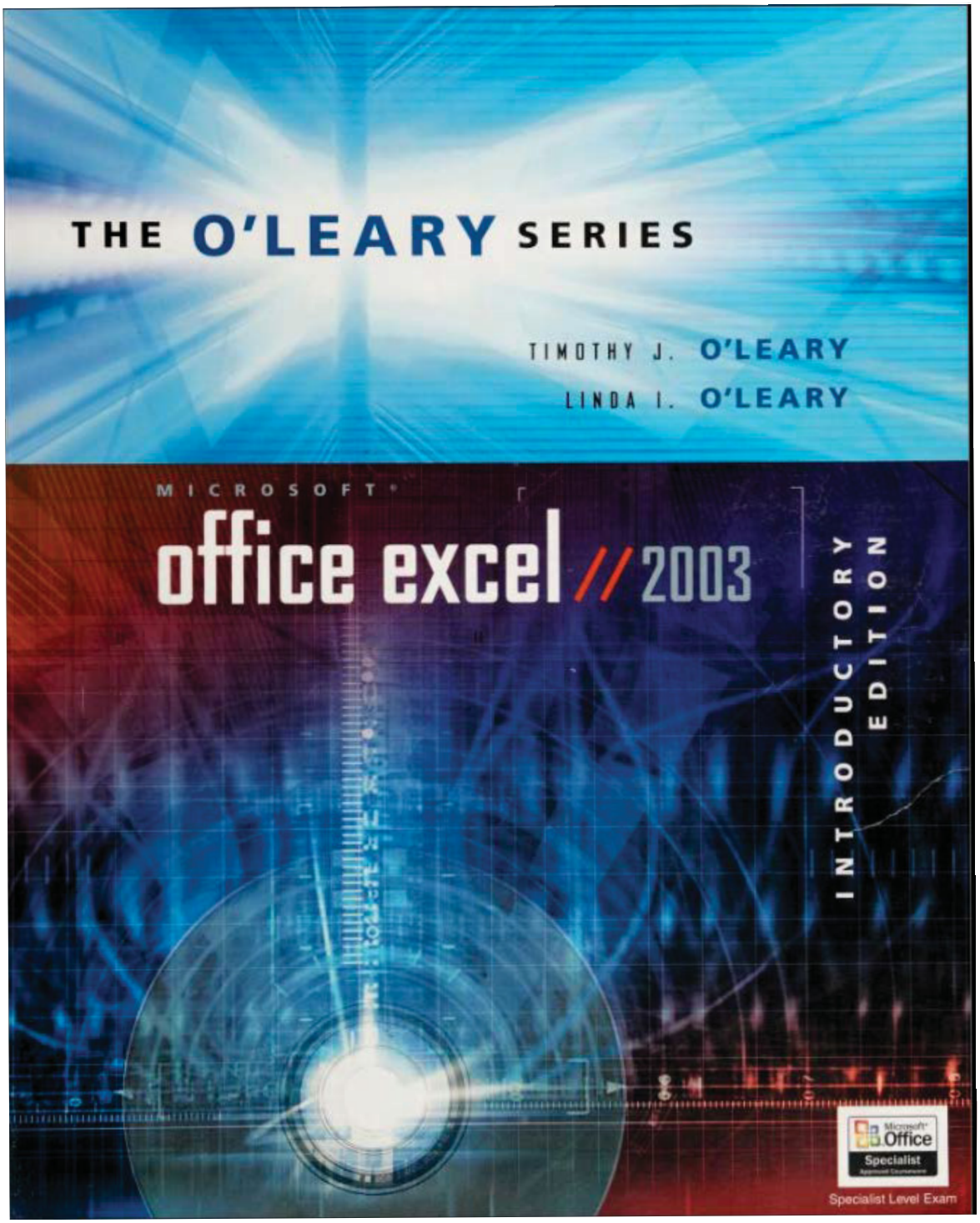

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Microsoft Office Specialist
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Introductory Edition

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3 4 5 6 7 8 9 0 QPD/QPD 0 9 8 7 6

ISBN-13: 978-0-07-283568-7
ISBN-10: 0-07-283568-0

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Typeface: *10.5/13 New Aster*
Compositor: *Rogondino & Associates/Cecelia G. Morales*
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Library of Congress Control Number 2003111994

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Introduction to Microsoft Office 2003

Objectives

After completing the Introduction to Microsoft Office 2003, you should be able to:

1. Describe Office System 2003.
2. Describe the Office 2003 applications.
3. Start an Office 2003 application.
4. Recognize the basic application window features.
5. Use menus, shortcut menus, and shortcut keys.
6. Use toolbars and task panes.
7. Use Office Help.
8. Exit an Office 2003 application.

What Is Microsoft Office System 2003?

Microsoft Office System 2003 is a comprehensive, integrated system of programs, servers and services designed to solve a wide array of business needs. Although the programs can be used individually, they are designed to work together seamlessly making it easy to connect people and organizations to information, business processes and each other. The applications include tools used to create, discuss, communicate, and manage projects. If you share a lot of documents with other people, these features facilitate access to common documents. This version has expanded and refined the communication and collaboration features and integration with the World Wide Web. In addition, several new interface features are designed to make it easier to perform tasks and help users take advantage of all the features in the applications.

The Microsoft Office System 2003 is packaged in different combinations of components. The major components and a brief description are provided in the following table.

Component	Description
Microsoft Office 2003	
Office Word 2003	Word Processor
Office Excel 2003	Spreadsheet
Office Access 2003	Database manager
Office PowerPoint 2003	Presentation graphics
Office Outlook 2003	Desktop information manager
Office FrontPage 2003	Web site creation and management
Office InfoPath 2003	Creates XML forms and documents
Office OneNote 2003	Note-taking
Office Publisher 2003	Desktop publishing
Office Visio 2003	Drawing and diagramming
Office SharePoint Portal Server v2.0 and Services	

The five components of Microsoft Office 2003—Word, Excel, Access, PowerPoint, and Outlook—are the applications you will learn about in this series of labs. They are described in more detail in the following sections.

Office Word 2003

Office Word 2003 is a word processing software application whose purpose is to help you create text-based documents. Word processors are one of the most flexible and widely used application software programs. A word processor can be used to manipulate text data to produce a letter, a report, a memo, an e-mail message, or any other type of correspondence.

Two documents you will produce in the first two Word labs, a letter and flyer, are shown here.

March 25, 2005

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March 8	7:00 p.m.

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A flyer incorporating many visual enhancements such as colored text, varied text styles, and graphic elements is both eye-catching and informative.

The beauty of a word processor is that you can make changes or corrections as you are typing. Want to change a report from single spacing to double spacing? Alter the width of the margins? Delete some paragraphs and add others from yet another document? A word processor allows you to do all these things with ease.

Word 2003 includes many group collaboration features to help streamline how documents are developed and changed by group members. You can also create and send e-mail messages directly from within Word using all its features to create and edit the message. In addition, you can send an entire document as your e-mail message, allowing the recipient to edit the document directly without having to open or save an attachment.

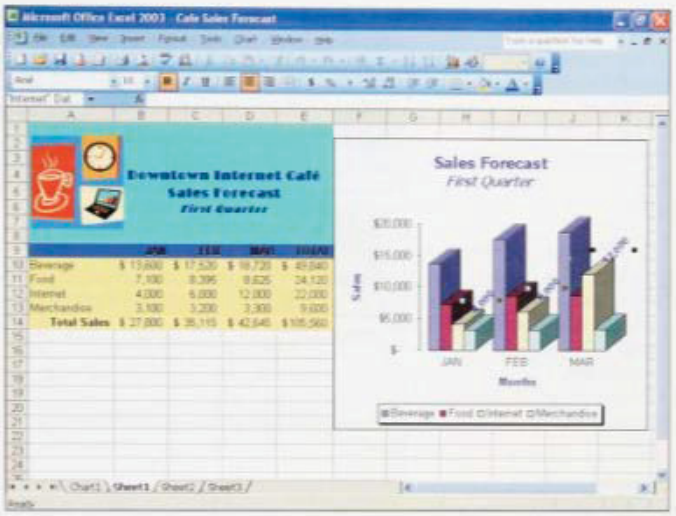
Word 2003 is closely integrated with the World Wide Web, detecting when you type a Web address and automatically converting it to a hyperlink. You can also create your own hyperlinks to locations within documents, or to other documents, including those at external locations such as a Web site or file server. Its many Web-editing features, including a Web Page Wizard that guides you step by step, help you quickly create a Web page.

Office Excel 2003

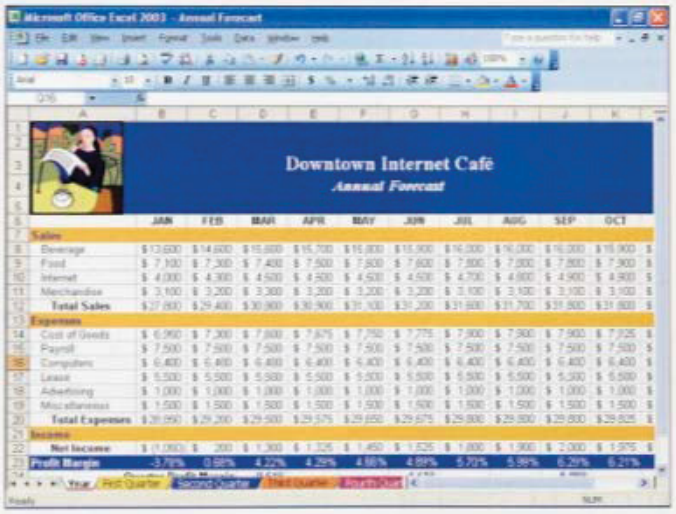
Office Excel 2003 is an electronic worksheet that is used to organize, manipulate, and graph numeric data. Once used almost exclusively by accountants, worksheets are now widely used by nearly every profession. Marketing professionals record and evaluate sales trends. Teachers record grades and calculate final grades. Personal trainers record the progress of their clients.

Excel includes many features that not only help you create a well-designed worksheet, but one that produces accurate results. Formatting features include visual enhancements such as varied text styles, colors, and graphics. Other features help you enter complex formulas and identify and correct formula errors. You can also produce a visual display of data in the form of graphs or charts. As the values in the worksheet change, charts referencing those values automatically adjust to reflect the changes.

Excel also includes many advanced features and tools that help you perform what-if analysis and create different scenarios. And like all Office 2003 applications, it is easy to incorporate data created in one application into another. Two worksheets you will produce in Labs 2 and 3 of Excel are shown on the next page.

