Microcomputer Newsletter June 1991

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## News and Announcements

(()) **This may be your last newsletter.**

To keep our costs down, we periodically *completely purge* our newsletter mailing list. We're preparing for a purge now.

To Cancel: Do Nothing
If you no longer want to receive this newsletter, do nothing. We will delete the entry on the mailing label from our mailing list.

To Continue: Act Before July 4th
If you want to keep your name on our mailing list, return the last page of this newsletter to us before July 4th. The last page has your *current mailing label* and a subscription request coupon on it. If needed, update the name and address shown on your mailing label. Use the coupon to tell us whether you want your subscription continued as is or want it changed.

▢
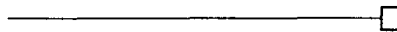
■ Free Computer Program for Faculty and Staff

During the 1991 Second Summer Session the Microcomputer Center will offer a free, hands-on computer program for all full-time faculty. Later in the school year we will offer a similar program for all full-time staff.

The program will introduce faculty to the University's computer facilities, including using electronic mail and accessing LUMINA, as well as introduce participants to other ways computers can help them.

Look in your campus mail box for a memo with more information. Although we have not worked out all the details, we are drawing on experiences we gained conducting a similar program last summer to help us with the details for this one.

▢
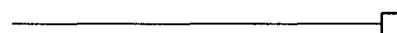
System 7, It's Here

On May 13th, almost two years after Apple announced its next major upgrade, System 7.0 was officially released. Since the University has a site license for System 7, University users may obtain free copies of the software. However, you must supply your own disks and buy your own documentation. To run System 7 you need a Mac Plus or better, a hard disk, and *at least 2MB* of random access memory (RAM).

If you buy a Mac in the next couple of months, the package will probably contain System 6.0.7 along with a coupon that you can send in to Apple for a *free* set of System 7 disks and documentation. Ultimately, Apple plans to ship System 7 with every Macintosh.

Documentation

You can purchase the documentation listed below from the Book Center. However, we do not expect the documentation to be available for another 4-8 weeks.

System 7 Documentation	Discount Price
• Personal Upgrade Kit, includes disks, manuals, and 90-days of toll free phone support	$85
• Manuals only, including what's new in System 7, a general reference, and a networking guide	$40

The Book Center's Reference section will also have some books about System 7. See the *And Books, Too* column on page 169 for more information.

Improved Finder

The Finder is the application that presents Mac users with the familiar desktop, disk icons, and trash icon. Most Mac users take the Finder for granted; it unobtrusively launches applications and manages the Mac's computing environments. The Finder was completely rewritten for System 7, but on the surface, the it looks and acts much the same as it always did. We've highlighted some changes below.

A Cleaner Desktop

To experienced MultiFinder users, things look much like they did under MultiFinder, except that there is no MultiFinder any more: its functions are now an integral part of the System. Under MultiFinder, the desktop could become messy. This distracted and annoyed some people. The new, improved Finder lets you hide windows until you need to use them.

Built-in Help

Selecting the ? icon in the top right of the menu bar lets you activate Balloon Help. When you select *Show Balloons,* the Mac still works like it always does, but as you move the mouse around the screen, help-balloons pop up, as shown in Figure 1.

Figure 1: Example of a Help Balloon
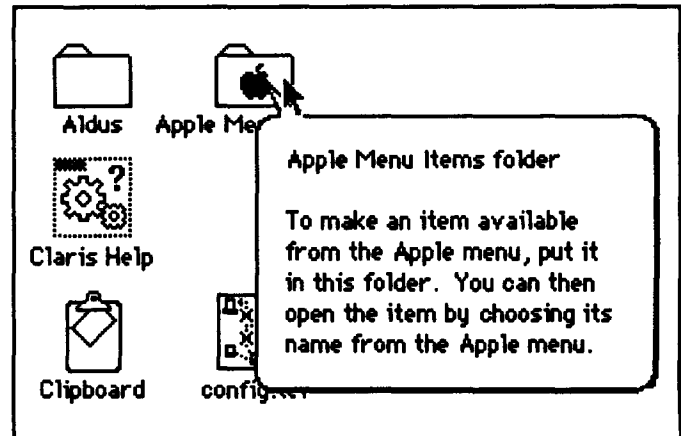
More Viewing Options

System 7 offers more ways to view the files and folders on your disk, including a feature that lets you imbue files and folders with "Labels," short descriptions and associated colors. In non-icon views, clicking on the triangle to the left of folder names "expands" the folder, placing the indented contents underneath, as shown in Figure 2.

Figure 2: New Viewing Options
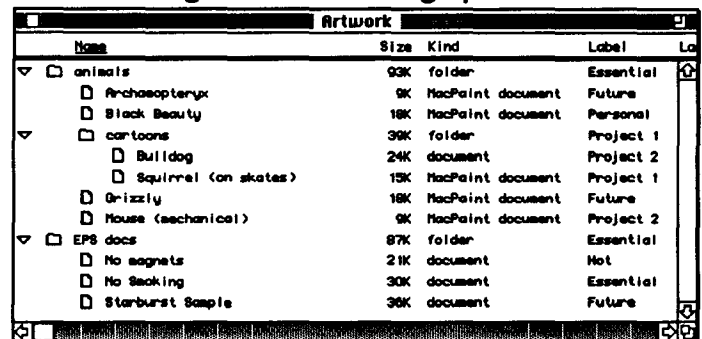
Reorganized System Folder

The contents of System 7's *Systems Folder* have changed; it now contains folders named *Apple Menu Items, Control Panels, Extensions, Preferences, PrintMonitor Documents,* and *Startup Items.* If you upgrade to System 7 you do not need to create these folders. The install program creates them and stuffs appropriate items into the new folders.

A Place for Everything

The mess that seemed to accumulate inside older versions of the System Folder has been cleaned up and reorganized into folders. If you are in doubt as to where something that used to live in the older System Folders should be placed, just drag its icon onto System 7's System Folder icon. The smart Finder will suggest the best place for it, as shown in Figure 3.

**Figure 3: If in Doubt,
Drag Icon onto System Folder Icon**

> ⚠ **Extensions need to be stored in the Extensions folder in order to be available to the Macintosh. Put "PIHymCmdKey" into the Extensions folder?**
>
> [Cancel] [OK]

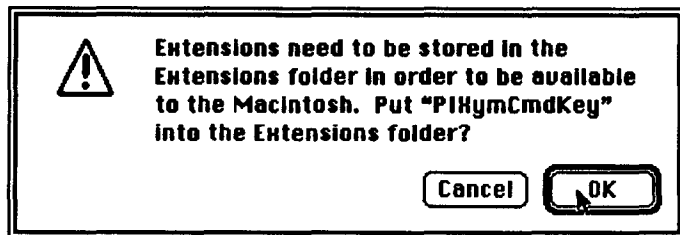There is even a special (invisible) folder for applications to store their temporary files. Some old applications will need to be updated so that they know about these new standards of orderliness; many applications already know.

Good-bye Desk Accessories

You can double-click on desk accessory icons to open them, and they behave like regular applications.

Hello Apple Menu Folder

To have stuff show up under the menu, you do not use the *Font/DA Mover*. Instead, you just drop the desk accessory (DA) into a special folder called *Apple Menu Items*. Once you drop the DA in the folder, it appears under the menu just as it used to under older systems.

You can place *anything* in the Apple Menu Items folder: applications, documents, even other folders! When you choose any item found under the menu, it opens like you expect it to. We've found this a convenient place to store applications, such as MacWrite II, that we use frequently.

A Gentler, Kinder Control Panel

The old Control Panel has been replaced with a folder called *Control Panels*. You just drag control panel files into this folder and things work as expected.

Printer Drivers and INITs

All those pesky little extensions (also called INITs) that clutter up many people's System Folders now have a home:

the *Extensions* folder. Since printer drivers extend the system enabling it to communicate with different printers, printer drivers are also stored in the Extensions folder.

Preferences Folder

If an application needs to save some settings between starts up, Apple recommends that it save this information in the *Preferences* folder. For example, this is where you will find the Word and Excel settings documents.

Startup Folder

If you wish an application or document to be opened when your Mac starts up, drop the items into the *Startup Items* folder. This procedure replaces the older System's less flexible *Set Startup* menu item.

Find File

The Desk Accessory called Find File is gone, but its very useful function has been assumed by the Finder. Look for the new *Find* menu item under the Finder's *File* menu. The new Find is faster, more flexible, and most people find it easier to use.

Better Trash Handling

You can place the Trash can anywhere on the desktop, and it will stay there until you move it again. And better yet, the Trash does not get emptied automatically when you start up an application or shut down your Mac. After all, the trash at your house never mysteriously vanishes when you leave your home. You can still empty the trash yourself, but until you do, you can always go back and say "Oops, where is that document I threw away last week?" If you run out of space on the disk, the Finder politely asks if it should make some room by emptying the Trash.

More Conveniences

Many Mac users trade information (documents) with other Mac users for fun and profit. The kind of document that most everyone can read is one containing plain, unformatted text. Although all Mac word processors and editors know about plain text, getting them to let you open these documents usually took several steps.

Here's a typical scenario: A colleague gives you a disk with a plain text document on it (or sends it to you over the network) and says "Check this out." When you double-click on the document, the Finder responds with the infuriating message that it cannot find the application that created that document. Apparently the document was created using an application that you do not have, say

Microsoft Word. In the olden days, the Mac sophisticate would start up their word processing software and attempt to open the document using the *File* menu's *Open* option. With System 7, the Mac sophisticate just drags the document's icon onto the icon of their word processing software. If the software's icon becomes highlighted, you know it "understands" this document. When you release the mouse button, the software will automatically start up, opening the text document at the same time.

You can turn the documents you create with most applications into a template form of the document. Many applications already offer this feature as a stationery pad option in their *Save As* menu. Under System 7 you first select the document, then select *Stationery pad* from the *File* menu's *Get Info* dialog box. When you open templates, the document is automatically duplicated, preventing you for overwriting the original document.

The healthy market in extensions (INITs), customized sounds, and customized icons is testimony to people's desire to personalize their Macs. System 7 has lots of frivolities and convenience features for the Mac aficionado that we did not describe.

Font Changes

You may have heard of the new TrueType outline fonts that Apple recently released. (TrueType fonts were discussed in our April 1991 newsletter, along with the StyleWriter and Personal LaserWriter LS). TrueType fonts are part of System 7. Since they are arbitrarily scalable, you can make them as big or small as you want (assuming your application allows you to) with no loss of image quality. Figure 4 shows a sample outline font.

