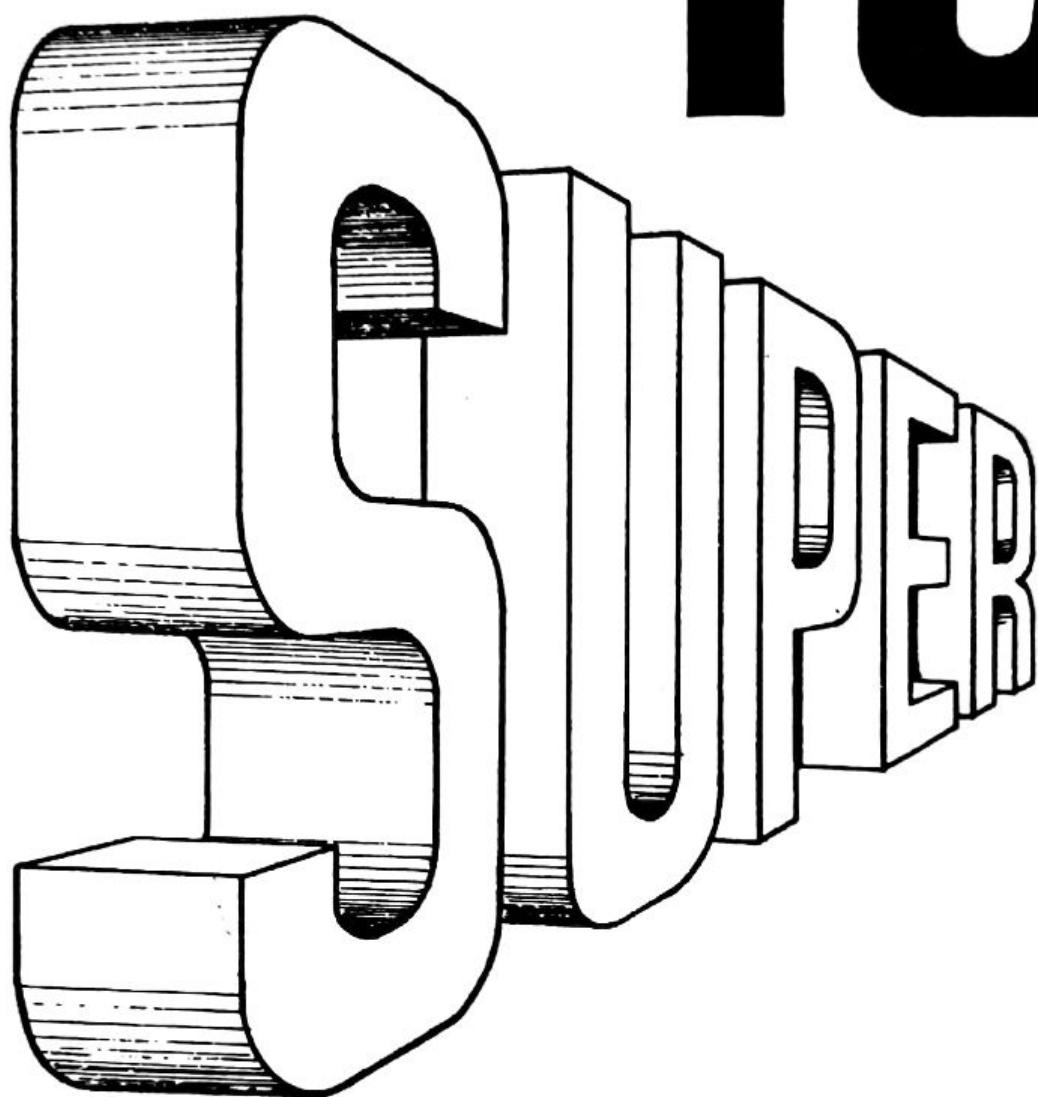


10



LYNX ☐ ☐ ☐

PROGRAMS

Produced by The Reading Lynx User Group.

TEN SUPER PROGRAMS FOR THE LYNX

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All programs will run on both the 48k and 96k Lynx
unless otherwise stated.

NOTE

Be careful that the following characters are distinguished :-

i is the number one
l is the little el
I is the large letter ey
▼ represents one space

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If you live or work in the Reading area we would like to see you in the group. For further information contact Alan Bristow on 0734 - 412176.

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TEN SUPER PROGRAMS FOR THE LYNX

S I M O N

~~~~~  
(c) S. Sawyer 1985

Simon is a game for 1 to 4 players where the computer prints letters on the screen, and then asks you to enter them in the same order that the computer displayed them. If you get the letters correct the amount of letters increases. If you get them wrong you are out of the game. The player who gets the most letters correct wins.

=====

```
80 REM **** SIMON (c) S.SAYER 1985 *****
90 LET D$ = CHR$(1) + CHR$(5),E$ = CHR$(1) + CHR$(4),F$ = CHR$(1) +
CHR$(7)
100 PROC INST
110 FOR A = 1 TO P
120   LET p = RAND(P) + 1,A$(0) = A$(A),A$(A) = A$(p),A$(p) = A$(0)
130   LET A(A) = 1
140 NEXT A
150 PROC SIMON
160 PROTECT 0
170 LET B = 1
180 REPEAT
190   FOR A = 1 TO P
200     INK GREEN
210     LET Q = RAND(26) + 65
220     IF A(A) = 99 THEN GOTO 290
230     LET B$(A) = B$(A) + CHR$(Q)
240     FOR C = 1 TO B
250       LET C$ = MID$(B(A),C,1)
260       PROC LETTER(ASC(C$))
270     NEXT C
280     PROC ENTER(A)
290   NEXT A
300   LET K = P
310   FOR A = 1 TO P
320     IF A(A) = 99 THEN LET K = K - 1
330   NEXT A
340   LET B = B + 1
350 UNTIL K = 0
360 FOR A = 1 TO P
370   LET l = LEN(B$(A))
380   PRINT @ 10,100 + A * 15;D$;A$(A);E$" got "F$;l-1;
E$" letters right";
390 NEXT A
395 INK MAGENTA
400 PRINT @ 10,200;"Do you want another go [Y/N]""
410 LET Y$ = GET$
420 IF UPC$(Y$) = "Y" THEN RUN
430 TEXT
440 END
450 DEFFPROC SIMON
```

## TEN SUPER PROGRAMS FOR THE LYNX

```
460 PROTECT 0
470 VDU 24,2,0,4,1,6,2,2
480 PRINT @ 50,0;" SIMON ";
490 VDU 25,1,4,2,0
500 PROTECT 3
510 ENDPROC
520 DEFPROC INST
530 PROC SIMON
540 PRINT @ 10,40;"Simon is a game where the computer prints out
    letters, and then asks you to enter the letters in the same order
    as the computer has displayed them."
550 PRINT @ 5,90;"If you get the letters right the amount of letters
    gets more until you get it wrong."
560 PRINT @ 3,200;"The game is for 1 to 4 players ";
570 INK 6
580 PROTECT 0
590 PRINT @ 10,215;"Enter number of players?";
600 LET P = GETN
610 IF P < 49 OR P > 52 THEN GOTO 600
620 BEEP 100,100,63
630 PRINT " ";CHR$(P);
640 LET P = P - 48
650 DIM A$(10)(P),B$(30)(P),A(P)
660 FOR A = 1 TO P
670 PRINT @ 10,230;CHR$(30)"Player ";A;" enter your name ";
680 INPUT A$(A)
690 NEXT A
700 ENDPROC
710 DEFPROC ENTER(E)
720 PRINT @ 10,200;A$(E);;" Enter the letters in order ";
730 PRINT @ 10,215;
740 INPUT C$
750 IF NOT C$ = B$(E) THEN GOTO LABEL WRONG
760 INK 3
770 PRINT @ 10,230;" RIGHT WELL DONE ";
780 FOR J = 1 TO 20
790     BEEP J * 10,J * 5,63
800 NEXT J
810 LET A(E) = A(E) + 1
820 PROC CLS
830 ENDPROC
840 LABEL WRONG
850 INK 3
860 PRINT @ 10,230;" WRONG IT WAS ";B$(E);
870 FOR J = 1 TO 20
880     BEEP J * 2,J * 20,63
890 NEXT J
900 LET A(E) = 99
910 PROC CLS
920 ENDPROC
930 DEFPROC CLS
940 PRINT @ 10,200;CHR$(30);@ 10,215;CHR$(30);@ 10,230;CHR$(30);
950 ENDPROC
960 DEFPROC LETTER(q)
970 CODE 08 F5 08 E5 D5 C5 D9 E5 C5 D5 F5 D9 06 02 C5 46 23 4E 23 56
```

## TEN SUPER PROGRAMS FOR THE LYNX

```
23 5E 23 E5 D5 D9 01 20 00 E5 09 E5 09 54 5D 09 EB D9 E1 D1 D9 00
01 FF FF ED 79 08 C1 3E 40 D3 B0 D6 20 D3 B0 70 EB 71 D9 71 EB 70
00 D6 20 D3 B0 AF 01 FF FF ED 79 E1 D9 11 20 00 19 D9 08 C1 10 B8
D9 F1 D1 C1 E1 D9 C1 D1 E1 08 F1 08 C9 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
980 CODE 7D 21 0C C6 D9 CD CE 00 0E 0B E5 7E CB 27 CB 27 06 06 CB 27
38 05 21 0E 74 1B 03 21 16 74 F5 3E 17 CD 51 73 D9 23 D9 F1 10 E8
D9 11 FA 00 19 D9 E1 23 OD 20 D5 C9 00
990 CODE 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1000 DPOKE LCTN(980) + 34,LCTN(970)
1010 DPOKE LCTN(980) + 23,LCTN(990)
1020 DPOKE LCTN(980) + 28,LCTN(990) + 8
1030 CALL LCTN(980),9
1040 PAUSE 10000
1050 CALL LCTN(980),32
1060 ENDPROC
```

-----

### Variables Used

A = For/Next Loop  
B = Letter Count  
E = Player Number in Enter Proc  
J = For/Next Loop - Beep Loop  
P = Number of Players  
p = Random Number  
l = Length of String

D\$,E\$,F\$ = Used to change ink colour  
C\$ = String holding letters players enter.

### Arrays

A\$(P) = Player names  
B\$(P) = Array holding each Players letters  
A(P) = Amont of letters guessed correctly for each player and if = 99  
end of players go.

### Program Structure

90 Set up ink colour change strings  
110 - 140 Set up random order of players  
190 - 290 Main program loop, set up random letters for each player.  
300 - 350 Check if every player has finished or not.  
360 - 390 Prints out results of each player.  
395 - 440 Another go - Game end.  
450 - 510 Prints Simon at top of screen.  
520 - 700 Instructions - enter players names.  
710 - 830 Enter routine, guess letters.  
840 - 920 Wrong routine, prints out correct order and sound.  
960 - 1060 Prints large letters to screen.

C A L E N D E R  
~~~~~  
(c) Colin I Clayman 1985

This program shows the calender for any month of any year, including those before September 1752 when the calender was changed from Julian to present-day Gregorian.

First enter the month and year in the form 7,1985; for a year B.C. type the year as negative e.g. -4 for 4 B.C. The calender for that month is displayed. You may then ask for another month or quit by typing 0,0 to the prompt.

=====

```
10 REM CALENDAR/1265
20 REM (c) Colin I Clayman, 1985
30 LET I = 1, M = 12, L = 4, D = 7, P = 9
40 DIM M$(9)(M)
50 DATA January, February, March, April, May, June, July, August, September,
   October, November, December
60 PROC INTRO
70 FOR i = I TO M
80   READ M$(i)
90 NEXT i
100 REPEAT
110   REPEAT
120     INPUT "Enter Month & Year required"; m, y
130     UNTIL m > = FALSE AND m < = M
140     IF NOT m OR NOT y THEN END
150     IF y < I THEN LET A$ = "B.C."
160     ELSE LET A$ = "A.D."
170     CLS
180     PRINT TAB P; "Month of " M$(m) " " ABS(y); A$
190     PRINT
200     PRINT TAB P; "Sun Mon Tue Wed Thu Fri Sat "
210     IF y < I THEN LET y = y + I
220     PROC DAY
230     LET s = d, m = m + I
240     IF m > M THEN LET m = I, y = y + I
250     PROC DAY
260     LET p = s MOD (D * D * D) MOD D
270     FOR i = I TO d - s
280       LET d = i + 11 * (y = 1752 AND m = 10 AND i > 2)
290       PRINT TAB P + I + L * p - (d > 9); d;
300       LET p = (p + I) MOD D
310       IF NOT p THEN PRINT
320     NEXT i
330     PRINT
340     PRINT
350 UNTIL FALSE
360 DEFPROC DAY
370 LET k = y + 4712, d = INT(k/L) + 365 * k + INT(30.6 * m - 32.3 +
   (2.3 - NOT k MOD L) * (m < = I + I) + I + I)
380 REM After September. 1752
```

```

390 IF d > 2361220 THEN LET d = d - INT(0.75 *INT((y - 300 - (m < = 1
+ I)) / 100)) - I
400 ENDPROC
410 DEFPROC INTRO
420 CLS
430 PRINT @ 39,I;
440 VDU 24,21,14
450 PRINT "C A L E N D E R ";@ 3,25;
460 VDU 15,20,25
470 PRINT "A program to print a calendar of any","month of any
year.",,"For B.C. enter the year as negative .","To stop enter
two zeroes."
480 ENDPROC

```

Program Notes

VARIABLES USED

Constants

```

I = 1
M = 12:Months per year
D = 7 :Days per week
L = 4 :Leap years
P = 9 :Horizontal char.position

```

Variables

```

m = month
y = year
s = start day
d = end day
p = day of the week
A$ = AD/BC

```

Arrays

```
M$(M) = Months of the year
```

PROGRAM STRUCTURE

Lines	Used
30 - 40	Variables declaration
50 - 90	Introduction and initialisation
100 - 350	1 month
110 - 160	Get month & year
170 - 200	Headings
210 - 260	Start and finish days
270 - 340	Print dates
360 - 400	DAY - calculate days since a base date
410 - 480	INTRO - Introduction

TEN SUPER PROGRAMS FOR THE LYNX

LYNX TYPING

~~~~~  
(c) Colin I Clayman 1985

### DESCRIPTION

-----  
This program allows you to test your reaction speed by getting you to type the random letters it displays as quickly as you can. After 1 minute you will be told how many you got right out of the total presented in that time.

You may keep having another go and it will keep track of the highest score.

=====

