

APPLE II Reference Manual

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Dot Matrix Program Printouts





khaibitgfx@gmail.com / [outlook.com](mailto:khaibitgfx@outlook.com)

BREAKOUT GAME
PROGRAM LISTING

PROGRAM LISTING

```

5 GOTO 15
10 Q=( PDL (0)-20)/6: IF Q<0 THEN
   Q=0: IF Q=34 THEN Q=34: COLOR=
   D: VLIN Q,Q+5 AT 0: COLOR=A:
   IF P>Q THEN 175: IF Q THEN
   VLIN 0,Q-1 AT 0:P=Q:RETURN

15 DIM A$(15),B$(10):A=1:B=13:
   C=9:D=6:E=15: TEXT : CALL -
   936: VTAB 4: TAB 10: PRINT
   "*** BREAKOUT ***":PRINT
20 PRINT " OBJECT IS TO DESTROY
   ALL BRICKS": PRINT : INPUT
   "HI, WHAT'S YOUR NAME? ",A$

25 PRINT "STANDARD COLORS ";A$
   ;: INPUT "Y/N? ",B$: GR: CALL
   -936: IF B$(1,1)="#N" THEN 40
   : FOR I=0 TO 39: COLOR=I/2*
   (I(32)): VLIN 0,39 AT I
30 NEXT I: POKE 34,20: PRINT :
   PRINT : PRINT : FOR I=0 TO
   15: VTAB 21+I MOD 2: TAB I+
   I+1: PRINT I,: NEXT I: POKE
   34,22: YTAB 24: PRINT : PRINT
   "BACKGROUND";
35 GOSUB 95:A=E: PRINT "EVEN BRICK"
   ;:GOSUB 95:B=E: PRINT "ODD BRIC
   K";:GOSUB 95:C=E: PRINT "PADDLE
   ";:GOSUB 95:D=E: PRINT "BALL"
   ;:GOSUB 95
40 POKE 34,20: COLOR=A: FOR I=
   0 TO 39: VLIN 0,39 AT I: NEXT
   I: FOR I=20 TO 34 STEP 2: TAB
   I+1: PRINT I/2-9,: COLOR=B:
   VLIN 0,39 AT I: COLOR=C: FOR
   J=I MOD 4 TO 39 STEP 4
45 VLIN J,J+1 AT I: NEXT J,I: TAB
   5: PRINT "SCORE=0":PRINT
   : PRINT : POKE 34,21:5=0:P=
   5:L=5:X=19:Y=19:L=6
50 COLOR=A: PLOT X,Y/3:X=19:Y=
   RND (120):V=-1:W= RND (5)-
   2:L=L-1: IF L<1 THEN 120: TAB
   6: IF L>1 THEN PRINT L;"BALLS L
   EFT"
55 IF L=1 THEN PRINT "LAST BALL, "
   ;A$: PRINT : FOR I=1 TO 100
   :GOSUB 10: NEXT I:W=1:N=0
60 J=Y+W: IF J)=0 AND J<120 THEN
   65:W=-W:J=Y: FOR I=1 TO 6:K=
   PEEK (-16336): NEXT I
65 I=X+V: IF I<0 THEN 100:GOSUB
   170: COLOR=A:K=J/3: IF I>39
   THEN 75: IF SCRNI,K)=A THEN
   85: IF I THEN 100:N=N+1:V=(
   N>5)+1:W=(K-P)*2-5:W=1
70 Z= PEEK (-16336)-PEEK (-16336
   )+ PEEK (-16336)- PEEK (-16336
   )+ PEEK (-16336)- PEEK (-16336
   )+ PEEK (-16336):GOTO 85
75 FOR I=1 TO 6:W= PEEK (-16336
   ): NEXT I:I=X:W=0
80 V=-V
85 PLOT X,Y/3: COLOR=E: PLOT I,
   K:X=I:Y=J:GOTO 60
90 PRINT "INVALID, REENTER";
95 INPUT " COLOR (0 TO 15)",E:
   IF E<0 OR E>15 THEN 90: RETURN
100 IF W THEN V= ABS (V): VLIN
   K/2*2,K/2*2+1 AT I:5=5+I/2-
   9: VTAB 21: TAB 13: PRINT 5
105 Q= PEEK (-16336)- PEEK (-16336
   )+ PEEK (-16336)- PEEK (-16336
   )+ PEEK (-16336)- PEEK (-16336
   )+ PEEK (-16336)- PEEK (-16336
   )+ PEEK (-16336)- PEEK (-16336
   )
110 IF 5<720 THEN 80
115 PRINT "CONGRATULATIONS, ";A$
   ;" YOU WIN!":GOTO 165
120 PRINT "YOUR SCORE OF ";5;" IS "
   ;:GOTO 125+(5/100)*5
125 PRINT "TERRIBLE!":GOTO 165
130 PRINT "LOUSY.":GOTO 165
135 PRINT "POOR.":GOTO 165
140 PRINT "FAIR.":GOTO 165
145 PRINT "GOOD.":GOTO 165
150 PRINT "VERY GOOD.":GOTO 165
155 PRINT "EXCELLENT.":GOTO 165
160 PRINT "NEARLY PERFECT."
165 PRINT "ANOTHER GAME ";A$;" (Y/N)
   ";; INPUT A$: IF A$(1,1)="Y"
   THEN 25: TEXT : CALL -936:
   VTAB 10: TAB 10: PRINT "GAME OV
   ER": END
170 Q=( PDL (0)-20)/6: IF Q<0 THEN
   Q=0: IF Q=34 THEN Q=34: COLOR=
   D: VLIN Q,Q+5 AT 0: COLOR=A:
   IF P>Q THEN 175: IF Q THEN
   VLIN 0,Q-1 AT 0:P=Q: RETURN

175 IF P=Q THEN RETURN : IF Q#34
   THEN VLIN Q+6,39 AT 0:P=Q:
   RETURN
180 FOR I=1 TO 80:Q= PEEK (-16336
   ): NEXT I:GOTO 50

