# TIPS 99

**TI PUGET SOUND 99ERS**

P.O. BOX 6073
LYNNWOOD, WA 98036

*8711/*
*8712* Ø35
*Puget*

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                    PLACE
                 MAILING LABEL
                    HERE.
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If your label is highlighted in yellow, please send $15 to the
Puget Sound 99ers to renew your membership.   Thank you.

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        S U P E R    D O U B L E    I S S U E

     Merry Christmas and have a Happy New Year!!!
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OFFICERS
PRESIDENT : CHUCK WYNNE   745-3249    VICE PRES.: DOUG ROSE     334-3100
SECRETARY : DENNIS WOOD   641-0298    TREASURER : DAVE POWELL   631-7794
NEWSLETTER: TOM WYNNE     745-3249    LIBRARIAN : JOHN EULAND   672-7593

NEXT MEETING
DATE :   Thursday, December 17, 1987              TIME:  7:00 PM
PLACE:   Kirkland Public Library, 406 Kirkland Ave, Kirkland

AGENDA: * New software demonstrations    * Lectures/Special Interest
        * Continuing GENEVE updates       * Question and Answer session

JANUARY MEETING
DATE :   Thursday, January 21, 1987
TIME :   7:00 PM
PLACE:   Kirkland Public Library
         406 Kirkland Ave, Kirkland

IN THIS NEWSLETTER

SOME LOCAL BULLETIN BOARD NUMBERS

| | |
|---|---|
| PUGET SOUND 99ERS BBS-SEATTLE | 784-4142 |
| TIBBS NW-ED DURFFEE-BELLEVUE | 641-5884 |
| QUEEN ANNE COMPUTER SHOPPE | 361-0895 |
| QUEEN ANNE COMPUTER SHOPPE | |
| (MESSAGE ONLY, EVENINGS, 300 BAUD) | 522-6558 |
| NEW WORLD BBS | 365-6938 |
| BAINBRIDGE ISLAND | 1-598-3228 |
| TELETRAVEL | 742-9034 |
| SHUTTLE | 885-INFO |
| TROTHGUARD-BURIEN | 824-6757 |
| RADIO 1 | 878-0158 |
| GEnie | 1-800-638-8369 |

THE PRESIDENT SAYS
By Chuck Wynne

     First of all, I'd like to as those of you  who  need  renewing  to
send  it in.  If your label has a yellow on the date, your dues are up.
You see, we can't send a renewal notice because of  the  bulk  mailing
permit.  All newsletters have to be the same weight.  Last month, there
were now renewal checks in the PO box.  Unfortunately we cannot survive
without  them.   The club should be more important than ever to us now.
It is where support and updates come from.  We are  very  fortunate  to
have  two  dealers  in town who also support this.  Lets make sure they
remain solvent too.
     Our clubs BBS is very important also.   It  is  accessed  by  many
throughout the country.  If you use it for downloads, make sure you get
the new ARCHIIV23 on the board.  It has a compressor, and  uncompressor
that  will make uploads and downloads much smaller and faster.  It also
provides us with more space on the board to store more programs.
     Well, I'm typing this with Funnlwriter V4.0 from Australia.   What
a beautiful update to TI Writer.  I didn't think they could improve the
old version, but I was sure wrong.  The  wish  lists  sent  to  the  Mc
Governs (the authors of Funnlwriter) really paid off.  You know how you
could use SD to see your files, and then remember what it said  so  you
could  then  type in the name on a LF basis? Well, now you just press 4
to mark file 4, or another number from 0 to 9 to  mark  another,  press
enter  and  type  LF  <enter>  and the file you wanted from the list is
already typed in there for you.  You can mark  them  for  deletion,  or
type  4V  to  view  file  4  without losing the one you are working on.
You'll have to use it to realize the improvements.  Those  of  you  who
are still using TI Writer are losing out on these improvements.  Get it
from our library with all the goodies.
     Our TI computer running the BBS has finally given out.   It ran for
about 2 years straight without being turned off.  I think the 9901 chip
is kaput.  The keyboard will not respond anymore, yet  all  leads  have
the  5V  on them.  I'll have to ask TI what to do about it.  These TI's
are built to last though.
     Keith Johnson's PE Box went out.  We found that a big diode on the
power  supply  decided  to become a straight wire.  We replaced it, then
dug into the transformer to replace the blown fuse  inside.   That  did
it.   It  is up and running again.  Brian Collins wasn't so lucky.  You
see, the PE box that is used internationally has  extra  wires  on  the
outside  fuse.  If you don't put the fuse in the right way, the voltage
in will be on the wrong windings and will destroy cards.  Maybe all  of
them.   My  suggestion  for  those inclined is to remove the not needed
wires from the fuse holder inside.  Then if the fuse is put  in  wrong,
the  box won't work.  This is the box with the flat fuse holder next to
the power cord.  If your box has a round twist type fuse, this does not
apply.
     The  program  TASS is beautiful for you who like to show graphics.
It stands for TI Artist Slide Show.  It is on the  freeware  list.   It
will  read  a  disk,  then  display  all  the  graphics  pictures on it
regardless of weather the picture was done in  Graphx,  TI  Artist,  or
RLE.  I can't even describe the other features to you because of space.
It will cycle through 4 drives, and if you specify drive zero, it  will
show colored lines also.  You might want to try it for yourself.
     I  haven't  even  got  to look at Certificate 99 yet.  If you have
need to make awards or ataboys (atagirls?), you may  have  a  need  for
this.   And  ther  is a new word processor called Writer Ease out there
also.  Oh my, I'm way behind in my reviews.  Maybe next newsletter.

Why the TI-99/4A is still a valid purchase
by Rick Lewis

        Ever since it's introduction, the Texas Instruments TI-99/4A
computer has been the victim of uncounted attacks by people from
various segments of the computer community.  Some of the complaints are
(or were) valid, but most are not.  In this essay I will address some
of them in an attempt to cure some of the disinformation which
surrounds this machine.
        Then I will discuss some of the good points of the 99 which are
commonly overlooked, but are important when considering the merits of
the machine.

        -----------------------------------------------------------------

Complaint #1: "The 99 has a small keyboard."

        The 99's keyboard has 44 keys on it, as opposed to 60-100 for many
other keyboards.  The keys are spaced just as far apart and are just as
large as one might find on an IBM PC keyboard, but there are fewer
keys, so the overall size of the keyboard is smaller.  A valid
complaint is that since there are fewer keys, some commonly used keys
are typed by pressing the Function key and some other key in
combination.  This is an inconvenience in some situations, especially
for one key, the quote mark.  One or two extra keys would have solved
the situation, but it was not done.  There are replacement keyboards
with 80-101 keys on them from third party vendors such as Rave-99,
which correct the problem by entirely replacing the keyboard with an
IBM-type keyboard.

Complaint #2: "There is no software for the 99."

        This complaint arises largely from two factors.  One is that when
TI first came out with the 99 it made an effort to discourage potential
third party software vendors from marketing products on their own, but
rather have TI market the software.  This would not have been much of a
problem if TI had been able to provide a wide variety of popular
programs in a timely manner.  For whatever reason, they were not able
to do this.  Eventually they opened up quite a bit and promoted some
third party vendors' efforts.  As it turns out third party vendors made
things anyway.  The second factor in the common perception that there
is little software is the fact that since TI discontinued the computer
very few mainline computer publications have given any coverage of the
TI market.  It has thrived largely from the efforts of a few
specialized publications and through users groups.
        The situation at this time is quite different than it was in 1983
when TI discontinued the 99.  There are dozens of software vendors who
produce many programs for the TI, many of a highly professional
calliber.  There are good programs for word processing, database
management, spreadsheets, painting/graphics, music, and of course
entertainment and education, areas which TI effectively pursued.  TI
decided too late that the computer was being used for serious
applications, but outside programmers have filled the gap with a
tremendous variety of offerings.
        There are several languages available for the 99 as well.  TI
BASIC comes built in.  TI Extended BASIC is available on cartridge,
Mechatronics Extended BASIC is on cartridge, Myarc Extended BASIC 2 is
on disk in assembly language, SST BASIC compiler (rather cumbersome in

its current form), TI Forth, TI PILOT, c99 (a subset of C), UCSD Pascal, TI Logo 2, and of course assembly language are all available at this time. It is expected that a full implimentation of C and an advanced BASIC compiler will be available soon.