```
10 REM TYPING /893
15 REM (c) Colin I Clayman, 1985
20 LET I = 1, W = 10, A = 55, B= 63, T = 10897, K = 35.04, h = FALSE
30 RANDOM
40 REPEAT
50 LET s = FALSE, t = s, n = -I
60 CLS
70 PRINT CHR$(24)"This is a test of your typing speed.", "Type the
letter you see at the centre of the screen as quickly as you
can and see how many you get right in 1 minute."
80 PRINT
90 PRINT , "HIT ANY KEY TO START !";
100 LET k = GETN
110 CLS
120 VDU 7
130 REPEAT
140 LET L$ = CHR$(ASC("A") + RAND(26)), n = n + I, t = t + K
150 PRINT @ A,B;L$"      ";
160 REPEAT
170 LET K$ = KEY$, K$ = UPC$(K$), t = t + I
180 UNTIL NOT K$ = "" OR t > = T
190 VDU 22,22,22,22
200 PRINT ":" K$;
210 IF K$ = L$ THEN LET s = s + I
220 UNTIL t > = T
230 PRINT @ W,B;CHR$(7)"You got " s ;" right out of "n
240 IF s > h THEN PRINT "You got the new high score : "s
250 IF s > h THEN LET h = s
260 PRINT , "ANOTHER GO (Y/N)?CHR$(25)
270 REPEAT
280 LET K$ = GET$,K$ = UPC$(K$)
300 UNTIL K$ = "Y" OR K$ = "N"
310 UNTIL K$ = "N"
```

=====

**PROGRAM NOTES****VARIABLES USED****Constants**

```
I = 1
W = 10 : Score horizontal position
A = 55 : Letter horizontal position
B = 63 : Letter vertical position
T = 10897 : key reads per min.
K = 35.04 : time to set and check
           letters in key reads
```

**Variables**

```
n = no. of letters presented
s = no. correct
h = high score
t = time in key reads
k = key press
L$ = random letter
K$ = char. typed
```

**PROGRAM STRUCTURE****Lines**

| Lines     | Use                     |
|-----------|-------------------------|
| 20        | Variables declaration   |
| 40 - 310  | i test                  |
| 50 - 120  | Instructions and start  |
| 130 - 220 | 1 Letter                |
| 140 - 150 | Show letter             |
| 160 - 180 | Time response           |
| 190 - 210 | Show and check response |
| 230 - 260 | Print score             |
| 270 - 300 | Again ?                 |

# TEN SUPER PROGRAMS FOR THE LYNX

## STOCK MARKET

(c) Colin I Clayman 1985

### DESCRIPTION

This is a game of buying and selling on the Stock Market, either between 2 players or 1 player and the Lynx. Each player starts with £10000 cash and no shares. By investing cash in shares its value will change, hopefully upwards, until one of the players wins when his cash exceeds an agreed Target. To achieve this he must convert enough of his shares' value into cash.

On each turn you are offered one of the 8 shares to buy or sell, with current holding highlighted and a right - arrow pointing at its price, You may either :

- Buy by typing a positive number of shares valued no more than your cash left; the share price will likely then go up,
- Sell by typing a negative number no more than your holding; the share price will likely then go down,
- Do nothing by typing 0.

=====

```
10 REM STOCK MARKET /1696
20 REM (c) Colin I Clayman, 1985
20 LET I = 1, P = I + I, N = 8, p = NOT I, L$ = CHR$(31), I$ = CHR$(18)
30 DIM C(I), V(I), P(N), H(N*P), S$(N)(N)
40 DATA BASS:, BOOTS:, COMET:, FISONS:, ICL:, M&S:, SHELL:, THORN:
50 RANDOM
60 FOR s = I TO N
70   LET P(s) = 100, H(s) = p, H(N + s) = H(s)
80   READ S$(s)
90 NEXT s
100 LET C(p) = 10000, C(I) = C(p), w = I
110 CLS
120 PRINT @ 42, 5; CHR$(24) "STOCK MARKET" CHR$(25); @ P + I, N * N;
130 REPEAT
135 INPUT "1 or 2 Players"; q
140 UNTIL q = I OR q = P
150 IF q = I THEN PRINT "O.K. I'll be player 1" L$;
160 PRINT L$"You start with £10000 cash."; L$;
170 INPUT "What is your Cash Target £"; t
180 CLS
190 PRINT "HOLDING Player1 Player2 PRICE £ Buy/Sell"; =====
===== ===== =====
200 FOR s = I TO N
210   PRINT S$(s), H(s), H(N + s), P(s); L$;
220 NEXT s
230 PRINT =====; L$;
240 REPEAT
250 LET w = RAND(N) + I, V(p) = C(p), V(NOT p) = C(NOT p)
```

## TEN SUPER PROGRAMS FOR THE LYNX

```

260 FOR s = I TO N
270   FOR i = NOT I TO I
280     LET V(i) = V(i) + H(N * i + s) * P(s)
290   NEXT i
300 NEXT s
310 PROC POINT(p)
320 REPEAT
330   PRINT @ N,165;CHR$(7)"Player "p + I;"'s turn";
340   IF q + p = I THEN LET b = -H(w) + (H(w) + RAND((C(p) +
350     I/P)/P(w)/(I + P * (H(N + w) > N))) * (V(p) < t) * NOT
360     RAND(H(w) + I + H(N + w) * (H(N + w) > N AND H(w)))
370   ELSE INPUT b
380 UNTIL -b <= H(N * p + w) AND b * P(w) <= C(p)
390 IF b THEN LET C(p) = C(p) - b * P(w), H(N * p + w) = H(N * p + w)
400   + b, P(w) = P(w) + SGN(b) * INT(SQR(ABS(b))) * (RAND(N) - P)
410 LET p = NOT p
420 PAUSE t
430 IF P(w) < 10 THEN LET P(w) = 10
440 END
450 DEFFPROC POINT(i)
460 PRINT @ 27 + 24 * i, 15 + 10 * w;CHR$(18 *(i = p)); H(N * i + w)
470   ;CHR$(18 *(i = p)), @ 75,15 + 10 * w;P(w), TAB 33;CHR$(124 *
480   (i = p)); @ 3,115;"VALUE £",V(NOTI),V(I),L$:
490 PRINT " CASH £",C(NOTI),C(I),"Target £"t;L$;
500 ENDPROC

```

-----

# TEN SUPER PROGRAMS FOR THE LYNX

## PROGRAM STRUCTURE

### VARIABLES USED

#### Constants

```
I = 1  
P = 2 : No of players  
N = 8 : No.of shares  
L$ = CHR$(31) : Newline  
IS = CHR$(18) : Inverse display
```

#### Variables

```
q = no. cf human players  
t = cash target  
p = player no.  
w = share on offer  
b = no. bought  
i,s = loop indices
```

#### Array

```
C(I) = Player's Cash  
V(I) = Player's Values  
P(N) = Share Prices  
H(2 * N) = Player's Holdings  
S$(N) = Share names
```

## PROGRAM STRUCTURE

### Lines

```
20 - 30  
X40 -100  
110 - 170  
180 - 230  
240 - 420  
250  
260 - 310  
  
320 - 360  
370 - 415  
  
430  
450 - 480
```

### Use

```
--  
Variables Declaration  
Read share names and initialise arrays  
Get no.of players and target  
Print share table  
1 go  
Choose share on offer  
Calculate & print present values and show  
share  
Get no. bought; random if Lynx  
Update cash and holding and make new  
price  
Show winner  
POINT (i) - Print values of player i and  
pointer if needed
```

## M A G I C   S Q U A R E S

```

100 REM BY M.R.SAWYER 26-4-85
110 DIM M(B * B),I(B * B)
120 PROC SETUP
130 PROC INSTRUCTIONS
140 LABEL RESTART
150 PROC LEVEL OF DIFF
160 PROC SETUP
170 LABEL CONT
180 FOR A = BLACK TO B*B
190 LET I(A) = BLACK, M(A) = BLACK
200 NEXT A
210 PROC BOARD
220 PROC MAGIC SQUARE
230 PROC REFLECTION
240 PROC NUM ON BOARD
250 PROC ENTER
260 GOTO LABEL FINISH
270 DEFFPROC SETUP
280 PROTECT BLACK
290 LET Y = BLACK,p = Y,D = MAGENTA, X = BLUE, T = Y, r = X, P = Y,
    X$ = CHR$(30) + CHR$(31)
300 FOR A = Y TO B * B
310 LET M(A) = Y, I(A) = Y
320 NEXT A
330 PAPER Y
340 ENDPROC
350 DEFFPROC BOARD
360 VDU GREEN,BLUE,CYAN,RED,RED
370 PRINT @40,BLACK;"MAGIC SQUARES";
380 PAPER BLACK
390 PRINT @82,0;"By M.R.Sawyer";
400 INK RED
410 PRINT @ 10,BLACK;"Time :";INT(T + P);
420 IF D=MAGENTA THEN LET m = 80
430 IF D=GREEN THEN LET m = 70
440 IF D=CYAN THEN LET m = 60
450 IF D>CYAN THEN LET m = 50
460 LET n = 50
470 IF G = BLUE THEN LET m = 80, n = 180
480 INK RED
490 FOR A = BLACK TO D
500 MOVE m,(A * 20) + n
510 DRAW (D * 20) + m, (A * 20) + n
520 NEXT A
530 FOR A = BLACK TO D
540 MOVE (A * 20) +m, n
550 DRAW (A * 20) + m, (D * 20) + n
560 NEXT A
570 ENDPROC
580 DEFFPROC PRINT(M,N,Q)
590 PRINT @ (M * 10) + m/RED - 8,(N * 20) + n -15;Q;
600 BEEP50,100,63

```

```

610 ENDPROC
620 DEFFPROC MAGIC SQUARE
630 LET r = BLUE
640 IF D = GREEN THEN PROC FORTH ORDER
650 IF D = YELLOW THEN PROC SIXTH ORDER
660 IF D <> GREEN AND D <> YELLOW THEN PROC SQUARE
670 ENDPROC
680 DEFFPROC SQUARE
690 LET C = INT(D/RED) + BLUE
700 LET M((r - BLUE) * D + (C - BLUE)) = X
710 LABEL LOOP
720 LET X = X + BLUE, C = C + BLUE, r = r - BLUE
730 IF r < BLUE THEN GOTO LABEL ROW=0
740 IF C > D THEN GOTO LABEL C > D
750 LABEL LOOP 2
760 IF M((r - BLUE) * D + (C - BLUE)) > BLACK THEN GOTO LABEL A
770 LET M((r - BLUE) * D + (C - BLUE)) = X
780 IF X >= (D ** RED - 0.1 + Y) THEN ENDPROC
790 GOTO LABEL LOOP
800 LABEL ROW=0
810 IF C > D THEN GOTO LABEL A
820 LET r = r + D
830 GOTO LABEL LOOP 2
840 LABEL C > D
850 LET C = C - D
860 GOTO LABEL LOOP 2
870 LABEL A
880 LET C = C - BLUE
890 LET r = r + RED
900 GOTO LABEL LOOP 2
910 DEFFPROC FORTH ORDER
920 FOR J=BLUE TO GREEN
930   FOR K=BLUE TO GREEN
940     LET M((J - BLUE) * D + (K - BLUE)) = X + GREEN * (J - BLUE)
        + K - BLUE
950   NEXT K
960 NEXT J
970 FOR J=BLUE TO RED
980   LET I((J - BLUE) * D + (J - BLUE)) = M((J - BLUE) * D + (J - BLUE))
990   LET M((J - BLUE) * D + (J - BLUE)) = M((CYAN - J - BLUE) * D
        + (CYAN - J - BLUE))
1000  LET M(GREEN - J) * D + (GREEN - J) = I((J - BLUE) * D + (J - BLUE))
1010  LET K = CYAN - J
1020  LET I((J - 1) * D + (K - 1)) = M((J - 1) * D + (K - 1))
1030  LET M((J - 1) * D + (K - 1)) = M((K - 1) * D + (J - 1))
1040  LET M((K - 1) * D + (J - 1)) = I((J - 1) * D + (K - 1))
1050 NEXT J
1060 LET V = RND
1070 ENDPROC
1080 DEFFPROC SIXTH ORDER
1090 LET D = MAGENTA
1100 PROC SQUARE
1110 LET D = YELLOW
1120 FOR J = 1 TO 3
1130   FOR K = 1 TO 3

```

## TEN SUPER PROGRAMS FOR THE LYNX

```

1140 LET I((J - 1) * D + (K - 1)) = M((J - 1) * 3 + (K - 1))
1150 NEXT K
1160 NEXT J
1170 FOR J = 1 TO 64
1180 LET M(J) = I(J)
1190 NEXT J
1200 FOR J = 1 TO 3
1210 FOR K = 1 TO 3
1220 LET M((J - 1) * D + (K + 3 - 1)) = M((J - 1) * D + (K - 1))
+ 18
1230 LET M((J + 3 - 1) * D + (K - 1)) = M((J - 1) * D + (K - 1))
+ 27
1240 LET M((J + 3 - 1) * D + (K + 3 - 1)) = M((J - 1) * D + (K - D1))
+ 9
1250 NEXT K
1260 NEXT J
1270 FOR J = 1 TO 3
1280 LET K + 1
1290 IF J = 2 THEN LET K = 2
1300 LET I((J - 1) * D + (K - 1)) = M((J - 1) * D + (K - 1))
1310 LET M((J - 1) * D + (K - 1)) = M((J + 3 - 1) * D + (K - 1))
1320 LET M((J + 2) * D + (K - 1)) = I((J - 1) * D + (K - 1))
1330 NEXT J
1340 ENDPROC
1350 DEFPROC REFLECTION
1360 LET R = RND, V = 0, S = RND
1370 IF S > 0.66 THEN PROC 3
1380 ELSE IF S > 0.33 THEN PROC 2
1390 IF V = 2 THEN GOTO LABEL B
1400 FOR J = 1 TO D
1410 FOR K = 1 TO D
1420 LET I((K - 1) * D + (D - J)) = M((J - 1) (*D+(K-1)))
1430 NEXT K
1440 NEXT J
1450 LET R = R-0.33
1460 LABEL B
1470 FOR J = 1 TO D
1480 FOR K = 1 TO D
1490 LET M((J - 1) * D + (K - 1)) = I((J - 1) * D + (K - 1))
1500 NEXT K
1510 NEXT J
1520 IF R > 0.1 THEN GOTO 1400
1530 ENDPROC
1540 DEFFPROC
1550 FOR J = 1 TO D
1560 FOR K = 1 TO D
1570 LET I((D - J) * D + (K - 1)) = M((J - 1) * D + (K - 1))
1580 NEXT K
1590 NEXT J
1600 LET V = 2
1610 ENDPROC
1620 DEFFPROC 2
1630 FOR J = 1 TO D
1640 FOR K = 1 TO D
1650 LET I((D - J) * D + (K - 1)) = M((J - 1) * D + (K - 1))

```

## TEN SUPER PROGRAMS FOR THE LYNX

