Interactive Compact-Discs: Laser Technology Moves Into The Home

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COMPUTE!'s GAZETTE

FOR **COMMODORE** PERSONAL COMPUTER USERS

Inside this issue: One of the most incredible arcade-style games we've ever published

Saloon Shootout

An action-packed, challenging game for the Commodore 64, Plus/4, and 16



Budget Planner

Manage your money the easy way with this versatile mini-spreadsheet designed to handle weekly and monthly income for an entire year. For the Commodore 128, 64, and Plus/4.

Hi-Res Dump

Quick printouts of your screen artwork with this program for the 128, 64, and Plus/4.

Also In This Issue:

A Hands-On Introduction To 128 CP/M

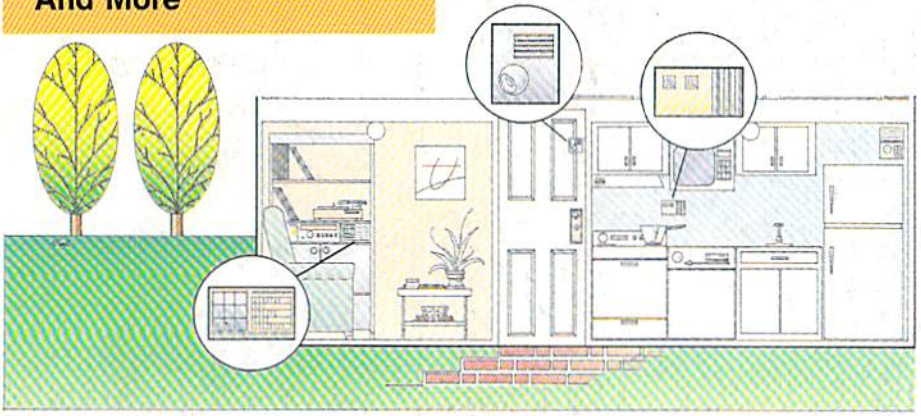
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The Smart Home

Find out why the typical American home may soon be obsolete. (Tomorrow's electronic "smart" home is just around the corner.)

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*=General, **V**=VIC-20, **64**=Commodore 64, **+4**=Plus/4, **16**=Commodore 16, **128**=Commodore 128

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MPA

Budget Planner

Gregory L. Smith

Managing your budget doesn't have to be a chore with this program. It totals your income and bills week by week, allowing you to plan your expenses in advance and make adjustments for special occasions like vacations or birthdays. For the 64, 128, and Plus/4.

Have you ever wondered if you can afford additional monthly expenses—like a mortgage or additional credit cards? Or how much "discretionary income" (money left after paying bills) you might have around Christmastime? I used to manage all the details in my head, but usually had little or no idea as to how much money there actually was (or where it all went).

"Budget Planner" is a mini-spreadsheet written in BASIC. It's designed specifically to handle weekly and monthly income/expenses for an entire year. Budget Planner will sum a column (a week of income and expenses) and present a total. The total is then carried over into the next week as a previous balance.

Typing It In

The program listing is the 64 version. Minor changes will allow it to run on the 128 or Plus/4 (as written, the program and variables take up more memory than is available on the Commodore 16, although it might be possible to modify Budget Planner for that machine by cutting back on the size of the arrays). If you own a Plus/4, type in the listing for the 64 and then add the following two lines:

```
EX 90 FORI=1TO8:READ A:KEYI,CH
      R$(A):NEXT:DATA 133,137,
      134,138,135,139,136,140
RS 1890 COLOR 0,4,0:COLOR 4,4,
        7
```

Commodore 128 owners should add line 90 above (line 1890 is optional on the 128, but if you use it, remove the third number after each of the COLOR statements).

When you first run it, Budget Planner asks for a filename of the information to be loaded. Once you've set up your yearly finances, you can save the data to disk or tape. Since you're just getting started, simply press RETURN and you'll be prompted for the date. This is the date you want to start budgeting. (I like to set my budget up based on Friday as the end of the week. For 1986, 3-JAN-1986 is the first Friday of the year.) Enter the day as a number, the month as a three-character abbreviation, and the year as a four-digit value. You're not required to use the beginning of the year. You may start in the middle or at the end if you like. The program is even smart enough to handle leap years.

The screen then displays four columns of information. The first column holds the labels for each row. The only two rows available when you first start are the "PREV-BAL" (previous balance) and "TOTAL."

The other three columns are the budget data. The week number is shown on the left side. The date of each week is above the corresponding column. When you use the left/right cursor keys to scroll around the budget, the week number will change.

You enter income and expenses by typing the amount (which appears on line 2 of the screen) and pressing RETURN. Only numbers and the "+", "−", and "." keys will work here. Use the delete key to remove the last character typed.

The arrow keys are used to move the reverse-video cursor around the screen. You cannot alter the TOTAL row since that is controlled by the computer. You can see the next week by scrolling off the edge of the screen. This is allowed in both directions. The up/down arrow keys work after more expenses have been added. However, you cannot scroll vertically as only 18 rows (one screenful) are allowed.

The Function Keys

The function keys trigger the various options. Pressing f1 causes the help menu to appear. It draws a window in the top left corner of the screen with a reminder as to which key does what.

To go to a specific week, press f2. You may jump to any week you like by entering its week number (week 1 is the start of the budget and week 52 is the end.) You can also do a "relative jump" by using a plus or minus sign (−3 means go back 3 weeks and +3 means go forward 3 weeks). This is faster than pressing the right-arrow key many times. Also, SHIFT-E will jump to the end of the next month. This is handy since most of us pay bills at the end of the month.

