

TANDY

Paying Bills The EZ Way

by William McMullan

Paying bills is always a chore for me. I usually don't have enough money to go around, and half the time I forget to pay one of the bills. Now when the water is out off or the TV cable is cut off things get unbearable around my house.

The way I had been paying bills is to get the stack of bills out along with my check book, and try to sort the bills and write checks for those that need paying first, and still have grocery money left over. It is enough to make a person pull his hair out. I would, but I don't have much hair left. If this doesn't sound like you, then you probably won't need this program, or if you have money left after all the bills are paid then you won't need this program. Goodbye to those, the rest of you hang in here, we have help, now this program won't provide the money, but will help you distribute it easier.

Using this program is simple, when a bill comes in the mail, take it to the computer, and enter it into the file, you can enter one at a time or a whole stack, you will probably do better by entering them as they come in, that way you won't have a tendency to forget one or more, as I do.

When payday comes around, which never seems often enough, decide how much you want to pay bills with. At the menu select number 3, and enter that amount, next select number 4, which is the sort. Now all your bills are sorted according to date, if two bills are due on the same day then they are sorted further by priority, which you elected earlier. If two or more of these have the same priority, then they are sorted further by amount, with the larger amount first.

Now assuming that you have typed in the program and if you are a model 4 user, and have made the necessary modifications explained later in this article, let's get started.

First lets make a trial run, the first prompt asks you for a file name, since we haven't created a file yet, then just press enter. If you should press anything else or enter an invalid file name then you will receive a file not found statement and get a directory. Next select menu option 1, enter the sample data at the end of this article.

If you were doing this for real, you would probably enter one or two records at a time on several occasions, saving the records each time. Now lets save these entries to disk. From menu option 7 we will get the prompt for a file name, for now, enter TEST with no extension. The extension PAY will be added to the file name. We are automatically exited from the program. To get back in, type run, again we are prompted for a file name, enter TEST. Now from the menu select 3, and enter an amount, lets use \$450, now select 4, this will sort the data.

Now select number 5, look at the right hand column, the balance, if it shows a minus amount, then you are short by that amount of having enough to pay that bill. Now I would never advocate to have a computer dictate how I should pay my bills, although I would probably be better off, so I added a routine to allow us to choose a better alternative. By using the up/down arrow keys, move the arrow to one of the rows, now use the left/right arrow keys to reposition the entry, left arrow moves the entry up, right arrow moves the entry down. Model IV users will use the F1 and F2 keys.

Lets suppose that today is the 1st of the month, you will notice that we are short \$81.90 to pay the light bill, but its not due until the 17th but we do have a balance of \$73.57, move the cursor to no. 6 on the list, using the left arrow key (f1 on the mod. iv), move the entry into the no. 4 position. Now that is a little better. Let's see what else we can do. Move the cursor to no. 6 again, and use the left arrow key to move this entry into the no. 5 position. OK now that is good, \$22.62 cents left, now lets see what you have learned, we got another bill that can be paid. Go ahead and do it now, you should have \$3.67 cents left.

You will notice that each time an item is moved, the balance is recalculated, always try to find the combination that will leave the least amount of money, and still pay those bills that are due, good luck on that one. Stay away from using the (T)tag function at this time.

If you have a bill that you want to just pay a part of then select from the menu, number 2. This will put you in the edit mode, move the cursor to Amount To Pay and enter the amount, you will notice that the Amount To Pay is subtracted from the original amount of the bill, which will be written to disk when the session is finished. Lets do one, lets make a payment on credit card A, press M and we are in the menu, select 2 and we are in Edit, move the cursor to amount to pay and enter \$50, now we have a balance of \$102, press control key and hold it while pressing the letter Q (control/Q) and we are back at the menu.

From the menu select number 5 again, notice you now have a balance of \$105.67, enough to pay some more bills, get everything just like you want it, go back to the menu and select 6 this will send your list to the printer, or you could just go ahead and make out the checks while viewing the screen. Now from menu selection number 5, press the letter (T) to tag the bills paid, this is automatic and will zero out each bill on a row without a negative balance. Oh, you say you really didn't want to do that at this time, sorry about that, go to the menu and exit, select number 8, without writing to disk, and type RUN to

get back into the program and you will see that the file is like it was originally.