```

1660 NEXT K
1670 NEXT J
1680 LET V =2
1690 ENDPROC
1700 DEFPROC NUM ON BOARD
1710 INK CYAN
1720 FOR J = 1 TO D
1730   FOR K = 1 TO D
1740     IF G < > 1 AND (K = 3 OR J = 3) THEN GOTO 1760
1750     PROC PRINT(K,J,M((J - 1) * D +(K - 1)))
1760   NEXT K
1770 NEXT J
1780 ENDPROC
1790 DEFFPROC ENTER
1800 LET Z = (D**3 + D)/2 + D * Y,F = 239
1810 PRINT @ 40,200;"Magic number:";Z
1820 LET J = MAGENTA,K = BLACK
1830 REPEAT
1840   LET f = 0
1850   LET K = K + 1
1860   IF K = J THEN GOTO 1980
1870   REPEAT
1880   PRINT @ 0,230;CHR$(30);@ 40,230;"enter number:";CHR$(30);
1890   PROC KEYN
1900   IF C < M ((J - 1) * D + (K - 1)) AND f < D THEN LET F = 72, f =
f + 1
1910   IF C > M ((J - 1) * D + (K - 1)) AND f < D THEN LET F = 76, f =
f + 1
1920   IF C = M ((J - 1) * D + (K - 1)) THEN LET A = 99
1930   ELSE LET A = 0
1940   IF f = D THEN LET F = 242
1950   UNTIL A = 99 OR T + P > 400
1960   IF T + P < = 400 THEN PROC PRINT(K,J,C)
1970   LET F = 239
1980 UNTIL K = D OR T + P > 400
1990 IF T + P > 400 THEN GOTO 2160
2000 LET K + 3, J = 0
2010 REPEAT
2020   LET f = 0
2030   LET J = J + 1
2040   REPEAT
2050   PRINT @ 40,230;CHR$(30)"Enter number:";
2060   PROC KEYN
2070   IF C < M ((J - 1) * D + (K - 1)) AND f < D THEN LET F = 72, f =
f + 1
2080   IF C> M((J - 1) * D + (K - 1)) AND f < D THEN LET F = 76, f = f +
2090   IF C=M((J - 1) * D + (K - 1)) THEN LET A = 99
2100   ELSE A = 0
2110   IF f = D THEN LET F = 242
2120   UNTIL A = 99 or T + P > 400
2130   IF NOT T + P > 400 THEN PROC PRINT(K,J,C)
2140   LET F = 239
2150 UNTIL J = D OR T + P > 400
2160 ENDPROC
2170 DEFPROC INSTRUCTIONS

```

```

2180 VDU 7
2190 LET G = 1
2200 PROC BOARD
2210 PROC MAGIC SQUARE
2220 PROC NUM ON BOARD
2230 LET G = 0
2240 PRINT @0,0;""
2250 INK GREEN
2260 VDU 24
2270 PRINT @35,10;"INSTRUCTIONS"
2280 VDU 21
2290 PRINT @35,10;"-----"
2300 VDU 20,25
2310 INK CYAN
2320 PRINT @10,40;"In the Magic Square shown below each"; @BLACK,50;"row, column and diagonal adds up to 15."
2330 PRINT @10,60;"There are many different sizes of";@BLACK,70;"Magic Squares, each adding up to a";@Black,80;Magic Number.";@10,90;"You must fill in missing numbers as ";@0,100;"quickly as possible."
2340 PRINT @10,110;"If you are quick you will be promoted";
@BLACK,120;"to a bigger square, else I will leave you or";@0,130;"or relegate you.";@40,150;CHR$(1);CHR$(2);
"You have 400 seconds";

2350 INK YELLOW
2360 PAPER MAGENTA
2370 PRINT @20,243;"PRESS A KEY TO CONTINUE";
2380 LET V$=GET$
2390 VDU RED,BLACK
2400 ENDPROC
2410 DEFPROC LEVEL OF DIFF
2420 CLS
2430 VDU BLUE,CYAN,RED,RED
2440 PRINT @40,0;"MAGIC SQUARE";
2450 VDU RED,BLACK
2460 PRINT@ 80,0;"By M.R.Sawyer";
2470 INK YELLOW
2480 LET S$=CHR$(BLUE)+CHR$(RED),Y$=CHR$(BLUE)+CHR$(WHITE)
2490 PRINT @10, 30;"Enter level of Difficulty?"; @3, 50; S$;"[1]";Y$;
" Beginner.";@3,60;S$"[2]";Y$;" Average.";@3,70;S$;"[3]";Y$;
" Expert.";@3,80;S$;"[4]";Y$;" Impossible.";
2500 LET L = GETN - 48
2510 BEEP 50,50,63
2520 IF L < BLUE OR L > GREEN THEN GOTO 2500
2530 IF L = BLUE THEN LET D$ = "BEGINNER",x = 1
2540 IF L = RED THEN LET D$ = "AVERAGE",x = 4
2550 IF L = MAGENTA THEN LET D$ = "EXPERT",x = 8
2560 IF L = GREEN THEN LET D$ = "IMPOSSIBLE",x = 8,d = 2
2570 ELSE LET d = 1
2580 ENDPROC
2590 LABEL FINISH
2600 IF T > D ** 3 * 2 / d THEN GOTO 2620
2610 ELSE 2640
2620 LET D = D -1, X = INT(RND * (x **2 + 1)) + 1, Y = X -1, H = 1
2630 GOTO 2660

```

TEN SUPER PROGRAMS FOR THE LYNX

```

2640 IF T < D ** 3/d THEN LET D = D + 1, X = INT(RND * (x ** 2 + 1))
    + 1, Y = X -1, H = 3
2650 ELSE LET X = INT(0.5 * (RND*(x ** 2 + 1))) + 1, Y = X - 1, H = 2
2660 LET P = P+T
2665 IF P> 400 THEN GOTO LABEL END OF GAME
2670 LET T = 0
2680 IF D = 8 THEN GOTO LABEL EXELLENT
2690 IF D = 2 THEN LET D = 3
2700 IF D = 3 THEN LET B$ = "NOVICE"
2710 IF D = 5 THEN LET B$ = "EXPERT"
2720 IF D = 6 THEN LET B$ = "MASTER"
2730 IF D = 7 THEN LET B$ = "GRAND MASTER"
2740 IF D = 4 THEN LET B$ = "CHALLENGER"
2750 VDU 1,6,2,2,
2760 FOR A = 500 TO 1 STEP -1
2770     BEEP A,1,63
2780 NEXT A
2790 IF H = 1 THEN PRINT @ 3,200;"You have been relegated "X$"to ";B$
    level ";CHR$(30);
2800 IF H = 2 THEN PRINT@3,200"You have done well you will stay "X$"on "
    ";B$"level ";CHR$(30);
2810 IF H = 3 THEN PRINT @3,200"You have excelled, you will be
    "X$"promoted to ";B$" level ";CHR$(30);
2820 VDU BLUE,YELLOW,RED,BLUE
2830 INK BLACK
2840 PAPER CYAN
2850 PRINT @ 20,230;"PRESS A KEY TO CONTINUE";
2860 VDU RED,BLACK
2870 LET V$ = GET$
2880 IF P < 400 THEN GOTO LABEL CONT
2890 LABEL END OF GAME
2900 INK WHITE
2910 PAPER RED
2920 PRINT @ 40,BLACK;"END OF GAME ";
2930 INK CYAN
2940 PAPER RED
2950 PRINT @ 0,200;CHR$(30);@ 10,200;"Well done, you managed to get to";
    @0,210;CHR$(30);@10,210;B$;" level. Class-";D$;@0,220;CHR$(30);
2960 INK BLACK
2970 PAPER CYAN
2980 PRINT @ 0,230;CHR$(30);"(w)*****Another go [Yes / No] ";
2990 LET V$ = GET$
3000 PAPER BLACK
3010 IF UPC$(V$)="Y" THEN RUN
3020 IF UPC$(V$) = "N" THEN LABEL EN
3030 GOTO 2990
3040 LABEL EN
3050 VDU 25,WHITE
3060 TEXT
3070 END
3080 LABEL EXELLENT
3090 PAPER RED
3100 INK CYAN
3110 PRINT @ 40,BLACK;" WELL DONE ";
3120 PRINT @ 3,200;"Excellent-try next degree of difficulty";

```

## TEN SUPER PROGRAMS FOR THE LYNX

```

3130 PAPER BLACK
3140 PRINT @ 0,210;CHR$(30);@0,220;CHR$(30);@0,230;CHR$(30);
3150 PAPER RED
3160 INK YELLOW
3170 PRINT @ 20,230;"Press 'R' to restart";
3180 LET V$ = GET$
3190 PAPER BLACK
3200 IF UPC$(V$) = "R" THEN GOTO LABEL RESTART
3210 ELSE GOTO 3200
3220 DEFFPROC KEY
3230 REPEAT
3240 LET T = T + 0.125
3250 PAUSE 300
3260 IF T DIV 0.25 = T /0.25 OR T DIV 0.75 = T/0.75 THEN PROC
FLASH
3270 LET F$ = " "
3280 IF T DIV 1 - T/1 OR T DIV 0.5 = T/0.5 THEN PROC FLASH
3290 LET F$ = CHR$(F)
3300 IF T/1 = T DIV 1 THEN PRINT @28,0;T+INT(P);
3310 LET A = KEYN
3320 UNTIL A < > 0 OR T + P > 400
3330 BEEP 50,50,50
3340 IF A > 47 AND A < 58 OR T + P > 400 THEN ENDPROC
3350 IF A < > 13 AND A < > 8 THEN GOTO 3230
3360 ENDPROC
3370 DEFFPROC KEYN
3380 LET A$ = ""
3390 LET B = 0
3400 LET A = 0
3410 REPEAT
3420 PROC KEY
3430 IF A = 13 OR A = 8 THEN GOTO 3480
3440 PRINT @ 80 + B * 3,230;A - 48;"    ";
3450 LET A$ = A$ + CHR$(A)
3460 LET B = B + 1
3470 GOTO 3520
3480 PRINT @80 + B *3,230;
3490 IF B > 0 AND A = 8 THEN VDU 8
3500 IF A = B AND B > 0 THEN LET A$ = LEFT$(A$,B-1)
3510 IF B > 1 THEN LET B = B -1
3520 UNTIL A = 13 OR T + F > 400
3530 LET C = VAL(A$)
3540 ENDPROC
3550 DEFFPROC FLASH
3560 PRINT @ (K * 10) + m/2 - B,(J * 20) + n -15;F$;
3570 ENDPROC

```

-----

# TEN SUPER PROGRAMS FOR THE LYNX

## PROGRAM NOTES

~~~~~

VARIABLES USED

A = All Use
D = Size of Square
m = Location of square
n = Location of Square
Q = Number in Square
m + n + Loaction of Square
J = Loop counter
K = "
S = Rnd
V = Check
z = Location of Square
T = Time
p = Constant Time
L = Level of Play
B = All use

ARRAYS USED

M(8 * 8) = Number on Board
I(8 * 8) = " " "

STRINGS

X\$ = Clear to end of Line

PROGRAM STRUCTURE

Lines

140 - 250
270 - 340
350 - 570
580 - 610
620 - 670
680 - 900
910 - 1070
1080 - 1340
1350 - 1530
1540 - 1610
1620 - 1690
1700 - 1780
1790 - 2160
2170 - 2400
2400 - 2500
2540 - 3070
3080 - 3360
3370 - 3540
3550 - 3570

Use

Main Routine
Set up routine
Prints Board
Prints Number on Board
Magic square - main
Square routine
Fourth order routine
Sixth order routine
Reflection
Three routine
Two routine
Prints number on Board
Enter routine
Instructions
Level of Difficulty Enter
Finish routine
Excellant routine
Key enter routine
Flash

B I O R H Y T H M
~~~~~

(c) Colin I Clayman - 1985

This program will calculate your biorhythms and show graphically how they will vary over the next month. Your biorhythms, measured on the scale 100%(up) to -100%(down), reflect your Physical, Emotional, and Intellectual states which are considered to vary periodically since birth.

You are first invited to give today's date, e.g. 01/04/85; don't forget to put 2 digits for each part e.g. January is 01 not 1.

Then each person is asked for his/her name and date of birth in the same form.

Your 3 biorhythms and their average are given and your average is plotted for the next 30 days.

=====

```

10 REM BIORHYTHM/1535
15 REM (c) Colin I Clayman , 1985
20 LET I = 1, T = I + I,n = - I
30 REPEAT
40 CLS
50 PRINT @ 48,3;CHR$(24); "BIORHYTHMS"CHR$(25);@3,25;
60 PRINT "Today's date (dd/mm/yy)";
70 IF n < I THEN INPUT B$
80 ELSE PRINT " "N$
90 IF n < I THEN PROC DATE
100 IF n < I THEN LET n = d, Y = y, N$ = B$
110 INPUT "Your name";W$
120 INPUT "Date of birth (dd/mm/yy)";B$
130 PROC DATE
140 LET I = n - d
150 FOR i = y to Y -1
160   LET I = I + (365 + (NOT i MOD 4 AND i MOD 100)) * (y < > Y)
170 NEXT i
180 LET y = 1
190 PROC BIO(1)
200 PRINT
210 PRINT"PHYSICAL:",p
220 PRINT"EMOTIONAL:",e
230 PRINT"INTELLECTUAL:", m
240 PRINT"===== "
250 PRINT"AVERAGE:",a
260 PRINT
270 INK GREEN
280 PRINT"For the next 30 days:-";@6,135;"GOOD DAYS";@6,235;"BAD DAYS";
290 MOVE 6,135
300 DRAW 6,245

```

# TEN SUPER PROGRAMS FOR THE LYNX

