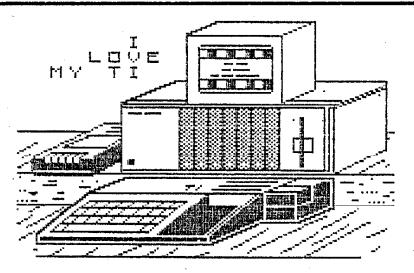
# HUNTER VALLEY 99ERS USERS GROUP

HOME GOMPOTER DEWSLETTER

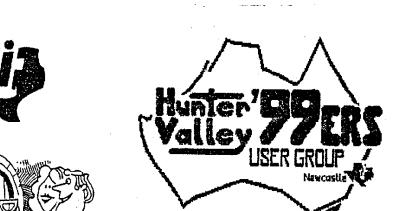




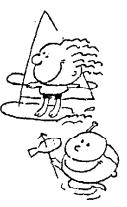


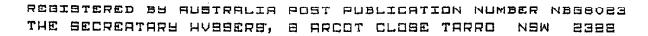


MAY 1988









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## CONTRIBUTIONS

Members and non members are invited to contribute articles for publication in HV99 NEWS.

Any copy intended for publication may be typed, hand written, or submited on tape/disc media as files suitable for use with TI Writer (ie. DIS/FIX 80 or DIS/VAR 80. A suitable Public Domain word processor program will be supplied if required by the club librarian.

Please include along with your article sufficient information to enable the file to be read by the Editor eg. File Name etc. The preferred format is 35 columns and page length 66 lines, right justified.

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Articles for publication can be submitted to the Editor, ALL other club related correspondence should be addressed to The Secretary.

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# SECRETARYS REPORT



FROM ALBERT ANDERSON

First, I would like to welcome Terry Strauchan from the Central Coast area who has found out about the continuing support to the TI99/4A offerred by HV99 and accordingly has joined the ranks. I would also now like to publicly apologise to PETER BODEY, a member in the Canberra area who wrote and informed me that he had not received any newsletters for 1988. A mistake on my part with the up-dating of the HV99 membership records left Peter out in the accèpt my cold...please apology. There is a parcel on its way to Camberra for you!!

Club Business: ANNUAL GENERAL MEETING of the Hunter Valley 99'ers User Group is set down for TUESDAY NIGHT on the 14th JUNE 1988, 7:30pm at the WARNERS BAY HIGH SCHOOL venue.

Nomination for positions on the committee are open to all financial members and nomination forms are included with this newsletter or are available on request from the Secretary. Nominations close on 14th June 1988.

Members and others interested are invited and requested to attend. Remember this is YOUR group too, and this is your opportunity to have a say in the maintainance of the HV99'ers...

COMMITTEE NOMINATION FORMS ACCOMPANY THIS NEWSLETTER.

More club business :- Last month I warned you all that RENEWAL MEMBERSHIP is coming up as of JULY ist '88. Well this is May already and we will be only too glad to start accepting renewals for 1988/89 membership year. One word to everyone with regard to fees. The fees for '88-'89 '88-'89 \$25:ØØ will be for Australian #AUS45:00 for membership and Overseas membership. This an of \$5:00 from previous increase years and is the first since the Group formed some 5 years ago. This increase in fees came about after a long, tedious discussion at the last committee meeting and is primarily effort to contain the costs an involved with the User Group postage Exchange Newsletter and remove the personal costs of those that are subsidising individuals this service at present.

MEMBERSHIP RENEWAL FORMS ACCOMPANY THIS NEWSLETTER...

Last month HV99 exhibited its wares and let the people of the Hunter Valley know of its continued support of the Texas Instruments TI99/4A Computer through the 1988 Home NEWCASTLE MICROCOMPUTING EXHIBITION. The exhibition in general was very well attended and allowed us to make contact with many former and current owners of the 4A who had shelved or disposed of their machines thinking that Texas Instruments had disappeared from the face of the earth. Well we let them know that this particular company was still around somewhere in big buildings all over the world however the USER GROUPS were now the life blood of the TI99/4A Home Computer which is still and will remain viable USABLE well into the future. عاليا the organisers αf exhibition for the invitation to participate as it was well worth effort involved. It also gave us a chance to have a look at the money' machines and latest computer gadgetry that filling is our everyday life... It was good. HU99 have already been to asked participate in next years exhibition and we hope to oblige such invite.

Somebody mention exhibitions??? TI-Faire in Brisbane next week boys and girls... looking forward to seeing our counterparts from the other user groups. See ya there!!! A note to the organisers about a get-together dinner after the Faire. The HV99 representatives are well known socialites and would love to, well socialise I suppose...

Last month I made mention of the possibility of a large amount of 99/4A related hardware such as Expansion Systems and Consoles being made available to us at very reasonable costs from Peter Gleed of Melbourne TI. Graup. Unfortunately Peter has informed me deal that the he negotiating has fallen flat and is no longer a proposition. He/I/we apologise for any deflation experienced by those hoping to up-grade their systems at what would have been a very modest price.

Still locally, Australia anyway, I would suggest that readers have a look at last months ATTIC newsletter in which some new and very interesting hardware developments for this machine are about to hit the market from the southern state. Also editor, Richard Earl makes some great editorial comment... The Attic newsletter is in the library.

Thanks to the LA99'ers, from whom we have received there latest issue of TOPICS which is their newsletter. Some really good reading in this one and very recommended. I'm glad that someone read my plea of last month the LA99'ers have recently changed their mailing address. Now the CHICAGO about USERS GROUP...have you your changed mailing address???? I am still Waiting for response tο my letters!!!

Well, that's about it from me for May. Don't forget about membership renewals coming up and consideration for nomination of or for YOUR committee for the '88-'89 year.

Bye now Albert Anderson 4a4me

To aid in cataloguing and for the purpose of the annual audit of club assets, anyone having ANY club equipment, modules etc are requested to contact Al Lawrence (phone 486509) immediately.

# ANNUAL GENERAL MEETING

The ANNUAL GENERAL MEETING of the Hunter Valley 99ers Users Group will be held on Tuesday, 14th June. 1988 at the Warners Bay High School commencing at 7.00pm.

ALL members are urged to attend vote for the new Committee. Remember, the future of YOUR Group is in your hands.

At the completion of the AGM we will conduct a 'Buy, Swap & Sell' stall so bring along your spares &/or cash for some bargains. All of the Group's software library (the whole 400 disks!!) plus all of the exchange Newsletters and all of the books the club has on the TI will also be there, so make a point of attending this meeting.

# MULTIPLAN RAFFLE

Our last Editor, & current resident of Tasmania, STEVE TAYLOR, has donated to the Group a copy of MULTIPLAN, including all reference books etc. Steve has asked us to conduct a raffle with this as the prize, proceeds to go to offsetting the cost of the 'Great Magazine Mailouts' that we have several times a year.

As a result tickets for this fabulous prize 90 on immediately at 5ø cents each, available from Brian Woods. draw will be held at the monthly meeting to be held on Tuesday 19th July (third Tuesday in the month because of the School Holidays), so contact Brian now for your tickets.

Thanks very much Steve for your very generous donation, it is appreciated by all the members up here.

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# IN THE NEWS



A POT POURRI OF LOCAL AND INTERNATIONAL NEWS COMPILED BY

## joe wright

"Reading maketh a full man; conference a ready man; and writing an exact man"

CATHERALL.

Hello again, I must say that writing this Article is usually not to difficult simply because of the amount of information getting around about our TI's.

HARDWARE FROM ADELAIDE.

The following is taken from the Co-ordinators words of wisdom in the April 88 ATICC. Fred Cugley is the writer.

"Quite a few important things happened over the past two or three months which should be of interest to ATICC members."

"The first being the development of some extremely good HARDWARE for the 99/4A. An associate of mine in the person ₽f Colin Cartwright, a development electronic engineer, has recently revived his interest in the TI world and designed and built an RGB interface to allow the 4A to run on an analog or TTL monitor. Αt present I am running an Amstrad CTM 644 colour monitor on my 4A with reasonable success. Prior to owning

this monitor I had a number of Amiga 1Ø84 monitors which all had an inherent fault in the display, being vertical lines on the left side of the screen. Commodore finally refunded my money purchased the Amstrad. Colin Was already running his 4A on an Amstrad monitor so this swayed me decision of another monitor.