After you have tagged the bills that were paid, then select 7 from the menu, and enter the file name that you will use for the next pay session. Simple, right, the first time I used it to pay bills, I was amazed how many bills that were paid for the small amount of money I had, of course I had less money left over, but no bills due that were unpaid.

Let's talk about priorities, for me 1, 2, and 3 are just right; 1 being life

ceases to exist without it, 2 life is just tolerable, 3 if it ain't paid then tough. Seriously you will have to assign these values to suit your needs, but be realistic, rent is more important than electricity, because without a house you won't need electricity, etc.

Date entries, are almost fool proof, see lines 310-360. Enter the date using separators such as slant-bar, comma, period or space, whichever is convenient, if you make an invalid entry you

continued on page 460

TEXAS INSTRUMENTS

TI Forum

by Ron Albright and
Johnathan Zittrain

Of all the possible areas in which software has yet to be refined for the TI-99/4A system, perhaps the most important area is bulletin board software. After all, it is through local bulletin boards that many 99ers have been able to exchange information since Texas Instruments stopped supporting the TI-99/4A. Hence, the news of Jim Reiss' enhancements to the TECHIE bulletin board is very heartening. If you have an extra console and some time, you may want to consider taking the plunge and starting a new bulletin board.

Reiss, longtime Sysop and programmer of Monty Schmidt's TECHIE bulletin board program for the TI-99/4A, has announced a set of enhancements to the TECHIE assembly language routines. Reiss explains:

"This product is a set of two files which replace files on the BBS disk 1, one of which creates the lowercase character set and one of which contains all the assembly language utilities. I have rewritten almost all of the assembly language and added new features, with the result being a toolshed for BBS program-ming which takes up less disk space than the original, and is slightly faster (you may not be able to tell) at the functions the original was able to do. Installing this product in your BBS only requires a few minor modifications to your Board program in Extended BASIC. I am always available to answer questions should anyone have difficulty with this.

"The most asked for feature I have provided is a Word-wrap text entry routine. By replacing one Call Link statement in your program with another, and adding one string variable to hold the wrapped text, your BBS's message entry will no longer have that annoying beep at the end of a line—the portion of the word already typed will be erased from the current line and redisplayed on the next line, just like TI-Writer, and at least as fast as TI-Writer does. As a matter of fact, this routine loses characters less often than TI-Writer's does, so I believe you will find it to be exactly what you've been looking for. All the people who have seen it have

said that it is better than they expected, and as good as they have seen on BBSs run on other computers, including some released long after our beloved 99/4As ceased being in production.

"If I sound proud of my word wrap routine, I am. I received a lot of input from Sysops and users, and hope that they will not be disappointed with the result. I have added a number of other routines, as I mentioned, and will summarize in a moment, but this is without a doubt the most asked for addition, and also the one that took the longest to get working, so it will be the feature I think this product will be most known for.

"The other features allow you to shorten and speed up your BBS program. There are a number of things which the Extended BASIC program does which can be done much quicker and more efficiently in assembly. For example, I have added a Call Link which allows you to capitalize an input string's letters, the maximum number of characters being 80. This is very tedious in BASIC. I have also added a routine which checks a string to see if there are any characters besides digits. Techie has no number entry routine, so you are getting numbers from the user as a string. Instead of what is done now, you can use a simple Call Link statement and a VAL to get the number.

"Another routine I've provided does the job of checking for a Ctrl-C or Ctrl-S, pausing until a Ctrl-Q in the case of the latter, just as a lengthy BASIC routine does right now. When a text file is printing, it is much preferable to do this in assembly, as you now can, instead of in the much slower Extended BASIC. Other routines include ones that check a user's name for invalid characters, and one to check filenames for up or downloading in a similar manner. Another waits for the user to press Y or N, echoing the one pressed and returning the value, for the numerous yes/no options in any BBS program.

"I have also added a few more text display/sending options. You can now have text printed on your screen which scrolls along with the information which has been sent to the user. In this

continued on page 458

way, you can do such things as show the name of the caller on your screen, while everything looks exactly the same as it always has to your users. Needless to say, this allows for many other possibilities for the creative Sysop.