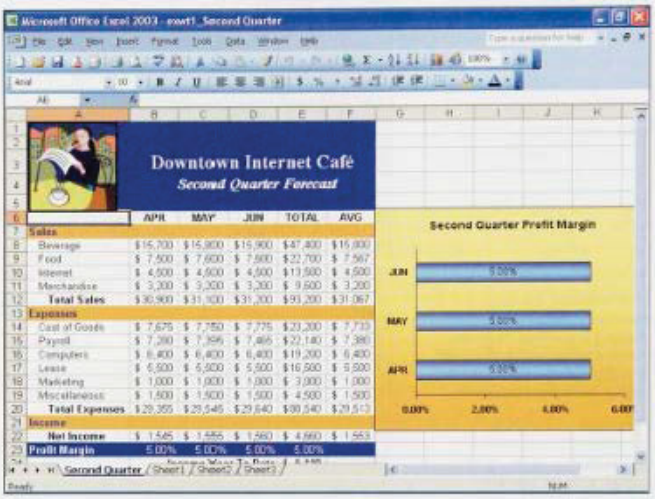


A worksheet showing the quarterly sales forecast containing a graphic, text enhancements, and a chart of the data is quickly created using basic Excel features.

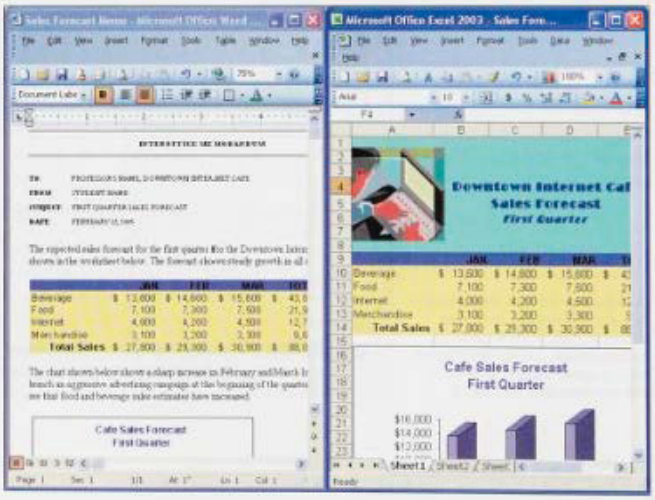


A large worksheet incorporating more complex formulas, visual enhancements such as colored text, varied text styles, and graphic elements is both informative and attractive.

You will see how easy it is to analyze data and make projections using what-if analysis and what-if graphing in Lab 3 and to incorporate Excel data in a Word document as shown in the following figures.



Changes you make in worksheet data while performing what-if analysis are automatically reflected in charts that reference that data.

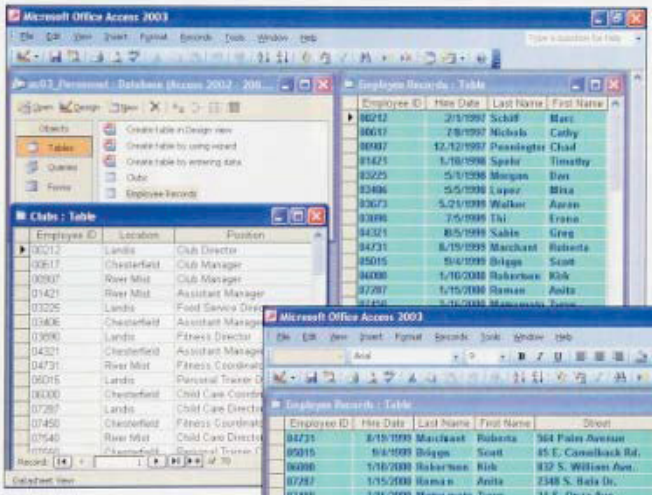


Worksheet data and charts can be copied and linked to other Office documents such as a Word document.

Office Access 2003

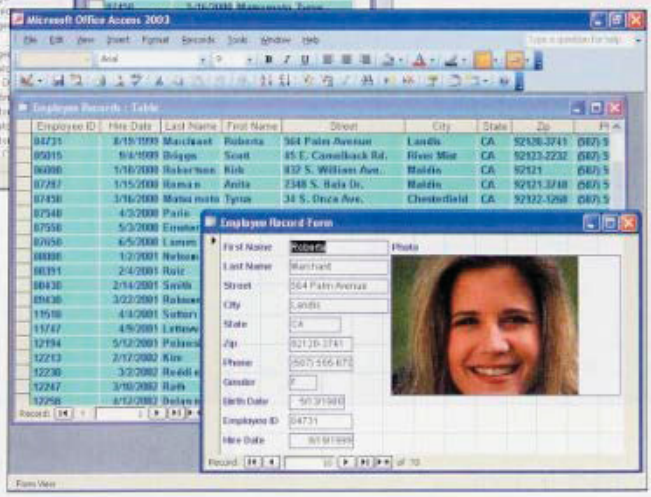
Office Access 2003 is a relational database management application that is used to create and analyze a database. A database is a collection of related data. In a relational database, the most widely used database structure, data is organized in linked tables. Tables consist of columns (called fields) and rows (called records). The tables are related or linked to one another by a common field. Relational databases allow you to create smaller and more manageable database tables, since you can combine and extract data between tables.

The program provides tools to enter, edit, and retrieve data from the database as well as to analyze the database and produce reports of the output. One of the main advantages of a computerized database is the ability to quickly add, delete, and locate specific records. Records can also be easily rearranged or sorted according to different fields of data, resulting in multiple table arrangements that provide more meaningful information for different purposes. Creation of forms makes it easier to enter and edit data as well. In the Access labs you will create and organize the database table shown below.



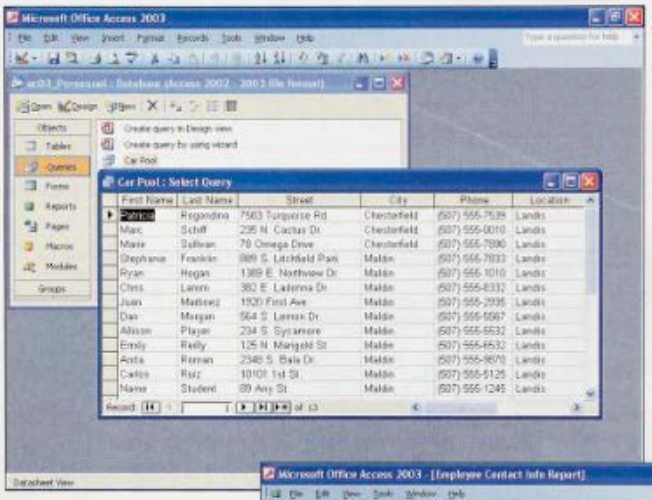
A relational database can be created and modified easily using basic Access features.

Organizing records into sorted order in a database makes the information more meaningful and easier to use.

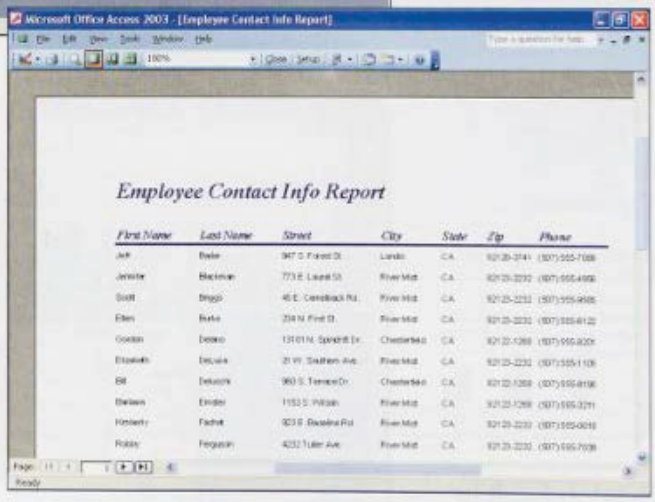


Forms make entering and editing data easy.

Another feature is the ability to analyze the data in a table and perform calculations on different fields of data. Additionally, you can ask questions or query the table to find only certain records that meet specific conditions to be used in the analysis. Information that was once costly and time-consuming to get is now quickly and readily available. This information can then be quickly printed out in the form of reports ranging from simple listings to complex, professional-looking reports in different layout styles, or with titles, headings, subtotals, or totals.



A database can be queried to locate and display only specified information.



A professional-looking report can be quickly generated from information contained in a database.

Office PowerPoint 2003

Office PowerPoint 2003 is a graphics presentation program designed to help you produce a high-quality presentation that is both interesting to the audience and effective in its ability to convey your message. A presentation can be as simple as overhead transparencies or as sophisticated as an on-screen electronic display. In the first two PowerPoint labs you will create and organize the presentation shown on the next page.



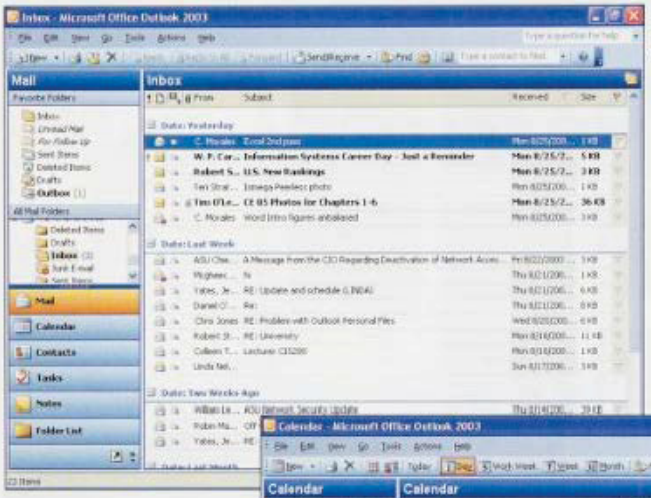
A presentation consists of a series of pages or "slides" presenting the information you want to convey in an organized and attractive manner.



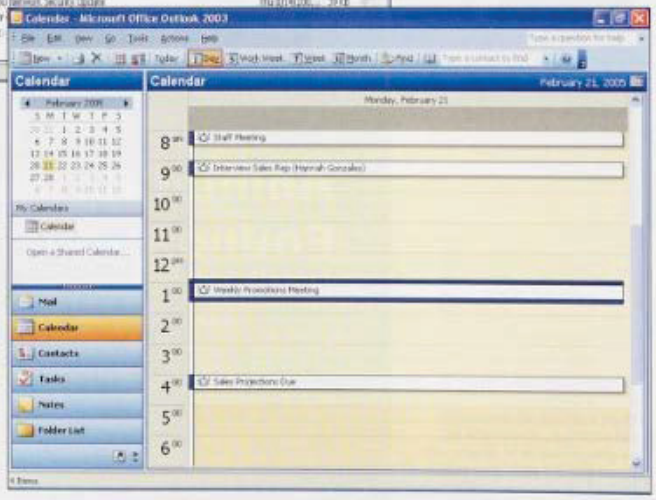
When running an onscreen presentation, each slide of the presentation is displayed full-screen on your computer monitor or projected onto a screen.

Office Outlook 2003

Office Outlook 2003 is a personal information manager (PIM) program that is designed to get you organized and keep you organized. PIMs, also known as desktop managers, are designed to maximize your personal productivity by making it efficient and easy to perform everyday tasks such as scheduling meetings, recording contact information, and communicating with others, to name a few. Outlook 2003 includes an integrated e-mail program, a calendar, and contact and task management features.



