, 31, 28, 28, 28, 91, 28, 28
520 DATA 31, 31, 31, 31, 28, 76, 40, 31, 28, 91, 76, 76, 76, 76
530 DATA 28, 28, 28, 28, 28, 28, 28, 28, 28, 28, 28, 28, 28, 28
540 FOR A=1 TO LEN(TX$)
550 X=ASC(MID$(TX$, A, 1))-64
560 IF X=-32 THEN X=27
570 FOR C=1 TO 5
580 FOR B=1 TO 3
590 POKE 15807+64*B, LT(X, B, C)
600 NEXT B
610 XX=USR(0)
620 NEXT C
630 FOR B=1 TO 3
640 POKE 15807+64*B, 32
650 NEXT B
660 XX=USR(0)
670 NEXT A
680 IF INKEY$="" THEN TX$=LEFT$(TX$, LEN(TX$)-5): RETURN
690 END
700 PRINT @ 960, "";
710 FOR A=1 TO 7
720 PRINT
730 FOR B=1 TO 20
740 NEXT B, A
750 PRINT @ 384, STRING$(64, 140)
760 PRINT @ 640, STRING$(64, 140)
770 PRINT CHR$(14) "MESSAGE-"
780 TX$=""
790 A$=INKEY$
800 IF A$="R" AND A$<="Z" OR A$=" " THEN TX$=TX$+A$: PRINT A$; GOTO 790
810 IF A$="" THEN 790
820 IF ASC(A$)>13 THEN 840
830 GOTO 860
840 IF ASC(A$)=8 THEN PRINT @ 768, "MESSAGE-" CHR$(31); TX$=""
850 GOTO 790
860 PRINT @ 768, STRING$(63, " ");
870 PRINT @ 832, STRING$(63, " ");
880 TX$=TX$+" " : GOSUB 540: GOTO 810

```



# TV Plot

This program automatically devises plots for television shows or series guaranteed to appeal to the masses and win high Nielsen ratings. By substituting appropriate words in the various parts of the program it could be easily modified for many other useful purposes such as devising names for new breakfast cereals, preparing PhD theses, or naming government agencies and their corresponding projects.

This program was originally written in FOCAL by Mary Cole and converted to BASIC by David Ahl.

```

      TV PLOT
COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

      cls
DO YOU NEED INSTRUCTIONS? YES_
      cls
THIS PROGRAM AUTOMATICALLY COMES UP WITH TELEVISION
SHOWS GUARANTEED TO APPEAL TO THE MASSES AND WIN
HIGH NEILSEN RATINGS.

      PRESS ANY KEY TO CONTINUE
      cls
THE REPORT IS: ABOUT A DEDICATED LITTLE BOY WHO IS A DISASTER
AT WINNING RACES AND WHO DESTROYS THE CITY.

ANOTHER (Y OR N)
THE SERIES IS: ABOUT A HENPECKED JUNGLE MAN WHO IS A FLOP
AT COOKING HEALTH FOOD AND WHO DESTROYS THE CITY.

ANOTHER (Y OR N)
THE STORY IS ABOUT A DEDICATED SECRET AGENT WHO IS A FLOP
AT PITCHING WOOD AND WHO RECOVERS THE JEWELS.

ANOTHER (Y OR N)
THE SPECIAL IS ABOUT A SHINGING SCIENTIST WHO IS A WHIZ
AT WINNING RACES AND WHO MAKES THE SACRIFICE.

ANOTHER (Y OR N)
THE SPECIAL IS ABOUT A DEDICATED SECRET AGENT WHO IS A FLOP
AT PROTECTING ECOLOGY AND WHO FINDS LOVE.

ANOTHER (Y OR N)
THE PROGRAM IS ABOUT A HILARIOUS JUNGLE MAN WHO IS A FLOP
AT PITCHING WOOD AND WHO CONFESSES.

ANOTHER (Y OR N)
THE REPORT IS: ABOUT A SENSITIVE LAWYER WHO IS A WHIZ
AT HELPING CHILDREN AND WHO HELPS THE DOG.

ANOTHER (Y OR N)
THE REPORT IS: ABOUT A HEAVY SCIENTIST WHO IS A WHIZ
AT FIGHTING FIRES AND WHO STOPS THE FLOOD.

ANOTHER (Y OR N)
      cls
THE STORY IS ABOUT A HENPECKED JUNGLE MAN WHO IS A FLOP
AT WINNING RACES AND WHO HELPS THE DOG.

ANOTHER (Y OR N)
THE STORY IS ABOUT A BRILLIANT JUNGLE MAN WHO IS A DISASTER
AT HELPING CHILDREN AND WHO STOPS THE FLOOD.

ANOTHER (Y OR N)
THE REPORT IS: ABOUT A SENSITIVE GIRL COMMAND WHO IS A WHIZ
AT TWO-FISTED DRINKING AND WHO DESTROYS THE CITY.

ANOTHER (Y OR N)
THE STORY IS ABOUT A THOUGHTFUL TOWN MARSHALL WHO IS A WHIZ
AT PROTECTING ECOLOGY AND WHO MAKES THE SACRIFICE.

ANOTHER (Y OR N)
      cls

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10 CLS: PRINT@413, "TV PLOT"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, " "; INPUT "DO YOU NEED INSTRUCTIONS?"; I$
40 IF LEFT$(I$,1)="N" THEN 110 ELSE CLS: PRINT TAB(27)"TV PLOT"
50 PRINT
60 PRINT "THIS PROGRAM AUTOMATICALLY COMES UP WITH TELEVISION"
70 PRINT "SHOWS GUARANTEED TO APPEAL TO THE MASSES AND WIN"
80 PRINT "HIGH NEILSEN RATINGS. ":PRINT
90 PRINT@970, "PRESS ANY KEY TO CONTINUE";
100 IF INKEY$="" THEN 100 ELSE CLS: N=0
110 CLS
120 GOSUB 810
130 ON X GOTO 140,150,160,170,180,140,150,160,170,180
140 A$="PROGRAM": GOTO 190
150 A$="REPORT": GOTO 190
160 A$="SPECIAL": GOTO 190
170 A$="SERIES": GOTO 190
180 A$="STORY"
190 GOSUB 810
200 ON X GOTO 210,220,230,240,250,260,270,280,290,300
210 B$="SHINGING": GOTO 310
220 B$="BRILLIANT": GOTO 310
230 B$="SALTY": GOTO 310
240 B$="HILARIOUS": GOTO 310
250 B$="SENSITIVE": GOTO 310
260 B$="DODDERING": GOTO 310
270 B$="HENPECKED": GOTO 310
280 B$="DEDICATED": GOTO 310
290 B$="THOUGHTFUL": GOTO 310
300 B$="HEAVY"
310 GOSUB 810
320 ON X GOTO 330,340,350,360,370,380,390,400,410,420
330 C$="GIRL COMMAND": GOTO 430
340 C$="LITTLE BOY": GOTO 430
350 C$="SCIENTIST": GOTO 430
360 C$="LAWYER": GOTO 430
370 C$="TOWN MARSHALL": GOTO 430
380 C$="DENTIST": GOTO 430
390 C$="BUS DRIVER": GOTO 430
400 C$="JUNGLE MAN": GOTO 430
410 C$="SECRET AGENT": GOTO 430
420 C$="COLLIE"
430 GOSUB 810
440 ON X GOTO 450,460,470,480,490,450,460,470,480,490
450 D$="A WHIZ": GOTO 500
460 D$="A FLOP": GOTO 500
470 D$="MEDIOCRE": GOTO 460
480 D$="A SUCCESS": GOTO 460
490 D$="A DISASTER"
500 GOSUB 810
510 ON X GOTO 520,530,540,550,560,570,580,590,600,610
520 E$="SOLVING CRIMES": GOTO 620
530 E$="ROPING COWS": GOTO 620
540 E$="COOKING HEALTH FOOD": GOTO 620
550 E$="PITCHING WOOD": GOTO 620
560 E$="PROTECTING ECOLOGY": GOTO 620
570 E$="HELPING CHILDREN": GOTO 620
580 E$="TWO-FISTED DRINKING": GOTO 620
590 E$="FIGHTING FIRES": GOTO 620
600 E$="HERDING ELEPHANTS": GOTO 620
610 E$="WINNING RACES": GOTO 620
620 GOSUB 810
630 ON X GOTO 640,650,660,670,680,690,700,710,720,730
640 F$="RECOVERS THE JEWELS": GOTO 740
650 F$="FOILS THE SPIES": GOTO 740
660 F$="DESTROYS THE CITY": GOTO 740
670 F$="FINDS LOVE": GOTO 740
680 F$="SAVES THE ANIMALS": GOTO 740
690 F$="CONFESSES": GOTO 740
700 F$="DISCOVERS THE SECRET": GOTO 740
710 F$="STOPS THE FLOOD": GOTO 740
720 F$="HELPS THE DOG": GOTO 740
730 F$="MAKES THE SACRIFICE"
740 PRINT "THE "; A$; " IS ABOUT A "; B$; " "; C$; " WHO IS "; D$
750 PRINT "AT "; E$; " AND WHO "; F$; " ": PRINT: N=N+1
760 PRINT "ANOTHER (Y OR N)";
770 A$=INKEY$: IF A$="" THEN 770
780 IF LEFT$(A$,1)="N" THEN 820
790 IF N=4 THEN CLS: N=0 ELSE PRINT
800 GOTO 120
810 X=INT(.0+RND(0)+1):RETURN
820 CLS: PRINT "O.K. HOPE YOU HAVE A SUCCESSFUL TV SHOW!"
830 END

```

# Twonky

---

The computer will set up a 15x15 playing field in which you are randomly located. Also inside the field is an objective square, 30 blocked squares (walls), 22 relocation squares, and 1 super special new maze square, and, of course, the Twonky (which is no relation to a creme-filled cupcake).

To win the game, you must reach the objective square before the Twonky gets you, by moving one square at a time, forward, backward, right or left. Unfortunately, you are hindered by several things:

RELOCATION squares, when moved on, cause you to be randomly transported to another position in the maze.

WALLS; you can't move into these squares, and lose your turn when you hit one.

SUPER-MAZE-SQUARE; essentially an instant loss, since when you move here a completely new maze is set up.

TWONKY; after every move, the Twonky moves toward you. (He is impervious to all traps, even walls). When he gets too close to you (2 or fewer squares), you lose. However, you are equipped with a de-materializing ray gun. You have the option of using this on your turn. If you hit the Twonky he de-materializes and then re-materializes on a different square of the maze to resume his quest after you. (CAUTION: he could be dropped into your lap!).

After each move pair (you and Twonky), your distance from both the Twonky and the objective square are printed. There is no board printout — you play blind. However, using the distances, you can home in to the approximate position of both Twonky and objective.

When shooting at the Twonky, you do *not* have a shot if the distance he is from you is not an integer. For example: If the Twonky is 2.23606 units away, you don't have a direct shot. If he is 4 units away, you do have a shot. Exceptions to this rule are distances of 5, 10, 13, and 17. (A review of the Pythagorean Theorem will show why this is true.) Hence, if the distance is 5, 10, or 13 (but not 17), you may or may not have a direct shot. Likewise, this set of rules applies to the direction of the objective.

If you watch your distances before and after moving, you should be able to tell where the Twonky is in relation to you, e.g., forward and to the right, or backward and to the left. Take the distance you are from the Twonky, square it, say  $2.23606^2 = 4.999998$  approx. = 5. Then find two integers that when squared and added together equal this (2 and 1). If the Twonky is forward and to the right, you now know that he is either up 2, over 1, or up 1, over 2.

The thing that makes Twonky unique, is that it can be played on two levels, one in which you play for fun, moving haphazardly; or you can play while figuring out exact positions, and calculating moves in advance for a challenging (as well as fun) game.

Twonky was written by Mark Capella and first appeared in *Creative Computing*, May/Jun 1977.

TWONKY

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DO YOU NEED INSTRUCTIONS? Y\_

cls

TWONKY

THIS IS THE GAME OF TWONKY.

YOU HAVE LANDED ON THE PLANET OF TWINKY AND ITS KING (KONG: THEIR KING IS KING KONG) HAS CAPTURED YOU. HE HAS PUT YOU IN A MAZE THAT IS 15 \* 15 UNITS LONG. YOU ARE IN THE DARK AND CANNOT SEE... YOU MUST GET TO THE OBJECTIVE SQUARE AND BE SET FREE.

HAZARDS INCLUDE:

SQUARES THAT YOU CANNOT GO INTO (30).

SQUARES THAT RANDOMLY THROW YOU AROUND THE MAZE (22).

SQUARE THAT SETS UP A NEW MAZE AND ALL THAT'S IN IT (1)  
PRESS ANY KEY TO CONTINUE

cls

TWONKY

THERE IS MONSTER CALLED TWONKY THAT CHASES YOU AND WILL ABSORB YOU IF THE DISTANCE IT IS FROM YOU FALLS BELOW 2 UNITS.

TWONKY IS ALSO IMMUNE TO ALL TRAPS INCLUDING WALLS.

HIT ANY KEY TO CONTINUE

cls

TWONKY

YOU CAN:

MOVE ONE SQUARE AT A TIME TO FIND THE OBJECTIVE  
OR ESCAPE FROM THE TWONKY.

SHOOT AT THE TWONKY ONE DIRECTION AT A TIME.  
IF THE TWONKY IS HIT, HE WILL BE REPLACED IN THE  
MAZE RANDOMLY.

IF THE TWONKY ABSORBS YOU... YOU LOSE.  
IF YOU LAND ON THE OBJECTIVE SQUARE YOU WIN.

GOOD LUCK!

HIT ANY KEY TO CONTINUE

cls

THE TWONKY IS 3.60555 UNITS AWAY.  
THE OBJECTIVE IS 4.12311 UNITS AWAY.

MOVE OR SHOOT (M/S)? M  
WHICH WAY (F/B/R/L)? B.

\_\_\_\_\_ cls \_\_\_\_\_

YOU'VE BEEN RELOCATED !!!

THE TWONKY IS 7.81025 UNITS AWAY.  
THE OBJECTIVE IS 7.28011 UNITS AWAY.

TWONKY MOVES...

THE TWONKY IS 7.2111 UNITS AWAY.  
THE OBJECTIVE IS 7.28011 UNITS AWAY.

MOVE OR SHOOT (M/S)? M  
WHICH WAY (F/B/R/L)? R.

\_\_\_\_\_ cls \_\_\_\_\_

MOVE ALLOWED.

THE TWONKY IS 7.81025 UNITS AWAY.  
THE OBJECTIVE IS 7 UNITS AWAY.

TWONKY MOVES...

THE TWONKY IS 7.2111 UNITS AWAY.  
THE OBJECTIVE IS 7 UNITS AWAY.

MOVE OR SHOOT (M/S)? M  
WHICH WAY (F/B/R/L)? R.

\_\_\_\_\_ cls \_\_\_\_\_

THE TWONKY IS 8.06226 UNITS AWAY.  
THE OBJECTIVE IS 2.23607 UNITS AWAY.

MOVE OR SHOOT (M/S)? M  
WHICH WAY (F/B/R/L)? R.

\_\_\_\_\_ cls \_\_\_\_\_

YOU'VE BEEN RELOCATED !!!

THE TWONKY IS 2.23607 UNITS AWAY.  
THE OBJECTIVE IS 8.06226 UNITS AWAY.

TWONKY MOVES...

THE TWONKY IS 1.41421 UNITS AWAY.  
THE OBJECTIVE IS 8.06226 UNITS AWAY.

>>> SCHLOORP !!! <<<  
THE TWONKY JUST ABSORBED YOU!! YOU LOSE.  
TRY AGAIN (Y/N)? N.

```

10 CLS: PRINT@413, "TWONKY"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, " "; INPUT "DO YOU NEED INSTRUCTIONS?"; I$
40 GOSUB 2160
50 DIM A(15,15)
60 LET R9=0
70 GOSUB 1710
80 GOSUB 1330
90 REM
100 PRINT "MOVE OR SHOOT (M/S)";
110 INPUT Q$
120 IF LEFT$(Q$,1)="M" THEN 150
130 IF LEFT$(Q$,1)="S" THEN 830
140 GOTO 90
150 PRINT "WHICH WAY (F/B/R/L)";
160 INPUT Q$
170 CLS
180 IF LEFT$(Q$,1)="F" THEN 230
190 IF LEFT$(Q$,1)="B" THEN 260
200 IF LEFT$(Q$,1)="L" THEN 290
210 IF LEFT$(Q$,1)="R" THEN 320
220 GOTO 90
230 LET X5=X
240 LET Y5=Y-1
250 GOTO 350
260 LET X5=X
270 LET Y5=Y+1
280 GOTO 350
290 LET X5=X-1
300 LET Y5=Y
310 GOTO 350
320 LET X5=X+1
330 LET Y5=Y
340 GOTO 350
350 IF X5<1 THEN 400
360 IF X5>15 THEN 400
370 IF Y5<1 THEN 400
380 IF Y5>15 THEN 400
390 GOTO 430
400 CLS: PRINT "THAT MOVE TAKES YOU OUT OF THE MAZE."
410 PRINT "MOVE NOT ALLOWED."
420 GOTO 1310
430 ON (A(X5,Y5)+1) GOTO 440,510,520,550,650,690,800
440 REM *** EMPTY SPACE
450 LET A(X,Y)=0
460 LET A(X5,Y5)=1
470 LET X=X5
480 LET Y=Y5
490 CLS: PRINT "MOVE ALLOWED."
500 GOTO 1310
510 REM *** IMPOSSIBLE TO GET HERE
520 REM *** BLOCKED SPACE ROUTINE
530 CLS: PRINT "THAT SPACE IS BLOCKED."
540 GOTO 1310
550 REM *** RELOCATION ROUTINE
560 PRINT "YOU'VE BEEN RELOCATED !!!"
570 GOSUB 2560
580 IF A(Z,W)>2 THEN 430
590 IF A(Z,W)=0 THEN 570
600 LET A(Z,W)=1
610 LET A(X,Y)=0
620 LET X=Z
630 LET Y=W
640 GOTO 1310
650 REM *** CHANGE ALL. SUPER TRAP.
660 PRINT " YOU HIT THE SUPER TRAP!! YOU GET A NEW MAZE."
670 GOSUB 1710
680 GOTO 1310
690 REM *** HE WON!
700 PRINT
710 PRINT "I DON'T BELIEVE IT BUT YOU WON THE GAME!"
720 PRINT "YOU GOT TO THE OBJECTIVE BEFORE"
730 PRINT " THE TWONKY GOT YOU!!"
740 REM
750 PRINT "TRY AGAIN (Y/N)";
760 INPUT Q$
770 IF LEFT$(Q$,1)="Y" THEN CLS: GOTO 60
780 IF LEFT$(Q$,1)="N" THEN 2600
790 GOTO 750
800 REM *** HE LANDED ON TWONKY!
810 PRINT "YOU STEPPED ON THE TWONKY!"
820 GOTO 1670

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830 REM *** SHOOT ROUTINE
840 PRINT "WHICH WAY (F/B/R/L)";
850 INPUT Q$
860 CLS
870 IF LEFT$(Q$,1)="F" THEN 920
880 IF LEFT$(Q$,1)="B" THEN 950
890 IF LEFT$(Q$,1)="R" THEN 1010
900 IF LEFT$(Q$,1)="L" THEN 980
910 GOTO 90
920 LET S1=0
930 LET S2=-1
940 GOTO 1030
950 LET S1=0
960 LET S2=1
970 GOTO 1030
980 LET S1=-1
990 LET S2=0
1000 GOTO 1030
1010 LET S1=1
1020 LET S2=0
1030 LET R1=X
1040 LET R2=Y
1050 LET R1=R1+S1
1060 LET R2=R2+S2
1070 PRINT "Z A P ---";
1080 IF R1<1 THEN 1130
1090 IF R1>15 THEN 1130
1100 IF R2<1 THEN 1130
1110 IF R2>15 THEN 1130
1120 GOTO 1170
1130 PRINT "FIZZLE..."
1140 PRINT "SHOT LEFT MAZE."
1150 PRINT "SHOT MISSED."
1160 GOTO 1310
1170 IF A(R1,R2)<>2 THEN 1220
1180 PRINT "BLAST!!!"
1190 PRINT "YOU HIT WALL."
1200 PRINT "SHOT MISSED."
1210 GOTO 1310
1220 IF A(R1,R2)<>6 THEN 1050
1230 PRINT "OUCH!!"
1240 PRINT "THONKY RETREATS."
1250 LET A(R1,R2)=R9
1260 GOSUB 2560
1270 IF A(Z,W)<>0 THEN 1260
1280 LET A(Z,W)=6
1290 LET X1=Z
1300 LET Y1=W
1310 GOSUB 1330
1320 GOTO 1450
1330 REM *** PRINT THONKY AND OBJECTIVE DISTANCE
1340 PRINT
1350 PRINT "THE THONKY IS";
1360 D=(SQR(ABS((X1-X)^2+(Y1-Y)^2)))
1370 PRINT D;
1380 PRINT "UNITS AWAY."
1390 PRINT "THE OBJECTIVE IS";
1400 D1=(SQR(ABS((X2-X)^2+(Y2-Y)^2)))
1410 PRINT D1;
1420 PRINT "UNITS AWAY."
1430 PRINT
1440 RETURN
1450 REM *** THONKY'S LOGIC
1460 IF D<2 THEN 1670
1470 LET Z2=Y1
1480 LET Z1=X1
1490 IF X<X1 THEN 1560
1500 IF X>X1 THEN 1580
1510 IF Y<Y1 THEN 1540
1520 LET Z2=Y1+1
1530 GOTO 1590
1540 LET Z2=Y1-1
1550 GOTO 1590
1560 LET Z1=X1-1
1570 GOTO 1590
1580 LET Z1=X1+1
1590 LET A(X1,Y1)=R9
1600 LET R9=A(Z1,Z2)
1610 LET A(Z1,Z2)=6
1620 LET X1=Z1
1630 LET Y1=Z2
1640 PRINT "THONKY MOVES...."
1650 GOSUB 1330
1660 IF D>2 THEN 90
1670 PRINT
1680 PRINT "> > > SCHLOORP !!! < < <"
1690 PRINT "THE THONKY JUST ABSORBED YOU!! YOU LOSE."
1700 GOTO 740
1710 REM *** SET UP NEW MAZE ROUTINE

