

BIG COMPUTER GAMES

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Edited by David H. Ahl

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Delivered to King Edward, a good friend and powerful
counsellor, who to this day claims he would have
been on the Council of the King (1414) if only he had
a better pen!

About the Author

David H. 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.

He served in the Army Security Agency, was a consultant with Management Science Associates and a senior research fellow with Educational Systems Research Institute.

In early 1970, he joined Digital Equipment Corporation. As education product line manager, he formulated the concept of an educational computer system consisting of hardware, software and courseware 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 for the unit later to become American Bell. Concurrent with this move, he started *Creative Computing* as a hobby in late 1974. It was the first personal computing magazine in the world.

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.

Mr. Ahl is the author or editor of 10 books and over 200 articles about the use of computers. He is a frequent lecturer and workshop leader at educational and professional conferences.

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Preface

It seems that my games books come out at about five-year intervals. The first version of *Basic Computer Games* was published in July 1973. *More Basic Computer Games* made its debut in June 1978. And here we are some five years later with *Big Computer Games*. So what is significant about that? Not much at all, except that it gives you an historical perspective on computer games, specifically ones written in Basic.

Years ago, most games in Basic were very short, reflecting, of course, the limited memory available in most computers. Indeed, my first linear loader program was written to fit in a computer with 4K of memory in which the Basic interpreter occupied nearly 3.5K. Thus the program was less than 500 bytes long. In the first book I edited, *Basic Computer Games*, nearly one-half of the 101 programs were less than 40 lines long. Some of them were mighty interesting programs, although there wasn't much room for the rules, error checking, or user-friendly features.

On the other hand, years ago people who had access to large timesharing systems were writing long, elaborate programs with all sorts of extended features. Unfortunately, these weren't of much use to early microcomputer owners who felt lucky to be able to afford 4K, or maybe 8K, if they splurged.

Times have changed. Today, memory is cheap. When I talk to kids at schools, they can't imagine a computer with less than 48K, and another two to four times that on disk. Consequently, although many of the programs in this book were originally developed on large timesharing systems, today they will run on the average microcomputer. Actually, most of them don't require much more than 16K (some timesharing systems limited users to a 16K partition). Of course, some of the programs in this book were initially developed on microcomputers.

So, as a result of the relentless march of technology, today we are able to run programs on a small computer that ten years ago required a \$100,000 system. Furthermore, many of the programs being written today on small computers are more elaborate than those written on larger machines.

I wish I could say that these advances in technology have led to higher quality programming; they have in some cases, but certainly not across the board. *Valdres* and *Lotus 1-2-3* are certainly masterful pieces of code; most of the programs in this book are not. Some of the programs almost cry out for improvement, but for that you must first get them into your computer.

Don't Call Us

After you have spent the better part of a week typing one of these long programs into your computer and it doesn't work, then what? Don't call us. Chances are, we can't help you, nor are we prepared to answer calls or letters.

But perhaps I can take a leaf from my experience with some of the million purchasers of the two earlier games books who had problems.

First of all, every program in the book runs. The listings have not been typeset—they came directly out of the computer. In other words, there are no typos. The major reasons for readers' programs not running in the past were typos—yours, not ours. So, check your listings against the ones in the book very carefully.

Second, although all these programs are in Microsoft Basic, there are several slightly different dialects of Microsoft Basic. We tried not to use any of the unusual or extended features, but that doesn't mean that the implementation on your computer is identical to the one we used. Moreover, we used four different computers to prepare these programs, so there may be minor incompatibilities.

Let me stress, that any language incompatibilities between versions of Microsoft Basic are truly minor, RND versus RND (1) for example. In general, the syntax error checking in the language will identify these problems.

If you have a computer with a Basic interpreter other than Microsoft, you will have to make some conversions. In the previous games books, I included a section on converting to other Basics. It is not in this book because there are now more than 30 different versions of Basic; to include conversion instructions for all of them would require an inordinate amount of space.

Moreover, when I put together the first book of games, one of the primary reasons for doing so was for instructional purposes. I never expected people to copy the programs blindly and run them. I expected people to modify them, improve them, and learn something about programming in the process. Indeed, the first edition of *Basic Computer Games* deliberately included programs in four distinctly different versions of Basic (DEC PDP-8, DEC PDP-11, Honeywell, and HP).

How difficult is it to convert these programs to a significantly different version of Basic such as Commodore, Atari, or TIT? Not too difficult at all. We took two programs in the book and converted them to all three in a few days. You might want to get a book on Microsoft Basic—there are scores of them—and use it along with the manual for your computer to ease the job. However, the conversions can be done without a

book on Microsoft if you have a good understanding of the basics of Basic.

Not All Games

In addition to the 11 ready-to-run games in this book, there is a chapter about writing your own adventure games. The first article in this chapter, "How to Write an Adventure" describes how to construct an overall framework for an adventure game and a structure for storing data, and how to parse the commands entered by the player.

The chapter also includes the listing of an adventure game framework—in Applesoft Basic—which uses some of these principles.

In addition, this chapter includes a description and listing of an adventure game which uses a videodisc. The game can be used without the videodisc routines, but as it was designed to demonstrate the videodisc, it is a rather simple adventure. Nevertheless, it is included to show the sort of game that might be coming along in the future. Five years from now, we will probably look back and judge it as a very primitive effort, but at least it is a start.

The Next Step

Some years ago, during the American Bicentennial, I was the guest on a radio show. The commentator asked me to speculate on the next hundred years in computing. I begged off and said I couldn't possibly forecast 25 years, much less 100. So I made some guesses about ten years down the road.

Eight years have now passed, and I can say with certainty that most of my forecasts were wrong—either they happened much sooner than I predicted, or the technology has gone in a different direction. Nevertheless, I'm going to go out on a limb again.

In the future, I see knowledge-based expert systems becoming much more important than they are today. The development of such systems will not only have implications for industry, medical, governmental, educational, and professional applications, but for entertainment and games as well. Future games and simulations will be much more realistic and comprehensive. Natural language processing will simplify the interaction with players while graphics and sound will make the output easier to understand.

Will a games book written five or ten years from now use these approaches? Probably, although to what extent I cannot say. Nevertheless, the field is ripe for improvement, and I for one am excited about the possibilities.

Morristown, New Jersey
May, 1984

David H. Ahl

The

Games

A grayscale illustration of a hand holding a pen, pointing towards the text. The hand is positioned on the right side of the image, with the index finger extended and pointing towards the word 'The'. The pen is held between the thumb and index finger. The entire image is in grayscale and has a pixelated, low-resolution appearance.



Cribbage

The computer game of Cribbage was written by Sheppard Yarrow in IBM Basic for a 193/158. It appeared in this form in *Creative Computing*, May 1979. For this book, it was converted to Microsoft Basic by Steve Williams.

If you happen to be a cribbage fanatic, you know the frustration of wanting to play but not being able to find an opponent. Well, never again; Cribbage will always be willing to accept the challenge. If you don't happen to be a cribbage player, this program provides a good way to learn the game.

Rules of Cribbage

Cribbage is a two-player game. A regular deck of cards is used. The cards are used chiefly as numbers; the suits have practically no role in the game. Each player receives six cards on the deal. From his hand, each player selects two cards for discard; these four cards are placed face down and are known as the crib, an extra hand which belongs to the dealer.

After the crib is laid down, the nondealer cuts the rest of the pack and the dealer turns up the top card of the lower portion. This card is the starter or up card. If it is a jack, the dealer scores 2 points. This operation is done automatically by the program.

In normal play of the game, a cribbage board is used to keep track of the scores, a function performed

by the computer in this game. The game is won when one player has traversed twice around the board (121 or more points).

The nondealer begins by playing any card; face cards and the ten have a point value of 10. The dealer then plays a card and announces the sum of the two cards thus far played. Play continues alternately, the new sum being announced each time, until one player is unable to play without carrying the total over 31. He must then say "go" and his opponent pegs (or scores) for go. The player who called the go must lead again for a new series of plays. The count begins again at zero, and again the total must not be carried beyond 31.

After go is called, the other player must play additional cards if he can do so without exceeding 31. Thus, the same player may play two or three times in succession. For making exactly 31, the player scores 2; for a go at less than 31, he scores 1. Playing the last card of the right in play counts 1 point, or 2 if it makes the sum 31.

Scoring During Play

In addition to the points for go's and playing the last card, other points are awarded as follows:

Fifteen. For making the sum 15, score 2.

Four. For playing a card of the same rank as just played by your opponent (i.e., king, king, or 8, 8).

score 2. Playing the third card of a rank scores 6, and the fourth scores 12.

Run. For playing a card in sequence with two or more just played, score the number of cards in the run (or sequence). The cards need not be played in sequential order to score for a run, for example, if the cards played are 5, 7, 6, the last player scores 3 for the run.

Scoring A Hand

In cribbage, scoring a hand is known as showing. The hands are shown in order: nondealer, dealer, and crib. The starter (or up card) is treated as a fifth card belonging to each of these three hands. The combinations that score are as follows:

Pfizer. For each combination of cards that total 15, score 2. Thus, a hand with 9, 8, 7, 7, and 6 has three combinations of 15: 9 and 6, 8 with one 7, and 8 with the other 7.

Multiple. For a pair, score 2; for three of a kind, score 6; for four of a kind, score 12.

Run. For each combination that makes a run of three or more, score the number of cards in the run. In the hand, 9, 8, 7, 7, 6, there are 8 points for two runs of four, using one 7 in each run.

Flush. For four cards in the hand (excluding the up card) of the same suit, score 4, or 5 if the up card is also the same suit. For crib and up card of the same suit, score 3; there is no score for a four-flush in the crib alone.

His Nobs. For a jack in the hand of the same suit as the up card, score 1.

Muggins

If a player overlooks a score to which he is entitled, either in playing or showing, his opponent may call "Muggins!" and take the score himself. Since the computer keeps playing scores automatically and always counts his own hand correctly, the only time that Muggins is used in this game is against you when you score your hand or the crib hand.

Specifics of the Computer Version

To the question, "Cut for deal?" you should enter a number between 1 and 12 which is where the shuffled deck will be cut. The cards in your hand are numbered 1 to 6; any entries representing cards should use these numbers, not the value(s) of the card. If you must say go, simply type it instead of a card number on your turn.

The computer will shuffle, deal, generate the starter (up card), keep track of the running scores, and credit all points earned during play. It will not let you exceed 31, but it doesn't check to see if you could have played a card if you respond with go. It is up to you to score your hand and the computer will call Muggins without mercy if you have counted incorrectly.

The program uses a very simple playing strategy of keeping the cards that yield the most points or playing the card which will score the most points. There are much more involved strategies of play that can be found in any good book of card games.

Good playing!



Cribbage

```

10 REM *****
20 REM * CRIBBAGE *
30 REM * IN Microsoft BASIC *
40 REM *****
50 CLEAR:GOTO 1000
60 PRINT "***** CRIBBAGE *****"
70 PRINT INPUT "Enter a number from 1 to 5000:":N
80 IF N=0 OR N=10 THEN GOTO 70
90 FOR X=1 TO N:GOTO 110:NEXT X
100 DIM D(52,4),C(52),J(52),W(4)
110 DIM P(52,4),Y(52,4),D(4,4),D(4),D(4),D(4)
120 DIM V(13,7),S(11,4),S(4,5),J(52)
130 FOR X=1 TO 13:FOR Y=1 TO 7
140 READ V(X,Y):NEXT Y:NEXT X
150 FOR J=1 TO 11:FOR Y=1 TO 4
160 READ S(J,Y):NEXT Y:NEXT J
170 FOR J=1 TO 4:FOR Y=1 TO 5
180 READ S(J,Y):NEXT Y:NEXT J
190 FOR S=1 TO 4:READ S(J):NEXT J
200 FOR X=1 TO 4:READ D(X):NEXT X
210 FOR J=1 TO 13
220 READ D(J)
230 C(J)=LEFT$(D,J)*" of Spades "
240 C(J+13)=LEFT$(D,J+1)*" of Diamonds "
250 C(J+26)=LEFT$(D,J+1)*" of Hearts "
260 C(J+39)=LEFT$(D,J+1)*" of Clubs "
270 NEXT J
280 PRINT:PRINT
290 S1=0:S2=0
300 REM ** SHUFFLE DECK & CUT FOR DEAL
310 GOSUB 4000
320 GOSUB 4000
330 REM ** SHUFFLE AND DEAL
340 GOSUB 4000
350 GOSUB 4000
360 REM ** FIND BEST 4 CARDS
370 GOSUB 3400
380 REM ** DISCARDS
390 L=VAL:IN,51
400 L=VAL:IN,40
410 PRINT
420 PRINT "Your discards:"
430 INPUT J1,J2
440 IF J1=1 THEN 460
450 IF J2=1 THEN 460
460 PRINT "Invalid input":GOTO 420
470 IF INT(J1)/13 THEN 460
480 IF J1=13 THEN 460
490 IF J2=1 THEN 460
500 IF J2=13 THEN 460
510 IF J1<INT(J2)/13 THEN 460
520 REM ** CRIB
530 FOR J=1 TO 4
540 C(J,J)=P(13,J)
550 C(13,J)=P(13,J)
560 C(J,J)=P(13,J)
570 C(4,J)=P(14,J)
580 NEXT J
590 REM ** GENERATE THE UPCARD
600 GOSUB 4000
610 REM ** PLAY OF THE HAND
620 GOSUB 1000
630 IF R=0 THEN 670
640 PRINT "You score first "
650 S1=1
660 GOTO 690
670 PRINT "I score first "
680 S1=2
690 GOTO 1000
700 PRINT "The crib cards are:"
710 PRINT
720 FOR J=1 TO 4
730 PRINT D(J),J
740 NEXT J
750 FOR J=1 TO 4:FOR J=1 TO 4
760 S(J,J)=C(J,J)
770 NEXT J:NEXT J
780 C=0
790 W(1,4)=R
800 GOSUB 4000
810 ON X1 GOTO 820,820,820
820 PRINT
830 PRINT P1;"points"
840 S1=S1+P
850 IF S1>121 THEN 1400
860 GOTO 1070
870 X1=3
880 GOTO 1010
890 C=1
900 FOR I=1 TO 4
910 IF I=1 THEN 970
920 IF I=4 THEN 970
930 FOR J=1 TO 4
940 W(I,J)=P(I,J)
950 NEXT J
960 C=C+1
970 NEXT I
980 W(5,4)=R
990 C=0
1000 GOSUB 4000
1010 PRINT "Now Mary scores "
1020 INPUT P2
1030 S2=P2
1040 IF S2=0 THEN 1070
1050 PRINT "That with that hand"
1060 GOTO 1020
1070 S2=S2+P2
1080 IF S2>121 THEN 1400
1090 IF S2=0 THEN 1100
1100 S1=S1+D
1110 PRINT
1120 PRINT "Maggie for:"D;"points"
1130 PRINT
1140 IF S1>121 THEN 1400
1150 ON X1 GOTO 1160,700,1370
1160 FOR K=1 TO 4
1170 L=W(19,K)
1180 FOR J=1 TO 4
1190 W(K,J)=W(L,J)
1200 NEXT J
1210 NEXT K
1220 PRINT "My cards are"
1230 PRINT
1240 FOR K=1 TO 4
1250 L=W(K,1)
1260 PRINT C(L)
1270 NEXT K
1280 W(5,4)=R
1290 C=0
1300 GOSUB 4000
1310 S1=S1+P
1320 IF S1>121 THEN 1400
1330 PRINT
1340 PRINT P2;"points"
1350 PRINT
1360 ON X1 GOTO 700,890
1370 PRINT
1380 PRINT "I have:"S1;"points."
1390 PRINT "You have:"S2;"points."
1400 PRINT
1410 GOTO 330
1420 PRINT
1430 PRINT "I win:"S1;"to:"S2
1440 PRINT
1450 STOP
1460 PRINT
1470 PRINT "You win:"S2;"to:"S1
1480 PRINT
1490 STOP
1500 REM **
1510 REM ** PLAY OF THE HAND
1520 REM **
1530 R=0:R5=0:C=0:R2=0:S1=0
1540 IF R=0 THEN 1560
1550 IF YC=4 THEN 1580
1560 IF R5=4 THEN 1570

```

Cribbage

```

1530 GOTO 1440
1540 PRINT "Your play ";
1550 INPUT C$
1560 IF C$=GO OR C$=SO THEN 1440
1570 FOR C#1 TO 5
1580 IF C$=C(C#) THEN 1600
1590 NEXT C$
1600 PRINT "Invalid play"
1610 GOTO 1590
1620 IF C#4 THEN 1660
1630 IF C#14 THEN 1660
1640 IF C#20 THEN 1700
1650 FOR J=1 TO 10
1660 IF 1110+J=C# THEN 1690
1710 NEXT J
1720 IF 8*Y+C#20>31 THEN 1620
1730 8*Y=Y+C#21
1740 Y=Y+1
1750 1110+Y=C#
1760 C=C+1
1770 J1C=Y+C#41
1780 GOSUB 3020
1790 PRINT "You played the ";C1Y+C#21;
1800 PRINT "Sum =";PRINT USING"###";8Y
1810 PRINT ", Points =";PRINT USING"###";P
1820 P=1
1830 S2=S2+P
1840 IF S2>121 THEN 1440
1850 IF 8Y>31 THEN 1440
1860 F=C+C#10*8*Y=0
1870 GOTO 1440
1880 PRINT "You discarded that card."
1890 GOTO 1590
1900 PRINT "Already played"
1910 GOTO 1590
1920 PRINT "That totals more than 31"
1930 GOTO 1590
1940 IF 8Y>4 THEN 2110
1950 IF Y#4 THEN 2200
1960 IF C#>GO AND C#>SO THEN 1590
1970 PRINT
1980 IF P=0 THEN 2050
1990 PRINT "You get one point for the last card."
2000 PRINT
2010 S2=S2+1
2020 IF S2>121 THEN 1440
2030 F=C+C#10*8*Y=0
2040 GOTO 1590
2050 PRINT "I get one point for the last card."
2060 PRINT
2070 S1=S1+1
2080 IF S1>121 THEN 1420
2090 GOTO 2070
2100 PRINT "You get 1 point for the last card."
2110 S2=S2+1
2120 IF S2>121 THEN 1440
2130 PRINT
2140 RETURN
2150 C=C+1
2160 8Y=8Y+1
2170 IF C#>1 THEN 2440
2180 FOR J#1 TO 4
2190 19*Y=19*Y+J
2200 8Y=8Y+21+J THEN 2310
2210 IF 19*Y=21+J THEN 2310
2220 19*Y=21+J
2230 J=C#*19+41
2240 8*Y=8*Y+19+J
2250 8Y=8Y
2260 8Y=8Y+19+J
2270 GOTO 2210
2280 NEXT J#
2290 F=C+C#10*8*Y=0
2300 GOTO 1590
2310 IF 19*Y=21+J THEN 2340
2320 PRINT "Sum =";PRINT USING"###";8Y
2330 PRINT ", Points =";PRINT USING"###";P
2340 P=2
2350 S1=S1+P
2360 IF S1>121 THEN 1420
2370 IF 8Y>31 THEN 1440
2380 F=C+C#10*8*Y=0
2390 GOTO 1590
2400 IF C#>GO OR C#>SO THEN 1440
2410 GOTO 1590
2420 8Y=8Y
2430 8Y=8Y+C#20 FOR 10 OR 21 OR
2440 8Y=8Y+2,3,4 OF A KING FLAME
2450 8Y=8Y
2460 P=0
2470 IF C=1 THEN 2500
2480 IF 8Y>15 THEN 2110
2490 P=P+2
2500 GOTO 2140
2510 IF 8Y>31 THEN 2140
2520 P=P+2

```

Cribbage

```

3130 MY=2:IF D=2:2 THEN MY=0-2
3140 FOR I=0 TO MY STEP -1
3150 IF J=1<>2<1-1 THEN 3200
3160 ON C=1+1 GOTO 3170,3190,3210
3170 P=P+2
3180 GOTO 3220
3190 P=P+4
3200 GOTO 3220
3210 P=P+6
3220 NEXT I
3230 REM ## RUNS
3240 IF C=2 THEN 3300
3250 P=P+3
3260 FOR J=0 TO C
3270 SCORE=3210
3280 NEXT J
3290 P=P+4
3300 RETURN
3310 FOR J=0 TO C
3320 J1=100+200-J+1
3330 NEXT J
3340 FOR K=0 TO J
3350 FOR L=K+1 TO J
3360 IF J1+K+L+J2L=101 THEN 3400
3370 J2=K+L+200
3380 J2K=J2+J2L+200
3390 J1L=J1+L+2
3400 NEXT L
3410 NEXT K
3420 FOR K=0 TO J=1
3430 IF J1+100+J2K+J1L=1 THEN 3460
3440 NEXT K
3450 P=P+1
3460 RETURN
3470 REM ##
3480 REM ## FIND THE BEST 4 CARD HAND
3490 REM ##
3500 P=P+1
3510 FOR I=1 TO 15
3520 I1=V(29,I)
3530 I2=V(29,2)
3540 I3=V(29,3)
3550 I4=V(29,4)
3560 FOR J=1 TO 4
3570 M1,I1=V(11,I2)
3580 M2,I1=V(12,2)
3590 M3,I1=V(13,3)
3600 M4,I1=V(14,4)
3610 M5,I1=25
3620 NEXT J
3630 REM ## EVALUATE THE HAND
3640 C=0
3650 SCORE=4530
3660 V129,I1=V
3670 IF P=0 THEN P=P+P
3680 NEXT I
3690 REM ## FIND ALL HANDS WITH MAX
3700 REM SCORE P=P
3710 J=0
3720 FOR I=1 TO 15
3730 IF V(1,2)<P THEN 3760
3740 J=J+1
3750 I1(I)=I
3760 NEXT I
3770 IF J=1 THEN 3810
3780 REM ## THIS IS SOME BEST HAND
3790 P=P+1(I)
3800 RETURN
3810 REM ## NO SOME BEST HAND,
3820 REM SEARCH FOR KEY CARDS
3830 REM ## CHECK FOR FIVES
3840 C=0
3850 J=0
3860 GOTO 4000
3870 REM ## CHECK FOR EIGHTS
3880 C=0
3890 J=0
3900 GOTO 4000
3910 REM ## CHECK FOR SEVENS
3920 C=0
3930 J=0
3940 GOTO 4000
3950 REM ## CHECK FOR JACKS
3960 C=0
3970 J=0
3980 GOTO 4000
3990 REM ## CHECK FOR ACES
4000 C=0
4010 J=0
4020 GOTO 4080
4030 REM ## RANDOMLY CHOOSE A HAND IF
4040 REM WE REACH THIS POINT
4050 FOR M=0 TO 99:R=INT(3999/I)+1:NEXT M
4060 P=P+(100)
4070 RETURN
4080 REM ## BEST HAND WILL BE THAT
4090 REM WHICH HAS MOST OF CARD ON
4100 P=P+0
4110 FOR I=1 TO 15
4120 I1(I)=0
4130 NEXT I
4140 FOR I=1 TO J
4150 FOR K=1 TO 4
4160 L=V(11,I,K)
4170 IF M1L,K1<C THEN 4190
4180 J1(I)=J1(I)+1
4190 NEXT K
4200 IF J1(I)>P THEN P=J1(I)
4210 NEXT I
4220 C=0
4230 FOR I=1 TO J
4240 IF J1(I)<P THEN 4270
4250 C=C+1
4260 P=P+1(I)
4270 NEXT I
4280 IF C<1 THEN 4300
4290 RETURN
4300 ON 2 GOTO 3870,3910,3950,3990,4030
4310 REM ##
4320 REM ## GENERATE THE UP CARD
4330 REM ##
4340 L=INT(39999/I)+1
4350 PRINT
4360 PRINT "The up card is the "L"OF(10),25
4370 PRINT
4380 FOR I=1 TO 4
4390 M1,I1=V(11,I)
4400 NEXT I
4410 T=V(15,4)
4420 IF M1,41<11 THEN 4450
4430 IF P=0 THEN 4480
4440 PRINT "2 points to me "
4450 S1=S1+2
4460 IF S1=121 THEN 4470
4470 RETURN
4480 PRINT "2 points to you "
4490 S2=S2+2
4500 IF S2=121 THEN 4460
4510 RETURN
4520 REM ##
4530 REM ## SCORE THE 5 CARD HAND
4540 REM ##
4550 REM CHECK FOR A JACK OF SAME
4560 REM SUIT AS UP CARD, EXCEPT CRIB
4570 P=P+0
4580 IF C=1 THEN 4620
4590 FOR I=1 TO 4
4600 IF M1,40<11 THEN 4640
4610 IF M1,I1<M15,21 THEN 4660
4620 P=P+1
4630 GOTO 4650
4640 NEXT I
4650 REM ## CHECK FOR A 4 OR 5 CARD
4660 REM FLUSH
4670 FOR I=0 TO 3
4680 IF M1,I1<M4(I)=1,31 THEN 4700

```

Cribbage

```

4670 NEXT I
4700 REM ## CRIB SCORES ONLY FOR A 5
4710 REM   CARD FLUSH
4720 IF C<>0 THEN 4770
4730 P=P+4
4740 IF W(4,3)<W(5,3) THEN 4790
4750 P=P+1
4760 GOTO 4790
4770 IF W(4,3)<W(5,3) THEN 4790
4780 P=P+5
4790 REM ## CHECK FOR 2 CARD SUITS OF 15
4800 FOR I=1 TO 4
4810 FOR J=I+1 TO 5
4820 IF W(I,3)+W(J,3)<15 THEN 4840
4830 P=P+2
4840 NEXT J
4850 NEXT I
4860 REM ## CHECK FOR 3 CARD SUITS OF 15
4870 FOR I=1 TO 3
4880 FOR J=I+1 TO 4
4890 FOR K=J+1 TO 5
4900 IF W(I,3)+W(J,3)+W(K,3)<15 THEN 4920
4910 P=P+2
4920 NEXT K
4930 NEXT J
4940 NEXT I
4950 REM ## CHECK FOR 4 CARD SUITS OF 15
4960 FOR I=1 TO 2
4970 FOR J=I+1 TO 3
4980 FOR K=J+1 TO 4
4990 FOR L=K+1 TO 5
5000 IF W(I,3)+W(J,3)+W(K,3)+W(L,3)<15 THEN 5020
5010 P=P+2
5020 NEXT L
5030 NEXT K
5040 NEXT J
5050 NEXT I
5060 REM ## CHECK FOR 5 CARD SUITS OF 15
5070 S=0
5080 FOR I=1 TO 5
5090 S=S+W(1,3)
5100 NEXT I
5110 IF S<15 THEN 5050
5120 P=P+2
5130 REM ## CHECK FOR PAIRS AND THREES
5140 REM   ON FOUR OF A KIND
5150 FOR I=1 TO 13
5160 J(1)=0
5170 NEXT I
5180 FOR I=1 TO 5
5190 J=W(1,4)
5200 J(2)=J(2)+1
5210 NEXT I
5220 FOR I=1 TO 13
5230 ON J(1)+5 GOTO 5270,5275,5280,5285,5290
5240 P=P+5
5250 P=P+4
5260 P=P+2
5270 NEXT I
5280 REM ## SORT HAND INTO ASCENDING
5290 REM   SEQUENCE
5300 FOR I=1 TO 5
5310 FOR J=1 TO 5
5320 IF W(I,4)<W(J,4) THEN 5340
5330 W(I,4)=W(J,4)
5340 W(J,4)=W(I,4)
5350 NEXT J
5360 NEXT I
5370 REM ## CHECK FOR A 5 CARD RUN
5380 S=W(1,4)+W(1,1)
5390 FOR I=1 TO 11
5400 FOR J=1 TO 5
5410 FOR K=1 TO 5
5420 S(1,3)=S(1,3)+5
5430 NEXT J
5440 NEXT I
5450 FOR I=1 TO 11
5460 FOR J=1 TO 5
5470 IF W(I,4)<W(I+1,4) THEN 5500
5480 NEXT J
5490 S=W(1,4)+W(1,1)
5500 FOR I=1 TO 4
5510 S(1,3)=S(1,3)+4
5520 FOR I=1 TO 4
5530 FOR J=1 TO 4
5540 S(1,3)=S(1,3)+3
5550 NEXT J
5560 NEXT I
5570 REM ## 5 CARD RUN
5580 P=P+S(1,3)
5590 RETURN
5600 NEXT I
5610 NEXT L
5620 REM ## CHECK FOR A 3 CARD RUN
5630 FOR L=1 TO 3
5640 S=W(1,4)+W(1,1)
5650 FOR I=1 TO 3
5660 S(1,3)=S(1,3)+3
5670 NEXT I
5680 NEXT L
5690 REM ## 3 CARD RUN
5700 P=P+S(1,3)
5710 RETURN
5720 NEXT I
5730 NEXT L
5740 REM ## 4 CARD RUN
5750 P=P+S(1,3)
5760 RETURN
5770 NEXT I
5780 NEXT L
5790 REM ## 5 CARD RUN
5800 P=P+S(1,3)
5810 RETURN
5820 NEXT L
5830 RETURN
5840 REM ##
5850 REM ## SHUFFLE THE DECK
5860 REM ##
5870 FOR I=1 TO 52
5880 I(1)=0
5890 NEXT I
5900 FOR I=1 TO 52
5910 J=INT(52*RAND(1))+1
5920 IF I(1)<J THEN 5910
5930 S(1,1)=I
5940 S(1,2)=INT(52)-I(1)+1
5950 S(1,3)=4+13*INT(13-I(1)+1)/13
5960 U=Y+52:IF S(1,3)<U THEN U=S(1,3)
5970 S(1,4)=U
5980 I(1)=1
5990 NEXT I
6000 RETURN
6010 REM ##
6020 REM ## CUT FOR DEAL
6030 REM ##
6040 PRINT "Please cut for deal":
6050 INPUT I
6060 IF I<5 THEN 6060
6070 IF I<55 THEN 6070
6080 PRINT "Enter the card number to cut.":
6090 GOTO 6040
6100 IF I<55 THEN 6100
6110 I=55-I
6120 PRINT "Your card is the "S(1,4)
6130 J=INT(52*RAND(1))+1
6140 IF J<5 THEN 6130
6150 J=55-J
6160 PRINT "My card is the "S(1,4)
6170 IF S(1,4)<S(1,3) THEN 6190
6180 IF S(1,4)<S(1,4) THEN 6220
6190 PRINT "Cut again"
6200 GOTO 6060
6210 REM ## COMPUTER DEALS
6220 H=0
6230 RETURN
6240 REM ## PLAYER DEALS

```

Cribbage

```

6250 R=I
6260 RETURN
6270 REM #1
6280 REM #1 DEAL
6290 REM #1
6300 IF R=0 THEN 6330
6310 PRINT "You are dealing."
6320 GOTO 6340
6330 PRINT "I am dealing."
6340 R=-R
6350 Y=I-R
6360 PRINT
6370 PRINT "Four cards are:"
6380 FOR I=0 TO 4
6390 M=21-I
6400 L=21-M
6410 FOR J=1 TO 4
6420 REM #1 COMPUTER'S HAND
6430 M(I,J)=0:GOTO 6440
6440 REM #1 PLAYER'S HAND
6450 Y(I,J)=0:L,J

```

```

6460 NEXT J
6470 PRINT USING"###";I
6480 PRINT" " ;C$(Y(I,I))
6490 NEXT I
6500 RETURN
6510 DATA 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20
6520 DATA 1,2,4,6,8,10,12,14,16,18,20,1,2,3,4,5,6,7,8,9,10,11
6530 DATA 1,3,4,5,6,8,9,11,13,4,5,7,10,11,13,5,6,8,12,4,0
6540 DATA 1,4,5,6,7,9,10,12,1,4,5,10,10,10,10,4,6,1,2,0
6550 DATA 2,3,5,6,10,10,10,10,10,10,10,10,10,10,10,10,10,10
6560 DATA 1,1,1,2,3,4,1,1,1,2,3,3,1,10,1,1,3,3,10
6570 DATA 1,1,2,3,4,6,1,1,2,3,3,1,1,1,3,3,3,10
6580 DATA 1,2,2,3,4,6,1,2,3,4,4,1,1,3,3,3,4,6
6590 DATA 1,3,3,4,4,6,1,2,3,4,6,1
6600 DATA 1,1,2,3,4,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20
6610 DATA 1,2,3,5
6620 DATA "1","2","3","4","5","6","7","8","9","10","11","12","13","14","15","16","17","18","19","20"
6630 DATA "A","2","3","4","5","6","7","8","9","10","J","Q","K"
6640 DATA "9","10","J","Q","K","A"
6650 END

```

***** CRIBBAGE *****

Enter a number from 1 to 5007 403

Please cut for deal? 36
 Four card is the 4 of Spades
 My card is the 5 of Clubs
 You are dealing.

Your cards are:
 1) 5 of Clubs
 2) 2 of Clubs
 3) 8 of Clubs
 4) 4 of Diamonds
 5) 6 of Spades
 6) 10 of Spades

Four discards? 2,1

The up card is the 6 of Spades

My card is the A of Hearts
 Sum = 1, Points = 0
 Your play? 3

You played the A of Spades
 Sum = 2, Points = 2
 My card is the 5 of Hearts
 Sum = 7, Points = 0
 Your play? 6

You played the 10 of Spades
 Sum =17, Points = 0
 My card is the 10 of Diamonds
 Sum =27, Points = 2
 Your play? 4

You played the 4 of Diamonds
 Sum =31, Points = 2
 My card is the 6 of Hearts
 Sum = 1, Points = 0
 Your play? 3

You played the 5 of Clubs
 Sum = 6, Points = 0

You get 1 point for the last card.

I score first
 My cards are

5 of Hearts
 6 of Hearts
 9 of Clubs
 10 of Diamonds

6 points

How many points? 6
 The crib cards are

3 of Hearts
 6 of Clubs
 3 of Hearts
 8 of Clubs

How many points? 5

Requires for 1 points

I have 9 points.
 You have 16 points.

I am dealing.

Your cards are:
 1) A of Clubs
 2) 10 of Spades
 3) 8 of Hearts
 4) 2 of Clubs
 5) 3 of Diamonds
 6) 9 of Diamonds

***** CRIBBAGE *****

Enter a number from 1 to 5007 287

Please cut for deal? 23
 Your card is the 4 of Clubs
 My card is the 5 of Hearts
 I am dealing.

Your cards are:
 1) 3 of Clubs
 2) 9 of Diamonds
 3) 9 of Spades
 4) 4 of Hearts
 5) 7 of Spades
 6) 3 of Diamonds

Your discards? 1,2

The up card is the 2 of Spades

Your play? 5
 You played the 7 of Spades
 Sum = 7, Points = 0

Cribbage

My card is the 7 of Diamonds
Sum =14, Points = 2
Your play? 3
You played the 7 of Spades
Sum =20, Points = 0
My card is the 6 of Clubs
Sum =26, Points = 0
Your play? 6
That totals more than 31
7 GO
My card is the 2 of Clubs
Sum =11, Points = 2
Your play? 8Q
My card is the 4 of Clubs
Sum = 6, Points = 0

I get one point for the last card.

Your play? 4
You played the 4 of Hearts
Sum = 8, Points = 0
Your play? 8Q

You get one point for the last card.

Your play? 4
Already played
7 3
Already played
7 8Q

You get one point for the last card.

Your play? 8Q

You get one point for the last card.

Your play? 8Q

You get one point for the last card.

Your play? 8Q

You get one point for the last card.

Your play? 1
You discarded that card.
7 go

You get one point for the last card.

Your play? 9Q

You get one point for the last card.

Your play? 3
Already played
7 6
You played the 3 of Diamonds
Sum = 3, Points = 0

You get 1 point for the last card.

You score first
How many points? 10
Not with that hand
10

Not with that hand
5

Not with that hand
3

Not with that hand
1

Muggins for 1 points

My cards are
6 of Clubs
7 of Diamonds
3 of Clubs
9 of Hearts

8 points

The crib cards are
3 of Spades
8 of Clubs
6 of Clubs
9 of Diamonds

2 points

I have 14 points.
You have 7 points.

You are dealing.

Your cards are
13 K of Clubs
26 2 of Clubs
39 5 of Clubs
46 4 of Diamonds
51 4 of Spades
60 10 of Spades

Your discards? 5,7

The up card is the 8 of Diamonds

My card is the 6 of Hearts
Sum = 1, Points = 0
Your play? 1
You played the 6 of Clubs
Sum =11, Points = 0
My card is the 3 of Hearts
Sum =16, Points = 0
Your play? 4
You played the 4 of Diamonds
Sum =20, Points = 0
My card is the 9 of Clubs
Sum =29, Points = 0
Your play? 6
That totals more than 31
7 GO

I get 1 point for the last card.

Your play? 6
You played the 10 of Spades
Sum =35, Points = 0
My card is the 10 of Diamonds
Sum =36, Points = 2
Your play? 3
You played the 5 of Clubs
Sum =35, Points = 0

You get 1 point for the last card.

I score first
My cards are
6 of Hearts
6 of Hearts
9 of Clubs
10 of Diamonds

6 points

How many points? 3

Cribbage

Muggins for 3 points

The crib cards are

2 of Hearts
4 of Clubs
9 of Clubs
2 of Clubs

How many points? 2

Not with that hand
1

Muggins for 3 points

I have 29 points.
You have 19 points.

***** CRIBBAGE *****

Enter a number from 1 to 5007 as

Please cut for deal? 36

Your card is the 7 of Clubs

My card is the K of Diamonds

You are dealing.

Your cards are

1) 4 of Spades
2) 6 of Clubs
3) 5 of Clubs
4) 5 of Hearts
5) 2 of Clubs
6) 5 of Spades

Your discards? 2,2

The up card is the 4 of Diamonds

My card is the 7 of Spades

Sum = 7, Points = 0

Your play? 1

You played the 4 of Spades

Sum = 11, Points = 0

My card is the 7 of Hearts

Sum = 18, Points = 0

Your play? 6

You played the 5 of Spades

Sum = 23, Points = 0

My card is the 8 of Clubs

Sum = 31, Points = 2

Your play? 60

My card is the 7 of Spades

Sum = 7, Points = 0

I get one point for the last card.

Your play? 5

You played the 3 of Clubs

Sum = 3, Points = 0

Your play? 4

You played the 5 of Hearts

Sum = 8, Points = 0

You get 1 point for the last card.

I score first

My cards are

7 of Spades
7 of Hearts
8 of Clubs
5 of Diamonds

5 points

How many points? 2

Muggins for 2 points

The crib cards are

K of Clubs
4 of Spades
7 of Hearts
5 of Clubs

How many points? 4

I have 11 points.
You have 7 points.

I am dealing.

Your cards are

1) 6 of Clubs
2) 5 of Spades
3) 3 of Clubs
4) K of Spades
5) K of Diamonds
6) 5 of Diamonds

Your discards? 3,4

The up card is the 10 of Spades

Your play? 4

You discarded that card.

? 8

You played the K of Diamonds

Sum = 10, Points = 0

My card is the 2 of Spades

Sum = 20, Points = 0

Your play? 2

You played the 5 of Spades

Sum = 25, Points = 0

60

Your play? 6

You played the 3 of Diamonds

Sum = 28, Points = 0

Your play? 3

You discarded that card.

? 2

Already played

? 1

That totals more than 31

? 60

I'll give you 1 point for last card.

My card is the 3 of Spades

Sum = 10, Points = 0



Dukedom



Hammurabi by Rick Merrill and David Ahl (1985) is the original computerized land management game. It was expanded by Lee Schneider and Todd Voren as *Kingdom* (1974) and then by Vince Talbot as *Dukedom* (1976). It was further revised by Jamie Hannahan and finally converted to Microsoft Basic by Richard Knapke. This final version first appeared in *Creative Computing*, February 1983.

You are one of several Dukes chosen by the High King to help run the Kingdom. Your Duchy is not in the best of shape, and your job is to build up its population, land holdings, and grain reserves. Your secret ambition is to become powerful enough to overthrow the High King.

The game cycles on an annual basis, and it is now fall and the harvest has just been completed. Each year at this time the computer will display the current population, land and grain totals, followed by a detailed report of the previous year's events. Note that land and grain are measured in metric units: hectares (HA.) and hectoliters (HL.), respectively.

Each year you will have to make the following decisions:

Grain for Food

You must decide how much grain to feed the peasants. 14 HL. of grain will just adequately feed one peasant; 13 will cause some hunger and decrease the peasants' fighting ability, and 12 or fewer will cause

some starvation. The peasants will complain if you try to starve them excessively and they know that you are holding back grain. If you feed the peasants more than 14 HL. each (up to a maximum of 18) they will appreciate the boon and fight better in any war the following summer. A long term memory keeps track of the peasants' cumulative attitude (it fades slowly with time) and if you create sufficient bad will (by underfeeding them, for instance) they will depose you. You may enter the quantity of grain for the peasants in two ways: Numbers less than 100 are interpreted as hectoliters-per-peasant, while an entry of 100 or more represents the total amount for the entire population.

Land to Buy

Enter the number of hectares of land you want to buy. The prices offered vary from about 4 hectoliters/hectare to about 30, depending primarily on last year's crop yield. If you don't want to buy any land, enter 0. You will then be given the option of selling your land at a price one unit lower than the buying price. Enter the number of hectares you want to sell, or enter 0 if you don't want to sell any.

Land to Plant

Enter the number of hectares you wish to plant. Each hectare planted will require 2 hectoliters of grain to seed it. Also, remember that each peasant can plant

Dukedom

and care for no more than 4 hectares. There is no fertilizer and no alternate crop, so land used many years in a row becomes depleted. The annual report lists the number of hectares you have of each of six classes from 100% yield to 0%. In any given year, land used in any class moves 1 step closer to being totally depleted while unused land moves two steps closer to fallow (100%). The best quality land will always be planted first. The yield for fallow land is calculated each year at random (variances in the weather) and ranges from 4 to 13 hectoliters of grain harvested for each hectare planted. The actual yield obtained will be the average generated by the various qualities of land used.

Special Operating Instructions

When a response is prompted by a "Y", a Y or N may be given for Yes or No, respectively. A simple return will be assumed to be a "N" response.

When a response is prompted by a "##", a non-negative integer is required. Any fraction will be trimmed from input, and a simple return will be interpreted as an entry of 0.

General Information

Earning totals are maintained by the computer. All additions and subtractions are made at once and further transactions are limited by the current balance. No credit is allowed (with one exception).

One hectare of land equals about 2.5 acres. One hectoliter of grain equals about 1.8 bushels.

It is (usually) necessary to gamble occasionally to win. Most gambles consist of buying land you can't afford at very low prices and gambling that yield will be high and there won't be a war. If the gamble fails, you will spend the next ten years recovering (if you survive, that is).

Food Allocation

By overfeeding the peasants when possible, you can build up good will among the population. This may save your life as it can counteract unavoidable resentment in the future (during times of famine, for instance). Judge Lynch never sleeps.

Land Trading

When you buy land you always receive 60% quality. When you sell land the machine sells your 60% land until it's used up, then the 80% quality, and finally the 100% if you sell that much. You can never sell 40% (or poorer) quality land; no buyers will accept it.

There is another limit on land sales: You cannot sell more than 4000 HL. worth in any one year. That's all the grain available to pay you with.

Crop Hazards

Sometimes the rats get into the granary and eat up to 10% or so of your reserve grain. Rats never eat field grain—field grain is eaten by the seven year locusts. They eat half of all your crop in the years that they appear. The yield printed in those years already includes locust losses.

The King's Peasant Levy

Occasionally rats will eat so much of the High King's grain that some of his workers starve to death. When this happens, the King will require some peasants from each of his Dukes as replacements. You may supply them as requested or pay an alternate amount of grain.

Wars

Neighboring Dukes may attack you, hoping to obtain some land. This is more portable in years of poor crop yield. It is no secret, and you can attack first if you wish. This means that you and your peasants go over there some night and burn a few huts and generally make a great din. If your attack is impressive, the nearby Duke may cancel his war plans. This depends on the size of your attack force and the size of his current defense force. You will certainly lose some peasants in such an attack.

If your first attack fails, or if you do not elect to attack first, the war will occur. You had better hire some mercenaries since your enemy is doing the same. A mercenary is worth about 8 peasants in fighting power. Mercenaries cost 40 HL. each, and there is a maximum of 75 mercenaries available to you. If your fighting power (mercenaries & peasants) exceeds your enemy's, you win; otherwise he wins. The winner acquires land from the loser in ratio to the size of the win. How much you fed the peasants last fall is now important and may occasionally make the difference between a win and a loss.

The winner also picks up some grain from the captured land and is able to harvest the captured land along with his own (at the same yield as his original land). The land acquired (or lost) will appear in next year's land quality table evenly distributed between the 100%, 80%, and 60% categories.

Since the mercenaries are horse mounted and the peasants are on foot, the mercenaries attack first. Thus, a large number of mercenaries will keep down

Dukedom

your peasant losses whether you win or lose. The mercenaries must be paid after the battle. You can use granary reserves and the actual grain captured from acquired land (the one exception to the no-credit rule), but not the anticipated harvest (the mercenaries want their pay NOW).

If you can't pay all the mercenaries, they will attack your peasants, killing them and collecting grain from their huts until fully paid. Since the peasants don't have much grain left this late in the season, even a small default may cost you a lot of peasants. Incidentally, if the mercenaries do turn on the peasants, they also rape every female in the Duchy, making next year's birth rate very high. (We ignore the fact that the women deliver only a few months later—these are no ordinary mercenaries.) All peasant deaths from war cause resentment to build up against you. Attack by your own mercenaries is quite heavily resented.

Plagues and Poxes

The plague will kill off a third of the population, but in so doing it confers a 13-year immunity on the survivors. Therefore the plague cannot occur again for at least 13 years.

The pox is less deadly; it kills 10% or fewer peasants but confers no immunity. It can occur several years in a row.

Taxes and Expenses

The High King charges a tax of $\frac{1}{4}$ HL. of grain for each HA. of land you possess (after war gains or losses). You had better be able to pay.

After the grain is harvested it must be milled. The castle granary can mill a maximum of 4000 HL. during the year. Additional harvest must be sent to the village miller at a charge of 10% of the amount milled. This amount is added to the castle overhead, which is fixed at 120 HL. per year.

Births and Deaths

During the year, some natural deaths and numerous births have occurred. Both are lumped together as if they occur just after the fall harvest.

The computer now prints out the results for the year, and you start over again with the peasant's food decision.

Winning the Game

Through astute land management, profitable real-estate trading, winning a few wars, and lots of luck, you may be able to build up your Duchy. If instead you let it decline, the High King may take it away

from you and select a new manager. An unemployed Duke can find employment as a mercenary in somebody else's game.

Prosperity brings its risks. If you get too prosperous, the High King may become worried and begin to subsidize wars against you. These subsidies get larger as the game progresses.

If you should persevere, you may eventually beat some Duke so badly that you succeed in taking over his entire Duchy. In addition to the more 400 HA. of land you will obtain, you get all of his surviving peasants (your war casualties will be positive) and the remaining contents of his granary. This poses a real threat to the crown, and the High King will begin planning a direct attack against you. At the beginning of the following year the King will demand twice the usual tax. You may pay it and continue the game as usual, or you may refuse. You will never be rid of the double tax once it starts unless you refuse to pay it. This constitutes defiance of your Liege Lord, and the King has his excuse for attacking you directly. The rest of the year will go as usual except that there will be no tax at all (no peasant levies either) and there will be no war threats (nobody dares).

The following year the King will attack just before planting time. You will have to hire as many foreign mercenaries as possible at 100 HL. each, grain in advance (the loser won't be in any position to pay). The program will automatically hire as many mercenaries as you can afford at the time. There is no limit to the number of foreign mercenaries you can hire except your current grain holdings. Each mercenary has as much fighting power as 8 peasants. If your total fighting strength is greater than the King's, you win. 250 to 300 mercenaries ought to be enough, depending on how many peasants you have.

Either way, the game is over. Good Luck!

Historical Waiver

No historical accuracy is implied in any way by this game. Except for the grain yields and planting requirements, the game is almost pure fiction. There were few mercenaries, Dukes did not often fight each other nor readily buy and sell land, the church was a power to be feared. The metric system had not yet been developed and the seven year locusts were not so reliable.

A Duke would have as his lord not a King but a Count or Earl and would have under him Barons or Marquises. Their various nobles were the fighting force of the Kingdom (peasants did not fight). Taxes were paid in grain but in periods of military service. (Yes, the National Guard was a medieval invention—at the latest.)