The opening Outlook window provides quick access to all the tools to keep you organized.



The Outlook calendar and scheduling component not only allow you to create an appointment, but will remind you of appointments by playing a sound or displaying a message.

Common Office 2003 Features

Additional Information

Please read the Before You Begin and Instructional Conventions sections in the Overview to Office Excel 2003 (EXO.3) before starting this section.

Additional Information

It is assumed that you are already familiar with basic Windows operating system features. To review these features, refer to your Windows text or if available, the O'Leary Series *Introduction to Windows* text.

Now that you know a little about each of the applications in Microsoft Office 2003, we will take a look at some of the features that are common to all Office 2003 applications. This is a hands-on section that will introduce you to the features and allow you to get a feel for how Office 2003 works. Although Word 2003 will be used to demonstrate how the features work, only common features will be addressed. These features include using menus, Office Help, task panes, toolbars, and starting and exiting an application. The features that are specific to each application will be introduced individually in each application text.

Starting an Office 2003 Application

There are several ways to start an Office 2003 application. The two most common methods are by using the Start menu or by clicking a desktop shortcut for the program if it is available. If you use the Start menu, the steps will vary slightly depending on the version of Windows you are using.

1. Click start to display the Start menu.
2. Select All Programs.

Having Trouble?

If you are using Windows 2002 or earlier, select Programs.

3. Select Microsoft Office.
4. Choose Microsoft Office Word 2003.

OR

1. Double-click the Microsoft Office Word 2003 shortcut on the desktop.
2. If necessary, click the Maximize button in the title bar to maximize the window.

Additional Information

Your window may appear with olive green or silver colors, depending upon the Windows settings on your computer.

Your screen should be similar to Figure 1

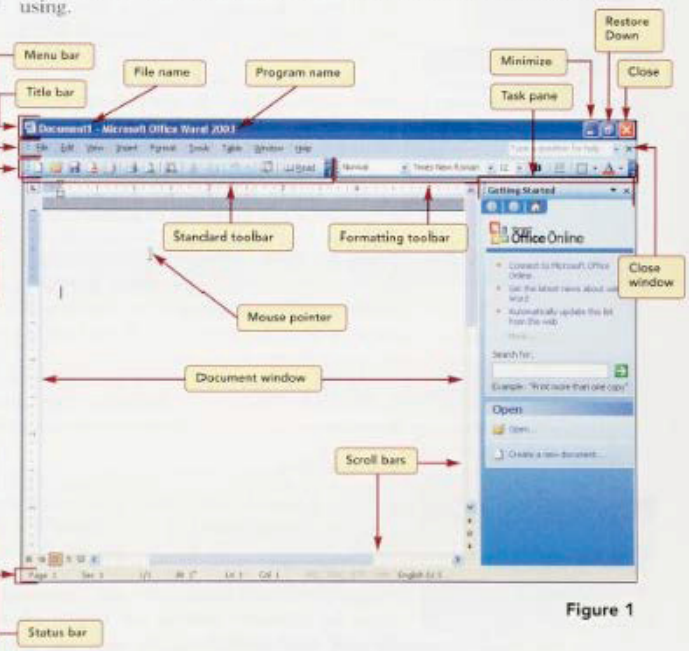


Figure 1

Additional Information

Application windows can be sized, moved, and otherwise manipulated like any other windows on the desktop.

The Word program is started and displayed in a window on the desktop. The left end of the application window title bar displays the file name followed by the program name, Microsoft Office Word 2003. The right end of the title bar displays the Minimize, Restore Down, and Close buttons. They perform the same functions and operate in the same way as all Windows versions.

The **menu bar** below the title bar displays the application's program menu. The right end displays the document window's Close Window button. As you use the Office applications, you will see that the menu bar contains many of the same menus, such as File, Edit, and Help. You will also see several menus that are specific to each application.

The **toolbars** located below the menu bar contain buttons that are mouse shortcuts for many of the menu items. Commonly, the Office applications will display two toolbars when the application is first opened: Standard and Formatting. They may appear together on one row (as in Figure 1), or on separate rows.

The large center area of the program window is the **document window** where open application files are displayed. Currently, there is a blank Word document open. In Word, the mouse pointer appears as I when positioned in the document window and as a when it can be used to select items. The **task pane** is displayed on the right side of the document window. Task panes provide quick access to features as you are using the application. As you perform certain actions, different task panes automatically open. In this case, since you just started an application, the Getting Started task pane is automatically displayed, providing different ways to create a new document or open an existing document.

Additional Information

Use Tools/Options and select Startup task pane to display the Getting Started task pane when starting the application.

The **status bar** at the bottom of the window displays location information and the status of different settings as they are used. Different information is displayed in the status bar for different applications.

On the right and bottom of the document window, are vertical and horizontal scroll bars. A **scroll bar** is used with a mouse to bring additional lines of information into view in a window. The vertical scroll bar is used to move up or down, and the horizontal scroll bar moves side to side in the window.

As you can see, many of the features in the Word window are the same as in other Windows applications. The common user interface makes learning and using new applications much easier.

Using Menus

Additional Information

Use Tools/Customize/Options and check or clear the "Always show full menus" option to change how your menus operate.

A menu is one of many methods you can use to accomplish a task in a program. When opened, a menu displays a list of commands. When an Office program menu is first opened, it may display a short version of commands. The short menu is a personalized version of the menu that displays basic and frequently used commands and hides those used less often. An expanded version will display automatically after the menu is open for a few seconds.

1. Click **File** to open the File menu.

- Point to each menu in the menu bar to see the full menu for each.

Additional Information

Once one menu is expanded, others expand automatically until you choose a command or perform another action.

- Point to the **View** menu.

Your screen should be similar to Figure 2

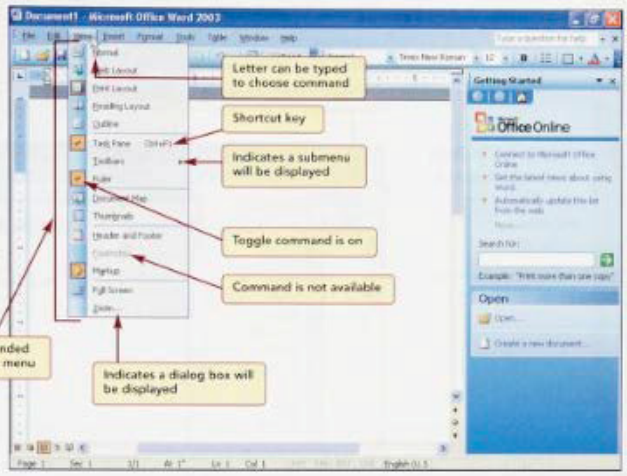


Figure 2

Additional Information

If you do not want to wait for the expanded menu to appear, you can click ▼ at the bottom of the menu or double-click the menu name to display the full menu immediately.

Many commands have images next to them so you can quickly associate the command with the image. The same image appears on the toolbar button for that feature. Menus may include the following features (not all menus include all features):

Feature	Meaning
Ellipsis (...)	Indicates a dialog box will be displayed.
▸	Indicates a submenu will be displayed.
Dimmed	Indicates the command is not available for selection until certain other conditions are met.
Shortcut key	A key or key combination that can be used to execute a command without using the menu.
Checkmark	Indicates a toggle type of command. Selecting it turns the feature on or off. A checkmark indicates the feature is on.
Underlined letter	Indicates the letter you can type to choose the command.

Additional Information

If underlined command letters are not displayed, this feature is not active on your system.

On the View menu, two options, Task Pane and Ruler, are checked, indicating these features are on. The Task Pane option also displays the shortcut key combination, Ctrl + F1, after the option. This indicates the command can be chosen by pressing the keys instead of using the menu. The Footnotes option is dimmed because it is not currently available. The Toolbars option will display a submenu when selected, and the Zoom command a dialog box of additional options.

Once a menu is open, you can select a command from the menu by pointing to it. A colored highlight bar, called the **selection cursor**, appears over the selected command.

2. **Point to the Toolbars command to select it and display the submenu.**

Your screen should be similar to Figure 3

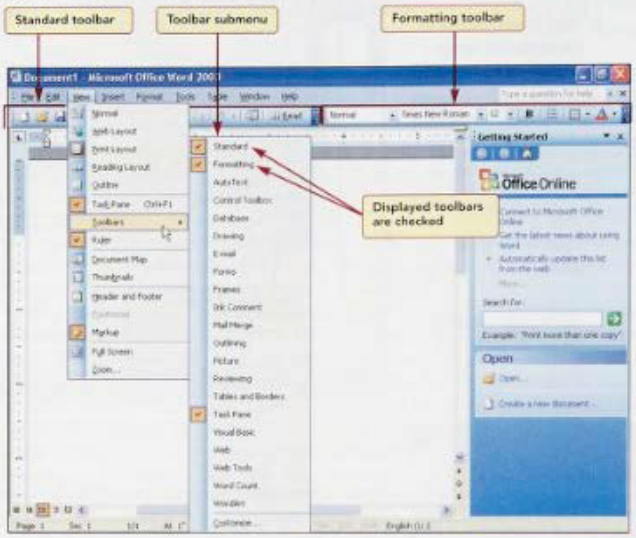


Figure 3

Currently there are three selected (checked) Toolbar options: Standard, Formatting, and although not technically a toolbar, the Task Pane. If other toolbars are selected in your menu, this is because once a toolbar has been turned on, it remains on until turned off.

To choose a command, you click on it. When the command is chosen, the associated action is performed. You will close the task pane and any other open toolbars and display the Drawing toolbar.

3. Click on Task Pane to turn off this feature.

- Open the View menu again, select Toolbars, and if it is not already selected, click on the Drawing toolbar option to turn it on.
- If necessary, choose View/Toolbars again and deselect any other toolbar options (there should be 3 selected toolbar options).

Your screen should be similar to Figure 4

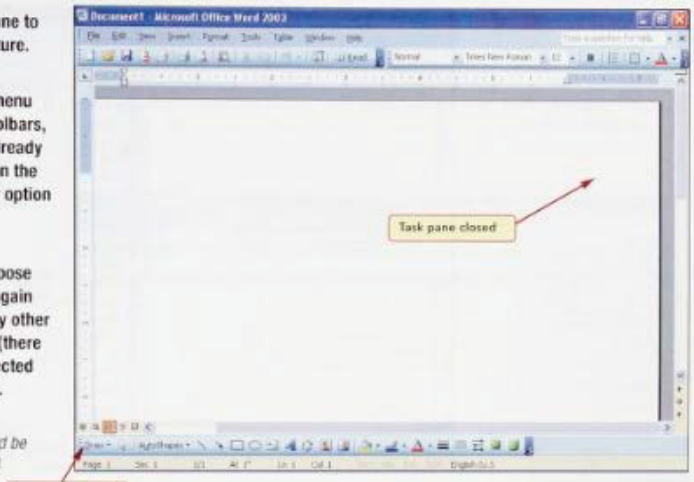


Figure 4

Additional Information

If you have a microphone and have installed and trained the Speech Recognition feature, you can speak the command sequences to open menus and choose commands. For example, to open a toolbar, you would say "View Toolbars."