The RGB unit has three external enhancement controls which will allow the user to completely change the colour patterns of a program. Just imagine the power to be able to alter an arcade type game to any colour combination that one would like and even give characters a phosphorescent look! It really works just like that. prototype that I am running is to be modified to give true TTL output,

Colin has many other projects on the way, including very large memory expansion cards and the ultimate digitized graphics boards with the capabilities of true animation using memory storage in a way that is not as we know it today. Would you believe that a 2K memory chip can store up to 40 hours of TV video (don't laugh). film Using Colin's unique memory storage system, seen an LP music record played into this unit onto a TV screen and it produced a kaleidoscopic graphics Which were mind boggling! He has also built a full sized expansion box including the interface circuit boards. Most of these project circuit boards have all the artwork so that Colin can produce professionally built boards to one wishing to build them or he will produce any hardware modifications electronic design work for a moderate cost. He has made his services available on a commercial basis to ATICC or any one who has use for such. Also Colin is able to build customised computer furniture of any? type for very reasonable Circuits for the RGB boards rates. will be available to members as soon as the final design is finished. More on Colin's hardware developments next newsletter"

While at the ATICC I have taken the following paragraph from the Editors column.

"Now on to our interstate "friends" who complained about the fact that

we are reprinting so much interstate material, firstly this newsletter is primarily for the members of ATICC, secondly if you feel the material you publish is not up to our standard then let me know and you won't see any more in our newsletter."

(Couldn't agree more with the man, Joe Wright)

# PROT-BOARD.

This is taken from the January Bayou Byte, who in turn had reprinted it from the West Penn 99'ers Dec 1987 issue.

"The proto-board for the TI99/4A console is here. Delivery of board started in september 1987, Sales have exceeded expectations 200 delivered to date). We expect about three new projects to and published by documented christmas holidays, and several more by the later part of January. We expect a redesigned sound board (FORTICARD), DSR, SUPER CART, A/D, and the speech interface in the next couple of weeks. There is also the possibility of an 80-column text only card. A bank-switched memory, print spooler. RS232/MODEM, new Digitizers, are only a few of the other projects mentioned for the proto-board. If any of the above excite you, and you have the ability or interest to attempt the design let us know."

Available from; THE COMPUTER BUG 5075 Clairton Bvd. Pittsburgh, PA 15236 U.S.A.

Quantities 1 to 4 US\$35.00 each plus shipping and handling.

## \*\*\*

Not a typing error this is some information taken from the April TI-Focus, written by Tom Arnold. (Must say this programme title does remind me of somebody).

"Clint Pulley gave me a copy of the first?? software for the GENEVE that runs in MDOS. It is a text editor with a number of neat features. The programme is called QDE (Quick and

DIRTY EDITOR) and runs simply b typing QDE while in MDOS. It is and has some features no columns, found in MYWORD. For instance has a text buffer capture which cal move large blocks of text betwee areas of the document or betweel documents! Capture the block text, load the new document an insert this block into it. Ver handy. It also has a delete buffe so you can delete lines A,B,C,F and then pinsert lines F,C,B,A(reverse order). In other words they are kept in a stack. This is not complete word processor but for small documents or quick peeks from MDOS will be very useful. Clint"

## HAMAI'S RETURN!!!!

Nice to see Ken Hamai back in ROM. Of 1 He mentions in the April ROM that he has been BETA testing a couple of prototype GRAND RAMS. The following are some of his comments.

"Here is the GRAND RAM in nutshell: Up to 512K RAM. This can be used for 'RAM disk and print spooler. I have mine configured for 1-DSDD and 1-SSSD and a 50K spooler. spooler optional, is you configure it and your Ram disks using the configure programme that comes with the hardware. configure programme is menu driven and a breeze to use. It will set up your clock, disk drives and print spooler.

You can set disk drives from 1-Z! Yup! that means all numbers 1-9 and all characters A-Z. Remember, you got seven in your P-BOX, you are going to need all them disk drive selections! By the way, the only way you are going to get seven is to build a special extension cable to connect two P-BOXes together. (It can be done!) and besides, you got the truck??

The Grand Ram also has HOT KEYS! No call loads on this baby, You just punch the keys and WHAM! The programme you want is up and running! It gets this ability with the built in interrupt timer chip. Each card gives you 14 hot key choices, some are required for programme loading. There are keys for toggling the clock off/on, print spooler off/on, disable interrupts,

power progra Each : P-BOX seven Neat : Grand recog: progra acces: abili number funct retur: word and w

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power up programme off/on and seven programme loading programmable keys. Each additional Grand Ram in the P-BOX will give you an additional seven programme loading hot keys. Neat software which came with Grand Ram: You will very quickly recognise the John Johnson programme, specially customised to access the Grand Ram. It has the ability to access all disk drive numbers and the catalog disk function can be recycled without returning to the main menu. word processor is modified to read and write to all disk numbers 1-Z.

DISK UTILITIES 4/GR. (still Hamai) A must have programme if you have RAM disk αf any brand: John Birdwells' Disk Utilities 4/GR. What is THIS?? If you got Disk Utilities 4.0, you already have most of it. You don't have 4.0 yet? Well, you'll just have to send US\$15 to John to get the answer! One of the big RAM disk bugaboos or is that if you can change CATCH-22 the CRU address, you can make the card very compatible and also use more than one brand or more than one of the same brand of RAM disk in your system. The problem is that at any CRU above 1000, there are very few disk managers or any programmes, matter, for that capable accessing the RAM disk at the higher address. Even disk Master 1 will only go to DSK6 at any CRU.

Well with RAM disks, having a sector editor and disk manager to access the disk is VERY, VERY IMPORTANT! You only realise how important this is when you use a RAM disk. The Birdwell Special GR/4 does it all! Send the money! Get the disk! Be sure to ask for the GR/4 Special if you want to access disk drives above 9, have multiple RAM disks, or if you are a Grand Ram owner."

CALENDAR MAKER 99. Gary Cox writing in the April mid south TIDBITS tells that-"Asgard Software of P.O. BOX 10306, ROCKVILLE, MD 20850 U.S.A. released their new programme called CALENDAR MAKER 99. This programme allows the user to create large, detailed picture calendars on the TI99/4A. The programme is described as "ideal for the teacher, student, business person, office worker, or anyone else that wants to create

calendar." Messages and pictures can be placed on each day ٥f calendar.... Programme requires 32k, XB, Epson compatible printer or Panasonic, TI, NEC, HP IBM ETC... and disk system. Programme sells for US\$19.95 plus \$0.75 shipping. Also new from Asgard Software BEYOND VIDEO CHESS which is described as an enhancement to the Video Chess cartridge. Enhancements include the ability to save and load game from disk, use joystick, screen dump to a printer and the ability to list all moves to the printer ...

The programme requires 32k, a single disk drive, and one of the following hardware configurations: a Navarone Widget and Editor/Assembler, Ram disk a Myarc or Corcomp Horizon disk controller or a load interrupt switch (from Corcomp or various others). and the Editor/Assembler module. An Epson or compatible printer and joystick is recommended. Written in 100% assembly language. Suggested retail price US\$9.95 plus \$0.75 shipping and handling. Catalog number U-01.

# 00PS??

This OOPS!! has come to the attention of John Paine, the author of an article on the REAL TIME CLOCK which appeared in the MARCH '88 issue of the HV99 newsletter.

The error in question refers to the circuit diagram of the real time clock and in particular the two 74LS138 decoder chips at the top left hand part of the circuit diagram.

The output from the FIRST 74LS138 is seen as coming from PIN 14 of that particular chip. THIS IS NOT SO. The output should come from PIN 11 of the FIRST chip only. The output from the second 74LS138 is still from Pin 14.

The usual apologies apply for any inconvenience. Nice to know that people are actually using this information....

Thanks John...

## RANDOM BYTES

#### from

#### BOB CARMANY

Here in the Northern Hemisphere spring is in full force. It becomes more and more difficult to think of computing when the weather warms up. But, nevertheless, there is some computing going on.

