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Commentary

It is a joy to respond to the numerous positive comments I have received on News and Views. All I can say is "Thanks" to the many people who have submitted such quality articles. Without those people, who take time out of their schedules to submit an article, there would not be a News and Views publication. I would especially like to thank the efforts of the End User Computing group that is committed to providing us with their high-caliber monthly "Tech-Talk" article, which we can all benefit from. Thanks again to all of you who have taken the time to submit such superb articles for News and Views.

- Curt Secker

Agency Spotlight

Montana State Library for the Blind and Physically Handicapped

The Montana State Library for the Blind and Physically Handicapped (hereafter referred to as LBPH) is the program area of the Montana State Library that provides library service to all Montana citizens who are blind, visually impaired, physically handicapped and/or learning disabled as the result of organic dysfunction. Qualified Montanans receive recorded books and the required play-back equipment free of charge from this program.

The LBPH's collection is similar to a public library's, and includes best sellers, classics, mysteries, westerns, poetry, history, sports, psychology, hobbies, crafts, political science, religion, and books by Montana authors or about Montana. LBPH library users range in age from 2 to 98 years, and every effort is made to satisfy their wide range of interests.
Each month over 11,000 books are circulated to 2,200 individuals and 90 schools, nursing homes, and hospitals throughout the state. The circulation is handled by READS (Reader Enrollment and Delivery System), an automated circulation software especially designed for libraries serving the blind and handicapped. This software operates on a LAN consisting of five workstations with a file server. It handles data on patrons and books, and it assists in the selection of books.

The patron database contains the address, phone number, age, sex, and physical disability of each user. It also stores information on subject areas the user is interested in and the frequency with which they wish to receive books.

The book database keeps track of the 100,000 volumes in the collection—whether the book is on the shelf, checked out, lost, or being repaired. It also contains a short annotation about the book and indicates if the narrator has an accent or if the book contains strong language, descriptions of sex, or violence.

By utilizing both the patron data and the book data, the system is able to select books for the many patrons unable to come to the library and browse the shelves. Patrons also have the option of selecting their own books by requesting specific titles or authors.

The automated circulation system recently has been enhanced with a database management interface that enables data to be down loaded to a hard disk where it can be manipulated, searched, and used to produce reports, isolate errors, locate books or authors, identify books that are not being read, and other functions. With our automated circulation system, the users of LBPH can look forward to receiving more efficient and effective service in the future.

If you would like more information on this system, or would like to know more about LBPH, please call the Montana State Library, Blind and Physically Handicapped Services at 444-2064, or their toll-free number 1-800-332-3400.

- Sandra Jarvie

Capitol Operator Number Change

As of September 30, 1991, State telephone users wishing to connect to the Capitol Operator from a State telephone must dial 2511. The digit "0" is no longer recognized as a request for the Capitol Operator. This change affects only Helena agency offices.

Because of a shortage of telephone numbers available for use by the State, it became imperative that we begin assigning numbers out of the 444-0xxx number series for use by State telephones. By changing our Capitol Operator to 2511 only, we made available for State use additional numbers beginning with "0".

Data Network Assessment

On July 1, 1991, ISD implemented a network assessment on computing devices connected to each other or to a mini or mainframe computer. The assessment replaces the Subscription Service charge and some of the Controller Connection charges.

The goal is to provide a statewide network that is reliable and responsive for the user agencies. In order to do this effectively, ISD must be able to change communication components in an orderly manner and make sure all components are compatible with one another. ISD ownership and control of all network connectivity components and facilities is the only practical way of doing this. Agencies retain ownership of their workstations, servers, LAN operating systems, application software, and other resources attached to the network. In the future, it should be possible for any device anywhere on the State's network to connect to any other device on the network for electronic communication and information sharing.

ISD will provide certain services under the assessment. Better quality service will be available for standard devices and the rate will provide an incentive for agencies to choose standard equipment.
Rates

There are several rates for connectivity. They are:

- **$30/month** for each "dumb" device on a network. (A dumb device, typically referred to as a terminal, cannot be used as an independent or standalone device. This rate also applies to dedicated host printers.)

- **$40/month** for each "intelligent" device on a network. (An intelligent device includes personal computers, print servers, file servers and multi-user and mini-computers.)

- There are other rates for non-state owned equipment connected to the State’s network, and for dedicated dial-up communication drops.

Services

- For connection to the SNA network (mainframe)

  ISD will provide all equipment and wiring except the actual terminal. This includes: circuits and coax, multiplexors, modems, gateways, shared controllers, emulation boards, and emulation software for micro-computers.

