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Please note the renewal date in the upper right-hand corner, adjacent to your name on the mailing label. We will be deleting all people from our mailing list who have 1988 renewal dates.
SERVICES AVAILABLE TO USERS OF THE UNT COMPUTING FACILITIES

The UNT Computing Center is located in the Information Sciences Building (ISB), Room 119. Phone Numbers:
- **Computing Center**: (817) 565-2324
- **Help Desk**: (817) 565-4060
- **Graphics Lab**: (817) 565-3479
- **ISB/O Area**: (817) 565-3890
- **BA1/O Area**: (817) 565-2350

All personnel listed below can be contacted either by calling the Computing Center or by sending them electronic mail on MUSIC/SP. (ID-codes follow each name. All IDs are on BITNET node UNTMUSIC).

**BENCHMARKS** - Claudia Lynch (AB08)

**Information & ID-Codes, Disk Space Problems** - Marilyn Jett

Statistical/Research Support - George Morrow (AB01), Panu Sittiwong (AC09), Phanit Laosirirat (AC44)

Academic ADABAS/COM-PLETE - Janis Burkham (AC59)

CRSP & COMPUSAT Problems - Panu Sittiwong (AC09), Phanit Laosirirat (AC44)

Student Programming Problems - CSCI Dept., GAB Room 542A, GCIS Dept., BARoom 152

Problems with JCL, Passwords, or Operating Systems; or Communication/Terminal Problems - Help Desk

Data Entry, Test Scoring & Analysis - Betty Grise

Administrative Applications - Coy Hoggard

Printout Retrieval - ISB or BA I/O Operators

DIALING-UP UNT COMPUTERS OVER THE TELEPHONE

Phone numbers for the Local Area Network (LAN) are:
- **300/1200 BAUD**: (817) 565-3300, (817) 565-3499
- **2400/9600 BAUD**: (817) 565-3461
- **2400/9600 BAUD**: 9600/2400 BAUD D/FWMETRO-429-6006, 429-9314

Area code 214 must be dialled before the METRO number.

The numbers that accommodate multiple baud rates have an autobaud feature that requires you to hit the `<RETURN>` key repeatedly so that the receiving modem can determine the appropriate baud rate. When you have established a communications link, the # prompt will appear on your screen and you can enter one of following CALL commands to connect with the computer of your choice.

**CALL 8040** connects with the NAS/8083 (supports line editing or PCOS). Operating environments available are:
- MUSIC/SP, VM/CP, CMS.

**CALL 3270** connects with the NAS/8083 through the 3270 protocol converter (supports full-screen editing). Operating environments are:
- MUSIC/SP, VM/CP, CMS.
- ADABAS/COM-PLETE, PHOENIX

**CALL DEC** connects with the VAX cluster (VMS, Encore)

**CALL 760** connects with the Research VAX (Unix)

**CALL 3000** connects with the Libraries' HP-3000 (bibliographic database)

**CALL 6800** connects with the NBI (Unix)

**Communications Settings**

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**HOURS FOR UNIVERSITY OF NORTH TEXAS COMPUTER ACCESS AREAS: SPRING 1989**

<table>
<thead>
<tr>
<th>Location</th>
<th>Days</th>
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<td>Computing Center RAJE</td>
<td>Sunday, Monday, Tuesday-Saturday</td>
<td>Noon-Midnight</td>
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<td>7 a.m.-Midnight</td>
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<td>ISB 110 Terminal Area</td>
<td>Sunday, Monday-Thursday, Friday, Saturday</td>
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<tr>
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<td>7:30 a.m.-9 p.m.</td>
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<td>College of Business</td>
<td>Saturday, Sunday, Monday-Thursday, Friday</td>
<td>Noon-11:45 p.m.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8:15 a.m.-11:45 p.m.</td>
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<tr>
<td></td>
<td></td>
<td>8:15 a.m.-11:45 p.m.</td>
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<tr>
<td>GAB 550C</td>
<td>Sunday, Monday-Thursday, Friday, Saturday</td>
<td>2 p.m.-Midnight</td>
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<tr>
<td>Graphics Lab</td>
<td>Sunday, Monday-Thursday, Friday, Saturday</td>
<td>Noon-10 p.m.</td>
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*Hours may vary. Check MUSIC/VAX News and/or posted schedules for exceptions.
We are proud to announce the addition of microcomputers to the existing computer lab in ISB 110. The microcomputer portion of the lab currently consists of six IBM AT compatible PCs and six Macintosh SEs linked to a file server on a Novell Local Area Network (LAN). The IBM AT compatible machines are all equipped with one 360K 5 1/4" disk drive and one 720K 1 1/2" disk drive. The Macintoshes are equipped with two 3 1/2" disk drives. These machines are available to anyone who wishes to use a microcomputer in their academic activities.

The following software is currently available for use on the microcomputers:

**IBM PC**
- WordPerfect Version 5.0
- Microsoft Word Version 5.0
- Microsoft Works Version 1.0
- PCWS
- PROCOMM
- Kermit
- SPSS/PC+ Version 3.0
- SAS/PC Version 6.3

**Macintosh SE**
- WordPerfect Version 1.0.1
- Microsoft Word Version 3.01
- Microsoft Works Version 1.0
- Kermit

WordPerfect and Microsoft Word are word processing products; Microsoft Works is what is known as integrated software; PCWS, PROCOMM, and Kermit are communications software; and SPSS/PC+ and SAS/PC are microcomputer versions of popular mainframe statistical packages.

Four printers are available. An Epson LQ500 can be used by all the IBM PC compatible machines for obtaining a draft printout. Laser Printing is available for a minimal charge. Both an HP-LaserJet II and an Apple LaserWriter are available for letter quality printing. An ImageWriter II printer is available for draft printing from all the Macintoshes.

**Lab Policies**

- Microcomputer workstations can be reserved for a maximum period of one hour. Reservations may be made up to 48 hours in advance by calling or coming by the Help Desk (565-4050) or the Computing Center Offices, ISB 119, (565-2324). Please Note: A five minute "grace period" will be granted before your workstation will be given to someone else. A valid UNT ID is required to use any of the facilities in ISB 110.

- People may continue working at their workstation after an hour is up, provided there is no one waiting to use it.

- Use of personal software on the microcomputers is permitted with the following exceptions:
  - The use of language compilers (Turbo Pascal, TurboC, etc.) is prohibited.
Back-up utilities such as Fastback, PC-Tools, etc. are prohibited.

Games may be played only when there is no one else waiting to use the microcomputers.

Any attempt to copy software used in the ISB 110 lab will result in the loss of Computing Center privileges and possible further disciplinary action from the University.