```

COLOR DEMO PROGRAM
LISTING

PROGRAM LISTING

```

10 DIM C(4): POKE 2,173: POKE
   3,48: POKE 4,192: POKE 5,165
   : POKE 6,0: POKE 7,32: POKE
   8,168: POKE 9,252: POKE 10,
   165: POKE 11,1: POKE 12,288

20 POKE 13,4: POKE 14,198: POKE
   15,24: POKE 16,240: POKE 17
   ,5: POKE 18,198: POKE 19,1:
   POKE 20,76: POKE 21,2: POKE
   22,0: POKE 23,96

30 TEXT : CALL -936: VTAB 4: TAB
   8: PRINT "4K COLOR DEMOS": PRINT
   : PRINT "1 LINES": PRINT "2 CROS
   5": PRINT "3 WAVING"

40 PRINT "4 TUNNEL": PRINT "5 CIRCL
   E": PRINT "6 SPIRAL **": PRINT
   "7 TONES ** ": PRINT "8 SPRING"

50 PRINT "9 HYPERBOLA": PRINT
   "10 COLOR BARS": PRINT : PRINT
   "** NEEDS PDL(0) CONNECTED"
   : PRINT

60 PRINT "HIT ANY KEY FOR NEW DEMO"
   :Z=0: PRINT : INPUT "WHICH DEMO
   # ",I: GR : IF I>0 AND I<11
   THEN GOTO 100+I: GOTO 30

70 INPUT "WHICH DEMO WOULD YOU LIKE
   ",I: GR : IF I AND I<20 THEN
   GOTO 100+I: GOTO 30

100 I=1+I MOD 79: J=I+(I>39)*(79
   -I-I): GOSUB 2000: GOSUB 10000
   : GOTO 100

200 I=1+I MOD 39:J=1: GOSUB 2000
   :J=30-I: GOSUB 2000: GOSUB
   10000: GOTO 200

300 J=J+1:J=J MOD 22+1: FOR I=1
   TO 1295: COLOR=I MOD J+7: PLOT
   (2*I) MOD 37,(3*I) MOD 35: NEXT
   I: GOSUB 10000: GOTO 300

400 FOR I=1 TO 4:C(I)=RND (16)
   : NEXT I

410 FOR I=3 TO 1 STEP -1:C(I+1)
   =C(I): NEXT I:C(I)= RND (16
   ): FOR I=1 TO 5: FOR J=1 TO
   4

420 COLOR=C(J):L=J*5+14+I:K=39-
   L: HLIN K,L AT K: YLIN K,L AT
   L: HLIN K,L AT L: VLIN K,L AT
   K: NEXT K,I: GOSUB 10000: GOTO
   410

500 Z=20: GOTO 900

600 COLOR= RND (16): FOR I=0 TO
   18 STEP 2:J=39-I: HLIN I,J AT
   I: GOSUB 640: VLIN I,J AT J:
   GOSUB 640

610 HLIN I+2, J AT J: GOSUB 640
   VLIN I+2, J AT I+2: GOSUB 640
   : NEXT I

620 COLOR= RND (16): FOR I=18 TO
   0 STEP -2:J=39-I: VLIN I+2,
   J AT I+2: GOSUB 640: HLIN I+
   2,J AT J: GOSUB 640

630 VLIN I,J AT J: GOSUB 640: HLIN
   I,J AT I: GOSUB 640: NEXT I:
   GOSUB 10000: GOTO 600

640 K=I+7:L=K*K*5+K*26+70:L=32767
   /L*( PDL (0)/10): POKE 0,K:
   POKE 1,L MOD 256: POKE 24,
   L/256+1: CALL 2: RETURN

700 I= RND (30)+3:J=I+I*5+I*26+
   70:K=32767/J*( PDL (0)/10):
   POKE 0,I: POKE 1,K MOD 256
   : POKE 24,(K>255)+1: CALL 2
   : GOSUB 10000: GOTO 700

800 X=3:A=1000:P=A:L=20:W=4:Y=0
   :J=1: COLOR=6: HLIN 0,39 AT
   4: COLOR=9: GOSUB 880: COLOR=
   12: VLIN 5,M-2 AT X

810 N=2*A-P-A/W: COLOR=0: GOSUB
   880: VLIN 5,39 AT X:X=X+1: IF
   X<39 THEN 820:X=3: VLIN 5,39
   AT 1: VLIN 5,39 AT 2

820 P=A:A=N:Y=A/100: COLOR=12: GOSUB
   880: COLOR=9: VLIN 5,M-2 AT
   X: COLOR=15: PLOT X-2,M: FOR
   I=0 TO J: NEXT I: GOSUB 10000
   : GOTO 810

880 M=L-Y:L1=M-1:L2=M+1: VLIN L1,
   L2 AT X-1: VLIN L1,L2 AT X:
   VLIN L1,L2 AT X+1: RETURN

900 I=1+I MOD 15: FOR Y=0 TO 39
   : FOR X=0 TO 39: COLOR=I+( ABS
   (20-X)-Z)*( ABS (20-Y)-Z)/25
   : PLOT X,Y: NEXT X,Y: GOSUB
   10000: GOTO 900

1000 CALL -936

1010 J=1+K MOD 32: COLOR=J/2: VLIN
   0,39 AT 3+J: VTAB 21+(J/2) MOD
   2: TAB 3+J: IF J MOD 2 THEN
   PRINT J/2: GOSUB 10000: GOTO
   1010

2000 COLOR= RND (16): HLIN 0,39 AT
   J: COLOR= RND (16): VLIN 0,
   39 AT J: RETURN

10000 IF PEEK (-16384)<128 THEN RETURN
   : POKE -16368,0: POP : GOTO
   30

```


FIGURE 4b

READ/SAVE PROGRAM	COMMENTS
0 A=Ø	This must be the first statement in the program. It is initially Ø, but if data is to be saved, it will equal the length of the data base.
10 GOTO 1ØØ	This statement moves command to the main program.
20 PRINT "REWIND TAPE THEN START TAPE RECORDER": INPUT "THEN HIT RETURN", B\$	Lines 20-26 are the write data to tape subroutine.
22 A=CM-LM: POKE 6Ø,4: POKE 61,8: POKE 62,5: POKE 63,8: CALL -3Ø7	
24 POKE 6Ø,LM MOD 256: POKE 61, LM/256: POKE 62, CM MOD 256: POKE 63, CM/256: CALL -3Ø7	Writing data table to tape
26 PRINT "DATA TABLE SAVED": RETURN	Returning control to main program.
30 PRINT "REWIND THE TAPE THEN START TAPE RECORDER": INPUT "AND HIT RETURN", B\$	Lines 30-38 are the READ data from tape subroutine.
32 POKE 6Ø,4: POKE 61,8: POKE 62,5: POKE 63,8: CALL -259	
34 IF A<Ø THEN 38: P=LM+A: IF P>HM THEN 38: CM=P: POKE 6Ø, LM MOD 256: POKE 61, LM/256: POKE 62, CM MOD 256: POKE 63, CM/256: CALL -259	Checking the record length (A) for memory requirements if everything is satisfactory the data is READ in.
36 PRINT "DATA READ IN": RETURN	
38 PRINT "****TOO MUCH DATA BASE****": RETURN	Returning control to main program.