Before I get too wrapped up in the "good stuff", let me digress a bit about a subject that is "near and dear to my heart" --- computer pen pals. I guess over the years I have been just about as active correspondent as there is (just ask Will and Tony and Albert Anderson). Basically, I write for a couple of reasons. I usually get started because ۵f a program that was written as in the case of Will and Tony. Or, I have a request to make (for back issues of the HV newsletter) in Albert's case. 99 The end result is usually the same --- I find a good friend to write to and we might even establish a mutually beneficial program exchange. Besides, there are some other benefits as well --- I enjoy getting letters and I have amassed a considerable collection of your colorful Aussie postage stamps. So, whether it is writing to someone in Queensland or here in the U.S.A., take a half hour or so and write a letter or note --- you never know what might happen!!

Now, for the "goodies"! I think that just about everyone knows about the MiniMemory Cartridge. It is a fine A/L loader, etc., etc. What is usually left out in the reviews, tips, etc. is what you can do with it in BASIC with a 32K attached. Nearly everyone these days has a 32K memory expansion so I'm going to take it for granted that just about everyone who is reading this is so equipped. What we are going to look at this month is a bit of "power BASIC".

we will start off by typing in the following program:

100 CALL CLEAR

11Ø FOR X=1 TO 2Ø

120 PRINT "THIS IS A TEST LINE"

13Ø NEXT X

14Ø FOR DELAY=1 TO 1000

15Ø NEXT DELAY

16Ø END

Retrie

MINIM

OPEN

cartr

back
Of course, this should have beagain
done in the MINIMEMORY BASithen
environment. That is done bring
selecting "TI BASIC" from to
MINIMEMORY cartridge.

Before we go any further, let stelep pose a question. How many programcould can you access with a consoless d MINIMEMORY, and 32K withouMINIM accessing a disk drive? (Answer store bit later).

In my ongoing "CALL FILESEithe digression, I think that I told yestore that the TI treats just about meverything (including the screen) asized a file. Well, the combination oin MINIMEMORY and 32K gives yestorismmediate access to several that yediffe hadn't thought of.

The first is rather obvious--- TBASIC told you that this particular carLINK, had 4K of battery-back RAM. And ssome it does! We are now going to testo ; that theory with the little prograbefor that we wrote. First, we have tist! save it --- type in 'SAVE MINIMEM'.

For 1 The next little tidbit information is also obvious --i. CALL you stop and think about it. BOPEN this time, everyone should know tha VARI the 32K of memory is partitioned into two seperate "chunks". Ther For 1 is an 8K chunk starting at >2000 and the larger 24K chunk starting at CALL >AØØØ. Well, MINIMEMORY lets you OPEN access both of these as files as VARI well! They are designated EXPMEM1(8K) and EXPMEM2 (24K). So, For let's type in 'SAVE EXPMEM1' and 'SAVE EXPMEM2'. CALL

our UPDA Now, we are ready to answer question. How many programs can you access without ever seeing the disk For drive turn? The answer is FOUR! First, we have the copy of the CALL program that has been residing in OPEN VDP RAM all this time. Type in UPDA 'RUN' and watch it for a moment. OK, let's go and get the second one. Fina To make sure that there isn't some dire 'voodoo' going on, type in 'NEW' to that clear out the VDP RAM. Type in 'OLD retr MINIMEM' and then 'RUN' --- there's EXPM the second copy of the program back from where it was stored in MINIMEM 100 the (8K battery-backed RAM in

cartridge).

Retrieving the third copy is just as 120 INPUT Y easy. 'NEW' to clear VDP followed by 'OLD EXPMEM1' and 'RUN' brings back this copy and RUNs it. Once have bee again 'NEW' to clear out VDP and BASI then 'OLD EXPMEM2' followed by 'RUN' done borings in copy number four. th

and a second resemble, see.

In addition, you can use the 4K MINIMEM block to store data -- a r, let mitelephone list for/example. Or you program could use it to store A/L programs console as described in the seldom-read withou MINIMEMORY manual. You can also (Answer | store A/L programs in EXPMEM1 (the low 8K of memory expansion).

FILES Either programs or data can be told yolstored in EXPMEM2 (the 24K portion about of memory expansion). This a truly creen) a sizeable chunk of memory available BASIC!!! The procedure for This program segment ation of in yolstoring data ves files is a that you different than for programs. Remember that you also have some expanded commands with MINIMEMORY 100 CALL CLEAR pus--- T BASIC. CALL LOAD, CALL INIT, CALL Har car∤LINK, CALL PEEKV, and CALL POKEV are 1100 REM OPEN FILE FOR DISPLAY-TYPE. And so some that are available. You have to test to prepare EXPMEM2 with a CALL LOAD program before you can OPEN the file. Here

For INTERNAL/VARIABLE files:

--i 1

INIMEM'.

CALL LOAD (-24574,24)

have td is the procedure:

ktit. By #1: "EXPMEM2" SEQUENTIAL, OPEN know that VARIABLE 32, INTERNAL, OUTPUT Ptitioned

There For DISPLAY/VARIABLE files:

ting ati

CALL LOAD (-24574,16)

lets you OPEN #1: "EXPMEM2", SEQUENTIAL, as VARIABLE 32, DISPLAY, OUTPUT

For INTERNAL/FIXED files:

CALL LOAD (-24574,8) #1: "EXPMEM2", RELATIVE, FIXED, OPEN UPDATE, INTERNAL

he disk For DISPLAY/FIXED files:

of the CALL LOAD (-24574,0)

OPEN#1: "EXPMEM2", RELATIVE, FIXED, Type in UPDATE, DISPLAY

Finally, here are two short programs directly from the MINIMEMORY manual that illustrate how to write and in 'OLD retrieve data from MINIMEM and EXPMEM2.

MINIMEM 100 OPEN #5: "MINIMEM", SEQUENTIAL, FIXED, OUTPUT, INTERNAL

11Ø INPUT X

13Ø INPUT Z

140 PRINT #5:X,Y,Z

150 CLOSE #5

These lines OPEN MINIMEM and write the values X, Y, and Zto it and then CLOSE the file.

2ØØ OPEN #5: "MINIMEM", SEQUENTIAL, FIXED, INPUT, INTERNAL

21Ø INPUT #5:P,Q,R

22Ø PRINT P.Q.R

23Ø CLOSE #5

reads bit values from MINIMEM and prints them on the screen.

|VARIABLE-LENGTH

12Ø CALL LOAD(-24574,16)

130 OPEN #1: "EXPMEM2", SEQUENTIAL, VARIABLE, DISPLAY, UPDATE

14Ø FOR I=1 TO 2Ø

150 PRINT #1: "RECORD H" | I | "WAS READ. "

16Ø NEXT I

17Ø RESTORE #1

19Ø FOR J=1 TO 2Ø

19Ø INPUT #1:A\$

2ØØ PRINT A≢

21Ø NEXT J

22Ø CLOSE #1

OPENs EXPMEM2 and program writes 20 records to it and then reads them back and displays them on the screen. The RESTORE statement in line 170 repositions the file pointer to the first record.

This took a little longer than I had anticipated and I have a "BUFFER FULL" message coming up. 'Til next month.

dbit

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# STRINGS and THINGS

This article came to us via the 99er newsletter, LEHIGH originally appeared in the Delaware Valley Users Group. It was written by Jack Shattuck.

Computers long have been seen as used for number crunching; a census taker is credited with development. of the first computer a century ago. But surveys time & again show the biggest use of home computers is for word processing, by more than 3 of 6 computer owners. This month we'll look at some of the functions dealing with variable character strings on the TI-99/4A.

In analyzing these functions, let's use the following: the larger string, A#="COMPUTER", the smaller (sub)string, B\$="PUT", N=4, L=3 & X=1. The reason for these variables will be explained below. Here are the major functions with which you should be familiar:

ASC(A\$) = the ASCII code of the first character in string. the Using the variables. above ASC (A\$) = 67.