- For connection to a token ring network (local area network)

  ISD will provide all equipment, including boards and board drivers, media filters, jumpers, MSAU’s and MSAU wiring, local bridges and remote bridges (including bridge software). Wiring installation will be charged to the agency separately. The Network Operating System and workstation hardware and software will not be provided.

  ISD will provide limited services for other connectivity options, including Decnet, 8100’s, AT&T systems, and other Unix or Unix-like systems and AS/400’s.

  Electronic mail connectivity, usage, and upgrades are also included in the rate; however, there is a one-time installation fee of $75 for new LAN E-mail users.

Support

ISD will provide all support on the products we supply and own—with an emphasis on ensuring connectivity between two devices. Agencies will benefit by not needing to have local expertise in these areas.

There will be less emphasis on support of agency applications (this is also true for support of network operating systems beyond the "two devices talking" level).

In addition, ISD is no longer providing full workstation support. We will assist an agency with setup and software installation as time and expertise allow.

Conclusion

The new assessment will allow ISD to concentrate its technical expertise in the telecommunications areas to accomplish connectivity between devices. Agencies will specialize in the applications and users they know best. If you have any questions on the rates, or the services provided, please call Wendy Wheeler or Dave Marshall at the Telecom/Network Services Bureau at 444-2586.

Data Network Inventory

Many thanks to all the agency personnel who assisted ISD in collecting information for an inventory of computers and terminals connected to local area networks, the mainframe, or other mini- or multi-user computers. The information was needed for implementation of a new network assessment (see preceding article). The project was huge and needed to be completed in three months. There are now 4600 devices making up the State of Montana’s data network.
Mainframe

Mainframe Doubles in Capacity

The weekend of October 26th and 27th, ISD upgraded the mainframe computer in the Mitchell Building. Technically, the computer was upgraded from an IBM 3090-200E to an IBM 3090-400E. Essentially, a second 3090-200E was joined to the 3090-200E we already had, producing a mainframe that has about twice the capacity of our old mainframe.

What does this mean to you? Well, your batch jobs should be running much better than they did during the month of October, from a turnaround standpoint. In addition, the response time for long-running TSO transactions should be much improved. During the month of October, the 3090-200E mainframe was so busy with online processing for CICS and IDMS that batch job processing and long-running TSO transactions were delayed during prime shift. The upgraded 3090-400E mainframe will eliminate these delays.

A 3090-200E has two central processing units (CPU's)—the 3090-400E has four of them. The two additional CPU's will enable the upgraded mainframe to handle all the prime shift workload with the response times and turnaround you experienced prior to October.

A reasonable question might be posed based on the fact that there are now twice as many CPU's available to process the mainframe workload: Will my job run twice as fast as it used to run (prior to October of course)?

The answer is no. Typically, only one CPU can work on your job at a given time and the speed of the new CPU's is the same as the old CPU's. So your job will not run any faster, nor will your response times improve beyond what they were prior to October. However, the new mainframe will be able to run twice as many jobs and transactions compared to the old one since it has twice the number of CPU's.

In addition to doubling the number of CPU's, ISD also doubled the amount of memory and I/O channels on the mainframe. The upgraded 3090-400E mainframe has 256 megabytes of central storage, 256 megabytes of expanded storage, and 64 I/O channels. The upgraded mainframe should provide ISD's users with the same high level of service they have come to expect from its predecessor.

Microcomputer

Defective EPROM's

There are problems with the two EPROM's (Erasable Programmable Read Only Memory) on certain IBM 16/4 token ring adapters. When the adapter is placed in a server, workstations may lose connections to the server or the server itself may hang up. These EPROMs may be identified by running IBM's diagnostics and seeing if a code level of C24550 is displayed, or by seeing if the labels on the PROMs (Programmable Read Only Memory) are 74F9325 or 74F9326.

If you have any of these adapters you may contact Steve Noland at 444-3344 in the Network Control Center to have them replaced. If you have any questions or require assistance with identifying the defective adapters, you may call 444-2526.

LAN Operating Systems

The final draft of Chapter 4, "LAN Operating Systems", of the "PERSONAL COMPUTER DIRECTIONS" paper is now available. Pending any last minute modifications, senior ISD management plan on solidifying the recommendation in the December 1991 time frame.

The development of this chapter was a monumental effort with input from most of ISD's customers as well as vendors. ISD wishes to thank everyone for their patience and help in putting this chapter together. ISD presented the paper and the final recommendation to the Data Processing Management Group at the October 9th meeting. The recommendation reads as follows:

ISD recommends the State standard be Novell's Netware, with full support
developed by ISD over the next 1-2 years. ISD recommends that all new LAN's use Netware to take full advantage of the most services and best support. We will evolve all new LAN services and support toward Netware. Clearly a majority of agencies favor this choice. It runs on the widest variety of equipment, it is economically attractive (on a statewide basis), represents the least conversion trauma for the State in general, and is a viable choice for agencies to build on together in a cooperative LAN environment.