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1720 REM *** 1=PLAYER, 2=BLOCKED SPACES
1730 REM *** 3=RELOCATIONS, 4=SUPER TRAP
1740 REM *** 5=OBJECTIVE, 6=THONKY
1750 REM *** 0=EMPTY SPACES
1760 REM *** CLEAR MAZE
1770 FOR B0=1 TO 15
1780 FOR B1=1 TO 15
1790 LET A(B0,B1)=0
1800 NEXT B1
1810 NEXT B0
1820 FOR I=1 TO 30
1830 GOSUB 2560
1840 IF A(Z,W)<>0 THEN 1830
1850 LET A(Z,W)=2
1860 NEXT I
1870 REM *** PLACE RELOCATIONS
1880 FOR I=1 TO 22
1890 GOSUB 2560
1900 IF A(Z,W)<>0 THEN 1890
1910 LET A(Z,W)=3
1920 NEXT I
1930 REM *** PLACE THE SPECIAL TRAP
1940 GOSUB 2560
1950 IF A(Z,W)<>0 THEN 1940
1960 LET A(Z,W)=4
1970 REM *** PLACE THE PLAYER
1980 GOSUB 2560
1990 IF A(Z,W)<>0 THEN 1980
2000 LET A(Z,W)=1
2010 LET X=Z
2020 LET Y=W
2030 REM *** PLACE THE OBJECTIVE
2040 GOSUB 2560
2050 IF A(Z,W)<>0 THEN 2040
2060 LET A(Z,W)=5
2070 LET X2=Z
2080 LET Y2=W
2090 REM *** PLACE THE THONKY
2100 GOSUB 2560
2110 IF A(Z,W)<>0 THEN 2100
2120 LET A(Z,W)=6
2130 LET X1=Z
2140 LET Y1=W
2150 RETURN
2160 REM
2170 IF LEFT$(I$,1)="N" THEN CLS: GOTO 2550
2180 CLS: PRINT TAB(29)"THONKY": PRINT
2190 PRINT "THIS IS THE GAME OF THONKY."
2200 PRINT "YOU HAVE LANDED ON THE PLANET OF TWINKY AND"
2210 PRINT "ITS KING (KONG: THEIR KING IS KING KONG) HAS"
2220 PRINT "CAPTURED YOU. HE HAS PUT YOU IN A MAZE THAT IS"
2230 PRINT "15 * 15 UNITS LONG. YOU ARE IN THE DARK AND CANNOT"
2240 PRINT "SEE... YOU MUST GET TO THE OBJECTIVE SQUARE AND"
2250 PRINT "BE SET FREE."
2260 PRINT
2270 PRINT "HAZARDS INCLUDE:"; PRINT
2280 PRINT "SQUARES THAT YOU CANNOT GO INTO (30).";
2290 PRINT "SQUARES THAT RANDOMLY THROW YOU AROUND THE MAZE (22).";
2300 PRINT "SQUARE THAT SETS UP A NEW MAZE AND ALL THAT'S IN IT (1)";
2310 PRINT@979, "PRESS ANY KEY TO CONTINUE";
2320 IF INKEY="" THEN 2320 ELSE PRINT@128, CHR$(31);
2330 PRINT: PRINT
2340 PRINT "THERE IS MONSTER CALLED THONKY THAT CHASES YOU AND WILL"
2350 PRINT "ABSORB YOU IF THE DISTANCE IT IS FROM YOU FALLS"
2360 PRINT "BELOW 2 UNITS."
2370 PRINT: PRINT "THONKY IS ALSO IMMUNE TO ALL TRAPS INCLUDING WALLS."
2380 PRINT: PRINT
2390 PRINT@979, "HIT ANY KEY TO CONTINUE";
2400 IF INKEY="" THEN 2400 ELSE PRINT@128, CHR$(31);
2410 PRINT "YOU CAN:"; PRINT
2420 PRINT "MOVE ONE SQUARE AT A TIME TO FIND THE OBJECTIVE"
2430 PRINT "OR ESCAPE FROM THE THONKY."
2440 PRINT
2450 PRINT "SHOOT AT THE THONKY ONE DIRECTION AT A TIME."
2460 PRINT "IF THE THONKY IS HIT, HE WILL BE REPLACED IN THE"
2470 PRINT "MAZE RANDOMLY."
2480 PRINT
2490 PRINT "IF THE THONKY ABSORBS YOU... YOU LOSE."
2500 PRINT "IF YOU LAND ON THE OBJECTIVE SQUARE YOU WIN."
2510 PRINT
2520 PRINT "GOOD LUCK!"
2530 PRINT@979, "HIT ANY KEY TO CONTINUE";
2540 IF INKEY="" THEN 2540 ELSE CLS
2550 RETURN
2560 REM *** SUBROUTINE TO GET 2 RANDOM NUMBERS
2570 LET Z=INT(RND(0)*15+1)
2580 LET W=INT(RND(0)*15+1)
2590 RETURN
2600 END

```

# Two-to-Ten

Two-to-Ten is a game of chance played with a special deck of cards with only the cards 2-10. The game is similar to blackjack in that you are drawing cards and trying to come as close as possible to a goal number (chosen at random before each round) without going over it. You must come within a certain number of points of the goal number determined by a "lucky-limit" card. The catch to the game is that you are not given the exact value of the goal number but rather a clue that is only within 15% of the goal.

Can you think of a way to make Two-to-Ten more interesting? Perhaps playing it against the computer as an opponent?

Two-to-Ten appeared in *Creative Computing* Nov/Dec 1976.

TWO TO TEN

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DO YOU NEED INSTRUCTIONS? YES.

\_\_\_\_\_ cls \_\_\_\_\_

TWO TO TEN

WELCOME TO THE GAME OF TWO TO TEN. THAT NAME COMES FROM THE SPECIAL 'DECK' (F CARDS) USED. THERE ARE NO FACE CARDS - ONLY THE CARDS 2-10. THIS GAME IS EASY AND FUN TO PLAY IF YOU UNDERSTAND WHAT YOU ARE DOING SO READ THE INSTRUCTIONS CAREFULLY.

AT THE START OF THE GAME, YOU BET ON WINNING. TYPE IN ANY NUMBER BETWEEN 0 AND 200. I THEN PICK A RANDOM NUMBER YOU ARE TO REACH BY THE SUM TOTAL OF MORE CARDS CHOSEN. BECAUSE OF THE RARE CHANCE OF YOU GETTING TO THAT NUMBER EXACTLY, YOU ARE GIVEN AN ALLOWANCE CARD. THE OBJECT OF THE GAME OF TO GET THE TOTAL OF CARDS WITHIN THE MYSTERY NUMBER WITHOUT GOING OVER.

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

YOU ARE GIVEN A HINT AS TO WHAT THE NUMBER IS. THIS IS NOT THE EXACT NUMBER ONLY ONE CLOSE. ALL YOU DO IN THIS GAME IS DECIDE WHEN TO STOP. AT THIS POINT YOUR TOTAL IS COMPARED WITH THE NUMBER AND YOUR WINNINGS ARE DETERMINED.

PLACE YOUR BET . . . YOU HAVE \$ 200 TO SPEND. ? 100

YOUR 'LUCKY LIMIT' CARD IS A 5  
YOU MUST COME WITHIN 5 WITHOUT GOING OVER TO WIN.

HERE WE GO

CARD # 1 IS A 7 . YOU ARE TRYING TO COME NEAR 46  
YOUR TOTAL IS 7 DO YOU WANT TO CONTINUE? Y\_

\_\_\_\_\_ cls \_\_\_\_\_

PLACE YOUR BET . . . YOU HAVE \$ 200 TO SPEND. ? 100

YOUR 'LUCKY LIMIT' CARD IS A 5  
YOU MUST COME WITHIN 5 WITHOUT GOING OVER TO WIN.

HERE WE GO

CARD # 2 IS A 5 . YOU ARE TRYING TO COME NEAR 46  
YOUR TOTAL IS 12 DO YOU WANT TO CONTINUE? Y\_

\_\_\_\_\_ cls \_\_\_\_\_

PLACE YOUR BET . . . YOU HAVE \$ 200 TO SPEND. ? 100

YOUR 'LUCKY LIMIT' CARD IS A 5  
YOU MUST COME WITHIN 5 WITHOUT GOING OVER TO WIN.

HERE WE GO

CARD # 3 IS A 10 . YOU ARE TRYING TO COME NEAR 46  
YOUR TOTAL IS 22 DO YOU WANT TO CONTINUE? Y\_

\_\_\_\_\_ cls \_\_\_\_\_

PLACE YOUR BET . . . YOU HAVE \$ 200 TO SPEND. ? 100

YOUR 'LUCKY LIMIT' CARD IS A 5  
YOU MUST COME WITHIN 5 WITHOUT GOING OVER TO WIN.

HERE WE GO

CARD # 4 IS A 6 . YOU ARE TRYING TO COME NEAR 46  
YOUR TOTAL IS 28 DO YOU WANT TO CONTINUE? Y\_

\_\_\_\_\_ cls \_\_\_\_\_

PLACE YOUR BET . . . YOU HAVE \$ 200 TO SPEND. ? 100

YOUR 'LUCKY LIMIT' CARD IS A 5  
YOU MUST COME WITHIN 5 WITHOUT GOING OVER TO WIN.

HERE WE GO

CARD # 5 IS A 7 . YOU ARE TRYING TO COME NEAR 46  
YOUR TOTAL IS 35 DO YOU WANT TO CONTINUE? Y\_

\_\_\_\_\_ cls \_\_\_\_\_

PLACE YOUR BET . . . YOU HAVE \$ 200 TO SPEND. ? 100

YOUR 'LUCKY LIMIT' CARD IS A 5  
YOU MUST COME WITHIN 5 WITHOUT GOING OVER TO WIN.

HERE WE GO

CARD # 6 IS A 9 . YOU ARE TRYING TO COME NEAR 46  
YOUR TOTAL IS 44 DO YOU WANT TO CONTINUE? N\_

\_\_\_\_\_ cls \_\_\_\_\_

PLACE YOUR BET . . . YOU HAVE \$ 200 TO SPEND. ? 100

YOUR 'LUCKY LIMIT' CARD IS A 5  
YOU MUST COME WITHIN 5 WITHOUT GOING OVER TO WIN.

HERE WE GO

CARD # 6 IS A 9 . YOU ARE TRYING TO COME NEAR 46  
YOUR TOTAL IS 44 DO YOU WANT TO CONTINUE? N\_

YOU WIN! THE CARD WAS 44 , YOUR GUESS TOTAL WAS 44  
WITHIN YOUR LIMIT CARD.  
YOU NOW HAVE \$ 300 IN CASH TO BET IN THE NEXT GAME!  
WOULD YOU LIKE TO PLAY THE NEXT GAME? N\_

\_\_\_\_\_ cls \_\_\_\_\_

```

10 CLS: PRINT@411, "TWO TO TEN"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, " "; INPUT "DO YOU NEED INSTRUCTIONS"; I$
40 IF LEFT$(I$,1)="N" THEN 270
50 CLS: PRINT TAB(27) "TWO TO TEN": PRINT
60 PRINT "WELCOME TO THE GAME OF TWO TO TEN. THAT NAME COMES FROM THE"
70 PRINT "SPECIAL 'DECK OF CARDS' USED. THERE ARE NO FACE CARDS - ONLY"
80 PRINT "THE CARDS 2-10. THIS GAME IS EASY AND FUN TO PLAY IF YOU"
90 PRINT "UNDERSTAND WHAT YOU ARE DOING SO READ THE INSTRUCTIONS"
100 PRINT "CAREFULLY."
110 PRINT
120 PRINT "AT THE START OF THE GAME, YOU BET ON WINNING. TYPE IN ANY"
130 PRINT "NUMBER BETWEEN 0 AND 200. I THEN PICK A RANDOM NUMBER"
140 PRINT "YOU ARE TO REACH BY THE SUM TOTAL OF MORE CARDS CHOSEN."
150 PRINT "BECAUSE OF THE RARE CHANCE OF YOU GETTING TO THAT NUMBER"
160 PRINT "EXACTLY, YOU ARE GIVEN AN ALLOWANCE CARD. THE OBJECT OF"
170 PRINT "THE GAME OF TO GET THE TOTAL OF CARDS WITHIN THE MYSTERY"
180 PRINT "NUMBER WITHOUT GOING OVER."
190 PRINT@979, "PRESS ANY KEY TO CONTINUE";
200 IF INKEY$="" THEN 200 ELSE CLS
210 PRINT "YOU ARE GIVEN A HINT AS TO WHAT THE NUMBER IS. THIS IS NOT"
220 PRINT "THE EXACT NUMBER ONLY ONE CLOSE. ALL YOU DO IN THIS GAME IS"
230 PRINT "DECIDE WHEN TO STOP. AT THIS POINT YOUR TOTAL IS COMPARED"
240 PRINT "WITH THE NUMBER AND YOUR WINNINGS ARE DETERMINED."
250 PRINT@979, "PRESS ANY KEY TO CONTINUE";
260 IF INKEY$="" THEN 260
270 CLS: M=200
280 D=0
290 T=0
300 O=INT(10*RND(0))+25
310 N=INT(0*RND(0))+0
320 R=(INT(15*RND(0))+1)/100
330 S=INT(2*RND(0))+1
340 IF S < 1 THEN 370
350 E=INT(N-(N*R))
360 GOTO 380
370 E=INT(N+(N*R))
380 A=INT(9*RND(0)+2)
390 CLS: PRINT
400 PRINT "PLACE YOUR BET . . . YOU HAVE $"; M; " TO SPEND.";
410 INPUT B
420 PRINT
430 IF B<0 THEN 470
440 IF M=D THEN 490
450 CLS: PRINT "YOU CAN'T BET MORE THAN YOU'VE GOT!"
460 GOTO 480
470 CLS: PRINT "YOU MAY NOT BET AGAINST YOURSELF."
480 GOTO 400
490 PRINT "YOUR 'LUCKY LIMIT' CARD IS A "; A
500 PRINT "YOU MUST COME WITHIN "; A; " WITHOUT GOING OVER TO WIN."
510 PRINT
520 PRINT "HERE WE GO"
530 PRINT
540 D=D+1
550 C=INT(9*RND(0)+2)
560 PRINT@512, "CARD #"; D; "IS A "; C; " YOU ARE TRYING TO COME NEAR "
570 T=T+C
580 IF T<N THEN 610
590 PRINT "YOUR TOTAL IS OVER THE NUMBER "; N; " AN AUTOMATIC LOSS!"
600 GOTO 730
610 PRINT "YOUR TOTAL IS "; T; ". DO YOU WANT TO CONTINUE";
620 INPUT Q$
630 PRINT
640 IF LEFT$(Q$,1)="Y" THEN 530
650 IF T<N-A OR T>N THEN 700
660 PRINT "YOU WIN! THE CARD WAS "; N; ", YOUR GUESS TOTAL WAS"; T
670 PRINT "WITHIN YOUR LIMIT CARD."
680 M=M+B
690 GOTO 740
700 PRINT "YOU BLEW IT! THE NUMBER WAS"; N; ", OUTSIDE YOUR LIMIT BY "
710 PRINT (N-A)-T
720 PRINT
730 M=M-B
740 PRINT "YOU NOW HAVE $"; M; " IN CASH TO BET IN THE NEXT GAME!"
750 IF M<0 THEN 820
760 PRINT "WOULD YOU LIKE TO PLAY THE NEXT GAME";
770 INPUT Q$
780 IF LEFT$(Q$,1)="Y" THEN 280
790 PRINT "HOPE YOU HAD FUN";
800 GOTO 840
810 PRINT
820 PRINT CHR$(7);
830 PRINT "YOU ARE BROKE!! YOU MAY NOT PLAY ANYMORE!!"
840 FOR XX=1 TO 2000:NEXT XX:END

```

UFO is a strategy game in which you play against the computer in a life-and-death struggle for superiority of space. It takes place after a space war with another planet in which both earth and the attacker's planet are destroyed. Both planets—basically similar in strength, social structure, and scientific awareness—realizing they are doomed, launch a "lifeboat" into space. The lifeboats are equally armed and powered.

However, the aliens are much better marksmen, hitting once out of every two shots (in lines 1230-1250, the computer's odds are set). The reason is as follows. The enemy ship's decision is made by the program; the enemy will only retreat if he feels you are ramming and will approach only if you are running and/or his fuel is running out (smaller weaponry eats up less fuel). He will only use option 6 (no move but gains fuel) if his energy is below a certain point. In other words, you can think, while he cannot. You have the advantage of your mind, so the alien has been given the advantage of a good steady aim.

The game is set in the future: civilization is destroyed, 150 people are left, and you are in command. The enemy has never truly been seen, as many enemies are never truly seen, but nevertheless you must destroy him or be destroyed. Your weapons are explained and the game begins. In your command ship is a control which will not allow you to make an illegal move. This control waits after you fire for the shot to reach the other ship and for the explosion reports to reach the ship. It then gives a full report of power drain of both ships. If your power is not negative you are still in the game but once it drops below zero your crew dies (the energy level is the amount of energy left to counteract the attack. If more energy hits the ship than was repulsed, the ship is destroyed. If the amounts are equal then the ship had exactly the same amount of energy as the attack drained.) If in any game you can get close enough to your enemy to use your heavy guns without frightening off the enemy (5000-11000), the game will last for quite a long time. Theoretically this game will last forever if played logically.

Written by Raymond J. Kernay, UFO first appeared in *Creative Computing* in Jul/Aug 1977. A modified version called Star Wars appeared in Sep/Oct 1978.

U. F. O.

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DO YOU NEED INSTRUCTIONS? YES.

cls

U. F. O.

YOU ARE ABOUT TO RECEIVE HIGH SECURITY INFORMATION.  
PLEASE EAT THE COMPUTER READ OUT AFTER READING.

THIS IS THE YEAR 2000... CIVILIZATION AS YOU KNOW IT HAS  
BEEN DESTROYED... NATIONS HAVE BEEN REDUCED TO RUBBLE  
IN A MASSIVE SPACE WAR.

YOU ARE ONBOARD A SPACE SHIP WHOSE SOLE PURPOSE  
IS TO SAFEGUARD THE 150 PEOPLE ON YOUR SHIP... THE  
SOLE SURVIVORS... YOUR MISSION: FIND A PLANET SUITABLE  
FOR YOUR COLONISTS... PROBLEM: THE ENEMY OF EARTH STILL  
EXISTS. STRANGE CREATURES NEVER SEEN BY MAN.

PRESS ANY KEY TO CONTINUE

cls

U. F. O.

BY THE TIME YOU READ THIS EARTH WILL NO LONGER EXIST.....  
HERE IS YOUR VITAL DATUM:

YOU ARE EQUIPPED WITH 10,000 UNITS OF ENERGY.  
WHEN YOU RUN OUT, THE ALIENS WILL DESTROY YOU.

| TYPE | DESCRIPTION | WEAPONRY<br>CAPACITY | FUEL DRAIN |
|------|-------------|----------------------|------------|
| 1    | HEAVY GUNS  | 0 - 11,000           | 10 UNITS   |
| 2    | WARHEADS    | 10,000 - 100,000     | 100 UNITS  |
| 3    | LASER       | 10,000 - 20,000      | 1000 UNITS |

PRESS ANY KEY TO CONTINUE

cls

U. F. O.

OPTIONS

- 4 APPROACH -----100 UNITS
- 5 RETREAT -----100 UNITS
- 6 BY TYPING 6 YOU CAN PASS AND GAIN 100 UNITS  
(LABORERS WORK TO PRODUCE POWER)

ENEMY

THE ENEMY HAS THE SAME CAPABILITIES THAT YOU HAVE.  
EACH TIME A SHIP IS HIT, ITS ENERGY DRAIN IS EQUAL TO  
THE AMOUNT OF ENERGY SPENT\*10 (EXCEPT LASER WHICH EQUALS  
THE AMOUNT SPENT\*3 UNITS).

PRESS ANY KEY TO CONTINUE

cls

U. F. O.

BOTH SHIPS ARE ON THE SAME MISSION AND DESTINATION AND BOTH  
ARE ON EQUAL TERMS.

UNFORTUNATELY, YOU MUST KILL EACH OTHER TO WIN.  
YOUR MAXIMUM SPEED IS A JUMP OF 50,000 UNITS, HOWEVER,  
SPEEDS VARY BETWEEN 10,000 - 50,000.  
WARHEADS TRAVEL AT 35,000 FEET PER SEC... SHELLS 1,000 FEET  
PER SECOND.  
THIS MESSAGE WAS RECORDED. EARTH IS DEAD... GOOD LUCK...

THIS IS COMPUTER CONTROL. WHAT IS YOUR NAME? ABDULA.

cls

```

.....
.....
.....
:----- 100,582 MI -----:

```

STATUS OF SHIP ..... 10,000 ENEMY SHIP'S STATUS ... 10,000

WHAT ARE YOUR ORDERS, ABDULA? 2\_

\_\_\_\_\_ cls \_\_\_\_\_

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.....
.....
.....
:----- 100,582 MI -----:

```

STATUS OF SHIP ..... 10,000 ENEMY SHIP'S STATUS ... 10,000

LETS NOT CRACK UNDER PRESSURE.