NOTE: CM, LM and A must be defined within the main program.

- | | | |
|---|--|---|
| 1 | >A=1
> | Define variable A=-1, then hit RETURN |
| 2 | >B=0
> | Define variable B=0, then hit RETURN |
| 3 | >PRINT PEEK (204) + PEEK
(205) * 256

computer responds with=
2060 | Use statement 2a to find the end of
the VARIABLE TABLE |
| 4 | >
* | Hit the RESET key, Apple moves into
Monitor mode. |
| 5 | *800.80C | Type in VARIABLE TABLE RANGE and HIT
the RETURN KEY. |

Computer responds with:

0800- C1 00 86 08 FF FF C2 00

0808 0C 08 00 00 00

Example 1

Example 2

```
>LIST
0 A=0
10 GOTO 100
20 REM WRITE DATA TO TAPE ROUTINE
22 A=CM-LM: POKE 60,4: POKE 61
  ,8: POKE 62,5: POKE 63,8: CALL
  -307
24 POKE 60,LM MOD 256: POKE 61
  ,LM/256: POKE 62,CM MOD 256
  : POKE 63, CM/256: CALL -307

26 RETURN
30 REM READ DATA SUBROUTINE
32 POKE 60,4: POKE 61,8: POKE
  62,5: POKE 63,8: CALL -259
34 IF A<0 THEN 30:P=LM+A: IF P>
  HM THEN 30: CM=P: POKE 60,LM MOD
  256: POKE 61,LM/256: POKE 62
  ,CM MOD 256: POKE 63,CM/256
  : CALL - 259
36 RETURN
38 PRINT "*** TOO MUCH DATA BASE **
  *":END
100 DIM A$(1),X(20)
105 FOR I=1 TO 20:X(I)=I: NEXT
  I
108 LM=2048:CM=2106:A=50:HM=16383

110 PRINT "20 NUMBERS GENERATED"

120 PRINT "NOW WE ARE GOING TO SAVE
  THE DATA": PRINT "WHEN YOU ARE R
  EADY START THE RECORDER IN RECOR
  D MORE": INPUT "AND HIT RETURN"
  ,A$
130 CALL -936: PRINT "NOW WRITING DA
  TA TO TAPE": GOSUB 20
135 PRINT "NOW THE DATA IS SAVE"

140 PRINT "NOW WE ARE GOING TO CLEAR
  THE X(20) TABLE AND READ THE DA
  TA FROM TAPE"
150 FOR I=1 TO 20:X(I): NEXT I
  "X(I;I;I)= ";X(I): NEXT I
160 PRINT "NOW START TAPE RECORDER"
  : INPUT "AND THEN HIT RETURN"
  ,A$
165 PRINT "A ",A
170 GOSUB 30
180 PRINT "ALL THE DATA READ IN"

190 FOR I=1 TO 20: PRINT "X(I;I;
  I)= ";X(I): NEXT I
195 PRINT "THIS IS THE END"
200 END
```


