

Programme name : 3-6-9 (game)

Aim : The major task of this game is, of course, to provide fun & enjoyment to the players. Moreover, it also helps the players to improve their IQ.

How to start :

- 1) Simply run the programme and then the programme title will be printed on the top of the screen. The first thing that will appear is :

1/2 PLAYERS ?

The computer is waiting for your input. Type your choice. Remember to press 'return' each time to complete your input.

After that, this question will be asked :

PLAYER 1'S NAME :

If you choose a two-players game, another question will be asked :

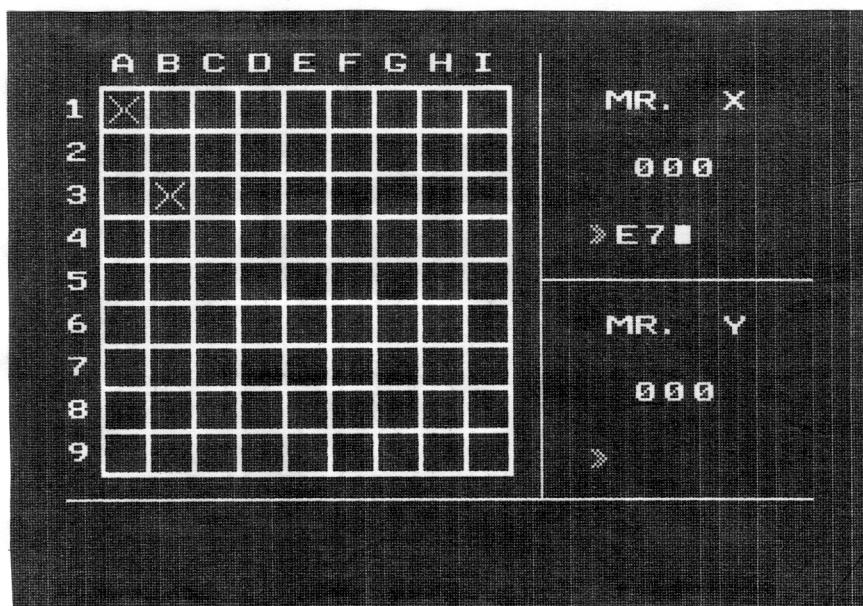
PLAYER 2'S NAME :

If you enter a wrong or invalid input, the same question will appear again.

* The name(s) of the player(s) is limited to 8 characters.

- 2) After the above questions, the screen will be plotted out.

It is like this :



After the starting music, the cursor will be on the player 1's prompt line. When it is your turn, you can enter your move. Just key in the coordinates (e.g. A1), and the computer will verify it, draw it and calculate the score.

If it is a single player game, and if it is the computer's move, the computer will print "THINKING !" on the message line. The "!" flashes until the computer has made a decision.

* Whenever you want to end or leave, type "Q" when it is your turn. The computer will ask you :

QUIT ?

Answer "Y" to leave or "N" to continue the game.

3) When the game is over, the computer will calculate who the winner is. It will give a congratulation to him or her, or itself also. Then it will ask you whether you want to play again or not. Press "Y" & 'return' to play once more, or "N" plus a 'return' to leave.

Specifications :

1) Limitation :

Since the logic of the computer thinking routines is very long & complicated (a brief description is in the flowchart), so if it is a single player game, the player will have to wait for quite a long time before knowing the computer's response. But this problem can be overcome by using a compiler.

* Therefore, please always use the compiled version for playing.

2) Machine code subroutines :

There are two M.C. subroutines to facilitate the music function & the flashing function. They are combined into one file, namely "EFFECT".

The music data is poked into the memory at the beginning of the programme execution.

3) Characters :

All the characters, as well as other shapes, are stored in one shape-table, which has the filename "SHAPES".

4) Variables description :

(a) main play routine :

(i) numeric variables -

BH,BL - zero page address register

C,CN,CU - counters

D - loop counter

ER - error flag

F - flag

FP - player index

HC - horizontal counter in [CHECK]

HP - points scored

I,I1,I2,

I3,I4,I5,J - loop counters

K,L - general purpose registers

MH,ML - zero page address used in music subroutine

N - counter

OP - operation code in printing subroutine

P - no. of players

P(2) - players's score

PS - points scored

S\$(9,9) - chess status
VC - vertical counter in [CHECK]
X,X1 - chess x-coordinate
XA,XC,
XM,X0,XS - x-coordinate on screen
Y,Y1 - chess y-coordinate
YA,YC(2),YG,
YM,Y0(2),YS - y-coordinate on screen

(ii) strings -

A\$ - input character
D\$ - control-D
HL\$ - horizontal coordinates
K\$ - multi-purpose
KE\$ - input character
L1\$ - coordinates register
M\$ - message (characters)
M1\$ - message (shape codes)
N1\$,N2\$ - players' names
P\$ - multi-purpose
T1\$...TC\$ - messages
VL\$ - vertical coordinates register
X\$,Y\$ - strings of X,Y

(b) think routine :

(i) numeric variables -

B(),BA() - boundary in the data sequence
C1 - counter
CA,CB..CF - used in loops
FL - flag
H(2) - highest score of the choices
HP(81) - scores of various sequence of moves
II,JJ - loop counters
K1,K2..K4 - general registers
LHP - lowest score
MV - counter
N,N1,N2 - general registers
R - loop counter
R1,R2 - flags
Z1,Z2 - counters

(ii) strings -

HA\$(2) - highest scores sequence no.
I\$ - sequence no.
IN\$(2) - sequence that will be inserted
K1\$...K4\$ - general purpose
L\$(81) - sequence of moves
LC\$,LD\$,
LE\$,LL\$, - sequence of moves
LM\$,LS\$
OHP\$ - sequence of points scored
S\$(9,9) - status
THP\$ - sequence of scores
Z\$ - sequence no.