```
310 MOVE 246,190
320 DRAW 6,190
330 FOR i = NOT I to 30
340 PROC BIO(i + y)
350 DRAW 8 * i +6,190 - a * 0.55
360 INK WHITE
370 NEXT i
380 LET B$ = GET$
390 UNTIL UFC$(B$) = "Q"
400 END
410 DEFPROC BIO(1)
420 REM CALCULATE BIORHYTHM
430 LET p = INT(100 * SIN(2 * PI * 1/23) + 0.5)
440 LET e = INT(100 * SIN(2 * PI * 1/28) + 0.5)
450 LET m = INT(100 * SIN(2 * PI * 1/33) + 0.5)
460 LET a = INT((p + e + m) / 3 + 0.5)
470 ENDPROC
480 DEFPROC DATE
490 REM DATE & NO. OF DAYS FROM START OF YEAR
500 LET d = VAL(B$), m = VAL(MID$(B$, T + T, T)),
      y = VAL(RIGHT$(B$, T))
510 LET d = d + 31 * (m > 1) + 28 * (m > 2) + 31 * (m > 3) + 30 *
      (m > 4) + 31 * (m > 5) + 30 * (m > 6) + 31 * (m > 7) + 31 *
      (m > 8) + 30 * (m > 9) + 31 * (m > 10) + 30 * (m > 11)
520 LET d = d + (NOT y MOD 4 AND y MOD 100 AND m > T)
530 ENDPROC
```

=====

## PROGRAM NOTES

~~~~~

VARIABLES USED

Constants

I = 1
T = 2

Variables

n = days since Jan 1 this year
d = days since Jan 1 at birth
Y = this year
y = birth year
l = days since birth
p = physical biorhythm
e = emotional biorhythm
m = intellectual biorhythm
a = average biorhythm
i = loop over next 30 days
N\$ = today's date
B\$ = birth date
W\$ = name

TEN SUPER PROGRAMS FOR THE LYNX

PROGRAM STRUCTURE

~~~~~

| Lines     | Used                                                                          |
|-----------|-------------------------------------------------------------------------------|
| 20        | -----                                                                         |
| 40 - 130  | Variables declaration                                                         |
| 140 - 170 | Gat dates and name                                                            |
| 190 - 260 | Calculate no. of days since birth                                             |
| 270 - 370 | Print today's biorhythm                                                       |
| 380 - 390 | Plot average for next 30 days                                                 |
| 410 - 470 | Again?                                                                        |
| 480 - 530 | BIO(1) - Calculates biorhythm for 1 Days<br>DATE and days since start of year |

C L O C K  
~~~~~

(c) Colin I Clayman, 1985

This program exhibits a standard (analogue) clock with second, minute and hour hands. You are invited to give the present time in the form 06/30/00; you must type 2 digits for each part e.g. 3 o'clock is 03 not 3. The clock will then be drawn and will tick away until you press a key.

The clock keeps quite good time. It is adjusted by the byte &7E(126) following the &D6(SUB) in line 50; increasing it will slow the clock and decreasing it will make it go faster.

It was originally intended that it be driven by interrupts which should be generated accurately by the video controller every 1/50 th. second rather than the trial and error method used here. However, for some reason, when it was tried the clock went slow and uneven, the Lynx clicked, the display blinked and more often than not the Lynx crashed after a few seconds.

If you would like to try it with interrupts then do the following changes:-

Line 50 : Change the D6 7E (SUB 126) to D6 32(SUB 50)
 Line 50 : Change the F3 (DI) near the end to FB (EI)
 DEL 160 to let interrupts update counters
 DEL 820 to allow interrupts to be set up

If anyone can explain why it doesn't work I shall be grateful!

```

10 REM CLOCK/1819
15 REM (c) Colin I Clayman, 1985
20 REM COUNTERS:Cycle,Sec.
30 CODE 00 00
40 REM INT CODE
50 CODE E5 F5 AF D3 80 D3 84 21 A1 69 7E 3C 77 D6 7E 20 03 77 23 34 F1
    E1 ED 56 F3 C9
60 REM DISABLE VDU DRIVER
70 CODE F3 CD A4 06 FB C9
80 CODE F3 CD BE OF FB C9
90 LET I = 1,X = 10,D = 6,H = D + D,S = D * X,Q = 125,K = 0.8,E = X,T
    = LCTN(30) + I,Z = LCTN(50)
100 PROC NOW
110 PROC SETINT
120 PROC FACE
130 REPEAT
150   LET n = PEEK(T)
150   REPEAT
160     CALL Z
170   UNTIL n < > PEEK (T)
180   PROC SEC
190   IF NOT s MOD X THEN PROC MIN

```

```

200 IF NOT s AND NOT m MOD X THEN PROC HOUR
210 UNTIL KEYN
220 PROTECT BLACK
230 END
240 DEFFPROC SEC
250 LET s = (s + I) MOD S
260 PROC MOVE(s,D,Q - I,CYAN)
270 ENDPROC
280 DEFFPROC MIN
290 IF NOTs THEN LET m = (m + I) MOD S
300 PROC MOVE(D * m + s DIV X,I,Q - X -X,MAGENTA)
310 ENDPROC
320 DEFFPROC HOUR
330 IF NOT m + s THEN LET h = (h + I) MOD H
340 PROC MOVE(D * h + m DIV X,D - I,Q - S,YELLOW)
350 ENDPROC
360 DEFFPROC MOVE(y,i,l,x)
370 PROTECT x
380 INK BLACK
390 PROC HAND(RAD(i * y - i) ,1)
400 PROC HAND(RAD(i * y),1)
410 ENDPROC
420 DEFFPROC HAND(d,1)
430 MOVE Q,Q
440 DRAW Q + I * SIN(d) * K, Q - 1 * COS(d)
450 INK WHITE
460 ENDPROC
470 DEFFPROC FACE
480 CLS
490 LET x = FALSE, y = Q, d = 3 - Q - 0
500 WHILE x < y
510   FOR j = - y TO y STEP y + NOT y
520     FOR i = - x TO x STEP x + x + NOT x
530       DOT Q + i * K, Q + j
540       DOT Q + j * K, Q + i
550     NEXT i
560   NEXT j
570   IF d > - I THEN LET d = d + 4 * (x-y) +X,y=y-I
575 ELSE LET d=d+4*x+d
590 LET x=x+I
600 WEND
610 PROTECT BLUE
620 FOR i = I TO H
630   PRINT @ S + I +K * (Q - H) / 2 * SIN(RAD(30 * i)),
      S - I - I - (Q - H) / 2 * COS(RAD(30 * i));i;
640 NEXT i
650 VDU 25
660 PROC SEC
670 PROC MIN
680 PROC HOUR
690 ENDPROC
700 DEFFPROC NOW
710 CLS
720 VDU 24
730 PRINT @ FALSE,S;"What is the time now(hh/mm/ss)" ;

```

TEN SUPER PROGRAMS FOR THE LYNX

```
740 REPEAT
750 INPUT T$
760 UNTIL LEN (T$) = D+I+I AND MID$(T$,3,I)="/" AND MID$(T$,D,I) =
    "/"
770 LET s = VAL (RIGHT$(T$,I +I))+E,m=VAL(MID$(T$,4,I+I))+s DIV S,
    h=VAL(T$)+m DIV S,s=s MOD S,m=m MOD S, h = h MOD H
780 ENDPROC
790 DEFPROC SETINT
800 DPOKE T-I, FALSE
810 DPOKE Z+B,T-I
820 ENDPROC
830 REM INT fails over !
840 DPOKE &6294,&45ED
850 DPOKE &6298,Z
860 DPOKE &6200,LCTN(70)
870 DPOKE &6263,LCTN(80)
880 CALL Z
890 ENDPROC
```

PROGRAM NOTES

~~~~~

### VARIABLES USED

#### Constants

I = 1  
X = 10 :Secs. per minute hand move  
         /Mins. per hour hand move  
D = 6 :Moves per minute/hour  
H = 12 :Hours per rev.  
S = 60 :Secs. per min./Mins. per hr.  
Q = 125 :Center and radius of face  
K = 0.8 :Aspect ratio of face  
E = 10 : SEcs. to draw face  
T = Address of second counter  
Z = Address of counting routine

#### Variables

s = seconds  
m = minutes  
h = hours  
n = sec. counter  
x, y = points on face  
i, j = loop indices  
T\$ = time now

# TEN SUPER PROGRAMS FOR THE LYNX

## PROGRAM STRUCTURE

| Lines       | Use                                                                                          |
|-------------|----------------------------------------------------------------------------------------------|
| 20 - 30     | Counters                                                                                     |
| 40 - 50     | Counting routine - machine code                                                              |
| 60 - 80 *   | Protect display routine from interrupts                                                      |
| 90          | Variables declaration                                                                        |
| 100 - 120   | Start clock                                                                                  |
| 130 - 210   | 1 second                                                                                     |
| 140 - 170   | Wait for second to tick                                                                      |
| 180 - 200   | Move hands                                                                                   |
| 240 - 270   | SEC hand move                                                                                |
| 280 - 310   | MIN hand move                                                                                |
| 320 - 350   | HOUR hand move                                                                               |
| 360 - 410   | MOVE (y,i,l,x) hand of length l through degrees to<br>its y th. angle in colour reverse of x |
| 420 - 460   | Hand (d,l) - draw hand of length l at d degrees                                              |
| 470 - 690   | Face drawn                                                                                   |
| 490 - 600   | Plot circle                                                                                  |
| 610 - 650   | Print numbers                                                                                |
| 660 - 680   | Draw hands                                                                                   |
| 700 - 780   | Now - get start time                                                                         |
| 790 - 820   | SETINT - Initialise counters                                                                 |
| 830 - 890 * | Set up interrupts                                                                            |

\* Only used in interrupt method.

# TEN SUPER PROGRAMS FOR THE LYNX

## POKER

(c) Colin I Clayman 1985

### Description

-----  
This program allows a player to play the computer at normal five card poker, either with or without deuces wild.

It is based on a BBC program published in Computing Today for which this author is grateful.

To start with you are asked if instructions are required and whether deuces are to be wild. Each player starts with £1000, but if this is lost a loan of £1000 is given. This must be repaid in 10 games times. In each game, the hands are dealt, an ante of £30 paid, and your hand revealed. You may change up to 4 cards and then may fold. The computer then changes its cards and maybe folds.

In the betting round the previous winner bets first, between £1 and £100. Each player in turn may then raise or see the other or fold. When either player sees, the computer's hand is revealed and the result decided. The winner gets the pot, including if the other folded. In the rare event of a tie the pot is held over to the next game.

The session ends when either player is still in debt after repaying his loan, or if you type "Q" at the end of a game.

=====

```
10 REM POKER/9396
15 REM (c) C.I. CLAYMAN 1985
20 CODE 01 03 03 0D 1F 1F 0E 01 03 00 30 38 38 36 3F 3F 2E
      30 38 00 00 01 03 07 0F 07 03 01 00 00 20 30 38 3C 3E 3C 38
      30 20 00 07 0F 0F 0F 07 03 01 00 00 1C 3E 3E 3E 3E 3C 38
      30 20 00 00 01 03 07 0F 0F 07 01 03 00 20 30 38 3C 3E 3E 3C
      30 38 00
30 LET I = 1, S = 4, P = 13, C = 5, M = 1000, W = 3, H = 10,
    A = 24, B = 115, Q = 20000, D = 2.1, E = 4.8, F = 92.4,
    C$ = CHR&(31) + CHR$(30), I = RAND(I + I), p = FALSE
40 DIM P(P*S),H(H),V(H),R(C),M(I),L(I),S(I),A$(H+H) (P),M$(B0)
50 LET M(FALSE)=M, M(I)=M, L(FALSE)=FALSE, L(I)=FALSE
60 RANDOM
70 DPOKE GRAPHIC,LCTN(20)
80 WINDOW W,123,230,250
90 CCHAR &2060
100 PROC INTRO
110 PROC SETUP
120 PAPER GREEN
130 CLS
140 PAPER BLACK
150 REPEAT
```

TEN SUPER PROGRAMS FOR THE LYNX

```
160 PRINT C$ "I am dealing the cards !"
170 PROC SHUFFLE
180 PROC CLEAR
190 PROC DEAL
200 IF p THEN PROC BET
210 IF p THEN PROC RESULT
220 PROC SCORE
230 PROC CONT
240 UNTIL M(FALSE) < = -1 OR M(I) < = -I OR K$ = "Q"
250 VDU 23,P,P
260 IF M(FALSE) < M(I) THEN PRINT "YOU LOSE!";
270 ELSE PRINT "CONGRATULATIONS! YOU WIN!";
280 IF M(FALSE) < = -I THEN PRINT " - you owe £";- M(FALSE)
290 IF M(I) < = -I THEN PRINT " - I owe £";- M(I)
300 PAUSE Q
310 DPOKE GRAPHIC,LETTER(32)
320 CCHAR &20EF
330 WINDOW W,123,5,245
340 INK WHITE
350 PAPER BLACK
360 END
370 DEFFPROC DEAL
380 PROC BETSCORE
390 LET g=FALSE
400 PROC DISPLAY
410 LET M$ = "How many cards to be changed (MAX 4) ?",a = FALSE
420 REPEAT
430 PROC MESSAGE
440 UNTIL K$ > "/" AND NOT K$ > "4"
450 IF K$ = "0" THEN GOTO LABEL STICK
460 FOR i = I TO VAL(K$)
470 LET M$ = "Type in no. of card (1-5 from left)?"
480 REPEAT
490 PROC MESSAGE
500 UNTIL K$ > "/" AND NOT K$ > "5"
510 PROC CHANGE (VAL(K$))
520 NEXT i
530 FOR i = I TO a
540 PROC SHOW(V(i))
550 NEXT i
560 LET M$ = "These are your final cards. " + CHR$(31)+"You may
      fold if you wish (Y/N)?"
570 PROC ASK
580 IF K$="Y" THEN PROC ENDGAME
590 IF K$="Y" THEN ENDPROC
600 LABEL STICK
610 PROC VALUES
620 LET g = I,k = FALSE
630 PROC CHANGEC
640 PRINT C$ "I have changed "k;" cards!"
650 PROC VALUES
660 PAUSE Q
670 ENDPROC
680 DEFFPROC ENDGAME
690 LET I = NOTg,M(I) = M(I) + p,p = FALSE
```

## TEN SUPER PROGRAMS FOR THE LYNX

