LOTUS 1-2-3

A CLASSROOM APPROACH WITH

PRACTICAL APPLICATIONS RELEASE 2.3

BONNIE HOLLOWAY

B&E TECH
Business and Educational Technologies
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A Times Mirror Company

Library of Congress Catalog Card Number: 93-73864

ISBN 0-697-23237-9

Printed in the United States of America by Wm. C. Brown Communications, Inc.,
2460 Kerper Boulevard, Dubuque, IA 52001

10 9 8 7 6 5 4 3 2 1

Please Read This Preface!

This Lotus 1-2-3® textbook differs from many others in three respects.

First, in each lesson, we choose one or more application problems and then explore those aspects of Lotus that are necessary to solve those problems. Thus, the student sees an immediate need for each Lotus concept that is presented. By carefully selecting applications, we gradually expose the student to the wide variety of Lotus commands and functions that are available. In this way, the student is not intimidated by a chapter purporting to explain 50 Lotus @Functions or all of the Range commands at one time.

Second, while an experienced software user can easily learn a new program independently, we at Lake-Sumter Community College believe that a new user learns most efficiently by experiencing a hands-on demonstration of new concepts followed by assignments requiring the student to practice what has been learned in the lab or at home. Therefore, these lessons are <u>not</u> meant to be used in a lab setting in which Lotus is essentially self-taught.

In addition, the student's progress must be monitored through graded homework assignments, quizzes, and in-class demonstrations of proficiency to be sure that the student's solutions are logically correct (instead of merely appearing to be correct on the screen or on a printout) and to assure that bad habits are not developed. This follow-up is not possible when students are self-taught.

Finally, since the goal of all instruction is to make the student an independent, self-confident learner, this text teaches the student constantly to read the menus (rather than to memorize keystrokes), to express complex solutions in English before entering them into Lotus, and to use Lotus help screens and reference materials as needed and with confidence.

When a student masters the concepts of a type of software in this fashion, skills and knowledge will be easily transferred to any other similar software. At the conclusion of these lessons, the student should not only be a competent Lotus user but should also be able to quickly learn to use any spreadsheet software.

TYPOGRAPHICAL CONVENTIONS

A bold capital letter is used to indicate a key that may be pressed to select a command. For example, **W**orksheet indicates that the Worksheet command may be selected by typing the letter W.

Often in Lotus, commands require the use of two keys. In this process, one key is pressed and held down while another key is tapped. This key sequence is indicated by separating the keys with a hyphen. For example, if you are to hold down the Alternate key and tap F4, the text will refer to ALT-F4.

To the Student

Congratulations on your decision to learn Lotus 1-2-3! Your background in spreadsheets will help you in other classes, and it will make you a more valuable employee.

If you will faithfully come to class, read these lessons, do your homework, ask questions when you have trouble, and practice, you will master a valuable skill by the end of this course. You should take full advantage of our computer lab facilities. In addition, tutorial software is available for Lotus 1-2-3. Your instructor will be able to tell you how to access the tutorial.

A student data disk accompanies this text. It contains files that you will need to complete some of the lessons and/or problem sets. If this disk is missing or damaged, consult with your instructor.

To the Teacher

A complete set of teaching supplements is available for this text. These supplements include sample lecture highlights, quizzes, and comprehensive in-class examinations.

Acknowledgements

No one can undertake a project of this magnitude individually and hope to be successful. To the degree that this is a successful project, thanks are due to my friends and colleagues here at Lake-Sumter Community College. In particular, thanks to Lynda Hartnig for her support. Thanks also to my colleagues and friends Bill Campman, Linda Card, Mary Hierholzer, Joanne Jacobson, Patricia Kincaid, Mary Jo Rager, Patricia Rausch, Donna Sarber, Brian Scarbeau, and Kathy Suttkus for their encouragement.

I also appreciate the generations of Lake-Sumter students who have helped in the classroom testing of the application problems. Special thanks to Terry Frasier for her careful proofreading.