Complaint #3: "There are no peripherals for the 99."

        Once again, this was partially true when the computer had just been introduced. TI was successful in stifling efforts to produce compatible hardware by keeping technical data to themselves for a couple years after the computer's introduction. In the last half of 1983, and especially since TI left the market in October of 1983, numerous new and exciting hardware options have become available. Among them are hard disk controllers which can control up to three 134 megabyte drives, floppy controllers which can control up to four 720 kilobyte drives, 80 column boards for high resolution graphics, mouse devices, GRAM cards which can hold software which would normally be on several cartridges, print spoolers, RAMdisks with 512K of memory, and others.
        This is largely a matter of perception, as those within the TI community are plainly aware. If you pick up a copy of Micropendium, a magazine specializing in the 99, it is obvious that there are many hardware offerings readily available at competitive prices from several sources. The market is not as big as the IBM market, and there are consequently fewer participating vendors, but there are enough to fill most requirements. It was mentioned in the Computer Shopper that very few of their advertisers cater to the TI market, and that is a common error. In fact, glancing through that issue, I noted that fully 90% of the advertisers had products which were usable on the 99. This included virtually all printers, cables, monitors, diskettes, joysticks, surge suppressors, disk drives, drive cases, and many other products. Due to the way the TI operating system works, programs are "device independent", meaning, for example that the disk controller card will take all the commands the TI uses for any peripheral (such as an RS232 interface), and make them work on disk drives, thus practically any disk drive will do the trick. Currently one can connect 5.25 inch drives from 90-720K, 3.5 inch disks, a streaming tape drive, and hard disks from 5-134MB, all to the same controller card! This allows a great deal of flexibility not normally available on most systems.

Complaint #4. "The 99 has to use those cartridges."

        Most software made by TI was in the form of cartridges. These cartridges contain up to 46K of RAM and ROM. TI's concept was to make the first "home computer"; one which could easily be used by any member of the family, withough having to load lengthy programs from cassette or disk, the handling and commands for which are often beyond the comprehension of small children. The cartridge is a good medium for programs of that sort, but are not necessarily good for business programs, which are often revised periodically (not practical for a cartridge), and which sometimes exceed 46K. TI's answer for this was to have the cartridge be little more than an automatic loader for a disk-based program, a tactic they used for TI Writer and Microsoft Multiplan.
        Cartridges have a problem in that they can be a serious cause of failure for the computer since the physical connectors for the cartridges just plain wear out. In the last year a product has come

out called the GRAMkracker.  It stores the contents  of  cartridges  on
disk,  and  can  then  load  them  back  and run them later without the
cartridge  present,  thus  allowing  the  99  owner  to  switch  between
programs without switching cartridges.
     Of  course  most programs made for the TI never were on cartridge,
as they were produced  by  third  party  vendors,  so  except  for  the
software made by TI, the problem is nonexistent.

Complaint #5: "There's no support for the 99."

     This is simply not true.  TI will still repair 99 computers and TI
peripherals at reasonable prices, although like most TI  equipment  the
failure  rates  are very low, except for the mechanical components like
keyboards, cartridge and device ports, etc., which will wear  out  with
time.
     Although  TI  does  not  produce  hardware  or software for the 99
anymore,  there are many third party companies who do.  There is a small
network  of  dealers  (there are three in the Seattle area) who support
the 99.  Perhaps the most important  and  comprehensive  support  comes
from  the  many  users  groups  around the world for the 99.  There are
several in the Seattle area, with  a  combined  membership  of  several
hundred  99 users.  Another excellent source of support and information
is Micropendium, a fine magazine  which  covers  only  the  TI  market.
Finally,  there  are  dozens  of  TI  electronic bulletin board systems
around the country, including at least three in the Seattle area  which
are run on 99s for 99 users.

Complaint #6: "The 99 is too slow."

     From  day  one this complaint has been a sore point.  In fact, the
99 is a fairly fast machine internally.  Due to the way TI  implimented
BASIC, the system has to interpret every statement twice.  As you might
expect this slows things down quite a  bit.   The  BASIC  commands  are
interpreted  by  a GPL (graphics programmin language) interpreter which
is then interpreted into machine language by the CPU.   Another  reason
for the slow execution of TI BASIC is that all numbers are stored in an
eight byte format called radix 100.  This has the effect  of  providing
numeric  accuracy  of  13-14 digits for all computations (significantly
better than any computer in  its  price  range),  but  also  slows  the
processor down.
     Myarc, a vendor in the 99 market for a few years has come out with
what they call Extended BASIC 2.  It is written  in  assembly  language
rather  than  GPL,  so  although it runs TI BASIC and TI Extended BASIC
programs, it runs them up to twice as fast, and supports  128K  RAM  as
well.   It  also supports integer, single and double precision numbers,
so programs which use a lot of calculation and counting loops are  sped
up even more.
     When  running  assembly  language  programs  the TI has comparable
speed to (and in many cases greater than) other popular computers.

Complaint #7: "The 99 isn't compatible with anything."

     True.  The 99 is compatible only with the Geneve 9640,  which  was
recently  introduced  by  Myarc.  Consider the fact that it was designed
in 1978, and you can see why.  The only inexpensive computers available
at  the  time  were  the  Radio  Shack  Model  1, the Apple II, and the
Commodore Pet.  There were a few smaller players, but those three  were
most of the competition.  There was no IBM PC.  There was no Macintosh.

The Apple, Radio Shack and Commodore were nothing like their current models. There was really no standard and no prospect of one. All of the computers available used different processors and all had proprietary operating systems.

There has recently been introduced a program which allows the 99 to read and write text files directly to IBM disks, which will help in some applications. A significant fact, however, is that there are still very few standards with which the TI could be compatible. Even IBM's new introductions are not fully compatible with their models of just a few months ago. There is no practical way for any computer using a different processor from the PC to be compatible except by having a board with a complete PC on it (this has been made for the 99), or with software emulation. Even fast new computers like the Amiga have little success emulating a PC, since (like TI BASIC) everything is processed twice. Sending data via cables or through bulletin boards works, of course, as the TI uses standard ASCII characters and has Xmodem capability in some terminal programs. One notable feature is that TI Extended BASIC, and especially Myarc Extended BASIC 2 are very complete, and include most of the commands found in Microsoft BASICA (plus several additional features of course).

Complaint #8: "The 99 is too expensive to expand."

In 1982 this was true. TI had overpriced their peripherals and made it inconvenient for third party developers to make and market hardware. Beginning in 1983 TI dramatically reduced their prices for peripherals, and third parties began to enter the market as well. Currently a 99 system with two double sided, double density disk drives, 144K of RAM, an RS232/parallel interface card, a peripheral expansion system to hold the peripherals, and a composite monitor will run about $800, depending where you get it. This is somewhat overpriced in today's market, but the software available for the 99 is quite a bit less expensive than for most computers. The software is normally less than $100 for a fairly complete library, as opposed to $1,000 for most other types of computers. Considering this, the 99 is not such a bad deal at all.

