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10 'JUMBLE VERSION 2
20 'BY WILLIAM BARDEN
30 'ORANGE COUNTY (OCTUG), SEPTEMBER 1978, PAGE 11
40 '8/9/1979, 9 AM
60 'RENUMBERED AND CHANGED BY C. W. EVANS, (602) 933-1616
70 '9806 AMBER TRAIL, SUN CITY, AZ 85351
100 '=====
110 Q=0
120 DIM A(6)
130 CLS:PRINT TAB(22)"JUMBLE
140 PRINT"THIS PROGRAM PRINTS POSSIBLE PERMUTATIONS OF ";
150 PRINT"2 TO 6 LETTERS.":PRINT
160 I=0:' I=LETTER POSITION
170 INPUT"WHAT ARE YOUR LETTERS";L$:
190 A$(I)=MID$(L$,I+1,1)
200 IF A$(I) = "" CLS:GOTO 220
210 I=I+1:GOTO 190
220 I=I-1
230 IF I<5 THEN 270
240 FOR E=5 TO 0 STEP -1
250 J=5
260 GOSUB 500
270 IF I<4 THEN 310
280 FOR D=4 TO 0 STEP -1
290 J=4
300 GOSUB 500
310 IF I<3 THEN 350
320 FOR C=3 TO 0 STEP -1
330 J=3
340 GOSUB 500
350 IF I<2 THEN 390
360 FOR B=2 TO 0 STEP -1
370 J=2
380 GOSUB 500
390 FOR A=1 TO 0 STEP -1
400 J=1
410 GOSUB 500
420 GOSUB 570
430 NEXT
440 IF I>1 NEXT
450 IF I>2 NEXT
460 IF I>3 NEXT
470 IF I>4 NEXT
480 PRINT"END OF LIST-HIT ENTER TO REPEAT.
483 Z$=INKEY$:IF Z$="" THEN 483
486 CLS:Q=0:GOTO 230:'
490 ' =====SUBROUTINE=====
500 B$=A$(0)
510 FOR K=0 TO J-1
520 A$(K)=A$(K+1)
530 NEXT
540 A$(K)=B$
550 RETURN
560 ' =====PRINT SUBROUTINE=====
570 FOR K=I TO 0 STEP-1
580 PRINT CHR$(23)A$(K);
590 NEXT
600 Q=Q+1
610 PRINT" ";Q;
620 IFQ/24=INT(Q/24)PRINT:PRINT" HIT ENTER TO CONTINUE."ELSEReturn

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TARGET	REFERENCED IN LINE #
A	120 390
A\$	190 200 500 520 520 540 580
B	360
B\$	500 540
C	320
D	280
E	240
I	160 190 190 200 210 210 220 220 230 270 310 350
J	440 450 460 470 570
K	250 290 330 370 400 510
L\$	510 520 520 540 570 580
L\$	170 190
Q	110 486 600 600 610 620 620
Z\$	483 483 630 630

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1 '----- TEXT EDITOR : WRITTEN BY ZVI DERSHOWITZ -----'
2 '
3 '
1000 CLS
1010 P=15360
1020 IF P<15360 OR P>16383 THEN P=15360
1030 C=PEEK(P)
1040 POKE P,191
1050 A$=INKEY$
1060 IF LEN(A$)=0 THEN 1050
1070 B=ASC(A$)
1080 IF B>=32 AND B<=90 THEN POKE P,B : P=P+1 : GOTO 1020
1090 POKE P,C
1100 IF B=8 THEN P=P-1 : GOTO 1020
1110 IF B=9 THEN P=P+1 : GOTO 1020
1120 IF B=10 THEN P=P+64 : GOTO 1020
1130 IF B=91 THEN P=P-64 : GOTO 1020
1140 IF B=13 THEN P=INT(P/64)*64+64 : GOTO 1020
1150 IF B=31 THEN 1170
1160 GOTO 1030
1170 FOR T=0 TO 15
1180 FOR TT=0 TO 63
1190 LPRINT CHR$(PEEK(T*64+TT+15360));
1200 NEXT
1205 LPRINT
1210 NEXT
1220 GOTO 1030

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A	1050/\$ 1060/\$ 1070/\$
B	1070 1080/3 1100 1110 1120 1130 1140 1150
C	1030 1090
P	1010 1020/3 1030 1040 1080/3 1090 1100/2 1110/2 1120/2
	1130/2 1140/2
T	1170 1190
TT	1180 1190