5) Recommendation :

When using the basic version, please load the programme at \$4000 of the memory, so as to avoid hi-res page 1. It is because this game uses page 1 for its graphics.

✓

```
0 REM ****  
0 REM *  
0 REM * PROJECT 2: 3-6-9 (GAME) *  
0 REM *  
0 REM * BY *  
0 REM * CECIL CHEUNG *  
0 REM * F.4D (6) *  
0 REM * 15-05-1985 *  
0 REM *  
0 REM ****
```

```
97 REM ///////////////////////////////////////////////////////////////////  
98 REM INITIALIZATION  
99 REM ///////////////////////////////////////////////////////////////////  
  
100 D$ = CHR$(4)  
105 REM REDUCE DOS BUFFER NO.  
110 PRINT D$ "MAXFILES 1"  
115 REM LOAD NECESSARY FILES  
120 PRINT D$ "BLOAD SHAPES,A$9501"  
130 POKE 232,1: POKE 233,149  
140 PRINT D$ "BLOAD EFFECT,A$302"  
150 HIMEM: 38144  
160 DIM S%(9,9), YC(2), P(2), YO(2)  
170 DIM S$(9,9), L$(81), HP(81)  
175 REM SET VAR. & $  
180 T1$ = "0649094912": REM "3-6-9"  
190 T2$ = "04470539282413371730313948" : REM "1/2 PLAYERS ?"  
200 T3$ = "28241337173039044331392613251750": REM "PLAYER 1'S NAME:"  
210 T4$ = "28241337173039054331392613251750": REM "PLAYER 2'S NAME:"  
220 T5$ = "COMPUTER"  
230 T6$ = "3132133032": REM "START"  
240 T7$ = "32202126232126193946": REM "THINKING !"  
250 T8$ = "21263413242116391726323037": REM "INVALID ENTRY"  
260 T9$ = "293321323948": REM "QUIT ?"  
270 TA$ = "282413373913191321263948": REM "PLAY AGAIN ?"  
280 TB$ = "322017393521262617303921313950": REM "THE WINNER IS :"  
290 TC$ = "37273339313213303239182130313248": REM "YOU START FIRST?"  
300 XC = 186 : XO = 206  
310 YC(1) = 45 : YC(2) = 129  
320 YO(1) = 70 : YO(2) = 154  
330 YG = 182  
340 ML = 0 : MH = 1  
350 BL = 821 : BH = 830  
355 REM POKE MUSIC DATA  
360 FOR I = 1 TO 192  
370 READ D  
380 POKE 39393 + I,D  
390 NEXT I  
400 DATA 41,80,1,80,1,80,2,80,1,80,2,80,1,80,1,130,2,148,2  
410 DATA 163,2,80,1,80,1,80,2,80,1,80,1,80,2,130,1,163,1  
420 DATA 148,2,121,2,80,2,80,1,80,1,80,2,80,1,80,1,80,2,80,1  
430 DATA 80,1,130,2,148,2,162,2,80,1,163,1,182,5,163,1,148,1,130,2,163,2,130,4  
440 DATA 0  
450 DATA 30,121,3,121,3,130,3,148,3,148,3,130,3,121,3,100,3,80,4,80,4  
460 DATA 100,3,121,3,121,5,100,2,100,7,121,3,121,3,130,3,148,3,148,3  
470 DATA 130,3,121,3,100,3,80,4,80,4,100,3,121,3,100,5,80,2,80,24  
480 DATA 0
```

```
490 DATA 22,163,9,182,4,182,15,163,9,148,4,130,15,148,9,163,4,182,9,163,4
500 DATA 148,20,163,9,182,4,182,15,163,9,148,4,130,15,148,9,163,4,148,9
510 DATA 130,4,130,18
520 DATA 0
525 REM SET SCREEN
530 HOME
540 HGR : POKE - 16302,0
550 HCOLOR= 3
560 SCALE= 1
565 REM INPUT IMFORMATION
570 OP = 4
580 M1$ = T1$
590 XM = 110:YM = 10
595 REM PRINT MESSAGE
600 GOSUB 4000
610 HPLOT 100,15 TO 173,15
620 M1$ = T2$
630 XM = 0:YM = 50
640 GOSUB 4000
650 XS = XA:YS = YA
655 REM KEYIN
660 GOSUB 3000
670 P = VAL (KE$)
680 IF P > 0 AND P < 3 THEN 710
685 REM CLEAR LINE
690 GOSUB 6810
700 GOTO 660
710 M1$ = T3$
720 XM = 0
730 YM = YM + 20
740 GOSUB 4000
750 XS = XA:YS = YA
760 GOSUB 3000
770 N1$ = KE$
780 IF P = 1 THEN N2$ = T5$: GOTO 870
790 M1$ = T4$
800 YM = YM + 20
810 GOSUB 4000
820 YS = YA
830 GOSUB 3000
840 N2$ = KE$
850 FP = 1
860 GOTO 970
870 M1$ = TC$
880 XM = 0:YM = YM + 20
890 GOSUB 4000
900 XS = XA:YS = YA
910 GOSUB 3000
920 K$ = LEFT$ (KE$,1)
930 IF K$ = "Y" THEN FP = 1: GOTO 970
940 IF K$ = "N" THEN FP = 2: GOTO 970
950 GOSUB 6810
960 GOTO 830
965 REM PLOT SCREEN
970 HOME
980 HGR : POKE - 16302,0
990 FOR I = 13 TO 166 STEP 17
1000 HPLOT I,12 TO I,156
1010 HPLOT I + 1,12 TO I + 1,157
1020 NEXT I
```

```

1030 FOR I = 12 TO 156 STEP 16
1040   HPLOT 13,I TO 166,I
1050   HPLOT 13,I + 1 TO 167,I + 1
1060 NEXT I
1070 K = 17
1080 FOR I = 13 TO 21
1090   DRAW I AT K,6
1100   K = K + 17
1110 NEXT I
1120 K = 23
1130 FOR I = 4 TO 12
1140   DRAW I AT 0,K
1150   K = K + 16
1160 NEXT I
1170 HPLOT 178,0 TO 178,166
1180 HPLOT 178,84 TO 279,84
1190 HPLOT 0,166 TO 279,166
1195 REM PRINT SCORES
1200 OP = 3
1210 GOSUB 4000
1215 REM PRINT 1ST PLAYER'S NAME
1220 OP = 1
1230 GOSUB 4000
1235 REM PRINT 2ND PLAYER'S NAME
1240 OP = 2
1250 GOSUB 4000
1260 DRAW 40 AT 196,70
1270 DRAW 40 AT 196,154
1280 XM = 110:YM = YG
1290 M1$ = T6$
1300 OP = 4
1310 GOSUB 4000
1315 REM PLAY MUSIC 1
1320 POKE ML,227: POKE MH,153
1330 N = PEEK (39394)
1340 FOR I = 1 TO N
1345 REM CALL M.C. ROUTINES TO PLAY NOTE
1350   CALL 796
1360 NEXT I
1370 GOSUB 4000

