

Comments
Display the cycle
Sin Computation

```

Line # Statements(s)
225 FOR I=-78 TO 78 STEP 6
230 S=I*XU÷10
235 Q=T
240 R=1; IF S>180 S=S-180; R=-1
250 IF S>450 TO 300
260 S=174×S÷10
270 T=S÷10
280 S=S-T×T÷1000×T÷6+T×T÷
1000×T÷100×T÷100×T÷120
290 GOTO 350
300 S=90-S
310 S=174×S÷10
320 T=S÷10
330 S=1000-T×T÷20+T×T÷100
0×T÷100×T÷24
340 S=S-T×T÷1000×T÷100×T÷
100×T÷100×T÷720
350 S=(S×R+1000)÷28-44
370 S=1; IF I=-78 J=4
380 LINE I, S, J
381 T=0
382 T=T+1
384 IF T>P T=0
390 NEXT I
400 GOTO 170
500 P=D+10; IF D<5 GOTO 120
510 P=L; M=M+1; IF M<3 GOTO 120
520 M=1; Y=Y+1; GOTO 120
700 CLEAR
710 PRINT M, "/ ", #4, Y
715 V=D+25; IF V>31 V=31
720 FOR I=D TO V; TV=0(I); NEXT I
730 RETURN
800 V=KN(1)
810 BOX V, 0, 1, 86, 3
820 BOX V, 0, 1, 86, 3
830 IF TR(1) GOTO 170
840 GOTO 800
1000 0(33)=28
1010 X=1+C÷4

```

USE OF SHADED AREA IS FOR 2ND OR MORE LINES OF MULTI-LINE STATEMENTS
DO NOT ENTER A SPACE BETWEEN LINE # AND STATEMENT, THIS IS DONE BY THE UNIT

Comments
Initialize
Constants Used
In
The
Program

```

Line # Statements(s)
1 BIORHYTHMS 3.0
2 MSIS 1.979
3 FOR I=2 TO 31; 0(I)=16;
NEXT I
4 0(1)=40; 0(5)=53; 0(9)=49; 0(
10)=48; 0(14)=47; 0(15)=53
5 0(19)=50; 0(20)=48; 0(2
4)=50; 0(25)=53; 0(29)=51; 0(
30)=48
6 FOR I=32 TO 43; 0(I)=31
NEXT I
7 0(35)=30; 0(37)=30; 0(4
0)=30; 0(42)=30; 0(51)=277; 0
(52)=200
8 0(53)=157; 0(54)=129; 0
(55)=109; 0(56)=95; 0(57)=84
9 INPUT "BIRTHDATE → M#A#Y#
"D#B#Y#C#
10 Y=C; M=A; D=B; GOSUB 1000; L=M
11 INPUT "START → M#A#Y#
D#B#Y#C#
12 GOSUB 1000
13 N=N-L
14 GOSUB 700
15 FOR I=44 TO 50
16 J=(I-43)×5+8
17 Y=N÷J; 0(I)=RM
18 NEXT I
19 V=K-P-48
20 IF V=-16 GOTO 800
21 IF V=0 BOX 0, 8, 160, 72
22 GOTO 170
23 IF V=13 LINE = 80, -9, 4;
LINE 79, 1, 3
24 IF V=8 GOTO 110
25 IF V=9 GOTO 600
26 IF (V<1)+(V>7) GOTO 170
27 U=0(50+V); T=0(43+V); P
=V×5+7

```

Input Birthdate
Convert to Days
Input Display Date
Convert to Days
Days since birth
Print Header
Input Command
Vertical Line?
Clear?
Horizontal Line?
New Start Date?
Increment Date?
Invalid Command?
Set up for
cycle

Biorhythms

General

This program displays the biorhythms of the user. The program will request the birthdate and the month to be displayed, up to 26 days are displayed at a time, to see the next display use the "→" function. The seven cycles are displayed separately by pressing their key. On the display up is + down is - and the center line can be brought in or out with its key. There is also a moveable line to help line up particular days, it is moved with KNC(1) and is on until TR(1) is pulled.

The Cycles

- L - 13 Day - Health and Well Being
- S - 18 Day - Sexual Energies
- P - 23 Day - Physical, Strength, Endurance, Energy
- E - 28 Day - Emotions, Nerves, Feelings, Creativity
- I - 33 Day - Intelligence, Memory, Logic, Ambition
- C - 38 Day - Precognition, Premonition
- H - 43 Day - Natural High Cycle
- Experimental Cycles Developed at NIU.

Keypad

GO	PAUSE	HALT
7	8	9
H	NEW	→
4	5	6
E	I	C
1	Z	3
L	S	P
	φ	—
	CLEAR	

```

1020 N=365*(Y-C)
1030 V=Y-1
1040 N=N+1+V/4-X
1050 V=Y-4;SE, RM=F0 @ (37) =29
1060 Q=M-1
1070 IF Q=0 GOTO 1090
1080 FOR I=1 TO Q;N=N+@I+3
1090 N=N+D;RETURN
  
```

DO NOT ENTER A SPACE BETWEEN LINE AND STATEMENT THIS IS DONE BY THE

Biorhythms Variables

- A - Birth Month
- B - Birth Day
- C - Birth Year
- D - Current Day for Calculation
- I - Index
- J - Line Segment Value, Intermediate Value
- L - Birthdate Normalized
- M - Current Display Month
- N - Normalized Date
- O - Current Month - 1
- P - ~~Recycle~~ Recycle Threshold
- Q - T Save
- S - Y Line value thru sine function
- T - Various Uses
- U - A Y Component
- V - Various Uses
- X - Used in Leap Calculation
- Y - Current Year
- @(1) - @ (31) - Day count header
- @(32) - @ (43) - Days in Each Month
- @(44) - @ (54) - Display Start Value for each cycle
- @(51) - @ (57) - Sizing Component for each cycle