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1 /----- HANGMAN PROGRAM : WRITTEN BY ZVI DERSHOWITZ -----
2 /
3 /
1000 RANDOM
1010 INPUT "LEVEL OF PLAY (1-EASY 2-HARD)";L5
1020 CLS
1030 GOSUB 1050
1040 PRINT @ 832, "LETTERS GUESSED:"
1050 / CHOOSE RANDOM WORD
1060 FOR T=1 TO RND(21) : READ A$ : NEXT
1070 FOR T=0 TO LEN(A$)-1 : POKE T+15360,45 : NEXT
1080 PRINT @ 256, "GUESS A LETTER";
1090 PRINT @ 320, "";
1100 B$=INKEY$ : IF LEN(B$)=0 THEN 1100
1110 IF B$="A" AND B$<="Z" THEN 1120 ELSE 1100
1120 FORT=1TOLLEN(LG$):IFB$=MID$(LG$,T,1)THENPRINT@320,"YOU CHOSE THAT BEFORE";
T=1T01000:NEXT:PRINT@320,"";GOTO1000
1130 NEXT
1140 LG$=LG$+B$
1150 PRINT @ 896,LG$
1160 FOR T=1 TO LEN(A$)
1170 IF MID$(A$,T,1)=B$ THEN POKE 15359+T,ASC(B$) : LL=LL+1 : NZ=100
1180 NEXT
1190 IF NZ=100 THEN 1250
1200 E=E+1
1210 ON E GOSUB 1290,1340,1390,1470,1540,1610,1670,1720,1760,1810
1220 IF E<10 THEN NZ=0 : GOTO 1100
1230 CLS : PRINT "YOU HAVE BEEN HUNG!!!!!!!!!!"
1240 PRINT"YOU LOSE!!!!!!!!!!!!!!":FORT=1T010:PRINT"THEWORDWAS";A$:NEXT:END
1250 IF LL<LEN(A$) THEN NZ=0 : GOTO 1100
1260 CLS : PRINT "YOU HAVE WON!!!!!!!!!!!!!!"
1270 PRINT "YOU WON'T BE HUNG!!!!!!!!!!!!!!"
1280 END
1290 / SUB FOR DRAWING HEAD
1300 FOR T=103 TO 110 : SET(T,5) : SET(T,8) : NEXT
1310 FOR T=101 TO 112 : SET(T,6) : SET(T,7) : NEXT
1320 IF L5=2 THEN E=E+1 : GOSUB 1340
1330 RETURN
1340 / SUB FOR DRAWING BODY
1350 FOR T=106 TO 107 : SET(T,9) : SET(T,10) : NEXT
1360 FOR T=102 TO 111 : SET(T,11) : NEXT
1370 FOR TT=12 TO 21 : FOR T=100 TO 113 : SET(T,TT) : NEXT : NEXT
1380 RETURN
1390 / SUB FOR DRAWING LEFT ARM
1400 SET(99,13)
1410 FOR T=97 TO 99 : SET(T,12) : NEXT
1420 FOR T=95 TO 99 : SET(T,11) : NEXT
1430 FOR T=94 TO 98 : SET(T,10) : NEXT
1440 FOR T=94 TO 96 : SET(T,9) : NEXT
1450 IF L5=2 THEN E=E+1 : GOSUB 1470
1460 RETURN
1470 / SUB FOR DRAWING RIGHT ARM
1480 SET(114,13)
1490 FOR T=114 TO 116 : SET(T,12) : NEXT
1500 FOR T=114 TO 118 : SET(T,11) : NEXT
1510 FOR T=115 TO 119 : SET(T,10) : NEXT
1520 FOR T=117 TO 119 : SET(T,9) : NEXT
1530 RETURN
1540 / SUB FOR DRAWING LEFT LEG
1550 FOR T=100 TO 104 : SET(T,22) : NEXT

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1560 FOR T=99 TO 103 : SET(T,23) : NEXT
1570 FOR TT=24 TO 25 : FOR T=98 TO 102 : SET(T,TT) : NEXT : NEXT
1580 FOR TT=26 TO 30 : FOR T=97 TO 101 : SET(T,TT) : NEXT : NEXT
1590 IF L5=2 THEN E=E+1 : GOSUB 1610
1600 RETURN
1610 / SUB FOR DRAWING RIGHT LEG
1620 FOR T=109 TO 113 : SET(T,22) : NEXT
1630 FOR T=110 TO 114 : SET(T,23) : NEXT
1640 FOR TT=24 TO 25 : FOR T=111 TO 115 : SET(T,TT) : NEXT : NEXT
1650 FOR TT=26 TO 30 : FOR T=112 TO 116 : SET(T,TT) : NEXT : NEXT
1660 RETURN
1670 / SUB FOR DRAWING LEFT HAND
1680 FOR T=91 TO 93 : SET(T,7) : SET(T,9) : NEXT
1690 FOR T=88 TO 93 : SET(T,8) : NEXT
1700 IF L5=2 THEN E=E+1 : GOSUB 1720
1710 RETURN
1720 / SUB FOR DRAWING RIGHT HAND
1730 FOR T=120 TO 122 : SET(T,7) : SET(T,9) : NEXT
1740 FOR T=120 TO 125 : SET(T,8) : NEXT
1750 RETURN
1760 / SUB FOR DRAWING LEFT FOOT
1770 FOR T=96 TO 102 : SET(T,31) : NEXT
1780 FOR T=94 TO 102 : SET(T,32) : NEXT
1790 IF L5=2 THEN E=E+1 : GOSUB 1810
1800 RETURN
1810 / SUB FOR DRAWING RIGHT FOOT
1820 FOR T=111 TO 119 : SET(T,31) : NEXT
1830 FOR T=111 TO 121 : SET(T,32) : NEXT
1840 RETURN
1850 / SUB FOR DRAWING POLE
1860 FOR TT=4 TO 1 STEP -1 : FOR T=106 TO 107 : SET(T,TT) : NEXT : NEXT
1870 FOR T=78 TO 107 : SET(T,0) : NEXT
1880 FOR T=0 TO 40 : SET(78,T) : SET(79,T) : NEXT
1890 FOR T=68 TO 127 : SET(T,41) : NEXT
1900 RETURN
1910 / DATA STARTS HERE -----
1920 DATA TABLE,CHAIR,FLOOR,COUCH,COMPUTER,SHOE,LIGHT,BED,BOARD,BAG
1930 DATA SIGN,SILK,WAGON,BELL,TREE,LION,LOG,LOAN,GARDEN,SACK,SNOWBALL

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A 1060/$ 1070/$ 1160/$ 1170/$ 1240/$ 1250/$
B 1100/$2 1110/$2 1120/$ 1140/$ 1170/$2
E 1200/2 1210 1220 1320/2 1450/2 1590/2 1700/2 1790/2
L5 1010 1320 1450 1590 1700 1790
LG 1120/$2 1140/$2 1150/$
LL 1170/2 1250
NZ 1170 1190 1220 1250
T 1060 1070/2 1120/3 1160 1170/2 1240 1300/3 1310/3
1350/3 1360/2 1370/2 1410/2 1420/2 1430/2 1440/2
1490/2 1500/2 1510/2 1520/2 1550/2 1560/2 1570/2
1580/2 1620/2 1630/2 1640/2 1650/2 1680/3 1690/2
1730/3 1740/2 1770/2 1780/2 1820/2 1830/2 1860/2
1870/2 1880/3 1890/2
TT 1370/2 1570/2 1580/2 1640/2 1650/2 1860/2