\_\_\_\_\_ cls \_\_\_\_\_

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.....
=====
.....
:----- 100,582 MI -----:

```

STATUS OF SHIP ..... 10,000 ENEMY SHIP'S STATUS ... 10,000

WHAT ARE YOUR ORDERS, ABDULA? 3  
LASER FIRED: MISSED..... TOO BAD!  
ENEMY FIRES LASERS....

\_\_\_\_\_ cls \_\_\_\_\_

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.....
.....
.....
:----- 100,582 MI -----:

```

STATUS OF SHIP ..... 6,000 ENEMY SHIP'S STATUS ... 9,000

LASER FIRED: MISSED..... TOO BAD!  
ENEMY FIRES LASERS.... DIRECT HIT..... POWER DOWN

\_\_\_\_\_ cls \_\_\_\_\_

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.....
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.....
:----- 100,582 MI -----:

```

STATUS OF SHIP ..... 5,000 ENEMY SHIP'S STATUS ... 8,000

LASER FIRED: MISSED..... TOO BAD!  
ENEMY FIRES LASERS.... MISSED... WHEW!!

\_\_\_\_\_ cls \_\_\_\_\_

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.....
.....
.....
:----- 33,246 MI -----:

```

STATUS OF SHIP ..... 3,800 ENEMY SHIP'S STATUS ... 7,800

WHAT ARE YOUR ORDERS, ABDULA? 2\_

\_\_\_\_\_ cls \_\_\_\_\_

```

.....
<--
.....
:----- 33,246 MI -----:

```

STATUS OF SHIP ..... 3,800 ENEMY SHIP'S STATUS ... 7,800

WHAT ARE YOUR ORDERS, ABDULA? 2  
WARHEAD LAUNCHED

\_\_\_\_\_ cls \_\_\_\_\_

```

.....
.....
.....
:----- 33,246 MI -----:

```

STATUS OF SHIP ..... 300 ENEMY SHIP'S STATUS ... 4,300

WARHEAD LAUNCHED DIRECT HIT..... ENEMY SHIP'S POWER DOWN.  
ENEMY WARHEAD FIRED... DIRECT HIT!... POWER DOWN.

\_\_\_\_\_ cls \_\_\_\_\_

```

.....
.....
.....
:----- 33,246 MI -----:

```

STATUS OF SHIP ..... 300 ENEMY SHIP'S STATUS ... 4,300

WHAT ARE YOUR ORDERS, ABDULA? 2  
WARHEAD LAUNCHED MISSED..... TOO BAD!

\_\_\_\_\_ cls \_\_\_\_\_

```

.....
.....
.....
:----- 33,246 MI -----:

```

STATUS OF SHIP ..... 200 ENEMY SHIP'S STATUS ... 4,200

WHAT ARE YOUR ORDERS, ABDULA? 2  
WARHEAD LAUNCHED DIRECT HIT..... ENEMY SHIP'S POWER DOWN.  
ENEMY WARHEAD FIRED... DIRECT HIT!... POWER DOWN.  
ENEMY IS VICTOR.... LIFE SUPPORT FADING..... CREW DYING...

PLAY AGAIN? NO\_

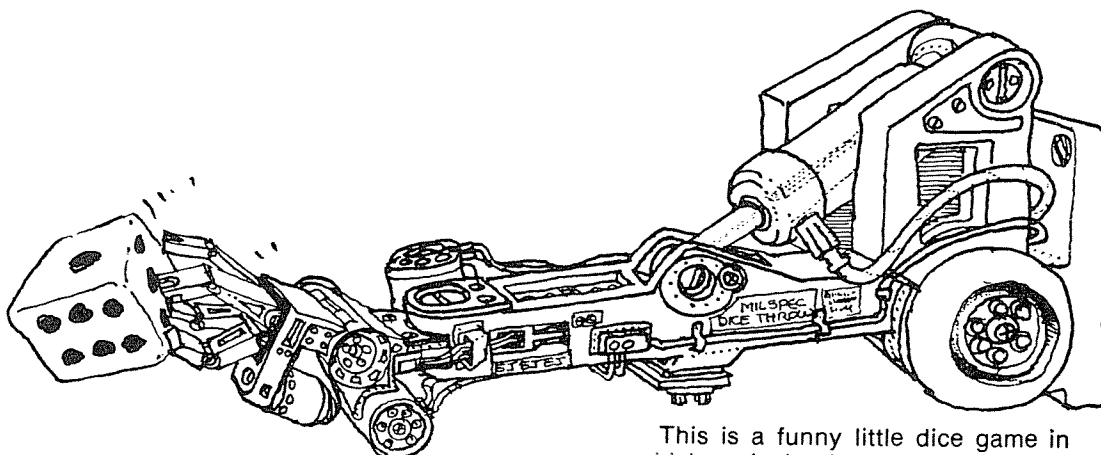


```

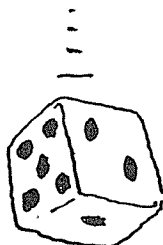
10 CLEAR 300:CLS:PRIN @413,"U.F.O."
20 PRINT:PRINT TAB(7) COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960,"";:INPU "DO YOU NEED INSTRUCTIONS";I$
40 DIM P(1)
50 E$=STRING$(6,176)+CH:$(26)+STRING$(4,24)+STRING$(7,191)
60 E$=E$+STRING$(3,140)+CHR$(26)+STRING$(12,24)+STRING$(6,131)
70 Y$=STRING$(6,176)+CH:$(26)+STRING$(12,24)+STRING$(3,140)
80 Y$=Y$+STRING$(7,191)+STRING$(4,24)+CHR$(26)+STRING$(6,131)
90 REM UFO
100 IF LEFT$(I$,1)="N" THEN CLS:GOTO 620
110 CLS:PRINT TAB(29); "U.F.O.":PRINT
120 PRINT "YOU ARE ABOUT TO RECEIVE HIGH SECURITY INFORMATION."
130 PRINT "PLEASE EAT TIE COMPUTER READ OUT AFTER READING."
140 PRINT:PRINT:PRINT
150 PRINT "THIS IS THE YEAR 2000...CIVILIZATION AS YOU KNOW IT HAS"
160 PRINT "BEEN DESTROYED...NATIONS HAVE BEEN REDUCED TO RUBBLE"
170 PRINT "IN A MASSIVE SPACE WAR."
180 PRINT "YOU ARE ONBOARD A SPACE SHIP WHOSE SOLE PURPOSE"
190 PRINT "IS TO SAFEGUARD THE 150 PEOPLE ON YOUR SHIP...THE"
200 PRINT "SOLE SURVIVORS...YOUR MISSION: FIND A PLANET SUITABLE"
210 PRINT "FOR YOUR COLONISTS...PROBLEM: THE ENEMY OF EARTH STILL"
220 PRINT "EXISTS. STRANGE CREATURES NEVER SEEN BY MAN."
230 PRINT@979,"PRESS ANY KEY TO CONTINUE";
240 IF INKEY$="" THEN 2:0 ELSE PRINT@128,CHR$(31);
250 PRINT "BY THE TIME YOU READ THIS EARTH WILL NO LONGER EXIST....."
260 PRINT "HERE IS YOUR VITAL DATUM:"
270 PRINT TAB(10); "YOU ARE EQUIPPED WITH 10,000 UNITS OF ENERGY."
280 PRINT TAB(10); "WHEN YOU RUN OUT, THE ALIENS WILL DESTROY YOU."
290 PRINT:PRINT:PRINT TAB(25); "WEAPONRY"
300 PRINT "TYPE"; "DESCRIPTION"; TAB(25); "CAPACITY"; TAB(40);
310 PRINT "FUEL DRAIN"
320 PRINT " 1"; TAB(5) "HEAVY GUNS"; TAB(24); "0 - 11,000"; TAB(40);
330 PRINT "10 UNITS"
340 PRINT " 2"; TAB(5) "WARHEADS"; TAB(21); "10,000 - 100,000";
350 PRINT TAB(40); "100 UNITS"
360 PRINT " 3"; TAB(5) "LASER"; TAB(22); "10,000 - 20,000"; TAB(40);
370 PRINT "1000 UNITS"
380 PRINT@979,"PRESS ANY KEY TO CONTINUE";
390 IF INKEY$="" THEN 3:0 ELSE PRINT@128,CHR$(31);
400 PRINT:PRINT TAB(25); "OPTIONS"
410 PRINT " 4"; TAB(5) "APPROACH"; TAB(17); "-----"; TAB(26);
420 PRINT "100 UNITS"
430 PRINT " 5"; TAB(5) "RETREAT"; TAB(17); "-----"; TAB(26);
440 PRINT "100 UNITS"
450 PRINT " 6"; TAB(5) "BY TYPING 6 YOU CAN PASS AND GAIN 100 UNITS"
460 PRINT TAB(5); "CLAB RERS WORK TO PRODUCE POWER"
470 PRINT:PRINT TAB(25); "ENEMY"
480 PRINT:PRINT "THE ENEMY HAS THE SAME CAPABILITIES THAT YOU HAVE."
490 PRINT "EACH TIME A SHIP IS HIT, ITS ENERGY DRAIN IS EQUAL TO"
500 PRINT "THE AMOUNT OF ENERGY SPENT*10 (EXCEPT LASER WHICH EQUALS"
510 PRINT TAB(30); "THE AMOUNT SPENT*3 UNITS)."
520 PRINT@979,"PRESS ANY KEY TO CONTINUE";
530 IF INKEY$="" THEN 5:0 ELSE PRINT@128,CHR$(31);
540 PRINT "BOTH SHIPS ARE ON THE SAME MISSION AND DESTINATION AND BOTH"
550 PRINT "ARE ON EQUAL TERMS."
560 PRINT "UNFORTUNATLY YOU MUST KILL EACH OTHER TO WIN."
570 PRINT "YOUR MAXIMUM SPEED IS A JUMP OF 50,000 UNITS, HOWEVER."
580 PRINT "SPEEDS VARY BETWEEN 10,000 - 50,000."
590 PRINT "WARHEADS TRAVEL AT 35,000 FEET PER SEC...SHELLS 1,000 FEET"
600 PRINT "PER SECOND."
610 PRINT "THIS MESSAGE WAS RECORDED. EARTH IS DEAD...GOOD LUCK..."
620 PRINT@768,"THIS IS COMPUTER CONTROL. WHAT IS YOUR NAME";
630 INPUT A$:P=10000:(1)=10000:A=RND(0)*200000
640 CLS:PRINT@576,STRING$(64,140):PRINT@135,E$:PRINT@181,Y$
650 FOR I=1 TO 2:PRINT TAB(12); " "; TAB(53); " "; NEXT:GOTO 710
660 PRINT@460,"";
670 PRINT USING "<-----###,###MI----->";A
680 PRINT@640,"";PRI IT USING "STATUS OF SHIP.....###,###";P
690 PRINT@674,"";PRI IT USING "ENEMY SHIP'S STATUS...###,###";P(1)
700 FOR I=1 TO 1000:NE IT:RETURN
710 GOSUB 660:PRINT@76,"WHAT ARE YOUR ORDERS,";A$:CHR$(31);
720 INPUT C
730 O=INT(RND(0)*2)+1
740 ON C GOTO 760,860,910,1070,1120,1180
750 PRINT "LET'S NOT CRAK UNDER PRESSURE.":GOTO 710
760 IF A>11005 THEN 750
770 P=P-10
780 PRINT "GUNS FIRED:"
790 F$="==":FOR I=4 TO 26:FOR II=1 TO 10:NEXT II
800 PRINT@238-I,F$:NEXT I:PRINT@238-I," ";
810 PRINT@845,"";
820 IF O=1 THEN 840
830 PRINT "MISSED..... TOO BAD!":GOTO 1190
840 PRINT "DIRECT HIT..... ENEMY SHIP'S POWER DOWN."
850 P(1)=P(1)-100:GOTO 1190
860 IF A>10000 THEN 750
870 IF A<10000 THEN 750
880 P=P-100:PRINT "WARHEAD LAUNCHED":FOR X=1 TO A*2 STEP 35000
890 NEXT X
900 F$="<--":FOR I=4 TO 26:FOR II=1 TO 10:NEXT II
910 PRINT@238-I,F$:NEXT I:PRINT@238-I," ";
920 PRINT@850,"";
930 IF O=1 THEN 940 ELSE PRINT "MISSED..... TOO BAD!":GOTO 1190
940 PRINT "DIRECT HIT..... ENEMY SHIP'S POWER DOWN."
950 P(1)=P(1)-1000
960 GOTO 1190
970 IF A<10000 THEN 750
980 P=P-1000
990 PRINT "LASER FIRED:";
1000 F$="":FOR I=1 TO 26:F$=F$+" ":PRINT@238-I,F$:NEXT
1010 F$="":FOR I=1 TO 26:F$=F$+" ":PRINT@238-I,F$:NEXT
1020 PRINT@845,"";
1030 IF O=1 THEN 1050
1040 PRINT "MISSED..... TOO BAD!":GOTO 1190
1050 PRINT "DIRECT HIT..... ENEMY SHIP'S POWER DOWN."
1060 P(1)=P(1)-3000:GOTO 1190
1070 B=INT(RND(0)*40000+10000):A=A-B:P=P-100:IF A<1 THEN 1100
1080 PRINT "SHIP APPROACHING"
1090 GOTO 1190
1100 CLS:PRINT "*** COLLISION ***":PRINT "BOTH SHIPS DESTROYED!"
1110 GOTO 1530
1120 B=INT(RND(0)*40000+10000):A=A+B:P=P-100:IF A>200050 THEN 1150
1130 PRINT "SHIP RETREATING."
1140 GOTO 1190
1150 PRINT A$; "YOUR RANGE IS";A;" WE CANNOT RUN. RANGE IS";
1160 PRINT"200000"
1170 A=200000:GOTO 1190
1180 PRINT "SHIP AT REST." P=P+100
1190 IF P(1)<1 THEN 1560
1200 IF P(1)<500 THEN 1480
1210 IF A<5000 THEN 1510
1220 R=INT(RND(0)*3)+1,O=INT(RND(0)*2)+1
1230 ON R GOTO 1400,1330
1240 IF R=2 THEN 1330
1250 IF A<100000 THEN 1220
1260 P(1)=P(1)-1000
1270 PRINT "ENEMY FIRES LASERS...";
1280 F$="":FOR I=1 TO 26:F$=F$+" ":PRINT@211,F$:NEXT
1290 F$="":FOR I=1 TO 26:F$=F$+" ":PRINT@211,F$:NEXT
1300 PRINT@918,"";
1310 IF O=1 THEN 1320 ELSE PRINT "MISSED... WHEN!":GOTO 1470
1320 PRINT "DIRECT HIT..... POWER DOWN":P=P-3000:GOTO 1470
1330 IF A>100000 THEN 1220 ELSE IF A<10000 THEN 1220
1340 P(1)=P(1)-100:PRINT "ENEMY WARHEAD FIRED..."
1350 F$="-->":FOR I=1 TO 23:FOR II=1 TO 10:NEXT II
1360 PRINT@210+I,F$:NEXT I:PRINT@210+I," ";
1370 PRINT@918,"";
1380 IF O=1 THEN 1390 ELSE PRINT "MISSED... WHEN!":GOTO 1470
1390 P=P-1000:PRINT "DIRECT HIT!... POWER DOWN.":GOTO 1470
1400 IF A>11000 THEN 1220 ELSE P(1)=P(1)-10
1410 PRINT "ENEMY FIRES SHELL..."
1420 F$="==":FOR I=1 TO 23:FOR II=1 TO 10:NEXT II
1430 PRINT@210+I,F$:NEXT I:PRINT@210+I," ";
1440 PRINT@918,"";
1450 IF O=1 THEN 1460 ELSE PRINT "MISSED... WHEN!":GOTO 1470
1460 PRINT "DIRECT HIT..... POWER DOWN.":P=P-1000
1470 IF P<1 THEN 1580 ELSE GOTO 710
1480 P(1)=P(1)+100:PRINT "ENEMY SHIP RESTING.":GOTO 1470
1490 B=INT(RND(0)*40000+10000):A=A-B:PRINT "ENEMY SHIP APPROACHING"
1500 GOTO 1470
1510 B=INT(RND(0)*40000+10000):A=A+B:PRINT "ENEMY SHIP RETREATING."
1520 GOTO 1470
1530 PRINT "THAT WAS A PRETTY DUMB THING TO DO,";A$;B$;C$;"
1540 PRINT "YOUR MISSION IS TO PROTECT YOUR PASSENGERS, NOT DESTROY."
1550 GOTO 1590
1560 PRINT "ENEMY SHIP'S POWER GONE..... NO LIFE PRESENT."
1570 PRINT "MISSION SUCCESSFUL!":GOTO 1590
1580 PRINT "ENEMY IS VICTOR... LIFE SUPPORT FADING..... CREW DYING..."
1590 FOR I=1 TO 2000:NEXT:CLS
1600 PRINT
1610 PRINT
1620 PRINT
1630 PRINT "PLAY AGAIN";
1640 INPUT A$
1650 IF LEFT$(A$,1)="Y" THEN 90
1660 EN

```

# Under & Over



This is a funny little dice game in which you're betting on the outcome of rolling two dice. You may bet on any number from two to twelve. If your number is exactly the same as shown on the sum of the dice, you win at four to one odds. If your number is under seven and the roll of the dice is under seven, you win even money. If your number is over seven and the roll of the dice is over seven, you also win even money. Only a bet on seven itself can win at four to one. The program goes on until you run out of money or until you interrupt it.



UNDER & OVER

COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ  
DO YOU NEED INSTRUCTIONS? YES\_

cls

UNDER AND OVER

THIS IS A GAME OF UNDER AND OVER. IF YOU PICK  
UNDER OR OVER SEVEN, YOU WILL WIN EVEN MONEY.  
IF YOU PICK EVEN YOU WILL WIN MONEY AT FOUR TO ONE  
ODDS. YOU HAVE \$100 TO START WITH. GOOD LUCK!

cls

PRESS ANY KEY TO CONTINUE  
WHAT NUMBER DO YOU WISH TO PLAY AND HOW MUCH  
DO YOU WANT TO BET ON THE NUMBER? 4,10\_

cls

THE DICE HAVE NOW BEEN THROWN. THE RESULTS  
ARE AS FOLLOWS.

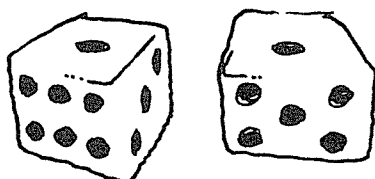
| DIE #1 | DIE #2 | SUM | YOUR # | TOSS  |
|--------|--------|-----|--------|-------|
| 2      | 4      | 6   | 4      | UNDER |

\*\*\*\*\* YOU WIN EVEN MONEY \*\*\*\*\*

YOU NOW HAVE \$110.

