Microcomputer Applications Software

WordPerfect®
dBASE III PLUS®
SuperCalc 4®

Sarah Hutchinson

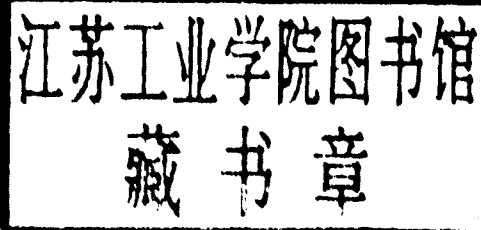# MICROCOMPUTER APPLICATIONS SOFTWARE

WORDPERFECT®

dBASE III PLUS®

AND SUPERCALC4®

Second Edition

Preface

Irwin Publishing is pleased to present a microcomputer applications workbook and software for WordPerfect, dBase III Plus, and SuperCalc4. This workbook is designed to provide students with an overview of the capabilities available when using wordprocessing, database management, and spreadsheet software–the types of software typically found in the business environment.

The Workbook

This workbook is composed of the following major sections:

1. PREVIEW TO THE LAB. This section provides the student with an overview of microcomputer hardware, and systems and applications software. It is intended to prepare the student for working through the modules.

2. THE MODULES. The modules incorporate an easy step-by-step approach for showing the students the basics of word processing, database, and spreadsheet software. Screen dumps are provided throughout so the student can check his or her progress while proceeding through the modules. The following modules are included in this text:

- Module One: Word Processing With WordPerfect
- Module Two: Database With dBase III Plus
- Module Three: Spreadsheet, Database, and Graphics With SuperCalc4

3. APPENDICES. Appendix A contains "Job Hunting" data that the student refers to when working through the modules. Appendix B contains Questions and Activities to accompany the modules.

The Software

The software that accompanies this workbook includes:

WordPerfect Version 4.2
dBase III Plus
SuperCalc4

Software Licensing

Five master diskettes (one for WordPerfect and two each for dBase III PLUS and SuperCalc4) are provided to you free if you adopt any one of the following Irwin titles in Information Systems:

- James O'Brien's INFORMATION SYSTEMS IN BUSINESS MANAGEMENT
- James O'Brien's COMPUTER CONCEPTS AND APPLICATIONS
- Nancy Floyd's ESSENTIALS OF INFORMATION PROCESSING

As long as you require students to purchase any one of the above titles, you may make one copy of each master diskette for each student in your course. After the course, students are free to take their copies with them.

Description of the Software

The software–WordPerfect, dBase III Plus, and SuperCalc4–is provided by Irwin through contractual arrangements with WordPerfect Corporation, Ashton-Tate, and Computer Associates International, Inc., respectively. The three applications packages are educational versions, which contain all the features of the commercial versions. The only differences are as follows:

- For WordPerfect Version 4.2– The educational version saves files up to 4K in size, supports one parallel printer port, prints *WPC randomly at the ends of paragraphs, prints the standard ASCII character set (rather than the extended ASCII set), provides a reproduction of the template in lieu of help menus, and includes a demonstration of the thesaurus and speller.
- For dBase III Plus–The educational version can accommodate as many as 31 records.
- For SuperCalc4–The educational version provides a 26 X 40 spreadsheet, supports one font, and prints across the width of the page rather than sideways.

In all other respects, these three packages are the same as the commercial versions.

Ordering the Software and the Workbook

If you would like to order the diskettes, merely contact your local Irwin representative or call toll-free (800) 323-4560 to request your diskettes from a Faculty Service Representative.

Acknowledgements

Sarah Hutchinson

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Preview to the Modules

Join the excitement of working with microcomputers! With this workbook, you can sit down before the microcomputer in your college computer laboratory—or even at home, if you have a personal computer—and begin to operate it. This part of the workbook briefly describes:

- Microcomputer Hardware
  - Input Hardware
  - Processing Hardware
  - Output Hardware
  - Storage Hardware
- Applications and Systems Software
- The Microcomputer Keyboard
- Getting Ready to Use Applications Software
  Loading Systems Software
  Formatting Diskettes
  Copying Files

Section I. General Microcomputer Information: How to Get Up and Running

In this section we describe microcomputer **hardware**, the physical devices or pieces of equipment that make up the computer system; **software**, the computer instructions you will need to make the hardware work; and procedures for getting the hardware and software up and running.