Use of micros as terminals to access the mainframe computers at UNT is permitted, but such use is given lower priority than other microcomputer applications, except when such use is for the purpose of uploading and downloading data.

All printed output which is routed to either the HP-LaserJet or the Apple LaserWriter must be picked up. Failure to do so may result in loss of Lab privileges.

---

**Computer Assisted Instruction for Mainframe SAS Available in ISB 110**

A Computer Assisted Instruction (CAI) course is available for use on the IBM PCs in ISB 110. The course, ZSAS2, was purchased from a company called DEPEC and it runs on a Computer Based Training (CBT) program called Phoenix-Micro. Topics covered by ZSAS2 include:
- Data Basics
- SAS Basics
- Using SAS
- Editing SAS Data
- DATA Step Programming
- Simple SAS Statistics

In order to use ZSAS2, it is necessary to get a "student number" from the Help Desk. The use of this "student number" allows ZSAS2 to remember where you left off in the course, should you decide to take it in several sittings. A supplemental student guide is also available from the Help Desk for use with this course.

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**DISK SPACE CRISIS!!!**

By George Morrow, Academic Computing Services Disk Space Manager (BITNET: AS01@UNT-MUSIC)

There is currently a shortage of available disk space for Academic users of the NAS/S083 OS/MVS system. All users are urged to review the necessity of any file presently on one of the Academic disk volumes: ACAD00, ACAD01, ACAD02, or ACAD03.

Present policy allows for the removal of all data sets with classroom user ID's at the end of each semester. In addition, any data set that has not been referenced (read) in the past year will be archived (removed from the disk to tape).

Please use discretion in placing large data files on a direct access disk volume. Large block sizes increase the efficiency of data storage in terms of both CPU cycles and space allocation. If you have any questions about the most efficient method to store your data, please contact me at the Computing Center (565-2324) or seek help from the Help Desk (565-4050).

The naming convention used here at UNT is:

```
USER.IDnamename
```

where IDnam is the individual's User-ID and name is a user-supplied filename in levels of up to eight characters separated by periods.

The following list indicates the intended use of each of the Academic disk volumes:

- **ACAD00** - for data sets pertaining to faculty research.
- **ACAD01** - for College of Business instructional use
- **ACAD02** - for instructional use other than College of Business
- **ACAD03** - for faculty research projects.

Your help in conserving disk space is appreciated. Contact Academic Computing Services (565-2324) if you need help in archiving any of your data files.

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§
WordPerfect Products Available at Discount Prices

By Sandy Franklin, Office Automation Specialist

WordPerfect 5.0 and its associated products are available through the Computing Center at special discount prices. This pricing is intended to promote the use of WPCorp products by the educational community — not to encourage the institution or its members to act as retail dealers for the products.

To obtain copies of these products, send an Inter-Departmental Order with the following information to Kyle Capps, Computing Center Office Automation Analyst:

- Which products you want.
- Total price for all products requested.
- Number of copies of each product requested.
- Type of computer (AT or XT) on which each product will be used.
- Type of keyboard (Keytronics, AT) on each computer on which each product will be used.
- Name and telephone number of person to contact for installation.
- Proposed date and time of installation.

WPCorp products available are:

- WordPerfect 5.0 — Available for standalone and network computers. It contains all the features of 4.2 and more. With 5.0, graphic images may be placed anywhere on the page, can include a caption and/or border, and can be scaled, moved, and rotated. Print capabilities include support of over 1,000 characters, absolute measurements, mixed fonts on any page, and automatic kerning. The Master Document feature combines files for tables of contents, indexes, footnotes, page numbers, etc. Additional capabilities include style definition, alternate keyboard commands, enhanced macro definition/editing, and predefined macros. The price of $23 includes the software installed on your equipment, the template, and the Reference Card. If you would like to own the manual, it is an additional $35.
- WordPerfect Library - Only available for standalone computers. This is a desktop integration and utility program designed to enhance office productivity. All programs remain memory-resident under a "Shell" program manager which allows the user to switch programs rapidly and to share data easily. The programs included are Calculator, Calendar, File Manager, Notebook, Program Editor, and Macro Editor. (Software - $14, Manuals - $35 each).
- WordPerfect Office - For the network users only, this product features seven integrated programs: Scheduler, Notebook, Calculator, Calendar, Mail, File Manager, and Macro/Program Editor. These programs are integrated on the flexible Shell menu. Each program brings its own strengths to office organization, allowing users to exchange mail, phone messages, and appointment schedules with other users on the network. (Software - $23, Manuals - $35 each).
- PlanPerfect 3.0 - For both standalone and network computers, PlanPerfect creates a versatile working environment for spreadsheet users by combining data management and text graphics. It provides all the features expected of a fully featured spreadsheet package with one important addition: PlanPerfect is compatible with WordPerfect. File importation and exportation is available in several formats including ASCII, DIF, Lotus 123, dBASE, and WordPerfect Merge files.

Worksheets may be linked together, allowing information to flow between them automatically. (Software - $21, Manuals - $35).

Please note that the products cannot be resold and that the listed account manager for each school will be responsible for the strict observance of this stipulation. Software purchased under this agreement may be used only at official school sites and may not be used off-campus by anyone, including teachers, staff, and students.

If products are bought through the site licensing program, you will automatically have any updates installed on your equipment as they occur. Otherwise, you will need to bring your original diskettes to the Computing Center for updates.

WordPerfect Site License Restrictions and Covenants

The software purchased with School Site Volume Pricing must remain the property of the school and may not be loaned, transferred, or resold to off-campus users. Software purchased under this agreement may be used only at official school sites and may not be used off-campus by anyone, including teachers, staff, and students. With proper identification, teachers, staff, and students may purchase personal copies of WPCorp micro software at educational discounts through participating school bookstores and local software vendors.

A school purchasing software under this program shall provide its own internal support and use its best efforts to inform everyone that may have access to one of its computers of the above restrictions. The school shall incur no liability for the unauthorized use or duplication of the software as long as this covenant is fulfilled.

This information supersedes any previous information regarding WPCorp's School Software Program. Prices and product descriptions are subject to change. For current information on any of these products, call Kyle Capps, Sandy Franklin or Pok Seong Kwong in the Computing Center, 565-2324.
The Computing Center is offering the following short courses for the Spring semester. Please pre-register to attend (a registration form can be found at the end of this issue). A maximum of 10 people will be admitted to each of the courses held in ISB 110. A maximum of 8 people will be admitted to each of the courses held in ISB 123.