Additional Information

Using voice commands, saying "Right click" will open the shortcut menu for the selected item.

The task pane is closed and the Drawing toolbar is displayed above the status bar. Any other toolbars that were open which you deselected are closed.

Using Shortcut Menus

Another way to access menu options is to use the **shortcut menu**. The shortcut menu is opened by right-clicking on an item on the screen. This menu displays only those options associated with the item. For example, right-clicking on any toolbar will display the toolbar menu options only. You will use this method to hide the Drawing toolbar again.

1. **Point to the Drawing toolbar and right-click.**

Your screen should be similar to Figure 5

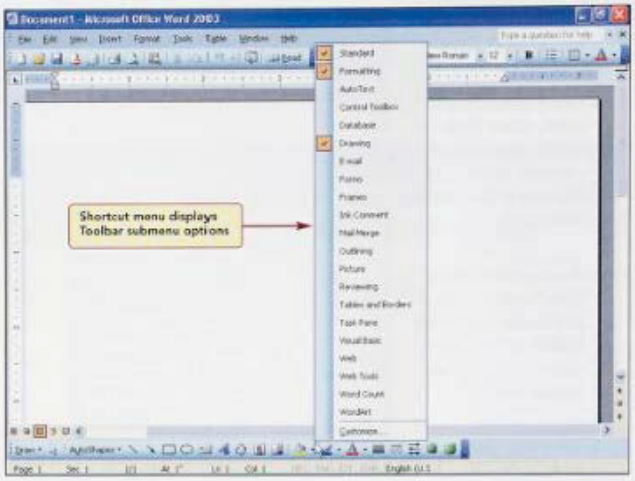


Figure 5

Additional Information

The Customize option can be used to change features of toolbars and menus.

The shortcut menu displays only the Toolbar submenu options on the View menu. Using a shortcut menu saves time over selecting the main menu command sequence.

2. **Choose Drawing to turn off this feature.**

Your screen should be similar to Figure 6



Figure 6

The Drawing toolbar is no longer displayed.

Using Shortcut Keys

Additional Information
Not all commands have shortcut keys.

A third way to perform a command is to use the shortcut key or key combination associated with a particular command. If you will recall, the shortcut key associated with the View/Task Pane command is Ctrl + F1. To use the key combination, you hold down the first key while pressing the second.

1. **Hold down Ctrl and press the F1 function key.**

Having Trouble?
Function keys are located above the numeric keys on the keyboard.

Your screen should be similar to Figure 7

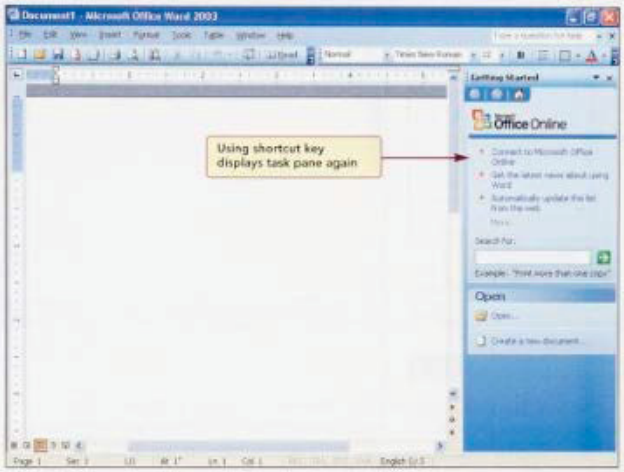


Figure 7

Additional Information
Using the Speech Recognition feature, you can also use voice shortcuts for many commands. For example, to show the task pane, you would say "show task pane." Many voice commands also have several different words you can say to initiate the command. You could also say "task pane" or "view task pane."

The task pane is displayed again. Using shortcut keys is the quickest way to perform many actions; however, you need to remember the key combination in order to use it.

Using Toolbars

Initially, Word displays two toolbars, Standard and Formatting, below the menu bar (see Figure 3). The **Standard toolbar** contains buttons that are used to complete the most frequently used menu commands. The **Formatting toolbar** contains buttons that are used to change the appearance or format of the document. There are many features that can be used to make working with toolbars easier.

Displaying Toolbars on Separate Rows

The default toolbar arrangement is to display both toolbars on one row. Because there is not enough space to display all the buttons on both toolbars on a single row, many buttons are hidden. The Toolbar Options button located at the end of a toolbar displays a drop-down button list of those buttons that are not displayed. Toolbars initially display the basic buttons. Like menus, they are personalized automatically, displaying those buttons you use frequently and hiding others. When you use a

button from this list, it then is moved to the toolbar, and a button that has not been used recently is moved to the Toolbar Options list. It also contains an option to display the toolbars on separate rows. You will use this option to quickly see all the toolbar buttons.

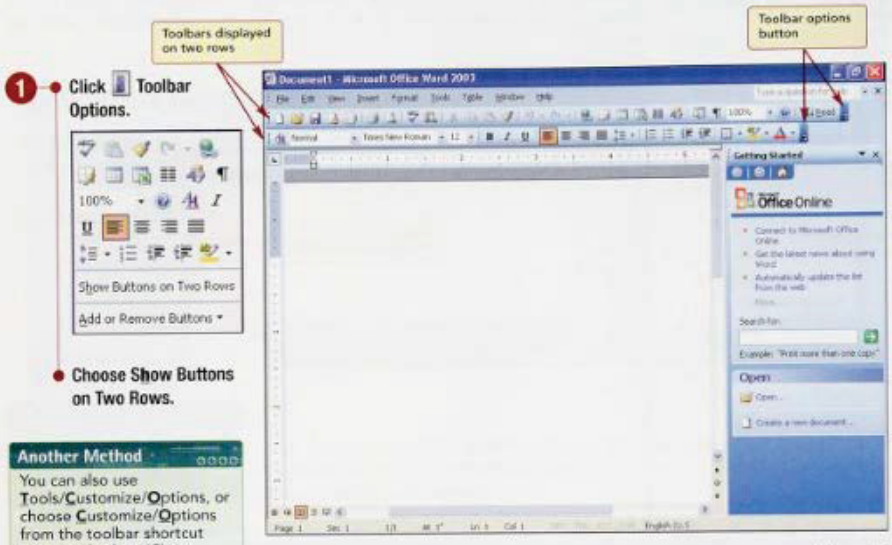


Figure 8

Another Method

You can also use Tools/Customize/Options, or choose Customize/Options from the toolbar shortcut menu and select "Show Standard and Formatting toolbars on two rows."

Your screen should be similar to Figure 8

Additional Information

The Add or Remove Buttons option allows you to customize existing toolbars by selecting those buttons you want to display and by creating your own customized toolbars.

The two toolbars now occupy separate rows, providing enough space for all the buttons to be displayed. Now using Toolbar Options is no longer necessary, and when selected only displays the options to return the toolbars display to one row and the Add or Remove Buttons option.

When a toolbar is open, it may appear docked or floating. A **docked toolbar** is fixed to an edge of the window and displays a vertical bar, called the move handle, on the left edge of the toolbar. Dragging this bar up or down allows you to move the toolbar. If multiple toolbars share the same row, dragging the bar left or right adjusts the size of the toolbar. If docked, a toolbar can occupy a row by itself, or several can be on a row together. A **floating toolbar** appears in a separate window and can be moved anywhere on the desktop.

2. Point to the move handle of the Standard toolbar and, when the mouse pointer appears as ✥, drag the toolbar into the document window.

Your screen should be similar to Figure 9

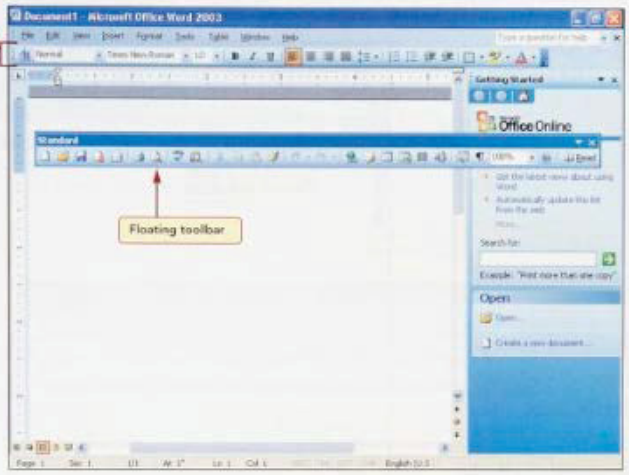


Figure 9

The Standard toolbar is now a floating toolbar and can be moved to any location in the window by dragging the title bar. If you move a floating toolbar to the edge of the window, it will attach to that location and become a docked toolbar. A floating toolbar can also be sized by dragging the edge of the toolbar.

3. Drag the title bar of the floating toolbar (the mouse pointer appears as ✥) to move the toolbar to the row below the Formatting toolbar.
   - Move the Formatting toolbar below the Standard toolbar.
   - Align both toolbars with the left edge of the window by dragging the move handle horizontally.

Your screen should be similar to Figure 10

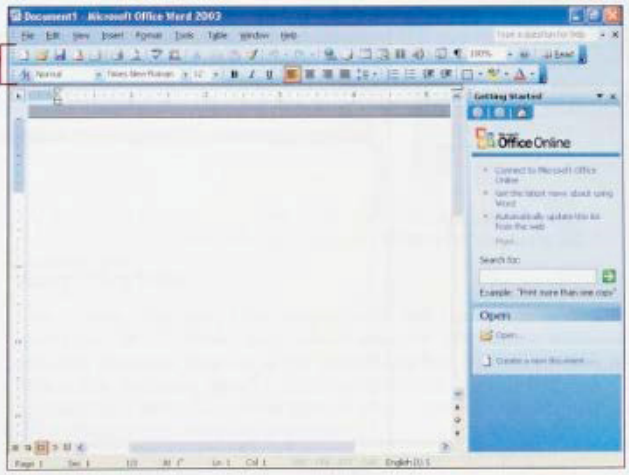


Figure 10

The two toolbars again occupy two rows. To quickly identify the toolbar buttons, you can display the button name by pointing to the button.

4 **Point to any button on the Standard toolbar.**

Your screen should be similar to Figure 11

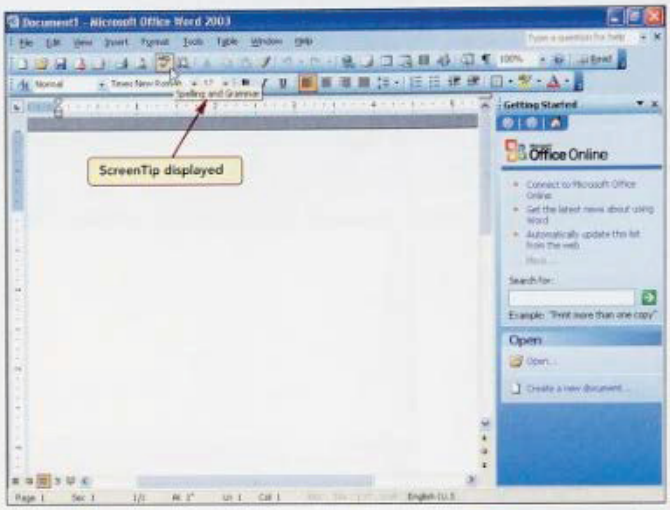


Figure 11

A ScreenTip containing the button name appears next to the mouse pointer. Clicking on a button will perform the associated action. You will use the Help button to access Microsoft Word Help.