CHR\$(67) = the reverseprocess, telling you what character letter! equates to ASCII 67. Here CHR\$(67)=C.

marks the program containing string values, such as 100 DATA COMPUTER, PUT These values are found Ьy command to READ A\$, B\$. Data will of L characters. be read from the first or next available line that has DATA within Other it, unless RESTORE line number is used to indicate a different line to characters of As. TI's equivalent use for the DATA source. numeric data, such as A, B instead letters of COMPUTER. of A\$, B\$.

string. Here, LEN(A\$)=8.

which character you start searchin1 A\*\* Starting with the first character 2 X=LE above DISPLA example suggests,  $N=POS(A\pm,B\pm,X)$  then N=4. X=X-1

SEGs(As,N,L) = a segment of striThe dibeginning at position using continuing for a length of lines HerHCHAR characters. SEG\$ (A\$, N, L) = "PUT". inste

STR\$(X) = converts a numerical valSo mu X into a string that looks likedo. number, but which can't hasuppos numerical functions (such as Soletter applied to Here, STR#(50V## it. converts 1 into "i" ie the numbilines one becomes string character "i". ABCDEF

VAL(X\$) = apposite function CDEF STR\$(X). Here, VAL(X\$) wouletc. ticsever convert the string"1" into the numeric value 1. capab

All functions discussed above can soon oth DISPLA used in TI BASIC. One function applicable to string wormemon only with XB. That's RPTs(As, n)100 used to extend a string by repeating for Tha 120. Pf it n times without a preak. can be accomplished in a somewhal 30 P similar fashion in BASIC through 140 N concatenation of A4A4A4 etc. (See times.

otheCompu We're not quite finished; computers use LEFT\$, MID\$ & RIGHT to obtain a segment (that is, RUN 1 substring) from the left, middle aFOR L right hand part of the main string. then its o

"Prog

Print

For instance, Bs=LEFTs(As,L) sets Brevis equal to the first L characters in Retyp the string A\$ on another computer 160, B\$=SEG\$(A\$,1,L) is TI's equivalent.it.

Like line Other computers' Bs=MIDs(As,N,L) isused the exact same function as TI, chara B\$=SEG\$(A\$,N,L), wherein substringran t the B\$ starts at position N for a length

B4=RIGHT#(A#,L)<sup>examp</sup> computers' derive substring B\$ from the last Lanswe & co On other is B\$=SEG\$(A\$,(LEN(A\$)-L),L). Heredesin occasions, you could also read if L=3 then B\$="TER" - the last 3 form,

One other function I'd like to see solve LEN(A\$) = number of characters in a is the Reverse String Display, to be print As backwards. I'm not aware POS(A#,B#,X) = what number character that, but it can be printed or the within A\$ is the position where disclared in the printed or the within A\$ is the position where disclared in the printed or the within A\$ is the position where disclared in the printed or t within As is the position where displayed with a FOR - NEXT loop up passubstring B\$ begins. X indicates at First in XB:-

searching! As="COMPUTER" Aracter a2 X=LEN(A\$) :: FOR C=1 TO LEN(A\$) :: DISPLAY sts, AT(4,C):SEG\$(A\$,X,1) X=X-1 :: NEXT C :: END of strinThe difference in BASIC (aside from ition Nusing individual instead of multiple lines) i≅ to substitute of Here HCHAR (4, C+2, ASC (SEG\$(A\$, X, 1))) instead of the DISPLAY AT command. ical valui<sup>80</sup> much for what the functions can oks like do. When would one use them? Well. havisuppose you wanted to display the as SQR letters of the alphabet in groups of STR\$(x seven letters indented on successive the number lines, for example:-ABCDEFG Pr 414. BCDEFGH CDEFGHI ttion οł woulletc. until you came to TUVWXYZ. the (Seven letters were chosen to keep nto the display within the screen capability of 24 lines, as you'll ve can besoon see). Successive PRINT othe DISPLAY AT lines will absorb much ing works memory. Instead try:-T\$(A\$, n) 100 A\$= "ABCDEFGHIJKLMNOPQRSTUVWXYZ" repeating 110 FOR LOCATION=1 TO 20 k. Tha 120 PRINT TAB(LOCATION); somewhat 130 PRINT SEGS(AS, LOCATION, 7) 14Ø NEXT LOCATION hrough etc, (See Herbert Д. Peckham's "Programming BASIC with the TI Home other Computer", page 159-160). & RIGHTS RUN it, then change line 110 to t is, middle on FOR LOCATION= 20 TO 1 STEP -1 then RUN. Change line 110 back to string. its original version, then add the sets By revised line 110 as line 150. Retype lines 120, 130, 140 as lines icters in 160, 170, 180 respectively. Now RUN computer. it. Does the pattern look familiar? Avalent. Like a skier slalom? Imagine if you ,N,L) is used CALL CHAR to reshape those as TI's characters into a landscape, then substring ran this program... a length There's always someone who insists

How about the continual problem of label making from data collection of names & addresses & assorted information whose length varies from case to case, invariably including material too long for a single line? Why should you worry about it when the computer can fix it for you?

In the original TI MAIL LIST

LIST program. the first disk based program written in 1980 (in BASIC), line includes a the first label individual's name, but title & an has to fit it all within 32 spaces, regardless of what length first & last name you may have entered. Mail List chops it into a title (max 4 chars), space, then 27 letters for the name - 12 chars for the first name & 15 chars for the last name. (See page 32 of the TI Mail instruction booklet). program, when field 13 [F\$(13)] i S the title, & field 3 [F\$(3)] the name - last name then first name this translates into: F\$(13)&""&SEG\$(F\$(3),16,12)&SEG\$ (F#(3),1,15)

as the line to be printed. (See program lines 3730 & 3750)

Manipulation of data throughout the Mail List program relies on data segments. What about sorting & lookup routines? Aren't they comparisons of string segment locations?

Replace String functions in TI-Writer's Editor are certainly important activity, another as example. Don't forget spacing variations for a different length replacement text. Replacement by a text with uniformly altered ASCII code is the basis for simple Cryptograms.

program in Manning & Imglabe's "Get Personal with your TI-99" 188ff gives some good examples of string functions, including conversion of dates from mm/dd/yy format to yymmdd (10/01/87 to 871001). multiply Simply the VAL(SEG#(A#,7,7)) year (did you remember the slashes?) by 10000, VAL(SEG\$(A\$,1,2)) month by 100, & add the remaining VAL(SEG\$(A\$,4,2)) day to get the "digital" date. Don't forget the STR\$ to convert the number back into a string. Sure is simple when you know how the computer does it; now you know that language હે you can program

to see play, to t aware achieve nted or XT loop.

There's always someone who insists on practical programming. One T\$(A\$,L) example is to look for an expected answer to the programmer's question, wivalent & comparing the response to the Here desired answer. This is in the last 3 form, IF SEG\$(AN\$,1,1)<>"Y" THEN ...

Printing text without scrolling is solved in BASIC (which doesn't have DISPLAY AT a particular point) by the CALL HCHAR command with a for-next loop, such as was shown in the Reverse Text example, bringing up part of a string segment at a time.

yourself.

Another use of string functions is to match the segment of a word in a Hangman game. You can figure out the logic for word games if you know computers capabilities. Computerized Scrabble scoring also derives from string placement. But word games aren't the only use for segmentation. Ι÷ you consider yourself a maths whiz, & have been around for a while, try interpretation Barry Traver's multiple number base conversion program (The Data Bus, vol 3:6, July 1985, page 8) which also works on segment manipulation. Then again, graphic programs also use string segmentation to save memory character definitions. Would you call that use of "word" strings? That's simple computer handling of parts - bits & bytes - of building blocks of computer data.

Here's leaving you with a little broader perspective at your computer's role in some fairly frequent string variable handling routines you may have been overlooking.

# SOFTWARE LIBRARIANS NOTES

Blank Dieks are still #12 for a pkt of 10 also Cassettes are \$3 with assorted programs or made up on request.

Single Disks of software are \$3 or \$1 copy fee if you supply the disk.

We sell cardboard disk mailers that hold up to five disks and besides being quite sturdy are reuseable and are only sixty cents.

The software mailout is available again so if you decide you want to participate please let me know.

ALAN FRANKS.

# EXTENDED BASIC REVISITED

a fairware release from

RICHARD TERRY

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I hav for a adjus had usage typin

as if to s EB ma someh

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Well, its been a long time betweecome articles again! This month sees thuser release of a program I've beemodul. Writing as an aid to cheque/cred(commacard management. Yes I know thersimpleare a lot around, but I've nevel alseen one that's easy to use.

Slowned difficults.