1. **Introduction to MUSIC/SP, Part I** - MUSIC/SP is the primary interactive operating system employed by most academic users to access the NAS/8083 IBM-compatible mainframe computer at UNT. MUSIC users have access to a variety of programming languages, a sophisticated word processing system, and several statistical analysis packages. MUSIC also gives you the capability to submit batch jobs to the MVS operating system. Topics covered include gaining access over the Local Area Network, logging on and off, changing your password, and creating, editing, and storing files using the full-screen editor.

Introductory sessions to MUSIC/SP, Part I will be held in Room 110 of the Science Library (ISB) on a weekly basis through March. NO PRE-REGISTRATION IS REQUIRED FOR THESE COURSES. A schedule of remaining courses is printed below. Consult the HELP DESK (565-4050) for any changes and/or additions that may have taken place. All courses will be taught by Help Desk staff.

- Thursday, February 23: 2-5 p.m.
- Monday, February 27: 2:4 p.m.
- Tuesday, March 7: 9-11 a.m.

2. **Introduction to MUSIC/SP, Part II** - This course provides an in-depth look at various useful programs and utilities that are available on MUSIC/SP. Topics covered include accessing on-line help facilities, using electronic mail, routing output to high-speed printers, and writing files to secondary storage such as disk and tape. A working knowledge of MUSIC is required.

A separate two-hour session to be held in Room 110 of the Science Library (ISB):

- Wednesday, March 8: 9-11 a.m.
  Instructor: Philip Baczewski

3. **Introduction to IBM Job Control Language (JCL)** - This course provides an overview of IBM JCL for users who wish to further their knowledge in this area. It is useful to individuals who plan to run batch jobs (e.g. SAS, SPSSX, BMDP) on the IBM-compatible mainframe computer.

A separate two-hour session to be held in the Academic Computing Conference Room (ISB 123):

- Friday, March 3: 3-5 p.m.
  Instructor: Janis Burkham

4. **Introduction to SAS** - SAS is one of the most widely implemented data analysis systems within business and education. SAS is particularly well suited for dataset manipulation and includes an extensive procedure library providing a wide range of analytical tools. This course is recommended for individuals who plan to incorporate statistical analyses into their research. Topics covered include the reading of data into SAS, simple data transformations, recoding variables, labeling output, and performing simple univariate and bivariate analyses. Prior knowledge of MUSIC/SP is required.

A separate two-hour session to be held in Room 110 of the Science Library (ISB):

- Monday, March 6: 3-5 p.m.
  Instructor: Phanit Laosirirat

5. **Introduction to SPSSX** - SPSSX is the latest version of this popular data analysis system originally developed for social scientific research. While SAS is slightly more powerful for the analysis of complex datasets, many users find SPSSX to be easier to learn. SPSSX also includes more flexible facilities for collapsing and labeling variables. This course is recommended for individuals who plan to incorporate statistical analyses into their research. Topics covered include the reading of data into SPSSX, simple data transformations, recoding variables, labeling output, and performing simple univariate and bivariate analyses. Prior knowledge of MUSIC/SP is required.

A separate two-hour session to be held in Room 110 of the Science Library (ISB):
6. Introduction to VAX/VMS, Part I – VMS is the interactive operating system used on the Digital Equipment Corporation (DEC) VAXcluster. Nearly all popular programming languages are supported under VMS. The topics covered in this course include gaining access to the VAXcluster through the Local Area Network, logging in and out, changing your password, creating files and directories, creating login command files, using the EDT editor, and defining logicals and symbols. Introductory sessions to VAX/VMS, Part I will be held in Room 110 of the Science Library (ISB) on a monthly basis beginning through March. NO PRE-REGISTRATION IS REQUIRED FOR THESE COURSES. A schedule of the remaining courses is printed below. Consult the HELP DESK (565-4050) for any changes and/or additions that may have taken place. All courses will be taught by Help Desk staff.

- Tuesday, February 28: 2-4 p.m.

7. Introduction to BITNET – BITNET is a network linking more than 600 computers at over 300 institutions and research centers. This course covers the basic concepts of BITNET, file transfers across BITNET sites, and other services that are available on this computer network. Faculty and graduate students needing to exchange information with universities and research institutions in the U.S., Canada, Europe, or Japan will benefit greatly from attending this course. Prior knowledge of at least one of the following interactive operating systems is required: CMS, MUSIC, VAX/VMS. A two-hour session to be held in the Academic Computing Conference Room (ISB 123):

- Wednesday, March 1: 3-5 p.m.
  Instructor: Philip Baczewski

8. Introduction to ARPA Internet and THENET - The ARPA Internet is a collection of related computer networks that link thousands of computers throughout the world. THENET is a network that connects 35 universities, research institutions, and state agencies in the state of Texas. This course covers the basic concepts, file transfer, remote login, and other services available on the networks. Faculty and students needing to exchange information with other universities, government agencies, companies and research institutions or between the various machines on the University of North Texas campus would benefit from this course. Prior knowledge of at least one of the following interactive operating systems is required: VAX/VMS, Unix, MS-DOS. A separate two-hour session to be held in the Academic Computing Conference Room (ISB 123):

- Thursday, March 2: 3-5 p.m.
  Instructor: Billy Barron

9. Introduction to PCWS and Introduction to Procomm are two short courses that deal with Personal Computer to mainframe communications. Introduction to PCWS presents an overview of using PC Work Station, a communications package which is specifically written to allow terminal access and file transfer capabilities between an IBM PC or compatible and the MUSIC SP operating system. Topics covered will include setting up PCWS communications parameters, connecting to MUSIC over the UNT local area network, using PCWS's full-screen capabilities, and using PCWS for file transfer between MUSIC and the PC. Introduction to Procomm presents an overview of the Procomm communications package for Personal Computers or compatibles. Procomm provides several different terminal emulation modes, and supports several file transfer protocols including KERMIT and XMODEM. Topics covered include setting communications and file transfer parameters, setting up and using Procomm's dialing directory, and connecting to UNT mainframes through the local area network. Two separate one-hour sessions to be held in the Academic Computing Conference Room (ISB 123):

- Introduction to Procomm:
  Tuesday, March 7: 2-3 p.m.
  Instructor: Kevin Mullet

- Introduction to PCWS:
  Tuesday, March 7: 3-4 p.m.
  Instructor: Kevin Mullet

New Print Utility Available on MUSIC

By Philip Baczewski, IBM Interactive Systems Coordinator/Graphics Lab Manager/Assistant Benchmarks Editor (BITNET: AC12@UNTMUSIC)

There is a new utility program on MUSIC to enable you to more easily print copies of your MUSIC files. This program, called PRT, can be started by simply typing PRT from *GO mode. PRT uses the PTPCH program to do the printing, but offers two advantages over the use of PTPCH:

1. PRT allows you to view and modify your printing parameters in one simple procedure before submitting the print job (full-screen users employ a single-screen input panel, and line-mode users see a menu of parameters).