Table of Contents

Lesson 1
Spreadsheet Fundamentals

Section 1.1: Objectives

After completing this lesson, you should be able to

1. Construct a simple spreadsheet like the one shown below.

File Name: Budget1
Prepared by: Type Your Name Here
Date Prepared: Type the Date Here

Paper Airplane Company Budget

Expense	Jan.	Feb.	Change	Change %	Est. March
Rent	$4,800.00	$4,800.00	$0.00	0.0%	$5,280.00
Wages	675.72	634.00	(41.72)	-6.2%	697.40
Electricity	145.50	163.39	17.89	12.3%	179.73
Telephone	710.15	756.23	46.08	6.5%	831.85
Repairs	253.81	197.04	(56.77)	-22.4%	216.74
Total	$6,585.18	$6,550.66	($34.52)	-9.8%	$7,205.73

2. Use the following Lotus function:

   @SUM(Cells to be Added)

3. Use the following Lotus commands:

   / Worksheet Erase Yes
   / Worksheet Insert
   / Worksheet Delete
   / Worksheet Global Format
   / Worksheet Column Set-Width
   / Range Format
   / Range Name Create
   / Range Labels
   / Copy
   / File Save
   / File Retrieve
   / Move

4. Define and use the following Lotus concepts and terms:

Absolute Key (or F4)	Help (or F1)
Automatic Recalculation	Home
Cell	Label
Control Panel	Label Prefix
Cursor (or Cell Pointer)	Menu
Database	Mode
Default	Mouse
Enter	Order of Operations
File Name Rules	Range
Format	Pointing
Formula	Print-Screen
Function (@FUNCTION)	Printout of Cell Formulas
Function Keys	Sticky Menu
Goto (or F5)	Value

Section 1.2: Introduction

Lotus 1-2-3 is a type of software program known as an electronic spreadsheet. It can work with any information which can be arranged in rows and columns. It can handle both text and numeric data, but it is better at manipulating numbers than words. Since its introduction about a decade ago, it has helped to revolutionize the way work is done in the business world.

Lotus is an integrated software package. This means that it can perform more than one type of task and that the various parts of the program can all work together. In fact, Lotus 1-2-3 is designed for three different types of applications. The first is the spreadsheet, which is more like an accountant's analysis pad than anything else. The second is the creation and manipulation of a database (a collection of information organized so that items can be looked up easily). The third is the display of information in graphical form.

THE SPREADSHEET

Spreadsheets are used by accountants and office workers in many business applications including creating budgets, performing calculations, preparing projections, and summarizing financial data. Individuals also frequently use spreadsheets for personal recordkeeping. The spreadsheet can also be used in scientific and statistical applications, but people who need to do this type of work frequently may find specialized software to be more helpful than Lotus.

When functioning as an electronic spreadsheet, Lotus will perform simple arithmetic computations like addition, subtraction, multiplication, division, raising

to a power, and so on. It can also handle more complicated functions (like trigonometric functions and statistical functions) with ease. In addition, the user can create his own formulas. This means that the potential applications of the spreadsheet are practically limitless.

Perhaps the most valuable feature to accountants and other heavy-duty number-crunchers is the automatic recalculation feature. This means that once a spreadsheet has been created, if a number in the spreadsheet is changed, all results that depended on that number are recalculated automatically. For example, suppose that a spreadsheet were created to calculate a budget for Hershey Chocolates. A key figure in this budget would be the number of cases of candy bars expected to be sold next year. If this number is changed after the budget has been completed, it would mean hours of work to update a manual budget. Lotus would recalculate the budget based on the revised information in seconds.

Although the recalculation would occur quickly, the initial creation of the worksheet may well require a substantial investment of time and effort. Because of this, the user should not attempt to use spreadsheets to solve every business problem. Spreadsheets are well suited to tasks that must be performed repetitively, so that the initial investment of time in creating and testing the spreadsheet can be recouped by time saved through its repeated use. If a problem only has to be solved once, it may not be worth the effort to create a fancy spreadsheet to do it.