Actually, I've not been idle. I.velega: spent a lot of time programming botdebug on my trusty TI, and been writinInsta some programs on an IBM/EGA HI-REIN F system in Forth. (owned ÞУ father), and mucking around with a Well, Amiga (my mothers!). thougAnywa wouldn't buy the Amiga, and do enjowas the IBM for its 80 cols and coloror c I've got to admit I still prefer thits trusty TI. won't Lawre

The cheque program is actually friend spin-off from businesof th three programs I've just written for worgood a iø column general ledger, a neprobal cheque account management programdon't and a comprehensive busineslifted analysis cum total printout of alof my the years financial data presentethem to. my accountant in an indexeversi booklet form at the end of thprogra financial year. It was used treleas great effect for 1986-1987 tax whichinor morif igur only just put in. No anfile searching through accounts dowsecti receints. Should really bring the accountants bill, thought Ithe For some reason, perhaps vengeanceones, the bill went up!! -heck

Joe Wright had been poking aroun@rografrom time to time and had of cours@reschad a viewing of these forced upon him. He must have been a littlene of impressed, because next thing flub

know, there was this mention in the club mag that I was putting the finishing touches on a cheque program for the club. Nice one Joe, considering I hadn't even started! I that's just his none too subtle sledge hammar approach of saying "wright it" (sorry Joe).

And so the evolution of the program.

I havn't written in extended basic for a few years. It took a while to adjust to its mind numbing speed. I to re-learn the editor key usage. Lost quite a lot of lines by typing Line no. followed by EDIT, as if I was still in Forth. I had to sit there with the tattered old EB manual to re-learn commands. But somehow, in the end, I re-warmed to good old extended basic, with all its slowness and quirks. Having betwee come back from Forth, I liked the sees theuser defined subprograms allowing ve bee modularity, its easy to understand ue/credi commands, unlike many Basics, its ow ther simple file handling. I disliked as ve nevel always have the prescanning, and slowness of execution, and the difficulty of debugging. Ah, the I, velegance of Forth, where we can ming bot#debug all routines as we 90. writing Instantly!!!! One can write in days BA HI-RESin Forth what it takes weeks to do myin basic or assembler.

though Anyway, so the program evolved. do enjoywas never meant to be a bank ledger colorlor cheque reconciliation program, refer the its simply a sort of data base. I won't go into the details as Al Lawrence is writing a hopefully afriendly review this issue. Perusal tually businessof the code will show it not to be basic, for workgood extended you will er, a newprobably find redundant lines that program, don't do anything. I actually businesslifted the guts of it out of several of all of my business programs and meshed presented them all together. The first indexed version consisted of a single of the program which did everything the used torelease version does, except it was tax which ginormous - nearly 90 sectors! As I No morefigured one will only be using the andfile formatting, sorting and printing nts down sections on occasions, I have split bught I. the big program up into littler engeance, ones, added comprehensive error checking (except on the printout),

and prescanned them. The single ng around program was too large to fit the course prescanned lines into memory! rced upon

little One of the great things about our thing I club is the people in it. I'm not really in the mainstream of it. and slack about attending social am functions, not being anti-social. I've just never been good at mixing. However the thing that continually strikes me is the way people pull together, not with any expectation of thanks, they just do it. If I need something or some information I don't understand, I've only to ring anyone, be it Joe, Tony, or Al etc.

Lawrence has been absolutely marvelous in helping evaluation of my program as its been written. He has popped over in his own time, taken the most updated version home, and made thoughtful suggestions and criticisms. previous occasions he's helped me set up my RAM DISKS when I was having trouble getting my Corcomp to like living with them. (As an aside I read in a previous article that you could only have ONE ramdisk with the Corcomp disk controller not true. as mine both function perfectly, although we did have to fight it for hours to install them)

My thanks also to Tony McGovern, who provided me with the source code and a little assembler loader to load a pseudo descender character set in EB graphics mode. This is loaded into the PDT at the start of the load program and stays there even when you switch programs off the main menu (see listing and article this issue).

Please pass on any criticisms and bugs you may find. I won't be insulted if you say you don't like it, as it has always suited my needs admirably and will continue to do so for some years.

# WOULD TO MAKE SSS

If you have a spare computer working order) & would like to sell it, please get in touch with Brian Woods. At the moment I am using a borrowed console (thanks Albert) but would dearly love to have my own again.

 $\mathcal{R}\mathcal{V}$ 

d with ar

# CHEQUE BOOK and CREDIT CARD MANAGER

AN OUTLINE
by
AL LAWRENCE

There is a saying.

## "Matter expands to fill all spaces"

The club disk had room for a FEW programs to fill it up before its release and Richard Terry having written Cheque and Credit Card Manager in XB offered it, first asking me to do a bit of TESTING with suggestions of improving and IDIOT proofing it, as I have been known to foul up the simplest as well as more complex programs.

Originally it was about 80 sectors and loaded in about 2 minutes, but now it fills a SS/SD disk on its own, hence the saying quoted above!! It is offered as Fairware to the TI community. This will be a great asset for anyone with lots of transactions to record and needs a printed record listing to present to their accountant at tax time.

This does not replace the monthly statements from the bank but enables you to have a well presented, cross referenced and itemised financial report of annual transactions in 20 seperate categories as defined by the user. Defaults are supplied, but these can be modified to you own preferences.

This review will start at the final product - PRINTOUT (where else should an Irishman start?).

	age Citiz	en.	luto. lo date .234 3/4 .235 3/4 .1 2/5 .2 3/5
Financial Year 19xx-19xx.  CHEQUE & CREDIT CARD LISTING. Personal			
			239 <b>5</b> /5
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On firing up the screen shows :-No date Amount To Reason Total ! Master Menu ! 1234 3/9/82 3Ø Shell petrol 1235 3/4/83 45 Kmart brakes 1 2/9/82 34 BP petrol 1 Enter Data 2 3/3/83 185 Ripoff Insur. Р××. 294.00 Z Start a File NG. Personal. 3 Printout Data 1239 5/5/83 43 N.Ross Ugh boots 4 1/11/82 999 Newter TI.99/4A 4 Modify Category 8 2/1/83 45 Mic/ed box disks 5 Change Defaults All listings are in 80 col format and all amounts are in dollar and 6 Sort Data File 1 cents, difficult to show here in 35 6) cols. Pages are numbered at the top 7 Instructions right hand corner, and also have Headers and Footers. The bottom row 8 Quit Program being Name Date Financial Year gory The comment page is really a blank Pressing 2, 4or 5 all load the same one with a No. for your comments or program a instructions as deemed necessary for options:program and you are presented with 6 Totals the Auditors. 123.45 ! FILE MODIFICATIONS ! 180.00 The program names on the disk are 500.00 all prefixed by Z: This means they are all grouped together at the end of the disk listing and easy to 1 Start a File ofidentify if you put them on DS/SD, SUM DS/DD or Ramdisks this means the mas of the LDAD does not get mixed up with 2 Modify Categories heque another LOAD's during the transfer. 3 Change Defaults eg. Z: CATEGORY 4 Master Menu nown. Z:DEFAULD Z:LOAD 5 Instructions Z:LOADDOC Z: LOADPROG 6 Quit Program letc.,etc. Booting must be via the Z:LOAD Press 1 and the screen shows :-(which you may rename LOAD on the working disk) as this sets up the Reason. CALL and Assembly sub routines. ! Year 19xx -19xx ! Help screens are available on each track oMenu and relevant to sections in use they arm the time, so there is no need to ! A/c No. ØØØ ! listingprint out any \*README's or DOC's ! Chq. No. series #! pe sortebefore booting up. A very nice touch and they are paged in boxes for easy reading. Fctn 9 aborts and the user is returned to the MENU. ! Default Values ! After usage you may not need the mat as threlp sections and can leave them off File Year :19xx-19xx the working disk to give you more Printer: PIO space if you have only one drive. Category: 19xx-19xx If you have 2 Drives set up the 2nd Prog Drive :1 for Data and the 1st as the Program Data Drive :1 / 2 Total office to save a LOT of disk

Correct Y / N /Exit

nditure i**k**wopping.