```

700 ENDPROC
710 DEFFPROC VALUES
720 PROC SORT
730 LET J = I + g * C
740 FOR i = j TO C + g * C
750   LET V(i)=FALSE,c = H(i) MOD P
760   IF c < H(j) MOD P OR i=j THEN LET J=i
770   ELSE LET V(j) = V(j) + i
780 NEXT i
790 PROC RUNS
800 LET J = FALSE
810 FOR i = I + d + g * C TO C + g * C
820   LET S(g) = S(g) + V(i)
830   IF V(i) THEN LET J = j + I,R(g * W) = j,R(j + g * W) =H(i) MOD P
840   IF V(i) AND J = I THEN LET a = V(i)
850     IF V(i) AND J > I THEN IF a < V(i) THEN SWAP
        R(I + g * W),R(j + g * W)
860 NEXT i
870 IF S(g) = S THEN LET S(g) = C
880 ENDPROC
890 DEFFPROC SORT
900 FOR i = I TO S
910   FOR j = I + g * C to S + g * C
920     LET b=H(j) MOD P, c=H(j+I) MOD P
930     IF c > b AND (b OR NOT w) OR NOT c AND w THEN SWAP
        H(j),H(j + I)
940 NEXT j
950 NEXT i
960 ENDPROC
970 DEFFPROC RUNS
980 LET d =(V (I + g * C) + I) * (w AND NOT H (I + g * C) MOD P),
      s = FALSE,f = d,j = d
990 FOR i = I + d + g * C TO S + g * C
1000 LET c = H(i) MOD P,b = H(i + I) MOD P
1010 LET f = f + (H(i) DIV P=H(C + g * C) DIV P),x = c - 8 *
      (c = P - I AND b < s) - b - I,s = s + (x + I) *
      (j > = x),j = j - x * (j > = x) * (x > = I)
1020 NEXT i
1030 LET S(g) = 2.5 * (f = S) + 2.25 * (s + j = S),
      R(I + g * W) = H(I + d + g * C) MOD P
1040 IF d > = S(g) OR d = S THEN LET S(g) = d,R(g * W) =d > FALSE
1050 ELSE LET V(I + g * C) = FALSE,R(g * W) = FALSE
1060 IF NOT FRAC(S(g)) THEN ENDPROC
1070 IF s + j = S AND R(I + g * W) + j < P THEN LET R(I + g * W)
      = R(I + g * W) + j
1080 ELSE IF d THEN LET R(I + g * W) = P - I
1090 ENDPROC
1100 DEFPROC BETSCORE
1110 PAPER GREEN
1120 INK BLUE
1130 PRINT @ W,B - H;"You have £"M(FALSE);TAB 16;"POT:£"p;TAB
27;"I have £"M(I);
1140 IF w THEN PRINT @ 45,B;"Wild Poker"
1150 PAPER BLACK
1160 INK YELLOW

```

## TEN SUPER PROGRAMS FOR THE LYNX

```

1170 VDU 23
1180 ENDPROC
1190 DEFPROC SCORE
1200 PROC BETSCORE
1210 FOR g = FALSE TO I
1220   IF L(g) THEN LET L(g) = L(g) + I
1230   ELSE IF M(g) <= -I THEN PROC LOAN
1240   IF L(g) > H THEN PROC DECIDE
1250   ELSE IF NOT g AND L(g) THEN PRINT "You have "H + I - L(g)""
      " games left to clear the loan";
1260 NEXT g
1270 PAUSE Q
1280 ENDPROC
1290 DEFPROC CHANGE(k)
1300 IF g THEN PAPER MAGENTA
1310 ELSE PAPER GREEN
1320 FOR j = I to C
1330   PRINT @ W + A * (k - I),g * B + j * H;"vvv(7)vvv"(7);
      @ W + A * (k - I),g * B + (h - j) * H;"vvv(7)vvv"(7);
1340 NEXT j
1350 PAPER BLACK
1360 PROC CARD(k + g * C)
1370 LET a = a + I,V(a) = k
1380 ENDPROC
1390 DEFPROC CHANGEC
1400 PROC VALUES
1410 IF NOT S(I) THEN GOTO 1490
1420 IF FRAC(S(I)) THEN ENDPROC
1430 LET k = C - d - (S(I) = d)
1440 FOR i=H + I - k TO H
1450   IF V(i) THEN LET k = k - V(i) - I,i = i + V(i)
1460   ELSE PROC CARD(i)
1470 NEXT i
1480 ENDPROC
1490 LET k = I + I + RAND(W)
1500 FOR i=I TO k
1510   PROC CARD(H + I - i)
1520 NEXT i
1530 ENDPROC
1540 DEFPROC BET
1550 PROC WEIGHT
1560 LET g = 1,x = FALSE,y = x,L = x
1570 IF g THEN GOTO LABEL BETC
1580 PRINT C$"You can bet first."
1590 LET M$ = "How much are you going to bet"
1600 LABEL BET
1610 REPEAT
1620   INK CYAN
1630   PRINT CHR$(W * H)M$;
1640   INPUT x
1650   INK YELLOW
1660   IF x < I THEN PRINT "The bet must be more than that!"
1670   IF x > H * H THEN PRINT "Too much !"
1680 UNTIL x >= I AND x <= H * H
1690 LET M(g) = M(g) - x - y,p = p + x + y,g = I

```

# TEN SUPER PROGRAMS FOR THE LYNX

```

1700 LABEL BETC
1710 IF v < FALSE OR S(g) <= I AND v < x AND (RAND (S) <= w OR
    M(g) < 300) THEN GOTO LABEL FOLD
1720 IF L >= S(g) OR v < x AND RAND (S) > NOT w) THEN GOTO LABEL
    SEE
1730 LET y = INT(v * (I + W * W * RND)/H) + I, M(g) = M(g) - y - x,
    p = p + y + x, L = L + I, g = FALSE
1740 IF x THEN PRINT "I HAVE RAISED YOU £"y
1750 ELSE PRINT C$"I WILL BET YOU £"y
1760 PROC BETSCORE
1770 LET M$ = "You may: S)ee me,▼R)aise me,▼F)old?"
1780 REPEAT
1790     PROC MESSAGE
1800 UNTIL K$ = "S" OR K$="R" OR K$ ="F"
1810 IF K$ = "F" THEN GOTO LABEL FOLD
1820 LET M$ = "How much do you wish to raise me", x = y
1830 IF K$ = "R" THEN GOTO LABEL BET
1840 LABEL SEE
1850 IF g THEN PRINT "I WILL SEE YOU!"
1860 ELSE PRINT C$"You have seen me."
1870 LET M(g) = M(g) - x, p = p + x, g = I
1880 PROC BETSCORE
1890 PRINT C$"Here is my hand."
1900 PROC DISPLAY
1910 ENDPROC
1920 LABEL FOLD
1930 IF g THEN PRINT "I have folded!"
1940 PROC ENDGAME
1950 ENDPROC
1960 DEFFPROC WEIGHT
1970 LET v=100,a=R(W + I)
1980 IF S(I) <= I THEN LET v = (a + S(I) * P) * F/(P + P)
1990 ELSE IF S(I) <= I + I AND R(W) = I THEN LET v = F + E + a * D/P
2000 ELSE IF S(I) <= I + I AND R(W) > I THEN LET v = F + (a +
    R(W + I + I)) * E/(P + P)
2010 LET v = v - 50, v = v/(I - v/H/H)
2020 ENDPROC
2030 DEFFPROC RESULT
2040 IF S(FALSE) > S(I) OR S(FALSE) = S(I) AND R(FALSE) < R(W)
    THEN GOTO LABEL WIN
2050 IF S(FALSE) < S(I) OR S(FALSE) = S(I) AND R(FALSE) > R(W)
    THEN GOTO LABEL LOSE
2060 IF R(I) > R(W + I) THEN GOTO LABEL WIN
2070 IF R(I) < R(W+I) THEN GOTO LABEL LOSE
2080 IF R(W) > I THEN IF R(I+I) > R(W+I+I) THEN GOTO LABEL WIN
2090 IF R(W) > I THEN IF R(I+I) < R(W+I+I) THEN GOTO LABEL LOSE
2100 IF FRAC(2*S(I)) THEN GOTO LABEL DRAW
2110 LET i = I, j=I+C
2120 REPEAT
2130     REPEAT
2140         LET a=H(i) MOD P,c=V(i),i=i+c+I
2150     UNTIL NOT c AND (a OR NOT w) OR i > c
2160     REPEAT
2170         LET b=H(j) MOD P,c = V(j),j = j+c+I
2180     UNTIL NOT c AND (b OR NOT w) OR j > H

```

## TEN SUPER PROGRAMS FOR THE LYNX

```

2190 UNTIL a <> b OR i > c OR j > h
2200 IF a>b THEN GOTO LABEL WIN
2210 IF a<b THEN GOTO LABEL LOSE
2220 LABEL DRAW
2230 PRINT C$ "WE DREW ! The pot to the next winner"
2240 ENDPROC
2250 LABEL WIN
2260 PRINT C$, "***** YOU WIN! *****"
2270 LET g = i
2280 GOTO 2320
2290 LABEL LOSE
2300 PRINT C$, "***** I WIN! *****"
2310 LET g = FALSE
2320 PROC MUSIC
2330 PROC ENDFGAME
2340 ENDPROC
2350 DEFFPROC MUSIC
2360 FOR I = 1 TO P
2370   BEEP 300 - H * i * (g + g - I), 50, 63 .
2380 NEXT i
2390 ENDPROC
2400 DEFFPROC LOAN
2410 IF g THEN PRINT "I";
2420 ELSE PRINT "YOU";
2430 PRINT " have taken a loan of £1000 to clear ";
2440 IF g THEN PRINT "my";
2450 ELSE PRINT "your ";
2460 PRINT "debts, to be repayed in 10 games.";
2470 PAUSE Q
2480 LET M(g) = M(g) + M, L(g) = I
2490 PROC BETSCORE
2500 VDU P,F
2510 ENDPROC
2520 DEFFPROC DECIDE
2530 LET M(g) = M(g) - M, L(g) = FALSE
2540 PRINT "10 games have elapsed since ";
2550 IF g THEN PRINT "my loan and I";
2560 ELSE PRINT "your loan and you";
2570 PRINT " have left £"M(g); " after repayment";
2580 PROC BETSCORE
2590 ENDPROC
2600 DEFFPROC DISPLAY
2610 FOR i = 1 TO C
2620   PROC SHOW(i)
2630 NEXT i
2640 INK YELLOW
2650 VDU 23,P,F
2660 ENDPROC
2670 DEFFPROC SHOW(k)
2680 PAPER WHITE
2690 LET c = H(k + g * C) MOD P + I + I, c = c - P * (c > P),
      s = H(k + g * C) DIV P, a = A * (k - I),
      E$ = CHR$(128 + s + s) + CHR$(129 + s + s)
2700 INK RED *(ABS(s - 1.5) < I)
2710 FOR j = I TO H - I

```

## TEN SUPER PROGRAMS FOR THE LYNX

```

2720 PRINT @ a + W,g * B + j * H;"(7)
2730 NEXT j
2740 IF c > H THEN PRINT @ a + W + W, g * B + C * H;A$(c) @ a +
W,g * B + H + I;E$ @ a + 17,g * B + H * H - H;E$;
2750 IF c > H THEN GOTO 2810
2760 FOR j = I TO c
2770 PRINT @ a - C + C * VAL(MIDS(A$(c),j + j,I)),g * B + H *
VAL(MIDS(A$(c),j + j - I,I));E$;
2780 NEXT j
2790 IF c = I THEN PRINT @ a + W,g * B + H;"A" @ a + H + H, g *
B+ H * H - H;"A";
2800 ELSE PRINT @ a + W,g *B + H;c:@a + H + H - W * (c=H),g * B +
H * H - H;c;
2810 PAPER BLACK
2820 ENDPROC
2830 DEFPROC CLEAR
2840 FOR g = FALSE TO I
2850 FOR k = I TO C
2860 PROC CHANGE(k)
2870 NEXT k
2880 NEXT g
2890 ENDPROC
2900 DEFPROC INTRO
2910 CLS
2920 VDU 24
2930 INK RED
2940 PRINT @ 48,20;
2950 VDU 14,21
2960 PRINT "LYNX POKER";
2970 VDU 20,15,25
2980 LET M$ = "Do you require instructions (Y/N)?"
2990 PROC ASK
3000 IF K$ = "Y" THEN PROC INSTR
3010 LET M$ = "Do you wish to play Wild Poker " + CHR$(31) +
"(i.e. 2's count as any card ) (Y/N)?"
3020 PROC ASK
3030 LET w = K$ = "Y"
3040 ENDPROC
3050 DEFPROC ASK
3060 REPEAT
3070 PROC MESSAGE
3080 UNTIL K$ = "Y" OR K$ = "N"
3090 ENDPROC
3100 DEFPROC CONT
3110 LET M$="PRESS ANY KEY TO CONTINUE (Q TO QUIT)!"
3120 PROC MESSAGE
3130 ENDPROC
3140 DEFPROC MESSAGE
3150 INK CYAN
3160 VDU 23,30
3170 REPEAT
3180 PRINT M$;
3190 VDU 23,18
3200 LET K$=KEY$,K$=UPCS(K$)
3200 UNTIL NOT K$=""
```

```

3220 VDU 18 * (INK<>CYAN),7
3230 INK YELLOW
3240 ENDFROC
3250 DEFPROC SHUFFLE
3260 FOR i = 1 to 30
3270   LET a = RAND(P * S), b= RAND(P * S), c = RAND(P * S)
3280   LET k = P(a), P(a) = P(b), P(b) = P(c), P(c) = k
3290 NEXT i
3300 LET M(FALSE) = M(FALSE) - 30, M(I) = M(I) - 30, p = p + 60,
      q = FALSE, a = q
3310 ENDPROC
3320 DEFPROC CARD(c)
3330 LET H(c) = P(q), q = q + 1
3340 ENDPROC
3350 DEFPROC SETUP
3360 DATA 53,2383,235383,22248284,2224538284,222452548284,
      22245254738284,2224335254738284,222442445362648284,,
      22243342446264738284,JACK,QUEEN,KING
3370 FOR i = I TO P
3380   READ A$(i)
3390 NEXT i
3400 FOR i = FALSE TO P * S
3410   LET P(i) = i
3420 NEXT i
3430 ENDPROC
3440 DEFPROC INSTR
3450 CLS
3460 INK MAGENTA
3470 PRINT @ W,FALSE;
3480 VDU 14,21
3490 PRINT "INSTRUCTIONS";
3500 VDU 15,20
3510 PRINT
3520 PRINT "USERS SHOULD KNOW HOW TO PLAY POKER!"," THIS IS NOT
      A TEACHING GUIDE!"
3530 INK YELLOW
3540 PRINT "This program will play either ordinary or deuces wild
      poker."
3550 PRINT "THIS IS THE WINNING ORDER OF HANDS:-"
3560 PRINT "1)FIVE cards of same value;needs DEUCES";
3570 PRINT "2)ROYAL FLUSH - A,K,Q,J,10 in same suit"
3580 PRINT "3)STRAIGHT FLUSH - Run of 5 in same suit";
3590 PRINT "4)FOUR cards of same value"
3600 PRINT "5)FULL HOUSE - a pair and a three"
3610 PRINT "6)FLUSH - 5 cards of same suit"
3620 PRINT "7)STRAIGHT - run of 5 cards in any suit";
3630 PRINT "8)THREE cards of same value"
3640 PRINT "9)TWO FAIRS"
3650 PRINT "10)ONE PAIR"
3660 PRINT "11)Ace HIGH and below"
3670 PRINT "Both the computer and the player start off with £1000
      but should either score drop below zero then loans of
      a further £1000 are allowed provided they are paid
      back in 10 games time."
3680 INK GREEN

```

# TEN SUPER PROGRAMS FOR THE LYNX

