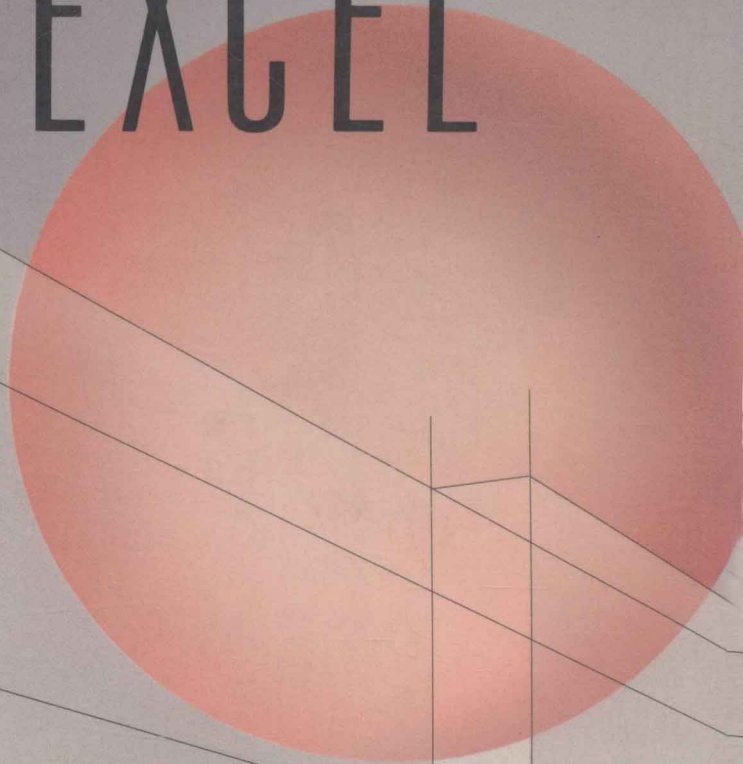


R U N N I N G

# MICROSOFT<sup>®</sup> EXCEL



The Cobb Group

Douglas Cobb

Judy Mynhier



**The Complete Reference to Microsoft<sup>®</sup> Excel on the IBM<sup>®</sup> PC, PS/2<sup>™</sup>, and Compatibles**

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R U N N I N G

MICROSOFT<sup>®</sup>  
EXCEL

*This book is dedicated to my son David.*

*Douglas Cobb*

## *Acknowledgments*

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# Preface

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Bigger, better, faster, stronger—those are the buzz words for every new generation of personal computing software. With the latest generation, two new terms can be added to the list: intuitive and easy to learn.

Microsoft Excel meets all these qualifications, and more. This program, which has already enjoyed tremendous success in the Apple Macintosh market, is the star performer of the exciting new generation of personal computing software. The program's intuitive graphical interface, made possible by Microsoft Windows, features pull-down menus, dialog boxes, and icons that make it easy, even for computer novices, to get up and running. Now you don't have to think like a computer to get the most out of your software.

Don't mistake ease of use with lack of depth, however. Microsoft Excel is a versatile and powerful program with a tremendous number of sophisticated features. The program's 131 built-in worksheet and 224 macro-sheet functions (not to mention the ability to create an unlimited number of user-defined functions) are just the beginning. You'll also discover sophisticated business graphics, an excellent macro facility, fantastic formatting capabilities, customization features, and presentation-quality output. These features, combined with the ability to run Microsoft Excel concurrently with other Windows applications such as Write and Paint, set a new standard for integrated business software on the PC.

So even though you'll find it easy to come up to speed on Microsoft Excel, you'll also find that you have a lot of exploration ahead of you as you delve into this trendsetting program. We hope this book helps you realize the full potential of Microsoft Excel.

## *What is Microsoft Excel?*

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Microsoft Excel is an integrated spreadsheet and graphics software package. It features three work environments—a spreadsheet (which can also be used to design databases), graphics, and macros—all bundled into one easy-to-use package. This combination of features makes Microsoft Excel a powerful tool that allows you to perform a variety of tasks for business, science, and engineering.

Although Microsoft Excel's business graphics and macro capabilities are very powerful, at heart Microsoft Excel is a spreadsheet program. As you'll discover in a few pages, the first thing you see when you load Microsoft Excel is a worksheet.

Microsoft Excel's worksheet offers many features and capabilities, such as user-defined formats, that are not available in any other spreadsheet program.

Microsoft Excel's worksheet is an electronic replacement for traditional planning tools: the pencil (and eraser), the accountant's ledger sheet, and the calculator. In fact, the electronic spreadsheet is to these tools what a word processor is to a typewriter. In addition, the Microsoft Excel worksheet can be used as a database manager. Now you can store basic information within easy reach, only a worksheet away.