PROGRAM NAME BLACKJACK III

PROGRAM NAME BLACKJACK III

Line #	Statement(s)	Comments
300	IF @ (S4) > @ (S4) = @ (S4)	Test for in
301	Y = 1; G = 12; GOTO 10; 10	Split Logic
302	E = @ (G) = 12; S = @ (S4) = @ (S4)	Initialize Hand
303	Z = Y + Z; PRINT "YOU HAVE	Money Remaining
304	"#5; Z; IF RNPRT " "5; Y	Message
305	IF Y < 2; STOP	Out of Cash?
306	PRINT "BET"; GOSUB	Input Bet
307	800; K = K + B	Bet > Cash?
308	IF K > X; GOTO 303	Bet = 0?
309	IF K < 1; GOTO 303	Deal
310	GOSUB 200; @ (A3) = A; @ (S4)	the
311	J = B; GOSUB 200; @ (A3) = A; @ (S4)	Hand
312	Z) = B; PRINT "DEALER'S	"
313	SUB 200; @ (S1) = B; H = L; GOSUB	"
314	200; H = @ (S2) = A; D = @ (P) = @	Test
375	IF @ (S1) = 1; @ (S2) = 1; @ (S2)	for
377	GOSUB 50; IF X = 2; P = 1	Blackjacks
380	IF @ (S1) = 1; 1; GOTO 420	"
390	F = F + 1; L = L + 1	"
395	IF @ (S2) > 90 = 1	Insurance?
400	PRINT "INSURANCE?"	Blackjacks?
410	GOSUB 150	"
411	IF N = Y; K = 2; IF @ (Y) = Y	"
412	K = 2; GOTO 30	"
420	IF @ (Y) = Y; K = 1; GOTO 30	"
430	IF @ (Y) = K; K = 2; GOTO 1000	Input Command
450	PRINT " ?"; GOSUB 830	Split Aces?
453	IF @ (A1) = 1; IF @ (S4) > @ (S4) = "S"	Hit
460	IF Z = "H"; GOSUB 200; G = G	"
461	J = @ (G) = B; GOSUB 50; IF X > 2	"
470	GOTO 900	Stand - Display
471	IF Z = "S"; GOSUB 50; PRINT	Count
480	T = @ (COUNT) = #3; X; GOTO 910	Double Down
481	M = @ (A1) + @ (A2); IF Z = "D"	(If Legal)
482	"IF G = 12; IF M > 9; IF M < 12; K = K + B	"
483	GOSUB 200; M = @ (G) + 1; @ (G)	"
484	B; GOSUB 50; IF X > 2; GOTO 900	"
490	IF M = @ (S4) = 83; GOTO 470	Split
500	IF Z = " / "; IF @ (S4) = @ (A1) = @ (S4)	(If Legal)
510	= 42; @ (S4) = @ (S4) + 1; GOTO 10; 10	

Line #	Statement(s)	Comments
1		
2	BLACKJACK III	
3	MSK	
10	FOR C = 1 TO 26; GOSUB 10	Shuffle Deck the
20	0; NEXT S; C = 1	First Time
30	@ (S4) = @ (S); INPUT "STAR"	Initialize Stake;
40	Y = Y + Y; CLEAR; GOTO 300	Y is in Half Dollars
50	PRINT "BLACKJACK"; IF	Blackjack Mssy
60	P = Y + K; PRINT "PUSH	
70	Q = @ (S) GOTO 300	reset play
80	X = 0; FOR I = 1 TO G; X = X +	Calculate
90	@ (E); NEXT I; J = F	Player's
100	IF X > 2; IF J > @ (S) = 3 - 1; X =	Count
110	X = 1; GOTO 90	"
120	RETURN	"
130	I = C	Shuffle another
140	E = RND (52); FOR J = 1 TO	card in
150	I = 1; IF E = @ (J); GOTO 110	the second
160	NEXT J; @ (I) = E; RETURN	deck
170	N = 0; IF N = 0; PRINT "YES"	Get Insurance
180	IF N = 0; PRINT "NO"	YES/NO from
190	CX = CX - 18; IF TRC(1); PRINT	Hand Controller
200	T; RETURN	# 1
210	GOTO 150	"
220	S = @ (S) = 13; A = RM + 1; GOSUB	Get
230	B; 100; C = C + 1; IF H; GOTO 280	card
240	IF A = 1; PRINT "ACE"; B =	Decode the
250	11; F = F + 1; S = S - 1; GOTO 260	card
260	IF A = 1; PRINT "ACE"; B =	printing
270	A; GOTO 260	it's
280	B = 10; IF A = 1; PRINT "JACK"	value
290	IF A = 12; PRINT "QUEEN"	"
300	IF A = 13; PRINT "KING"	"
310	PRINT "OF"	"OF"
320	IF S = 0; PRINT "DIAMONDS"	Print
330	IF S = 1; PRINT "CLUBS"	out
340	IF S = 2; PRINT "HEARTS"	the
350	IF S = 3; PRINT "SPADES"	suit
360	IF S > 3; S = 1	Half thru deck then switch
370	RETURN	

