WORDPLAY

The PUNN Newsletter - Portland, Oregon
July 1988

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From the President

I recently went to California to make a presentation to an IBM PC users group as a representative of my company. We gave a valuable board away in a drawing to a lucky member. The board, an accelerator for the IBM PC, was worth nearly $1300 retail value. However, when the "member" stepped forward to receive the board, he rather sheepishly asked "Do I have to be a member?" In fact, he was a guest, rather than a member. After a quick discussion by the UG's officers it was decided, that indeed, he was not eligible to receive the board.

This was a position, although I couldn't say anything at the time, I heartily endorsed! Membership in a User Group is one of the more important things you can do to help yourself, especially in the TI community. We don't often have large (or even small) manufacturers come bearing gifts, but we do have valuable assets to be shared among our members. Our library, newsletter and BBS are funded by membership fees and contributions. While it is commendable to be willing to share some of those resources (in particular with those who have contributed to the UG), these resources should be valued and protected as benefits accruing with membership.

There are, at each meeting, those who come and sit in on the discussions, gain value from the knowledge, use the BBS and yet refuse to make a small contribution toward the continuation of those benefits.

If you know one of those "fringe" members, you owe it to yourself and them to give them some encouragement to join. Tell them what they are missing. It is in all of our interests to maintain a vital Users Group.
—Al Kinney

News and Views

It's that time again, the PUNN Users Group will meet at the PGE Building and to keep up with all the good things happening to the TI, you should attend- - - We want to mention the P I C N I C that will be held in August-It will be at the Milwaukie Elks, same as last year-tickets are only $2.00 for members and their families, however you can bring guests for $4.00-the fun starts at 6:00 and food will be served at apporximately 7:30-pool tickets are $1.25- - -Don't forget the Seattle Fair is coming up-Saturday September 24th. at the Seattle Center-you won't want to miss this!- - -This issue features Ashley Reed's program "Read & Write"-see inside for a description and the listing- - -In recent issues we have featured articles and programs from several of our members and we have others coming up-Don Steffan, Bill McCabe, Ashley Reed and Norm Minks-do you want to see your name in print?-well you can if you contribute to WordPlay- - -If you have not contacted the BBS lately there is a new feature that makes typing messages a real joy-word wrap similar to that used in TI-Writer has been added, a feature made possible by Mike King, and it makes message writing much easier- - -every so often we get a copy of WordPlay returned because the member has moved-be sure to advise us of address changes so you won't miss a single issue- - -What do you want to see in WordPlay?-more games, tutorials, reviews, utilities-we're here to publish what you want to see, but we need to hear from you- - -How about a letter to the Editor with your ideas-all newspapers have them and we would entertain a similar column- - -We still have a supply of Barry Travers "GENIAL TRAVelOR" (magazine on disk)-they are availble from the editor at each meeting for $6.00 each.

Easy Multi-Column

Over the years a number of programs have developed that allow the editor to print out his articles in two or more columns. Some of the programs are commercial and others fairware or in the public domain. While many of these programs are good and useful there are other ways to accomplish the same objectives.

If you happen to have a Star NX-1000 printer you can print out in as many columns as you want very easily and without resorting to a multi-column printout program - Here's how it is done.

First of course,you need to compose your article with TI-Writer or one of the clones. For most of the double column articles that appear in WordPlay, I set up to format with a .AD, .FI and with a paragraph indent .IN+5. I use .LM 2 and .RM 46 which gives a width of of 45. For three columns I use .LM 2 and .RM 41 which provides a 40 column width.

The next step, assuming you have proof read your composition, is to hyphenate your article. (Wayne Stiths' Hyphenator Program is a good choice for this function.) You then format the hyphenated version of your article and rather than sending it to the printer you save it to disk. The purpose of this procedure is to command your printer from the Editor rather than the Formatter. In this way you can print out a specified number of lines at any place on the paper.

If you examine this formatted version in TI-Editor you'll see that you have a right hand justification complete with hyphens where they were put in. Each line will also have a line feed symbol after it.

To remove the line feed symbols you need to resave this file in the following manner-instead of commanding SF (save file) use PF (print file) with a preceding C. (C PF DSK1.n). Use a different name so you don't lose your original copy and when you reload the file saved in this manner you'll see that all the line feed symbols have been removed.

Now you must determine how many columns you want and what pitch to set the NX-1000 to. Using two columns you need to simply divide the number of lines by two. One important point that you need to take at this time is to delete any blank lines that appear in your file. TI-Formatter will automatically put in three blank lines at the start of your file and if the article is more than 60 lines long it will add more blank lines after line 60 unless you took care of that in the formatting instructions.

With two columns I use elite pitch (45 characters x 2=90) and that leaves 6 characters to divide between the left and right margins and between columns. Those of you that own the NX-1000 know that you can adjust at what column the printer starts printing. The default is the left most column and that is where the first 20 lines of a 40 line file would be printed. You would then print the last 20 lines after adjusting the left margin and returning the paper using the paper park feature. What needs to be emphasized here is you need to be sure the lines line up horizontally and you can do this by noting on the platen of the printer where the perforations of the paper appear. If you do this carefully your lines will line up.

Naturally all of this takes some practice, but Word Play is now produced using these techniques and I have found the method much faster that running a Multi-Column program. If there is enough interest in what has been described here, a workshop could be held at a future meeting. Also I would be glad to go into more specific details with anyone that has a need for this system.

Charles Ball, WordPlay editor.

Avoid Mail Fraud

(The idea for this article developed from one we read in the May issue of Micropendium. We felt the ideas presented were worth repeating.)

Most companies doing business by mail are reliable and reputable, but there are those few who will victimize the unwary. When ordering anything by mail, keep a copy of the order, showing the date and the address where the order was sent. This applies to telephone ordering also.

If your order does not arrive within 30 days, write an inquiry letting your seller know that the check has cleared the bank and you have not received the merchandise.

If you do not receive an answer within 10 days then it is time to take your case to the Postal Officials. The postmaster will normally make a set of copies of all your records and sent it to the postal inspector in the area you ordered from. He will probably tell you to write again, informing the vendor that you have contacted the postal authorities.