```
3690 PRINT ,, "GOOD LUCK !"
3700 ENDPROC
```

=====

## Variables Used

### Constants

```
I = 1
S = 4      No. of suits
P = 13     Cards in suit

C = 5      Cards in hand
M = 1000   Initial money
W = 3      Char. width in 2 pixels
H = 10     Char. height in pixels
A = 24     Screen gap between cards
B = 115    Screen posn. of 2nd hand
Q = 20000  Pause duration(2 secs)
D = 2.1    % frequency of 3s
E = 4.8    % frequency of 2 pairs
F = 92.4   % freq. of pairs & highs
C$ = CHR$(31)+CHR$(30) Clear &
      print on next line
```

### Arrays

```
P(P *S) Pack of cards. Card given by 0 to 51 = 2 to A of C,D,H,S
H(2 *C) 2 Hands
V(2 *C) set repetition count in hand
R(2 *3) ranks of sets or high card in hand; no.sets,high set,2nd set
M(I) money in hand
L(I) games since loan
S(I) hand valuations:
  0 = high, 1 = pair, 2 = 2 pair or 3s, 2.25 = straight, 2.5 =
  flush, 3 = 4s or Full House, 4.75 = straight flush, 5 = 5s.
A$(P)screen positions of pips on card
M$(80) message area
```

NOTE: Lynx arrays are only 1 dimensional, starting at 0.  
H,V,R are really 2 dim. with main dim.=2, one for each player.

## Variables

```
w = Wild Poker?
p = money in pot
g = current player
(0:human,1:computer)
l = last winner
q = next card in pack
d = no.of wild cards in hand
s = count for straight
f = count for flush
x = human's bet
y = computer's bet
v = % probability of win
L = no. of betting round
i>
j>= loop indices
a>
b>
c>
k> work variables
K$ = keyboard input
```

# TEN SUPER PROGRAMS FOR THE LYNX

## Program Structure

| Lines     | Use                                                                                                                                                                                                                  |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20        | Graphics chars.2 per symbol(1 char.is 6 x 10 pixel)<br>Should be typed without leading zeros of the hex. nos. to fit on 1 line, and to be safe, entered first as a Rem at line 25 so it can be edited until correct. |
| 30-50     | Variables definition                                                                                                                                                                                                 |
| 70-140    | Set up graphics,message window (2 line at foot of screen)                                                                                                                                                            |
| 150-240   | One game                                                                                                                                                                                                             |
| 250-300   | Print who won session                                                                                                                                                                                                |
| 310-360   | Clean up                                                                                                                                                                                                             |
| 370-670   | DEAL - Change cards                                                                                                                                                                                                  |
| 680-700   | ENDGAME - Adjust money for winner                                                                                                                                                                                    |
| 710-880   | VALUES - Calculates repetitions, ranks and valuations                                                                                                                                                                |
| 890-960   | SORT hand into decending order with wild cards first                                                                                                                                                                 |
| 970-1090  | RUNS - Checks for flushes & straights                                                                                                                                                                                |
| 1100-1180 | BETSCORE - Prints how much money each has                                                                                                                                                                            |
| 1190-1280 | SCORE - Checks if loan needed or to be repaid                                                                                                                                                                        |
| 1290-1380 | CHANGE(k) - Draws card k & blanks its screen                                                                                                                                                                         |
| 1390-1530 | CHANGEC - Decides computer's cards to discard                                                                                                                                                                        |
| 1540-1950 | BET - Makes computer's bets & asks for human's                                                                                                                                                                       |
| 1960-2020 | WEIGHT - Assesses strength of computer's hand in terms of probability above 50% of winning (-100 to 100)<br>This is key to computer's strategy.                                                                      |
| 2030-2340 | RESULTS - Compares 2 hands for stronger<br>For equal sets: looks at remaining odd cards                                                                                                                              |
| 2120-2190 | MUSIC - short simple scale for winner                                                                                                                                                                                |
| 2350-2390 | LOAN given                                                                                                                                                                                                           |
| 2400-2510 | DECIDE - Repays loan after 10 games                                                                                                                                                                                  |
| 2520-2590 | DISPLAY one hand                                                                                                                                                                                                     |
| 2600-2660 | SHOW(k) - Display card k                                                                                                                                                                                             |
| 2670-2820 | CLEAR hands from screen                                                                                                                                                                                              |
| 2830-2890 | INTRO - Gives introduction & asks if playing wild cards                                                                                                                                                              |
| 3050-3090 | ASK a question                                                                                                                                                                                                       |
| 3100-3130 | CONT - Wait for any key press                                                                                                                                                                                        |
| 3140-3240 | MESSAGE - Flashes message until key press & then beeps                                                                                                                                                               |
| 3250-3310 | SHUFFLE pack & pay ante                                                                                                                                                                                              |
| 3320-3340 | CARD(c) - Deals card c                                                                                                                                                                                               |
| 3350-3430 | SETUP initial pack & pip positions                                                                                                                                                                                   |
| 3440-3700 | INSTR - Show instructions                                                                                                                                                                                            |

## TEN SUPER PROGRAMS FOR THE LYNX

## OTHELLO

[ For the 96k Lynx ]  
(c) S J Sawyer and M R Sawyer 1985

**DESCRIPTION**

The object of the game is to finish the game with as many of your pieces as possible on the board. Every move you make must lead to your opponents pieces being changed to your pieces.

— — — — —

```

90 REM ***** OTHELLO BY S J SAWYER 1985 *****
100 EXT VRESET
110 PROC GRAPHIC
120 CCHAR &202A
130 LET D$ = CHR$(1) + CHR$(2) + CHR$(128) + CHR$(1) + CHR$(7), X$ =
    CHR$(1) + CHR$(4) + CHR$(128) + CHR$(1) + CHR$(7)
140 LET D$ = "'() 13;< =", c = 0, h = 0, Z = 0, g = 0, b = 1, a = 1
150 GOTO LABEL INTRO
160 WINDOW 3,123,240,250
170 FOR A = 1 TO 10
180 BEEP A * 10, 100, S
190 NEXT A
200 DIM A(100), E(64), C(100)
210 LET A(0) = 0
220 FOR A = 1 TO 100
230 READ B$
240 LET A(A) = ASC(B$), C(A) =ASC(B$)
250 NEXT A
260 DATA *,1,2,3,4,5,6,7,8,*,.,.,.,.,.,.,.,.,.,.,.,.,.,.,.,.,.,.,.,B,
    C,.,.,.,.,.,.,C,D,.,.,.,X,D,.,.,.,D,E,.,.,.,D,X,.,.,.,E,
    F,.,.,.,.,.,.,F,G,.,.,.,.,.,.,G,H,.,.,.,.,.,.,H,
    *,1,2,3,4,5,6,7,8,*
270 IF RAND(2) = 1 THEN RESTORE 450
275 ELSE RESTORE 455
280 FOR A = 1 TO 60
290 READ J
300 LET E(A) =J
310 NEXT A
320 IF g = 1 THEN PROC g
330 IF g = 1 THEN GOTO 930
340 VDU 1, 6
350 PRINT @ 40,150;"AGAINST COMPUTER"; @40,150;
    CHR$(21)"-----";CHR$(20);
360 PRINT @ 20,200;"Do you want to go first, press 'Y'"; @ 20,
    210;"Otherwise press another key"
370 LET T$ = GET$
380 CLS
390 PROC B

```

```

400 PRINT @ 40,0;
410 VDU 24,1,1,79,1,2,84,1,3,72,1,4,69,1,5,76,1,6,76,1,7,79,25
420 LET B = 79
430 IF UPC$(T$) == "Y" THEN GOTO 930
440 LET B = 79, C = 88, Z = 0
450 DATA 19,89,82,12,62,17,32,87,69,14,39,84,64,37,34,67,49,15,59,
     85,16,52,42,86,65,54,66,44,35,57,36,47,63,48,58,76,24,27,38,
     25,74,77,43,26,68,33,53,75,72,13,29,18,88,22,83,79,73,28,78,23
455 DATA 12,19,82,89,67,34,37,64,84,39,14,69,87,32,17,62,86,42,52,
     16,85,59,15,49,35,57,65,44,36,47,66,54,32,68,74,38,24,77,62,27,
     43,25,48,75,53,26,58,76,72,88,29,13,83,79,18,22,23,28,78,73
460 GOTO 590
470 DEFFPROC BOARD
480 FOR J = 1 TO 8
490   FOR K = 2 TO 9
500     PRINT @ 30 + K * 3, 40 + J * 10;
510     IF A(10 * J + K) = 79 THEN PROC O
520     IF A(10 * J + K) = 88 THEN PROC X
530     IF A(10 * J + K) = 79 THEN LET h = h + 1
540     IF A(10 * J + K) = 88 THEN LET c = c + 1
550     BEEP 20,2,s
560   NEXT K
570 NEXT J
580 ENDPROC
590 FOR k = 1 TO 60
600   IF Z = 1 THEN GOTO 630
610   LET M = E(k)
620   IF A(M) < > 46 THEN GOTO 780
630   LET j = 0
640   FOR X = 1 TO 8
650     LET N = ASC(MID$(D$,X,1))
660     LET N = N - 50, E = 0, F = M
670     IF A(F + N) < > B THEN GOTO 700
680     LET E = 1, F = F + N
690   GOTO 670
700   IF A(F + N) < > C OR E = 0 THEN GOTO 750
710   FOR Q = M TO F STEP N
720     LET A(Q) = C
730     LET j = 1
740   NEXT Q
750   NEXT X
760   IF Z = 1 THEN LET k = 60
770   IF B = 88 OR j = 1 THEN LET k = 60
780 NEXT k
790 IF Z = 1 AND j = 0 THEN GOTO 1050
800 IF G$ = "PASS" AND g = 1 THEN GOTO 1740
810 IF G$ = "PASS" AND Z = 0 AND j = 0 AND c > h THEN GOTO LABEL
     I WIN
815 IF G$ = "PASS" AND c + h = 64 AND c > h THEN GOTO LABEL I WIN
820 IF G$ = "PASS" AND Z = 0 AND j = 0 AND h > c THEN GOTO LABEL
     YOU WIN
825 IF G$ = "PASS" AND c + h = 64 AND h > c THEN GOTO LABEL YOU
     WIN
830 IF G$ = "PASS" AND h < 1 THEN GOTO LABEL I WIN
840 IF G$ = "PASS" AND c < 1 THEN GOTO LABEL YOU WIN

```

## TEN SUPER PROGRAMS FOR THE LYNX

```

850 IF G$ = "PASS" AND c = h THEN GOTO 1230
890 IF B = 79 AND g = 1 THEN GOTO 920
900 IF B = 88 AND g = 1 THEN LET B = 79, C = 88
910 GOTO 930
920 IF B = 79 AND g = 1 THEN LET B = 88, C = 79
930 LET c = 0, h = 0
940 PROC BOARD
950 VDU 1, WHITE, 25
960 IF g = 1 THEN GOTO 1660
970 PRINT @ 20, 220;"YOU HAVE (";0$;") : ";h$"; "; @ 20, 230;
  "I HAVE (";X$;") : ";c$"; "
980 IF B = 88 THEN GOTO 440
990 LET B = 88, C = 79
1000 REM
1020 PROC END CHECK
1030 IF c + h = 64 THEN LET A = 1
1040 IF A = 1 THEN GOTO 1090
1050 PRINT @ 10, 240;A$;
1060 INPUT "Your move (ie D4)";G$
1070 PRINT @ 10, 240;"
1080 PROC END CHECK
1090 IF A = 1 THEN LET G$ = "PASS"
1100 IF G$ = "PASS" THEN GOTO 440
1110 IF LEN (G$) < > 2 OR ASC(LEFT$(G$,1)) < 65 OR
    ASC(LEFT$(G$,1)) > 72 OR ASC(LEFT$(G$,1)) > 56 OR
    ASC(RIGHT$(G$,1)) < 49 THEN GOTO 1000
1120 LET M = 10 * (ASC(G$) - 64) + (ASC(RIGHT$(G$,1))) - 47
1130 IF A(M) < > 46 THEN GOTO 1000
1140 BEEP 200, 100, s
1150 LET Z = 1
1160 GOTO 590
1170 INK 3
1180 PRINT @ 10, 240;"Press Y to play again";
1190 LET Y$ = GET$
1200 IF UPC$(Y$) = "Y" THEN RUN
1210 EXT VRESET
1220 END
1230 INK 5
1240 PROC CLEAR
1250 PRINT @ 40, 220;"CHEAT"; @ 40, 230;"I WIN";
1260 BEEP 500, 200, s
1270 GOTO 1170
1280 PROC CLEAR
1290 LABEL INTRO
1300 VDU 24, 1, 5, 4
1304 FOR Y = 1 TO 4
1305   FOR X = 1 TO 20 STEP 2
1306     BEEP X * 10, Y * 5, 63
1307   NEXT X
1308 NEXT Y
1310 PRINT @ 50, 0;"OTHELLO"
1320 VDU 25, 1, 6
1330 INK RED
1340 EXT CIRCLE 1, 15, 15, 5
1350 INK GREEN

```

## TEN SUPER PROGRAMS FOR THE LYNX