F3 is the LOAD key. You may load a new budget (data from the disk) at any time. You'll be asked to supply a filename. If you pressed f3 accidentally, just press RETURN in response to the filename prompt. You'll be returned to your original budget. Likewise, f4 (SHIFT-f3) is the SAVE key. You might want to

BUDGET PLANNER 1986

	1-MAY	8-MAY	15-MAY	22-MAY	29-MAY
PREVBAL	0.00	428.00	620.50	952.32	1110.32
PAYROLL	638.00	238.00	638.00	238.00	638.00
HOUSE PMT	0.00	0.00	0.00	0.00	-650.00
ELECTRIC	0.00	0.00	-69.74	0.00	0.00
TELEPHONE	0.00	0.00	-17.36	0.00	0.00
CABLE	0.00	0.00	-9.08	0.00	0.00
CAR PMT	0.00	0.00	0.00	0.00	-208.12
GROCERIES	-50.00	0.00	-50.00	0.00	-50.00
GAS	-20.00	0.00	-20.00	0.00	-20.00
CHARGE CRD	0.00	0.00	0.00	0.00	-25.57
INSURANCE	0.00	0.00	0.00	0.00	0.00
SAVINGS	0.00	0.00	0.00	0.00	-650.00
MISC.	-140.00	-45.50	-140.00	-80.00	-140.00
TOTAL	428.00	620.50	952.32	1110.32	4.63

This sample printout shows how "Budget Planner" has been set up for a five-week month. Note that the first Previous Balance (PREVBAL) entry is 0, indicating that this is when the program was first put in use. Also note that decimal mode was selected.

BUDGET PLANNER 1986

	5-JUN	12-JUN	19-JUN	26-JUN
PREVBAL	5	3	381	394
PAYROLL	238	638	238	638
HOUSE PMT	0	0	0	-650
ELECTRIC	0	-61	0	0
TELEPHONE	0	-19	0	0
CABLE	0	-9	0	0
CAR PMT	0	0	0	-208
GROCERIES	0	-50	0	-50
GAS	0	-20	0	-20
CHARGE CRD	0	0	0	-112
INSURANCE	0	0	0	0
SAVINGS	-240	0	-225	0
MISC.	0	-100	0	0
[redacted]	3	381	394	[redacted]

In this example, we see a four-week month and decimal rounding. Also note the highlighted (reverse field) negative balance.

use the year of the budget as the filename. Again, if you decide not to save the budget, simply press RETURN.

To add a new row, use f5 (labeled +ROW in the help menu). It inserts a row below the cursor for new expenses (or new income). You'll be prompted for a name, which can be up to ten characters long. As with the other options, pressing RETURN cancels the operation. Once a name has been assigned, you must specify whether it is a source of income (I) or an expense (E). Pressing any key other than "I" defaults to an expense. This is important: Every value you enter in this field will be negative if it is an expense and positive if it is income. (You don't need to place a minus sign in front of an expense). Likewise, f6 deletes the row the cursor is on. You must verify by entering YES (or the letter Y) when asked. If you enter anything else, you'll be returned to the current budget.

The f7 key causes a new balance to be computed. Balances are *not* recalculated after each new amount is entered. Since the program is written in BASIC, it takes several seconds to recompute the array and display the results. This delay would be annoying if the program made all the computations every time you added another number.

Pressing f8 makes the results print out. (Be sure your printer is turned on.) You may specify a range of months to print. Pressing RETURN in response to the FROM? prompt returns you to the budget, without printing. Enter a valid 3-character abbreviation (JAN or AUG, for example). When prompted to enter TO?, you may press RETURN to print only one month. To print several months, use the appropriate three-character abbreviation.

Special Keys

There are five *SHIFT* functions in addition to the function keys. One has already been mentioned, the SHIFT-E key, which jumps to the end of the next month.

SHIFT-D switches between showing and not showing the decimals (pennies). Budget Planner defaults to showing the decimals. (The variable DP is initialized in line 1950. Simply change it to DP=0 to change the default.) When decimals aren't being displayed, you see the rounded amount on-screen.

SHIFT-F finds the next negative value in the TOTAL row. If you ever "go negative," the TOTAL value and the offending value will turn red. In such a case, you don't have enough income to cover expenses and it may be necessary to juggle some bills. SHIFT-F saves you from trying to find these trouble spots manually.

Use SHIFT-M to flag monthly expenses. If your rent is $500, for example, you would type in 500 in that row and then, instead of RETURN, press SHIFT-M. The $500 expense will be added to the end of every month. Note that this value is placed only on the same row as the cursor. Also, only the months AFTER the cursor position are affected. (For example, if you are on week 26, only weeks 26–52 are affected. The other 25 weeks will not be changed.) Naturally, this key works for income as well.

SHIFT-W is the weekly expense key (groceries, for example). Pressing it places the line 2 value in each week after the cursor position. Again, you use it in place of RETURN after entering a value. It works much like the monthly expense key and also works for the income fields.

Press SHIFT-T if you use a Datassette. It directs data storage and retrieval (f3 and f4) to the tape drive.

The SHIFT-Q key is the Disk Select key. It causes data to be saved to and loaded from a disk drive. (Note: Disk is the default. Changing DEV=8 to DEV=1 in line 100 will change the default device to tape.)

See program listings on page 103.

```
     1322,82:POKE1323,213
BR 3 POKE1324,52:POKE1325,13:E
     ND
XS 4 PRINT"{HOME}{RVS}DISK LOA
     DER
DH 5 PRINT"{2 SPACES}{RVS}CRSR
     {OFF} TO DESIRED PROGRAM,
      PRESS {RVS}RETURN{OFF}.
PP 6 PRINT"{27 SPACES}{UP}"
PD 7 POKE239,5:POKE1319,157:PO
     KE1320,157:POKE1321,32:PO
     KE1322,17:POKE1323,157
HD 8 INPUTF$:IFF$=""THENEND
CX 9 IFMID$(F$,7+N,1)=CHR$(34)
     GOTO11
FS 10 N=N+1:GOTO9
JB 11 IFLEFT$(F$,1)="L"THENPOK
      E239,2:POKE1319,19:POKE1
      320,13:GOTO13
QF 12 POKE239,5:POKE1319,19:PO
      KE1320,13:POKE1321,82:PO
      KE1322,213:POKE1323,13
HR 13 PRINT"{CLR}LOAD"CHR$(34)
      "0:"MID$(F$,7,N)CHR$(34)
      ",8,1":END
```