"One feature which may be of interest to those who feel that their Board program is too long is a pair of routines which send a string to your screen and the user, but executes a carriage return and linefeed if a backlash character (\) is encountered. What use is this? When you have a number of short lines of text to display, it is very wasteful to spend a separate Call Link on each. Now, for example, you can give a routine the string "\Hi there!\Welcome to Techie!\You're caller 9999!" Using just the one statement, you have sent 4 lines of text to the user, the first of which being a blank line. Again, the creative can find a number of uses for this. For printing text which contains backslashes you want to

show, the old printing routine is still supported.

"And how much am I hoping this product will be worth to you? \$10-15. It is fairware, a concept I'm sure is well understood in our community by now. If you would like a copy of these utilities, send a disk and mailer to me at Box 958CC, Mount Vernon, IA 52314. I will send it back out within a few days. You may get the code through other channels, but I suggest going through me so that you can be user of the latest version. Future enhancements are likely to include sensing of caller's connect baud rate up to 9600 bps and support for these speeds (I currently have this routine on my BBS checking for 300 or 1200), and improvements suggested by the public. I will not ask for any additional payment for these when they become available."

To see Reiss' routines in action, you can call his Techie bulletin board at 201-679-0549, a number that is accessible via PC Pursuit.

With the continuing success of PC Pursuit, a \$25/month flat rate long distance data service,

bulletin boards in major metropolitan areas are seeing a resurgence of activity. With PC Pursuit and other pay networks available, the TI community may be able to unite electronically.

This unification is important if not necessary to the welfare of the TI world. An earlier *Computer Shopper* column about the state of TI users groups across the country drew a lot of response. One letter in particular, from Ralph Glatli of the West Jax 99'ers (P.O. Box 176, Orange Park, FL 32067), underscores the need for creative approaches to inter-group communications: "I believe in the article...about the problems of the user groups. We know what you're writing about. We have dwindled from 75 to 13. Seldom do we have any new faces come to our meetings...The true blue of us hang on, but it's getting difficult. We barely make the postage on our newsletter. We all read every newsletter we get. If we don't get some new blood soon we'll have to give up some of the things we enjoy...We recently closed our

library; it had been open to all members Free."

To begin to help with this particular problem, we can ask that any users group that doesn't have to West Jax 99'ers on its mailing list should be sure to include them. But the West Jax group isn't the only one out there that is having trouble treading water. And how many users groups could afford the increase in postage costs associated with mailing to all the other users groups? It seems that the U.S. Mail is not a permanent solution to the problem of information interchange.

It is time for a widespread effort among all TI users groups to investigate linking electronically. Perhaps via PC Pursuit and strategically placed local bulletin boards news and programs can be routinely disseminated. Pay networks, such as Delphi or CompuServe, offer local access almost anywhere in the United States. Each users group could appoint or elect a telecommunications representative, who would access the services to both receive news and data from other groups and send in-

formation that would normally go no further than the group library or newsletter. Uploading is free on the major pay networks, so the only cost involved comes from downloading information that others have placed there.

Sysops have indicated a willingness to make the access of that information as straightforward and cost-effective as possible. For example, Jim Horn, sysop of CompuServe's TI Forum, has offered to set aside specific sections within the TI Forum users group designated representatives. Horn also brought up the possibility of a TI Forum-sponsored users group online conference to hash out plans for such an exchange of information.

Electronically or through the mail, communication is the key to the survival of both the TI-99/4A and Myarc 9640 computers. Users groups or individuals interested in supporting the organized exchange of information are encouraged to contact *Computer Shopper* and the pay network Sysops.

continued on page 459

Applying The Atari
continued from page 457

or otherwise functions would have to be traded off to lower the price. I would cancel the project if the cost were expected to go three times above this cost. (8) Hardware Realization: the principal chips are the 8K SRAM (150 nsec), 6264, the Slave Processor (65C02 or 65C816), the CRT controller (65B45), 256K dedicated DRAM (if Allen Macroware of Redondo Beach, California can sell a 256K memory board for \$82.95 then there is a chance that the Graphics Board can be brought

to market at \$160), the Video Palette is a TRM 34070-66 (Texas Instruments), the RGB to composite chip is a MC1377P (Motorola), the Dot Clock module is a 14.318181MHz clock module from Hughes Crystal, Huntsville, Alabama. There will also be a 5-LS157, 4-LS244, 3-LS373, 3-LS166, 4-LS153, a LS151, a LS193 and a 2764 with possibly some additional glueware chips plus 3-2N2222 as emitter followers to protect the 34070 from accidents on the video output lines. (9). Hardware Realization, Other functions: Add a floppy disk and hard disk controller port.