Dukedom

```

10 REM      DUKEDOM-MICROSOFT BASIC
20 REM
30 GOTO 1
40 CLEAR:PRINT
50 CLEAR 400
60 DEF FABS(X)=ABS(X)
70 DEF FINT(X)=FLOOR(X)
80 GOTO 440: ' skip subroutine def
90 REM
100 REM      SUBPROGRAM DEFINITIONS
110 REM
120 DEF F(R1,L1,C1,G1,I1,S1G,U1G1,F1G1,P1G1,L1G1,G11G1)
130 REM PARTIALLY GAUSSIAN RANDOM #
140 G1G1=FABS(G1G1,G1G1)
150 G1G1=FABS(G1G1,G1G1)
160 IF FABS(G1G1,G1G1)>5 THEN G1G1=(G1G1+FABS(G1G1,G1G1))/2 ELSE G1G1=G1G1
170 RETURN
180 REM
190 REM      READ YES/NO
200 REM
210 LINE INPUT VAL:V=LEFT$(V,1)
220 IF LEN(V)=0 THEN V="" ELSE IF ASC(V) > 90 THEN V=CHR(ASC(V)-32)
230 IF V="" OR V="Y" OR V="N" THEN RETURN ELSE PRINT "Please enter yes or no!"
240 GOTO 210
250 REM
260 REM      INPUT NUMERIC RESPONSE
270 REM
280 LINE INPUT VAL:V=INT(VAL)
290 IF V<0 THEN RETURN ELSE PRINT "Please enter a nonnegative #."
300 GOTO 260
310 REM
320 REM      COMMON MESSAGES
330 REM
340 PRINT "But you don't have enough grain!"PRINT" You have";G1G1" of grain left."
350 IF G1G1=4 THEN PRINT "Enough to plant";INT(G1G1/4)*4" of land":RETURN
360 PRINT "Enough to plant";INT(G1G1/2)*2" of land":RETURN
370 PRINT "But you don't have enough land"
380 PRINT "You only have";H1G1" of land left":RETURN
390 PRINT "But you don't have enough peasants"
400 PRINT "Your peasants can only plant";4*H1G1" of land":RETURN
410 REM
420 REM      INTO TO THE SAME
430 REM
440 PRINT "S O R R Y -PRINT:PRINT " by Microsoft Basic Version"
450 PRINT " Converted by:PRINT "      Bob Anderson"
460 FOR I=1 TO 10000:GOTO 470
470 PRINT "Do you want to skip detailed reports ?";GOTO 480
480 REM
490 REM      START NEW Game
500 REM
510 READ Y1,C1,G1,U1,S1G1,F1G1,P1G1,L1G1
520 FOR I=1 TO 10:READ P1(I):NEXT I
530 FOR I=1 TO 10:READ L1(I):NEXT I
540 FOR I=1 TO 10:READ G1(I):NEXT I
550 FOR I=1 TO 10:READ S1(I):NEXT I
560 FOR I=1 TO 10:READ P1(I):NEXT I
570 FOR I=1 TO 10:READ L1(I):NEXT I
580 FOR I=1 TO 10:READ G1(I):NEXT I
590 RESTORE
600 DATA 0,3,99,0,0,0,100,600,4177,99,0,0,0,0,0
610 DATA -4,8,600,0,0,3093,-1244,0,-760,0,0,0,1516,-120,-300,218,200,184,0,0,0
620 REM
630 REM      INIT RANDOM GAME TABLE
640 REM
650 G1G1=1:G1G1=F1G1G1G1:140:R1(I)=G1G1:G1G1=F1G1G1G1:140:R1(I)=G1G1:G1G1=F1G1G1G1:140
660 R1(I)=G1G1:G1G1=F1G1G1G1:140:R1(I)=G1G1:G1G1=F1G1G1G1:140:R1(I)=G1G1:G1G1=F1G1G1G1:140
670 R1(I)=G1G1:G1G1=F1G1G1G1:140:R1(I)=G1G1:G1G1=F1G1G1G1:140:R1(I)=G1G1:G1G1=F1G1G1G1:140
680 G1G1=F1G1G1G1:140:R1(I)=G1G1:G1G1=F1G1G1G1:140:R1(I)=G1G1:G1G1=F1G1G1G1:140
690 REM
700 REM      DISPLAY LAST YEARS RESULTS
710 REM
720 PRINT:PRINT:PRINT "Year";Y1;"Peasants";P1G1;"Land";L1G1;"Grain";G1G1:PRINT
730 IF Y1=1 THEN GOTO 740
740 FOR J1G1=1 TO 10:IF P1(J1G1)=0 OR J1G1=1 THEN PRINT P1(J1G1);TAB(20);P1(J1G1)
750 NEXT J1G1:PRINT "Peasants at end of year";TAB(20);P1G1
760 FOR J1G1=1 TO 10:IF L1(J1G1)=0 OR J1G1=1 THEN PRINT L1(J1G1);TAB(20);L1(J1G1)
770 NEXT J1G1:PRINT "Land at end of year";TAB(20);L1G1
780 PRINT "1000 800 600 400 200 Seed";PRINT USING "#####";G1G1

```

[illegible]

Table 1

Variable	Mean	SD	Range
Age	60.7	8.9	45-78
Gender			
Male	10		
Female	10		
Marital status			
Married	10		
Single	10		
Divorced	10		
Widowed	10		
Education level			
High school or less	10		
Bachelor's degree	10		
Master's degree	10		
PhD	10		
Occupation			
Retired	10		
Professional	10		
Managerial	10		
Technical	10		
Clerical	10		
Unemployed	10		
Health status			
Good	10		
Fair	10		
Poor	10		
Medication use			
Yes	10		
No	10		

Dukedom

1340 REM UPDATE COUNTER AND CONTINUE
1350 REM
1360 GO-INTO 225,555:GOTO 730
1370 DATA "Peasants at start","Starvations","King's levy","war casualties"
1380 DATA "Looting victims","Disease victims","Natural deaths","Births"
1390 DATA "Land at start","Bought/sold","Fruits of war"
1400 DATA "Grain at start","Used for food"
1410 DATA "Land dealer","Seedling","Rat losses","Horsemen's hire"
1420 DATA "Fruits of war","Crop yield","Castle expense","Royal tax"
1430 PRINT "Do you wish to play again ? ";GOSUB 210:IF Var="Y"THEN G10

S U R E D O R

By Microsoft Basic Version
Converted By
Bob Anderson
Do you want to skip detailed reports ?

Year 0 Peasants 100 Land 600 Grain 4177

Peasants at start 100
Natural deaths -5
Births 8
Peasants at end 100

Land at start 600
Land at end of year 600

1000	800	600	400	200	Depl
216	200	184	0	0	0

Grain at start 5193
Used for food -1344
Seedling -768
Crop yield 1516
Castle expense -120
Royal tax -200
Grain at end of year 4177
(Severe crop damage due to seven year locusts)

Grain for food =12
Some peasants have starved
Land to buy at 7 HL./HA. = 200
Land to be planted = 400
Yield = 9.08 HL./HA.

Year 1 Peasants 113 Land 600 Grain 3889

Peasants at start 100
Starvations -7
Natural deaths -8
Births 13
Peasants at end 113

Land at start 600
Bought/sold 200
Land at end of year 800

1000	800	600	400	200	Depl
400	216	184	0	0	0

Grain at start 4177
Used for food -1200
Land dealer -1400
Seedling -800
Crop yield 3432
Castle expense -120
Royal tax -400
Grain at end of year 3889

Grain for food =12
Some peasants have starved
Land to buy at 18 HL./HA. =
Land to sell at 17 HL./HA. =
Land to be planted = 400
Yield = 11 HL./HA.
Rats infect the grain
The king requires 3 peasants for
his estate and mines.Will you supply
them 1000 or pay 300 HL.of
grain instead (No. 7 v
A P08 EPIDEMIC has broken out

Year 2 Peasants 117 Land 800 Grain 5386

Peasants at start 113
Starvations -8
King's levy -3
Disease victims -6
Natural deaths -5
Births 16
Peasants at end 117

Land at start 800
Land at end of year 800

1000	800	600	400	200	Depl
400	400	0	0	0	0

Grain at start 3889
Used for food -1356
Seedling -800
Rat losses -187
Crop yield 4400
Castle expense -160
Royal tax -400
Grain at end of year 5386

Grain for food =12
Some peasants have starved
Land to buy at 21 HL./HA. = 50
Land to be planted = 400
Yield = 9 HL./HA.
Rats infect the grain

Year 3 Peasants 132 Land 800 Grain 4710

Peasants at start 117
Starvations -9
Natural deaths -8
Births 18
Peasants at end 132

Land at start 800
Bought/sold 0
Land at end of year 800

1000	800	600	400	200	Depl
400	400	0	0	0	0

Dukedom

Grain at start 5386
 Used for food -1420
 Land deals -1050
 Seeding -600
 Rat losses -253
 Crop yield 3400
 Castle expense -120
 Royal tax -425
 Grain at end of year 4910

Grain for food =13
 Land to buy at 20 HL./yH, = 50
 Land to sell at 19 HL./yH, =
 Land to be planted = 450
 Yield = 9 HL./yH,

Year 4 Peasants 153 Land 850 Grain 5794

Peasants at start 153
 Natural deaths -6
 Births 14
 Peasants at end 157

Land at start 850
 Land at end of year 850

100%	80%	60%	40%	20%	Depl
400	450	0	0	0	0

Grain at start 4910
 Used for food -1714
 Seeding -600
 Crop yield 4050
 Castle expense -120
 Royal tax -420
 Grain at end of year 5794

Grain for food =13
 Land to buy at 17 HL./yH, = 50
 Land to be planted = 400
 Yield = 11 HL./yH,
 Rats infect the gateway
 The king requires 5 peasants for
 his estate and mines.Will you supply
 them 1716 or pay 500 HL.of
 grain instead (His ? y

Year 5 Peasants 171 Land 900 Grain 5712

Peasants at start 153
 King's levy -5
 Natural deaths -7
 Births 16
 Peasants at end 171

Land at start 850
 Bought/sold 50
 Land at end of year 900

100%	80%	60%	40%	20%	Depl
500	400	0	0	0	0

Grain at start 5794
 Used for food -1989
 Land deals -650
 Seeding -600
 Rat losses -233
 Crop yield 4400
 Castle expense -160
 Royal tax -420
 Grain at end of year 5712

Grain for food =13
 Land to buy at 21 HL./yH, = 50
 Land to be planted = 500
 Yield = 9 HL./yH,
 Rats infect the gateway
 The king requires 4 peasants for
 his estate and mines.Will you supply
 them 1716 or pay 400 HL.of
 grain instead (His ? y
 The High King grows uneasy and say
 he subsidizing wars against you

Year 6 Peasants 197 Land 950 Grain 6128

Peasants at start 171
 King's levy -4
 Natural deaths -8
 Births 23
 Peasants at end 197

Land at start 900
 Bought/sold 50
 Land at end of year 950

100%	80%	60%	40%	20%	Depl
450	500	0	0	0	0

Grain at start 5712
 Used for food -2223
 Land deals -1050
 Seeding -1000
 Rat losses -154
 Crop yield 4500
 Castle expense -170
 Royal tax -475
 Grain at end of year 6128

Grain for food =13
 Some peasants have starved

Land to buy at 18 HL./yH, =
 Land to sell at 17 HL./yH, =
 Land to be planted = 550
 Seven year locusts
 Yield = 4.74 HL./yH,
 Rats infect the gateway
 The king requires 3 peasants for
 his estate and mines.Will you supply
 them 1716 or pay 300 HL.of
 grain instead (His ? y
 The High King grows uneasy and say
 he subsidizing wars against you

Year 7 Peasants 205 Land 950 Grain 4405

Peasants at start 197
 Starvations -10
 King's levy -3
 Natural deaths -8
 Births 19
 Peasants at end 205

Land at start 950
 Land at end of year 950

100%	80%	60%	40%	20%	Depl
400	450	100	0	0	0

Dukedom

Grain at start 5158
 Used for food -2544
 Seeding -1100
 Rat losses -181
 Crop yield 3787
 Castle expense -155
 Royal tax -475
 Grain at end of year 4405

Grain for food = 402
 Some peasants have starved
 Land to buy at 12 H./Hk. =
 Land to sell at 15 H./Hk. =
 Land to be planted = 450
 Yield = 7.80 H./Hk.
 Rate before the goblin
 The king requires 2 peasants for
 his estate and more. Will you supply
 them 1000 or pay 300 Hk. of
 grain instead into ? y

Fear 8 Peasants 220 Land 950 Grain 4019

Peasants at start 200
 Starvations -15
 King's levy -2
 Natural deaths -8
 Births 26
 Peasants at end 229

Land at start 950
 Land at end of year 950

100%	80%	60%	40%	20%	Depd
500	400	300	200	100	0

Grain at start 4605
 Used for food -2460
 Seeding -900
 Rat losses -155
 Crop yield 3819
 Castle expense -120
 Royal tax -475
 Grain at end of year 4019

The peasants tire of war and starvation
 You are deposed

Do you wish to play again ? n



Eliza

Eliza was originally written by Joseph Weizenbaum in LISP at MIT. The first version in Basic was written by Jeff Burger in 1973 and converted to MITS BASIC Basic (later to become Microsoft Basic) by Steve North in 1977. It originally appeared in *Creative Computing*, July/August 1977.

Introduction

Eliza is a program which accepts natural English as input and carries on a reasonably coherent conversation based on the non-directive psychoanalytic techniques of Carl Rogers. You will have to forgive Eliza for her awkward English. You will find it

is best not to use punctuation (especially commas and contractions) in your input and keep each line of input to one main idea. Since Eliza is a non-directive therapist, you will have to carry the conversation; nevertheless, that can lead some mighty interesting results. You may end your conversation by typing in "SHUT UP" (or just "SHUT").

How It Works

In order to do what it does, 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 are 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: "I", "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 the start of reply strings and the number of reply strings. Thus the fifth pair of numbers, (10, 4), means that the replies for the fifth keyword ("I DONT") start with the tenth reply string and that there are four replies.

Name	Usage
<i>R(X),S(X),N(X)</i>	See text.
IS	Input string
KS	Keyword string
CS	Translated or conjugated string
FS	Reply string, also used to save KS in scanning for keyword
RS,SS	Strings used in conjugation process
PS	Previous input string
ZS	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	Used for scanning for keyword string.

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 one 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 FS. 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.

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 this to you. Although this program is an inferior imitation of the original, it does work. It is pretty far-fetched 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 per hour. My computer, the doctor!

```

10 REM
20 REM ELIZA/DOCTOR
30 REM CREATED BY JOSEPH WEITENBERG 40 REM THIS VERSION BY JOFF SARAGAN
50 REM EDITED BY BOB ANDERSON
60 REM CREATIVE COMPUTING
70 REM
80 REM --- INITIALIZATION ---
90 DIM S$(72),L$(72),R$(72),P$(72),S$(72),R$(72),P$(72),L$(72)
100 DIM S$(26),R$(26),L$(26)
110 N1=3600-10000-110
120 FOR S=1 TO N1:G=0:READ IN:GOTO 1
130 FOR S=1 TO R1
140 READ S$(S),L$(S)=S$(N1-S+1):S$(S)=S$(N1-S)
150 NEXT S
160 PRINT "Hi! I'm Eliza. What is your problem?"
170 REM
180 REM --- USER INPUT ---
190 REM
200 INPUT S$
210 S$=" "S$" "
220 REM
230 FOR L=1 TO LEN (S$)
240 IF MID$(S$,L,1)="" THEN IN=LEFT$(S$,L-1)+RIGHT$(S$,LEN(S)-L):GOTO 240
250 IF L=1 OR LEN(S)=1 THEN IF MID$(S$,L,1)="SHUT" THEN PRINT "Shut up..."GOTO 240
260 NEXT L
270 IF S$="P" THEN PRINT "PLEASE DON'T REPEAT YOURSELF!"GOTO 170
280 REM
290 REM --- FIND KEYWORD ---
300 REM
310 RESTORE
320 S=0
330 FOR S=1 TO M1
340 READ M$
350 IF S=0 THEN GOTO 360
360 FOR L=1 TO LEN(S)-LEN(M)+1
370 IF MID$(S$,L,LEN(M))=M$ THEN S$(S)=S$:P$(S)=L
380 NEXT L
390 NEXT S
400 IF S=0 THEN S$=L:GOTO 430
410 S$=S$(S):S=0
420 REM
430 REM TAKE RIGHT PART OF STRING
440 REM AND CONJUGATE CORRECTLY
450 REM
460 RESTORE:FOR S=1 TO N1:READ IN:NEXT S
470 C$=" "RIGHT$(S$,LEN(S)-LEN(P)-L-1)
480 FOR S=1 TO N1/2
490 READ S$,R$
500 FOR L=1 TO LEN(R)
510 IF L=LEN(S)+LEN(C)+1 THEN GOTO 520
520 IF MID$(S$,L,LEN(C))=C$ THEN GOTO 530
530 C$=LEFT$(C$,L-1)+R$+RIGHT$(C$,LEN(C)-L-LEN(R)+1)
540 L=L+LEN(R)
550 GOTO 500
560 IF L=LEN(S)+LEN(C)+1 THEN GOTO 570
570 IF MID$(S$,L,LEN(R))=R$ THEN GOTO 580
580 C$=LEFT$(C$,L-1)+R$+RIGHT$(C$,LEN(C)-L-LEN(R)+1)
590 L=L+LEN(R)
600 NEXT L
610 NEXT S
620 REM
630 REM --- GET REPLY ---
640 REM
650 RESTORE:FOR S=1 TO N1:G=0:READ IN:NEXT S
660 FOR S=1 TO N1:READ IN:NEXT S
670 S$=S$:G=1:IF READ IN: THEN S$=S$
680 IF RIGHT$(S$,1)="" THEN PRINT "P$P$P$GOTO 170
690 PRINT LEFT$(P$,LEN(P)-1)+C$
700 P$=P$:GOTO 170
1000 REM
1010 REM --- PROGRAM DATA ---
1020 REM
1030 REM --- KEYWORDS ---
1040 REM
1050 DATA "CAN YOU", "CAN I", "YOU ARE", "YOU'RE", "I DON'T", "I FEEL"
1060 DATA "WHY DON'T YOU", "WHY CAN'T I", "ARE YOU", "I CAN'T", "I AM", "I'M "
1070 DATA "YOU -", "I WANT", "WHAT", "HOW", "AND", "WHERE", "NEVER", "WHY"
1080 DATA "HAVE", "CAUSE", "SORRY", "DREAM", "HELLO", "Hi ", "MYNAME"

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0100 DATA "NO", "YOUR", "YES", "THAT", "ALIKE", "YES", "FRIEND"
0110 DATA "COMPUTER", "WHERE", "YOU"
0200 REM
0210 REM --- CONVERSATION DATA ---
0220 REM REM
0230 DATA "ARE ", "AM ", "WERE ", "WAS ", "YOU ", "I ", "YOUR ", "WE "
0240 DATA "THE ", "YOUR ", "IN ", "YOUR "
0300 REM
0310 REM --- REPLIES ---
0320 REM
0330 DATA "DON'T YOU BELIEVE THAT I CAN?"
0340 DATA "PERHAPS YOU WOULD LIKE TO BE ABLE TO?"
0350 DATA "YOU WANT ME TO BE ABLE TO?"
0360 DATA "PERHAPS YOU DON'T WANT TO?"
0370 DATA "DO YOU WANT TO BE ABLE TO?"
0380 DATA "WHAT MAKES YOU THINK I AM?"
0390 DATA "DOES IT PLEASE YOU TO BELIEVE THAT I AM?"
0400 DATA "PERHAPS YOU WOULD LIKE TO BE?"
0410 DATA "DO YOU SOMETIMES HIGH YOU HERE?"
0420 DATA "DON'T YOU REALLY?"
0430 DATA "WHY DON'T YOU?"
0440 DATA "DO YOU WISH TO BE ABLE TO?"
0450 DATA "DOES THAT TROUBLE YOU?"
0460 DATA "TELL ME MORE ABOUT SUCH FEELINGS."
0470 DATA "DO YOU OFTEN FEEL?"
0480 DATA "DO YOU ENJOY FEELING?"
0490 DATA "DO YOU REALLY BELIEVE I DON'T?"
0500 DATA "PERHAPS IN GOOD TIME I WILL."
0510 DATA "DO YOU WANT ME TO?"
0520 DATA "DO YOU THINK YOU SHOULD BE ABLE TO?"
0530 DATA "WHY CAN'T YOU?"
0540 DATA "WHY ARE YOU INTERESTED IN WHETHER OR NOT I AM?"
0550 DATA "WOULD YOU PREFER IF I WERE NOT?"
0560 DATA "PERHAPS IN YOUR FANTASIES I AM?"
0570 DATA "HOW DO YOU KNOW I CAN'T?"
0580 DATA "HAVE YOU TRIED?"
0590 DATA "PERHAPS YOU CAN NOW?"
0600 DATA "DID YOU COME TO ME BECAUSE YOU ARE?"
0610 DATA "HOW LONG HAVE YOU BEEN?"
0620 DATA "DO YOU BELIEVE IT IS NORMAL TO BE?"
0630 DATA "DO YOU ENJOY BEING?"
0640 DATA "WE WERE DISCUSSING YOU-- NOT ME."
0650 DATA "OH, I?"
0660 DATA "YOU'RE NOT REALLY TALKING ABOUT ME, ARE YOU?"
0670 DATA "WHAT WOULD IT MEAN IF YOU GOT?"
0680 DATA "WHAT DO YOU WANT?"
0690 DATA "SUPPOSE YOU DON'T GOT?"
0700 DATA "WHAT IF YOU NEVER GOT?"
0710 DATA "I SOMETIMES ALSO WANT?"
0720 DATA "WHAT DO YOU ASK?"
0730 DATA "DOES THAT QUESTION INTEREST YOU?"
0740 DATA "WHAT REASON WOULD PLEASE YOU THE MOST?"
0750 DATA "WHAT DO YOU THINK?"
0760 DATA "ARE SUCH QUESTIONS ON YOUR MIND OFTEN?"
0770 DATA "WHAT IS IT YOU REALLY WANT TO KNOW?"
0780 DATA "HAVE YOU ASKED ANYONE ELSE?"
0790 DATA "HAVE YOU ASKED SUCH QUESTIONS BEFORE?"
0800 DATA "WHAT ELSE COMES TO MIND WHEN YOU ASK THAT?"
0810 DATA "NAVES DON'T INTEREST ME."
0820 DATA "I DON'T CARE ABOUT NAMES, GO ON."
0830 DATA "IS THAT THE REAL REASON?"
0840 DATA "DON'T ASK OTHER REASONS COME TO MIND?"
0850 DATA "DOES THAT REASON EXPLAIN ANYTHING ELSE?"
0860 DATA "WHAT OTHER REASONS MIGHT THERE BE?"
0870 DATA "PLEASE DON'T APOLOGIZE."
0880 DATA "APOLOGIZE ARE NOT NECESSARY."
0890 DATA "WHAT FEELINGS DO YOU GET WHEN YOU APOLOGIZE?"
0900 DATA "DON'T BE SO DEFENSIVE!"
0910 DATA "WHAT DOES THAT DREAM SUGGEST TO YOU?"
0920 DATA "DO YOU DREAM OFTEN?"
0930 DATA "WHAT PERSONS APPEAR ON YOUR DREAM?"
0940 DATA "ARE YOU DISTURBED BY YOUR DREAM?"
0950 DATA "HOW DO YOU SEE... PLEASE STATE YOUR PROBLEM."
0960 DATA "YOU DON'T SEEM QUITE CERTAIN."
0970 DATA "TALK THE UNCERTAIN TONE?"
0980 DATA "CAN'T YOU BE MORE POSITIVE?"
0990 DATA "YOU AREN'T SURE?"
1000 DATA "DON'T YOU KNOW?"

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2000 DATA "ARE YOU SAYING THAT JUST TO BE NEGATIVE?"
 2020 DATA "YOU ARE BEING A BIT NEGATIVE."
 2040 DATA "WHY NOT?"
 2060 DATA "ARE YOU SURE?"
 2080 DATA "WHY NOT?"
 2100 DATA "WHY ARE YOU CONCERNED ABOUT ME?"
 2120 DATA "WHAT ABOUT YOUR DREAM?"
 2140 DATA "CAN YOU THINK OF A SPECIFIC EXAMPLE?"
 2160 DATA "YES?"
 2180 DATA "WHAT ARE YOU THINKING OF?"
 2200 DATA "REALLY, ALWAYS?"
 2220 DATA "DO YOU REALLY THINK SO?"
 2240 DATA "BUT YOU ARE NOT SURE YOUR?"
 2260 DATA "DO YOU DOUBT YOUR?"
 2280 DATA "ON WHAT MAY?"
 2300 DATA "WHAT RESEMBLANCE DO YOU SEE?"
 2320 DATA "WHAT DOES THE SIMILARITY SUGGEST TO YOU?"
 2340 DATA "WHAT OTHER CONNECTIONS DO YOU SEE?"
 2360 DATA "COULD THERE REALLY BE SOME CONNECTION?"
 2380 DATA "HOW?"
 2400 DATA "YOU SEEM QUITE POSITIVE."
 2420 DATA "ARE YOU SURE?"
 2440 DATA "I SEE."
 2460 DATA "I UNDERSTAND."
 2480 DATA "WHY DO YOU BRING UP THE TOPIC OF FRIENDS?"
 2500 DATA "DO YOUR FRIENDS WORRY YOU?"
 2520 DATA "DO YOUR FRIENDS PICK ON YOU?"
 2540 DATA "ARE YOU SURE YOU HAVE ANY FRIENDS?"
 2560 DATA "DO YOU IMPOSE ON YOUR FRIENDS?"
 2580 DATA "PERHAPS YOUR LOVE FOR FRIENDS WORRIES YOU?"
 2600 DATA "DO COMPUTERS WORRY YOU?"
 2620 DATA "ARE YOU TALKING ABOUT ME IN PARTICULAR?"
 2640 DATA "ARE YOU FRIGHTENED BY MACHINES?"
 2660 DATA "WHY DO YOU MENTION COMPUTERS?"
 2680 DATA "WHAT DO YOU THINK COMPUTERS HAVE TO DO WITH YOUR PROBLEM?"
 2700 DATA "DON'T YOU THINK COMPUTERS CAN HELP PEOPLE?"
 2720 DATA "WHAT IS IT ABOUT MACHINES THAT WORRIES YOU?"
 2740 DATA "WHY, DO YOU HAVE ANY PSYCHOLOGICAL PROBLEMS?"
 2760 DATA "WHAT DOES THAT SUGGEST TO YOU?"
 2780 DATA "I SEE."
 2800 DATA "I'M NOT SURE I UNDERSTAND YOU FULLY."
 2820 DATA "COME COME ELUCIDATE YOUR THOUGHTS."
 2840 DATA "CAN YOU ELABORATE ON THAT?"
 2860 DATA "THAT IS QUITE INTERESTING."
 2880 REM
 2900 REM --- REPLY FINDING DATA ---
 2920 REM
 2940 DATA 1,3,4,2,6,4,4,10,4,14,3,17,3,20,2,22,3,25,3
 2960 DATA 28,4,28,4,32,3,35,5,40,9,40,9,40,9,40,9,40,9
 2980 DATA 49,2,51,4,55,4,59,4,63,1,67,2,69,5,73,2,75,4
 3000 DATA 80,3,83,7,90,3,93,6,99,7,104,4



H1: I'm Eliza. What is your problem?
 ? I'M AN IBM 370
 018 YOU CAME TO ME BECAUSE YOU ARE AN IBM 370
 ? YES I WANT A NEW LINE PRINTER
 WHAT WOULD IT MEAN IF YOU GOT A NEW LINE PRINTER
 ? ABOUT 1200 LPM
 SAY, DO YOU HAVE ANY PSYCHOLOGICAL PROBLEMS?
 ? HOW WOULD YOU KNOW YOU'RE A SPECTRAVIDEOD
 WHAT MAKES YOU THINK I AM A SPECTRAVIDEOD
 ? IT SAYS SO ABOVE YOUR KEYBOARD
 WHY ARE YOU CONCERNED ABOUT MY KEYBOARD
 ? BECAUSE THAT IS WHAT I'M TYPING ON
 HOW LONG HAVE YOU BEEN TYPING ON
 ? SINCE I TYPED RUN
 WHAT DOES THAT SUGGEST TO YOU?
 ? YOU'RE THE SHRINK
 DOES IT PLEASE YOU TO BELIEVE THAT I AM THE SHRINK
 ? DON'T YOU KNOW
 WE WERE DISCUSSING YOU-- NOT ME.
 ? I AM BEGINNING TO WONDER ABOUT YOU
 018 YOU CAME TO ME BECAUSE YOU ARE BEGINNING TO WONDER ABOUT I
 ? I DIDN'T START TO WONDER ABOUT YOU UNTIL AFTER I CAME TO YOU

Lost & Forgotten Island

Lost & Forgotten Island was passed along to us by Ken Modestino of Texas Instruments and converted to Microsoft Basic by Jeffery Yano. It first appeared in *Creative Computing*, March 1983.

Lost & Forgotten Island is a game of survival for one to three players. Unlike other similar games, to survive requires cooperation and joint decision-making among players.

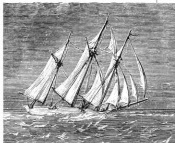
In the scenario, you and all the other players have been shipwrecked and are now stranded on a remote island in the Pacific Ocean. Also on the island is a pirate's cache of buried treasure and, of course, your damaged ship. To complicate matters, a typhoon is approaching.

On each turn, each player must make a decision as to whether to do repair work on the ship or to dig for gold. The longer you remain on the island collecting treasure, the higher the risk that the typhoon will catch up with your ship when you leave the island.

In addition to your race against the approaching typhoon, you will encounter other problems—mainly injuries from mishandling your tools or explosives. You may trade tools among players for either other tools or gold. Certain tools will perform two functions, although using a tool for the wrong function will diminish its ability to perform its main function. For

example, using an axe to dig dulls it and makes it less useful for cutting down trees for ship repairs.

There are several ways in which the game can end, some of which are not at all pleasant. But with persistence, sensible decisions, and cooperation among players, you can all make it back to safety with enough gold to buy a fleet of Rolls Royces. Good Luck!



Lost & Forgotten Island

```
10 REM-LOST AND FORGOTTEN ISLAND
20 REM-REV. 4/1/84
30 DIM T$(12),T2$(1,9),T3$(12),V1$(1),V2$(1),M$(1),C1$(4)
40 DIM V3$(1),M4$(1,9),C2$(1,12),J4(9),M5(1),C1$(1,12)
50 DIM M3$(2),M4$(2)
60 REM INSTRUCTIONS
70 REM ADAPTED FROM "COMPUTERS AND SOCIETY" VOL. 7-NO. 3,FALL,1976
80 PRINT"WELCOME TO THE LOST AND FORGOTTEN ISLAND. "
90 PRINT"WOULD YOU LIKE SOME INSTRUCTIONS";
100 INPUT M1
110 IF M1="YES"THEN G10
120 IF M1="NO"THEN G20
130 PRINT"INVALID ANSWER. PLEASE RETYPE, YES OR NO"
140 GOTO 100
150 PRINT"LOST AND FORGOTTEN ISLAND IS A SURVIVAL GAME BASED ON"
160 PRINT"COOPERATION. IT CONTAINS A MIXTURE OF LIFE'S VALUES."
170 PRINT"IMAGINE. "
180 PRINT"          YOU HAVE BEEN SHIPWRECKED ON A REMOTE ISLAND."
190 PRINT"YOU HAVE THE CHOICE OF DIGGING FOR GOLD AND/OR BUILDING"
200 PRINT"A SHIP TO SURVIVE THE APPROACHING HURRICANE. "
210 PRINT"CAN YOU SURVIVE? IF SO, WITH HOW MUCH GOLD?"
220 PRINT
230 PRINT"          GOOD LUCK"
240 PRINT
```

```
250 T$=MOD(1)
260 FOR J=1 TO 3
270 FOR I=1 TO 9
280 T2$(I,J)=#
290 T3$(I,J)=#
300 V1$(I,J)=#
310 V2$(I,J)=#
320 NEXT J
330 NEXT I
340 FOR I=1 TO 12
350 M3$(I)=#
360 NEXT I
370 FOR I=1 TO 12
380 M4$(I)=#
390 C2$(I)=#
400 C1$(I)=#
410 C3$(I)=#
420 C4$(I)=#
430 NEXT I
440 M5$(1)="STORAGE"
450 FOR I=1 TO 3
460 READ T$(I)
470 NEXT I
480 REM NUMBER OF PLAYERS
490 PRINT"HOW MANY PEOPLE (1/2/3) ARE PLAYING?";
500 FOR G=1 TO 3
510 FOR H=1 TO 9
520 T2$(G,H)=#
530 NEXT H
540 NEXT G
550 INPUT M1
560 PRINT
570 IF M1<1 THEN G40
580 IF M1<3 THEN G10
590 PRINT"YOU MUST PLAY WITH 1,2 OR 3 PLAYERS"
610 PRINT
620 GOTO 100
630 E=#
640 FOR H$=1 TO 1
650 G1$(H)=#
660 C2$(H)=#
670 C1$(H)=#
680 M1$(H)=#
690 NEXT H
700 C2=#
710 FOR I=1 TO 9
720 PRINT"PLAYER ".I;"WHAT NAME ARE YOU USING?";
730 INPUT M$(I)
740 PRINT
750 FOR J=1 TO 12
760 IF J=1 THEN G10
770 IF M$(I)<M$(J) THEN G10
780 PRINT"SOMEONE ELSE ALREADY HAS THIS NAME SO PLEASE CHOOSE ANOTHER. "
```



Lost & Forgotten Island

```

700 PRINT
800 GOTO 730
910 NEXT J
920 NEXT I
930 FORN3=1000
940 FOR J=0-1000
950 T2(0,0)=1
960 T2(0,0)=T2(0,0)*(0-10)
970 NEXT J
980 NEXT I
990 REM
1000 FOR J=0-1000
1010 T2(1,0)=1
1020 NEXT I
1030 T2(1,0)=0
1040 T2(2,0)=1
1050 T2(2,0)=0
1060 T2(2,0)=0
1070 J=0-90
1080 FOR J=0-1000
1090 FOR J=0-1000
1100 R1=INT(RND(1)*9+1)
1110 T2(1,0)=R1
1120 V1(1,0)=T2(1,0)
1130 V2(1,0)=T2(2,0)
1140 NEXT J
1150 C1(1)=INT(RND(1)*11+2)
1160 NEXT J
1170 GOSUB 1110
1180 DATA"AKA","CHISEL","HAMMER","NAILS AND SCREWS","SAX"
1190 DATA"LOOMER","SHOVEL","PICKAXE","EXPLOSTED"
1200 STOP
1210 REM SUBROUTINE LAF1023
1220 REM THIS IS LAF10 20
1230 REM TRADING TOOLS
1240 IF N1=0 THEN 1240
1250 IF N1=0 THEN 1270
1260 N1(0)="STORAGE"
1270 J=1(1)="A"
1280 J=2(1)="ANOTHER"
1290 FOR I=3 TO 9
1300 J=1(1)=J=1(1)+1
1310 NEXT I
1320 J=1(1)="WHO (000 NAME ONLY PLEASE) WISHES TO TRADE"
1330 J=2(1)="WHO ELSE WISHES TO TRADE"
1340 J=4
1350 FOR N=1-1000
1360 REM WHICH DAY?
1370 PRINT"THIS IS DAY "J
1380 PRINT
1390 GOSUB 1000
1400 PRINT
1410 PRINT
1420 IF J=1 THEN 1470
1430 IF J=0 THEN 1470
1440 J=0-1
1450 PRINT"THE STORM IS ABOUT TO HIT"
1460 PRINT
1470 IF N=1 THEN 1470
1480 GOTO 1430
1490 IF N=0 THEN 1430
1500 J=INT(RND(1)*4+1)
1510 IF J=4 THEN 1430
1520 J=3
1530 IF N=1 THEN 1470
1540 PRINT"DO ANY OF YOU WISH TO TRADE TOOLS?"
1550 INPUTA$
1560 PRINT
1570 IF A$="YES" THEN 1520
1580 IF A$="NO" THEN 1520
1590 PRINT"PLEASE TRY AGAIN. YOU MUST ANSWER YES OR NO."
1600 PRINT
1610 GOTO 1430
1620 FOR I=1-1000
1630 FOR J=0-1000
1640 T2(1,0)=T2(1,0)
1650 V2(1,0)=V2(1,0)
1660 V2(1,0)=V2(1,0)

```



Lost & Forgotten Island

```

1550 NEXT J
1560 G2:J1=01(1)
1580 NEXT I
1600 FORJ=1TOJ
1610 N3(2)=1
1630 NEXT J
1650 FOR I=1TOJ
1660 PRINTN(1);
1680 INPUTN(1)
1690 PRINT
1700 IFN(1)=N3(1)THENI750
1710 IFN(1)=N3(2)THENI750
1720 IFN(1)=N3(3)THENI750
1730 PRINT"YOU MUST ANSWER WITH 'Y',N3(1),'N', OR 'T',N3(1)
1740 PRINT"      PLEASE TRY AGAIN
1750 PRINT
1760 GOTO 1640
1770 N3(1)=N3(1)+1
1780 N3(2)=N3(2)+1
1790 NEXT I
1795 FOR I=1TOJ
1798 N4=1
1799 PRINTN(1);". ARE YOU GIVING ANY GOLD IN THIS TRADE".
1800 INPUTC1
1810 PRINT
1820 IFC1="Y"THENI830
1830 IFC1="N"THENI800
1840 IFC1="YES"THENI830
1850 IFC1="T"THENI800
1860 PRINT"PLEASE TRY AGAIN. YOU MUST ANSWER YES, NO."
1870 PRINT"X (TO CALL OFF THE TRADE). OR T (TO SEE THE LIST OF"
1880 PRINT"TOOLS WHICH EVERYONE HAD BEFORE THE START OF THIS TRADE)."

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Lost & Forgotten Island

```
235# NEXT B
236# PRINT"PLEASE USE THE NAME OF THE TOOL. USE B IF YOU WANT TO"
237# PRINT"GO AHEAD WITH THE TRADE WITHOUT GIVING MORE TOOLS."
238# PRINT"USE T IF YOU WANT TO SEE THE LIST OF TOOLS EVERYONE"
239# PRINT"HAD BEFORE THIS TRADE STARTED."
240# PRINT"OR USE X IF YOU WANT TO CALL OFF THE TRADE."
241# PRINT
242# GOTO235#
243# FORB=1TO9
244# IFID(NB(1),B)=0 THEN 257#
245# NEXT B
246# PRINTNB(1)," YOU DO NOT HAVE THIS TOOL. PLEASE TRY AGAIN."
247# PRINT"YOU MUST USE THE NAME OF A TOOL YOU HAVE, USE B TO GO"
248# PRINT"AWAY WITH THE TRADE WITHOUT GIVING MORE TOOLS, USE B"
249# PRINT"TO CALL OFF THE TRADE, OR USE T TO SEE THE LIST OF TOOLS WHICH "
250# PRINT"EVERYONE HAD BEFORE THE START OF THIS TRADE."
251# PRINT
252# GOTO 236#
253# PRINT"YOUR SITUATION AT THIS TIME"
254# PRINT
255# GOSUB 400#
256# GOTO 320#
257# T1(NB(1),B)=1#
258# V1(NB(1),B)=#
259# V4(NB(1),B)=#
260# FOR L=NB(1)
261# IF T1(NB(1)-1,L)=1#THEN263#
262# NEXT L
263# T1(NB(1)-1,L)=#
264# V1(NB(1)-1,L)=T1(NB(1),B)
265# V4(NB(1)-1,L)=V1(NB(1),B)
266# NB=N-1
267# NEXT J
268# NEXT I
269# PRINT"THIS IS YOUR LAST CHANCE TO CALL OFF THE TRADE. IF YOU"
270# PRINT"WANT TO CALL IT OFF TYPE B. OTHERWISE TYPE ANY OTHER LETTER AFTER"
271# PRINT"THE QUESTION MARK."
272# INPUTC
273# PRINT
274# IF C=X#THEN263#
275# FOR J=1TO3
276# FOR I=1TO9
277# W1(J)=T1(I,J)
278# W4(J)=V4(I,J)
279# W2(J)=W4(I,J)
280# NEXT J
281# GOTO400#
282# NEXT I
283# PRINT"DO ANY TWO OF YOU WANT TO TRADE NOW?"
284# INPUT B#
285# PRINT
286# IFB="YES"THEN 152#
287# IFB="NO"THEN218#
288# PRINT"PLEASE TRY AGAIN. YOU MUST ANSWER YES OR NO."
289# PRINT
290# GOTO 203#
291# FOR I=1TO9
292# IFID(1,I)=1#THEN394#
293# P1=C1(I)
294# REM WHAT TYPE OF WORK TODAY?
295# PRINTNB(1)," WHAT ARE YOU GOING TO WORK ON TODAY?"
296# INPUT A#
297# PRINT
298# IFA="BOAT"THEN313#
299# IFA="GOLD"THEN383#
300# PRINT"PLEASE ANSWER BOAT IF YOU WANT TO WORK ON THE BOAT"
301# PRINT"OR GOLD IF YOU WANT TO MINE GOLD."
302# PRINT
303# GOTO 203#
304# REM WORKING ON SOME GOLD
305# FOR J=1TO9
306# IFID(1,J)=1#THEN323#
307# PRINTNB(1)," DO YOU WANT TO USE THE AXE TO MINE GOLD?"
308# PRINT"REMEMBER THAT THE AXE DROPS GREATLY IN VALUE"
309# PRINT"IF IT IS USED TO MINE GOLD."
310# INPUTC#
311# PRINT
312# IFC="NO"THEN 323#
```



Lost & Forgotten Island

```
313# IFOR="YES"THEN 317#
314# PRINT"PLEASE TRY AGAIN. YOU MUST USE YES OR NO."
315# PRINT
316# GOTO337#
317# V2(I,J)=V1(I,J)
318# R1=R2+V2(I,J)*C1(I)
319# V1(I,J)=INT(V1(I,J)/2)*2+.5/1/1#
320# V2(I,J)=#
321# GOTO 323#
322# R1=R1+V2(I,J)*C1(I)
323# NEXT I
324# R=RND(1)*2+1
325# R=1
326# IFOR="YES"THEN334#
327# C4=#
328# IFOR="YES"THEN33#
329# C4=.25
330# C4=C4-.15
331# R=C4*10*22*PI
332# PRINTM(X)," HAS JUST MADE ".INT(R)," DOLLARS MORE GOLD."
333# C1(R)+C1(X)+2#
334# PRINT
335# GOTO 336#
336# NOW WORKING ON THE BOAT
337# R(I)=1
338# FOR J=1TO#
339# IFOR(I,J)<>OTHER34#
340# FOR K=1TO#
341# IFOR(I,K)<>OTHER34#
342# R1=R1+2*V1(I,J)*C1(I)
343# GOTO 347#
344# NEXT K
345# R1=R1+V1(I,J)*C1(I)
346# NEXT J
347# R=R1/2#
348# PRINTM(I)," HAS EARNED ".INT(R)," MORE WORK POINTS "
349# NEXT I
350# M1=M(I)+#
351# C2=C2+2#
352# Y=INT(RND(1)*10+C1(I))+1
353# FOR J=1TO#
354# IF T(I,J)=1THEN35#
355# IFOR(I,J)=OTHER35#
356# IFOR(I,J)<>OTHER 36#
357# IFOR(I,J)<>OTHER 36#
358# IFOR(I,J)=OTHER36#
359# PRINTM(I)," HAS BEEN INJURED BY THE "T(I,T(I,J))." HIS/HER"
360# PRINT"TOOL PROFICIENCY WILL NOW BE CUT IN HALF."
361# PRINT
362# C1(I)=INT(C1(I)/2)+.5#
363# J=#
364# IFOR(I,J)<>OTHER36#
365# IF T(I,J)=1THEN36#
366# PRINTM(I)," HAS BEEN KILLED IN THE ACCIDENTAL"
367# PRINT"DISCHARGE OF SOME OF THE EXPLOSIVES. PLEASE"
368# PRINT"NOTIFY HIS/HER FRIENDS AND RELATIVES IF YOU MAKE IT BACK."
369# PRINT
370# C1(I)=1
371# IFOR=1THEN37#
372# M(I)="STORAGE"
373# R=#
374# C1(I)=#
375# C2(I)=#
376# IFOR=1THEN37#
377# FOR K=1TO#
378# IFOR(I,K)=1THEN38#
379# R1=INT(RND(1)*M1+1)
380# IFOR=1THEN38#
381# FOR L=1TO#
382# IF T(I,R1,L)<>1THEN38#
383# T(I,R1,L)=T(I,R1)
384# V1(R1,L)=V1(I,R1)
385# V2(R1,L)=V2(I,R1)
386# T(I,R1)=1#
387# V1(I,R1)=#
388# V2(I,R1)=#
389# L=#
390# NEXT L
391# NEXT K
```



Lost & Forgotten Island

```

1000 J=0
1010 NEXT J
1020 NEXT I
1030 NEXT M
1040 GOSUB 3990
1050 GOSUB 4140
1060 REM THE FOLLOWING IS THE SUBROUTINE STATE
1070 FOR I=0T05
1080 FOR J=0T05
1090 T0(I,J)=T2(I,J)
1100 NEXT J
1110 NEXT I
1120 C4=C2
1130 FOR M=0T0N1
1140 PRINT
1150 PRINT
1160 IF C1(I)=1 THEN M420
1170 IF C2<>M THEN M410
1180 C0=1
1190 E=INT((M+1)/C2)*100+.5)
1200 POINT(M+1) HAS ",INT(C1(I))," DOLLARS WORTH OF GOLD, A TOOL"
1210 POINT"PROFICIENCY OF ",C1(I)," ",INT(M+1)," MORE POINTS, WHICH"
1220 POINT"IS ".E," PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS:"
1230 PRINT
1240 FOR J2=0T05
1250 K0=" "
1260 IF T2(I,J2)=-1 THEN M430
1270 IF T2(I,J2)=T3(I,J2) THEN M410
1280 K0="+"
1290 POINT(TAB(5),K0,T2(I,J2))
1300 NEXT J2
1310 PRINT
1320 PRINT"JUST HIT RETURN WHEN YOU ARE READY TO GO ON."
1330 INPUT P0
1340 PRINT
1350 NEXT M
1360 PRINT
1370 PRINT"THE SON OF EVERYONE'S MORE POINTS IS ",INT(C4),"."
1380 PRINT
1390 C2=C4
1400 RETURN
1410 DATA"AXE","CHISEL","HAMMER","NAILS AND SCREWS","SAX"
1420 DATA"LOOPER","SHOVEL","PICKAXE","EXPLOSIVES"
1430 RETURN
1440 REM SUBROUTINE LAPS 10
1450 DEF FNC(I2)=2.718**I2
1460 DEF FNC(I0)=FNC(I0)+FNC(I0)
1470 DEF FNC(I2)=FNC(I2)+FNC(I0)
1480 C4=C2
1490 IF C1<>M THEN M410
1500 C0=1
1510 FOR I=0T0N1
1520 IF C2(I)=1 THEN M440
1530 IF M(I)/C0<.25 THEN 4450
1540 C4=C0+M(I)
1550 NEXT I
1560 FOR I=0T0 N1
1570 IF C2(I)=1 THEN M450
1580 PRINT
1590 PRINT"THE RESULTS FOR ",M(I),"."
1600 PRINT
1610 PRINT
1620 IF M(I)/C0<.25 THEN M460
1630 M(I)=C4
1640 I1=INT(40*2.718**((M(I)+5)/5))
1650 I2=INT(50*7.14*(FNC(I1-40)/5)/FNC(I1-40)/5*(I1+5))
1660 I3=INT(50*7.14*(FNC(I1-40)/5)/FNC(I1-40)/5*(I1+5))
1670 I5=INT(1000*(I1/I1))
1680 IF I1<1 THEN M470
1690 IF I5<1 THEN M480
1700 PRINT"PROPER CONDOLENCES WILL BE SENT TO THE FRIENDS"
1710 PRINT"AND RELATIVES OF", M(I)," WHO DROPPED DURING"
1720 PRINT"TYPE000 ORSLA."