Installing fonts is easier because you don't have to use the Font/DA Mover. Instead, you drag the font file onto the *System* or the *System Folder* icon. To see what fonts you have in your System, just double-click on the System file.

Adobe Type Manager (ATM) version 2.0, software that produces sharp on screen displays of PostScript fonts, is compatible with System 7. However, since ATM cannot find the PostScript outline fonts in the Extension folder, the fonts should be loose in the System Folder.

Caution
When we updated to System 7 we had to manually reinstall some of our fonts because System 7 dumped them. If you use LaserWriter fonts such as Zapf Dingbats or Bookman and did not keep a backup copy, you can copy them from System 7's *Additional Fonts to Install* folder.

Before you install System 7, it is a good idea to have backups of all your non-Apple fonts and desk accessories (DAs). And *do not use Font/DA Mover with System 7*, even if the font or DA you buy has that application on its disk.
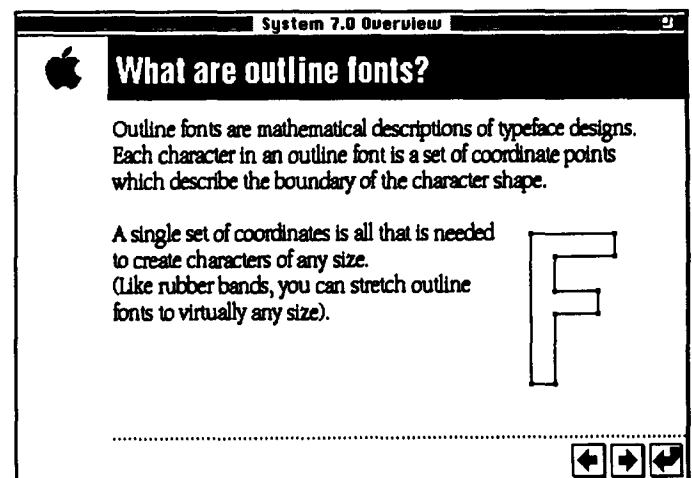
Virtual Memory

The SE/30 and most of the Mac II family can take advantage of virtual memory, a feature that makes your Mac act like it has more RAM than it actually has. They can do this because the 68030 CPU has a built-in PMMU (Page Memory Management Unit). The original Mac II and the Mac LC are 68020 machines and do not come with PMMU. You can upgrade the original Mac II to a Mac IIx for about $1600; call Engineering Services at 625-1595 for upgrade details. To turn virtual memory on or off, use the Control Panel folder's *Memory* option.

Limitations
What happens when your Mac with 2MB of memory behaves like it has more, say 10MB. A roughly 10MB section of the hard disk is set aside to store a 10MB memory "image." Unbeknownst to the Finder and other applications, the Mac swaps information between the slow disk and the much faster RAM. Using virtual memory does cost something: "paging" or moving chunks (pages) between disk and actual memory can slow your Mac down. Generally, the application you are currently using resides in actual physical memory. When you switch applications, it's likely that segments belonging to the new application must be swapped into real memory from virtual memory (the slow disk); hence some hesitation may occur.

Under System 7 virtual memory is most effective keeping several small applications active at the same time, letting you switch between them as necessary, cutting and pasting your way to greater productivity. Its less effective with one mammoth application.

Figure 4: Outline Fonts

System 7.0 Overview

What are outline fonts?

Outline fonts are mathematical descriptions of typeface designs. Each character in an outline font is a set of coordinate points which describe the boundary of the character shape.

A single set of coordinates is all that is needed to create characters of any size. (Like rubber bands, you can stretch outline fonts to virtually any size).

AppleShare

Prior to System 7 any networked Mac could share files placed on a special, dedicated Mac running AppleShare File Server software. The dedicated Macintosh functioned as a shareable hard disk.

Personal AppleShare

Under System 7 any networked Mac can be a file server. In other words, Mac users can share files and folders with other networked Mac users—provided, of course, that the owner of the Mac bearing the shareable information gives permission. The new personal file server software works in the background, so the Mac need not be dedicated to just being a file server.

Why would anyone buy the regular AppleShare File Server software anymore? For one thing, Personal AppleShare favors the owner of the Mac. *Most* of the processing time and power goes to the person at the keyboard; relatively little goes to folks on the network who have access to the shareable files. This is good news for the Mac's owner who does not want their machine brought to a crawl because someone is accessing their phone list, but is an inefficient method for many kinds of file starting. Regular Apple-Share has the opposite philosophy; it provides service that is as efficient and flexible as possible to its users.

System 7 AppleShare

Regular AppleShare is not compatible with System 7. Do not update AppleShare File Servers to System 7. The File Servers can communicate with AppleShare workstation software running either System 6 or System 7.

New Features for Future Applications

Some of the most powerful features of System 7 are hooks available for developers of future applications. Most current applications were not written to take advantage of these features.

Aliases

Sometimes it is useful to store the same document in two places: for example, you may want a spreadsheet document in the folder where you have your word-processing stuff as well as the folder where you have budget spreadsheets. In this case simply duplicating it won't work since when you update one copy, the other one becomes out of date.

A feature called Aliasing (accessible through the Finder's *File* menu) lets you make a substitute icon, called an "alias" for any icon - i.e., any document, folder, disk, or application. The alias's file size is quite small, since it contains just

enough information to enable the Finder to locate the original item. The original can be anywhere on your hard disk, on a diskette, or even on a distant file server.

When you double-click the icon of the alias, the Finder actually opens the original item. If the item is on a diskette that is not inserted, you are asked to insert the diskette. If the item lives on a file server, the Finder mounts the file server and opens the item. You can tell the difference between original and alias files in three ways: alias file names are displayed in *italic type* while original file names are in plain type and the "by kind" listings and the Get Info dialog box show the item is an *alias.* An alias looks and feels like the original file, unless you copy it. For example, if you make a backup copy of an alias called *Message Archive,* you get a copy of the alias not of the original document. To give yourself an additional clue that an item is an alias rather than an original document, keep "alias" as part of the file name. You can easily find the original by selecting the alias and using the *Find Original* button in the *Get Info* dialog box.

Edition Manager: Publish and Subscribe

Applications written for System 7 can use a feature that seems to be a logical extension of those longtime favorites: Cut, Copy, and Paste.

Mac users take for granted the ability to copy information from one application (say a spreadsheet) and paste it into another (your word processor for example). However, there is one gotcha here: the chunk of information you pasted is static. In other words, if you change the information in the spreadsheet, the component you pasted into your word processing document would not reflect those changes—enter Publish and Subscribe.

Applications written to use this feature can Publish information in a document and will have two new items in the *Edit* menu: *Create Publisher* and *Subscribe.* Other applications that support this feature can Subscribe to the information and include it in their own documents. Changes made to the published information in one document are automatically reflected in the other, even over the network, like a copy-paste that updates automatically. Although few applications have been modified to support Publish and Subscribe, in the future we expect they'll be as ubiquitous as Cut and Paste.

Apple Events

Ever want to control one application from inside another? For example, have your spreadsheet "tell" your database to find some special record, pull some field from the record, and then drop it into a cell in the spreadsheet. System 7

supports an orderly way for applications to communicate with each other, but todate no applications that effectively use this feature have been written.

What might the future hold? Instead of applications having every feature imaginable (word-processing, mail-merge, drawing, painting all in one application), we will see trends toward small, fast, specialized applications that can communicate with other specialized applications.

Problems

And now it's time for the downside.

Compatibility

Will your old applications be compatible with System 7? Well, Apple has been preaching the gospel of System 7 compatibility for almost two years. Most developers have heeded the advice and refrained from doing things that Apple said would bode badly for the future. So most of your current, well-behaved applications should run just fine under System 7. They may not be aware of the new goodies that System 7 offers, but they will continue to perform as they did under earlier systems. If your favorite application is not compatible with System 7, call the publisher and complain loudly.

Before installing System 7 we suggest you use the *Compatibility Checker* that comes with System 7 and print the results. Even though it takes a while for the Compatibility Checker to examine your hard disk, we think it is worth the wait. You will find the resulting report includes phone numbers for many of the applications you have on your hard disk, making it handy to contact the publisher.

The Compatibility Checker includes misleading information about Disinfectant versions 2.4/2.5. (Disinfectant is a public domain virus checking program that is in widespread use.) The checker's report correctly states that Disinfectant 2.4 is compatible, but it incorrectly directs people to contact the developer about version 2.5. John Norstad, the developer, reports that there will be no version 2.5. He is working on version 3.0, a substantial upgrade that won't be available until later this summer. To use Disinfectant 2.4, you need to keep it out of the Extensions folder and leave it loose in the Systems Folder. Should version 2.4 tell you to "try again without MultiFinder," you should restart your Mac with the *Disk Tools* disk and try Disinfectant again.

If you are an AppleShare Server administrator, be sure to read the section above called *AppleShare*.

INITs

INITs are specialized routines you get from your friends, Mac bulletin boards, or the Mac Information Server to drop into your System Folder. These routines typically modify the normal behavior of the system. (They're called System Extensions in System 7.)

Many INITs announce their presence by displaying their icons across the bottom of the screen when the Mac starts up. Screen dimmers, clocks in the menu bar, weird sound effects, etc. are typically the domain of these powerful little beasts. Not all INITs are written as fly-by-night hacker exercises (although many are); some well-known E-mail packages operate in this manner.

For the most part, INITs work by doing things that are undocumented or not recommended by Apple. When you have many extensions busily modifying your system, they may interact with each other in nasty ways. Each INIT believes that it is modifying a plain, unmodified system, when in fact it may be modifying a system that is already heavily modified by other INITs. Yup, trouble. Your favorite combination of extensions may modify your system into a crash. You have been warned...

Drivers

Drivers form another kind of system extension: they enable your Mac to communicate with devices such as printers, hard disks, scanners, and NuBus boards or network resources. It is probable that some drivers will not work with System 7. If the driver for your WhizBang 360 Ethernet card does not work with System 7, call the manufacturers.

Hard Disk Drivers

If you have an Apple hard disk, the Install program automatically updates the driver *(Apple HD SC Setup)* without disturbing the information you have stored on the disk.

Rodime users should be sure they have updated their hard disk driver to at least version 2.1.7, which is on the *<Information* volume of the Mac Information Server. Look in the *Systems Software* folder for the *Rodime Utilities* folder.