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10 /*****
20 /
30 PROGRAM TITLE: "PENDULUM/LP"
40 R K CURTIS -- NOV 18, 1978 ---
50 CALCULATES PERIOD AS A FUNCTION OF MAXIMUM ANGLE, LENGTH, AND
60 ACCELERATION OF GRAVITY FOR A SIMPLE PENDULUM
70 FORMULA: T=2 PI SQR (L/G) (1+(1/2)/(2L2))*SIN(THETA/2)I2
80 /
90 /*****
100 INPUT"ANGLE THETA IN DEGREES ";THETA
110 PI=3.141592653589
120 INPUT"LENGTH OF SIMPLE PENDULUM IN METERS ";L
130 L=CDBL(L)
140 PRINT"ACCELERATION DUE TO GRAVITY--IF ZERO IS ENTERED THEN"
145 INPUT"A VALUE OF 9.80665 WILL BE USED ";G
150 INPUT"INTERVAL FOR ANGLE IN DEGREES ";I
170 IF G=0 THEN G=9.80665
180 G=CDBL(G)
190 LPRINT"LENGTH =";L;" ACCELERATION OF GRAVITY =";G
195 LPRINT" ANGLE PERIOD"
200 T1=2*PI*SQR(L/G)
210 PRINTT1;
220 T=T1
230 THETA=THETA*PI/180
240 ST=SIN(THETA/2)
250 SQ=ST*ST
260 N=1
270 D=2
280 F=(N*N)/(D*D)
290 TM=F*SQ
300 T=T+TM*T1
310 PRINTT;
320 N=N+2
330 D=D+2
340 TL=TM
350 TM=TM*((N*N)/(D*D))*SQ
360 IF TL=TM THEN 380
370 GOTO 300
380 THETA=(THETA)*360/(2*PI):LPRINTUSING"###. ##";THETA;
385 LPRINTUSING"#####. #####";T
390 THETA=THETA+I
400 IF THETA>90 THEN STOP
410 GOTO 200

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ANGLE	PERIOD
10.00	2.010240
15.00	2.015040
20.00	2.021800
25.00	2.030550
30.00	2.041340
35.00	2.054230
40.00	2.069290
45.00	2.086610
50.00	2.106290

TARGET	REFERENCED IN LINE #
D	270 280 280 330 330 350 350
F	280 290
G	145 170 170 180 180 190 200
I	150 390
L	120 130 130 190 200
N	260 280 280 320 320 350 350
PI	110 200 230 380
SQ	250 290 350
ST	240 250 250
T	220 300 300 310 385
T1	200 210 220 300
THETA	100 230 280 240 380 380 380 390 390 400
TL	340 360
TM	290 300 340 350 350 360

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10 REM IDEA FROM HP 25 CALCULATOR INFORMATION
EDITED BY: RUSSELL STARKEY
REV B 855 EISENHOWER
JASPER IN 47546
12 REM ----- R A B B I T S & F O X E S -----
14 REM
15 REM A = ENCOUNTER FACTOR <<< .01 >>>
16 REM B = H <<< STEP SIZE >>>
17 REM C = NUMBER OF FOXES
18 REM D = NUMBER OF RABBITS
19 REM E = NUMBER OF ENCOUNTERS
20 REM R = INTEGER PART OF C
22 REM S = INTEGER PART OF D
24 REM T = PRINT CONTROL
25 REM J1 = ST # OF RABBITS
J2 = ST # OF FOXES
J3 = MAX # OF RABBITS
J4 = MAX # OF FOXES
J5 = MIN # OF RABBITS
J6 = MIN # OF FOXES
26 REM JA = START POINT
JD = DELTA # OF XX
JL = LIMIT ( 4* MAX INPUT )
JP = % OF BAR
JX = USED
JC = # OF BARS CONTROL
32 CLEAR50:CLS:DEFINT J,X,R,S:PRINT
35 PRINT"THE R A B B I T S V S THE F O X E S"
36 PRINT"A SIMPLE ECOLOGICAL MODEL OF INTERACTING POPULATIONS"
38 PRINT"CONSISTS OF RABBITS WITH AN INFINITE FOOD SUPPLY AND "
40 PRINT"FOXES THAT PREY ON THEM. "
42 PRINT
44 PRINT"<RABBITS> D = D + B * ( 2 * D - A * D * C ) "
46 PRINT"<FOXES > C = C + B * ( A * D * C - C )"
48 PRINT"WHERE : D IS CURRENT # OF RABBITS, C FOR # OF FOXES "
52 PRINT" B IS STEP SIZE , A IS THE ENCONTER FACTOR"
54 PRINT" B = .02 A = .01 "
72 PRINT:PRINT:PRINT
75 INPUT"PRESS ENTER TO CONT. ";S*
100 CLS : T=0
105 PRINT:PRINT:PRINT : A=.01 : B=.02
110 INPUT"INPUT NUMBER OF RABBITS ( 25 - 400 ) ";D:J1=D:J5=D
120 INPUT"INPUT NUMBER OF FOXES ( 25 - 400 ) ";C
125 IF J1>J2 THEN JL=J1*3 ELSE JL=J2*3
130 INPUT"ENTER 0,1,2 FOR # OF BARS ( 1 ) ";JC
135 IF JC=0ANDJC<>1ANDJC<>2THEN130ELSEIF JC=1THENJC=63ELSEIF JC=2THENJC=127:JL=1.1*JL
137 CLS:PRINT@128,"STARTING # OF RABBITS ";J1;
138 PRINT@256,"STARTING # OF FOXES ";J2;
140 REM MATH START ALSO COME BACK POINT...
150 E = A * D * C
160 C = C + B * ( E - C )
180 D = D + B * ( 2 * D - E )
190 REM PRINT CONTROL SECTION
200 R =INT(C) : S =INT(D)
210 T = T + 1
220 IF T = 5 THEN T=0 : GOTO 600