Postal authorities investigate all complaints, but sometimes it takes awhile. If a partiucular vendor is the result of many complaints, the investigation will receive a higher priority. It would be a good idea to register a complaint with Better Business Bureau (BBB).

Actually unless you have good solid proof of a companys reliability, you could check with the BBB in the city where the business is located before ordering.

Some companies have been known to use your money to manufacture the product and thus a long delay can ensue. Another thing to ask the vendor is if the product is in stock and how soon will it be shipped.

Action columns in the local newspaper are also sources you can turn to. They often will pursue a complaint and effect a response satifactory to the purchaser.

Read and Write

Read and Write is a product of ideas of three people:

"John Martin" wrote most of the file reading routines and part of them are from "File Reader" by "Greg Kulms". The rest is a variety of ideas of my own. There were a few routines that I didn't know if they would work until I tried them and much to my surprise, most of them did work without too much refinement.

The write portion of the program, with the exception of an outline by "Al Kinney", was just a lot of work (well fun really). I save the program as LOAD so that it boots when I start. When I am on the BBS, I use the vacant space to download the Message Base, Usually with a File Name of "1" OR "2", as I don't like to type long filenames.

When the program boots it gives the name and credits. Next it disc'-ys <OUTPUT DEVICE?> "PIO"-Pressing ENT'.: sets this Parameter. Next is the MAIN MENU

"READFILE"
"CATALOG"
"XCHANGE"
"WRITE"
"READ INSTRUCTIONS"
"CLOSE FILE"

These are mostly self explanatory except for EXCHANGE and CLOSE FILE.

EXCHANGE means just that; if you want to change disks place a different disk in Drive "1" and press "X"

CLOSE FILE: If you try to read a file that is open the computer will give you an error message. Pressing "4" closes the file so you may read another.

WRITE:

Most of this I believe, is self explanatory also, except for the ! mark above the line. This is a guide line marking the extent of the line. If it is exceeded by more than one character it will give you a message saying the 'LINE IS TO LONG'. ***This is from the Typewriter Program that appeared in WORDPLAY***. The line that was written will be erased and will have to be rewritten. You may edit the line or even start over if you like. You may change as much as you wish until you press number "3" PRINT, and at that time the message is sent to the printer and also to the disk. Most of the error routines return you to the menu. ***I got tired of rebooting the program***.

The month and year on the date routine will have to be changed to the first of the Month and Year (or deleted). This only dates the hard copy as the messages from the BBS are dated. I tried to make the Program as easy to use as possible so I will just say, "Use and Enjoy!"

One more comment, when you upload a message to the BBS send it line by line with a carriage return at the end of each line.
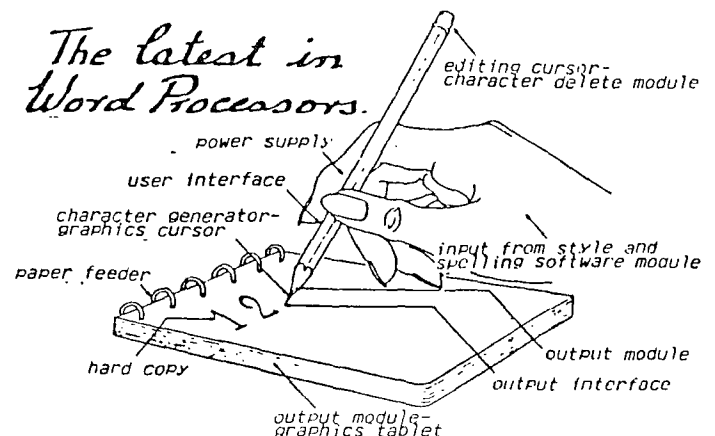
Ashley Read, PUNN

A Deadly Weapon

(This month we will discuss that device that could make or break your career.)

When you write an inter-office-memo (which we will hereafter call an IOM) your entire future could be at stake. Most people will agree that the IOM can lead to success, but the complexities are difficult to master. But you have only to look around your own office and identify those poor souls who have been found wanting because they took the IOM far too lightly.

We want to briefly emphasize what an IOM should contain. It requires an approach that is humble yet proud, personal yet aloof, flexible yet staunch, forthright yet unobtrusive, and eager yet restrained. Above all a good IOM should project a respectful but not a fawning image.

One thing to remember is that however tight the security, your IOM will not be safe from unfriendly eyes. If not properly written it could forever haunt you.

An expert can use the IOM as a Chinese torture by omitting the name of an enemy on the routing slip or placing his name lower than his rank. To deliver a blow in this manner is no feat for an amateur to attempt.

Service veterans wil recall good usage for an IOM. The attention of a superior is invited and that of a inferior is directed. Business correspondence is much less rigid so in applying these principles use a little caution. A lower rank today could be a much higher rank tomorrow.

(Charles Ball, Editor)

Product Review

In our role as watchdog for new inovations we are always on the lookout for new solutions to old problems. One intriguing example that was recently brought to our attention is illustrated below. It's the latest in word processors and does away with old fashioned terminals and and keyboards. The makers claim it is totally portable, solar powered, bio-degradable, pocket-sized and completely safe.

It is permitted on aircraft and in explosive environments. It is allowed in most security areas. No harmful radiation is known to emulate from it and it does not interfere with TV's or radios or indeed with any other form of electronic or magnetic devices.

However, it does require a bit of skill to use, although we are assured that anyone can master the operating principles.