A. Hardware: The Microcomputer Equipment

Figure 1 shows a microcomputer system. You will be using something like this when working through the modules in this workbook. The hardware components in a microcomputer system fall into four categories: Input, Processing, Output, and Storage (Figure 2). In the next few sections, we describe each of these categories and the equipment associated with them.

Input Hardware: The Keyboard and Diskette. Input hardware is used for loading **data** (unorganized facts) into the microcomputer system so that it is ready for processing. In addition, it is used for loading computer instructions into the microcomputer system. Computer instructions, or **software programs**, tell the computer how to turn data into **information** (organized facts).

Data is most often input, or loaded, through the typewriter-like **keyboard** which has keys for entering letters, numbers, and other special characters, and for performing special functions (these keys will be described later). Data and instructions can also be loaded from

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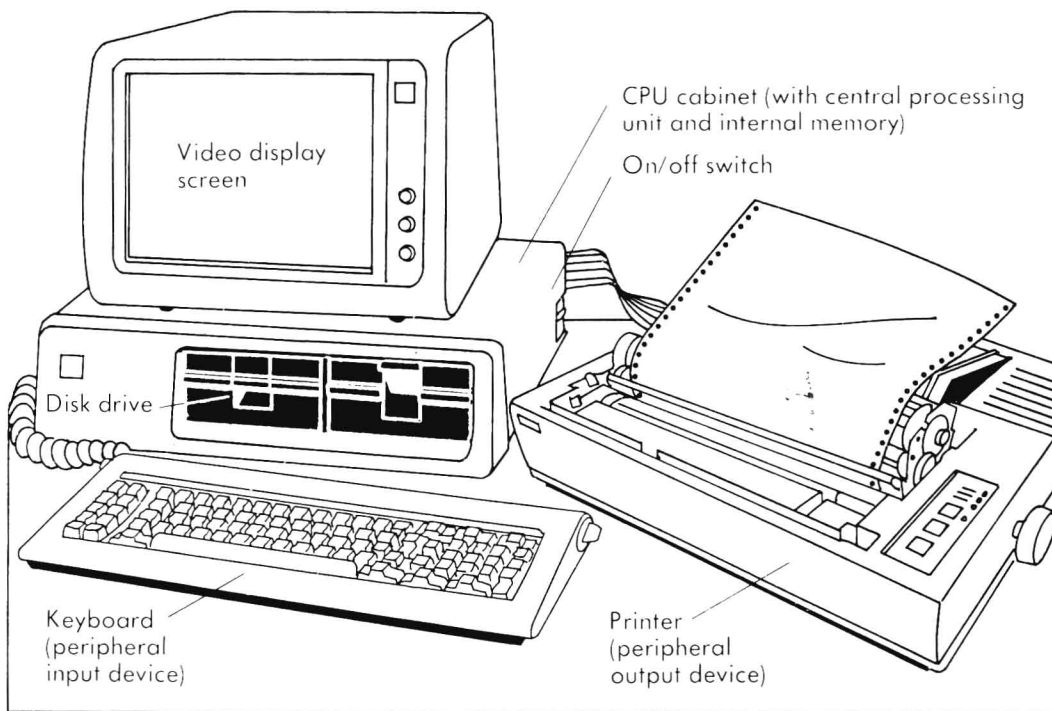
FIGURE 1
A Microcomputer System

a **diskette** which is either 5 1/4 inches or 3 1/2 inches in size. (Diskettes are also considered a type of storage hardware because they are used for storing data and instructions.) To input data and instructions into a microcomputer, the disk must be inserted into a slot in the **disk drive**, which is usually located in the front of your computer cabinet.

Processing Hardware: The Microprocessor. Most people consider the processing hardware of a microcomputer system the most difficult to understand because you can't see it. Unlike the disk drive(s) which you can see on the front of the computer cabinet, the microprocessor and memory (which is described in the Storage Hardware section) are both located inside. The microprocessor consists of the electrical circuitry that actually processes (performs calculations and comparisons) the data into information. You can think of the microprocessor as the brain of the microcomputer system.