```

1360 EXT CIRCLE 1, 235, 15, 5
1370 PRINT @ 50,8;
1380 VDU 21, 6, 95, 95, 95, 95, 95, 95, 20, 1, 2
1390 PRINT @ 3,25;"The object of the game is to have more of your
      pieces on the board at the end of the game , than your
      opponent"
1400 PRINT @ 3, 60;"Press PASS to leave game and when you and
      your opponent can't move."; @ 10, 230;CHR$(1) + CHR$(5) ;"
      (c) By S.J.Sawyer and M.R. Sawyer"
1410 INK GREEN
1420 PRINT @ 10,90;"Do you want sound [ Y OR N ]?";"
1430 LET Z$ = GET$
1440 BEEP 50, 50, 63
1450 IF UPC$(Z$) = "Y" THEN LET s = 63
1460 IF UPC$(Z$) = "N" THEN LET s = 0
1470 IF NOT UPC$(Z$) = "N" AND NOT UPC$(Z$) = "Y" THEN GOTO 1430
1480 BEEP 100, 50, s
1490 PRINT @ 0, 110;"*****";(48)*****
1500 PRINT @ 5, 90;"Input the type of game you want to play : "
1510 INK YELLOW
1520 PRINT @ 10, 110;"1. Against the computer"; @ 10, 120;"2. For
      two players"; @ 40, 140;"Enter choice [ 1 OR 2]?";"
1530 PRINT @ 80, 130;
1540 LET z = GETn - 48
1550 IF z < 1 OR z > 2 THEN GOTO 1540
1560 BEEP 100, 200, s
1570 PRINT @ 40, 140;"";
1580 IF z = 1 THEN GOTO 160
1590 PRINT @ 3, 150;
1600 INPUT "First player enter your name"; I$
1605 LET I$ = LEFT$(I$,8)
1610 BEEP 100, 200, s
1620 INPUT "Second player enter your name"; H$
1625 LET H$ = LEFT$(H$,8)
1630 BEEP 100, 200, s
1640 LET g = 1, B = 79, C = 88
1650 GOTO 160
1660 PRINT @ 10, 220;I$;" (";0$;") HAS ";h
1670 PRINT @ 10, 230;H$;" (";X$;") HAS ";c
1680 IF B = 88 THEN LET A$ = I$
1690 IF B = 79 THEN LET A$ = H$
1700 FOR x = 30 TO 5 STEP -1
1710 BEEP x * 2, B, s
1720 NEXT x
1730 GOTO 1000
1740 PROC CLEAR
1750 IF c + h < 60 AND c > 0 AND h > 0 OR c = h THEN PRINT @ 40,
      220;"VOID"; @ 40, 230;"GAME";
1760 IF c + h < 60 AND c > 0 AND h > 0 OR c = h THEN GOTO 1790
1770 IF c < h THEN GOTO LABEL YOU WIN
1780 ELSE GOTO LABEL I WIN
1790 FOR A = 50 TO 0 STEP -1
1800 BEEP A * 2, 100, s
1810 NEXT A
1820 GOTO 1170

```

## TEN SUPER PROGRAMS FOR THE LYNX

```

1830 LABEL I WIN
1840 PROC CLEAR
1850 FOR A = 1 TO 28
1860   INK A
1870   PRINT @ 40, 220;"I WIN";
1880   BEEP A * 50, 1, s
1890   BEEP 1400 - (A * 50), 1,s
1900 NEXT A
1910 GOTO 1170
1920 DEFPROC O
1930 INK RED
1940 EXCT CIRCLE 1,10 +(K * 20), ((J + 2) * 20) -10,5
1950 BEEP 50, 10, S
1960 ENDPROC
1970 DEFPROC X
1980 INK GREEN
1990 EXT CIRCLE 1, 10 + (K * 20), ((J + 2) * 20) -10, 5
2000 BEEP 100, 2, s
2010 ENDPROC
2020 DEFPROC CLEAR
2030 PRINT @ 0, 220;"";
2040 ENDPROC
2050 DEFPROC END CHECK
2060 LET A = 0, a = 0, b = 0
2070 FOR J = 1 TO 8
2080   FOR K = 2 TO 9
2090     IF A(10 * J + K) = 79 THEN LET a = 1
2100     IF A(10 * J + K) = 88 THEN LET b = 1
2110   NEXT K
2120 NEXT J
2130 IF a < > 1 OR b < > 1 THEN LET A = 1
2140 ENDPROC
2150 LABEL YOU WIN
2160 FOR A = 500 TO 1 STEP -1
2170   BEEP A, 1, s
2180 NEXT A
2190 PROC CLEAR
2200 LET G$ = ""
2210 IF c > h AND g = 1 THEN LET G$ = H$
2220 IF h > c AND g = 1 THEN LET G$ = I$
2230 PAPER BLUE
2240 FOR A = 1 TO 28
2250   BEEP A * 25, 2, s
2260   BEEP 1400 - (A * 25), 2, s
2270   INK A
2280   PRINT 2 40, 220;G$" * YOU WIN * ";
2290 NEXT A
2300 PAPER BLACK
2310 GOTO 1170
2320 DEFPROC B
2330 INK WHITE
2340 FOR A = 1 TO 9
2350   MOVE 20 + (A * 20), 40
2360   DRAW 20 + (A * 20), 200
2370 NEXT A

```

```

2380 FOR A = 1 TO 9
2390 MOVE 40, (A * 20) + 20
2400 DRAW 200, (A * 20) + 20
2410 NEXT A
2420 VDU 24, 1, 6
2430 FOR A + 1 TO 8
2440 RINT @ 13, (A * 10) + 10;CHR$(A + 64); @ 102,(A * 10) +
    10;CHR$(A + 64); @ (A * 10) + 13, 10;CHR$(48 + A); @ (A *
    10) + 13, 101;CHR$(48 + A);
2450 NEXT A
2460 INK RED
2470 EXT CIRCLE 1, 34, 30, 7
2480 EXT CIRCLE 1, 205, 30, 7
2490 INK GREEN
2500 EXT CIRCLE 1, 34, 210, 6
2510 EXT CIRCLE 1, 205, 210, 6
2520 VDU 25
2530 ENDPROC
2540 DEFPROC 9
2550 CLS
2560 PRINT @ 40, 0;
2570 VDU 24, 1, 1, 79, 1, 2, 84, 1, 3, 72, 1, 4, 69, 1, 5, 76, 1,
    6, 76, 1, 7, 79, 25,
2580 PROC B
2590 ENDPROC
2600 DEFPROC GRAPHIC
2610 CODE 00 00 1E 3F 3F 3F 3F 3F 1E 00
2620 DPOKE GRAPHIC, LCTN(2610)
2630 ENDPROC

```

-----

**VARIABLES USED**

~~~~~

B = player piece pointer	j = move indicator
C = player piece pointer	k = main loop
Z = player move marker	s = beep volume
c = computer piece count	z = 1 : against computer
g = 1 = 2 player game	2 : 2 player game
2 = play against computer	
h = human piece count	

STRING VARIABLES

O\$ = players O piece	I\$ = player 1 name
X\$ = players X piece	H\$ = player 2 name
D\$ = direction pointer	

TEN SUPER PROGRAMS FOR THE LYNX

ARRAYS

A(100) pieces on board
E(60) computer moves
C(100) pieces

PROGRAM STRUCTURE

130 - 140 Set up start variables
160 - 310 Initialise array for board
340 - 460 Against computer ?
470 - 580 Print pieces on board
540 - 780 Set up pieces on board
800 - 900 Check for pass
1000 - 1150 Input entry (1 player) & check if legal move.
1170 - 1220 End of game
1230 - 1260 Check
1290 - 1570 Instructions
1590 - 1650 Input both players names
1610 - 1730 Print both players names
1740 - 1820 Check if you or computer wins
1830 - 1410 I win
1920 - 1960 First players piece
1970 - 2010 Second players piece (or computers)
2020 - 2040 Clear
2050 - 2140 Check for end of game
2130 - 2310 You win
2310 - 2530 Print board outline
2600 - 2630 Graphics set up

Y A H T Z E E

(c) M.R.Sawyer 1985

```

105 REM YAHTZEE - (c) M.R.SAWYER 1985
110 CLS
120 DIM A$(30)(6), N$(15)(4)
130 PROC INSTRUCTIONS
140 CLS
150 PROC BOARD
160 PROC GRAPHIC
170 DIM A(5), B(5 * 17), S(5 * 13), Z((5), C(5)
180 VDU 25
190 FOR A = 1 TO 5
200 LET Z(A) = 0
210 PRINT @ 95,50 +(A - 1) * 35;A;
220 NEXT A
230 CCHAR &202A
240 FOR A = 1 TO 85
250 LET B(A) = 0
260 NEXT A
270 PROC ENTER
280 LET c = FALSE
290 REPEAT
300 LET C = 0, c = c +TRUE
310 FOR A = 1 TO a
320 IF B((c - 1) * 18 + 17) >= B((A - 1) * 18 + 17) THEN
330 LET C = C +1
330 NEXT A
340 UNTIL C = a
350 PRINT @ 0,215;CHR$(30); @ 0, 225; CHR$(30);
360 INK WHITE
370 PRINT @ 30, 225;N$(c); " you win. ";
380 FOR A = 1 TO 14
390 BEEP (A + 200) - (10 * A), 10, 63
400 INK A
410 PAPER 14 - A
420 PRINT @ 40,215;"****WINNER****";
430 NEXT A
440 VDU 1,6,2,0
450 PRINT @ 10,240;"Another go [Y/N]?";
460 LET A$ = GET$
470 IF UPC$(A$) = "Y" THEN RUN
480 TEXT
490 END
500 DEFPROC INSTRUCTIONS
510 PROTECT BLACK
520 VDU 1,6,2,0, GREEN,24
530 PRINT @ 40,0; "YAHTZEE" CHR$(21);@ 40,0"-----"; CHR$(20) +
    CHR$(25);
540 INK CYAN
550 PRINT @ 7,40;"This is the game of Yahtzee - from 1"; @ 0,50;"to 4
    players may play at the same time,";@ 0,60;"with each player's
    status shown" @ 0,70;"on the playing board, including the total";
560 PRINT @ 0,80;"scores.";
```

TEN SUPER PROGRAMS FOR THE LYNX

```

570 PRINT @ 7, 100;"On this version you can score multiple"; @ 0,110;
    "Yahtzee's, the first Yahtzee will score"; @ 0, 120;"50 points and
    each additional one will"; @ 0,130;"yield a bonus of 100 points."
580 PRINT @ 0,140;"In addition you will be given an extra";@ 0, 150
    ;"turn at the end od the game."
590 INK YELLOW
600 PRINT "M.R.Sawyer May 1985";
610 INK RED
620 PRINT @ 20,175;"Number of players [1 - 4]?";
630 REPEAT
640 LET A = GETN - 4B
650 BEEP 100,50,63
660 UNTIL A > = 1 AND A < = 4
670 LET n = A
680 INK GREEN
690 PRINT @ 20,175;"CHR$(30);A;"player"CHR$(21);@20,175;"_____"";
    CHR$(20);
700 WINDOW 3,123,190,200
710 INK YELLOW
720 FOR B = 1 TO A
730 PRINT @ 3, 190;CHR$(30);"Player "B;" enter name";
740 INPUT N$(B)
750 BEEP 100,100,63
760 NEXT B
770 ENDPROC
780 DEFPROC BOARD
790 INK WHITE
800 FOR A = 0 TO 4
810 MOVE 90 + (A * 20), 40
820 DRAW 90 + (A * 20), 210
830 NEXT A
840 FOR A = 0 TO 17
850 IF A = 6 OR A = 7 OR A = 14 OR A = 17 THEN INK RED
860 ELSE INK WHITE
870 MOVE 90, 40 + (A * 10)
880 DRAW 170, 40 + (A * 10)
890 NEXT A
900 INK CYAN
910 LET A$ = CHR$(BLUE) + CHR$(GREEN), B$ = CHR$(BLUE) + CHR$(CYAN)
920 PRINT @ 50,30;"A B C D"
930 PRINT @ 3,40;"Aces.....1" @ 3, 50;"Twos.....2" @ 3,60;
    "Threes.....3" @ 3,70;"Fours.....4"; @ 3, 80;"Fives.....5";
    @ 3,90;"Sixes.....6"; @ 3,100; A$;"Total upper..";
940 PRINT @ 3, 110; B$;"3 of a kind.7" @ 3, 120;"4 of a kind.8";
    @ 3, 130;"Full House..9"; @ 3, 140;"Sm straight.A";
    @ 3, 150;"Lg straight.B"; @ 3, 160;"YAHTZEE.....C";
    @ 3, 170;"Chance.....D";
950 PRINT @ 3, 180; A$; @ 3, 180;"Total lower.."; @ 3, 190;"Top
    bonus...."; @ 3, 200;"Grand Total..";B$;
960 INK YELLOW
970 PRINT @ 40, 0; CHR$(24);"YAHTZEE"; @ 40, 0; CHR$(21); CHR$(14);
    "_____"";CHR$(20) By M.R.Sawyer."";
980 ENDPROC
990 DEFPROC NUM PRINT(a, b, d)
1000 IF b = 7 OR b = 13 OR b = 15 OR b = 16 OR b=17, THEN PROC FILL

```

TEN SUPER PROGRAMS FOR THE LYNX

```

1010 INK GREEN
1020 PROTECT MAGENTA
1030 PRINT CHR$(21);@((a) * 10) + 35, 41 + ((b - 1) * 10);
d; CHR$(20);
1040 PROTECT BLACK
1050 ENDPROC
1060 DEFPROC FILL
1070 INK BLACK
1080 FOR B = 0 TO 8
1090 MOVE ((a) * 20) + 71, 41 + ((b - 1) * 10); + B
1100 DRAW ((a) * 20) + 89, 41 + ((b - 1) * 10); + B
1110 NEXT B
1120 ENDPROC
1130 DEFPROC PRINT DICE(a,b)
1140 FOR B = 1 TO 6
1150 PAUSE 100
1160 PRINT @ 100, 40 + (a - 1) * 35; A$(B);
1170 BEEP 80,10,63
1180 NEXT B
1190 FOR B = 1 TO b
1200 PAUSE 100
1210 PRINT @ 100, 40 + (a - 1) * 35;A$(B)
1220 BEEP 80, 10, 63
1230 NEXT B
1240 ENDPROC
1250 DEFPROC RAND(a)
1260 RANDOM
1270 LET N = RAND(6)+1
1280 LET A(a) = N
1290 ENDPROC
1300 DEFPROC THE LOT
1310 FOR C = 1 TO 5
1320 PROC RAND(C)
1330 PROC PRINT DICE(C, A(C))
1340 NEXT C
1350 ENDPROC
1360 DEFPROC ENTER
1370 REPEAT
1380 LET z = 0
1390 REPEAT
1400 LET z = z + 1
1410 IF Z(z) <= 17 THEN PROC PLAY(z)
1420 PROC TOTAL(z)
1430 UNTIL z = n
1440 UNTIL Z(1) + Z(2) + Z(3) + Z(4) >= n * 13
1450 ENDPROC
1460 DEFPROC PLAY(Z)
1470 LET Z(Z) = Z(Z) + 1
1480 INK GREEN
1490 PRINT @ 20, 215; N$(Z); "Your go (";CHR$(64 + Z);
") :";CHR$(30);
1500 PROC THE LOT
1510 PROC AGAIN
1520 IF a < > 0 THEN PROC AGAIN
1530 PRINT @ 10,225;"Which column[1 - DJ?";CHR$(30);