USE OF SPACED AREA IS FOR STATEMENTS

DO NOT ENTER A SPACE BETWEEN LINE # AND STATEMENT THIS IS DONE BY THE UNIT

Line # Statements(s) Comments

```

520 GOTO 450
530 K=8(28)÷10×(1+9JY(1))
540 J=PRINT #3,K;IF TR(1)PRTN
550 J=RETURN
560 CX=8×1.8;GOTO 800
570 J=JY(1)+JX(1)×2;IF J>
580 -3IF J<3IF JGOTO 840
590 GOTO 830
600 IF J=1PRINT "STR";J=83
610 IF J=-1PRINT "HT";J=72
620 IF J=2PRINT "DBL";J=68
630 IF J=3PRINT "SPL";J=47
640 IF TR(1)RETURN
650 CX=8×1.8;GOTO 830
660 PRINT "BUSTED!";Y=Y-K
670 JGOTO 300
680 F=L;A=8(52);IF 8(54)=
690 GOSUB 210
700 IF 8(54)>A BE=1;IF AK
710 M=8(51)+B
720 IF M>23GOTO 950
730 IF (M>17)+(M=17)X(F=0
740 GOTO 980
750 GOSUB 200;M=M+B
760 IF M>21IF F>0M=M-10;F
770 F-1;GOTO 950
780 IF M>21GOTO 1000
790 GOTO 930
800 IF M=XPRINT "PUSH";G0
810 J0 300
820 IF M>XPRINT "YOU LOSE
830 "Y=Y-K;GOTO 300
840 PRINT "YOU WIN";Y=Y+K
850 JGOTO 300
860 GOSUB 200;8(42)=B;GOSUB 50
870 GOTO 450

```

Line # Statements(s) Comments

```

2350 8(61)=L
2370 IF L#8(62)GOTO 2430
2380 PRINT "BUMBED WUMPVUS
2400 GOSUB 2080;IF F=0GOTO 2430
2420 IF L#8(63)IF L#8(64)G
2440 GTO 2480
2460 E(16)=127;E(22)=15;FO
2480 R A=0TO 255;E(17)=A;NEXT A
2490 PRINT "IN PET";F=-1
2500 RETURN
2520 IF L#8(65)IF L#8(66)G
2540 GTO 2520
2560 E(20)=99;FOR A=0TO 50
2580 +RND(100);MV=RND(40)+19;
2600 NEXT A;E(20)=0
2620 PRINT "BAT SNATCH
2640 L=RND(20);GOTO 2350
2660 RETURN
2680 B=30144;D=3000;C=-179
2700 J1;GOSUB D;C=8526;GOSUB D;
2720 C=20080;GOSUB D;C=8382;GOS
2740 U;D=C-10761;GOSUB D;C=68
2760 G1;GOSUB D
2780 C=12832;GOSUB D;C=200
2800 J8;GOSUB D;C=-13871;GOSUB D
2820 B="C";CALL 20144;IF A#M+8GOTO
2840 FOR I=0TO 59;CALL(302
2860 50);8(5)=A;NEXT I;RETURN
2880 JNTE=1;GOTO 210
2900 2(B)=C;B=B+2;RETURN
2920 FOR J=0TO 57STEP 3;PR
2940 INT "ROOM:";J;3+1
2960 FOR K=JTO J+2
2980 INPUT 8(K);IF 8(K)>01
3000 F 8(K)≤21GOTO 3180
3020 PRINT "ERROR";GOTO 3160
3040 NEXT K;NEXT J;GOTO 310
3060 FOR A=0TO 57;8(A)=RND
3080 (20);NEXT A
3100 GOTO 210

```

USE OF SHARED AREA IS FOR 205 OR MORE LINES OF MULTI-LINE STATEMENTS

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Line # Statements(s) Comments

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2350 8(61)=L
2370 IF L#8(62)GOTO 2430
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2400 GOSUB 2080;IF F=0GOTO 2430
2420 IF L#8(63)IF L#8(64)G
2440 GTO 2480
2460 E(16)=127;E(22)=15;FO
2480 R A=0TO 255;E(17)=A;NEXT A
2490 PRINT "IN PET";F=-1
2500 RETURN
2520 IF L#8(65)IF L#8(66)G
2540 GTO 2520
2560 E(20)=99;FOR A=0TO 50
2580 +RND(100);MV=RND(40)+19;
2600 NEXT A;E(20)=0
2620 PRINT "BAT SNATCH
2640 L=RND(20);GOTO 2350
2660 RETURN
2680 B=30144;D=3000;C=-179
2700 J1;GOSUB D;C=8526;GOSUB D;
2720 C=20080;GOSUB D;C=8382;GOS
2740 U;D=C-10761;GOSUB D;C=68
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2780 C=12832;GOSUB D;C=200
2800 J8;GOSUB D;C=-13871;GOSUB D
2820 B="C";CALL 20144;IF A#M+8GOTO
2840 FOR I=0TO 59;CALL(302
2860 50);8(5)=A;NEXT I;RETURN
2880 JNTE=1;GOTO 210
2900 2(B)=C;B=B+2;RETURN
2920 FOR J=0TO 57STEP 3;PR
2940 INT "ROOM:";J;3+1
2960 FOR K=JTO J+2
2980 INPUT 8(K);IF 8(K)>01
3000 F 8(K)≤21GOTO 3180
3020 PRINT "ERROR";GOTO 3160
3040 NEXT K;NEXT J;GOTO 310
3060 FOR A=0TO 57;8(A)=RND
3080 (20);NEXT A
3100 GOTO 210

```

Line # Statements(s) Comments

