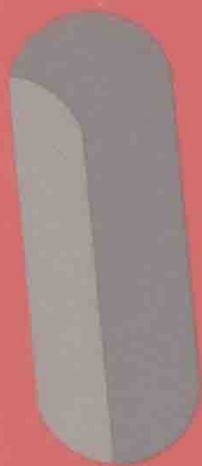
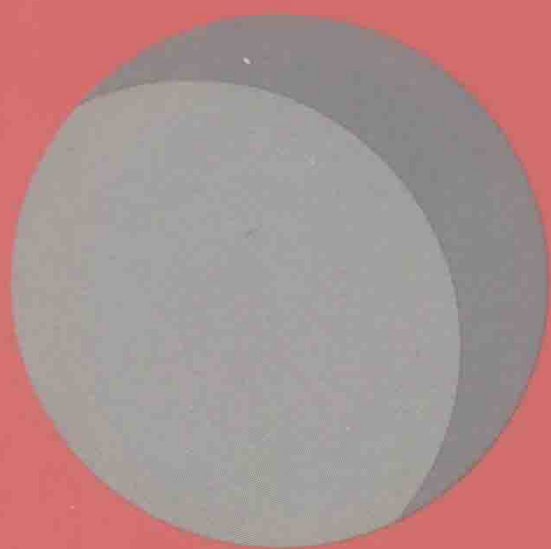


# Cases and Applications in Lotus® 1-2-3®

Releases 2, 2.2, and 3



Third Edition



Jack A. Holt

LOTUS® 1-2-3

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# **CASES AND APPLICATIONS IN LOTUS<sup>®</sup> 1-2-3<sup>®</sup>**

*(Releases 2, 2.2 and 3)*

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McIntire School of Commerce  
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***Third Edition***

***IRWIN***

Homewood, Illinois 60430

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# Preface

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1-2-3® is an exciting integrated software package from Lotus Development Corporation. It combines a large, advanced electronic worksheet with state-of-the-art graphics and database management capacity. Thus it brings together in one program what was previously split into several. Now you need to learn only one program.

When the Lotus program, Release 1A was first introduced in 1983, it revolutionized microcomputing by replacing the dominant spreadsheet at that time, VisiCalc. A later version of 1-2-3, Release 2.01 introduced in 1986, included all the features of Release 1A but a greatly expanded list of functions and macro commands. In 1989 the Lotus Development Company responded to the growing needs of users by introducing Releases 2.2 and 3 and remains the leader in spreadsheet software.

Release 2.2 provides new features while retaining the familiar menu structure and ease of use of the previous 1-2-3 releases. The hardware requirements are the same as those for Release 2.01, that is (1) an IBM, Compaq, AT&T or certified compatible personal computer with a minimum of 320 kilobytes of memory, (2) two double-sided, double density disk drives or a hard drive and one double-sided, double density disk drive, (3) a monitor, and (4) a keyboard. The primary improvements of Release 2.2 over Release 2.01 are:

1. Minimal recalculation and the undo feature.
2. Enhancement of printed reports using the Allways spreadsheet publishing add-in. To use Allways, you must have a hard disk and at least one double-sided, double density diskette drive.
3. New file features, including file linking.
4. New graph features, including improved graph appearance and one-step selection of graph data ranges, data labels, and legends.
5. New macro features, including a learn feature to simplify the building of macro applications.

Release 3 hardware requirements are virtually the same as those for running OS/2. At a minimum you need a 80286 microprocessor, DOS V3.0 or higher, and a minimum of one megabyte of memory. The major enhancements of Release 3 over Releases 2.01 and 2.2 include:

1. The capability to have up to 256 worksheets in one file and multiple files in memory at one time.

2. Enhancements to 1-2-3's database capability, including the capability to access external databases.
3. Enhancements that improve the quality of printed reports and graphics.

Although the basics of 1-2-3 are easy to learn, the program's fine points can take months to learn. Many users confine their use of 1-2-3 to simple spreadsheet applications and thus miss out on its many advanced features, such as macros and sensitivity analysis using database functions.