5 **Click Microsoft Office Word Help.**

Another Method

You can also choose Help/ Microsoft Office Word Help, or press F1 to access Help.

Your screen should be similar to Figure 12

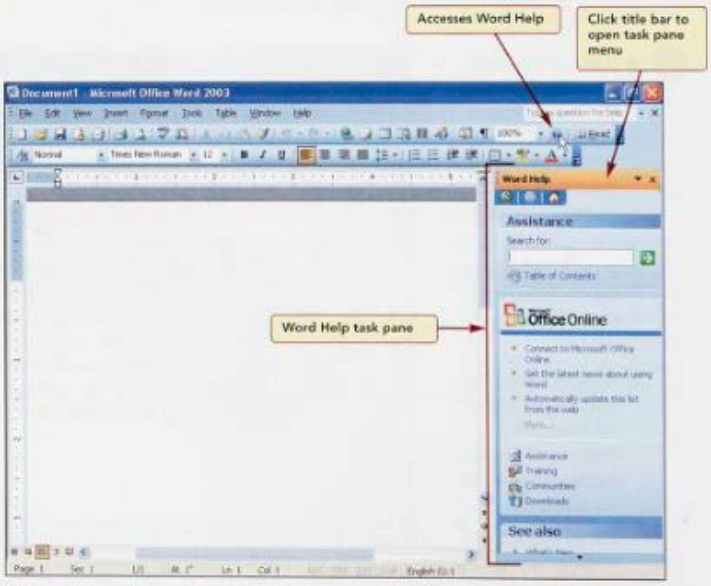


Figure 12

The Getting Started task pane is replaced by the Microsoft Word Help task pane. The name of the task pane appears in the task pane title bar.

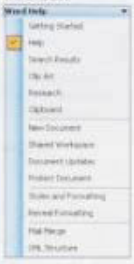
Using Task Panes

Additional Information

You can drag the pane divider line to adjust the width of the pane. When there is more information in the pane than can be displayed, ▲ and ▼ appear to scroll the information into view.

Task panes appear automatically when certain features are used. They can also be opened manually from the task pane menu. Clicking the task pane title bar displays a drop-down menu of other task panes you can select. In Word there are 14 different task panes. You will redisplay the Getting Started task pane. Then you will quickly return to the previously displayed task pane using the Back toolbar button in the task pane.

1. Click on the task pane title bar.



- Choose Getting Started.

Another Method

You can also click the Home button to quickly display the Getting Started task pane.

- Click Back.

Your screen should be similar to Figure 13

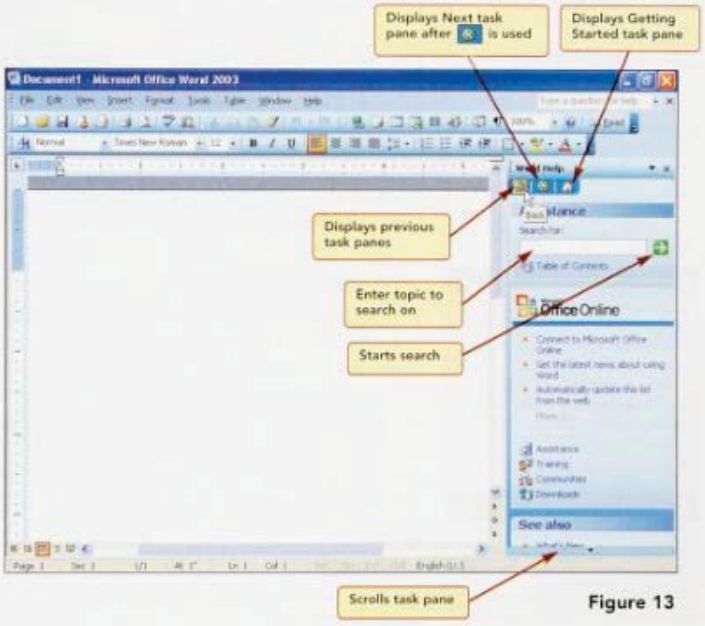


Figure 13

The Help task pane is displayed again. Likewise, clicking the Forward button will display the task pane that was viewed before using Back.

Using Office Help

Additional Information

Although you can also simply enter a word or phrase in the Search box, the best results occur when you type a complete sentence or question.

There are several ways you can get help. One method is to conduct a search of the available help information by entering a sentence or question you want help on in the Search text box of the Help task pane. Notice the insertion point is positioned in the Search text box. This indicates it is ready for you to type an entry. You will use this method to learn about getting Help while you work.

1. Type **How do I get help?** in the Search box.

Having Trouble?
If the insertion point is not displayed in the Search box, simply click in the box to activate it.

- Click **Start Searching.**

Your screen should be similar to Figure 14

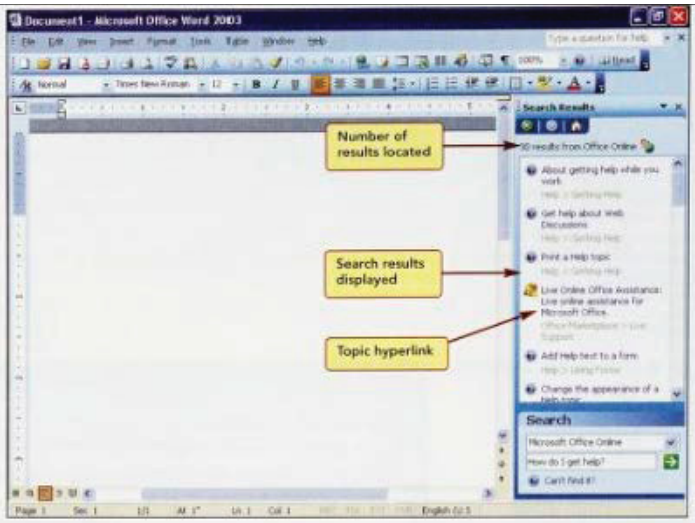


Figure 14

Additional Information
In addition to being connected to the Internet, the Online Content settings must be selected. Click Online Content Settings in the Help task pane and select all the options to turn on these features.

Additional Information
The number of results located and where they were found is displayed at the top of the list.

If you are connected to the Internet, the Microsoft Office Online Web site is searched and the results are displayed in the Search Results task pane. If you are not connected, the offline help information that is provided with the application and stored on your computer is searched. Generally the search results are similar, but fewer in number.

The Search Results pane displays a list of located results. The results are shown in order of relevance, with the most likely matches at the top of the list. Each result is a **hyperlink** or connection to the information located on the Online site or in Help on your computer. Clicking the hyperlink accesses and displays the information associated with the hyperlink.

You want to read the information in the topic "About getting help while you work."

2 From the Search Results list click the "About getting help while you work" hyperlink.

Additional Information

When you point to the hyperlink, it appears underlined and the mouse pointer appears as .

Your screen should be similar to Figure 15

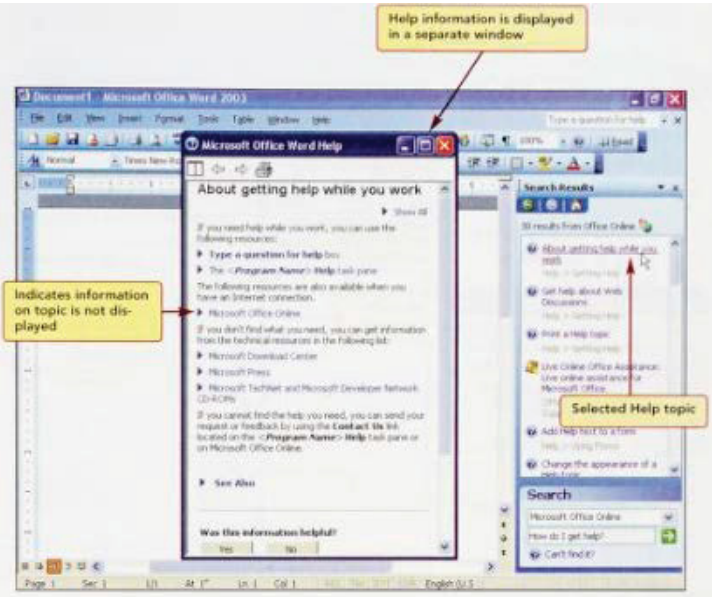


Figure 15

The information on the selected topic is displayed in a separate Help window. The Help window on your screen will probably be a different size and arrangement than in Figure 15. Depending on the size of your Help window, you may need to scroll the window to see all the Help information provided. As you are reading the help topic, you will see many subtopics preceded with ▶. This indicates the information in the subtopic is not displayed. Clicking on the subtopic heading displays the information about the topic.

3. If necessary, use the scroll bar to scroll the Help window to see the information on this topic.

- Scroll back up to the top of the window.

Additional Information

Clicking the scroll arrows scrolls the text in the window line by line, and dragging the scroll bar up or down moves to a general location within the window area.

- Click the "Type a question for help box" subtopic.
- Click the "The <Program name> Help task pane" subtopic.
- Read the information on both subtopics.

Your screen should be similar to Figure 16

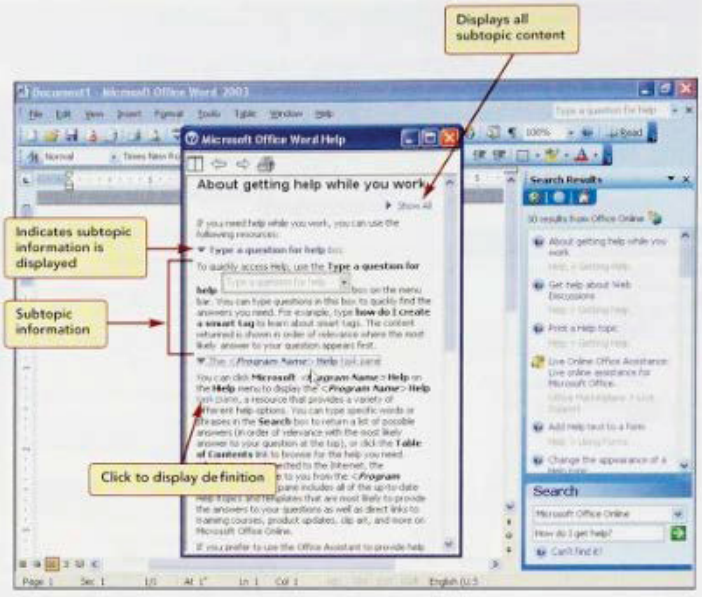


Figure 16

The ▸ preceding the subtopic has changed to ▾ indicating the subtopic content is displayed. The selected subtopics provide information about accessing Help using the "Type a question for help" box and the Help task pane. Notice the blue words "task pane" within the subtopic content. This indicates that clicking on the text will display a definition of the term. You can continue to click on the subtopic headings to display the information about each topic individually, or you can click Show All to display all the available topic information.