```

520 GOTO 450
530 K=8(28)÷10×(1+9JY(1))
540 J=PRINT #3,K;IF TR(1)PRTN
550 J=RETURN
560 CX=8×1.8;GOTO 800
570 J=JY(1)+JX(1)×2;IF J>
580 -3IF J<3IF JGOTO 840
590 GOTO 830
600 IF J=1PRINT "STR";J=83
610 IF J=-1PRINT "HT";J=72
620 IF J=2PRINT "DBL";J=68
630 IF J=3PRINT "SPL";J=47
640 IF TR(1)RETURN
650 CX=8×1.8;GOTO 830
660 PRINT "BUSTED!";Y=Y-K
670 JGOTO 300
680 F=L;A=8(52);IF 8(54)=
690 GOSUB 210
700 IF 8(54)>A BE=1;IF AK
710 M=8(51)+B
720 IF M>23GOTO 950
730 IF (M>17)+(M=17)X(F=0
740 GOTO 980
750 GOSUB 200;M=M+B
760 IF M>21IF F>0M=M-10;F
770 F-1;GOTO 950
780 IF M>21GOTO 1000
790 GOTO 930
800 IF M=XPRINT "PUSH";G0
810 J0 300
820 IF M>XPRINT "YOU LOSE
830 "Y=Y-K;GOTO 300
840 PRINT "YOU WIN";Y=Y+K
850 JGOTO 300
860 GOSUB 200;8(42)=B;GOSUB 50
870 GOTO 450

```

Line # Statements(s) Comments

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2350 8(61)=L
2370 IF L#8(62)GOTO 2430
2380 PRINT "BUMBED WUMPVUS
2400 GOSUB 2080;IF F=0GOTO 2430
2420 IF L#8(63)IF L#8(64)G
2440 GTO 2480
2460 E(16)=127;E(22)=15;FO
2480 R A=0TO 255;E(17)=A;NEXT A
2490 PRINT "IN PET";F=-1
2500 RETURN
2520 IF L#8(65)IF L#8(66)G
2540 GTO 2520
2560 E(20)=99;FOR A=0TO 50
2580 +RND(100);MV=RND(40)+19;
2600 NEXT A;E(20)=0
2620 PRINT "BAT SNATCH
2640 L=RND(20);GOTO 2350
2660 RETURN
2680 B=30144;D=3000;C=-179
2700 J1;GOSUB D;C=8526;GOSUB D;
2720 C=20080;GOSUB D;C=8382;GOS
2740 U;D=C-10761;GOSUB D;C=68
2760 G1;GOSUB D
2780 C=12832;GOSUB D;C=200
2800 J8;GOSUB D;C=-13871;GOSUB D
2820 B="C";CALL 20144;IF A#M+8GOTO
2840 FOR I=0TO 59;CALL(302
2860 50);8(5)=A;NEXT I;RETURN
2880 JNTE=1;GOTO 210
2900 2(B)=C;B=B+2;RETURN
2920 FOR J=0TO 57STEP 3;PR
2940 INT "ROOM:";J;3+1
2960 FOR K=JTO J+2
2980 INPUT 8(K);IF 8(K)>01
3000 F 8(K)≤21GOTO 3180
3020 PRINT "ERROR";GOTO 3160
3040 NEXT K;NEXT J;GOTO 310
3060 FOR A=0TO 57;8(A)=RND
3080 (20);NEXT A
3100 GOTO 210

```

USE OF SHARED AREA IS FOR 205 OR MORE LINES OF MULTI-LINE STATEMENTS

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Line # Statements(s) Comments

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2480 R A=0TO 255;E(17)=A;NEXT A
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2500 RETURN
2520 IF L#8(65)IF L#8(66)G
2540 GTO 2520
2560 E(20)=99;FOR A=0TO 50
2580 +RND(100);MV=RND(40)+19;
2600 NEXT A;E(20)=0
2620 PRINT "BAT SNATCH
2640 L=RND(20);GOTO 2350
2660 RETURN
2680 B=30144;D=3000;C=-179
2700 J1;GOSUB D;C=8526;GOSUB D;
2720 C=20080;GOSUB D;C=8382;GOS
2740 U;D=C-10761;GOSUB D;C=68
2760 G1;GOSUB D
2780 C=12832;GOSUB D;C=200
2800 J8;GOSUB D;C=-13871;GOSUB D
2820 B="C";CALL 20144;IF A#M+8GOTO
2840 FOR I=0TO 59;CALL(302
2860 50);8(5)=A;NEXT I;RETURN
2880 JNTE=1;GOTO 210
2900 2(B)=C;B=B+2;RETURN
2920 FOR J=0TO 57STEP 3;PR
2940 INT "ROOM:";J;3+1
2960 FOR K=JTO J+2
2980 INPUT 8(K);IF 8(K)>01
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Line # Statements(s) Comments