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250 GOTO 140
600 REM PRINT COME POINT
640 IF J3<S THEN J3=S
645 IF J4<R THEN J4=R
650 IF J5>S THEN J5=S
655 IF J6>R THEN J6=R
1010 PRINT@390,"NUMBER OF RABBITS ";S;
1011 PRINT@426,"MIN";J5;PRINT@436,"MAX";J3;" ";
1015 JA=15000:JD=S:GOSUB7000
1020 PRINT@582,"NUMBER OF FOXES ";R;
1021 PRINT@618,"MIN";J6;PRINT@628,"MAX";J4;" ";
1025 JA=16000:JD=R:GOSUB7000
1040 IF R = 1 OR S = 1 THEN 5000
1050 GOTO 140
5000 GOTO5000
7000 REM BAR PRINT SUB
7050 IF JC=0 THEN RETURN
7100 IF JD>JL THEN FOR X=JATOJA+JC:POKE X,143:NEXT:RETURN ELSE JP=CSNG(JC+JD/JL)+JA
7140 FOR X=JATOJP-1:POKE X,143:NEXT:FOR X=JP TO JA+JC:POKE X,47:NEXT:RETURN
7160 REM HI BOB

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Dear Mr Lloyd;

In response to your June 79 pg 58 request for programs I am forwarding several dynamic display programs. The series of 7 'RUN' programs each explore a different type of moving perspective display. Each program is relatively short and can be set-up on the TRS-80 with a minimum of effort. I was working towards a display presentation such as seen on Arcade machines in which a driver appears to be moving along a road at a high rate of speed. Might have to use machine language to accomplish this because of the high speed requirements. Perhaps some of the readers can pursue this matter further.

Program VideoI displays some screen print@ numbers & decimal video memory locations, useful when working with graphics.

And finally, MAN5 program presents a simple traffic cop going through some of his hand motions at an intersection. This program can be expanded to put the traffic cop through all sorts of wild gyrations using both arms & legs.

Hope these programs will inspire some of the readers of this newsletter to publish improved & varied dynamic display programs of their own.

Sincerely,

Roy A. Hempel
 PO Box 3730
 Santa Monica, CA 90403

Roy A. Hempel

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10 REM "RUN1" MOVING UP/DOWN FENCE PROGRAM, R. HEMPEL, JULY 15, 79
20 CLEAR 99:DEFSTR A,B
30 A=CHR$(168) B=CHR$(30)
40 CLS:C=1 REM * MOVEMENT DOWN *
50 FOR P=20 TO 1000 STEP 62+RND(4):REM * START AT TOP *
60 PRINT@P,A;REM * DRAW LEFT FENCE POST *
70 PRINT@P+C,A;REM * DRAW RIGHT FENCE POST *
80 FOR T=1 TO 20:NEXT
90 PRINT@P,B;REM * ERASE LEFT & RIGHT FENCE POST *
100 C=C+1:NEXT
110 CLS:C=16:REM * MOVEMENT UP *
120 FOR P=965 TO 0 STEP-65+RND(4):REM * START AT BOTTOM *
130 PRINT@P,A;REM * PRINT LEFT FENCE POST *
140 PRINT@P+C+14,A;REM * PRINT RIGHT FENCE POST *
150 FOR T=1 TO 20:NEXT
160 PRINT@P,B;REM * ERASE LEFT & RIGHT FENCE POST *
170 C=C-2
180 NEXT
190 GOTO 40

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10 REM "RUN2" FWD MOVING FENCE PROGRAM, R. HEMPEL, JULY 15, 1979
20 CLEAR 99:DEFSTR A,B
30 A=CHR$(168)
40 B=CHR$(30)
50 CLS
60 C=6
70 FOR P=10 TO 1000 STEP 65
80 PRINT@P,B;REM * ERASE LEFT & RIGHT FENCE POST *
90 FOR T = 1 TO 10 : NEXT
100 PRINT@P,A;REM * DRAW LEFT FENCE POST *
110 PRINT@P+C,A;REM * DRAW RIGHT FENCE POST *
120 C=C+2
130 NEXT
140 GOTO 60

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10 REM "RUN3" REV MOVING FENCE PROGRAM, R. HEMPEL, JULY 15, 1979
20 CLEAR 99:DEFSTR A,B
30 A=CHR$(168)
40 B=CHR$(30)
50 CLS
60 C=22
70 FOR P=980 TO 0 STEP -65
80 PRINT@P,B;REM * ERASE LEFT & RIGHT FENCE POSTS *
90 FOR T=1 TO 10:NEXT
100 PRINT@P,A;REM * DRAW LEFT FENCE POST *
110 PRINT@P+C+16,A;REM * DRAW RIGHT FENCE POST *
120 C=C-2
130 NEXT
140 GOTO 60

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1	0	15360	VIDEO 1 PROGRAM	63	15423
2	64	15424		127	15487
3	128	15488		191	15551
4	192	15552		255	15615
5	256	15616		319	15679
6	320	15680		383	15743
7	384	15744		447	15807
8	448	15808		511	15871
9	512	15872		575	15935
10	576	15936		639	15999
11	640	16000		703	16063
12	704	16064		767	16127
13	768	16128		831	16191
14	832	16192		895	16255
15	896	16256		959	16319
16	960	16320		1023	16383