The only way to learn 1-2-3 is to use it. The main feature of this book is the many exercises and cases in Appendixes A through C. The exercises become increasingly complex, gradually incorporating all the major commands and advanced features. This provides a structures approach of "learning by doing." The book speeds the learning process considerably by presenting:

- A condensed explanation of 1-2-3 commands with examples.
- The complete command structure of Lotus 1-2-3.
- Five tutorials, integrated in the text, to introduce the student to the electronic worksheet, graphics, and database management.
- A series of exercises to allow the student to practice while studying the text. These exercises utilize all of the major features, commands and functions, including macros.
- Comprehensive cases which integrate the commands previously learned.
- A Helpful Hints section that includes techniques and special applications not found in other Lotus manuals.
- An explanation of the add-in program Allways.
- A section on Release 3 enhancements.

The student should complete the tutorials, exercises, and cases while reading the appropriate sections of the text. This "hands-on" approach can shorten the learning period considerably. Upon satisfactory completion of all the exercises and cases, the student can be confident that he or she has mastered the commands of 1-2-3 from Lotus.

**Jack A. Holt**

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# Acknowledgments

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I would like to thank the many individuals who have contributed to this text. First, my thanks to Dean Shenkir and Dean Kehoe for their support. I would like to acknowledge the contributions of my colleagues in the Management Information Systems area for their valuable guidance in the preparation of the material. Andy Ruppel offered many valuable suggestions for improving this edition as well as contributing three new exercises. He also was helpful in planning the systematic organization of the material. Don Burkhard and Randy Smith, who conduct computer seminars with me, offered many suggestions that are incorporated into the book.

I would like to express my deep appreciation to the staff of Richard D. Irwin, Inc. for the professional manner in which they prepared the textbook. Larry Alexander, Senior Editor, has been extremely helpful during my entire association with this publisher. Working with him is a real pleasure.

I am especially grateful to these reviewers for their many helpful suggestions: Richard J. Bamberry, Brevard Community College; William Burrows, University of Washington; Joseph H. Daniel, Jr., Widener University; Larry Easter, Clark College; Roger Hayen, Central Michigan University; Darlene R. Lanier, Louisiana State University. My deep appreciation is again expressed to those reviewers who aided in the development of the earlier editions: Mark Wayne Cabot College; A. S. Thilippakis, Arizona State University; Emil Milacek, Governors State University; and Patricia Duckworth, Metropolitan State College.

I gratefully acknowledge the contributions of the following people to the development of material used in the text and cases: Don Burkhard—Spreadsheet Design and Controls section; Randy Smith and Liz Lockerman—The Collegiate Bookstore Case; Chris Danzi—DeLirium Motor Parts case; Elizabeth Oliver—Yellow Brick Road Day-care case; Andy Ruppel—Exercises 32 to 34; and Garth Stevens—Exercises 22 and 23. My thanks to James Chandler, Publisher, The Scientific Press, for his permission to use the following cases from Chuck Bonini's *Computer Models* book; Potlatch Forest Products, Ruff Ruff Dogfood Company, and Siwash University. My thanks also go to my loyal secretary, Cam Garrad, for all of her help.

Finally, I dedicate this book to my wife, Jane.

J.A.H.



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# Introduction

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This textbook is designed for any course in information systems, business, accounting, or related fields that involve learning to use 1-2-3 from Lotus as a problem-solving tool. It will work equally well with students who have little or no exposure to 1-2-3 as well as those who have learned the fundamentals but wish to learn how to use the many advanced features.

The book provides a concise but comprehensive explanation of the 1-2-3 features, commands, and functions. However, its unique features are (1) the exercises and cases found in Appendix A through C, (2) a complete description of the Allways Add-In for Release 2.2 found in Appendix D, (3) the Release 3 enhancements in Appendix E, and (4) the complete Lotus 1-2-3 command structure, including a brief explanation of each command, presented in hierarchical form placed in the appropriate text section. The exercises provide a structured approach for learning 1-2-3. The cases offer an opportunity to solve real-world problems using the skills developed while solving the exercises.