4. Click "task pane" to see the definition.
- Click Show All at the top of the Help window.
- Scroll the window to see the Microsoft Office Online subtopic.
- Read the information on this subtopic.

Your screen should be similar to Figure 17

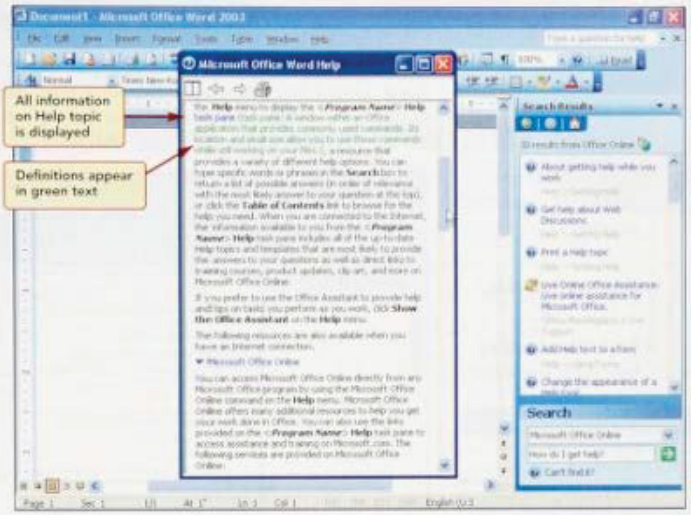


Figure 17

The information under all the subtopics is fully displayed, including definitions.

Using the Help Table of Contents

Another source of help is to use the Help table of contents. Using this method allows you to browse the Help topics to locate topics of interest to you.

1. Click Close in the Help window title bar to close the Help window.
- Click Back in the task pane.
- Click Table of Contents (below the Search box).

Your screen should be similar to Figure 18

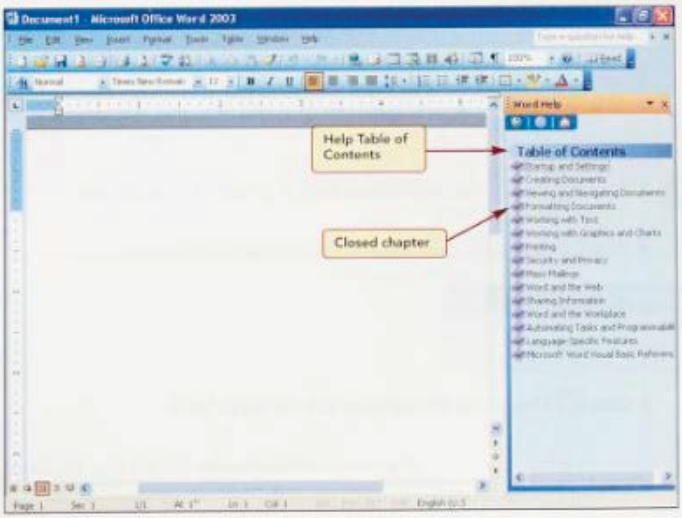


Figure 18

The entire Word Help Table of Contents is displayed in the Help task pane. Clicking on an item preceded with a Closed Book icon opens a chapter, which expands to display additional chapters or topics. The Open Book icon identifies those chapters that are open. Clicking on an item preceded with displays the specific Help information.

2. Click "Startup and Settings" to open this chapter.
- Click "Getting Help."
- Click "About getting help while you work."

Additional Information
Pointing to an item in the Table of Contents that is not entirely visible in the pane displays a ScreenTip of the entire topic heading.

Your screen should be similar to Figure 19

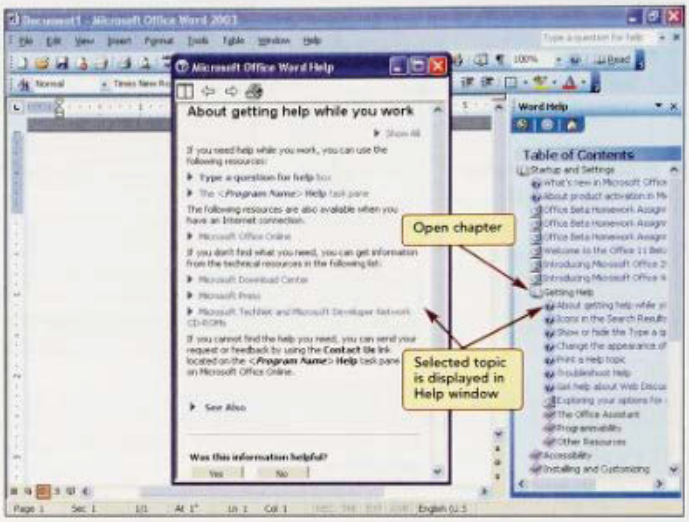


Figure 19

The Help window opens again and displays the information on the selected topic. To close a chapter, click the icon.

Exiting an Office 2003 Application

Now you are ready to close the Help window and exit the Word program. The Exit command on the File menu can be used to quit most Windows programs. Alternatively, you can click the Close button in the program window title bar.

1. Click Close in the Help window title bar to close the Help window.
- Click Close in the Task pane title bar to close the task pane.

Another Method
You could also use Ctrl + F1 to close a task pane.

- Click Close in the Word window title bar to exit Word.

The program window is closed and the desktop is visible again.

Creating and Editing a Worksheet

LAB 1

Objectives

After completing this lab, you will know how to:

1. Enter, edit, and clear cell entries.
2. Adjust column widths.
3. Save, close, and open workbooks.
4. Spell-check a worksheet.
5. Use the thesaurus.
6. Copy and move cell entries.
7. Specify ranges.
8. Enter formulas and functions.
9. Insert rows.
10. Change cell alignment.
11. Format cells.
12. Enter and format a date.
13. Preview and print a worksheet.

Case Study

Downtown Internet Café

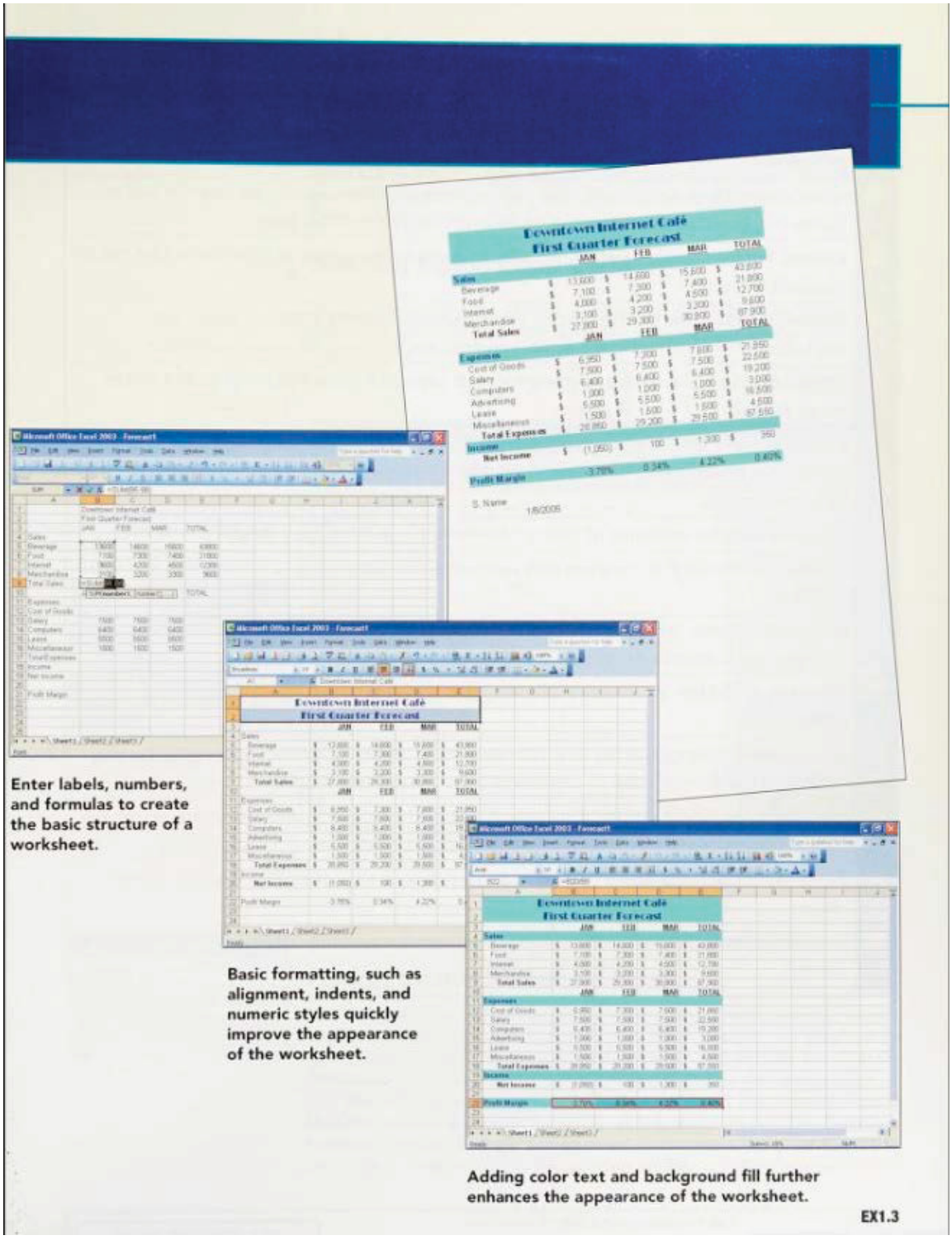
You are excited about your new position as manager and financial planner for a local coffeehouse. Evan, the owner, has hired you as part of a larger effort to increase business at the former Downtown Café. Evan began this effort by completely renovating his coffeehouse, installing Internet hookups and outlets for laptops, and changing its name to the Downtown Internet Café. You and Evan expect to increase sales by attracting Internet-savvy cafe-goers, who, you hope, will use the Downtown Internet Café as a place to meet, study, or just relax.

Evan wants to create a forecast estimating sales and expenses for the first quarter. As part of a good business plan, you and Evan need a realistic set of financial estimates and goals.

In this lab, you will help with the first quarter forecast by using Microsoft Office Excel 2003, a spreadsheet application that can store, manipulate, and display numeric data. You will learn to enter numbers, perform calculations, copy data, and label rows and columns as you create the basic structure of a worksheet for the Downtown Internet Café. You will then learn how to enhance the worksheet using formatting features and by adding color as shown here.



© Corbis



Enter labels, numbers, and formulas to create the basic structure of a worksheet.