The floppy port is to be SASI and targeted to allow the use of the double density double sided drives used by the IBM PC and clones (twice as good, many times faster and half the price of the 1050). The object is the higher cost of the Graphics Board could be justified by allowing these SASI drives to be the second and above disk drives (keep one 1050 so new Atari software could be read into the system). If an Atari owner is going to buy a second or third drive, there would be a saving and a great boost in performance to go with the Graphics Board and a Tandon or Teac or other

DSDD SASI drive. The floppy controller chip will be a Western Digital FD1770 (or maybe a 2793). Add track and socket on the pwb for a Real Time Clock chip to be used by DOS for dating. Something like ICD uses in their R-TIME-8. Add track and socket for a Math Coprocessor chip such as the National MM57409 (40 pin, costs a tenth as much as the Intel chip). And finally, add track and socket for the Sonic chip and a MIDI interface.

Joseph Ennis
Niceville, Florida

Those ideas are interesting and exciting. We would have

quite a system if we could add one of your Graphics Boards for \$160. But you realize, of course, that there are a number of technical obstacles that would have to be overcome (with both the hardware and software interface) to make this idea a reality. And realistically, when both hardware and software development is considered, I'm afraid we may be looking at a market price much greater than the price of a 1050 drive. But it was fun to be teased with these potential features, and who knows, maybe the folks at ICD have already put one of these things together!

Next Month

Our holiday column is next month and we'll have information on some of the newest products available for the 8-bit Atari for this holiday season. We'll also have more reader mail and newsletters.

Reader's questions, comments and contributions are welcome. Please enclose a self-addressed, stamped envelope (SASE) for a personal reply. Due to volume of mail, only a selected number of personal responses can be given each month.

"Program Perfect" is a utility used to check for typing errors when entering programs from this column. Readers can send \$5 for a diskette or a SASE for a listing of this program.

Address all correspondence to: Jeff Brenner "Applying The Atari 11/87" c/o *Computer Shopper*, P.O. Box F, Titusville, FL 32781-9990. ●

THE BEST Available for:
IBM PC, XT, AT & Jr.
 (Color Graphics Card Required)
TRAIN DISPATCHER \$25.00
TRACK BUILDER \$15.00
 + postage and handling



Our customers call it addictive, rail-rodgers say it's realistic. Train Dispatcher is one of those rare software programs that takes a challenging real-life job and makes it both educational and fun.

Unless you work for a railroad you never experience the joy or frustrations of maneuvering hundreds of thousands of tons of freight over hundreds of miles of track.

You will also want the companion disk, TRACK BUILDER - a separate program that makes it easy for anyone (no programming experience required) to design their own custom layouts for the TRAIN DISPATCHER simulator.

For the price, this type of excitement is a bargain that you can't pass up.



SIGNAL Computer Consultants
P.O. Box 18222, Dept. 32
Pittsburgh, PA 15236
(412) 655-7727

U.S.A. & Canada add \$2.50 postage and handling (\$4.00 foreign) for each game ordered. All checks or money orders must be in U.S.A. funds, all foreign payments must be against U.S.A. banks. PA residents add 6% state sales tax. Visa, Mastercard also accepted, show card number expiration date and signature. We guarantee and support our products.

TI Forum continued from page 458

Together we can succeed—hopefully soon enough for the West Jax 99'ers and groups like it to be able to restore themselves to their prior positions as strong, growing users groups fully supporting the TI user base.

Ron's Part...