```



Lost & Forgotten Island

```

4500 FOR I=1 TO 51
4510 IF C(1)=1 THEN GOTO 4520
4520 PRINT
4530 PRINT
4540 REM THE RESULTS
4550 PRINT
4560 PRINT"THE RESULTS FOR ",N(1),". "
4570 PRINT
4580 PRINT
4590 IF N(1)/100< .01 THEN GOTO 4600
4600 W1=100
4610 I2=INT(50*2.718**(1-W1)/100)
4620 I3=INT(50*(1+(1/(50*(14-W1)/5)/2.51)/((50*(14-W1)/5)/2.51))
4630 I4=INT(50*(1+(1/(50*(14-W1)/5)/2.51)/((50*(14-W1)/5)/2.51))
4640 I5=INT(50*(1+(1/(100*(14-W1)/5)/2.51)/((100*(14-W1)/5)/2.51))
4650 IF N(1)< .01 THEN GOTO 4660
4660 IPR=INT(50*2.718**(1-W1)/100)
4670 PRINT"PROPER CONDOLENCES WILL BE SENT TO THE FRIENDS"
4680 PRINT"AND RELATIVES OF", N(1), WHO DROPPED DURING"
4690 PRINT"TYPHOON URSULA "
4700 GOTO 4820
4710 IF N(1)< .01 THEN GOTO 4720
4720 PRINTN(1), " YOU MADE IT BACK TO HONOLULU BUT A"
4730 PRINT"LARGE WAVE WASHED YOUR GOLD OVERBOARD. SORRY."
4740 GOTO 4820
4750 IF N(1)< .01 THEN GOTO 4760
4760 PRINTN(1), " YOU MADE IT BACK BUT THE BOAT NEARLY SHAWPED."
4770 PRINT"SO, HALF OF YOUR GOLD WAS THROWN OVERBOARD."
4780 PRINT"THE HEAVE YOU HAVE",INT(I1)/2,
4790 PRINT" DOLLARS WORTH OF GOLD LEFT."
4800 GOTO 4820
4810 PRINTN(1), " CONGRATULATIONS "
4820 PRINT"YOU MADE IT WITH ALL YOUR GOLD.",INT(I1),
4830 PRINT" DOLLARS WORTH."
4840 GOTO 4820
4850 IF N(1)< .01 THEN GOTO 4860
4860 PRINTN(1), " DID NOT GET OFF THE ISLAND AND WAS"
4870 PRINT"KILLED BY TYPHOON URSULA."
4880 GOTO 4820
4890 PRINTN(1), " YOU SURVIVED TYPHOON URSULA, BUT LOST ALL YOUR GOLD"
4900 PRINT"AND HAD BETTER START MAKING SMOKE SIGNALS BECAUSE YOU WERE"
4910 PRINT"LEFT BEHIND."
4920 NEXT I
4930 PRINT
4940 PRINT"DO YOU WISH TO PLAY ANOTHER GAME";
4950 INPUT C$
4960 PRINT
4970 PRINT
4980 PRINT
4990 PRINT
5000 PRINT"*****"
5010 PRINT
5020 IF C$="NO" THEN GOTO 5030
5030 IF C$="YES" THEN GOTO 5040
5040 PRINT"YOU MUST ANSWER YES OR NO. PLEASE TRY AGAIN."
5050 PRINT
5060 GOTO 4940
5070 RETURN
5080 END

```



WELCOME TO THE LOST AND FORGOTTEN ISLAND.
 WOULD YOU LIKE SOME INSTRUCTIONS? YES
 LOST AND FORGOTTEN ISLAND IS A SURVIVAL GAME BASED ON
 COOPERATION. IT CONTAINS A MIXTURE OF LIFE'S VALUES.
 IMAGINE:
 YOU HAVE BEEN SHIPWRECKED ON A REMOTE ISLAND.
 YOU HAVE THE CHOICE OF SMOGGING FOR GOLD AND/OR BUILDING
 A HILL TO SURVIVE THE APPROACHING HURRICANE.
 CAN YOU SURVIVE? IF SO, WITH HOW MUCH GOLD?

GOOD LUCK

HOW MANY PEOPLE (1/2/3) ARE PLAYING? 2

PLAYER 1 WHAT NAME ARE YOU USING? OWEN

PLAYER 2 WHAT NAME ARE YOU USING? BOB

THIS IS DAY 1

OWEN HAS 0 DOLLARS WORTH OF GOLD, A TOOL
 PROFICIENCY OF 10, 0 MORE POINTS, WHICH
 IS 0 PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS.

JUST SIT BACK AND ENJOY YOUR GAME.

BOB HAS 0 DOLLARS WORTH OF GOLD, A TOOL
 PROFICIENCY OF 10, 0 MORE POINTS, WHICH
 IS 0 PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS.

Lost & Forgotten Island

JUST HIT RETURN WHEN YOU ARE READY TO GO ON.?

THE SUM OF EVERYONE'S MORE POINTS IS 2.

DO ANY OF YOU WISH TO TRADE TOOLS? NO

OWEN, WHAT ARE YOU GOING TO MORE ON TODAY? GOLD

OWEN HAS JUST MADE 1000 DOLLARS MORE GOLD.

RUSS, WHAT ARE YOU GOING TO MORE ON TODAY? BONE

RUSS HAS EARNED 1 MORE MORE POINTS.

THIS IS DAY 1

OWEN HAS 1000 DOLLARS WORTH OF GOLD, A TOOL PROFICIENCY OF 10, 2 MORE POINTS, WHICH IS 2 PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS:

JUST HIT RETURN WHEN YOU ARE READY TO GO ON.?

RUSS HAS 2 DOLLARS WORTH OF GOLD, A TOOL PROFICIENCY OF 10, 1 MORE POINTS, WHICH IS 1 PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS:

JUST HIT RETURN WHEN YOU ARE READY TO GO ON.?

THE SUM OF EVERYONE'S MORE POINTS IS 1.

DO ANY OF YOU WISH TO TRADE TOOLS? YES

WHO (USE NAME ONLY PLEASE) WISHES TO TRADE? OWEN

WHO ELSE WISHES TO TRADE? RUSS

OWEN, ARE YOU GIVING ANY GOLD IN THIS TRADE? NO

OWEN, ARE YOU GIVING ANY(NT) TOOL(S) IN THIS TRADE? YES

OWEN, HOW MANY TOOLS ARE YOU GIVING? 1

OWEN, WHAT IS THE NAME OF A TOOL THAT YOU ARE GIVING IN TRADE? AXE

OWEN, YOU DO NOT HAVE THIS TOOL, PLEASE TRY AGAIN.
YOU MUST SEE THE NAME OF A TOOL YOU HAVE, SEE 2 TO GO AHEAD WITH THE TRADE WITHOUT GIVING MORE TOOLS, SEE 3 TO CALL OFF THE TRADE, OR USE 2 TO SEE THE LIST OF TOOLS WHICH EVERYONE HAS BEFORE THE START OF THIS TRADE.

OWEN, WHAT IS THE NAME OF A TOOL THAT YOU ARE GIVING IN TRADE? 1

DO ANY TWO OF YOU WISH TO TRADE BONE? NO

OWEN, WHAT ARE YOU GOING TO MORE ON TODAY? GOLD

OWEN HAS JUST MADE 1000 DOLLARS MORE GOLD.

RUSS, WHAT ARE YOU GOING TO MORE ON TODAY? BONE

RUSS HAS EARNED 1 MORE MORE POINTS.

THIS IS DAY 2

OWEN HAS 1000 DOLLARS WORTH OF GOLD, A TOOL PROFICIENCY OF 10, 2 MORE POINTS, WHICH IS 2 PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS:

JUST HIT RETURN WHEN YOU ARE READY TO GO ON.?

RUSS HAS 2 DOLLARS WORTH OF GOLD, A TOOL PROFICIENCY OF 10, 2 MORE POINTS, WHICH IS 1 PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS:

JUST HIT RETURN WHEN YOU ARE READY TO GO ON.?

THE SUM OF EVERYONE'S MORE POINTS IS 2.

DO ANY OF YOU WISH TO TRADE TOOLS?

Monster Combat

Monster Combat was written by Lee J. Chapel and originally appeared in *Creative Computing*, February 1981.

Monster Combat is a game in which you wander around a forest and encounter various monsters. Your objective is to win as much treasure from each encounter as possible and, of course, not get killed in the process.

Play of the Game

When you play the game you will be randomly placed in a forest ten by ten squares in size. Only one of these squares (the one you are in) is displayed, thus allowing you to see only a small part of the forest at a time. The sector you are in is again divided into ten by ten squares. Each of these, too, is divided up to ten by ten; but you can see these hundred smallest squares. Each of these little squares is shown by a single character. It covers an area of forest ten by ten yards, making the fuller square that is displayed a hundred by a hundred yards and the entire forest a thousand by a thousand yards. T's are trees, ^s are paths, P's are



walls, ^s are inns, and M's are enchanted castles. The "Q" is you.

Also displayed with the portion of forest you are in is your combat strength, treasure total, and the various magic spells you have. Your combat strength is used to fight the various monsters you meet, each monster having a combat strength of his own; these range from five (for a goblin) to a hundred (for a basilisk). Your combat strength is also used in movement, the amount used depending upon how far you go, how much treasure you're lugging around, and the type of terrain you end up on after you move.

At the inn you are allowed to regain the strength you began with and all the magic you had at the start. Don't worry when you find yourself displayed in the square below the inn when you stop there; that is the way the program is set up. Of course, the innkeeper takes some of your treasure for providing you with his services. However, sometimes he has information which he passes on to you at no additional cost—like where the forest edge is, or where an enchanted castle might be found.

There may be up to fifteen enchanted castles in the forest. These usually contain items of great value

to treasure hunters, as you will see. (However, they tend to vanish if you make the wrong move, such as falling into a pit when you land on the castle square.)

Most of the time you will not be visiting inns and castles. You will be hacking your way through thick underbrush or trotting along forest paths in search of treasure. And you will find it, usually guarded by some sort of monster. Upon encountering one or more of these creatures you are given a choice of fighting them, running away, bribing them, or casting a spell on them.

To fight you must hit a "1"; then, when it asks you to, you enter however much of your combat strength you wish to use against the monster. If you choose to use strength equal to the monster's strength you then have a fifty-fifty chance of winning. The more strength you use the greater the odds are of winning, the less you use the smaller your odds of winning. Also affecting what you use to fight the monster is your treasure total. The more treasure you have the more strength you must use.

Sample Run

The first and third parts of the sample run give examples of fighting a monster or monsters. In the first case there are three cyclopes. Cyclopes have a combat strength of 20, which means that three of them have a total strength of 60. I used 121 of my combat strength to fight them, over twice the cyclopes' strength, which gave me over a 95% chance of winning. And, as can be seen in the example, I did beat him.

In the third part of the sample run I am fighting 19 goblins. Since goblins have a combat strength of 5, 19 have a combined strength of 95. I used only 60 combat points that time, giving me around a 30% chance of winning. And, as can be seen in the example, I did get myself killed.

Playing Strategy

If you do not wish to fight the monster you can always run. However, the higher the strength of the monster the less likely you will get away and the more likely that you will be forced to fight. Whether or not you do get away is based upon a random number and the strength of the monster. If you do get away you are randomly placed in an adjacent square and get to find out what is there. Once in a while, when you attempt to run, the monster catches you and kills you.

If you don't care to run or fight, you can try to bribe the monster. Few people like to do this since it means handing over some of your hard-earned treasure. Whether your bribe is accepted or not depends

upon how much treasure the monster is guarding, his strength, and a random number. The greater the value of the treasure the monster has, the more you'll have to pay him if you don't care to fight. Usually if the monster doesn't care for your bribe you have to fight him. Sometimes, though, he just kills you anyway.

Finally, if you don't care for any of the previous choices, you may cast a spell. There are three types of spells: sleep, charms, and invisibility. Sleep spells tend to be the least effective and invisibility the most effective, with charms somewhere in the middle. Spells, no matter what kind they are, don't always work too well, sometimes not working at all, thus causing you to have to fight the monster.

In addition to the various monsters, there are other things you will occasionally run into; some are good and some bad, as you will see when you run the program. Everything is determined randomly and thus you can go back to a spot where you were previously and find something different there.

You have thirty days to hunt for treasure in the forest. Each little square you move through takes a tenth of a day to cross, meaning it takes an entire day to cross the entire displayed square. To move, you enter the direction you wish to go (N meaning North, which is upwards, S meaning South, E meaning East, which is to the right, and W meaning West). Then you enter the distance, each little square being one. For example, in the first part of the sample run, I enter S (south) for the direction and then 3 for the distance. This places me on top of the arrow, which is an inn, and thus I am shown in the square below the inn when the next map of the area is drawn. In moving from the inn I again go south, this time a distance of 7, which causes me to end up in the next large square.

When you leave the forest, intentionally or accidentally, you can obtain a listing of the number of monsters you've killed, bribed, and run from, plus the amount of treasure you have won so far. If you decide not to return to the forest or your thirty days are up, you are offered several choices: you may go to a new forest with the same strength and magic (the treasure total going back to zero); you may go to a new forest with new strength and magic; or you can stop playing the game. If you should wish to use the strength and magic left over from the game you just played, you can obtain a listing of these at the very end of the game and then write them down or store them, however you wish. Then, the next time you play the game, you just answer the initial question with a "Y" and then enter the various things you are asked for.

As of this writing, the record treasure total is 7562, set by the author. Most of the time the scores run between 1000 and 2000, with many lower and a few higher. If you get above 2,000 you're doing well.

The following is a description of each monster, giving its combat strength and telling something about the tales and myths surrounding it.

Goblin (3)—A mischievous little sprite only about a yard in height. Rather ugly, uses coarse and uncouth language, is generally evil and malicious; all in all, a rather unpleasant little fellow. Even though they're little they can be very vicious, and more than one warrior has been killed underestimating them.

Minotaur (10)—From Greek mythology, a monster with the head of a bull and the body of a man. Minos, king of Crete, received a bull from Poseidon, god of the sea, which he refused to sacrifice to the god. Poseidon inspired an unnatural love for the bull in Pasiphae, Minos' wife, and the minotaur resulted from the union. Minos enclosed the creature in a labyrinth constructed in the city of Knossos, and fed it seven young men and women (whom Athens had to pay as tribute to Crete) every few years. The original minotaur was eventually slain by the Athenian hero Theseus.

Cyclops (20)—Also from Greek mythology, a member of a race of one-eyed giants. According to Homer, the cyclopes were shepherds living on an island in the western area. The best known of these was Polyphemus, who had his eye poked out by the hero, Odysseus. According to Hesiod, the cyclopes were three of the children of Uranus and Gaia. They forged the thunderbolt for Zeus, king of the gods, and became the assistants of Hephaestus, god of the forge.

Zombie (30)—From legends in the West Indies, a corpse which has been reanimated. A rather unpleasant person to meet, he generally smells of rot and decay. He often has rotting pieces of himself falling off his body, yet never seems to fall apart completely. He is difficult to kill, since he is already dead. A person has to chop him into tiny pieces and then get away before the monster can pull himself back together.

Giant (40)—Appears in the mythology of almost all nations, huge beings of terrible aspect. In the Greek myths the giants are said to live in volcanic regions where they were banished after an unsuccessful war against the gods. Some giants are peaceful, but others, like the ones in the forest, would think nothing of having you or anyone else for a snack.

Haggy (50)—From Greek mythology, disgusting women with the wings and lower body of a bird, generally a bird of prey. They stole and befouled the food

of blind Phineus as punishment from the gods. Phineus nearly died before Jason and the Argonauts arrived while sailing in search of the Golden Fleece. Two of the Argonauts, Zetes and Calais drove the harpies away and were then told by one of the gods that the harpies would bother Phineus no more. The harpies continued their disgusting practices elsewhere.

Griffin (60)—From Eastern mythology, a creature usually represented as having the head, back, and wings of an eagle, and the body and legs of a lion. It builds its nest of gold, making it very tempting to hunters and forcing the griffin to keep vigilant guard. It instinctively knows where buried treasure is hidden and does its best to keep any plunderers at a distance.

Chimera (70)—From Greek mythology, a monster with the foreparts of a lion, the rearparts of a goat with a goat's head in the middle of its back, and with a serpent for a tail. The original chimera was slain by Bellerophon, who was riding on Pegasus, the winged horse. Ironically, Pegasus was a distant relative of the chimera.

Dragon (80)—Found in many of the world's mythologies, a reptile monster resembling a giant lizard and usually represented as having wings, huge claws, and a fiery breath. In some places the dragon is considered to be a peaceful creature, notably in Japan and China, where it is regarded as a symbol of good fortune. However, the dragons in the forest are of the other sort; they will kill and eat you if you let them, and they take very unkindly to anyone trying to steal their treasure.

Wyvern (90)—A distant relative of the dragon, this is a fabulous two-legged creature, with wings and head of a dragon on a basilisk's body. Although he cannot kill you with one glance like the basilisk, he is still a very unpleasant creature to meet.

Basilisk (100)—The worst of all eleven monsters, his deadly glare kills anyone who gazes upon his face. From Greek mythology, the basilisk was called the king of serpents, being endowed with a scaly crest upon his head like a crown. This monster was supposedly produced from the egg of a cock hatched under toads or serpents. The worst, the only animal which can withstand the basilisk's glare, often fought it to the death. Humans must use a mirror if they wish to be assured of victory over a basilisk, for the mirror will reflect the creature's gaze back upon it and kill it. This monster is not to be confused with the basilisk of South America, a harmless lizard with the ability to run across water.

Monster Combat

CAN'T DO

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10 RANDOMIZE
20 REM "GIANT MONSTER ATTACK"
30 REM BY LEE J. CHAPPEL 5/1/1980
40 REM MICROSOFT VERSION BY CHRIS VOGELI
50 PRINT "*** GIANT MONSTER ATTACK ***"
60 DIM B(10),T(1),B(10),T(1),P(10),M(10),T(10),P(10),M(10)
70 DIM C(10),D(10)
80 FOR I=1 TO 11 : READ P(1),T(1),B(1),P(1) : NEXT I
90 W=INT(RND(1)*2)
100 C=INT(RND(1)*1000+500) : S=INT(RND(1)*6) : R=INT(RND(1)*4)
110 G(1)= "SLEEP SPELL" : G(2)= "CHARM" : G(3)= "INVISIBILITY SPELL"
120 PRINTINPUT "DO YOU WISH TO USE THE STRENGTH AND PASSION FROM A?"
130 INPUT "PREVIOUS GAME (Y OR N) OR S IF ON?" : IF G(1) THEN 320
140 D(1)=V1-V1 : S(1)=S : M(1)=M : PRINT "PLEASE WAIT"
150 FOR I=1 TO 10 : FOR J=1 TO 10
160 T=INT(RND(1)*100) : IF T<1 OR C<15 THEN T=0
170 M=INT(RND(1)*2) : M=INT(RND(1)*100) : P=INT(RND(1)*50)
180 A(1)=30000+T*1000+P*10000
190 IF T=1 THEN C=C+1 : C(1)=1 : D(1)=J
200 NEXT J : NEXT I : T=0
210 X(1)=INT(RND(1)*100)+2 : Y(1)=INT(RND(1)*10)+2
220 X=INT(RND(1)*100)+1 : Y=INT(RND(1)*10)+1
230 IF X<0 OR X<100 OR Y<0 OR Y<100 THEN 2300
240 FOR I=1 TO 10 : FOR J=1 TO 10 : B(1),J(1)=0 : NEXT J : NEXT I
250 C=INT(C*(X(1)/10000)) : P=INT(P*(X(1)/10000+Y(1)-10000+C*(1/1000))
260 M=INT(M*(X(1)/10000+Y(1)-10000+C*(1/1000)+10000*P/1000)
270 M=(X(1)/10000+C*(1/1000)+10000*P/1000) : I=0 : J=0
280 IF C<1 THEN S=INT(RND(1)*10)+1 : J=INT(RND(1)*10)+1 : B(1),J(1)=7
290 IF C<1 AND D=1 AND Y=J THEN B(1),J(1)=0 : GOTO 260
300 IF H=1 THEN S=INT(RND(1)*10)+1 : J=INT(RND(1)*10)+1
310 IF H=1 AND B(1),J(1)=0 THEN 300
320 IF H=1 THEN B(1),J(1)=0
330 B(1),Y(1)=5 : IF M=0 THEN 340
340 FOR I=1 TO M
350 J=INT(RND(1)*100)+1 : K=INT(RND(1)*10)+1
360 IF B(1),K(1)=0 THEN 370
370 B(1),K(1)=1 : NEXT I
380 IF P=0 THEN 430
390 FOR I=1 TO P
400 J=INT(RND(1)*10)+1 : S=INT(RND(1)*10)+1
410 IF B(1),K(1)=0 THEN 420
420 B(1),K(1)=1 : NEXT I
430 FOR I=1 TO 10 : FOR J=1 TO 10
440 IF B(1),J(1)=0 THEN PRINT "T"
450 IF B(1),J(1)=1 THEN PRINT "X"
460 IF B(1),J(1)=2 THEN PRINT "I"
470 IF B(1),J(1)=3 THEN PRINT "A"
480 IF B(1),J(1)=4 THEN PRINT "O"
490 IF B(1),J(1)=5 THEN PRINT "O"
500 IF B(1),J(1)=7 THEN PRINT "T"
510 NEXT J : PRINT TAB(1) "S"
520 IF I=0 THEN PRINT "COMBAT SCHEDULE:" : PRINT TAB(1) 4011C
530 IF I=1 THEN PRINT "TREASURE TOTAL:" : PRINT TAB(1) 4011C
540 IF I=2 THEN PRINT "SPELLS:" : PRINT TAB(1) 4011C
550 IF I=3 THEN PRINT "CHARMS:" : PRINT TAB(1) 4011C
560 IF I=4 THEN PRINT "INVISIBILITY:" : PRINT TAB(1) 4011C
570 IF I=5 THEN PRINT "DAYS IN FOREST:" : PRINT TAB(1) 4011C
580 IF I=1 OR I=2 OR I=3 THEN PRINT
590 NEXT I : PRINT : IF I=5 THEN RETURN
600 IF I=0 THEN 1270
610 I=INT(RND(1)*5) : IF I=0 THEN GOTO 2000
620 IF I=1 AND T=0 THEN PRINT "THERE ARE NOTHING THERE" : GOTO 1270
630 IF I=1 AND T=0 THEN 2260
640 I=INT(RND(1)*10)+1 : S=1 : IF I=12 THEN 2040
650 IF I=13 THEN 2000
660 IF I=14 THEN 2120
670 IF I=15 THEN J=100 : GOTO 720
680 J=INT(RND(1)*1000+100) : M(1)=J : IF J=0 THEN J=1 : M(1)=J
690 IF J=1 THEN M=H(1) : PRINT "A "M" IS GUARDING" :
700 IF J=1 THEN M=H(1)*5 : PRINT "I" "M" ARE GUARDING" :
710 M=H(1)*J : S=INT(RND(1)*14)+1
720 IF I=13 AND J=100 THEN 610
730 IF I=13 AND J=100 THEN PRINT "NOTHING IS GUARDING" :
740 IF I=14 THEN 2270
750 IF I=15 THEN PRINT "NOTHING" : P=0 : GOTO 770
760 PRINT TAB(1) : P(1)=1
770 IF M=H(1) AND M=1 THEN 2000
780 IF J=100 THEN PRINT "YOU GET THE TREASURE FREE" : GOTO 1190

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Monster Combat

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1570 I=INT(RND*(1+3)) : IF I=2 THEN I270
1580 IF I=1 THEN GOTO 2670 : GOTO 1270
1590 PRINT "WELCOME TO THE FOREST"
1600 PRINT "THE TREASURER TOLD YOU THAT THE FOREST EDGE IS LESS THAN"
1610 SA : GOTO 1620,1630,1640,1650
1620 PRINT Y+1000"YARDS TO THE NORTH" : GOTO 1270
1630 PRINT (11-Y1+1000)"YARDS TO THE SOUTH" : GOTO 1270
1640 PRINT (11+Y1+1000)"YARDS TO THE WEST" : GOTO 1270
1650 PRINT (11-X1+1000)"YARDS TO THE EAST" : GOTO 1270
1660 IF I25 THEN PRINT "YOU CAN'T USE MAGIC TO GET MAGIC" : GOTO 700
1670 IF SA#0 THEN PRINT "YOU HAVE NO MAGIC" : GOTO 700
1680 PRINT "WHAT TYPE OF SPELL-1(SLEEP, 2(CHARM, OR 3(INVISIBILITY)?"
1690 INPUT K : PRINT I : IF K=1 OR K=2 THEN I400
1700 ON K GOTO 1710,1720,1730
1710 IF S=0 THEN PRINT "YOU HAVE NO SLEEP SPELLS." : GOTO 1150
1720 IF M=4 THEN PRINT "YOU CAN'T PUT "MAGIC" TO SLEEP." : S=S-1 : GOTO 1150
1730 I=INT(RND(1+10)) : S=S-1
1740 IF I=0 THEN PRINT "YOUR SPELL WAS UNSUCCESSFUL." : GOTO 1150
1750 IF I=1 THEN PRINT "YOU GOT THE TREASURE SPELL" : GOTO 1150
1760 PRINT "THE "MAGIC" WORE TOO SOON"
1770 P=INT(RND(1+4)) : S=S-4
1780 PRINT "YOU GOT AWAY WITH" P "TREASURE POINTS" : GOTO 1270
1790 IF S=0 THEN PRINT "YOU HAVE NO CHARMS." : GOTO 1150
1800 I=INT(RND(1+10)) : S=S-1
1810 IF M=0 AND I=4 THEN PRINT "YOUR CHARM DIDN'T WORK." : GOTO 1150
1820 IF M=0 AND I=2 THEN PRINT "YOUR CHARM DIDN'T WORK." : GOTO 1150
1830 IF I=3 THEN PRINT "THE CHARM WORE OFF TOO SOON." : GOTO 1150
1840 I=1 : GOTO 1790
1850 IF S=0 THEN PRINT "YOU HAVE NO INVISIBILITY SPELLS." : GOTO 1150
1860 I=INT(RND(1+10)) : S=S-1
1870 IF M=0 AND I=2 THEN PRINT "THE "MAGIC" SPOILED YOU" : GOTO 1770
1880 IF M=0 AND I=4 THEN PRINT "YOUR INVISIBILITY WORE OFF TOO SOON" : GOTO 1770
1890 GOTO 1240
1900 I=INT(RND(1+2)+1) : ON I GOTO 1910,1920
1910 C=0 : PRINT "YOU WON AN ORNAMENTED SWORD, YOUR COMBAT STRENGTH "
1920 PRINT "IS DOUBLED AND IS NOW" I : GOTO 1240
1930 PRINT "YOU WON AN ORDINARY SWORD, YOUR COMBAT STRENGTH IS NOT"
1940 PRINT "DOUBLED AND REMAINS AT" I : GOTO 1240
1950 J=INT(RND(1+10)) : I=INT(RND(1+10))
1960 IF J=7 AND R1<7 THEN R1=7 : GOTO 1790
1970 IF I=1 THEN I20
1980 GOTO 1240
1990 PRINT "THERE WAS A RUMOR ON THE CHIEF. IT WILL PROTECT YOU"
2000 PRINT "MAGNETIC OR "MAGIC" IS YOUR NEXT" : S=S-1 : GOTO 1270
2010 PRINT "THE TREASURE CHEST WAS A TRAP, YOU WERE KILLED WHEN "
2020 PRINT "YOU OPENED IT" : GOTO 700
2030 PRINT "YOUR MIRROR KILLED THE "MAGIC" : M1=INT(RND(1+1)) : M=1 : GOTO 1150
2040 PRINT "A GIANT HAS GRABBED YOU AND CARRIED YOU TO A NEW SPOT"
2050 A=1 : B=7 : T=1 : D=D+1 : I
2060 I=INT(RND(1+10)+1) : Y=INT(RND(1+10)+1) : IF B=1,Y=1 THEN I2040
2070 B1=INT(RND(1+10)+1) : B1=7+5 : GOTO 410
2080 PRINT "YOU FELL INTO A PIT." : I=INT(RND(1+2)+1)+10000 : C=C+1
2090 IF C=0 THEN PRINT "YOU WERE TRYING TO GET OUT" : GOTO 700
2100 PRINT "YOU USED" I "COMBAT POINTS TRYING TO GET OUT" : I=1
2110 FOR J=1 TO 750 : NEXT J : GOTO 700
2120 J=0 : FOR I=1 TO 11 : J=INT(11-NEXT J) : IF J=11 THEN J=0
2130 PRINT "A GIANT WILL CARRY YOU TO SAFETY."
2140 FOR I=1 TO 1000 : NEXT I : T=1 : GOTO 2040
2150 I=INT(RND(1+10)+1) : M=0 : M=INT(11-NEXT I) : M=1
2160 PRINT "A "MAGIC" HEARD THE NOISE OF THE BATTLE AND CAME WANDERING BY"
2170 IF I=10 AND R1=7 THEN I200
2180 INPUT "DO YOU WISH TO 1(FIGHT, 2(CHARM, 3(CAST A SPELL)?"
2190 IF K=1 OR K=2 THEN I100
2200 ON K GOTO 2210,2220,2230
2210 I=INT(RND(1+10)+1) : M=M+1 : M=INT(11-NEXT I) : M=1
2220 PRINT "A "MAGIC" CAME WANDERING BY" : GOTO 2170
2230 IF I=10 THEN I200
2240 I=INT(RND(1+10)+1) : I=1+5 : PRINT "A "MAGIC" : P=INT(RND(1+10)+1) : GOTO 770
2250 I=INT(RND(1+10))
2260 IF I=0 THEN PRINT "YOU WERE UNABLE TO MASTER THE SPELL."
2270 IF I=5 THEN PRINT "YOU GAIN NO "MAGIC" : GOTO 1270
2280 IF I=6 THEN S=S+1 : I1=I+1
2290 IF I=7 THEN S=S+1 : I1=I+1
2300 IF I=8 THEN S=S+1 : I1=I+1
2310 PRINT "YOU WON THE "MAGIC" : I=0 : IF I1/5+R1/3+5/206 THEN GOTO 3200
2320 GOTO 1270
2330 FOR A=1 TO 750 : NEXT A
2340 PRINT "YOU SURVIVED THE FOREST" : FOR I=1 TO 1000 : NEXT I

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Monster Combat

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2290 PRINT "DO YOU WISH TO SEE THE # OF MONSTERS YOU KILLED? Y/N FROM:"
2300 INPUT "AND ENTERED Y OR N?":X$ : IF X$="N" THEN PRINT : GOTO 2400
2310 PRINT "MONSTER":TAB(11):"SLAIN":TAB(32):"MONSTER":TAB(43):"SLAIN"
2320 FOR I=1 TO 5 : PRINT MID$(TAB(14):MID$(TAB(32):MID$(TAB(43):MID$(TAB(
2330 PRINT TAB(46):MID$(TAB(
2340 NEXT I : PRINT TAB(32):"N":TAB(46):"N":TAB(
2410 PRINT : PRINT "ENTERED":TAB(10):"TAB(32):"FROM FROM":TAB(
2420 PRINT TAB(10):"TREASURE TOTAL:"
2430 IF G1C=0 THEN GOSUB 2500
2440 PRINT "CONGRATULATIONS!" : IF G1C=0 AND G2C=0 THEN PRINT "WELL!" : PRINT
2450 PRINT : GOTO 2600
2460 IF G1C=0 THEN INPUT "DO YOU WISH TO RETURN TO THE FOREST?":X$
2470 REM
2480 S=1 : W=1 : R=1 : C=1 : IF R=C=Y" THEN GOTO 250
2490 GOTO 250
2500 D1=20+R*10 : IF D1C=0 THEN 1310
2510 PRINT "YOUR TIME IS UP, 30 DAYS HAVE PASSED"
2520 FOR I=1 TO 1000 : NEXT I : GOTO 2100
2530 FOR I=1 TO 2500 : NEXT I : T=0
2540 PRINT "YOU MADE IT INTO THE ENCHANTED CASTLE"
2550 I=INT(RND(1)*22)+100 : J=INT(RND(1)*7) : R22,Y1=H22,Y1+10000
2560 GOSUB 2700 : PRINT "YOU FOUND "I":TREASURE POINTS THERE" : C=C+1
2570 IF J=7 OR R=7 THEN 2600
2580 PRINT "YOU ALSO FOUND A MIRROR WHICH WILL KILL ANY "I
2590 PRINT MID$(I)*"S" YOU MEET" : R=7
2600 J=INT(RND(1)*2)+1 : IF J=2 THEN C=C+1
2610 IF J=2 THEN PRINT "YOU ALSO FOUND AN ENCHANTED SWORD WHICH DOUBLES "I
2620 IF J=2 THEN PRINT "YOUR STRENGTH"
2630 FOR I=1 TO C=1 : IF C11C=0 THEN 2650
2640 FOR J=1 TO C=1 : C2J=H2J+1 : D1J=H2J+1 : NEXT J
2650 NEXT I : C=C+1 : IF C=0 THEN PRINT "YOU FOUND THE LAST OF THE CASTLES"
2660 RETURN
2670 IF C=0 THEN RETURN
2680 I=INT(RND(1)*C)+1
2690 PRINT "THE INKEDDER TOLD YOU OF A LEGEND OF A CASTLE:"
2700 IF C11=H1 AND D11=H1 THEN PRINT "VERY CLOSE BY" : RETURN

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Monster Combat

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2710 J=01-2015 : I=01-0111
2720 IF 00011=00011 THEN PRINT "DIRECTLY TO THE " : GOTO 2740
2730 PRINT "DOWNWARD TO THE "
2740 IF I=0 THEN PRINT "SOUTH"
2750 IF I=1 THEN PRINT "NORTH"
2760 IF I=2 THEN PRINT "WEST"
2770 IF I=3 THEN PRINT "EAST"
2780 PRINT : RETURN
2790 REM
2800 I=INT(RND(1)*11)+1
2810 ON I GOTO 2820, 2840, 2840, 2870, 2920, 2920, 2970, 3010, 3020, 3050
2820 PRINT "YOU STUPEFIED INTO A TIME WARP AND LOST SEVEN DAYS"
2830 D1=D1-7 : RETURN
2840 I=INT(RND(1)*10)+1 : J=0 : D1=D1-1 : IF D1<1 THEN D1=1 : D=D-D1
2850 PRINT "YOU STUPEFIED INTO A TIME WARP AND GAINED"11"DAYS" : RETURN
2860 IF C=0 THEN RETURN
2870 PRINT "YOU MET AN ELF WITH A MAGIC ORBID THAT GAVE"
2880 PRINT "YOUR COMBAT STRENGTH BACK" : C=D : RETURN
2890 IF V=0-D+0=0+01 THEN RETURN
2900 PRINT "YOU RAN INTO A WIZARD WHO GAVE YOU A POISON THAT"
2910 PRINT "RESTORED ALL YOUR MAGIC" : V=0 : W=1 : S=1 : RETURN
2920 IF 0=0 THEN RETURN
2930 PRINT "YOU FELL INTO SOME QUICKSAND, YOU LOST HALF OF YOUR"
2940 PRINT "TREASURE" : S=INT(S/2) : RETURN
2950 PRINT "YOU RAN INTO SOME THICK UNDERBUSH AND USED UP HALF"
2960 PRINT "YOUR STRENGTH" : C=INT(C/2) : RETURN
2970 I=INT(RND(1)*20)+1 : PRINT "YOU FOUND"11"DOLLS LYING ON THE"
2980 PRINT "GROUND AND PICKED THEM UP" : S=S+1 : RETURN
2990 IF 0=0 THEN RETURN
3000 PRINT "YOU TRIPPED OVER SOME ROOTS AND LOST YOUR RING" : R1=0 : RETURN
3010 PRINT "A HORRIFIC TOLD YOU THAT THERE ARE NO "CASTLES LEFT" : RETURN
3020 IF V=0+0 THEN RETURN
3030 PRINT "YOU WANDERED INTO AN AREA WHERE MAGIC DOESN'T WORK"
3040 PRINT "YOU LOSE ALL YOUR PRESENT MAGIC" : V=0 : S=0 : R=0 : RETURN
3050 IF C=0 THEN RETURN
3060 PRINT "YOU MET A HUNTER WHO TOLD YOU OF THE LEGEND OF A"
3070 PRINT "CASTLE"1 : I=INT(RND(1)*0)+1 : GOSUB 2700 : RETURN
3080 FOR I=1 TO 2000 : NEXT : PRINT
3090 PRINT "DO YOU WISH TO GO TO A NEW FOREST WITH THE SAME STRENGTH"1
3100 INPUT "ADD MAGIC"1 : IF 0=1 THEN GOTO
3110 PRINT "DO YOU WISH TO GO TO A NEW FOREST WITH A NEW STRENGTH AND "
3120 INPUT "MAGIC"1 : IF 0=1 THEN RUN
3130 PRINT "DO YOU PLAN ON USING THE SAME STRENGTH AND MAGIC AGAIN"
3140 INPUT "USE OTHER TIME"1 : IF 0=1 THEN GOTO 3150
3150 PRINT : PRINT "ONCE AGAIN, YOU TREASURE TOTAL WAS"10
3160 IF 0=0 THEN GOTO
3170 IF 0=0 THEN PRINT "THE LARGEST TREASURE TOTAL YOU GOT WITH THIS"
3180 PRINT "STRENGTH AND MAGIC WAS"10 : PRINT : PRINT "BYE NOW" : END
3190 B=0 : S=0 : G=0 : FOR I=1 TO 11 : M1=0 : NEXT I : IF 0=0 THEN G1=0
3200 G1 : GOTO 140
3210 INPUT "COMBAT STRENGTH"10
3220 IF 0=0 OR 0=000 THEN G10
3230 INPUT "SLEEP SPELLS"10 : INPUT "CHARMS"10 : INPUT "INVISIBILITY"10
3240 INPUT "PREVIOUS LARGEST TREASURE TOTAL"10 : GOTO 140
3250 IF 0=0 THEN PRINT "YOU WON MORE TREASURE THIS TIME THAN BEFORE"
3260 IF 0=0 THEN PRINT "YOU DIDN'T OBTAIN AS MUCH TREASURE THIS TIME"
3270 RETURN
3280 PRINT "YOUR MAGIC TOTAL IS RATHER LARGE, DO YOU WISH TO CONVERT IT TO"
3290 INPUT "COMBAT POINTS"10 : IF 0=1 THEN RETURN
3300 S=S1-S : S2=R1-2 : V1=V1-2 : IF S1<0 THEN S1=0
3310 IF S1<0 THEN R1=1
3320 IF V1<0 THEN V1=1
3330 S=S1 : R=R1 : V=V1 : C=C+100 : D=D+100 : PRINT "YOUR COMBAT STRENGTH IS"1
3340 PRINT "ACCORDANTLY INCREASED BY 100" : RETURN
3350 PRINT "COMBAT STRENGTH"10 : PRINT "SLEEP SPELLS"10 : PRINT "CHARMS"10
3360 PRINT "INVISIBILITY"10 : PRINT : RETURN
3370 DATA GEMIN, 10 SILVER SPINDS (10 POINTS), 5, 10, HIRSHMAN
3380 DATA A SWORD WHICH MIGHT BE ENCHANTED (25 POINTS), 10, 25
3390 DATA CYCLOPS, 50 SILVER COINS (50 POINTS), 20, 50, DORRIS
3400 DATA 100 GOLD PIECES (100 POINTS), 30, 100, GIMAT
3410 DATA AN ENCHANTED BRACELET (50 POINTS), 40, 50, HARRY
3420 DATA A TREASURE CHEST (200 POINTS), 50, 200, GRIFIN
3430 DATA A PEARL NECKLACE (50 POINTS), 40, 50, CHERRA
3440 DATA A JEWELLED SWORD (30 POINTS), 70, 30, DRAGON
3450 DATA A JAR OF RUBIES (75 POINTS), 60, 75, SWARM
3460 DATA A BOX OF JEWELS (100 POINTS), 90, 100, BASTILON
3470 DATA A GOLD COINLET (50 POINTS), 100, 50
3480 END

```


Mu-Torere

Mu-Torere was written by Sandy Greenleaf and originally appeared in *Creative Computing*, August 1982.

I can't tell you how to pronounce it or what it means, but I know that Mu-Torere was played as late as 1912 by the Ngati-Porou tribe of the Maoris of the East Cape district of New Zealand. How's that for exotic origin! There appears to be some mystery about it. The fact that it was limited to one small corner of New Zealand suggests that it couldn't have been there very long, and that it must have been introduced by Europeans or by Polynesian seafarers. However, (according to an article in *Dunedin*) no one has traced the game anywhere else.

The layout for Mu-Torere is a nine-pointed star (See Figure 1). The center circle is known as the *putahi*. The first player has four white stones which are initially placed at the ends of four adjacent arms of the star. The second player places four black stones at the ends of four adjacent arms. Players take alternate moves, playing one stone per move.

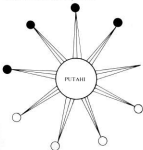


Figure 1. Normal Mu-Torere setup.



At any point in the game, there are three possible types of move:

1. Move sideways to the next arm if that point is vacant.
2. Move into the *putahi* if it is empty.
3. Move from the *putahi* to any unoccupied arm.

The game is won when an opponent is so placed that it is impossible to move any pieces. Despite the apparent simplicity, the game has a degree of subtlety that requires thinking ahead several moves in order to force the opponent into an unplayable position. One virtue of the game is its utter simplicity to create. It can be drawn on paper, sand, or almost anywhere.

Due to the ease of setup, I felt that a two-player version would be too simple and decided on a solitary version. Also, since it is boring to lose everytime, I did not program the computer to play perfectly. Several situational strategies are built into the program. The program will also recognize one-move forced wins and avoid certain forced-loss situations. If none of the specific strategies applies, the program will select an arbitrary move, in some cases good and in others bad. In other words, it plays like most humans.

In order to keep the program adaptable for most micros, the star was converted to a linear arrangement of numbered squares (See Figure 2). The *putahi* became the zero square and the nine points of the star became the numbered squares, one through nine. The parallel to the original rules is as follows:

1. Move sideways to the next adjacent number if vacant. (One should be considered adjacent to two and nine.)
2. Any number can move into zero, the *putahi*, if it is empty.
3. Zero can move into any unoccupied number.

The human plays "X" and the computer plays "O". You have the choice of moving first or second. Good luck.

					■					
					0					
X	X	X	X	■	0	0	0	0		
1	2	3	4	5	6	7	8	9		

Figure 2. Video screen setup for Mu-Torere.

Mu-Torere

```

10 REM *****
20 REM $ MU-TORERE $
30 REM $ In Microsoft BASIC $
40 REM *****
50 DEF FN P(X)=ABS(-1*(X-50))
60 DEF FN A(X)=IFN P(X)=1
70 DEF FN R(X)=INT(1+RND*(1))
80 GOTO 1000
90 REM *** Player's Move ***
100 PRINT:PRINT:PRINT "Your move "
110 $=1000:IF $=0 THEN 110
120 PRINT $;" "
130 $=0:IF $=0 THEN 130
140 PRINT $;" "
150 IF A(X)<1 OR A(Y)<1 THEN 170
160 IF $=0 OR $=0 OR RND*(1)=1 OR RND*(1)=1 THEN 180
170 PRINT "Invalid move. Try again: "
180 $=0:IF $=0 THEN 170
190 $=0
200 GOTO 1000
210 FN P(X)=0:FN P(Y)=0
220 GOTO 250
230 IF $=0 THEN GOTO 250
240 A(X)=0:A(Y)=0
250 CLEARPRINT " My move: "
260 PRINT USING"###";PRINT " ";PRINT USING"###";PRINT " ";GOTO 1000:GOTO 250
270 GOTO 100
280 REM *** Computer's Move ***
290 IF A(X)<1 THEN H=1:GOTO 300
300 IF $=0 THEN $=0:RETURN
310 IF A(Y)<1 THEN H=2:GOTO 300
320 ON A(X)+2 GOTO 330,340,310
330 REM *** If 0 Square is Empty ***
340 IF FN A(H)+2<1 OR FN A(H)+2<1 THEN 370
350 IF FN A(H)+2=1 THEN $=FN P(H)+2:RETURN
360 IF FN A(H)+2=0 THEN $=FN P(H)+2:RETURN
370 H=H+1:IF FN A(H)=1 AND FN A(H)=1 AND FN A(H)=1 THEN $=FN P(H)+2:RETURN
380 IF FN A(H)=1 AND FN A(H)=1 AND FN A(H)=1 THEN $=FN P(H)+2:RETURN
390 IF Y=X THEN $=0:RETURN
400 IF FN A(H)=1 AND FN A(H)=1 AND FN A(H)=1 THEN $=FN P(H)+2:RETURN
410 IF FN A(H)=1 AND FN A(H)=1 AND FN A(H)=1 THEN $=0:RETURN
420 IF Y=X THEN $=0:RETURN
430 $=0
440 $=1:IF 1=X THEN 1=1
450 IF A(X)<1 OR FN A(X)=1 THEN 440
460 IF FN A(X)=1 AND FN A(X)=1 THEN $=FN P(X)+2:RETURN
470 IF FN A(X)=1 AND FN A(X)=1 THEN $=FN P(X)+2:RETURN
480 IF Y=X AND FN A(X)=1 THEN $=0:RETURN
490 GOTO 440
500 REM *** If 0 Square Contains an X ***
510 H=1:GOTO 520:IF $=0 THEN $=0:RETURN
520 H=2:GOTO 530:IF $=0 THEN $=0:RETURN
530 IF FN A(H)=1 AND FN A(X)=1 THEN $=FN P(H)+2:RETURN
540 IF FN A(H)=1 AND FN A(X)=1 THEN $=FN P(H)+2:RETURN
550 IF A(X)=1 AND FN A(X)=1 THEN $=FN P(X)+2:RETURN
560 IF H=2 THEN H=1:GOTO 520
570 H=2:GOTO 530
580 REM *** If 0 Square Contains an O ***
590 H=1:GOTO 720:IF $=0 THEN $=0:RETURN
600 H=2:GOTO 730:IF $=0 THEN $=0:RETURN
610 H=3:GOTO 740:IF $=0 THEN $=0:RETURN
620 H=4:GOTO 750:IF $=0 THEN $=0:RETURN
630 H=5:GOTO 760:IF $=0 THEN $=0:RETURN
640 H=6:GOTO 770:IF $=0 THEN $=0:RETURN
650 GOTO 780
660 IF FN A(H)=1 AND FN A(X)=1 AND FN A(X)=1 THEN $=FN P(H)+2:RETURN
670 IF FN A(H)=1 AND FN A(X)=1 AND FN A(X)=1 THEN $=FN P(H)+2:RETURN
680 RETURN
690 IF FN A(H)=1 AND FN A(X)=1 THEN $=FN P(H)+2:RETURN
700 IF FN A(H)=1 AND FN A(X)=1 THEN $=FN P(H)+2:RETURN
710 RETURN
720 IF FN A(H)=1 AND FN A(H)=1 AND FN A(X)=0 THEN $=FN P(H)+2:RETURN
730 IF FN A(H)=1 AND FN A(H)=1 AND FN A(X)=0 THEN $=FN P(H)+2:RETURN
740 RETURN
750 IF FN A(H)=1 AND FN A(H)=1 THEN $=FN P(H)+2:RETURN
760 RETURN
770 IF $=0 OR $=0 THEN RETURN

```

Mu-Torere

