Effective Lotus 1-2-3

Release 2.4

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Preface

COMPUTERS AS TOOLS

Not so long ago, the use of a computer to solve a problem was big news. Today, however, computers impact so many aspects of our daily activities, we sometimes hardly notice their benefits. This is not to say that the world of computing is no longer interesting; hardly! The pace of innovation and potential applications make the study of computers more exciting than ever. The goal of this text is to share that excitement with students by showing them the far-reaching effects of computers and technology, and the applications that computers have to their own lives.

THE TOOLS FOR UNDERSTANDING SOFTWARE

Students are motivated by success. By introducing ideas in manageable doses, this text allows students to succeed with each topic, building confidence to move to the next. In addition, we have created the following learning system to help students effectively use software applications.

- *Relevant applications.* Personal and business applications such as letters, personal budgets, and address databases help students see real-life uses for every application.
- *Unique tutorial style.* Each application is arranged in a unique tutorial style that provides an overview, breaks the concept down into a step-by-step procedure, and then rebuilds the concept to aid student comprehension.
- *More than just keystrokes.* The "how to" and "why to" of keystrokes are covered in the text to help students learn more than just what buttons to push. Knowing how the software works enables students to move to other software packages and new releases with ease.
- *User-created data.* The results from each exercise are saved and used in the following sections, eliminating the need for a data disk. Students also learn better using their own data.
- *Screen captures.* Extensive use of actual screen captures from the software package enables students to follow the program and always know exactly where they are in it.
- *Applications reinforce concepts.* Concepts introduced are demonstrated and reinforced in each applications module with exercises and questions that take students beyond command summaries.
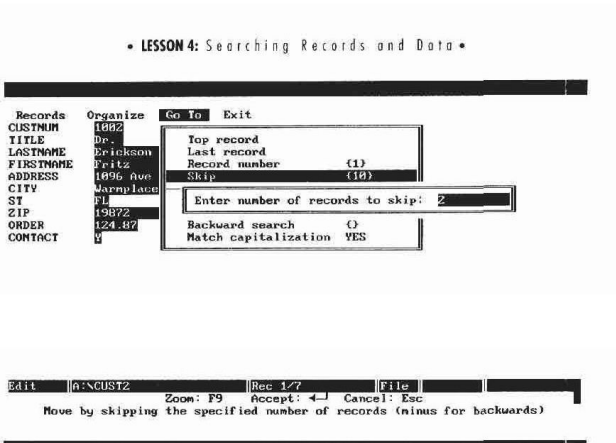
Relevant applications seen
in a screen capture • • • • • ▶

```
Records    Organize  Go To  Exit
CUSTNUM    1002
TITLE      Dr.          Top record
LASTNAME   Erickson     Last record
FIRSTNAME  Fritz        Record number     {1}
ADDRESS    1096 Ave     Skip              {10}
CITY       Warmplace
ST         FL        ┌─────────────────────────────────────┐
ZIP        19872     │ Enter number of records to skip:  2 │
ORDER      124.87    └─────────────────────────────────────┘
CONTACT    Y            Backward search   {}
                        Match capitalization  YES
```

```
Edit      A:\CUST2            Rec 1/7              File
              Zoom: F9    Accept: ←┘   Cancel: Esc
        Move by skipping the specified number of records (minus for backwards)
```

Figure 4-3

Applications reinforce concepts • • • • • ▶

11. Select **Skip** again and leave the number of records to skip set to 2, and press *Enter*.
   Note that record 5 appears.
12. Return to the top record on the edit screen, then return to the Control Center.

SEARCHING DATA

All searches utilizing the Go To Menu require knowledge of the exact location of a record. They are useful tools for finding specific records, but they cannot search for specific information within a record. For example, the **Record number** option can find a specific record only by the record number, and not by the contents of the record. Because of this limitation, there are other, more powerful searching techniques. Searching for specific data within a field is one of these techniques.

Searching for specific data within a field begins by either moving the cursor on the edit screen or the highlight on the browse screen to the desired search field. For example, to search for a record that contains a specific last name, first move the cursor to the LASTNAME field. Once the cursor or highlight is in the desired field, the next step is to select either **Forward search** or **Backward search** in the Go To Menu. As these names imply, the **Forward search** searches down the database for a match. Backward search searches up the database. Whenever **Forward search** or **Backward search** is selected, dBASE IV requests the specifications of the search with **Enter search string:**. The search string is the exact set of characters for which dBASE IV will look in every record.