First of all a word of congratulations is in order. While this is the November column, it will appear in October. As no one can forget, this is the anniversary month of the "orphanning" of the TI 99/4A Home Computer. It is a tribute to all in our orphanage that this column is still as alive as the TI community as a whole. Thanks for your continued support! Keep supporting your local users groups, our mail-order dealers like Tex-Comp (P.O. Box 33034, Granada Hills, CA 91344) and Triton (P.O. box 8123, San Francisco, CA 94128), and other producers for our marketplace. Happy Anniversary!

In a departure from my usual news and views, I want to try again to convince you all of the value of users group to your continued survival in the orphanage we TI owners call home. I repeatedly hear what a large percentage of 99/4A owners are not members of local users groups and I am amazed. The groups are your key to survival. If you don't have one locally, either start one or join one that we have mentioned in the TI Forum column or that is listed in the Orphan's Survival Handbook. These groups can supply information about parts and repairs, programs and programming help, product reviews, sources of used equipment, and just plain help when you need it. The dues for joining as a long-distance member are usually nominal so consider joining more than one just for the newsletters, if nothing else. Some groups put out monthly newsletters that are simply packed with programs, tutorials, and reviews and more. More. I am not ashamed to admit, that we could ever put in this monthly column. So...if you are not a member of a users group, join one. If you need the address of one closest to you, write me (send a self-addressed, stamped envelope if you want a reply) and I will dig it out. Better still, start one locally. Put up some flyers in a local computer store that you are interested in seeking out others to start a TI 99/4A users group. You will probably be surprised at the response. Banding together has kept the 99/4A alive long past the reading of the eulogy, so become a part of it. Join!

If you are still not convinced to join a group, this month's column will be devoted to pearls, cuties, and programming jewels gleaned from the marvelous newsletters that are graciously sent to JZ and I each month. Right up front: Thank You Users Groups! For supporting this column! Please keep it up. So here we go. Several exhibits, submitted for your consideration, as proof that you need users groups. Apologies to those already part of the mainstream that have already seen these. Please bear with me as I try to convince the fringe to join in.

The first of our examples are courtesy of Charles Ball, editor of the Wordplay newsletter, produced by the P.U.N.N. group (P.O. Box 15037, Portland, Oregon 97215). Charles kindly forwarded several issues of his group's fine publication to the Forum and it was hard to pick out just what to use in the column. There were so many nuggets in each issue. But here are a few.

Listing 1 is a classic. It is a great bit of compact code from John Behnke (of the Chicago Users Group—see how the information flows in the user group net?). If you need a sheet of graph paper as a template to photocopy more or in the middle of the night, this one will print out a sheet for you.

I am not sure where Listing 2 originated, but it is a real cutie. If you have an answering machine, use this program to generate your answer message. It requires the Terminal Emulator II cartridge and the Speech Synthesizer. Replace "RON" with your name on line 130. Changing the parameters in line 105 will change the pitch and slope of the generatd voice.

If you have Extended BASIC and want to have a "Load" program on your disks that will display a menu of program selections on each disk, try program Listing 3. Type in your own program names as the DATA elements in line 280. If you want to get really fancy, find the "STOP" or "END" statements in each individual program in the menu with "RUN DSK1.MENU." Then as each program ends, it will run this program (if you save it with the program name "MENU") and redisplay the menu.

Jim Peterson of Tigercub Software (156 Collingwood Avenue, Columbus, OH 43213) is the "King" of fancy screen clearing or "screen wipes." I am not sure if he wrote this, but I am sure he probably inspired it. Listing 4 is a demo of several screen wiping techniques. Lines 100 and 110 give you different colors each time the program is run. The CALL COLOR statement

in line 130 assigns a foreground and background color to character set 2. Each time "x" is encountered, a different random color is selected. The short sub-routine in lines 300 and 310 simply fills the screen with characters so you can see how the wipe pattern unfolds. Line 170 begins a vertical wipe and line 190, a horizontal wipe. Lines 210-230 provides a horizontal wipe from right to left by clearing one row at a time in a loop. Lines 250-270 show a vertical wipe, also one column at a time. Try using these wipe techniques instead of a boring CALL CLEAR in your programs.

