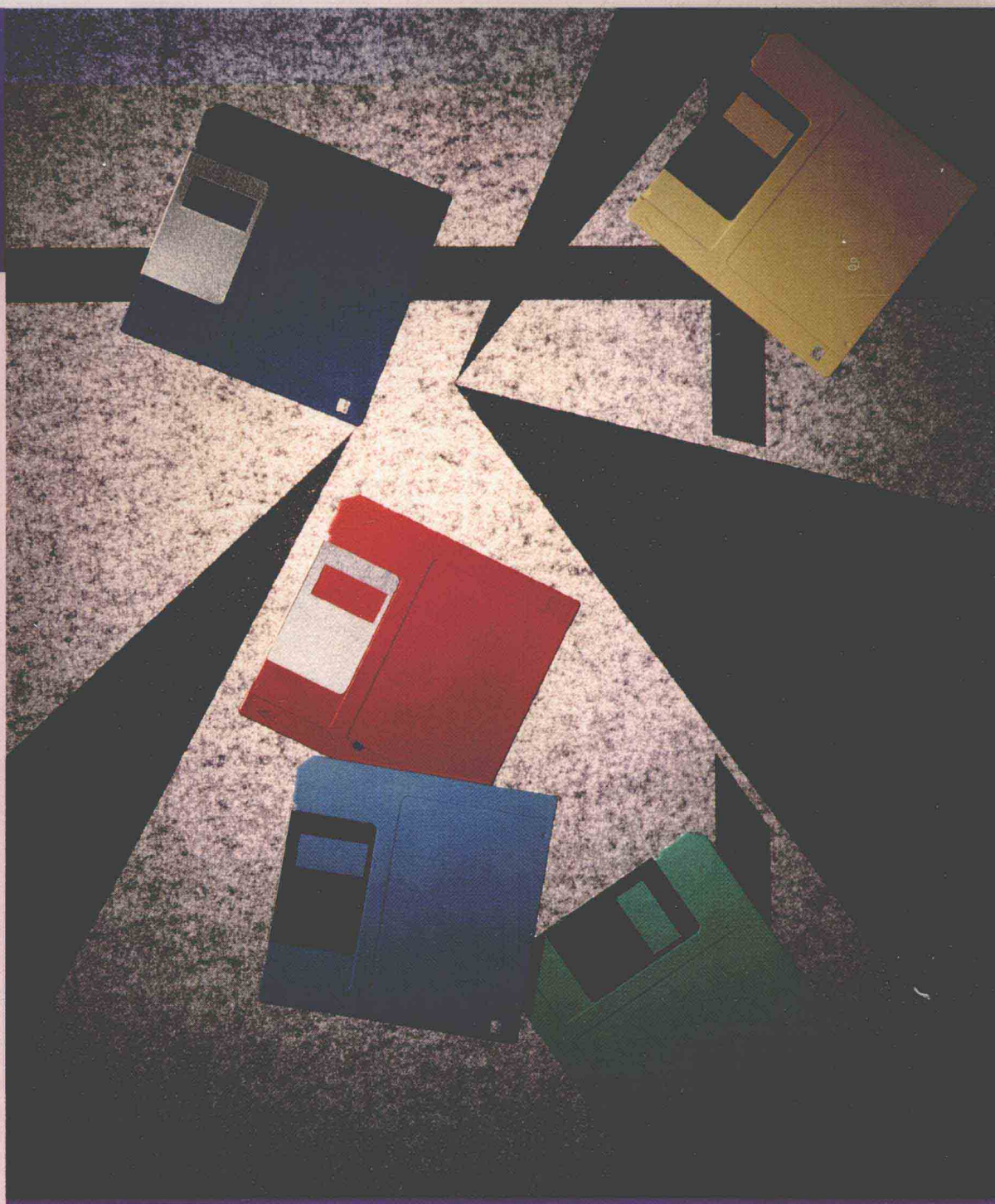


**IRWIN**  
ADVANTAGE  
SERIES FOR  
COMPUTER  
EDUCATION

**HUTCHINSON**  
**SAWYER**  
**COULTHARD**



# Lotus<sup>®</sup> 1 - 2 - 3<sup>®</sup>

*version 2.2*

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# **LOTUS<sup>®</sup> 1-2-3<sup>®</sup>**

## **VERSION 2.2**

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**Sarah E. Hutchinson  
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Glen J. Coulthard**

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**THE IRWIN ADVANTAGE SERIES  
FOR COMPUTER EDUCATION**



**IRWIN**

**HOMewood, IL 60430  
BOSTON, MA 02116**

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## USING THIS GUIDE

This tutorial is one in a series of learning guides that lead you through the most popular microcomputer software programs available. Concepts, skills, and procedures are grouped into session topics and are presented in a logical and structured manner. Commands and procedures are introduced using hands-on examples, and you are encouraged to perform the steps along with the guide. Although you may turn directly to a later session, be aware that some sessions require, or at least assume, that you have completed the previous sessions. For maximum benefit, you should work through the short-answer and hands-on exercises appearing at the end of each session.