ISD recommends that the State put no additional resources into providing LAN Server support, and in fact, allow its support for OS/2 LAN Server to evolve to the level indicated as 'reduced support' on page 1 over the next 2-3 years. ISD will re-evaluate LAN Server's status at that time. We believe that this level of support can be provided with a minimum of loss to quality Netware support. ISD will provide E-mail services and support for the existing LAN Server agencies on a grandfather basis. We will not be able to commit the resources to provide E-mail support to additional agencies opting to use LAN Server. We understand that OS/2 LAN Server agencies receive little or no significant immediate benefit for converting to Netware. We also understand the difficulty presented to these agencies due to the fact that ISD supported their choice at a time when no viable statewide product existed (and LAN Server offered them significant local benefits). Those agencies currently using LAN Server may wish to plan for conversion to the State standard in the next biennium (and count on ISD's assistance in that conversion) in order to gain the advantages of access to additional LAN services and better ISD support.

ISD recommends that the State provide no central support and virtually no resources to support other LAN operating systems. Agencies may choose to run those systems on the State network provided by ISD, but no ISD effort will be made to make the network compatible or to resolve any problems and incompatibilities that the systems may present. Finally, if these network operating systems cause problems for supported products, they will be removed from the network.

The scope of this recommendation includes all microcomputer-based LAN systems, specifically DOS, OS/2, Apple, etc. Unix workstation-based network operating system standards will be dealt with separately.

Final copies will be distributed to your LAN administrators. Please refer to them for information or copies. If your group/agency was mistakenly overlooked, contact the ISD Help Desk to receive a copy. Other questions may be directed to Terry Kramer at 444-2556.

**Windows??**

We've heard a lot about Windows 3.0 in the press during the past year, but how do we know if we should be using it? This article will attempt to answer some of the questions people have about Windows, and cover the most important capabilities, limitations, and hardware requirements for those who are considering buying Windows 3.0.

**Why should I use Windows?**

Windows provides a graphical user interface (GUI). You have graphical representations of the programs and functions you wish to use displayed on your screen. You can use a mouse to simply point and click on the things you wish to do. Most computer users find a graphical environment much more appealing and easier to use.

More important than the graphical user interface is Windows' task-switching capability. Users have the ability to jump around between the software products they commonly use, keeping many of them up and running at the same time. This can be a tremendous boost to your productivity if you routinely use many different PC applications, and need to have them all available at your fingertips at any time.

**Can I run my current software under Windows?**

Most of the PC software products supported by ISD, such as Lotus 1-2-3, WordPerfect, R:Base, PFS, Freelance graphics, SAS, etc. will definitely run in the Windows environment. One product that will not yet run in the Windows environment is Panlink, a
PC-mainframe file transfer product. Many people have the impression that once you have made the jump to Windows 3.0, you need to buy Windows products—this is not true. Programs designed to run in the DOS environment will also run under Windows. Some reasons to buy Windows versions of your favorite word processor or spreadsheet are that they will be designed to take advantage of the extended memory made available by Windows, and they will have a graphical user interface very similar to that of Windows itself. In theory, the graphical interface will make it easier to learn and use different software products, since the products will have a similar look and feel.

Is my PC capable of running Windows?

Almost any PC can run Windows 3.0. However, to take better advantage of Windows' capabilities, you should have at least an 80286 processor and 2 MB of memory. To unlock the true capabilities of Windows, an 80386SX or better is preferred, with 16MHZ speed and 4 MB of memory. This should allow you to run at least 3 applications concurrently.

More information on the capabilities of Windows and PC configuration is available in the "PERSONAL COMPUTERS DIRECTIONS" document authored by ISD.

In conclusion, before you go out and buy Windows 3.0, you need to consider if the benefits, such as task switching or graphical interface, are that important to you. If they are, then you need to consider the cost of a machine capable of providing for your needs. To help you with your decision making, End User Computing will be offering two free courses; PC Memory Management on November 20th, and a Windows demonstration for technical support staff and decision makers on December 4th. If you would like to receive more detailed information about Windows, contact Jeff Holm in End User Computing at 444-2072.

EUC to Review Windows Application of Software

End User Computing (EUC) will soon be testing the Windows versions of Lotus 1-2-3 and WordPerfect. Lotus 1-2-3 for Windows is already on the market. The Windows Beta II version of WordPerfect is expected in early October.