>REM HIRES DEMO-BASIC LISTING

```
>LIST
 1 INIT=3072: CLEAR=3086: PUSH=3761
   : PLOT=3780: LINE=3786: SHAPE=
   3805: FIND=3667: SINTBL=3840
 5 DIM X(10), Y(10)
10 TEXT : CALL -936: VTAB 4: TAB
   10: PRINT "*** 16 APPLE II ***"
   : PRINT " *** HIGH RESOLUTION G
   RAPHICS DEMOS ***": PRINT
15 PRINT "1 RANDOM LINE DRAW AT BAS
   IC SPEED": PRINT "2 RANDOM SHAPE
   PROJECTED INTO CORNER"
20 PRINT "3 CHRIS" MAD FOLLY":
   PRINT "4 RANDOM SHAPE SPIRALING
   INTO POINT": PRINT "5 SPIROGRAP
   H"
25 PRINT "6 HI-RES DONUT": PRINT
   "7 RANDOM WAVE FORM": PRINT
   "8 SUM OF TWO SINE WAVES"
30 PRINT : PRINT "HIT ANY KEY FOR N
   EW DEMO": PRINT "TYPE "CONTROL C
   " ; RETURN BUTTON THEN TYPE "T
   EXT AND RETURN BUTTON TO STOP"

50 PRINT : INPUT "WHICH DEMO # DO Y
   OU WANT ", X1
90 IF X1<1 OR X1>8 THEN 10: CALL
   INIT: GOTO 100*X1
100 CALL INIT: X=4-: Y=X: GOSUB 2000
   : POKE 812,255: CALL PLOT
110 X= RND (200): Y=RND (160): GOSUB
   2000: CALL LINE: IF NOT RND
   (300) THEN POKE 23,(PEEK (
   28)+ RND (3)+1) MOD 4*85: GOSUB
   3000: GOTO 110
200 GOSUB 1000: X= RND (2)=279: Y=
   RND (2)*159: CALL PLOT: FOR
   J=1 TO 30: FOR I=1 TO R: POKE
   800,X(I) MOD 256: POKE 801,
   X(I)>255: POKE 802,Y(I): CALL
   LINE
530 IF RND (500)<C THEN POKE 28
   , RND (4)*85: Y=Y+YDIR*8: IF
   Y>0 AND Y<160 THEN 510: YDIR=
   -YDIR: Y=-Y: IF Y<0 THEN Y=Y+
   318: GOSUB 3000: GOTO 510
600 POKE -16302,0: POKE 768,5: POKE
   769,0: POKE 800,140: POKE 801
   ,0: POKE 802,0: POKE 804,0:
   POKE 805,3: POKE 812,255: CALL
   POSH
610 FOR R=0 TO 4160: POKE 807,R MOD
   64: POKE 806,2+6* NOT (R MOD
   65): CALL SHAPE: NEXT R: GOSUB
   3000: GOTO 610
700 J= RND (10)+ RND (10): K= RND
   (33)+ RND (31)+ RND (60): L=
   RND (9)/8: PRINT "FREQ#1 "
   ; J: " FREQ#2= "; K
710 GOSUB 4000: GOSUB 3000: GOTO
   700
800 INPUT "REL FREQ #1=", J: INPUT
   "REL FREQ #2=", K: INPUT "MODE (0
   =SOLID, 1=POINTS)", L
810 GOSUB 4000: GOSUB 3000: GOTO
   800
1000 CALL CLEAR: POKE 812, RND(
   3)*85+85: R= RND (3)+2+ RND
   (2): FOR I=1 TO R: X(I)= RND
   (160): Y(I)= RND (160): NEXT
   I
1010 X=X(I): Y=Y(I): GOSUB 2000: RETURN
2000 POKE 800,X MOD 256: POKE 801
   ,X>255: POKE 802,Y: RETURN
3000 IF PEEK (-16384)<128 THEN RETURN
   : POKE -16386,0: POP : GOTO
   10
4000 CALL INIT: POKE 812,255:A=0
   : B=0: FOR I=0 TO 279:A=(A+J)
   MOD 256:B=(B+K) MOD 256:Y=
   ( PEEK (SINTBL+A)+ PEEK (SINTBL+
   B))*5/16
4010 POKE 800,I MOD 256: POKE 801
   ,I>255: POKE 802,Y: CALL LINE
   6*(NOT I OR L): NEXT I: RETURN
210 X(I)=(X(I)-X)*9/10+X: Y(I)=(
   Y(I)-Y)*9/10+Y: NEXT I,J: GOSUB
   3000: GOTO 200
300 CALL INIT: X= RND (24)*10+20
   : Y= RND (14)*10+20: POKE 812
   , RND (3)*85+85: GOSUB 2000
   : CALL PLOT
310 IF RND (1000)<1 THEN 300: IF
   NOT RND (200) THEN POKE 28,
   RND (4)*85
320 X1=X+( RND (3)-1)*25: Y1=Y+(
   RND (3)-1)*15: IF X1<0 OR
   X1>279 OR Y1<0 OR Y1>159 THEN
   320
330 X=X1: Y=Y1: GOSUB 2000: CALL
   LINE: GOSUB 3000: GOTO 310
400 GOSUB 1000: POKE 812, RND(
   3)*85+85: CALL PLOT
410 FOR J=1 TO 25: FOR I=1 TO R:
   POKE 800,X(I) MOD 255: POKE
   801,X>255: POKE 802,Y(I): CALL
   LINE
420 X=(X(I)-80+(Y(I)-80)/8)*9/10
   +80: Y(I)=(Y(I)-80-(X(I)-80)
   /8)*9/10+80: X(I)=X: NEXT I,
   J: GOSUB 3000: GOTO 400
500 CALL INIT: POKE 800,0: CALL
   PLOT: X=0: Y=0: XDIR=1: YDIR=1:
   A=5: B=3: C=8
510 POKE 800,0: POKE 801,0: POKE
   802,Y: CALL LINE: POKE 800,
   (279-X) MOD 256: POKE 801,X<
   24: POKE 802,159: CALL LINE:
   POKE 800,23: POKE 801,1: POKE
   802,159-Y: CALL LINE
515 IF RND (500) THEN 520:A=1+ RND
   (13): B=2+ RND (8): C=4+ RND
   (7)
520 POKE 800,X MOD 256: POKE 801
   ,X>255: POKE 802,0: CALL LINE:
   X=X+XDIR*A: IF X>0 AND X<288
   THEN 530:XDIR=-XDIR: X=-X: OF
   X<0 THEN X=X+558
```

ROD'S COLOR PATTERN

PROGRAM DESCRIPTION

ROD'S COLOR PATTERN is a simple but eloquent program. It generates a continuous flow of colored mosaic-like patterns in a 40 high by 40 wide block matrix. Many of the patterns generated by this program are pleasing to the eye and will dazzle the mind for minutes at a time.

REQUIREMENTS

4K or greater Apple II system with a color video display.
BASIC is the programming language used.

PROGRAM LISTING

```
100 GR
105 FOR M=3 TO 50
110 FOR I=1 TO 19
115 FOR J=0 TO 19
120 K=I+J
130 COLOR=J*3/(I+3)+I*M/12
135 PLOT I,K: PLOT K,I: PLOT 40
    -I,40-K
136 PLOT 40-K,40-I: PLOT K,40-I:
    PLOT 40-I,K: PLOT I,40-K: PLOT
    40-K,I
140 NEXT J,I
145 NEXT M: GOTO 105
```

PROGRAM LISTING: PONG

```

5 REM PONG BY WENDELL BITTER
10 REM 7/7/77
15 REM PADDLE SWITCHES CONTROL
    PADDLE SIZE AFTER A MISS
    OR DURING A HIT
20 GR
25 DIM P(3): DIM HP$(10)
30 A=38:B=1:C=-1
35 COLOR=13: HLIN 1,38 AT 0: HLIN
    1,38 AT 39
40 CALL -936: VTAB 23: INPUT "HANDB
    ALL OR PONG ? ", HP$
45 INPUT "PADDLE SIZE (1-6) ",
    PS: IF PS<1 OR PS>6 THEN 45
    :S=PS-1
50 CALL -936
55 IF HP$(1)="#H" THEN 205
60 H=1: COLOR=13: VLIN 0,39 AT
    39: GOTO 205
65 FOR X=A TO B STEP C
70 Y=YY+Y: IF Y>1 AND Y<38 THEN
80 IF Y<1 THEN Y=1: IF Y>38
    THEN Y=38
75 V=-V: FOR T=1 TO 5:M= PEEK
    (-15336): NEXT T
80 IF X=C OR X=39+C THEN 85: COLOR=
    0: PLOT X-C,YY: COLOR=15: PLOT
    X,Y
85 YY=Y: IF X MOD 2=0 THEN GOSUB
    235: NEXT X
90 GOSUB 235
95 IF SCRNX(X,Y+V*(Y+V(40 AND Y+
    Y)-1))=0 THEN 165
100 FOR T=1 TO 10:M= PEEK (-16336
    ): NEXT T
105 IF H AND C>0 THEN 130
110 PP=P(X/38)
115 IF Y=PP THEN V=3: IF Y=PP+1
    THEN V=2: IF Y=PP+2 THEN V=
    1