When you configure the defaults & returns to Master Menu. press Y and you are asked if you want to save to disk. Option 3 - Change Defaults - puts you straight into the Default section of the above. Press 2 and you get:-!Screen Name! ! Printer Name ! !-----! !-----! !1 Cash !1 Cash !2 .... !2 ........ !. .... !2Ø Wrk.Exp.! !20Work Expenses! There is a full list of possible categories needed and you are asked if you want to use the defaults. If you elect no, then you modify each: side independently. Now that the Data Files are all set up, you are ready to enter data. Select i from the Master Menu. ! Cheque /Credit Card Entries 1 Cheque Entries 2 Credit Card Entries 3 Instructions 4 Master Menu 5 Guit Program Press 1 and the screen presents :-CHEQUE 19xx-19xx(changes to default) ! No. :default # ! Date :enter ! Amount : \$\$\$/cent (max 99999.99)! :store ! Reason : New Rolls or TI99/4A ! Category :20 (enter # only) ! i Cash ! 11 Insurance ! 2 Children ! 12 Land Rates ! 3 Clothing ! .. ..... ! 20 Work Expenses! options are :-! A= Add C= Change Q= Quit !

C puts cursor at No., hit Enter bring up the last entry made a options are :-!fct E/X=View 8=Redo 9=Quit ! B \_\_\_\_\_\_ After a change is made it automatically saved and when y have finished Fcnt 9 returns In the previous Menu. we lo hvariou A again puts cursor at No., enter to show last entry and tspecif from t oplions are :other \_ applic !Fct 6=Next 8=Redo 9=Save ! The fi When finished entering data font must saves it to disk and returns you from first screen. Now press 2 to entpossit any Credit Card details. Format you ar much the same as for Cheques excefile. the starting No. is 001 and in bowhich scenarios the account #'s will pver | dith a incremented automatically . delete After you have finished all yoformat entries pressing 4 returns to t Master Menu now select 6 for thousand inform Sort Data File routine. as opt Anothe ! Cheque and Card File Sort ! ised i ----ise of contro 1 Sort File end of examo! 2 Master Menu IF EOF 3 Instructions [his 4 Quit Program contro Pressing 1 brings up default ye<sup>nhen</sup> and asks is it Correct? Y/N/Ex<sup>reache</sup> Press Y and the Asm sort loads, the xamp the files are loaded, rapidly sortinfor displa and rewritten to disk. about think After sorting select 2 to return Master Menu. If it is the end : the Financial Year press 1 and yo are now transported back to where ppera Famil entered this review... is us PRINTOUT!...go directly to the clased Librarian and get your copy NOW!! >> sp

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# CALL FILES- 2 by Bob Carmany

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No.,

In the first column in this series, we looked at opening a file and the his various defaults that you needn't specify. Now, we are going to go on from there and look at some of the other XB commands that have an application to file handling.

The first of these is CLOSE. You Fent point close a file prior to exiting is you to from your program to avoid the ormat i you are simply dis-associating the exceptile number from the file itself in bot which prevents the will be over-writing of your stored data. With a disk system, you can also delete a file at the same time. The all you format is very simple:

to th for the CLOSE

#1[:DELETE] with the information enclosed in the braces as optional.

Another file function that can be used is EOF (End Of File). The best use of the EOF marker is to transfer control within a program when the end of the file is reached. example would be:

IF EOF(2) THEN 1200

ilt year Y/N/Exi y sorte

This statement would transfer the control of the program to line 1200 when the end of file number 2 is reached. You could use it, for ds, the example, to create a delay while the information is read (if it is being displayed on the screen) or just about any other idea that you could think of.

iturn to e end of where we

and you we come to the series of PRINT operators. I think that everyone is familiar with just plain PRINT as it is used in BASIC and XB. It can be he cludused to process files as well simply by specifying a file number, record number, and the print list. Here is a short example:

NOW!!

A\$="Outback Jack" PRINT #3, REC 1:As These two lines set the variable As equal to "Outback Jack" and then print it to file number 3 (in this case) as the first record of the file.

A variant of the print statement is PRINT USING. With it, one can use a pattern contained in a expression or in a specific program line to print data to a file. file number and record numbers can be specified just as in the PRINT statement. For example:

PRINT #3, REC 1 USING "##.##":16.1

This line prints the data to file number 3 in record number one in the form ##.##. So, 16.1 becomes 16.10.

You can also store these formats in your program with the statement (see page 97 in the XB manual). If you choose to do things that way, our PRINT USING statement looks something like this:

PRINT #3, REC 1, USING 13Ø:16.1

The results are the same but if we go back and look at line 130 we should see this:

13Ø IMAGE ##.##

What we have done is to print our data in file number 3 in record one using the IMAGE contained in line 13Ø.

can also directly access record number with REC. It will return the number of the next record to be processed in the specified file number . The format looks like this:

REC(3)

and it will print the current record number in the file that was opened as file number 3.

Finally, we get to RESTORE. the ability to use it with a line number, it can also to used to RESTORE the pointer to a specific. file number and record number. example:

RESTORE #3,REC 1

This statement would restore the pointer to file number 3 at record

number 1 for processing. This can be of valuable use if you want to go back to the beginning of a file for processing.

Now, we come to two commands that be used to read data from files--- INPUT and LINPUT. The difference between the two is that in the case of LINPUT, no editing is performed and the entire file record is read into the string variable. That means that commas and other affect punctuation do กอ presentation of the data. LINPUT is generally a better choice to use when you are trying to read INTERNAL text files with type data or punctuation in them.

Remember, with INPUT, commas and other punctuation affect how the Thus, INPUT works data is read. best when used with DISPLAY type data without punctuation in it.

In either case, though, the file number and record number can be specified if you wish. Here are the formats:

INPUT #3, REC 1:X,Y,Z

LINPUT #3, REC 1:X, Y, Z

Both of these statements do the same They read the first three values from file number 3, record 1 into the variables X,Y, and Z.

Now, for some final notes. Remember that your file numbers actually start at Ø with file number Ø being the screen. Record numbers also start with Ø so you can specify a "REC Ø" instead of the REC 1 that I have used.

When using INPUT, you are limited to files opened in the INPUT or UPDATE mode and the record length on DISPLAY type files cannot exceed 160 characters.

The next time, we will take a look at some examples using the FILE/READ program that I wrote some time back. We will examine those lines of code that pertain to accessing (in this case mainly reading from existing files) with some comments on each.

## POLISHED DOCUMENT PRESENTATION

Richard Terry

often in computing, th Very programs we write or use may have a end product which usually takes th form of some printed matter. If th material is achival in type, will not be updating the informatio within it, we tend then to end u with folders, ring bound document etc, cluttering up our desk. Or, i you're as organised as me, you en up with scattered papers, somewher amongst which is that vital piece o information you needed yesterday but which your wife threw in the bi because it looked like junk.

Well don't despair, it is possibl to turn over a new leaf, as Joe ca testify from recent visits to m office.

I've always had an inherent dislik of ring binders which in my hand tear through afte tend to use, and re-inforcer continuous be so bulky the fil tend to thickness doubles.

place Well, I've found a Newcastle that will bind your rubble - be it program listings, financia papers, childrens school projects letters, your geneology printout from Joe Wright's fabulous program into book form, complete with fir glossy cardboard back an <sub>dump you</sub> white flexible spine, and clear plasti cover, all for the princely sum o \*\*\*\*\* TWO DOLLARS unbelievable but true. All th technique involves is inserting th document into a special machin that le which heats the folder cover and it out any special adhesive, and hey presto i world's 60 secs you have a very professiona novel of result, especially if you've written yourself a title page, or inde taken-fo through Funnelweb , or perhaps to full nice graphics heading through one o personal the print packages.

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If you thought FUHLPLUS was an excellent word-processing companion with lots of unusual utilities and fun programs thrown in, just wait'll you see v. 1.0 of <u>PLUS!</u>

This brand new environmental enhancement is a remarkable (and remarkably cohesive) NEW collection of all you dreamed of in a word processor and MUCH more. It contains very updated versions of all 21 files originally contained in FUNLPLUS. (So if you've never owned THAT great disk before, it's here!). However, the larger amount of the 65 files are completely new to II users.

In addition to the author's codes, templates, graphics, tutorials and programs, other files are included by other authors. Lots of ideas and tips have been garnered from discussions, letters, phone calls, and newsletters. Some PO programs used here have been drastically modified to fit inside this tight environment.