Five tutorials are provided in the last chapter of the text starting on page 157—one on using the electronic worksheet, two demonstrating the use of data tables, one on creating and viewing graphs of data of worksheet data, and one showing 1-2-3's data management capabilities.

The exercises and cases in Appendixes A through C are designed to enable the student to develop skills in applying the concepts learned in the book. The first three exercises in Appendix A introduce the three basic features of 1-2-3: use of the electronic worksheet, creation of graphs, and database management. The next eighteen exercises test the student's ability in the advanced features of 1-2-3. These exercises range from simple to complex and include the repeated use of all of 1-2-3's important functions and commands, such as statistical functions, database functions, date arithmetic, data tables using database functions, and keyboard macros. Appendix B provides eight comprehensive cases. Appendix C contains a series of miscellaneous exercises in accounting, inventory control, and simulation. Upon completion of the exercises and cases, it will be up to the user's imagination and logic to make the maximum usage of the Lotus program in specific situations.

A diskette, supplied with the instructor's manual, contains the templates for all the exercises and cases. A copy of this diskette should be available in the computer lab. Use of the templates allows the

students to spend their time productively solving the exercises rather than making routine entries in the worksheet.

The section Spreadsheet Design and Controls was written by my colleague in the MIS Department, Don Burkhard. This section provides valuable information on such topics as spreadsheet layout, documentation, adoption of standards and conventions, and disk organization.

The beginner should first read the text, using the tutorials to gain experience in executing the 1-2-3 commands. The student should refer to the 1-2-3 command structure constantly while working the tutorials to become familiar with how the commands are set up and observe the output of each command. Finally, the student should complete the exercises in Appendix A in sequence, referring to appropriate sections of the text for assistance. Those with some previous Lotus experience might want to skip the tutorials and move directly to the exercises. Upon completion of the exercises and cases, a review of Helpful Hints section and the 1-2-3 command structure is recommended.



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# Getting Started

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Blank disks must be prepared, or *formatted*, before they can be used to store information. You should format only blank disks or disks that contain files that you do not want. You need format a diskette only once; if you format a diskette containing data, you will lose that information.

If you are using a two-drive system, you should format a blank disk for each 1-2-3 program disk plus one working disk to hold your work when you use 1-2-3 or any other program. For Release 2 or 2.01 program disks, you should format five new disks. If you are using 5 1/4" Release 2.2 program disks you should format eight new 5 1/4" disks. If you are using 3 1/2" Release 2.2 program disks, you should format four new 3 1/2" disks. If you have a hard-disk system, you only need to format one working disk for storing your work. To format these disks, follow the instructions below:

1. Place the DOS disk in drive A and close the door. Turn the computer on. Enter the date (if necessary) in the form MM-DD-YY and press the [Enter] key. Next enter the time (if necessary) in the form HH:MM and press the [Enter] key.
2. Type **format b:** and press the [Enter] key. Your screen should instruct you to insert a new diskette and press any key to continue. Place a blank diskette in drive B and press [Enter]. The formatting usually takes about 30 seconds. When the process is completed, the message "Format another (Y/N)?" appears. Strike the letter **y** and follow instructions until all the disks have been formatted. After the last has been formatted, strike the letter **n** and you will be returned to the A prompt.

## RELEASE 2 AND 2.01

Six diskettes are supplied with the Lotus 1-2-3 Release 2 and 2.01 system:

1. System Disk.
2. PrintGraph Disk.
3. Utility Disk.
4. Install Library Disk.
5. A View of 1-2-3.
6. Backup System Disk.

The System Disk is the primary disk, containing everything one needs to prepare electronic spreadsheets, create graphs, and manipulate data collections. The PrintGraph Disk is a separate program that lets you print graphs that you create with the 1-2-3 program. The Utility Disk contains the Install program, which lets you specify your type of equipment so you can print or display graphs. You need run the Install program only once, unless you get new equipment. The Utility Disk also contains the Translate program, which you can use to transfer data between 1-2-3 and other programs. The Install Library Disk contains a library of programs, called *drivers*, that lets 1-2-3 run your equipment. A View of 1-2-3 contains an on-line overview of many of 1-2-3's most commonly used features and prepares new users for the Tutorial. Finally, the Backup System Disk is a backup copy of the 1-2-3 System disk that you can use if you lose or damage the original.