Program 4: Keys 128

```
RS 100 KEY1,"RUN "+CHR$(34)+CH
       R$(34)+"{2 LEFT}
       {19 RIGHT}{3 SPACES}
       {13 RIGHT}{UP}".
MR 110 KEY2,"DLOA"+CHR$(34)+CH
       R$(34)+"{2 LEFT}D
       {19 RIGHT}{3 SPACES}
       {13 RIGHT}{UP}"
BS 120 KEY3,"{CLR}DIR"+CHR$(13
       )+"{HOME}{2 DOWN}"
JQ 130 KEY4,"BLOA"+CHR$(34)+CH
       R$(34)+"{2 LEFT}D
       {19 RIGHT}{3 SPACES}
       {13 RIGHT}{UP}"
EG 140 KEY5,"{CLR}DSAV"+CHR$(3
       4)
PG 150 KEY6,"{CLR}BSAV"+CHR$(3
       4)
AQ 160 KEY7,"SCRA"+CHR$(34)+CH
       R$(34)+"{2 LEFT}T
       {19 RIGHT}{3 SPACES}"+C
       HR$(13)+"Y{LEFT}"
FB 170 PRINT"{CLR}DIRECTORY
PM 180 POKE208,5:POKE842,19:PO
       KE843,13:POKE844,19:POK
       E845,17:POKE846,17:NEW:
       END
```

Program 5: *FastLoad* Version

```
KD 1 PRINT"{CLR}$
AM 2 POKE198,7:POKE631,19:POKE
     632,13:POKE633,19:POKE634
     ,82:POKE635,213
DR 3 POKE636,52:POKE637,13:END
XS 4 PRINT"{HOME}{RVS}DISK LOA
     DER
DH 5 PRINT"{2 SPACES}{RVS}CRSR
     {OFF} TO DESIRED PROGRAM,
      PRESS {RVS}RETURN{OFF}.
PP 6 PRINT"{27 SPACES}{UP}"
BP 7 POKE198,5:POKE631,157:POK
     E632,157:POKE633,32:POKE6
     34,17:POKE635,157
HD 8 INPUTF$:IFF$=""THENEND
CX 9 IFMID$(F$,7+N,1)=CHR$(34)
     GOTO11
FS 10 N=N+1:GOTO9
RP 11 IFLEFT$(F$,1)="L"THENPOK
      E198,2:POKE631,19:POKE63
      2,13:GOTO13
HX 12 POKE198,6:POKE631,19:POK
      E632,13:POKE633,82:POKE6
      34,85:POKE635,78:POKE636
      ,13
JS 13 PRINT"{CLR}80:"MID$(F$,7
      ,N):END
```

Artimation

(Article on page 62.)

Program 1: Cosmic Objects

```
10 REM COSMIC OBJECTS
20 C=2:COLOR0,1:GRAPHIC1,1:COL
   OR1,5:COLOR4,1
30 FORK=1TO10:CX=INT(RND(0)*32
   0):CY=INT(RND(0)*200)
40 R1=INT(RND(0)*40)+20:R2=INT
   (RND(0)*40)+20
50 IFC=2THENC=45:GOTO80
60 IFC=45THENC=90:GOTO80
70 IFC=90THENC=2
80 FORI=R1TO0STEP-(R1/5):CIRCL
   E1,CX,CY,I,R2,,,,C:NEXT
90 FORI=R2TO0STEP-(R2/5):CIRCL
   E1,CX,CY,R1,I,,,,C:NEXTI,K
```

Program 2: The Pit

```
10 REM THE PIT
20 COLOR0,2:COLOR4,2:GRAPHIC1,
   1:COLOR1,1:DRAW1,160,100
30 FORI=1TO320STEP2:DRAW1,160,
   100TOI,0TO160,100:NEXT
40 FORI=1TO200STEP2:DRAW1,160,
   100TO0,ITO160,100:NEXT
50 FORI=1TO320STEP2:DRAW1,160,
   100TOI,200TO160,100:NEXT
60 FORI=200TO0STEP-2:DRAW1,160
   ,100TO320,ITO160,100:NEXT
```

Program 3: String Art

```
10 REM STRING ART
20 COLOR0,1:C=2:COLOR4,1:GRAPH
   IC1,1:K=50:L=70:P=5
30 COLOR1,5:S=3
40 A=A+5:K=K+P:IFA>=2↑16THENA=
   0:GOTO40
50 IFK>320THENP=-6:GOSUB80:SLE
   EP2:COLOR1,C:C=C+1:GRAPHIC1
   ,1:IFC>15THENC=2
60 BOX1,ABS(K),ABS(K),ABS(K),L
   ,A:IFK<0THENP=5:GOSUB80
70 GOTO40
80 K=INT(RND(0)*320):L=INT(RND
   (1)*200):RETURN
```