2. PRT will save your printing parameters from job to job. This feature prevents you from having to input parameters which do not change from job to job, such as your name, userid, or userid type, each time you need to print a file.

While using PRT, you can view a help screen by pressing PF1 (line-mode users can type HELP). From *Go mode, type HELP PRT for more information about PRT. If you have questions about the use of PRT, contact the Help Desk (565-4050, ISB 110).
BENCHMARKS FORUM

BENCHMARKS FORUM is intended to serve as a vehicle for answering questions that may be of general interest to the user community. If you have a question, please send electronic mail to the BENCHMARKS editor (AS04@UNTMV1) or write it down and drop it by the Computing Center. We will try to answer it in the next issue.

Question: When I try to sign-on to MUSIC I get a strange screen. What's going on?

Answer: The "strange screen" you are seeing is a result of the cutover to release 5.1 of VM/SP on the NAS 8083. The move to release 5.1 has not affected the use of MUSIC or the normal use of CMS, however, there are three new fields on the VM logo screen:

USERID ===> 
PASSWORD ===> 
COMMAND ===> 

The USERID and PASSWORD fields are only used to log-on to a virtual machine such as a CMS ID. To access MUSIC or MVS, you still must enter a DIAL command. You can enter this command from the COMMAND prompt on the screen. Use the tab key to move your cursor to this field. You can also still clear the log-on by pressing <RETURN> and then enter your dial command from the cleared screen.

Question: How can I create a temporary disk on CMS?

Answer: One of the strengths of the CMS operating system is the ability to allocate temporary storage space. This storage comes in the form of temporary disks, which behave in the same manner as your "A disk," but which only exist while your CMS ID code is logged on. This makes them ideal for temporary storage needs which may come up in the middle of a programming or data analysis project, but because of the impermanent nature of temporary disks, files which are meant to be stored permanently should always be kept on the A disk, and not on a temporary disk.

To create temporary disks you need only enter two commands:

DEFINE T3380 AS vaddr CYL n

and

FORMAT vaddr mode

In the above, vaddr stands for virtual address. For example, one virtual address for a temporary disk might be 292. n designates the number of cylinders you want to allocate. In the second command, mode is the filemode reference for the disk you create (for example, T).

An example of defining and formatting a disk might be as follows (what you type is indicated in bold characters):

DEFINE T3380 AS 292 CYL 5

READY,

FORMAT 292 T

FORMAT will erase all files on disk T(292). Do you wish to continue?
Enter 1(YES) or 0 (NO).

YES

Enter Disk label:

TMP292 (choose up to six characters)

Ready:

Be careful to specify the correct address when issuing the FORMAT command, since the FORMAT command will erase all files on a disk (for example, you WON'T want to erase all the files on your A disk, virtual address 191). The temporary disk will remain defined until you log off of your CMS ID (or until a VM IPL). When you no longer need the temporary disk, you can also type RELEASE vaddr (DET to release that disk and detach it from your CMS ID). Releasing your temporary disk will free the space for other users.

For more information on defining and using CMS temporary disks, see the CMS User's Guide, chapter I (the guide is available for reference at the Help Desk, ISB 110). More general information on using CMS can be found in the CMS Primer, available at the University Store.

Benchmarks Reader/User feedback is encouraged. Send all letters, suggestions, etc to (AS04@UNTMV1) or to the Benchmarks Editor at:

University of North Texas
Computing Center
NT Station, Box 13495
Denton, Texas 76203
In Defense of BASIC: A Programmer’s Perspective

By Jim Stinson, Microcomputer Consultant (BITNET: AC38@UNTVAX)

BASIC is no longer the simpleton’s first programming language. Today’s versions of BASIC, such as Microsoft BASIC, Turbo BASIC, and True BASIC, are powerful languages that are easy to learn, use and help a programmer to make use of current techniques in software engineering. These BASICS also use the advanced features of the IBM PC such as its graphics displays and numeric coprocessors.

BASIC’s best feature is its string handling. Today’s versions of BASIC allow string lengths of up to 32000 characters in length. This lets one put an entire screen to be displayed into one string variable. To create such a string is easy with BASIC’s string function. One just adds the messages of the string together with some screen codes. Unlike languages like Pascal and C, it doesn’t matter how long the strings are, nor how long the new string is. When writing a program such as a data base or one that includes a lot of user interaction, this provides an easy way of creating and manipulating messages. The poor string handling in other languages can leave the programmer with the only practical option of having “stock” messages in their programs. (By “stock”, I mean messages that are hard to change in contents and/or size). BASIC’s string operators and functions make string handling a breeze. Among them are the functions Right$, Left$, Mid$ that retrieve parts of strings. Mid$ also sets the value of parts of strings. Len$ returns the length of a string. Concatenation is performed by the "+" operator.

The new versions of BASIC no longer require that any of the lines be numbered. There are also named function and subroutines, with local variables. Large programs can be divided up into separately compiled modules. Variable names have up to 31 significant characters, although longer names are allowed. Various programming structures are available, such as while loops and if then else statements that can be on several lines, and multiway branching statements such as On Val Gosub ... and Case. These features help support practices of modern software engineering.

BASIC is a language that is easy to learn. The statements and functions are not cryptically named. There are 3 basic data types, integer, real and string, and multi dimensional arrays of these types. Microsoft Quick BASIC allows a programmer to create structures of the data types.

The early versions of BASIC were made to fit into a small amount of memory. (Sometimes less than 8K.) BASIC’s original authors only used it for teaching purposes. There is no standard description for BASIC as there are for other languages. In the short run, this has made most implementations of BASIC incompatible with other implementations.

In long run, however, this has also allowed BASIC to be freely adapted to a wide range of machines and environments. BASIC runs on mainframes, minis, and all the microcomputers. Intel corporation even produces a cpu (the 8052) with BASIC built in. As new programming constructs were devised over the years, BASIC could easily and quickly absorb them. If you haven’t used BASIC recently, you may want to look into its viability. It has matured, and yet is still easy to learn.

Apple Computer Joins INFOMART

Apple Computer Inc. is establishing a market center at INFOMART, according to the INFOMART Update, a quarterly newsletter published by the INFOMART communications staff. The Apple Market Center is located on the third floor of INFOMART and is designed to be a major conference and demonstration center. It is supposed to be open to the public this summer.