## **Preparing the 1-2-3 Release 2 or 2.01 Program for Use**

### **A. Two-drive system**

Four of the five formatted disks will be used as backup diskettes for the Utility, Install Library, A View of 1-2-3, and the PrintGraph disks. Then the originals of these disks along with the 1-2-3 System backup disk, can be stored in a safe place. The fifth formatted disk will be your working diskette for storing information while running 1-2-3 (or any other program).

You must always use the original 1-2-3 System disk (or the supplied Backup System disk) in a two-floppy-drive system because it has a special code that you cannot copy on a backup disk. 1-2-3 looks for this code in drive A when you start the 1-2-3 program and will not enter the worksheet if it does not find it. To prepare the backup disks:

1. Place the Utility disk in drive A and one of the formatted diskettes in drive B. Type **copy \*.\* b:** and press the [Enter] key. After all the files on the Utility disk have been copied to the formatted disk, remove both disks and label the backup disk as "Utility Backup Disk" for identification.
2. Repeat step 3 for the Install Library, PrintGraph, and A View of 1-2-3 disks.
3. Place the DOS disk in drive A and the 1-2-3 System disk in drive B. Check to be sure the write-protect tape has been removed from both the 1-2-3 System and Backup System disks. Type **copy command.com b:**, press the [Enter] key, and remove the 1-2-3 System disk. Repeat this step for the Backup System disk, and the backup copies of the PrintGraph, Utility, and A View of 1-2-3 disks. You are now ready to start the Install program.
4. Place the backup Utility disk in drive A and close the door. Type **install** and press the [Enter] key. Simply follow the instructions on the screen, selecting "First-Time Installation" as the option. Use the default name 123.SET, when prompted, unless you plan to create more than one driver set. 1-2-3 automatically looks for this driver set when you start 1-2-3 or any of its companion programs.

When you are finished, replace the write-protect tape on the side of the 1-2-3 System and Backup System disks.

### **B. Hard-disk system**

These instructions assume that you have copied the DOS to the hard disk and that your hard disk is drive C. You should have the computer on and displaying the C prompt on the screen.

1. At the DOS prompt, type **md\123** and press the [Enter] key.
2. Type **cd\123** and press the [Enter] key to make 123 the current subdirectory.
3. Place the 1-2-3 System disk in drive A and close the door. Type **copy a:\*. \*** and strike the [Enter] key. The **\*. \*** instructs the computer to copy all the files on the disk in drive A to the 123 subdirectory. Replace the 1-2-3 System disk in drive A with the Utility disk and repeat the copy command. Copy all the files on the other disks (PrintGraph, Install Library, and A View of 1-2-3) using the same copy command.
4. Type **install** and strike the [Enter] key while you are still in the \123 subdirectory. The Install program provides an option that lets you start 1-2-3 without first inserting the System disk in an external drive. This option copies protected files from the system disk to your hard disk.

Follow the instructions on the screen to complete the installation process. Use the default name 123.SET, when prompted, unless you plan to create more than one driver set. 1-2-3 automatically looks for this driver set when you start 1-2-3 or any of its companion programs.

*Note:* If you have difficulty installing 1-2-3 on your hard disk while using the Install program, follow these instructions to copy the special code from the 1-2-3 System disk to the 123 subdirectory. Assuming you are still in the 123 subdirectory, type **copyhard** and strike the [Enter] key. Then simply follow the instructions displayed on the screen. The COPYHARD program allows you to copy the special code to a hard disk one time only. You can copy the special code back to your 1-2-3 System disk at a later time if you wish by typing **copyhard/u**.