When searching, dBASE IV stops at the matching record. To search for additional matches use the Find Next key (Shift-F4). That is, to search for

Exercise 4-1

With any of the databases available on the learn disk, practice using **Top record, Last record, Record number,** and **Skip.** Is it possible to locate a record efficiently for a specific individual? Why or why not?

Forward searches and backward searches begin at the current record. Only matches at the current record and down the database will be found with the **Forward search** option. The reverse is true for the **Backward search** option. These search options do not search an entire database unless the current record is 1 in a forward search and the last record in a backward search.

Easy-to-understand language • ▲

possible. Also, you can move to the top record or the last record with few keystrokes, as well as set the number of records to be skipped when moving through the edit or browse screens.

Using the Go To Menu for searches requires exact knowledge of the database. Finding a record based on the contents of the record requires other searching strategies in the Go To Menu. Forward or backward field searches with the Go To Menu do not require specific knowledge of the data in the database. You can search for a name, a city, a date, or any other field in the database. Wildcards, such as ? or *, are powerful search tools because they can help locate large amounts of information. Unfortunately, with large databases, forward and backward searches can be very slow.

Index searches are much faster than forward or backward searches. Index searches require an index file; you might have to create an index file before you use the **Index key search** option in the Go To Menu. Wildcards cannot be used with this option; however, they may not be necessary.

On some occasions you may need to display only certain types of information or only certain records. Certain types of data can be filtered out of the database, and only records having specific characteristics need be displayed. Delimiters specify which type of data to display by the Queries panel of the Control Center. After a query is created, it acts like a separate data file. Data files and query files cannot be open at the same time.

Relational operators create filters to provide for a range of matches in an index search. Relational operators include greater than, less than, Like, Sounds Like, equal to, and others. These relational operators can generate powerful search tools.

AND and OR queries are also available in dBASE IV. On occasion, a desired record may have to meet two or more criteria. For example, you might wish to find a customer who purchased a specific type of item before a certain date. Using AND in the query can locate these individuals very rapidly. OR logic also displays all information matching two or more fields. With AND logic, both filter definitions must be met. With OR logic, only one of the filter definitions need be met.

A query can be sorted or indexed to display its records in an ordered fashion. Sorting a query is like sorting a data file; it permanently changes the query file and takes a relatively long time. Indexing, on the other hand, is relatively quick and effectively organizes the data.

KEY TERMS/COMMANDS

AND	**Index key search**	search
Backward search	**Last record**	**Skip**
delimiter	**Match capitalization**	**Sort on this field** ◀ • • • • • • • • • Effective pedagogy
File Skeleton	**Modify query**	**Top record**
filter condition	OR Queries	View Skeleton
Forward search	**Record Number**	wildcards
Include indexes	Relational operators	

DOS 5.0
Command Version

Table of Contents

Getting Started

OBJECTIVES

After completing this lesson, you will be able to successfully

- Describe the role of an operating system.
- Describe the purpose of DOS.
- Explain why there are different DOS versions.
- Activate DOS.
- Control and use the DOS prompt.
- Describe the DOS command structure.
- List the files on a disk.
- Use parameters.
- Identify different file types.
- Use wildcards when listing files.
- Do a warm boot.
- Use the DATE and TIME commands.
- Use the Version command.

WHAT IS AN OPERATING SYSTEM?

A computer must have instructions to operate. For example, it needs instructions on how to interpret the keys on the keyboard, how to display information on a monitor, and how to save information on a disk. These, along with many other types of instructions, make up an operating system.

An **operating system** is a program that controls the flow of information in a computer system. Much of this control is over the manner in which information moves between the disk drives and the computer. The operating system controls the saving of information on a disk and the retrieval of that information.

However, operating systems control more than disk drives. Operating systems provide the working control needed to perform most tasks in a computer system. The operating system controls how the computer passes information to a printer or other output device. It controls the manner in which the computer receives information from scanners, modems, and other input devices. It also interprets the meaning of information typed on a keyboard. In short, the operating system controls the computer.

As an integral part of the total operation of a computer, the operating system affects how application software can use computer hardware. In fact, most application software issues commands through the operating system.

Because the operating system plays such an important role in a computer, understanding the basics of the operating system is important.

WHAT IS DOS?

The term *DOS* means *disk operating system.* DOS is a generic term identifying many operating systems for microcomputers. However, the term DOS is not completely accurate. Although DOS resides on a disk, an operating system does more than control the flow of information to and from disk drives.