Output Hardware: The Video Display Screen and Printer. After data has been processed into information it is usually displayed on the **video display screen,** or **monitor**. This is the television-like screen that usually sits atop the computer cabinet. If you want the information to be displayed in a more permanent form, you can print it out on a **printer**.

Storage Hardware: Internal Memory, Diskettes, and Hard Disks. **Internal memory** (also referred to as **memory** or **primary storage**) (1) temporarily stores an electronic copy of data that is waiting to be processed, (2) software instructions, and (3) data that has been processed into information and is waiting to be output. Because internal memory is fueled by electricity, when a microcomputer is turned off, all of the data, instructions, and information in it are erased.

A Word About Storage Capacity: A common abbreviation associated with computers is the letter **K**, which stands for **kilobyte**. A kilobyte represents 1024 characters (letters, numbers, special signs) of data or information. An IBM Personal Computer's internal memory may hold up to 640K of information (640 times 1024), or 655, 360 characters of information.

As mentioned above, when a computer is turned off, all of the data, instructions, and information in internal memory are erased. If you want to save information (such as a document) permanently so you can use it again, you must save a copy of it onto a storage device that
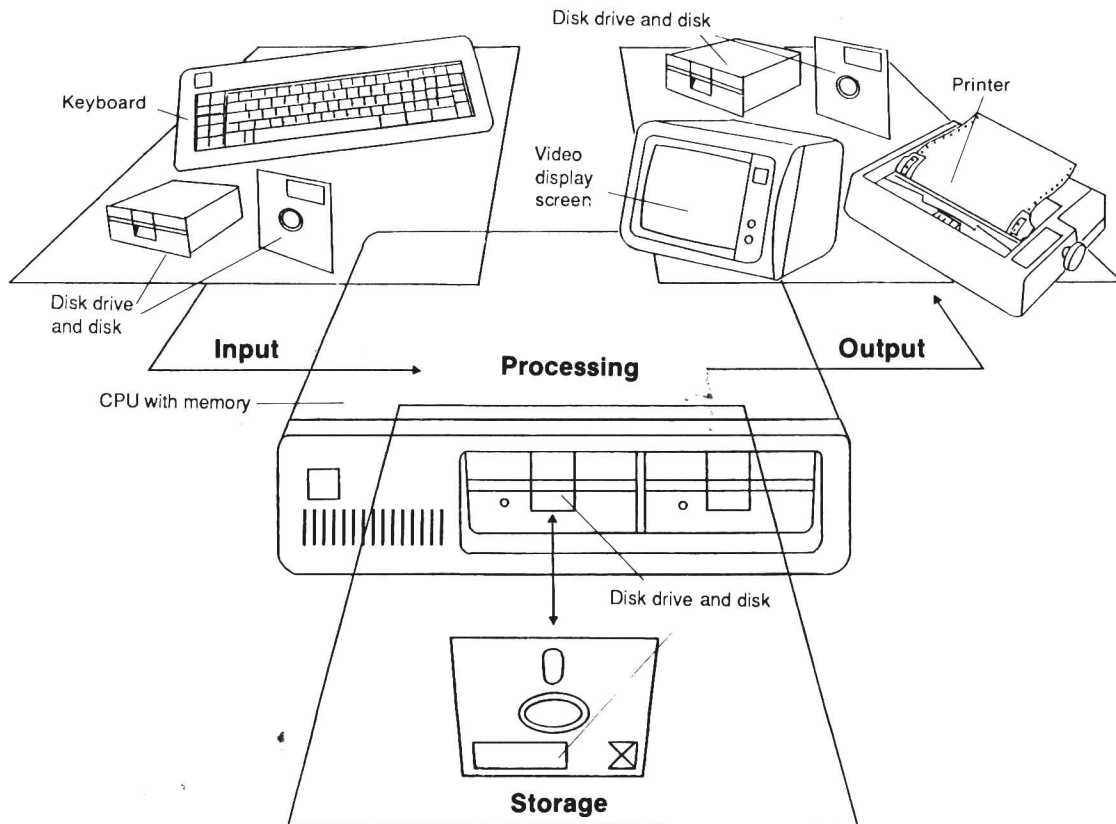
FIGURE 2
The Four Operations of a Computer System