## **Loading the 1-2-3 Release 2 or 2.01 Program Into Your Computer**

### **A. Two-drive system**

1. Place the DOS disk in drive A and close the door. Turn the computer on.
2. Enter the date and time if necessary and the A prompt will appear on the screen.
3. Replace the DOS disk in drive A with the 1-2-3 System disk. Type **123** to go directly into the 1-2-3 worksheet. Place your working formatted disk in drive B to store information from the 1-2-3 program. (*Note:* If you wish to enter the 1-2-3 program by way of the Access system, type **lotus** at the DOS prompt and strike the [Enter] key. When the Access menu appears, strike the [Enter] key again.)



4. When you start 1-2-3 for the first time, the program assigns drive A as the default start-up directory. You must change this to drive B for a two-drive system. Use the 1-2-3 command **/wgdd**, strike the [Esc] key to erase the A:\ from the screen, type **b:\**, and strike the [Enter] key. Next type the letter **u** to update the default setting and type **q** to return to the Ready mode.

### **B. Hard-disk system**

1. Assuming you have the C prompt showing on the screen, type **cd\123** to change the current directory to \123.
2. Type **123** to go directly into the 1-2-3 worksheet.
3. Use the command **/wgdd** to see what the default directory for storing your information is. If you wish to store the information on the c:\123 subdirectory, strike the [Esc] key to erase the current directory, type **c:\123** and hit the [Enter] key, then type **u** to update the default setting and **q** to return to the Ready mode.

## **RELEASE 2.2**

Your 1-2-3 Release 2.2 package should contain one of the following sets of disks, depending on the type of disks your computer uses: 5 1/4" or 3 1/2":

### **5 1/4" Disks**

1. System Disk
2. Help Disk
3. PrintGraph Disk
4. Translate Disk
5. Install Disk
6. Install Library Disk
7. Sample Files Disk
8. Allways Setup Disk
9. Allways Disks (4 disks)

### **3 1/2" Disks**

1. System, Help, and PrintGraph Disk
2. Translate and Sample Files Disk
3. Install and Install Library Disk
4. Allways Setup Disk
5. Allways Disks (2 disks)

The System Disk is the primary disk, containing everything one needs to prepare electronic spreadsheets, create graphs, and manipulate data collections. The Help Disk contains the 1-2-3 on-line Help system. The PrintGraph Disk is a separate program that lets you print graphs that you create with the 1-2-3 program. The Translate Disk also contains the Translate program, which you can use to transfer data between 1-2-3 and other programs. The Install Disk contains the Install program, which lets you specify your type of equipment so you can print or display graphs. You need run the Install program only once, unless you get new equipment. The Install Library Disk



contains a library of programs, called *drivers*, that lets 1-2-3 run your equipment. The Sample Files Disk contains a number of worksheet files that are designed to be used with the *Tutorial*, *Quick Start*, and *Sample Applications* books. The Allways Disk contains the programs you use to install the Allways spreadsheet publishing add-in on your computer system. The four Allways Disks contain font files, which tell Allways how to print characters in different styles on your printer and display them on your monitor. These disks are labeled Allways Disk 2 to Allways Disk 5. *Note:* You cannot use the Allways spreadsheet publishing program unless you have a hard-disk drive with at least 512K of conventional memory.

Before you can use 1-2-3, you must run the Initialization program. This program records your name and company's name on your system disk, identifying you as the licensee of record. You need to complete this procedure only once.

1. Make sure your computer is turned on and the operating system prompt is displayed.
2. Insert the System Disk in drive A and close the door. Make sure the System Disk is not write-protected. If you have a 5 1/4" System Disk, the notch on the right side of the disk should not be covered. If you have a 3 1/2" System Disk, the small moveable square of plastic in one corner of the disk should cover the hole.
3. At the DOS prompt, type **a:** and strike the [Enter]
4. Type **init** and press [Enter].
5. Follow the instructions on the screen to complete the initialization process and then remove the System Disk from the diskette drive.

## Preparing 1-2-3 Release 2.2 Program for Use

### A. Two-drive system

The formatted disks should be used to make backup copies of Release 2.2 program disks so you can use them when you work with 1-2-3, saving the originals in a safe place. Then if anything happens to one of the backup disks you are using, you can make another copy from the originals.

Follow the instructions in this section to make a backup of each of the original disks—except the Allways disks.