Basic formatting, such as alignment, indents, and numeric styles quickly improve the appearance of the worksheet.

Adding color text and background fill further enhances the appearance of the worksheet.

EX1.3

Concept Preview

The following concepts will be introduced in this lab:

1. **Text and Numeric Entries** The information or data you enter in a cell can be text, numbers, or formulas.
2. **AutoCorrect** The AutoCorrect feature makes some basic assumptions about the text you are typing and, based on these assumptions, automatically corrects the entry.
3. **Column Width** The size or width of a column controls the amount of information that can be displayed in a cell.
4. **Spelling Checker** The spelling checker locates misspelled words, duplicate words, and capitalization irregularities in the active worksheet and proposes the correct spelling.
5. **Thesaurus** The thesaurus is a reference tool that provides synonyms, antonyms, and related words for a selected word or phrase.
6. **Copy and Move** The contents of worksheet cells can be duplicated (copied) or moved to other locations in the worksheet or between worksheets, saving you time by not having to retype the same information.
7. **Range** A selection consisting of two or more cells on a worksheet is a range.
8. **Formula** A formula is an equation that performs a calculation on data contained in a worksheet.
9. **Relative Reference** A relative reference is a cell or range reference in a formula whose location is interpreted in relation to the position of the cell that contains the formula.
10. **Function** A function is a prewritten formula that performs certain types of calculations automatically.
11. **Recalculation** When a number in a referenced cell in a formula changes, Excel automatically recalculates all formulas that are dependent upon the changed value.
12. **Alignment** Alignment settings allow you to change the horizontal and vertical placement and the orientation of an entry in a cell.
13. **Fonts** A font, also commonly referred to as a typeface, is a set of characters with a specific design.
14. **Number Formats** Number formats affect the appearance of numbers onscreen and when printed.

Introducing Office Excel 2003

As part of the renovation of the Downtown Internet Café, new computers and the most current versions of software programs were installed, including the latest version of the Microsoft Office System suite of applications, Office 2003. You are very excited to see how this new and powerful application can help you create professional budgets and financial forecasts.

Starting Office Excel 2003

You will use the spreadsheet application Excel 2003 included in the Microsoft Office System 2003 suite to create the first quarter forecast for the cafe.

1. Start Office Excel 2003.
- If necessary, maximize the Excel application window.

Additional Information
See "Common Office 2003 Features" page I.11 for information on how to start the application and for a discussion of features common to all Office 2003 applications.

Your screen should be similar to Figure 1.1

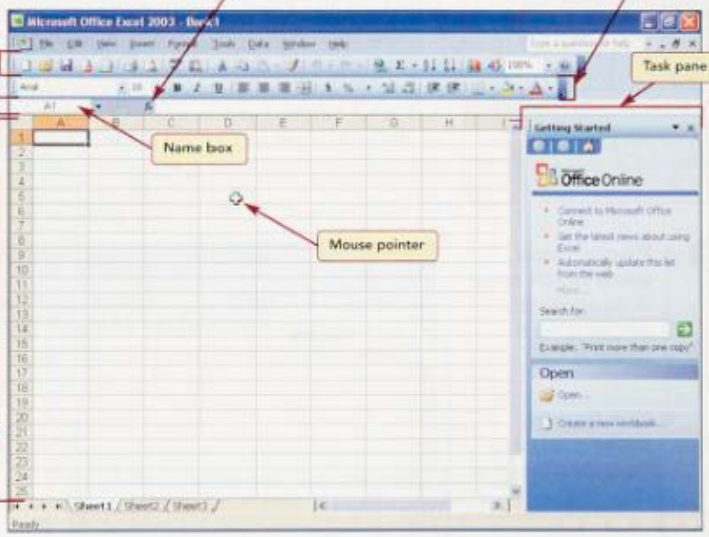


Figure 1.1

Additional Information
Because Excel remembers settings that were on when the program was last closed, your screen might look slightly different.

After a few moments, the Excel application window is displayed.

Exploring the Excel Window

The Excel window title bar displays the program name followed by Book1, the name of the open file. The menu bar below the title bar displays the Excel program menu. It consists of nine menus that provide access to the commands and features you will use to create and modify a worksheet.

The toolbars, normally located below the menu bar, contain buttons that are mouse shortcuts for many of the menu items. The **Standard toolbar** contains buttons that are used to complete the most frequently used menu commands. The **Formatting toolbar** contains buttons that are

Having Trouble?

If necessary, use View/Toolbars and select or deselect the appropriate toolbar to display or hide it.

Additional Information

If you have a microphone and have installed and trained the Speech Recognition feature, you can speak the command sequences to open menus and choose commands. For example, to select a toolbar, you would say "View Toolbars."

Having Trouble?

If the Standard and Formatting toolbars are on a single row, use Tools/Customize/Options/Show Standard and Formatting toolbars on two rows.

Having Trouble?

If your task pane is not displayed, choose View/Task Pane.

used to change the appearance or format of the document. Excel includes 21 different toolbars. Many of the toolbars appear automatically as you use different features. Your screen may display other toolbars if they were on when the program was last exited.

Below the toolbars is the formula bar. The **formula bar** displays entries as they are made and edited in the workbook window. The **Name box**, located at the left end of the formula bar, provides information about the selected item. The Edit Formula button is used to create or edit a formula.

The task pane is displayed on the right side of the window. There are 12 different task panes that display depending on the task being performed. Because you just started Excel, the Getting Started task pane is automatically displayed, providing different ways to create a new workbook or open an existing workbook.

The large area to the left of the task pane is the **workbook window**. A **workbook** is an Excel file that stores the information you enter using the program in worksheets. You will learn about the different parts of the workbook window and worksheets shortly.

The mouse pointer can appear as many different shapes. The mouse pointer changes shape depending upon the task you are performing or where the pointer is located on the window. Most commonly it appears as a or . When it appears as a , it is used to move to different locations in the workbook window and when it appears as a , it is used to select items.

1. Move the mouse pointer into the center of the workbook window to see it appear as .
2. Move the mouse pointer to the menu bar to see it appear as .

Your screen should be similar to Figure 1.2

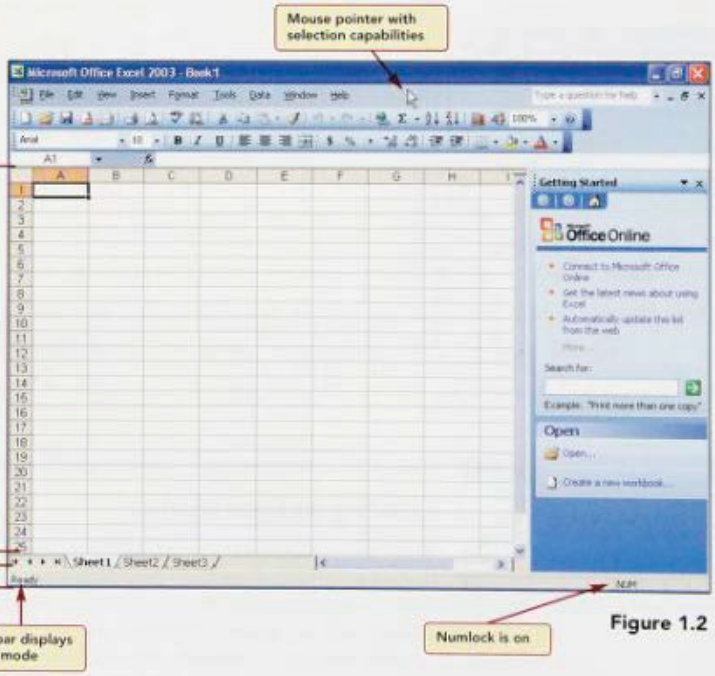


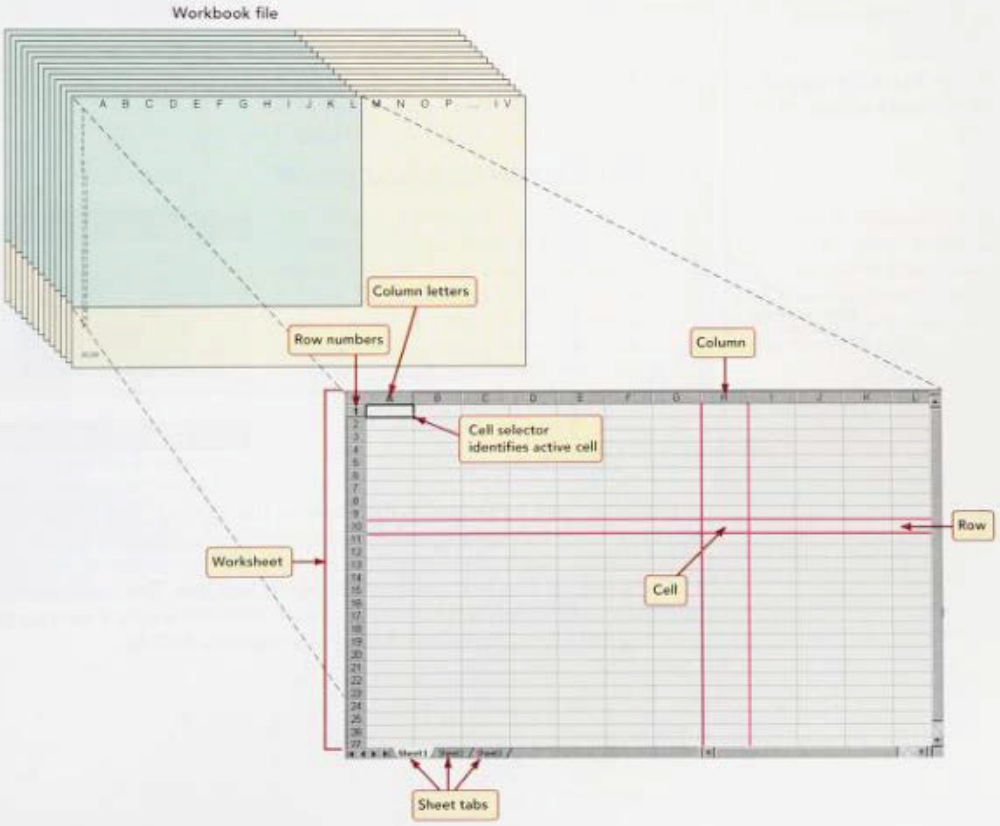
Figure 1.2

The status bar at the bottom of the Excel window displays information about various Excel settings. The left side of the status bar displays the

current mode or state of operation of the program, in this case, Ready. When Ready is displayed, you can move around the workbook, enter data, use the function keys, or choose a command. As you use the program, the status bar displays the current mode. The modes will be discussed as they appear throughout the labs. If your status bar displays NUM, this is a keyboard indicator that tells you the NumLock key is on. When on, using the numeric keypad enters numbers. When off, it moves the cell selector. Pressing Num Lock on your keyboard toggles between these settings.