The final listing, number 5, is a very nice utility. It will take any size Display/Variable 80 (i.e. TI Writer-compatible) file, display it on the monitor, scroll backward and forward, and print out the file from any starting point to any finishing point. Active keys are:

- ENTER—stops and starts the text scrolling
E—scroll back one line
X—scroll forward one line
P—prints from last line on screen to end of file or until ENTER is pressed

More To Come...

I just received a remarkable software product from Richard Mitchell, editor of the superb Smart Programmer monthly. Richard has put together a software environment that promises to be one of the most valuable software development tools the 99/4A has been since the Extended BASIC cartridge. It is called "String Master" and should be available from Richard's software firm, Bytemaster (171 Mustang Street, Sulphur, LA 70663; \$19.95 + \$2 S&H) as you read this. The package will be explored more fully in a future issue (note how I have ceased making promises about exactly what will appear when), but for now let me tell you this. "String Master" is a remarkable set of assembly language routines that can be linked from XB and provides for handling macro equivalents of standard XB functions, thereby greatly reducing program development time and run time. The functions available are too numerous to describe now, but it looks super. Look for more later. It should be debuting at the 4th Annual TI Fair in Chicago next month. Highly recommended.

Winding Down...

No software winner this month. But the December giveaway promises to be a major one. Send a postcard to enter. You won't be sorry. Those already entered are eligible each month, so don't fret. One card per person please. ●

LISTING 1

GRAPH SHEET MAKER

```
100 REM +-----+
110 REM +GRAPH SHEET MAKER+
120 REM + BY JOHN BEHNKE +
130 REM +
140 REM +EPSDN OR GENINI +
150 REM +PRINTER REQUIRED+
160 REM +BASIC OR T-BASIC+
170 REM +-----+
180 CALL CLEAR
190 INPUT "NUMBER OF SHEETS?"
  :A
200 CALL SCREEN(2)
210 @=CHR$(27)
220 FOR I=1 TO 228
230 @=CHR$(128)
240 NEXT I
250 @=SEG$(@,1,7)
260 C=CHR$(255)@SEG$(@,1,6)
270 FOR I=1 TO 4
280 FOR J=1 TO 8
290 E=ERASE
300 NEXT J
310 E=ERASECHR$(255)
320 NEXT I
330 F=CHR$(484)&CHR$(10)&E
340 G=CHR$(228)&CHR$(10)&@
350 OPEN #1:"PI0.CR"
360 FOR B=1 TO A
370 FOR C=1 TO 11
380 PRINT #1:G&CHR$(64)&@&
  "3"&CHR$(16)
390 FOR B=1 TO 8
400 PRINT #1:F&F&CHR$(10)
410 NEXT D
420 PRINT #1:G&G&@&"3"&CHR$(2)
430 NEXT C
440 PRINT #1:G&"3"&CHR$(17)
450 FOR I=1 TO 9
460 PRINT #1:CHR$(131)&CHR$(10)
470 NEXT I
480 NEXT B
490 CLOSE #1
500 END
```

LISTING 2

ANSWERING MACHINE

```
100 OPEN #1:"SPEECH" OUTPUT
110 PRINT #1:"/30 96"
120 PRINT #1:"HELLO."
130 PRINT #1:"I AM A COMPUTE
R."
140 PRINT #1:"DENNIS IS NOT
AVAILABLE RIGHT NOW."
150 PRINT #1:"IF YOU WISH HI
N TO RETURN YOUR CALL"
160 PRINT #1:"PLEASE LEAVE Y
OUR NAME, PHONE NUMBER, AND
MESSAGE AFTER THE BEEP TONE."
170 PRINT #1:" _ THANK _ YOU."
180 FOR A=1 TO 1500
190 NEXT A
200 GOTO 120
```