Specific uses of DOS are associated with specific types of operating systems. That is, some operating systems perform certain tasks better than other operating systems. Many microcomputers can use several varieties of operating systems. Within the IBM and IBM-compatible family of computers, operating systems such as **UNIX**™**, XENIX**™**, OS/2**™**, PC-DOS**™**,** and **MS-DOS**™ are available. Of these operating systems, PC-DOS and MS-DOS remain the most common and most widely used.

When IBM first introduced the IBM PC in 1981, Microsoft Corporation developed and sold to IBM an operating system. This operating system was known as PC-DOS, or Personal Computer–DOS. Microsoft Corporation also developed its own version of PC-DOS and called it MS-DOS, for Microsoft-DOS. Because the same corporation initially developed the two operating systems, PC-DOS and MS-DOS for all practical purposes function the same way. PC-DOS is available for all IBM microcomputers, and MS-DOS is available for all IBM-compatible microcomputers.

Because PC-DOS and MS-DOS are so closely related, the term DOS has become synonymous with both the PC-DOS operating system and the

MS-DOS operating system. However, MS-DOS is universal, whereas PC-DOS is predominantly available for only IBM brand computers. Therefore, MS-DOS is the focus of this module, and all commands, concepts, and topics presented here have to do with MS-DOS. Because both MS-DOS and PC-DOS are functionally equivalent, however, the concepts in this MS-DOS module will suffice for PC-DOS users.

UNDERSTANDING DOS VERSIONS

Since its inception in 1981, DOS has undergone several revisions, evolving in much the same way as any microcomputer software and hardware. In fact, most of the evolution of DOS is the direct result of advances in hardware. For example, when new disk drive sizes became available, new versions of DOS were developed to support them.

To help users keep track of the evolution of DOS, each release has a version number. The first release in 1981 was DOS 1.0. Shortly thereafter, DOS 1.1 was released to fix a few bugs, or problems, in version 1.0 and expand the capability of the operating system. The first number in the version name indicates a major revision, and the number after the decimal point indicates a minor revision.

This module focuses on DOS version 5.0. Although many of the procedures for controlling DOS 5.0 may work on previous versions, there can be differences. Some differences may be minor, such as how a listing of files appears. Other differences may be more significant, such as the commands for formatting different types of disks.

Programs written for use with one version of DOS operate with later versions of DOS. For example, software written to work with DOS 2.1 also works on versions 3.0, 3.1, 4.0, 4.1, and 5.0. Applications written for more recent versions of DOS may not work on previous versions of DOS. For example, software written for DOS 5.0 may not work on version 1.1. Therefore, one important consideration when selecting and using applications software is to determine the version of DOS necessary to run the software. For example, if a word processor requires DOS 3.3 or higher, it does not operate on computers using a lower version of DOS.

LOADING DOS

Three necessary files on the DOS disk are COMMAND.COM, IBMDOS.COM, and IBMDIO.COM for PC-DOS and COMMAND.COM, MSDOS.SYS, and IO.SYS for MS-DOS. However, only one, COMMAND.COM, appears on the DOS disk—the other two are hidden. In most cases, if COMMAND.COM is available, the two hidden files are available.

Like all software, DOS must be loaded into the computer. Because DOS controls the operation of the computer, it must be loaded whenever you turn the computer on. For most systems three DOS files must be present and available on a disk in the computer before you turn on the power. For PC-DOS the three files are **COMMAND.COM, IBMDOS.COM,** and **IBMDIO.COM.** For MS-DOS, the three files are **COMMAND.COM, MSDOS.SYS,** and **IO.SYS.**

Because these three files must be present when you turn on your computer, the DOS disk containing them must be available before you turn on the computer. In some cases the DOS disk is a floppy (called a **DOS system disk**) inserted into a disk drive. In other cases the three DOS files reside on a hard disk. The location of these files will be discussed in more detail later. For now, just be aware that DOS is loaded when you turn on the computer.

Most computers with a hard disk have the three DOS files stored on the hard disk. DOS is automatically activated when the computer is turned on.

A discussion of how to accomplish this activation is presented later in the module.

The configuration of every IBM and IBM-compatible computer includes at least one floppy disk. For keeping track of the various disk drives, they are labeled consecutively with letters. The first floppy disk drive is the A: drive; the second is the B: drive. Usually, the A: drive is the top or right drive. The B: drive is the bottom or left drive. To start a computer and load DOS, insert the DOS disk in drive **A:** and then turn on the computer. Questions about date and time will follow, followed by the DOS copyright screen.