The latest in Word Processors.

editing cursor-
character delete module

power supply

user interface

character generator-
graphics cursor

input from style and
spelling software module

paper feeder

output module

hard copy

output interface

output module-
graphics tablet

Listing for Read & Write

```
100 PRINT "          READ PRIN
T"
110 PRINT "     BY JOHN MAT
IN"
120 PRINT "SOUTHERN NEVADA U
:: S   P"
130 :: ::  MODIFIED BY ASHL
EY P..."
140 PRINT " PORTLAND USERS
OF 99"
150 PRINT "     USERS GROUP
"
160 PRINT "     WITH EXCERTS
FROM"
170 PRINT " UNIVERSAL FILE
P..DER"
.. PRINT "        BY GREG KUL
AS"
190 :: ::
200 :...:. .... AYS  DY  80
FILES TO :..:N AND CAN PR
INT ALL OR ANY PART TO P..YT
ER MESSAGE WRITER WILL .:..:
DV 80 FILE   FOR THE BOS"
210 ...:. "WILL ALSO PRINT A
COPY ..:ED WITH PRINTER TU
:.:. OH."
.... PRINT ::
230 INPUT "PRESS ENTER TO CO
NTINUE":KY$
.:. CALL C..."
250 A=1 :: ... A$(5):: FOR B
=A TO 5 :: ..:: A$(B):: NEXT
B
2.. DATA 819/FIX,DIS/VAR,INT
/FIL ...."..." PROGRAM
270 ON E .. :.
280 ON WARNING NEXT
290 ... ORE 260
300 :   K=1 TO 10 :: PRINT :
: NEXT K
310 C... CL... :: DISPLAY AT
(4.A.:.:.:   :T DEVICE?":
:"PIO" :: ACCEPT AT(6,1)SIZE
(-20):PRTR$
320 DISPLAY AT(6,1):"R)EADFI
LE":"C)AT.. ..:"I)XCHANGE":"W
)RITE":.:  INSTRUCTIONS"
:"4)CLOSE FILE" :: CALL KEY(
1,K,S):: IF S=0 THEN 320
330 IF K=6 :  360 ELSE IF
K=0 THEN 350 ELSE IF K=4
N 1090 ELSE IF K=14 THEN
ELSE IF K=8 THEN 840 ELSE I
F K=9 THEN 1040
350 :  "DSK1.LOAD"
360 :.. ..IY AT(8,1)BEEP:"INP
UT FII...::.:". :"DSK1." :: A
CCEPT ..:.,6)SIZE(-14):FILE
$
370 IF LEN(FILE$)=0 THEN 310
ELSE FILE$="DSK1."&F..."$ ::
IF POS(FILE$," ",1):..:. 31
0
... ON :   1050
... ON ....:.. NEXT
... OPEN #1:FILE$,INPUT :: 0
::. #2:PRTR$ :: DIM BUFFER$(
25)
410 FOR I=A TO 24 :: IF EOF(
1"..."Y 530 F..E ..INPUT #1:BU
F.. : X):: .:... BUFF... $(X):
: ...:ER$(I+1)=RPT$("..",20)
420 CALL KEY(3,K,S):: IF K=1
3 THEN 440
430 NEXT I :: GOTO 410
440 C..LL KEY(0,K,S):: IF S=-
1 .. 440 ELSE IF K=13 THEN
410 ELSE IF K=69 THEN 460 E
LSE IF K=81 THEN RUN "DSK1.L
DAO"
450 IF 1+((K=69)+(K=08)+(K=8
0))THEN 440 F..." ON POS("EXP
".CHR$(K),I"..." 460,480,500
460 X=X-1 :: IF I=0 THEN X=2
4
470 PRINT BUFFER$(X):: CALL
KEY(0,K,S):: IF S)I THEN 470
ELSE IF K=69 THEN 460 ELSE
IF K=80 THEN 500 ELSE 440
480 X=X+1 :: IF X)24 THEN X=
I
490 PRINT BUFFER$(X):: CALL
KEY(0,K,S):: IF S)I THEN 490
ELSE IF K=88 OR K=120 THEN
480 ELSE 440
500 CALL CLEAR :: FOR N=I TO
24 :: PRINT BUFFER$(N):: IF
BUFFER$(N)=RPT$("..",28)THEN
520 ELSE PRINT #2:BUFFER$(N
)
510 NEXT N
... IF EOF(1)THEN 240 ELSE L
.. #A:I$ :: PRINT X$ :: P
RINT #2:X$ :: CALL KEY(0,K,S
):: IF S THEN 410 ELSE 520
530 PRINT : : "END OF FILE.
":":  :"(R)VIEW":"(D)ELETE F
ILE":"(5)TO RETURN"
540 CALL KEY(1,K,S):: IF S=0
THEN 540 :: CLOSE #1 :: CLO
SE #2 :: IF K=6 THEN 400 ELS
E IF K=3 THEN 560 ELSE IF K=
10 THEN 310
550 IF K=16 THEN 320
560 DELETE FILES
... ON ERROR 1050 :: ON WARN
ING NEXT
580 GOTO 240
590 CALL CLEAR :: DISPLAY "M
ASTER DISK (1-3)? ";
600 CALL KEY(0,8,1):: IF I=0
THEN 600 ELSE B=B-48 :: IF
B(A OR P)2 THEN 600 ELSE G=B
..." :AY G
610 ...:. "PRINT C..:." Y/N
.":I$ :: IF I$="Y" :.:. OPEN
#3:"PIO" ELSE IF I$="n" THE
N 620
620 OPEN #A:"..."&STR$(G)&"
..." .. ..:.. .. ..INTER":"I" ..
: INPUT #A:E$,E,E,B ...
AY "..:STR$(G),"-DISKNAME
";E$:"AVAILABLE":B;
630 IF I$="Y" .. PRINT #3:
E$ ... IF I$="."" THEN 640
640 ...:.LAY " .. ":E-B :: D
ISPLAY :"FIL::..:   SIZE  T
YPE  P":"
650 FOR I=A TO 127 :: INPUT
#1:F$,G,E,B :: IF LEN(E$)=0
.:. 790
... IF I$="Y" THEN ...."..YT #3:
E$;B ELSE IF I$="N" ..:. 670
670 DISPLAY :E$;TAB(12):E:TA
B(17):A$(ABS(G)):;:: IF ADS(G
)=5 THEN 710
680 K$=" "&STR$(B):: IF STR$
(B)="0" THEN K$=" "&" 0 "
690 IF "..."K$)(3 THEN PRINT
K$;:: .... 710
700 PRINT SEG$(K$,LEN(K$)-2,
3):
710 IF G)0 THEN 730
720 DISPLAY TAB(2B):"Y";
730 CALL KEY(0,K,S):: IF S=0
0 THEN 770
740 PRINT : :"A)BORT C)ONTIN
.:. ..
.. CALL KEY(0,K,S):: IF S=0
THEN 750 .... K=K-64
760 IF K=1 :   800 ELSE IF
K=3 .. 790 ELSE 750
770 ..   .F
780 IF I$="Y/N" THEN CLOSE #