As a part of our review process, EUC will look at other vendor's Windows products as well. We plan to develop product information designed to assist managers in making purchase decisions. Product information will include system requirements, advantages and disadvantages, costs, and training considerations. Look for this information in future issues of News & Views. We will also distribute information to agency DP coordinators and have it available upon request at the ISD Help Desk.

In addition to testing, EUC is planning the following free demonstration classes:

Windows - Purchase, Installation and Use Considerations (for DP managers and technical specialists)

WordPerfect for Windows - A first look

Lotus for Windows - A first look

Watch for these classes in the News & Views' training schedule.

TECHTALK

WordPerfect's Built-In Calculator

WordPerfect 5.1 and 5.0 are shipped with an easy to use pop-up calculator. The macro that runs the calculator is associated with the "MACROS" custom keyboard layout. Use these steps to select the MACROS keyboard:

In WordPerfect 5.0:

1. Select Setup--Shift+F1--and 6-Keyboard Layout.

2. Highlight MACROS and press 1-Select or Enter.

3. Press F7 to exit back to your document.
In WordPerfect 5.1:

1. Select Setup (Shift+F1) and 5-Keyboard Layout and follow steps 2 and 3 above.

To run the calculator:

1. Press Ctrl+C; the calculator will appear in the upper right corner of your document screen.

2. You have to use the top row of the keyboard, not the numeric keypad, for numbers and operands. The entry sequence is number followed by operand.

3. After you have finished using the calculator, press F7 to exit back to your document.

The 5.1 calculator even has memory storage. Press F10 to store the current number in the calculator and press Shift+F10 to recall the number at any time.

WordPerfect also gives you the ability to switch from a special keyboard, such as MACROS, back to the standard one. To deactivate the current keyboard definition, press Ctrl+6 (the "6" from the top of the keyboard, not the number pad). The system will go back to the standard keyboard definition. However, only 5.1 allows you to reactivate the T 59620previous, special keyboard by pressing Ctrl+6 again. After that reactivation, WordPerfect will briefly display the message, "Active Keyboard," and the keyboard name.

If you have any questions concerning WordPerfect calculators, please call Kyle Wynn of End User Computing at 444-2859.

Actually, it would be OK to call Curt. He is always pleasant and helpful, even when called Sherry. However, it is two of our Sherrys who handle the bulk of computer training needs. Here's how their responsibilities break out:

Sherry Leone, at the Help Desk, handles class registration, class waiting lists, questions about the published schedule, confirmation letters, completion certificates and billing. Sherry Leone can be reached at 444-2973.

The Help Desk will take telephone reservations for classes, but you can help them by using an enrollment form to sign up for a class. You'll find a blank one on the last page of each News & Views. If you do register by telephone, be sure to follow up with the enrollment form so authorization and billing are handled properly. Please address the deadhead envelopes you send your completed forms to the ISD Help Desk, in the Department of Administration.

Sherry Hanks, of End User Computing, handles class scheduling, arranging for special classes, working with The Computer School and other vendors, and planning for new class offerings. Sherry Hanks can be reached at 444-1392.

She will work with you to identify and meet computer training needs, whether in the current schedule or not. She can explain or discuss the guidelines for and costs of registration, cancellation, special training and so forth.

Curt Secker, of Computing Policy and Development, is a heck of a nice guy who does other stuff.

--Sherry Hanks

**Training**

**Calling All Sherrys**

Do you want to register for computer training classes or just ask about them? Do you wonder which Sherry to call? (At last count, there were six or so around here.) Or do you call Curt because he edits News & Views (or just because he's not named Sherry)?

**Interactive Voice Response Technology Demonstration**

Syntellect Corporation will provide a "live" demonstration of Interactive Voice Response (IVR) capabilities, November 21, 1991, at 9 A.M. in Room 13 of the Sam Mitchell Building.
This demonstration will include a presentation using a prototype for the Child Support System. The vendor will show how the system, in combination with existing telephone and mainframe systems, can provide improved client service. The demonstration will include maintenance of the system, and will show how responses are developed and modified to meet changing information requirements.

Space will be limited due to the size of the room. Please call the Help Desk at 444-2973 to reserve a space(s) for this demonstration. If you have potential applications, you may want to include a user representative also. If you have any questions, please call Sharon Ranstrom at 444-2918.

End Notes

Submit Articles

If you wish to submit an article to News and Views for publication, the following schedule provides the dates that articles must be received by in order to be included in the issues listed below:

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>January Issue</td>
<td>11/20/91</td>
</tr>
<tr>
<td>February Issue</td>
<td>12/18/91</td>
</tr>
<tr>
<td>March Issue</td>
<td>01/22/92</td>
</tr>
<tr>
<td>April Issue</td>
<td>02/25/92</td>
</tr>
<tr>
<td>May Issue</td>
<td>03/23/92</td>
</tr>
</tbody>
</table>

ISD Help Desk
444-2973

Have a problem? Need ISD assistance or support for any of your information processing needs, be it voice or data? The central contact point is the ISD Help Desk.