The exercises and examples in this guide use several standard conventions to indicate menu instructions, keystroke combinations, and command instructions.

### MENU INSTRUCTIONS

When you need to execute a command from the Menu bar—the row of menu choices across the top of the screen—the tutorial's instruction line separates menu options with a comma. When you need to choose an option from a menu, we will display the name of the option with an underlined letter. (In Lotus, the underlined letter will always be the first letter of the command option.) For example, the command for retrieving a file is shown as:

CHOOSE: File, Retrieve

This instruction tells you to press the F key to choose the File option and then press the R key to choose the Retrieve option. Keys separated by commas are not pressed at the same time. (Note: We describe an additional method for choosing commands in the Using Menu Mode section in Session 1.)

### KEYSTROKES AND KEYSTROKE COMBINATIONS

When you need to press two keys together, the tutorial's instruction line shows the keys joined with a plus sign (+). For example, to use the LEARN command in Lotus 1-2-3, hold down **Alt** and then press **F5**. The instruction for using the LEARN command is shown as:

PRESS: **Alt**+**F5**

## COMMAND INSTRUCTIONS

This guide indicates with a special typeface data that you are required to type in yourself. For example:

TYPE: George Washington

When you are required to enter unique information, such as the current date or your name, the instructions appear in italics. The following instruction directs you to type your name in place of the actual words: "your name."

TYPE: *your name*

Instructions that use general directions rather than a specific option or command name appear italicized in the regular typeface.

PRESS: *the cursor-movement keys to highlight the print range*

The Quick Reference sections may incorporate "syntax diagrams," which review standard command lines. Optional components of the command are placed in square brackets, similar to the following:

Syntax: DIR [drive:][path][p]/w]

This instruction shows that the disk drive designation, path, /p, and/w choices are all optional. In other words, you can execute this command by entering DIR and then pressing the Enter key.

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## SESSION 1

---

# LOTUS 1-2-3: FUNDAMENTALS

Be thankful for the electronic spreadsheet, one of the most commonly used tools in business! A few years ago, the spreadsheet was made out of paper and ink, was two feet across, and its 7,500 or so tiny spaces had to be filled in with tiny numbers by hand. Many a manager, accountant, or business planner consumed several weekends, cups of coffee, and resharpened pencils revising this paper instrument of torture. Today, the electronic version of the spreadsheet, such as Lotus, enables you to insert and change numbers with ease. This session shows you how to begin using this valuable tool.

### PREVIEW

*When you have completed this session, you will be able to:*

- Describe the different versions and parts of Lotus 1-2-3.
- Describe the procedures required to create a reliable spreadsheet.
- Load Lotus 1-2-3 and move the cursor.
- Describe how the keyboard is used in Lotus 1-2-3.
- Enter text, numbers, and formulas.
- Explain the procedure involved with correcting errors.
- Describe the UNDO command.
- Use Lotus 1-2-3's menu system and help facility.
- Work with spreadsheet ranges.
- Erase spreadsheet cells.
- Exit Lotus 1-2-3.

## SESSION OUTLINE

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Why Is This Session Important?  
Comparing Lotus Versions: 2.01 and 2.2  
Parts of Lotus 1-2-3 and Add-Ins  
Electronic Spreadsheet Development Procedures  
Loading Lotus 1-2-3  
Moving the Cursor  
How the Keyboard Is Used in Lotus 1-2-3  
Overview of Data Entry  
    Entering Numbers and Text  
    Entering Formulas  
Editing a Cell  
Using the UNDO Command (Version 2.2)  
Using Menu Mode  
Getting Help  
Working with Ranges  
Erasing a Range  
Erasing the Spreadsheet Area  
Exiting  
Summary  
    Command Summary  
Key Terms  
Exercises  
    Short Answer  
    Hands-On

---

## WHY IS THIS SESSION IMPORTANT?

This session leads you step-by-step through using one of the most popular spreadsheet applications available, Lotus 1-2-3. You'll concentrate initially on the fundamentals of spreadsheet design and construction and then explore the basic procedures, commands, and functions required to work effectively with the Lotus spreadsheet.

The electronic spreadsheet has been available for personal computers since the introduction of VisiCalc in 1978. Having sold over 400,000 copies, the VisiCalc program has been credited with driving the market for personal computers for several years after its introduction. With the arrival of Lotus 1-2-3 in 1983, the second generation of spreadsheet software was launched. Lotus expanded the perceived use of the electronic spreadsheet from a *visual calculator* (*VisiCalc*) to an all-around business tool, incorporating spreadsheet, graphing, and database capabilities into a single product.