Similarly, tasks that have already been solved in efficient manners should not necessarily be done on a spreadsheet just because the spreadsheet is available. For example, throughout this text we will construct several spreadsheets using payroll as an application. This is done because payroll can be used to illustrate important Lotus concepts and procedures. In practice, however, payroll is a wheel that has already been invented. In other words, many payroll programs have already been written and extensively tested. Unless your company's payroll has some unusual feature that is not addressed by commercially available payroll software, it would not be cost effective to spend hours and hours developing an elaborate payroll spreadsheet.

Once a problem has been solved, it would be inconvenient if the solution only appeared on the computer screen, so naturally, it is possible (and pretty easy) to print spreadsheets out on paper. One problem is that the spreadsheet may be too big to fit on a single page. In this case, Lotus will print it in pieces and you can tape it together. It may also be possible to print a long spreadsheet sideways on the page for a more pleasing appearance. We may also change fonts (i.e., type styles) by using printer commands or special Lotus add-in software.

Obviously, we also need to be able to store the spreadsheet in a form that the computer can understand. This is done by saving it on a hard disk or a floppy diskette. Then we can retrieve it and use it again as often as we wish.

THE DATABASE

A database is a collection of information to which you need to refer frequently. The most common example of a database is probably the telephone book. Your checkbook would be another example.

The most important feature of a database is that it must be systematically organized for easy access. Since Lotus is already set up in rows and columns, organizing the database is not difficult at all.

In order for a database to be useful, it must be possible to find any item or items that fit specified criteria, and it should also be possible to extract copies of such items from the larger database. Finally, it should also be possible to sort the data into any order desired (including putting it back into its original order).

Lotus, of course, can perform all of these tasks with surprisingly few keystrokes. While the Lotus database operations are suitable for simple applications, 1-2-3 is not a particularly powerful database program; there are limits to what it can do. Databases are discussed in Lesson 3.

GRAPHICAL DISPLAY OF DATA

It has often been said that one picture is worth a thousand words, and the designers of Lotus took this to heart. Lotus can display data in many graphical forms including line charts, bar charts, pie charts, exploded pie charts, stacked bar charts, and more. It is also possible to add appropriate legends and titles to make the information more useful and easier to interpret.

A nice feature of Lotus is that once a graph has been created, it is simple to store the directions that you gave the program to create it. These directions are given a name and the graph can be recreated at any time by simply referring to it by name. Graphs can also be printed on paper with either the PrintGraph program or the Wysiwyg add-in to Lotus. Graphs are discussed in Lesson 4.

Lotus does not have all of the graphics capabilities of some of the stand-alone graphics programs, but it can create interesting and helpful graphs very quickly that would be suitable for many uses.

OTHER CAPABILITIES OF LOTUS 1-2-3

Lotus can also perform some limited word-processing tasks. For example, it can be used to generate form letters and "personalized" reports. However, it does not have a number of features that a word processor would be expected to have, and its

usefulness in this area is limited. (Still, a jack-of-all-trades piece of software, like Lotus, cannot be expected to be master of all of them.)

In addition, through the use of the macro command language, Lotus can be programmed to simulate specific applications. For example, several commercially available accounting packages use Lotus to simulate a general ledger system complete with receivables, payables, and payroll. Macros can also be used to minimize the time involved in carrying out repetitive tasks.

There are also numerous add-in software programs that can be attached to Lotus to perform specific tasks, like managing macro libraries and dressing up the appearance of printed reports with different fonts and other special features.

RELEASES OF LOTUS 1-2-3

For several years, Release 2.01 of Lotus 1-2-3 was the standard in electronic spreadsheet software. The newest releases are Release 2.4 and Release 3.4. These new releases have many new features that make the software even more powerful and that involve the ability to use a graphical user interface (i.e., to use a mouse to manipulate the program). Release 2.3 (which is featured in this text) will run on older PCs, but Release 3.4 requires 80286 or 80386 computers with at least one megabyte, and preferably three megabytes, of memory. Eventually, most Lotus users will probably upgrade to one or the other of these new releases. Lotus 1-2-3 also comes in a version for Microsoft® Windows™.