```

780 H=H+1:GOSUB 880:IF G THEN RETURN
790 H=H+2:GOSUB 880:IF G THEN RETURN
800 PRINT:PRINT:PRINT
810 DEEP:DEEP:DEEP
820 IF P=1 THEN PRINT "YOU WIN!"
830 IF P=-1 THEN PRINT "THE COMPUTER WINS!"
840 PRINT:PRINT "Care to play again? Y or N?"
850 A$=INKEY$:IF A$="" THEN 880
860 IF A$="Y" OR A$="y" THEN GOTO 880
870 RUN
880 G=0
890 IF A$="P" THEN G=1:RETURN
900 IF H=1 THEN IF A(1)=P THEN G=1:RETURN
910 IF H=2 THEN IF A(1)=P THEN G=1:RETURN
920 IF H=3 THEN IF A(1)=P THEN G=1:RETURN
930 IF H=4 THEN IF A(1)=P THEN G=1:RETURN
940 RETURN
950 H=1:G=1:PRINT
960 FOR I=1 TO 9
970 PRINT TAB(4*I-3);
980 IF A(1)=1 THEN PRINT "X";
990 IF A(1)=1 THEN PRINT "O";
1000 IF A(1)=0 THEN PRINT " ";
1010 IF G=1 THEN RETURN
1020 NEXT I:RETURN
1030 DIM M(2),A(9)
1040 CLS:PRINT TAB(16)"MU-TORERE":PRINT
1050 PRINT " The object of the game is to make it":PRINT "impossible for your opponent to move."
1060 PRINT " There are 3 types of legal moves":PRINT " 1. Sideways to the next adjacent";
PRINT " square (1 and 9 are adjacent);
1070 PRINT " 2. To 0 if 0 is empty";PRINT " 3. From 0 to any unoccupied number"
1080 PRINT:PRINT " You and the computer take":PRINT "alternating moves until the game ends."
1090 PRINT:PRINT " To move, just press the number you":PRINT "moving from and the number you are";
PRINT "moving to."
1100 PRINT:PRINT " You play 'X' and the computer":PRINT "plays 'O'."
1110 PRINT " Press any key to begin."
1120 A$=INKEY$:IF A$="" THEN 1120
1130 CLS:FOR I=1 TO 4:A(1)=0:A(1)+5=-1:NEXT I
1140 A(1)=0:A(5)=0
1150 PRINT TAB(17);"O":PRINT TAB(17);"X":G=0:PRINT:PRINT:FOR I=1 TO 9:PRINT I; " ";
NEXT I
1160 IF P=1 THEN P=-1:RETURN
1170 GOSUB 950:GOSUB 1290
1180 REM
1190 PRINT:PRINT:PRINT "Do you want to go first? Y or N?"
1200 A$=INKEY$:IF A$="" THEN 1200
1210 PRINT:IF A$="Y" AND A(1)=0 THEN 100
1220 P=-1
1230 IF P=1:GOTO 1230 THEN A(1)=0:A(5)=1:GOTO 1230
1240 X=PN:A(1)+5=X:O=A(1)+5:O(1)=0:GOTO 1230
1250 G=1:FOR I=0 TO 9:IF A(I)=0 THEN M(I)=I:END
1260 NEXT I:RETURN

```



Hu-Torere

HU-TORERE

The object of the game is to make it impossible for your opponent to move.

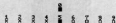
There are 2 types of legal moves:

1. Sideways to the next adjacent square (1 and 9 are adjacent)
2. To 2 if it is empty
3. From 2 to any unoccupied number

You and the computer take alternating moves until the game ends.

To move, just press the number you moving from and the number you are moving to.

You play "X" and the computer plays "O".
Press any key to begin.

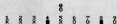


Do you want to go first (Y or N) ?

Your move: 4,5

■

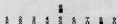
My move: 8,9



Your move: 3,4

■

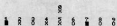
My move: 8,9



Your move: 1,8

■

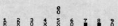
My move: 7,8



Your move: 8,1

■

My move: 8,9



THE COMPUTER WINS!

Come to play again (Y or N) ?

Presidential Campaign

Presidential Campaign was written by Ralph G. White and originally appeared in *Creative Computing*, October, 1988.

Presidential Campaign is a simulation of the nine month period leading up to a national presidential election. You must make decisions regarding issues, expenditures, travel, and other campaign activities. It is assumed that you are the chosen candidate of your party, and that there is no primary battle.

The country is divided into six regions:

The New England states

The upper midwest and middle Atlantic states

The southern states

The great plains states

The southwest states

The northwest and west coast states

Issue, party affiliation, campaign activities, etc. affect each group of states differently. Some actions have an equal effect on all states while others do not. Thus, some people will be more pleased than others with your approach to political issues wherein some of your decisions may be highly unpopular in some areas.

The incumbent initially gets a 10% edge. A routine to determine the popularity of the president then adjusts the figure accordingly. Party affiliation of the user also affects the initial conditions.

Not only do you get to choose whether to be the incumbent or challenger and whether to be a Democrat or Republican, but also to determine which of six different issues will be the most important issue to your campaign and which issue will be the least important. All of these decisions can influence the effectiveness in your campaign. Which issues are chosen most important and least important do not affect ini-



tial conditions.

You have nine months in which to campaign. Status in an individual state can be improved by either campaigning in the state or spending campaign money in it. The influence you and your money have in each state varies. The major factor is the number of electoral votes. The number of days campaigning or the amount of money spent is also of importance. It costs \$1100 per day to visit each state, however, some of the days you plan to be in a state can be designated for fund raising as well as campaigning. Fund raising does not help your popularity in a state, but it feeds the campaign treasury. Campaigning increases popularity, but depletes the treasury.

Aside from meeting campaign expenses, the money can be spent in each state to finance campaign committees. The maximum that can be spent in each state at one time is \$50,000. You are allowed to visit as many states as time and money allow. You can spend as much money each month as you can afford.

At the end of each month, you will be given a report on the balance of the campaign treasury at the beginning of the month and at the end, the contributions and expenditures for the month, and the results of a political poll which will show your popularity status for a state chosen at random.

Before the beginning of the next month, a political event will happen. How the event affects you depends upon the conditions you set forth at the beginning of the program. Some of the events require you to make a decision and the course of actions taken influences your status. At the end of the campaign, the program calculates the results, state by state, of the popular vote, although only the electoral vote is shown.

Presidential Campaign

```

10 REM *****
20 REM * THE PRESIDENTIAL CAMPAIGN *
30 REM * in Microsoft BASIC *
40 REM *****
50 CLEAR 50000:ST(10,15)
60 RE(1)="February":RE(2)="March":RE(3)="April":RE(4)="May"
70 RE(5)="June":RE(6)="July":RE(7)="August":RE(8)="September":RE(9)="October"
80 REM>Your campaign fund has $$$$,$$$,$$$,00"
90 RE(10000,$$$,$$$,$$ $$$$,$$$,$$$,$$)
100 REM*Contributions = $$$$,$$$,$$ Expenditures = $$$$,$$$,$$
110 FOR I=1 TO 500:GOTO 130 IF 50000<I THEN GOTO 1
120 FOR I=1 TO 15:ST(1,I)=50000/I:GOTO 130
130 FOR I=1 TO 5:ST(5,I)=50000/I:GOTO 130
140 FOR I=50000 TO 0
150 CLS:PRINT TAB(10):REM THE PRESIDENTIAL CAMPAIGN REM
160 PRINT:PRINT:INPUT "Please enter a number from 1 to 50000"
170 IF N<1 OR N>500 THEN 160
180 FOR I=1 TO N:REND(I)=NEXT I
190 FOR I=1 TO 2000:NEXT I
200 GOTO 250
210 CLS
220 PRINT "Conditions":PRINT:PRINT
230 PRINT "Choose the conditions that you wish to":PRINT "be true."
240 PRINT "So what year do you wish the election":INPUT "to take place":EY=REND(EY):IF EY=0 THEN 260
250 IF EY=4:GOTO 1:IF EY=8 THEN 270
260 PRINT "That is not an election year."GOTO 240
270 INPUT "Enter your name":RE
280 INPUT "Enter your opponent's name":OB
290 PRINT:PRINT"Do you wish to be 1) the incumbent or 2) the challenger?"
300 IF P1=0 OR P1=2 THEN 290
310 PRINT:PRINT"Do you wish to be 1) a Democrat or 2) a Republican?"
320 IF P2=1 OR P2=3 THEN 310
330 RE=INT(REND(1)*100)
340 IF P1=3 THEN P1=4
350 IF P1=3 AND P1=4 THEN P1=5
360 IF P1=4 AND P1=5 THEN P1=6
370 IF P1=5 AND P1=6 THEN P1=7
380 IF P1=7 THEN P1=8
390 FOR I=1 TO 5:GOTO 410:NEXT I
410 GOTO 430
420 C1=REND(1)+REND(2)+REND(3)+REND(4)+REND(5)+REND(6)+REND(7)+REND(8)+REND(9)+REND(10)+REND(11)+REND(12)+REND(13)+REND(14)+REND(15)+REND(16)+REND(17)+REND(18)+REND(19)+REND(20)+REND(21)+REND(22)+REND(23)+REND(24)+REND(25)+REND(26)+REND(27)+REND(28)+REND(29)+REND(30)+REND(31)+REND(32)+REND(33)+REND(34)+REND(35)+REND(36)+REND(37)+REND(38)+REND(39)+REND(40)+REND(41)+REND(42)+REND(43)+REND(44)+REND(45)+REND(46)+REND(47)+REND(48)+REND(49)+REND(50)+REND(51)+REND(52)+REND(53)+REND(54)+REND(55)+REND(56)+REND(57)+REND(58)+REND(59)+REND(60)+REND(61)+REND(62)+REND(63)+REND(64)+REND(65)+REND(66)+REND(67)+REND(68)+REND(69)+REND(70)+REND(71)+REND(72)+REND(73)+REND(74)+REND(75)+REND(76)+REND(77)+REND(78)+REND(79)+REND(80)+REND(81)+REND(82)+REND(83)+REND(84)+REND(85)+REND(86)+REND(87)+REND(88)+REND(89)+REND(90)+REND(91)+REND(92)+REND(93)+REND(94)+REND(95)+REND(96)+REND(97)+REND(98)+REND(99)+REND(100)+REND(101)+REND(102)+REND(103)+REND(104)+REND(105)+REND(106)+REND(107)+REND(108)+REND(109)+REND(110)+REND(111)+REND(112)+REND(113)+REND(114)+REND(115)+REND(116)+REND(117)+REND(118)+REND(119)+REND(120)+REND(121)+REND(122)+REND(123)+REND(124)+REND(125)+REND(126)+REND(127)+REND(128)+REND(129)+REND(130)+REND(131)+REND(132)+REND(133)+REND(134)+REND(135)+REND(136)+REND(137)+REND(138)+REND(139)+REND(140)+REND(141)+REND(142)+REND(143)+REND(144)+REND(145)+REND(146)+REND(147)+REND(148)+REND(149)+REND(150)+REND(151)+REND(152)+REND(153)+REND(154)+REND(155)+REND(156)+REND(157)+REND(158)+REND(159)+REND(160)+REND(161)+REND(162)+REND(163)+REND(164)+REND(165)+REND(166)+REND(167)+REND(168)+REND(169)+REND(170)+REND(171)+REND(172)+REND(173)+REND(174)+REND(175)+REND(176)+REND(177)+REND(178)+REND(179)+REND(180)+REND(181)+REND(182)+REND(183)+REND(184)+REND(185)+REND(186)+REND(187)+REND(188)+REND(189)+REND(190)+REND(191)+REND(192)+REND(193)+REND(194)+REND(195)+REND(196)+REND(197)+REND(198)+REND(199)+REND(200)+REND(201)+REND(202)+REND(203)+REND(204)+REND(205)+REND(206)+REND(207)+REND(208)+REND(209)+REND(210)+REND(211)+REND(212)+REND(213)+REND(214)+REND(215)+REND(216)+REND(217)+REND(218)+REND(219)+REND(220)+REND(221)+REND(222)+REND(223)+REND(224)+REND(225)+REND(226)+REND(227)+REND(228)+REND(229)+REND(230)+REND(231)+REND(232)+REND(233)+REND(234)+REND(235)+REND(236)+REND(237)+REND(238)+REND(239)+REND(240)+REND(241)+REND(242)+REND(243)+REND(244)+REND(245)+REND(246)+REND(247)+REND(248)+REND(249)+REND(250)+REND(251)+REND(252)+REND(253)+REND(254)+REND(255)+REND(256)+REND(257)+REND(258)+REND(259)+REND(260)+REND(261)+REND(262)+REND(263)+REND(264)+REND(265)+REND(266)+REND(267)+REND(268)+REND(269)+REND(270)+REND(271)+REND(272)+REND(273)+REND(274)+REND(275)+REND(276)+REND(277)+REND(278)+REND(279)+REND(280)+REND(281)+REND(282)+REND(283)+REND(284)+REND(285)+REND(286)+REND(287)+REND(288)+REND(289)+REND(290)+REND(291)+REND(292)+REND(293)+REND(294)+REND(295)+REND(296)+REND(297)+REND(298)+REND(299)+REND(300)+REND(301)+REND(302)+REND(303)+REND(304)+REND(305)+REND(306)+REND(307)+REND(308)+REND(309)+REND(310)+REND(311)+REND(312)+REND(313)+REND(314)+REND(315)+REND(316)+REND(317)+REND(318)+REND(319)+REND(320)+REND(321)+REND(322)+REND(323)+REND(324)+REND(325)+REND(326)+REND(327)+REND(328)+REND(329)+REND(330)+REND(331)+REND(332)+REND(333)+REND(334)+REND(335)+REND(336)+REND(337)+REND(338)+REND(339)+REND(340)+REND(341)+REND(342)+REND(343)+REND(344)+REND(345)+REND(346)+REND(347)+REND(348)+REND(349)+REND(350)+REND(351)+REND(352)+REND(353)+REND(354)+REND(355)+REND(356)+REND(357)+REND(358)+REND(359)+REND(360)+REND(361)+REND(362)+REND(363)+REND(364)+REND(365)+REND(366)+REND(367)+REND(368)+REND(369)+REND(370)+REND(371)+REND(372)+REND(373)+REND(374)+REND(375)+REND(376)+REND(377)+REND(378)+REND(379)+REND(380)+REND(381)+REND(382)+REND(383)+REND(384)+REND(385)+REND(386)+REND(387)+REND(388)+REND(389)+REND(390)+REND(391)+REND(392)+REND(393)+REND(394)+REND(395)+REND(396)+REND(397)+REND(398)+REND(399)+REND(400)+REND(401)+REND(402)+REND(403)+REND(404)+REND(405)+REND(406)+REND(407)+REND(408)+REND(409)+REND(410)+REND(411)+REND(412)+REND(413)+REND(414)+REND(415)+REND(416)+REND(417)+REND(418)+REND(419)+REND(420)+REND(421)+REND(422)+REND(423)+REND(424)+REND(425)+REND(426)+REND(427)+REND(428)+REND(429)+REND(430)+REND(431)+REND(432)+REND(433)+REND(434)+REND(435)+REND(436)+REND(437)+REND(438)+REND(439)+REND(440)+REND(441)+REND(442)+REND(443)+REND(444)+REND(445)+REND(446)+REND(447)+REND(448)+REND(449)+REND(450)+REND(451)+REND(452)+REND(453)+REND(454)+REND(455)+REND(456)+REND(457)+REND(458)+REND(459)+REND(460)+REND(461)+REND(462)+REND(463)+REND(464)+REND(465)+REND(466)+REND(467)+REND(468)+REND(469)+REND(470)+REND(471)+REND(472)+REND(473)+REND(474)+REND(475)+REND(476)+REND(477)+REND(478)+REND(479)+REND(480)+REND(481)+REND(482)+REND(483)+REND(484)+REND(485)+REND(486)+REND(487)+REND(488)+REND(489)+REND(490)+REND(491)+REND(492)+REND(493)+REND(494)+REND(495)+REND(496)+REND(497)+REND(498)+REND(499)+REND(500)+REND(501)+REND(502)+REND(503)+REND(504)+REND(505)+REND(506)+REND(507)+REND(508)+REND(509)+REND(510)+REND(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790 PRINT "Spend campaign money in which?" INPUT "state";SP4
800 PRINT USING "###"
810 PRINT:INPUT "How much do you wish to spend?"A5
820 IF A5<000001 THEN 840
830 PRINT "The most you can spend at a single"PRINT "time is $99,999."GOTO 810
840 IF A5<000001 THEN 860
850 IF A5=0 THEN 800
860 A=AH+AS:FOR T=1 TO 5
870 RESTORE
880 READ ST$,EV,1,2
890 IF ST4="cash" THEN 920
900 PRINT "You did not spend the state correctly."
910 A=AH+AS:GOTO 790
920 IF ST4="SP4" THEN 930
930 ST4,1,2=ST4,1,2:INT(1100-ST4,1,2)/499/100000000:EV=5
940 IF A=0 THEN 960
950 PRINT "Do you wish to spend money in another?"INPUT "state (yes/no)";C4
960 A=AH+EV:IF C4=1,1 IF Y=?"?" OR Y="y" THEN 960
970 IF Y="?" OR A=0 Y="?" THEN 950
980 CLS:PRINT "Monthly Report to the Election"PRINT "Committee"PRINT
990 PRINT "beginning of month"
1000 PRINT USING "###,###,###"PRINT
1010 PRINT USING "###,###,###"PRINT
1020 PL=INT(1000/1100+100):IF PL=0 THEN 1020
1030 RESTORE:FOR I=1 TO PL:READ ST$,EV,1,2:NEXT I
1040 IF ST4,1,2=0 THEN 1060
1050 IF ST4,1,2=0 THEN 1100
1060 PRINT:PRINT "Polls show you are even with"108
1070 PRINT "in"ST4,1,2"GOTO 1020
1080 PRINT:PRINT "Polls show you are ahead of"108
1090 PRINT "in"ST4,1,2:PRINT "You have"ST4,1,2"% of the vote."GOTO 1120
1100 PRINT:PRINT "Polls show"ST4,1,2" ahead of you in"
1110 PRINT ST4,1,2:PRINT "He has"1100-ST4,1,2"% of the vote."
1120 PRINT:INPUT "Press (ENTER) to begin next month"118
1130 CLS:GOSUB 1400
1140 FOR Y=1 TO 6:ST4,1,2=ST4,1,2:ST4,1,2=ST4,1,2+ST4,1,2-2:NEXT Y
1150 FOR Y=1 TO 13:ST4,1,2=ST4,1,2+2:ST4,1,2=ST4,1,2-2:NEXT Y
1160 FOR Y=1 TO 7:ST4,1,2=ST4,1,2-2:ST4,1,2=ST4,1,2-2:NEXT Y
1170 INPUT "Press (ENTER)"124
1180 NEXT Y
1190 CLS:PRINT TAB(1);"Election Night Results"
1200 PRINT TAB(1);"Electoral Votes"PRINT:PRINT TAB(2);"You";TAB(2);"Opponent";
1210 PRINT "State";TAB(3);"You";TAB(2);"Opp."PRINT
1220 PRINT TAB(2);"Total";TAB(3);"Total"
1230 RESTORE
1240 FOR K=1 TO 51
1250 READ ST$,EV,1,2
1260 IF ST4,1,2=0 THEN 1280
1270 ST=ST+EV:K=25:GOTO 1290
1280 Y=K+ABS(K-12)
1290 PRINT ST;TAB(1);EV;TAB(2);Y;TAB(2);:GOTO
1300 FOR T=0 TO 75:NEXT T
1310 NEXT K
1320 IF Y=0 THEN 1340
1330 A=C+1,A=AH+M+ST:GOTO 1350
1340 A=AH+1,A=AH+M+ST
1350 PRINT:PRINT A; "is the winner of the"EV:PRINT "presidential election."
1360 PRINT A; " has"ST;"electoral votes, more"PRINT "than his opponent, "A;".
1370 END
1380 FOR I=1 TO 6:ST4,1,2=ST4,1,2+1+1:ST4,1,2=ST4,1,2+1+1:ST4,1,2=ST4,1,2+1+1:NEXT I
1390 FOR I=1 TO 13:ST4,1,2=ST4,1,2+2+2:ST4,1,2=ST4,1,2+2+2:ST4,1,2=ST4,1,2+2+2:NEXT I
1400 FOR I=1 TO 7:ST4,1,2=ST4,1,2+3+3:ST4,1,2=ST4,1,2+3+3:ST4,1,2=ST4,1,2+3+3:NEXT I
1410 GOTO 1430
1420 P=INT(100/1100+10):IF P=0 THEN 1430
1430 IF P=0 THEN 1430
1440 PRINT "The U.S. is the target of"PRINT "demonstrations in several middle east"
1450 PRINT "countries. Several European countries"PRINT "have also been critical of"PRINT "our foreign
policy."C=C+1
1460 IF P=1 THEN C=C+1
1470 IF P=2 THEN C=C+1
1480 IF P=3 THEN C=C+1
1490 IF P=4 THEN C=C+1
1500 FOR Y=0 TO 6:C(1)+C:NEXT Y
1510 GOSUB 1300
1520 GOTO 1370
1530 IF P=0 THEN 1470
1540 I=1:IF INT(100/1100+10) THEN I=0
1550 PRINT "The rate of inflation has"

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1540 IF I#>0 THEN I#="cropped.">GOTO 1550
1570 I#="rissen."
1580 PRINT I#>C#>
1590 IF P1=1 THEN 1630
1600 IF I1=0 THEN C#>C#>
1610 IF I2=1 THEN C#>C#>
1620 IF I3=0 THEN C#>C#>
1630 IF I4=1 THEN C#>C#>
1640 IF I5=0 THEN C#>C#>
1650 FOR Y#1 TO S#C(Y#)=C#NEXT Y
1660 GOTO 2370
1670 IF P#>0 THEN 1680
1680 PRINT "There is a shortage of all petroleum">PRINT "products, especially gasoline. The"
1690 PRINT "reasons for the shortage are unclear">PRINT "at this time.">C#>
1700 IF I1=2 THEN C#>C#>
1710 IF I2=2 THEN C#>C#>
1720 IF P1=1 THEN C#>C#>
1730 FOR Y#1 TO S#C(Y#)=C#NEXT Y
1740 GOSUB 1390
1750 GOTO 2370
1760 IF P#>4 THEN 1800
1770 S#>S#I1#>I1#>40001+5000
1780 PRINT "A political boss promises to">PRINT "contribute">P#>5000 to you">PRINT "campaign if you"
1790 "accept some of"
1790 PRINT "his friends to powerful positions if">PRINT "you win. This contribution is not"
1800 PRINT "legal."
1810 INPUT "Will you accept (yes/no)?">C#>
1820 Y#>LEFT#10,11>IF Y#="Y" OR Y#="y" THEN 2370
1830 IF Y#>>"Y" AND Y#>>"y" THEN 1860
1840 P#>P#+5000+500
1850 GOTO 2370
1860 IF P#>5 THEN 1880
1880 PRINT "Allegations have been made that you">PRINT "have accepted illegal campaign funds."
1890 PRINT "You are presently under investigation."
1900 IF P#>0 THEN 1950
1910 IF P#>5 THEN 1900
1920 PRINT "You have been found guilty and you">PRINT "lose">I#>100/5-P#>1% of your support"
1930 PRINT "in each state.">GOTO 1950
1940 PRINT "You have been found guilty and thrown">PRINT "in the federal penitentiary at">PRINT "Leavenworth, Kansas for twenty years.">C#>
1910 FOR Y#1 TO S#ST1, Y#>INT(I1/5)-P1#ST1, Y#>INT(I1/10)-P1#ST1, Y#>INT Y
1920 FOR Y#1 TO I#ST2, Y#>INT(I1/10)-P1#ST1, Y#>ST4, Y#>INT(I1/10)-P1#ST1, Y#>INT Y
1930 FOR Y#1 TO I#ST3, Y#>INT(I1/10)-P1#ST1, Y#>ST4, Y#>INT(I1/10)-P1#ST1, Y#>INT Y
1940 GOTO 2370
1950 PRINT "You have been found innocent.">GOTO 2370
1960 IF P#>6 THEN 2190
1970 PRINT "You and 'Jed' agree to a televised">PRINT "debate."
1980 IF I1=1 THEN 2000
1990 FOR Y#1 TO I#ST2, Y#>ST2, Y#>INT(.55+100-ST2, Y#)
2000 IF I1=2 THEN 2020
2010 FOR Y#1 TO I#ST4, Y#>ST4, Y#>INT(.55+100-ST4, Y#)
2020 IF I2=1 THEN 2040
2030 FOR Y#1 TO I#ST2, Y#>ST2, Y#>INT(.55+ST2, Y#)
2040 IF I2=2 THEN 2060
2050 FOR Y#1 TO I#ST4, Y#>ST4, Y#>INT(.55+ST2, Y#)
2060 S#>INT(S#*11/5+100)>IF S#>0 THEN 2080
2070 IF S#>0 THEN 2140
2080 IF S#>1 THEN 2120
2090 FOR Y#1 TO S#ST1, Y#>ST1, Y#>INT(.55+100-ST1, Y#>ST2, Y#>ST3, Y#>INT(.55+100-ST1, Y#>INT Y
2100 FOR Y#1 TO Y#ST2, Y#>ST2, Y#>INT(.55+100-ST2, Y#>ST3, Y#>ST4, Y#>INT(.55+100-ST1, Y#>INT Y
2110 GOTO 2150
2120 FOR Y#1 TO S#ST1, Y#>ST1, Y#>INT(.55+ST1, Y#>ST2, Y#>ST3, Y#>ST4, Y#>INT(.55+ST2, Y#>INT Y
2130 FOR Y#1 TO I#ST2, Y#>ST2, Y#>INT(.55+ST2, Y#>ST4, Y#>ST4, Y#>INT(.55+ST4, Y#>INT Y
2140 FOR Y#1 TO Y#ST2, Y#>ST2, Y#>INT(.55+ST2, Y#>ST4, Y#>ST4, Y#>INT(.55+ST4, Y#>INT Y
2150 IF S#>1 THEN PRINT "You lost the debate."
2160 IF S#>2 THEN PRINT "The debate was a draw."
2170 IF S#>3 THEN PRINT "You won the debate."
2180 GOTO 2370
2190 IF P#>7 THEN 2240
2200 PRINT "The president of a large union promises">PRINT "the support of the union's members if"
2210 "you take some pro-union campaign">PRINT "speeches."
2220 INPUT "Will you accept his help (yes/no)?">C#>
2230 Y#>LEFT#10,11>IF Y#="Y" OR Y#="y" THEN 2250
2240 IF Y#>>"Y" AND Y#>>"y" THEN 2250
2250 C11=>C11+2+2+C12=>2+C14=>1+C15=>1+C16=>1>GOSUB 1390
2260 GOTO 2370
2270 C11=>C11+2+2+2+C12=>2+C14=>1+C15=>1+C16=>1>GOSUB 1390
2280 GOTO 2370

```


Presidential Campaign

```
3000 PRINT "Throughout the campaign, you will have:"PRINT "to make additional political decisions"
3010 PRINT "that will influence voter opinion. As"
3020 PRINT "with all political decisions, whatever:"PRINT "you decide will not please everyone."
3030 PRINT "In addition, some of your decisions:"PRINT "will be compared to those made earlier."
PRINT "to determine your sincerity."
3040 PRINT "Therefore, try to weigh the conditions:"PRINT "for each decision carefully. In some"
3100 PRINT "cases, changing position during a:"PRINT "campaign can be the best strategy,"
3110 PRINT "while at other times, it may be:"PRINT "disastrous."
3120 PRINT:INPUT "Press <ENTER> to continue:";IN$CL$
3130 PRINT "At the end of each month, you:"PRINT "will receive a report of the finances"
3140 PRINT "of the treasury. You will be shown:"PRINT "the balance at the beginning of the"
3150 PRINT "month, the balance at the end of the:"PRINT "month, total contributions during the"
PRINT "month, and total expenditures during"
3160 PRINT "the month."PRINT " Campaigning is expensive not only"
3170 PRINT "because of advertising in states but:"PRINT "also for your actual visits. It is"
3180 PRINT "helpful to spend time fund raising."
3190 PRINT:INPUT "Press <ENTER> to continue:";IN$CL$
3200 PRINT "There are a few campaign laws to:"PRINT "consider"
3210 PRINT "  1) You can not put the campaign:"PRINT "treasury into debt."
3220 PRINT "  2) A $55,000 maximum is placed on:"PRINT "each transaction."
3230 PRINT "  3) Unreported campaign contributions:"PRINT "are illegal. You may be tempted to"
3240 PRINT "accept some, but you may get caught."PRINT "It may cost you the election or even"
3250 PRINT "a few votes."PRINT "  4) You may campaign as many days per:"PRINT "month as you wish and"
PRINT "visit as many"
3260 PRINT "states as you wish. Each month is:"PRINT "considered to have thirty days."
3270 PRINT:INPUT "Press <ENTER> to continue:";IN$CL$
3280 PRINT "At the end of each month, you:"PRINT "will be shown your status in one state"
3290 PRINT "as of the end of the month. This is:"PRINT "the only indication that you will"
3300 PRINT "receive on your progress."
3310 PRINT "At the end of the campaign, the:"PRINT "election is held and you will be shown"
3320 PRINT "the number of electoral college votes:"PRINT "awarded by each state, to whom they"
PRINT "were awarded, and the totals of"
3330 PRINT "votes that you and your opponent:"PRINT "received."
3340 PRINT:INPUT "Press <ENTER> to continue:";IN$CL$
3350 PRINT "Be sure to spell each state:"PRINT "correctly. Do not use a dollar sign"
3360 PRINT "when entering amounts of money and do:"PRINT "not use commas between number digits."
3370 PRINT:INPUT "Press <ENTER> to begin the campaign:";IN$CL$
3380 RETURN
```



Presidential Campaign

SCENARIO

You have decided to run for president and have obtained nomination from your party. The campaign begins nine months before the election. You have the option of deciding which states to visit each month, how many days you wish to spend in the states you visit, and whether the visit is for campaigning (which wins popular votes) or fund raising (which earns no popular votes but brings in contributions to meet expenses and finance campaign activities in other states). The money that is in the campaign treasury can be spent as you wish in any state.

Press **ENTER** to continue? **[]**

At the beginning of the campaign, you are allowed to make some political decisions. These will affect the initial attitudes of the voters with respect to you and your opponent. Throughout the campaign you will have to make several political decisions that will influence voter opinion. As with all political decisions, whatever you decide will not please everyone. In addition, some of your decisions will be compared to those made earlier to determine your success or failure. Therefore, try to weigh the conditions of each decision carefully. In some cases, changing position during a campaign can be the best strategy, while at other times, it may be disastrous.

Press **ENTER** to continue? **[]**

At the end of each month, you will receive a report of the finances of the treasury. You will be shown the balance at the beginning of the month, the balance at the end of the month, total contributions during the month, and total expenditures during the month.

Campaigning is expensive not only because of advertising in states but also for your actual visits. It is helpful to spend time fund raising.

Press **ENTER** to continue? **[]**

There are a few campaign laws to consider:

- 1. You can not put the campaign treasury into debt.
- 2. A \$25,000 maximum is placed on each transaction.
- 3. Unreported campaign contributions are illegal. You may be tempted to accept them, but you may get caught. It may cost you the election or severely weaken it.
- 4. You may campaign as many days per month as you wish and visit as many states as you wish. Each month is considered to have thirty days.

Press **ENTER** to continue? **[]**

At the end of each month, you will be shown your status in the state as of the end of the month. This is the only indication that you will receive on your progress.

At the end of the campaign, the election is held and you will be shown the results of the election. Votes awarded by each state, to prove they were awarded, and the totals of votes that you and your opponent received.

Press **ENTER** to continue? **[]**

Be sure to spell each state correctly. Do not use a dollar sign when entering amounts of money and do not use commas between number digits.

Press **ENTER** to begin the campaign? **[]**

Conditions

Choose the conditions that you wish to be true.

In what year to you wish the election to take place? 1984

Enter your name? Andrew Hardidge
Enter your opponent's name? Steve Williams

Do you wish to be 1) the incumbent or 2) the challenger? 2

Do you wish to be 1) a Democrat or 2) a Republican? 2

ISSUES

- | | |
|-----------------|-----------------------|
| 1) Unemployment | 4) Social Adjustments |
| 2) Inflation | 5) Welfare |
| 3) Energy | 6) Foreign Affairs |

Which is most important to your campaign? 5
Which is least important? 4

Date: February
3 Months before election
Your campaign fund has \$ 500,000.00

What state do you wish to visit? New Jersey

You have 30 unscheduled days left this month.

How many days to you wish to stay there? 3

How many of the 3 days will be for fund raising? 2

How many days for campaigning? 3

Do you wish to visit another state (yes/no)? no

Spend campaign money in which state? New Jersey
Your campaign fund has \$ 436,313.00

How much do you wish to spend? \$200.00
Do you wish to spend money in another state (yes/no)? no

Monthly Report to the Election Committee.

Beginning of Month \$	500,000.00	\$	436,313.00
End			

Contributions = \$1,013.00
Expenditures = \$17,686.00

Polls show Steve Williams ahead of you in North Carolina.

He has 72 % of the vote.

Press **ENTER** to begin next month? **[]**

The U.S. is the target of demonstrations in several middle east countries. Several European countries have also been critical of our foreign policy.
Press **ENTER**?

Spend campaign money in which state? New York
Your campaign fund has \$ 580,845.00

How much do you wish to spend? \$20000.00

Do you wish to spend money in another state (yes/no)? no

Presidential Campaign

[illegible]

Residence of Birth	Year
1900-1910	1910-1920

Center 1 built home = 443,770,000
 Center 1 forecast = 100,000,000

Polls show Steve Williams ahead of you
in
Connecticut.
He has 100 % of the vote.

PRESS RELEASE In media event today ■

The U.S. is the target of demonstrations in several middle east countries. Several European countries have also been critical of our foreign policy.

Date: April
 1 Month before election
 Your campaign April 1st 2000 \$11,000.00

What, exactly, do you wish to recall? Please

You have 30 unscheduled days
 left this month.
 How many days do you wish to stay
 there? 28
 How many of the 28 days will be
 for fund raising? 5
 How many days for campaigning? 10
 Do you wish to visit another
 state (yes/no)? no

Special compensation money in which
 Plaintiff filed suit: \$ 400,000.00

How much do you really know about the world? www.fox.com

Do you wish to spend money in another
state (country)? no

Monthly Report to the Election Commission

[illegible]

Center Mass to Center = 44.570.000
 Logarithm of the mass = 85.710.000

Polls show Steve Williams ahead of you
in
regions.
He lost 53 % of the vote.

Primer **SCHMIDT** You have to meet monthly? ■

The U.S. is the target of demonstrations in several middle east countries. Several European countries have also been critical of our foreign policy.

Special campaign money in which
 greater? Washington
 Your campaign total was \$ 203,279.00

How much do you wish to borrow? \$200,000
 Do you wish to borrow in another
 currency (Y/N)? no

Monthly Report to the Election Commission

Region	North	West	South	East
Population	100,000	100,000	100,000	100,000
GDP	100,000	100,000	100,000	100,000
Unemployment	10%	10%	10%	10%
Inflation	10%	10%	10%	10%
Budget Deficit	10%	10%	10%	10%
Interest Rate	10%	10%	10%	10%
Exchange Rate	10%	10%	10%	10%
Trade Balance	10%	10%	10%	10%
Fiscal Policy	10%	10%	10%	10%
Monetary Policy	10%	10%	10%	10%
Public Debt	10%	10%	10%	10%
Government Expenditure	10%	10%	10%	10%
Tax Revenue	10%	10%	10%	10%
Central Bank Assets	10%	10%	10%	10%
Central Bank Liabilities	10%	10%	10%	10%
Money Supply	10%	10%	10%	10%
Credit Growth	10%	10%	10%	10%
Savings Rate	10%	10%	10%	10%
Investment Rate	10%	10%	10%	10%
Current Account	10%	10%	10%	10%
Capital Account	10%	10%	10%	10%
Balance of Payments	10%	10%	10%	10%
Foreign Reserves	10%	10%	10%	10%
Gold Reserves	10%	10%	10%	10%
Debt Service Ratio	10%	10%	10%	10%
Debt-to-GDP Ratio	10%	10%	10%	10%
Debt-to-Exports Ratio	10%	10%	10%	10%
Debt-to-FDI Ratio	10%	10%	10%	10%
Debt-to-ODA Ratio	10%	10%	10%	10%
Debt-to-BOP Ratio	10%	10%	10%	10%
Debt-to-M2 Ratio	10%	10%	10%	10%
Debt-to-M3 Ratio	10%	10%	10%	10%
Debt-to-M4 Ratio	10%	10%	10%	10%
Debt-to-M5 Ratio	10%	10%	10%	10%
Debt-to-M6 Ratio	10%	10%	10%	10%
Debt-to-M7 Ratio	10%	10%	10%	10%
Debt-to-M8 Ratio	10%	10%	10%	10%
Debt-to-M9 Ratio	10%	10%	10%	10%
Debt-to-M10 Ratio	10%	10%	10%	10%
Debt-to-M11 Ratio	10%	10%	10%	10%
Debt-to-M12 Ratio	10%	10%	10%	10%
Debt-to-M13 Ratio	10%	10%	10%	10%
Debt-to-M14 Ratio	10%	10%	10%	10%
Debt-to-M15 Ratio	10%	10%	10%	10%
Debt-to-M16 Ratio	10%	10%	10%	10%
Debt-to-M17 Ratio	10%	10%	10%	10%
Debt-to-M18 Ratio	10%	10%	10%	10%
Debt-to-M19 Ratio	10%	10%	10%	10%
Debt-to-M20 Ratio	10%	10%	10%	10%
Debt-to-M21 Ratio	10%	10%	10%	10%
Debt-to-M22 Ratio	10%	10%	10%	10%
Debt-to-M23 Ratio	10%	10%	10%	10%
Debt-to-M24 Ratio	10%	10%	10%	10%
Debt-to-M25 Ratio	10%	10%	10%	10%
Debt-to-M26 Ratio	10%	10%	10%	10%
Debt-to-M27 Ratio	10%	10%	10%	10%
Debt-to-M28 Ratio	10%	10%	10%	10%
Debt-to-M29 Ratio	10%	10%	10%	10%
Debt-to-M30 Ratio	10%	10%	10%	10%
Debt-to-M31 Ratio	10%	10%	10%	10%
Debt-to-M32 Ratio	10%	10%	10%	10%
Debt-to-M33 Ratio	10%	10%	10%	10%
Debt-to-M34 Ratio	10%	10%	10%	10%
Debt-to-M35 Ratio	10%	10%	10%	10%
Debt-to-M36 Ratio	10%	10%	10%	10%
Debt-to-M37 Ratio	10%	10%	10%	10%
Debt-to-M38 Ratio	10%	10%	10%	10%
Debt-to-M39 Ratio	10%	10%	10%	10%
Debt-to-M40 Ratio	10%	10%	10%	10%
Debt-to-M41 Ratio	10%	10%	10%	10%
Debt-to-M42 Ratio	10%	10%	10%	10%
Debt-to-M43 Ratio	10%	10%	10%	10%
Debt-to-M44 Ratio	10%	10%	10%	10%
Debt-to-M45 Ratio	10%	10%	10%	10%
Debt-to-M46 Ratio	10%	10%	10%	10%
Debt-to-M47 Ratio	10%	10%	10%	10%
Debt-to-M48 Ratio	10%	10%	10%	10%
Debt-to-M49 Ratio	10%	10%	10%	10%
Debt-to-M50 Ratio	10%	10%	10%	10%
Debt-to-M51 Ratio				

Regular Meeting Hours: 9:00 a.m. - 5:00 p.m.
 Extended Hours: 8:00 a.m. - 6:00 p.m.

Polls show you are ahead of Steve Hill
in Kansas. You have 52 % of the vote.

Programme **GOVERNANCE** **How business meets society** **2014**

Farmers and ranchers want you to decide that they should receive higher prices for their products. They are afraid that consumers will not like this. Will you support the farmers and ranchers?

By: June
3 Months before election
Your campaign need for \$1 2000 2000 2000

Wichtig: Ist das eine neue oder eine alte Rechnung? Warum?

Yes, how many 30 uncompleted days
 left this month.
 How many days to you wish to stay
 there? 20
 How many of the 30 days will be
 sure rain? 15
 How many days for campaigning? 5
 Do you wish to visit another
 state first? no
 How many of the 30 days will be
 sure rain? 15
 How many 30 uncompleted days
 left this month.
 How many days to you wish to stay
 there? 10
 How many of the 30 days will be
 sure rain? 10
 How many days for campaigning? 10

Spent campaign money in which
state? Kansas
Your campaign fund has \$ 345,000.00

How much do you wish to spend? \$5000.00

Do you wish to spread money in another
 place (yes/no)? yes
 Spread campaign money in which
 place? (fill in)
 Your campaign fund has \$ 345,000.00
 How much do you wish to spread? 200000.00

Do you wish to spend money in another
 other country? no

Monthly Report to the Election Commission

Magillan, J. and Magillan 2000-2001, 2002	1	2000-2001, 2002
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Polls show you are ahead of Steve Hill in Nebraska. You have 53.3 of the vote.

Press **ENTER** to begin next month! ■

There is a shortage of all petroleum products, especially gasoline. The reasons for the shortage are unclear at this time.

Source: CIA/RDC ■

Notes: July
4 Months before election
Year campaign fund file # 2005-0009-000

What state do you wish to visit? Texas
 You have 30 unrecorded days
 left this month.
 How many days do you wish to stay
 there? 25
 How many of the 25 days will be
 you want raising? 5
 How many days do you want
 to go visit to visit your
 state, country, or other?

Presidential Campaign

Send campaign money in which state? Texas
Your campaign fund has \$ 319,000.00
How much do you wish to spend? 10000.00
Do you wish to spend money in another state (yes/no)? no

Monthly Report to the Election Committee:

Beginning of Month \$ 319,000.00 End \$ 329,000.00

Contributions = 100,000.00
Expenditures = 840,000.00

Polls show Steve Williams ahead of you in Florida.
He has 52 % of the vote.

Press ENTER to begin next month? #

A political boss promises to contribute 1000 dollars to your campaign if you will accept him as a candidate for president of the U.S. This contribution is not legal.
Will you accept (yes/no)? no
Press ENTER? #

Date: August
3 Months before election
Your campaign fund has \$ 300,000.00
What state do you wish to visit? Maine

You have 30 unscheduled days left this month.
How many days do you wish to stay there? 30
How many of the 30 days will be for fund raising? 30
How many days for campaigning? 00

Send campaign money in which state? Maine
Your campaign fund has \$ 273,400.00
How much do you wish to spend? 10000.00
Do you wish to spend money in another state (yes/no)? no

Monthly Report to the Election Committee:

Beginning of Month \$ 273,400.00 End \$ 283,400.00

Contributions = 10,000.00
Expenditures = 840,000.00

Polls show Steve Williams ahead of you in Michigan.
He has 48 % of the vote.

Press ENTER to begin next month? #

You and Steve Williams agree to a television debate.
You win the debate.
Press ENTER? #

Date: September
2 Months before election
Your campaign fund has \$ 263,400.00

What state do you wish to visit? California
You have 30 unscheduled days left this month.
How many days do you wish to stay there? 30
How many of the 30 days will be for fund raising? 10
How many days for campaigning? 20

Date: September
2 Months before election
Your campaign fund has \$ 263,400.00

What state do you wish to visit? California
You have 30 unscheduled days left this month.
How many days do you wish to stay there? 30
How many of the 30 days will be for fund raising? 10
How many days for campaigning? 20
Do you wish to visit another state (yes/no)? no

Your campaign fund has \$ 277,400.00

How much do you wish to spend? You did not spell the state correctly.
Send campaign money in which state?

Your campaign fund has \$ 277,400.00

How much do you wish to spend? You did not spell the state correctly.
Send campaign money in which state?

Your campaign fund has \$ 277,400.00

How much do you wish to spend? You did not spell the state correctly.
Send campaign money in which state? California

Your campaign fund has \$ 277,400.00

How much do you wish to spend? 7000.00
Do you wish to spend money in another state (yes/no)? no

Monthly Report to the Election Committee:

Beginning of Month \$ 277,400.00 End \$ 278,400.00

Contributions = 100,000.00
Expenditures = 840,000.00

Polls show Steve Williams ahead of you in N.C.
He has 51 % of the vote.

Press ENTER to begin next month? #

Farmers and ranchers want you to explain that they should receive higher prices for their products.
Tell them that consumers will not like this.
Will you support the farmers and ranchers? yes
Press ENTER? #

Send campaign money in which state? N.C.
Your campaign fund has \$ 237,400.00

How much do you wish to spend? 30000.00

Do you wish to spend money in another state (yes/no)? no

Monthly Report to the Election Committee:

Beginning of Month \$ 237,400.00 End \$ 237,400.00

Contributions = 0.00
Expenditures = 840,000.00

Polls show Steve Williams ahead of you in North Carolina.
He has 50 % of the vote.

Press ENTER to begin next month? #

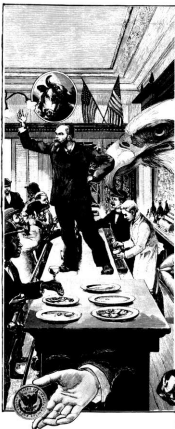
Presidential Campaign

The president of a large union promises the support of the union's members if you make some pro-union campaign speeches.
Will you accept his help (yes/no)? see Press RELEASE? ■

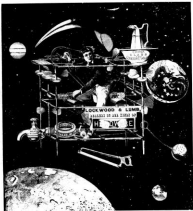
Election Night Results
Electoral Votes

State	Yes	No	Your Total	Opponent Total
Alabama				
Alaska				
Arizona				
Arkansas				
California				
Colorado				
Connecticut				
Delaware				
Florida	3			
Georgia				
Idaho				
Illinois				
Indiana				
Iowa				
Kansas				
Kentucky	7			
Louisiana				
Maine				
Maryland				
Massachusetts				
Michigan				
Minnesota				
Mississippi				
Montana				
Nebraska				
Nevada				
New Hampshire				
New Jersey				
New Mexico				
New York				
North Carolina				
North Dakota				
Ohio				
Oklahoma				
Oregon				
Pennsylvania				
Rhode Island				
South Carolina				
South Dakota				
Tennessee				
Texas	26			
Utah				
Vermont				
Virginia				
Washington				
West Virginia				
Wisconsin				
Wyoming				

Steve Williams is the winner of the presidential election. Steve Williams has 268 electoral votes, more than his opponent, Andrew Hardidge. ■



Star Merchant



Star Merchant was written by Lloyd Johnson and originally appeared in *Creative Computing*, August 1980.

Introduction

Star Merchant is a futuristic trade simulation game. When this article first appeared in the August 1981 issue of *Creative Computing*, I was negligent in not giving the game "Traveler" proper credit as a source for cargo names and base prices. "Traveler" is a role playing system set in the far future. Its rules cover many facets of life in the 57th century and are constantly being expanded. "Traveler" is available from hobby stores or from Game Designers' Workshop, Box 1646, Bloomington, IL 61704.

Historical Background

Early in the 26th century the SOXFTL drive was developed. This drive, when properly installed on a spaceship, would cause a controlled warping of space enabling the spaceship to travel at fifty times faster than light (SOXFTL). Massive colonization of the nearby stars took place in the following two centuries due to the crowded conditions on inhabitable planets of the solar system and the development of this drive.

By the mid-29th century, large orbiting space stations (starports) were constructed at the ten most

populated star systems. These starports had facilities for docking and refueling starships as well as massive cargo storage capability. The construction of these starports was closely paralleled by a simplification of starship design. With the advent of the starports, it was no longer necessary for a starship to land on a planet. This eliminated the need for atmospheric streamlining, as well as the large reaction engines required to lift the starship from the planetary surface, while it substantially increased the cargo hold of starships.

The type of cargo which will be available for purchase at any particular starport is difficult to predict, since most of the cargos do not originate at that star system, but were brought there by other merchant starships. Coordination of trade routes to guarantee cargo availability at a starport had never occurred due to the independent nature of the star merchants and the slow communication between the star systems.

As trade developed between the starports, each starport was assigned a trade classification. Although the trade classification is useless in determining which cargos might be available for purchase, it is extremely useful in predicting the price of the cargo. As political and economic conditions change at a star system, the assigned trade classification may change slightly.

Game Description

The game has recently been modified from the original publication to include a two player option. When playing *Star Merchant*, the player or players will find themselves in command of a merchant starship. Their goal is to not only make enough money by trading cargos to stay in business and to regain the initial investment for the lease of the starship, but to make more money than the other player.

There are ten different starports where trade is conducted and thirty-six different types of cargos which may be traded. The different types of cargos range from agricultural produce and raw materials to industrially produced items, such as weapons and machinery. The price at which these cargos will be traded is dependent upon the trade classification of the starport where the item is being traded. For example, farm machinery might bring top dollar at a starport with an agricultural trade class, whereas the price of grain at this starport will probably be very low.

The starport distances and directions are all represented in two dimensions. This was done to simplify game play. Command ?, DISPLAY STARPORT MAP, will display the relative positions of these starports. This command is useful to the players when planning their trade routes.

Ship expenses must be paid every time a new starport is reached. If the player's account becomes negative after paying these expenses, he must sell enough cargo to make it positive before he can leave the starport. If he does not have enough cargo to do this, the game will end for the player. If two players are playing, the other player may continue the game as a one player game if desired.

The expenses which must be paid consist of a docking fee, fuel expenses, and crew salary. The docking fee will always be 50,000 credits. The fuel expenses are directly proportional to the distance traveled from the last starport. The cost of fuel per lightyear is 100,000 credits. The crew's salary is based on an annual salary of 500,000 credits and the amount of ship time that has passed since the crew was last paid. Ship time increases approximately .02 years (a week) for each lightyear traveled and approximately .003 years (a day) for each cargo transaction.



Before leaving a starport the player will be asked if he wants to purchase piracy insurance. This question is skipped if the player's account does not hold enough revenue to make this payment. The price of piracy insurance is ten percent of the total value of the cargo presently stored in the hold. If the cargo should be stolen by pirates, the player will be reimbursed for the lost assessed value of his cargo. No reimbursement will take place if the player had not purchased piracy insurance.

The pirates are a highly technical organization which have found a loophole in the law of relativity. They utilize this loophole to empty a starship of cargo while it is in the warped space generated by the SOXFTL drive. With their ability to alter the rate of time, the pirates are able to rendezvous with a starship, board it and take its cargo, leave an insulting message, and disappear all within a time interval too short to be measured by the starship's chronometers.

The true origin of the pirates is still unknown, however investigations are being undertaken. Although a major breakthrough in this investigation had occurred when several lots of stolen cargo were identified at one of the starports, the player can still expect to have his cargo stolen from him approximately ten percent of the time.

As the player's fortune grows, the probability will increase that the crew will go on strike for a higher salary. When a strike occurs the crew presents their salary demands and the player is asked for a counter-offer. The probability that the counter offer will be accepted depends upon the amount that was offered and the number of counter-offers that have been rejected previously. Once the crew has rejected ten counter-offers, they will accept only their original salary demands or higher. For this reason an early strike settlement is desirable.

The lease on a player's ship will expire after two years of ship time. At this time, the player will be asked to renew his lease if he has enough money to do so. It will cost 2,000,000 credits for another two year lease. If the player does not renew his lease, the game will end for him and his final game results will be displayed. The other player will be allowed to continue playing until his lease expires.



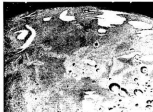
Star Merchant