3 GOTO 790
790 CLOSE #A :: INPUT "PRESS
ENTER TO CONTINUE":KY$ :: G
OTO 250
800 PRINT "ARE YOU SURE Y/N"
810 CALL KEY(2,K,S):: IF S=0
THEN 810 ELSE IF K=18 THEN
820 .... IF K=15 THEN 31D
... .... "DSK1.LOAD"
... CALL CLEAR
840 PRINT "ENTER  STOPS AND
STARTS TEXT  SCREEN"
... PRINT "X OR Y POSITIONS
..XT IN    BL:::  OH SC...."
860 PRINT "P  PRINTS FILE IN
OM LAST   LINE ON SCREEN TO
END OF   FILE OR "..YL ENT
ER IS    PF...:. .:..."
870 PRINT "O .. .. ..GRAM RE
TURNS TO  :. .."..""
880 PRINT "..  .. GE WRITE
R IF YOU  ..IY 40 OR 80 COL
UMN MONI-  ..  CL:. .:. V
ALUES IN  LINES 1370,1.  :1
450"
... PRINT "TO :  MESSAGE T
..DDS    IT .. BY LINE.
ALSO ..  A LINE FEED FCTN-
J."
900 PRINT "IF YOU ARE USING
TI.EX8    P...I : WORDS DE
GIN AND  .. L.: WITH QUO
TES"
910 PRINT
920 ...: "PRESS ENTER TO CO
NTINUE":KY$
930 CALL CLEAR
940 PRINT "IF YOU ..:.F THIS
PROGRAM ANDWOULD LIKE TO MAK
E A       DONATION PLEASE S
END IT TO "
950 PRINT : :
:  PRINT : :          PUNN"
:  PRINT "       P.O.BOX 150
37"

980 PRINT "     PORTLAND OR 9
7215"
990 PRINT : : :
1000 PRINT "  THANK YOU AND
ENJOY"
1010 ...".: : :
1020 ":  :  "PRESS ENTER TO C
ONTINUE":KY$
1030 GOTO 250
1040 CLOSE #1 :: CLOSE #2 ::
GOTO 240
1050 CALL ERR(CODE,TYPE,SEVE
R,LINE)
1060 PRINT "ERROR.";CODE;"IN
LINE.":.:.:
1070 ON W..ING NEXT
1080 GOTO 240
1090 PRINT "     MESSAGE WR
ITER"
1100 PRINT "     VERSION 1
.5"
1110 PRINT "     WRITTEN
BY "
1120 PRINT "     ASHLEY RE
AD"
1130 PRINT "     MARCH 198
7"
1140 PRINT "     PORTLAND OR
I .."
1150 PRINT "     USERS OF
1160 PRINT "     NINETY NI
NE"
1170 PRINT "        :  'A'
1180 P..:.:
1..:
:  :...:.          TO SET CALE
.."T"
1210 PRINT
1220 PRINT "     YEAR IN LI
1230 PRINT "     13106175
0"
1240 PRINT : :
1250 INPUT "PRESS ENTER TO C
ONTINUE":KY$
1260 CALL CLEAR :: INPUT "TO
.":R$
1270 INPUT "SUBJECT,":S$
1280 INPUT "FILENAME,":F$
1290 FII"..."&=LEN(F$)
1300 F$:".. $ F$,1,10)
1310 DISPLAY AT(24,1)SIZE(-8
):"06/ /00"
1320 ACCEPT AT(24,4)SIZE(-2)
VALIDATE(NUMERIC):D$
1330 OPEN #1:"DSK1."&F$,DISP
LAY .."..BLE 80
1340 I .. #1:R$
1350 L..AY AT(24,1):" A P
RIVATE M..AGE(YN)"
1360 A .. AT(24,22)SIZE(-1
)VALIDATE("YN"):T$
1370 IF T$="Y" THEN PRINT #1
:"Y" ELSE IF T$="N" THEN 138
0
1380 PRINT #1:S$
1390 PRINT #1:"Y"
1400 CALL CLEAR
1410 DIM TEXT$(20)
1420 PRINT "TO INDENT TEXT O
R TO  .. A .. BEGIN AND
END THAT LINE WITH A QUOTATI
ON MARK ::
1430 PRINT :"PRESS ENTER TO
SKIP A :.:."
1440 ::
1450 .. ."PRESS ENTER TO C
ONTINUE":KY$
1460 WIDTH=37
1470 .. :N=INT(37-WIDTH)
1480 :.LAY AT(8,3)ERASE AL
L:"INPUT LINE OF TEXT"
1490 OPEN #2:"PIO"
1500 X=0
1510 X=X+1
1520 PRINT "
1530 PRINT X;:: INPUT "":TEX
T$(X)
1535 ON ERROR 1050
1540 IF LEN(TEXT$(X))37 THE
N 1550 ELSE 1560
1550 TEXT$(X)="" :: PRINT "L
INE TO .. SHORTEN TO" .:..:
N:"CHARA.: MAX,":SEG$(TEX
T$(X),37 .. ..)
1560 DISPLAY AT(2,2):"TYPE A
? TO END ENTRY."
1570 IF TEXT$(X)="?" THEN 16
10
.. IF X=17 THEN PRINT :"TH
.:. LINES LEFT," ELSE IF X=2
0 THEN 1610
1590 :    15.0
1600 :. ."..". LINE NUMBER
":X :: GOTO
1610 DISPLAY AT(1,2):"1)EDIT
":"2)LIST,":"3)PRINT":"4)CO
NTINUE":"5)"..." & WRITE"
1620 ACCEPT VALIDATE("12345"
):CHOICE
1630 IF CHOICE(1 OR CHOICE)5
THEN 1610
1640 ON ..CE GOTO 1700,165
0,1750 :. 240
1650 :.. .. AT(4,2):"USE SP
.. DAR TO SCROLL THROUGH ME
..E"
1660 FOR X=1 TO 20 :: IF TEX
T$(X)="?" :. 1610
1670 CALL :...,K,S):: IF S=
0 THEN 1670 ELSE IF K=32 THE
N I
1680 PRINT X;TEXT$(X):: NEXT
X
1690 GOTO 1610
1700 INPUT "EDIT WHAT LINE?"
:I
1710 P..."Y X;TEXT$(I)
1720 I ..
1730 INPUT "":TEXT$(I):: GOT
0 1610
1740 IF TEXT$(X)="?" THEN 16
10
1750 M$="06/"
1760 Y$="/00"
1770 D$=.:.&Y$
1780 PRINT #2:TAB(4):R$:TAB(
4):S$:TAB(4):D$ :: FOR X=1 T
0 20
1790 PRINT #2:TAB(4):TEXT$(X
):: IF TEXT$(X)="?" THEN 181
0
1800 NEXT X
1810 :. X=1 TO 20 :: IF TEX
T$(X)="?" T.." CLOSE #1 :: C
.." #2 .. .. 1610
...:. ...:. #1:TEXT$(X):: NEX
T X :: CLOSE #1 :: CLOSE #2
:: GOTO
1830 ON WARNING NEXT
1840 GOTO 1610
1850 CALL ERR(CODE,TYPE,SEVE
R,LINE)
1860 PRINT "ERROR.";CODE;"IN
LINE,":LINE
1870 ON WARNING NEXT
1800 GOTO 1510
```