Budget Planner

(Article on page 67. 128 and Plus/4 owners: See modifications in the article.)

```
SR 100 DEV=8:GOTO1850
HJ 110 PRINTHM$;LEFT$(X$,X);LE
       FT$(Y$,Y);:RETURN
SD 120 A=ABS(X)+.005-.5*(DP=0)
       :A1=INT(A):A$=MID$(STR$
       (A1),2):IFX<0THENA$="-"
       +A$
AQ 130 IFDPTHEN A2$=MID$(STR$(
       INT((A-A1)*100)),2):IFL
       EN(A2$)<2THENA2$="0"+A2
       $
KX 140 IFDPTHENA$=A$+"."+A2$
JC 150 A$=RIGHT$(SP$+A$,F):RET
       URN
XF 160 A$=LEFT$(SP$,(X-LEN(A$)
       )/2)+A$:RETURN
HC 170 FORI=1TONW:A=0:FORJ=0TO
       NR-1:A=A+TB(J,I):NEXT:T
       B(NR,I)=A:TB(0,I+1)=A:N
       EXT
DQ 180 FORI=1TONW:MM=0:IFTB(NR
       ,I)<0THENMM=-1:I=NW
JG 190 NEXT:RETURN
QM 200 A$=RIGHT$(SP$+"WEEK"+ST
       R$(CW),F-2):X=2:Y=3:GOS
       UB110:PRINT A$;:RETURN
JX 210 A$="BUDGET PLANNER"+STR
       $(YR):X=40:GOSUB160
SG 220 PRINTCL$;FG$;A$:PRINTD$
       :PRINTEA$:EA$=""
BA 230 GOSUB280:FORI=0TONR:IFM
       MANDI=NRTHENPRINTDEBT$;
FF 240 PRINTHM$;LEFT$(Y$,I+5);
       :A$=TB$(I):GOSUB150:PRI
       NTA$;FG$;
SP 250 FORJ=WTOW+2:IFI=NRANDTB
       (I,J)<0THENPRINTDEBT$;
RR 260 X=TB(I,J):GOSUB120:PRIN
       TA$;FG$;
FD 270 NEXT:NEXT:RETURN
KA 280 GOSUB200:A=D:B=M:C=YR
PB 290 FORZ=1TO3
AJ 300 A$=STR$(D)+MNTH$(M):GOS
       UB150:PRINTA$;
GH 310 GOSUB580:NEXT
QR 320 D=A:M=B:YR=C
KX 330 PRINT"CCCCCCCCCCCCCCCCCC
       CCCCCCCCCCCCCCCCCCCCCCC
       "
HP 340 RETURN
RD 350 GOSUB200:X=TB(CR,CW):GO
       SUB120:B$=RV$+A$+NV$:X=
       CC*10:Y=CR+5:GOSUB110
SD 360 PRINTB$;
MC 370 GETC$:IFC$=""THEN370
XE 380 IFC$="+"ORC$="-"ORC$=".
       "OR(C$>="0"ANDC$<="9")T
       HEN740
GG 390 IFC$=UP$THEN610
GS 400 IFC$=DN$THEN640
JR 410 IFC$=LF$THEN660
BE 420 IFC$=RT$THEN700
GR 430 IFC$=CR$THENRETURN
KS 440 IFC$=BK$THENIFLEN(D$)<>
       0THENC$="":D$=LEFT$(D$,
       LEN(D$)-1):GOTO740
XE 450 GOSUB110:PRINTA$;
QA 460 IFASC(C$)>132ANDASC(C$)
       <141THEN760
JP 470 IFC$="M"THEN1650
XA 480 IFC$="D"THENDP=NOTDP:GO
       SUB210:GOTO350
RA 490 IFC$="E"THEN1730
QK 500 IFC$="F"THEN1790
FR 510 IFC$="W"THEN1630
CJ 520 IFC$="T"THENDEV=1:EA$="
       {RVS}TAPE SELECTED{OFF}
       ":GOSUB210:GOTO350
RQ 530 IFC$="Q"THENDEV=8:EA$="
       {RVS}DISK SELECTED{OFF}
       ":GOSUB210:GOTO350
CG 540 GOSUB110:PRINTB$:GOTO37
       0
FC 550 D=D-7:IFD>=1THENRETURN
DE 560 M=M-1:IFM>=1THEND=D+MNT
       H(M):RETURN
QG 570 YR=YR-1:M=12:D=D+MNTH(M
       ):RETURN
CQ 580 D=D+7:IFD<=MNTH(M)THENR
       ETURN
CX 590 D=D-MNTH(M):M=M+1:IFM<1
       3THENRETURN
FB 600 YR=YR+1:M=1:RETURN
RC 610 IFCR=0THEN370
BJ 620 CR=CR-1
CR 630 GOSUB110:PRINTA$;:GOTO3
       50
KH 640 IFCR<>NR-1THENCR=CR+1:G
       OTO630
GS 650 GOTO370
CQ 660 IFCC<>1THENCC=CC-1:CW=C
       W-1:GOTO630
KF 670 IFCW=1THEN370
QC 680 CW=CW-1:W=W-1:GOSUB550
BS 690 GOSUB210:GOTO350
```

```
BX 700 IFCC<>3THENCC=CC+1:CW=C
       W+1:GOTO630
ES 710 IFCW=NWTHEN370
KX 720 CW=CW+1:W=W+1:GOSUB580
QR 730 GOSUB210:GOTO350
GC 740 IFLEN(D$)<10THEND$=D$+C
       $:PRINTHM$;DN$;D$;LEFT$
       (SP$,10-LEN(D$)):GOTO37
       0
SF 750 GOTO370
AQ 760 PRINT HM$;DN$;SP$:PRINT
       SP$
XD 770 ONASC(C$)-132GOSUB780,8
       70,980,1090,1100,1250,1
       330,1400:GOTO350
DD 780 X=0:Y=0:GOSUB110:PRINTW
       H$;"<F1>HELP{3 SPACES}<
       F2>GOTO{2 SPACES}<E>ND
       {SPACE}OF MONTH "
HD 790 Y=Y+1:GOSUB110:PRINTWH$
       ;"<F3>LOAD{3 SPACES}<F4
       >SAVE{2 SPACES}<F>IND N
       EG{5 SPACES}"
AC 800 Y=Y+1:GOSUB110:PRINTWH$
       ;"<F5>+ROW{3 SPACES}<F6
       >-ROW{2 SPACES}<M>ONTHL
       Y EXP{2 SPACES}"
FB 810 Y=Y+1:GOSUB110:PRINTWH$
       ;"<F7>CALC{3 SPACES}<F8
       >PRNT{2 SPACES}<W>EEKLY