End Notes

Submit Articles

If you wish to submit an article to News and Views for publication, the following schedule provides the dates that articles must be received by in order to be included in the issues listed below:

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<td>02/25/92</td>
</tr>
<tr>
<td>May Issue</td>
<td>03/23/92</td>
</tr>
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</table>
# Training Information

All classes will be held in the basement of the Teachers Retirement Building at 1500 6th Ave. unless another location is specified. There is a limit of 12 participants per paid class and 20 participants per demonstration (free) class, unless otherwise announced.

The classes available and their costs are as follows:

<table>
<thead>
<tr>
<th>Class Name</th>
<th>Cost</th>
<th>Length in Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to TSO/SPF</td>
<td>$75.00</td>
<td>1</td>
</tr>
<tr>
<td>Introduction to JCL (Job Control Language)</td>
<td>300.00</td>
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<td>*Accelerated Introduction to JCL</td>
<td>75.00</td>
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</tr>
<tr>
<td>*CICS Command Level Programming</td>
<td>575.00</td>
<td>5</td>
</tr>
<tr>
<td>*Introduction to IDMS</td>
<td>480.00</td>
<td>5</td>
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<tr>
<td>*IDMS ADS/Online</td>
<td>480.00</td>
<td>5</td>
</tr>
<tr>
<td>Introduction to Culprit</td>
<td>225.00</td>
<td>3</td>
</tr>
<tr>
<td>*Subscripting in Culprit</td>
<td>FREE</td>
<td>¼</td>
</tr>
<tr>
<td>*Culprit Programming for IDMS</td>
<td>150.00</td>
<td>2</td>
</tr>
<tr>
<td>*Using COMPREX</td>
<td>37.50</td>
<td>½</td>
</tr>
<tr>
<td>*Using Novell Network</td>
<td>37.50</td>
<td>½</td>
</tr>
<tr>
<td>*Introduction to SAS: Module 1</td>
<td>18.75</td>
<td>¼</td>
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<tr>
<td>Module 2</td>
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<td>Module 3</td>
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<td>Module 5</td>
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<td>Beginning Microcomputer Skills</td>
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<td>Fundamentals of DOS</td>
<td>75.00</td>
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<tr>
<td>Intermediate DOS</td>
<td>75.00</td>
<td>1</td>
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<tr>
<td>Introduction to WordPerfect (5.0 or 5.1)</td>
<td>112.50</td>
<td>1½</td>
</tr>
<tr>
<td>Advanced Features of WordPerfect (5.0 or 5.1)</td>
<td>112.50</td>
<td>1½</td>
</tr>
<tr>
<td>WordPerfect Complex Document Design</td>
<td>FREE</td>
<td>¼</td>
</tr>
<tr>
<td>WordPerfect 5.1 Tips and Tricks</td>
<td>FREE</td>
<td>¼</td>
</tr>
<tr>
<td>Spreadsheet Design and Documentation</td>
<td>75.00</td>
<td>1</td>
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<tr>
<td>Introduction to Lotus 1-2-3 (Rel. 2.2, 2.3, 3.1)</td>
<td>150.00</td>
<td>2</td>
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<tr>
<td>Conversion from Rel. 2.2 to 2.3 of Lotus 1-2-3</td>
<td>FREE</td>
<td>¼</td>
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<tr>
<td>Advanced Lotus 1-2-3 (Rel. 2.2 or 3.1)</td>
<td>150.00</td>
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<tr>
<td>*Freelance</td>
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<td>*Lotus 1-2-3 Macros, Release 2.2</td>
<td>150.00</td>
<td>2</td>
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<tr>
<td>*Lotus 1-2-3 Database Features</td>
<td>150.00</td>
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</tr>
<tr>
<td>*Introduction to PFS:Professional File, Ver. 2.0</td>
<td>75.00</td>
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<tr>
<td>*Micro Database Concepts and Design</td>
<td>75.00</td>
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<tr>
<td>*Introduction to R:Base (Rel. 3.1)</td>
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<tr>
<td>*Intermediate R:Base (Rel. 3.1)</td>
<td>150.00</td>
<td>2</td>
</tr>
<tr>
<td>*State Telephone Training</td>
<td>FREE</td>
<td>¼</td>
</tr>
</tbody>
</table>

* This class is not scheduled during the time covered in this issue.
Training Calendar