Because Microsoft Excel holds your reports, analyses, and projections in your computer's memory, making changes to them is as easy as typing a few characters and pressing a key or two. In fact, one of the most important reasons for building a projection in Microsoft Excel or any other spreadsheet program is that you can play "what-if games, varying assumptions and measuring their effects on "the bottom line."

In addition to this powerful spreadsheet, Microsoft Excel offers the best business graphics available in an integrated program. Microsoft Excel's chart capabilities allow you to create six basic types of charts—area, bar, column, line, pie, and scatter—and even combine two of these types. The program also offers tools that you can use to add titles, legends, arrows, and other enhancements to your charts.

Finally, Microsoft Excel offers macro programming capability, which enables you to create "scripts" that automate routine or tedious tasks. Microsoft Excel's macros could even be used by more experienced users to write sophisticated application programs in the Microsoft Excel worksheet. Probably the most exciting aspect of Microsoft Excel's macros is that they enable you to create user-defined functions—your own personal supplements to Microsoft Excel's extensive library of built-in functions—as well as your own menus and dialog boxes. With these powerful customization features, the possibilities are almost limitless.

## *About this book*

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This book is a user's guide and tutorial for Microsoft Excel. It is designed to help you, the Microsoft Excel user, gain the deepest possible understanding of Microsoft Excel in the shortest time.

This book has six sections. The first section, which includes only Chapter 1, is an introduction to Microsoft Excel. In this chapter, we cover the basics of using Microsoft Excel, give you a tour of the Microsoft Excel screen, and show you how to save and open files.

The second section, which includes Chapters 2 through 9, covers the Microsoft Excel worksheet. This section begins by showing you how to make entries in the worksheet, and then covers such topics as formatting entries, using functions, and editing the worksheet.

The next section, which includes Chapters 10 through 13, covers Microsoft Excel's business-graphics capabilities. Chapter 10 walks you through the process



of creating and enhancing a simple chart. The next chapters show you how to add more data to your charts and then how to use each of Microsoft Excel's types of charts. The last part of this section shows you how to print charts.

The fourth section discusses Microsoft Excel's database capabilities. A brief discussion of the general principles of database management in Chapter 14 is followed by a discussion of sorting databases in Chapter 15, and by a detailed survey of how to create and use databases in Chapter 16.

The fifth section, which includes Chapters 17 through 20, explains macros. In this section, we tell you what macros are and how you can use them. We also explain each of Microsoft Excel's special macro functions. Then, in Chapter 19, we show you how to build user-defined functions. In Chapter 20, we show you how to customize your Microsoft Excel program with autoexec macros, user-defined dialog boxes and menus, and even screens.

Finally, Section Six is an appendix that covers the use of Microsoft Excel in conjunction with other programs. You can use Microsoft Excel with Windows to set up your own "integrated" software packages. Imagine being able to create a complicated chart from worksheet data, copy it, and paste it into a Microsoft Word or Write document in a matter of seconds. Microsoft Excel also has two-way file compatibility with Lotus 1-2-3. Methods for exchanging worksheets with these programs are presented.