        EXP{3 SPACES}"
CD 820 Y=Y+1:GOSUB110:PRINTWH$
       ;"<Q>DISK{4 SPACES}<T>A
       PE{4 SPACES}<D>ECIMAL
       {6 SPACES}"
EH 830 Y=Y+1:GOSUB110:PRINT"<P
       RESS ANY KEY>{3 SPACES}
       "
CA 840 GETA$:IFA$=""THEN840
FH 850 PRINTFG$;
KC 860 GOSUB210:RETURN
QA 870 X=0:Y=0:GOSUB110:PRINTW
       H$;"{RVS}*LOAD*{OFF}"
HH 880 Y=Y+1:GOSUB110:F$="":IN
       PUT"FILENAME";F$:IFF$="
       "THEN1210
FA 890 IFDE=8THEN910
BG 900 OPEN2,1,0,F$:GOTO920
PM 910 OPEN15,8,15:OPEN2,8,2,F
       $+",S,R":GOSUB2300:IFEA
       THENGOSUB210:GOTO970
XP 920 PRINTCL$;DN$;"LOADING "
       ;F$
BP 930 INPUT#2,NR,NW,D,M,YR:M0
       =M:D0=D:Y0=YR:CC=1:CR=1
       :CW=1:W=1:GOSUB2140
SR 940 IFDE=8THENGOSUB2300:IFE
       ATHEN970
HM 950 FORI=0TONR:INPUT#2,TB$(
       I):FORJ=0TONW:INPUT#2,T
       B(I,J):NEXTJ,I
QQ 960 GOSUB170:GOSUB210
FP 970 CLOSE2:CLOSE15:RETURN
KD 980 X=0:Y=0:GOSUB110:PRINTW
       H$;"{RVS}*+ROW*{OFF}"
AG 990 IFNR=18THENY=Y+1:GOSUB1
       10:PRINT"-NO MORE ROOM-
       ":GOTO830
KA 1000 N$="":Y=Y+1:GOSUB110:I
       NPUT"NAME";N$
GS 1010 IFN$=""THEN1080
BH 1020 Y=Y+1:GOSUB110:I$="E":
       INPUT"(I/E)";I$
SC 1030 A=-1:IFI$="I"THENA=1
FP 1040 CR=CR+1
GD 1050 FORI=NRTOCRSTEP-1:TB$(
       I+1)=TB$(I):FORJ=0TONW
       :TB(I+1,J)=TB(I,J):NEX
       TJ,I
RC 1060 FORI=1TONW:TB(CR,I)=0:
       NEXT:TB$(CR)=LEFT$(N$,
       10)
SF 1070 NR=NR+1:TB(CR,0)=A
AR 1080 GOSUB210:RETURN
XE 1090 GOSUB110:PRINTA$;:GOSU
       B170:GOSUB210:RETURN
FX 1100 X=0:Y=0:GOSUB110:PRINT
       WH$;"{RVS}*GOTO*{OFF}"
JM 1110 Y=Y+1:GOSUB110:W$="":I
       NPUT"WEEK";W$
GJ 1120 A=INT(VAL(W$))
KA 1130 IFLEFT$(W$,1)="-"ORLEF
       T$(W$,1)="+"THENA=CW+A
KP 1140 IFA=WTHEN1200
EB 1150 IFA>50THENA=50
HP 1160 IFA<=0THEN1210
GX 1170 IFA>WTHEN1220
AA 1180 W=W-1:GOSUB550
AB 1190 IFA<WTHEN1180
JC 1200 CW=W:CC=1
AG 1210 GOSUB210:RETURN
FE 1220 W=W+1:GOSUB580
PD 1230 IFA>WTHEN1220
BR 1240 GOTO1200
PK 1250 X=0:Y=0:GOSUB110:PRINT
       WH$;"{RVS}*SAVE*{OFF}"
KC 1260 Y=Y+1:GOSUB110:F$="":I
       NPUT"FILENAME";F$:IFF$
       =""THEN1210
RG 1270 IFDE=8THEN1290
JC 1280 OPEN2,1,2,F$:GOTO1300
XF 1290 OPEN15,8,15:OPEN2,8,2,
       "@0:"+F$+",S,W":GOSUB2
       300:IFEATHEN1320
FJ 1300 PRINT#2,NR;",";NW;",";
       D0;",";M0;",";Y0
DJ 1310- FORI=0TONR:PRINT#2,TB$
       (I):FORJ=0TONW:PRINT#2
       ,TB(I,J):NEXTJ,I
XP 1320 CLOSE15:CLOSE2:GOSUB17
       0:GOSUB210:RETURN
PM 1330 X=0:Y=0:GOSUB110:PRINT
       WH$;"{RVS}*-ROW*{OFF}"
JE 1340 IFCR=0THENY=Y+1:GOSUB1
       10:PRINT"ILLEGAL ROW":
       GOTO830
XB 1350 Y=Y+1:GOSUB110:N$="":I
       NPUT"SURE";N$
RS 1360 IFLEFT$(N$,1)<>"Y"THEN
       1210
HP 1370 NR=NR-1
DJ 1380 FORI=CRTONR:TB$(I)=TB$
       (I+1):FORJ=0TONW:TB(I,
       J)=TB(I+1,J):NEXTJ,I
BS 1390 CR=CR-1:GOTO1210
SA 1400 Q$="":PRINTHM$;WH$;"<P
       RNT>":INPUT"FROM";Q$:I
       FQ$=""THEN1210
AE 1410 Q1$="":INPUT"TO
       {2 SPACES}";Q1$:IFQ1$=
       ""THENQ1$=Q$
BE 1420 Q$="-"+Q$:M1=0:FORI=1T
       O12:IFMNTH$(I)=Q$THENM
       1=I:I=12
XJ 1430 NEXT:M2=0:Q1$="-"+Q1$:
       FORI=1TO12:IFMN$(I)=Q1
       $THENM2=I:I=12
XA 1440 NEXT:IFM1=0ORM2=0THENE
       A$="ILLEGAL MONTH":GOT
       O1210
ED 1450 OPEN4,4:CMD4:X=79:A$="
       BUDGET PLANNER"+STR$(Y
       0)
MQ 1460 PRINT"{20 SPACES}"A$:P
       RINT:M=M0:Y=Y0:D=D0:Q=
       1
AH 1470 M2=M2+1:IFM2=13THENM2=
       1
SG 1480 IFM<>M1THENGOSUB580:Q=
       Q+1:GOTO1480
EP 1490 PRINTTAB(10);:N=1
PC 1500 A$=STR$(D)+MNTH$(M):GO
       SUB150:PRINTA$;
CD 1510 A=M:GOSUB580:IFA=MTHEN
       N=N+1:GOTO1500
DR 1520 PRINT:FORI=0TON:PRINT"
       CCCCCCCCCC";:NEXT:PRIN
       T