```

✓

```

1998 REM %%%%%%%%%%%%%%%%
1999 REM % %%
2000 REM % MAIN PLAY ROUTINE %
2001 REM % %
2002 REM %%%%%%%%%%%%%%%%
2010 POKE 769,100
2020 P(1) = 0:P(2) = 0
2030 XS = X0
2040 YS = Y0(FP)
2050 IF P = 1 AND FP = 2 THEN GOSUB 30000: GOTO 2120
2060 GOSUB 3000
2070 GOSUB 6810
2080 IF LEFT$(KE$,1) = "Q" THEN GOSUB 20010: GOTO 2030
2090 LM$ = KE$

```

```
2100  GOSUB 6310
2105  REM   IF ERROR
2110  IF ER THEN GOSUB 6710: GOTO 2050
2120  GOSUB 5010
2125  REM   IF ERROR
2130  IF ER THEN GOSUB 6710: GOTO 2050
2140  GOSUB 6910
2150  IF NOT PS THEN 2210
2155  REM   RENEW SCORE
2160  OP = FP
2170  GOSUB 4000
2180  P(FP) = P(FP) + PS
2190  GOSUB 4000
2200  FOR I = 1 TO 1000: NEXT
2205  REM   SET STATUS
2210  SX(X,Y) = 1
2220  CN = CN + 1
2230  GOSUB 6910
2235  REM   IF GAME OVER
2240  IF CN > = 81 THEN 20160
2250  IF PS THEN 2280
2255  REM   SET INDEX
2260  FP = FP + 1
2270  IF FP > 2 THEN FP = 1
2280  GOTO 2040
```

```
3000  REM   *** KEYIN      *****
3010  XA = XS:YA = YS
3020  KE$ = ""
3030  IF LEN (KE$) = 9 THEN GOSUB 6810: GOTO 3010
3035  REM   DRAW CURSOR
3040  DRAW 42 AT XA,YA
3050  GET A$
3060  IF A$ = > "A" AND A$ < = "Z" THEN F = 1: GOTO 3130
3070  IF A$ = > "0" AND A$ < = "9" THEN F = 1: GOTO 3130
3080  IF A$ = "." THEN F = 1: GOTO 3130
3090  IF A$ = " " THEN F = 1: GOTO 3130
3100  IF A$ = CHR$ (8) THEN F = 2: GOTO 3130
3110  IF A$ = CHR$ (13) THEN F = 3: GOTO 3130
3120  GOTO 3050
3130  ON F GOTO 3140, 3210, 3290
3140  IF XA = > 258 THEN 3200
3145  M$ = A$
3150  GOSUB 6010
3155  REM   ACCEPT A CHAR.
3160  XDRAW 42 AT XA,YA
3170  DRAW VAL (M1$) AT XA,YA
3180  KE$ = KE$ + A$
3190  XA = XA + 11
3200  GOTO 3030

3205  REM   "<-"
3210  IF KE$ = "" THEN 3280
3215  M$ = RIGHT$ (KE$,1)
3220  GOSUB 6010
3230  XDRAW 42 AT XA,YA
3240  XA = XA - 11
3250  XDRAW VAL (M1$) AT XA,YA
```

```

3260 IF LEN (KE$) = 1 THEN KE$ = "": GOTO 3280
3270 KE$ = LEFT$ (KE$, LEN (KE$) - 1)
3280 GOTO 3030

3285 REM " CR "
3290 XDRAW 42 AT XA,YA
3300 IF KE$ = "" THEN 3010
3310 RETURN

4000 REM *** PRINT *****  

4005 REM SWITCH TO CORRECT OPERATION
4010 ON OP GOSUB 4110, 4110, 4180, 4290
4020 RETURN

4030 REM [ PRINTOUT ]
4040 FOR I = 1 TO LEN (M1$) STEP 2