Merge DIS/VAR 80 Files

This Extended BASIC program can be used to merge two alphabetized DIS/VAR 80 files to form a new alphabetized file. It works fast and accurately.

DV80MERGE will work with any size files, as long as there is room on the output disk for the combined files. Blank lines and lines with leading characters less than ASCII 32 or greater than 127, will not be printed to the output file. You should therefore give consideration to this requirement and prepare your files accordingly.

Each individual file should be alphabetized first. There are a number of sort programs available. One recent program by J. Peter Hodie will sort your files quickly. It is called Sort Experiment and was recently available on the PUNN BBS. It is fairware.

(The Merge program comes to us from the "Bytemonger", Lexington, KY. It was written by Wesley Richardson.)

```
100 REM DV80MERGE
110 REM TI-994A EXTENDED BAS
IC
120 REM WESLEY R RICHARDSON
JULY 1987
130 REM BLUEGRASS COMPUTER S
OCIETY
140 REM VARIABLES C$(128),D,
D$,E$,F$,H,I,J,K,L,S,T$(5),W
(),Y$,Z$
150 DIM C$(128),T$(5)
160 D=1 :: D$="DSK1.IN1" ::
E$="DSK1.IN2" :: F$="DSK2.OU
T"
170 T$(1)="D/F " :: T$(2)="D
/V " :: T$(3)="I/F " :: T$(4
)="I/V " :: T$(5)="P     "
180 Y$=RPT$(" ",79)&"!" :: Z
$=RPT$("~",81)
190 CALL CLEAR ! MAIN MENU S
TART
200 DISPLAY AT(5,10):"DV80ME
RGE" :: DISPLAY AT(8,4):"1=M
ERGE D/V 80 FILES" :: DISPLA
Y AT(10,4):"2=CATALOG DISK"
:: DISPLAY AT(12,4):"3=END"
210    IB 1030 :: IF (K<1)+(
K)3!....N 210
220 ON K GOTO 230,790,1010
230 REM MERGE D/V 80
240 CALL CLEAR :: PRINT "
     D/V 80 FILES": :"BOTH
:.    DIS,.   80 F"'FC":"US
ED BY  -.:   INE -. "
250 PR:.:. ". ....T BE ALPHABAT
IZED.  A":"PROGRAM SUCH AS T
I-SORT CAN":"BE USED FOR THI
S PURPOSE.": :
260 PRINT "CAUTION: BLANK LI
NES WILL":"NOT BE WRITTEN TO
  THE OUTPUT":"FILE.": :"PLEA
SE MAKE SURE THE OUTPUT"
270 PRINT "DISK HAS ENOUGH S
PACE TO":"HOLD BOTH INPUT FI
LES. YOU":"MUST ALSO GIVE TH
E OUTPUT":"FILE A DIFFERENT
NAME THAN"
280 PRINT "THE INPUT FILENAM
ES, IF THE":"DL:- " FILE IS
ON THE SAME":"DISK.": : : :
290 GOSUB 1030 ! WAIT FOR KE
Y
300 GOSUB 710 ! GET FILE NAM
ES
310 :'::TE F$ :: N=0
320 :. L=0 TO 128 :: C$(L)=
"" :: NEXT L
330 OPEN #1:D$,INPUT :: GOSU
B 640
340 OPEN #2:E$,INPUT
350 C$(1)=C$(53):: LINPUT #2
:C$(2)
360 FOR L=3 TO 52 ! MAIN LOO
P
370 IF C$(1)(C$(2)THEN 450
380 C$(L)=C$(2)! USE INPUT 2
390 IF C$(2)()Z$ THEN 410
400 CLOSE #2 :: GOTO 540
410 IF EOF(2)=1 THEN 440
420 LINPUT #2:C$(2):: IF C$(
2)(Y$ THEN 410
430 GOTO 530
440 C$(2)=Z$ :: GOTO 530
450 C$(L)=C$(1)! USE INPUT1
460 H=H+1
470 IF H)100 THEN GOSUB 650
480 IF C$(H)=Z$ THEN 520
490 C$(1)=C$(H)
500 IF C$(1)(Y$ THEN 460
510 GOTO 530
520 C$(1)=Z$ :: CLOSE #1
530 NEXT L
540 REM OUTPUT 50 LINES
550 PRINT "WRITING LINES";N+
1;"TO";N+50
560 OPEN #3:F$,APPEND
570 FOR L=3 TO 52
580 IF C$(L)=Z$ THEN 620
590 PRINT #3:C$(L):: N=N+1
600 NEXT L
610 CLOSE #3 :: GOTO 360 ! M
AIN LOOP
620 CLOSE #3 :: PRINT :" TO
TAL LINES";N: : :: GOSUB 103
0 :: GOTO 190 ! MAIN MENU
630 GOTO 190
640 REM INPUT FILE1 INPUT
650 FOR H=53 TO 100
660 IF EOF(1)=1 THEN 700
670 LINPUT #1:C$(H):: IF C$(
H)(Y$ THEN 660
680 NEXT H
690 H=53 :: RETURN
700 C$(H)=Z$ :: GOTO 690
710 REM GET FILE NAMES
720 CALL CLEAR :: DISPLAY AT
(22,4):"ENTER DSK0 TO EXIT"
730 DISPLAY AT(5,4):"INPUT F
ILE 1?" :: DISPLAY AT(7,4):D
$ :: ACCEPT AT(7,7)SIZE(-1?"
:D$ :: D$="DSK"&D$ :: IF .-:.
$(D$,4,1)="0" THEN 190
740 DISPLAY AT(10,4):"INPUT
FILE 2?" :: DISPLAY AT(12,4)
:E$ :: ACCEPT AT(12,7)SIZE(-
12):E$ :: E$="DSK"&E$ :: IF
   S(E$,4,1)="0" THEN 190
:   IF D$=E$ THEN 730
760 DISPLAY AT(15,4):"OUTPUT
  FILE?" :: DISPLAY AT(17,4):
F$ :: ACCEPT AT(17,7)SIZE(-1
2):F$ :: F$="DSK"&F$ :: IF S
EG$(F$,4,1)="0" THEN 190
770 IF (D$=F$)+(E$=F$)THEN 7
30
780 RETURN
790 REM CATALOG DISK
800 CALL CLEAR :: DISPLAY AT
(5,1):"DISK TO CATALOG 1-3 ?
"&STR$(D)
810 CALL KEY(0,K,S):: IF S=0
 THEN 810 :: IF K=13 THEN 83
0
".  K=K-48 :: IF (K<1)+(K)3)
:...N 810 :: D=K :: DISPLAY A
T(5,23):STR$(D)
830 OPEN #1:"DSK"&STR$(D)&".
.",INPUT ,RELATIVE,INTERNAL
840 INPUT #1:C$(0),H,I,J
850 PRINT "DSK"&STR$(D)&" -
DISKNAME=";C$(0):"AVAILABLE=
";J;"USED=";I-J
860 PRINT " FILENAME  SIZE T
YPE    P";"---------- ---- -
------ -";
870 FOR L=1 TO 8 :: FOR K=1
TO 16
880 IF K#L=128 THEN 980
890 INPUT #1:C$(1),H,I,J ::
IF LEN(C$(1))=0 THEN 980
900 C$(2)=SEG$(C$(1)&"
",1,10):: C$(2)=C$(2)&"
"&SEG$("      ",1,(4-LEN(STR$(
I))))&STR$(I)&" "
910 C$(2)=C$(2)&T$(ABS(H))::
 IF ABS(H)=5 THEN 930
920 C$(3)=" "&STR$(J):: C$(2
)=C$(2)&SEG$(C$(3),LEN(C$(3)
)-2,3)
930 IF H)0 THEN 950
940 C$(2)=C$(2)&" Y " :: GOT
O 960
950 C$(2)=C$(2)&"   "
960 PRINT C$(2):: NEXT K ::
GOSUB 990
970 NEXT L
980 GOSUB 990 :: CLOSE #1 ::
 GOTO 190
990 REM LIST END - END
1000 PRINT : : : :: GOSUB 10
30 :: RETURN
1010 REM FINISH PROGRAM
1020 STOP
1030 REM WAIT FOR ANY KEY
1040 DISPLAY AT(22,1):"
  PRESS ANY KEY"
1050 CALL KEY(0,K,S):: IF S=
0 THEN 1050
1060 K=K-48 :: RETURN
1070 END
```

```
*************************************
*                                   *
*   Murphy's Rule:                  *
*                                   *
*        Everything east of the San *
*   Andreas fault will eventually,  *
*        plunge into the Atlantic   *
*                Ocean.             *
*                                   *
*************************************
```