WHAT NUMBER DO YOU WISH TO PLAY AND HOW MUCH  
DO YOU WANT TO BET ON THE NUMBER? 4,10\_

cls



THE DICE HAVE NOW BEEN THROWN. THE RESULTS  
ARE AS FOLLOWS:

| DIE #1 | DIE #2 | SUM | YOUR # | TOSS |
|--------|--------|-----|--------|------|
| 5      | 4      | 9   | 4      | OVER |

!!!!!! YOU LOSE !!!!!

YOU NOW HAVE \$100.

WHAT NUMBER DO YOU WISH TO PLAY AND HOW MUCH  
DO YOU WANT TO BET ON THE NUMBER? 7,20.

cls

THE DICE HAVE NOW BEEN THROWN. THE RESULTS  
ARE AS FOLLOWS:

| DIE #1 | DIE #2 | SUM | YOUR # | TOSS  |
|--------|--------|-----|--------|-------|
| 4      | 1      | 5   | 7      | UNDER |

!!!!!! YOU LOSE !!!!!

YOU NOW HAVE \$80.

WHAT NUMBER DO YOU WISH TO PLAY AND HOW MUCH  
DO YOU WANT TO BET ON THE NUMBER? 7,10.

cls

THE DICE HAVE NOW BEEN THROWN. THE RESULTS  
ARE AS FOLLOWS:

| DIE #1 | DIE #2 | SUM | YOUR # | TOSS |
|--------|--------|-----|--------|------|
| 6      | 4      | 10  | 8      | OVER |

\*\*\*\*\* YOU WIN EVEN MONEY \*\*\*\*\*

YOU NOW HAVE \$90.

WHAT NUMBER DO YOU WISH TO PLAY AND HOW MUCH  
DO YOU WANT TO BET ON THE NUMBER? 9,20.

cls

THE DICE HAVE NOW BEEN THROWN. THE RESULTS  
ARE AS FOLLOWS:

| DIE #1 | DIE #2 | SUM | YOUR # | TOSS |
|--------|--------|-----|--------|------|
| 5      | 5      | 10  | 9      | OVER |

\*\*\*\*\* YOU WIN EVEN MONEY \*\*\*\*\*

YOU NOW HAVE \$110.

WHAT NUMBER DO YOU WISH TO PLAY AND HOW MUCH  
DO YOU WANT TO BET ON THE NUMBER? 5,10.

cls

THE DICE HAVE NOW BEEN THROWN. THE RESULTS  
ARE AS FOLLOWS:

| DIE #1 | DIE #2 | SUM | YOUR # | TOSS |
|--------|--------|-----|--------|------|
| 6      | 1      | 7   | 5      | EVEN |

!!!!!! YOU LOSE !!!!!

YOU NOW HAVE \$100.

WHAT NUMBER DO YOU WISH TO PLAY AND HOW MUCH  
DO YOU WANT TO BET ON THE NUMBER? 8,10.

cls

THE DICE HAVE NOW BEEN THROWN. THE RESULTS  
ARE AS FOLLOWS:

| DIE #1 | DIE #2 | SUM | YOUR # | TOSS |
|--------|--------|-----|--------|------|
| 6      | 5      | 11  | 6      | OVER |

!!!!!! YOU LOSE !!!!!

YOU NOW HAVE \$90.

WHAT NUMBER DO YOU WISH TO PLAY AND HOW MUCH  
DO YOU WANT TO BET ON THE NUMBER? 8,90.

cls

THE DICE HAVE NOW BEEN THROWN. THE RESULTS  
ARE AS FOLLOWS:

| DIE #1 | DIE #2 | SUM | YOUR # | TOSS  |
|--------|--------|-----|--------|-------|
| 1      | 4      | 5   | 8      | UNDER |

!!!!!! YOU LOSE !!!!!

YOU NOW HAVE \$0.

THE GAME IS OVER AND YOU ARE FLAT BROKE. SORRY CHARLIE,  
THIS PROVES THAT IT IS NOT GOOD TO GAMBLE.  
DO YOU WANT TO PLAY AGAIN? NO.

cls

```

10 CLS
20 CLEAR: 1000
30 PRINT @ 410, "UNDER & OVER"
40 PRINT
50 PRINT TAB(7)"COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
60 PRINT @ 960, " ";
70 INPUT "DO YOU NEED INSTRUCTIONS?"; I$
80 IF I$="N" THEN 200
90 IF I$="Y" THEN 200
100 CLS
110 PRINT TAB(20); "UNDER AND OVER"
120 PRINT
130 PRINT "THIS IS A GAME OF UNDER AND OVER. IF YOU PICK"
140 PRINT "UNDER OR OVER SEVEN, YOU WILL WIN EVEN MONEY."
150 PRINT "IF YOU PICK EVEN YOU WILL WIN MONEY AT FOUR TO ONE"
160 PRINT "ODDS. YOU HAVE $100 TO START WITH. GOOD LUCK!"
170 PRINT
180 PRINT
190 GOSUB 750
200 CLS
210 A=100
220 RESTORE
230 READ A$, B$, C$
240 DATA "UNDER", "OVER", "EVEN"
250 PRINT "WHAT NUMBER DO YOU WISH TO PLAY AND HOW MUCH"
260 PRINT "DO YOU WANT TO BET ON THE NUMBER?";
270 INPUT B, C
280 CLS
290 PRINT "THE DICE HAVE NOW BEEN THROWN. THE RESULTS"
300 PRINT "ARE AS FOLLOWS:"
310 PRINT
320 Q=INT(6*RND(0)+1)
330 R=INT(6*RND(0)+1)
340 PRINT "DIE #1" TAB(15); "DIE #2" TAB(30); "SUM" TAB(40); "YOUR #" TAB(55); "TOSS"
350 PRINT "----" TAB(15); "----" TAB(30); "----" TAB(40); "----" TAB(55); "----"
360 IF Q+R>7 THEN 410
370 IF Q+R=7 THEN 440
380 PRINT USING F$; Q, R, Q+R, B, A$
390 PRINT
400 GOTO 460
410 PRINT USING F$; Q, R, Q+R, B, B$
420 PRINT
430 GOTO 460
440 PRINT USING F$; Q, R, Q+R, B, C$
450 PRINT
460 IF I=Q+R THEN 480
470 IF (B<7 AND Q+R<7) OR (B>7 AND Q+R>7) THEN 540 ELSE 580
480 IF B<=6 OR B=8 THEN 540
490 A=A-(4*C)
500 PRINT TAB(20); "***** YOU WIN 4 TO 1 *****"
510 PRINT
520 GOSUB 700
530 GOTO 620
540 A=A-C
550 PRINT TAB(20); "***** YOU WIN EVEN MONEY *****"
560 GOSUB 700
570 GOTO 620
580 A=A-C
590 PRINT TAB(20); "!!!!!! YOU LOSE !!!!!"
600 GOSUB 700
610 GOTO 620
620 IF I=0 THEN 220
630 PRINT "THE GAME IS OVER AND YOU ARE FLAT BROKE. SORRY CHARLIE,"
640 PRINT "THIS PROVES THAT IT IS NOT GOOD TO GAMBLE."
650 GOTO 660
660 PRINT "DO YOU WANT TO PLAY AGAIN?";
670 INPUT I$
680 IF LEFT$(I$, 1)="Y" THEN 200
690 END
700 PRINT "YOU NOW HAVE";
710 PRINT USING "#####"; A;
720 PRINT " "
730 PRINT
740 RETURN
750 PRINT @ 579, "PRESS ANY KEY TO CONTINUE";
760 IF INKEY$="" THEN 760
770 RETURN

```

# Van Gam

VAN GAM is a simple game with an interesting solution set. The winning sequence pairs are formed by certain mutually exclusive *sequences*, using the golden mean,

$$\frac{1 + \sqrt{5}}{2}$$

as an irrational generator. See explanation, lines 110-210.

$$\text{IF } T = \frac{1 + \sqrt{5}}{2}$$

$$\text{and } X = T + 1, Y = \frac{1}{T} + 1$$

then for integers N the winning sequence generators are

INT (N \* X) 2 5 7 10 13 . . . .

INT (N \* Y) 1 3 4 6 8 . . . .

It is interesting to note that the union of these sequences is the set of integers, and their intersection is empty. That is the case, in fact, for any irrational generator, but only T will produce winning VAN GAM pairs. The game is not much fun in that the average user will never be able to beat the computer in non-trivial cases, unless he has been taught the winning sequences.

This program by Alan Brown first appeared in *Creative Computing*, Jan/Feb 1978.

```

                                VANGAM

                                COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

DO YOU NEED INSTRUCTIONS? YES_
_____ cls _____

                                VAN WYTHOFF'S GAME

YOU ARE TO CREATE TWO PILES OF MATCHES, EACH CONTAINING 100
OR LESS. YOU PLAY ALTERNATELY WITH ME, AND OUR MOVES
CONSIST OF

    (A) TAKING AWAY 1 OR MORE MATCHES FROM ONE PILE ONLY,
OR
    (B) TAKING AWAY THE SAME NUMBER FROM EACH PILE.
THE ONE WHO TAKES AWAY THE LAST MATCH OF ALL WINS.
ENTER YOUR MOVES IN THIS MANNER:
    2L - (2 LEFT) TAKE TWO FROM LEFT PILE
    3R - (3 RIGHT) TAKE THREE FROM RIGHT PILE
    5B - (5 BOTH) TAKE FIVE FROM EACH PILE

                                PRESS ANY KEY TO CONTINUE
_____ cls _____

DESIRED PILE SIZES (NUMBER,NUMBER)? 17,22
DO YOU WANT TO GO FIRST? YES_
_____ cls _____

```

```

                                LEFT  RIGHT
                                ----  ----
                                14    22

YOUR MOVE ? 3L
HM...
_____ cls _____

                                LEFT  RIGHT
                                ----  ----
                                9     17

YOUR MOVE ? 3B
HM...
_____ cls _____

                                LEFT  RIGHT
                                ----  ----
                                9     15

YOUR MOVE ? 5R_
HM... I TAKE: 2R
_____ cls _____

                                LEFT  RIGHT
                                ----  ----
                                6     10

YOUR MOVE ? 3B_
HM... I TAKE: 3L
_____ cls _____

                                LEFT  RIGHT
                                ----  ----
                                3     5

YOUR MOVE ? 3R_
HM... I TAKE: 2R
_____ cls _____

                                LEFT  RIGHT
                                ----  ----
                                1     2

YOUR MOVE ? 1R_
HM... I TAKE: 2L
_____ cls _____

                                LEFT  RIGHT
                                ----  ----
                                0     0

SORRY - I WIN. DON'T FEEL BADLY - I'M AN EXPERT.

DO YOU WANT TO PLAY AGAIN? _
_____ cls _____

DESIRED PILE SIZES (NUMBER,NUMBER)? 26,16
DO YOU WANT TO GO FIRST? NO_
_____ cls _____

                                LEFT  RIGHT
                                ----  ----
                                25    16

YOUR MOVE ? 2B_
HM... I TAKE: 1L
_____ cls _____

```

```

      LEFT  RIGHT
      ----  ----
      22    14

YOUR MOVE ? 2B_
HM... I TAKE: 1L

      -----  - cls -----

      LEFT  RIGHT
      ----  ----
      19    12

YOUR MOVE ? 2B_
HM... I TAKE: 1L

      -----  - cls -----

      LEFT  RIGHT
      ----  ----
      17    11

YOUR MOVE ? 2B_
HM... I TAKE: 1L

      -----  - cls -----

      LEFT  RIGHT
      ----  ----
      14     9

YOUR MOVE ? 1B_
HM... I TAKE: 1L

      -----  - cls -----

      LEFT  RIGHT
      ----  ----
      12     8

YOUR MOVE ? 2B_
HM... I TAKE: 1L

      -----  - cls -----

      LEFT  RIGHT
      ----  ----
       9     6

YOUR MOVE ? 2B_
HM... I TAKE: 1L

      -----  - cls -----

      LEFT  RIGHT
      ----  ----
       6     4

YOUR MOVE ? 1B_
HM... I TAKE: 1L

      -----  - cls -----

      LEFT  RIGHT
      ----  ----
       4     3

YOUR MOVE ? 2B_
HM... I TAKE: 1L

      -----  - cls -----

      LEFT  RIGHT
      ----  ----
       1     1

YOUR MOVE ? 1B_
HM... I TAKE: 1L

      -----  - cls -----

      LEFT  RIGHT
      ----  ----
       0     0

YOUR MOVE ? 1B
HM...

      -----  - cls -----

      LEFT  RIGHT
      ----  ----
       0     0

YOUR MOVE ? 1B
HM...

      -----  - cls -----

```

YOU WIN!!

CONGRATULATIONS. YOU ARE A VERY CLEVER VAN WYTHOFF'S GAMESMAN.

DO YOU WANT TO PLAY AGAIN? NO\_

```

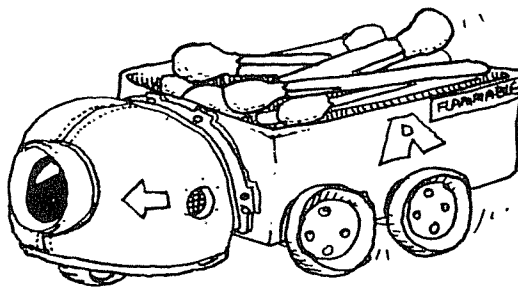
10 CLS: PRINT@413, "VANGAM"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "DO YOU NEED INSTRUCTIONS"; I$
40 DIM Q(200)
50 X=(1+50R(5))/2: Y=1+1/X: X=1+X
60 FOR I=0 TO 99
70 Q(I*2)=INT(I*X): Q(I*2+1)=INT(I*Y)
80 NEXT I: T=0
90 IF LEFT$(I$,1)="N" THEN CLS: GOTO 220
100 CLS: PRINT TAB(23); "VAN WYTHOFF'S GAME": PRINT
110 PRINT "YOU ARE TO CREATE TWO PILES OF MATCHES, EACH CONTAINING 100"
120 PRINT "OR LESS. YOU PLAY ALTERNATELY WITH ME, AND OUR MOVES"
130 PRINT "CONSIST OF:"
140 PRINT TAB(10); "(A) TAKING AWAY 1 OR MORE MATCHES";
150 PRINT " FROM ONE PILE ONLY, OR"
160 PRINT TAB(10); "(B) TAKING AWAY THE SAME NUMBER FROM EACH PILE."
170 PRINT "THE ONE WHO TAKES AWAY THE LAST MATCH OF ALL WINS."
180 PRINT "ENTER YOUR MOVES IN THIS MANNER:"
190 PRINT TAB(10); "2L - (2 LEFT) TAKE TWO FROM LEFT PILE"
200 PRINT TAB(10); "3R - (3 RIGHT) TAKE THREE FROM RIGHT PILE"
210 PRINT TAB(10); "5B - (5 BOTH) TAKE FIVE FROM EACH PILE"
220 PRINT@979, "PRESS ANY KEY TO CONTINUE";
221 IF INKEY$="" THEN 221 ELSE CLS
230 CLS: INPUT "DESIRED PILE SIZES (NUMBER,NUMBER)"; S1,S2
240 L=S1: R=S2
250 IF L+R>5 THEN 270
260 PRINT "OH, YOU'RE A SPORT, YOU ARE."
270 INPUT "DO YOU WANT TO GO FIRST"; B$: CLS
280 PRINT: PRINT TAB(27); "LEFT RIGHT"
290 PRINT TAB(27); "-----"
300 PRINT TAB(27); L; TAB(33); R
310 P=L*2: IF L>R THEN 330
320 P=R*2
330 IF LEFT$(B$,1)="N" THEN 530
340 IF L=R THEN PRINT "YOU LIKE SITTING DUCKS, DON'T YOU?"
350 PRINT@512, "YOUR MOVE "; CHR$(30); INPUT B$: PRINT CHR$(31);
360 FOR X=1 TO LEN(B$)
370 IF ASC(MID$(B$,X,1))<48 OR ASC(MID$(B$,X,1))>57 THEN 390
380 NEXT X
390 S3=VAL(MID$(B$,1,X-1))
400 IF S3=0 THEN 440
410 IF MID$(B$,X,1)="L" THEN 460
420 IF MID$(B$,X,1)="R" THEN 480
430 IF MID$(B$,X,1)="B" THEN 500
440 T=T+1: IF T>2 THEN 1170
450 PRINT: PRINT "IMPROPER ENTRY, STOP FOOLING AROUND.": GOTO 350
460 IF S3>L THEN 440
470 L=L-S3: GOTO 520
480 IF S3>R THEN 440
490 R=R-S3: GOTO 520
500 IF S3>L THEN 440
510 L=L-S3: GOTO 480
520 PRINT@219, L; TAB(34); R
530 PRINT@576, "HM... ";
540 FOR I=1 TO 500: A=A+I: NEXT I
550 IF L+R>0 THEN 600
560 PRINT: PRINT: PRINT "YOU WIN!!": PRINT
570 PRINT "CONGRATULATIONS. YOU ARE A VERY CLEVER VAN WYTHOFF'S"
580 PRINT "GAMESMAN."
590 GOTO 1120
600 I=0: M=0
610 IF Q(I)=L THEN 660
620 IF Q(I+1)=L THEN 680
630 IF Q(I)=R THEN 700
640 IF Q(I+1)=R THEN 720
650 I=I+2: GOTO 610
660 L1=I: L2=1: IF I=1 THEN 740
670 M=1: GOTO 630
680 L1=I: L2=0: IF I=1 THEN 740
690 M=1: GOTO 630

```

```

700 R1=I: R2=1: IF M=1 THEN 740
710 M=1: GOTO 650
720 R1=I: R2=0: IF M=1 THEN 740
730 M=1: GOTO 650
740 IF L=R THEN 800
750 IF R1=L1 THEN 1030
760 IF L1>R1 THEN 810
770 P=L1+L2
780 IF Q(P)>R THEN 840
790 M=R-Q(P): R=Q(P): A$="R": GOTO 1060
800 M=L: L=0: R=0: A$="B": GOTO 1060
810 P=R1+R2
820 IF Q(P)>L THEN 840
830 M=L-Q(P): L=Q(P): A$="L": GOTO 1060
840 M=0: A$="B"
850 P=L1: IF R1<L1 THEN P=R1
860 P=P-2: G=0
870 M=M+1: L=L-1: R=R-1
880 FOR I=P TO 0 STEP -2
890 IF Q(I)=L THEN 940
900 IF Q(I+1)=L THEN 960
910 IF Q(I)=R THEN 980
920 IF Q(I+1)=R THEN 1000
930 NEXT I: GOTO 870
940 IF Q(I+1)=R THEN 1060
950 GOTO 1010
960 IF Q(I)=R THEN 1060
970 GOTO 1010
980 IF Q(I+1)=L THEN 1060
990 GOTO 1010
1000 IF Q(I)=L THEN 1060
1010 IF G=1 THEN 860
1020 G=1: GOTO 870
1030 IF L>R THEN 1050
1040 R=R-1: M=1: A$="R": GOTO 1060
1050 L=L-1: M=1: A$="L"
1060 B$="": IF M>9 THEN 1150
1070 B$=CHR$(M+48)
1080 B$=B$+A$
1090 PRINT "I TAKE: "; TAB(14); B$: PRINT@219, L, TAB(34); R
1100 IF L+R>0 THEN 350
1110 PRINT: PRINT "SORRY - I WIN. DON'T FEEL BADLY - I'M AN EXPERT."
1120 PRINT: PRINT "DO YOU WANT TO PLAY AGAIN?"; CHR$(31);: INPUT B$
1130 IF LEFT$(B$,1)="Y" THEN 220
1140 GOTO 1190
1150 B$=CHR$(INT(M/10)+48): B$=B$+CHR$(M-INT(M/10)*10+48)
1160 GOTO 1080
1170 PRINT: PRINT "LOOK, YOU JUST WON'T STOP FOOLING ABOUT. BUZZ OFF."
1180 GOTO 1190
1190 PRINT: PRINT "O.K. BYE NOW."
1200 FOR A=1 TO 1000: NEXT: END

```



# Warfish

In this game, you're the commander of an American submarine with a mission to seek out and destroy as many Japanese ships as possible during World War II.

You may up your periscope to search for Japanese ships, you may launch your torpedoes, or you may dive to avoid Japanese ships that are attacking you.

For the most part, this is a game of random probabilities. To make it more interesting, you might wish to introduce a skill factor in terms of aiming your submarine or distance away from an enemy ship, size of the enemy ship, and so on.

Warfish was written by Randy Wit.

WARFISH

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DO YOU NEED INSTRUCTIONS? YES.

Cls

WARFISH

YOU COMMAND AN AMERICAN SUBMARINE THAT BEEN SENT OUT TO ATTACK JAPANESE SHIPS AT SEA DURING WORLD WAR TWO.