stores data magnetically rather than electronically. This type of storage is often referred to as **secondary storage**. The most common types of storage devices used on microcomputers are diskettes and hard disks. One main difference between these two types of storage devices is the amount of data they can each store. You can think of a diskette as a folder in a file drawer, and a hard disk as an entire filing cabinet. Diskettes are capable of storing between 362K and 1.44 million characters (MB). Hard disks, on the other hand, can store up to 300MB. Most microcomputers in the business environment are configured with a hard disk so that the users don't have to deal with so many floppy disks. Diskettes and hard disks work by rotating in the disk drive. Depending on the operation you are performing, a copy of data and instructions are either **read** from the disk and placed in internal memory, or a copy of what is in internal memory is **written** onto the disk (for example, when you save a document). The electronic device inside the disk drive that does the "reading" and "writing" is called the **read/write head**. Another difference between diskettes and hard disks is that hard disks generally remain intact in the computer. However, diskettes can be moved from computer to computer.

Depending on the manufacturer, the size of the diskette used in a microcomputer is either 5 1/4 inches (Figure 3) or 3 1/2 inches. The 3 1/2 inch diskette has a hard plastic disk jacket that helps protect data stored on the disk's surface from being damaged. The 5 1/4 inch diskette however has a soft plastic coating. 5 1/4 inch diskettes are often referred to as **floppy diskettes** because they have a flexible feel to them. Especially when using 5 1/4 inch diskettes, it is important to know how to take care of them:

● Be careful about holding and touching diskettes. Do not touch the actual surface of the diskette (the part beneath the non-removable protective jacket), such as through the read/ write head access hole or the timing hole (Figure 3). Hold the diskette by one of the paper labels in the corner.
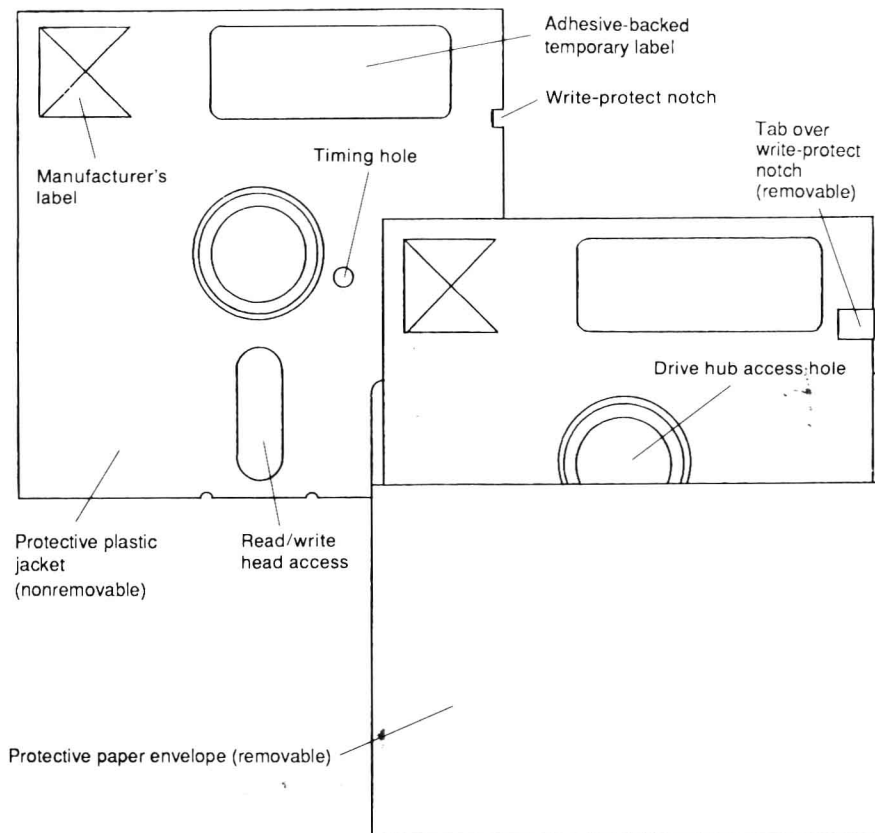
FIGURE 3

Parts of a 5 1/4 Inch Disk

- Keep diskettes away from harmful objects and influences. This includes excessive heat and sunlight, severe cold and humidity, and magnets and magnetized objects. Don't leave disks on top of the computer. Don't put heavy objects on them, or enclose them with paper clips or rubber bands. If you write on the label, use a felt-tip pen.