July Program

Featured program and demonstration for the July meeting will be on "Telco". This interesting program is used in addressing the BBS, with some interesting variations from "Fast-Term".

Al Kinney has acquired a good working knowledge of this program and will discuss it and give a working demonstration on how to use it. "Telco" has recently added some new features from the original version. It is available currently on our BBS or you can get a copy from our librarians.

Concept of Arrays

Jim Peterson

The concept of arrays, and especially of multi-dimensional arrays, is very difficult for many people to grasp. The following is the best explanation that I know of.

A variable name is a box in which you store something. When you write A$="X" you are telling the computer to "go to the box labeled A$ and put the character 'X' in it." Or, more accurately, "go to the box labeled A$, throw away anything you find in it, and put 'X' in it."

A simple array such as A$(3) is a row, labeled A$, of at least 3 boxes, labeled (1), (2), and (3). When you tell the computer that A$(3)="X" you are again telling it to go to the row of boxes labeled A$, find the box labeled 3, and put "X" in it.

A 2-dimensional array such as A$(3,3) is a row, labeled A$, of at least 3 filing cabinets, labeled (1), (2), and (3) and each having three drawers. So you can use A$(3,-3)="X" to tell the computer to find the row of filing cabinets labeled A$, go to the one labeled (3) and open the drawer labeled (3) and put "X" in it.

In a three dimensional array, A$(3,3,3)-="X" tells the computer to find the A$ row of cabinets, find the one labeled (3) and the drawer labeled (3) and find the folder in that drawer labeled (3) and put. . . . .

Finally you can write A$(2,2,2,2,2,2,2)-="X" to tell the computer to find row A$; Cabinet (2); drawer (2); folder (2); paper (2); word (2); line (2); and letter (2) of the word!

Yes TI Extended Basic can handle 7-dimensional arrays, but it is not very practical. Try running this 100 DIM A(3,3,3,3,3,-3,3) and you will get MEMORY FULL IN LINE 100. Arrays with several dimensions are very wasteful of memory. I don't think I have ever seen a program that used more than a 4 dimensional array and very rarely more than three dimensions.

Now then, A$(J)="X" means go to the box labeled "J" find the number in it, then go to the row of boxes labeled A$ and find the box in that row which is labeled with that number.