In the text, we will sometimes refer to a feature that is found in all of the Releases of Lotus that begin with the number 2 (2.01, 2.2, 2.3, and 2.4) as being found in Release 2.x. Similarly, the releases beginning with the number 3 may be generically designated as Release 3.x. Lotus releases are always upwardly compatible, but not necessarily downwardly compatible. In other words, almost anything you do in Release 2.x will also work in Release 3.x, but Release 3.x contains commands and functions that are unavailable in Release 2.x. This may also be true within one series (e.g., a feature available in Release 2.3 may be unavailable in Release 2.2).

Fortunately, the upward compatibility means that all of your Lotus expertise can be immediately applied to the higher versions of the software. You will not have to start over from scratch when you begin to use one of the newer releases.

In addition, since all spreadsheet programs perform much the same tasks, once you master one spreadsheet, you are well on your way to being able to use any other spreadsheet program. It is simply a matter of learning how to carry out tasks in the new program; the concepts are the same.

A short introduction cannot tell you very much about a software program as powerful as Lotus 1-2-3, but this overview should help you get an idea of the topics that we will cover in this course.

Section 1.3: A Look at the Lotus 1-2-3 Screen

When you first enter Lotus 1-2-3, your screen will look like the illustration below. It reminds you of the paper that an accountant uses, full of rows and columns.