```

```

120 IF Y=PP+3 THEN Y=-1: IF Y=PP+
    4 THEN V=-2: IF Y=PP+5 THEN
    V=-3
125 IF S=0 THEN V=3- RND (7)
130 COLOR=0: PLOT X-C,Y
135 IF (H AND C>0) OR (VY0= ABS
    (Y) AND X=0) THEN V=4- RND
    (9)
140 IF X=0 THEN VY0= ABS (V)
145 A=39-A:B=30-B:C=-C
150 IF PEEK (-16286)>127 AND S#
    5 THEN S=5+1
155 IF PEEK (-16287)>127 AND S#
    0 THEN S=5-1
160 GOTO 65
165 COLOR=0: PLOT X-C,Y
170 COLOR=15: PLOT X,Y+V*(Y+V)-
    1 AND Y+V(40)
175 FOR T=1 TO 75:M= PEEK (-16336
    )+ PEEK (-16336)- PEEK (-16336
    ): NEXT T
180 IF X=0 THEN SR=SR+1: IF X=39
    THEN SL=SL+1
185 VTAB 23: TAB 7: PRINT SL;: TAB
    33: PRINT SR
190 COLOR=0: PLOT X-C, Y
195 IF SL=15 OR SR=15 THEN 260
200 COLOR=0: PLOT X,Y+V*(Y+V)-1
    AND Y+VY(40)
205 FOR T=1 RO 75: IF T MOD 5#0
    THEN 210: IF PEEK (-16286)
    >127 AND S#5 THEN S=5+1: IF
    PEEK (-16287)>127 AND S#0 THEN
    S=5-1
210 GOSUB 235: NEXT T
215 YY=P(0): IF X=0 THEN YY=P(1
    )
220 IF H THEN YY= RND (37)+1
225 V=1- RND (3)
230 GOTO 65

```

```

235 IF H THEN 245:P(1)=( ( PDL (
    1)-24)*20)/115: IF (1)=P(3
    ) THEN 245: IF P(1)<0 THEN
    P(1)=0: IF P(1)+5>39 THEN P(
    1)=39-5
240 COLOR=6: VLIN P(1),P(1)+5 AT
    39: COLOR=0: IF P(1)>P(3) THEN
    VLIN 0,P(1)-1 AT 39: IF P(1
    )<P(3) THEN VLIN P(1)
    AT 39:P(3)=P(1)
245 P(0)=( ( PDL (0)-24)*20)/115
    : IF P(0)<0 THEN P(0)=0: IF
    P(0)=P(2) THEN RETURN : IF
    P(0)+5>39 THEN P(0)=39-5
250 COLOR=6: VLIN P(0),P(0)+5 AT
    0: COLOR=0: IF P(0)>P(2) THEN
    VLIN 0,P(0)-1 AT 0: IF P(0)
    <P(2) THEN VLIN P(0)+5+1,39
    AT 0
255 COLOR=0: IF P(0)>P(2) THEN
    VLIN 0,P(0)-1 AT 0: IF P(0)
    <P(2) THEN VLIN P(0)+5+1,39
    AT 0:P(2)=P(0): RETURN
260 PRINT " ": END
265 END

```

PROGRAM LISTING: COLOR SKETCH

```

5 POKE 2,173: POKE 3,48: POKE          85 POKE 1,TOM MOD 256: POKE 24          135 C2=SCRN(X,Y): C3=15: IF C2=
4,192: POKE 5,165: POKE 6,8          ,TOM/256+1: POKE 0,KK: CALL          15 THEN C3=5: COLOR=C3: PLOT
: POKE 7,32: POKE 8,168: POKE        2: RETURN          X,Y: X1=X:Y1=Y
9,252: POKE 10,165: POKE 11         90 GOSUB 30: GOSUB 25: PRINT :          140 GOTO 125
,1: POKE 12,200: POKE 13,4          TAB 10: GOSUB 35: GOSUB 25          145 IF PEEK (-16384)*160 THEN 155
10 POKE 14,198: POKE 15,23: POKE     : PRINT : GOSUB 30: GOSUB 25          :FLAG=0: POKE -16368,0: POKE
16,240: POKE 17,5: POKE 18,         : PRINT : TAB 5: GOSUB 40: GOSUB          34,28: COLOR=0: HLIN 0,39 AT
188: POKE 19,2: POKE 28,76:         25: PRINT : GOSUB 30: GOSUB          39: CALL -936
POKE 21,2: POKE 22,0: POKE         25          150 PRINT :B$="CONTINUE OR STOP"
23,96          95 PRINT: GOSUB 70: GOSUB 45:          : VTAB 24: GOSUB 25: INPUT
15 DIM B$(40): TEXT: CALL -936        GOSUB 25: PRINT : GOSUB 50          " (C/5) ",B$: IF B$(1,1)="C"
: GOTO 90          : GOSUB 25: PRINT : GOSUB 55          THEN 110: PRINT "END":END
20 CALL -936: GOTO 90          : GOSUB 25: PRINT          155 FLAG=1: C=PEEK (-16384)-193
25 A=LEN(B$): FOR Z=1 TO A: GOSUB    100 PRINT : PRINT : GOSUB 70: INPUT          : POKE -16368,0: GOTO 125
65: PRINT B$(Z,Z): NEXT Z:         "WHEN READY HIT RETURN",B$
GOSUB 70: RETURN          105 GR
30 B$="*****":RETURN          110 B$="ABCDEFGHIJKLMN0P": CALL
*****":RETURN          -936
35 B$="COLOR SKETCH": RETURN        115 FOR Z=0 TO 15: COLOR=Z: PLOT
40 B$="COPYRIGHT APPLE COMPUTER 197  2*2+4,39: YTAB 21: GOSUB 75
7": RETURN          : TAB Z*2+5: PRINT 2*(Z+1),Z+
45 B$="THIS PROGRAM ALLOWS YOU TO "  2): GOSUB 75: NEXT Z: TAB
: RETURN          1
50 B$="SKETCH COLORED FIGURES IN"   120 YTAB 22-B$="TYPE A LETTER TO CH
: RETURN          ANGE COLOR,": GOSUB 25: PRINT
55 B$="LOW RESOLUTION GRAPHICS WITH  :B$="TYPE SPACE BAR TO STOP PLOT
PADDLES": RETURN          .": GOSUB 25: PRINT
60 KK=20:TOM=28: GOSUB 85: RETURN    125 Y=PDL (1)*38/255:X= PDL (8
65 KK=10: TOM=10: GOSUB 85: RETURN   )*39/255: YTAB 24: TAB1: PRINT
"CURSOR POSITION: X=";X; " Y="
;Y; " ";:
70 KK=30:TOM=50: GOSUB 85:KK=30     130 IF PEEK (-16384))127 THRN 145
:TON=98: GOSUB 85: RETURN          : IF X1=X AND Y1=Y THEN 126
75 KK=20: TOM=20: GOSUB 85: RETURN   : COLOR=C2: PLOY X1,Y1: IF
NOT FLAG THEN 135: COLOR=C:
80 KK=0:TOM=250: GOSUB 85:KK=9      PLOT X,Y
:TON=250: GOSUB 85: RETURN