4050 L = VAL (MID$ (M1$,I,2))
4060 XDRAW L AT XA,YA
4070 XA = XA + 11
4080 NEXT I
4090 RETURN

4100 REM [ PRINT SCORE ]
4110 P$ = STR$ (P(OP))
4120 GOSUB 6510
4130 XA = 213
4140 YA = YC(OP)
4150 GOSUB 4040
4160 RETURN

4170 REM [ PRINT PLAYERS' NAME ]
4180 M$ = N1$
4190 GOSUB 6010
4200 XA = XC + (8 - LEN (N1$)) * 11 / 2
4210 YA = 20
4220 GOSUB 4040
4230 M$ = N2$
4240 GOSUB 6010
4250 XA = XC + (8 - LEN (N2$)) * 11 / 2
4260 YA = 104
4270 GOSUB 4040
4280 RETURN
4290 XA = XM;YA = YM
4300 GOSUB 4040
4310 RETURN

5000 REM *** CHECK SUB. *****
5010 ER = 0
5020 IF S%(X,Y) THEN ER = 1: GOTO 5420
5030 PS = 0:L1$ = ""
5040 HC = 1;VC = 1
5050 HL$ = "";VL$ = ""
5060 F = 0
5070 X$ = STR$ (X)
5080 Y$ = STR$ (Y)

```

```

5085 REM      CHECK LEFT HAND SIDE
5090 IF X < 2 THEN 5150
5100 FOR I = X - 1 TO 1 STEP - 1
5110 IF NOT S%(I,Y) THEN 5150
5120 HC = HC + 1
5130 HL$ = HL$ + STR$(I) + Y$
5140 NEXT I
5145 REM      CHECK RIGHT HAND SIDE
5150 IF X > 8 THEN 5210
5160 FOR I = X + 1 TO 9
5170 IF NOT S%(I,Y) THEN 5210
5180 HC = HC + 1
5190 HL$ = HL$ + STR$(I) + Y$
5200 NEXT I
5205 REM      CHECK UPWARD
5210 IF Y < 2 THEN 5270
5220 FOR I = Y - 1 TO 1 STEP - 1
5230 IF NOT S%(X,I) THEN 5270
5240 VC = VC + 1
5250 VL$ = VL$ + X$ + STR$(I)
5260 NEXT I
5265 REM      CHECK DOWNWARD
5270 IF Y > 8 THEN 5330
5280 FOR I = Y + 1 TO 9
5290 IF NOT S%(X,I) THEN 5330
5300 VC = VC + 1
5310 VL$ = VL$ + X$ + STR$(I)
5320 NEXT I
5325 REM      INTERPRETATION
5330 IF HC / 3 < > INT (HC / 3) THEN 5370
5340 F = 1
5350 PS = HC
5360 L1$ = HL$
5370 IF VC / 3 < > INT (VC / 3) THEN 5410
5380 F = 1
5390 PS = PS + VC
5400 L1$ = L1$ + VL$
5410 IF F THEN L1$ = X$ + Y$ + L1$
5420 RETURN

```

```

5997 REM      XXXXXXXXXXXXXXXXXXXXXXXXX
5998 REM      SMALL SUBROUTINES
5999 REM      XXXXXXXXXXXXXXXXXXXXXXXXX

6000 REM  [ASCII TO SHAPE NO.]
6010 M1$ = "":L = 0:K = 0
6020 FOR I = 1 TO LEN (M$)
6030   K = ASC (MID$(M$,I,1))
6040   IF K = 32 THEN L = 39: GOTO 6090
6050   IF K = 46 THEN L = 41: GOTO 6090
6060   IF K > 47 AND K < 58 THEN L = K - 45: GOTO 6080
6070   L = K - 52
6080   IF L < 10 THEN M1$ = M1$ + "0"
6090   M1$ = M1$ + STR$(L)
6100 NEXT I
6110 RETURN