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520 GOTO 450
530 K=8(28)÷10×(1+9JY(1))
540 J=PRINT #3,K;IF TR(1)PRTN
550 J=RETURN
560 CX=8×1.8;GOTO 800
570 J=JY(1)+JX(1)×2;IF J>
580 -3IF J<3IF JGOTO 840
590 GOTO 830
600 IF J=1PRINT "STR";J=83
610 IF J=-1PRINT "HT";J=72
620 IF J=2PRINT "DBL";J=68
630 IF J=3PRINT "SPL";J=47
640 IF TR(1)RETURN
650 CX=8×1.8;GOTO 830
660 PRINT "BUSTED!";Y=Y-K
670 JGOTO 300
680 F=L;A=8(52);IF 8(54)=
690 GOSUB 210
700 IF 8(54)>A BE=1;IF AK
710 M=8(51)+B
720 IF M>23GOTO 950
730 IF (M>17)+(M=17)X(F=0
740 GOTO 980
750 GOSUB 200;M=M+B
760 IF M>21IF F>0M=M-10;F
770 F-1;GOTO 950
780 IF M>21GOTO 1000
790 GOTO 930
800 IF M=XPRINT "PUSH";G0
810 J0 300
820 IF M>XPRINT "YOU LOSE
830 "Y=Y-K;GOTO 300
840 PRINT "YOU WIN";Y=Y+K
850 JGOTO 300
860 GOSUB 200;8(42)=B;GOSUB 50
870 GOTO 450

```

USE OF SHARED AREA IS FOR 205 OR MORE LINES OF MULTI-LINE STATEMENTS

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Comments

Line # Statements(s)

```

1 WUMPUS II 3.2
2 MSK 1,800
3 FOR J=61 TO 66
4 L=RD(20); FOR K=61 TO
5 -1; IF @ (K)=L GOTO 220
6 NEXT K; @ (J)=L; @ (J+6)=
7; NEXT J
8 A=5
9 L=@ (61); Q=(L-1)*3; GOS
10 UB 1,230
11 GOSUB 1450
12 IF Q=1 GOSUB 1550; IF F
13 GOTO 1000
14 IF Q=2 GOSUB 2150; IF F
15 GOTO 380
16 IF F>0 PRINT "WIN!"
17 IF F=0 PRINT "LOSE"
18 FOR J=61 TO 66; @ (J)=@
19 (J+6); NEXT J
20 PRINT "AGAIN?"; IF KP
21 #Y STOP
22 PRINT "SAME?"; IF KP#
23 Y GOTO 210
24 GOTO 380
25 PRINT INT=1
26 FOR J=3 TO 6; FOR K=0 TO 2
27 IF @ (9+K)*@ (J+6) GOTO 1340
28 IF J=2 PRINT "I SMELL
29 WUMPUS!"
30 IF J>2 IF J<5 PRINT "I
31 FEEL A DRAFT"
32 IF J>4 PRINT "BATS NEARBY"
33 NEXT K; NEXT J
34 PRINT "YOU ARE IN" L
35 @; #3; @ (8); @ (9+1); @ (9+2);
36 PRINT "RETURN"
37 PRINT "SHOOT OR MOVE?"
38 "I=KP

```

Choose the starting locations

> Same Restart Entry Location information

Enter Command Shoot

Move

"WIN"

"LOSE"

Restore initial values

"AGAIN?"

Same set up?

Display location routine

Test for Wumpus

Pits

Bats

Command Input Routine

Comments

Line # Statements(s)