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100 CLS : REM "TRAFFIC COP"
110 REM "MANS. MOTIONS IN GOSUB. ROY HEMPEL, JAN 2, 1978"
120 REM "INITIALIZATION"
130 A = 60 : B = 20 : C = A : D = B : E = A : F = B
200 REM "HEAD PROGRAM"
210 FOR Y = 9 TO 17 : SET (54,Y) : SET (66,Y) : NEXT Y
220 FOR Y = 12 TO 13 : RESET (54,Y) : RESET (66,Y) : NEXT Y
230 FOR X = 55 TO 65 : SET (X,9) : SET (X,17) : NEXT X
240 FOR Y = 12 TO 13 : SET(53,Y):SET(67,Y):NEXT Y:REM "EARS"
400 REM "BODY PROGRAM"
410 FOR Y = 18 TO 25 : SET (60,Y) : NEXT Y
420 FOR X = 58 TO 62 : SET (X,26) : NEXT X
600 REM "LEG PROGRAM"
610 FOR Y = 27 TO 33 : SET (57,Y) : SET (63,Y) : NEXT Y
620 FOR X = 55 TO 57 : SET (X,34) : NEXT X
630 FOR X = 63 TO 65 : SET (X,34) : NEXT X
1000 REM "PROGRAM SEQUENCING"
1010 G = 60 : GOSUB 3100 : FOR T = 1 TO 200 : NEXT T
1020 G = 62 : GOSUB 3100
1030 GOSUB 5000 : REM "RIGHT ARM OUT"
1040 G = 61 : GOSUB 3100
1050 GOSUB 5200 : REM "REM RIGHT ARM BENT UP"
1060 G = 60 : GOSUB 3100 : FOR T = 1 TO 200 : NEXT T
1070 G = 58 : GOSUB 3100
1080 GOSUB 5100 : REM "LEFT ARM OUT"
1090 G = 59 : GOSUB 3100
1100 GOSUB 5300 : REM "LEFT ARM BENT UP"
1410 GOTO 1010
1120 END
3000 REM "EYES, NOSE, MOUTH PROGRAM"
3100 FOR X=G-4 TO G+4:RESET(X,12):RESET(X,13):NEXT X
3110 SET(G-2,12):SET(G,13):SET(G+2,12):REM"EYE, NOSE, EYE"
3150 RESET(G-3,15):RESET(G-2,15):RESET(G+2,15):RESET(G+3,15)
3160 FOR X=G-1 TO G+1:SET(X,15):NEXT X
3190 RETURN
3195 END
5000 REM "RIGHT ARM OUT"
5010 C = C+1 : IF C >= A + 18 GOTO 5040
5020 SET(C,D) : GOTO 5010
5030 REM "RIGHT HAND UP"
5040 SET(C,D-1)
5050 FOR T = 1 TO 200 : NEXT T
5060 RESET(C,D-1)
5070 REM "RIGHT ARM IN",
5080 C = C-1 : IF C = A RETURN
5090 RESET(C,D) : GOTO 5080
5095 END

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5100 REM "LEFT ARM OUT"
5110 E = E-1 : IF E <= A - 18 GOTO 5140
5120 SET(E,F) : GOTO 5110
5130 REM "LEFT HAND UP"
5140 SET(E,F-1)
5150 FOR T = 1 TO 200 : NEXT T
5160 RESET(E,F-1)
5170 REM "LEFT ARM IN"
5180 E = E+1 : IF E = A RETURN
5190 RESET(E,F) : GOTO 5180
5195 END