Complaint #9: "The 99 only has a 28 column screen."

Actually the PRINT command in TI BASIC and Extended BASIC do print in 28 of the 32 displayed columns. The 99 has two different graphics modes in which text can be displayed. One, used by TI BASIC and Extended BASIC is displays 32 columns and has 16 color graphics. Another mode, used by TI Writer, Microsoft Multiplan, and other programs is 40 column mode with two colors. TI Forth has a 64 column mode.

Additionally, there is a peripheral card available which includes an enhanced video chip, and allows multicolor 80 column text. There is, at present little software support for it, but it has only recently been introduced.

Complaint #10: "The 99 can't do PEEKs and POKEs."

The version of TI BASIC included in the 99 does not include the PEEK and POKE statements allowing direct reading and writing to individual memory addresses. This is mitigated by the fact that most of the reasons users of other types of computers use PEEK and POKE are to overcome shortcomings in the BASIC language, usually as concerns

graphics, sound or other input and output. TI BASIC contains special built-in functions to accomplish these tasks. They allow, for example, a single statement to check whether a key is being pressed, whether it is the same key that was pressed the last time you checked, specify which portion of the keyboard input can come from, and determine what the ASCII value of the key is.

Of course there are things which are not included in TI BASIC, and functions to PEEK and POKE were included in TI Extended BASIC, TI BASIC (with the Mini Memory cartridge plugged in), and Myarc Extended BASIC. Even so, with the additional features included in the Extended BASICs PEEKs and POKEs are rarely used.

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So what are the good points which led over two million people to buy TI-99 computers from 1979 to 1983? Well there are many, including:

Benefit #1: Ease of use.

Since the 99 was designed to be the world's first "home computer", TI made it much easier to use than any currently available computer, and most since. It's operating system was build into ROM, and was three to four times as large as most systems of the time. It includes TI BASIC and a menu driven system for getting into BASIC or whatever cartridge is plugged into the cartridge port.

The cartridges can contain up to 38K of ROM and 8K of RAM under normal circumstances. Cartridges provide a quick and easy way of changing between relatively large and complex programs without involving peripherals such as a disk drive, or requiring any knowledge of computers. With the addition of inexpensive cartridge expanders up to three cartridges can be plugged in at one time and easily switched betwen without putting any wear on the cartridge port.

Naturally, disk and cassette based programs can easily be used as well, and BASIC includes an easy-to-use system for loading cassette programs. The disk controller cards (or stand-alone peripherals) contain all the commands necessary to save, retrieve and update programs and files from BASIC or other programs. Similarly, other peripherals include what are called device service routines (DSR's) which tell the computer exactly how to communicate with the device, and respond to enquiries and commands from the computer. This method of using "smart" peripherals takes a load off the CPU and allows a greater variety of peripherals to be used with any given programs since the commands will be common between devices.

Benefit #2: Device Independence

A feature which TI used in the 99 operating system is called "device independence". The commands used with one device will work equally well with other devices. This means a programmer need not know the hardware configuration of the end user to write effective programs. One can, for example, have a progrem query the user as to what device information is to be saved on, and the program can write to that device with common commands, mearly specifying the particular device name.

Benefit #3: Expandability

The 99 can be expanded greatly beyond the initial computer. Peripherals are available to allow up to 512K of RAM to be used as

RAMdisk, print spooler, and extra program and data space; 512K of RAM to hold several cartridges, even with the power off, so several options are available on powerup; speech synthesis; 80 column high resolution graphics; UCSD P-System; up to four DSQD (720K) floppy drives; up to three 134MB hard drives; two cassette players; two joysticks; a mouse; four RS232 ports; two parallel ports; video controller interface; and more, all at the same time!

Benefit #4: Durability

        TI is well known for the durability of its equipment, and the 99 is no exception. Having sold these systems, I can attest that there are very few problems. Well over 99% of the problems experienced with the 99 are hardware problems associated with moving parts, i.e. the keyboard, cartridge port and peripheral port. Even if a problem develops, TI still supports the 99 with an exchange/repair service.

Benefit #5: Superior mathematics

        One of the nicer points of the 99 is that if you did a calculation you know it's right. On many systems even counting can be a difficult chore. On the 99 all calculations are performed to either 13 or 14 significant digits. This has the tendency to slow things down a bit, but if you ask the computer if the square root of "x" squared equals "x", you'll get a "true", whereas on most computers you'd get false because of the inaccuracy of the calculations. This may seem like a technicality, but computers take things literally, and having to account for these errors is a hassle for programmers.

Benefit #6: Excellent support from the TI community

        Much to the surprise of many doom-sayers, the 99 is alive and well fully four years after TI's pullout from the home computer market. There are users groups in practically all major US market areas, many dealers who cater to the 99 market, magazines which carry 99 material (even one which specializes on the 99), several computer fairs each year for the 99, a fine compatible upgrade system in the Myarc Geneve, and many programmers stretching the limits of computer and peripherals. There is much more in the way of software and hardware available today than when TI was running things, and there are no signs of it stopping.

Data Base Managers for the TI99/4A
By Bill Goskill
Taken from the Colorado Front Ranger

     Some owners/authors of the applications I have  covered  in  this
article  will  no  doubt be angered by the apparent brutality of it.  I
choose to view it as honesty rather than brutality.   Too many reviewers
white-wash  the weakness of TI software they critically review.  I will
not.  I think sometimes that we are afraid  that  the  software  market
will  dry  up  and  blow  away  unless we give favorable reports on the
software products that do appear for our computer.  I prefer  to  think
of it in another way: if we promote junk software in a favorable light,
those that do publish product reviews will simply  be  that  much  more
reluctant to get burned a second time.
     In  the  process of searching for the perfect data base manager, I
have purchased several programs and  spennd  over  $300.   All  of  the
programs  that I own have positive points and all have negative points.
What I have discovered to date is that the "perfect" data base  manager
does  not exist, yet [not even in the business world].  What I am going
to share with you are my impressions of the  programs  I  own,  and  in
doing  so, will perhaps save you a little time and money if you too are
looking for that "perfect" application.

     The programs I own are:

ACORN 99 from Oak Tree Systems
DBMS from Navarone Industries
DATA BASE I from SPC software
DATA BASE99 from Quality 99 Software
DATA BASE X from Western Ware
PRBASE V1.2 and V2.0 from William Warren
TURBO DATAMAN from Easy Ware


     I have used these programs enough to feel  comfortable  with  each
and  could probably write several pages about each one.  Unfortunately,
publication space is limited and such a bvoluminous article would never
see print because of it.
     Thus I have tried to be brief, but to the point, in my comments on
each  program.   Also,  please  keep  in  mind  that  my  comments  are
subjective,  based  upon  how  each  product  meets  MY  needs  and
expectations.   Yours may be different.
     For ease of reference I have included some of the information in a
comparison  table  that  allow analysis at a glance.  In the paragraphs
that follow I will try to provide a little detail  to  each  issue  and
cover  special  features,  lack of what I view as standard features and
product performance of each program.  I apologize in  advance  for  the
crypitc  style  you  will  read,  however,  I  needed to be brief.  The
DATABASE 300 program will not be looked at since it is not available.