Although all that's needed is one SSSD drive and 32K, enhanced systems will have greater flexibility. Persons with Geneve, 512 card, RAMdisk and/or DSDD or harddisk capabilities will find <u>PLUS!</u> the perfect environmental package for all word-processing and many utility needs.

This new companion contains an excellent tutorial on FUNNELWEB by Charles Good; TIW references for EDITing and FORMATting; tutorials; the most compact reference chart available for instant checking of just about anything on TIW, including the mysterious Transliteration Key (and now to turn it into a macro or graphics maker).

Two of the PD programs let you type in gothic and dump your GRAPHX, TI-ARTIST, and/or RLE pix right into your printer or convert them to D/V 80 files. There are also suggestions for creating your own desktop publishing system.

PLUS there are the tiny files that FUNLPLUS was famous for: 2- or 3-sector programs, codes, and templates that let you dump a screen of text, print labels, print out any DV/80 files, design letterheads, and even use the world's timiest wordprocessor (that'll let you write your novel on adding machine paper!).

Then there are the updatings of the taken-for-granted programs that were the mainstay of many of fUHLPLU3's 7 versions: flexible banner program, personalized desk and yearly calendar programs, on-screen workshop demonstration program (with music and fancy displays), and programs to create box patterns, labels, etc., using printer graphics (Gemini-compatible default) right within your text files.

The docs are a novice's dream. They create a manual and tutorial for even the most nervous computerphosic.

Important features of <u>PLUS!</u> are the most often requested files - now a <u>reality</u>: the ability in EDITor LF to set margins to screen size automatically, open your Include Files to resize to 80 or 134 or whatever AUTOMATICALLY in your printout, provide the centering, double-spacing, condensed-typing or ANY OTHER hardcopy combinations you want! THIS 15 ALL DONE WITH A SINGLE KEYSTROKE! You want to type a friendly letter, let's say. Press L while in Load File in EDIT mode. BAM! Instant Letter File - all within prefABbed screen dimensions that includes your own letterhead, date [which will cursor before printout if you wish], name [again cursor], hody to type over, properly-spaced closing; the whole shebang. No fuss. No hassle. PLUS the ability to create letter forms galore.

The one/two-stroke TIW loaders (C. L. G & M files) can suit whatever personal, educational, professional neeeds you have. They include one done for my kids for their college term papers; one for an educational book I wrote; one for normal text use; one for pack-it-in condensed use. One that lets you type 134 columns by 134 rows: 18,000 characters per page! And others, too. You'll wonder how you could have done without this high-speed convenience before. Because each of these ALSO includes a complete range of enemonically-devised transliteration codes. You can use alone or in combinations the following: italics, true underline, doublestrike, super & sub scripts, condensed, enlarged, pica, elite, near-letter quality, and specially-defined (user) keys that give up whole words or sentences or any graphic designs your printer will print out. Each done by a single keystroke. And ALL within your text on the TIW version you are using.

There are lots of other text, graphic, and design programs and files, such as a program that crunches your XB programs for speed and space, a columnizer to allow your text to be printed in columns for newsletters or other uses, and even a program that prints your English into Pig-Latin! PLUS the versatile mini-manager menu/loader. All this PLUS more is on ONE FULL (719 sectors) DSSD DISK! (unless SSSD is specified)

<u>PLUS!</u> is - like its popular predecessor - a great Fairware buy: only \$10! (address below)

Any version of TI Writer will work with these 65 files, but the new 1988 FUNNELWEB is unquestionably the best and most convenient. If you are unable to get from your user group a copy of this incredible environment (which includes Disk Manager 1000, Editor/Assembler cartridge, Forth load, disk editor, c99 load, a manual, and lots of other things in addition to the best version of TI Writer around), send me \$3 additionally for the DISTRIBUTION COSTS ONLY for the latest version. (This is NOT paying for FUNNELWEB, as it, too, is Fairware and a fair amount should be sent to the authors' This is just my cost of handling, copying, and mailing their masterpiece.)

\* JACK SUGHRUE, Box 459, East Douglas, MA 01516 \*

Get your copy of this excellent package from the Software Library now - there will be a review in this newsletter next month

# COMMUNICATION PROTOCOZS

This article, by L.C. Twiss of the Perth UG first appeared in the February 1987 issue of TIUP, the Newsletter of the Perth Users Group.

#### BAUD RATE

Baud Rate is the speed at which data is transmitted by a modem. Typical speeds are:

al 300 Baud

b) 1200 Baud

The term baud relates to the number of binary digits transmitted per second between the communicating devices. At 300 baud, 300 binary digits are transmitted per second. This will include the parity, start & stop bits and include that data bits.

#### PARITY

Parity is a method of determining the accuracy of transmitted data. The parity bit can be ODD, EVEN or NONE.

#### A) ODD PARITY

If the data has an uneven number of 1's then the parity bit added will be a Ø (zero). If it has an even number of 1's then the parity bit added to the data is a 1. This ensures that the number of data bits transmitted will always contain an odd number of 1's.

## B) EVEN PARITY

This is the opposite of Odd parity.

The parity bit added to an even number of i's is always sent.

#### C) NO PARITY

The data transmitted has no parity bit added. If the receiving device detects an error in parity, then the sending device is requested to re-send the data. This is a simple and effective means of checking the integrity of the transmitte data. It will only test if one bit has been altered. Therefore other methods of detecting errors may be used to overcome this problem.

These are added to the end of ear (NAK), data byte transmitted to inform tholocks receiving device that the byte (controdata has finished being sent. The same Stop Bit is also used to ensure boldata machines are synchronized betwee protoce each byte of data transmitted. The Houmber of stop bits which may if ollowed added to the transmitted data can task. It is a some added to the transmitted data can task.

WORD LENGTH

bilby of number the This İS transmitted between the Start b Redund and the Stop bit of a data stream whe The format is:-START BIT -- DATA BYTE -- PARITY Bichecks -- STOP BIT This means that for every byte (a) Was data transmitted, there may actual b) Was be up to 12 bits transmitted. If more Parity is used, no parity bit receiv c) Was sent. receiv

data i

d) Wa X-ON/X-OFF PROTOCOLS This is a handshake protocol whitSum or makes use of text or print buffersthe This metod uses the two handshakireceiv signals CONTROL Q - start or resum data transmision, & CONTROL S - stoIf the data transmission until CTRL Q the d received. When the response CTRL above issued the sender starts t(Ackno transmit data, until the destinations ret buffer is 80% full. At this poire-tra the destination device issues a CTMas be S which informs the sender that thend buffer is almost full and to streceiv When the buffer in <NA sending data. emptied to 20% of its capacity thermin CTRL Q signal is issued to enabl the data transmission again. Thi DVANT process continues until all the dat his i system has been transmitted. :omput

NO PROTOCOL

Using this system no data errol) Rec
checking or protocols are usedile
Data is received and transmitted iverce
if no errors occur they are no Err
detected. This may lead to loss one s
data integrity, or loss of datium.
through the text buffer overflowing nable

his WARD CHRISTENSEN PROTOCOLS These are commonly called the XMODE heck protocols. They are simple and onl) suitable for error checking betweeroto On commencemen<sup>ransm</sup> micro computers. the sender waits until it receives eply <NAK> (negative acknowledgement ent. this CHR 21) before it commences The receiver wilperat transmit data. if Ful keep sending (NAK)'s every seconds until the sender detects th

When the sender detects the <NAK>, it begins sending in 128 byte blocks of data, with added protocol characters. This system assumes that the data is sent as 8 data bits and no parity. The added protocol characters are (SOH) (Start Header - CHR 1). This is followed by the block number in ASCII format, followed by the same character but with its biyt values The 128 byte block of reversed. data is then transmitted, followed by either Check Sum or Cyclic Redundancy Check characer, depending on whether both machines can use the CRC check protocols. The receiver checks each part of the data block as it is received and checks for:a) Was the first character a (SOH) b) Was the block number received one more than the previous block number received. c) Was exactly 128 bytes of

If the receiver is satisfied that the data transmitted passes all the above tests it returns an <ACK> (Acknowledge CHR 6). If not a <NAK> is returned and the block of data is re-transmitted until the entire file has been transmitted and the <EOT> (End Of Transmission CHR 4), is received. The receiver replies with a <NAK> and the transmission is terminated.

d) Was the locally computed Check

Sum or the Cyclic Redundacy Check

received in the block.

same as the last character

#### **ADVANTAGE**

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This is a simple and easy protocol system to implement on most micro computers.