5200 REM "RIGHT ARM BENT UP"
5205 C = C+1 : IF C >= A+11 GOTO 5215
5210 SET(C+1,D) : GOTO 5205
5215 D = D-1 : IF D <= B-6 GOTO 5230
5220 SET(C,D) : GOTO 5215
5225 REM "RIGHT HAND PALM FORWARD"
5230 SET(C,D):SET(C-1,D):SET(C+1,D):SET(C,D-1):SET(C+1,D-1)
5235 FOR T = 1 TO 200 : NEXT T
5240 RESET(C,D):RESET(C-1,D):RESET(C+1,D):RESET(C,D-1):RESET (C+1,D-1)
5245 REM "RIGHT ARM DOWN & IN"
5250 D = D+1 : IF D = B GOTO 5260
5255 RESET(C,D) : GOTO 5250
5260 C = C-1 : IF C = A RETURN
5265 RESET(C+1,D) : GOTO 5260
5270 END
5300 REM "LEFT ARM BENT UP"
5305 E = E-1 : IF E <= A-11 GOTO 5315
5310 SET(E-1,F) : GOTO 5305
5315 F = F-1 : IF F <= B-6 GOTO 5330
5320 SET(E,F) : GOTO 5315
5325 REM "LEFT HAND PALM FORWARD"
5330 SET(E,F):SET(E-1,F):SET(E+1,F):SET(E,F-1):SET(E-1,F-1)
5335 FOR T = 1 TO 200 : NEXT T
5340 RESET(E,F):RESET(E-1,F):RESET(E+1,F):RESET(E,F-1):RESET (E-1,F-1)
5345 REM "LEFT ARM DOWN & IN"
5350 F = F+1 : IF F = B GOTO 5360
5355 RESET(E,F) : GOTO 5350
5360 E = E+1 : IF E = A RETURN
5365 RESET(E-1,F) : GOTO 5360
5370 END

```



Richard W. Rush, Ph.D.
#16A 337 West Pasadena
Phoenix, Arizona 85013

August 31, 1979

R. Gordon Lloyd
TRS80 Users Group
7554 Southgate Road
Fayetteville, North Carolina 28304

Dear Mr. Lloyd:

I submit for publication a program called "Item Index" for Level II 16k. It is a program used for storing information according to descriptive categories and recovering any desired record or records upon request and in a time ranging up to about 2 minutes. The program functions as a key word selector and electronic card sorter. Included here is one version of the program with demonstration data, directions for its use and a few examples for demonstration.

The program was developed for Level II 16K, but I believe that it could be used effectively in DOS which has greater memory capacity. The program can be adapted to several other uses merely by changing labels. C.W. Evans of Sun City, Arizona, who is credited with valuable suggestions and criticisms, uses six categories in his version of the program for storing data pertinent to his library of computer programs. I have two different versions in use and I plan to use at least four more adaptations.

As given here, "Item Index" stores, in data lines, reference material described under the headings "Subject-Area-Description-Remarks-Folder Number". Each data sheet is described for computer purposes as it is received and placed in a folder. The folders are numbered consecutively and placed in a file cabinet as the folders fill. It is not necessary to sort the data sheets for filing, nor does "Item Index" require sorting of data. Storing data in data lines makes data additions, changes and deletions extremely simple.

The program displays the number of records in the file and the information may be recovered by two methods. In one, the entire file may be displayed, as it is typed in data lines, in groups of 10 records each. In the other, the user may search the records in a single category or a combination of categories. In one of my versions which contains 256 records, the search pattern was completed in about 1 minute and 45 seconds. A 16K machine should hold nearly 300 records.

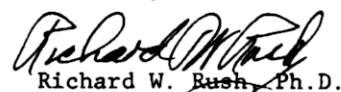
With the program in the machine, try the following examples after selecting the search portion of the program:

1. Does the file contain data on computers?
- type "computer" - press "enter"
- machine returns data in lines 1100, 1110.

2. Is there data on gas in the U.S.?
- type "gasU.S." (no commas, no space) - press "enter".
- machine returns data in lines 1120, 1130, 1140, 1150.
3. Is there data on gas resources in the U.S.?
- type "gasU.S.resources" (no commas, no space) - press "enter".
- machine returns data in lines 1140, 1150.
4. Is there data on a forecast of gas resources in the U.S.?
- type "gasU.S.resourcesforecast" (no commas, no space) - press "enter".
- machine returns data in line 1140.
5. List the contents of folder 14.
- type "F-14" - press "enter".
- machine returns data in lines 1130, 1140, 1150, 1180, 1200.

Using the same procedure one might request a list of maps in the file or data on Arizona. In the latter case, type "Ariz" to recover data listed both as "Ariz" and "Arizona".

Sincerely,


Richard W. Rush, Ph.D.

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40 / ITEM INDEX, R. W. RUSH, PH. D., 1979
90 / DATA IN GROUPS OF 5 ON DATA LINES
100 CLEAR 2000
110 CLS:PRINT"ITEM INDEX":PRINT"LOADING DATA--PLEASE WAIT.
120 F=0: FOR D5=1TO260:READ A1$,A2$,A3$,A4$,A5$:F=D5-1
130 IF A1$="" THEN 150
140 NEXT D5
150 RESTORE
160 CLS:PRINT@140:"PROGRAM INDEX"
170 PRINT"DATA RECORDS
180 PRINT"THERE ARE":F:"RECORDS IN THE FILE"
190 PRINT@404:"OPERATION CODES":PRINT
200 PRINT"1 - TO LIST FILE CONTENTS"
210 INPUT"2 - TO SEARCH FOR KEYWORDS":A
220 IF A=2 THEN 260
230 CLS:GOSUB 500:PRINT
240 FOR B1 = 1 TO F
250 READ A1$,A2$,A3$,A4$,A5$:GOSUB 520