Data Network/Mainframe Classes

November 12 through 14
December 9
January 16 and 17

Introduction to Culpit
Introduction to TSO/SPF
Novell Network Administration**

Microcomputer Classes

November 1
November 4
November 20
December 2
December 3
December 4
January 6
January 27 and 28
January 30

Intermediate DOS
Beginning Microcomputer Skills
PC Memory Management
Beginning Microcomputer Skills
Fundamentals of DOS
Considering Windows Installation and Use
Beginning Microcomputer Skills
Windows for the Technical Support Team**
Windows for the End User**

Word Processing Classes

November 5, November 6 am
November 7, November 8 am
December 5, December 6 am
December 16, December 17 am
January 9, January 10 am
January 20, January 21 am

Introduction to WordPerfect 5.1*
Advanced Features of WordPerfect 5.0
Introduction to WordPerfect 5.0
Advanced Features of WordPerfect 5.1
Introduction to WordPerfect 5.1
Advanced Features of WordPerfect 5.0

Spreadsheet Classes

November 18
November 21 and 22
November 25 and 26
December 10 and 11
December 18 and 19
January 13 and 14
January 23 and 24

Spreadsheet Design and Documentation
Introduction to Lotus 1-2-3, Rel. 2.3
Advanced Lotus 1-2-3, Rel. 3.0
Introduction to Lotus 1-2-3, Rel. 2.3
Introduction to Lotus 1-2-3, Rel. 3.1
Introduction to Lotus 1-2-3, Rel. 2.3*
Advanced Lotus 1-2-3, Rel. 2.3

Database Classes

January 27 through 30

dBase Database Design and Programming**

Communication Classes

NONE

* This class will be held at The Computer School, not in the Teachers’ Retirement Training Room.
** Tentative: The instructor and/or location for this class are to be determined.
INTRODUCTION TO TSO/SPF: presented by Jeff Holm of the Application Services Bureau

DATE: December 9, 1991
TIME: 8:30 am to 4:00 pm
PREREQUISITE: 3270nd (Interactive Class on Terminal Operation)
LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

"Introduction to TSO/SPF" is a hands-on workshop about using computer terminals (or PC terminal emulators) and the SPF editor. SPF is an easy-to-learn, menu-driven system used to enter data and programs into the State's mainframe computer. Entering data, changing data and submitting programs (jobs) for execution are covered in detail. Also covered are SPF's utility functions and the tracking of job output.

This course is essential for state government personnel using terminals or PC's linked to the State's central computer. It is a prerequisite for many other ISD classes.

INTRODUCTION TO CULPRIT: presented by Jeff Holm of the Application Services Bureau.

DATE: November 12 through 14, 1991
TIME: 8:30 am to 4:30 pm
PREREQUISITE: Introduction to TSO/SPF required, JCL and programming experience helpful
LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This 3-day class is directed toward end users and programmers. It will cover the basic functions of the Culprit report writer and the basic aspects of generating reports from standard files. It will not treat more advanced topics such as database access or match files. Topics covered will include:

- Generating a basic report from standard files
- Enhancing and formatting the report
- Generating multiple reports
- Sequencing report output
- Selective processing
- Understanding programming logic
- Performing arithmetic operations
- Directing processing flow
- Generating total lines
- Generating subtotals and sort levels
- Printing selected output lines
BEGINNING MICROCOMPUTER SKILLS: presented by the staff of The Computer School

DATES: November 4, 1991
December 2, 1991
January 6, 1992

TIME: 8:15 am to 4:30 pm

PREREQUISITE: None

LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This course will give participants brief hands-on experience with microcomputers. The following topics will be covered:

- The Machine
- The Operating System
- Word Processing
- Spreadsheets and Graphics
- File Management
- Communications

Most class time will be spent using microcomputers and software. This course helps develop a positive attitude toward using microcomputers and teaches their basic functions. This class—or its equivalent—is a prerequisite for our other microcomputer courses.

FUNDAMENTALS OF DOS: presented by the staff of The Computer School

DATE: December 3, 1991

TIME: 8:30 am to 4:30 pm

PREREQUISITE: Beginning Micro Skills and/or 3 months micro experience

LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

"Fundamentals of DOS" is intended for microcomputer users who need to know more about controlling the microcomputer through its operating system. Programming experience is NOT required. Topics to be covered include:

- What is DOS? Why is it necessary to know about it?
- DOS names for peripherals
- File naming
- Set-up files such as CONFIG.SYS
- Internal DOS commands - DIR, ERASE, RENAME, TYPE, COPY and their variations
- External commands - FORMAT, SYS, DISKCOPY, CHKDSK, MODE
- Interpreting batch files
- Backup procedures
INTERMEDIATE DOS: presented by the staff of The Computer School