```

PROGRAM LISTING: MASTERMIND

```

0 REM GAME OF MASTERMIND 8-25-77          200 Y=TRY*2 MOD 36+1:TRY=TRY+1:          3000 REM CALL -384 SETS INVERSE VID
      #0Z (APPLE COMPUTER)                TAB 32: PRINT TRY;: COLOR=          3010 REM CALL -380 SETS NORMAL VID
10 DIM A(6),C(8),D(5),X(8),X$(          0: HLIN 0,39 AT Y:FLASH=1: FOR          3020 REM PEEK(-16384) IS KBD (ASCII)
      8):X(1)=2:X(2)=12:X(3)=1:X(          N=1 TO 5:AKN)=8: GOSUB 1000          (IF > 127 THEN STROBE SET)
      4)=13:X(5)=3:X(6)=9:X(7)=15          : NEXT N:N=1                       3030 REM POKE-16386 CLRS KBD STROBE
      :X(8)=5:X$="BRGYVOWX"              300 FOR WAIT=1 TO 10:KEY= PEEK          3040 REM CALL-936 CLEARS SCREEN AND
20 TEXT : CALL -936: PRINT "              (-16384): IF KEY<132 THEN 310          TAB5 CURSOR TO UPPER LEFT.
WELCO                                     310: POKE -16386,0:FLASH=1: FOR          3050 REM IN 310, KEY/5-28= -1 OR +1
      ME TO THE GAME OF MASTERMIND!        I=1 TO 8: IF KEY<> ASC(X$(I)          (ARROW KEY=136 OR 149 ASCII)
YOUR OBJECT US TO GUESS 5 COLOR          ) THEN NEXT I: IF I=9 THEN          4000 REM STMTS 10-50 INTRO
S (WHICH"                                  310:A(N)=I:KEY=149                    4010 REM STMTS 100-110 NEW SETUP
30 PRINT "I WILL MAKE UP) IN THE MI        310 GOSUB 1000: IF KEY=141 THEN          4020 REM STMT 200 NEW GUESS
NIMUM NUMBER OF GUESSES. THER            400: IF KEY=136 AND N>1 OR          4030 REM STMTS 300-310 USER INPUT
E ARE EIGHT DIFFERENT COLORS TO          KEY=149 AND N<6 THEN N=N+KEY/          4040 REM STMT 400 GUESS EVAL
CHOOSE FROM."                              5-28: NEXT WAIT:FLASH=1-FLASH:          4050 REM STMTS 500-5100 WIN
40 PRINT "                                  GOTO 300                               4060 REM SUBR 1000 COLOR LINE
FEWER THAN 7 GUESSES--EXC                  400 COLOR=15:N=0: FOR I=1 TO 5:          4070 REM SUBR 2000 MATCH TEST
      ELLENT": PRINT " 7 TO 9 GUESSE          D(I)=C(I):J=1: GOSUB 2000: NEXT          500 PRINT : PRINT "
S-----GOOD": PRINT " 10 TO 14 G          I: IF N=5 THEN 500: COLOR=5          YOU GOT IN "
UESSES----AVERAGE"                          : FOR J=1 TO 5: FOR I=1 TO          ;TRY;" TRIES (";: IF TRY<7 THEN
50 PRINT "MORE THAN 14 GUESSES--POO          5: GOSUB 2000: NEXT I,J: GOTO          PRINT "EXCELLENT";: IF TRY>
R                                              200                               6 AND TRY <10 THEN PRINT "GOOD"
;: CALL -384: TAB 7: PRINT                    ;                               ;
      "HIT ANY KEY TO BEGIN PLAY"          510 IF TRY>9 AND TRY<15 THEN PRINT          "AVERAGE";: IF TRY>14 THEN
100 CALL -380: IF PEEK (-16385)            "AVERAGE";: IF TRY>14 THEN          PRINT "POOR";: PRINT ")": CALL
      (132 THEN 100: POKE -16368,          -384: TAB 5: PRINT "HIT THE KEY          TO PLAY AGAIN": GOTO 100
      0: GR : PRINT : FOR I=1 TO          1000 IF N=6 THEN RETURN : COLOR=          X(A(N))*FLASH: HLIN N*4-2,N*
      8:C(I)= RND (8)+1: COLOR=X(          4 AT Y: RETURN
      I): HLIN I*4-2,I*4 AT 39: PRINT          2000 IF A(I)<>D(J) THEN RETURN ;
      " X$(I,I);: NEXT I                    N=N+1: PLOT 21+N*M,Y: PRINT
110 TRY=0: PRINT : PRINT " LETTER          " ";A(I)=0:D(J)=9: RETURN
      KEYS FOR COLOR CHANGE": PRINT
      " ARROW KEYS FOR ADVANCE AND BA
      CK": PRINT " HIT RETURN TO ACC
      EPT GUESS #";