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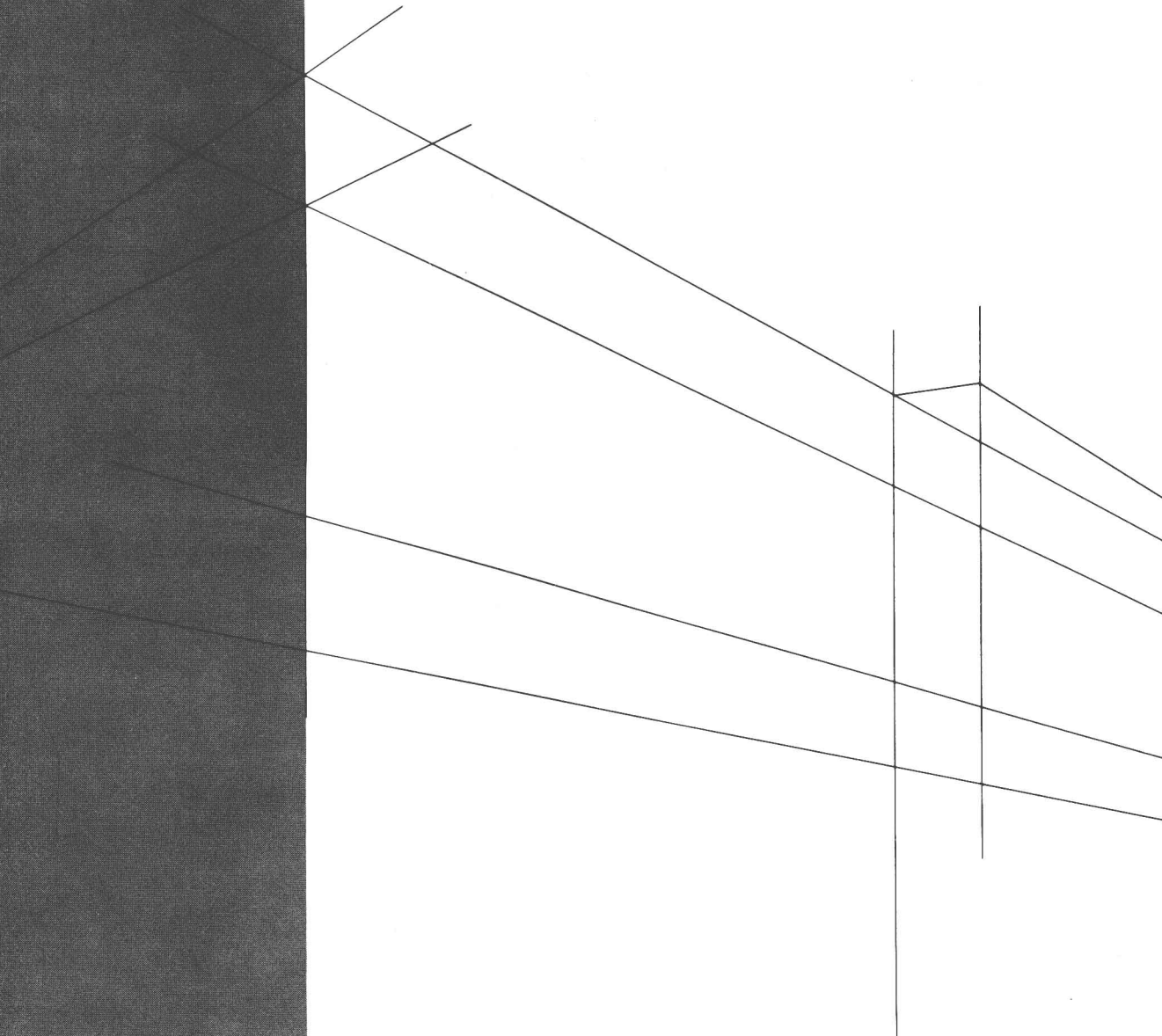
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T I O N O N E

# INTRODUCTION





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# 1

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## *Introducing Microsoft Excel*

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*I*n this chapter, we'll show you how to get started with Microsoft Excel. We'll describe the program's hardware requirements; then we'll briefly walk you through the installation process. Next, we'll show you how to load the program and give you a tour of the working environment. We'll also look at file management and briefly show you how to use the Help facility.

If you're a first-time Microsoft Excel user, we suggest that you read this chapter carefully before you move on. In the next few pages, we'll introduce key terms and concepts that are used throughout the book. Even if you've used the program before, we suggest that you scan the section entitled *A brief tour* before you proceed, to ensure that you're familiar with the terminology we'll be using.

### *Hardware requirements*

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Microsoft Excel is designed to run on an IBM PS/2, an IBM PC/AT, or an IBM PC/AT-compatible computer that uses the 80286 or 80386 microprocessor. Your system must have a minimum of 640 KB of memory, one 5<sup>1</sup>/<sub>4</sub>-inch or 3<sup>1</sup>/<sub>2</sub>-inch floppy-disk

drive, and a hard disk with at least 5 MB of free space. The system must operate under MS-DOS or PC-DOS version 3.0 or later.

Your computer must also have a graphics display adapter card. You can use the IBM VGA or EGA, the Hercules Graphics Card, or any other graphics card compatible with Microsoft Windows. (More on Microsoft Windows in a moment.)

### *Optional components*

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Several additional components may help speed your work in Microsoft Excel. All these components are optional—the choice depends on your personal requirements. Your hardware dealer can advise you which items are best suited to your needs.

#### *Printers and plotters*

If you plan to produce hard-copy output, you'll obviously need a printer. You have a number of printer choices, including the Hewlett-Packard LaserJet, the Apple LaserWriter (or any PostScript-compatible printer), the IBM ProPrinter or Graphics printer, the Epson FX 80, and a number of other printers compatible with Microsoft Windows version 2.0 or later.

You may also want to use a plotter to print high-quality color charts and graphs. Microsoft Excel supports the Hewlett-Packard 7470A plotter and compatibles and any other plotter compatible with Microsoft Windows version 2.0 or later.