INFOMART is located in Dallas at 1950 Stemmons Freeway (35E). It has product demonstration centers featuring computer systems, software, telecommunications systems, printers, peripherals and copiers. Training and consulting services are also available.

INFOMART is open to the public from 8:30 a.m. to 5 p.m. Monday-Friday. More than 100 companies are located at INFOMART including AT&T, GTE, IBM, NCR, Tandy, Texas Instruments, Wang, and Xerox.
Micro-Tips

This column is intended to serve as a forum for sharing useful tips on making more productive use of microcomputers. If you have a tip that you feel may be of use to campus users, submit it to the Benchmarks editor for possible inclusion in a future issue.

Comparing DOS Files

When dealing with multiple versions of the same document or program, it is easy to get confused as to what the difference between these versions are. Fortunately, DOS provides an easy to use utility to compare two files called FC or COMP depending on your version of DOS.

The way you use FC (or COMP) is just to type FC or COMP followed by the filenames of the two files you wish to compare. Then the utility responds by printing all of the parts of the files that are different. If the files are identical, the message no differences encountered will appear. For example:

```c
C FC MS.INI MSTELNET.INI
```

```text
***** ms.ini
run color 23 128
type start.opt
*****
***** ms.ini
set port bios1
set receive
set send
*****
set port bios1
set receive
set send
*****
```

In this example, two areas of difference were present. The first area was different since it had the extra line "run cls". The second area of difference is due to one line having "set receive" while the other file had "set receive".

Some versions of FC have a few useful flags. The /c flag compares the files ignoring the case of the letters. The /w ignores spaces and tabs while comparing the files. The flags should be specified after FC, but before the filenames.

Amiga Communications

As more and more people discover the Commodore Amiga microcomputer, a frequently asked question concerns what communications packages are available for that machine. The Amiga, a multitasking machine with excellent support for graphics and sound applications, has an active community of programmers supplying many public domain and "shareware" programs to aid an Amiga user's productivity.

Two shareware communications packages available for the Amiga are called VT100 and Handshake. VT100 is a vt100 emulator program with Kermit and Xmodem file transfer protocols. VT100 includes support for function keys and allows you to create script files to automate some of your communications procedures. Handshake provides VT52/VT100/VT102 terminal emulation, and includes a dialing directory among its features. A public domain version of Kermit is also available for the Amiga.

All three of these programs can be down-loaded from the NTBBS AMIGA.COMM file area. If you don't currently have a communications package that supports Kermit, you can acquire Amiga Kermit by doing an ascii download of the files CKIBOO.BAS and CKIKER.BOO. CKIBOO.BAS is a BASIC program which will convert CKIKER.BOO from a printable format to an executable format.

This month's Micro-Tips come from Academic Computing staff members Billy Barron (BILLY@UNTVA) and Philip Raczkowski (AC32@UNTVM1)
VAX COMPUTER CLUSTER

VMS 5.0 Mail

By Billy Barron, VAX System Manager
(BITNET:BILLY@UNTVAX)

The installation of VMS 5.0 added many new and exciting features to
the MAIL utility. This article will describe the most important changes.
See the article "Personalizing the VAX/VMS MAIL Utility" in the
January/February 1988 issue of
Benchmarks for a description of the
existing features of the MAIL
Utility.

The first major addition is a Carbon
Copy feature. This feature allows
you to send a message to one person
and then send a copy of the mail
message to another person. To use
the Carbon Copy feature, type SET
CC_PROMPT at the MAIL prompt.
Then whenever you send a letter,
you will be given a prompt asking to
whom a Carbon Copy should be
sent.

VMS 5.0 Mail now allows the mark-
ing of mail messages. Marked mes-
sages are displayed with an asterisk
in the left hand column of the direc-
tory listing. A marked message can
be used as a reminder of an impor-
tant message. The command
MARK followed by a number of a
message is the way a message is
marked. The UNMARK command
followed by a number of a message is
the way a message is unmarked.

The DIRECTORY command within
MAIL also has the following new
qualifiers:

VAX CLUSTER USAGE STATISTICS

<table>
<thead>
<tr>
<th>December</th>
<th>Top Ten Programs: Frequency of Runs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program</td>
<td>Description</td>
</tr>
<tr>
<td>1. LOGINOUT</td>
<td>User login</td>
</tr>
<tr>
<td>2. SET</td>
<td>VMS Utility</td>
</tr>
<tr>
<td>3. DELETE</td>
<td>VMS Utility</td>
</tr>
<tr>
<td>4. DIRECTORY</td>
<td>VMS Utility</td>
</tr>
<tr>
<td>5. TYPE</td>
<td>VMS Utility</td>
</tr>
<tr>
<td>6. SHOW</td>
<td>VMS Utility</td>
</tr>
<tr>
<td>7. EDT</td>
<td>Editor</td>
</tr>
<tr>
<td>8. NETSERVER</td>
<td>DECnet Server</td>
</tr>
<tr>
<td>9. SYSLOGIN</td>
<td>User Login</td>
</tr>
<tr>
<td>10. User Programs</td>
<td>Compiled Programs</td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>December</th>
<th>Top Ten Programs: CPU Time Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program</td>
<td>Description</td>
</tr>
<tr>
<td>1. User programs</td>
<td>Compiled Programs</td>
</tr>
<tr>
<td>2. ACC</td>
<td>VMS Accounting Utility</td>
</tr>
<tr>
<td>3. PASCAL</td>
<td>PASCAL compiler</td>
</tr>
<tr>
<td>4. EDT</td>
<td>Editor</td>
</tr>
<tr>
<td>5. BACKUP</td>
<td>VMS Utility</td>
</tr>
<tr>
<td>6. LISP</td>
<td>LISP Interpreter</td>
</tr>
<tr>
<td>7. PACSPROCESS</td>
<td>PACS+Billing Utility</td>
</tr>
<tr>
<td>8. LOGINOUT</td>
<td>User login</td>
</tr>
<tr>
<td>9. DISKEEPER</td>
<td>Disk Compression Utility</td>
</tr>
<tr>
<td>10. TPU</td>
<td>Editor</td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

Continued on page 10 ->
"VMS 5.0 Mail, ” continued from page 9

- **DIR/FROM=userid** Lists only the mail messages from *userid*.
- **DIR/EDIT** Invokes your MAIL editor and uses the output of the DIRECTORY command as input to the editor. This allows easy scrolling through messages.
- **DIR/REPLIED** Lists mail messages that have been replied to.
- **DIR/NOREPLIED** Lists mail messages that have not been replied to.
- **DIR/TO=userid** Lists only the mail message to the *userid*.
- **DIR/MARK** Lists only the marked mail messages.