260 IF A1$="" THEN 320
270 IF B1/10<INT(B1/10) THEN 310
280 PRINT PRINT" HIT ENTER FOR MORE
290 2$=INKEY$:IF 2$="" THEN 290
300 CLS:GOSUB 500
310 NEXT B1
320 PRINT:PRINT"NO. OF ITEMS =":F
330 INPUT"END OF LIST. TYPE 1 FOR REPEAT: 2 FOR CODES":B2
340 RESTORE
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350 IF B2 = 1 THEN 230 ELSE 160
360 CLS:PRINT@140, "SEARCH PROGRAM":PRINT
370 PRINT"TYPE ONE OR MORE KEY WORDS, WITH NO COMMAS OR SPACES"
380 PRINT" BETWEEN CATEGORIES.
390 PRINT"FOLLOW THE ORDER SHOWN IN THE HEADING.
400 PRINT"SEARCH MAY BEGIN AT ANY POINT IN THE SEQUENCE. "
410 PRINT:INPUT"SEARCH PATTERN KEYWORD(S) " Y$:CLS:GOSUB 500
420 FOR B1 = 1 TO F:READA1$, A2$, A3$, A4$, A5$
430 X$=A1$+A2$+A3$+A4$+A5$:GOSUB 540
440 IF I = 0 THEN 460
450 GOSUB 520
460 NEXT B1
470 RESTORE
480 PRINT:INPUT"ANOTHER SEARCH (Y/N)":Z$
490 IF Z$="Y" THEN 360 ELSE 160
500 PRINTTAB(1)"#"; TAB(5)"SUBJECT"; TAB(18)"AREA"; TAB(32)"DESCRIPTION";
505 PRINTTAB(46)"REMARKS"; TAB(56)"FIL. #"
510 RETURN
520 PRINTTAB(0)B1; TAB(5)A1$; TAB(18)A2$; TAB(32)A3$; TAB(46)A4$;
525 PRINTTAB(56)A5$
530 RETURN
540 FOR I=1 TO LEN(X$)-LEN(Y$)+1
550 IF Y$=MID$(X$, I, LEN(Y$)) RETURN
560 NEXT I: I=0: RETURN
1010 DATA OIL, MIDEAST, REPORT, SUMMARY, F-1
1020 DATA LAND, ALASKA, STATUS, REPORT, F-6
1030 DATA EXPLOR., ALASKA, MAP, AREAL, F-6
1040 DATA URANIUM, MINERALS, CHART, TYPES, F-7
1050 DATA URANIUM, WORLD, STATISTICS, SUPPLY, F-7
1060 DATA URANIUM, U. S., REPORT, MAP, F-7
1070 DATA URANIUM, CANADA, SUMMARY, TABLES, F-6
1080 DATA OIL, ARIZONA, LEASES, ANSCHUTZ, F-8
1090 DATA SYNFUEL, U. S., EDITORIAL, SUMMARY, F-9
1100 DATA COMPUTERS, OIL & GAS, METHODS, DRILLING, F-12
1110 DATA COMPUTERS, OIL & GAS, STATISTICS, EXPERIMENT, F-12
1120 DATA GAS, U. S., PRICES, 1979, F-14
1130 DATA GAS, U. S., LAW, DECISIONS, F-14
1140 DATA GAS, U. S., RESOURCES, FORECAST, F-14
1150 DATA GAS, U. S., RESOURCES, DISCOVERY, F-14
1160 DATA OIL, NORTH SEA, MAP, LEASES, F-29
1170 DATA GEOLOGY, COLOMBIA, MAP, AREAL, F-1
1180 DATA OIL, U. S., RESERVES, METHOD, F-14
1190 DATA GEOLOGY, GUYANA, MAP, AREAL, F-1
1200 DATA OIL, U. S., REPORT, AREAS, F-14
1210 DATA GEOLOGY, SURINAM, MAP, AREAL, F-1
1220 DATA OIL, MEXICO, REPORT, SUMMARY, F-
1230 DATA GOLD, ARIZ., NEWS, HISTORY, F-35
1240 DATA FLOODS, PHOENIX, REPORT, NEWS, F-35
1250 DATA TAR SANDS, WORLD, REPORT, BRIEF, F-28
1260 DATA, .....
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PROGRAM INDEX

DATA RECORDS
THERE ARE 25 RECORDS IN THE FILE

OPERATION CODES

1 - TO LIST FILE CONTENTS
2 - TO SEARCH FOR KEYWORDS? _

#	SUBJECT	AREA	DESCRIPTION	REMARKS	FIL. #
1	OIL	MIDEAST	REPORT	SUMMARY	F-1
2	LAND	ALASKA	STATUS	REPORT	F-6
3	EXPLOR.	ALASKA	MAP	AREAL	F-6
4	URANIUM	MINERALS	CHART	TYPES	F-7
5	URANIUM	WORLD	STATISTICS	SUPPLY	F-7
6	URANIUM	U. S.	REPORT	MAP	F-7
7	URANIUM	CANADA	SUMMARY	TABLES	F-6
8	OIL	ARIZONA	LEASES	ANSCHUTZ	F-8
9	SYNFUEL	U. S.	EDITORIAL	SUMMARY	F-9
10	COMPUTERS	OIL & GAS	METHODS	DRILLING	F-12

HIT ENTER FOR MORE.

#	SUBJECT	AREA	DESCRIPTION	REMARKS	FIL. #
11	COMPUTERS	OIL & GAS	STATISTICS	EXPERIMENT	F-12
12	GAS	U. S.	PRICES	1979	F-14
13	GAS	U. S.	LAW	DECISIONS	F-14
14	GAS	U. S.	RESOURCES	FORECAST	F-14
15	GAS	U. S.	RESOURCES	DISCOVERY	F-14
16	OIL	NORTH SEA	MAP	LEASES	F-29
17	GEOLOGY	COLOMBIA	MAP	AREAL	F-1
18	OIL	U. S.	RESERVES	METHOD	F-14
19	GEOLOGY	GUYANA	MAP	AREAL	F-1
20	OIL	U. S.	REPORT	AREAS	F-14

HIT ENTER FOR MORE.

#	SUBJECT	AREA	DESCRIPTION	REMARKS	FIL. #
21	GEOLOGY	SURINAM	MAP	AREAL	F-1
22	OIL	MEXICO	REPORT	SUMMARY	F-
23	GOLD	ARIZ	NEWS	HISTORY	F-35
24	FLOODS	PHOENIX	REPORT	NEWS	F-35
25	TAR SANDS	WORLD	REPORT	BRIEF	F-28

NO. OF ITEMS = 25

END OF LIST. TYPE 1 FOR REPEAT: 2 FOR CODES? _

SEARCH PROGRAM

TYPE ONE OR MORE KEY WORDS, WITH NO COMMAS OR SPACES
BETWEEN CATEGORIES.

FOLLOW THE ORDER SHOWN IN THE HEADING.
SEARCH MAY BEGIN AT ANY POINT IN THE SEQUENCE.

SEARCH PATTERN KEYWORD(S) ? GAS_

#	SUBJECT	AREA	DESCRIPTION	REMARKS	FIL. #
10	COMPUTERS	OIL & GAS	METHODS	DRILLING	F-12
11	COMPUTERS	OIL & GAS	STATISTICS	EXPERIMENT	F-12
12	GAS	U. S.	PRICES	1979	F-14
13	GAS	U. S.	LAW	DECISIONS	F-14
14	GAS	U. S.	RESOURCES	FORECAST	F-14
15	GAS	U. S.	RESOURCES	DISCOVERY	F-14

Dear Mr. Lloyd:

Please replace the SUPERBAGELS cassette I sent you with my letter of July 23 with the inclosed cassette. It is revised to include corrections Ted Lau, the author, sent me after studying the print out you sent him of my first efforts to convert his Level I program to Level II. I have also renumbered the program and made minor changes.

Ted suggests that the Level II version would be neater if the single array used for Level I were replaced by 6 different arrays. He gave me detailed instructions for making the changes but so far I have not been able to get it to work with the six arrays.

Yours very truly,



Inclosed:
SUPERBAGELS cassette

Copy to Ted Lau

P. S. I will make a copy for anyone who is interested for a cassette plus postage or equivalent.