Even something as horrible looking as A$(Y(J),Z(A,B))="X" just tells the computer to:

1. go to box J and find the number in it.
2. go to row of boxes Y and find the number in box J.
3. go to box A and find the number in it.
4. go to box B and find the number in it.
5. go to the row of filing cabinets labeled Z, find the one labeled A, open the drawer labeled B and find the number in it.
6. go to the row of filing cabinets labeled A$, find the one labeled with the number you found Y(J), open the drawer labled with the number you found in Z(A,B) and;
7. put the "X" in it!

Simple isn't it? Remember that in a multi-dimensional array, only the last dimension holds the value; the others are just pointers to its location.

A$(2,3)=A$(3,3) throws out whatever is in the 3rd drawer of the second cabinet of A$ row, and replaces it with whatever is in the 3rd drawer of the 3rd cabinet of that row, but the contents of the 3rd drawer of the 3rd cabinet are unchanged.

Also remember that box X or box X(1) or cabinet drawer X(1,1) or whatever, contain a 0 until you put something else in. Box X$ or X$(1) or drawer X$(1,1) contain nothing at all until you put a string value into them. When you put something in the box, you throw away whatever was previously in the box. To empty a box without putting anything in, you put a 0 in a numeric box or into a string box.

Enough on that subject. Now when you have all your data crammed into an array, the next thing you will probably need to do is sort it into alphabetical or numeric sequence.

Sorting is one of the hardest jobs that you can give to a computer, and one of the things that a computer is the slowest at doing. Your TI can figure your bank balance in a split second, but might take half an hour to sort your mailing list.

Here's why. You can sort a bridge hand of 13 cards into sequence in 13 moves or less, by simply pulling out each card and slipping it back into its proper place. But suspose those 13 cards were in 13 boxes and you had to sort them without removing them from the boxes, except that you could hold one card in your hand? Even if you could figure out the best way, it would take you far more than 13 moves.

That is the problem the computer has. You have just learned that the computer stores all those values in labeled boxes, or file drawers, and therefore must sort them by shuffling them from one box to another, emptying a box to shuffle into by holding one value in a temporary box while its value is compared with others to find its proper place.

Of course, you could just set up a new row of boxes, and then search through the old boxes for the lowest value and move that to the first box in your new row, etc. - but that would double the amount of memory that the job would require. This would be no problem for a small array, but the computer can sort small arrays fast enough by the one-row method - it is the largest arrays that are too slow by the one-row method and would need too much memory by the two-row method.

Many ingenious routines have been written to accomplish these one-row sorts. I have written a program called "Sort Watcher" which enables you to actually watch various sorts taking place on the screen. It will also tell you the number of swaps and comparisons that were made.

This program demonstrates that the time required for a sort increases greatly as the size of the array increases. Sorting an array of 20 does not take much twice as long as an array of 10 - it may take 4 times as long.

For this reason, some of the faster and more complex sorting routines divide an array into smaller segments to be individually sorted and merged.

After an array has been sorted, my program will also let you change any value in any part of the array, and then let you watch the array being resorted. From this, you will learn that a sorting routine which is very fast for a completely random array may be very slow for an array which is already almost in sequence!

In fact, to add just one additional value to a sorted array, the fastest method is the simple "shoehorn" - just set up an empty box at the end of the row, and move each value down by one box until you come to the proper place for the new value.

A sorting routine can be either numeric or alpabetic depending on whether the variable names are numeric or string. A numeric sort will be in strict numeric sequence and an alphabetic sort will be in ASCII selquence. That means that if all the strings are either all upper case or all lower case, you will get an alphabetic sort. However if you have mixed upper and lower case all the upper case will come before the lower case because upper case ASCII are 65-90 and lower case are 97-122. If you should have lower case words mixed with capitalized initial letters...!

For the same reason, if you perform an alphabet sort of strings containing numeric digits, you will not get a numeric sort. 10000 will come before 2 because 1 has a lower ASCII code than 2. It would be extremely difficult to devise a sorting routine which could sort numeric digits numerically within strings. However, if all the numbers are the same length, such as ZIP codes, the ASCII will be correct.

Sorting a multi-dimensional array becomes a very complex task. If you swap values around without also swapping all the related values, you will end up with complete garbage. Swapping all the related values takes time, and a dimensioned temporary variable name is also required.

Another way around this is to combine the data from an array into simple strings, or set it up originally as simple strings, and then perform a simple sort based on a specified segment of the string. For instance, you could use TI-Writer with tab settings to create a mailing list having the first name at tab 1, second name at tab 15, address at tab 25, city at tab 45, state at tab 55 and zip code at tab 65. Then you could sort into last name alphabetic sequence by sorting on SEG$(M$(J),10,255), or into zip code sequence by sorting on VAL(SEG$(M$(J)-,70,5)).

When using TI-Writer to set up such a file, be very sure to save it by PF with the C option, not by SF, and don't leave any blank lines at the end or elsewhere.

Alternatively, elements of data can be crammed into a string separated by control codes, and sorted by position of the code.

(Jim Peterson - Tigercub)

Hi-Res Graphics - Part IV

(Fourth in series by Ann Dhein)

Parts one, two and three of this series defines a drawing package as a program or group of programs what will allow the user to create graphics by turning on (or off) the smallest addressable unit of the screen-a single pixel. Drawings thus produced can be saved to disk and reloaded for editing or printing.

All of the TI-99/4A packages do this and much more. Before you purchase any program you should check to make sure it has the features you are looking for. Norton Graphics, for example, is strictly a programming utility while Paint 'N Print is pure entertainment. TI Artist is the best general purpose program by far, but nothing can beat Graphx for enhancing an artist's creativity. Joy Paint also excels but lacks color capability. Draw 'N Plot can be used as a simple drawing board, but its real merit lies in its ability to interface with your own programs.

A few programs may not work with the Myarc and/or Corcomp peripherals. Joy Paint, TI Artist and Graphx, along with most of the others work on any of the three controllers. TI Artist works beautifully with the Myarc Ram Disk, but Joy Paint does not. You must consider all this when you decide on a purchase. Printer compatibility will be covered later and should be something to be considered.