THE ORDERS THAT CAN BE GIVEN ARE THE FOLLOWING:

PERISCOPE - TO SEARCH FOR JAPANESE SHIPS.

TORPEDO - TO LAUNCH TORPEDOES AT JAPANESE SHIPS.

DIVE - TO ESCAPE JAPANESE SHIPS THAT ARE ATTACKING.

THESE ARE SOME HISTORIC U. S. NAVY SUBMARINES:

TAUTOG, SILVERSIDES, CAVALLA, BLUEFISH, THRESHER  
SWORDFISH, FLASHER, TROUT, ARCHER.

SELECT ONE OF THE ABOVE, OR USE A NAME OF YOUR CHOICE.  
PRINT THE NAME OF YOUR SUBMARINE? TROUT.

Cls

JAPANESE TORPEDO BOAT IS ATTACKING.  
ORDERS, COMMANDER? DIVE.

Cls

DISTANCE OF TORPEDO BOAT      DEPTH OF USS TROUT

|            |          |
|------------|----------|
| 1750 YARDS | 0 FEET   |
| 1500 YARDS | 25 FEET  |
| 1250 YARDS | 50 FEET  |
| 1000 YARDS | 75 FEET  |
| 750 YARDS  | 100 FEET |
| 500 YARDS  | 125 FEET |
| 250 YARDS  | 150 FEET |
| 0 YARDS    | 175 FEET |

THE USS TROUT IS UNHURT.  
ORDERS, COMMANDER? PERISCOPE.

Cls

JAPANESE AMMUNITION SHIP - 9650 TONS.  
ORDERS, COMMANDER? TORPEDO.

Cls

26 TORPEDOES LEFT.  
NUMBER OF TORPEDOES TO FIRE? 2  
2 TORPEDOES FIRED - 2 HITS - AMMUNITION SHIP SUNK.  
ORDERS, COMMANDER? PERISCOPE.

Cls

JAPANESE TRANSPORT - 8800 TONS.  
ORDERS, COMMANDER? TORPEDO.

Cls

24 TORPEDOES LEFT.  
NUMBER OF TORPEDOES TO FIRE? 2  
2 TORPEDOES FIRED - 1 HITS - TRANSPORT SUNK.  
ORDERS, COMMANDER? PERISCOPE.

Cls

JAPANESE AMMUNITION SHIP - 9650 TONS.  
ORDERS, COMMANDER? TORPEDO.

Cls

22 TORPEDOES LEFT.  
NUMBER OF TORPEDOES TO FIRE? 10  
10 TORPEDOES FIRED - 6 HITS - AMMUNITION SHIP SUNK.  
ORDERS, COMMANDER? PERISCOPE.

Cls

JAPANESE FREIGHTER - 6500 TONS.  
ORDERS, COMMANDER? TORPEDO.

Cls

12 TORPEDOES LEFT.  
 NUMBER OF TORPEDOES TO FIRE? 6  
 6 TORPEDOES FIRED - 3 HITS - FREIGHTER SUNK.  
 JAPANESE DESTROYER IS ATTACKING.  
 ORDERS, COMMANDER? TORPEDO.

cls

THE USS TROUT HAS BEEN SUNK BY GUNFIRE.

THE SUBMARINE USS TROUT HAS SUNK A TOTAL OF 4 SHIPS.  
 TOTAL ENEMY TONNAGE SUNK: 34600 TONS

DO YOU WANT TO TRY AGAIN? NO.

cls

```

10 CLS: PRINT@413; "WARFISH"
20 PRINT: PRINT TAB(7); "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960; " ";: INPUT "DO YOU NEED INSTRUCTIONS?"; I$
40 @0=RND(0)
50 REM
60 IF LEFT$(I$,1)="N" THEN CLS: GOTO 190
70 CLS: PRINT TAB(20); "WARFISH": PRINT
80 PRINT "YOU COMMAND AN AMERICAN SUBMARINE THAT HAS BEEN SENT OUT"
90 PRINT "TO ATTACK JAPANESE SHIPS AT SEA DURING WORLD WAR TWO."
100 PRINT
110 PRINT "THE ORDERS THAT CAN BE GIVEN ARE THE FOLLOWING:"
120 PRINT "  PERISCOPE - TO SEARCH FOR JAPANESE SHIPS."
130 PRINT "  TORPEDO - TO LAUNCH TORPEDOES AT JAPANESE SHIPS."
140 PRINT "  DIVE - TO ESCAPE JAPANESE SHIPS THAT ARE ATTACKING."
150 PRINT "THESE ARE SOME HISTORIC U.S. NAVY SUBMARINES:":PRINT
160 PRINT "  TAUTOG, SILVERSIDES, CAVALLA, BLUEFISH, THRESHER"
170 PRINT "  SWORDFISH, FLASHER, TROUT, ARCHER":PRINT
180 PRINT "SELECT ONE OF THE ABOVE, OR USE A NAME OF YOUR CHOICE."
190 PRINT "PRINT THE NAME OF YOUR SUBMARINE:"
200 INPUT A$
210 T=25
220 D=INT(RND(0)*10)
230 IF D<6 THEN 380
240 IF D<6 AND D<7 THEN 270
250 R$="DESTROYER"
260 W=2100
270 IF D<8 THEN 380
280 R$="DESTROYER ESCORT"
290 W=1350
300 IF D<9 THEN 330
310 R$="TORPEDO BOAT"
320 W=70
330 IF D=6 OR D=7 THEN 360
340 Q=1
350 GOTO 370
360 Q=2
370 PRINT "JAPANESE "; R$; " IS ATTACKING."
380 IF D>=6 THEN 400
390 A=INT(RND(0)*10)
400 REM
410 PRINT "ORDERS, COMMANDER:"
420 INPUT C$
430 CLS: C$=MID$(C$,1,1)
440 IF C$="P" THEN 480
450 IF C$="T" THEN 1100
460 IF C$="D" THEN 1370
470 GOTO 410
480 IF D>5 OR Q>0 THEN 1080
490 IF A=4 THEN 570
500 R$="FREIGHTER"
510 IF A<0 AND A<1 THEN 530
520 W=6500
530 IF A<2 THEN 550
540 W=7500
550 IF A<3 THEN 570
560 W=8100
570 IF A<7 AND A<8 THEN 630
580 R$="TANKER"
590 IF A<8 THEN 620
600 W=10000
610 GOTO 630
620 W=9500
630 IF A<4 AND A<5 THEN 690
640 R$="TRANSPORT"
650 IF A<5 THEN 680
660 W=11500
670 GOTO 690
680 W=8800
690 IF A<6 THEN 720
700 R$="AMMUNITION SHIP"
710 W=9650
720 IF A>=9 OR A=6 THEN 740
730 Q=1
740 IF A<6 THEN 760
750 Q=1

```

```

760 IF A<9 THEN 1080
770 E=INT(RND(0)*10)
780 IF E<0 THEN 810
790 R$="BATTLESHIP"
800 W=33500
810 IF E<1 THEN 840
820 R$="AIRCRAFT CARRIER"
830 W=25700
840 IF E<2 THEN 870
850 R$="HEAVY CRUISER"
860 W=9900
870 IF E<3 THEN 900
880 R$="LIGHT CRUISER"
890 W=9600
900 IF E<4 AND E<5 THEN 930
910 R$="DESTROYER"
920 W=2100
930 IF E<6 AND E<7 THEN 960
940 R$="SUBMARINE"
950 W=1500
960 IF E<8 AND E<9 THEN 980
970 W=1350
980 IF E<=5 THEN 1000
990 Q=1
1000 IF E<4 AND E<5 THEN 1020
1010 Q=2
1020 IF E<2 AND E<3 THEN 1040
1030 Q=3
1040 IF E<1 THEN 1060
1050 W=4
1060 IF E<0 THEN 1080
1070 Q=7
1080 PRINT "JAPANESE "; R$; " -"; W; "TONS."
1090 GOTO 400
1100 IF Q=1 THEN 1130
1110 PRINT "NO JAPANESE SHIPS IN SIGHT - JUST OCEAN."
1120 IF Q<1 THEN 410
1130 PRINT T; "TORPEDOES LEFT."
1140 PRINT "NUMBER OF TORPEDOES TO FIRE:"
1150 INPUT R
1160 IF R<0 OR T-R<0 THEN 1140
1170 IF R<INT(R) THEN 1140
1180 T=T-R
1190 S=INT(RND(0)*10)
1200 IF S<R THEN 1190
1210 Q=Q-S
1220 IF Q<=0 THEN 1240
1230 Q$="DAMAGED"
1240 IF Q=1 THEN 1280
1250 Q$="SUNK"
1260 O=O+W
1270 L=L+1
1280 PRINT R; "TORPEDOES FIRED -"; S; "HITS ";
1290 IF S<0 THEN 1310
1300 PRINT
1310 IF S<=0 THEN 1330
1320 PRINT "- "; R$; " "; Q$; " "
1330 IF D>5 AND Q>0 THEN 1560
1340 IF T<1 THEN 1580
1350 IF Q<1 THEN 220
1360 GOTO 400
1370 IF D>=6 THEN 1390
1380 PRINT "THE USS "; A$; " IS NOT UNDER ATTACK."
1390 IF D<6 THEN 410
1400 U=INT(RND(0)*10)*250
1410 PRINT "DISTANCE OF "; R$; TAB(32); "DEPTH OF USS ";A$
1420 FOR XX=1 TO 63: PRINT "=";: NEXT
1430 PRINT U; "YARDS"; TAB(32); Z; "FEET"
1440 U=U-250
1450 Z=Z+25
1460 IF U<=0 THEN 1430
1470 IF R$="TORPEDO BOAT" THEN 1510
1480 W=INT(RND(0)*10)*25+50
1490 IF W+25<Z AND W-25<Z THEN 1540
1500 U=0: Z=0
1510 PRINT: PRINT "THE USS "; A$; " IS UNHURT."
1520 Q=0
1530 GOTO 220
1540 CLS: PRINT "THE USS "; A$; " HAS BEEN SUNK BY DEPTH CHARGES."
1550 GOTO 1610
1560 FOR I=1 TO 1500: NEXT I
1565 CLS: PRINT "THE USS "; A$; " HAS BEEN SUNK BY GUNFIRE."
1570 GOTO 1610
1580 FOR I=1 TO 1500: NEXT I
1585 CLS: PRINT "THE USS "; A$; " HAS EXPENDED ALL ITS TORPEDOES."
1590 IF Q<=0 THEN 1610
1600 PRINT: PRINT "CONGRATULATIONS ON A SUCCESSFUL DEPLOYMENT."
1610 PRINT
1620 PRINT "THE SUBMARINE USS "; A$; " HAS SUNK A TOTAL OF"; L; "SHIPS."
1630 PRINT "TOTAL ENEMY TONNAGE SUNK: "; O; "TONS"
1640 PRINT: PRINT
1650 INPUT "DO YOU WANT TO TRY AGAIN?";ANS$
1660 IF LEFT$(ANS$,1)="Y" THEN 50 ELSE END

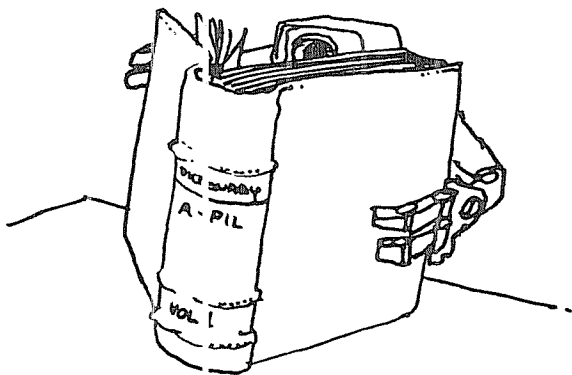
```



# Word Search Puzzle

This program generates the immensely popular word-search puzzles containing names of Presidents, states, types of animals, fish, and every manner of objects. It asks you the length and width of the puzzle you wish generated and then the number of words to be hidden in the puzzle. As the instructions note, occasionally the computer may find that it can't hide a particular word in the puzzle and will ask you if it should start over or if you want that particular word deleted. If you start over, try giving it fewer words or larger puzzle dimensions. The program hides the words fairly efficiently although you can usually improve on it slightly when you get the final puzzle out. Since you're probably just using this program for fun, it's generally more than adequate.

Word Search Puzzle runs best on a line printer, but can certainly be used with video only. Just don't clear the screen before you solve the puzzle!



This word search puzzle generator was originated by Leor Zolman.

WORD SEARCH PUZZLE

COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ

DO YOU NEED INSTRUCTIONS? YES\_

\_\_\_\_\_ cls \_\_\_\_\_

WORD SEARCH PUZZLE

THIS PROGRAM IS A WORD SEARCH PUZZLE GENERATOR!!  
THE PROGRAM TAKES A SET OF INPUT STRINGS, PURGES ALL  
NON-ALPHABETIC CHARACTERS OUT OF THEM, AND INCORPORATES  
THEM INTO A WORD SEARCH PUZZLE.

IN THE COURSE OF MAKING THE PUZZLE, THE MACHINE MAY  
FIND THAT IT CAN'T PUT A PARTICULAR WORD ANYWHERE, AND  
SO WILL ASK YOU IF IT SHOULD START THE WHOLE PUZZLE  
OVER. IF YOU DON'T WANT IT TO START OVER, TYPING 'NO'  
WILL THROW AWAY THAT PARTICULAR WORD. IF THIS PERSISTS,  
TRY EITHER GIVING LESS WORDS OR BIGGER PUZZLE DIMENSIONS!

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

DO YOU WANT THIS TO GO TO THE PRINTER ? YES  
HOW MANY COLUMNS DOES YOUR PRINTER HAVE ? 60  
DO YOU WANT A SOLUTION PRINTOUT? YES  
WHAT IS TO BE THE WIDTH OF THE PUZZLE? 15  
THE LENGTH? 15  
WHAT IS THE MAXIMUM NUMBER OF WORDS IN THE PUZZLE? 10  
NOW ENTER A HEADING THAT WILL BE PRINTED OVER THE PUZZLE:  
( 60 CHARACTERS MAXIMUM! )  
? COMPUTER LANGUAGES\_

\_\_\_\_\_ cls \_\_\_\_\_

OK ENTER A WORD AT EACH QUESTION MARK.  
TO REDO THE PREVIOUS WORD, TYPE A HYPHEN (-).  
WHEN YOU RUN OUT OF WORDS, TYPE A PERIOD (.).  
NEXT WORD ? BASIC\_

\_\_\_\_\_ cls \_\_\_\_\_

OK ENTER A WORD AT EACH QUESTION MARK.  
TO REDO THE PREVIOUS WORD, TYPE A HYPHEN (-).  
WHEN YOU RUN OUT OF WORDS, TYPE A PERIOD (.).  
NEXT WORD ? FORTRAN\_

-BASIC-

\_\_\_\_\_ cls \_\_\_\_\_

OK ENTER A WORD AT EACH QUESTION MARK.  
TO REDO THE PREVIOUS WORD, TYPE A HYPHEN (-).  
WHEN YOU RUN OUT OF WORDS, TYPE A PERIOD (.).  
NEXT WORD ? PLI\_

-BASIC-

-FORTRAN-

\_\_\_\_\_ cls \_\_\_\_\_

OK . . . ENTER A WORD AT EACH QUESTION MARK.  
TO REDO THE PREVIOUS WORD, TYPE A HYPHEN (-).  
WHEN YOU RUN OUT OF WORDS, TYPE A PERIOD (.).  
NEXT WORD ? COBOL\_

-BASIC-        -FORTRAN-        -PLI-  
\_\_\_\_\_ cls \_\_\_\_\_

OK . . . ENTER A WORD AT EACH QUESTION MARK.  
TO REDO THE PREVIOUS WORD, TYPE A HYPHEN (-).  
WHEN YOU RUN OUT OF WORDS, TYPE A PERIOD (.).  
NEXT WORD ? ASSEMBLER\_

-BASIC-        -FORTRAN-        -PLI-        -COBOL-  
\_\_\_\_\_ cls \_\_\_\_\_

OK . . . ENTER A WORD AT EACH QUESTION MARK.  
TO REDO THE PREVIOUS WORD, TYPE A HYPHEN (-).  
WHEN YOU RUN OUT OF WORDS, TYPE A PERIOD (.).  
NEXT WORD ? \_

-BASIC-        -FORTRAN-        -PLI-        -COBOL-  
-ASSEMBLER-  
\_\_\_\_\_ cls \_\_\_\_\_

OK . . . ENTER A WORD AT EACH QUESTION MARK.  
TO REDO THE PREVIOUS WORD, TYPE A HYPHEN (-).  
WHEN YOU RUN OUT OF WORDS, TYPE A PERIOD (.).  
REDO ASSEMBLER. . . ? ASSEMBLER\_

-BASIC-        -FORTRAN-        -PLI-        -COBOL-  
-ASSEMBLER-  
\_\_\_\_\_ cls \_\_\_\_\_

OK . . . ENTER A WORD AT EACH QUESTION MARK.  
TO REDO THE PREVIOUS WORD, TYPE A HYPHEN (-).  
WHEN YOU RUN OUT OF WORDS, TYPE A PERIOD (.).  
NEXT WORD ? RPG\_

-BASIC-        -FORTRAN-        -PLI-        -COBOL-  
-ASSEMBLER-  
\_\_\_\_\_ cls \_\_\_\_\_

OK . . . ENTER A WORD AT EACH QUESTION MARK.  
TO REDO THE PREVIOUS WORD, TYPE A HYPHEN (-).  
WHEN YOU RUN OUT OF WORDS, TYPE A PERIOD (.).  
NEXT WORD ? ALGOL\_

-BASIC-        -FORTRAN-        -PLI-        -COBOL-  
-ASSEMBLER-        -RPG-  
\_\_\_\_\_ cls \_\_\_\_\_

OK . . . ENTER A WORD AT EACH QUESTION MARK.  
TO REDO THE PREVIOUS WORD, TYPE A HYPHEN (-).  
WHEN YOU RUN OUT OF WORDS, TYPE A PERIOD (.).  
NEXT WORD ? LISP\_

-BASIC-        -FORTRAN-        -PLI-        -COBOL-  
-ASSEMBLER-        -RPG-        -ALGOL-  
\_\_\_\_\_ cls \_\_\_\_\_

OK . . . ENTER A WORD AT EACH QUESTION MARK.  
TO REDO THE PREVIOUS WORD, TYPE A HYPHEN (-).  
WHEN YOU RUN OUT OF WORDS, TYPE A PERIOD (.).  
NEXT WORD ? SNOBOL\_

-BASIC-        -FORTRAN-        -PLI-        -COBOL-  
-ASSEMBLER-        -RPG-        -ALGOL-        -LISP-  
\_\_\_\_\_ cls \_\_\_\_\_

OK . . . ENTER A WORD AT EACH QUESTION MARK.  
TO REDO THE PREVIOUS WORD, TYPE A HYPHEN (-).  
WHEN YOU RUN OUT OF WORDS, TYPE A PERIOD (.).  
NEXT WORD ? PILOT\_

-BASIC-        -FORTRAN-        -PLI-        -COBOL-  
-ASSEMBLER-        -RPG-        -ALGOL-        -LISP-  
-SNOBOL-  
\_\_\_\_\_ cls \_\_\_\_\_

NOW LET ME PONDER THIS. . . .  
HOW MANY COPIES OF THIS PUZZLE DO YOU WANT? 1  
FOR EACH COPY, HIT RETURN TO BEGIN PRINTING. . . ? \_

\_\_\_\_\_ cls \_\_\_\_\_

# COMPUTER LANGUAGES

```

J L N V A V S O K G L R U Z N
M P L U M G Z O C U W O K Q L
F I D I Y W V D I R E P B L R
F L W A T U P U P Y T T L O Z
O O I N K V U G P W L S N I C
R T Z S L C E D F D N O N H G
T Q F Q P W I T T O R O G D B
R V X K Z U T S B R E J F L K
A C L F D K F O A B A I C K A
N Y P K L T L L P B H R Y M Q
C M Z W M Q W Y T C B S R E P
J L A S S E M B L E R C V M B
C Q M D B C I S H K R S Q V K
E P I G I E U O F H I U E F Y
O D N H R P Y Z S J X Q P Z T

```

FIND THESE HIDDEN WORDS IN THE ABOVE PUZZLE:

|         |           |       |       |
|---------|-----------|-------|-------|
| ALGOL   | ASSEMBLER | BASIC | COBOL |
| FORTRAN | LISP      | PILOT | PLI   |
| RPG     | SNOBOL    |       |       |

\_\_\_\_\_ cls \_\_\_\_\_

HERE IS THE ANSWER KEY:

```

. . . . . L . . . . .
P . . . . . O . . . . .
I . . . . . R P B . . .
F L . . . . . P . . . L O .
O O I . . . . G . . L S I C
R T S C . . . N O . . .
T . . . P I . . . O . . G .
R . . . . S B . . . L .
A . . . . O A . . . A .
N . . . . L . . B . . .
. . . . .
A S S E M B L E R . . .
. . . . .
. . . . .