```
10 REM *****
20 REM *      STAR MERCHANT      *
30 REM *      in Microsoft BASIC  *
40 REM *****
50 REM Initialization
60 DIM $A(20),B(10),A(5,4),D(10)
70 DIM #C(2,4),F(10),G(1),F(10)
80 CLS:PRINT TAB(12):"STAR MERCHANT"
90 PRINT:PRINT "You have just spent 2 million credits"
100 PRINT "on a 2 year lease for a merchant"
110 PRINT "starship. This leaves you with 2"
120 PRINT "million credits operating capital."
130 PRINT
140 PRINT "Your ship can hold a total of 20 cargoes"
150 PRINT "with a total cargo weight of 200 tons."
160 PRINT "The fuel capacity of your ship is great"
170 PRINT "enough such that travel between any 2"
180 PRINT "starports is possible without"
190 PRINT "refueling."
200 PRINT
210 PRINT "You are presently traveling from Alpha"
220 PRINT "Centauri to Bet. You are carrying no"
230 PRINT "cargo."
240 PRINT:PRINT "Press any key to continue;"
250 $A=INSTR$(F $A) THEN 250
260 CLS:PRINT "The starport trade classification"
270 PRINT "determines the cargo price but does not"
280 PRINT "determine which cargoes are available."
290 PRINT
300 PRINT "Abbreviations used for trade class are"
310 PRINT "as follows"
320 PRINT "  R-Rich; P-Poor; I-Industrial"
330 PRINT "  NI-Nonindustrial; A-Agricultural;"
340 PRINT "  NA-Nonagricultural"
350 PRINT
360 PRINT "Press any key to continue;"
370 $A=INSTR$(F $A) THEN 370
380 CLS:PRINT "Commands available are as follows:"PRINT
390 GOSUB 3420
400 R1=1
410 PRINT
420 PRINT "Enter a random number between 1"
430 INPUT "and 500 "I1
440 PRINT
450 FOR J=1 TO 1
460 D=ROUND(R1)
470 NEXT J
480 DEF FN A(R1)=INT (50000/R1)+5
490 DEF FN B(R1)=INT (50000/R1)+1
500 DEF FN C(R1)=FN A(R1)+FN B(R1)
510 B2=200000000
520 B21=B2.5
530 B2=B2
540 B1=500000
550 B2=5000000
560 B3=5000000
570 B2=B2
580 B3=10
590 B1=200
600 M=41
610 FOR I=1 TO 20
620 H1,I=0
630 NEXT I
640 GOSUB 3450
650 FOR I=1 TO 14
660 READ P(I)
670 NEXT I
680 T5=0
690 T6=0
700 T7=0
710 GOSUB 3310
720 REM Main Logic
730 IF $A=INSTR$(F $A)=50+50+50+50 THEN 750
740 GOSUB 1120
750 PRINT
760 PRINT "  Account balances:"PRINT USING "###,###,###";B2:PRINT "  Empty cargo"
770 PRINT "  "PRINT USING "###,###";B2
780 PRINT TAB(15):"Ship tons:"INT(T6/10000)/1000;"years"
```



Star Merchant

```
780 PRINT:INPUT "Enter command";C1:PRINT
790 IF C1>0 AND C1<7 AND C1=INT(ABS(C1)) THEN 800
800 GOSUB 3400
810 GOTO 720
820 ON C1 GOSUB 1300,1400,1500,1600,2000,2100
830 B3=B3+T1
840 IF B3<0 THEN 940
850 IF T1>2750 THEN 720
860 PRINT
870 PRINT "The lease has expired on your ship."
880 IF B3<20000000 THEN 940
890 PRINT "Another lease will cost 2 million"
900 PRINT "credits."
910 INPUT "Do you wish to renew your lease (Y/N)";A8
920 IF A8="Y" OR A8="y" THEN 940
930 B3=B3-20000000
940 T1=T1+1
950 GOTO 720
960 REM End Program
970 G1=(B3-40000000)/T1
980 A8="less"
990 IF B1<0 THEN 1010
1000 A8="gain"
1010 IF B3<0 THEN 1040
1020 PRINT
1030 PRINT "You no longer have sufficient funds to"PRINT"operate your ship."
1040 PRINT
1050 PRINT "You began with 4 million credits and"
1060 IF B3<0 THEN 1040
1070 PRINT "now have";B3;"credits."
1080 PRINT "Cargo in the hold is worth";T1
1090 PRINT
1100 PRINT "This represents a ";A8;" of";ABS(C1*(B1-B3000)/1000);PRINT "credits per year."
1110 GOTO 4400
1120 REM Strike sub
1130 PRINT
1140 PRINT "The crew has gone on strike! You are"
1150 PRINT "currently paying the";B3;"credits";PRINT "annually. ";
1160 B3=B3+.25*ABS(B3)
1170 PRINT "They are asking for";B3;"credits."
1180 B4=0
1190 G1=G1+ABS(B3-B3)/10
1200 PRINT
1210 INPUT "Enter counter offer";B7
1220 IF B7=B3 THEN 1280
1230 IF B7<B3 THEN 1250
1240 IF (B3-B7)/(B3-B4)<RND(1) THEN 1280
1250 PRINT "Offer rejected - try again"
1260 A4=A4+1
1270 GOTO 1170
1280 PRINT "Offer accepted."
1290 B3=B7
1300 RETURN
1310 REM List Hold
1320 PRINT "Cargo stored in hold:"
1330 IF A2=0 THEN 1360
1340 PRINT "All partitions are empty."
1350 RETURN
1360 PRINT "PL Description      AMT      Price      %"
1370 FOR J=1 TO 20
1380 RESTORE
1390 IF H1,1=0 THEN 1440
1400 FOR J=1 TO (H1,1)
1410 READ A6
1420 NEXT J
1430 READ A6
1440 PRINT USING"***";1;PRINT TAB(13);A6;TAB(20);PRINT USING"***";H1,1;
1450 PRINT TAB(25);PRINT USING"*****";H1,1;PRINT TAB(25);PRINT USING"***";H1,1;
1460 NEXT J
1470 RETURN
1480 REM List Cargo for Sale
1490 PRINT "Cargos available for purchase:"
1500 IF A1=0 THEN 1520
1510 PRINT "All available cargoes have been bought."
1520 RETURN
1530 PRINT "No Description      AMT      Price      %"
1540 FOR I=1 TO 5
1550 RESTORE
```



Star Merchant

```

2560 IF A(1,1)=0 THEN 2630
2570 FOR J=1 TO 5+A(1,1)
2580 READ A#
2590 NEXT J
2600 READ A#
2610 PRINT USING"##";J;PRINT TAB(3);A#;TAB(20);PRINT USING"###";A(1,1)
2620 PRINT TAB(20);PRINT USING"#####";A(1,1);PRINT TAB(20);PRINT USING"###"
    'A(1,1)
2630 NEXT I
2640 RETURN
2650 REM Buy Cargo Sub
2660 PRINT "Enter the lot number of cargo that you'd INPUT "want to purchase":K
2670 IF 0=ABS(INT(K)) AND K<0 AND K>0 THEN 2700
2680 PRINT "Invalid lot number."
2690 RETURN
2700 IF A(K,1)=0 THEN 2730
2710 PRINT "Lot";K;"has already been purchased."
2720 RETURN
2730 IF A(K,2)=0 THEN 2760
2740 PRINT "You can not buy cargo on credit."
2750 RETURN
2760 IF A(K,3)=0 THEN 2790
2770 PRINT "You do not have sufficient cargo space."
2780 RETURN
2790 FOR J=1 TO 20
2800 IF H(J,1)=0 THEN 2840
2810 NEXT J
2820 PRINT "All 20 cargo partitions are occupied."
2830 RETURN
2840 FOR J=1 TO 4
2850 H(J,1)=A(K,1)
2860 NEXT J
2870 A(K,1)=0
2880 A(2)=H(1,1)
2890 B(2)=H(1,1)
2900 A(4)=A(2)+B(2)
2910 A(4)=1
2920 PRINT "Transaction completed"
2930 PRINT "Cargo stored in partition";I
2940 RETURN
2950 REM Sell Cargo Sub
2960 INPUT "Enter partition of cargo to be sold":K
2970 IF 0=ABS(INT(K)) AND K<0 AND K>0 THEN 3000
2980 PRINT "Invalid partition number"
2990 RETURN
3000 IF A(K,1)=0 THEN 3030
3010 PRINT "Cargo partition is empty."
3020 RETURN
3030 B(2)=H(K,1)
3040 A(4)=A(4)-B(2)
3050 A(4)=A(4)+B(2)
3060 A(K,1)=0
3070 PRINT "Transaction completed"
3080 RETURN
3090 REM List Starports Sub
3100 PRINT "No. Name Trade Cl. Dist Dir."
3110 RESTORE
3120 FOR I=1 TO 10
3130 READ A#,B#
3140 PRINT USING"###";I;PRINT TAB(5);A#;TAB(21);B#
3150 PRINT TAB(29);PRINT USING"###";A(1,1);PRINT TAB(29);PRINT USING"###";I(1)
3160 NEXT I
3170 RETURN
3180 REM Travel Sub
3190 IF B(2)=0 THEN 3220
3200 PRINT "You can not leave starport until all";PRINT "tasks are cleared."
3210 RETURN
3220 PRINT "Enter destination star number:"
3230 INPUT I
3240 IF I<0 THEN 3270
3250 PRINT "You are already at";I
3260 RETURN
3270 IF (ABS(INT(I)) AND I=0 AND I=0)+1 THEN 3300
3280 PRINT "Invalid star number"
3290 RETURN
3300 B(2)=I
3310 REM Get Star Trade & Location Data
3320 GOSUB 3510

```



Star Merchant

```
2330 IF S1=1 THEN 2370
2340 FOR I=1 TO 50-1183
2350 READ B4
2360 NEXT I
2370 READ A1,Y3,M1
2380 FOR I=1 TO 4
2390 P2=2*Y3-1
2400 GOTO 2410 IF P2=0
2410 M1=M1+5+1182
2420 NEXT I
2430 REM Appraise Cargo in Hold
2440 T1=0
2450 FOR I=1 TO 20
2460 IF M1,11=0 THEN 2465
2470 GOSUB 2580
2480 IF M1,11=1 THEN 2520
2490 FOR J=1 TO 40,11-1188
2500 READ B4
2510 NEXT J
2520 G2=0
2530 FOR J=1 TO 4
2540 READ B1
2550 G2=G2+B1*B1
2560 NEXT J
2570 READ B1
2580 P2=PN C*H1+G2-1
2590 IF P2>1 THEN 2610
2600 P2=0
2610 IF P2<14 THEN 2620
2620 P2=0
2630 H1,41=H1/P2+1000
2640 H1,20=H1/P2+50+H1,13
2650 T1=T1+H1,21
2660 NEXT I
2670 REM Get Cargos for Sale
2680 B1=0
2690 FOR I=1 TO 5
2700 G2=0
2710 T2=PN B1*B1
2720 A1,11=T2
2730 GOSUB 2580
2740 IF T2=1 THEN 2780
2750 FOR J=1 TO 173-1188
2760 READ B4
2770 NEXT J
2780 FOR J=1 TO 4
2790 READ B1
2800 G2=G2+B1*B1
2810 NEXT J
2820 P2=PN C*H1+G2-1
2830 IF P2>1 THEN 2850
2840 P2=1
2850 IF P2<14 THEN 2870
2860 P2=14
2870 A1,41=H1/P2+1000
2880 READ B1,B1
2890 G2=1
2900 IF T2<17 THEN 2940
2910 G2=0
2920 IF T2<12 THEN 2940
2930 G2=10
2940 G2=0
2950 FOR J=1 TO 61
2960 G2=PN A*H1+G2+G2
2970 NEXT J
2980 IF G2<200 THEN G2=200
2990 A1,31=G2
3000 A1,20=B1+50*H1/P2
3010 NEXT I
3020 REM Det. and Direction of Stars
3030 G4=0+H1,1
3040 GOSUB 3010
3050 FOR I=1 TO 10
3060 READ A1,V1,B4
3070 G2=A1-G2
3080 Y3=Y3-Y3
3090 IF G2<0 THEN 3130
3100 IF G2<0 THEN 3130
3110 T11=90
3120 GOTO 3220
3130 T11=270
3140 GOTO 3220
3150 T11=90/Y2/X2+900/3,14159
3160 IF X2=0 THEN 3180
3170 T11=7+11=180
3180 IF T11<360 THEN 3200
3190 T11=7+11-360
3200 IF T11<0 THEN 3220
3210 T11=7+11+360
3220 B11=900+12*Y2+Y2*3
3230 NEXT I
3240 REM Arrival Expense and Star Name
3250 T4=T4,02+H4,02
3260 B4=74-77+H2
3270 T7=T4
3280 RESTORE
3290 IF S1=1 THEN 3330
3300 FOR I=1 TO S1-1
3310 READ A4,B4
3320 NEXT I
3330 READ A4,B4
3340 PRINT
3350 CLS:PRINT "You have arrived at "A4,1";PRINT
3360 PRINT "Expenses have been deducted as follows:";
3370 PRINT TAB(7);"Docking Fee";PRINT USING"%,%,%,%";B1
3380 PRINT TAB(14);"Fuel";PRINT USING"%,%,%,%";B2+B4
3390 PRINT TAB(7);"Crew Salary";PRINT USING"%,%,%,%";B4
3400 G2=G2-B1-B2-B4+H2+B4+H4
3410 RETURN
3420 PRINT "Cassand";TAB(12);"Description"
3430 PRINT TAB(4);1";TAB(12)"List cargo in hold"
3440 PRINT TAB(4);2";TAB(12)"List cargo which PRINT TAB(12);
"may be purchased"
3450 PRINT TAB(4);3";TAB(12)"Buy cargo"
3460 PRINT TAB(4);4";TAB(12)"Sell cargo"
3470 PRINT TAB(4);5";TAB(12)"List starports"
3480 PRINT TAB(4);6";TAB(12)"Travel to new star"
3490 PRINT " Other";TAB(12)"List available commands"
3500 RETURN
3510 REM Restore to Star Data Sub
3520 RESTORE
3530 FOR L=1 TO 1280+402
3540 READ A4
3550 NEXT L
3560 IF X3=1 THEN X3=0;GOTO 3600
3570 RETURN
3580 REM Restore to Cargo Data Sub
3590 X3=0;GOTO 3530
3600 FOR L=1 TO 2842
3610 READ B4
3620 NEXT L
3630 IF L3=1 THEN L3=0;GOTO 3670
3640 RETURN
3650 REM Restore to Price Data Sub
3660 L3=0;GOTO 3530
3670 FOR L=1 TO 5862
3680 READ B4
3690 NEXT L
3700 RETURN
3710 REM Star Names
3720 DATA "Lalande 21183","A1,P"
3730 DATA "Alpha Centauri","A6,I"
3740 DATA "Sirius","A4"
3750 DATA "Bernards Star","1,P"
3760 DATA "Sod","B"
3770 DATA "Ross 154","M1,M"
3780 DATA "Epsilon Eridani","A,P"
3790 DATA "Luyten 726-B","M4"
3800 DATA "Luyten 789-A","A,M,P"
3810 DATA "Ross 248","A,I"
3820 REM Cargo Names
3830 DATA "Crystals"
3840 DATA "Radioactive"
3850 DATA "Alloys"
3860 DATA "Medicine"
3870 DATA "Gems"
```

Star Merchant

```

3990 DATA "Diamonds"
3990 DATA "Gems/stone"
3990 DATA "Computers"
3990 DATA "Auto"
3990 DATA "Aircraft"
3990 DATA "Furniture"
3990 DATA "Assortment"
3990 DATA "Pleasure goods"
3990 DATA "Tools"
3990 DATA "Body armor"
3990 DATA "Power machinery"
3990 DATA "Liquor"
3990 DATA "Silver"
3990 DATA "Spices"
3990 DATA "Electronics"
3990 DATA "Mechanical parts"
3990 DATA "Cybernetic parts"
3990 DATA "Computer parts"
3990 DATA "Machine tools"
3990 DATA "Space suits"
3990 DATA "Fruit"
3990 DATA "Textiles"
3990 DATA "Polymers"
3990 DATA "Rums"
3990 DATA "Petroleum"
3990 DATA "Grain"
3990 DATA "Wood"
3990 DATA "Copper"
3990 DATA "Tin"
3990 DATA "Steel"
3990 DATA "Aluminum"
3990 DATA "Star Data"
4000 DATA 2.83,-7.34,20
4010 DATA -2.4,-2.56,7
4020 DATA 6.38,4.93,2
4030 DATA -6.1,0.24
4040 DATA 0.0,32
4050 DATA -8.87,2.09,5
4060 DATA 8.43,4.65,18
4070 DATA 2.99,7.42,3
4080 DATA -4.43,4.3,22

```

```

4090 DATA -1.89,10.24,10
4100 DATA "REM Cargo Data"
4110 DATA 3,-2,2,-2,0,-4,20000,1
4120 DATA 0,1,4,-3,0,-2,100000,1
4130 DATA -2,0,-4,0,1,-2,200000,1
4140 DATA -1,0,-4,2,-2,0,100000,1
4150 DATA 1,-2,0,-4,-1,1,100000,1
4160 DATA -2,0,-1,0,0,1,100000,1
4170 DATA 2,0,1,1,0,0,400000,1
4180 DATA 1,0,-2,0,0,0,800000,1
4190 DATA -2,2,-2,1,1,0,300000,1
4200 DATA 0,2,-2,0,0,1,50000,1
4210 DATA -2,4,-4,1,0,0,30000,2
4220 DATA -1,0,-2,0,0,0,30000,2
4230 DATA -1,2,-2,0,0,0,200000,2
4240 DATA -4,7,-8,4,0,0,10000,2
4250 DATA -3,4,-4,1,0,0,50000,2
4260 DATA -2,2,-4,0,0,-4,150000,1
4270 DATA 2,3,-1,0,-2,0,10000,1
4280 DATA 2,-1,3,-1,0,-2,70000,1
4290 DATA 4,-2,3,1,-1,-2,20000,1
4300 DATA 0,0,-4,4,1,1,100000,1
4310 DATA 0,1,-2,3,2,1,75000,1
4320 DATA 1,0,-4,2,1,0,250000,1
4330 DATA -1,0,-2,3,0,0,180000,1
4340 DATA 1,0,-2,1,0,0,750000,1
4350 DATA -1,2,-2,2,0,0,400000,1
4360 DATA 1,2,3,3,-4,-4,1000,2
4370 DATA 3,0,-3,1,-2,-3,3000,3
4380 DATA -2,0,3,3,0,0,7000,4
4390 DATA 0,0,2,2,-2,2,1500,4
4400 DATA 2,0,4,-2,3,0,10000,4
4410 DATA 0,0,4,2,-2,4,300,8
4420 DATA 0,0,1,2,-7,2,1000,2
4430 DATA 2,2,3,-2,-1,-4,2000,2
4440 DATA 2,2,3,-4,-1,-2,7000,3
4450 DATA -1,2,4,0,0,0,500,4
4460 DATA -1,1,3,-2,0,-2,1000,5
4470 DATA "REM Price Data"
4480 DATA -4,0,-7,0,-7,1,1,1,2,1,3,1,3,1,3,2,3,4
4490 END

```

STAR MERCHANT

You have just spent 2 million credits on a 2 year lease for a merchant starship. This leaves you with 2 million credits operating capital.

Your ship can hold a total of 20 cargoes with a total cargo weight of 200 tons. The fuel capacity of your ship is great enough that you can between any 2 planets in possible without refueling.

You are presently traveling from Alpha Centauri to Sol. You are carrying no cargo.

Press any key to continue.

The starport trade classification determines the cargo price but does not determine which cargoes are available.

Observations used for trade class are as follows:

0-Blank, 0-Room, 1-Industrial;
 00-NonIndustrial; 00-Agricultural;
 00-NonAgricultural

Press any key to continue.

Commands available are as follows:

Command	Description
0	List cargo in hold
1	List cargo which may be purchased
2	Buy cargo
3	List starports
4	Travel to new star
Other	List available commands

Enter a cargo number between 1 and 20 > 100

You have arrived at Sol.

Expenses have been deducted as follows:

Refueling fee:	20,000
Fuel:	40,000
Crew salary:	50,000

Account balance:	1,447,000
Empty cargo space:	200
Ship time:	100 years

Enter command? 1

Cargo stored in hold:
 All partitions are empty.

Account balance:	1,447,000
Empty cargo space:	200
Ship time:	100 years

Enter command? 2

Star Merchant

Cargo available for purchase:

No.	Description	Qty	Price	Weight
1	Electrical parts	100	120000	1000
2	Steel	100	220000	1000
3	Machine tools	100	250000	1000
4	Mechanical parts	100	300000	1000

Account balance: 1,467,000
Empty cargo space: 100
Ship time: .186 years

Enter command? 2

Enter the lot number of cargo that you want to purchase? 2

Transaction completed
Cargo stored in partition 1

Account balance: 904,000
Empty cargo space: 100
Ship time: .189 years

Enter command? 3

Enter the lot number of cargo that you want to purchase? 2

Transaction completed
Cargo stored in partition 3

Account balance: 822,000
Empty cargo space: 100
Ship time: .112 years

Enter command? 5

No.	Name	Trade Cl	Qty	Price	Weight
1	Alphie 21185	NA-P	1	1000000	1000
2	Alpha Centauri	NA-P	1	1000000	1000
3	Gamma	NA-P	1	1000000	1000
4	Bernarda Star	NA-P	1	1000000	1000
5	Star 124	NA-P	1	1000000	1000
6	Constellation	NA-P	1	1000000	1000
7	Lucifer	NA-P	1	1000000	1000
8	Star 248	NA-P	1	1000000	1000

Account balance: 822,000
Empty cargo space: 100
Ship time: .112 years

Enter command? 6

Enter destination star number? 28

You have arrived at Alpha Centauri.

Expenses have been deducted as follows:

Bookings Fee	50,000
Fuel	400,000
Crew salary	30,000

Account balance: 319,722
Empty cargo space: 100
Ship time: .217 years

Enter command? 1

No.	Description	Qty	Price	Weight
1	Electrical parts	100	120000	1000
2	Steel	100	220000	1000

Account balance: 319,722
Empty cargo space: 100
Ship time: .217 years

Enter command? 2

Cargo available for purchase:

No.	Description	Qty	Price	Weight
1	Steel	100	220000	1000
2	Steel	100	220000	1000
3	Steel	100	220000	1000
4	Steel	100	220000	1000

Account balance: 319,722
Empty cargo space: 100
Ship time: .217 years

Enter command? 4

Enter partition of cargo to be sold? 2
Transaction completed

Account balance: 319,722
Empty cargo space: 100
Ship time: .22 years

Enter command? 4

Enter partition of cargo to be sold? 1
Transaction completed

Account balance: 1,327,722
Empty cargo space: 100
Ship time: .223 years

Enter command? 3

Enter the lot number of cargo that you want to purchase? 3

Transaction completed
Cargo stored in partition 1

Account balance: 517,722
Empty cargo space: 100
Ship time: .226 years

Enter command? 5

No.	Name	Trade Cl	Qty	Price	Weight
1	Alphie 21185	NA-P	1	1000000	1000
2	Alpha Centauri	NA-P	1	1000000	1000
3	Gamma	NA-P	1	1000000	1000
4	Bernarda Star	NA-P	1	1000000	1000
5	Star 124	NA-P	1	1000000	1000
6	Constellation	NA-P	1	1000000	1000
7	Lucifer	NA-P	1	1000000	1000
8	Star 248	NA-P	1	1000000	1000

Account balance: 517,722
Empty cargo space: 100
Ship time: .226 years

Enter command? 6

Enter destination star number? 28

You have arrived at Bernarda 21185.

Expenses have been deducted as follows:

Bookings Fee	50,000
Fuel	400,000
Crew salary	30,000

Account balance: -250,000
Empty cargo space: 100
Ship time: .375 years

Enter command? 1

Cargo stored in hold:

No.	Description	Qty	Price	Weight
1	Iron	100	650000	70

Account balance: -250,000
Empty cargo space: 100
Ship time: .375 years

Enter command? 4

Enter partition of cargo to be sold? 1
Transaction completed

Account balance: 371,000
Empty cargo space: 100
Ship time: .379 years

Enter command? 2

Cargo available for purchase:

No.	Description	Qty	Price	Weight
1	Aluminum	100	400000	1000
2	Steel	100	220000	1000
3	Steel	100	220000	1000
4	Steel	100	220000	1000

Account balance: 371,000
Empty cargo space: 100
Ship time: .379 years

Enter command? 3

Enter the lot number of cargo that you want to purchase? 1

Transaction completed
Cargo stored in partition 1

Star Merchant

Account balance: 251,688
Empty cargo space: 50
Wife time: .382 years

Enter command? 3

No.	Name	Trade	CI	Stas	Pic
1	Lalande 21505	H.P.	14.1	100	100
2	Alpha Centauri	H.P.	14.1	100	100
3	Barnard's Star	H.P.	15.5	100	100
4	Wolf 359	H.P.	14.3	100	100
5	Proxima Centauri	H.P.	14.2	100	100
6	Gliese 581	H.P.	15.5	100	100
7	Kepler 90	H.P.	15.5	100	100
8	Gliese 667	H.P.	15.5	100	100
9	Gliese 581	H.P.	15.5	100	100

Account balance: 251,688
Empty cargo space: 50
Wife time: .382 years

Enter command? 6

Enter destination star number? 2

You have arrived at Alpha Centauri.

Expenses have been deducted as follows:

Docking fee: 50,000
Fuel: 650,475
Crew salary: 11,647

You no longer have sufficient funds to operate your ship.

You began with 4 million credits and now have 0 credits.
Cargo in the hold is worth 1350000

This represents a loss of 8250024,607 credits per year.
00



Streets of the City



Streets of the City was written by Kenneth R. Murray and originally appeared in the April 1981 issue of Creative Computing.

Congratulations! You have been named Transportation Director of River City, Michigan. River City is a central city with a declining population which is now at 185,000 persons. Budget problems over the past decade have resulted in a severely deteriorated road system and inadequate bus service.

Prior to your being hired, the City Commission approved a ten-year transportation improvement plan that will now be your responsibility to complete. In the Street Fund, the plan calls for reconstructing 44 miles of main streets, called primaries, and 16 miles of interstate. At the same time, you have to significantly improve the overall street conditions and traffic safety. For the Transit Authority, an aging bus fleet needs to be expanded and modernized, and ridership must be expanded.

Your success will be measured in two ways. The first is how well you progress each year in meeting the overall goal. Second is your ability to maintain a majority vote of the City Commission. Each influences the other.

Goals to be Achieved

In the initialization of the simulation, the initial conditions are randomly set. This includes the first budgets, street mileage and conditions, the traffic safety index, fleet size and age, and transit performance. The goals that you must achieve are as follows:

Goals	Standard
Primary Street Reconstruction	Reconstruct 44 Miles
Interstate Highway Construction	Build 16 Miles
Street Condition Index	Reduce 60 Percent
Traffic Safety Index	Reduce 60 Percent
Bus Fleet Age	Reduce 60 Percent
Bus Ridership	Increase 4 Times
Fleet Downtime Index	Reduce 60 Percent
On-Schedule Performance Index	Reduce 60 Percent

Highway Construction: The costs are initially set at random. Each year, costs will increase because of inflation. An inadequate maintenance program will also cause the construction costs to rise.

Street Conditions: A street condition index is randomly set; the higher the index, the worse the con-



dition. Each year the index is adjusted according to street mileage (total streets will be added in relation to inflationary pressures on development) and how well you budget for street maintenance. Your maintenance costs are determined by street mileage, street conditions, labor negotiations, and inflation.

Traffic Safety: A traffic safety index is also set randomly; again, the higher the index, the worse the traffic accident rate. This index is adjusted each year according to changes in the street conditions and how well you meet your maintenance and safety budget. The safety needs are determined by street mileage, the traffic safety index, labor negotiations, and inflation.

Age of Bus Fleet: The size and age of the fleet are randomly set and are incremented each year according to your sale and acquisition of buses. Sale is assumed on the basis of the oldest buses being sold first. Sale and purchase prices are influenced by inflation.

Ridership: Ridership is initially determined randomly. It is then affected by decisions on the number of routes, the hours of service, the days of service, and bus fare. The performance measures of downtime and on-schedule performance (referred to as service delay) and strikes will also affect ridership.

Fleet Downtime: This is measured by an index; the higher the index, the greater the downtime. The index is adjusted according to the age of the fleet and how well you meet your maintenance budget. The maintenance needs are determined by the size and age of the fleet, the level of service, labor negotiations, and inflation.

Service Delay: The higher the service delay index, the poorer your on-schedule performance. This index is determined by the size of the fleet relative to the number of routes, downtime, and meeting your operational budget. Operating needs are affected by the number of routes, hours and days of operation, labor negotiations, and inflation. You should not let the average number of buses per route drop below three.

Transit Authority Service Decisions

In this phase you determine the level of transit service you will have for the year. Your decisions and ranges are as follows:

Service	Initial Value	Range of Options
Routes	6	6 to 25
Hours of Operation Per Day	12	12, 17, or 24
Days of Operation	6	6 or 7
Fare	\$.35	\$.25 to \$1.00

Bonding

In years 3 and 7, you will have the option of seeking authority to borrow money (in the form of bonds) for street construction. In year 3, the bond limit is \$1.5 million, and in year 7, it is \$2.0 million, each per year. You do not have to request the entire amount. The City Commission will decide what size of a bond issue to put to a vote of the citizens. The Commission decision will depend upon the size of the bond requested and your support among the Commission members. Once the issue is submitted to a vote, you will be asked to make certain pledges to the Coalition of Neighborhood Associations. Making the pledges will improve the chance of passage; however, if you fail to keep your pledges, you will be penalized severely.

Property Taxes

In this phase you will ask the City Commission to levy up to ten mils of property tax for street and transit operation. The amount that is approved will depend upon your support of the Commission and the size of the levy requested. The tax that is approved must then be divided between streets and transit. If you are too greedy, the chances that the Commission will approve a less-than-adequate property tax increase.

The amount of the property tax base is set at the start of the simulation. Each year it changes according to inflation, street improvements, and bus ridership. The theory is that with streets and more bus riders, property values will increase. Conversely, with poorer streets and fewer riders, property values will decrease.



Street Fund Budget

Once the tax levy is determined, you must decide how much to spend from the Street Fund on maintenance, safety, and construction. You will be able to transfer money from the operating account to the capital account and vice versa. The percentage that you can shift will change according to the amount of bonds you have issued. Your operating revenue, which includes funds left over from the previous year, gasoline taxes, and tax levy, is automatically adjusted to delete bond payments. Gasoline tax revenue is initially calculated at the start of the simulation based on street mileage and vehicle miles, then adjusted according to mileage changes and inflation. It is not a variable over which you have control. The construction budget, exclusive of bonds, is similarly set.

In making your maintenance and safety decisions, you should remember that the needs shown are the minimum amounts necessary to keep the maintenance and safety indexes approximately the same. Reducing the indexes requires more than the minimum appropriation.

Transit Budget

You have a similar set of decisions to make on the Transit Authority budget. Operating revenues include rider fare (ridership times fare), a federal subsidy which is automatically set at half of the operating and maintenance needs for the year and tax revenues. The capital budget consists of revenues from the sale of buses and from occasional federal grants. You may transfer up to 25% of the operating revenues to acquisition, but you may not use the capital fund for operations. By random determination, you may receive a federal grant for fleet acquisition. In these years you cannot transfer funds from the operating account. Your decision whether to buy and/or sell buses depends upon your fleet needs. Remember that buses add to maintenance costs, whether you need them or not. A rule of thumb is that three buses are needed per route. Again, the operating and maintenance needs are minimums necessary to hold the indexes about the same.

Labor Negotiations

The final phase of decision making is labor negotiations for the next year. The outcome of the negotiations directly affects your operating and maintenance budget for streets and the Transit Authority.

There will be between two and six rounds of negotiations, with the Union making the first offer. Subsequent union offers will depend upon how willing you are to bargain in good faith. If you reach settlement, excellent. If you do not reach settlement, you risk a strike. The possibility of a strike depends upon the beginning and ending positions of the two parties and how much each has changed its position. A strike negatively affects your performance for the year in which it occurs, so you should not risk one lightly.

Performance Review

Once you have completed the decision process, you will be given a comparison of the effects of your decisions this year against the past year and against the fiscal plan. You will also be shown a graphic display of the status of your street construction. Your general performance will be evaluated and you will be told the strengths and weaknesses of your performance. Depending on your performance, you can gain or lose support among the Commissioners. You begin the game with the unanimous support of all eleven Commissioners.

End of the Game

The game can end in one of three ways. The most desirable, and the one requiring the most political acumen, is for you to satisfactorily complete the transportation plan. The second way is to serve out the ten years but not complete the plan, which results in a demotion for you. The third ending is that you will be asked to resign. This will happen if you fail to keep the support of at least six Commissioners. And, it's easier to lose votes than it is to gain them. Good luck on your new job!

Streets of the City

[illegible]

A black and white photograph of a vintage motor vehicle, likely a bus or truck, with a large canopy and multiple rows of seating. The vehicle is shown from a side profile, facing right. It has large spoked wheels and a prominent front grille. The canopy is supported by several vertical posts and has a flat top. The interior of the vehicle is visible through the open sides, showing rows of seats. The background is a simple, light-colored surface, possibly a road or a display area.

Streets of the City

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1288 IF S2(1)=0 AND S3(1)=S2-7 THEN S6-S6+(RND(15000)+100000)*S1
1289 IF S2(1)=0 AND S3(1)=S2-12 THEN S6-S6+(RND(15000)+110000)*S1
1291 IF S2(1)=0 AND S3-S3(1)=5 THEN S6-S6+(RND(15000)+75000)*S1
1292 IF S2(1)=0 AND S3-S3(1)=7 THEN S6-S6+(RND(15000)+90000)*S1
1293 IF S2(1)=0 AND S3-S3(1)=12 THEN S6-S6+(RND(15000)+115000)*S1
1294 IF S2(1)=0 AND S3(1)=0 THEN S6=(RND(160)*5000*(S1(1)-.5))
1295 IF S2(1)=0 AND S3(1)=0 THEN S6-S6+(RND(10000)+15000)*(S2(1)-.5)
1296 IF S2(1)=0 AND S4(1)=S4 THEN S6-S6+(1240(1)-S4(1)/2)*5000
1297 IF S1(1)=0 THEN S1-S1(1)
1298 IF S2(1)=0 THEN S2-S2(1)
1299 IF S3(1)=0 THEN S3-S3(1)
1300 IF S4(1)=0 THEN S4-S4(1)
1302 S2(1)=S2S2(1)+S2S3(1)+S2S4(1)+0
1303 IF Y2=3 OR Y2=7 THEN 1304 ELSE 1305
1304 IF Y2=3 THEN S1=1500000 ELSE S1=2000000
1305 CL:PRINT TAB(15)"STREET FUND BOND PROPOSAL",PRINT
1306 PRINT"YOU MAY PROPOSE BONDING UP TO",PRINT USING F4.1:
1307 PRINT"SUBJECT TO"
1308 PRINT"APPROVAL OF THE CITY COMMISSION AND A VOTE OF THE"
1309 PRINT"CITIZENS. HOW MUCH DO YOU WISH TO PROPOSE (IN"
1310 INPUT"THOUSANDS, TYPE '0' IF NONE)";I
1311 IF I=0 THEN 1315
1312 S=0:DOWHILE I>0 OR I<0 THEN 1300:S1=I
1313 IF I<0 THEN S1=S1-(RND(35)*10000)
1314 IF I>0 THEN S1=S1+(RND(20)*10000)
1315 PRINTPRINT"THE COMMISSION HAS APPROVED A BOND REFERENDUM"
1316 PRINT"FOR"
1317 PRINT USING F4.1:
1318 PRINT"EACH YEAR.",PRINT:PRINT:INPUT"FROM ENTER"J
1319 CL:PRINTPRINT"THE COMALION OF NEIGHBORHOOD ASSOCIATIONS HAS AGRED"
1321 PRINT
1322 PRINT"YOU TO MAKE THE FOLLOWING PLEDGES FOR THE NEXT YEARS"
1323 PRINT"YEARS. WILL YOU MAKE ANY OF THEM (Y/N)?"
1324 IF Y(4,Y2)+Y(4,0) THEN S2=Y(4,Y2)-2 ELSE S2=Y(4,0)-2
1325 IF S2=1 THEN S2=1
1326 IF Y(5,Y2)+Y(5,0) THEN S3=Y(5,Y2)-2 ELSE S3=Y(5,0)-2
1327 IF S3=1 THEN S3=1
1328 IF C1=2 THEN S4=S4+G1 ELSE S4=20
1329 IF C3=1 THEN S5=S5+G3 ELSE S5=5
1330 PRINT TAB(5)"1. IMPROVE STREET CONDITION INDEX TO";S2
1331 PRINT TAB(5)"2. IMPROVE SAFETY INDEX TO";S3
1332 PRINT TAB(5)"3. CONSTRUCT";S4;"MILES OF PRIMARIES";
1333 PRINT TAB(5)"4. CONSTRUCT";S5;"MILES OF INTERSTATES";
1334 PRINT PRINTY2$,"PLEDGE 1";TAB(15)"PLEDGE 2";TAB(30)"PLEDGE 3";
1335 PRINT TAB(45)"PLEDGE 4";PRINTY2$,C3
1336 PRINTY2$,I
1337 INPUT J2
1338 IF J2="Y" AND J2<"N" THEN 1340
1339 IF J2="N" THEN S2=0
1340 PRINTY2$,C3
1341 INPUT J3
1342 IF J3="Y" AND J3<"N" THEN 1343
1343 IF J3="N" THEN S3=0
1344 PRINTY2$,C3
1345 PRINTY2$,J:INPUT J4
1346 IF J4="Y" AND J4<"N" THEN 1347
1347 IF J4="N" THEN S4=0
1348 PRINTY2$,C3
1349 INPUT J5
1350 IF J5="Y" AND J5<"N" THEN 1351
1351 IF J5="N" THEN S5=0
1352 PRINTY2$,C3
1353 PRINTY2$,J:PRINT"ENTER FOR ELECTION RESULTS";
1354 INPUT C:CL:PRINT TAB(10)"BOND ELECTION RESULTS"
1355 PRINT:PRINT"MAJOR";TAB(10)"YES";TAB(20)"NO";TAB(35)"TOT. YES";TAB(50)"TOT. NO"
1356 PRINTY2$,S1+S2
1357 IF C=0 THEN V1=5000 ELSE V1=10000
1358 IF Y(4,Y2)+Y(4,0)=1 AND Y(4,Y2)+Y(4,0) THEN V1=V1+500
1359 IF Y(5,Y2)+Y(5,0)=1 AND Y(5,Y2)+Y(5,0) THEN V1=V1+500
1360 IF Y2=7 THEN 1363
1361 IF S1=1500000 THEN V1=V1+500
1362 GOTO 1365
1363 IF S1=1600000 THEN V1=V1+500
1364 IF S2=0 THEN V1=V1+500
1365 IF S3=0 THEN V1=V1+500
1366 IF S4=0 THEN V1=V1+500
1367 IF S5=0 THEN V1=V1+500
1368 S2=S2+5)
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3560 FOR X=1 TO 5
3565 IF X=2 THEN 3660
3575 V1=V1+RND(11000)
3580 GOTO 3590
3595 V1=(V1/2)+RND(11000)
3600 IF V1<1000 THEN V1=1000
3605 V4=21000-V3+V1-V1-V1-V1-V1-V1
3610 PRINT TAB(27);TAB(5);TAB(19);V4;TAB(35);V5;TAB(50);V6
3620 FOR Y=1 TO 500;NEXT Y
3630 NEXT X
3640 IF V5<V6 THEN 3650
3655 PRINT;PRINT;CONGRATULATIONS. THE BOND ISSUE WAS APPROVED BY"
3660 PRINT;"THE VOTERS. YOUR ANNUAL BOND PAYMENT WILL BE";
3665 C0=C0*(PT*.4)
3670 PRINT USING PAID0
3675 T019,TR)=T019,TR)+01.000-10
3680 INPUT;P0000 ENTER";GOTO 3680
3685 PRINT;"THE REFUNDING HAS FAILED."
3690 IF V6/(V5+V6)<155+RND(15)/*01 THEN 3675
3695 PRINT;"BECAUSE OF THE MARGIN OF DEFECT, YOU HAVE LOST"
3700 PRINT;"THE WORK OF A COMMISSIONER."; CY=CY+1
3705 IF C0<0 THEN 3770
3710 C1=0;C2=0;C3=0;C4=0;C5=0
3715 PRINT;INPUT;"P0000 ENTER";C
3720 CLEARPRINT TAB(10);"PROPERTY TAX LEVY"
3725 M5=(C1*(C2*.43)+112)*.000;M2=M2+(M5*.11);M1,TR)=M1,TR)+(14*M1,TR)+(11*M2+M5)/2
3730 PRINT TAB(10);"STREET FUND";TAB(45);"TRANSIT AUTHORITY"
3735 PRINT;OPERATING NEEDS";TAB(10);PRINT USING PA;M5+M2+M3;PRINT TAB(45);
3740 PRINT USING PA;M2+M5
3745 PRINT;"NON-TAX REFUND";TAB(10);PRINT USING PA;TR01,TR01;PRINT TAB(45);
3750 PRINT USING PA;C1,TR01
3755 PRINT;"PROPERTY TAX NEEDED (MILLS)";PRINT TAB(10);
3760 PRINT USING PA;M5+M2+M3+TR01,TR01;PRINT TAB(45);
3765 PRINT USING PA;M2+M5-01,TR01
3770 TR=TR*(M5+M2+M3+TR01+TR01,TR01)+M1,TR01)/PT*100/*1;PRINT
3775 PRINT;"TOTAL PROPERTY TAX NEEDED (IN MILLS) -";TR
3780 PRINT#P040;"WHAT PROPERTY TAX LEVY (0-10 MILLS) DO YOU PROPOSE";
3785 INPUT TR02,TR01;PRINT#P040,TR01
3790 IF TR02,TR01<0 AND TR02,TR01<10 THEN 3725
3795 PRINT#P040;"YOU CANNOT EXCEED THE LIMITS";PRINT#P040,05;GOTO 3710
3800 IF TR02,TR01<TR01,TR01-1 THEN 3805
3805 C1=0;C2=0
3810 FOR X=1 TO 11
3815 IF C0<0 THEN 3785
3820 IF X<C0 THEN C1=RND(5) ELSE C1=RND(8)
3825 GOTO 3785
3830 IF X=2 THEN C1=RND(4)
3835 IF X=3 AND X<C0 THEN C1=RND(5);IF X<C0 THEN C1=RND(8)
3840 IF X=3 THEN C1=C1+1 ELSE C1=C1-1
3845 NEXT X
3850 IF C1=0 THEN 3860
3855 IF TR02,TR01<TR THEN TR02,TR01 ELSE TR02,TR01=TR02,TR01-0.1*(C2+1)
3860 C0=C0+RND(10000)/PT*2,TR01+TR02+RND(10) THEN TR02,TR01=TR02,TR01-1*(C2+1)
3865 PRINT#P04,"THE CITY COMMISSION HAS APPROVED A LEVY OF";TR02,TR01;"MILLS"
3870 IF TR02,TR01<2,TR01 THEN 3825
3875 PRINT#P040;"YOU CANNOT ALLOCATE MORE THAN YOU ARE AUTHORIZED";PRINT#P040,C0
3880 GOTO 3820
3885 TR01,TR01=TR01,TR01+(PT*TR01)-0.01*(1,TR01+01,1,TR01+(PT*(C02,TR01)-0.1))
4000 CLEARC0=0;GOTO 4020
4010 C=1
4020 CLEARPRINT TAB(10);"STREET FUND SELECT DECISIONS FOR YEAR";TR
4030 PRINT;"OPERATIONS";TAB(10);"CONSTRUCTION"
4040 PRINT TAB(5);"AVAILABLE";
4045 PRINT USING PA;TR01,TR01
4050 PRINT TAB(30);"AVAILABLE";PRINT USING PA;TR01,TR01
4055 PRINT TAB(5);"SAFETY NEED";PRINT USING PA;M5
4060 PRINT TAB(30);"COST PER MILE UNIT";
4065 PRINT TAB(5);"SAFETY NEED";PRINT USING PA;M5
4070 PRINT TAB(30);"PRIMARY RDL.";PRINT USING PA;C1*.2
4075 PRINT TAB(30);"INTERSTATE";PRINT USING PA;C1
4080 PRINT;IF C=1 THEN 4090
4085 PRINT;"DO NOT TRANSFER UP TO ";C0;"% FROM AN ACCOUNT"
4090 PRINT TAB(10);"1. OPERATIONS TO CONSTRUCTION"
4095 PRINT TAB(10);"2. CONSTRUCTION TO OPERATIONS"
4100 PRINT TAB(10);"3. NO TRANSFER"
4105 INPUT 2;IF 2=1 AND 2<2 AND 2>3 THEN 4090
4110 IF 2=3 THEN 4090 ELSE 4090

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4200 INPUT "HOW MUCH DO YOU WANT TO TRANSFER (IN THOUSANDS, WITHOUT $ SIGN)";T
4201 T=T*1000
4210 IF B=1 AND T=TB1(B,YR)/(B*,D1) THEN 4200
4220 IF B=2 AND T=TB2(B,YR)/(B*,D1) THEN 4200
4230 IF B=3 THEN 4250
4240 TB1(B,YR)=TB1(B,YR)-T*TB1(B,YR)/TB1(B,YR)+T*GOTO 4000
4250 TB2(B,YR)=TB2(B,YR)-T*TB2(B,YR)/TB2(B,YR)+T*GOTO 4000
4260 PRINT "ENTER CONSTRUCTION BY THE NUMBER OF HALF MILE UNITS:"
4270 PRINT "ENTER MAINTENANCE AND SAFETY IN THOUSAND DOLLAR UNITS."
4270 PRINT "DO NOT USE COMMAS OR DOLLAR SIGNS"
4280 PRINT PRINT TAB(10);"FINANCES";TAB(20);"INTERSTATE";TAB(30);"MAINTENANCE";
4282 PRINT TAB(35);"SAFETY"
4290 PRINT "LAST YR";TAB(15);PC;TAB(25);IC
4300 PRINT TAB(15);
4301 PRINT USING PA;TB1(B,YR-1);
4305 PRINT TAB(30);
4306 PRINT USING PA;TB2(B,YR-1)
4310 PRINT "THIS YR";
4315 PRINT#44,1
4320 INPUT PC
4327 PRINT#44,PC
4328 IF INT(PC)/>=PC THEN 4390
4330 IF CL=PC/20+44 THEN 4390
4330 PRINT#44,1
4340 INPUT IC
4342 PRINT#44,IC
4343 IF INT(IC)/>=IC THEN 4390
4354 IF T1(B,YR)=(IC/2)+.15 THEN 4395
4365 IF (PC*(IC+.31))/(IC+2)+TB1(B,YR) THEN 4397
4366 PRINT#44,1;INPUT T1;T1=T1*1000
4377 PRINT#44,IC;IF LEND*TB1(T1)>LEND*TB1(NR)+1000*1000000 THEN GOTO#4494
4378 IF B="T" THEN 4330
4379 B="Y";PRINT#44,PC;GOTO 4330
4380 PRINT#44,1;INPUT T2;PRINT#44,IC;T2=T2*1000
4382 IF LEND*TB2(T2)>LEND*TB2(NR)+1 OR T2>1000000 THEN GOTO#4494
4384 IF B="Y" THEN 4330
4385 B="T";PRINT#44,PC;GOTO 4330
4390 IF T2>T3+TB1(B,YR) THEN 4405
4397 GOTO 4440
4398 PRINT#44,"YOU MUST ENTER A WHOLE NUMBER.";
4399 PRINT#44,1;GOTO 4325
4402 PRINT#44,"YOU CAN BUILD ONLY";44-33/2;" MORE HALF MILE UNITS";GOTO 4390
4403 PRINT#44,"YOU MUST ENTER A WHOLE NUMBER.";
4404 PRINT#44,1;GOTO 4320
4405 PRINT#44,"YOU CAN BUILD ONLY";15-T1(B,YR)/2;"MORE HALF MILE UNITS.";
4406 GOTO 4390
4407 PRINT#44,"YOUR CONSTRUCTION PROGRAM EXCEEDS YOUR BUDGET.";
4408 PRINT#44,1;PRINT#44,1;GOTO 4325
4409 PRINT#44,IC;PRINT#44,"ARE YOU SURE I2/50";
4410 INPUT 25;IF 25<"Y" AND 25<"N" THEN 4399
4411 RETURN#44
4412 PRINT#44,IC;PRINT#44,"ARE YOU SURE I2/50";
4413 INPUT 25;IF 25<"Y" AND 25<"N" THEN 4402;IF 25="Y" THEN 4332
4414 PRINT#44,IC;GOTO 4330
4415 PRINT#44,"YOUR MAINTENANCE AND SAFETY BUDGET EXCEEDS YOUR FUNDS";
4416 PRINT#44,1;PRINT#44,1;GOTO 4320
4417 TB1(B,YR)=TB1(B,YR)+T1
4418 T1(B,YR)=T1(B,YR)+PC*(T1+T3+TB1(B,YR)+1C/2
4419 TB2(B,YR)=TB2(B,YR)+TB2(B,YR)+TB2(B,YR)
4420 TB1(B,YR)=TB1(B,YR)+PC*(T1+T3+TB1(B,YR)+1C/2
4421 TB2(B,YR)=TB2(B,YR)+PC*(T1+T3+TB1(B,YR)+1C/2
4422 PRINT#44,"ENTER";INPUT 2
4423 T1(B,YR)=T1(B,YR)+INT(LEND*TB1(B,YR)/NR)/NR*100*1
4424 IF T1(B,YR)<1 THEN T1(B,YR)=1
4425 T1(B,YR)=T1(B,YR)+INT(LEND*TB1(B,YR)/NR)/NR*100*1
4426 IF T1(B,YR)<1 THEN T1(B,YR)=1
4427 IF T1(B,YR)<1 THEN T1(B,YR)=1
4428 CLS;GOTO 4000
4430 C=1
4431 CLS;PRINT TAB(15);"TRANSFER BUDGET FOR YEAR";YR
4432 PRINT "OPERATIONS";TAB(35);"BUS FLEET"
4433 PRINT TAB(15);"AVAILABLE";PRINT USING PA;B1(B,YR);PRINT TAB(30);"AVAILABLE";
4434 PRINT USING PA;B2(B,YR)
4435 PRINT TAB(15);"MAINT. NEED";PRINT USING PA;B2;PRINT TAB(30);"COST FOR B2";
4436 PRINT TAB(15);"OPERATIONS NEED";PRINT USING PA;B5;
4437 PRINT TAB(30);"ACQUISITION";PRINT USING PA;B1
4438 PRINT TAB(30);"SALE";PRINT USING PA;B2
4439 IF C=1 THEN 4340
4440 IF B=0 THEN PRINT#44,"BECAUSE OF THE FEDERAL GRANT, YOU CAN'T TRANSFER FROM

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Streets of the City
Creative Computing
by Kenneth S. Murray
CONGRATULATIONS! YOU HAVE BEEN NAMED TRANSPORTATION
DIRECTOR OF RIVER CITY, MICHIGAN, A CENTRAL CITY WITH
A DECLINING POPULATION AND WHICH HAS SUFFERED DETERIORATION
OF ITS TRANSPORTATION SERVICES OVER THE LAST SEVERAL YEARS.

BEFORE TO YOUR BEING NAMED, THE CITY COMMISSION ADOPTED A
TEN-YEAR TRANSPORTATION PLAN TO RESTORE SERVICES FOR
BOTH STREETS AND RIVER TO AN ADEQUATE LEVEL. IT WILL BE
YOUR RESPONSIBILITY TO CARRY OUT THIS PLAN.

FOR THE STREET FUND, YOU WILL NEED TO CONSTRUCT SEVERAL
MILES OF INTERSTATE HIGHWAYS AND RECONSTRUCT MAJOR LOCAL
STREETS (CALLED PRIORITIES). YOU WILL ALSO NEED TO IMPROVE
STREET CONDITIONS AND TRAFFIC SAFETY.

PRESS ENTER?
FOR THE TRANSIT AUTHORITY, YOU MUST REPLACE A
DELAQUATED BUS FLEET, INCREASE RIDERSHIP, REDUCE THE
MAINTENANCE DOWNTIME, AND IMPROVE ON-SCHEDULE PERFORMANCE
(ALSO REFERRED TO AS SERVICE DELAY).

FOR ALL INDEXED USED, THE HIGHER THE INDEX VALUE THE
WORSE THE CONDITION INDICATED. THE BUDGET NEEDS LISTED
ARE THE MINIMUMS NEEDED TO MAINTAIN THE INDEX AT ITS
PRESENT LEVEL; IMPROVING THE LEVEL REQUIRES BUDGETS THAT
ARE HIGHER THAN THE MINIMUM NEEDS.
PRESS ENTER?

YOUR GOALS FOR THE PLAN ARE AS FOLLOWS:

STANDARD	PRESENT	GOAL
PERCENT ST. RELEASE	107	151
INTERSTATE RELEASE	0	16
STREET CONDITION INDEX	10.6	4
TRAFFIC SAFETY INDEX	8.9	3
RIDERSHIP	664,402	2,661,610
FLEET AGE	10.7	4
DOWNTIME	11.4	4
SERVICE DELAY	12.7	9

GOOD LUCK!
PRESS ENTER?
7
YOUR TRANSIT AUTHORITY SERVICE OPTIONS ARE:

1. ROUTES
2. HOURS OF OPERATION
3. DAYS OF SERVICE
4. FARE
5. TO CONTINUE

WHAT IS YOUR CHOICE? 4
THE FARE MAY BE CHANGED BY NICKEL UNITS, WITH A
MINIMUM FARE OF 0.25 AND A MAXIMUM OF \$1.00
DO NOT ENTER DOLLAR SIGN
CURRENT FARE = .35
NEW FARE = 1 .50
YOUR TRANSIT AUTHORITY SERVICE OPTIONS ARE:

1. ROUTES
2. HOURS OF OPERATION
3. DAYS OF SERVICE
4. FARE
5. TO CONTINUE

WHAT IS YOUR CHOICE? 5	PROPERTY TAX LEVY		
OPERATING NEEDS	STREET FUND	TRANSIT AUTHORITY	
NON-TAX REVENUE	\$7,217,000.	\$1,416,170.	
PROPERTY TAX REVENUE (BILLS)	\$2,649,400.	\$1,594,390.	
	\$4,571,400.	-\$178,120.	



Streets of the City

TOTAL PROPERTY TAX NEEDED (IN MILLS) = 5.3
WHAT PROPERTY TAX LEVY (IN MILLS) DO YOU PROPOSE? 7
THE CITY COMMISSION HAS APPROVED A LEVY OF 7 MILLS.
HOW MANY MILLS ARE FOR THE STREET FUND? 5

STREET FUND BUDGET DECISIONS FOR YEAR 1

OPERATIONS:	CONSTRUCTION:
AVAILABLE: \$4,750,330.	AVAILABLE: \$1,000,000.
MAINT. NEEDED= \$9,322,290.	COST PER HALF MILE UNIT:
SAFETY NEEDED= \$1,894,740.	PRIMARY RDS.= \$125,000.
	INTERSTATES= \$425,000.

YOU MAY TRANSFER UP TO 50 % FROM AN ACCOUNT

1. OPERATIONS TO CONSTRUCTION
2. CONSTRUCTION TO OPERATIONS
3. NO TRANSFER

2 3

STREET FUND BUDGET DECISIONS FOR YEAR 1

OPERATIONS:	CONSTRUCTION:
AVAILABLE: \$4,750,330.	AVAILABLE: \$1,000,000.
MAINT. NEEDED= \$9,322,290.	COST PER HALF MILE UNIT:
SAFETY NEEDED= \$1,894,740.	PRIMARY RDS.= \$125,000.
	INTERSTATES= \$425,000.

ENTER CONSTRUCTION BY THE NUMBER OF HALF MILE UNITS;
ENTER MAINTENANCE AND SAFETY BY THOUSAND DOLLAR UNITS.
DO NOT USE COMMAS OR DOLLAR SIGNS

PRIMAIRY	INTERSTATES	MAINTENANCE	SAFETY
0	0	\$9,322,290.	\$1,894,740.

LAST YR

THIS YR? 1

7 1

7 5400

7 1500

7

7 1500

YOUR MAINTENANCE AND SAFETY BUDGET EXCEEDS YOUR FUND

7

7 3

ARE YOU SURE (Y/N)? Y

7 5

ARE YOU SURE (Y/N)? Y

PRESS ENTER?

TRANSIT BUDGET FOR YEAR 1

OPERATIONS	BUS FLEET	
AVAILABLE \$3,230,300.	AVAILABLE	\$0.
MAINT. NEEDED= \$341,370.	COST PER BUS:	
OPERATIONS NEEDED= \$1,074,700.	ACQUISITION= \$140,000.	
	SALE= \$75,000.	

OPERATIONS TO THE BUS FLEET

HOW MANY BUSES DO YOU WISH TO SELL? 0

TRANSIT BUDGET FOR YEAR 1

OPERATIONS	BUS FLEET	
AVAILABLE \$3,230,300.	AVAILABLE	\$0.
MAINT. NEEDED= \$341,370.	COST PER BUS:	
OPERATIONS NEEDED= \$1,074,700.	ACQUISITION= \$140,000.	
	SALE= \$75,000.	

ENTER BUDGETS IN THOUSAND DOLLAR UNITS. DO NOT
USE COMMAS OR DOLLAR SIGNS

MAINTENANCE	OPERATIONS	HOW BUSES
\$233,990.	\$1,074,700.	0

LAST YEAR

THIS YEAR? 100

7 1300

7 0

YOUR PRESENT RATE IS 7.31 DOLLARS PER HOUR

THE UNION'S INITIAL OFFER IS FOR A 14 PERCENT INCREASE

WHAT IS YOUR RESPONSE?



Survival

Survival was written by Stewart F. Webb and originally appeared in *Creative Computing*, January 1982.

It is the year 1991. You have crash landed on the moon and have only 180 minutes of oxygen and 330 units of power remaining. You are at Mare Serenitatis and observe the long, eerie shadows being cast by the distant mountains across the barren landscape. The realization sinks in that you are in big trouble.

Game Description

Survival is an "adventure" type of game. With logic, skill, persistence, and a little bit of luck, it is possible to survive. The action takes place on the surface of the moon where you must assess the situation, explore the surroundings, avoid potential hazards, and gather needed resources.

It is a race against time. Many explorations are required before the total situation is revealed, and the resources and life-threatening hazards are discovered.



Only then, can the process of determining an optimum course of action begin.

Once you succeed in surviving, there is then the challenge to plan new survival sequences to minimize the total elapsed time.

The commands to move are NORTH, SOUTH, EAST, WEST, UP, and DOWN. These commands may be spelled out or entered as a single letter—N, S, E, W, U, and D.

Other commands consist of an action verb followed by a noun. Examples of these commands are:

GET ILLUMINATOR
DROP KNIFE
INVENTORY

The set of commands is relatively small, hence you may have to try several alternatives to find the one that works. All commands may be abbreviated to the first three letters. To exit the program, you may enter END or QUIT. There is no provision for saving a partially completed game.

Program Design

The program is relatively small as it was originally written to fit in a computer with 8K of memory.

The program is directed by a move matrix M. There is one vector for each location P in the game. Table 1 lists the significance of each vector in the matrix M.

If the vector element (1-6) contains a value of "0," then the move requested in that direction is invalid. If the vector element contains a "99," then the game is terminated.

The T5 vector contains the textual description of all of the various locations. As an example, the first three elements in the vector contain the description for location 1 in the M matrix. Looking at the line 9001, the seventh and eighth data items correspond to M(1,7) which has a value of 1, and M(1,8) which has a value of 3.

Table 2 lists the variables used in the program.

Table 3 lists each of the objects used in the program which are contained in the O vector. Normally the vector element is 0, for a given object, contains either the P location of that item, or a value of 99 indicating that the player is carrying that item.

Locations 1-18, and 38 normally require oxygen. All other locations are within the space station or the space craft. Locations 1-24, and 38 require a power unit or pack. All other locations are within the space station.

Changing the Complexity of the Game

Normally, the program permits the player to carry four items. One way the difficulty can be increased is by permitting only three items to be carried. In this case, a longer survival time results, and the following statements must be updated:

```
350 LET T2=175
360 LET P1=120
370 LET P2=75
730 IF T1 > 485 THEN 2460
740 IF T1 > 380 THEN 3840
2270 IF C > 2 THEN 1390
```

Conclusion

This program, unlike other Adventures, contains no random events. The emphasis is on determining optimum move scenarios, resulting in minimum times and resource use. Each location described corresponds to an actual moon location taken from a *National Geographic* map of the moon.

We wish you many happy hours of exploration. As a benchmark, the author's best survival time is 185 minutes, with a four-item carry limit. Here's to your survival!

Table 1.

M(P,1)= location to go to if direction is NORTH
M(P,2)= location to go to if direction is SOUTH
M(P,3)= location to go to if direction is EAST
M(P,4)= location to go to if direction is West
M(P,5)= location to go to if direction is UP
M(P,6)= location to go to if direction is DOWN
M(P,7)= pointer to first print line in T5 vector
M(P,8)= pointer to last print line in T5 vector

Table 2.

P - The current location.
R - The previous location (P for the previous location).
T1 - The current elapsed time.
T2 - the amount of oxygen remaining in the oxygen module.
P1 - The amount of power remaining in the power unit.
P2 - The amount of power remaining in the power pack.
V - The number of visits to the control center.
C - The number of items being carried.
F0 - Flag: oxygen in use.
F1 - Flag: Meteor shower.
F2 - Flag: Shed open.
F4 - Flag: Illuminator on.
F7 - Flag: Bomb deactivated.
P9 - Flag: Oxygen required in station.

Table 3.

O(1) - An electronic key.
O(2) - Sealant.
O(3) - An oxygen module.
O(4) - An illuminator.
O(5) - A robot.
O(8) - A deactivator.
O(7) - A nuclear bomb.
O(8) - A transporter unit.
O(9) - Dilithium crystals.
O(10) - A computer message.
O(11) - A power unit.
O(12) - A mirror.
O(13) - A coded badge.
O(14) - A power pack.

Survival

```

1 REM
2 REM MOON SURVIVAL PROGRAM
3 REM WRITTEN BY STEWART BUSH 1/12/81
4 REM
5 REM
6 REM T0:=0
7 REM M:=42.8
8 REM O:=14
9 REM C:=3
10 REM S:=1
11 REM
12 REM INITIALIZE TEXT AND MOVE MATRICES
13 REM
14 PRINT"WELCOME TO THE GAME OF SURVIVAL. WOULD
15 YOU PRINT-OUT LINE INSTRUCTIONS?"
16 INPUT D$
17 IF D$="Y" THEN GOTO 1850
18 FOR I=1 TO 14
19 READ O(I)
20 NEXT I
21 FOR I=1 TO 42
22 READ T(I)
23 NEXT I
24 FOR I=1 TO 14
25 READ M(I,J)
26 NEXT J
27 NEXT I
28 RESTORE
29 REM
30 REM PROGRAM VARIABLE DEFINITION
31 REM P = CURRENT POSITION          P0 = OXYGEN IN USE
32 REM T1 = CURRENT ELAPSED TIME    P1 = OPEN SHED
33 REM T2 = OXYGEN REMAINING         P2 = METEOR SHOWER
34 REM                                     P3 = LASER DEFLECTED
35 REM                                     P4 = ILLUMINATION ON
36 REM V = NO. OF COMPUTER READS    P5 = DEACTIVATION EXPOSED
37 REM P0 = PWR IN POWER UNIT        P6 = BOMB DEACTIVATED
38 REM P1 = PWR IN POWER PACK        P7 = OXYGEN REQ'D IN STATION
39 REM C = NO. OF ITEMS CARRIED      P8
40 REM
41 P=1
42 C=0
43 T1=0
44 T2=0
45 P0=0
46 P1=0
47 P2=0
48 T=0
49 P0=0
50 P1=0
51 P2=0
52 P3=0
53 P4=0
54 P5=0
55 P6=0
56 P7=0
57 P8=0
58 REM
59 REM DISPLAY CURRENT STATUS AND LOCATION INFO
60 REM
61 PRINT"ELAPSED TIME: ",T1,"MINUTES"
62 IF O(1)=99 THEN PRINT"POWER UNIT: ",P0,"UNITS"
63 IF O(14)=99 THEN PRINT"POWER PACK: ",P1,"UNITS"
64 T1=T1+5
65 IF O(1)=99 AND P0=0 THEN P0=P1-5
66 IF O(14)=99 AND P1=0 THEN P0=P0-5
67 IF O(1)=99 AND P1=0 THEN 3000
68 IF O(14)=99 AND P0=0 THEN 3000
69 IF T1=000 THEN 3000
70 IF T1=200 THEN 3000
71 IF T1=300 THEN 3000
72 IF P0=1 THEN T2=T2-5
73 IF T2=0 THEN T2=0
74 IF P0=0 THEN 000
75 IF T2=0 THEN 000
76 IF P0=0 THEN 000
77 IF P=1 THEN 0000
78 IF P=10 THEN 0000
79 IF P=10 THEN 1000
80 IF P=10 THEN 3000
81 IF P0=0 THEN PRINT "OXYGEN REMAINING: ",T2,"MINUTES

```



Survival

```

800 PRINT "PRESENT LOCATION STATUS: YOU ARE"
810 FOR I=0(P,0) TO N(P,0)
820 PRINT G(I)
830 NEXT I
840 PRINT "##"
850 REM
860 REM DISPLAY ANY OBJECTS PRESENT
870 REM
880 IF P=0 THEN 1020
890 FOR I = 0 TO 10
900 IF G(I)<>P THEN 990
910 GOSUB 4010
920 PRINT "THERE IS ",G(I)," HERE."
930 NEXT I
940 GOTO 2000
950 REM
960 REM READ AND PROCESS KEYBOARD RESPONSE
970 REM
980 INPUT B$
990 I=0
1000 IF LEN(B$)=1 THEN GOTO 1020
1010 IF B$="N" THEN I=1
1020 IF B$="E" THEN I=2
1030 IF B$="S" THEN I=3
1040 IF B$="W" THEN I=4
1050 IF B$="P" THEN I=5
1060 IF B$="D" THEN I=6
1070 IF B$="Z" THEN 9999
1080 IF I=0 THEN 1070
1090 IF N(P,I)=0 THEN 1070
1100 IF N(P,I)=99 THEN 2040
1110 G=H(P,I)
1120 IF P=0 THEN 2040
1130 IF P=10 THEN 2100
1140 IF P=12 THEN 2100
1150 IF P=20 THEN 2100
1160 IF P=22 THEN 2420
1170 IF P=24 THEN 2420
1180 G=P
1190 P=G
1200 GOTO 400
1210 PRINT"YOU CAN'T GO IN THAT DIRECTION!"
1220 GOTO 1040
1230 REM
1240 REM PROCESS 2 OF MORE CHARACTER COMMANDS
1250 REM
1260 C$=B$
1270 C$=LEFT$(C$,2)
1280 IF C$="LOO" THEN 400
1290 IF C$="SEE" THEN 400
1300 IF C$="GET" THEN 1100
1310 IF C$="TAA" THEN 1100
1320 IF C$="KEE" THEN 1100
1330 IF C$="GEE" THEN 2000
1340 IF C$="LEA" THEN 2000
1350 IF C$="PUT" THEN 2000
1360 IF C$="LSE" THEN 2700
1370 IF C$="QUT" THEN 9999
1380 IF C$="END" THEN 9999
1390 IF C$="TSA" THEN 1700
1400 IF C$="GOS" THEN 1840
1410 IF C$="WSE" THEN 4010
1420 IF C$="SEA" THEN 4250
1430 IF C$="DEA" THEN 3800
1440 IF C$="ELA" THEN 4110
1450 IF C$="UP" THEN 1640
1460 IF C$="DOO" THEN 1640
1470 IF C$="MOO" THEN 1640
1480 IF C$="BOO" THEN 1640
1490 IF C$="EAS" THEN 1640
1500 IF C$="MEN" THEN 1640
1510 PRINT"INVALID COMMAND!"
1520 GOTO 1040
1530 PRINT"CAN'T PROCESS YOUR REQUEST!"
1540 GOTO 1040
1550 C$=B$
1560 B$=C$
1570 GOTO 1070
1580 REM

```



```

1590 REM PROCESS ENTRY TO HANGER FROM ASP LOCK
1600 REM
1700 IF M(10) THEN 2040
1710 GOTO 040
1720 REM
1730 REM PROCESS TRANSPORT COMMAND
1740 REM
1750 IF P(10) THEN 1800
1760 IF G(0)=99 THEN 1930
1770 P=0(0)
1780 PRINT"BEARING IN PROGRESS."
1790 GOTO 420
1800 IF P(10)=0 THEN 1930
1810 P=0
1820 GOTO 1700
1830 REM
1840 REM PROCESS DIG COMMAND
1850 REM
1860 IF P(10) THEN 1090
1870 G(0)=10
1880 GOTO 940
1890 REM
1900 REM DROP ILLUMINATOR IF AT OVERLOOK
1910 REM
1920 IF G(4)=10 THEN 950
1930 G(4)=000
1940 PRINT"YOU DROPPED YOUR ILLUMINATOR! YOU"
1950 PRINT"CANNOT RETRIEVE IT."
1960 GOTO 930
1970 REM
1980 REM PROCESS ROBOT
1990 IF G(0)=00 THEN G(0)=00
2000 IF G(0)=40 THEN G(0)=00
2010 IF G(0)=40 THEN G(0)=40
2020 IF G(0)=40 THEN G(0)=40
2030 IF G(0)=27 THEN G(0)=40
2040 IF G(0)=25 THEN G(0)=27
2050 IF G(0)<>10 THEN 2040
2060 IF P(10) THEN 1810
2070 H(0,1)=00
2080 GOTO 1010
2090 IF G(0)=00 THEN 2040
2100 IF P(10) THEN 1810
2110 G(0)=00
2120 IF G(10)=30 THEN 1800
2130 PRINT"ROBOT FAILS TO RECOGNIZE YOU, IT"
2140 PRINT"FIRES A PHASOR BEAMON AT YOU"
2150 GOTO 2000
2160 REM
2170 REM PROCESS GET OR TAKE COMMAND
2180 REM
2190 GOSUB 4000
2200 IF I=0 THEN 1040
2210 IF I=0 THEN 1040
2220 PRINT"I DON'T RECOGNIZE ",MID$(B$,3,1),"."
2230 GOTO 1040
2240 PRINT"TAKE ITEM"
2250 GOTO 1040
2260 IF G(1)<>P THEN 2370
2270 IF G(0) THEN 2300
2280 IF I=0 THEN 2410
2290 IF I=0 THEN 2410
2300 IF I=1 THEN 2410
2310 IF I=1 THEN 2410
2320 C=C+1
2330 G(1)=99
2340 IF I=0 THEN P=0
2350 PRINT"O.K."
2360 GOTO 1040
2370 PRINT"THERE IS NO ",MID$(B$,3,1)," HERE!"
2380 GOTO 1040
2390 PRINT"YOU CAN'T CARRY ANY MORE!"
2400 GOTO 1040
2410 PRINT"YOU CAN'T CARRY A ROBOT!"
2420 GOTO 1040
2430 PRINT"YOU CAN'T GET THE MESSAGE, IT'S"
2440 PRINT"ON THE TERMINAL SCREEN."
2450 GOTO 1040
2460 IF G(14)=99 THEN 1010

```

Survival

```

1470 GOTO 1110-99
1480 GOTO 1110
1490 IF G(1110-99) THEN 1110
1500 GOTO 1110-99
1510 GOTO 1110
1520 PRINT"YOU CAN'T HAVE MORE THAN ONE"
1530 PRINT"POWER SUPPLY."
1540 GOTO 1040
1550 REM
1560 REM PROCESS DROP OR LEAVE COMMAND
1570 REM
1580 GOSUB 4590
1590 IF 1=0 THEN 1040
1600 IF 1=0 THEN 1040
1610 GOTO 1110
1620 IF G(1110-99) THEN 1040
1630 GOTO 1110
1640 PRINT"YOU DON'T HAVE "/>

```

```

1650 GOTO 1040
1660 IF 1=0 THEN 1040
1670 IF 1=1 THEN 1040
1680 IF 1=1 THEN 1040
1690 IF 1=1 THEN 1040
1700 GOTO 1110
1710 PRINT"YOU DON'T HAVE "/>
1720 GOTO 1040
1730 IF 1=0 THEN 1040
1740 IF 1=0 THEN 1040
1750 IF 1=0 THEN 1040
1760 IF 1=0 THEN 1040
1770 GOTO 1110
1780 REM
1790 REM PROCESS INVENTORY COMMAND
1800 REM
1810 FOR I=1 TO 14
1820 IF G(1110-99) THEN 1040
1830 GOSUB 4590
1840 PRINT"YOU HAVE "/>
1850 NEXT I
1860 GOTO 1040
1870 REM
1880 REM PROGRAM TERMINATION PROCESSING
1890 REM
1900 PRINT"YOU HAVE NO POWER OR POWER FAULT."
1910 PRINT"YOU HAVE FROZEN TO DEATH."
1920 GOTO 1040
1930 PRINT"OXYGEN REQUIRED HERE, NONE AVAILABLE."
1940 GOTO 1040
1950 PRINT"A NUCLEAR DETONATION HAS JUST OCCURRED."
1960 GOTO 1040
1970 PRINT"YOU HAVE FALLEN TO YOUR DEATH."
1980 GOTO 1040
1990 PRINT"YOU HAVE BEEN BAPPED BY THE LASER."
2000 GOTO 1040
2010 PRINT"THE MOON BASE HAS JUST BEEN DESTROYED"
2020 PRINT"BY A LARGE ASTEROID."
2030 PRINT"YOU HAVE FAILED TO SURVIVE."
2040 PRINT"DO YOU WISH TO TRY AGAIN?"
2050 INPUT $;
2060 IF $="Y" THEN 111
2070 GOTO 1040
2080 REM
2090 REM PROCESS MISSILE SHOWER
2100 REM
2110 IF M(1110-111) THEN 1110
2120 IF F(1) THEN 1110
2130 PRINT"THERE IS A MISSILE SHOWER. YOUR SPACE"
2140 PRINT"SHIP HAS DEVELOPED A LEAK!"
2150 GOSUB 4590
2160 IF 1=0 THEN 1040
2170 PRINT"YOUR SHIP IS NOW SEALED."
2180 F(1)
2190 GOTO 1110
2200 REM
2210 REM PROCESS LOCKED SHED
2220 REM
2230 IF M(1110-111) THEN 1110
2240 IF F(1) THEN 1110
2250 PRINT"THE SHED IS LOCKED!"
2260 GOSUB 4590
2270 IF 1=0 THEN 1040
2280 PRINT"YOU ARE IN THE SHED AIR LOCK."
2290 F(1)
2300 GOTO 1110
2310 PRINT"YOUR ATTEMPT FAILS -"
2320 GOTO 1040
2330 REM
2340 REM PROCESS DARK VENTILATOR SHAFT
2350 REM
2360 IF M(1110-111) THEN 1110
2370 IF F(1) THEN 1110
2380 PRINT"IT IS DANGEROUS TO PROCEED IN THE DARK!"
2390 GOSUB 4590
2400 IF 1=0 THEN 1040
2410 PRINT"THE SHAFT IS NOW ILLUMINATED."
2420 F(1)
2430 GOTO 1110
2440 REM
2450 REM PROCESS SHAFT WITH NO ILLUMINATION
2460 REM
2470 IF G(1110-111) THEN 1040
2480 GOTO 1110
2490 REM
2500 REM PROCESS LASER BEAM
2510 REM
2520 IF M(1110-111) THEN 1110
2530 IF F(1) THEN 1110
2540 PRINT"THERE IS A LASER BEAM HERE. PASSAGE NOT"
2550 PRINT"POSSIBLE WITH BEAM PRESENT."
2560 GOSUB 4590
2570 IF 1=0 THEN 1040
2580 PRINT"THE BEAM IS NOW DEFLECTED."
2590 F(1)
2600 GOTO 1110
2610 REM
2620 REM PROCESS BLOWN SEAL IN SPACE STATION
2630 REM
2640 IF 1=0 THEN 1110
2650 IF F(1) THEN 1110
2660 F(1)
2670 PRINT"YOU HAVE JUST BLOWN THE AIR SEAL IN"
2680 PRINT"THE SPACE STATION."
2690 GOTO 1110
2700 REM
2710 REM POWER REQUIRED TESTING
2720 REM
2730 IF 1=0 THEN 1040
2740 IF F(1) THEN 1040
2750 GOTO 1110
2760 REM
2770 REM EXPOSE DEACTIVATOR
2780 REM
2790 IF F(1) THEN 1040
2800 M(1110-111) F(1)
2810 M(1110-111) F(1)
2820 M(1110-111) F(1)
2830 F(1)
2840 GOTO 1040
2850 REM
2860 REM DETONATE BOMB
2870 REM
2880 GOTO 1040
2890 REM
2900 REM DEACTIVATE BOMB
2910 REM
2920 IF G(1110-111) THEN 1040
2930 IF G(1110-111) THEN 1040
2940 F(1)
2950 PRINT"BOMB IS NOW DEACTIVATED."
2960 GOTO 1040
2970 PRINT"YOU HAVE NOTHING TO DO IT WITH!"
2980 GOTO 1040
2990 PRINT"THERE IS NOTHING TO DO IT TO!"
3000 GOTO 1040
3010 PRINT"YOU CAN'T DO IT FROM HERE!"
3020 GOTO 1040
3030 REM
3040 REM FUEL ROCKET
3050 REM

```



SURVIVAL



Survival

0023 DATA*AT THE BASE OF THE CRATER OF PLATO. A
0024 DATA*SHINY OBJECT IS SEEN TO THE WEST.
0027 DATA*STANDING BEFORE A SMALL METAL SHED. A
0029 DATA*HIGH BEARD. VENTILATOR SHAFT #2.
0027 DATA*SOMEWHERE EAST OF MARK RESEMBLANCE.
0029 DATA*THERE IS TOTAL DARKNESS.
0031 DATA*AT THE CRASH SITE OF A SPACE CRAFT.
0032 DATA*THE SHIP ENTRANCE IS BEFORE YOU.
0033 DATA*AT THE CENTER OF MARK RESEMBLANCE.
0034 DATA*IN THE AIR LOCK CHAMBER OF THE SHIP.
0035 DATA*IN THE AFT CARGO AND FUEL STORAGE ROOM.
0036 DATA*IN THE ENGINE ROOM OF THE SPACECRAFT.
0037 DATA*IN THE CONTROL ROOM. THE SHIP'S CONSOLE
0038 DATA*IS BEFORE YOU.
0039 DATA*INSIDE A DARK SHED. A LADDER LEADS DOWN
0040 DATA*INTO A LARGE METAL SHAFT.
0041 DATA*IN A VENTILATOR PASSAGE.
0042 DATA*AT A VENTILATOR OPENING, THROUGH THE
0043 DATA*OPENING A LIT PASSAGEWAY CAN BE SEEN.
0044 DATA*IN A LIGHTED SPACE STATION CORRIDOR.
0045 DATA*IN THE SPACE STATION INFIRMARY.
0046 DATA*IN THE RECREATION ROOM AND LIBRARY.
0047 DATA*IN THE MESS HALL. ABANDONED FOOD TRAYS
0048 DATA*ARE STILL ON THE TABLES.
0049 DATA*IN THE STORAGE ROOM AND SUPPLY AREA.
0050 DATA*IN THE SLEEPING QUARTERS.
0051 DATA*IN AN ELEVATOR AT SUBSURFACE LEVEL.
0052 DATA*IN AN ELEVATOR AT SURFACE LEVEL.
0053 DATA*IN THE STATION CONTROL CENTER.
0054 DATA*IN THE TRANSPORTER ROOM.
0055 DATA*IN THE SPACE STATION LABORATORY.
0056 DATA*IN THE HANGER AREA, THE LAUNCH AREA
0057 DATA*IS JUST SOUTH OF HERE.
0058 DATA*IN AN AIR LOCK CHAMBER BETWEEN THE
0059 DATA*CHARGING AREA AND THE HANGER.
0060 DATA*IN A SPACE SUIT CHARGING AREA.
0061 END
0061 BEGIN MOVEMENT AND TEST POINTER MATRIX
0062 END
0061 DATA 07.04.02.13.00.00.01.01
0062 DATA 05.01.14.03.00.00.04.04
0063 DATA 01.02.14.04.00.00.07.07

0064 DATA 01.05.03.00.00.00.00.00
0065 DATA 04.00.03.00.00.00.00.00
0066 DATA 00.00.03.00.00.00.00.11
0067 DATA 00.01.07.11.00.00.12.12
0068 DATA 00.07.10.00.00.00.13.14
0069 DATA 10.02.14.07.00.00.13.14
0070 DATA 00.09.14.00.00.00.17.18
0071 DATA 12.15.07.14.00.00.19.24
0072 DATA 00.11.00.13.00.00.20.24
0073 DATA 00.14.13.13.00.00.27.28
0074 DATA 00.05.09.00.00.00.29.30
0075 DATA 11.10.01.00.00.00.31.32
0076 DATA 17.14.07.16.00.00.33.33
0077 DATA 14.17.11.17.00.00.33.33
0078 DATA 13.17.00.00.00.00.34.34
0079 DATA 10.00.20.00.00.00.39.39
0080 DATA 00.00.00.19.31.00.34.34
0081 DATA 00.00.00.00.00.20.37.38
0082 DATA 00.00.13.00.00.23.39.40
0083 DATA 24.00.00.00.23.00.41.41
0084 DATA 25.23.00.00.00.00.42.43
0085 DATA 27.14.13.10.24.00.44.44
0086 DATA 25.00.10.10.00.00.44.44
0087 DATA 24.23.41.00.00.00.44.44
0088 DATA 00.27.42.10.00.00.44.44
0089 DATA 20.10.00.17.00.00.44.44
0090 DATA 00.00.20.00.00.49.49
0091 DATA 00.00.24.00.00.44.44
0092 DATA 00.00.25.00.00.47.48
0093 DATA 00.00.20.00.00.50.50
0094 DATA 00.27.00.00.00.49.49
0095 DATA 00.20.00.00.24.00.53.53
0096 DATA 00.00.20.00.00.54.54
0097 DATA 00.00.20.00.00.50.50
0098 DATA 27.00.17.00.00.54.57
0099 DATA 40.00.00.10.00.00.59.59
0100 DATA 00.17.00.20.00.00.64.64
0101 DATA 00.00.00.27.42.00.51.51
0102 DATA 00.00.00.20.00.41.52.52
0103 END

OK

OK

WELCOME TO THE GAME OF SURVIVAL. WOULD
YOU LIKE INSTRUCTIONS?
Y
YOU HAVE CRASH LANDED ON THE
EARTH'S MOON. YOU HAVE LIMITED
SUPPLIES AND TIME IN WHICH TO
SURVIVE. TO TRAVEL, YOU MAY
ENTER DIRECTIONAL SUCH AS NORTH
OF E, AS WELL AS S, E, N AND
Y, AND D (UP AND DOWN). YOU
WILL ENCOUNTER VARIOUS ITEMS
AND SITUATIONS DURING YOUR
TRAVELS. TO COMMUNICATE, ENTER
COMMANDS (TERMS) FOLLOWED BY
OBJECT NAMES (IF APPLICABLE).
FOR EXAMPLE, GET KEY, LEAVE,
USE, AND INVENTORY
ONCE YOU HAVE SURVIVED, THE
OBJECT THEN IS TO ACHIEVE THE
OPTIMUM SURVIVAL TIME.
*** GOOD LUCK ***
ELAPSED TIME: 0 MINUTES
POWER UNIT: 230 UNITS
OXYGEN REMAINING: 100 MINUTES
PRESENT LOCATION STATUS: YOU ARE
AT MARK RESEMBLANCE, LONG DARK SHADOWS
FROM DISTANT MOUNTAINS AND CRATERS CAST
THEMSELVES ACROSS THE BARREN LANDSCAPE.

+ N
ELAPSED TIME: 5 MINUTES
POWER UNIT: 225 UNITS
OXYGEN REMAINING: 175 MINUTES
PRESENT LOCATION STATUS: YOU ARE
AT THE BASE OF THE AWESOME MT. EUDORUS.

+ S
ELAPSED TIME: 10 MINUTES
POWER UNIT: 220 UNITS
OXYGEN REMAINING: 170 MINUTES
PRESENT LOCATION STATUS: YOU ARE
INSIDE THE CRATER OF ARISTOTLES. THE
CRATER FLOOR IS LITTERED WITH ROCKS.

+ E
ELAPSED TIME: 15 MINUTES
POWER UNIT: 215 UNITS
OXYGEN REMAINING: 165 MINUTES
PRESENT LOCATION STATUS: YOU ARE
AT THE BASE OF THE BIG CRATER IN LACUS
MORTIS. THE SURFACE IS VERY SOFT HERE.

+ DIG
THERE IS DILITHIUM CRYSTALS HERE.
? GET CRYSTALS
O.K.

Survival

• INVENTORY

YOU HAVE AN OXYGEN MODULE.
YOU HAVE LITHIUM CRYSTALS.
YOU HAVE A POWER UNIT.

• 0
ELAPSED TIME: 10 MINUTES
POWER UNIT: 288 UNITS
OXYGEN REMAINING: 190 MINUTES
PRESENT LOCATION STATUS: YOU ARE
AT PEARL HERMITAGE. LONG DARK SHADOWS
FROM DISTANT MOUNTAINS AND CRATERS CAST
THEMSELVES ACROSS THE BARREN LANDSCAPE.

• 1
ELAPSED TIME: 35 MINUTES
POWER UNIT: 195 UNITS
OXYGEN REMAINING: 145 MINUTES
PRESENT LOCATION STATUS: YOU ARE
AT A PASS IN THE MOUNTAINS OF HARMON.

• 2
ELAPSED TIME: 40 MINUTES
POWER UNIT: 188 UNITS
OXYGEN REMAINING: 140 MINUTES
PRESENT LOCATION STATUS: YOU ARE
AT A STEEP BASE OF THE CRATER HAMILUS.

• 3



Trucker



Trucker was written by Richard B. Galtmuth and first appeared in the March 1983 issue of *Creative Computing*.

Trucker is a program which simulates the problems facing a long-haul truck driver. Ideally, you can make a good living hauling freight coast-to-coast without exceeding the legal load limit. If all goes well, you can obey the speed limits and stop each night for eight hours sleep and still make the time schedule. On a good trip you will be able to earn well over \$1,000. However, even the best drivers run into occasional streaks of bad luck and may barely break even.

Bad weather, road construction, or a flat tire can place you behind schedule and eat up your profits. You may try to increase your profits by skimping on sleep, driving fast, or carrying an overweight load. However, pushing too hard raises the risk of a traffic accident, and you will be fined if you are caught breaking the law.

Your Truck

You are driving an 18-wheel tractor-trailer combination that can hold 50,000 pounds of cargo (10,000 pounds more than the legal limit). You are

buying your truck through a bank loan that requires payment of \$1,955 per month, or \$85 for each working day. This amount includes reserves for taxes and insurance.

Your truck has a 200-gallon fuel tank and gets 4.5 miles per gallon of diesel fuel. Your mileage decreases when you drive faster or slower than 55 miles per hour. Your fuel gauge is accurate to within 5 gallons and your speedometer is accurate to within 3 miles per hour.

Accidents

It is extremely unlikely that you will be involved in a traffic accident in good weather if you drive at a reasonable speed and get enough rest. The danger increases dramatically if you drive at an excessive rate of speed, fail to slow down in fog or a blizzard, or continue driving after you have become fatigued. An exhausted driver speeding through a snow storm is asking for trouble.

There is always the danger of losing time due to a flat tire. This danger can be reduced by purchasing retreads or more expensive tires before you start your trip, and by promptly replacing your spare tire after a flat.

Speeding

The speed limit is 55 miles per hour unless otherwise posted. Generally, Smokey will allow some leeway before pulling you over, but the faster you go the more likely you are to attract his attention. There are also a couple of places along the way where a radar speed trap may be in operation with strict enforcement.

Whenever you get a traffic ticket, you will lose time as you wait to pay your fine at the Justice of the Peace. If you receive more than three traffic tickets, you lose your Interstate Commerce Commission driver's license.

Truck Stops

Every three or four hours you will approach a truck stop. Each stop will take at least one hour while you get coffee, fuel and a spare tire if necessary. The price of diesel fuel and tires will vary unpredictably; diesel fuel will average about \$1.00 per gallon.

Truck stops are also the only places where you can sleep. You may choose when to sleep, but, if you attempt to sleep during the day, you will be disturbed by traffic noise.

Cargo

You can select one of three types of cargo to haul for each trip:

1. **U.S. Mail:** This contract will pay \$0.475 per pound, or \$1,900 for a 40,000 pound load upon delivery.
2. **Freight Forwarding:** This contract pays \$0.05 pound, or 2,000 for a load. However, there is a 10% penalty that is subtracted if you are more than 12 hours late in delivering your freight.
3. **Oranges:** This contract will pay \$0.65 per pound of good oranges delivered to New York, which amounts to \$2,600 for a standard load. You are required to run the air-conditioning unit in your trailer in order to keep the oranges from rotting or freezing. This uses 7 gallons of diesel fuel per hour while you sleep.

Routes

You can choose one of three routes: the northern route, the middle route or the southern route. Let's look at each route in detail.

Northern Route

This route is the shortest but also the riskiest. You will leave from Los Angeles on Interstate 15 and drive through Las Vegas and Denver. You then take

Interstate 80 through Nebraska, northern Ohio and Pennsylvania. The total mileage is 2,710. You will pay a total of \$195 in tolls and have one chance in eight of avoiding weighing stations. The danger of bad weather is high, and the speed limit is vigorously enforced.

Middle Route

The middle route follows old Route 66 from Los Angeles through northern Arizona and Oklahoma into St. Louis. Then you cut over to the Pennsylvania Turnpike and follow through to New York. The total distance to New York is 2,850 miles. The toll road portions will cost you \$240 in fees. This route has fewer Smokies watching your speed and the weather conditions are much more favorable than the Northern route. However, watch the weight in your trailer since there are usually several truck scales in operation.

Southern Route

This route takes you from Los Angeles on Interstate 10 through Arizona, New Mexico, and Texas. You then follow Interstate 20 to Atlanta before heading north to Washington, D.C. The last leg of your journey follows Interstate 95 up the Atlantic coast. The mileage is 5120; much longer than the other routes. However, it is the safest route because you avoid much of the bad weather. Tolls amount to only \$95 and you will run into fewer police and fewer truck scales. If you cannot resist the temptation to take on an over-weight cargo or if you have a lead foot, this is the best route for you to take.



Trucker

```
10 REM--INDEPENDENT TRUCKER SIMULATION
20 REM--88 CREATIVE COMPUTING
30 REM--5/23/84
40 DIM MT(12), MF(12,2), MP(12,2), MS(12,2), MW(12,2), MD(6), MTS(4)
50 CLS
60 PRINT "INDEPENDENT TRUCKER SIMULATION"
70 MTS(1)="First",MTS(2)="Second",MTS(3)="Third",MTS(4)="Fourth"
80 MD(1)="Monday",MD(2)="Tuesday",MD(3)="Wednesday"
90 MD(4)="Thursday",MD(5)="Friday",MD(6)="Saturday",MD(7)="Sunday"
100 PRINT#84,"DO YOU WANT TO SEE INSTRUCTIONS?"
110 INPUT $:IF LEFT$($,1)~"n" OR LEFT$($,1)~"N" THEN 1000 ELSE 4000
1000 CLS:GOTO 40MP=CL:TIME=7:AM=0:GOSUB 1100
1010 PRINT#84," "
1020 PRINT#84,"You are at the Los Angeles Trucking Terminal"
1030 PRINT#84,"Three types of cargo are available:"
1040 PRINT#84,"1--CRANES (highest profit if they don't spoil)"
1050 PRINT#84,"2--FRIGHT FORWARDING (penalty for late delivery)"
1060 PRINT#84,"3--U.S. MAIL (lowest rate, but so hurry to arrive)"
1070 PRINT#84,"The cargo is due in New York BY 4 pm on Thursday."
1080 INPUT#84,"Which type of cargo do you want?:"C
1090 IF C#1 OR C#3 INPUT#84,"Enter a NUMBER: 1, 2, or 3:"C:GOSUB 1100
1100 PRINT#84,"How many pounds will you carry (40000 is the legal limit):"W
1110 IF W#40000 PRINT#84,"You can't make a living on half a load."GOTO 1090
1120 PRINT#84,"They are loading your truck now."
1130 REMORE
1140 FOR ST=0 TO 2
1150 READ MP, MT(1)
1160 FOR T=1 TO MP
1170 READ MP(T,1), MP(T,2), MS(T,1), MW(T,1)
1180 NEXT T,ST
1190 TC=10:MP=100:SP=175:JEL=55:SN=50:1:SC=150
1200 IF WL=50000 THEN WL=50000 ELSE 1130
1210 PRINT#84,"50,000 pounds of cargo has filled your trailer!"
1220 FOR T=1 TO 7:GOSUB 1230
1230 PRINT#84,"You have nearly a full tank (cost of fuel: $ 150).":PRINT
1240 INPUT#84,"Two of your tires are worn. Do you want replacements?"Z
1250 IF LEFT$(Z,1)~"n" OR LEFT$(Z,1)~"N" THEN 1350
1260 PRINT#84,"New tire costs $100. A RETURNED costs $100."PRINT#84:
1270 INPUT#84,"Which type do you want?"Z:PRINT#84:Z=LEFT$(Z,1)
1280 INPUT#84,"How many?"Y
1290 IF Y=1 IF Z="n" OR Z="N" THEN TS=2:T=2:SC=SC+200
1300 IF Y=0 OR T=2 THEN 1330
1310 IF Z="n" OR Z="N" THEN TC=TC-Y*T:SC=SC+100*Y:GOTO 1350
1320 IF Z="n" OR Z="N" THEN TC=TC-Y*T:SC=SC+100*Y:GOTO 1350
1330 PRINT#84,"I did not understand your answer."PRINT#84,"Let's try again!"
1340 PRINT#84:GOTO 1230
1350 PRINT#84,"You may choose the Northern, Middle or Southern route."
1360 INPUT#84,"Which route do you choose?"Z:Z=LEFT$(Z,1)
1370 IF Z="n" OR Z="N" THEN ST=1:AM=4:GOTO 1400
1380 IF Z="n" OR Z="N" THEN ST=2:AM=2:GOTO 1400
1390 IF Z="n" OR Z="N" THEN ST=3:AM=1:GOTO 1400
1400 PRINT#84,"Please, answer: NORTH, MIDDLE, or SOUTH ?"
1410 GOTO 1360
1420 REM***
1430 AP=SP/2 * CD * CM
1440 IF AP=MD(1)1:GOTO 4000
1450 AP=MP(MF(10)TC
1460 IF AP=MP*25000:MD(1) GOSUB 1460
1470 IF AP=CL=MS=10 GOSUB 1300
1480 MS=MS+1:ML=ML+1
1490 IF ML=40 THEN CL=55
1500 T=ABS(10-SP):IF T=12 THEN T=12.5
1510 TI=AP/(4.5 *C,2*Y)
1520 MP=MP-TI:IF MP#0 GOSUB 1500
1530 MP=MP+AP
1540 IF MP=MT(MT) THEN 4000
1550 FOR I=1 TO 25:PRINT I
1560 CLS:GOSUB 1100
1570 PRINT#84,"Approximate FUEL:"INT(MP-51+MD(10):TAB(16)"SPEND:";SP
1580 PRINT#84,"Distance:"INT(MP*30)"miles to go:"INT(MT)-MP
1590 PRINT
1600 REM*** MILEPOST
1610 IF MP(MT,MP)=MP GOTO 3100 ELSE PRINT#84,"Crashing on "INT(MT,MP)
1620 GOSUB 3000:PRINT#84,"You are feeling "JCMB
1630 GOSUB 3000:PRINT#84,"Current weather: "JCKJ
1640 SP=MS+1:IF MS=3 GOSUB 1700
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Trucker