The various packages available vary in ease of use. Super Sketch is one of the easiest to use. A child that can't read could use this program. Joy Paint which does even more than Super Sketch is also easy to use. The other programs vary in the amount of time required in learning to use them. Draw a Bit and Master Painter require the memorization of a number of function keys to use them properly. Bitmac requires some key memorization combined with the use of icons.

Draw 'N Plot uses a simple menu and a few function keys. Paint 'N Print is easy to use on a regular basis but there are a number of keys that need to be memorized which makes it harder to get started. TI Artist and Graphx are not perfect, but both are comfortable to use and very easy to begin using. TI Artist makes extensive use of icons for users who prefer them but also allows the faster method of pressing function keys for the various commands. TI Artist also requires switching between two main programs and several auxiliary ones. Graphx uses some function keys and provides an identifying strip for the top of the keyboard which makes them easy to follow. Graphx also uses menu selection for the lesser used commands. Of all the programs Graphx has the best manual. Now let's talk about drawing tools. In these packages the cursor is your "pencil" as well as your "eraser". The pencil can be moved around either by using the keyboard's arrow keys or by using a remote controlled "joystick". Some software requires joystick control. The fire button is usually used to turn the drawing tool off and on. To make curved lines with the keyboard is difficult-you need the control that a joystick has. On the other hand straight lines are difficult with a joystick and the keyboard does a better job in this regard. However, drawing programs can usually creat lines, boxes and circles automatically.

Anywhere a joystick is required, a trackball can be used instead. The ball offers 360 degree movement for such fine control of the pencil that you can easily write your name in script. It is though, almost impossible to draw a straight line with a trackball

In many of the programs the speed of the cursor can be controlled. This is handy because if you are drawing large areas freehand you can go much faster. When you want to work on painstaking detail then use a slower cursor for more accuracy.

Instead of leaving a fine line like the single-pixel pencil, a brush applies wider and fancier lines. Draw A Bit lets you paint in wide or narrow swatches of color. TI Artist includes angle brushes and brushes that make parallel lines such as you would get from painting with a fork. Paint 'N Print has 32 brush styles including circles, squares and triangles in a number of sizes.

As mentioned earlier all paint programs listed here will draw lines for you automatically. Select the beginning and end of your line, press a button and you have a perfectly straight line. Some programs will also draw circles, ovals, rectangles and rays. A ray is like a line except that you can keep moving the cursor (pencil) around the drawing board and wherever you choose to press the fire button you can have a perfect line between your cursor position and your starting point.

Some programs will even draw ellipses and rectangles. Draw A Bit and The Graphics Package draw 90 degree arcs (4 arcs make a circle). The various programs handle this function in different manners, but the principal is the same; select the center position and the size and the figure is drawn automatically.

Filling, Shading, and Adding Depth can be accomplished in most of the programs. The Paint 'N Print package limits filling to a rectangle only, but a companion disk is available which allows filling any shape.

A manual fill requires the cursor to be moved around the shape as it is being filled. A semi-automatic fill does most of the shape in one pass while the balance is done with the cursor. A full automatic fill checks to see that every little corner has been filled. Sometimes this is called a "smart" fill.

Some programs provide patterns for shading and depth. Super Sketch has one texture pattern. TI Artist has 10 and Joy Paint has 24 to choose from. Joy Paint also has an airbrush which works like a can of spray paint. It gives a misty sprayed effect in whatever pattern you are using. Because you can control the amount of "paint" that goes on the drawing, it makes an excellent tool for adding shadows and depth. Almost the same effect can be achieved with Paint 'N Print by using one of the larger brush sizes and switching to the texture mode. Bitmac has a feature called "Life" which can be used for getting a shaded effect.

Joy Paint and Paint 'N Print both have routines on their companion disks for creating new texture patterns. Once you have saved these patterns on disk, they can be used over and over.

Reflections is an application where symetrical figures can be drawn easily. The screen is divided into sections and whatever is drawn in one section will be reflected in the other sections. In TI Artist this is called the MIRROR function. Paint 'N Print calls it KALEIDESCOPE.

You can manipulate your picture. That is, you can Move, Flip, Rotate, Invert, Magnify and Reduce what you have drawn. Some programs let you copy one part of a picture to another part and move sections of a picture around the screen. Inverting means to turn all the "on" pixels off and all the "off" pixels on, thus swapping black for white and white for black. Flipping a picture gives you a mirror image.

The only programs that have functions for enlarging or reducing are Bitmac and Joy Paint. TI Artist has a function where part of a picture when in the zoom mode can be saved to disk. This will give a new picture four times size. For both enlarging and reducing, Joy Paint does the smoothest job.

The more recent programs have provisions for text to be used right along with the graphics. The nicest of these are Joy Paint and Bitmac, each of what amounts to a mini word processor built right into the drawing board. With TI Artist, variable sized letters can be easily typed on the screen from the keyboard in 81 different heights and widths. Paint 'N Print contains a font editor which makes it easy to change the resident lettering. TI Artist provides an alpha numeric load function in the enhancement section of the program. Pre-designed fonts that are stored on the disk may be loaded into the program for an endless variety of lettering. Graphx stores fonts on the clipboard and there is an endless variety to choose from. The letters to be used are laid out in the clipboard and then transported to the picture where you want them. Joy Paint 99 works much the same way. The alphabets are stored in a regular picture file and the Cut and Paste option is used to add them to your drawing.

(It now appears we will need Parts V & VI to complete this series. We encourage you to save each part for future use A reprint of the entire series is possible if there is enough interest-ed)

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PUNN

ALL GENERAL MEETINGS ARE HELD
ON THE FIRST TUESDAY OF EACH
MONTH, AT THE PGE BUILDING
3700 SE 17TH AVENUE
PORTLAND, OREGON

!! NEXT MEETING DATE !!
JULY 5TH. 1988

The PUNN Newsletter

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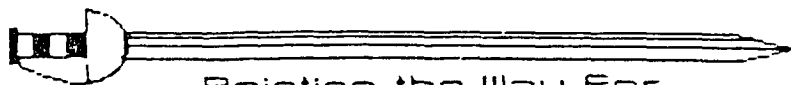
Pointing the Way For
Users of TI's 994/A Computer

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