For more information on the changes to the VMS 5.0 MAIL utility, type HELP VS CHANGES when at the VAX MAIL prompt.§

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## BITNET News
Available on the VAXcluster

You can now get the latest news about BITNET in relation to our site by typing **BITNEWS** while logged-on to the VAXcluster. An example of the types of information contained in **BITNEWS** is the listing posted on February 6, stating that due to hardware problems at CIEARN, the Ivory Coast is unreachable for two weeks (this has been heartbreaking to many people). §

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## January Top Ten Programs: Frequency of Runs

<table>
<thead>
<tr>
<th>Program</th>
<th>Description</th>
<th>Number of Runs</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. LOGINOUT</td>
<td>User login</td>
<td>82428</td>
<td>22.7</td>
</tr>
<tr>
<td>2. SET</td>
<td>VMS Utility</td>
<td>49966</td>
<td>13.8</td>
</tr>
<tr>
<td>3. DIRECTORY</td>
<td>VMS Utility</td>
<td>28425</td>
<td>7.8</td>
</tr>
<tr>
<td>4. DELETE</td>
<td>VMS Utility</td>
<td>24963</td>
<td>6.9</td>
</tr>
<tr>
<td>5. TYPE</td>
<td>VMS Utility</td>
<td>23306</td>
<td>6.4</td>
</tr>
<tr>
<td>6. SHOW</td>
<td>VMS Utility</td>
<td>19633</td>
<td>5.4</td>
</tr>
<tr>
<td>7. NETSERVER</td>
<td>DECnet Server</td>
<td>13348</td>
<td>3.7</td>
</tr>
<tr>
<td>8. EDT</td>
<td>Editor</td>
<td>12172</td>
<td>3.4</td>
</tr>
<tr>
<td>9. SYSLOGIN</td>
<td>User Login</td>
<td>10728</td>
<td>3.0</td>
</tr>
<tr>
<td>10. SEARCH</td>
<td>VMS Utility</td>
<td>7017</td>
<td>1.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>36330</strong></td>
<td></td>
</tr>
</tbody>
</table>

---

## January Top Ten Programs: CPU Time Used

<table>
<thead>
<tr>
<th>Program</th>
<th>Description</th>
<th>CPU Time</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. User programs</td>
<td>Compiled Programs</td>
<td>24 06:33:42.85</td>
<td>78.6</td>
</tr>
<tr>
<td>2. BACKUP</td>
<td>VMS Utility</td>
<td>0 13:29:24.36</td>
<td>1.8</td>
</tr>
<tr>
<td>3. LOGINOUT</td>
<td>User login</td>
<td>0 11:32:14.60</td>
<td>1.6</td>
</tr>
<tr>
<td>4. ACC</td>
<td>VMS Accounting Utility</td>
<td>0 09:34:53.07</td>
<td>1.3</td>
</tr>
<tr>
<td>5. EDT</td>
<td>Editor</td>
<td>0 09:31:52.79</td>
<td>1.3</td>
</tr>
<tr>
<td>6. MAIL</td>
<td>VMS Utility</td>
<td>0 08:23:04.29</td>
<td>1.1</td>
</tr>
<tr>
<td>7. DISKEEPER</td>
<td>Disk Compression Utility</td>
<td>0 06:23:08.15</td>
<td>0.9</td>
</tr>
<tr>
<td>8. TPU</td>
<td>Editor</td>
<td>0 06:03:54.81</td>
<td>0.8</td>
</tr>
<tr>
<td>9. LISP</td>
<td>LISP Interpreter</td>
<td>0 05:19:27.28</td>
<td>0.7</td>
</tr>
<tr>
<td>10. PACSPROCESS</td>
<td>PACS+Billing Utility</td>
<td>0 04:26:11.17</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>30 05:56:17.63</td>
<td></td>
</tr>
</tbody>
</table>

---

## BITNET File Queueing Policies

The University of North Texas VAXcluster has adopted the file queueing policies used by THENET to govern BITNET traffic going over THENET lines. Smaller files are sent before larger files. Any file that will tie up a line for more than 15 minutes will be held. These large files will be sent between 10 p.m. and 6 a.m. on weekdays or on the weekends.

On the link to UT Dallas, 15 minutes of line time amounts to a 384K file. On the link to the NAS Mainframe and the laser printer, here at UNT, a 576K file is equivalent to 15 minutes of line time. Any questions regarding this policy should be directed to Billy Barron, VAX System Manager (BITNET: BILLY@UNTVAX) (817-565-2324). §
Mainframe Performance Statistics

NAS/8083 Dual Processor Performance Statistics for December

<table>
<thead>
<tr>
<th>CPU</th>
<th>SYSTEM</th>
<th>Scheduled Operating Hours</th>
<th>Planned Maintenance Hours</th>
<th>Planned Production Hours</th>
<th>Unplanned Maintenance Hours</th>
<th>Production Hours Achieved</th>
<th>System Uptime</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACAD</td>
<td>VM/SP3</td>
<td>744</td>
<td>0.00</td>
<td>744.00</td>
<td>0.36</td>
<td>743.64</td>
<td>99.9%</td>
</tr>
<tr>
<td>ACAD</td>
<td>MUSIC/SP</td>
<td>744</td>
<td>34.62</td>
<td>709.38</td>
<td>8.48</td>
<td>700.90</td>
<td>98.8%</td>
</tr>
<tr>
<td>ACAD</td>
<td>MVS/JES2</td>
<td>744</td>
<td>0.00</td>
<td>744.00</td>
<td>2.50</td>
<td>741.50</td>
<td>99.7%</td>
</tr>
<tr>
<td>ACAD</td>
<td>COMPLETEA</td>
<td>744</td>
<td>0.00</td>
<td>744.00</td>
<td>6.18</td>
<td>741.50</td>
<td>99.2%</td>
</tr>
<tr>
<td>ADMN</td>
<td>MVS/JES2</td>
<td>744</td>
<td>0.00</td>
<td>744.00</td>
<td>1.84</td>
<td>742.16</td>
<td>99.8%</td>
</tr>
<tr>
<td>ADMN</td>
<td>COMPLETEA</td>
<td>205</td>
<td>0.00</td>
<td>205.00</td>
<td>2.77</td>
<td>202.23</td>
<td>98.6%</td>
</tr>
<tr>
<td>ADMN</td>
<td>ADABASA</td>
<td>744</td>
<td>21.60</td>
<td>722.40</td>
<td>25.56</td>
<td>696.84</td>
<td>98.5%</td>
</tr>
</tbody>
</table>

System Uptime = (Production Hours Achieved) / (Planned Production Hours)

Production Hours Achieved = (Planned Production) - (Unplanned Maintenance)

Scheduled Operating Hours = (Planned Maintenance) + (Planned Production)

MUSIC/SP Planned Maintenance Hours include 20.30 hours for system backup and 12.46 hours for VM/SP3 system backup.