```

```

6300 REM [ ALPHANUMERIC TO NUMERIC ]
6310 IF LM$ = "" THEN 6370
6320 ER = 0
6330 X = ASC ( LEFT$ (LM$,1)) - 64
6340 Y = VAL ( MID$ (LM$,2,1))
6350 IF X < 1 OR X > 9 THEN ER = 1
6360 IF Y < 1 OR Y > 9 THEN ER = 1
6370 RETURN

6400 REM [ LOC. TO CO. ]
6410 XA = 15 + (X1 - 1) * 17
6420 YA = 14 + (Y1 - 1) * 16
6430 RETURN

6500 REM [ NO. TO SHAPE NO. ]
6510 M1$ = ""
6520 K = LEN (P$)
6530 IF K < 3 THEN M1$ = "03"
6540 IF K < 2 THEN M1$ = M1$ + "03"
6550 FOR I = 1 TO K
6560   K = VAL ( MID$ (P$,I,1)) + 3
6570   IF K < 10 THEN M1$ = M1$ + "0"
6580   M1$ = M1$ + STR$ (K)
6590 NEXT I
6600 RETURN

6700 REM [ PRINT ERROR ]
6710 M1$ = T8$
6720 XM = 68:YM = YG
6730 OP = 4
6740 PRINT CHR$ (7)
6750 GOSUB 4000
6760 FOR I = 0 TO 1500: NEXT
6770 GOSUB 4000
6780 RETURN

6800 REM [ CLEAR LINE ]
6810 M$ = KE$
6820 GOSUB 6010
6830 XM = XS:YM = YS
6840 OP = 4
6850 GOSUB 4000
6860 RETURN

6900 REM [ DRAW SUB. ]
6910 IF S%(X,Y) THEN 6950
6920 X1 = X:Y1 = Y
6930 GOSUB 6410
6940 DRAW 1 AT XA,YA
6950 IF L1$ = "" THEN 7020
6960 FOR I = 1 TO LEN (L1$) STEP 2
6970   X1 = VAL ( MID$ (L1$,I,1))
6980   Y1 = VAL ( MID$ (L1$,I + 1,1))
6990   GOSUB 6410
7000   XDRAW 2 AT XA,YA
7010 NEXT I
7020 RETURN

```

```
19997 REM     XXXXXXXXXXXXXXXXXXXXXXXXX
19998 REM             QUIT & GAME OVER
19999 REM     XXXXXXXXXXXXXXXXXXXXXXXXX

20000 REM     [ QUIT ]
20010 OP = 4
20020 XM = 106:YM = YG
20030 M1$ = T9$
20040 GOSUB 4000
20050 XS = XA:YS = YA
20060 GOSUB 3000
20070 GOSUB 6810
20080 K$ = LEFT$(KE$,1)
20090 IF K$ = "Y" THEN 20410
20100 IF K$ = "N" THEN 20120
20110 GOTO 20060
20120 XM = 106:YM = YG
20130 M1$ = T9$
20140 GOSUB 4000
20150 RETURN

20160 REM     [ GAME OVER ]
20170 XM = 57:YM = YG
20180 M1$ = TB$
20190 OP = 4
20200 GOSUB 4000
20210 IF P(1) > P(2) THEN J = 86:K = 104: GOTO 20230
20220 J = 95:K = 113
20225 REM     PLAY MUSIC 2 & FLASH NAME
20230 POKE BL,J: POKE BH,K
20240 POKE ML,55: POKE MH,154
20250 N = PEEK (39478)
20260 FOR I = 1 TO N
20270     CALL 796
20280     CALL 826
20290 NEXT I
20300 GOSUB 4000
20305 REM     PLAY AGAIN
20310 XM = 73
20320 M1$ = TA$
20330 GOSUB 4000
20340 XS = XA:YS = YA
20350 GOSUB 3000
20360 GOSUB 6810
20370 K$ = LEFT$(KE$,1)
20380 IF K$ = "Y" THEN 370
20390 IF K$ < > "N" THEN 20350

20400 REM     [ SAY GOODBYE ]
20410 TEXT : HOME
20420 VTAB 12: HTAB 15
20430 PRINT "GOODBYE !"
20435 REM     PLAY MUSIC 3
20440 POKE ML,117: POKE MH,154
20450 N = PEEK (39540)
20460 FOR I = 1 TO N
20470     CALL 796
20480 NEXT I
20490 END
```