- Store diskettes in a safe place. After use, store your diskettes in their protective paper or cardboard envelope and keep them in a box such as those in which new disks are sold. Don't store them near a heater or freezer or other extremes of hot or cold.

- If you wish, use the write-protect notch tab (sticker) to avoid accidentally erasing data. Figure 3 shows the location of the write-protect notch. If you wrap a gummed tab (supplied by the disk manufacturer) around this notch, it prevents the computer from accidentally writing over or erasing existing data. (If the disk has no write-protect notch, it is already protected against being written over.) The smaller 3 1/2-inch disks have a write-protect notch that is covered by a plastic tab; this tab usually slides back automatically.

B. Software: Applications and Systems

A computer (hardware) needs computer instructions (software) in order to be of use to you. There are two types of software: applications and systems. **Applications software** includes programs you will be using later in this workbook: word processing, database, spreadsheet, and graphics software. Applications software, also known as packaged software, consists of—to oversimplify a bit—software that interacts more with you, the user, than it does with the computer.

Systems software—again, to oversimplify—interacts more with the computer than with you. Systems software operates mostly behind the scenes, invisible to users, in order to process

the applications software. For your purposes in this workbook, the most important kind of systems software is the **operating system**, a program or series of programs, designed to control the microprocessor and attached **peripheral devices**—that is, input, output, and storage equipment such as disk drives and printers. A microcomputer operating system is often referred to as **DOS**, or Disk Operating System. Operating systems are usually supplied by the computer's manufacturer. The operating system used in the IBM Personal Computer, IBM XT, and IBM AT is called PC-DOS. PC-DOS is a slightly modified version of MS-DOS, which stands for "Microsoft Disk Operating System," after its developer, the Microsoft Corporation. The operating system used in IBM's PS/2 computers is called OS/2, which provides users with more capabilities than PC-DOS.

Although systems software is by and large invisible to users, you will find parts of it useful for such purposes as formatting, or preparing, new disks so that you can store data on them; displaying a directory or list of names of all the files on the disk; copying information from one disk to another; and checking a disk to see how much space you have on it to store more information (or files).

C. The Keyboard

As mentioned earlier, the most popular way of getting data into the computer is the **keyboard**, which resembles the standard typewriter keyboard. Figure 4 shows two well-known microcomputer keyboards, the IBM PC keyboard and the Keytronic. The keyboard you are using should look similar to one of these two keyboards. You will find the following types of keys on a microcomputer keyboard:

1. Regular Letter and Numeric Keys. The typewriter-like keys in the middle will be largely familiar to you if you are familiar with a typewriter, but with the following exceptions:

a. Repeating keys: If you hold a key down, it will keep repeating the character—a helpful feature for, say, typing dots across the page.

b. The Enter (Return) key: On a standard or electric typewriter, when you have finished typing a line the width of the page, you must press the Enter key so you can start the next line at the left margin. When using word processing software, the words carry over or "wrap around" automatically; this is known as **word wrap**; the Enter key is used to end paragraphs. In general, no matter what software you're using, the Enter key is used to execute commands.

2. Numeric Keypad. The **numeric keypad**, or **numeric keys** (See Figure 4) operate like the keys on a calculator or 10-key adding machine. When using the IBM PC keyboard to activate the keypad for entering numbers, you usually press (only once) the key labeled "Num Lock" in order to "lock" the keys for using numbers. If the "Num Lock" key isn't pressed, the arrows on these keys are active and these keys are used for moving around such things as documents, spreadsheets, or databases. The PgUp ("Page Up") and PgDn ("Page Down") keys are used for moving up or down a screen full of information. Notice that the Keytronic keyboard has, separate cursor movement and numeric keypads.