The Microcomputer Center has been using System 7, and the Rodime Driver Utility 2.1.7 and Alliance Power Tools 1.13 utilities that we use on our Rodime and Alliance disks seem to work just fine.

Regardless of the hard drive you use, most utilities have a feature that lets you replace older drivers without reinitializing the whole drive. Although many hard disk

drivers are compatible with System 7 as long as Virtual Memory is turned off, their owners may experience problems if they turn Virtual Memory on.

MacTCP Drivers
Folks on the campus internet might run into a minor problem with the MacTCP drivers. The MacTCP drivers allow the Mac to speak the protocols known as TCP/IP and thus communicate with other devices on the campus network and Internet, the worldwide network. POPMail, NCSA Telnet, and other network applications work via the MacTCP drivers. MacTCP includes a way for applications to find out the numerical address (the IP address) of a distant networked computer from the computer's easier-to-remember name (properly called the IP domain-name); this is called the domain-name resolution package.

Under System 6, the MacTCP file lived in the System Folder. Applications that needed to retrieve the domain-name resolution package looked in the System Folder (as Apple recommended) for the MacTCP file. System 7 automatically places MacTCP in the *Control Panels* folder, where some applications fail to find it. So some network applications stop working. The near-term workaround we use involves the three steps listed below. A future release from Apple will eliminate the need for this workaround.
- drag *MacTCP* and *MacTCP Prep* out of the *Control Panels* folder but leave them in the System Folder
- create a MacTCP alias; put it in the *Control Panels* folder
- turn off Virtual Memory if you intend to use MacTCP

Telnet
Older versions of Telnet do not work properly with System 7. We've put a new copy, version 2.4b11, on the Mac Information Server. Since it is beta, there may be bugs; but our tests show it works reasonably well with Systems 6.xx and System 7. You'll find version 2.4b11 on the *<Information* volume of the Mac Information Server. Look in the *communications* folder for the Telnet folder.

Parasitic DAs
Before MultiFinder, desk accessories (DAs) had a strong reason for existence: they could be used while you were using an application. The DA was a guest in the application's world. The application would give it processor time and the DA had to be a good citizen in return. Some DAs (notably some spelling checkers and their cousins) developed symbiotic or parasitic relationships with certain applications, using undocumented or unrecommended tricks to get their jobs done.

MultiFinder changed the DA situation. Under MultiFinder the Finder and several applications could be available at the same time. If you had enough memory, you just switched between applications. But if you select a DA from the menu when you were running say, three applications under MultiFinder, which application's world did it enter? Since there were so many desk accessories, Apple tried hard to keep them working by making them guests of a single ghost application called the DA Handler. The bad (parasitic) DAs stopped working in this environment, but their creators resorted to more dubious tricks and got the DAs back on their feet.

Under System 7, each desk accessory has been cleverly elevated to application status. Now DAs are alone in their own world, and the parasitic ones are once again broken. You will know if you have one of these naughty DAs: they will stop working under System 7.

Printer Driver Wars
If your Mac is on a network and some of your workgroup upgrades to System 7 and others don't, you have a potentially frustrating situation. The first person to print will initialize the printer to work with their version of the driver. When someone who has a different version of the printer driver wishes to print, their Mac will request permission to re-initialize the printer. Of course, soon thereafter someone will have to re-re-initialize the printer. Initializing the printer takes time.

The solution is simple: request the folks still using System 6 to upgrade to the newer printer drivers. Those who use System 6 should use the *Installer* utility that is on System 7's Printing disk. If this is done, Systems 6 and 7 can coexist and peacefully share the same LaserWriters. Once you've installed the new driver, you must reselect the printer you want to use from the menu's *Chooser*.

If you have an HP LaserJet IIP printer with an AppleTalk connection and a PostScript cartridge on your network, you can print to the IIP if you select the new LaserWriter icon in the Chooser rather than the HP LaserJet icon.

Reverting to an Older System
If you install System 7 but find that your favorite software does not perform properly with it or that it is too slow for the memory you can afford, you can re-install an older version of the System on your hard disk. To do this:
- start up your Mac with the appropriate System disk (the name of the disk depends on the version and what type of floppy disk you have, e.g. 800K or FDHD)

- be sure you have backup copies of the fonts, DAs, INITs, etc. that you want to use
- drag the System Folder on your hard disk to the trash
- use the Install utility that goes with the version of the System you are installing

Memory

To run System 7 you need at least 2MB of RAM, but will 2MB be enough? Probably not if you want to start up and use more than 1-2 applications at a time. How much RAM you can access with System 7 depends on which Mac you use.

Memory on the Macs is packaged on SIMMs (Single InLine Memory Modules) that snap in. These SIMMs have 30 pins; except for the Mac IIfx which has 64 pins. There are several types of SIMMs, varying by capacity (size) and speed. SIMM speed ranges from the fast 80 nanoseconds (ns) to the slower 150 ns. You must install SIMMs which are as fast as (or faster than) the speed requirements for your computer.

Mac	SIMM Speed/Slots	SIMM Sizes 256K	1MB	4MB	16MB	Max RAM for Sys 7♣
*RAM must be added or removed in pairs.						
*Each pair must be the same size.						
Plus	150	4	Y	Y	-	-	4MB
SE	150	4	Y	Y	-	-	4MB
Classic	150	♠					4MB
LC ♥	100	2	-	Y	Y	-	10MB

—the LC has 2MB of RAM on board

*RAM must be added or removed in groups of four.						
*Each group must be the same size.						
SE/30	120	8	Y	Y	Y	-	8MB
II	120	8	Y	Y	Y	-	8MB
IIcx	120	8	Y	Y	Y	-	8MB
IIx	120	8	Y	Y	Y	-	8MB

*These Mac IIs have 32-bit clean ROMs.

IIci	80	8	Y	Y	Y	Y	128MB
IIfx ♦	80	8	-	Y	Y	Y	128MB
IIsi ♥	100	4	Y	Y	Y	Y	65MB

—the IIsi has 1MB of RAM on board

*Portables use special low-power-consumption memory.		
Portable 5120		9MB
Portable 5126		9MB

♠ the Classic has 1MB of RAM on board and one memory expansion slot. Apple's card for this slot has 1MB of RAM on it as well as two slots for 1MB SIMMs.
♥ can also use 2MB SIMMs
♦ the IIfx uses fast-page mode, 64-pin SIMMs
♣ if you install RAM beyond that which System 7 can use, you can use it as a RAM disk

Here are the Book Center's current prices for Mac memory upgrades. The price includes installation.

Mac or SIMM speed	Memory Upgrade	Price
Classic	1MB memory card for M0421LL/A Classic	$125
80ns	2MB (two 1MB SIMMs)	$145
80ns	4MB (four 1MB SIMMs)	260
11fx (80ns)	4MB (four 1MB SIMMs)	495
Portable 5126	1MB static memory	$300
Portable 5126	2MB static memory	575
Portable 5126	3MB static memory	720

System 7 Packaging

You must have a hard disk to use System 7, and you cannot create an 800K startup diskette with System 7 on it. While it is possible to create a 1.44MB startup disk containing a minimal version of System 7, such a diskette is strictly for emergency use. You can use a System 6 disk to start up a Mac that has a hard disk containing System 7. If you do this, you will see some previously invisible folders. System 7 uses these folders to maintain the desktop and the trash. Do not throw away these strange folders if you wish to use the disk again under System 7.

Acquiring System 7

The Microcomputer Center can distribute System 7 software to the University community. However, we do not have a site license to distribute the documentation; you must obtain it separately (see *Documentation* section on page 150). The System 7 software is in two places on the Mac Information Server: (1) on the volume called <*System 7.0 Server* and (2) on the volume called <*Information* in the *System Software* folder. Both volumes have the same System 7 information, and you can connect to them by clicking the *Guest* button.

Using the Mac Information Server is easy if you are familiar with the Macintosh. Whenever you see the server's icon on your Mac, you can copy information from it. If you are connected to the campus internet and your Mac has at least 2MB of RAM, you can copy the System 7 software without making a trip to the HelpLine. To copy over the internet, pull down the ♠ menu and select *Chooser*. From the Chooser, select the *AppleShare* icon, the *MicroCenter* AppleTalk Zone, and a file server. Once you are connected you will find folders entitled *800K Disk Images* and *FDHD Disk Images*. Whether you open the 800K or the FDHD

folder depends on whether you use double-density (800K) or high density (1.44MB FDHD) disks. The table below contains a detailed lists of the software as it is packaged on FDHD disks.

We always recommend that you lock master disks, and three System 7 master disks may not function properly if they are not locked: *Install 1*, *Disk Tools*, and the disk that contains *Before You Install System 7*.

If you have a CD-ROM attached to your system, you also must copy the *CD-ROM Setup* disk.

Disk Copy

Like other recent system upgrades, System 7 is fussy about the names of master diskettes and how folders are arranged on those disks. To ensure that everyone copies System 7 accurately, we've provided disk images of the software. To convert these images, use the new Disk Copy program that is in the System 7 folders.

To make master diskettes, double-click on the Disk Copy icon and select the single or multiple copies option from the *File* menu. Click the *Load Image File* button. Select an image to load, for example *Install 1*, and insert a floppy disk. After the image is loaded into your Mac's memory, which button you click next depends on whether you selected single or multiple copies. Click on *Make A Copy* for a single copy, or *Make Some Copies* for multiple copies.

Please Close the Chooser

Whenever your Mac is on a network, be sure to close the Chooser window as soon as you are finished using it. While the window remains open, the Chooser generates significant traffic on the network.

HyperCard Update

Although we do not a license to distribute the revised HyperCard, we hope to have one in the next couple of months. The current HyperCard, version 2.0, works with System 7; however, it does not support its new features. If you purchase the $85 *Personal Upgrade Kit*, you will get a copy of the revised HyperCard.