29995 REM %%%%%%%%%%%%%%%
29996 REM % %
29997 REM % THINK ROUTINE %
29998 REM % %
29999 REM %%%%%%%%%%%%%%%

30000 IF LL\$ < " " THEN 30270
30010 K = FRE(0)
30020 FOR I = 1 TO 9
30030 FOR I1 = 1 TO 9
30040 K = SX(I,I1)
30050 IF K THEN S\$(I,I1) = "0"
30060 IF NOT K THEN S\$(I,I1) = ""
30070 NEXT I1
30080 NEXT I
30085 REM CHOOSE A CHECKING DIRECTION
30090 K = INT((RND(1) * 4) + 1)
30100 ON K GOTO 30110, 30130, 30150, 30170
30110 CA = 1 : CB = 9 : CC = 1 : CD = 1 : CE = 9 : CF = 1
30120 GOTO 30180
30130 CA = 9 : CB = 1 : CC = -1 : CD = 1 : CE = 9 : CF = 1
30140 GOTO 30180
30150 CA = 1 : CB = 9 : CC = 1 : CD = 9 : CE = 1 : CF = -1
30160 GOTO 30180
30170 CA = 9 : CB = 1 : CC = -1 : CD = 9 : CE = 1 : CF = -1
30180 I1 = 1:I\$ = "1"
30185 REM DISPLAY PROMPT
30190 OP = 4
30200 XM = 85:YM = YG
30210 M1\$ = T7\$
30220 GOSUB 4010
30225 REM CHECK FOR MOVE
30230 GOSUB 40000
30235 REM IF NO POINT CAN SCORE
30240 IF HP = 0 AND CU > 1 THEN GOSUB 31000: GOTO 30260
30245 REM IF MORE THAN 1 CAN SCORE
30250 IF LEN(LL\$) > 2 THEN GOSUB 32000
30255 REM CLEAR PROMPT
30260 GOSUB 4010
30270 X = VAL(LEFT\$(LL\$,1))
30280 Y = VAL(MID\$(LL\$,2,1))
30290 LL\$ = MID\$(LL\$,3)
30295 REM GIVE A OK SOUND
30300 POKE 768,1
30310 CALL 770
30315 REM PRINT THE MOVE ON SCREEN
30320 XDRAW X + 12 AT X0,YS
30330 XDRAW Y + 3 AT X0 + 11,YS
30340 FOR I = 1 TO 2500: NEXT
30345 REM CLEAR THE PRINTING
30350 XDRAW X + 12 AT X0,YS
30360 XDRAW Y + 3 AT X0 + 11,YS
30370 RETURN

30999 REM [IF CANNOT SCORE]
31000 L\$(0) = LC\$
31010 LE\$ = LC\$
31020 LM\$ = "":C = 0:LHP = 0

```

31030 FOR R = 1 TO LEN (L$(0)) STEP 2
31040   D = (R + 1) / 2
31050   I$ = STR$ (D)
31060   IF R < 19 THEN I$ = "0" + I$
31070   X = VAL (MID$ (L$(0),R,1))
31080   Y = VAL (MID$ (L$(0),R + 1,1))
31090   S$(X,Y) = S$(X,Y) + I$
31100   GOSUB 40000
31110   LD$ = LL$
31120   FOR I4 = 1 TO LEN (LD$) - 2 STEP 2
31130     FOR I5 = I4 + 2 TO LEN (LD$) STEP 2
31140       IF I5 > LEN (LD$) THEN 31200
31150       IF MID$ (LD$,I4,1) < > MID$ (LD$,I5,1) AND
           MID$ (LD$,I4+1,1) < > MID$ (LD$,I5+1,1) THEN 31190
31160       THP$ = LEFT$ (THP$, (I5-1) / 2) + MID$ (THP$, (I5+3) / 2)
31170       LD$ = LEFT$ (LD$,I5-1) + MID$ (LD$,I5+2)
31180       GOTO 31140
31190   NEXT I5
31200   NEXT I4
31210   HP = 0
31220   FOR I4 = 1 TO LEN (THP$)
31230     HP = HP + VAL (MID$ (THP$,I4,1))
31240   NEXT I
31250   IF HP = 0 AND I1 = 1 THEN 31390
31260   IF D = 1 THEN LHP = HP
31270   HP(D) = HP
31280   L$(D) = LD$
31290   IF HP = LHP THEN C = C + 1:LM$ = LM$ + I$
31300   IF HP > = LHP THEN 31340
31310   LHP = HP
31320   C = 1
31330   LM$ = I$
31340   NEXT R
31350   IF C = 1 THEN K = VAL (LM$) * 2 - 1: GOTO 31400
31360   K = (INT (RND (1) * C) + 1) * 2 - 1
31370   K = VAL (MID$ (LM$,K,2)) * 2 - 1
31380   GOTO 31400
31390   K = R
31400   LL$ = MID$ (LE$,K,2)
31410   RETURN

```

```

31999 REM [ IF MORE THAN 1 CAN SCORE ]
32000 GOSUB 33000
32010 FOR I = 1 TO 81
32020   HP(I) = 0:L$(I) = ""
32030 NEXT I
32040 IF LD$ = "" THEN 32990
32050 IF LEN (LD$) > 4 THEN LD$ = LEFT$ (LD$,4) : OHP$ = LEFT$ (OHP$,2)
32060 IF LL$ = "" THEN 32130
32070 LS$ = LL$
32080 FOR I = 1 TO LEN (LL$) STEP 2
32090   X = VAL (MID$ (LL$,I,1))
32100   Y = VAL (MID$ (LL$,I + 1,1))
32110   S$(X,Y) = "0"
32120 NEXT I
32130 HP(1) = VAL (LEFT$ (OHP$,1))
32140 HP(2) = VAL (MID$ (OHP$,2,1))
32150 H(1) = HP(1):H(2) = HP(2)