     ACORN 99:
     Among the top three DBM´s available to the TI community.  The only
relational  data base available.  Also, the only one with a programming
language interface for custom  applications.   EXTREMELY  powerful  and
well  designed.   Can  support  three  active files at one time, allows
existing data file formats  to  be  edited,  copied  to  another  file,
resequenced and can reformat a file structure into another file format!
Does not have the ability to show number of records  in  a  file.   Can
hold more that 1500 records per file on a SS/SD disk [depending on file

size]. Sorts alpha characters and strings better than numbers. Indexes record location for subfile creation and main file is then concatenated to create the subfile as another database. Possesses ability to search, using "equal to, unequal, greater than, less than, ignore" logical operators. Supports relational operators in search routines through the use of a true/false convention that allows selection of records where all parameters are met, or any parameters are met. CAN print a single record from a display screen. EXTREMELY slow in operation. Uses 40 column text mode. Allows duplicate key field data entries. Allows printer control codes to be encripted in set up file. Provides input checking for "numeric, integer, money, string, flag and date" entries. Overall, a fabulous program, with almost limitless potential. The best documentation of the group, giving you examples along wit explanations. SUPERB application.

DBMS [Navarone]
Allows 32,000 records per file, but only 350 per SS/sd diskette. Limits you to half that amount if you wish to sort the file since it creates a second sorted file that demands equal space on your data disk. Most interesting report generator i have ever seen, a cut and paste type affair that is really neat, but poorly documented. Excellent custom secreen design module which includes help screens that you design. FAST, FAST, FAST. Requires unique key field entries only, which I find inconvenient. Documentation is better than originally written, but still confusing at times, and incomplete. Notes on mundane things and skips over, or entirely omits, important things. Does totaling in reports, but no other computational work. Does not support single record printing, but can use the report module to scroll data on screen, write it to disk or send it ot your printer. Can apend new data fields to the end of an existing record, but cannot reformat the record in any other way. Can create subfiles, but you have to figure out how to do it for yourself because the documentation does not tell you how. It doesn't even mention subfiles. Allows printer control codes to be encrypted in the report generator file. Does not perform input checking of any type. All data is considered to be a string entry. Best suited for a hard disk environment. Not difficult to use once you have "played" with it, but can be intimidating at first.

DATA BASE 1:
Best suited for mailing lists or othr LIST type data files. Cumbersome design setup requiring records to be accessed by their relative position in the file [record number]. You must first list the records by a specified field if you don't know the record number. Time consuming. Provides three pre-set mailing label report formats and one custom format for your own design. Will NOT do reports that have heading information. Includes several nice utilities, such as a formletter generator, disk file data base which creates a DB! data base file out of the information on your library of disks. Does not provide for input checking, nor length of field entries. Only looks at the length of overall record. Does searches by "equal to" operator only, only one data field at a time. Requires that you first create an index file and then search. To search by another field you must create another index file. Searches by a maximum of 5 characters in any field. Sorts are limited to 1000 records, no matter how many exist in the file, but both alpha and numeric sorts are offered. Subfiles can be created to a printer in the main program or to disk by using the utilities options. Selection is by "equal to" or "between two values",

which can be either alpha or numeric type.

DATA BASE 99
More emphasis put on copy protection than on program performance. Allows custom screen design and claims 28 fields of up to 28 characters each. Would be a neat trick to do since four of the 24 rows on screen are used by program prompts. (ast assembly language interface for report generation). Cannot generate reports with headings and does not permit proper control codes to be inserted in report data. Does not seave a format after design, so you will have to re-create it each time you want a report. Data is printed in continuous format without regard to page breaks or anything else. Design of layout is combersome, requiring you to conceptualize how many colons and/or semi-colons are needed to push the data across the page. Number of colons/semi-colons is limited to 127 characters allowed in a Linput command. A terrible system. Disk catalog accessed from main menu will crash program if you enter an alpha character instead of a number when it prompts for the disk drive number to be cataloged. Color is lost after a crash since it was CALLed from the LOAD program. Does not permit single record screen print (unless you but the DB99 utilities), must use EDIT option to search for a record or search sequentially. Cannot go directly to a record by its relative position in the file. Will create subfiles to disk, allowing the search by "less than, equal to, or greater than" operators. Search is limited to one field for all practical purposes. Sorts can be performed in ascending order, by any one field. Sort is an actual re-write of the file. All data is considered string information. No number crunching (again, unless you by the DB 99 Utilities), no input checking. Documentation consists of two 8 1/2 x 11" sheets of paper printed on both sides. Program is slow, inflexible, inconvenient in many ways and combersome to use. It might have ben an advanced application two years ago. Today it is a dinosaur, even with the DB 99 Utilities. MUCH TOO EXPENSIVE.

DATA BASE X:
Very modular, meaning that each function (adding, editing, printing, deleting etc.) is a separate program that must be loaded each time you want to use that function. Does statistical analysis of data. Record counter is inaccurate, code of program is jumbled and entirely unstructured. Does not sort data, even though documentation uses the term "sort". What it means is "select". When DATA BASE X "sorts" by a particular parameter it is really selecting records for dumping to a printer that meet that parameter. Does allow selection between ranges. Cannot create subfiles, does not index existing records. Access of a record is done sequentially, unless you know the record number. No way to tell the record number, you must quess. Supports 1 or 2 disk drives. Excruciatingly slow. Requires that you name the data disk DBXDATA, for no good reason that I can see, otherwise program errors out. Does not save report definition, but does allow it to be printed in normal or compressed mode. Definition process is fairly simple, but time consuming. Documentation is the "shabbiest" I have ever seen. It is photociped and put into booklet form with the pages not even cut straight, so that some information is missing off of some pages. Overall, this program is JUNK! As with the IUG's DATA BASE 300/500, it never really belonged on the market in the state that it is in. Unfortunately, I didn't know that and paid out over $30 to find out.

PRBASE:
Totally assembly language coded. THE BEST all-round application

in my opinion. FAST, flexible, does virtually anyything a user would
want in the way of data handling, except number crunching. It will not
do anything in that area. Treats all data as part of a big string just
as DBMS and DATA BASE 99 do. As long as you own the PRB Utilities
written by John Johnson, you can create subfiles, otherwise you can't.
Has on-line help for commands, creates an index by any input field you
choose and then accesses any record in about 1 second. Also has a FIND
feature to look at data sequentially in any single field and a GLOBAL
option that searches for a single data entry anywhere in the record.
Saves up to fiver report formats, V2.0 allows you to format data disk.
Custom screen layout with terrific graphics options for borders/windows
etc. is available. A TREMENDOUS PROGRAM, well thought out, well
designed, artistically executed. FAIRWARE!!!! PRB Utilities are free
for the asking as long as you provide the disk and mailer. Report
design is cumbesome and confusing. Prints single record from screen
display in either 40 or 80 column mode. Program is very sensitive
about I/O device names. My copies (V1.2 and V2.0) both require PIO.
to work rather than just POI or POI/2, etc. With number crunching
abilities, this program would be a perfect "flat-file data manager" for
most TI users. As it is, the value and performance for a FAIRWARE
application, or a commercial application too for that matter, is
unsurpassed. If you don't have PR BASE then you are missing out on one
of the premier productivity tools available to the TI community.

   TURBO DATAMAN:
      This is the second most powerful and useful dta manager, taking a
backseat only to PR BASE. It runs slightly ahead of ACORN because it
perfoms number crunching and is faster in operation. Like ACORN, TURBO
DATAMAN allows you to create a dictionary of data items (fields) and
then lets you choose from a library of fields to put a record together.
Up to 30 fields are allowed per record. Twenty pre-defined records
(file formats) can exist on one disk. Allows custom screen layout
design, complete with graphics for borders/windows etc. Does input
checking, allows secondary screen access, like ACORN's Detail Records.
Allows formulas to be created and saved that perform the four basic
math functions. Report definitions can be saved. Allows wildcard type
operators in searches, will print single record from screen display.
Provides "less than, greater than, equal to, not equal to, greater than
or equal to, less than or equal to" operators in screen display and
report generation modules. Permits sub-totals in reports that can be
formatted like TI Extended BASIC does with IMAGE statement. Subfiles
can be created through the report generator by sending the output
selected to a disk file rather than a printer. The results must be
converted back to INTERNAL, FIXED from DISPLAY FIXED before you can use
it in the program however, TURBO DATAMAN does not provide you with that
utility. The documentation instructs you to "write a program" to do
it. Names used for different modules in the program are cconfusing.
Ex: ETCH, SKETCH, SKETCHR, FETCH. Should change names to more
accurately reflect function of module. Documentation acceptable, but
lacks adequate coverage in some areas. Utilities are provided to
perform some mundane operations, such as counting the amount of records
in a database. Reformatting or restructuring of an existing file is
not permitted, unless the input field is appended to the end of a
record format. The program needs some "fine tuning" in some areas, but
is still an exciting productivity tool with immense possibilities. Its
speed of operation is not fast, but acceptable. It is faster than
ACORN. One can set up the SKETCH program to auto-load if desired, but
the whole application should be centered around a menu in my opinion.