Today, most IBM and IBM-compatible computers use a hard disk to keep DOS and software applications directly accessible. This module assumes that DOS 5.0 with all related DOS files resides on the hard disk.

Activity

1. To load DOS 5.0 from the hard disk when turning on the computer, make sure that no disk is in any of the floppy disk drives and then turn on the computer.

   Note that the first message asks for the current date (Figure 1-1). Information about the computer system might also be displayed before the current date. The computer information is provided by the manufacturer of the computer, not DOS. If such a message is present, ignore it for now.

2. To accept the provided date, press *Enter* (Figure 1-1). Even if the date is not correct, press *Enter*. A later section discusses how to enter a date.

3. The next message is the time of day (Figure 1-1).

4. Press *Enter* to accept the time. A later section discusses how to enter the current time. After you press *Enter*, a message showing the version of DOS, copyright information, and a **C>** prompt appears on the screen. This shows that DOS has been successfully loaded and is ready for operation.

UNDERSTANDING THE DOS PROMPT AND COMMAND STRUCTURE

When you load DOS, the most important information is the **DOS prompt**. The DOS prompt indicates that DOS is ready and waiting for a command. DOS is command driven; that is, control of DOS is issued through a sequence of

```
Current date is Wed 02-29-1992
Enter new date (mm-dd-yy):
Current time is 10:31:08.59p
Enter new time:

Microsoft(R) MS-DOS(R) Version 5.00
          (C)Copyright Microsoft Corp 1981-1991.

C>
```

Figure 1-1

specific commands. These commands are programs that cause the computer to perform specific tasks. Commands or programs in DOS must be issued at the DOS prompt.

The DOS prompt normally consist of two characters: a letter and a sign. The combined letter and sign signify which drive is active. For example, C> indicates that the C: drive is active. All commands or program names issued at the C> prompt cause DOS to search the C: drive. In some cases, the drive letter may be followed by a colon, as in C:. In this case the colon merely indicates to DOS that the letter refers to a disk drive. If the command or program name specified next to the C> prompt is on the C: drive, the computer executes the command or program. If the command or program is not on the disk drive indicated in the DOS prompt, the computer will not execute the command or program. For example, if a program called FORMAT is on a disk in the C: drive, typing *FORMAT* next to **C:** and pressing *Enter* activates the Format command. However, if FORMAT is on a disk in the B: drive, the computer cannot execute the command C:FORMAT.

It is easy to change the active drive by entering a new drive letter at the DOS prompt. For example, if a computer has two floppy disk drives, to change the DOS prompt to activate the second floppy disk drive (B:), type the desired drive letter (*B*) followed by a colon and then press *Enter*. After you press *Enter*, the DOS prompt changes to the new disk drive.

There is one problem with changing drives. Normally, you can activate a drive only if there is a disk in it. Typing *B:* without a disk in drive B: produces the following message:

```
Not ready reading drive B
Abort, Retry, Ignore
```

If the message **Invalid drive specification** appears, the selected letter does not match a drive letter. For example, with many computer systems typing *K:* does not change the DOS prompt. No K: drive is available and the message **Invalid drive specification** appears. When this message appears, first check the location of the command (that is, in which directory it resides), then change the DOS prompt, and then type the executable command.

If this message appears, insert a disk in drive B: and press *R* for the Retry command. A more detailed discussion of this message is presented later.

DOS is command driven. Therefore, learning to use DOS consists of learning to use and issue specific commands. Two types of commands are available in DOS. Commands of the first type, known as **internal commands**, are part of the COMMAND.COM file. Because COMMAND.COM is loaded into the computer each time the computer is turned on, such commands reside in memory while the computer is on. Therefore it does not matter which drive is active when you issue such commands; in other words, any internal command can be issued from any drive. For example, you can execute the internal Clear Screen command (**CLS**) by typing *CLS* next to any DOS prompt.

Commands of the second type, known as **external commands,** are programs residing on the DOS disk. They are external because they are not loaded into memory with COMMAND.COM; rather, each desired external command must be loaded into memory separately.

DOS commands and applications programs, such as word processors, spreadsheets, databases, and games are executed by the same basic procedures. The command to execute a program is typed at the DOS prompt. Furthermore, the drive letter in the DOS prompt indicates the location of the command. Knowing these two rules is all that is required to execute any program or command under the DOS operating system.