DATE: November 1, 1991
TIME: 8:30 am to 4:30 pm
PREREQUISITE: Fundamentals of DOS or equivalent
LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class is designed to follow the "Fundamentals of DOS" class and to give the user a better understanding of and increased ability to use DOS. It is not designed for programmers and does not cover all the advanced features of the operating system. The following topics are covered:

- ATTRIB
- Batch File Creation
  EDLIN
  Batch file commands
- DISKCOMP
- Filters (FIND, MORE)
- JOIN
- LABEL
- MODE
- REPLACE
- SELECT
- XCOPY

MEMORY MANAGEMENT OPTIONS AND CONSIDERATIONS: presented by the staff of the Application Services Bureau

DATE: November 20, 1991
TIME: 10:00 am to 12:00 noon
PREREQUISITE: Microcomputer DP management experience or equivalent
LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This free class is designed for persons who must decide whether to purchase memory management tools for their PC's. ASB staff will discuss how applications use memory in a DOS environment, and will explain terms such as the upper memory block, extended memory, expanded memory, and high memory area. Several different memory managers will be discussed, and the pros and cons for each of the choices presented. Among the options discussed will be DOS 5.0.

WINDOWS - PURCHASE, INSTALLATION AND USE CONSIDERATIONS: presented by the staff of the Application Services Bureau

DATE: December 4, 1991
TIME: 10:00 am to 12:00 noon
PREREQUISITE: Microcomputer DP management experience or equivalent
LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This free class is designed for persons who are considering whether to purchase Windows. The discussion will include the following:

- Windows' memory management features
- Available software
- Hardware requirements
- Installation considerations
- Training needs
WINDOWS FOR THE TECHNICAL SUPPORT TEAM: To be announced

DATE: January 27 and 28, 1992
TIME: 8:30 am to 4:30 pm
PREREQUISITE: Microcomputer systems analysis, network or DP management experience
LOCATION: To be announced

This course is designed for system administrators and system support staff who will be responsible for installing and maintaining Windows. Topics covered include:

- Windows operating modes
- System memory, resources and Windows architecture
- Windows installation - network and standalone
- Windows initialization files
- Installation of DOS and Windows applications
- Optimization
- Troubleshooting/problem resolution

WINDOWS FOR THE END USER: presented by the staff of The Computer School

DATE: January 30, 1992
TIME: 8:30 am to 4:30 pm
PREREQUISITE: Beginning Microcomputer Skills or three months of daily microcomputer use
LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This course is a general introduction to Windows. It will cover the basics and show how Windows makes other applications easier to use and more productive. Topics will include:

- What are Windows - multi-tasking and task switching
- Using DOS and Windows applications
- Screen, window and menu navigation
- Window sizing and movement
- Printer management
- File management
- Customization

This course will not include training for system administrators and programmers. It will not cover Windows installation, maintenance or use for programming and documentation.

Word Processing Classes

INTRODUCTION TO WORDPERFECT 5.0: presented by the staff of The Computer School

DATE: December 5 and 6, 1991
TIME: 8:30 am to 3:30 pm on first day
8:30 am to noon on second day
PREREQUISITE: Beginning Microcomputer Skills or equivalent
LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.
This class is designed for beginning users of WordPerfect 5.0. Experience with WordPerfect 4.2 is not necessary. Participants will go through the fundamentals of creating, printing, and editing documents. The class will cover the Setup feature; formatting documents as they are created and after creation; and some time saving features such as spell check, merges, block functions and macros.

ADVANCED FEATURES OF WORDPERFECT 5.0: presented by staff of The Computer School

DATE: November 7 and 8, 1991
       January 20 and 21, 1992
TIME:  8:30 am to 3:30 pm on first day
       8:30 am to noon on second day
PREREQUISITE: Introduction to WordPerfect 5.0 or equivalent
LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

For those already using WordPerfect 5.0, the advanced class will cover footnotes, column generation, sorting capabilities, dual document editing, font changes within a document, creation of style sheets and master documents, keyboard layout, the compose function and graphics.

INTRODUCTION TO WORDPERFECT 5.1: presented by the staff of The Computer School

DATE: November 5 and 6, 1991
       January 9 and 10, 1992
TIME:  8:30 am to 3:30 pm on first day
       8:30 am to noon on second day
PREREQUISITE: Beginning Microcomputer Skills or equivalent
LOCATION: The Computer School at 34 N. Last Chance Gulch

This class is designed for users who are new to WordPerfect. Experience with WordPerfect 5.0 is not necessary. Participants will go through the fundamentals of creating, editing and printing documents. Some advanced features--spell check, block functions and others--will also be covered.

NOTE: This course is being offered at The Computer School, NOT at the Teachers Retirement Building.