1.44MB Packaging	Version	Size
Disk 1: Install 1		
Install *	3.2	110K
Installer *	7.0	130K
NetWork Extension	7.0	92K
System	7.0	931K

*Before Installing

1. make backups of all your software and documents
2. remove any disk/virus protection
3. remove any INITs you've added to your system; they could interfere with installation

Disk 2: Install 2		
A/ROSE	1.1.3	65K
AppleShare	7.0	72K
DAL	1.2.2	61K
DAL Preferences	-	2K
EtherTalk Phase 2	2.2.1	10K
Finder	7.0	355K
Finder Help	7.0	36K
TokenTalk Phase 2	2.2	24K
TokenTalk Prep	2.2	39K

Disk 3: Tidbits		
Apple File Exchange Folder		
• Apple File Exchange	7.0	253K
• DCA-RFT/MacWrite	1.0.1	58K
CloseView	7.0	26K
Control Panels		
• Brightness	7.0	10K
• Color	7.0	11K
• Control Panels (alias)	-	1K
• File Sharing Monitor	7.0	4K
• General Controls	7.0	16K
• Keyboard	7.0	8K
• Labels	7.0	3K
• Map	7.0	28K
• Memory	7.0	27K
• Monitors	7.0	40K
• Mouse	7.0	8K
• Network	2.3	13K
• Portable	7.0	36K
• Sharing Setup	7.0	4K
• Sound	7.0	17K
• Startup Disk	7.0	5K
• Users & Groups	7.0	4K
• Views	7.0	3K
Desk Accessories		
• Alarm Clark	7.0	11K
• Battery	7.0	9K
• Calculator	7.0	7K
• Chooser	7.0	22K
• Key Caps	7.0	12K
• Note Pad	7.0	9K
• Puzzle	7.0	14K
• Scrapbook	7.0	10K
• Scrapbook File	-	29K
Easy Access	7.0	12K
File Sharing Extension	7.0	167K
LaserWriter Font Utility	7.0	155K
Read Me	-	36K
TeachText	7.0	36K

Disk 4: Printing		
AppleTalk ImageWriter	7.0	51K
Backgrounder	1.3	5K
ImageWriter	7.0	45K
Installer	3.2	130K

Laser Prep	7.0	3K
LaserWriter	7.0	219K
LQ AppleTalk ImageWriter	7.0	73K
LQ ImageWriter	7.0	65K
Personal LaserWriter SC	7.0	72K
Personal LW LS	7.0	92K
Printer Update	7.0	11K
PrintMonitor	7.0	58K
StyleWriter	7.0	74K

Disk 5: Disk Tools

Apple HD SC Setup	7.0	99K
Disk First Aid	7.0	44K
System Folder		
• Apple Menu Items (folder)	-	
• Control Panels (folder)	-	
• Extensions (folder)	-	
• Finder	7.0	355K
• Preferences (folder)	-	
– Finder Preferences	-	1K
• Startup Items (folder)	-	
• System	7.0	876K

Disk 6: Fonts

Athens 5K, Cairo 7K, Chicago 47K, Courier 135K,
Geneva 87K, Helvetica 135K, London 4K, Los Angeles 10K,
Monaco 54K, New York 85K, Palatino 30K, San Francisco 4K,
Symbol 69K, Times 281K, and Venice 5K.

Disk 7: Open Me First! (Documentation)

Late Breaking News	-	525K
Compatibility Checker	1.0	246K
Before Your Install System 7	1.0	525K

Other System 7 Disks	Version	Size

400K Disks

The 400K disks have the eight names listed below. You also should copy documents from the *Open Me First!* folder.
• Install 1, Install 2, and Install 3
• Disk Tools, Tidbits, and More Tidbits
• Printing and Fonts.

CD-ROM Setup Disk

CD Remote	1.1.2	29K
CD-ROM Software		
• Apple CD-ROM	3.0	14K
• Audio CD Access	1.1	10K
• CD Remote INIT	1.1.2	10K
• Foreign File Access	1.1.1	29K
• High Sierra File Access	2.0.2	15K
• ISO 9660 File Access	2.0.2	15K
Installer	3.2	130K
Installer Script	3.1	6K
Read Me	-	2K
TeachText	1.2	19K

News continued from..... Page 149

■ Vacation Sick Leave Software

The new Vacation/Sick Leave program (VSL) that lets you record Civil Service employees' accrual and use of leave benefits is available for free by calling the Microcomputer Center office at 5-1300. VSL is approved for departmental use by University Audits and University Personnel.

When we developed VSL, Administrative Information Services, in particular Elizabeth Wotrang, helped identify program errors through testing and coordinating a pilot group of VSL users.

Hardware Requirements

VSL runs on IBM-compatibles and Macs. On IBMs VSL runs under Windows 3.0, which requires a hard disk with 6-8MB of free disk space and 640K of random access memory (RAM); however, if your computer has less than 2MB of RAM, VSL's performance is very poor. On Macs VSL requires a hard disk and a Mac Plus or newer machine. Complete hardware requirements and more information about this VSL software are available in our March 1991 newsletter and in the Microcomputer HelpLines.

■ Gopher Consultant: a Self-service Electronic Microcomputer Consultant

Consider the plight to the Microcomputer HelpLine consultant: the body of knowledge consultants are expected to know keeps increasing as new hardware and software products are released. Many hardware and software vendors release new products every six months, and there are thousands of combinations of hardware and software in use everyday. Although most people use the same basic set of programs running on similar hardware, each *version* of software comes with a different set of bugs. While consultants are adept at discovering ways of working around bugs in software, it is impossible for anyone to remember all of the bugs and workarounds for all combinations of hardware and software. One way to attack this problem is to maintain a database of questions and answers of bugs and workarounds.

Many computer vendors maintain a question and answer (Q&A) database for use by their in-house technical support specialists. Enlightened vendors may allow access to their in-house Q&A database by one or two people at a large

Microcomputer Center Courses: Registration 625-1300

Registration

Registration is handled by the Microcomputer and Work-station Networks Center. *Registration for Summer Session begins June 13th.* You can register in person at the Microcomputer Center office in room 132 Shepherd Labs, Monday-Friday, 8 am to 4 pm or by mail. Fees must accompany your registration.

Classes are filled in the order registration is received. The deadline for registration is 4 pm on the working day before the class begins. For additional registration information, call the Microcomputer Center office at 625-1300.

Fees

Fees must accompany your registration. You can pay fees with cash, check, or a Journal Voucher. If you pay by Journal Voucher, credit this Microcomputer Center account: 1005-0950-1612-05-481.

Send your fees and registration materials to room 132 Shepherd Labs, the Microcomputer Center office. Departments should not send Journal Vouchers for computer course registrations to the Budget Desk at 1919 University. Journal Vouchers sent to the wrong location may not arrive at the Microcomputer Center in time for registration, and we do not accept photocopies of Journal Vouchers.

In the course descriptions, fees are shown in ascending order and apply to the following three groups: University students, University faculty and staff, and others.

Cancellations and Refunds

If you cannot attend a class, call the Microcomputer Center at 625-1300 to arrange a refund. We need to hear from you so that we can contact people on our waiting lists. You can cancel by mail or by phone.

If you want a refund, we must receive your cancellation notice 2 working days before the beginning of a class. If we must cancel a class, we will refund your registration fee in full.

Prerequisites

Look for these symbols

❶ ❷ ❸

to alert you to prerequisites for the classes you want to attend.

Please note: instructors will not slow down classes to accommodate students who have not mastered the stated prerequisites.

Other Training Resources

The Microcomputer Center owns over 100 training packages. These packages are available to University departments, current employees, and students and there is no fee for using them. Our newest training materials are listed on page 162.

IBM Courses

● **Hands-on.**
 Limited Enrollment.

Introduction to DOS

This 6-hour class is for new users of PC/MS-DOS versions 3 or above. Mastery of the skills covered in this class are a prerequisite for all our other IBM classes.

In this class you will be introduced to four basic hardware components: the central processing unit, memory, input/output, and auxiliary storage.

You will learn how DOS, your disk operating system software, manages these hardware components and allows you to interact directly with your computer.

You will learn DOS commands that perform such functions as
* prepare a floppy disk
* name a disk
* create text files
* name and organize files according to file type
* copy files from one disk to another, and
* set the date and time in your computer's system clock.

You will learn how to use DOS commands to move between your floppy drive and hard drive. You will
* organize the files on a disk by creating subdirectories
* create nested subdirectories
* move from one subdirectory to another
* remove subdirectories
* display your subdirectories on the screen and
* copy this information to a file that can be printed out.

Finally, you will learn to create a basic batch file, a file that will automatically execute a group of DOS commands.

Introduction to DOS is taught over three days and is offered once on July 22, 24, and 26 from 10 am to noon. Fees $40/60/90.

New ➤ Introduction to DOS with Large Print

Some computer users find the text on IBM computers impossible to read because it is too small. This class will introduce software called *ZoomText*. We will begin the class with an introduction to ZoomText, which enlarges text on a standard IBM

monitor. After covering the fundamentals of using ZoomText, the class will cover the same material presented in our *Introduction to DOS* class, with additional tips on using DOS with large print. This class is open to anyone interested in learning how large print is used on a personal computer. Call Curt Griesel at 626-0365 for further information.

Introduction to DOS with Large Print is taught over three days and is offered once on July 9, 10, and 11 from 10 am to noon.
Fees $40/60/90.

Beginning Lotus 1-2-3 version 2.2

This 5-hour course will familiarize users with basic Lotus spreadsheet concepts. You will be introduced to beginning commands by entering a sample spreadsheet. You will set up your own spreadsheet; enter data and formulas; use commands, functions, formats; print; and create several charts.

❶ Prerequisite: mastery of *Introduction to DOS*.

Beginning Lotus 1-2-3 is taught over two days and is offered once on July 16 and 18 from 9:30-noon.
Fees $40/50/85.

Introduction to WordPerfect 5.1

This 6-hour course is for new WordPerfect users. You will learn to create and edit files; use simple formatting commands, such as set margins, tabs, and page numbering; enhance text by using center, bold, and underline commands; manipulate blocks of text; and use the search-and-replace feature and the spelling checker.

❶ Prerequisite: mastery of *Introduction to DOS*.

Introduction to WordPerfect is taught over three days and is offered once on June 25, 26, and 27 from 10 am to noon. Fees* $67/77/112.

* *Fee and Workbook Notice:* The fee for the *Introduction to WordPerfect* class includes the cost of a workbook that is required for this class. You must pick up the workbook when you register.

Mac Courses

● **Hands-on.**
Limited Enrollment.

Macintosh Fundamentals

This 2.5-hour class is for new Macintosh users. Mastery of the skills covered in this class is a prerequisite for nearly all our other Macintosh classes.

In this class you will learn the four basic mouse skills: pointing, clicking, double clicking, and dragging. You will learn to work with the Macintosh's "desktop," the menu bar, and icons. By dragging or moving icons with the mouse you will learn how to rearrange the desktop.

You will learn how to
- select an icon and start up programs
- use "pull down" command menus with the mouse
- select commands to accomplish your work
- exit from the programs.

You will
- work in and manipulate a window
- learn how to use the Clipboard by mastering *Cut*, *Copy*, and *Paste* commands
- use a desk accessory, the Scrapbook.