ADABASA's Planned Maintenance Hours include 21.60 hours for system backup.

The ACAD CPU achieved 100% uptime; the NAS/360 DASD achieved 100% uptime; the NAS/7380 DASD achieved 100% uptime. One of the production systems was unavailable for scheduled operation. Lost productivity was calculated as the greatest amount of elapsed time that any one of the production systems was unavailable for scheduled operation. Lost productivity hours were contributed to by the key causes appearing in the table below.

NAS/7380 DASD achieved 100% uptime.

ACAD CPU:

Miscellaneous
1. Corrective maintenance on IBM 3274 TCU. 0.67 HOURS
2. Operator missed step in VM backup procedure. 0.78 HOURS
3. Operator missed step in MUSIC backup procedure. 0.83 HOURS
4. VM weekly backup failures. 5.02 HOURS
5. MUSIC/SP system tuning/improvements. 1.15 HOURS
6. VM/SP3 system tuning/improvements. 0.85 HOURS
7. COMPLETEA system maintenance. 3.51 HOURS

TOTAL: 12.81 HOURS

ADMN CPU:

Miscellaneous
1. COMPLETEA system down to run single jobs. 1.25 HOURS
2. MVS/JES2 System Tuning/Improvements. 1.27 HOURS
3. ADABASA system tuning/improvements 1.43 HOURS
4. ADABASA DASD file maintenance. 20.63 HOURS
5. Undetermined causes for systems restarts. 2.22 HOURS

TOTAL: 21.81 HOURS
NAS/8083 Dual Processor Performance Statistics for December

<table>
<thead>
<tr>
<th>CPU</th>
<th>SYSTEM</th>
<th>Planned Maintenance Hours</th>
<th>Scheduled Operating Hours</th>
<th>Planned Production Hours</th>
<th>Unplanned Maintenance Hours</th>
<th>Production Hours Achieved</th>
<th>System Uptime</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACAD</td>
<td>VM/SP3</td>
<td>744</td>
<td>40.90</td>
<td>703.10</td>
<td>2.53</td>
<td>700.57</td>
<td>99.6%</td>
</tr>
<tr>
<td>ACAD</td>
<td>MUSIC/SP</td>
<td>744</td>
<td>71.50</td>
<td>672.50</td>
<td>15.39</td>
<td>657.11</td>
<td>97.7%</td>
</tr>
<tr>
<td>ACAD</td>
<td>MVS/JES2</td>
<td>744</td>
<td>42.29</td>
<td>698.71</td>
<td>10.58</td>
<td>688.13</td>
<td>98.5%</td>
</tr>
<tr>
<td>ACAD</td>
<td>COMPLETA</td>
<td>744</td>
<td>46.07</td>
<td>697.93</td>
<td>14.43</td>
<td>683.50</td>
<td>97.9%</td>
</tr>
<tr>
<td>ADMN</td>
<td>MVS/JES2</td>
<td>744</td>
<td>0.00</td>
<td>744.00</td>
<td>6.08</td>
<td>737.92</td>
<td>99.2%</td>
</tr>
<tr>
<td>ADMN</td>
<td>COMPLETA</td>
<td>326</td>
<td>0.00</td>
<td>326.00</td>
<td>1.31</td>
<td>324.69</td>
<td>99.6%</td>
</tr>
<tr>
<td>ADMN</td>
<td>ADABASA</td>
<td>744</td>
<td>33.94</td>
<td>710.06</td>
<td>11.69</td>
<td>698.37</td>
<td>98.4%</td>
</tr>
</tbody>
</table>

MUSIC/SP Planned Maintenance Hours include 19.41 hours for system backup and 10.69 hours for VM/SP3 system backup.

ADABASA'S Planned Maintenance Hours include 14.32 hours for system backup.

The ACAD CPU achieved 100% uptime; the NAS/7360 DASD achieved 100% uptime; the NAS/7380 DASD achieved 100% uptime. The ADMN CPU achieved 100% uptime; the NAS/7360 DASD achieved 100% uptime; the NAS/7380 DASD achieved 100% uptime.

Lost productivity hours were contributed to by the key causes appearing in the table to the right.

ACAD CPU:

**Miscellaneous**
1. Upgrade VM/SP to Release 5. 46.07 HOURS
2. Systems development. 6.55
3. MUSIC/SP lockup after shutdown. 4.02
4. MUSIC/SP DASD file maintenance. 3.79
5. MVS/JES2 system tuning/improvements. 2.57
6. Operations' VM/SP IPL procedure error. 2.30
7. COMPLETA system maintenance. 2.00
8. COMPLETA down to run single jobs. 0.97
9. Stopped CPU while resetting 1270 TCU's. 0.25

TOTAL: 68.52 HOURS

ADMN CPU:

**CPU, Tape, and Disk Subsystems (NAS)**
1. Corrective Maintenance on CPU. 2.15 HOURS

**Miscellaneous**
1. ADABASA DASD file maintenance. 5.18 HOURS
2. Systems development. 2.13
3. Undetermined causes for systems restarts. 1.98
4. COMPLETA system failures. 1.06
5. Stopped CPU while resetting 1270 TCU's. 0.25

TOTAL: 10.60

GRAND TOTAL: 12.75 HOURS

DISK BACKUP SCHEDULES

OS/MVS Backup Schedule
OS/MVS disk packs (academic and administrative) are backed up daily, Tuesday through Saturday, from 4:30 a.m., and Sunday from Midnight to 3 a.m.

VM/CMS
Backups of VM system disks and CMS mini-disks are performed every...
PHOENIX Backup Hours
PHOENIX is backed up weekly on Sunday night. The backup begins at midnight and lasts for approximately 30 minutes.

VAX Backup Schedule
Incremental backups of the VAXcluster are performed Monday through Thursday at 6 p.m. Users do not have to log-off, but any files that are open at the time of the backup will NOT be backed up.

Full backups of both systems are done every Friday beginning at 8 a.m. These generally will take all day to complete. Again, users do not have to log-off, but any files that are open will not be backed up.