As it is now, you must RUN each module from the READY> prompt when  you
need  to use it, because every module exists with an END statement.   If
you don't own this program, you should.   Whenever you want to manage  a
mailing list or do accounting, TURBO DATAMAN is for you.

Feature table:

-------------------------- Data base name ------------------------------------

| FEATURE | ACORN99 | DBMS | DB1 | DB99 | DBX | PRBASE | TURBO DM |
|---------|---------|------|-----|------|-----|--------|----------|
| RECORDS/FILE | LIMITED BY DISK | 32,000 | LIMITED BY DISK | 350-1400 | LIMITED BY DISK | 350/710 | LIMITED BY DISK |
| FIELDS/REC. | 54 | 25 | 10 | 28 | 10 | 32 | 30 |
| MAXIMUM RECORD LENGTH | 255 | 255 | 245 | 246 | 246 | 246 | 255 |
| MAXIMUM FIELD LENGTH | 40 | 40 | 28 | 28 | 28 | 246 | 28 |
| MEMORY REQ'D | 32K | 32K | 32K | 32K | 16K | 32K | 32K |
| LANGUAGE | XB/ASSM | ASSM | XB/ASSM | XB/ASSM | XB/ASSM | ASSM | XB/ASSM |
| CUSTOM DESIGN SCREEN LAYOUT | NO | YES | NO | YES | NO | YES | YES |
| SCREEN GRAPHICS | NO | NO | NO | NO | NO | YES | YES |
| ALTERED CHAR SET USED | NO | YES | YES | NO | NO | YES | NO |
| CUSTOM REPORT DEFINITION | YES | YES | YES | YES | YES | YES | YES |
| SAVES REPORT DEFINITION | NO | YES | YES | NO | NO | YES | YES |

Christmas Tree
By Tom Wynne

Here is a little something I wrote for the season.  I hope some of you will modify it, or maybe add a little music,  and  add  it  to  our library.  Enjoy!

```
100 REM *********************
110 REM *  CHRISTMAS TREE  *
120 REM *   BY TOM WYNNE    *
130 REM *PUGET SOUND 99ERS *
140 REM *   USERS GROUP     *
150 REM *********************
160 REM
170 CALL CLEAR
180 CALL SCREEN(2)
190 CALL CHAR(128,"0101030303070 70F0F",129,"1F1F3F3F7F7FFFFFF",
    130,"FFFFFFFFFFFFFFFF F",131,"8080C0C0E0E0F0F0",
    132,"F8F8FCFCFEFEFFFF")
200 CALL CHAR(133,"18183C3C7E7EFFFF",136,"FFFFFFFFFFFFFFFF")
210 CALL CHAR(127,"FFFFFFFFFFFFFFFF")
220 FOR I=0 TO 12  ::  CALL COLOR(I,16,2)::  NEXT I
230 CALL COLOR(13,3,2,14,13,2)
240 CALL HCHAR(22,1,127,96)
250 CALL TREE(2,6,4)
260 DISPLAY AT(6,10):" MERRY CHRISTMAS"
270 DISPLAY AT(8,10):" FROM"
280 DISPLAY AT(10,10):" THE PUGET SOUND"
290 DISPLAY AT(11,10):" 99ERS USERS"
300 DISPLAY AT(12,10):" GROUP"
310 FOR I=1 TO 28  ::  CALL SPRITE(#I,46,16,1,INT(RND5)+1,
    INT(RND)+1,INT(RND )+1)::  NEXT I
320 GOTO 320
330 SUB TREE(R,C,H)
340 CALL HCHAR(R,C,133)
350 CC=C
360 R=R+1  ::  C=C-1  ::  L=1  ::  GOSUB 450
370 FOR I=1 TO H
380 R=R+1  ::  GOSUB 450
390 R=R+1  ::  GOSUB 470
400 R=R+1  ::  GOSUB 470
410 R=R+1  ::  C=C-1  ::  L=L+2  ::  GOSUB 450
420 NEXT I
430 FOR I=1 TO 3  ::  R=R+1  ::  CALL HCHAR(R,CC,136)::  NEXT I
440 GOTO 490
450 CALL HCHAR(R,C,128)::  CALL HCHAR(R,C+1,130,L) ::
    CALL HCHAR(R,C+L+1,131)
460 RETURN 470 CALL HCHAR(R,C,129)::  CALL HCHAR(R,C+1,130,L)::
    CALL HCHAR(R,C+L+1,132)
480 RETURN
490 SUBEND
```

Silver Bells
By David Wayne Weaver
Taken from the TI Riverside Users Group newsletter
November 1987

```
100 CALL CLEAR
110 PRINT TAB(9);"SILVER BELLS"
120 PRINT : :
130 PRINT TAB(9);"CONVERTED BY"
140 PRINT TAB(6);"David Wayne Weaver"
150 PRINT :;: : : : : : : : :
160 FT=4/3
170 DIM A(105),B(105)
180 FOR I=1 TO 105
190 READ A(I),B(I)
200 NEXT I
210 FOR I=1 TO 82
220 CALL SOUND(INT(A(I)*FT),B(I),2)
230 NEXT I
240 FOR I=32 TO 95
250 CALL SOUND(INT(A(I)*FT),B(I),2)
260 NEXT I
270 FOR I=3 TO 82
280 CALL SOUND(INT(A(I)*FT),B(I),2)
290 NEXT I
300 FOR I=96 TO 105
310 CALL SOUND(INT(A(I)*FT),B(I),2)
320 NEXT I
330 GOTO 210
340 DATA 200,1047,200,880,400,784,400,659,200,1047,
    200,880,400,784,400,659,200,1319,200,1175
350 DATA 400,1047,400,880,400,880,800,880,200,1175,
    200,1047,400,988,400,784,400,740
360 DATA 400,698,600,784,200,698,400,698,800,659,400,
    659,400,35000,200,1047,200,880
370 DATA 400,784,400,659,200,1047,200,880,400,784,
    400,659,200,1319,200,1175
380 DATA 400,1047,400,880,400,880,800,880,200,1175,
    200,1047,400,988,400,784,400,740
390 DATA 400,698,400,784,400,1175,1200,1047,1200,
    1047,200,659,200,698,800,784,1200,784,200,880,
    200,988,800,1047
400 DATA 1200,1047,400,988,400,988,400,1047,800,1175,
    200,1047,200,988,400,1047,800,784
410 DATA 800,784,400,35000,200,659,200,698,800,784,
    1200,784,200,880,200,988,800,1047
420 DATA 1200,1047,400,988,400,988,400,1047,400,1175,
    400,1047,400,988,800,1047,200,1568,200,1319,800,
    1397,200,1397
430 DATA 200,1175,800,1319,200,1319,200,1047,400,1175,
    400,35000,200,1047,200,880,800,1047,200,1568,200,1319
440 DATA 800,1397,200,1397,200,1175,400,1319,400,784,400,
    988,1200,1047
```