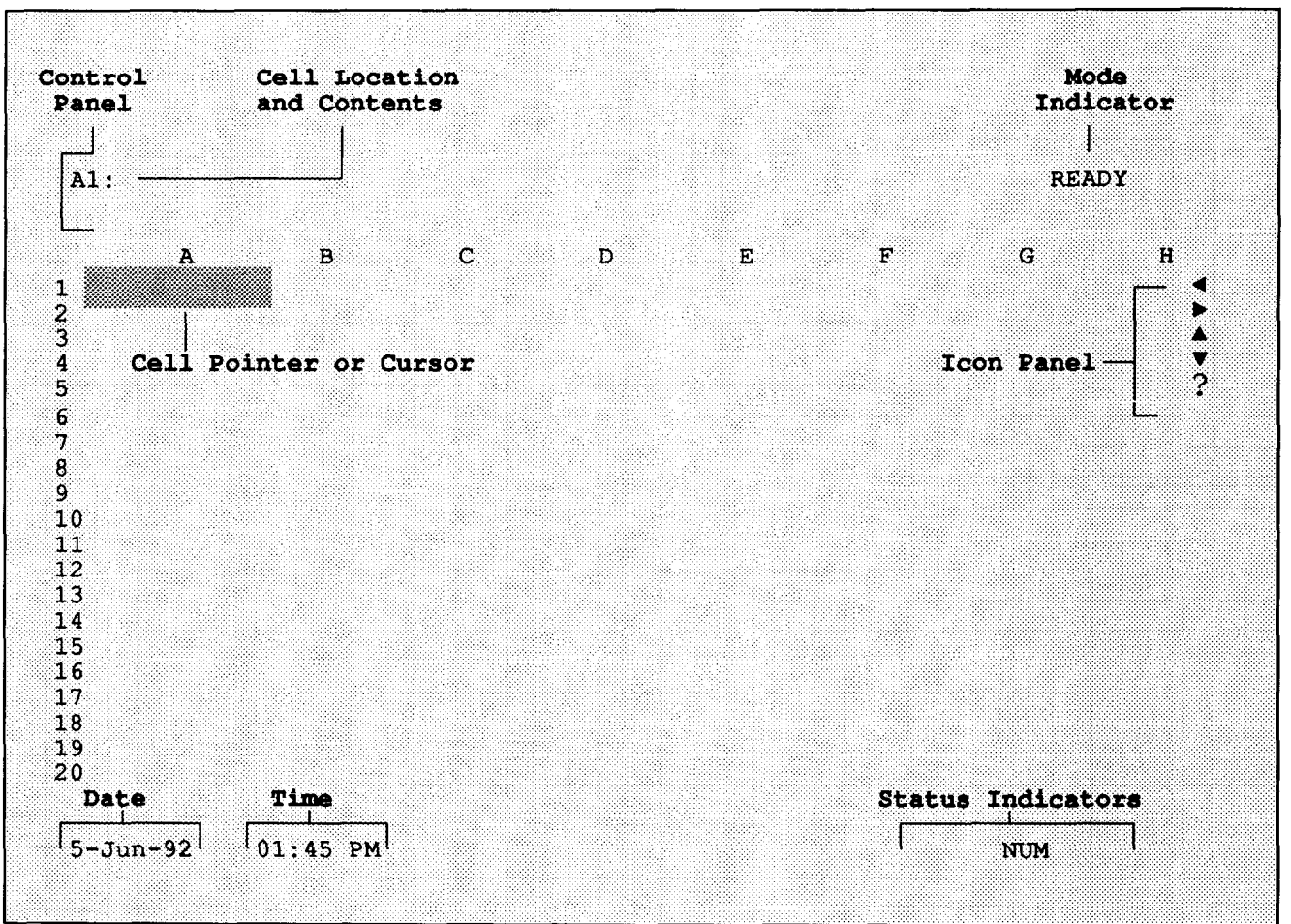

Figure 1.1

The screen provides you with quite a lot of information about the contents and the status of the spreadsheet.

CELLS

Each cell (or intersection of a row and column) can be located by specifying its address. This is done by listing the column first and then the row number; for example, A7 or B19.

CURSOR (OR CELL POINTER)

The cursor (or cell pointer) is a glowing box (a reverse video box or a box of a different color) on the screen that usually indicates where the characters that you type next will be inserted into the spreadsheet. It can also indicate the portion of a spreadsheet that is about to have something happen to it, or it can be used to make selections from Menus (see Section 1.6).

In Figure 1.1, the cursor is in cell A1. In Release 2.3 the column letter A and the row number 1 are highlighted in the borders (this was not true in earlier releases), and notice that A1: appears in the upper left-hand corner of the screen. At the moment, cell A1 is empty so nothing follows this A1: in the corner, but normally a cell's contents will be displayed here.

MODE INDICATOR

In the upper right-hand corner of the screen is the mode indicator. When you first enter a spreadsheet, the mode indicator notes that Lotus is READY to do something. At various times as you use Lotus, the mode indicator will change to indicate what is happening or what options are available at the moment, so it is wise to keep an eye on it.

When the mode indicator says POINT, you may use the arrow keys to highlight a range on the screen.

A list of mode indicators appears in Appendix A.

CONTROL PANEL

The two lines below the cell contents indicator and the mode indicator, but before the actual spreadsheet, are known as the control panel. When you type information into the spreadsheet, it appears first in the control panel. When you

are sure that it is correct, you enter it into the spreadsheet with the Enter key or with a mouse (see Section 1.4).

Lotus menu commands will also appear in the two lines of the control panel (see Section 1.6).

STATUS LINE

The bottom line of the screen is the status line. It reports the date and time in the left-hand corner of the screen. Lotus gets this information from the computer's operating system. Some users like to set up Lotus so that after a file has been saved to the disk, the status line will display the file name instead of the date and time.

The right side of the status line reports the status of the various toggle keys on the keyboard. (A toggle key is like a light switch. If you push it once, the feature is turned on; if you push it again, the feature is turned off.) For example, if the CapsLock key has been pushed, you will be typing in all capital letters, and the CAPS indicator will glow on the status line. Other indicators are available for the Number Lock key and the End key. A list of status indicators is found in Appendix B.

Releases 2.01 and 2.2 of Lotus will also use this space to indicate an error condition in the spreadsheet. Release 2.3 reports errors in a box in the center of the screen.

ICON PANEL

If you have a mouse (see Section 1.4) available to you, you will also see an icon panel on the right side of the screen. An icon is a pictorial representation of an option.

Clicking on one of the four triangular pointers will allow you to move the cursor around the screen. Clicking on the ? icon accesses the Lotus Help facility. Icons to change the computer disk drive, to change to another directory on a disk, and to list files may also appear in the control panel at appropriate times.