PP 1530 FORI=0TONR:A$=TB$(I):G
       OSUB150
GS 1540 IFI=NRANDMMTHENPRINTRV
       $;A$;NV$;:GOTO1560
JR 1550 PRINTA$;
QM 1560 QQ=Q+N-1:IFQQ>52THENQQ
       =52
RM 1570 FORJ=QTOQQ:X=TB(I,J):G
       OSUB120
HG 1580 IFI=NRANDX<0THENPRINTR
       V$;A$;NV$;:GOTO1600
QS 1590 PRINTA$;
PG 1600 NEXTJ:PRINT:NEXTI
FJ 1610 PRINT:PRINT:Q=Q+N:IFQ<
       53ANDM<>M2THEN1490
SH 1620 M=M0:D=D0:YR=Y0:W=1:CW
       =1:CC=1:CR=0:PRINT#4:C
       LOSE4:GOTO1210
XP 1630 IFD$=""THENRETURN
XJ 1640 A=TB(CR,0)*VAL(D$):FOR
       I=CWTONW:TB(CR,I)=A:NE
       XTI:D$="":GOSUB210:GOT
       O350
CF 1650 IFD$=""THENRETURN
FR 1660 A=D:B=M:C=YR:Q=W:X=M
JJ 1670 IFW<>CWTHENGOSUB580:W=
       W+1:GOTO1670
PR 1680 X=M
GH 1690 GOSUB580:W=W+1:IFX=MTH
       EN1690
PP 1700 X=M:W=W-1:GOSUB550:IFW
       >52THEND=A:M=B:YR=C:W=
       Q:D$="":GOTO1720
AG 1710 TB(CR,W)=TB(CR,0)*VAL(
       D$):GOTO1690
PJ 1720 GOSUB210:GOTO350
PE 1730 IFW<>CWTHENW=W+1:GOSUB
       580:GOTO1730
JX 1740 A=D:B=M:C=YR:W=W+1:GOS
       UB580:X=M:FL=0
CE 1750 GOSUB580:W=W+1:IFX=MTH
       EN1750
GF 1760 GOSUB550:W=W-1:IFW>50T
       HENFL=-1:GOTO1760
KQ 1770 CC=1:CW=W:IFFLTHENCC=3
       :CW=52
FQ 1780 GOSUB210:GOTO350
SH 1790 IFW<>CWTHENW=W+1:GOSUB
       580:GOTO1790
GE 1800 A=D:B=M:C=YR:Q=W
MR 1810 GOSUB580:W=W+1:IFTB(NR
       ,W)>=0ANDW<>50THEN1810
MR 1820 IFTB(NR,W)>=0THEND=A:M
       =B:YR=C:W=Q:GOTO350
SX 1830 CC=1:CW=W
MA 1840 GOSUB210:GOTO350
JH 1850 DIMTB(18,53),TB$(18),M
       N$(12),MN(12)
KR 1860 DEBT$=CHR$(28):FG$=CHR
       $(159):HM$=CHR$(19):CL
       $=CHR$(147):UP$=CHR$(1
       45)
AP 1870 DN$=CHR$(17):LF$=CHR$(
       157):RT$=CHR$(29):CR$=
       CHR$(13):BK$=CHR$(20)
QD 1880 RV$=CHR$(18):NV$=CHR$(
       146):WH$=CHR$(5)+RV$
MS 1890 POKE53280,3:POKE53281,
       0:PRINTFG$
HE 1910 PRINTFG$:FORI=1TO12:RE
       ADMNT$(I),MNT(I):NEXT
MP 1920 DATA -JAN,31,-FEB,28,-
       MAR,31,-APR,30
KE 1930 DATA -MAY,31,-JUN,30,-
       JUL,31,-AUG,31
FF 1940 DATA -SEP,30,-OCT,31,-
       NOV,30,-DEC,31
AM 1950 W=1:F=10:DP=-1:NW=52
BJ 1960 SP$="{39 SPACES}"
```

```
QX 1970 X$="":FORI=1TO40:X$=X$
        +RT$:NEXT
XC 1980 Y$="":FORI=1TO24:Y$=Y$
        +DN$:NEXT
JM 1990 A=FRE(X)
DC 2000 NR=1:CW=1:CR=0:CC=1
JJ 2010 TB$(0)="PREVBAL":TB(0,
        0)=1
PS 2020 TB$(1)="TOTAL"
AE 2030 GOSUB2070
RX 2040 GOSUB350
FF 2050 IFD$=""THEN2040
AX 2060 TB(CR,CW)=TB(CR,0)*VAL
        (D$):D$="":X=0:Y=1:GOS
        UB110:PRINTSP$:GOTO204
        0
HR 2070 A$="BUDGET PLANNER":X=
        39:GOSUB160:PRINT"
        {CLR}";FG$;A$
GD 2080 PRINT:PRINTEA$:F$="":E
        A$=""
SP 2090 INPUT"ENTER FILENAME";
        F$
DR 2100 IFF$=""THEN2170
XK 2110 GOSUB890
QR 2120 IFEATHEN2070
BE 2130 RETURN
BD 2140 X=Y0:MNTH(2)=28:IFM0>2
        THENX=X+1
PM 2150 IFINT(X/4)=X/4THENMN(2
        )=29
JK 2160 RETURN
SH 2170 A$="BUDGET PLÅNNER":X=
        39:GOSUB160:PRINT "
        {CLR}";FG$;A$
PP 2180 PRINTD$:INPUT"DAY
        {3 SPACES}";DD$:D=VAL(
        DD$)
HC 2190 INPUT"MONTH ";MM$:MM$=
        "-"+MM$
QK 2200 INPUT"YEAR{2 SPACES}";
        YR$:YR=VAL(YR$):Y0=YR
FA 2210 M=0:FORI=1TO12:IFMN$(I
        )=MM$THENM=I
FK 2220 NEXT:IFM=0THEN2280
BM 2230 IFYR<1910ORYR>1999THEN
        2290
DA 2240 GOSUB2140
CD 2250 IFD<1ORD>MNTH(M)THEN22
        70
HH 2260 D$="":GOSUB210:M0=M:D0
        =D:Y0=YR:RETURN
BJ 2270 D$="{RVS}ILLEGAL DAY V
        ALUE TRY AGAIN{OFF}":G
        OTO2170
QA 2280 D$="{RVS}ILLEGAL MONTH
         - USE 3-CHAR ABREVIAT
        ION{OFF}":GOTO2170
QR 2290 D$="{RVS}ILLEGAL YEAR
        {SPACE}- (1910-1999 ON
        LY){OFF}":GOTO2170
XF 2300 INPUT#15,EA,EA$,A,A:EA
        =(EA<>0):RETURN
```