BOX-DOTS
By Wesley R.  Richardson
Taken from the Bluegrass 99 Computer Society, Inc.  Newsletter

```
100 REM BOX-DOTS
110 REM TI-99/4A EXTENDED BASIC WITH JOYSTICKS, TWO PLAYER GAME
120 REM WESLEY R.  RICHARDDSON, NOV 1987
130 REM BLUEGRASS 99 COMPUTER SOCIETY, INC.
140 REM VARIABLES A,A$,B,B$,C,D,E,H$,I,J,M,N,P,Q,R,S,T,W$,Z
150 CALL CLEAR :: CALL SCREEN(6):: FOR I=0 TO 12 ::
    CALL COLOR(I,16,1) :: NEXT I
160 CALL CHAR(100,"0100000000000000FF000000000000000
    1010101010101FF010101010101")!BORDERS
170 T=1 :: CALL CHAR(98,RPT$("F",16),99,"3030FCFC303000")!CROSS
180 REM RESTART POINT
190 GOSUB 1030
200 DISPLAY AT(6,3):"PRESS ALPHA LOCK DOWN"
210 DISPLAY AT(9,3)SIZE(-18):"PLAYER #1 INITIAL?" ::
    ACCEPT AT(9,22)SIZE(1)VALIDATE(UALPHA):A$
220 IF LEN(A$)=0 THEN 210
230 DISPLAY AT(12,3)SIZE(-18):"PLAYER #2 INITIAL?" ::
    ACCEPT AT(12,22)SIZE(1)VALIDATE(UALPHA):B$
240 IF LEN(B$)=0 THEN 230
250 A=ASC(A$):: B=ASC(B$):: IF B<>A THEN 270
260 DISPLAY AT(13,3):"LETTER OTHER THAN"&A$ :: GOTO 230
270 DISPLAY AT(6,1):RPT$("d",26)::
    DISPLAY AT(15,3):"PUT ALPHA LOCK UP" ::
    DISPLAY AT(16,3):"THEN PRESS ENTER"
280 CALL KEY(0,I,J):: IF J=0 THEN 280
290 CALL CHARPAT(A,A$,B,B$):: CALL CHAR(105,A$,113,B$)
300 RESTORE :: FOR I=1 TO 15 :: READ W$ :: DISPLAY AT(I+4,1):W$
    :: NEXT I
310 DATA "BOX-DOTS IS PLAYED BY TWO","PLAYERS.  EACH TRIES TO GET",
    "THE MOST NUMBER OF BOXES"
320 DATA "WITH HIS LETTER IN IT.","","PLAYERS TAKE TURNS USING",
    "JOYSTICKS TO MOVE THEIR"
330 DATA "CURSOR, AND THE FIRE BUTTON","TO DRAW IN A LINE.","",
    "YOU MUST DRAW AT LEAST ONE"
340 DATA "LINE ON EACH TURN, AND AFTER","COMPLETING A BOX.","",
    "HIGH SCORE WINS.   "
350 CALL BOXES(A$):: CALL BOXES(B$)
360 DISPLAY AT(21,8):"PRESS ANY KEY" :: CALL SOUND(200,1760,0)
370 CALL CHAR(104,A$,112,B$)
380 CALL KEY(0,K,J):: IF J=0 THEN 380
390 GOSUB 1030 :: A=0 :: B=0 :: M=20 :: N=25
400 CALL SPRITE(#1,99,1,80,80,#2,99,1,80,170,#3,98,1,185,25,
    #4,98,1,185,81)
410 DISPLAY AT(10,1):"VERTICAL SIZE (1-20)?";M ::
    DISPLAY AT(12,1):"HORIZONTAL SIZE (1-25)?";N
420 ACCEPT AT(10,25)SIZE(-2)VALIDATE(NUMERIC):M :: M=INT(M)::
    IF (M<1)+(M>20)THEN 410
430 ACCEPT AT(12,25)SIZE(-2)VALIDATE(NUMERIC):N :: N=INT(N)::
    IF (N<1)+(N>25)THEN 410
440 P=13+8*INT((21-M)/2):: Q=174-8*INT((20-M)/2)
450 R=21+8*INT((26-N)/2):: S=222-8*INT((25-N)/2)
460 Z=INT(M*N):: GOSUB 1030
470 FOR I=3 TO INT((25-M)/2):: CALL HCHAR(I,3,32,26):: NEXT I
480 FOR I=24-INT((20-M)/2)TO 23 :: CALL HCHAR(I,3,32,26):: NEXT I
```

```
490 FOR J=3 TO INT((30-N)/2):: CALL VCHAR(3,J,32,21):: NEXT J
500 FOR J=29-INT((25-N)/2)TO 28 :: CALL VCHAR(3,J,32,21):: NEXT J
510 GOSUB 990
520 REM MAIN LOOP
530 CALL COLOR(#T,9+T,#(T+2),9+T)
540 CALL JOYST(T,I,J):: CALL MOTION(#T,-J-J,I+I)
550 CALL KEY(T,I,J):: IF J=0 THEN 540
560 IF I<>18 THEN 540
570 CALL MOTION(#T,0,0):: CALL POSITION(#T,I,J)::
    IF (I<P)+(I>Q)+(J<R)+(J>S)THEN 540
580 I=I+3 :: J=J+3
590 D=8*INT((I+3)/8)+1 :: C=8*INT((J+3)/8):: E=ABS(I-D)-ABS(J-C)::
    IF E=0 THEN 40
600 IF E>0 THEN 710
610 REM HORIZONTAL
620 I=(D+7)/8 :: J=INT((J+7)/8):: CALL GCHAR(I,J,C)
630 IF C<>100 THEN 670
640 CALL HCHAR(I,J,101)
650 I=I-1 :: GOSUB 910 !CHECK FOR BOX AT I-1,J
660 GOTO 810
670 IF C<>102 THEN 540
680 CALL HCHAR(I,J,103)
690 GOSUB 910 :: D=E :: I=I-1 :: GOSUB 910 :: E=D+E
    !CHECK FOR BOX AT I,J AND I-1,J
700 GOTO 810
710 REM VERTICAL
720 I=INT((I+7)/8):: J=C/8 :: CALL GCHAR(I,J,C)
730 IF C<>100 THEN 770
740 CALL HCHAR(I,J,102)
750 J=J+1 :: GOSUB 910 !CHECK FOR BOX AT I,J+1
760 GOTO 810
770 IF C<>101 THEN 540
780 CALL HCHAR(I,J,103)
790 GOSUB 910 :: D=E :: J=J+1 :: GOSUB 910 :: E=D+E
    !CHECK FOR BOX AT I,J AND I,J-1
800 GOTO 810
810 REM TURN FINISHED ?
820 IF E=0 THEN 890
830 IF (A+B)<Z THEN 540
840 DISPLAY AT(24,17):"AGAIN? Y/N" :: FOR I=1 TO 6 ::
    CALL SOUND(200,220*2^I,0) :: NEXT I
850 ACCEPT AT(24,24)SIZE(-1)VALIDATE("YNyn"):W$
860 CALL DELSPRITE(ALL):: T=T-(T=1)+(T=2)
870 IF (W$="Y")+(W$="y")THEN 180
880 CALL CLEAR :: CALL CHARSET :: DISPLAY AT(12,3):
    "THANKS FOR PLAYING.   WR"::STOP
890 CALL COLOR(#T,1,#(T+2),1):: T=T-(T=1)+(T=2):: GOTO 520
900 STOP
910 REM CHECK FOR BOX
920 CALL GCHAR(I,J,E):: E=(E=103):: IF E=0 THEN 980
930 CALL GCHAR(I,J-1,E):: E=(E=102)+(E=103)+(E=104)+(E=112)::
    IF E=0 THEN 980
940 CALL GCHAR(I+1,J,E):: E=(E=101)+(E=103)+(E=104)+(E=112)::
    IF E=0 THEN 980
950 CALL HCHAR(I,J,96+T*8)
960 A=A-1*(T=1):: B=B-1*(T=2):: E=1
970 GOSUB 990
980 RETURN
```

```
990 REM SCORE
1000 A$=STR$(A):: B$=STR$(B):: W$=STR$(Z-A-B)
1010 DISPLAY AT(24,3):"i="&SEG$(" "&A$,LEN(A$),3)&" q="&
     SEG$(" "&B$,LEN(B$),3)&" AVAIL="&SEG$(" "&W$,LEN(W$),3)
1020 RETURN
1030 REM SET-UP DOTS
1040 DISPLAY AT(1,11):"BOX-DOTS"
1050 FOR I=3 TO 23 :: DISPLAY AT(I,1):RPT$("d",26):: NEXT I
1060 RETURN
1070 SUB BOXES(A$)
1080 B$="FF" :: H$="0123456789ABCDEF"
1090 FOR I=4 TO 16 STEP 2
1100 B$=B$&SEG$(A$,I-1,1)
1110 FOR J=1 TO 16 STEP 2
1120 IF SEG$(A$,I,1)=SEG$(H$,J,1)THEN B$=B$&SEG$(H$,J+1,1):: GOTO 1140
1130 NEXT J
1140 NEXT I
1150 A$=B$
1160 SUBEND
1170 END
```