```

FIND THESE HIDDEN WORDS IN THE ABOVE PUZZLE:

|         |           |       |       |
|---------|-----------|-------|-------|
| ALGOL   | ASSEMBLER | BASIC | COBOL |
| FORTRAN | LISP      | PILOT | PLI   |
| RPG     | SNOBOL    |       |       |

\_\_\_\_\_ cls \_\_\_\_\_

```

10 CLS: PRINT@407, "WORD SEARCH PUZZLE"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, " "; INPUT "DO YOU NEED INSTRUCTIONS"; I$
40 IF LEFT$(I$,1) = "N" THEN CLS: GOTO 190 ELSE CLS
50 PRINT TAB(23); "WORD SEARCH PUZZLE": PRINT
60 PRINT "THIS PROGRAM IS A WORD SEARCH PUZZLE GENERATOR!!"
70 PRINT "THE PROGRAM TAKES A SET OF INPUT STRINGS, PURGES ALL"
80 PRINT "NON-ALPHABETIC CHARACTERS OUT OF THEM, AND INCORPORATES"
90 PRINT "THEM INTO A WORD SEARCH PUZZLE."
100 PRINT
110 PRINT "IN THE COURSE OF MAKING THE PUZZLE, THE MACHINE MAY"
120 PRINT "FIND THAT IT CAN'T PUT A PARTICULAR WORD ANYWHERE, AND"
130 PRINT "SO WILL ASK YOU IF IT SHOULD START THE WHOLE PUZZLE"
140 PRINT "OVER. IF YOU DON'T WANT IT TO START OVER, TYPING 'NO'"
150 PRINT "WILL THROW AWAY THAT PARTICULAR WORD. IF THIS PERSISTS,"
160 PRINT "TRY EITHER GIVING LESS WORDS OR BIGGER PUZZLE DIMENSIONS!"
170 PRINT@979, "PRESS ANY KEY TO CONTINUE";
180 IF INKEY$="" THEN 181 ELSE CLS
190 CLEAR 3000
200 INPUT "DO YOU WANT THIS TO GO TO THE PRINTER "; PR$
210 IF LEFT$(PR$,1) = "N" THEN TW=64: GOTO 230
220 INPUT "HOW MANY COLUMNS DOES YOUR PRINTER HAVE "; TW
230 INPUT "DO YOU WANT A SOLUTION PRINTOUT"; X$
240 INPUT "WHAT IS TO BE THE WIDTH OF THE PUZZLE"; W: MD=W
250 IF W<2 THEN 270
260 PRINT "THAT WILL NOT FIT IN"; TW; " COLUMNS.": GOTO 240
270 IF W<1 THEN 240
280 INPUT "THE LENGTH"; L: IF L>W THEN MD=L
290 IF L<1 THEN 280
300 INPUT "WHAT IS THE MAXIMUM NUMBER OF WORDS IN THE PUZZLE"; M
310 IF M<2 THEN 330
320 PRINT "SORRY; THERE MUST BE AT LEAST 2 WORDS.": GOTO 300
330 DIM A$(L,W), W$(M)
340 DIM W$(M,3), DXY(8,2), D(28)
350 PRINT "NOW ENTER A HAVING THAT WILL BE PRINTED OVER THE PUZZLE:"
360 PRINT TAB(15); "(": W: "CHARACTERS MAXIMUM! )"
370 INPUT XY$
380 CLS
390 PRINT "OK. ENTER A WORD AT EACH QUESTION MARK."
400 PRINT "TO REDO THE PREVIOUS WORD, TYPE A HYPHEN (-)."
410 PRINT "WHEN YOU RUN OUT OF WORDS, TYPE A PERIOD (.)."
420 SC=320: FOR I=1 TO M
430 PRINT@192, "NEXT WORD "; CHR$(30);: INPUT T$
440 IF T$="" THEN 470 ELSE I=I-1
450 SC=SC-16: PRINT@192, "REDO "; W$(I); " "; CHR$(30);
460 INPUT T$: GOTO 440
470 IF T$="" THEN M=M-1: GOTO 710
480 IF LEN(T$)=0 THEN PRINT@192, "INPUT ERROR; REDO."; CHR$(30);
490 IF LEN(T$)=0 THEN INPUT T$: GOTO 440 ELSE J=1
500 T$=MID$(T$,J,1): IF T$="A" AND T$<="Z" THEN 580
510 IF T$<"A" OR T$>"Z" THEN 540
520 T$=LEFT$(T$,J-1)+CHR$(ASC(MID$(T$,J,1))+RIGHT$(T$,LEN(T$)-J))
530 GOTO 580
540 IF T$=T$ THEN T$="": GOTO 480
550 IF J=LEN(T$) THEN T$=LEFT$(T$,J-1): GOTO 610
560 IF J=1 THEN T$=RIGHT$(T$,LEN(T$)-1): J=J-1: GOTO 580
570 T$=LEFT$(T$,J-1)+RIGHT$(T$,LEN(T$)-J): J=J-1
580 J=J+1: IF J<LEN(T$) THEN 580
590 IF LEN(T$)>MD THEN 610
600 FOR IZ=1 TO I-1: IF I$(IZ)=T$ THEN 660
610 NEXT IZ: PRINT@5C, " " T$; "-"; CHR$(31);: SC=SC+16: FL=2
620 IF LEN(T$)+FL>16 THEN SC=SC+16: FL=FL-16: GOTO 620
630 GOTO 680
640 PRINT@192, "STRING TOO LONG; REDO. "; CHR$(30);: INPUT T$
650 GOTO 440
660 PRINT@192, "DUPLICATE ENTRY; REDO. "; CHR$(30);: INPUT T$
670 GOTO 440
680 W$(I)=T$
690 NEXT I
700 REM
710 CLS: PRINT "NOW LET ME PONDER THIS. ...."
720 FOR I=1 TO M-1
730 FOR J=I+1 TO M
740 IF LEN(W$(I)) < LEN(W$(J)) THEN HZ$=W$(I): W$(I)=W$(J): W$(J)=HZ$
750 NEXT J, I
760 FOR I=1 TO 8: READ X$(I,1), DXY(I,2): NEXT
770 FOR I=1 TO 28: READ D(I): NEXT
780 DATA 0,1,1,1,1,0,1,-1,0,-1,-1,-1,-1,0,-1,1
790 DATA 2,4,6,8,2,4,6,8,2,4,6,8,2,4,6,8,2,4,6,8,1,3,5,7
800 FOR I=1 TO M
810 LN=LEN(W$(I))
820 NT=0
830 SD=DD(RND(28))
840 S=RND(W): X1=S+(LN-1)*DXY(SD,1): IF X1<1 OR X1>W THEN 830
850 S=RND(L): X1=S+(LN-1)*DXY(SD,2): IF X1<1 OR X1>L THEN 830
860 NT=NT+1: IF NT>W*L*2 THEN 910
870 PRINT "COULDN'T FIT "; W$(I); " IN THE PUZZLE."
880 INPUT "DO YOU WANT ME TO START OVER?"; A$
890 IF LEFT$(A$,1) = "Y" THEN 800
900 W$(I) = "": GOTO 990
910 J=SV: K=SX
920 FOR P=1 TO LN
930 IF LEN(A$(J,K)) AND A$(J,K) < MID$(W$(I),P,1) THEN 830
940 J=J+DXY(SD,2): K=K+DXY(SD,1): NEXT P
950 J=SV: K=SX
960 FOR P=1 TO LN: A$(J,K)=MID$(W$(I),P,1)
970 J=J+DXY(SD,2): K=K+DXY(SD,1): NEXT P
980 W(I,1)=SX: W(I,2)=SV: W(I,3)=SD
990 NEXT I
1000 FOR I=1 TO L
1010 FOR J=1 TO W
1020 IF A$(I,J)="" THEN A$(I,J)=CHR$(RND(26)+96)
1030 NEXT J, I
1040 FOR I=1 TO M-1: FOR J=I+1 TO M
1050 IF W$(I) < W$(J) THEN 1080
1060 HZ$=W$(I): W$(I)=W$(J): W$(J)=HZ$
1070 FOR K=1 TO 3: HZ=W(I,K): W(I,K)=W(J,K): W(J,K)=HZ: NEXT K
1080 NEXT J: NEXT I
1090 INPUT "HOW MANY COPIES OF THIS PUZZLE DO YOU WANT?"; N
1100 PRINT "FOR EACH COPY, HIT RETURN TO BEGIN PRINTING..."
1110 FOR C=1 TO N: GOSUB 1120: NEXT C: GOTO 1400
1120 PRINT PM$: INPUT A$: PRINT: PR$=LEFT$(PR$,1)
1130 PM$="HIT ENTER TO CONTINUE"
1140 T=(TW-2*W)/2: CLS: PR$=(PR$+"Y"): TS=(64-2*W)/2
1150 IF PR THEN LPRINT " "
1160 PRINT: IF PR THEN LPRINT " "
1170 CLS: PRINT TAB((64-LEN(XY$))/2); XY$
1180 IF PR THEN LPRINT TAB((TW-LEN(XY$))/2); XY$
1190 PRINT: PRINT: IF PR THEN LPRINT " ": LPRINT " "
1200 FOR J=1 TO L: PRINT TAB(TS);: IF PR THEN LPRINT TAB(T);
1210 FOR K=1 TO W: IF A$(J,K) < " " THEN 1240
1220 PRINT " ";: IF PR THEN LPRINT " ";
1230 GOTO 1250
1240 PRINT A$(J,K); " ";: IF PR THEN LPRINT A$(J,K); " ";
1250 NEXT K: PRINT: IF PR THEN LPRINT " "
1260 NEXT J
1270 PRINT: PRINT: IF PR THEN LPRINT " ": LPRINT " "
1280 PO=0: PRINT "FIND THESE HIDDEN WORDS IN THE ABOVE PUZZLE:"
1290 IF PR THEN LPRINT "FIND THESE HIDDEN WORDS IN THE ABOVE PUZZLE:"
1300 PRINT: IF PR THEN LPRINT " "
1310 FOR J=1 TO M: IF LEN(W$(J))=0 THEN 1370
1320 IF POS(0)+LEN(W$(J))>62 THEN PRINT
1330 IF PR THEN IF PO+LEN(W$(J))>TW-2 THEN LPRINT " ": PO=0
1340 PRINT W$(J);: IF PR THEN LPRINT W$(J);
1350 PO=PO+16
1360 REM----- CHR$(12) IS THE PRINTER FORM FEED CHARACTER
1370 NEXT J: PRINT: PRINT: PRINT: PRINT
1380 IF PR THEN LPRINT " ": LPRINT " ": LPRINT " ": LPRINT " "
1390 RETURN
1400 IF LEFT$(X$,1) = "Y" OR LEFT$(X$,1) = "Y" THEN 1420
1410 RUN "MENU"
1420 REM
1430 FOR I=1 TO L: FOR J=1 TO W: A$(I,J) = " ": NEXT J: NEXT I
1440 FOR I=1 TO M
1450 LN=LEN(W$(I)): J=W(I,2): K=W(I,1)
1460 FOR P=1 TO LN
1470 A$(J,K)=MID$(W$(I),P,1)
1480 J=J+DXY(W(I,3),2): K=K+DXY(W(I,3),1): NEXT P
1490 NEXT I
1500 XY$="HERE IS THE ANSWER KEY."
1510 GOSUB 1120
1520 PRINT: PRINT
1530 END

```

# Wumpus I

---

## The Genesis of Wumpus

Two years ago I happened by People's Computer Company (PCC) and saw some of their computer games — such as Hurtle, Snark, and Mugwump. My reaction was: "EECH!!" Each of these games was based on a 10 x 10 grid in Cartesian co-ordinates and three of them was too much for me. I started to think along the lines of: "There has to be a hide and seek computer game without that (exp. deleted) grid!!" In fact, why not a topological computer game — Imagine a set of points connected in some way and the player moves about the set via the interconnections.

That afternoon in meditation the phrase "Hunt the Wumpus" arrived, and Wumpus was born. He's still a bit vague in physical detail as most dedicated Wumpus hunters know, but appearances are part of the game. (If you like, send me a picture of your version of a Wumpus. Perhaps friendly Dave, our editor, will publish the best one in *Creative Computing*.) The grid I chose was the vertices of a dodecahedron — simply because it's my favorite Platonic solid and once, ages ago, I made a kite shaped like one. The edges became the connecting tunnels between the caves which were the set of points for the game.

My basic idea at this time was for the player to approach the Wumpus, back off, and come up to him by going around the dodecahedron. To my knowledge, this has never happened... most players adopt other strategies rather than this cold-blooded approach.

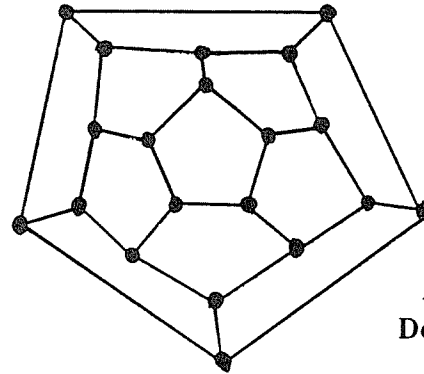
Anyway... how to get the Wumpus! How about an arrow which could turn corners as it goes from room to room. Let the hunter tell the arrow where to go and let it fly. The shortest round trip without reversals is 5 caves — and thus the Crooked Arrow.

Hmmm... How does one sense the Wumpus? It's dark in yonder cave, and light would wake him up. If one got one cave away, the wumpus's distinct smell would serve as a warning. So far, so good... but Wumpus is still too easy, so let's find some appropriate hazards for the caves.

Bottomless pits were easy. Any imaginary cave would have a few of those around the place. Superbats were harder to come by. It took me a day or two to get that idea. The Superbats are a sort of rapid transit system gone a little batty (sorry about that one). They take you a random distance to a random cave and leave you there. If that's a pit or a Wumpus, well, you are in Fate's hands.

Around this time, I saw that Map-making would be a regular activity of Wumpus-hunters. I numbered the caves and made the scheme fixed in the hopes a practised player might notice this and make himself a permanent map of the caverns. (Another unrealised hope — as an exercise, make yourself such a map on a Squashed Dodecahedron).

To start the game fairly, Wumpus, Hazards, and Hunter are located on different points at the start of the game. Each game starts with random choices of location, but the



A Squashed  
Dodecahedron

hunter may restart with the same set-up if he chooses. This allows re-plays if the hunter, say, fell into a pit on the first move.

Wumpus was nearly done in my mind... (hint to a games-writer: Have a clear notion of your game before you start coding it. This saves MUCH confusion.) yet I felt it was a bit dull. Once you found the Wumpus all you had to do was shoot it. To fix this, the Wumpus was given a little life. If you shot an arrow or moved into his cave, he woke up and chose to move to a neighboring room or to the same room (one of 4 choices). If you and the Wumpus were in the same room after he moved, he ATE YOU UP!!

Around here I noticed that the pits and the bats didn't affect the Wumpus. To explain this, I added some color by making him heavy and with the legendary sucker feet. After all, evolution works in strange ways!! If you are a Wumpus fiend, make a version of Wumpus in which he avoids pits and superbats can carry him only one room (with the possibility of being dumped into your cave). This can be done by making the wumpus moving procedure a subroutine.

I wrote Wumpus and dropped it off at PCC. Then I went home and dreamed up Wumpus II

## The Birth of Wumpus

Around a month later, I went to the Synergy conference at Stanford, where many of the far-out folk were gathered to share their visions of improving the world. PCC had a few terminals running in a conference room and I dropped by. To my vast surprise, all of the terminals were running Wumpus and scraps of paper on the floor with scrawled numbers and lines testified that much dedicated Wumpus-hunting was in progress. I had spawned a hit computer game!!!

Later, PCC published Wumpus in its newsletter, and *Creative Computing* published it in their Sep/Oct 1975 issue.

Wumpus and this writeup are the products of the talented and creative Gregory Yob.

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DO YOU NEED INSTRUCTIONS? YES\_

cls

WUMPUS 1

THE WUMPUS LIVES IN A CAVE OF 20 ROOMS. EACH ROOM HAS 3 TUNNELS LEADING TO OTHER ROOMS. (LOOK AT A DODECAHEDRON TO SEE HOW THIS WORKS - IF YOU DON'T KNOW WHAT A DODECAHEDRON IS, ASK SOMEONE)

HAZARDS.

BOTTOMLESS PITS - TWO ROOMS HAVE BOTTOMLESS PITS IN THEM IF YOU GO THERE YOU FALL INTO THE PIT (& LOSE!)  
 SUPERBATS - TWO OTHER ROOMS HAVE SUPER BATS. IF YOU GO THERE, A BAT GRABS YOU AND TAKES YOU TO SOME OTHER ROOM AT RANDOM. (WHICH MIGHT BE TROUBLESOME)

PRESS ANY KEY TO CONTINUE

cls

WUMPUS 1

WUMPUS.

THE WUMPUS IS NOT BOTHERED BY THE HAZARDS (HE HAS SUCKER FEET AND IS TOO BIG FOR A BAT TO LIFT). USUALLY HE IS ASLEEP. TWO THINGS THAT WAKE HIM UP: YOUR ENTERING HIS ROOM OR YOUR SHOOTING AN ARROW.

IF THE WUMPUS WAKES, HE MOVES (P=75) ONE ROOM OR STAYS STILL (P=;5). AFTER THAT, IF HE IS WHERE YOU ARE, HE EATS YOU UP (& YOU LOSE!)

PRESS ANY KEY TO CONTINUE

cls

WUMPUS 1

YOU:

EACH TURN YOU MAY MOVE OR SHOOT A CROOKED ARROW

MOVING: YOU CAN GO ONE ROOM (THRU ONE TUNNEL)  
 ARROWS: YOU HAVE 5 ARROWS. YOU LOSE WHEN YOU RUN OUT. EACH ARROW CAN GO FROM 1 TO 5 ROOMS. YOU AIM BY TELLING THE COMPUTER THE ROOMS YOU WANT THE ARROW TO GO TO. IF THE ARROW CAN'T GO THAT WAY (I.E., NO TUNNEL) IT MOVES AT RANDOM TO THE NEXT ROOM.

IF THE ARROW HITS THE WUMPUS, YOU WIN.  
 IF THE ARROW HITS YOU, YOU LOSE.

PRESS ANY KEY TO CONTINUE

cls

WUMPUS 1

WARNINGS:

WHEN YOU ARE ONE ROOM AWAY FROM WUMPUS OR HAZARD, THE COMPUTER SAYS:

WUMPUS- 'I SMELL A WUMPUS'  
 BAT - 'BATS NEARBY'  
 PIT - 'I FEEL A DRAFT'

PRESS ANY KEY TO CONTINUE

cls

HUNT THE WUMPUS

YOU ARE IN ROOM 6  
 TUNNELS LEAD TO 5 7 15

SHOOT OR MOVE (S-M)? M  
 WHERE TO? 7\_

cls

HUNT THE WUMPUS

I SMELL A WUMPUS!  
 YOU ARE IN ROOM 7  
 TUNNELS LEAD TO 6 8 17

SHOOT OR MOVE (S-M)? S  
 NO. OF ROOMS(1-5)? 1  
 ROOM #? 17\_

cls

I SMELL A WUMPUS!  
 YOU ARE IN ROOM 7  
 TUNNELS LEAD TO 6 8 17

SHOOT OR MOVE (S-M)? S  
 NO. OF ROOMS(1-5)? 1  
 ROOM #? 17  
 MISSED

cls

HUNT THE WUMPUS

YOU ARE IN ROOM 7  
 TUNNELS LEAD TO 6 8 17

SHOOT OR MOVE (S-M)? M  
 WHERE TO? 8\_

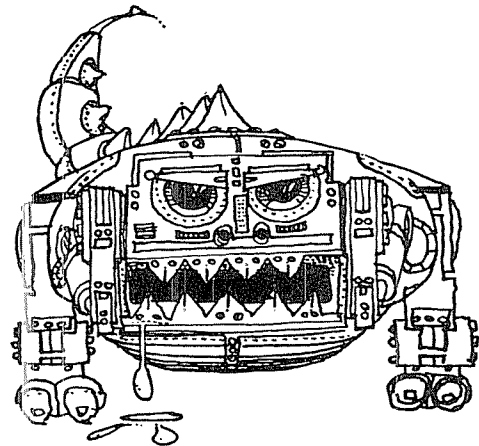
cls

HUNT THE WUMPUS

I SMELL A WUMPUS!  
 I FEEL A DRAFT!  
 YOU ARE IN ROOM 8  
 TUNNELS LEAD TO 1 7 9

SHOOT OR MOVE (S-M)? S  
 NO. OF ROOMS(1-5)? 1  
 ROOM #? 1\_

cls



AHA! YOU GOT THE WUMPUS!  
 HEE HEE HEE! - THE WUMPUS'LL GETCHA NEXT TIME!!