ADVANCED FEATURES OF WORDPERFECT 5.1: presented by the staff of The Computer School

DATE: December 16 and 17, 1991
TIME:  8:30 am to 3:30 pm on first day
       8:30 am to noon on second day
PREREQUISITE: Introduction to WordPerfect 5.1
LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class is geared for those who are proficient in the basics of WordPerfect 5.1. Topics include footnotes, text columns, sorting, style sheets, master documents, keyboard layout, graphics, table formats, merging and generation of labels.
SPREADSHEET DESIGN AND DOCUMENTATION: presented by Irvin Vavruska of the Application Services Bureau

DATE: November 18, 1991
TIME: 8:30 am to 4:30 pm
PREREQUISITE: Introduction to Lotus 1-2-3
LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class will emphasize the importance, effectiveness and the organizational benefits of good spreadsheet design and documentation. Lotus 1-2-3 Release 2.2 will be used to demonstrate good and bad techniques. Some common methods for solving logic problems and locating design and programming mistakes will be covered.

INTRODUCTION TO LOTUS 1-2-3, RELEASE 2.3: presented by the staff of The Computer School

DATE: November 21 and 22, 1991
December 10 and 11, 1991
January 13 and 14, 1992
TIME: 8:30 am to 4:30 pm each day
PREREQUISITE: Beginning Microcomputer Skills or equivalent
LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class is designed for persons with little or no Lotus 1-2-3 experience. It will consist of instructions and hands-on practice, with lab time available for building spreadsheets of the participants' choosing.

The class will concentrate on using 1-2-3 Release 2.3 to design, create, edit and print spreadsheets and to create graphics. Students will learn about new WYSIWYG (What You See Is What You Get) features of Release 2.3 such as enhanced printing of spreadsheets and graphs.

ADVANCED FEATURES OF LOTUS 1-2-3, RELEASE 2.3: presented by the staff of The Computer School

DATE: January 23 and 24, 1991
TIME: 8:30 am to 4:30 pm each day
PREREQUISITE: Introduction to Lotus 1-2-3
LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This course is designed for anyone who is using Lotus 1-2-3 to create spreadsheets for all but the simplest applications. It consists of lecture, hands-on practice, lab work and a question and answer period. Advanced features include:

- File linking and multiple worksheet consolidation
- The @ functions
- Use of dates and times within 1-2-3
The class will also cover demonstrations of Lotus 1-2-3's database and Macro functions and many other features not included in Introduction to Lotus 1-2-3.

### INTRODUCTION TO LOTUS 1-2-3 RELEASE 3.1:

**DATE:** December 18 and 19, 1991  
**TIME:** 8:30 am to 4:30 pm each day  
**PREREQUISITE:** Beginning Microcomputer Skills  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class is designed for persons with little or no Lotus 1-2-3 experience. It will consist of instructions and hands-on practice, with lab time available for building spreadsheets of the participants’ choosing.

The class will cover design, creation, printing and editing of 3-dimensional spreadsheets. Additional topics will include selected graphic features, the use of formulae to connect spreadsheets, multiple spreadsheets within a single file, and the opening of multiple files at the same time. Students will learn about new WYSIWYG (What You See Is What You Get) features of Release 2.3 such as enhanced printing of spreadsheets and graphs.

### Database Classes

**INTRODUCTION TO dBASE III+:** Instructor to be announced  
**DATE & TIME:**  
- **Input:** January 27, 8:30 am to noon  
- **Manipulation/Reporting:** January 28, 8:30 am to 4:30 pm  
**PREREQUISITE:** Beginning Microcomputer Skills  
**LOCATION:** To Be Announced  

Modules 1 through 3 of this class are intended for beginning dBASE users. They cover the fundamentals of dBASE with an emphasis on constructing relational databases, using prompt commands and designing simple reports. An introduction to The Assistant will be included. The fourth module is intended for those who want to use dBASE's powerful programming capabilities. It will deal with using dBASE for application programming, with more complex database design and reporting systems.
**ISD CLASS ENROLLMENT APPLICATION**

COMPLETE THIS APPLICATION IN FULL AND RETURN IT TO THE INFORMATION SERVICES "HELP DESK" PRIOR TO THE FIRST DAY OF CLASS

### COURSE DATA

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### STUDENT DATA

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How have you met the required prerequisites for this course? Explain giving the class(es) taken, tutorial(s) completed, and/or experience.

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### BILLING INFORMATION/AUTHORIZATION

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FULL CLASS FEE WILL BE BILLED TO THE REGISTRANT UNLESS CANCELLATIONS ARE MADE THREE BUSINESS DAYS BEFORE THE START DATE FOR EACH CLASS.