3. Special-Purpose Keys. The following special-purpose keys are usually found on microcomputer keyboards:

a. Backspace: This is the left-pointing arrow key above the Enter key. When this key is pressed the cursor moves to the left and deletes the character to the left.

b. Del: This key deletes the character the cursor is positioned beneath.

c. Ins: Pressing this key once turns INSERT on, and pressing it again turns INSERT off. When this key has been pressed, it allows you to perform an activity such as inserting a few words in the middle of a sentence. If INSERT is off, it allows **overtyping** which means you can simply type new material over the old, automatically obliterating the old text.
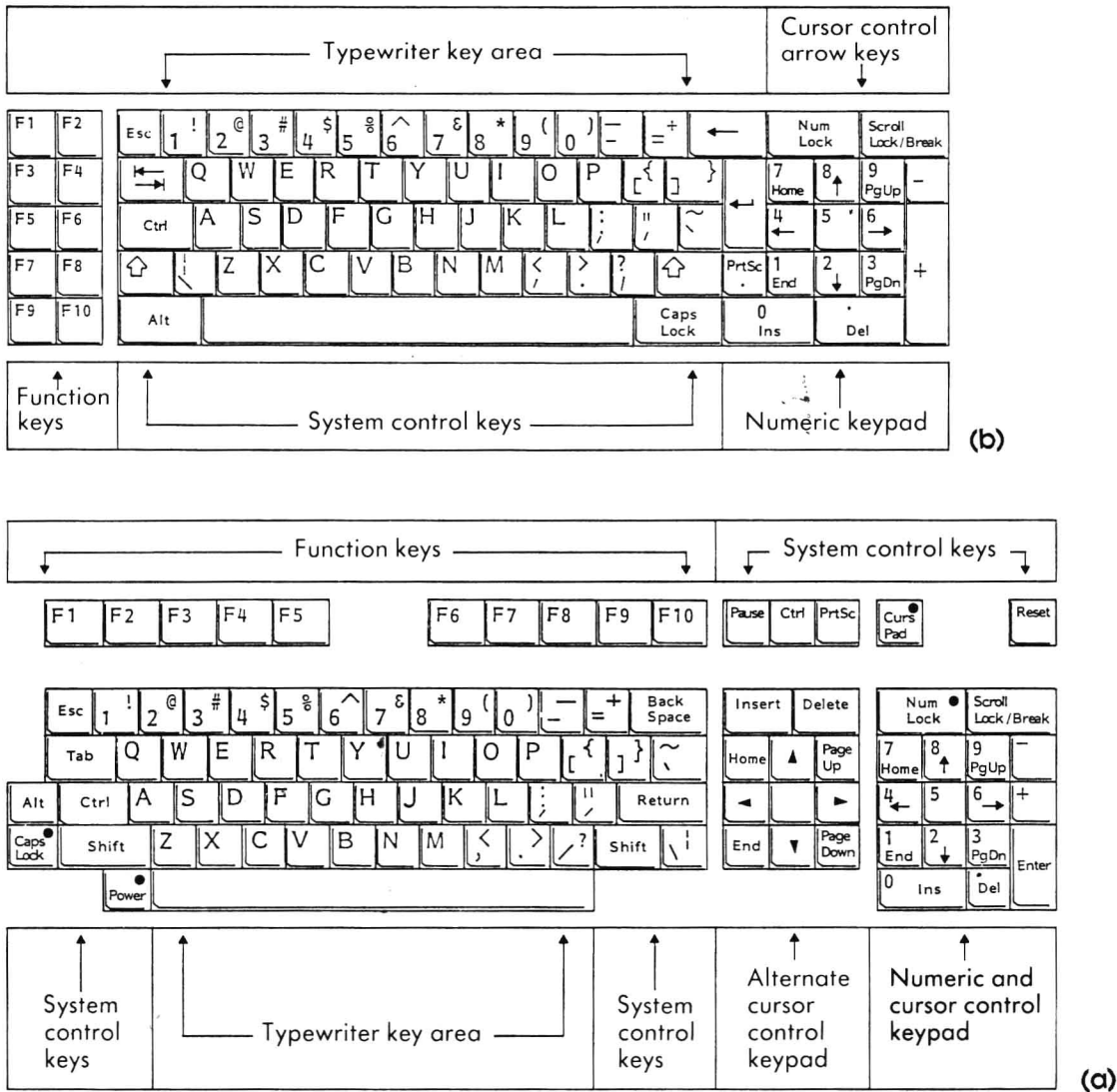
FIGURE 4
Two Common Microcomputer Keyboards