```
10 ' SUPERBAGELS
20 'LEVEL I VERSION BY TED LAU PUBLISHED NC NEWSLETTER V2 P. 39
30 'CONVERSION AND MINOR CHANGES BY:
   C. W. EVANS, (602) 933-1616
   9806 AMBER TRAIL, SUN CITY, AZ 85351
40 'CORRECTIONS MADE PER NOTE FROM TED LAU.
50 ' RENUMBERED. VERSION OF 8/19/79, 7 PM
100 '-----
110 CLS
120 DIM A(200)
130 DEFINT B-F, V-Z
140 INPUT"WELCOME TO SUPERBAGELS. INSTRUCTIONS (Y/N)"; I$
150 IF I$ <> "Y" THEN 220
160 PRINT" SUPERBAGELS IS A DEDUCTION GAME IN WHICH YOU ARE TO"
165 PRINT"ATTEMPT TO GUESS A STRING OF DIGITS (OR CODE) GENERATED BY THE"
170 PRINT"PROGRAM. THE PROGRAM WILL INFORM YOU AFTER EACH GUESS HOW MANY"
175 PRINT"OF THE DIGITS IN YOUR GUESS ARE IN THE PROPER POSITION (P). "
180 PRINT"AND HOW MANY DIGITS ARE OF THE PROPER VALUE (V) BUT IN THE"
185 PRINT"WRONG POSITION. YOU MAY REVIEW YOUR PREVIOUS GUESSES OR"
190 PRINT"GIVE UP AT ANY TIME.
   YOU MAY INCREASE THE DIFFICULTY OF THE GAME BY INCREASING
200 PRINT"THE NUMBER OF POSITIONS IN THE CODE, BY INCREASING THE
   NUMBER OF VALUES AVAILABLE FOR EACH POSITION (0 IS NOT USED),
210 PRINT"AND BY ALLOWING THE SAME VALUE IN MORE THAN ONE POSITION.
   HAPPY DEDUCING!"; PRINT
212 PRINT:PRINT" HIT ENTER TO PLAY.
214 Z$=INKEY$: IF Z$="" THEN 214
220 RANDOM
230 CLS
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240 PRINT@0, "" : INPUT"ENTER MAXIMUM DIGIT VALUE (2-9) "; C
250 IF C<2 OR C>9 THEN 240
260 PRINT@64, "" : INPUT"ALLOW DUPLICATE DIGIT VALUES (Y/N) "; E$
270 IF E$="N" THEN E=1 ELSE E=2
280 PRINT@128, "" : INPUT"ENTER NUMBER OF DIGITS (2-6) "; D
290 IF (D<2 OR D>6) OR (E=1 AND C<D) GOTO 280
300 P=1: IF E=2 THEN FOR I=1 TO D: P=P*C: NEXT I
310 IF E=1 THEN FOR I=1+C-D TO C: P=P*I: NEXT I
320 PRINT:PRINT"ONE OF"; P; "POSSIBLE VALUES IS NOW BEING GENERATED" : I=1: A=1
330 A(I)=RND(C): IF E=2 OR I=1 GOTO 360
340 F=0: FOR J=1 TO I-1: IF A(J)=A(I) THEN F=1
350 NEXT J: IF F=1 GOTO 330
360 IF D>I THEN I=I+1: GOTO 330
370 W=0: B=0: FOR I=1 TO D: A(I+12)=0: NEXT I
380 PRINT"REVIEW (1), GIVE UP (0), OR GUESS "; A; " "; INPUT G
390 IF G<0 THEN 380
400 IF G=0 PRINT"VALUE WAS "; : FOR I=1 TO D: PRINT A(I); : NEXT:
   PRINT: GOTO 540
410 IF G=1 AND A<1 GOSUB 570 : PRINT: GOTO 380
420 J=1: FOR I=1 TO D: J=10*J: NEXT: IF G>=J GOTO 380
430 J=J/10: IF G<J GOTO 380
440 A(18+3*A)=G: G=G/J: FOR I=1 TO D: A(I+6)=INT(G)
450 IF A(I+6)<1 OR A(I+6)>C THEN F=1
460 IF A(I)=A(I+6) THEN B=B+1: A(I+12)=1
470 G=10*(G-INT(G))+.000001: NEXT: IF F=1 THEN 370
480 IF B=D PRINT:PRINT"YOU HAVE DEDUCED THE VALUE IN "; A; "GUESSES": GOTO 540
490 FOR I=1 TO D: J=1: IF A(I+12)=1 THEN 520
500 IF A(J)=A(I+6) AND A(J+12)=0 THEN W=W+1: A(J+12)=2: GOTO 520
510 J=J+1: IF J>D THEN 520 ELSE 500
520 NEXT: PRINTTAB(46), "P="; B; TAB(54); "V="; W
530 A(16+3*A)=B: A(17+3*A)=W: A=A+1: GOTO 370
540 INPUT"WANT TO PLAY AGAIN (Y/N) "; I$
550 IF I$="N" PRINT"GLAD YOU ENJOYED SUPERBAGELS. PLAY AGAIN SOON." : END
560 CLS: GOTO 300
570 CLS: FOR I=1 TO 3: PRINT@ (18*I-12), "# GUESS P V"; : NEXT
580 X=60: Z=0: FOR I=1 TO A-1
590 IF X>42 THEN X=5: Z=Z+64
600 PRINT@ (X+Z), I;
610 PRINT@ (X+Z+3), A(18+3*I);
620 PRINT@ (X+Z+10), A(16+3*I);
630 PRINT@ (X+Z+12), A(17+3*I);
640 X=X+18: NEXT: RETURN
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```
ENTER MAXIMUM DIGIT VALUE (2-9) ? 9
ALLOW DUPLICATE DIGIT VALUES (Y/N) ? N
ENTER NUMBER OF DIGITS (2-6) ? 5

ONE OF 15120 POSSIBLE VALUES IS NOW BEING GENERATED
REVIEW (1), GIVE UP (0), OR GUESS 1 ? 11111 P= 0 V= 0
REVIEW (1), GIVE UP (0), OR GUESS 2 ? 22222 P= 1 V= 0
REVIEW (1), GIVE UP (0), OR GUESS 3 ? 33333 P= 1 V= 0
REVIEW (1), GIVE UP (0), OR GUESS 4 ? 44444 P= 1 V= 0
REVIEW (1), GIVE UP (0), OR GUESS 5 ? 55555 P= 0 V= 0
REVIEW (1), GIVE UP (0), OR GUESS 6 ? 1
```