You will learn how to work with documents
- create a new document
- retrieve existing documents
- put away the document you are working with
- name documents
- save documents, and
- duplicate documents.

You will learn how to work with folders and move from one folder to another.

Finally, you will learn how to make those important backup copies of your work on floppy disks and how to use the Mac's *Shut Down* command before turning off your machine.

Macintosh Fundamentals is offered three times.
❑ June 26 from 9:30 am to noon.
❑ July 11 from 1:30 to 4 pm.
❑ July 23 from 9:30 am to noon.
Fees $10/10/20.

Mac Graphics Fundamentals

This class is useful for anyone who wants to learn to use clipart, integrate graphics into their thesis or report, or create organizational charts. This class is a prerequisite for *PageMaker* and *4th Dimension*.

In this 2.5-hour class you will be exposed to three different types of graphics programs, discover their strengths and weaknesses, and learn how to integrate them. You will use *MacDraw II*, object oriented software, and *MacPaint II*, bit-map freehand painting software, to create illustrations. You will learn to use computer graphics tools as well as how to copy, move, and transform images. Finally, you will copy a business chart from *Excel* and paste it into MacDraw.

❶ Prerequisite: mastery of *Mac Fundamentals*.

Mac Graphics Fundamentals is offered three times.
❑ July 2 from 1:30 to 4 pm.
❑ July 9 from 9:30 to noon.
❑ August 1 from 9:30 to noon.
Fees $10/10/20.

Changed ➤ **Introduction to Word 4.0**
This 6-hour class is for new Macintosh Word users. You will use character and paragraph formatting and move blocks of text. In addition, you will learn how to: move quickly through

your documents; manipulate multiple windows; set margins, indents, page numbers, headers and footers; use the spelling checker; and preview your work.

❶ Prerequisite: mastery of *Mac Fundamentals*.

Introduction to Word is taught over three days and is offered once on July 16, 17, and 18 from 10:00–noon. Fees $40/60/90.

Intermediate Word 4.0

In this 5-hour class you will learn how to set tabs and tab leader characters; manipulate graphics and borders; create and manipulate tables; set up multiple headers, footers, and columns; insert footnotes, create a simple merge document; and sort data.

❶ Prerequisite: mastery of *Mac Fundamentals*.
❷ Prerequisite: mastery of skills covered in *Introduction to Word*.

Intermediate Word is taught over two days and is offered once on July 30, and 31 from 9:30–noon. Fees $40/50/85.

Introduction to Excel 2.2

In this 5-hour course you will set up several spreadsheets and use Excel's format and paste functions as well as absolute and relative addressing. You will move data between Excel and Word and create charts.

❶ Prerequisite: mastery of *Mac Fundamentals*.

Introduction to Excel is taught over two days and is offered once on July 10 and 12 from 9:30–noon. Fees $40/50/85.

Introduction to Desktop Publishing with PageMaker 4.0

In this 6-hour class you will put together a newsletter. You will create

a master template, override that template, manipulate blocks of text and graphics, and wrap text around graphics.

❶ Prerequisite: mastery of *Mac Fundamentals*.
❷ Prerequisite: mastery of *Graphics Fundamentals*.
❸ Prerequisite: mastery of basic skills using any Macintosh word processing software.

Introduction to Desktop Publishing is taught over three days and is offered once on August 6, 7, and 8 from 2–4 pm. Fees $40/60/90.

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Overhead Projection Palette

Do you need an overhead projection palette for your computer presentations? You can borrow an In Focus Systems black and white projection palette from us for 48 hours. You lay this palette on a common overhead projector, which you must supply. The In Focus palette has auto-recognition, multi-scan circuitry so you can use it with an IBM-compatible or a Mac II. You don't need any special software to use it; you can just plug it into your computer.

To use it with a Mac II you get a 9- to 15-pin cable; and you can use the Mac II's monitor and the palette at the same time. It works with IBM CGA, EGA, and VGA adapters and comes with a 15-pin D-style connector.

To reserve the overhead, call the Microcomputer Center at 625-0073.

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IBM Catalog: Tools for Learning

IBM has donated copies of a 1990-91 courseware catalog entitled *Tools For Learning* to the University. While supplies last, departments and faculty can request copies by calling the Microcomputer Center office at 5-1300.

The catalog describes over 450 offerings of instructional software for higher education that runs on PC/MS-DOS systems. Each description includes a brief abstract and technical data as well as ordering and price information. The Table of Contents lists these categories:

- Academic Skills:
  English, Mathematics, Reading
- Business
- Computer Science
- Cross Discipline
- Economics
- Engineering:
  Chemical, Civil, Electrical, Mechanical
- Humanities:
  Anthropology, Archaeology, English, Foreign Language, French, German, Hebrew, Italian, Japanese, Russian, Spanish, History, Language, Linguistics, Literature, Music, Philosophy, Writing
- Life Science:
  Biology, Environmental Science, Dentistry, Medicine, Natural Resource, Nursing, Nutrition, Pharmacology, Physiology
- Mathematics:
  Algebra, Calculus, Geometry, Statistics, Trigonometry
- Nature Science:
  Agriculture, Ecology
- Physical Science:
  Astronomy, Chemistry, Geography, Geology, Physics
- Social Science:
  Demography, Education, Government and Politics, Political Science, Psychology, Sociology

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Training Resources

The Microcomputer Center owns training packages for many popular software programs. These training packages are available to University of Minnesota departments and current employees and students. There is no fee for using these packages, and you may check them out for 48 hours. However, before you can check them out, you must sign a *Usage Agreement* and leave your University of Minnesota ID with us. We will return your ID when you return the training materials. To use these materials you must supply your own equipment, such as computer, cassette player, and your own software. To reserve or check out materials, phone 625-1300 or stop in room 132 Shepherd Labs, Monday-Friday, 8 a.m. to 4 p.m.

Generally the PC/MS-DOS (IBM and compatible personal computers) disks are available on 5.25-inch 360K and 3.5-inch 720K disks; the Macintosh disks are 800K.

■ 4th Dimension Training

We recently acquired disk based training for 4th Dimension from TutorLand. The training is designed to introduce you to 4th Dimension using a hands-on, practical example of a database. In the lessons you will create a database for a company. Each module includes one practice disk and one workbook.

Modules 1 and 2 are designed for beginning and intermediate level users. Modules 3 and 4 are advanced modules. Each module builds on the work accomplished in the previous module.

Module 1
In Module 1 you will create a prospectus file using various fields and then design separate input and output layouts. You will learn to enter and edit records through the input and output layouts. You'll also learn more database functions: such as sorting and searching and writing search procedures. Working on a database provided on the accompanying disk you will create address labels for mailing to your prospects. You'll use the Quick Report feature to generate a report with totals of recent sales, etc. Finally, you will modify your file structure by adding an additional text field to make notes on each customer and then learn how to apply a formula to them.

Module 2
You will add a communications subfile to the prospectus file you developed in Module 1. To enable your salespersons to keep track of their appointments, you will create a Planning file, link it to the main file, and create accompanying layouts. You'll also create a Prices file to store information about your products, such as product identification codes, prices, product names etc., to facilitate updating and preparation of an invoice file. Finally, you'll set up the invoicing for sales: link your Invoice file to the Customer and other files so that all the pertinent information shows up in the invoice. Then you'll write a few procedures to perform calculations for your invoice and create a Multi-line report to summarize your sales.

Module 3
You'll start by creating a menu bar, adding items and assigning procedures to them. Then you'll get acquainted with designing flowcharts. You will write interactive procedures to enable your sales staff to search through their planned list of activities and alter them. You'll check these procedures by executing them in the runtime environment. In writing the proce-

dure to manage your clients' records, you will use many of 4D's built-in routines. You will use the While, If, Repeat, Case of and For loops and take advantage of powerful routines: Search, Sort, Modify Selection, Create Set, Use Set, Add Record, Window, the standard dialog boxes and a host of others. In any programming environment, making errors either in syntax or logic is inevitable. You'll use the Trace routine to debug and correct your procedures. You will then design a custom layout with a series of buttons and pop-up menus to enable the user to enter records, to select a subset or sort, to generate reports, and print labels. While programming this layout you'll learn about the Execution cycles and use the Before, During and After routines to control these times.

Module 4
This is the final phase in this series. Continuing the database design from Module 3 you will enhance the data entry environment by designing data filters and design a unique invoice numbering scheme by extracting portions of the date field. To facilitate entering product names and prices in your invoice you will design a scrollable list, making extensive use of arrays. You will create procedures to control file relations. For instance, you may want a price change to affect only new invoices and not old ones, or the user to be able to alter the customer identification field only if some other relations do not exist. Next you will design a graphic interface. 4D provides a sophisticated system to provide security for sensitive data. In the final chapter you will use this facility to provide users with passwords, create groups with different access levels, and define access to files, layouts, or menus.

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customer site, such as the University. While this is better than no access, limiting access to a few consultants has drawbacks. The most serious drawback is that consultants turn into gatekeepers sitting between the users of a given vendor's products and the information these users need. Clearly, this is not an efficient way to deliver information to thousands of people. Another drawback is that by acting as gatekeepers, consultants cannot spend as much time as they should solving unique problems (and adding to their knowledge of bug fixes).

To address these problems, the Microcomputer and Workstation Networks Center is introducing a new service: the *Gopher Consultant*. The Gopher Consultant is a free, self-service database of questions and answers about microcomputer hardware and software. The information in the Gopher Consultant database is drawn from several sources: consultants on the Microcomputer HelpLine write Q&A tech notes, and we moved information from several vendor's Q&A databases into the Gopher Consultant database. We are actively working with all of the major vendors at the University to make as much useful technical information available as possible. Currently there are over 5000 Q&A items available from the Gopher Consultant, and we expect to dramatically increase this within the next few months. Since we add information to the Gopher Consultant's database as new information from vendors and our own consultants becomes available, expect significant growth in the amount of knowledge held by the Gopher Consultant.

The basic idea of the Gopher Consultant project is to make the same information available to you that is available to the Microcomputer HelpLine consultants so that you can sometimes find answers to your questions without waiting for a human consultant. Instead, you can ask an electronic gopher.

Using the Gopher Consultant
There are several ways to access the Gopher Consultant. If you have a Macintosh or PC connected to the campus network, you can run a version of the Gopher Consultant software that communicates over the campus network to the Microcomputer Center Gopher Consultant database servers. If you have a modem, you can run some terminal emulation software and access the Gopher Consultant.