d. Caps Lock: Pressing this key once allows you to type all alphabetic characters in CAPITAL LETTERS. Pressing it again changes the way characters are displayed to lowercase, with capital letters appearing only when you press the Shift key.

e. Tab: On most keyboards, this key is located to the left of the letter Q and is either marked by a double arrow or is labeled "Tab." This key functions just about the same as does the tab key on a typewriter; it allows you to indent text.

f. Break: The word "Break" is usually written on the side of the Scroll Lock key. This key allows you to interrupt the computer when it is performing a task. It is usually activated by holding the Ctrl key down and tapping the Break key.

g. PrtSc: This key, when used in conjunction with the Shift key, allows you to print the information you see on the screen out on the printer.

h. Esc, Ctrl, and Alt: These keys all perform control-oriented functions, and their purpose varies depending on the software program you are using.

4. Function Keys. The location of **function keys** varies with different keyboards (as Figure 4 demonstrates); the purpose of these keys is to perform specific functions or actions, which are different in different programs. For example, on the IBM PC, if you wish to underline a

word using the WordPerfect word processing program, press the F8 function key; to underline a word using the WordStar word processing program, press the F5 key.

D. Getting Ready to Use Applications Software

Before using applications software you must be familiar with the disk drive naming conventions of all microcomputer systems (Figure 5) so you can specify the disk on which you want to save information. Microcomputers tend to have one of the following configurations: (1) two diskette drives, (2) two diskette drives and one hard disk, (3) one diskette drive and one hard disk. If a computer has two diskette drives, like the computer in Figure 5, the drives are referred to as **Drive A** and **Drive B**. Drive A is usually either positioned on the top of Drive B or to the left of Drive B. The manufacturer determines where a disk drive will be positioned. If the computer has two diskette drives and one hard disk, the diskette drives are still referred to as Drive A and Drive B, and the hard disk is usually referred to as **Drive C**. If the computer has one diskette drive and one hard disk, the diskette drive can be referred to as either Drive A or Drive B, and the hard disk is referred to as Drive C. Again, it is important to know the disk drive naming conventions of your microcomputer system so you can specify which disk you want information saved on.

Before using the applications software described in this workbook, make sure you have the following:

- Microcomputer hardware. Specifically you need everything shown in Figure 1, although it is possible to do without the printer for the time being. In this workbook, we assume you are using a microcomputer configured with two floppy disk drives—Drive A and Drive B.
- Systems diskette. This diskette should contain the PC-DOS or MS-DOS instructions.
- Applications diskette(s). For example, if you want to use WordPerfect, you need to have access to a diskette that has the WordPerfect software instructions stored on it.
- Blank data diskette(s). You will need these for storing information after processing. You may also need diskettes for making back-up copies of your applications diskettes. It's up to you whether to make backup copies of your applications diskettes—however it's a good idea to do it in case the original applications diskette is destroyed.
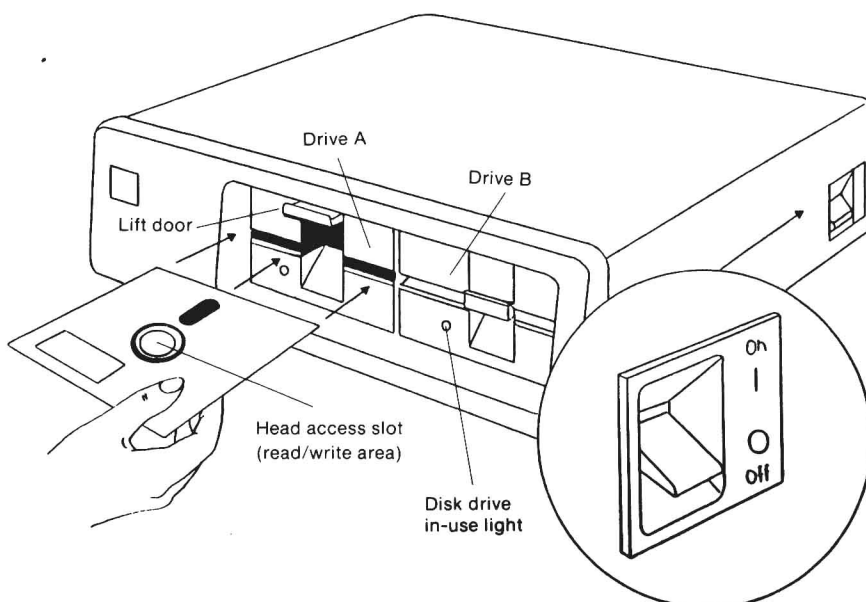