```

110 IF I="S" O=1; RETURN
111 IF I="M" O=2; RETURN
112 GOTO 1450
113 F=0
114 INPUT "# OF ROOMS"; J; I
115 F (J,1)+ (J+5) GOTO 1630
116 FOR K=1 TO J; INPUT "R0
117 OM: @ (K+72); IF @ (K+72)>0 IF
118 @ (K+72)<21 GOTO 1780
119 NEXT K
120 A=A-1; B=@ (61); FOR K=1
121 TO J; FOR N=ATP 2; IF @ (8-1
122 )*(3+M)=@ (72+K) GOTO 1990
123 NEXT M; B=@ (8-1)*3+RND (3)
124 -1; GOTO 2000
125 NEXT K; PRINT "MESSAGED"; GOSU
126 B 2070; IF A>0 GOTO 1970
127 F=-1
128 RETURN
129 B=@ (72+K)
130 IF B# @ (62) GOTO 2010
131 PRINT "GOT HIM IN"; @ (62)
132 F=1; RETURN
133 IF B# @ (61) GOTO 1980
134 PRINT "GOT YOURSELF"
135 GOTO 1960
136 K=RND (4); IF K=4 GOTO 2140
137 @ (62)=@ (@ (62)-1)*3+K
138 -1; IF @ (62)#LGOTO 2110
139 PRINT "WUMPUS GOT YOU"
140 "F=-1
141 RETURN
142 F=0
143 INPUT "WHERE?"; L; IF (L
144 <1)+(L>20) GOTO 2310
145 FOR K=0 TO 2; IF @ (9+K)
146 =LGOTO 2350
147 NEXT K; IF L=@ (61) GOTO 2350
148 PRINT "NO WAY"; GOTO 2310

```

Ilegal - Get Another Shoot Routine

Input Path OS

Arrow

"

Test Path

legality for hits

F=-1=lose

Got Him

F=1=win

Got Yourself

Wumpus Moves? Move

Get Player?

Move Routine

Input

Destination

Test

legality

NO WAY

BLACKJACK II

This program implements the game of Blackjack for one player vs. the computer. The rules are the same as those in the casinos with one exception. The exception is that when you split your cards the dealer will play against each hand after you stand on it. The stake you wish to play with is input from the keyboard at the start of the game. The dealer alternates between two decks and only deals the top 26 cards from a deck. Bets are entered from KNC(1) [81-25] or [10-250] with the joystick pushed forward.

The commands from the joystick are: STD

STD = Stand

DBL = Double Down

SPL = Split

SPL ← → DBL

HIT

When the dealer's face-up card is an ACE you may buy insurance, pull or push the joystick for a "YES". All commands and bets are entered by pulling the trigger.

DELETE THE COMMENTS (.'s) TO RUN!

Variables Used

A, B, C, D, E, F, G, H, I, J, K, L, M, N, O,
 P, S, X, Y, Z
 @ (1) - @ (26) - Deck of cards (Can Get Lower)
 @ (41) - @ (50) - Players Cards
 @ (51) - @ (53) - Dealers Cards
 @ (54) - Split Indicator/Counter

WUMFUS II - Cave Data

CAVE 0: 2,5,8,1,3,10,2,4,12,3,5,14,1,4,6,5,7,15,6,8,17,1,7,
 9,8,10,18,2,9,11,10,12,19,3,11,13,12,14,20,4,13,15,
 6,4,16,15,17,20,7,16,18,9,17,19,11,18,20,13,16,19
 CAVE 1: 20,2,3,19,1,4,1,4,5,2,3,6,3,6,7,4,5,8,5,8,9,6,7,10,
 7,10,11,8,9,12,9,12,13,10,11,14,11,14,15,12,13,16,
 12,16,17,14,15,18,15,18,19,16,17,20,2,17,20,1,18,19
 CAVE 2: 2,3,20,1,3,4,1,2,4,2,3,5,4,6,7,5,7,8,5,6,8,6,7,9,8,
 10,11,12,1,1,1,2,9,10,12,10,11,13,12,14,15,13,15,16,
 13,14,16,14,15,17,16,18,19,17,19,20,17,18,20,1,18,15
 CAVE 3: 6,10,16,6,7,17,7,8,18,8,9,19,9,10,20,1,2,15,2,3,11,
 3,4,12,4,5,13,5,6,14,7,16,20,8,16,17,9,17,18,10,18,
 19,6,19,20,1,11,12,12,13,3,13,14,4,15,5,11,15
 CAVE 4: 1,1,5,2,2,5,3,3,6,4,4,6,1,2,7,3,4,7,5,6,10,8,9,9,8,
 8,10,7,9,11,10,13,14,12,13,13,11,12,12,11,15,16,14,
 17,18,14,19,20,15,17,17,15,18,18,16,19,19,16,20,20
 CAVE 5: 5,4,8,1,5,6,2,6,7,3,7,8,8,9,12,5,9,10,6,10,11,7,11,
 12,12,13,16,9,13,14,10,14,15,11,15,16,16,17,20,13,
 17,18,14,18,19,15,19,20,1,4,20,1,2,17,2,3,18,3,4,19

WUMFUS II - General

There is a cave of 20 caverns, each has 3 tunnels to other caverns. The Wumpus is in one of the 20 caverns. There are bottomless pits in 2 caverns and bats in 2 caverns. You lose if: you fall in a pit, are eaten by the Wumpus, miss with all 5 arrows, or shoot yourself. The commands are "M"-Move and "S"-Shoot. If you enter a cavern with bats, you will be dropped in a cavern at random. There are 3 initial entry points to the program; Line 2650-Cave from tape, Line 3140-Enter a wa cave, and Line 3200-Random cave. Warnings will be given when you near: a Wumpus, a pit, or bats. If you bump or shoot at the Wumpus, he wakes up and can move. There are 6 caves supplied and more can be made with File Create. The caves are: 0-Dodecahedron, 1-Mebius Strip, 2-String of Beads, 3-Hex Network, 4-Dendrite, 5-One Way Streets. To enter a cave from tape: type "M:m" where m is the cave # you want, position tape, type "INPUT,GOTO 2650g", start tape, step tape when game starts. Notes: Each cave has a header of "Cm" where m is cave #, HT should be 16 or higher when saving cave data (doesn't apply for versions 3.2 and higher). Assembly language of tape input routine is shown on one of the sheets, @ (0) thru @ (59) contain the cave, @ (60) thru @ (77) have various uses. Variables used are A,B,C,D,F,I,J,K,L,M,N,O,Q.