Once you have accessed the Gopher Consultant, how do you find the information you want? It helps to know how the information is stored in the Gopher Consultant. Each Q&A tidbit is stored in a separate file and the files are arranged in a hierarchy of directories. Directories correspond to broad topics and each file contains one question and answer. To access a given Q&A tidbit, you can either browse through the hierarchy of directories *or* you can ask the Gopher Consultant to search for you. Since the Gopher Consultant knows about several types of objects (Q&A tidbits, directories, and search engines), the software you use to communicate with the Gopher Consultant gives you a cue about what type an object is. For instance, Figure 1 shows a networked Macintosh user's view of the top level directory of the Gopher Consultant.

Searching with the Gopher Consultant
You can browse through the directories of Q&A items to find the Q&A item you are looking for, but it is usually faster to ask the Gopher Consultant to search for a Q&A tidbit for you. When you ask the Gopher Consultant to search, your search is *not* limited by pre-defined keywords associated with each Q&A tidbit. Rather than taking the keyword approach to indexing, the Gopher Consultant does *full-text searches*. (Doing a good job of manually assigning keywords to thousands of files is difficult and labor intensive.) Instead of searching on keywords, the Gopher Consultant knows every word in every Q&A item and allows you to use *any* word as a keyword.

For example, if you are having difficulties using the TinCan communications program to print with your DeskWriter printer, you could ask the Gopher Consultant to search for "DeskWriter and TinCan." Based on these keywords, the Gopher Consultant will give you a list of all files that

Figure 1: View of a Macintosh Connected to the Gopher Consultant
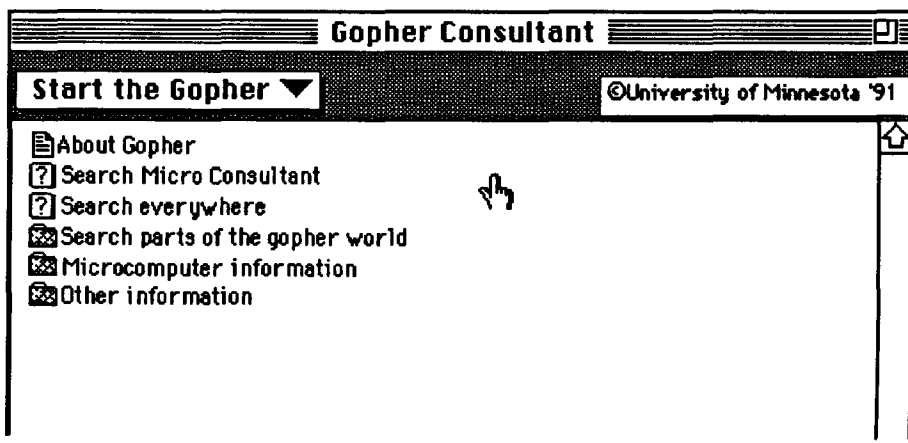
contains both the word "deskwriter" *and* the word "TinCan." If you didn't find anything interesting with this search, you could broaden your search by asking the Gopher Consultant to search for "DeskWriter *or* TinCan." Then, if either of the words occur in a file, the Gopher Consultant will give you a list of all the files that contain one word or the other or both words (see Figures 2, 3, 4, and 5).

You can use the words *and, or,* and *not* to qualify your searches. Some words are considered noise words and are not searchable; it's senseless to search for words like "the" and "a" since these words occur in nearly every piece of English text.

With full-text searches, there are always questions about how long a search takes. After all, it must be a lot of work for an electronic gopher to search through every word in over 5000 documents to see if the document contains the word you are interested in. In practice, Gopher Consultant searches are surprisingly fast. A search typically takes between 1-2 seconds to complete. The worst case occurs when you use the *Search everywhere* option because the gopher must look through indexes for over 56 million characters (56MB) of raw text. If you confine your searches to the *Search Micro consultant* search, you get even faster responses.

How Does it Work?

The Gopher Consultant appears to be a database running on a single machine, but this is not the case. To build our electronic consultant cheaply and still get fast performance, the functions of the Gopher Consultant are spread over several machines. The Q&A tidbits are held on several machines so that no one machine is overloaded. The searching functions are run on a couple of NeXTstations. So, although you can't see it, the

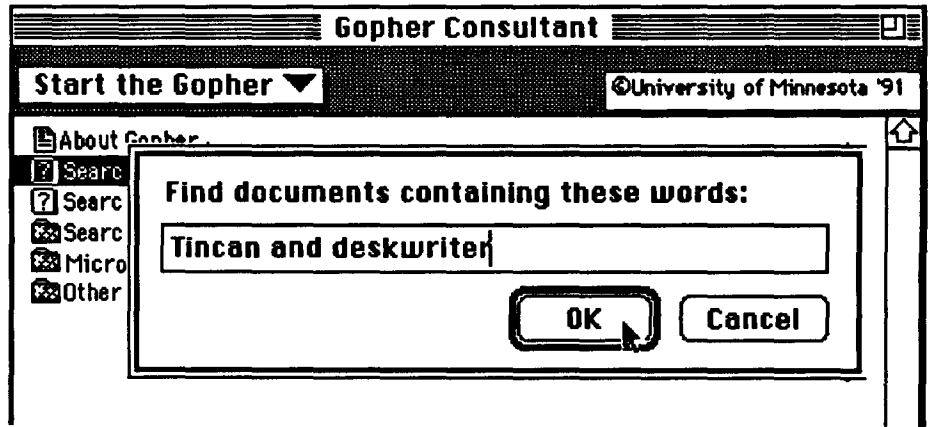**Figure 2: Asking the Gopher Consultant to Search**

Figure 3: Results of Searching for "Tincan and DeskWriter"
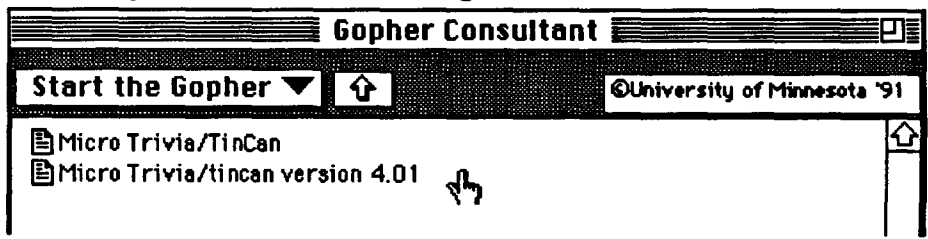

Figure 4: Results of Searching for "Tincan or DeskWriter"
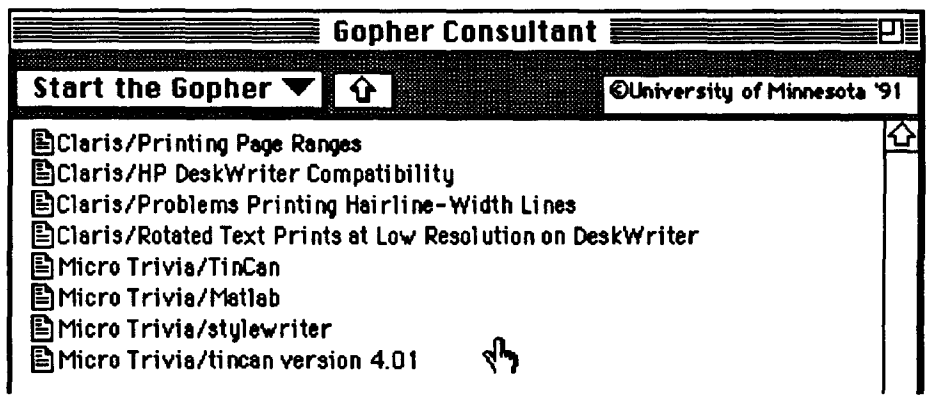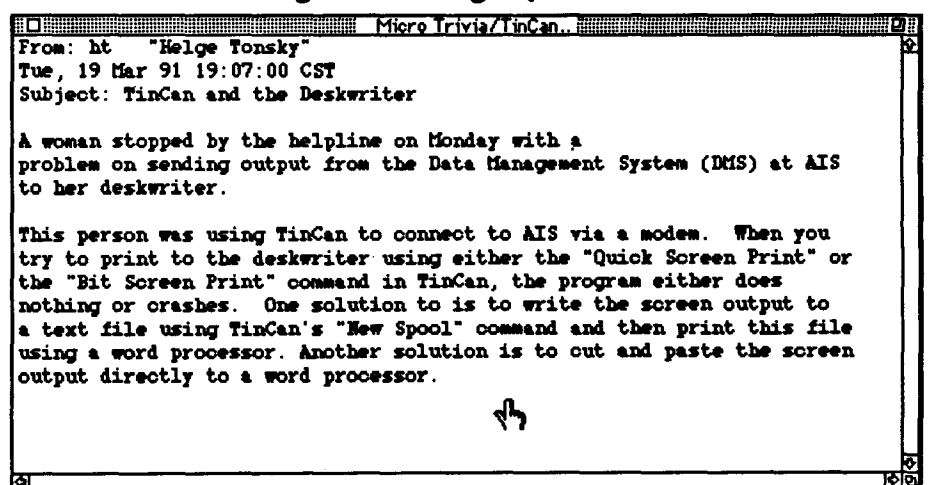

Figure 5: Viewing a Q&A Tidbit

Gopher Consultant is a distributed application running on several small, cheap machines.

Acquiring the Software
The Macintosh and IBM-compatible software for network access to the Gopher Consultant is available from the Microcomputer Center.

For the Mac software look on the <*Information* volume of the Mac Info server in the *Communications* folder.

For the PC/MS-DOS software, look on the IBM Information server in this directory:

```
P:\INFO\PUBDOM\COMMUN\GOPHER
```

The software is also available via anonymous ftp from boombox.micro.umn.edu. Look in the directory called

```
/pub/gopher
```

Other Requirements
To run this software you need a connection to the campus Ethernet backbone network (either directly or via a local area network). Mac users will also need at least 2MB of RAM, HyperCard version 2.0 or later, and the MacTCP network drivers. PC users will need at least 640K of RAM and the appropriate Clarkson Packet Driver (for their network interface card).

If you do not have a campus network connection, but have a modem and a communications program which emulates a vt100 terminal, you can call the Telecomm department's dial-in server at 626-1200, 626-2400, or 626-9600 (for 1200, 2400, and 9600 bps communications respectively). When you call the dial-in server it gives you a short message and then displays the prompt

```
access>
```

At the access prompt, type

```
consultant.micro.umn.edu
```

and you will be connected to a machine that can access the Gopher Consultant. Once you are connected to the consultant.micro.umn.edu machine, enter

```
gopher
```

as the user name.