1. Place the DOS disk in drive A and close the door. Turn the computer on. Enter the date (if necessary) in the form MM-DD-YY and press the [Enter] key. Next enter the time (if necessary) in the form HH:MM and press the [Enter] key.
2. Type **format b:** and press the [Enter] key. Your screen should instruct you to insert a new diskette and press any key to continue. Place a blank diskette in drive B and press [Enter]. The formatting usually takes about 30 seconds. When the process is completed, the message "Format another (Y/N)?" appears. Strike the letter **y** and follow instructions until all the required disks have been formatted. After the required number of disks have been formatted, strike the letter **n** and you will be returned to the A prompt.

3. Place each of the program disks (excluding the Allways disks) in drive A, one at a time, and one of the formatted diskettes in drive B. Type **copy \*.\* b:** and press the [Enter] key. After each of the disks have been copied, remove both disks and label the backup disk with the appropriate name.
4. Remove the DOS disk and replace it with the Install disk in drive A. Type **install** and press [Enter]. Simply follow the instructions on the screen, selecting "First-Time Installation" as the option. Use the default name 123.SET, when prompted, unless you plan to create more than one driver set. 1-2-3 automatically looks for this driver set when you start 1-2-3 or any of its companion programs.

### **B. Hard-disk system**

These instructions assume that you have copied the DOS to the hard disk and that your hard disk is drive C. You should have the computer on and displaying the C prompt on the screen.

1. At the DOS prompt, type **md\123** and press the [Enter] key.
2. Type **cd\123** and press the [Enter] key to make 123 the current subdirectory.
3. Place the 1-2-3 System disk in drive A and close the door. Type **copy a:.\*** and strike the [Enter] key. The \*.\* instructs the computer to copy all the files on the disk in drive A to the 123 subdirectory. Replace the 1-2-3 System disk in drive A with each of the remaining program disks, excluding the Allways disks, and repeat the copy command.
4. Type **install** and strike the [Enter] key while you are still in the \123 subdirectory. Follow the instructions on the screen to complete the installation process. Use the default name 123.SET, when prompted, unless you plan to create more than one driver set. 1-2-3 automatically looks for this driver set when you start 1-2-3 or any of its companion programs.

Next you should load the Allways spreadsheet publishing add into the computer. You can only use Allways if you have a hard-disk system with at least 512K of conventional memory. To load Allways:

1. Insert the Allways Setup Disk in drive A and close the door.
2. At the DOS prompt, type **a:** and press [Enter] to make A drive the current drive.
3. Type **awsetup** and press [Enter].
4. Select First-Time Installation and follow the instructions on the screen.

## **Loading the 1-2-3 Release 2.2 Program Into Your Computer**

### **A. Two-drive system**

1. Place the DOS disk in drive A and close the door. Turn the computer on.
2. Enter the date and time if necessary and the A prompt will appear on the screen.
3. Replace the DOS disk in drive A with the 1-2-3 System disk. Type **123** to go directly into the 1-2-3 worksheet. Place your

working formatted disk in drive B to store information from the 1-2-3 program. (*Note:* If you wish to enter the 1-2-3 program by way of the Access system, type **lotus** at the DOS prompt and strike the [Enter] key. When the Access menu appears, strike the [Enter] key again.)

4. When you start 1-2-3 for the first time, the program assigns drive A as the default start-up directory. You must change this to drive B for a two-drive system. Use the 1-2-3 command **/wgdd**, strike the [Esc] key to erase the A:\ from the screen, type **b:\**, and strike the [Enter] key. Next type the letter **u** to update the default setting and type **q** to return to the Ready mode.

### **B. Hard-disk system**

1. Assuming you have the C prompt showing on the screen, type **cd\123** to change the current directory to \123.
2. Type **123** to go directly into the 1-2-3 worksheet.
3. Use the command **/wgdd** to see what the default directory for storing your information is. If you wish to store the information on the c:/123 subdirectory, strike the [Esc] key to erase the current directory, type **c:/123** and hit the [Enter] key, then type **u** to update the default setting and **q** to return to the Ready mode.