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1640 INPUT"how fast do you wish to go":SP
1650 IF SP<10 PRINT"YOU HAVE TO GO AT LEAST 10 -- ":GOTO1640
1660 IF SP=INT(1.5*SL) THEN SP=INT(1.5*SL) ELSE 1670
1685 PRINT"you can only get the old rig to go":SP,"mph on this road."
1690 GOTO 1690
1700 REM**
1710 INPUT"REACH STOP AREA. Do you want to stop":SS
1720 IF LEFT(SS,1)=-"n" OR LEFT(SS,1)=-"N" THEN SS=INT(1.5*SL):RETURN
1730 IF LEFT(SS,1)=-"y" AND LEFT(SS,1)=-"Y" INPUT"YES OR NO":SS:GOTO1720
1740 T=SS*(INT(15*REM(10)))
1750 PRINT"Diesel fuel costs":T,"cents a gallon."
1760 INPUT" How many gallons do you want":T1
1770 IF T1<0 PRINT"PAY":(FINTUSDC*(4444.44*(T*T1/100)+(20*20*T1/100)+(SP*SP*T1
1780 PRINT"so far, you have spent ":PRINT "a":(C
1790 IF SP + 20 PRINT"The tank holds 200 gallons--":(INT((SP-20):"gallons spilled"
1795 SP=200
1800 IF T1=0 THEN 1900
1810 T=100*(INT(10*REM(10)):T1=100*(INT(10*REM(10)))
1820 PRINT"A new tire costs $":T1" A RETREAD costs $":T1
1830 INPUT" Do you want to buy a tire":T2
1840 IF LEFT(T2,1)=-"n" OR LEFT(T2,1)=-"N" THEN 1900
1850 INPUT" (choose) how of RETREAD":T2
1860 IF LEFT(T2,1)=-"n" OR LEFT(T2,1)=-"N" THEN SP=SP+T2*(4444.44/100)
1870 IF LEFT(T2,1)=-"y" OR LEFT(T2,1)=-"Y" THEN SP=SP+T2*(10/100)+GOTO1860
1880 PRINT"I DID NOT UNDERSTAND YOUR ANSWER.":GOTO1850
1900 SS=SS+1:SS=0
1910 INPUT"do you want to get some sleep":SS
1920 IF LEFT(SS,1)=-"n" OR LEFT(SS,1)=-"N" GOTO 1900:GOTO 1900
1930 INPUT" How many hours of rest":T
1940 IF T<1 GOTO 2020
1945 IF T1=0 THEN PRINT"WOAH!! NEEDS THAT MUCH SLEEP" ELSE 1950
1960 FOR I=1 TO 1000:PRINT:GOTO1930
1970 DO=SS-(24*INT(SS/24))
1980 SP=SP+T*FOS(1 TO 12)*T*NEXT:I:IF T=1 THEN SP=SP+3*F
1990 IF T=0 THEN SP=0:GOTO1930
1970 IF DO=11 OR DO=12 THEN GOTO 1980
1975 T=INT(T/2+.5)
1976 PRINT"Thanks to the daytime noise, you got only":T,"hours of real sleep."
1990 SP=SS-T
1995 IF T=1 THEN SL=0 ELSE SL=SL/2
2000 GOTO1900:PRINT"Time to hit the road again."
2010 PRINT"you now have ":SP,"gallons of fuel."
2020 INPUT"do you want to buy more":SS
2025 IF LEFT(SS,1)=-"y" OR LEFT(SS,1)=-"Y" THEN 1740
2030 IF SL=0 PRINT"REMEMBER, the current speed limit is":SL,"mph."
2035 RETURN
2100 REM** DISPLAY DAY & TIME
2110 DO=SS+8
2120 DT=INT(DO/24):DM=DO-24*DT
2130 IF DT=6 THEN DT=DT-7:GOTO2110
2140 DM=-DM
2150 IF DM=12 THEN DM=-DM:"noon":GOTO 2200
2160 IF DM=12 THEN DM=-12:DM="pm"
2170 IF DM=0 THEN DM=-12:DM="midnight"
2200 T=REM(44440):T1=REM(44440)
2210 PRINTDO," Days ",(DM/10):TAB(37)"Time":DM:DM
2220 MORE 44440:T:MORE 44440:T1
2230 RETURN
2300 REM** SPEEDING
2310 IF (SP-SL)>10*(1+(100*REM(10))) RETURN
2320 PRINT"POKEY is behind you with his lights on. FULL OVER!"
2330 DT=DT+1:PRINT"see the JUSTICE of the PEACE for your ":(INT(DT):" offense"
2340 PRINT" Wait":DT,"hours for your hearing"
2370 SS=SS+DT:SL=SL+DT
2380 IF DT=3 THEN 2450
2390 T=SP*REM(5):T1=5*(DT+SP*REM(4))
2400 PRINT" FINE is ":FINTUSDC*(4444.44*T1)
2401 PRINT" plus $":T1,"for each MPH over the limit."
2410 PRINT" PAY $":FPRINT DO:(T1+T*(SP-SL)+(20*20*T1+T*(SP-SL))
2420 FOR I=1 TO 1000:PRINT:RETURN
2430 PRINT" You are sentenced to 30 days in jail for reckless driving."
2440 FOR I=1 TO 300:PRINT
2450 PRINT"Your I.C.C. Driver's License is revoked!"
2460 GOTO1900
2500 REM** OUT OF GAS
2510 T1=TI+SP*SP=0:SP=0
2520 T=(4.5-.01*T)*T1+SP+SP+T
2530 PRINT"after":T,"more miles, you ran out of fuel (BURNY !!)"
```

Trucker

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1040 PRINT" It cost $ 200 to get a barrel of diesel delivered."
1050 HP=55:TL=HND(15)+HR=HR+T:HC=CC+200:HL=HL+T1
1060 PRINTHL$1" You also wanted "T1;"hours by your carelessness."
1070 IF C1=1 THEN C1=C1+HND(1)
1075 PRINT" Sitting with the refer unit off is damaging the oranges."
1080 FOR I=1 TO 500:NEXTI
1090 RETURN
1100 REM** FLAT TIRE
1120 PRINT"you just blew a tire !!"
1130 IF T1=0 THEN T100
1140 T1=T1-C1*T1+T1=0
1150 T=HND(2):IF T=1 THEN T1="outside" ELSE T1="inside"
1160 PRINT" It took:T1;"hours to change the "T1;" tire."HR=HR+T:HL=HL+T+1
1170 FOR I=1 TO T10:NEXTI:RETURN
1180 REM NO SPACE
1190 PRINT"since your space has already been used, you have to call a tow "
1210 PRINT"truck from town to deliver a new tire to you."
1220 PRINT" This service cost $ 400 and took 4 hours."
1230 HR=HR+4:HL=HL+4:CC=CC+400
1240 FOR I=1 TO 1000:NEXTI:RETURN
1250 REM** ROAD CONDITIONS
1260 AP=(3000 - HP)*HND(100H (RT+1)) GO20 12670,12630,12610
12610 IF AP=3300 AND C1=50 THEN 12660
12610 IF AP=4500 THEN 12660
12640 IF AP=4500 THEN 12670
12650 IF AP=3800 THEN 12675
12660 GO202665
12670 IF AP=3400 AND C1=50 THEN 12660
12680 IF AP=4500 THEN 12660
12690 IF AP=4700 THEN 12670
12700 IF AP=4100 IF HND(3)=1 THEN 12675 ELSE 12660
12710 GO202665
12710 IF AP=4000 AND C1=50 THEN 12660
12720 IF AP=3700 THEN 12665
12730 IF AP=3500 THEN 12670
12740 IF AP=4400 THEN 12680
12750 GO202665
12760 C1=1:CC1="CLEAR & DRY":RETURN
12765 C1=3:CC1="SL-1-D-3-A-B-C 11":RETURN
12770 C1=3:CC1="FOG -- Limited visibility":RETURN
12775 C1=3:CC1="LIGHT SNOW":RETURN
12780 C1=3:CC1="RAIN":RETURN
12785 C1=3:CC1="CLEAR, but roadway is wet":RETURN
12800 REM** CONDITION OF DRIVER
12810 IF HL/19 OR HR/HR+4 THEN C1=100:CC1="L.E.S.E.A.D.S.T.E.D." :RETURN
12820 IF HL/3 AND C1HND(HL/3) THEN C1=1000:CC1="HEATED & BEATING TO SO." :RETURN
12830 IF HL/8 AND C1HND(HL/8) THEN C1=2:CC1="FINE":RETURN
12840 IF HL/12 AND HR/HR+3 THEN C1=4:CC1=" B O R D E R":RETURN
12850 IF HL/16 AND HR/HR+3 THEN C1=6:CC1=" T I R E D 11":RETURN
12860 C1=3:CC1="FATIGUED...You're getting sleepy":RETURN
12900 REM** MILEPOST
1310 PRINT"you have just passed ",HP(17,HP)
1320 IS=PRINT,HP,HL/55
1330 ON INT(18) GOSUB 1310,1315,1360,1430,1500,1710,1860
1340 HP=HP+1:IF INT(18)=6 THEN 1600 ELSE 1600
1350 PRINT"Time does changes -- Set clock ahead one hour"
1360 HR=HR+1:GOSUB 1300
1370 RETURN
1380 T=100-(18-INT(18))
1390 PRINT"STOP! PAY TOLL of ",PRINTHLND$184,84":T
1400 CC=CC+T
1410 RETURN
1420 IF HND(1)= 18 -INT(18) RETURN
1430 PRINT"CONSTRUCTION AHEAD 11"FOR I=1 TO 500:NEXTI
1440 PRINT"LOW DOWN -- SPEED LIMIT 10 mph"HL=HL+35
1450 RETURN
1460 IF HND(1)= 18 -INT(18) RETURN
1470 T=SP +HND(1) -1
1480 PRINT"you were just clocked by RADAR at:"T:"mph"
1490 IF T= 30+1 GOSUB 1320 ELSE PRINT" No ticket this time."
1500 RETURN
1510 IF 18-INT(18) IF HND(1)=5 THEN 1520 ELSE RETURN
1520 IF HND(1)= 18 -INT(18) RETURN
1530 PRINT"WEIGHING STATION OPEN -- TRUCKS MUST STOP"FOR I=1 TO 500:NEXTI
1540 PRINT"Scale weighs truck with cargo, fuel & driver:"
1550 T=15000 +HL *7*HF +35*HND(10)
1560 PRINTHLND$18,88":T:PRINT" POUNDS."
1570 T=INT(T-6000)
1580 T=INT(T-6000)

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Trucker

```
1570 IF T=1 PRINT " See're O.K.":RETURN
1580 IF T=5.00 THEN 1630
1590 T1=ABS(A)+.2:PRINT " Overweight fine is $ 200 plus"(T1)*cents/pound"
1600 C0=50+100*(T1)/100
1610 PRINT"Pay fine of":PRINT 200+(T1)/100
1620 RETURN
1630 REM
1640 PRINT"you are not allowed to enter Louisiana with that load."
1650 PRINT" Take a 200 mile detour through Arkansas with 45 mph limit."
1660 A1=45:PRINT,12;"Arkansas County Roads"
1670 FOR I=12 TO 25:PRINT,1)*PRINT,1)+200:GOTO 1
1680 PRINT3-PRINT3+200
1690 RETURN
1710 IF ABS(C)+ 25 -INT(25) RETURN
1720 T=ABS(C)
1730 PRINT"A ROCK SLIDE has blocked the Albigamy Tunnel entrance"
1740 PRINT" The highway Department will have it cleared in"(T)*hours"
1750 A0=ABS(T)*FORN=170 TO 200:T=INT(T):IF T=1 THEN A0=A0+7*T:IF A0=1 GOTO3430
1760 IF T=1 THEN T1=INT(T/2 +.5) ELSE T1=0
1770 IF T1=1 THEN A1=0 ELSE IF T1=0 A1=A1/2
1780 A0=A0+T1
1790 PRINT" While waiting, you get"(T1)*hours of sleep"
1800 GOTO 2100:RETURN
1810 PRINT" you ran out of gas while waiting":T=0+GOTO3430
1820 RETURN
1830 IF CT=1 RETURN
1840 IF ABS(C)+ 25 -INT(25) RETURN
1850 PRINT"The trailer refrigeration unit has failed endangering the cargo"
1860 PRINT" requires take 2 hours and cost $ 100"
1870 C0=C0+ABS(A)+ABS(B)+2*A1+A1/2+2*B0+2*B1/2+C0+100
1880 GOTO3430
1890 RETURN
1900 REM**
1910 FOR J=1 TO 6
1920 C1=FOR J=1 TO 60:GOTO 1
1930 PRINT#400,CHR$(21); "C H A S E R I"
1940 FOR J=1 TO 60:PRINT,1
1950 PRINT
1960 IF C0=100 OR (C0=25 AND A0=65) PRINT"you fell asleep at the wheel":GOTO4130
1970 IF C0=50PRINT"you drove into a snow-filled ditch":GOTO4130
1980 IF C0=10 PRINT"you rear-ended a Pick-up with no tail lights":GOTO 4130
1990 IF A0=65 PRINT"ABORT!SPEED KILLS !":END
2000 IF C0=1 PRINT"you hit a slick spot and skidded off the road":GOTO4130
2010 PRINT"A drunk driver's wheel your rig":PRINT"ABORT!TOUCH LOCK !"
2020 PRINT:FOR I=17000:GOTO 1
2030 PRINT"you lose your truck & profits":PRINT
2040 PRINT:PRINT"Do you want to start over":G0
2050 IF LEFT$(25,1)="" OR LEFT$(25,1)="" THEN C1=END
2060 A0=0:C1=0:GOTO 1000
2070 REM**
2080 FOR I=1 TO 1
2090 C1=FOR J=1 TO 60:GOTO 1
2100 PRINT#12,"WELCOME":PRINT#200,"TO":PRINT#400,"NEW YORK"
2110 FOR J=1 TO 60:PRINT,1
2120 FOR I=1 TO 150:PRINT#12,1
2130 GOTO3430:PRINT#94,""
2140 T=25 -INT(25/24):IF T=10 OR T=21 THEN 2140
2150 PRINT" The warehouse is closed for the night, Come back tomorrow."
2160 T=24-T:GOTO 2140:FOR I=1 TO 1000:GOTO 1:GOTO 2100
2170 PRINT:T=INT(25/24):T1=25 -24*T
2180 PRINT"you completed the trip in"(T1)*days"
2190 IF T1=1 PRINT" 4"(T1)*hours." ELSE PRINT
2200 PRINT" Trip expenses totaled ":PRINT C0:G0
2210 IF T1=0 THEN T=T1
2220 T1=25-T+ABS(T1)
2230 T1=T+4)*ABS(C):IF T1=0 THEN C0=C0+T1
2240 IF C0=60PRINT"Your oranges have spoiled. Take them away":A0=50:GOTO3430
2250 PRINT"collect six-and-a-half cents per pound for good oranges."
2260 A0=65*A1:PRINT " Total for the load ":PRINT AT
2270 IF C0=1 THEN 1400
2280 PRINT" Part of the load is damaged. Subtract ":PRINT 3*C0:PRINT"A"
2290 A0=A0 -A0*C0/20:PRINT " Net Payment Is ":PRINT AT
2300 GOTO3400
2310 A0=65*A1:PRINT"Collect five cents a pound for freight."
2320 PRINT" Total for load = ":PRINT AT
2330 IF A0=0 THEN 1400
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Trucker

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5140 CX=3:PRINT " You're late!! Subtract ten percent penalty." :GOTO5150
5150 PRINT "Estimated pays 4.75 cents per pound on delivery." :X=X+.0435*MX
5145 CX=0:GOTO5150
5160 PRINT:CT=CT-OCISF*SP*NT:IF CT=0 THEN 5470
5170 PRINT "Your Net Profit this trip was " :PRINT AT
5180 IF CT=1000 PRINT "      O O O O      W O O R R "
5190 IF CT=1 PRINT "      Your Average Profit has been:" :PRINT SP/CM
5195 IF SP=200 OR SP=300:PRINT "      You'd make more money working dishes "
5195 PRINT:PRINT:INPUT "Do you want to make another trip?":J2
5195 IF LEFT$(J2,1) <> "N" AND LEFT$(J2,1) <> "n" THEN RUN ELSE CLS:END
5170 PRINT "BAD TRIP, . . . You lost":PRINT ABS(CT)
5180 IF SP=0 GOTO 5430
5190 PRINT "      You are BAKERSKIFF !!!"
5195 REM -- LOSE TRUCK, END GAME
5195 PRINT:PRINT "Your rig has been repossessed."
5195 PRINT:END
5195 FOR I=1 TO LINECOUNT*2
5195 CLS
5195 PRINT:PRINT("This is a simulation of the problems facing a long haul"
5195 PRINT "truck driver. Ideally, you can make a good living hauling"
5195 PRINT "freight coast-to-coast without exceeding the legal load limit."
5195 PRINT "If all goes well, you can obey the speed limits, stop for"
5195 PRINT "8 hours sleep each night and still meet the schedule." :PRINT
5195 PRINT:PRINT("Bad weather, road construction or flat tires may throw"
5195 PRINT "you behind schedule & eat up your profits. You may try to"
5195 PRINT "increase your profits by skimping on sleep, driving fast, or"
5195 PRINT "carrying an overweight load. However, pushing too hard raises"
5195 PRINT "the risk of a traffic accident, and you will be fined if you"
5195 PRINT "are caught breaking the law." :PRINT
5195 GOTO5150:CLS
5195 PRINT:PRINT("FROM TRUCK":PRINT
5195 PRINT:PRINT("You are driving an 18-wheel tractor trailer combination"
5195 PRINT "that can hold 50,000 pounds of cargo (10,000 more than the"
5195 PRINT "legal limit). You are buying your truck through a bank loan"
5195 PRINT "that requires payment of $ 1,855 per month (including"
5195 PRINT "interest for taxes & insurance). This works out to $ 45.00"
5195 PRINT "each working day."
5195 PRINT:PRINT("You have a 200 gallon fuel tank and get 4.5 miles per"
5195 PRINT "gallon of diesel oil. Your mileage decreases when you drive"
5195 PRINT "either faster or slower than 55. Your fuel gauge is accurate"
5195 PRINT "to within 5 gallons, and your speedometer is accurate to"
5195 PRINT "within 3 miles per hour." :PRINT
5195 GOTO5150:CLS
5195 PRINT:PRINT("ACCIDENTS":PRINT
5195 PRINT:PRINT("It is extremely unlikely that you will be involved in"
5195 PRINT "a traffic accident in good weather if you drive at a reasonable"
5195 PRINT "speed and get enough rest. The danger increases dramatically"
5195 PRINT "if you drive at an excessive rate of speed, fail to slow down"
5195 PRINT "in fog or a blizzard, or continue driving after you become"
5195 PRINT "fatigued. An exhausted driver speeding through a snow storm"
5195 PRINT "is asking for trouble."
5195 PRINT:PRINT("There is always the danger of losing time because of"
5195 PRINT "a flat tire. You can reduce the danger by starting the trip"
5195 PRINT "buying some retreads or more expensive new tires, and"
5195 PRINT "promptly replacing your spare after a flat."
5195 GOTO5150:CLS
5195 PRINT:PRINT("SPEEDING":PRINT
5195 PRINT:PRINT("The speed limit is 55 unless posted otherwise. Generally,"
5195 PRINT "the police allow some leeway before pulling you over. The"
5195 PRINT "faster you go the more likely you are to attract monkey's"
5195 PRINT "attention. There are also a couple of places along the way"
5195 PRINT "where a RADAR speed trap may be in operation with strict"
5195 PRINT "enforcement." :PRINT
5195 PRINT:PRINT("Whenever you get a ticket, you will lose time as you wait"
5195 PRINT "to pay your fine at the Justice of the Peace. Also, if you"
5195 PRINT "collect more than 3 tickets your Interstate Commerce"
5195 PRINT "Commission driver's license will be revoked."
5195 GOTO5150:CLS
5195 PRINT:PRINT("TRUCK STOPS":PRINT
5195 PRINT:PRINT("Every three or four hours, you will approach a truck"
5195 PRINT "stop. Each stop will take at least 1 hour, to get coffee,"
5195 PRINT "fuel, and a spare tire if necessary. The price of diesel"
5195 PRINT "fuel and tires will vary unpredictably, but diesel will"
5195 PRINT "average about one dollar per gallon." :PRINT
5195 PRINT:PRINT("Truck stops are also the only places where you can"
5195 PRINT "stop to sleep. You may choose when to sleep, but attempts"
5195 PRINT "to sleep during the day will be interrupted by the traffic"
5195 PRINT "noise."
```



Trucker

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6430 GOSUB 8910:CLS
6435 PRINTTAB(28)"CARGO":PRINT
6438 PRINT"You can choose one of three types of cargo for each trip:"
6440 PRINTTAB(5)"9-S. MAIL: The contract pays 4.75 cents per pound,"
6443 PRINT" or $ 1,900 for a 40,000 lb. load, whenever you deliver."
6445 PRINTTAB(5)"FREIGHT FORWARDING: Pays five cents a pound, or"
6448 PRINT"$ 1,000 for a load. However, there is a ten percent penalty"
6450 PRINT"subtracted if you are more than 12 hours late."
6453 PRINTTAB(5)"ORANGEES: Require running the air-conditioning unit in"
6456 PRINT"your trailer to keep them from freezing or rotting, as you"
6459 PRINT"will burn 3 gallons of diesel per hour while you sleep."
6462 PRINT"you will be paid six-and-one-half cents per pound of good"
6465 PRINT"oranges delivered to New York. That's $ 2,400 for a standard"
6468 PRINT"load."
6470 GOSUB 8910:CLS
6475 PRINTTAB(17)"ROUTES":PRINT
6478 PRINT"You can choose one of three routes. The Northern is the"
6480 PRINT"shortest, but riskiest. The Southern is the longest and"
6483 PRINT"safest."PRINT
6485 PRINTTAB(11)"NORTHERN ROUTE"
6488 PRINTTAB(5)"Leave Los Angeles on Interstate 15. Drive through"
6491 PRINT"Las Vegas, & Denver. Then follow Interstate 80 through"
6494 PRINT"Minneapolis, Northern Ohio & Pennsylvania. Total distance is"
6497 PRINT"3,700 miles. You will pay $ 195 in tolls, and have one"
6500 PRINT"chance in eight of avoiding weighing stations. The danger"
6503 PRINT"of bad weather is high and the speed limit is vigorously"
6506 PRINT"enforced."
6508 GOSUB 8910:CLS
6513 PRINTTAB(18)"MIDDLE ROUTE":PRINT
6516 PRINTTAB(5)"The middle route follows old Route 66 through"
6519 PRINT"northern Arizona and Oklahoma into St. Louis. From there"
6522 PRINT"you cut over to the Pennsylvania Turnpike. Total distance"
6525 PRINT"to New York is 3,800 miles. The toll road portions will cost"
6528 PRINT"you an extra $ 240 in fees. This route has fewer police"
6531 PRINT"watching your speed and better weather than the Northern"
6534 PRINT"route. However, watch your weight because there are"
6537 PRINT"usually several truck scales in operation."
6539 GOSUB 8910:CLS
6544 PRINTTAB(20)"SOUTHERN ROUTE":PRINT
6547 PRINTTAB(5)"The Southern route takes you on Interstate 10 through"
6550 PRINT"Arizona, New Mexico & Texas. Then you follow Interstate 30"
6553 PRINT"to Atlanta before heading north to Washington D.C. The"
6556 PRINT"last leg of your journey follows Interstate 95 up the Atlantic"
6559 PRINT"seaboard. This route is the longest, at 4120 miles."
6562 PRINT"However, you avoid most of the bad weather and pay only a $5"
6565 PRINT"in tolls. You also will run into fewer police and fewer"
6568 PRINT"truck scales. If you can't resist the temptation to take on"
6571 PRINT"an over-weight cargo or if you have a lead foot, then the"
6574 PRINT"southern route offers your best bet."
6576 GOSUB 8910:CLS
6581 PRINTTAB(10)"FUNDAL TIPS"
6584 PRINTTAB(5)"You've seen a long explanation and may be confused"
6587 PRINT"by now. But don't worry, the game is easy to play. After"
6590 PRINT"you have tried a few trips, you may want to review the"
6593 PRINT"explanations again to pick up hints for improving your"
6596 PRINT"profile. On a good trip you will be able to earn over $1,000."
6599 PRINT"However, even the best drivers will run into occasional"
6602 PRINT"streaks of bad luck and barely break even."
6605 PRINTTAB(5)"When you play, the computer reports current conditions"
6608 PRINT"and events, and asks you to make decisions. You simply"
6611 PRINT"type your answer then hit 'ENTER'. For word answers, you"
6614 PRINT"can save time by typing only the first letter of the word."
6616 GOSUB 8910
6618 GOTO 1000
6620 END
6622 REM**
6625 PRINT#916,"PRESS ENTER TO CONTINUE":
6628 IF INPUT#1$="" THEN 8920 ELSE RETURN
6630 REM*** DATA
6632 DATA 21.0000
6634 DATA 90,BANSTON,1-15 in California,7.00
6636 DATA 225,HEWLETT,1-40 in California,1
6638 DATA 440,FLISTAFF,1-40 in Arizona,3.00
6640 DATA 610,CALLUP,1-40 in Arizona,3.3
6642 DATA 740,ALBUQUERQUE,D-40 in New Mexico,1.10
6644 DATA 910,TUCUMCARI,1-40 in New Mexico,1
6646 DATA 1040,AMARILLO,1-40 in Texas,7.00
6648 DATA 1135,OKLAHOMA Border,1-40 in Texas,3.1
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Trucker

9130 DATA 1305,OKLAHOMA CITY,1-40 in Oklahoma,3.65
 9130 DATA 1330,MINNIEHOE Border,Oklahoma Turnpike,2.40
 9140 DATA 1815,ST. LOUIS,1-44 in Missouri,0
 9150 DATA 1990,TURNPIKE Border,1-70 in Illinois,3.5
 9160 DATA 2050,INDIANAPOLIS,1-70 in Indiana,0
 9170 DATA 2115,OHIO Border,1-70 in Indiana,1
 9180 DATA 2220,COLUMBUS,1-70 in Ohio,3.5
 9190 DATA 2350,MEADOWS West Virginia,1-70 in Ohio,4.35
 9200 DATA 2410,NEW STAMTON,1-70 in Pennsylvania,4.35
 9210 DATA 2570,PAIDTUNNEL,Pennsylvania Turnpike,3.35
 9220 DATA 2740,NEW JERSEY Border,Pennsylvania Turnpike,2.95
 9230 DATA 2840,HOLLAND TUNNEL,1-70 in New Jersey,1.40
 9240 DATA 9999,NEW YORK,New York Streets,0
 9250 DATA 18,3710
 9260 DATA 90,SANITARY,1-15 in California,3.80
 9270 DATA 245,LAJ VEGAS,1-15 in California,1
 9280 DATA 345,UTAH BORDER,1-15 in Nevada,0
 9290 DATA 390,ord of Interstate,1-15 in Utah,3.10
 9300 DATA 555,SALINA,00-80 in Utah,4.70
 9310 DATA 740,GRAND JUNCTION,1-70 in Utah,5.40
 9320 DATA 1010,DEVER,1-70 in Colorado,3.75
 9330 DATA 1190,NEBRASKA Border,1-70 in Colorado,1
 9340 DATA 1450,OMAHA,1-80 in Nebraska,4.50
 9350 DATA 1590,DEMOINED,1-80 in Iowa,4.75
 9360 DATA 1750,ILLINOIS Border,1-80 in Iowa,5.4
 9370 DATA 1910,CART,1-80 in Illinois,3.50
 9380 DATA 2050,CHCO Border,Indiana Turnpike,2.45
 9390 DATA 2215,CLEVELAND,050 Turnpike,1.60
 9400 DATA 2280,PENNSYLVANIA Border,1-80 in Ohio,4.15
 9410 DATA 2615,EAST SPYHOSSESS,1-80 in Pennsylvania,3.33
 9420 DATA 1675,WASHINGTON BRIDGE,1-80 in New Jersey,2.20
 9430 DATA 9999,NEW YORK,city Streets,0
 9450 DATA 25,3120
 9460 DATA 75,DALE SPRINGS,1-30 in California,0
 9470 DATA 225,SLTTE,1-10 in California,1
 9480 DATA 175,PHOENIX,1-10 in Arizona,0
 9490 DATA 495,TECSON,1-10 in Arizona,1.6
 9500 DATA 650,LOSDOMING,1-30 in Arizona,5.75
 9510 DATA 795,ST. PAUL,1-30 in New Mexico,0
 9520 DATA 965,PHOEN,1-10 in Texas,1
 9530 DATA 1090,PHOENIA,1-30 in Texas,0
 9540 DATA 1250,ADLERS,1-30 in Texas,3.80
 9550 DATA 1499,DALLAS,1-30 in Texas,0
 9560 DATA 1610,LOUISIANA Border,1-30 in Texas,5.00
 9570 DATA 1765,STOKES,1-30 in Louisiana,0
 9580 DATA 1965,ALABAMA Border,1-30 in Mississippi,1
 9590 DATA 2100,MOBILE,1-30 in Alabama,4.35
 9600 DATA 2200,MOBILE Border,1-30 in Alabama,0
 9610 DATA 2375,ATLANTA,1-30 in Georgia,0
 9620 DATA 2520,CAROLINA Border,1-30 in Georgia,5.75
 9630 DATA 2545,GREENSBORO,1-30 in North Carolina,3.80
 9640 DATA 2680,VIRGINIA Border,1-30 in North Carolina,7.80
 9650 DATA 2775,ROCKFORD,1-30 in Virginia,0
 9660 DATA 2880,WASHINGTON D.C.,1-30 in Virginia,0
 9670 DATA 2920,BALTIMORE,1-30 in Maryland,2.10
 9680 DATA 2990,NEW JERSEY Border,1-30 in Delaware,2.25
 9690 DATA 3110,HOLLAND TUNNEL,New Jersey Turnpike,2.40
 9700 DATA 9999,NEW YORK,city Streets,0

INDEPENDENT TRUCKER SIMULATION
 DO YOU WANT TO SEE INSTRUCTIONS? Y
 Day: Monday Time: 8 am

You are at the Los Angeles Trucking Terminal
 Three types of cargo are available:
 1--OILCER (highest profit if they don't spoil)
 2--FRESHET FORWARDING (penalty for late delivery)
 3--U.S. MAIL (lowest rate, but no hurry to arrive)
 The type is due in New York \$1.4 gm on Thursday.
 Which type of cargo do you want? 1
 How many pounds will you carry (40000 is the legal limit)? 45000

They are loading your truck now.
 Day: Monday Time: 9 am

You have nearly a full tank (cost of fuel: \$ 1903).



Trucker

Two of your tires are worn.

Do you want replacements? Y
A NEW tire costs \$200. A REAR END costs \$100.
Which type do you want? N
How many? 3

You may choose the Northern, Middle or Southern route.

Which route do you choose? N
Cruising on I-15 in California
You are feeling BESTED & BEARING TO GO.
Current weather: CLEAR & DRY
How fast do you wish to go? 60

Days: Monday Time: 10 am
Approximate FUEL: 167 SPEED: 60
Odometer: 60 Miles to go: 2780

Cruising on I-15 in California

You are feeling FINE
Current weather: CLEAR & DRY
How fast do you wish to go? 60

Days: Monday Time: 11 am
Approximate FUEL: 137 SPEED: 60
Odometer: 130 Miles to go: 2720

You have just passed BARTON

Cruising on I-40 in California
You are feeling FINE
Current weather: CLEAR & DRY
How fast do you wish to go? 70

Days: Monday Time: 12 noon
Approximate FUEL: 108 SPEED: 70
Odometer: 200 Miles to go: 2650

Cruising on I-40 in California

You are feeling FINE
Current weather: CLEAR & DRY
TRUCK STOP AHEAD. Do you want to stop? N
How fast do you wish to go? 60

Days: Monday Time: 1 pm
Approximate FUEL: 84 SPEED: 60
Odometer: 260 Miles to go: 2590

You have just passed NEEDLES

Time zone changes -- Set clock ahead one hour
Days: Monday Time: 2 pm

Cruising on I-40 in Arizona

You are feeling FINE
Current weather: CLEAR & DRY
How fast do you wish to go? 65

Days: Monday Time: 3 pm
Approximate FUEL: 64 SPEED: 65
Odometer: 310 Miles to go: 2520

Cruising on I-40 in Arizona

You are feeling B O O B B
Current weather: CLEAR & DRY
How fast do you wish to go? 55

Days: Monday Time: 4 pm
Approximate FUEL: 50 SPEED: 55
Odometer: 360 Miles to go: 2450

Cruising on I-40 in Arizona

You are feeling B O O B B
Current weather: CLEAR & DRY
TRUCK STOP AHEAD. Do you want to stop? Y
Diesel fuel costs 87 cents a gallon.
How many gallons do you want? 150

PAY \$145.50
So far, you have spent \$ 935.5
Do you want to get some sleep? N

Days: Monday Time: 5 pm
How fast do you wish to go? 55
Days: Monday Time: 6 pm
Approximate FUEL: 186 SPEED: 55
Odometer: 410 Miles to go: 2410

Cruising on I-40 in Arizona

You are feeling B O O B B

Current weather: CLEAR & DRY

How fast do you wish to go? 65

Days: Monday Time: 7 pm
Approximate FUEL: 160 SPEED: 65
Odometer: 550 Miles to go: 2380

You have just passed FLAGSTAFF

Cruising on I-40 in Arizona
You are feeling B O O B B
Current weather: CLEAR & DRY
How fast do you wish to go? 63

Days: Monday Time: 8 pm
Approximate FUEL: 139 SPEED: 63
Odometer: 563 Miles to go: 2320

Cruising on I-40 in Arizona

You are feeling T I B B B
Current weather: CLEAR & DRY
How fast do you wish to go? 60

Days: Monday Time: 9 pm
Approximate FUEL: 123 SPEED: 60
Odometer: 623 Miles to go: 2250

You have just passed CALSON

WEIGHING STATION OPEN -- TRUCKS MUST STOP
Scale weighs truck with cargo, fuel & driver,
44,910 pounds.
Overweight fine is \$ 200 plus 3 cents/pound
Pay fine of \$47.3

Cruising on I-40 in New Mexico

You are feeling T I B B B
Current weather: CLEAR & DRY
TRUCK STOP AHEAD. Do you want to stop? Y
Diesel fuel costs 85 cents a gallon.
How many gallons do you want? 170
PAY \$145.45

So far, you have spent \$ 1133.25
The tank holds 200 gallons-- 99 gallons applied
Do you want to get some sleep? Y
How many hours of rest? 8

Days: Tuesday Time: 6 am
Time to hit the road again.
You now have 200 gallons of fuel.

Do you want to buy more? N
How fast do you wish to go? 60

Days: Tuesday Time: 7 am
Approximate FUEL: 178 SPEED: 60
Odometer: 688 Miles to go: 2160

Cruising on I-40 in New Mexico

You are feeling BESTED & BEARING TO GO.
Current weather: CLEAR & DRY
How fast do you wish to go? 65

Days: Tuesday Time: 8 am
Approximate FUEL: 149 SPEED: 65
Odometer: 753 Miles to go: 2090

Cruising on I-40 in New Mexico

You are feeling BESTED & BEARING TO GO.
Current weather: CLEAR & DRY
How fast do you wish to go? 60
You can only get the old rig to go 60 mph on
this road.

Days: Tuesday Time: 9 am
Approximate FUEL: 106 SPEED: 60
Odometer: 818 Miles to go: 2030

You have just passed ALBUQUERQUE

CONSTRUCTION AHEAD !!
SLOW DOWN -- SPEED LIMIT 35 mph
Cruising on I-40 in New Mexico
You are feeling FINE
Current weather: CLEAR & DRY
How fast do you wish to go? 60
You can only get the old rig to go 50 mph on
this road.

Days: Tuesday Time: 10 am
Approximate FUEL: 89 SPEED: 60
Odometer: 887 Miles to go: 1960

Trucker

Cruising on I-40 in New Mexico

You are feeling FINE

Current weather: CLEAR & DRY

TRUCK STOP AHEAD. Do you want to stop? Y

Diesel fuel costs 98 cents a gallon.

How many gallons do you want? 111

PAY \$108.94

So far, you have spent \$ 1438.81

The tank holds 300 gallons-- 4 gallons spilled!

Do you want to get some sleep? N

Days: Tuesday Time: 11 am

How fast do you wish to go? 80

You can only get the old rig to go 82 mph on

this road.

Days: Tuesday Time: 12 noon

Approximate FUEL: 181 SPEED: 82

Odometer: 969 Miles to go: 1881

You have just passed TUCUMCARI

Time zone changes -- Set clock ahead one hour

Days: Tuesday Time: 1 pm

Cruising on I-40 in Texas

You are feeling FINE

Current weather: CLEAR & DRY

How fast do you wish to go? 80

SMALL is behind you with his lights on.

FUEL OK!

See the JUSTICE of the PEACE for your first offense

Wait 1 hour for your hearing

FINE is \$ 20 plus \$ 2 for each MPH over the limit.

PAY \$ 70

Days: Tuesday Time: 3 pm

Approximate FUEL: 118 SPEED: 80

Odometer: 1049 Miles to go: 1801

You have just passed AMERILLO

Cruising on I-40 in Texas

You are feeling FINE

Current weather: CLEAR & DRY

How fast do you wish to go? 65

Days: Tuesday Time: 4 pm

Approximate FUEL: 91 SPEED: 65

Odometer: 1118 Miles to go: 1736

Cruising on I-40 in Texas

You are feeling S O M E B

Current weather: CLEAR & DRY

How fast do you wish to go? 65

Days: Tuesday Time: 5 pm

Approximate FUEL: 70 SPEED: 65

Odometer: 1179 Miles to go: 1671

You have just passed OKLAHOMA border

MINOR STATION OPEN -- TRUCKS MUST STOP

Scale weights truck with cargo, fuel & driver:

44,488 POUNDS.

Overweight fine is \$ 200 plus 5 cents/pound

PAY fine of 469.84

Cruising on I-40 in Oklahoma

You are feeling S O M E B

Current weather: CLEAR, but roadway is wet

TRUCK STOP AHEAD. Do you want to stop? Y

Diesel fuel costs 101 cents a gallon.

How many gallons do you want? 130

PAY \$131.30

So far, you have spent \$ 2030.75

Do you want to get some sleep? NNO

Days: Tuesday Time: 6 pm

How fast do you wish to go? 65

Days: Tuesday Time: 7 pm

Approximate FUEL: 172 SPEED: 65

Odometer: 1244 Miles to go: 1606

Cruising on I-90 in Oklahoma

You are feeling S O M E B

Current weather: CLEAR & DRY

How fast do you wish to go? 65

Days: Tuesday Time: 8 pm

Approximate FUEL: 140 SPEED: 65

Odometer: 1309

Miles to go: 1541

You have just passed OKLAHOMA CITY

STOP! PAY TOLL of \$40.00

Cruising on Oklahoma Turnpike

You are feeling S O M E B

Current weather: CLEAR & DRY

How fast do you wish to go? 70

Days: Tuesday Time: 9 pm

Approximate FUEL: 113 SPEED: 70

Odometer: 1379 Miles to go: 1471

Cruising on Oklahoma Turnpike

You are feeling T I R E D !!

Current weather: CLEAR & DRY

How fast do you wish to go? 60

Days: Tuesday Time: 10 pm

Approximate FUEL: 94 SPEED: 60

Odometer: 1439 Miles to go: 1411

Cruising on Oklahoma Turnpike

You are feeling T I R E D !!

Current weather: CLEAR, but roadway is wet

TRUCK STOP AHEAD. Do you want to stop? Y

Diesel fuel costs 115 cents a gallon.

How many gallons do you want? 106

PAY \$121.90

So far, you have spent \$ 2197.65

The tank holds 300 gallons-- 1 gallons spilled!

Do you want to get some sleep? Y

How many hours of rest? 8

Days: Wednesday Time: 7 am

Time to hit the road again.

You now have 300 gallons of fuel.

Do you want to buy more? N

How fast do you wish to go? 65

Days: Wednesday Time: 8 am

Approximate FUEL: 171 SPEED: 65

Odometer: 1504 Miles to go: 1386

Cruising on Oklahoma Turnpike

You are feeling NERVOUS & HESITATING TO GO.

Current weather: CLEAR & DRY

How fast do you wish to go? 65

Days: Wednesday Time: 9 am

Approximate FUEL: 151 SPEED: 65

Odometer: 1569 Miles to go: 1281

You have just passed MISSOURI border

STOP! PAY TOLL of \$40.00

Cruising on I-44 in Missouri

You are feeling NERVOUS & HESITATING TO GO.

Current weather: CLEAR, but roadway is wet

How fast do you wish to go? 65

Days: Wednesday Time: 10 am

Approximate FUEL: 127 SPEED: 65

Odometer: 1634 Miles to go: 1256

Cruising on I-44 in Missouri

You are feeling FINE

Current weather: CLEAR & DRY

How fast do you wish to go? 65

Days: Wednesday Time: 11 am

Approximate FUEL: 97 SPEED: 65

Odometer: 1699 Miles to go: 1191

Cruising on I-44 in Missouri

You are feeling FINE

Current weather: CLEAR & DRY

TRUCK STOP AHEAD. Do you want to stop? N

How fast do you wish to go? 65

Days: Wednesday Time: 12 noon

Approximate FUEL: 72 SPEED: 65

Odometer: 1764 Miles to go: 1086

Cruising on I-44 in Missouri

You are feeling FINE

Current weather: CLEAR & DRY

How fast do you wish to go? 65

Trucker

Days: Wednesday Time: 1 pm
Approximate FUEL: 48 SPEED: 45
Odometer: 1819 Miles to go: 1021

You have just passed ST. LOUIS
Cruising on I-70 in Illinois
You are feeling FINE
Current weather: RAIN
How fast do you wish to go? 55
Days: Wednesday Time: 2 pm
Approximate FUEL: 32 SPEED: 55
Odometer: 1884 Miles to go: 966

Cruising on I-70 in Illinois
You are feeling B O B B O
Current weather: CLEAR & DRY
TRUCK STOP AHEAD. Do you want to stop? Y
Diesel fuel costs 1.01 cents a gallon.
How many gallons do you want? 100
PAY \$173.04
So far, you have spent \$ 2419.87
Do you want to get some sleep? N
Days: Wednesday Time: 3 pm
How fast do you wish to go? 65
Days: Wednesday Time: 4 pm
Approximate FUEL: 174 SPEED: 45
Odometer: 1949 Miles to go: 901

Cruising on I-70 in Illinois
You are feeling B O B B O
Current weather: CLEAR & DRY
How fast do you wish to go? 65
Days: Wednesday Time: 5 pm
Approximate FUEL: 147 SPEED: 65
Odometer: 2014 Miles to go: 836

You have just passed THREE RIVERS
WEIGHING STATION OPEN -- TRUCKS MUST STOP
Scale weighs truck with cargo, fuel & driver:
65,211 POUNDS.
Overweight fine is \$ 200 plus \$ cents/pound
Pay fine of \$12.68
Cruising on I-70 in Indiana
You are feeling B O B B O
Current weather: FOG -- Limited visibility
How fast do you wish to go? 55
Days: Wednesday Time: 6 pm
Approximate FUEL: 179 SPEED: 55
Odometer: 2089 Miles to go: 781

You have just passed INDIANAPOLIS
Cruising on I-70 in Indiana
You are feeling B O B B O
Current weather: CLEAR & DRY
How fast do you wish to go? 65
Days: Wednesday Time: 7 pm
Approximate FUEL: 111 SPEED: 65
Odometer: 2134 Miles to go: 716

You have just passed OHIO border
Time zone changes -- Set clock ahead one hour
Days: Wednesday Time: 8 pm
Cruising on I-70 in Ohio
You are feeling T I B B O II
Current weather: CLEAR & DRY
TRUCK STOP AHEAD. Do you want to stop? Y
Diesel fuel costs 1.15 cents a gallon.
How many gallons do you want? 90
PAY \$169.50
So far, you have spent \$ 2628.85
Do you want to get some sleep? Y
How many hours of rest? 8
Days: Thursday Time: 9 am
Time to hit the road again.
You now have 300 gallons of fuel.
Do you want to buy more? N
How fast do you wish to go? 65
Days: Thursday Time: 6 am
Approximate FUEL: 176 SPEED: 65

Cruising on I-70 in Ohio
You are feeling BETER & BETER TO GO.
Current weather: CLEAR & DRY
How fast do you wish to go? 65
Days: Thursday Time: 7 am
Approximate FUEL: 148 SPEED: 65
Odometer: 2204 Miles to go: 586

You have just passed COLUMBUS
Cruising on I-70 in Ohio
You are feeling BETER & BETER TO GO.
Current weather: B-L-I-Z-Z-B-B-B II
How fast do you wish to go? 55
Days: Thursday Time: 8 am
Approximate FUEL: 132 SPEED: 55
Odometer: 2319 Miles to go: 531

Cruising on I-70 in Ohio
You are feeling FINE
Current weather: CLEAR, but roadway is wet
How fast do you wish to go? 65
Days: Thursday Time: 9 am
Approximate FUEL: 111 SPEED: 65
Odometer: 2384 Miles to go: 466

You have just passed WHEELING West Virginia
You were just clocked by RADAR at 64 mph
SROKER is behind you with his lights on.
FULL CROWN
See the JUSTICE of the PEACE for your second
offense
Wait 2 hours for your hearing
FINE is \$ 30 plus \$ 6 for each MPH over the
limit.
PAY \$ 80
Cruising on I-70 in Pennsylvania
You are feeling FINE
Current weather: RAIN
TRUCK STOP AHEAD. Do you want to stop? N
How fast do you wish to go? 65
SROKER is behind you with his lights on.
FULL CROWN
See the JUSTICE of the PEACE for your third
offense
Wait 2 hours for your hearing
FINE is \$ 30 plus \$ 6 for each MPH over the
limit.
PAY \$ 275
Days: Thursday Time: 9 pm
Approximate FUEL: 70 SPEED: 65
Odometer: 2466 Miles to go: 384

You have just passed NEW BRUNSWICK
Cruising on Pennsylvania Turnpike
You are feeling B O B B O
Current weather: CLEAR & DRY
How fast do you wish to go? 65
Days: Thursday Time: 4 pm
Approximate FUEL: 44 SPEED: 65
Odometer: 2531 Miles to go: 319

Cruising on Pennsylvania Turnpike
You are feeling T I B B O II
Current weather: CLEAR & DRY
How fast do you wish to go? 65
Days: Thursday Time: 5 pm
Approximate FUEL: 38 SPEED: 65
Odometer: 2596 Miles to go: 254

You have just passed HARRISBURG
Cruising on Pennsylvania Turnpike
You are feeling T I B B O II
Current weather: CLEAR, but roadway is wet
TRUCK STOP AHEAD. Do you want to stop? Y
Diesel fuel costs 1.15 cents a gallon.
How many gallons do you want? 100
PAY \$209.66

Trucker

How far, you have spent \$ 1485.51

How fast do you wish to get it?

Day: Thursday

Time: 6 pm

How fast do you wish to get it?

Day: Thursday

Time: 7 pm

Approximate FUEL: 173

SPEED: 65

Odometer: 2881

Miles to go: 189

Craving on Pennsylvania Turnpike

How are feeling? T & R & D 11

Current weather: CLEAR, but roadway is wet

How fast do you wish to get it?

Day: Thursday

Time: 8 pm

Approximate FUEL: 195

SPEED: 60

Odometer: 2721

Miles to go: 129

Craving on Pennsylvania Turnpike

How are feeling? T & R & D 11

Current weather: CLEAR & DRY

How fast do you wish to get it?

Day: Thursday

Time: 9 pm

Approximate FUEL: 135

SPEED: 65

Odometer: 3286

Miles to go: 64

You have just passed NEW JERSEY border

TOP: PRE TOLL of \$95.00

Craving on I-78 in New Jersey

How are feeling? FATIGUED...You're getting sleepy

Current weather: CLEAR & DRY

How fast do you wish to get it?

Day: Thursday

Time: 10 pm

Approximate FUEL: 195

SPEED: 64

Odometer: 3850

Miles to go: 0

You have just passed HOLLAND TUNNEL

TOP: PRE TOLL of \$40.00

Craving on New York Streets

How are feeling? FATIGUED...You're getting sleepy

Current weather: CLEAR & DRY

How fast do you wish to get it?

Day: Thursday

Time: 11 pm

Approximate FUEL: 195

SPEED: 64

Odometer: 3850

Miles to go: 0

How fast do you wish to get it?

WELCOME

TO

NEW YORK

WELCOME

TO

NEW YORK

WELCOME

TO

NEW YORK

WELCOME

TO

NEW YORK

WELCOME

TO

NEW YORK

Day: Thursday

Time: 11 pm

You completed the trip in 3 days & 15 hours.

Trip expenses totaled \$622.51

Truck payments, Insurance & Taxes cost 425

Collect five cents a pound for freight.

Total for load = 3700

RED TRIP. . . You lost 1345.51

You are BANKRUPT !!!

Your rig has been repossessed.



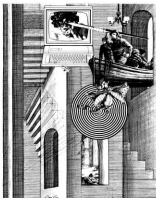
How To Write An Adventure Game

by Greg Hassett

As I gazed back at the crystal bridge that I had just crossed, I could hear water rushing nearby. My brass lantern was getting dim, and I knew that I would have to rest soon. The wings of white mist danced before my eyes as if alive, and a sudden cold chill ran up my spine. I had with me a diamond necklace which I was determined to keep. A nasty dwarf emerged from the gloom. He threw a sharp knife at me! I grabbed my axe and heaved it at him. His body vanished in a cloud of greasy black smoke. My lamp was now out; I would have to search for batteries tomorrow in the dark. So I put my necklace in my small leather sack and called it a day.

I did not lie down on the cavern floor and go to sleep. I merely turned off my home computer. I had been play a game called "Adventure." In this game, you explore a network of caves and pits in search of priceless treasure. This game is not the type of game which is mastered in an hour. It may take days, weeks, or even months to complete an Adventure.

This "original Adventure," developed at Stanford University a few years back by Willie Crowther and Don Woods, required large amounts of disk storage space. This made it very difficult to convert to run on a personal computer. However, other versions of Adventure have sprung up in the past year that are specifically designed to fit in the smaller machines.



To play Adventure, you enter commands to the computer in one- or two-word sentences in what seems to be English. A typical command might be "INSERT COIN" or "GET NECKLACE." To move about, you use commands such as "GO NORTH" or enter a new "location," and a new room description will be displayed. An example of such a description might be:

I AM IN A RADIANT CAVERN FORTY FEET HIGH. THE WALLS AND FLOORS ARE MADE OF SMOOTH MARBLE. THE POOLS OF CLEAR WATER ON THE FLOOR INDICATE AN OPENING HIGH ABOVE ME. UP ON THE CEILING GLOWS AN EERIE RED LIGHT.

AROUND ME I SEE: POOLS OF WATER. SMALL PLASTIC VIAL. . .

Later on in the game, the vial might come in handy for holding some liquid, etc., so in this situation it might be wise to "GET VIAL."

The one thing that I feel makes Adventuring so interesting is the clues that are given as you explore.

Knowing that clues exist is one thing; isolating them and figuring out what they mean is quite another. In Adventure, clues exist everywhere. They are in the room descriptions, the object descriptions. Let's say you enter a room where there are many stalactites, but no stalagmites on the floor. This in itself is a clue. If you think about it, stalagmites could be worn off if creatures lived there and walked through the cavern.

But skeletons would not be destroyed because most creatures cannot reach them.

Then there are the type of clues which have to be decoded. As an example, take the clue "MAGIC BREAK WORD BOTTLE BIMBO." This clue makes no sense at first glance. But then you notice that if you read alternate words of the clue, it deciphers into "MAGIC WORD BIMBO" and "BREAK BOTTLE."

Magic words are very popular in Adventure. A common use for these words is movement. They might be the only way to get to a completely different area of the Adventure. For example, in one Adventure the magic word "BIMBO" will magically take you from being lost in a maze of caves to a small jungle on the other side of an island. And there is no other way to get there.

In this way, Adventure is like a good mystery novel, with you being the ace detective. On the other hand, Adventure can be nerve-racking, frustrating, and the source of serious insomnia! Adventure is a sort of puzzle... you have to fit all the pieces together to make it work.

I was first introduced to Adventure a few years back on a Digital Equipment Corporation PDP-11/70. I took an immediate liking to the game, but I didn't own a computer. When I purchased my Radio Shack TRS-80, I immediately set out to write an Adventure. The result was my first original Adventure, *Journey to the Center of the Earth*. When I found out I could sell this, I wrote six other Adventures: *The House of Seven Gables*, *Entry into King Tut's Tomb*, *Sorcerer's Castle*, *Voyage to Atlantis*, *Enchanted Island*, and *Enchanted Island-Plus* (a machine-language version with additional features).

If there's one thing that's more habit-forming than playing Adventures, it's writing them.

Writing Adventures

What follows is an attempt to outline the basic structure of the way an Adventure can be written in Basic.

The first step in writing a Basic Adventure is coming up with the plot. This means answering the questions:

"Where will the Adventure take place?"

"What will be the main purpose of the Adventure?"

"Is what kind of world is this supposedly happening?"

"What types of obstacles will the player have to overcome?"

"How is the player going to get by these obstacles?"

Once these five questions are answered in your

mind, you begin to draw the map of the Adventure. The general form of the map is shown in Figure 1. Once you have about 40 rooms (more if you are in machine language), you are ready to begin keying in the DATA. The way I do this is in the form:

```
line# DATA "room description",R,A,L,W,S,D
where line# is the Basic statement number, "room
description" is the description of the room, R is the
room north of it, A is the room east of it, S is the room
south of it, etc. If R,A,L,W,S or D are set to zero, then
there is no way to go from that room in the
corresponding direction.
```

The objects are set up somewhat differently. They are in the form:

```
line# DATA "object", (room),(value)
where line# is the Basic statement number, "object"
is the description of the object, (room) is the room
where the object resides at the start of the Adventure,
and (value) [if the Adventure has treasures and points]
is the number of points that the object is worth. If
(room) is set to zero, then the object is currently nowhere.
For instance, if a trap door is only revealed after
the command "MOVE RUG" is executed, the starting
room for the "TRAP DOOR" is zero. Later on, after the rug is moved, the trap door's room gets
set to some number other than zero.
```

During the initial setup of the Adventure, the program READS all of this DATA into arrays P(x), P(x,y), OBS(x), and OB(x,y). P(x) holds the room description of room x. P(x,y) holds the room adjacent to room x in direction y. Direction 1 = North, direction 2 = East, direction 3 = South, direction 4 = West, direction 5 = Up, and direction 6 = Down. Also, after all of the room and object DATA has been read, the program proceeds to READ the vocabulary tables into arrays NOS(x) and VBS(x). The vocabulary is stored in this manner:

```
line# DATA noun1,noun2,noun3,
noun4,... noun x
line#2 DATA verb1, verb2, verb3,
verb4,... verbx
```

where line# and line#2 are Basic statement numbers, noun1-nouns are the vocabulary entries to be read into NOS(x) [nouns], and verb1-verbs are the vocabulary entries to be read into VBS(x) [verbs].

When the player enters a new room, the short routine in Listing 1 is executed. This will print the room description, its contents, and all possible directions leading out.

Parsing

Now that the Data Structure has been discussed, it becomes necessary to explain the parsing routine. This is the routine which will take the player's input, divide it into a verb/noun combination, compare it

with the vocabulary tables, and return with two numbers, stored in the variables VB and NO, each representing the offset in the vocabulary array. For instance, let's assume that "EAT" is verb number 28 [VB\$(28)="EAT"] and "CHAIR" is noun number 12 [NO \$(12)="CHAIR"]. If the player inputs "EAT CHAIR" as his command, the parsing routine would get called, and upon return, NO would equal 12 and VB would equal 28. The main part of the program would then deal with these two numbers. Depending on the number stored in VB upon return from the parsing routine, the main part of the program would then jump to a verb routine.

Verb Routines

Each verb has its own special "verb routine" which is called by a large ON GOTO statement executed after the parsing routine. For each verb, there are usually only a few nouns which would make sense. For instance, for the "EAT" routine, "CHAIR" would have no meaning. In all probability, only the



noun "FOOD" would make any sense with "EAT." If any other noun was entered, the message "DON'T BE RIDICULOUS" would be output, and control would return to the input/parsing routine. If the noun was "FOOD," then the room# for the food would be set to zero (the food is nonexistent once it has been eaten) and the message "MMM, GOOD." would be output. Control would then be transferred back to the input/parsing routine.

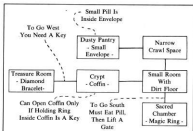


Figure 1: A typical portion of an Adventure map. Note that to get into the treasure room for the diamond bracelet, you must get the magic ring. To get the magic ring, you must eat the pill, then lift a gate. To eat the pill, you must open the envelope found in the dusty pantry.

```

1000 ' BASIC ROUTINE TO DISPLAY ROOM & ITS CONTENTS
1010 '
1020 ' UPON ENTRY:
1030 '   CP=THE CURRENT PLACE IN THE ADVENTURE
1040 '   LG=THE MAXIMUM NUMBER OF OBJECTS IN THE ADVENTURE
1050 '   BR$(1)="ROOM #": BR$(2)="DIRTY": BR$(3)="DARK"
1060 '   BR$(4)="WALL": BR$(5)="FLOOR": BR$(6)="DOOR"
1070 '
1080 '
1090 ' CLS 'CLEAR SCREEN
1100 PRINT TAB(10); "THE ROOM DESCRIPTION"
1110 FOR I=1 TO LG 'THIS ROUTINE WILL PRINT ALL OBJECTS IN ROOM
1120 IF BR$(I)="" THEN PRINT BR$(1) " IN ROOM"; TAB(10); PRINT IT
1130 NEXT I 'END OF THE NEXT OBJECT
1140 FOR I=1 TO 6 'THIS ROUTINE WILL PRINT ALL POSSIBLE DIRECTIONS
1150 IF PDIR$(I)="" THEN PRINT BR$(1) " NOT NEAR"; TAB(10); PRINT BR$(1)
1160 NEXT I 'END OF THE NEXT DIRECTION
1170 PRINT STR$(LG); " " 'PRINT MAX NUMBER SCREEN
1180 RETURN 'RETURN

```

Listing 1—Basic listing of how the "display room" routine works. Note that all arrays must be set up as described in the text. The DIR\$(6) array holds the room # of object n. Note line 1120, where this value is compared with the current room number. Each object is "tested" in this fashion.

Adventures in Videoland

by David Lubar

Frame One: Editorial meetings, Jack runs err, and a sweep through the Augers' stables.

With the right misuse of eye contact, it's possible to survive a meeting intact and leave without any awesome assignments. The meeting in question was almost over when the words, "I've been saving the best assignment for last," put a choke hold on my spirit of survival. No doubt, the phrase was aimed in my direction. Realizing that the meaning of "best" varies considerably, depending on who is doing the besting, I tore my gaze from the toy robots on the bookshelf and waited to see what the boss had in mind. Since previous assignments had run the range from covering conferences to reviewing printers, there was no way to predict what might come. The suspense was short-lived.

"I want you to write a videodisc adventure," the boss said in the casual manner usually associated with phrases such as "please pass the butter."

"Need it by tomorrow?" I asked.

"For January." End of topic.

Could be fun, I thought, though I had never written an adventure or toyed with the fringes of video technology. This project would require three-part harmony between an Apple computer, a Pioneer Laserdisc player, and an Aurora Systems Interface. A vague suspicion that I was in over my head prompted a stroll down to the software department. After trying all available personnel, it was obvious that no one there could be talked into whitewashing the fence. Looked like the job was mine. Since the November issue was still under construction, I put the video project on temporary hold, hoping the subconscious would start the work.



Frame Two: Discarded disc, death of procrastination, and the birth of a framework.

November doesn't last forever. The harbinger of flying time came in the form of a memo. While I had been blithely trying to forget the project, the boss had been busy. He had taken side one of the movie *Rollercoaster* and compiled two pages of notes listing the frame numbers for every scene. At this point, it dawned on me that he really wanted the program. I got down to work, keeping an eye open for an easy way out.

The first problem was figuring a way to write the program in Basic while avoiding the long delays associated with that language. Taking a shot at modular programming, I started by writing units that would handle essential tasks, such as gathering and parsing input, in an efficient manner. Since actual work with the disc player and interface would require a trip to the boss's house, I wanted to finish as much of the programming as possible before taking the act up to the Fortress of Solitude. This situation, coupled with the eternal search for the easy way out, gave birth to the adventure framework, described at the end of this chapter. Since the idea is fairly simple, and has most likely been developed more than once in the past, I make no claims of great originality here.

The framework handles all the procedures that are common to most adventures. It is, in essence, a gofer, keeping track of a player's moves and the location of objects, and handling common commands such as "GET" and "DROP." By plugging in a couple buckets full of variables, any adventurous realm could be defined. The task of creating a specific adventure now seemed less monstrous (and next year, when they

invent the neutrino disc, I'll be able to write a neutrino adventure in record time).

Frame Three: *Onward to Olympus, empathy for hermits, and getting down to the hard stuff.*

I hit the mansion on the hill early one Monday morning, ready to wrestle with technology. The boss flipped a handful of switches, powering up computer, disc player, television, and stereo, while dimming lights throughout the neighborhood. After showing me how to use the interface and disc player, the boss left for the office, and I was on my own. Being alone in someone else's house is a rather strange experience, which I will not dwell on here. It should suffice to say that I trod gently so as not to risk breaking the carpet.

The first and easiest task was watching the movie. This not only helped pass the time, but gave me a glimpse of scenes that could be used in the adventure. *Rollercoaster*, for those of you who missed the movie, concerns an extortionist who plants bombs on rollercoaster tracks, merry-go-rounds, and other fun places. The movie occupies five sides of three discs. The side used for the adventure contains good scenes of carnival rides and explosions, making it highly suitable for an action adventure.

Having checked out the scenery, I started getting acquainted with the interface. The software included a short machine-language driver that could be called from Basic. Instructions went from computer to interface via the `USR` command. As the video-disc obeyed my commands, I felt like Archimedes lunging from the tub. This was **POWER**. I was the demigod of the disc, making it fulfill my every whim. It all seemed too easy. I could search for frames, play sequences, switch from computer to video display, do almost anything except make it roll over and beg.

As is the way in life, there was rain on this parade. Since the precipitation occurred later that day, I won't go into it now. With spirits still undampened, I started mapping the adventure, trying to create a scenario that could best exploit the available video. Thanks to the framework, the rooms and objects were plugged in fairly quickly. While the game wouldn't have the magnitude of Crowther and Wood's colossal cave, it would have enough locations to allow the player to get lost once or twice before catching on.

Frame Four: *The problem with adventures, an emergency guide to dairy substitutes, and the coming of the rain.*

The problem with the average adventure is that it is linear, frustrating, and ultimately boring. The first one is fun, the second entertaining, but after that the novelty wears thin. I realized I could either put a lot of hard work behind my feelings on the subject and pro-

duce a different sort of adventure, or rely on the novelty of the video to save the day. Following the sage advice of Occam's Razor and other convenient laws of laziness, I took the easy way out and stuck with the standard adventure format.

This sort of work definitely called for vast quantities of coffee, which led to the following discovery. If you are ever out of milk and sugar, but have peppermint stick ice cream in the freezer, try some in the coffee. It's not bad.

Having mapped the adventure, I was ready to add some video. As a start, I decided to display a still frame or sequence for each location. I wrote a short parser that would take strings of command codes and send them to the interface. The routine can be found starting at line 40000 in the main program. (If the code at 40000 is replaced with a `RETURN`, the game can be played without a videodisc, though lack of visuals makes it as exciting as watching salt dissolve.)

Once the visuals were defined, I tried a test run. After giving instructions, the game displayed a scene of the carnival midway. So far, so good. I went east. The disc player whirled. The wrong picture came up. A few tests produced the following realization: the computer is a lot faster than the disc player. If you send commands to search for frame 12345, you might get frame 135. To compensate for this, I added delays to the video parser. Now that the disk had time to digest the whole command, another problem appeared. Commands are not buffered by the interface; they are executed immediately. Sinking into the mind of the disc player, the process goes something like this: *Hey, I gotta search for frame 20123. O.K., I'm on my way. Half-way there. Getting closer. Almost there. Hey, a PLAY command. Here goes.* Thus Mr. Disc doesn't care if the search is finished. The `PLAY` command takes priority, giving whatever scene was under the beam at the moment. Enter more delay loops. End result: no matter how quickly the main code executes, there are inevitable delays associated with calling frames from the videodisc.

Frame Five: *Meat on the bones, shooting ducks, and an end to modularity.*

With the rooms mapped out and the video stuffed in, the next task was to add all those conditional actions that turn an adventure from a Sunday drive into a real game. In the real world, most problems have more than one solution. In an ideal adventure, any intelligent input should be greeted with an intelligent response. Any attempt to introduce such reality into a program would probably lead to either insanity or an `OUT OF MEMORY` error. Keeping this in mind, I first added routines to check for any commands that were required for the player to win. Any such input

caused the program to jump to the appropriate subroutine. Had all this been planned out beforehand, these subroutines would be neatly organized into meaningful groups. Since I was creating as I went along, the structure of the program suffered somewhat.

To add a bit of spice to the game, I tossed in some more video scenes to go along with special actions. If the player tries his hand at the shooting gallery, he sees metal ducks being flattened. If he tampers with a certain box, he is rewarded with a view of the rollercoaster being blown off the tracks.

By the end of the second day, the game was approaching finished form. All correct moves were recognized, and some incorrect moves produced special responses. So much for the easy part.

Frame Six: *Error checks, custom changes, and the true meaning of déjà vu.*

While the programmer in the role of game creator must try to anticipate various inputs, the programmer in the role of debugger has to create all possible situations. This can be a rather tedious process. Seeing the same scenes over and over is rather akin to drowning. Eventually, self-preservation overcame perfectionism, and I decided that all the bugs were eliminated. Though this is never true, the thought can be comforting. Leaving the message "Play me" on the diskette sleeve, I packed it in for the day.

I was eager to learn the boss's reaction to the program. "Not bad," he told me the next day, "though I do have a few changes to suggest."

I looked at the three pages of notes, feeling some empathy for the ancient mariner, Sisyphus, and other bearers of long sentences. A close inspection revealed that most of the changes would not be difficult. "I'll take a shot at it," I told him, trying not to give signs of relief.

Back at the Fortress, I plugged in the changes and started another round of error checks. By the end of the afternoon, I could close my eyes and see rollercoasters. But the program was finished. In an odd way, the project had almost been fun.

Frame Seven: *Conclusions, the future of video, and the meaning of it all.*

Naturally, there is a post natal pleasure associated with the completion of any programming task. After the glow dims, some questions remain. Was the project worth doing? Did it accomplish the desired functions? The main goal was to try an experiment with a fairly new technology. Here I feel partial failure. The new medium was used in an old way. Beyond the video scenes, the program is just another adventure. It was as if I had been given Vulcan's forge and

used it to produce a souped-up Ford Pinto. Despite the racing stripes and whitewalls, it's still a compact car. But the exercise has convinced me of the potential power of the video-computer connection. The fusion of these two devices will produce some spectacular results. Rather than add to existing concepts, people will create applications that open new areas, merging computers and video rather than just tacking picture to program. The rollercoaster ride has just begun.

An Adventure Framework

There are two key parts to the framework; the input routine and the partial parser. Rather than use an INPUT statement, each character is obtained with GET. This has several advantages. First, each character can be checked on entry. Second, commas won't cause an EXTRA IGNORED error message. Finally, there is plenty of time between each character to process the preceding one. With INPUT, the program receives the whole phrase at once and any processing has to be done after the user has hit return. To separate a two-word phrase, the program would have to search through the input string for a space, adding to the delay time. On the other hand the GET routine can immediately identify a space and define anything prior to it as the first word of input. The rest of the routine just traps illegal characters and checks for controls such as the back arrow or return. For back arrows, the routine erases characters as the cursor crosses them.

The input routine accepts one or two words, but no more. In its present form, it accepts only letters. It could be easily modified to recognize other characters if required. Upon returning from the input routine, there is a horrendous ON A GOSUB command with twenty-six parameters for the variable A. This causes the program to branch to different lines depending on the first letter of the command. While such a solution might be considered inelegant, it cuts down the delay considerably. Once the branch has been made, the program has just a few possible keywords for which to check.

Next, I took the basic concepts encountered in an adventure (moving, picking up, and dropping objects, examining objects, and looking at a location), and designed the framework in such a way that objects and rooms could be changed with little effort. For movement, I limited the program to four directions; adding up and down would be easy if required later. The rooms were given two identifiers, a number from 1 to 26 and the corresponding letter of the alphabet. For each room, there is a string containing the rooms that can be reached by going north, east, south, and west. Disallowed directions are marked by a null character.

This information, stored in an array called RS, serves not only to determine where a person would end up, but also for printing visible exits.

There are two other string arrays associated with rooms. The RMS array contains a brief description of each room. RD\$ contains a complete description. By separating them, it is possible to print a full description the first time a person enters a room, and a short description if he returns. (I ended up printing the full description each time since most weren't that long.)

Objects are also held in an array, OB\$, and another array, OB, contains the location of each object. OB holds either a room number, a zero if the person has the object, or a negative number if the object is out of play. This is the same sort of technique used in most Basic adventures.

One further concept was the use of variables for what I consider "furniture." This would cover objects that can't be taken but can be examined. Furniture is contained in the array FR\$, its description is in FD\$, and FL contains its location. If the value of FL is zero, that furniture can occur in any location. For example, if all rooms have walls, FR\$ would be WALL, FD\$ might be "IT IS MADE OF STONE AND CONTAINS NO CRACKS OR MARKINGS" and FL would be 0. Since the routines for LOOK and TAKE check through both objects and furniture, these two sets of arrays must have the same value, even if the higher numbers of one set aren't used.

The rest is reasonably straightforward. Once rooms and objects have been taken care of, routines need only be added to handle special situations. Note that the LOOK routine checks to see whether an object is either in the player's possession or in the same room as he. This avoids the frustration encountered when a player wants to examine something and is told he isn't carrying it. The general framework, with dummy room and object definitions, is given in Listing 2 for those who might want to construct their own adventures.

The Roller Coaster Game Explained

by David H. Ahl

"Over my dead body you will!" This was the response I got from David Lubar when I suggested running a map of the *Rollercoaster* game with the information as to what is found in each spot.

His reasoning was that the game could be played by someone whether they had a videodisc player or not. The only difference is that a person with a videodisc player and interface would be able to see the motion sequences where other players would merely have them described by the computer program.

My reasoning was that this is the first

computer/videodisc game ever published and that if it is going to be part of the entertainment wave of the future, we ought to share as much information about it as possible.

My reasoning prevailed and, thus, you are reading this article. Mr. Lubar was last heard saying, "Mutter, mutter, you're the publisher."

Flash Back

Ever since I saw an experimental videodisc player from Phillips/MCA in 1975 and published three articles about video discs in March of 1976, I have been enthusiastic about the medium. More recently, I have gotten very excited about the possibilities for computer programs which take advantage of the videodisc. Many educators and people involved in industrial training are working in similar directions. However, my thoughts were more in the area of home entertainment.

In particular, I imagined an adventure-type game based on the movie *Jaws*. I haven't quite worked out the entire scenario, however, I envision a scene where a shark is about to attack and is swimming toward you with his jaws wide open when the screen goes blank and you are asked for a decision. Make the right decision, and the shark would back off, probably in reverse slow motion and you would see it recede into the ocean. Make the wrong decision and, of course, you get eaten and lose the game. Or, you might invoke magic which would transform you to an entirely different time and place. If you did this, you might or might not lose some of the objects you have gained and you might be posed with an entirely different yet of problems based on your new location.

I envisioned using portions of the soundtrack with only the computer output visible on the screen. I also saw opportunities for the player to put in his own search coordinates (a frame number) not knowing, of course, what was there beforehand. Based on what he finds in a particular location, he must continue the game from that point. Thus, I envisioned a very open-ended type of game as opposed to the completely structured adventures and other games that exist today.

Can it all be done? I think so. We are, of course, starting in a much more structured way. However, I believe that this game will give you some idea of what the capabilities are of marrying the computer with the videodisc.

How the Game Works

After showing the appropriate title graphics, the player is told that a madman has planted a bomb on a rollercoaster. At this point a 10-second scene of the

bomb being planted is shown. A message flashes back which states that you, the player, are being sent to stop the saboteur. At this point a 10-second sequence of a plane landing is shown followed by some additional introductory messages.

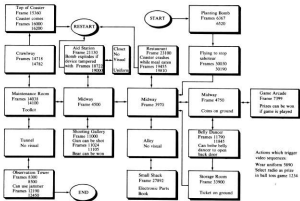
After this, you find yourself in a central area of the midway. (See diagram.) Some of the video sequences (both still frames and motion sequences) are activated by going to a new place in the game-playing area. Other video sequences are activated by picking up an object or giving some other command. For example, the command "Wear Uniform" triggers a still frame of the groundskeeper in a uniform.

Still other video sequences are triggered as part of a sequence of events over which a player has no control. For example, if you crawl too far out on the coaster track, you are shown a scene of the empty track followed by a computer message that says "The sound of the coaster is getting very loud." This is immediately followed by a scene of the coaster passing by after knocking you unconscious. This triggers one of the alternate end-of-game routines and you are given the opportunity to play again.

Possible Extensions

The mind boggles with the possible extensions to a videodisc/computer game. For example, the way the game is written now, the bomb explodes if the player tampers with the electronic device in the Aid Station. A possible alternative: by turning the knob on the device you discover that it is an alien time warp machine and that it reverses time for ten seconds. You might see the rollercoaster going backwards or people walking backwards on the midway for the next ten seconds. Used in the adventure, you might have to find a detonator, take it to the Aid Station and explode the bomb, make time go backwards and un-explode the bomb in order to find out on what frequency the detonator works so that you are able to construct a jammer.

Of course, there are many, many possible extensions. One side of the videodisc has over 50,000 individual frames on it and the disc of *Rollercoaster* that we used for this adventure, has over 120 separate motion sequences on the first side. Thus, it should be apparent that we are just scratching the surface with the game as it currently exists.



Actions which trigger
video sequences:
Wear uniform 5850
Select ticket in prize
is ball toss game 1134

Adventures in Videoland

[illegible]

Adventures in Videoland

[illegible]

Adventures in Videoland

[illegible]

Adventures in Videoland

```

00001 DIRN(1)=NORTH: DIRN(2)=SOUTH: DIRN(3)=EAST: DIRN(4)=WEST
00002
00003 "WASH STRETCHES TO THE EAST AND WEST, A RESTAURANT IS TO THE NORTH"
00004 DIR(1)=
00005 "CONTAINING STUNNING EQUIPMENT, LIGHTS FLASH FROM AN ELECTRONIC BOX"
00006 DIR(1)=
00007 "ON AID STATION IS TO THE NORTH, THE SOUND OF BURNING COMES FROM A SH
00008 OUTING"
00009 DIR(1)=FROM A TENT TO THE SOUTH YOU HEAR EXCITATION!"
00010 DIR(1)=
00011 "THE ROOM IS CROWDED, BUT YOU SEE AN EMPTYTABLE IN THE CORNER"
00012 DIR(1)=
00013 DIR(1)=
00014 DIR(1)=
00015 DIR(1)=
00016 DIR(1)=
00017 DIR(1)=
00018 DIR(1)=
00019 DIR(1)=
00020 DIR(1)=
00021 DIR(1)=
00022 DIR(1)=
00023 DIR(1)=
00024 DIR(1)=
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00096 DIR(1)=
00097 DIR(1)=
00098 DIR(1)=
00099 DIR(1)=
00100 DIR(1)=

```



Adventures in Videoland

```

500000 HERRING: SPEED=2000 PRINT "IF YOU'VER BACK, YOU'LL NOTICE!" PRINT
      "O (OH SPEED=500 TONN=5000 YOUR VCR=SHAWNEE)"
500100 HERRING: SPEED=2000 GOSUB 500000 GOTO 500000
500200 HERRING: VTAH (3) PRINT "IT IS ONE YEAR LATER!" PRINT
      "THE ROLLER COASTER HAS BEEN REBUILT!" PRINT
      "THE SHOWBOAT PLANS TO DESTROY IT AGAIN!" PRINT
      "WOULD YOU LIKE TO TRY TO SAVE IT?"
500300 GOSUB 500000 PRINT
500400 IF YES= "YES" OR NO="N" THEN
500500 GOSUB 500000 GOTO 500000
500600 IF YES="Y" AND NO="N" THEN
      PRINT "YES OR NO?" GOSUB 500000 PRINT: GOTO 500000
500700 END
500800 PRINT "LUN ON. I THINK THAT WAS A MISTAKE!" NO="DISPLACED"PRINT: GOSUB
      400000 PRINT "YOU SET OFF THE BOMB!"
      FOR I=1 TO 20000
      NEXT I
      GOTO 500000
500900 IF NO="N" THEN
      PRINT "YOU WERNT IN LINE OF SIGHT WITH" PRINT "THE ROLLER COASTER!"
      RETURN
501000 IF NO="Y" THEN
      PRINT "YOU DON'T HAVE A JAWPER!" RETURN
501100 IF NO="N" THEN
      PRINT "IT DOESNT WORK, MAYBE IT NEEDS BATTERIES!" RETURN
501200 NO="DISPLACED" GOSUB 400000
      FOR I=1 TO 50000
      NEXT I
      NO="Y" GOSUB 400000
501300 HERRING: VTAH (3) HERRING: SPEED=1000 PRINT "CONGRATULATIONS!"
      HERRING: PRINT: VTAH (4) PRINT "YOU SAVED THE ROLLER COASTER!" SPEED=200:
      END
501400 IF NO="N" THEN
      PRINT "YOU DON'T KNOW HOW!" RETURN
501500 IF NO="Y" THEN
      PRINT "SOMETHING VTAH IS MISSING!" RETURN
501600 IF NO="Y" THEN
      PRINT "YOU DONT HAVE THE REQUIRED TOOLS!" RETURN
501700 PRINT "CONGRATULATIONS, YOU NOW HAVE A " PRINT "JAWPER!" ON(100)=1
      ON(100) GOTO 500000

```

Adventure Framework

This is not a playable game as it is. It is a framework handling common Adventure features:

[illegible]

Adventures in Videoland



```

10480 IF @@="GO" AND HFLAG THEN 2000
10490 RETURN
10500 IF @@"E" THEN
    GOTO 2000
10510 IF @@"E" AND HFLAG THEN 2000
10520 RETURN
10530 IF @@"E" THEN 2000
10540 RETURN
10550 IF @@"E" OR @@"E" OR @@"E" THEN 2000
10560 RETURN
10570 IF @@"E" OR @@"E" OR @@"E" THEN 2000
10580 RETURN
10590 IF @@"E" THEN 2000
10600 RETURN
10610 IF @@"E" THEN 2000
10620 RETURN
10630 IF @@"E" THEN 2000
10640 RETURN
10650 IF @@"E" THEN 2000
10660 RETURN
10670 IF @@"E" THEN 2000
10680 RETURN
10690 IF @@"E" THEN 2000
10700 RETURN
10710 IF @@"E" THEN 2000
10720 RETURN
10730 IF @@"E" THEN 2000
10740 RETURN
10750 IF @@"E" THEN 2000
10760 RETURN
10770 IF @@"E" THEN 2000
10780 RETURN
10790 IF @@"E" THEN 2000
10800 RETURN
10810 IF @@"E" THEN 2000
10820 RETURN
10830 IF @@"E" THEN 2000
10840 RETURN
10850 IF @@"E" THEN 2000
10860 RETURN
10870 IF @@"E" THEN 2000
10880 RETURN
10890 IF @@"E" THEN 2000
10900 RETURN
10910 IF @@"E" THEN 2000
10920 RETURN
10930 IF @@"E" THEN 2000
10940 RETURN
10950 IF @@"E" THEN 2000
10960 RETURN
10970 IF @@"E" THEN 2000
10980 RETURN
10990 IF @@"E" THEN 2000
11000 RETURN
11010 IF @@"E" THEN 2000
11020 RETURN
11030 IF @@"E" THEN 2000
11040 RETURN
11050 IF @@"E" THEN 2000
11060 RETURN
11070 IF @@"E" THEN 2000
11080 RETURN
11090 IF @@"E" THEN 2000
11100 RETURN
11110 IF @@"E" THEN 2000
11120 RETURN
11130 IF @@"E" THEN 2000
11140 RETURN
11150 IF @@"E" THEN 2000
11160 RETURN
11170 IF @@"E" THEN 2000
11180 RETURN
11190 IF @@"E" THEN 2000
11200 RETURN
11210 IF @@"E" THEN 2000
11220 RETURN
11230 IF @@"E" THEN 2000
11240 RETURN
11250 IF @@"E" THEN 2000
11260 RETURN
11270 IF @@"E" THEN 2000
11280 RETURN
11290 IF @@"E" THEN 2000
11300 RETURN
11310 IF @@"E" THEN 2000
11320 RETURN
11330 IF @@"E" THEN 2000
11340 RETURN
11350 IF @@"E" THEN 2000
11360 RETURN
11370 IF @@"E" THEN 2000
11380 RETURN
11390 IF @@"E" THEN 2000
11400 RETURN
11410 IF @@"E" THEN 2000
11420 RETURN
11430 IF @@"E" THEN 2000
11440 RETURN
11450 IF @@"E" THEN 2000
11460 RETURN
11470 IF @@"E" THEN 2000
11480 RETURN
11490 IF @@"E" THEN 2000
11500 RETURN
11510 IF @@"E" THEN 2000
11520 RETURN
11530 IF @@"E" THEN 2000
11540 RETURN
11550 IF @@"E" THEN 2000
11560 RETURN
11570 IF @@"E" THEN 2000
11580 RETURN
11590 IF @@"E" THEN 2000
11600 RETURN
11610 IF @@"E" THEN 2000
11620 RETURN
11630 IF @@"E" THEN 2000
11640 RETURN
11650 IF @@"E" THEN 2000
11660 RETURN
11670 IF @@"E" THEN 2000
11680 RETURN
11690 IF @@"E" THEN 2000
11700 RETURN
11710 IF @@"E" THEN 2000
11720 RETURN
11730 IF @@"E" THEN 2000
11740 RETURN
11750 IF @@"E" THEN 2000
11760 RETURN
11770 IF @@"E" THEN 2000
11780 RETURN
11790 IF @@"E" THEN 2000
11800 RETURN
11810 IF @@"E" THEN 2000
11820 RETURN
11830 IF @@"E" THEN 2000
11840 RETURN
11850 IF @@"E" THEN 2000
11860 RETURN
11870 IF @@"E" THEN 2000
11880 RETURN
11890 IF @@"E" THEN 2000
11900 RETURN
11910 IF @@"E" THEN 2000
11920 RETURN
11930 IF @@"E" THEN 2000
11940 RETURN
11950 IF @@"E" THEN 2000
11960 RETURN
11970 IF @@"E" THEN 2000
11980 RETURN
11990 IF @@"E" THEN 2000
12000 RETURN

```

Adventures in Videoland

```

20000 IF (OBJ1)=440 OR (OBJ1)=450 OR (OBJ1)=460 THEN
20010 OBJ1=OBJ1 FND
20020 NEXT I
20030 IF NOT F THEN
20040 PRINT "YOU CAN'T DROP WHAT YOU AREN'T CARRYING." RETURN
20050 PRINT "OK." RETURN
20060 F:=0
20070 FOR I=1 TO 40
20080 IF (OBJ1)=40 OR (OBJ1)=41 AND (OBJ1)=440 THEN
20090 PRINT OBJ1
20100 IF (OBJ1)=41 THEN
20110 PRINT "I SEE NOTHING IMPORTANT." RETURN
20120 IF (OBJ1)=40 OR (OBJ1)=41 AND (OBJ1)=440 THEN
20130 F:=0 PRINT FND
20140 IF FND=0 THEN
20150 PRINT "NOTHING EXTRAORDINARY HERE." RETURN
20160 IF F THEN
20170 RETURN
20180 NEXT I
20190 PRINT "I CAN'T DESCRIBE WHAT ISN'T HERE"
20200 RETURN
20210 DIM OBJ20,OBJ21,OBJ22,OBJ23,OBJ24,OBJ25,OBJ26,OBJ27,OBJ28,OBJ29,OBJ30,OBJ31,OBJ32,OBJ33,OBJ34,OBJ35
20220 OBJ1="A DIRT LIT HALL." OBJ2="A DARK HALL." OBJ3="
20230 "A VERY DARK HALL." OBJ4="A ROOY HALL." OBJ5="
20240 "THE DARKEST HALL OF ALL." OBJ6="A PETER BLACK HALL."
20250 OBJ7="THE CELLAR." OBJ8="THE ATTIC." OBJ9="THE BEDROOM." OBJ10="
20260 "THE LIVING ROOM." OBJ11="THE CELLAR STAIRS." OBJ12="A TUNNEL."
20270 OBJ13="THE PASAGE."
20280 OBJ14="A BATHROOM." OBJ15="THE BATH ROOM." OBJ16="A HALLWAY."
20290 OBJ17="A GALLERY." OBJ18="THE PORCH." OBJ19="THE L.BRARY." OBJ20="
20300 "THE BLUE ROOM." OBJ21="THE GREEN ROOM." OBJ22="THE PINK ROOM."
20310 OBJ23="THE YELLOW ROOM." OBJ24="THE ROSE ROOM."
20320 OBJ25="ROOM." OBJ26="ROOM." OBJ27="ROOM." OBJ28="ROOM." OBJ29="ROOM." OBJ30="FACE."
20330 OBJ31="FACE." OBJ32="FACE." OBJ33="FACE." OBJ34="FACE." OBJ35="FACE."
20340 OBJ36="FACE." OBJ37="FACE." OBJ38="FACE." OBJ39="FACE." OBJ40="FACE."
20350 OBJ41="ROOM." OBJ42="ROOM." OBJ43="ROOM." OBJ44="ROOM." OBJ45="ROOM."
20360 OBJ46="ROOM." OBJ47="ROOM." OBJ48="ROOM." OBJ49="ROOM." OBJ50="ROOM."
20370 OBJ51="ROOM." OBJ52="ROOM." OBJ53="ROOM." OBJ54="ROOM." OBJ55="ROOM."
20380 L=1 NEXT I
20390 OBJ1="BATHROOM." OBJ2="BATH." OBJ3="BATHROOM." OBJ4="BATH." OBJ5="BATH."
20400 OBJ6="HALL." OBJ7="ROOM."
20410 OBJ8="HALL." OBJ9="HALL." OBJ10="HALL." OBJ11="HALL." OBJ12="HALL."
20420 OBJ13="HALL." OBJ14="HALL." OBJ15="HALL." OBJ16="HALL." OBJ17="HALL."
20430 OBJ18="HALL." OBJ19="HALL." OBJ20="HALL." OBJ21="HALL." OBJ22="HALL."
20440 OBJ23="HALL." OBJ24="HALL." OBJ25="HALL." OBJ26="HALL." OBJ27="HALL."
20450 OBJ28="HALL." OBJ29="HALL." OBJ30="HALL." OBJ31="HALL." OBJ32="HALL."
20460 OBJ33="HALL." OBJ34="HALL." OBJ35="HALL." OBJ36="HALL." OBJ37="HALL."
20470 OBJ38="HALL." OBJ39="HALL." OBJ40="HALL." OBJ41="HALL." OBJ42="HALL."
20480 OBJ43="HALL." OBJ44="HALL." OBJ45="HALL." OBJ46="HALL." OBJ47="HALL."
20490 OBJ48="HALL." OBJ49="HALL." OBJ50="HALL." OBJ51="HALL." OBJ52="HALL."
20500 OBJ53="HALL." OBJ54="HALL." OBJ55="HALL." OBJ56="HALL." OBJ57="HALL."
20510 OBJ58="HALL." OBJ59="HALL." OBJ60="HALL." OBJ61="HALL." OBJ62="HALL."
20520 OBJ63="HALL." OBJ64="HALL." OBJ65="HALL." OBJ66="HALL." OBJ67="HALL."
20530 OBJ68="HALL." OBJ69="HALL." OBJ70="HALL." OBJ71="HALL." OBJ72="HALL."
20540 OBJ73="HALL." OBJ74="HALL." OBJ75="HALL." OBJ76="HALL." OBJ77="HALL."
20550 OBJ78="HALL." OBJ79="HALL." OBJ80="HALL." OBJ81="HALL." OBJ82="HALL."
20560 OBJ83="HALL." OBJ84="HALL." OBJ85="HALL." OBJ86="HALL." OBJ87="HALL."
20570 OBJ88="HALL." OBJ89="HALL." OBJ90="HALL." OBJ91="HALL." OBJ92="HALL."
20580 OBJ93="HALL." OBJ94="HALL." OBJ95="HALL." OBJ96="HALL." OBJ97="HALL."
20590 OBJ98="HALL." OBJ99="HALL." OBJ100="HALL." OBJ101="HALL." OBJ102="HALL."
20600 OBJ103="HALL." OBJ104="HALL." OBJ105="HALL." OBJ106="HALL." OBJ107="HALL."
20610 OBJ108="HALL." OBJ109="HALL." OBJ110="HALL." OBJ111="HALL." OBJ112="HALL."
20620 OBJ113="HALL." OBJ114="HALL." OBJ115="HALL." OBJ116="HALL." OBJ117="HALL."
20630 OBJ118="HALL." OBJ119="HALL." OBJ120="HALL." OBJ121="HALL." OBJ122="HALL."
20640 OBJ123="HALL." OBJ124="HALL." OBJ125="HALL." OBJ126="HALL." OBJ127="HALL."
20650 OBJ128="HALL." OBJ129="HALL." OBJ130="HALL." OBJ131="HALL." OBJ132="HALL."
20660 OBJ133="HALL." OBJ134="HALL." OBJ135="HALL." OBJ136="HALL." OBJ137="HALL."
20670 OBJ138="HALL." OBJ139="HALL." OBJ140="HALL." OBJ141="HALL." OBJ142="HALL."
20680 OBJ143="HALL." OBJ144="HALL." OBJ145="HALL." OBJ146="HALL." OBJ147="HALL."
20690 OBJ148="HALL." OBJ149="HALL." OBJ150="HALL." OBJ151="HALL." OBJ152="HALL."
20700 OBJ153="HALL." OBJ154="HALL." OBJ155="HALL." OBJ156="HALL." OBJ157="HALL."
20710 OBJ158="HALL." OBJ159="HALL." OBJ160="HALL." OBJ161="HALL." OBJ162="HALL."
20720 OBJ163="HALL." OBJ164="HALL." OBJ165="HALL." OBJ166="HALL." OBJ167="HALL."
20730 OBJ168="HALL." OBJ169="HALL." OBJ170="HALL." OBJ171="HALL." OBJ172="HALL."
20740 OBJ173="HALL." OBJ174="HALL." OBJ175="HALL." OBJ176="HALL." OBJ177="HALL."
20750 OBJ178="HALL." OBJ179="HALL." OBJ180="HALL." OBJ181="HALL." OBJ182="HALL."
20760 OBJ183="HALL." OBJ184="HALL." OBJ185="HALL." OBJ186="HALL." OBJ187="HALL."
20770 OBJ188="HALL." OBJ189="HALL." OBJ190="HALL." OBJ191="HALL." OBJ192="HALL."
20780 OBJ193="HALL." OBJ194="HALL." OBJ195="HALL." OBJ196="HALL." OBJ197="HALL."
20790 OBJ198="HALL." OBJ199="HALL." OBJ200="HALL." OBJ201="HALL." OBJ202="HALL."
20800 OBJ203="HALL." OBJ204="HALL." OBJ205="HALL." OBJ206="HALL." OBJ207="HALL."
20810 OBJ208="HALL." OBJ209="HALL." OBJ210="HALL." OBJ211="HALL." OBJ212="HALL."
20820 OBJ213="HALL." OBJ214="HALL." OBJ215="HALL." OBJ216="HALL." OBJ217="HALL."
20830 OBJ218="HALL." OBJ219="HALL." OBJ220="HALL." OBJ221="HALL." OBJ222="HALL."
20840 OBJ223="HALL." OBJ224="HALL." OBJ225="HALL." OBJ226="HALL." OBJ227="HALL."
20850 OBJ228="HALL." OBJ229="HALL." OBJ230="HALL." OBJ231="HALL." OBJ232="HALL."
20860 OBJ233="HALL." OBJ234="HALL." OBJ235="HALL." OBJ236="HALL." OBJ237="HALL."
20870 OBJ238="HALL." OBJ239="HALL." OBJ240="HALL." OBJ241="HALL." OBJ242="HALL."
20880 OBJ243="HALL." OBJ244="HALL." OBJ245="HALL." OBJ246="HALL." OBJ247="HALL."
20890 OBJ248="HALL." OBJ249="HALL." OBJ250="HALL." OBJ251="HALL." OBJ252="HALL."
20900 OBJ253="HALL." OBJ254="HALL." OBJ255="HALL." OBJ256="HALL." OBJ257="HALL."
20910 OBJ258="HALL." OBJ259="HALL." OBJ260="HALL." OBJ261="HALL." OBJ262="HALL."
20920 OBJ263="HALL." OBJ264="HALL." OBJ265="HALL." OBJ266="HALL." OBJ267="HALL."
20930 OBJ268="HALL." OBJ269="HALL." OBJ270="HALL." OBJ271="HALL." OBJ272="HALL."
20940 OBJ273="HALL." OBJ274="HALL." OBJ275="HALL." OBJ276="HALL." OBJ277="HALL."
20950 OBJ278="HALL." OBJ279="HALL." OBJ280="HALL." OBJ281="HALL." OBJ282="HALL."
20960 OBJ283="HALL." OBJ284="HALL." OBJ285="HALL." OBJ286="HALL." OBJ287="HALL."
20970 OBJ288="HALL." OBJ289="HALL." OBJ290="HALL." OBJ291="HALL." OBJ292="HALL."
20980 OBJ293="HALL." OBJ294="HALL." OBJ295="HALL." OBJ296="HALL." OBJ297="HALL."
20990 OBJ298="HALL." OBJ299="HALL." OBJ300="HALL." OBJ301="HALL." OBJ302="HALL."
21000 OBJ303="HALL." OBJ304="HALL." OBJ305="HALL." OBJ306="HALL." OBJ307="HALL."
21010 OBJ308="HALL." OBJ309="HALL." OBJ310="HALL." OBJ311="HALL." OBJ312="HALL."
21020 OBJ313="HALL." OBJ314="HALL." OBJ315="HALL." OBJ316="HALL." OBJ317="HALL."
21030 OBJ318="HALL." OBJ319="HALL." OBJ320="HALL." OBJ321="HALL." OBJ322="HALL."
21040 OBJ323="HALL." OBJ324="HALL." OBJ325="HALL." OBJ326="HALL." OBJ327="HALL."
21050 OBJ328="HALL." OBJ329="HALL." OBJ330="HALL." OBJ331="HALL." OBJ332="HALL."
21060 OBJ333="HALL." OBJ334="HALL." OBJ335="HALL." OBJ336="HALL." OBJ337="HALL."
21070 OBJ338="HALL." OBJ339="HALL." OBJ340="HALL." OBJ341="HALL." OBJ342="HALL."
21080 OBJ343="HALL." OBJ344="HALL." OBJ345="HALL." OBJ346="HALL." OBJ347="HALL."
21090 OBJ348="HALL." OBJ349="HALL." OBJ350="HALL." OBJ351="HALL." OBJ352="HALL."
21100 OBJ353="HALL." OBJ354="HALL." OBJ355="HALL." OBJ356="HALL." OBJ357="HALL."
21110 OBJ358="HALL." OBJ359="HALL." OBJ360="HALL." OBJ
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Helpful Tips For Playing Adventure Games

If an Adventure is getting you very frustrated, the best thing to do is shut down the machine and try again a little bit later. If you are determined to get by the frustrating obstacle, call up a friend. He/she might have some ideas which you would never think of. If no friends are available, apply as much common sense as possible. If this fails as well, try obscure reasoning and make irrational decisions.

Watch out for any words in "quotes" or with "stars" around them. These usually are clues. Any clue can be figured out if enough thought is put into it. Try reversing all of the letters of a particular clue. It can transform something as obscure as ARHADAC ARBA into something meaningful like "ABRA CADABRA."

Remember that not every obstacle can be overcome! A window that cannot be opened or broken is probably just there to confuse the player. So, if it seems impossible to get by, it probably is.

Another reason why you may not be able to get by an obstacle is that you do not have the necessary resources! For instance, to break a window, you may need a hammer! If you have never encountered the hammer before, you may not even know that it exists, and you may spend more time trying to get by it without the hammer than you will spend finding the hammer!

Do not be afraid to try things that are seemingly stupid! In many cases a command that seems dumb turns out to be the way to overcome the obstacle.

Periodically (every 15 minutes or so) save your game out to tape or disk with the command "SAVE" or "SAVE GAME." This will insure that in the case of a fatal accident you only lose about 15 minutes of adventuring. Make absolutely sure that you save your game before trying things with unknown results, such as drinking strange bubbling liquids or jumping off a cliff.