```

PROGRAM LISTING: BIORHYTHM

```

5 POKE 2,173: POKE 3,40: POKE
  4,192: POKE 5,165: POKE 6,8
  : POKE 7,32: POKE 8,160: POKE
  9,252: POKE 10,165: POKE 11
  ,1: POKE 12,200: POKE 13,4
10 POKE 14,198: POKE 15,24: POKE
  16,240: POKE 17,5: POKE 18,
  198: POKE 19,1: POKE 20,76:
  POKE 21,2: POKE 22,8: POKE
  23,96
15 GOTO 85
20 TT=3: GOSUB 30: RETURN
25 PRINT "*****"
*****": RETURN
30 KK=8: TON=500: GOSUB 45: RETURN

35 KK=8: TON=250: GOSUB 45: RETURN

40 KK=8: TON=250: GOSUB 45: KK=0
  :TON=250: GOSUB 45: RETURN

45 POKE 1,TON MOD 256: POKE 23
  ,TON/256+1: POKE 0,KK: CALL
  2: RETURN
50 A=(19-(P*B(I)/100))*(P*100(
  C(I)))+(P*100)C(I))*(P*100(=
  3*C(I))*(P*100-C(I))/100*B(
  I)/100)
55 A=A+(P*100)3*C(I))*(30-(P*
  100-3*C(I))/100*B(I)/100)):
  A=39*(A>39)+A*(A<40): RETURN

60 KK=8:TH=500: GOSUB 70:KK=9:
  TH=250: GOSUB 70: RETURN
65 KK=7:TH=10: GOSUB 70: RETURN

70 POKE 1,TH MOD 256: POKE 24,
  TH/256+1: POKE 0,KK: CALL 2
  : RETURN
75 GOSUB 60: INPUT "DATE (M,D,Y) "
  ,M,D,Y:Y=Y+(Y<100)*1900
80 A=Y-(M<3):N=Y MOD 58*365-Y/
  58*32+A/4-A/400+M*31-M/12-M/
  7-M/5-3*(M<2)+D: IF N<0 THEN
  N=N+21252: RETURN
85 DIM N$(10),B$(3),C(3),C(3),
  BY(3):B(1)=348:B(2)=286:B(3
  )=242:C(1)=575:C(2)=700:C(3
  )=825:BY(1)=23:BV(2)=20
90 BV(3)=33: TEXT : CALL -936:
  POKE 34,20: GOSUB 20: GOSUB
  25: GOSUB 20: PRINT : TAB 10
  : PRINT "APPLE II BIORHYTHM (4K)
  ": TAB 15: PRINT
95 GOSUB 25: TAB 5: PRINT "COPYRIGH
  T 1977 APPLE COMPUTER INC."
  :POKE 34,24: VTAB 24
100 GOSUB 60: INPUT "NAME ",N$:
  )
  VTAB 22: PRINT N$: VTAB 24
  : PRINT "BIRTH ": GOSUB 75
  : VTAB 22: TAB 21: PRINT "BIRTH
  DATE ";M;" ";D;" ";Y: VTAB
  24:N1=N: CALL -868
105 PRINT "FORECASE ": GOSUB 75
  :N=N-N1: IF N<0 THEN N=N+21252
  : VTAB 23: TAB 10: PRINT "FORECA
  ST DATE ";M;" ";D;" ";Y: VTAB
  24: CALL -868

110 J=1: GR : POKE 34,23: FOR X=
  18 TO 20: COLOR=3: HLIN 0,31
  AT X: NEXT X: HLIN 1,3 AT
  3: HLIN 1,3 AT 37: VLIN 2,4
  AT 2: VTAB 21
115 FOR Y=1 TO 31 STEP 3: PRINT
  Y: IF Y<10 THEN PRINT " ";
  : PRINT " ";: NEXT Y: PRINT
  " P E M": VTAB 24
120 VTAB 23: PRINT "DAYS LIVED "
  ;N: FOR I=1 TO 3: COLOR=1*(
  I=1)+6*(I=2)+8*(I=3): VLIN
  0,39 AT 33+I+I: VTAB 24
125 FOR X=0 TO 31:P=(N MOD BV(I)
  +X) MOD BY(I): GOSUB 50: PLOT
  X,A: GOSUB 65: NEXT X: NEXT
  I
130 PRINT : INPUT "ANOTHER PLOT (Y/N)
  ) ",B$: IF B$(1,1)="Y" THEN
  90: END

```

PROGRAM LISTING: DRAGON MAZE

```

1 TEXT : CALL -936
2 PRINT "WELCOME TO THE DRAGON'S MAZE!"
3 PRINT "YOU MAY WATCH WHILE I BUILD A MAZE,"
4 PRINT "BUT WHEN IT'S COMPLETE, I'LL ERASE"
5 PRINT "THE PICTURE. THEN YOU'LL ONLY SEE THE WALLS AS YOU BUMP INTO THEM."
6 PRINT "TO MOVE, YOU HIT 'R' FOR RIGHT,"
7 PRINT "'L' FOR LEFT, 'U' FOR UP, AND"
8 PRINT "'D' FOR DOWN. DO NOT HIT RETURN!"
9 PRINT
10 PRINT "THE OBJECT IS FOR YOU (THE GREEN DOT)"
11 PRINT "TO GET TO THE DOOR ON THE RIGHT SIDE"
12 PRINT "BEFORE THE DRAGON (THE RED DOT) EATS"
13 PRINT "YOU."
14 PRINT "BEWARE!!!!!!!!!! SOMETIMES THE DRAGON"
15 PRINT "GETS REAL MAD, AND CLIMBS OVER A WALL."
16 PRINT "BUT MOST OF THE TIME, HE CAN'T GO OVER"
17 PRINT "AND HAS TO GO AROUND."
18 PRINT
19 PRINT "(HINT, YOU CAN OFTEN TELL WHERE A WALL"
20 PRINT "IS, EVEN BEFORE YOU CAN SEE IT, BY"
21 PRINT "THE FACE THAT THE DRAGON CAN'T GET"
22 PRINT "THROUGH IT!)"
23 PRINT
24 DIM A$(3)
25 PRINT "TYPE 'GO' TO BEGIN"
26 : INPUT A$
27 GR : COLOR=15
28 CALL -936: PRINT "DRAGON MAZE"
29 : TAB (25): PRINT "GARY J. SHANNON"
30 FOR I=0 TO 39 STEP 3: YLIN 0,39 AT I: HLIN 0,39 AT I: NEXT I
31 COLOR=0
32 S=1000
33 DIM M(169),T(I)=0: NEXT I
34 FOR I=1 TO 169:T(I)=0: NEXT I
35 FOR I=1 TO 169:M(I)=11: NEXT I
36 X= RND (13)+1:Y= RND (13)+1 :C=169
37 IF C=1 THEN 120
38 R=0:D=0:L=0:U=0:K=X+13*(Y-1):M(K)= ABS (M(K)):C=C-1
39 IF X=13 THEN 1060:R=M(K+1)) 0
40 IF Y=13 THEN 1070:D=M(K+13) >0
41 IF X=1 THEN 1030:L=M(K-1))0
42 IF Y=1 THEN 1090:U=M(K-13)) 0
43 Q=R+D+L+U
44 IF (Q<3 AND RND (10)<2) OR Q=0 THEN 1178
45 DR= RND (4)
46 GOTO 1130+10*DR
47 IF NOT R THEN 1110:M(K)=M(K)+1:X=X+1
48 VLIN 3*Y-2,3*Y-1 AT 3*(X-1)
49 GOTO 1035
50 IF NOT D THEN 1110:M(K)=M(K)+10:Y=Y+1
51 HLIN 3*X-2,3*X-1 AT 3*(Y-1)
52 GOTO 1035
53 IF NOT L THEN 1110:M(K-1)=M(K-1)-1:X=X-1
54 YLIN 3*Y-2,3*Y-1 AT 3*X
55 GOTO 1035
56 IF NOT U THEN 1110:M(K-13)=M(K-13)-10:Y=Y-1
57 HLIN 3*X-2,3*X-1 AT 3*Y: GOTO 1035
58 X= RND (13)+1:Y= RND (13)+1
59 IF M(X+13*(Y-1))>0 THEN 1170
60 C=C+1: GOTO 1035
61 GOSUB 5000: PRINT "THE MAZE IS READY"
62 GR : COLOR=15
63 VLIN 0,39 AT 0: VLIN 0,39 AT 39: HLIN 0,39 AT 0: HLIN 0,39 AT 39
64 X=1:Y= RND (13)+1: COLOR=8: PLOT 3*X-2,3*Y-2