Programs Tape #2 - Index

- 0) Heading
- 1) Blackjack II
- 2) Biorhythm 3.0
- 3) File Create
- 4) Tape Input/Output
- 5) Cave Data - Caves 0 thru 5
There is an identifier of "514" on this file. To run wumpus with a cave from tape you can type ":INPUT 514;GOTO 26500"
- 6) Text Editor II
- 7) Wumpus II 3.2
- 8) Life 4.2
- 9) Text Editor III
- 10) Memory Dump II 2.0
- 11) Keno 3

MEMORY DUMP II 2.0

This program is used to display memory in Hex and Ascii. In Auto mode, memory is displayed continuously. With Auto mode off 6 bytes will be displayed and the program will wait until trigger 1 is pulled before displaying the next 6. The Start Addr (Address) is input as 4 hex digits followed by a (80). Corrections can be made with the erase key. When the program is displaying memory, any of the rightmost keys will return to the prompts. There is a mode for just displaying Ascii, that is very fast. To enter it, at the end of a line pull the trigger quickly while holding JY on. You will have to get the hang of this to make it come on every time.

Variables

- C - Negative Flag
- E - Intermediate Variable
- I - Index & Address
- J - Index
- K - Keypad Input
- N - Intermediate Variable
- Q - Value to be turned into 4 hex digits
- R - Automatic List Flag
- U - Index
- Z - Alternate Address Decode Flag (Generally Unused)

Display Format

xxxx xxxx xxxx xxxx xxxxxx
 Addr Bytes 0-5 in Hex Bytes 0-5 in Ascii

PROGRAM NAME MEMORY DUMP II 2.0 Page 2 of 2

Line #	Statements	Comments
1	V=Z(I+J);NEXT X;I=I+6;J=C	"
2	X=77PRINT	"
1109	IF R(20)GOTO 20	Stop?
1110	IF TR(1)GOTO 1130	Go?
1115	IF R(20)GOTO 1099	Auto?
1120	GOTO 1109	"
1130	IF X(1)EAGOTO 1099	Special List?
1140	FOR N=1 TO 32767;TV=Z(Q U);IF TRL(1)GOTO 1099	Special Ascii List
1150	NEXT V;GOTO 1099	Quit.

PROGRAM NAME FILE CREATE Page 1 of 1

Line #	Statements	Comments
1	FILE CREATE	
2	FILE CREATE	
3	135 137	
4	80	
9	V=Q;PRINT "COUNT";IF	Starting @ Index
10	VP=Y;V=1	Display @
20	INPUT "HEADER LEN";D	Index?
30	INPUT "DATA LEN";D	Input Header
40	PRINT "TRAILER?";IF K	Length then Header
50	PRINT "ANOTHER?";IF J	Input Data - Len
60	PRINT "SPEED?";IF NT	then Data
70	PRINT "NT SPEED?";IF NT	Input trailer
80	PRINT "SPEED?";IF NT	if any
90	PRINT "SPEED?";IF NT	Another record
100	PRINT "SPEED?";IF NT	on this file?
110	PRINT "SPEED?";IF NT	NT speed -
120	PRINT "SPEED?";IF NT	tape start time
130	PRINT "SPEED?";IF NT	Output turned on
140	PRINT "SPEED?";IF NT	Output File
150	PRINT "SPEED?";IF NT	Output turned off
160	PRINT "SPEED?";IF NT	
170	PRINT "SPEED?";IF NT	ASCII Mode?
180	PRINT "SPEED?";IF NT	
190	PRINT "SPEED?";IF NT	
200	PRINT "SPEED?";IF NT	
210	PRINT "SPEED?";IF NT	
220	PRINT "SPEED?";IF NT	
230	PRINT "SPEED?";IF NT	
240	PRINT "SPEED?";IF NT	
250	PRINT "SPEED?";IF NT	
260	PRINT "SPEED?";IF NT	
270	PRINT "SPEED?";IF NT	
280	PRINT "SPEED?";IF NT	
290	PRINT "SPEED?";IF NT	
300	PRINT "SPEED?";IF NT	
310	PRINT "SPEED?";IF NT	
320	PRINT "SPEED?";IF NT	
330	PRINT "SPEED?";IF NT	
340	PRINT "SPEED?";IF NT	
350	PRINT "SPEED?";IF NT	
360	PRINT "SPEED?";IF NT	
370	PRINT "SPEED?";IF NT	
380	PRINT "SPEED?";IF NT	
390	PRINT "SPEED?";IF NT	
400	PRINT "SPEED?";IF NT	
410	PRINT "SPEED?";IF NT	
420	PRINT "SPEED?";IF NT	
430	PRINT "SPEED?";IF NT	
440	PRINT "SPEED?";IF NT	
450	PRINT "SPEED?";IF NT	
460	PRINT "SPEED?";IF NT	
470	PRINT "SPEED?";IF NT	
480	PRINT "SPEED?";IF NT	
490	PRINT "SPEED?";IF NT	
500	PRINT "SPEED?";IF NT	
510	PRINT "SPEED?";IF NT	
520	PRINT "SPEED?";IF NT	
530	PRINT "SPEED?";IF NT	
540	PRINT "SPEED?";IF NT	
550	PRINT "SPEED?";IF NT	
560	PRINT "SPEED?";IF NT	
570	PRINT "SPEED?";IF NT	
580	PRINT "SPEED?";IF NT	
590	PRINT "SPEED?";IF NT	
600	PRINT "SPEED?";IF NT	
610	PRINT "SPEED?";IF NT	
620	PRINT "SPEED?";IF NT	
630	PRINT "SPEED?";IF NT	
640	PRINT "SPEED?";IF NT	
650	PRINT "SPEED?";IF NT	
660	PRINT "SPEED?";IF NT	
670	PRINT "SPEED?";IF NT	
680	PRINT "SPEED?";IF NT	
690	PRINT "SPEED?";IF NT	
700	PRINT "SPEED?";IF NT	
710	PRINT "SPEED?";IF NT	
720	PRINT "SPEED?";IF NT	
730	PRINT "SPEED?";IF NT	
740	PRINT "SPEED?";IF NT	
750	PRINT "SPEED?";IF NT	
760	PRINT "SPEED?";IF NT	
770	PRINT "SPEED?";IF NT	
780	PRINT "SPEED?";IF NT	
790	PRINT "SPEED?";IF NT	
800	PRINT "SPEED?";IF NT	
810	PRINT "SPEED?";IF NT	
820	PRINT "SPEED?";IF NT	
830	PRINT "SPEED?";IF NT	