SAME SET-UP (Y-N) OR 'Q' TO QUIT  
 ? Q\_

```

10 CLS: PRINT@412, "WUMPUS 1"
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@560, " "; INPUT "DO YOU NEED INSTRUCTIONS?"; I$
40 IF LEFT$(I$,1)="N" THEN 60
50 GOSUB 610
60 CLS: REM- SET UP CAVE (DODECAHEDRAL NODE LIST)
70 DIM S(20,3)
80 FOR J=1 TO 20
90 FOR K=1 TO 3
100 READ S(J,K)
110 NEXT K
120 NEXT J
130 DATA 2,5,8,1,3,10,2,4,12,3,5,14,1,4,6
140 DATA 5,7,15,6,8,17,1,7,9,8,10,18,2,9,11
150 DATA 10,12,19,3,11,13,12,14,20,4,13,15,6,14,16
160 DATA 15,17,20,7,16,8,9,17,19,11,18,20,13,16,19
170 REM- LOCATE L ARRAY ITEMS
180 REM- 1-YOU, 2-WUMPUS, 3&4-PITS, 5&6-BATS
190 DIM L(6), M(6)
200 FOR J=1 TO 6
210 L(J)=IND(20)
220 M(J)=L(J)

```

```

230 NEXT J
240 REM- CHECK FOR CROSSOVERS (IE L(1)=L(2) ETC)
250 FOR J=1 TO 6
260 FOR K=J TO 6
270 IF J=K THEN 290
280 IF L(J)=L(K) THEN 210
290 NEXT K
300 NEXT J
310 REM- SET# ARROS
320 A=5
330 L=L(1)
340 REM- RUN THE GAME
350 CLS: PRINT TAB(24); "HUNT THE WUMPUS": PRINT
360 REM- HAZARD WARNINGS & LOCATIONS
370 FOR AX=1 TO 1800: NEXT: PRINT@128, CHR$(31);: GOSUB 1100
380 REM- MOVE OR SHOOT
390 GOSUB 1270
400 ON O GOTO 420,460
410 REM- SHOOT
420 GOSUB 1360
430 IF F=0 THEN 370
440 GOTO 480
450 REM- MOVE
460 GOSUB 1860
470 IF F=0 THEN 370
480 IF F>0 THEN 530
490 REM- LOSE
500 PRINT "HA HA HA - YOU LOSE!"
510 GOTO 540
520 REM- WIN
530 PRINT "HEE HEE HEE - THE WUMPUS'LL GETCHA NEXT TIME!!"
540 FOR J=1 TO 6
550 L(J)=M(J)
560 NEXT J
570 PRINT:PRINT "SAME SET-UP (Y-N) OR 'Q' TO QUIT"
580 INPUT I$
590 I$=LEFT$(I$,1)
600 IF I$="N" THEN 200 ELSE IF I$="Y" THEN 320 ELSE END
610 REM ***** INSTRUCTIONS *****
620 CLS: PRINT TAB(28); "WUMPUS 1": PRINT
630 PRINT " THE WUMPUS LIVES IN A CAVE OF 20 ROOMS. EACH ROOM"
640 PRINT "HAS 3 TUNNELS LEADING TO OTHER ROOMS. (LOOK AT A"
650 PRINT "DODECAHEDRON TO SEE HOW THIS WORKS - IF YOU DON'T KNOW"
660 PRINT "WHAT A DODECAHEDRON IS, ASK SOMEONE)"
670 PRINT
680 PRINT " HAZARDS:"
690 PRINT "BOTTOMLESS PITS - TWO ROOMS HAVE BOTTOMLESS PITS IN THEM"
700 PRINT " IF YOU GO THERE, YOU FALL INTO THE PIT (& LOSE!)"
710 PRINT "SUPERBATS - TWO OTHER ROOMS HAVE SUPER BATS. IF YOU"
720 PRINT " GO THERE, A BAT GRABS YOU AND TAKES YOU TO SOME;"
730 PRINT " OTHER"
740 PRINT " ROOM AT RANDOM. (WHICH MIGHT BE TROUBLESOME)"
750 PRINT@979, "PRESS ANY KEY TO CONTINUE";
760 IF INKEY$="" THEN 760 ELSE PRINT@128, CHR$(31);
770 PRINT " WUMPUS:"
780 PRINT " THE WUMPUS IS NOT BOTHERED BY THE HAZARDS (HE HAS SUCKER"
790 PRINT "FEET AND IS TOO BIG FOR A BAT TO LIFT). USUALLY"
800 PRINT "HE IS ASLEEP. TWO THINGS THAT WAKE HIM UP: YOUR ENTERING"
810 PRINT "HIS ROOM OR YOUR SHOOTING AN ARROW."
820 PRINT " IF THE WUMPUS WAKES, HE MOVES (P= 75) ONE ROOM"
830 PRINT "OR STAYS STILL (P= 25). AFTER THAT, IF HE IS WHERE YOU"
840 PRINT "ARE, HE EATS YOU UP (& YOU LOSE!)"
850 PRINT@979, "PRESS ANY KEY TO CONTINUE";
860 IF INKEY$="" THEN 860 ELSE PRINT@128, CHR$(31);
870 PRINT " YOU:"
880 PRINT "EACH TURN YOU MAY MOVE OR SHOOT A CROOKED ARROW":PRINT
890 PRINT " MOVING: YOU CAN GO ONE ROOM (THRU ONE TUNNEL)"
900 PRINT " ARROWS: YOU HAVE 5 ARROWS. YOU LOSE WHEN YOU RUN OUT."
910 PRINT " EACH ARROW CAN GO FROM 1 TO 5 ROOMS. YOU AIM BY ";
920 PRINT "TELLING"
930 PRINT " THE COMPUTER THE ROOMS YOU WANT THE ARROW TO GO TO."
940 PRINT " IF THE ARROW CAN'T GO THAT WAY (I.E., NO TUNNEL) IT ";
950 PRINT "MOVES"
960 PRINT " AT RANDOM TO THE NEXT ROOM ": PRINT
970 PRINT " IF THE ARROW HITS THE WUMPUS, YOU WIN."
980 PRINT " IF THE ARROW HITS YOU, YOU LOSE."
990 PRINT@979, "PRESS ANY KEY TO CONTINUE";
1000 IF INKEY$="" THEN 1000 ELSE PRINT@128, CHR$(31);
1010 PRINT " WARNINGS:"
1020 PRINT " WHEN YOU ARE ONE ROOM AWAY FROM WUMPUS OR HAZARD,"
1030 PRINT " THE COMPUTER SAYS":PRINT
1040 PRINT "WUMPUS- 'I SMELL A WUMPUS'"
1050 PRINT "BAT - 'BATS NEARBY'"
1060 PRINT "PIT - 'I FEEL A DRAFT'"
1070 PRINT@979, "PRESS ANY KEY TO CONTINUE";
1080 IF INKEY$="" THEN 1080 ELSE PRINT@128, CHR$(31);
1090 RETURN
1100 REM- PRINT LOCATION & HAZARD WARNINGS
1110 PRINT
1120 FOR J= 2 TO 6
1130 FOR K=1 TO 3
1140 IF S(L(1),K)O(L(J) THEN 1210
1150 ON J-1 GOTO 1160,1180,1180,1200,1200
1160 PRINT "I SMELL A WUMPUS!"
1170 GOTO 1210
1180 PRINT "I FEEL A DRAFT!"
1190 GOTO 1210
1200 PRINT "BATS NEARBY"
1210 NEXT K
1220 NEXT J
1230 PRINT "YOU ARE IN ROOM ";L(1)
1240 PRINT "TUNNELS LEAD TO ";S(L,1);S(L,2);S(L,3)
1250 PRINT
1260 RETURN
1270 REM- CHOOSE OPTION
1280 PRINT "SHOOT OR MOVE (S-M)";
1290 INPUT I$
1300 IF I$O"5" THEN 1330
1310 O=1
1320 RETURN
1330 IF I$O"M" THEN 1280
1340 O=2
1350 RETURN
1360 REM- ARROW ROUTINE
1370 F=0
1380 REM- PATH OF ARROW
1390 L=L(1)
1400 PRINT "NO. OF ROOMS(1-5)";
1410 INPUT J9
1420 IF J9<1 OR J9>5 THEN 1400
1430 FOR K=1 TO J9
1440 PRINT "ROOM #";
1450 INPUT P(K)
1460 IF K<2 THEN 1500
1470 IF P(K)O(P(K-2) THEN 1500
1480 PRINT "ARROWS AREN'T THAT CROOKED - TRY ANOTHER ROOM"
1490 GOTO 1440
1500 NEXT K
1510 REM- SHOOT ARROW
1520 FOR K=1 TO J9
1530 FOR K1=1 TO 3
1540 IF S(L,K1)=P(K) THEN 1700
1550 NEXT K1
1560 REM- NO TUNNEL FOR ARROW
1570 L=S(L,RND(3))
1580 GOTO 1710
1590 NEXT K
1600 PRINT "MISSED"
1610 L=L(1)
1620 REM- MOVE WUMPUS
1630 GOSUB 1780
1640 REM- AMMO CHECK
1650 A=A-1
1660 IF A=0 THEN 1680
1670 CLS: PRINT "YOU'RE OUT OF ARROWS": PRINT: F=-1
1680 RETURN
1690 REM- SEE IF ARROW IS AT L(1) OR L(2)
1700 L=P(K)
1710 IF L<O(L(2) THEN 1750
1720 CLS: PRINT "AHA! YOU GOT THE WUMPUS!"
1730 F=1
1740 RETURN
1750 IF L<O(L(1) THEN 1590
1760 CLS: PRINT "OUCH! ARROW GOT YOU!"
1770 F=-1: RETURN
1780 REM- MOVE WUMPUS ROUTINE
1790 K=RND(4)
1800 IF K=4 THEN 1820
1810 L(2)=S(L(2),K)
1820 IF L(2)O(L THEN 1850
1830 CLS: PRINT "TSK TSK TSK - WUMPUS GOT YOU!"
1840 F=-1
1850 RETURN
1860 REM- MOVE ROUTINE
1870 F=0
1880 PRINT "WHERE TO";
1890 INPUT L
1900 IF L<1 OR L>20 THEN 1880
1910 FOR K=1 TO 3
1920 REM- CHECK IF LEGAL MOVE
1930 IF S(L(1),K)=L THEN 1990
1940 NEXT K
1950 IF L=L(1) THEN 1990
1960 PRINT "NOT POSSIBLE -";
1970 GOTO 1880
1980 REM- CHECK FOR HAZARDS
1990 L(1)=L
2000 REM- WUMPUS
2010 IF L<O(L(2) THEN 2080
2020 PRINT "... OOPS! BUMPED A WUMPUS!"
2030 REM- MOVE WUMPUS
2040 GOSUB 1790
2050 IF F=0 THEN 2080
2060 RETURN
2070 REM- PIT
2080 IF L<O(L(3) AND L<O(L(4) THEN 2130
2090 PRINT "YYYYIIIIIIIIII FELL IN PIT"
2100 F=-1
2110 RETURN
2120 REM- BATS
2130 IF L<O(L(5) AND L<O(L(6) THEN 2170
2140 PRINT "ZAP--SUPER BAT SNATCH! ELSEWHEREVILLE FOR YOU!"
2150 L=RND(20)
2160 GOTO 1990
2170 RETURN
2180 END

```

# Wumpus 2

Hark!! The weary Wumpus hunter, wan from 50 days in the Terminal Caverns, exhausted and with all of his arrows expended — — — (A grating Teletype roars at a sleepy student. Maps litter the floor covered with circles and integers. With callused fingers, the immortal Wumpus player looks up with bloodshot eyes and implores: "How do I get out of here?")

I suspected that the dodecahedron may prove a bit boring after a few thousand games, so I wrote Wumpus 2 to extend your pleasure. Some of the more mathematical minded may have noticed there are lots of ways to link caves with three tunnels apiece. Some of these patterns are topologically interesting . . .

Wumpus 2 is the same old Wumpus in different settings — including those of your own design. As you play in the different caves, you will notice that the game changes in difficulty and strategy. Now to a description of the various caves in Wumpus 2.

## CAVE 0 (Dodecahedron)

This is the same old Wumpus with which you are familiar.

## CAVE 1 (Mobius Strip)

Since my original vision was topological, here is the first wonder of topology, the Mobius strip. Take a strip of paper, give it a half-twist and join the ends into a loop. The result has just one side and one edge (if you disbelieve, take a pencil and go around the thing).

A perceptive player will note that the placement of the pits influence the game. Two pits placed just right (around 5% of the games have this) will force a detour back around the strip in certain cases. Getting around is slower than in Cave 0, but it is easier to search the place.

## CAVE 2 (String of Beads)

See the diagram for this one. Here, placement of the pits will often make parts of the caves inaccessible except by bat-express. (Can you see why?) Play in this cave is frustrating until you have gone to the trouble of making a reference map; otherwise you keep coming back to your starting point. (Look at the diagram and see how this may be so.)

## CAVE 3 (Hex Network)

This is my attempt at a torus (doughnut). If you can visualise a hexagon net like a honeycomb or a tile floor and stretch it onto a doughnut, you've got it!! The drawing tries to show this, but if you prefer, think of it as a complicated molecule of some sort. Play in this one is very similar to CAVE 0.

## CAVE 4 (Dendrite)

Up to now, each tunnel leads to another cave and only one tunnel connects a pair of caves. This need not be a strict rule and the next two caves illustrate variations on this. The dendrite is a branching pattern like a tree or a plant. At the ends of the plant are "leaves" which are caves leading to themselves or multiple tunnels. This cave is especially susceptible to severance by pits and getting stuck in corners near the wumpus. A nice thing is that you often will know exactly where the Wumpus is when you come near him.

## CAVE 5 (one way streets)

This is the extreme example of all tunnels are one-way. You will find that getting about this cave is like travel in Los Angeles — much going to get to the neighbor's house. If you overshoot, you must travel all the way around, just like missing a freeway offramp.

## CAVE 6 (Do Your OWN)

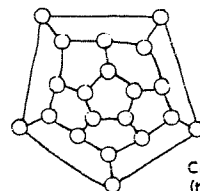
Draw up a map of caves, each cave with tunnels GOING TO three (exactly three) caves (same or different). Then the computer will ask you for the numbers of the destination tunnels for each of the 20 caves in Wumpus. When you have it entered, play Wumpus on your own caves. Let me know of your favorite ones, and your most frustrating ones!!!

## FINIS

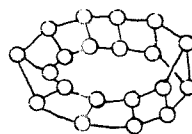
In any case, Wumpus has spawned several versions and spread about the computer games-dom really nicely. For myself, the soul of the game is in the idea and fun of it rather than the program or the computer which hosts it. I feel that all really good games will turn programmers on enough for them to write it for their system from the idea alone and encourage games writers to think carefully on the art and esthetics of their games before writing a line of code.

Wumpus-2 and this description are products of Gregory Yob. They appeared previously in *Creative Computing*, Jan/Feb 1976 and the game in *People's Computer Co.*

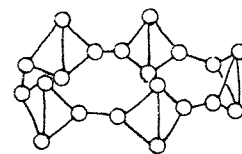
## THE CAVES OF WUMPUS 2



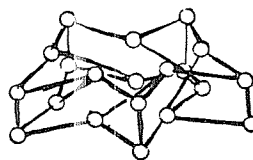
Cave 0  
(the usual)



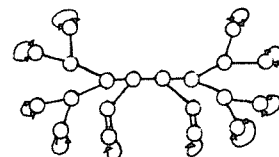
Cave 1  
(Mobius Strip)



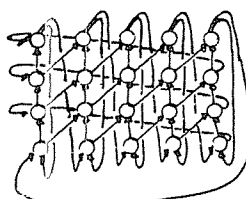
Cave 2  
(String of Beads)



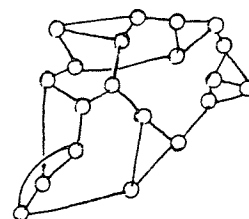
Cave 3  
(Toral Hex Net)



Cave 4  
(Dendrite)



Cave 5  
(One Way Only)



Cave 6  
(Anything You Like)

DO YOU NEED INSTRUCTIONS? YES.

\_\_\_\_\_ cls \_\_\_\_\_

WELCOME TO WUMPUS II

THIS VERSION HAS THE SAME RULES AS 'HUNT THE WUMPUS'.  
HOWEVER, YOU NOW HAVE A CHOICE OF CAVES TO PLAY IN.  
SOME CAVES ARE EASIER THAN OTHERS. ALL CAVES HAVE 20  
ROOMS AND 3 TUNNELS LEADING FROM ONE ROOM TO OTHER ROOMS.

THE CAVES ARE:

- 0 - DODECAHEDRON: THE ROOMS OF THIS CAVE ARE ON A  
12-SIDED OBJECT, EACH FORMING A PENTAGON.  
THE ROOMS ARE AT THE CORNERS OF THE PENTAGONS.  
EACH ROOM HAVING TUNNELS THAT LEAD TO 3 OTHER ROOMS

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

WELCOME TO WUMPUS II

- 1 - MOBIUS STRIP: THIS CAVE IS TWO ROOMS  
WIDE AND 10 ROOMS AROUND (LIKE A BELT).  
YOU WILL NOTICE THERE IS A HALF TWIST  
SOMEWHERE.
- 2 - STRING OF BEADS: FIVE BEADS IN A CIRCLE.  
EACH BEAD IS A DIAMOND WITH A VERTICAL  
CROSS-BAR. THE RIGHT & LEFT CORNERS LEAD  
TO NEIGHBORING BEADS. (THIS ONE IS DIFFICULT  
TO PLAY).

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

WELCOME TO WUMPUS II

- 3 - HEX NETWORK: IMAGINE A HEX TILE FLOOR. TAKE  
A RECTANGLE WITH 20 POINTS (INTERSECTIONS)  
INSIDE (4X4). JOIN RIGHT & LEFT SIDES TO MAKE A  
CYLINDER. THEN JOIN TOP & BOTTOM TO FORM A  
TORUS (DOUGHNUT).  
HAVE FUN IMAGINING THIS ONE!!

CAVES 1-3 ARE REGULAR IN THE SENSE THAT EACH ROOM  
GOES TO THREE OTHER ROOMS & TUNNELS ALLOW TWO-  
WAY TRAFFIC. HERE ARE SOME 'IRREGULAR' CAVES:

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

WELCOME TO WUMPUS II

- 4 - DENDRITE WITH DEGENERACIES: PULL A PLANT FROM  
THE GROUND. THE ROOTS & BRANCHES FORM A  
DENDRITE - I.E., THERE ARE NO LOOPING PATHS.  
DEGENERACY MEANS A) SOME ROOMS CONNECT TO  
THEMSELVES AND B) SOME ROOMS HAVE MORE THAN ONE  
TUNNEL TO THE SAME OTHER ROOM, I.E., 12 HAS  
TWO TUNNELS TO 13.
- 5 - ONE WAY LATTICE: HERE ALL TUNNELS GO ONE  
WAY ONLY. TO RETURN, YOU MUST GO AROUND THE CAVE  
(ABOUT 5 MOVES).

PRESS ANY KEY TO CONTINUE

\_\_\_\_\_ cls \_\_\_\_\_

WELCOME TO WUMPUS II

- 6 - ENTER YOUR OWN CAVE: THE COMPUTER WILL ASK YOU  
THE ROOMS NEXT TO EACH ROOM IN THE CAVE.  
  
FOR EXAMPLE:  
ROOM #1 ? 2,3,4 - YOUR REPLY OF 2,3,4  
MEANS ROOM 1 HAS TUNNELS GOING TO ROOMS:  
2, 3, & 4.

\*\*\* HAPPY HUNTING! \*\*\*

\_\_\_\_\_ cls \_\_\_\_\_

CAVE # (0-6) ? 4.

\*\*\* HUNT THE WUMPUS \*\*\*

YOU ARE IN ROOM 20 -- TUNNELS LEAD TO 16 20 20

SHOOT OR MOVE ? M

WHERE TO ? 16.

\_\_\_\_\_ cls \_\_\_\_\_

\*\*\* HUNT THE WUMPUS \*\*\*

I FEEL A DRAFT!

I FEEL A DRAFT!

YOU ARE IN ROOM 16 -- TUNNELS LEAD TO 14 19 20

SHOOT OR MOVE ? M

WHERE TO ? 14.

\_\_\_\_\_ cls \_\_\_\_\_

\*\*\* HUNT THE WUMPUS \*\*\*

YYYYIIIIIIII FELL IN A PIT!

HA HA HA - YOU LOSE!