## DISADVANTAGES

a) Requires a manual set up for each file to be transmitted. Can be overcome by using MODEM7 protocols. b) Error detection is in the form of the sum of the characters - Check Sum. It is not sophistocated and is unable to detect the most common types of data transmission errors. This can be overcome by using a CRC check system.

C) It uses the Half Duplex protocols. After the data block is transmitted, the sender waits for a reply before the next data block is sent.

This is an inefficient mode of operation as XMODEM assumes the use of Full Duplex lines.

#### MODEM7 PROTOCOLS

These are based on the XMODEM protocols, except that a queuing system for data file transfers used. The Queue of files 15 arranged before the of transmission. This overcomes one of the shortcomings in the XMODEM system. The files are sent after the other, using the XMODEM protocols, until the transfer queue is empty.

## CYCLIC REDUNDANCY CHECK

This is one of many checks to ensure data integrity during transmission. This is mathematically calculated by dividing the entire numeric binary value of the block of data by a constant. The quotient 15 discardedand the remainder i 🖘 appended to the data block, and is transmitted with the data. At the receiving end an identical process is performed. When the end of block is received the two values are compared. If they are the same then no error has occurred. If they are different then an error has occurred and the dat is re-transmitted,

The CRC has the advantage in that the CRC value is the result of past history, and a burst of noise induced errors will not be the same value on both the sende and the receiver. This system will detect almost 100% of all noise related transmission errors.

#### CHECK SUM PROTOCOL

This is performed by a simple binary addition of the bits in each byte, without a carry being performed. Again, the same task is carried out at both ends of the transmission line. If an error occurs, the data is re-transmitted. A system that uses parity and Check Sum can detect all single bit errors in a single character and a number of multiple bit errors in a single character.

# NIO YEAR SOCIAL

Don't forget the Mid Year Social to be held at 'Macquarie Pier' on Friday 10th June, commencing at 7.30pm. Full details appeared in last month's Newsletter.

If you are interested in attending get in touch with Al Lawrence (phone 486509) NOW!!

# DESCENDER CHARACTER SET FOR EXTENDED BASIC

by Richard Terry MYRI SAVI LOCI

This assembler routine is courtesy of Tony McGovern. other night to see if he had an easy way of redefining the lower case characters short of typing in a heap of CHAR statements. I popped to Funnelweb farm, fortunately it was so wet all those little critters were probably hibernating. After having fought my way through the jungle Tony euphamistically refers to as his "Garden", and negotiated the slippery steps in the dark, I found my way up to his den. I was treated to a preview of configuring Funnelweb via a window program - looks interesting. Tany told me how long he'd been working on the new and added, with a hint of sadness "..and they won't appreciate it you know", a statement with which I commiserated. Its not entirely true, I'm sure users the world over appreciate and continue to appreciate efforts. More to the point what I think he meant was that Users, opposed to programmers don't really appreciate the massive effort, mental and time wise, that go into creating a program. Many users are quick knock an effort - "why doesn't it do....", forgetting or not knowing the difficulties and constraints in programming. Being a programmer opposed to a user, my gut reply tends to be a little angry, something like " well write the bloody thing yourself....". Which raises the No programmer minds users input, point of constructive criticism. without which mods and updates wouldn't be made, just add a few words of encouragement to prefix your criticism, it helps soften the blow.

Anyway back to Tony's routine. He flicked through some old source code to his COLLIST program, ripped out what he wanted, reassembled it in no time at all, and included it in my program. Works fine. He commented he had never thought to use it as a seperate utility, and that I was free to give it to the club, so here it is.

DEF LOCASE VMBW EQU >2024

DATA >0010, >0030, >1010, >1038, >0008, >0018, >0808, >4830
DATA >0040, >4048, >5070, >4844, >0030, >1010, >1010, >1018
DATA >0040, >0078, >5454, >5454, >0000, >0058, >2424, >2424
DATA >00000, >0038, >4444, >4438, >0000, >0058, >4478, >4040
DATA >00000, >0038, >4454, >4834, >0000, >0058, >4440, >4040
DATA >00000, >0038, >4454, >4834, >0000, >0058, >6440, >4040
DATA >00000, >0036, >4038, >0478, >0010, >3810, >1010, >1408
DATA >00000, >0048, >4848, >4824, >00000, >0044, >4428, >2810
DATA >00000, >0044, >5454, >5424, >00000, >0044, >2810, >2844
DATA >00000, >0044, >2410, >1060, >0004, >0070, >0004, >2810, >2844

```
BORDER DATA >00000, >00FF, >00000, >00000, >00000, >00FF, >FF00, >00000
DATA >1818, >1818, >1818, >1818, >00000, >0001F, >1F18, >1818
DATA >00000, >00F8, >F818, >1818, >1818, >181F, >1F00, >00000
DATA >1818, >18F8, >F800, >0000
```

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Note TI : desi be d as:

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```
MYREGS BSS >2Ø
SAVRET DATA >Ø
LOCASE MOV R11, @SAVRET ENTRIES .
       LWPI MYREGS
       LI
            RØ, >Ø6Ø8
                          LOWERCASE DATA TO
       LI
            R1, LWCASE
                          REPLACE
       LI
            R2,2Ø8
                          SMALL CAPITALS
       BLWP @VMBW
BORD
       LI
            RØ,18ØØ
                          BOX BORDER
       LI
            R1, BORDER
                          CHARACTERS
       LI
            R2,56
                          129-135
       BLWP @VMBW
                          137-143
       LI
            RØ, 1864
       BLWP @VMBW
       LWPI >83EØ-
       SB
            @>837C.@>837C
       MOV
           @SAVRET,R11
       RT
       END
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You may obtain this from the club librarian, or type it in and assemble it by loading the assembler from disk, typing in the source file name LOW/S, make up a name to call the file such as LOWERCASE and type R in the options prompt. It will quickly assemble and you should be presented with  $\emptyset\emptyset\emptyset\emptyset$  ERRORS.

Note that once loaded the new character patterns overwrite the in-built TI set in the pattern descriptor table, and these will remain there until destroyed by running another program in the immediate mode. It will not be destroyed by running another program from within your program such as:

```
100 RUN "DSK1.PROGRAM1" -
```

unless you use the statement CALL CHARSET from within your new program, which restores the normal character set. This listing also includes the edge characters needed to make boxes etc.

To use this in extended basic include the following line:

- 10 CALL INIT :: CALL LOAD("DSK1.LOWERCASE") :: CALL LINK("LOCASE")

# THE INFORMATION PAGE

#### IN YOUR NEWSLETTER THIS MONTH

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Wright In the News - a round-up of TI happenings Α. Carmany Random Bytes В. LEHIGH UG Strings and Things Terry XB Revisited - Richard's new program Α. Lawrence Cheque Book/Credit Card Manager Outline B. Carmany Call Files (2) -part 2 of a discussion on files Terry Polished Document Presentation PLUS! - release information J. Sughrue Communication Protocols PERTH UG Decending Characters for Eetended Basic R. Terry

PLUS MUCH MUCH MORE!!!!!

#### COMING EVENTS

Brisbane TI Fair: Saturday, 21st May, 1988
Next Committee Meeting: Tuesday 7th June, 1988
ANNUAL GENERAL MEETING: TUESDAY 14TH JUNE, 1988
Mid Year Social Friday 10th June - details inside

AGENDA FOR ANNUAL GENERAL MEETING
Reports from Office Bearers
Election of new Committee
Software/Publications Libraries available

#### CLASSES AVAILABLE FOR MEMBERS

Extended BASIC classes - Tuesday, 17th May at Warners Bay Genealogy (TYFA) Group - Wednesday 25th May at Warners Bay TI WRITER Discussion Group to be arranged in June

## ANNUAL SUBSCRIPTIONS

Subscriptions to the Group cover the period 1 July to 30 June following year. Membership enquiries are welcome; please address all enquiries to the Secretary.

The annual subscription is:
,Australian Residents...\$25
. Overseas Residents....\$45 (airmail)

Back issues of our Newsletter are available for \$1 plus postage

C#97 Current

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