```

DRAGON MAZE cont.

```

1225 HX=3*X-2:HY=3*Y-2
1230 MY= RND (13)+1
1240 COLOR=0: VLIN 3*MY-2,3*MY-1
      AT 39
1250 SX=13:SY=MY
1260 QX=3*SX-2:QY=3*SY-2
1270 RD=1
1500 K= PEEK (-16384): IF K<128 THEN
      1500
1510 POKE -16368,0
1515 Q0=K: GOSUB 7000:K=Q0
1516 IF SX=X AND SY=Y THEN 8000
1520 IF K= ASC("R") THEN 2000
1530 IF K= ASC("L") THEN 2500
1540 IF K= ASC("U") THEN 3000
1550 IF K= ASC("D") THEN 3500
1560 GOSUB 5000: GOTO 1500
2000 DX=1:DY=0
2010 IF M(X+13*(Y-1)) MOD 10 THEN
      4000
2020 FX=3*X-2:FY=3*Y-2: FOR I=1 TO
      3
2030 FX=FX+DX:FY=FY+DY
2040 COLOR=0
2060 FOR K=0 TO 1: FOR L=0 TO 1:
      PLOT HX+K,HY+L: NEXT L,K: COLOR=
      0: FOR K=0 TO 1: FOR L=0 TO
      1: PLOT FX+K,FY+L: NEXT L,K:
      HX=FX:HY=FY
2110 NEXT I
2115 X=X+DX:Y=Y+DY
2116 IF X=13 AND Y=MY THEN 6000
2120 GOTO 1500
2500 DX=-1:DY=0
2510 IF M(X+13*(Y-1)-1) MOD 10 THEN
      4100
2520 GOTO 2020
3000 DX=0:DY=-1
3010 IF M(X+13*(Y-2))/10 THEN 4200
3020 GOTO 2020
3500 DX=0:DY=1
3510 IF M(X+13*(Y-1))/10 THEN 4300
3520 GOTO 2020
4000 GOSUB 5000
4010 COLOR=15
4020 VLIN 3*(Y-1),3*Y AT 3*X
4030 GOTO 1500
4100 GOSUB 5000
4110 COLOR=15
4120 VLIN 3*(Y-1),3*Y AT 3*(X-1)
4130 GOTO 1500
4200 GOSUB 5000
4210 COLOR=15
4220 HLIN 3*(X-1),3*X AT 3*(Y-1)
4230 GOTO 1500
4300 GOSUB 5000
4310 COLOR=15
4320 VLIN 3*(X-1),3*X AT 3*Y
4330 GOTO 1500
5000 S=5-1: FOR I=1 TO 20:A= PEEK
      (-16336)+ PEEK (-16336)+ PEEK
      (-16336)+ PEEK (-16336): NEXT
      I: RETURN
6000 PRINT "YOU WIN!"
6010 GOSUB 5000: GOSUB 5000: GOSUB
      5000
6020 PRINT "SCORE=";S+3
6030 END
7000 IF X>SX THEN 7005: IF Y>SY THEN
      7050
7001 IF X<SX THEN 7100: IF Y<SY THEN
      7150
7005 IF SX=13 THEN 7050: IF Y(SX+
      13*(SY-1))>9 THEN 7010: IF
      M(SX+13*(SY-1)) MOD 10 THRN
      7050
7010 DX=1:DY=0
7020 COLOR=0
7022 RX=3*SX-2:RY=3*SY-2
7023 FOR I=1 TO 3:RX=RX+DX:RY=RY+
      DY
7024 COLOR=0
7025 FOR K=0 TO 1: FOR L=0 TO 1:
      PLOT QX+K,QY+L: NEXT L,K: COLOR=
      RD: FOR K=0 TO 1: FOR L=0 TO
      1: PLOT RX+K,RY+L: NEXT L,K:
      QX=RX:QY=RY
7030 NEXT I
7035 SX=SX+DX:SY=SY+DY
7040 T(SX+13 THEN 7100: IF T(SX+
      13*(SY-1))>9 THEN 7060: IF
      M(SX+13*(SY-1))/10 THEN 7100
7060 DX=0:DY=1: GOTO 7020
7100 IF SX=1 THEN 7150: IF T(SX+
      13*(SY-1))>9 THEN 7110: IF
      M(SX+13*(SY-1)-1) MOD 10 THEN
      7150

```


DRAGON MAZE cont.

```
7110 DX=-1:DY=0: GOTO 7020
7150 IF SY=1 THEN 7005: IF T(SX+
    13*(SY-1))>9 THEN 7160: IF
    M(SX+13*(SY-1)-13)/10 THEN
    7005
7160 DX=0:DY=-1: GOTO 7020
8000 GOSUB 5000: GOSUB 5000: GOSUB
    5000: GOSUB 5000: PRINT "THE DRA
    GON GOT YOU!"
8999 END
```

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