For years, people used calculators and long scraps of paper to perform numerical calculations. However, the introduction of the electronic spreadsheet has almost rendered these tools obsolete for performing time-consuming, complicated calculations. Accountants, engineers, statisticians, and business people now use spreadsheet programs every day to analyze financial and statistical results.

An electronic spreadsheet is much more than a glorified calculator! Spreadsheets are often the primary tool used in financial decision-making, forecasting, and "what-if" analysis. Even though a spreadsheet can perform these multiple functions, the basics of creating a spreadsheet can be mastered quite quickly.

An electronic spreadsheet is similar to a manual worksheet, such as an accountant's pad. With a manual worksheet, items or accounts are usually listed in a row in the first column, and numbers are entered under column headings. An electronic spreadsheet is also comprised of rows and columns. The intersection of a row and column in an electronic spreadsheet is called a **cell**. When you construct a spreadsheet, you simply enter information into the individual cells.

One of the primary advantages of an electronic spreadsheet over a manual worksheet is the ability to perform "**what-if**" analysis. The term "what-if" refers to your ability to change information in the spreadsheet at any time and immediately see the effects of the change on other formulas or calculations. In other words, "*What if my sales were only 5,000 units? How would that affect my net income?*" or "*What if the interest rate was 8.5%? How would that affect my mortgage payment?*" Once the data has been entered into the spreadsheet, formulas can be created to sum a column of numbers, to calculate percentages, or to perform any number of calculations. These formulas often refer to locations, or **addresses**, of **cells** in a worksheet, as opposed to referring to the numbers

themselves. When the data in a spreadsheet is changed, formulas are automatically recalculated.

Some additional advantages of electronic spreadsheets over manual worksheets include:

1. *Electronic spreadsheets can be larger than manual ones.*

While a manual worksheet is limited to the size of the paper, an electronic spreadsheet is typically 256 columns by more than 8,000 rows. This expansive area allows you to keep related information together and to produce reports that are larger than a normal piece of paper. The computer screen can be thought of as a window on this large sheet of paper. Even though the spreadsheet has over 4,000,000 cells, moving the screen around the spreadsheet is fast and easy.

2. *Electronic spreadsheets can perform mathematical calculations.*

A spreadsheet is used to calculate financial, statistical, and mathematical equations. A **formula** is a mathematical expression, such as  $200+350$ , that is entered into a cell on the spreadsheet to display a result. This result may then be used in other formulas or printed out in a report. Any application that requires a calculator, a pen or a pencil, and an eraser can be handled by an electronic spreadsheet.

3. *Cells in electronic spreadsheets can contain formulas.*

A spreadsheet cell may contain text, numbers, or formulas. A formula may consist solely of numbers or it may refer to other cells in the spreadsheet. Rather than containing the equation  $200+350$ , a formula can specify references to the cells that contain these numbers. As a result, a new calculation is computed by simply entering new values in the cells where the old values appeared. As soon as the new numbers are entered, the spreadsheet recalculates the formula. Furthermore, you can create a spreadsheet before you accumulate all your information. Once the data is received and placed into the appropriate cells, the formulas will automatically perform the calculations.

4. *In electronic spreadsheets, calculations are immediate.*

When you are working with a manual worksheet, changing a single number in a column can mean hours of extra work in recalculating totals, averages, and percentages by hand. Fortunately, an electronic spreadsheet allows you to create formulas using cell addresses rather than the actual numbers. Therefore, changing a number in a cell produces a ripple effect of recalculations for all formulas depending on that one cell.

5. *Electronic spreadsheets can be stored and retrieved.*

An electronic spreadsheet can be permanently saved on diskettes, hard disks, tape drives, and several other types of media for safe storage. Rather than having to search through endless filing cabinets for manual worksheets created months before, you can use your computer's electronic filing system to search for and retrieve files instantaneously. An electronic spreadsheet can be

retrieved, edited, updated, printed, and then saved under a new name quickly and easily.