Saloon Shootout

(See instructions in article on page 56 before typing in.)

Program 1: Saloon Shootout

```
2800:4C 1A 28 00 00 00 00 00 02
2808:00 00 00 00 00 00 00 00 58
2810:00 00 00 00 00 00 00 00 60
2818:00 00 A9 00 8D 5C 03 8D 0F
2820:5D 03 A9 93 20 D2 FF 20 BA
2828:B2 33 20 4C 2F 20 5D 34 50
2830:20 AD 2E 20 70 38 20 18 80
2838:2E 20 FC 29 CE 0B 28 D0 9D
2840:0C AD 0C 28 8D 0B 28 20 0F
2848:08 30 20 5F 2A CE 09 28 69
2850:D0 0C AD 0A 28 8D 09 28 14
2858:20 8D 30 20 2D 2A CE 61 35
2860:03 D0 09 AD 62 03 8D 61 FD
2868:03 20 F7 2A CE 0D 28 D0 AF
2870:09 AD 0E 28 8D 0D 28 20 06
2878:F7 30 AD 0D 28 C9 0A B0 84
2880:0F AD 66 03 C9 01 D0 08 BC
2888:AD 11 FF 29 4F 8D 11 FF 59
2890:CE 0F 28 D0 09 AD 10 28 65
2898:8D 0F 28 20 40 2D CE 18 E6
28A0:28 D0 09 AD 19 28 8D 18 D1
28A8:28 20 DD 37 20 EE 28 CE 20
28B0:57 03 D0 88 CE 54 03 20 FD
28B8:6E 29 AD 54 03 F0 08 AD 1F
28C0:58 03 F0 03 4C 3C 28 A9 99
28C8:00 8D 11 FF A2 17 A0 08 59
28D0:18 20 F0 FF A9 BD A0 37 10
28D8:20 08 34 20 2D 2A 20 6E 84
28E0:29 20 FC 29 20 E4 FF C9 5E
28E8:0D D0 F9 4C 22 28 A2 00 EE
28F0:CA D0 FD 60 18 6D 52 03 BE
28F8:8D 52 03 AD 53 03 69 00 59
2900:8D 53 03 AD 63 03 D0 21 13
2908:AD 52 03 38 E9 F4 8D 04 EB
2910:28 AD 53 03 E9 01 0D 04 ED
2918:28 90 0E AD 54 03 18 69 87
2920:32 8D 54 03 A9 01 8D 63 79
2928:03 4C 6E 29 8D 03 28 AD E5
2930:52 03 38 ED 03 28 8D 52 78
2938:03 AD 53 03 E9 00 8D 53 CF
2940:03 B0 08 A9 00 8D 52 03 B9
2948:8D 53 03 4C 6E 29 18 6D 11
2950:58 03 C9 24 90 02 A9 23 0E
2958:8D 58 03 60 8D 04 28 AD 68
2960:58 03 38 ED 04 28 B0 02 A9
2968:A9 00 8D 58 03 60 8A 48 BD
2970:98 48 A9 92 20 D2 FF A9 75
2978:05 20 D2 FF A2 06 A0 00 1E
2980:18 20 F0 FF AE 52 03 AD 77
2988:53 03 20 13 34 A2 0A A0 5B
2990:00 18 20 F0 FF AE 54 03 62
2998:A9 00 20 13 34 A0 00 AD C6
29A0:54 03 C9 19 D0 02 A0 F1 6A
29A8:AE 56 03 D0 05 8C 19 FF E1
29B0:D0 03 8C 20 D0 A9 12 20 31
29B8:D2 FF A2 12 A0 02 18 20 47
29C0:F0 FF AD 46 03 0A 0A 18 12
29C8:69 49 A8 20 D2 FF C8 98 F9
29D0:8D 04 28 20 D2 FF A9 D9 B5
29D8:A0 37 20 08 34 AC 04 28 52
29E0:C8 98 20 D2 FF C8 C0 60 F3
29E8:D0 04 38 E9 3E A8 98 20 30
29F0:D2 FF A9 92 20 D2 FF 68 BF
29F8:A8 68 AA 60 AD 5C 03 38 32
2A00:ED 52 03 8D 03 28 AD 5D 8A
2A08:03 ED 53 03 0D 03 28 B0 69
2A10:0B A0 01 B9 52 03 99 5C FB
2A18:03 88 10 F7 A2 0E A0 00 20
2A20:18 20 F0 FF AE 5C 03 AD 41
2A28:5D 03 4C 13 34 AD 5A 03 B6
2A30:18 69 C4 85 04 AD 5B 03 6C
2A38:69 03 85 05 AE 58 03 E8 C8
2A40:A0 00 A9 BC CA F0 02 10 14
2A48:02 A9 20 91 04 20 30 2D 53
2A50:AD 56 03 D0 02 A9 71 91 A9
2A58:02 C8 C0 23 D0 E4 60 AD B2
2A60:4A 03 D0 3A CE 4E 03 F0 FE
2A68:01 60 20 EC 2A 20 FB 2F 21
2A70:29 07 18 69 07 8D 4C 03 BE
2A78:A9 03 8D 4B 03 EE 4A 03 34
2A80:A2 04 20 FB 2F 29 03 C9 D8
2A88:03 F0 F7 A8 B9 E9 2A A8 96
2A90:8C 4F 03 18 20 F0 FF A9 4F
2A98:38 A0 37 20 08 34 AD 4C D2
2AA0:03 F0 29 CE 4C 03 D0 C1 96
2AA8:A2 04 AC 4F 03 18 20 F0 83
2AB0:FF A9 00 8D 59 03 A2 5A BE
2AB8:A0 37 20 FB 2F 10 09 A9 64
2AC0:01 8D 59 03 A2 76 A0 37 BB
2AC8:8A 20 08 34 CE 4B 03 D0 29