LISTING 3

SAMPLE MENU

```
100 ! THE 'END' OR 'STOP' IN
PROGRAM ONE...ETC. SHOULD B
E REPLACED WITH ' RUN DSK1.
MENU'
110 ! SO THAT THE MENU IS RE
DISPLAYED FOR ANOTHER CHOICE
120 CALL CLEAR
130 DISPLAY AT(3,3):"SAMPLE
MENU PROGRAM"
140 RESTORE :: IF X>1 THEN D
ISPLAY AT(20X+4,1)SIZE(4):"
"
150 IF X>7 THEN X=1 :: DISPL
AY AT(20,1)SIZE(4):"
160 DISPLAY AT(20X+6,1)SIZE(
4):A$
170 IF X>1 THEN DISPLAY AT(2
0X+4,1)SIZE(4):"
180 IF X>1 THEN 240
190 FOR I=1 TO 7
200 READ B$
210 DISPLAY AT(20I+6,5):B$
220 NEXT I
230 DISPLAY AT(23,1):"PRESS
SPACE BAR TO CHANGE ; PRESS
(ENTER) TO SELECT"
240 CALL KEY(0,K,B)
250 IF B=0 THEN 240
260 IF K=32 THEN X=X+1 ELSE
IF K=13 THEN 290
270 GOTO 140
280 DATA 1 ONE,2 TWO,3 THREE
,4 FOUR,5 FIVE,6 SIX,7 SEVEN
290 CALL CLEAR :: DISPLAY AT
(0,0):"RUN PROGRAM #";X
300 INPUT "PRESS (ENTER) TO
CONTINUE & TO QUIT "P$ ::
IF P$=AA$ THEN X=1 :: CALL C
LEAR :: GOTO 130 ELSE STOP
```

LISTING 4

WIPE YOUR SCREEN

```
100 RANDOMIZE
110 DEF X=INT(RND*16)+1
120 FOR CH=40 TO 44
130 CALL COLOR(2,X,X)
140 GOSUB 300
150 CALL CLEAR
160 GOSUB 300
170 CALL HCHAR(1,1,32,768)
180 GOSUB 300
190 CALL VCHAR(1,1,32,768)
200 GOSUB 300
210 FOR N=24 TO 1 STEP -1
220 CALL HCHAR(N,1,32,32)
230 NEXT N
240 GOSUB 300
250 FOR N=32 TO 1 STEP -1
260 CALL VCHAR(1,N,32,24)
270 NEXT N
280 NEXT CH
290 STOP
300 CALL HCHAR(1,1,CH,768)
310 RETURN
```

LISTING 5

```
100 (*****)
110 READ PRINT
120 BY
130 John Martin
140 Southern Nevada
150 User's Group
160 displays W-80
170 files to screen
180 and can print
190 all or any
200 part to printer
210 or disk
220 *****
230 DISPLAY AT(1,1)LINEP ENA
SE ALL "OUTPUT DEVICE" "1"
PI0" ACCEPT AT(1,3,1)SIZE(
-28):PRINT
240 DISPLAY AT(1,1)LINEP:AC
PUT FILENAME", "M" :: IN
CPT AT(17,4)SIZE(-12):FILE$
250 IF LEN(FILE$)=0 THEN 290
ELSE FILE$=M$+FILE$ :: I
F POS(FILE$, " ", 1) THEN 280
270 OPEN #1:FILE$, INPUT :: D
EN #2:PRINT #1 50M BUFFERS(
1)
280 FOR I=1 TO 24 :: IF EDP(
I) THEN 400 ELSE INPUT #1:BU
FFERS(I) PRINT BUFFERS(I)
290 CALL KEY(0,K,B) IF K=1
3 THEN 310
300 NEXT K :: GOTO 280
310 CALL KEY(0,K,B) IF B=
1 THEN 310 ELSE IF K=13 THEN
320 ELSE IF K=8 THEN END
320 IF I=(K=9)+(K=8)+(K=6)
0:THEN 310 ELSE ON POS("EXP
",CHR$(K),1)GOTO 330,330,370
330 K=X-1 :: IF I=0 THEN X=2
4
340 PRINT BUFFERS(I) :: CALL
KEY(0,K,B) IF B=1 THEN 340
ELSE IF K=9 THEN 330 ELSE
IF K=8 THEN 370 ELSE 310
350 X=X+1 :: IF X>24 THEN X=
1
360 PRINT BUFFERS(I) :: CALL
KEY(0,K,B) IF B=1 THEN 360
23,1) " " :: GOTO 310 ELSE I
F K=5 THEN ELISE #1 :: XLB
E #2 :: GOTO 240
430 GOTO 410
```