#### *The mouse*

We recommend that you use a mouse with Microsoft Excel. As you'll see when we tour the working environment, Microsoft Excel uses a graphical interface, taking advantage of drop-down menus and icons to let you make selections quickly and easily. Although the mouse is in no way a required component—every function you perform with the mouse can also be performed from the keyboard—many operations can be carried out more efficiently with the mouse than with standard keyboard commands.

You can choose either a serial mouse or a bus mouse, depending primarily on which output ports you use for your printer, communications devices, and so forth. For example, if your computer's serial port is occupied by a printer, chances are you'll want to use a bus mouse.

Many mouse-driven applications require that you use a two-button mouse; Microsoft Excel requires only one button. If you do use a two-button mouse, the left button will initially be active. If you prefer to use the right button, you must run the Windows Control Panel program to make the change. (See your *Microsoft Windows Reference Guide* for more information on using the Control Panel program.)

### *Microsoft Windows*

The Microsoft Windows program, which features a sophisticated graphical interface, is an extension of the MS-DOS operating environment. Using Microsoft Windows, you can run two or more applications concurrently and switch between them in seconds. You can even transfer data from one program to another with the Clipboard facility and establish "live" links between documents created in different programs. Microsoft Windows also offers an MS-DOS Executive facility that gives you easy access to many common MS-DOS functions, such as copying and deleting files, creating directories, and formatting disks.

The Microsoft Excel software includes a system called RunTime Windows, which takes advantage of the Microsoft Windows graphical interface to provide those services required by Microsoft Excel. In order to run Microsoft Excel within the full Windows environment, however, you must use Microsoft Windows version 2.0 or later. The program does not operate under previous versions of Microsoft Windows. If your computer uses an Intel 80386 microprocessor, you can use Windows/386, which takes advantage of the special features of the 80386, including use of your computer's extra memory.

We'll talk more about Microsoft Windows in the Appendix, *Sharing Data with Other Programs*.

### *Networks*

You can install Microsoft Excel on a computer attached to a network so that two or more users can share data stored on a common network drive. Networking also allows two or more users to share printing resources.

You can choose from a variety of network packages, including the IBM PC Network, the IBM Token Ring Network, AT&T Starlan, and several other popular systems. Microsoft Excel supports any network compatible with Microsoft Windows version 2.0 or later. If you're part of a network, you may need a version of MS-DOS later than 3.0. Check with your dealer for details about your network system.

### *Expanded and extended memory*

As we mentioned before, you need a minimum of 640 KB of memory to run Microsoft Excel. Depending on your speed requirements, the size of your worksheet models, and your plans to run other applications concurrently, you may need additional memory.

Again, you have several options here. One option is to install an expanded memory card. If you have extended memory, you can take advantage of Microsoft Excel's built-in extended memory driver. In addition, if you have enough extra memory, you can use the Smartdrive utility included with Microsoft Excel to speed up operations. Detailed information on expanded and extended memory



and the Smartdrive utility can be found by running the Microsoft Excel Setup program and choosing the View the Special Information File option.

### *Math coprocessor*

A math coprocessor can help speed your work by enabling Microsoft Excel to perform mathematical calculations faster. Microsoft Excel supports the Intel 8087, 80287, and 80387 math coprocessors.

## *Installing Microsoft Excel*

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When you have all your hardware components in place, the next step is to install Microsoft Excel on your hard disk. Although that stack of floppy disks you received in your Microsoft Excel package may look a bit intimidating, the installation process is actually simple.

Before you begin the installation procedure, you must be prepared to answer a few questions. As it configures the program for your hardware, the Setup program will prompt you to define the type of PC, mouse, monitor, display adapter, and printer you're using.

To install Microsoft Excel, simply insert the Setup disk in drive A, type *setup* at the MS-DOS prompt, and press the Enter key. The Setup program will take it from there, prompting you for information about your computer system, telling you when to change disks, and copying the appropriate files from each of the floppy disks to your hard disk.

### *Installing Microsoft Excel under Microsoft Windows*

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When you run the Setup program, you'll be asked for the name of the directory in which you want to store your Microsoft Excel program files. If you plan to run the program within the Microsoft Windows environment, it's a good idea to place Microsoft Excel and Microsoft Windows in the same directory. Because the two programs share common files, this technique lets you run the program more efficiently. (It doesn't matter which program you install first.)

### *Loading Microsoft Excel*

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After you've installed Microsoft Excel on your computer, you're ready to load the program and get to work. First, use the CHDIR command, if necessary, to access the directory in which Microsoft Excel is stored. Then type *excel* at the MS-DOS prompt and press the Enter key. Alternatively, you can create an AUTOEXEC file