2AD0:98 A9 00 8D 4A 03 A2 04 5C
2AD8:AC 4F 03 20 A7 35 AD 59 80
2AE0:03 F0 05 A9 0A 20 5C 29 E0
2AE8:60 0D 17 21 20 FB 2F 29 1E
2AF0:1F 09 20 8D 4E 03 60 AD E0
2AF8:5E 03 C9 0B F0 17 C9 0A A8
2B00:D0 12 A9 00 8D 5F 03 A9 12
2B08:01 8D 60 03 EE 5E 03 A9 1F
2B10:65 8D 62 03 60 AD 5A 03 6A
2B18:18 69 D8 85 04 AD 5B 03 D8
2B20:69 02 85 05 AC 5F 03 A9 3F
2B28:20 91 04 C8 91 04 AD 5F 57
2B30:03 18 6D 60 03 8D 5F 03 D1
2B38:F0 29 C9 0E F0 25 A2 00 CC
2B40:A8 AD 60 03 10 02 A2 02 62
2B48:BD 69 2B 91 04 C8 BD 6A 7F
2B50:2B 91 04 20 30 2D AD 56 0B
2B58:03 D0 02 A9 71 91 02 88 9D
2B60:91 02 60 A9 00 8D 5E 03 9C
2B68:60 1B 1C 1D 1E AC 47 03 40
2B70:B1 04 C9 85 90 31 C9 89 98
2B78:B0 2D 38 E9 85 AA BD FB 66
2B80:2C 8D 03 28 A5 04 38 ED CE
2B88:03 28 85 04 A5 05 E9 00 70
2B90:85 05 A2 00 20 B0 2C A9 05
2B98:0A 20 F4 28 AD 5E 03 C9 D3
2BA0:0A B0 03 EE 5E 03 60 C9 01
2BA8:84 F0 08 C9 89 90 05 C9 7D
2BB0:8D B0 01 60 C9 A0 F0 4C 1F
2BB8:C9 A2 B0 48 C9 8D 90 44 21
2BC0:AD 47 03 38 E9 13 AA BD 52
2BC8:D2 2C 18 6D 50 03 C9 05 94
2BD0:90 03 38 E9 05 AA BD 3C 60
2BD8:03 29 7F 4A 4A CD 46 03 A8
2BE0:D0 0A CE 46 03 D0 10 A9 85
2BE8:23 20 4E 29 A9 05 8D 46 F7
2BF0:03 20 70 38 4C 75 2C A9 9C
2BF8:0A 20 F4 28 A9 1C 9D 3C B2
2C00:03 4C 75 2C C9 66 D0 08 EF
2C08:A9 0A 20 2C 29 4C 75 2C 10
2C10:C9 A2 90 1A C9 B4 B0 16 42
2C18:C9 AB B0 08 A9 64 20 2C 22
2C20:29 4C 75 2C A9 00 8D 59 53
2C28:03 A9 19 20 F4 28 C9 1B 88
2C30:90 26 C9 1F B0 22 AD 60 4F
2C38:03 49 FF 18 69 01 8D 60 B0
2C40:03 AD 62 03 38 E9 14 30 C3
2C48:03 8D 62 03 A9 65 38 ED 43
2C50:62 03 20 F4 28 4C 75 2C 77
2C58:C9 B6 D0 19 A9 00 8D 65 BC
2C60:03 A9 01 8D 66 03 EE 64 1F
2C68:03 AD 64 03 C9 03 90 05 EA
2C70:A9 00 8D 64 03 AE 16 28 BC
2C78:EE 16 28 A5 04 9D C3 3B 86
2C80:A5 05 9D D7 3B AD 47 03 40
2C88:9D EB 3B B1 04 C9 1B 90 3B
2C90:06 C9 1F B0 02 A9 20 9D E1
2C98:FF 3B 20 30 2D B1 02 9D 98
2CA0:13 3C AD 56 03 D0 02 A9 B5
2CA8:71 91 02 A9 84 91 04 60 CB
2CB0:AC 47 03 BD DB 2C 91 04 24
2CB8:C8 E8 BD DB 2C 91 04 E8 BD
2CC0:98 18 69 27 A8 BD DB 2C 2B
2CC8:91 04 E8 C8 BD DB 2C 91 DB
2CD0:04 60 00 00 00 01 01 01 4A
2CD8:02 02 02 89 8A 8B 8C 8D B4
2CE0:8E 8F 90 91 92 93 94 95 31
2CE8:96 97 98 99 9A 9B 9C 9D 39
2CF0:9E 9F A1 66 66 66 66 20 D4
2CF8:20 20 20 00 01 28 29 AE 17
2D00:16 28 F0 23 CA BD C3 3B CF
2D08:85 04 BD D7 3B 85 05 BC 12
2D10:EB 3B BD FF 3B 91 04 20 2F
2D18:30 2D BD 13 3C 91 02 CA B5
2D20:10 E3 A9 00 8D 16 28 AD 73
2D28:11 FF 29 1F 8D 11 FF 60 33
2D30:A5 04 18 6D 14 28 85 02 86
2D38:A5 05 6D 15 28 85 03 60 63
2D40:20 4C 2E 4A B0 0D AE 11 50
2D48:28 E0 10 F0 06 EE 11 28 36
2D50:20 18 2E 4A B0 0D AE 11 53
2D58:28 E0 02 F0 06 CE 11 28 04
2D60:20 18 2E 4A B0 14 48 AD 4F
2D68:47 03 F0 0D A2 00 20 DB 47
2D70:2D CE 47 03 A2 04 20 DB 6F
2D78:2D 68 4A B0 16 48 AD 47 4C
2D80:03 C9 1F F0 0D A2 00 20 D4
2D88:DB 2D EE 47 03 A2 04 20 39
2D90:DB 2D 68 4A B0 3F AD 17 CA
2D98:28 D0 34 AD 58 03 F0 2F 7C
2DA0:A9 01 20 5C 29 20 33 2E 38
2DA8:AD 5A 03 18 69 57 85 04 0A
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