FIGURE 5
Loading a Disk

The first step in using a microcomputer is always to load a copy of certain operating systems instructions into the internal memory of your computer. Without these instructions in internal memory, you won't be able to communicate with your computer. Because these instructions are so fundamental to the operation of microcomputers, they are automatically loaded when you turn your computer on. Loading a copy of these operating systems instructions is often referred to as **booting** the computer. Perform the following steps:

1. Loading the Disk Operating System.

a. Figure 5 shows a diagram of a disk being inserted into a disk drive. Hold the PC-DOS or MS-DOS disk with your thumb on the manufacturer's label (as shown). Open the disk drive door for Drive A. Your microcomputer will always look in Drive A for a copy of the operating systems software. (If you have a hard disk, the computer will first look in Drive A and then in Drive C for a copy of the operating systems software).

b. Now turn on the power switch to the video display screen (if necessary) and then turn on the power on the side or back of the computer cabinet.

c. After a number of seconds and beeps, the disk drive light for Drive A should go on and then off.

d. The screen should now be showing you a **prompt**, an indicator from the program that "prompts" you to enter some data through the keyboard. You may see a **date prompt** (such as "Current date is Tue 4-12-1988, Enter new date:"), followed by a blinking **cursor**, an indicator positioned on the screen at the point where data will appear when you start typing. If this is the case, you may now type today's date (for example, "1-15-89") or you may simply press the **Enter** key on your keyboard (on the IBM PC keyboard, this key is symbolized by the bent-arrow key below the Backspace key). You may now see a **time prompt** in which case you may type in the time using the twenty-four hour clock format, or press the Enter key.

● By this point, you should see the **DOS prompt**, such as "A›," which indicates that the operating system is waiting for you to enter a command.

2. Formatting (Initializing) Blank Diskettes. It is possible that your instructor has given you a blank data diskette that is already formatted—ready to use. However, every time you buy a box of blank diskettes, they must be **formatted**, or **initialized**—in a word, prepared so that they can receive information. The reason for this is that diskettes are made to work with all kinds of microcomputers and operating systems, so you have to "custom tailor" or format the disk for your particular arrangement. However, you need only format the disk the first time you want to use it (if you do it again later, the format command will erase any existing information stored on the disk.)

a. Make sure your DOS disk is in Drive A, and that the system prompt (A›) is visible on the screen.

b. Open the door to Drive B, insert the new blank data disk, and close the door.

c. Type the following in either uppercase, lowercase, or a combination of both: **format b:** Type it exactly as shown. If you make a mistake, use the backspace key to back up and erase. Now press the enter key.

d. You will see a message on the screen that tells you to "Insert new diskette for drive B"— you have already done this—"and strike Enter when ready." Go ahead and press the Enter key. The message "formatting. . ." will appear for several seconds, and you will hear clicking sounds from the disk drive; the red light will go on, then off.

e. When the red light goes off, you will see the message "format complete" and some other information, ending with the question, "Format another (Y/N)?" If you wish to format another disk, type Y or Yes and exchange the present data disk for another one. If you do not wish to continue formatting, type N for No. Remove the formatted disk from the drive and close the door.

3. Identifying Labels and File Names. The manufacturers of disks usually provide an adhesive-backed paper label, known as an **identifying label**, which you may write on and