AUTOMATIC MOUSE MAZE
By Jim Peterson, Tigercub Software

```
100 CALL CLEAR
110 REM by Jim Peterson of Tigercub Software
120 PRINT TAB(1);"****AUTOMATIC MOUSE MAZE****": : : :
    " Choose your mouse and":"watch it try to find its way"
130 PRINT "through the maze.": :" When one of the mice has":
    "taken 50 extra steps, the":"cat gets it!"
140 PRINT : :"Touch any key"
150 CALL KEY(0,K,ST)
160 IF ST<1 THEN 150
170 CALL CLEAR
180 CALL CHAR(120,"0078FEFFFE78")
190 CALL CHAR(121,"1038387C7C7C38")
200 CALL CHAR(122,"387C7C7C7C383810")
210 CALL CHAR(123,"001E7FFF7F1E")
220 CALL CHAR(128,"001E6181611E")
230 CALL CHAR(129,"3844444444242410")
240 CALL CHAR(130,"1028284444444438")
250 CALL CHAR(131,"007886818678")
260 CALL SCREEN(5)
270 T1=610
280 T2=610
290 CALL CHAR(136,"FFFFFFFFFFFF")
300 CALL COLOR(14,16,16)
310 CALL COLOR(13,2,16)
320 CALL COLOR(12,2,16)
330 R=2
340 GOSUB 1460
350 R1=2
360 C=2
370 C1=2
380 CALL HCHAR(R,C,136,2)
390 C=C+1
400 M=120
410 M2=128
```

```
420 RANDOMIZE
430 A=(INT(2*RND)+1)*2
440 B=INT(10*RND)+1
450 ON B GOSUB 470,470,470,470,510,510,550,550,590,590
460 GOTO 420
470 IF C+A>30 THEN 630
480 CALL HCHAR(R,C,136,A)
490 C=C+A
500 RETURN
510 IF R+A>20 THEN 540
520 CALL VCHAR(R,C,136,A)
530 R=R+A
540 RETURN
550 IF A-A<2 THEN 580
560 CALL VCHAR(R-A+1,C,136,A)
570 R=R-A
580 RETURN
590 IF C-A<3 THEN 620
600 CALL HCHAR(R,C-A+1,136,A)
610 C=C-A
620 RETURN
630 CALL HCHAR(R,C,136)
640 C=C+1
650 IF C<31 THEN 630
660 R2=R
670 C2=C
680 CALL HCHAR(R1,C1,M)
690 CALL HCHAR(R2,C2,M2)
700 Y=Y+1+(Y=2)*2
710 IF Y=2 THEN 1020
720 CALL HCHAR(R1,C1,136)
730 ON M-119 GOTO 800,900,740,850
740 IF C1=31 THEN 950
750 CALL GCHAR(R1,C1+1,G)
760 IF G=32 THEN 850
770 C1=C1+1
780 M=120
790 GOTO 950
800 CALL GCHAR(R1-1,C1,G)
810 IF G=32 THEN 740
820 R1=R1-1
830 M=121
840 GOTO 950
850 CALL GCHAR(R1+1,C1,G)
860 IF G=32 THEN 900
870 R1=R1+1
880 M=122
890 GOTO 950
900 CALL GCHAR(R1,C1-1,G)
910 IF G=32 THEN 800
920 C1=C1-1
930 M=123
940 GOTO 950
950 CALL HCHAR(R1,C1,M)
960 IF (C1=31)*(C2=2)THEN 1320
970 IF C1<31 THEN 700
980 T2=T2-10
990 CALL SOUND(50,T2,5)
```
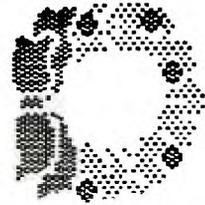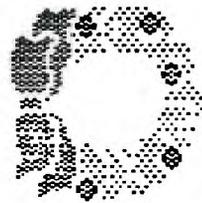
```
1000 IF T2=110 THEN 1340
1010 GOTO 700
1020 CALL HCHAR(R2,C2,136)
1030 ON M2-127 GOTO 1040,1200,1090,1150
1040 CALL GCHAR(R2+1,C2,G)
1050 IF G=32 THEN 1090
1060 R2=R2+1
1070 M2=129
1080 GOTO 1250
1090 IF C2=2 THEN 1250
1100 CALL GCHAR(R2,C2-1,G)
1110 IF G=32 THEN 1150
1120 C2=C2-1
1130 M2=128
1140 GOTO 1250
1150 CALL GCHAR(R2-1,C2,G)
1160 IF G=32 THEN 1200
1170 R2=R2-1
1180 M2=130
1190 GOTO 1250
1200 CALL GCHAR(R2,C2+1,G)
1210 IF G=32 THEN 1040
1220 C2=C2+1
1230 M2=131
1240 GOTO 1250
1250 CALL HCHAR(R2,C2,M2)
1260 IF (C2=2)*(C1=31)THEN 1320
1270 IF C2>2 THEN 700
1280 T1=T1-10
1290 CALL SOUND(50,T1,5)
1300 IF T1=110 THEN 1370
1310 GOTO 700
1320 CALL HCHAR(1,1,32,768)
1330 GOTO 330
1340 GOSUB 1460
1350 PRINT "THE CAT GOT THE WHITE MOUSE": :
1360 GOTO 1390
1370 GOSUB 1460
1380 PRINT "THE CAT GOT THE BLACK MOUSE": :
1390 PRINT "TO PLAY AGAIN, TOUCH ANY KEY"
1400 CALL KEY(0,K,ST)
1410 IF ST<1 THEN 1400
1420 T1=610
1430 T2=610
1440 CALL HCHAR(1,1,32,768)
1450 GOTO 330
1460 CALL HCHAR(23,1,32,32)
1470 PRINT CHR$(120);(610-T1)/10;TAB(20);CHR$(128);(610-T2)/10
1480 RETURN
```