```

```

32160 HA$(1) = "01":HA$(2) = "02"
32170 L$(1) = LEFT$(LD$,2):L$(2) = MID$(LD$,3)
32180 R1 = 0:R2 = 0
32190 C1 = 1:MV = 1
32200 BA(1) = 2:B(1) = 4
32210 L$(0) = LD$
32220 Z1 = 0:Z2 = 0
32230 N1 = 1:D = 1
32240 IN$(1) = "":IN$(2) = ""
32250 N2 = LEN(L$(0)) / 2
32260 FOR II = 1 TO C1
32270   FL = 1
32280   FOR IJ = B(II - 1) + 1 TO B(II) STEP 2
32290     IF D > BA(IJ) / 2 THEN FL = 2
32300     I$ = STR$(D)
32310     IF D < 10 THEN I$ = "0" + I$
32320     X$ = MID$(L$(0),IJ,1)
32330     IF X$ = "C" THEN 32750
32340     IF X$ = "0" THEN 32380
32350     X = VAL(X$)
32360     Y = VAL(MID$(L$(0),IJ + 1,1))
32370     S$(X,Y) = S$(X,Y) + I$
32380     GOSUB 40000
32390     IF HP = 0 THEN 32750
32400     GOSUB 33000
32410     IF LL$ = "" THEN 32480
32420     FOR I = 1 TO LEN(LL$) STEP 2
32430       X = VAL(MID$(LL$,I,1))
32440       Y = VAL(MID$(LL$,I + 1,1))
32450       S$(X,Y) = S$(X,Y) + I$
32460     NEXT I
32470     L$(D) = L$(D) + LL$
32480     IF LD$ = "" THEN 32630
32490     L$(0) = L$(0) + LEFT$(LD$,2)
32500     Z$ = "0" + STR$(N2 + N1)
32510     Z$ = RIGHT$(Z$,2)
32520     FOR I = 1 TO LEN(L$(D)) STEP 2
32530       X = VAL(MID$(L$(D),I,1))
32540       Y = VAL(MID$(L$(D),I + 1,1))
32550       S$(X,Y) = S$(X,Y) + Z$
32560     NEXT I
32570     L$(N2 + N1) = L$(D) + MID$(LD$,3) + LL$
32580     L$(D) = L$(D) + LEFT$(LD$,2)
32590     IN$(FL) = IN$(FL) + MID$(LD$,3)
32600     HP(N2 + N1) = HP(D) + HP + VAL(MID$(OHP$,2,1))
32610     N1 = N1 + 1
32620     GOTO 32640
32630     L$(0) = L$(0) + "00"
32640     HP(D) = HP(D) + HP + VAL(LEFT$(OHP$,1))
32650     IF R1 THEN H(1) = 0 : R1 = 0 : HA$(1) = ""
32660     IF R2 THEN H(2) = 0 : R2 = 0 : HA$(2) = ""
32670     IF HP(D) > H(FL) THEN H(FL) = HP(D) : HA$(FL) = I$
32680     IF HP(D) = H(FL) THEN HA$(FL) = HA$(FL) + I$
32690     IF N1 = 1 THEN 32740
32700     K = N2 + N1 - 1 : K$ = STR$(K)
32710     IF K < 10 THEN K$ = "0" + K$
32720     IF HP(K) > H(FL) THEN H(FL) = HP(K):HA$ = K$
32730     IF HP(K) = H(FL) THEN HA$ = HA$ + K$
32740     GOTO 32780
32750     L$(0) = L$(0) + "CC"

```

```

32760      IF D < = BA(II) / 2 THEN Z1 = Z1 + 1: GOTO 32780
32770      Z2 = Z2 + 1
32780      D = D + 1
32790      NEXT IJ
32800      NEXT II
32810      IF Z1 > = MV AND Z2 > = N2 - MV THEN 32940
32820      IF Z1 > = MV THEN R2 = 1: GOTO 32850
32830      IF Z2 > = N2 - MV THEN R1 = 1: GOTO 32850
32840      R1 = 1:R2 = 1
32850      N = LEN (IN$(1)):N1 = LEN (IN$(2))
32860      IF N = 0 AND N1 = 0 THEN 32920
32870      C1 = C1 + 1
32880      MV = MV + N / 2
32890      BA(C1) = N + B(C1 - 1)
32900      B(C1) = N + N1 + B(C1 - 1)
32910      L$(0) = L$(0) + IN$(1) + IN$(2)
32920      L$(0) = MID$ (L$(0),N2 * 2 + 1)
32930      GOTO 32220
32940      IF H(2) > H(1) THEN 32970
32950      LL$ = L$( VAL ( LEFT$ ( HA$(1),2)))
32960      GOTO 32980
32970      LL$ = L$( VAL ( LEFT$ ( HA$(2),2)))
32980      LL$ = LS$ + LL$
32990      RETURN