Begin the process of loading and executing an external command by typing the command name at the DOS prompt and pressing *Enter*. When you press *Enter*, DOS searches the active disk for the command. If DOS finds the command, DOS loads it into memory and executes it. If the command is not found, it is not executed.

```
C>
C>
C>
C>
C>
```

Figure 1-2

```
C>
C>
C>
C>
C>CLS
```

Figure 1-3

Activity

1. Make sure that DOS is loaded and that the **C>** prompt appears.

2. Press *Enter* four times (Figure 1-2). Pressing *Enter* without typing a command merely causes the DOS prompt to reappear.

3. Type *CLS* (Figure 1-3).
   Note that the command appears next to the DOS prompt.

4. Press *Enter* (Figure 1-4).
   Note that *CLS* clears the screen.

5. Type *K:* and press *Enter* (Figure 1-5).
   The message **Invalid drive specification** indicates that the computer does not have a K: drive. (If **K** returns, a K: drive is connected to the computer.)

DOS does not differentiate between uppercase and lowercase characters. Commands may be typed in either upper or lower case; the results will be the same.

```
C>
```

Figure 1-4

```
C>K:
Invalid drive specification

C>
```

Figure 1-5

```
C>K:
Invalid drive specification

C>A:

A>
```

Figure 1-6

```
C>K:
Invalid drive specification

C>A:

A>C:

C>
```

Figure 1-7

6. Insert a disk provided by your instructor in drive A: type *A:*, and press *Enter* (Figure 1-6).

The DOS prompt changes to indicate that drive A: is active.

7. Change the DOS prompt back to **C>** by typing *C:* (Figure 1-7).

8. Type *CHKDSK* and press *Enter* (Figure 1-8).

The Check Disk command is external. Note that the disk drive spins, indicating that the command is being loaded into memory before program execution.

9. Type *CLS* to clear the screen.

```
C>CHKDSK

Volume ROOT        created 11-13-1991 11:18p
Volume Serial Number is 176B-8118
Errors found, F parameter not specified
Corrections will not be written to disk

    413 lost allocation units found in 9 chains.
    845824 bytes disk space would be freed

 34566144 bytes total disk space
    77824 bytes in 4 hidden files
    65536 bytes in 16 directories
 22192128 bytes in 775 user files
 11384832 bytes available on disk

     2048 bytes in each allocation unit
    16878 total allocation units on disk
     5559 available allocation units on disk

   655360 total bytes memory
   511152 bytes free

C>
```

Figure 1-8

UNDERSTANDING FILENAMES

Working with files is one of the major functions of DOS. Information is stored on a disk as files. In fact, every external command and program used by DOS resides on a disk as a file.

The easiest way to think of disks and files is to think of a file cabinet and paper files. A file cabinet is a location for storing paper files in an organized fashion. A disk is like a file cabinet. A disk is a location for storing computer files in an organized fashion.

For information to be organized on a disk, every file must have a name. DOS names for files consist of two parts, the **filename** and an **extension**. For example, FORMAT.COM is a file on the DOS disk. *FORMAT* is the filename, and *.COM* is the extension.

To keep information organized, certain rules hold for filenames and extensions. Filenames may contain from one to eight characters; that is, they may have any number of characters from one to eight but no more than eight. In addition, only certain characters may be used. Letters, numerals, and the special characters listed in Table 1-1 may be used in a filename.

In addition, DOS reserves some filenames for internal applications. These names are listed in Table 1-2.

Extensions play an important role in naming files. Filename **extensions** allow an additional three characters to be included after the period following the filename. The same characters acceptable in filenames are acceptable in extensions. In DOS the extension identifies the type of file. Two basic types of files are used in DOS: data files and program files. **Program files** contain executable instructions. **Data files** contain information used by program files. Different types of programs and data files have different types of extensions. Table 1-3 lists some of the common extensions used for program files.

Files with the extensions **.EXE**, **.COM**, and **.BAT** are executable files, as are some files with the **.SYS** extension. Executable files are those that the user can execute by typing the filename at the DOS prompt and pressing *Enter*. There is no need to include the extension. Filenames with other extensions are not executable. Typing a nonexecutable filename at the DOS prompt returns the message **Bad filename**.

Letters	All
Numbers	All
Special characters	´ˆ{ % } $ _ # - @) ! (˜ &

Table 1-1
Acceptable Filename Characters

AUX	CLOCK$	COMI	COM2
COM3	COM4	CON	LPTI
LPT2	LPT3	NUL	PRN

Table 1-2
Reserved Filelnames