A "Stand Alone" backup of the system disk is done once a month. This procedure makes a copy of the system disk that can be used to restore its contents if the disk is completely destroyed. The system will be shut-down for this. Watch the system log-on message for specific times and dates.

NOTE: Requests for restoration of files should be made via MAIL to the username OPERATOR. Your file can only be restored if it existed before the last backup was done.

ACADemic (NAS) Program Hit Parade

<table>
<thead>
<tr>
<th>December Top Ten Programs: Frequency Of Runs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program</strong></td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>1. IEWL</td>
</tr>
<tr>
<td>2. PGM=*DD</td>
</tr>
<tr>
<td>3. IKFCBL00</td>
</tr>
<tr>
<td>4. IEBGENER</td>
</tr>
<tr>
<td>5. IEBPTPCH</td>
</tr>
<tr>
<td>6. IDCAMS</td>
</tr>
<tr>
<td>7. IEV90</td>
</tr>
<tr>
<td>8. ADARUN</td>
</tr>
<tr>
<td>9. SASLPA</td>
</tr>
<tr>
<td>10. PTPCH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>December Top Ten Programs: CPU Seconds Used</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program</strong></td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>1. SASLPA</td>
</tr>
<tr>
<td>2. PGM=*DD</td>
</tr>
<tr>
<td>3. COMPLETEX</td>
</tr>
<tr>
<td>4. IKFCBL00</td>
</tr>
<tr>
<td>5. SPSSX</td>
</tr>
<tr>
<td>6. ADARUN</td>
</tr>
<tr>
<td>7. SCRIPT</td>
</tr>
<tr>
<td>8. FATS</td>
</tr>
<tr>
<td>9. IEV90</td>
</tr>
<tr>
<td>10. IEWL</td>
</tr>
</tbody>
</table>
### January Top Ten Programs: Frequency Of Runs

<table>
<thead>
<tr>
<th>Program</th>
<th>Description</th>
<th>Number of Runs</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEBGENER</td>
<td>IBM Utility</td>
<td>2868</td>
<td>13.8</td>
</tr>
<tr>
<td>SASLPA</td>
<td>SAS</td>
<td>2727</td>
<td>13.1</td>
</tr>
<tr>
<td>IKJEFT01</td>
<td>Password Change</td>
<td>2343</td>
<td>11.3</td>
</tr>
<tr>
<td>IEWL</td>
<td>Linkage Editor</td>
<td>1609</td>
<td>7.7</td>
</tr>
<tr>
<td>PGM=<em>.</em>.DD</td>
<td>Compiled Program</td>
<td>1570</td>
<td>7.5</td>
</tr>
<tr>
<td>SPSSX</td>
<td>SPSSX</td>
<td>1369</td>
<td>6.6</td>
</tr>
<tr>
<td>PTPCH</td>
<td>Dataset Lister</td>
<td>1362</td>
<td>6.5</td>
</tr>
<tr>
<td>IKFCBL00</td>
<td>VS COBOL Compiler</td>
<td>1146</td>
<td>5.5</td>
</tr>
<tr>
<td>SCRIPT</td>
<td>Waterloo/SCRIPT</td>
<td>978</td>
<td>4.7</td>
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<tr>
<td>ADARUN</td>
<td>ADABAS Utility Module</td>
<td>823</td>
<td>3.0</td>
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</tbody>
</table>

### January Top Ten Programs: CPU Seconds Used

<table>
<thead>
<tr>
<th>Program</th>
<th>Description</th>
<th>CPU Seconds</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>SASLPA</td>
<td>SAS</td>
<td>42704</td>
<td>42.9</td>
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<tr>
<td>PGM=<em>.</em>.DD</td>
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<tr>
<td>SPSSX</td>
<td>SPSSX</td>
<td>6615</td>
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<td>FATS</td>
<td>Tape Verification Program</td>
<td>4692</td>
<td>4.7</td>
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<td>SCRIPT</td>
<td>Waterloo/SCRIPT</td>
<td>2738</td>
<td>2.8</td>
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<td>ISTINM01</td>
<td>VTAM Utility</td>
<td>1912</td>
<td>1.9</td>
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<tr>
<td>ADARUN</td>
<td>ADABAS Utility Module</td>
<td>1845</td>
<td>1.9</td>
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<tr>
<td>IKJEFT01</td>
<td>Password Change</td>
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<td>1.0</td>
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<tr>
<td>PTPCH</td>
<td>Dataset Lister</td>
<td>957</td>
<td>1.0</td>
</tr>
<tr>
<td>IKFCBL00</td>
<td>VS COBOL Compiler</td>
<td>907</td>
<td>0.9</td>
</tr>
</tbody>
</table>

The programs listed in this section were used the most frequently on the NAS CPU during the months of December, 1988 and January, 1989.

Please Note that ACAD is the official designation of the part of the NAS/8083 CPU that is dedicated to faculty and student use. The portion of the computer reserved for University administrative purposes is termed ADMN.

---

Richard A. Harris, Associate Vice President for Computing  
Steve Minnis, Manager, Computing Services  
Dave Molta, Manager of Academic Computing Services  
Coy Hoggard, Manager of Administrative Information Systems  
Claudia Lynch, *Benchmarks* Editor  
Philip Baczewski, *Benchmarks* Associate Editor
Computing Center Short Course Registration Form

Please complete this form and return it AS SOON AS POSSIBLE if you wish to attend any of the short courses listed below. You may also register over the phone by calling (817) 565-2324.

NAME: ____________________________ PHONE: ________________________

DEPT: ____________________________ CLASSIFICATION: __________________

MAILING ADDRESS: ______________________________________________________

I wish to attend:

- **Introduction to JCL (ISB 123):**
  - ___ Friday, March 3: 3-5 p.m.

- **Introduction to SAS (ISB 110):**
  - ___ Monday, March 6: 3-5 p.m.

- **Introduction to SPSS-X (ISB 110):**
  - ___ Thursday, March 9: 6:30-8:30 p.m.

- **Introduction to PROCOMM (ISB 123):**
  - ___ Tuesday, March 7: 2-3 p.m.

- **Introduction to PCWS (ISB 123):**
  - ___ Tuesday, March 7: 3-4 p.m.

- **Introduction to BITNET (ISB 123):**
  - ___ Wednesday, March 1: 3-5 p.m.

- **Introduction to ARPA Internet and THENET (ISB 123):**
  - ___ Thursday, March 2: 3-5 p.m.

- **Introduction to MUSIC/SP, Part II (ISB 110):**
  - ___ Wednesday, March 8: 9-11 a.m.

I would like to see more classes offered: ___ on weekends; ___ at night.

The classes I am interested in are: ________________________________________