PLAY AGAIN? YES

SAME SET-UP ? NO

CAVE # (0-6) ? 1.

\_\_\_\_\_ cls \_\_\_\_\_

\*\*\* HUNT THE WUMPUS \*\*\*

YOU ARE IN ROOM 20 -- TUNNELS LEAD TO 1 18 19

SHOOT OR MOVE ? M

WHERE TO ? 1.

\_\_\_\_\_ cls \_\_\_\_\_

\*\*\* HUNT THE WUMPUS \*\*\*

YOU ARE IN ROOM 1 -- TUNNELS LEAD TO 20 2 3

SHOOT OR MOVE ? M

WHERE TO ? 2.

\_\_\_\_\_ cls \_\_\_\_\_

\*\*\* HUNT THE WUMPUS \*\*\*

I FEEL A DRAFT!

YOU ARE IN ROOM 2 -- TUNNELS LEAD TO 19 1 4

SHOOT OR MOVE ? M

WHERE TO ? 4.

\_\_\_\_\_ cls \_\_\_\_\_

\*\*\* HUNT THE WUMPUS \*\*\*

YYYYIIIIIIII FELL IN A PIT!

HA HA HA - YOU LOSE!

PLAY AGAIN? NO

\_\_\_\_\_ cls \_\_\_\_\_



```

10 CLS: PRINT@412, "WUMPU$ II
20 PRINT: PRINT TAB(7) "COPYRIGHT 1979 CREATIVE COMPUTING MORRISTOWN, NJ"
30 PRINT@960, "": INPUT "DO YOU NEED INSTRUCTIONS"; I$
40 REM- WUMPU$ VERSION :
50 DIM S(20,3)
60 DIM L(6),M(6),P(5)
70 IF LEFT$(I$,1) <> "Y" THEN CLS: GOTO 100
80 GOSUB 600
90 REM- CHOOSE AND SET UP CAVE
100 GOSUB 2470
110 REM LOCATE L ARRAY TEMS
120 REM 1-YOU, 2-WUMPU$ 3&4-PITS, 5&6-BATS
130 FOR J=1 TO 6
140 L(J)=RND(20)
150 M(J)=L(J)
160 NEXT J
170 REM CHECK FOR CROSS OVERS (IE L(1)=L(2) ETC)
180 FOR J=1 TO 6
190 FOR K=J TO 6
200 IF J=K THEN 220
210 IF L(J)=L(K) THEN 110
220 NEXT K
230 NEXT J
240 REM SET # ARROWS
250 A=5
260 L=L(1)
270 REM- RUN THE GAME
280 CLS: PRINT "*** HUNT THE WUMPU$ ***": PRINT
290 REM- HAZARDS WARNING; AND LOCATION
300 GOSUB 1210
310 REM MOVE OR SHOOT
320 GOSUB 1300
330 ON O GOTO 350,390
340 REM SHOOT
350 GOSUB 1520
360 IF F=0 THEN 320
370 GOTO 410
380 REM MOVE
390 GOSUB 2090
400 IF F=0 THEN 300
410 IF F=0 THEN 460
420 REM LOSE
430 PRINT "HA HA HA - YOU LOSE!"
440 GOTO 470
450 REM WIN
460 PRINT "HEE HEE HEE - THE WUMPU$'LL GET YOU NEXT TIME!!"
470 FOR J=1 TO 6
480 L(J)=M(J)
490 NEXT J
500 PRINT "PLAY AGAIN?";
510 INPUT I$
520 PRINT
530 PRINT
540 IF LEFT$(I$,1)<>"Y" THEN 3440
550 PRINT "SAME SET-UP ";
560 INPUT I$
570 PRINT
580 IF LEFT$(I$,1)<>"Y" THEN 100
590 GOTO 250
600 CLS: REM- INSTRUCTIONS
610 PRINT TAB(20); "WELCOME TO WUMPU$ II": PRINT
620 PRINT "THIS VERSION HAS THE SAME RULES AS 'HUNT THE WUMPU$'."
630 PRINT "HOWEVER, YOU NOW HAVE A CHOICE OF CAVES TO PLAY IN."
640 PRINT "SOME CAVES ARE EASIER THAN OTHERS. ALL CAVES HAVE 20"
650 PRINT "ROOMS AND 3 TUNNELS LEADING FROM ONE ROOM TO OTHER ROOMS."
660 PRINT
670 PRINT "THE CAVES ARE:"
680 PRINT " 0 - DODECAHEDRON: THE ROOMS OF THIS CAVE ARE ON A"
690 PRINT " 12-5' DED OBJECT, EACH FORMING A PENTAGON."
700 PRINT " THE ROOMS ARE AT THE CORNERS OF THE PENTAGONS."
710 PRINT " EACH ROOM HAVING TUNNELS THAT LEAD TO 3 OTHER ROOMS"
720 PRINT@979, "PRESS ANY KEY TO CONTINUE";
730 IF INKEY$="" THEN 710 ELSE PRINT@128, CHR$(31);
740 PRINT " 1 - MOBIUS STRIP: THIS CAVE IS TWO ROOMS"
750 PRINT " WIDE AND 10 ROOMS AROUND (LIKE A BELT)."
760 PRINT " YOU WILL NOTICE THERE IS A HALF TWIST"
770 PRINT " SOMEWHERE."
780 PRINT
790 PRINT " 2 - STRING OF BEADS. FIVE BEADS IN A CIRCLE."
800 PRINT " EACH BEAD IS A DIAMOND WITH A VERTICAL"
810 PRINT " CROSS-BAR. THE RIGHT & LEFT CORNERS LEAD"
820 PRINT " TO NEIGHBORING BEADS. (THIS ONE IS DIFFICULT"
830 PRINT " TO PLAY)."
840 PRINT@979, "PRESS ANY KEY TO CONTINUE";
850 IF INKEY$="" THEN 850 ELSE PRINT@128, CHR$(31);
860 PRINT " 3 - HEX NETWORK: IMAGINE A HEX TILE FLOOR. TAKE"
870 PRINT " A RECTANGLE WITH 20 POINTS (INTERSECTIONS)"
880 PRINT " INSIDE (4X4). JOIN RIGHT & LEFT SIDES TO MAKE A"
890 PRINT " CYLINDER. THEN JOIN TOP & BOTTOM TO FORM A"
900 PRINT " TORUS (DOUGHNUT)."
910 PRINT " HAVE FUN IMAGINING THIS ONE!!"
920 PRINT
930 PRINT "CAVES 1-3 ARE REGULAR IN THE SENSE THAT EACH ROOM"
940 PRINT "GOES TO THREE OTHER ROOMS & TUNNELS ALLOW TWO-"
950 PRINT "WAY TRAFFIC. HERE ARE SOME 'IRREGULAR' CAVES:"
960 PRINT@979, "PRESS ANY KEY TO CONTINUE";
970 IF INKEY$="" THEN 970 ELSE PRINT@128, CHR$(31);
980 PRINT " 4 - DENDRITE WITH DEGENERACIES: PULL A PLANT FROM"
990 PRINT " THE GROUND. THE ROOTS & BRANCHES FORM A "
1000 PRINT " DENDRITE - I.E., THERE ARE NO LOOPING PATHS."
1010 PRINT " DEGENERACY MEANS A) SOME ROOMS CONNECT TO"
1020 PRINT " THEMSELVES AND B) SOME ROOMS HAVE MORE THAN ONE"
1030 PRINT " TUNNEL TO THE SAME OTHER ROOM, I.E., 12 HAS "
1040 PRINT " TWO TUNNELS TO 13."
1050 PRINT
1060 PRINT " 5 - ONE WAY LATTICE: HERE ALL TUNNELS GO ONE"
1070 PRINT " WAY ONLY. TO RETURN, YOU MUST GO AROUND THE CAVE"
1080 PRINT " (ABOUT 5 MOVES)."
1090 PRINT@979, "PRESS ANY KEY TO CONTINUE";
1100 IF INKEY$="" THEN 1100 ELSE PRINT@128, CHR$(31);
1110 PRINT " 6 - ENTER YOUR OWN CAVE: THE COMPUTER WILL ASK YOU"
1120 PRINT " THE ROOMS NEXT TO EACH ROOM IN THE CAVE."
1130 PRINT
1140 PRINT " FOR EXAMPLE:"
1150 PRINT " ROOM #1 ? 2,3,4 - YOUR REPLY OF 2,3,4
1160 PRINT " MEANS ROOM 1 HAS TUNNELS GOING TO ROOMS:"
1170 PRINT " 2, 3, & 4."
1180 PRINT: PRINT
1190 PRINT "*** HAPPY HUNTING! ***": PRINT
1200 RETURN
1210 REM
1220 PRINT
1230 FOR J=2 TO 6
1240 FOR K=1 TO 3
1250 IF S(L(1),K)<>L(J) THEN 1320
1260 ON J-1 GOTO 1270,1290,1290,1310,1310
1270 PRINT "I SMELL A WUMPU$!"
1280 GOTO 1320
1290 PRINT "I FEEL A DRAFT!"
1300 GOTO 1320
1310 PRINT "BATS NEARBY!"
1320 NEXT K
1330 NEXT J
1340 PRINT "YOU ARE IN ROOM"; L(1);
1350 PRINT " -- TUNNELS LEAD TO"; S(L,1); S(L,2); S(L,3)
1360 PRINT
1370 RETURN
1380 REM- CHOOSE OPTION
1390 GOTO 1430
1400 PRINT "ERROR ";
1410 INPUT Z9
1420 PRINT " ";
1430 PRINT "SHOOT OR MOVE ";
1440 INPUT I$
1450 PRINT
1460 IF LEFT$(I$,1)<>"S" THEN 1490
1470 O=1
1480 RETURN
1490 IF LEFT$(I$,1)<>"M" THEN 1400
1500 O=2
1510 RETURN
1520 REM- ARROW ROUTINE
1530 F=0
1540 REM- PATH OF ARROW
1550 GOTO 1590
1560 PRINT "ERROR ";
1570 INPUT Z9
1580 PRINT " ";
1590 PRINT "NO. OF ROOMS ";
1600 INPUT J9
1610 PRINT
1620 IF J9<1 OR J9>5 OR INT(J9)<>ABS(J9) THEN 1560
1630 FOR K=1 TO J9
1640 PRINT "ROOM #";
1650 INPUT P(K)
1660 IF P(K)>0 AND P(K)<21 AND INT(P(K))=ABS(P(K)) THEN 1710
1670 PRINT "ERROR ";
1680 INPUT Z9

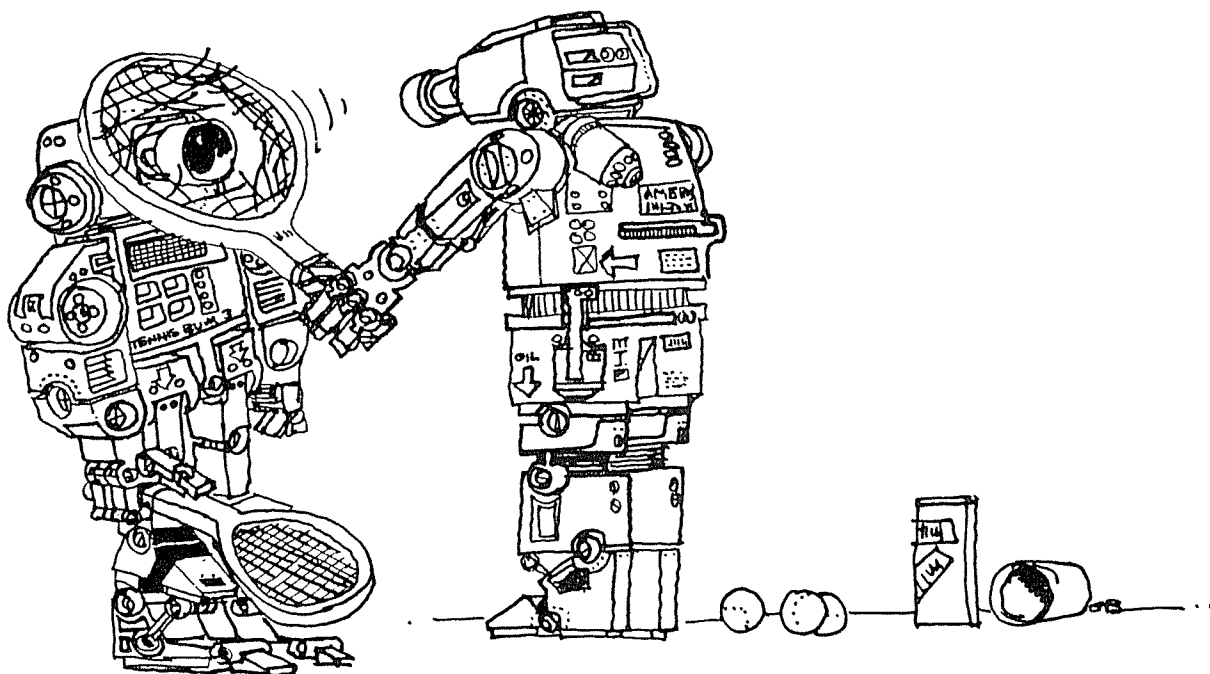
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```

1690 PRINT "";
1700 GOTO 1640
1710 NEXT K: PRINT#128, CHR$(31);
1720 PRINT
1730 REM - SHOOT ARROW
1740 A=A-1
1750 A9=L(1)
1760 FOR K=1 TO J9
1770 FOR K1=1 TO 3
1780 IF S(A9,K1)=P(K) THEN 1930
1790 NEXT K1
1800 REM - NO TUNNEL FOR THE ARROW
1810 A9=S(A9,RND(0))
1820 GOTO 1940
1830 NEXT K
1840 PRINT "MISSED."
1850 REM - MOVE WUMPUS
1860 GOSUB 2010
1870 REM - AMMO CHECK
1880 IF A=0 THEN 1910
1890 PRINT "YOU HAVE USED ALL OF YOUR ARROWS."
1900 F=-1
1910 RETURN
1920 REM - SEE IF ARROW IS AT L(1) OR L(2)
1930 A9=P(K)
1940 IF A9<L(2) THEN 1980
1950 PRINT "AHA! YOU GOT THE WUMPUS! HE WAS IN ROOM";L(2)
1960 F=1
1970 RETURN
1980 IF A9<L(1) THEN 1830
1990 PRINT "OUCH! ARROW GOT YOU!"
2000 GOTO 1900
2010 REM - MOVE WUMPUS ROUTINE
2020 K=RND(4)
2030 IF K=4 THEN 2080
2040 L(2)=S(L(2),K)
2050 IF L(2)>L THEN 2080
2060 PRINT "TSK TSK TSK- WUMPUS GOT YOU!"
2070 F=-1
2080 RETURN
2090 REM - MOVE ROUTINE
2100 F=0
2110 GOTO 2150
2120 PRINT "ERROR ";
2130 INPUT Z9
2140 PRINT "";
2150 PRINT "WHERE TO ";
2160 INPUT L
2170 PRINT#128, CHR$(31);
2180 IF L<1 OR L>20 OR ABS(L)>INT(L) THEN 2120
2190 FOR K=1 TO 3
2200 REM - CHECK IF LEGAL MOVE
2210 IF S(L(1),K)=L THEN 2290
2220 NEXT K
2230 IF L=L(1) THEN 2290
2240 PRINT "NOT POSSIBLE - ";
2250 INPUT Z9
2260 PRINT "";
2270 GOTO 2150
2280 REM - CHECK FOR HAZARDS
2290 L(1)=L
2300 REM - WUMPUS
2310 IF L<L(2) THEN 2370
2320 PRINT "... OOPS! BUMPED A WUMPUS!"
2330 REM - MOVE A WUMPUS
2340 GOSUB 2020
2350 IF F=0 THEN 2370
2360 REM - PIT
2370 IF L<L(3) AND L<L(4) THEN 2420
2380 PRINT "YYYYIIIEEE... FELL IN A PIT!"
2390 F=-1
2400 RETURN
2410 REM - BATS
2420 IF L<L(5) AND L<L(6) THEN 2460
2430 PRINT "ZAP---SUPER BAT SNATCH! ELSEWHEREVILLE FOR YOU!"
2440 L=RND(20)
2450 GOTO 2290
2460 RETURN
2470 REM - SELECT CAVE
2480 GOTO 2520
2490 PRINT "ERROR ";
2500 INPUT Z9
2510 PRINT "";
2520 PRINT "CAVE # (0-6) ";
2530 RESTORE
2540 INPUT N
2550 PRINT
2560 IF N<0 OR N>6 OR INT(N)>ABS(N) THEN 2490

2570 ON N+1 GOSUB 2720,2660,2780,2900,3020,3140,3260
2580 RETURN
2590 REM - DODECAHEDRON
2600 DATA 2,5,8,1,3,10,2,4,12,3,5,14,1,4,6
2610 DATA 5,7,15,6,8,17,1,7,9,8,10,18,2,9,11
2620 DATA 10,12,19,3,11,13,12,14,20,4,13,15,6,4,16
2630 DATA 15,17,20,7,16,18,9,17,19,11,18,20,13,16,19
2640 GOSUB 3370
2650 RETURN
2660 REM - MOBIUS STRIP
2670 FOR B1=1 TO 1
2680 FOR B2=1 TO 60
2690 READ B0
2700 NEXT B2
2710 NEXT B1
2720 DATA 20,2,3,19,1,4,1,4,5,2,3,6,3,6,7
2730 DATA 4,5,8,5,8,9,6,7,10,7,10,11,8,9,12
2740 DATA 9,12,13,10,11,14,11,14,15,12,13,16,12,16,17
2750 DATA 14,15,18,15,18,19,16,17,20,2,17,20,1,18,19
2760 GOSUB 3370
2770 RETURN
2780 REM - STRING OF BEADS
2790 FOR B1=1 TO 2
2800 FOR B2=1 TO 60
2810 READ B0
2820 NEXT B2
2830 NEXT B1
2840 DATA 2,3,20,1,3,4,1,2,4,2,3,5,4,6,7
2850 DATA 5,7,8,5,6,8,6,7,9,8,10,11,9,11,12
2860 DATA 9,10,12,10,11,13,12,14,15,13,15,16,13,14,16
2870 DATA 14,15,17,16,18,19,17,19,20,17,18,20,1,18,19
2880 GOSUB 3370
2890 RETURN
2900 REM - HEX NUT ON TORUS
2910 FOR B1=1 TO 3
2920 FOR B2=1 TO 60
2930 READ B0
2940 NEXT B2
2950 NEXT B1
2960 DATA 6,10,16,6,7,17,7,8,18,8,9,19,9,10,20
2970 DATA 1,2,15,2,3,11,3,4,12,4,5,13,5,6,14
2980 DATA 7,16,20,8,16,17,9,17,18,10,18,19,6,19,20
2990 DATA 1,11,12,2,12,13,3,13,14,4,14,15,5,11,15
3000 GOSUB 3370
3010 RETURN
3020 REM - DENDRITE W/ DEGENERACIES
3030 FOR B1=1 TO 4
3040 FOR B2=1 TO 60
3050 READ B0
3060 NEXT B2
3070 NEXT B1
3080 DATA 1,1,5,2,2,5,3,3,6,4,4,6,1,2,7
3090 DATA 3,4,7,5,6,10,8,9,9,8,10,7,9,11
3100 DATA 10,13,14,12,13,13,11,12,12,11,15,16,14,17,18
3110 DATA 14,19,20,15,17,17,15,18,18,16,19,19,16,20,20
3120 GOSUB 3370
3130 RETURN
3140 REM - ONE WAY LATTICE
3150 FOR B1=1 TO 5
3160 FOR B2=1 TO 60
3170 READ B0
3180 NEXT B2
3190 NEXT B1
3200 DATA 5,4,8,1,5,6,2,6,7,3,7,8,8,9,12
3210 DATA 5,9,10,6,10,11,7,11,12,12,13,16,9,13,14
3220 DATA 10,14,15,11,15,16,16,17,20,13,17,18,14,18,19
3230 DATA 15,19,20,1,4,20,1,2,17,2,3,18,3,4,19
3240 GOSUB 3370
3250 RETURN
3260 REM - INPUT YOUR OWN CAVE
3270 FOR J=1 TO 20
3280 PRINT "ROOM #";J;
3290 INPUT S(J,1),S(J,2),S(J,3)
3300 FOR K=1 TO 3
3310 IF S(J,K)>0 AND S(J,K)<21 AND ABS(S(J,K))=ABS(S(J,K)) THEN 3340
3320 PRINT "***** ERROR!!!!!"
3330 GOTO 3280
3340 NEXT K
3350 NEXT J
3360 RETURN
3370 REM - INPUT CAVE
3380 FOR J=1 TO 20
3390 FOR K=1 TO 3
3400 READ S(J,K)
3410 NEXT K
3420 NEXT J
3430 RETURN
3440 END

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