840	PRINT "SPEED?";IF NT	
850	PRINT "SPEED?";IF NT	
860	PRINT "SPEED?";IF NT	
870	PRINT "SPEED?";IF NT	
880	PRINT "SPEED?";IF NT	
890	PRINT "SPEED?";IF NT	
900	PRINT "SPEED?";IF NT	
910	PRINT "SPEED?";IF NT	
920	PRINT "SPEED?";IF NT	
930	PRINT "SPEED?";IF NT	
940	PRINT "SPEED?";IF NT	
950	PRINT "SPEED?";IF NT	
960	PRINT "SPEED?";IF NT	
970	PRINT "SPEED?";IF NT	
980	PRINT "SPEED?";IF NT	
990	PRINT "SPEED?";IF NT	
1000	PRINT "SPEED?";IF NT	
1010	PRINT "SPEED?";IF NT	
1020	PRINT "SPEED?";IF NT	
1030	PRINT "SPEED?";IF NT	
1040	PRINT "SPEED?";IF NT	
1050	PRINT "SPEED?";IF NT	
1060	PRINT "SPEED?";IF NT	
1070	PRINT "SPEED?";IF NT	
1080	PRINT "SPEED?";IF NT	
1090	PRINT "SPEED?";IF NT	
1100	PRINT "SPEED?";IF NT	
1110	PRINT "SPEED?";IF NT	
1120	PRINT "SPEED?";IF NT	
1130	PRINT "SPEED?";IF NT	
1140	PRINT "SPEED?";IF NT	
1150	PRINT "SPEED?";IF NT	
1160	PRINT "SPEED?";IF NT	
1170	PRINT "SPEED?";IF NT	
1180	PRINT "SPEED?";IF NT	
1190	PRINT "SPEED?";IF NT	
1200	PRINT "SPEED?";IF NT	

PROGRAM NAME MEMORY DUMP II 2.0 Page 1 of 2

Line #	Statements	Comments
1	MEMORY DUMP II 2.0	
2	MSK 1180	
3	CLEAR NT=0	
10	PRINT "AUTO LIST?";IF	Set List Mode
20	PRINT "START A	Start Addr?
30	PRINT "START A	Dir (4 HEX DIGITS)?
40	PRINT "START A	Input Addr
50	PRINT "START A	End of Addr?
60	PRINT "START A	Delete a Digit
70	PRINT "START A	
80	PRINT "START A	
90	PRINT "START A	
100	PRINT "START A	
110	PRINT "START A	
120	PRINT "START A	
130	PRINT "START A	
140	PRINT "START A	
150	PRINT "START A	
160	PRINT "START A	
170	PRINT "START A	
180	PRINT "START A	
190	PRINT "START A	
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880	PRINT "START A	
890	PRINT "START A	
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950	PRINT "START A	
960	PRINT "START A	
970	PRINT "START A	
980	PRINT "START A	
990	PRINT "START A	
1000	PRINT "START A	
1010	PRINT "START A	
1020	PRINT "START A	
1030	PRINT "START A	
1040	PRINT "START A	
1050	PRINT "START A	
1060	PRINT "START A	
1070	PRINT "START A	
1080	PRINT "START A	
1090	PRINT "START A	
1100	PRINT "START A	
1110	PRINT "START A	
1120	PRINT "START A	
1130	PRINT "START A	
1140	PRINT "START A	
1150	PRINT "START A	
1160	PRINT "START A	
1170	PRINT "START A	
1180	PRINT "START A	
1190	PRINT "START A	
1200	PRINT "START A	

LIFE 4.2

General

Patterns are set up using the keys to move the cursor and turn it on and off. The game is then run. Generation and population counts are displayed. The game can be stopped and the pattern changed. The fate of a cell is defined by the number of cells neighboring it.

Keypad

RUN GAME	PAUSE	HALT	STOP AT END OF GENERATION
↖	↑	↗	CURSOR ON
←		→	CURSOR ERASE
↙	↓	↘	CURSOR OFF
CURSOR TRACE			CLEAR

Number of Neighbors

Action

0 or 1	Death Cell (Isolation)
2	Survival Cell
3	Survival Cell/Birth Cell
4 or more	Death Cell (Overpopulation)

Variables

- A - Keypad Input
- B - Intermediate Variable and Loop Counter
- C - Cursor Control and Loop Counter
- D - Cursor Control and Loop Counter
- E - Box Write: On, Erase, Off
- Q - Population Counter
- S - Stop at End of Generation Switch
- X&Y - Box Positions and Loop Counters
- Z - Generation Counter
- Q(1) - Q(529) - Neighbor Counters

Note! Some good articles on the Game of Life can be found in the Dec, 1978 issue of Byte.

File Create 1.0

This program is used to type in and record tape data files. The prompts are:

Prompt	Action
COUNT?	"Y" turns on display of Q index
HEADER-LEN	Input Length of Header - If 0 then none
DATA-LEN	Input Length of Data - If 0 then none
TRAILER?	"Y" lets you input a trailer byte
ASCII?	"Y" lets you input data as direct ASCII keyboard entries, to exit ASCII input type "GOTO" and then "Y" not "Y" lets you input data as numbers (0-255), to exit number mode type in a negative number
ANOTHER?	"Y" lets you add another record to the file
START TAPE, NT SPEED	start tape recorder and record at NT speed input

Tape Input / Output

This program is used to input a tape data file and then record copies of it where required. To run the program: Type "GOSUB 200 @@" and enter the start and end @@ index values, then type "INPUT ; RUN @@" and start the tape playing, you can now halt the program and inspect and change the data but don't change the program, if you halted type "GOTO 8000", Now in output mode, input start and end @@ numbers for the recording, enter the NT (must be slow for some applications), start the tape recording and type @@ to end.

Mark S. Keller