Comments? Suggestions?
We hope you will find the Gopher Consultant a useful service, and we're interested in your comments and

suggestions. You can E-mail your Gopher Consultant comments and suggestions to:

```
gopher@boombox.micro.umn.edu
```

and reach the Gopher Consultant development team. If you prefer, you can send paper mail to:

Gopher Consultant Project
University of Minnesota
132 Shepherd Labs
100 Union Street SE
Minneapolis, MN 55455-0421

■ POPMail/PC Version 2.1
We are pleased to announce a new version of POPMail/PC, our electronic mail program for IBM PCs and compatibles. In our March 1991 newsletter we announced POPMail version 2.03 and covered the software in a lengthy article. With POPMail/PC you can use a networked IBM-compatible to exchange electronic mail with other departmental microcomputers and workstations, as well as mainframes and other computers at the University and around the world.

Version 2.1 of POPMail/PC corrects several bugs found in earlier versions and includes the following enhancements:

An ASCII Text Editor
An ASCII text editor was added to allow you to edit text files while using POPMail. You access this feature from the new *Memo* menu, which has been added to POPMail/PC's main menu bar. Among other uses, you can use the new Memo feature to copy text from a file and paste the copied text into the body of your outgoing message.

POP3 Mail Server Protocol Support
Support for POP3 mail server protocol has been added. Previously, POPMail/PC supported only POP2. This expands the potential number of host computers that can be used as the host mail server or post office for the POPMail/PC program. We added POP3 support because some installations around the world use the POP3 protocol instead of POP2, which is the predominant protocol at the University of Minnesota.

An Expanded Manual
The POPMail/PC manual was expanded to cover IBM-Macintosh document exchange, Novell support, and Windows support. The new manual also explains the

advanced configuration parameters we added to help network administrators install POPMail/PC in network environments with complex or uncommon requirements.

Obtaining POPMail/PC 2.1
Version 2.1 is available via anonymous ftp over the internet from boombox.micro.umn.edu in a directory called

/pub/POPmail

You can also obtain a copy from the IBM Information Server in the Microcomputer HelpLines. If this is an upgrade, you only need one disk. If you're copying POPMail/PC for the first time, you will also need a disk for the software drivers POPMail uses to communicate with your computer's network adapter card. The POPMail program and the drivers are in this directory:

P:\INFO\PUBDOM\COMMUN\POPMAIL

■ DeskWriter Software Upgrade
The Microcomputer HelpLine recently received a free upgrade to HP's printer driver for the DeskWriter, an inkjet printer for the Macintosh. The version 2.1 upgrade is on the <*Information* volume of the Mac Information Server. Open the *System Software* folder and look for the *Printers* folder, which contains a folder called *DeskWriter*. The upgrade fits on one 800K disk and consists of two drivers; one for DeskWriters connected to an AppleTalk network and one for those connected directly to a Mac. The DeskWriter folder also contains a text document called *Please Read Me* that has detailed instructions for installing the new printer resource and a list of defects that version 2.1 fixes.

Release 2.1 Corrections
Below is a list of specific corrections made to release 2.1.

• Super Laser Spool
Super Laser Spool crashed when printing multiple copies of a document containing a bitmap (a MacPaint-type graphic).

• Envelope Dialog Wording
When printing envelopes, the dialog box requesting the user to insert the next envelope neglected to mention that the user has to press the "select" key on the printer keypad.

• Some Desk Accessories Crashed
The Macintosh crashed when trying to print from certain DAs, such as Canvas.

• Printing Zero-Width Characters
Screen fonts containing "zero-width" characters (characters that use negative kerning) such as the Sonata fonts, would not show up on the printed page.

• EtherTalk Network Support
Under some conditions, the DeskWriter appeared in the Chooser, but would not print in non-local EtherTalk zones.

Book Center Notes

These offers are made to University departments, employees, and students; the regular Microcomputer Discount Program rules of eligibility apply. If you have questions about availability, phone the Electronics Desk at *625-3854.*

■ DeskWriter Price Change
The discount price for HP's DeskWriter was recently reduced to $525. The DeskWriter is an inkjet printer that HP specially packaged for the Macintosh.

The table below compares major features of the DeskWriter and the StyleWriter. Both are high-quality, low-cost inkjet printers for the Mac. The DeskWriter and the StyleWriter come with outline fonts that enable you to print in many sizes, and both require a hard disk to store these fonts. Complete descriptions and options are available in the revised *Macintosh Printers and Peripherals* handout.

Comparison Table	StyleWriter*	DeskWriter
Dots Per Inch		
• best quality	360	300
Typical Speed		
• best: pages/minute	1/2	2
• draft: pages/minute	1	4
Prices		
• printer	$395	$525
• ink cartridge	$19.95	$15.95
• cable to Mac	included	$21
Interfaces		
• serial	built-in	built-in
• AppleTalk	n/a	built-in
Paper Handling		
• input tray for single sheets	50 sheets	100 sheets
• continuous form	n/a	n/a

Standard Fonts
- *fonts are available in Plain, Bold, Italic, and Bold Italic*

• Courier	Y	Y
• Times	Y	Y
• Helvetica	Y	Triumvirate
• Σψμβoλ (Symbol)	Y	Y

* StyleWriter requires System Software 6.0.7 or later

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■ IBM Changes

In the microcomputer world, the only constant is change. Full descriptions of the PS/2s listed below and of other IBM microcomputers are available in the *IBM PS/2* handout. Handouts are available at the Microcomputer HelpLines.

Enhanced Model 80

Three PS/2 Model 80s now offer more for the same money. All the Model 80s offered through the discount program now come with 4MB of RAM. Previously, the Models 8580-161 and 8580-321 came with 2MB of RAM. The Model 80-A21 now comes with a 160MB, rather than a 120MB, hard disk. These machines' prices are listed in the table below.

Price Drops

IBM recently announced price drops on the PS/2s listed below. Although some of these machines are also offered as a "bundle," the prices of the bundles did not drop. (Bundles contain a color monitor, software, and a mouse.)

Withdrawn from Marketing

IBM also recently announced that, effective July 23, 1991, they are withdrawing from marketing the 50Zs, 65SXs, 70s, and P70 listed below. Availability of these machines may be limited. The prices in the table reflect recent price drops.

PS/2 Part		CPU/ Speed	Hard Disk	Discount Price
Product Enhanced				
80	8580-161	80386/20MHZ	160MB	$3772
	8580-321	80386/20MHz	320MB	5182
	8589-A21	80386/25MHz	160MB	5332
Price Dropped				
70	8570-061	80386/20MHz	60MB	2572
	8570-121	80386/20MHz	120MB	2962
	8570-A61	80386/25MHz	60MB	3622
	8570-A21	80386/25MHz	120MB	3982

Product Discontinued

		CPU/Speed	Hard Disk	Price
50Z	8550-031	80286/10MHz	30MB	$1132
	8550-061	80286/10MHz	60MB	1300
65SX	8565-061	80386SX/16MHz	60MB	2002
	8565-121	80386SX/16MHz	120MB	2344
	8565-321	80386SX/16MHz	320MB	3394
70	8570-E61	80386/16MHz	60MB	2482
P70	8573-061	80386/20MHz	60MB	4732

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■ ZEOS Price Changes

The discount prices on the ZEOS MS-DOS computers listed below changed recently; the table below contains the new prices. For complete descriptions of these and other ZEOS computers and products, see the *ZEOS MS-DOS Compatibles* handout. Handouts are available from the Microcomputer HelpLines.

ZEOS Package	CPU/ Speed	Hard Disk	Discount Price
386-25 Basic	80386/25MHz	85MB	$1990.25
#1	80386/25MHz	85MB	2370.25
#2	80386/25MHz	124MB	2845.25
386-33 Basic	80386/33MHz	85MB	2465.25
#2	80386/33MHz	85MB	2845.25
#3	80386/33MHz	124MB	3320.25

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■ Apple Scanner Now $825

The Book Center's discount price for the Apple scanner recently dropped from $1270 to $825. The Apple Scanner is a flatbed scanner that can handle documents up to 8.5 by 14-inches. It comes with image (not text) scanning software that can save the results at 75-300 dots per inch in TIFF, PICT, or MacPaint formats. To use the scanner you must purchase the appropriate SCSI cables.

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■ Excel 3.0 Upgrade for Mac

Microsoft is now shipping Excel 3.0 and the upgrades to Excel 3.0. Because the University gets such a good discount on Microsoft products, it costs University users more to buy the upgrade than to buy a new copy from the Book Center. The Book Center does not get discounts on upgrades. The Excel 3.0 upgrade costs $129 plus $5.50 for shipping and handling. The Book Center sells new copies of Excel 3.0 for $125. The difference between the two packages is that the upgrade includes a 46 page

booklet that is a quick introduction to Excel's new and changed features. The Microcomputer HelpLines have copies of this *Upgrading to Version 3.0* booklet that you can look over.

For more information on upgrades, contact Microsoft at 800/426-9400.

Fee or Free?

Those who bought Excel 2.2 on or after December 7, 1990 can receive a nearly free upgrade from Microsoft. Although the Electronics Desk can order free upgrades, they involve so much paperwork and time that the Book Center sells them as special orders only. Vendor's charges for all upgrades typically involve a small handling/shipping fee. The Book Center can tell you what the fee is for your upgrade when you place your order.

Your proof of purchase for the free upgrade consists of a copy of your dated sales receipt and the original first page of your Excel manual.

Quantity Discounts

Departments that want to order several copies can place a special order for a "10-Pack" of Excel 3.0 for $720. Although the Book Center does not keep these special packs-of-ten in stock, they can get them fairly quickly.

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■ Correction:
IBMs and 5.25" Floppy Drives

It bears repeating: adding a 5.25-inch floppy disk drive to an IBM PS/2 can be confusing. So confusing that the article and table we included in our May 1991 newsletter had an error concerning the cable you need to use with the 30/286.

5.25-Inch Drives for IBM PS/2s: Y means yes; it is compatible.