---

## COMPARING LOTUS VERSIONS: 2.01 AND 2.2

The sessions in this guide can be used with versions 2.01 and 2.2 of Lotus 1-2-3. The command keystrokes are the same no matter which version you are using; however, version 2.2 includes some new capabilities:

- With version 2.2, cells in one spreadsheet file can be linked with cells in another spreadsheet file. A change in one spreadsheet is automatically reflected in the other spreadsheet. File-linking is described in Session 4.
- A few special enhancements make version 2.2 easier to use than version 2.01. For example, with version 2.2 you can simultaneously adjust the width of several columns.
- The quality of your printed reports and graphs is greatly improved with version 2.2 because of an add-in program called *Allways*, which is stored in RAM at the same time as Lotus 1-2-3. *Allways* provides a number of commands for "dressing up" your reports.
- Version 2.2 provides users with the capability to "undo" a change or a command that was issued by mistake. (The UNDO command is described in more detail later in this session.)
- Version 2.2 makes it much easier for users to create macros. (Macros are used to automate procedures and thus reduce the number of keystrokes needed to execute those procedures.) The steps for creating macros are described in Session 4.

The Lotus 1-2-3 screen looks almost the same in both versions. The screen images in this guide were generated using version 2.2.

*Before proceeding, make sure the following are true:*

1. You have access to version 2.01 or 2.2 of Lotus 1-2-3.
2. Your Advantage Diskette is inserted in the drive. You will save your work onto the diskette and retrieve the files that have been created for you. (Note: The Advantage Diskette can be made by copying all the files off the instructor's Master Advantage Diskette onto a formatted diskette.)

---

## PARTS OF LOTUS 1-2-3 AND ADD-INS

Lotus 1-2-3 provides users with four categories of capabilities:

1. *Spreadsheet.* Lotus's spreadsheet capabilities enable you to enter text and numbers and to then perform calculations—using formulas—on the data you have typed in. When a number is changed in the spreadsheet, the formulas automatically calculate the new results. Lotus's spreadsheet capabilities are described in Sessions 1–4.
2. *Database.* With Lotus's database capabilities, you can sort data into order and retrieve information from a base of data. Compared with other types of database programs, manipulating data with an electronic spreadsheet program is faster because the entire database is stored in RAM during processing. With other programs, portions of the database are stored on disk, which can slow processing down.
3. *Graphics.* Lotus's graphics capabilities enable you to present data in the form of business charts, including pie charts, bar charts, line charts, and XY charts. People often understand data more readily when it is presented in graphic form. Lotus's graphics capabilities are described in Session 5.
4. *Add-ins.* Allways enables you to output spreadsheets with presentation-quality characteristics—that is, more professional looking and easier to read than ordinary spreadsheets. In addition, Allways enables you to merge text and graphics on a single page. The Macro Library Manager add-in enables you to store the macros you create in a file that can be accessed from all your spreadsheets, which can ultimately save you time. Lotus's add-ins are described in more detail in Session 6.

---

## ELECTRONIC SPREADSHEET DEVELOPMENT PROCEDURES

Specific guidelines have evolved for developing electronic spreadsheets on the basis of the collective experience of the many people who have built them. *If you take shortcuts instead of following these procedures, you will develop spreadsheets that aren't reliable.* Recent studies done by several major universities found that 90% of all spreadsheets developed by nonprogramming professionals contained at least one error. And business decisions are being made on the basis of spreadsheets like these!

The steps for consistently developing a reliable spreadsheet are as follows:

1. *Establish your objectives.*  
Ask yourself why you are creating a spreadsheet. Is it to save time from lengthy calculations or to provide a regular template for a monthly report? By expressly stating your objectives, you gain a better understanding of the requirements of the spreadsheet. Remember, not everything needs to be computerized!
2. *Define the output requirements.*  
The layout or structure of a spreadsheet is largely determined by the types of reports required. Try to mock up the reports on paper before creating the spreadsheet. This helps determine the best layout for the spreadsheet.
3. *Construct the spreadsheet.*  
Having completed your needs assessment in steps 1 and 2, begin constructing the spreadsheet. The majority of spreadsheet users enter the "known" information first, whether text or numbers, and then proceed with creating formulas. This process allows you to see the results of a formula calculation immediately upon its entry.
4. *Test the spreadsheet.*  
Testing involves performing manual calculations on separate parts of the spreadsheet and then comparing those values with the spreadsheet's results. Do not take it for granted that the spreadsheet calculations are correct. As mentioned previously, a simple mistake in typing can cause a ripple effect of incorrect results across an entire spreadsheet.
5. *Use the spreadsheet.*  
A spreadsheet is often designed with unclear objectives, or the objectives may change after the spreadsheet is constructed. Therefore, the use and reuse of a spreadsheet is important in providing feedback for enhancements and modifications. A spreadsheet is a dynamic tool—it must be updated and maintained to remain relevant. However, before modifying a spreadsheet, make sure that you have made backup copies of the original.
6. *Document the spreadsheet.*  
A spreadsheet can become quite complex. Proper documentation is essential, especially when the spreadsheet is used by several different people. Documentation consists of on-screen and paper instructions specifying where and how information is to be entered and outlining the formulas used to perform calculations.