SILENT NIGHT
By David Wayne Weaver
Taken from the TI Riverside user group newsletter
November 1987

```
100 CALL CLEAR
110 PRINT TAB(9);"SILENT NIGHT"
120 PRINT
130 PRINT TAB(9);"CONVERTED BY"
140 PRINT TAB(6);"David Wayne Weaver"
150 PRINT : : : : : : : : : : : :
160 DIM A(46),B(46)
170 FT=2
180 FOR I=1 TO 46
190 READ A(I),B(I)
200 NEXT I
210 FOR I=1 TO 46
220 CALL SOUND(INT(A(I)*FT),B(I),6)
230 NEXT I
240 GOTO 250
250 DATA 300,784,100,880,200,784,600,659,300,784,100,880,200,
    784,600,659
260 DATA 400,1175,200,1175,600,988,400,1047,200,1047,600,784,
    400,880,200,880,300,1047,100,988,200,880
270 DATA 300,784,100,880,200,784,600,659,400,880,200,880,300,
    1047,100,988,200,880
280 DATA 300,784,100,880,200,784,600,659,400,1175,200,1175,200,
    1397,200,1175,200,988
290 DATA 600,1047,600,1319,200,1047,200,784,200,659,200,784,200,
    698,200,587,1200,523
```

Thanksgiving Treat
Re-published from the Erie 99er newsletter

    In the spirit of thanksgiving, you must have one of these...

```
100 CALL CLEAR
110 CALL SCREEN(2)
120 READ CS,CHAR,F,B
130 IF CS=0 THEN 210
140 CALL COLOR(CS,F,B)
150 READ X,Y
160 FOR COLUMN=X TO Y
170 READ ROW,REP
180 CALL VCHAR(ROW,COLUMN,CHAR,REP)
190 NEXT COLUMN
200 GOTO 120
210 CALL COLOR(6,16,6)
220 CALL HCHAR(7,15,79,1)
230 CALL HCHAR(7,17,79,1)
240 CALL COLOR(7,12,7)
250 CALL HCHAR(8,16,86,1)
260 CALL COLOR(11,10,7)
270 FOR ROW=9 TO 11
280 CALL VCHAR(ROW,16,118,3)
290 NEXT ROW
300 GOTO 300
310 DATA 2,40,7,1,1,32,10,4,9,6,8,8,7,10,7
```

```
320 DATA 10,5,11,4,5,3,5,3,3,3,3,2,4,2,3,2,2
330 DATA 1,2,1,2,1,2,1,2,1,2,1,3,1,3,2,2,2,2
340 DATA 2,3,3,4,4,3,4,12,5,12,5,11,8,8,10,5
350 DATA 10,5,11,3,12,125,12,1,6,27,9,4,9,6
360 DATA 8,6,6,7,6,6,6,5,5,5,4,6,3,3,3,2,3,2
370 DATA 3,2,3,3,4,6,4,6,4,7,4,8,5,8,7,7,7,8
380 DATA 8,6,9,4,7,85,15,1,6,9,16,4,15,5,14
390 DATA 5,13,5,7,85,15,1,23,26,13,5,14,5,14
400 DATA 6,16,4,9,96,7,7,10,22,12,8,11,10,10
410 DATA 12,10,12,6,16,5,17,5,17,5,17,6,16
420 DATA 10,12,10,12,11,10,12,8,8,94,12,1,12
430 DATA 14,24,1,22,2,24,1,8,94,12,1,18,20
440 DATA 24,1,22,2,24,1,0,0,0,0
```

TINYSTOMP
From the Los Angeles 99ers newsletter

    Use  the  arrow  keys  to  move foot left and right and use ´A´ to
stomp.

```
1 ! TINYSTOMP
2 CALL CLEAR :: B$(0)="41413E08087F4141" :: B$(1)="7F49490914141436"
  :: CALL CHAR(129,"000001030FDFFF5E",131,"FFFEFEFFFFFFFF3E"&B$(1))
3 T=2 :: CALL MAGNIFY(3):: Y=16 :: CALL COLOR(14,5,5)
4 CALL KEY(1,K,S):: CALL SPRITE(#1,128,5,1,Y*8-15):: IF K=1 THEN 6
  ELSE Q=(K=2)-(K=3):: IF Q+Y>1 AND Q+Y<32 THEN Y=Y+Q ::
  DISPLAY AT(1,1):J
5 CALL CHAR(132,B$((T=3)*-1)):: T=T+1 :: T=T+((T=5)*3)::
  IF SP(T)=0 THEN CALL SPRITE(#T,132,2,185,1,0,19*RND-9):: SP(T)=1 ::
  GOTO 4 ELSE 4
6 CALL LOCATE(#1,177,Y*8-15):: CALL VCHAR(2,Y,136,22):: FOR Z=2 TO 4
  :: CALL COINC(#1,#Z,8,H):: IF H THEN CALL DELSPRITE(#Z):: SP(Z)=0
7 J=J-H :: CALL SOUND(-399,110,Z*6,-5,Z*7):: NEXT Z ::
  CALL VCHAR(1,Y,32,23)::CALL LOCATE(#1,1,Y*8-15):: GOTO 5
```

ARROWS
By Danny Cox
Taken from the ROM Newsletter
November 1987

```
100 ! BY DANNY COX
110 ! ROM NEWSLETTER
120 ! NOVEMBER 1987
130 !
140 CALL MAGNIFY(4):: CALL CLEAR :: CALL SCREEN(2)
150 CALL CHAR(96,"FFFFFFFFFFFFFFFFFF7F3F1F0F07030180C0E0F0F8FCFE
    FFFFFFFFFFFFFFFFFF")
160 FOR X=7 TO 4 STEP -1
170 R=190 :: C=250
180 FOR I=1 TO 25 :: CALL SPRITE(#I,96,RND+3,R,C):: R=R-X ::
    C=C-7 :: NEXT I 190 R=190 :: C=250
200 FOR I=25 TO 1 STEP -1 :: CALL SPRITE(#I,96,RND+3,R,C)::
    R=R-X :: C=C-7 :: NEXT I
210 NEXT X
220 FOR X=5 TO 7
230 R=190 :: C=250
240 FOR I=1 TO 25 :: CALL SPRITE(#I,96,RND+3,R,C):: R=R-X ::
    C=C-7 :: NEXT I
250 R=190 :: C=250
260 FOR I=25 TO 1 STEP -1 :: CALL SPRITE(#I,96,RND+3,R,C)::
    R=R-X :: C=C-7 :: NEXT I
270 NEXT X :: GOTO 160
```
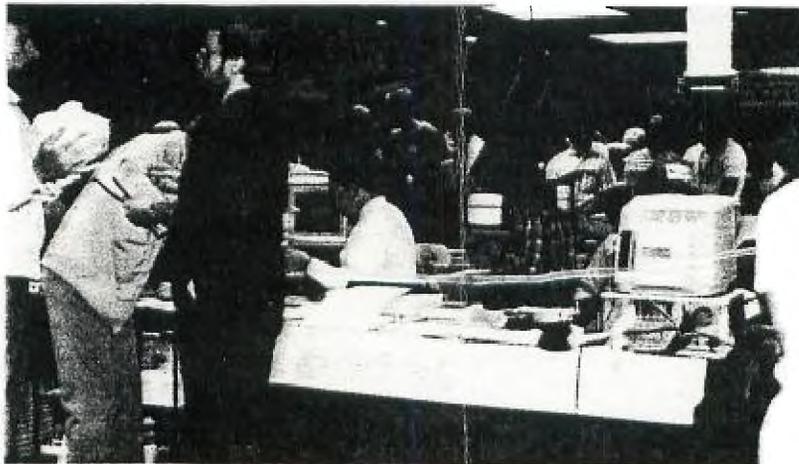
**Lots of activity**
Visitors to the Seattle TI99/4A Convention were kept busy with demonstrations
and plenty of time to discuss computers with other users.

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