Part	Price	Classic PC Bus				MicroChannel							
		25	25/286	30	30/286	50	50Z	55SX	60	65SX	70	P70	80
• Floppy Drives													
— 360K													
4869001	$300	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y^	Y
— 1.2MB													
4869002	$350	-	-	-	-	Y	Y	Y	Y	Y	Y	Y^	Y
• Adapters													
— 360K kit (requires cable 27F4245 or 6451033)													
6450244	$45	Y	Y	Y	Y	-	-	-	-	-	-	-	-
— 360K kit (requires an expansion slot and a floppy bay)													
6450245	$45	-	-	-	-	†	†	-	†	†	†	-	†
— 360K/1.2MB (requires only an expansion slot)													
6451007	$135	-	-	-	-	†	†	Y	†	†	†	Y^	†
• Cables													
— 23F2716	$60	-	-	-	-	-	-	-	-	-	-	Y^	-
— 27F4245	$13	*	-	*	Y	-	-	-	-	-	-	-	-
— 6451033	$210	*	Y	*	-	-	-	-	-	-	-	-	-

Footnotes

†   The 1.2MB drive requires adapter 6451007; however, the 360K drive can use adapter 6450245 or 6451007.

*   Use cable 27F4245 with: a) Model 25s with serial numbers below 100,000; b) Models 30 and 30/286 with serial numbers below 2,500,000. All other Model 25s, 30s, and 30/286s require cable 6451003.

^   Re the P70: The 360K drive requires cable 23F2716 but no adapter. The 1.2MB drive requires adapter 6451007.

Here is a corrected version of that article. Our thanks to Don Clark, ACS Engineering Services, who helped prepare, and correct, this article.

None of the desktop PS/2 models can accommodate an internal 5.25-inch floppy drive. The type of external drive and drive controller you can use depends on which PS/2 you have. IBM offers both 360K and 1.2MB external floppy drives for their PS/2 systems. Depending on the computer, you may be able to use one or the other of these drives. The sections below show the options that are available for various PS/2s. We have also included a table with the Book Center's discount prices.

Models 25, 25/286, 30, and 30/286
These computers can use *only* the 360K external floppy drive (not the 1.2MB drive). You need to attach the 360K drive to Adapter #6450244, which fits into an 8-inch slot inside your PS/2 and requires a cable. Depending on the PS/2's Model and serial number, one of two cables is needed. Cable #27F4245 is needed for Model 25s with serial numbers below 100,000 and Model 30s with serial numbers below 2,500,000. All Model 30/286s require cable #27F4245. All other Model 25s, 25/286s, and 30s, require cable #6451033.

Models 50, 50Z, 60, 65SX, 70, and 80
These computers can use either the 360K or the 1.2MB external floppy drive. You need to attach these drives to an adapter. For the 360K drive, you can use adapter #6450245 or adapter #6451007. The 1.2MB drive requires adapter #6451007. Everything you need to install the external drive is included with these adapter kits.

Model 55SX
The Model 55SX can accommodate either the 360K or the 1.2MB external floppy drive. Both drives require adapter #6451007 when you use them with the 55SX.

Model P70
The transportable Model P70 can accommodate either the 360K or the 1.2MB external floppy drive. When you use the 360K drive you do not need an adapter, but you need cable #23F2716 to attach the drive to the P70. When you use the 1.2MB drive with the P70, you must use adapter #6451007.

And Books, Too

If you cannot find the computer books you want in the Book Center's Reference section, tell us what books you want to buy. Send specific titles or areas of interest to: Maureen O'Brien, 160 Williamson Hall, Minnesota Book Center, 231 Pillsbury Drive SE, Minneapolis, MN 55455.

Here's what is new in the Reference section.
✔ *The Best Book of WordPerfect 5.1* by Alfieri, a Hayden publication for $26.95.
✔ *The Best Book of Microsoft Word 5* by Barnes, a Hayden publication for $24.95.
✔ *1-2-3 Release 3.1 Complete Reference* by Campbell, an Osborne-McGraw publication for $29.95
✔ *Lotus 1-2-3* by Tymes, a Windcrest-McGraw publication for $29.95.

We've also ordered two books on the Macintosh System 7. Although we did not have an exact price at press time, both books will be under $25.

✔ *The System 7 Book* by Craig Danuloff from Ventana Press. This book covers the basics to advanced features, such as the Edition Manager, and includes an appendix covering installation.
✔ *System 7 Revealed* by Anthony Meadow from Addison-Wesley. This is a guidebook for programmers who have prior knowledge of the Mac O/S.

Ma Micro Notes

Electronic Mail:
Courtesy and Common Sense

With the increasingly use of electronic mail for everything from interoffice memos to international correspondence, etiquette issues are bound to crop up. Fortunately, the polite use of E-mail requires little more than applying common sense and courtesy.

Did You Get My Message?
Electronic mail is really no different from paper mail. That is, it is relatively reliable, but can get lost or intercepted on the way to its recipient just like paper mail can.

In general, when your E-mail package tells you a message was sent successfully, your message will be received by the person you addressed it to. If you must know whether the message was received or not, add a note asking the recipient to reply once they have read the message.

Recipients can help increase senders' confidence in the reliability of E-mail by regularly reading and responding to messages, whether asked to or not. Even a short "Thanks, I got it" may be all someone needs to know their message has been read. This practice, of course, ought to be adapted according to how you use electronic mail. Someone who receives over 100, mostly unsolicited, messages a day probably won't respond to every message. Whereas a person who receives five messages a day probably will have time to at least acknowledge each missive.

Sorry, Wrong Number
So, you've received somebody else's mail. Just as with mis-addressed paper mail, don't throw it away and don't read it. Of course, the latter is more difficult with electronic mail because the message is displayed on your screen. Just do your best.

If you know the address of the intended recipient, forward the message to that person, including a brief explanation of what happened. If you don't know the recipient's address, or if you don't know who the addressee is, drop a line to the sender explaining the situation. You'd appreciate the same courtesy.

Unsolicited Mail
Distribution lists can be time savers for the sender; they enable you to conveniently send messages to groups without having to retype the entire address list for each new message. The flip side of distribution lists is that it's easy to stop considering who is actually receiving your messages. Think about who is on the list before sending messages to it: not all messages will be appropriate for everyone on the list. You may find, for example, that several lists better serve your purposes than just one large list for your entire department.

Tip for Effective Replies
Many electronic mail packages, such as POPMail, have an option that allows you to include the text of the original message in your reply. To make your reply most effective, edit out the text that isn't pertinent to your message. By displaying only the text to which you are referring, you save the recipient from having to reread his or her entire message and you make your point more clearly.

What Are You Talking About?
E-mail packages usually have a subject line that can be filled in for each message sent. This is your opportunity to make the recipient's life easier. If you make the information in the subject line brief and to the point, the reader can scan it for a quick idea of the message's content and importance.

If you leave this line blank, or fill it with information unrelated to the message, you make the reader's life more difficult. In the first case, the reader will have to read the whole message to know what it's about. In the second case, the recipient might decide to read the message later or not at all based on the information in the subject line. If you had typed information pertinent to the subject, he or she might have paid more attention.

Once you've mentioned the message's subject in the subject line, don't stop there. Always repeat the subject within the body of the message. Although many recipients depend on the subject line as a headline for each message, other recipients may ignore subjects. Therefore, if you don't repeat the subject within the body of the message, some people suffer a moment or two of confusion.

In addition, if any recipient wishes to copy information from your message into a word processing document or another message, you've just forced them to perform the same action twice: one copy and paste for the subject, and one copy and paste for the body.

It's generally better to be a bit repetitive than to confuse or create extra work for your recipients.

Please Proofread
Electronic mail is a fast and effective form of communication when used carefully. When a message is littered with typos and misspellings, however, your meaning is obscured. Proofreading, though it may seem to slow you down at the time, can actually help you work more efficiently in the long run. Not only will you be doing your colleagues the professional courtesy of making your message easier to read, but you will ensure that you are saying what you really mean to say.

Be especially careful of using jokes in your electronic mail messages. Without the benefit of seeing your facial expressions or hearing the intonation of your voice, even people who know you well may not know when you are just kidding. This doesn't mean that you are doomed to write dry, boring messages. Feel free to use the E-mail symbol of a sideways happy face to indicate that you're trying to be funny, that is use :-). Create it using the colon, hyphen, and right paren.

■

Campus Mail Addresses

Generally campus mail is delivered within 24 hours. Incomplete or inaccurate addresses delay deliveries or mean you may not receive the item at all. Good addresses include department name and department room number. Bad addresses do not include a department name; they also include your personal room number rather than a department room number. Although incorrectly addressed mail *may* reach you, delivering it is costly. Please help. Check your address to be sure it is accurate.

U.S. Mail Addresses

For the Postal Services' scanner, the ideal address is typed in all capital letters and has a 9-digit ZIP code but has no punctuation, i.e. no periods after abbreviations and no commas between city and state.

In anticipation of upcoming changes in U.S. mail regulations, we plan to gradually change our addresses to enable the Postal Services' scanner to read our labels. If you give us your ZIP+4 code, we will include it.

To keep your name on our mailing list, act before July 4th.

Mail or fax us your current mailing label. Our fax number is 625-6817.

Microcomputer Newsletter
Microcomputer and Workstation Networks Center
Information Systems
University of Minnesota
Room 125, Shepherd Labs
100 Union Street SE
Minneapolis, MN 55455-0421

Label on reverse side: Continue as is ❑   Change as shown ❑

Please be legible. Help us keep our costs down by using a campus mailing address whenever possible; thanks.

Microcomputer and Workstation Networks Center

Microcomputer HelpLine
626-4276 (dial ma micro)
9 am to 4 pm, Monday-Friday

HelpLine Branches
East Bank: 125 Shepherd Labs ■
Monday-Friday, 9 am-4 pm

West Bank: 93 Blegen ■
Tues & Fri 1-4 pm, Thur 9-noon

St. Paul: 307 McNeal ■
Mon & Fri 9-noon, Wed 1-4 pm

Training Resources
625-1300, 132 Shepherd Labs

Faculty Resource Center
626-1090
Mon & Th 9-noon, Tues & Wed 1-4
Friday 9-noon and 1-4 pm

Adaptive Technology Center
626-0365, M133 Fraser Hall

Microcomputer Newsletter

Microcomputer and Workstation Networks Center
Information Systems
University of Minnesota
Room 125, Shepherd Labs
100 Union Street SE
Minneapolis, MN 55455-0421

Newsletter Reprints
(1) Volumes 5 to the present issue are available from Kinkos for a nominal fee. The master copies are downstairs at the Kinkos shop at 306 15th Avenue SE; it's open Sun-Sat. (2) The Information server, accessible to Macs directly connected to the University's internet, also has the 6 most recent issues.   June 1991