```

TEN SUPER PROGRAMS FOR THE LYNX

```

1540 LET A = GETN - 48
1550 IF A > 9 THEN LET A = A - 7
1560 BEEP 50, 100, 63
1570 IF (A < 1 OR A > 13) THEN GOTO 1540
1580 LET Q = 0
1590 IF A <= 6 AND B((Z - 1) * 18 + A) < 0 OR A > 6 AND
    (B((Z - 1) * 18 + A + 1)) < 0 AND A < 12 THEN PROC NO
1600 ELSE IF A < 12 THEN PROC SCORED
1610 IF A = 12 AND B ((Z - 1) * 18 + (A + 1)) = 0.5 THEN PROC NO
1620 ELSE IF A = 12 THEN PROC SCORED
1630 IF Q = 1 THEN GOTO 1530
1640 ENDPROC
1650 DEFPROC SCORED
1660 IF A <= 6 THEN PROC TOP CHECK
1670 IF A = 7 OR A = 8 THEN PROC KIND
1680 IF A = 9 THEN PROC FULL HOUSE
1690 IF A = 10 OR A = 11 THEN PROC STRAIGHT
1700 IF A = 12 THEN PROC YAHTZEE
1710 IF A = 13 THEN LET B((Z - 1) * 18 + (A + 1)) = B((Z - 1)
    * 18 + (A + 1)) + A(1) + A(2) + A(3) + A(4) + A(5)
1720 IF A = 13 THEN PROC NUM PRINT(Z, A + 1, B((Z-1) * 18 + (A + 1)))
1730 ENDPROC
1740 DEFPROC NO
1750 LET Q = 0
1760 PRINT @ 10, 225; "Number all ready entered!";
1770 PRINT @ 20, 235; "****Try again****";
1780 PAUSE 100000
1790 PRINT @ 20, 235; CHR$(30);
1800 BEEP 100, 100, 63
1810 LET Q = 1
1820 ENDPROC
1830 DEFPROC TOP CHECK
1840 LET C = 0
1850 FOR B = 1 TO 5
1860 IF A (B) = A THEN LET C = C + 1
1870 NEXT B
1880 LET B((Z - 1) * 18 + A) = C * A
1890 IF B((Z - 1) * 18 + A) + 0 THEN LET B((Z - 1) * 18 + A) = 0.5
1900 PROC NUM PRINT(Z, A, INT(B((Z-1) * 18 + A)))
1910 ENDPROC
1920 DEFPROC AGAIN
1930 PRINT @ 0, 225; CHR$(30) @ 20, 225; "How many dice[0-5]?" ;
1940 LET a = GETN - 48, C(1) = 0, C(2) = 0, C(3) = 0, C(4) = 0,
    C(5) = 0
1950 BEEP 50,100,63
1960 IF a = 0 THEN GOTO 2160
1970 IF a < 1 OR a > 5 THEN GOTO 1940
1980 IF a = 5 THEN PROC THE LOT
1990 IF a = 5 THEN GOTO 2160
2000 PRINT @ 20, 225; "Which dice to throw[1-5]?" ;
2010 FOR D = 1 TO a
2020 LET C = GETN - 48
2030 BEEP 100,100,63
2040 IF C < 1 OR C > 5 THEN GOTO 2020
2050 LET Q = 0

```

```

2060 FOR c = 1 TO a
2070   IF C(c) = C THEN LET Q = 1
2080 NEXT c
2090 IF Q = 1 THEN GOTO 2020
2100 LET C(D) = C, A(C) = RAND(6) + 1
2110 PRINT @ D * 6,240;C;
2120 NEXT D
2130 FOR D = 1 TO a
2140   PROC PRINT DICE(C(D),A(C(D)))
2150 NEXT D
2160 PRINT @ 20,225;CHR$(30);@0,240;CHR$(30);
2170 ENDPROC
2180 DEFFPROC TOTAL(Z)
2190 LET Q = 0
2200 FOR B = 1 TO 6
2210   LET Q = Q + INT(B((Z - 1) * 18 + B))
2220 NEXT B
2230 LET B((Z - 1) * 18 + 7) = Q
2240 PROC NUM PRINT(Z, 7, B((Z - 1) * 18 + 7))
2250 BEEP 200, 100, 63
2260 LET Q = 0
2270 FOR B = 8 TO 14
2280   LET Q = Q + INT(B((Z - 1) * 18 + B))
2290 NEXT B
2300 LET B((Z - 1) * 18 + 15) = Q
2310 LET Q = B((Z - 1) * 18 + 7)
2320 IF Q > = 63 THEN LET B((Z - 1) * 18 + 16) = 35
2330 PROC NUM PRINT(Z, 15, B((Z - 1) * 18 + 15))
2340 IF Q > = 63 THEN PROC NUM PRINT(Z, 16, B((Z - 1) * 18 + 16))
2350 LET B((Z - 1) * 18 + 17) = B((Z - 1) * 18 + 7) + B((Z - 1) *
    18 + 15) + B((Z - 1) * 18 + 16)
2360 PROC NUM PRINT(Z, 17, B((Z - 1) * 18 + 17))
2370 ENDPROC
2380 DEFFPROC KIND
2390 LET c = FALSE
2400 FOR q = 1 TO 6
2410   LET C = 0
2420   FOR D = 1 TO 5
2430     IF A(D) = q THEN LET C = C + 1
2440     IF A = 7 AND C > = 3 OR A = 8 AND C > = 4 THEN LET c = TRUE
2450 NEXT D
2460 NEXT q
2470 LET C = 0
2480 IF c = FALSE THEN GOTO 2530
2490 FOR D = 1 TO 5
2500   LET C = C + A(D)
2510 NEXT D
2520 LET B((Z - 1) * 18 + (A + 1)) = C
2530 IF C = 0 THEN LET B((Z - 1) * 18 + (A + 1)) = 0.5
2540 PROC NUM PRINT(Z, A + 1, INT(B((Z - 1) * 18 + (A + 1))))
2550 ENDPROC
2560 DEFFPROC FULL HOUSE
2570 LET c = FALSE
2580 FOR q = 1 TO 6
2590   LET C = 0

```

TEN SUPER PROGRAMS FOR THE LYNX

```

2600 FOR D = 1 TO 5
2610   IF A(D) = q THEN LET C = C + 1
2620   IF C = 3 THEN LET c = 1, s = q
2630 NEXT D
2640 NEXT q
2650 LET C = 0
2660 IF c = 0 THEN GOTO 2760
2670 FOR q = 1 TO 6
2680   LET C = 0
2690   FOR D = 1 TO 5
2700     IF A(D) = q AND q < > s THEN LET C = C + 1
2710     IF C = 2 AND c < > 2 THEN LET c = c + 1
2720   NEXT D
2730 NEXT q
2740 IF c < > 2 THEN GOTO 2760
2750 LET B((Z - 1) * 18 + (A + 1)) = 25,
2760 IF B((Z - 1) * 18 + (A + 1)) = 0 THEN LET B((Z - 1) * 18 + (A + 1))
= 0.5
2770 PROC NUM PRINT(Z, A + 1, INT(B(Z - 1) * 18 + (A + 1)))
2780 ENDPROC
2790 DEFPROC STRAIGHT
2800 LET C = 0, c = 0
2810 REPEAT
2820   LET C = C + 1, d = FALSE
2830   FOR D = 1 TO 5
2840     IF A(D) = C THEN LET d = TRUE
2850   NEXT D
2860   IF d = FALSE THEN LET c = FALSE
2870   ELSE LET c = c + 1
2880 UNTIL C = 6 OR A - 6 = c
2890 IF A = 10 AND c = 4 THEN LET B((Z - 1) * 18 + 11) = 30
2900 IF A = 11 AND c = 5 THEN LET B((Z - 1) * 18 + 12) = 35
2910 IF c < 4 AND A = 10 OR c < 5 AND A = 11 THEN LET B((Z - 1) * 18
+ (A + 1)) = 0.5
2920 PROC NUM PRINT(Z, A + 1, INT((Z - 1) * 18 + A + 1))
2930 ENDPROC
2940 DEFPROC YAHTZEE
2950 LET c = 0, Q = FALSE
2960 REPEAT
2970   LET C = 0, c = c + 1
2980   FOR D = 1 TO 5
2990     IF A(D) = c THEN LET C = C + 1
3000   NEXT D
3010   IF C = 5 THEN LET c = 10
3020 UNTIL c = 10 OR c = 6
3030 IF c = 10 AND B((Z - 1) * 18 + (A + 1)) < > 0 AND
B((Z - 1) * 18 + (A + 1)) < > 0.5 THEN LET
B((Z - 1) * 18 + (A + 1)) = B((Z - 1) * 18 + (A + 1)) + 100, Z(Z)
= Z(Z) - 1
3040 IF c = 10 AND B((Z - 1) * 18 + (A + 1)) = 0 THEN LET
B((Z - 1) * 18 + (A + 1)) = 50
3050 IF c = 6 AND B((Z - 1) * 18 + (A + 1)) < > 0 THEN LET Q = 1
3060 IF Q = 1 THEN PRINT @ 0, 225;" **** NO YAHTZEE ****";
CHR$(30); @ 0, 235;" * TRY AGAIN *"
3070 IF Q = 1 THEN PAUSE 100000

```

```

3080 IF Q = 1 THEN PRINT @ 0, 235;CHR$(30);
3090 IF Q = 1 THEN ENDPROC
3100 IF c = 6 AND B((Z - 1) * 18 + (A + 1)) = 0 THEN LET
    B((Z - 1) * 18 + (A + 1)) = 0.5
3110 PROC NUM PRINT(Z, A + 1, INT(B((Z-1) * 18 + (A + 1))))
3120 IF c = 6 THEN ENDPROC
3130 FOR D = 200 TO 1 STEP -1
3140 BEEP D, 1, 63
3150 NEXT D
3160 FOR D = 1 TO 200
3170 BEEP D, 1, 63
3180 NEXT D
3190 ENDPROC
3200 DEFPROC GRAPHIC
3210 CODE 00 00 00 00 00 00 00 07 07 07 00 00 00 00 00 00 00 00
    0C 0C 00 00 00 00 00 00 00 38 38 38 00 00 00 07 07 07 00 00
    00 00 00 00 0E 0E 0E 00 00 00 00 00 00 00 00 38 38 38 00 00 00 00
    07 07 07 00 00 00 00 00 00 00 0C 0C 0C 00 00 00 00 00 00 00 38
    38 38 00 00 00 00 00 00 00 00
3220 DPOKE GRAPHIC, LCTN(3210)
3230 RESTORE 3330
3240 FOR A = 1 TO 4
3250 LET A$(A) = ""
3260 NEXT A
3270 FOR A = 1 TO 6
3280 FOR B = 1 TO 23
3290 READ C
3300 LET A$(A) = A$(A) + CHR$(C)
3310 NEXT B
3320 NEXT A
3330 DATA 2,6,1,2,32,32,32,10,22,22,22,32,132,32,10,22,22,22,32,32,32,
    2,0,2,6,1,2,128,32,32,10,22,22,22,32,32,32,10,22,22,22,32,32,136,
    2,0,2,6,1,2,128,32,32,10,22,22,22,32,132,32,10,22,22,22,32,32,136,
    2,0
3340 DATA 2,6,1,2,128,32,130,10,22,22,22,32,32,32,10,22,22,22,134,32,
    136,2,0,2,6,1,2,128,32,130,10,22,22,22,32,132,32,10,22,22,22,134,
    32,136,2,0,2,6,1,2,128,32,130,10,22,22,22,131,32,133,10,22,22,22,
    134,32,136,2,0
3350 ENDPROC
-----  

    16 0 + 8 (I + A) + 80 * I + 128 CHA 01 = 0 91
    751 VBEHT 320 + 320 * I + 81 * (I - 1) 91
    320 * (I - 1) + 81 * I + 320 * I + 81 * (I - 1) 91
    481 VBEHT 0 + (C1 + 81) + 81 * (I - 1) 91 01
    03 + I + 91 + I + (I - 1) 91
    6 91 VBEHT C1 + (C1 + 81) + 81 * (I - 1) 91 01
    1624 04 *** 6 91 VBEHT C1 + (C1 + 81) + 81 * (I - 1) 91 01
    178 11 ADD 947 + 178 11 ADD 947 + 00

```

TEN SUPER PROGRAMS FOR THE LYNX

PROGRAM NOTES

VARIABLES USED

A = All use
B = All use
C = Number of Players Finished
c = All use
a = Number of Players
b = Dice Column
N = Dice Number
z = Player number
Q = True or False check
D = Dice Number
g = All use
j = All use

PROGRAM STRUCTURE

Lines	Use
120 - 260	Set up
280 - 340	Check who won
350 - 490	Winner routine
500 - 770	Instructions
780 - 980	Print Board
990 - 1050	Prints number on board
1060 - 1120	Fills space on board
1130 - 1240	Prints number on board
1060 - 1120	Fills space on board
1130 - 1240	Prints Dice
1250 - 1290	Chooses dice
1300 - 1350	Prints out all five dice
1360 - 1450	Main enter routine
1460 - 1640	Player enter routine
1650 - 1730	Score check
1740 - 1820	Prints number entered
1830 - 1910	Checks if scored first six columns
1920 - 2170	Rolls the dice
2180 - 2370	Prints out total score
2380 - 2550	Checks for 3 or 4 of a kind
2560 - 2780	Checks for a Full House
2790 - 2930	Semi and long Straight
2940 - 3190	Checks for Yahtzee
3200 - 3350	Sets up Graphics