```

```

32999 REM [CHECK OXX0]
33000 LD$ = "":OHP$ = ""
33010 FOR I4 = 1 TO LEN (LL$) - 2 STEP 2
33020   FOR I5 = I4 + 2 TO LEN (LL$) STEP 2
33030     IF I5 > LEN (LL$) THEN 33260
33040     K1$ = MID$ (LL$,I4,1)
33050     K2$ = MID$ (LL$,I5,1)
33060     K3$ = MID$ (LL$,I4 + 1,1)
33070     K4$ = MID$ (LL$,I5 + 1,1)
33080     IF K1$ < > K2$ AND K3$ < > K4$ THEN 33250
33090     K1 = VAL (K1$):K2 = VAL (K2$)
33100     K3 = VAL (K3$):K4 = VAL (K4$)
33110     S%(K1,K3) = 1
33120     X = K2:Y = K4
33130     GOSUB 5010
33140     S%(K1,K3) = 0
33150     IF PS THEN 33250
33160     OHP$ = MID$ (THP$, (I4+1) / 2,1) + MID$ (THP$, (I5+1) / 2,1)
33170     THP$ = LEFT$ (THP$, (I5-1) / 2) + MID$ (THP$, (I5+3) / 2)
33180     IF I4 = 1 THEN THP$ = MID$ (THP$,2): GOTO 33200
33190     THP$ = LEFT$ (THP$, (I4-1) / 2) + MID$ (THP$, (I4+3) / 2)
33200     LD$ = LD$ + K1$ + K3$ + K2$ + K4$
33210     LL$ = LEFT$ (LL$,I5-1) + MID$ (LL$,I5+2)
33220     IF I4 = 1 THEN LL$ = MID$ (LL$,3): GOTO 33240
33230     LL$ = LEFT$ (LL$,I4 - 1) + MID$ (LL$,I4 + 2)
33240     GOTO 33030
33250     NEXT I5
33260     NEXT I4
33270     HP = 0
33280     IF THP$ = "" THEN 33320
33290     FOR I4 = 1 TO LEN (THP$)
33300       HP = HP + VAL (MID$ (THP$,I4,1))
33310     NEXT I4

```

33320 RETURN

39999 REM [SEARCH]
40000 CU = 0:HP = 0:LC\$ = ""
40010 LL\$ = "":LD\$ = "":THP\$ = ""
40020 XDRAW 46 AT 184,YG
40030 FOR I2 = CA TO CB STEP CC
40040 XDRAW 46 AT 184,YG
40050 FOR I3 = CD TO CE STEP CF
40060 IF S\$(I2,I3) = "0" THEN 40610
40070 FOR I = 1 TO LEN (S\$(I2,I3)) STEP 2
40080 IF MID\$ (S\$(I2,I3),I,2) = I\$ THEN 40610
40090 NEXT I
40100 PS = 0:X1 = I2:Y1 = I3
40110 HL\$ = "":VL\$ = ""
40120 HC = 1:VC = 1
40130 X1\$ = STR\$ (X1):Y1\$ = STR\$ (Y1)
40135 REM CHECK LEFT HAND SIDE
40140 IF X1 < 2 THEN 40240
40150 FOR I4 = X1 - 1 TO 1 STEP - 1
40160 IF S\$(I4,Y1) = "" THEN 40240
40170 IF S\$(I4,Y1) = "0" THEN 40220
40180 FOR I = 1 TO LEN (S\$(I4,Y1)) STEP 2
40190 IF MID\$ (S\$(I4,Y1),I,2) = I\$ THEN 40220
40200 NEXT I
40210 GOTO 40240
40220 HC = HC + 1
40230 NEXT I4
40235 REM CHECK RIGHT HAND SIDE
40240 IF X1 > 8 THEN 40340
40250 FOR I4 = X1 + 1 TO 9
40260 IF S\$(I4,Y1) = "" THEN 40340
40270 IF S\$(I4,Y1) = "0" THEN 40320
40280 FOR I = 1 TO LEN (S\$(I4,Y1)) STEP 2
40290 IF MID\$ (S\$(I4,Y1),I,2) = I\$ THEN 40320
40300 NEXT I
40310 GOTO 40340
40320 HC = HC + 1
40330 NEXT I4
40335 REM CHECK UPWARD
40340 IF Y1 < 2 THEN 40440
40350 FOR I4 = Y1 - 1 TO 1 STEP - 1
40360 IF S\$(X1,I4) = "" THEN 40440
40370 IF S\$(X1,I4) = "0" THEN 40420
40380 FOR I = 1 TO LEN (S\$(X1,I4)) STEP 2
40390 IF MID\$ (S\$(X1,I4),I,2) = I\$ THEN 40420
40400 NEXT I
40410 GOTO 40440
40420 VC = VC + 1
40430 NEXT I4
40435 REM CHECK DOWNWARD
40440 IF Y1 > 8 THEN 40540
40450 FOR I4 = Y1 + 1 TO 9
40460 IF S\$(X1,I4) = "" THEN 40540
40470 IF S\$(X1,I4) = "0" THEN 40520
40480 FOR I = 1 TO LEN (S\$(X1,I4))
40490 IF MID\$ (S\$(X1,I4),I,2) = I\$ THEN 40520
40500 NEXT I

```
40510      GOTO 40540
40520      VC = VC + 1
40530      NEXT I4
40535 REM   INTERPRETATION
40540      IF HC / 3 = INT (HC / 3) THEN PS = HC
40550      IF VC / 3 = INT (VC / 3) THEN PS = PS + VC
40560      IF PS > 0 THEN THP$ = THP$ + STR$ (PS) : LL$ = LL$ + X1$ + Y1$
40570      IF PS = HP THEN CU = CU + 1 : LC$ = LC$ + X1$ + Y1$
40580      IF PS < = HP THEN 40610
40590      HP = PS:CU = 1
40600      LC$ = X1$ + Y1$
40610      NEXT I3
40620      NEXT I2
40630      RETURN
```

----- THIS IS THE END OF THE PROGRAM LISTING -----