Exploring the Workbook Window

The workbook window displays a new blank workbook file containing three blank sheets. A **sheet** is used to display different types of information, such as financial data or charts. Whenever you open a new workbook, it displays a worksheet. A **worksheet**, also commonly referred to as a **spreadsheet**, is a rectangular grid of **rows** and **columns** used to enter data. It is always part of a workbook and is the primary type of sheet you will use in Excel. The worksheet is much larger than the part you are viewing in the window. The worksheet actually extends 256 columns to the right and 65,536 rows down.



The **row numbers** along the left side and the **column letters** across the top of the workbook window identify each worksheet row and column. The intersection of a row and column creates a cell. Notice the heavy border, called the **cell selector**, surrounding the cell located at the intersection of column A and row 1. The cell selector identifies the **active cell**, which is the cell your next entry or procedure affects. Additionally, the Name box in the formula bar displays the **cell reference**, consisting of the column letter and row number of the active cell. The reference of the active cell is A1.

Each sheet in a workbook is named. Initially, the sheets are named Sheet1, Sheet2, and so on, displayed on **sheet tabs** at the bottom of the workbook window. The name of the **active sheet**, which is the sheet you can work in, appears bold. The currently displayed worksheet in the workbook window, Sheet1, is the active sheet.

1 Click the Sheet2 tab.

Another Method

You can also press Ctrl + Page Down to move to the next sheet and Ctrl + Page Up to move to the previous sheet.

Your screen should be similar to Figure 1.3

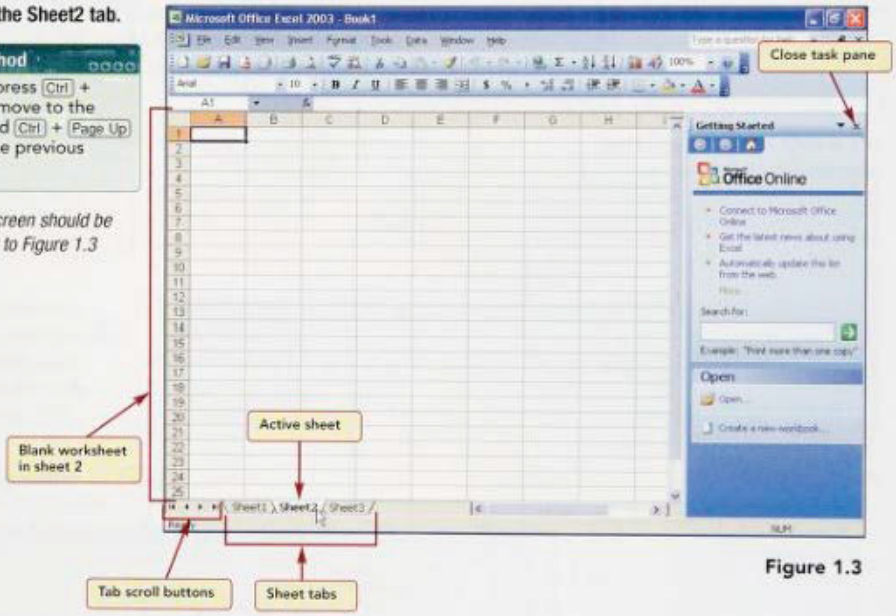


Figure 1.3

An identical blank worksheet is displayed in the window. The Sheet2 tab letters are bold, the background is highlighted, and it appears in front of the other sheet tabs to show it is the active sheet.

The sheet tab area also contains **tab scroll buttons**, which are used to scroll tabs right or left when there are more worksheet tabs than can be seen. You will learn about these features throughout the labs.

2 Click the Sheet1 tab to make it the active sheet again.

Click Close in the task pane title bar to close the task pane.

Another Method

The View/Task Pane command can also be used to hide the task pane.

Your screen should be similar to Figure 1.4

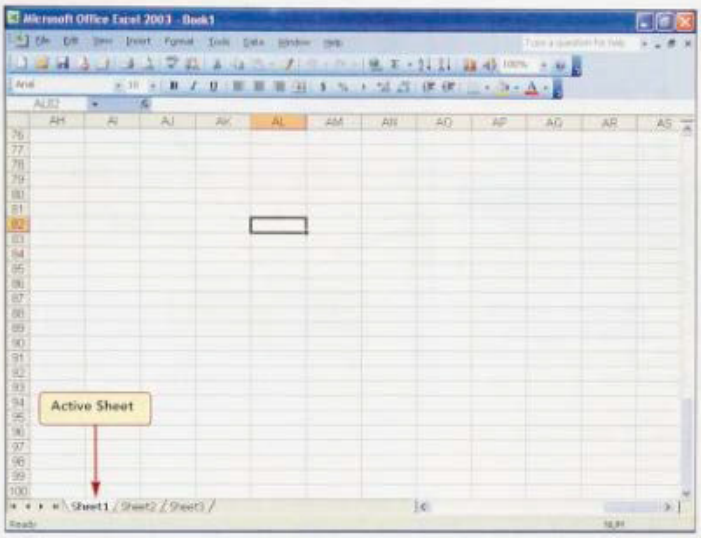


Figure 1.4

Additional Information

Do not be concerned if your workbook window displays more or fewer column letters and row numbers than shown here. This is a function of your computer monitor settings.

With the task pane closed, the workbook window is now the full width of the application window space, allowing much more of the worksheet to be displayed.

Moving Around the Worksheet

Additional Information

Using voice commands requires that the Speech Recognition feature be installed and the use of a microphone. Voice command equivalents will be identified in tables and marginal notes.

The mouse, keyboard or voice commands can be used to move the cell selector from one cell to another in the worksheet. To move using a mouse, simply point to the cell you want to move to and click the mouse button. Depending upon what you are doing, using the mouse to move may not be as convenient as using the keyboard, in which case the directional keys can be used. You will use the mouse, then the keyboard to move the cell selector.

Additional Information

You can use the directional keys in the numeric keypad (with NumLock off) or, if you have an extended keyboard, you can use the separate directional keypad area.

1. Click cell B3.
2. Press → (3 times).
3. Press ↓ (4 times).

Another Method

The voice commands are "Down," "Right," "Up," or "Left."

Your screen should be similar to Figure 1.5

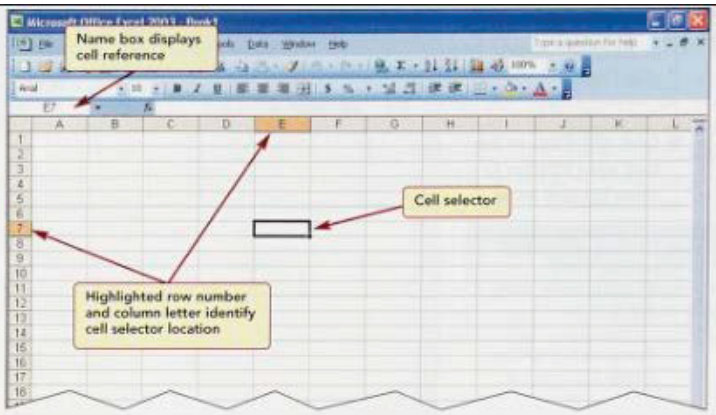


Figure 1.5

The cell selector is now in cell E7, making this cell the active cell. The Name box displays the cell reference. In addition, the row number and column letter are gold to further identify the location of the active cell.

As you have learned, the worksheet is much larger than the part you are viewing in the window. To see an area of the worksheet that is not currently in view, you need to scroll the window. Either the keyboard or the mouse can be used to quickly scroll a worksheet. Again, both methods are useful depending upon what you are doing. The keyboard, voice, and mouse procedures shown in the tables that follow can be used to move around the worksheet.

Having Trouble?

If your row number and column letter are highlighted, this is a function of your Windows settings.

Additional Information

Keys joined with a + indicate that you need to hold down the first key while pressing the second.

Keyboard	Voice	Action
Page Down	Page down	Moves cell selector down one full window
Page Up	Page up	Moves cell selector up one full window
Alt + Page Down		Moves cell selector right one full window
Alt + Page Up		Moves cell selector left one full window
Ctrl + Home	Home	Moves cell selector to upper-left corner cell of worksheet
Ctrl + End		Moves cell selector to last used cell of worksheet
Home		Moves cell selector to beginning of row
End →		End Moves cell selector to last-used cell in row
End ↓		Moves cell selector to last-used cell in column

Mouse	Action
Click scroll arrow	Scrolls worksheet one row/column in direction of arrow
Click above/below scroll box	Scrolls worksheet one full window up/down
Click right/left of scroll box	Scrolls worksheet one full window right/left
Drag scroll box	Scrolls worksheet multiple windows up/down or right/left

In addition, if you hold down the arrow keys, the Alt + Page Up or Alt + Page Down keys, or the Page Up or Page Down keys, you can quickly scroll through the worksheet. When you use the scroll bar, however, the cell selector does not move until you click on a cell that is visible in the window.

You will scroll the worksheet to see the rows below row 25 and the columns to the right of column L.

2. **Press Page Down (3 times).**
   - **Press Alt + Page Down (3 times).**

Your screen should be similar to Figure 1.6

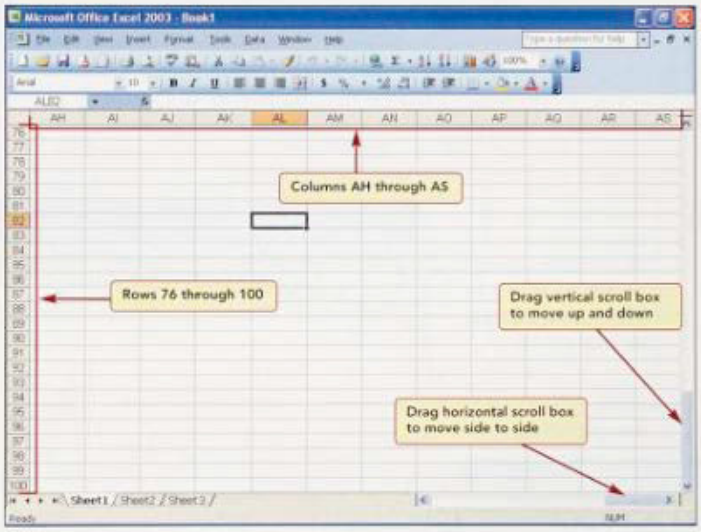


Figure 1.6

Having Trouble?
Your screen may display more or fewer rows and columns and the cell selector may be in a different cell. This is a function of your screen and system settings.

The worksheet scrolled downward and left three full windows, and the window displays rows 76 through 100 and columns AH through AS of the worksheet. The cell selector is in cell AL82. As you scroll the worksheet using the keyboard, the cell selector also moves.

It is even more efficient to use the scroll bar to move long distances.

3. Slowly drag the vertical scroll box up the scroll bar until row 1 is displayed.

- Slowly drag the horizontal scroll box left along the scroll bar until column A is displayed.

Additional Information

The position of the scroll box indicates the relative location of the area you are viewing within the worksheet, and the size of the scroll box indicates the proportional amount of the used area.

Your screen should be similar to Figure 1.7

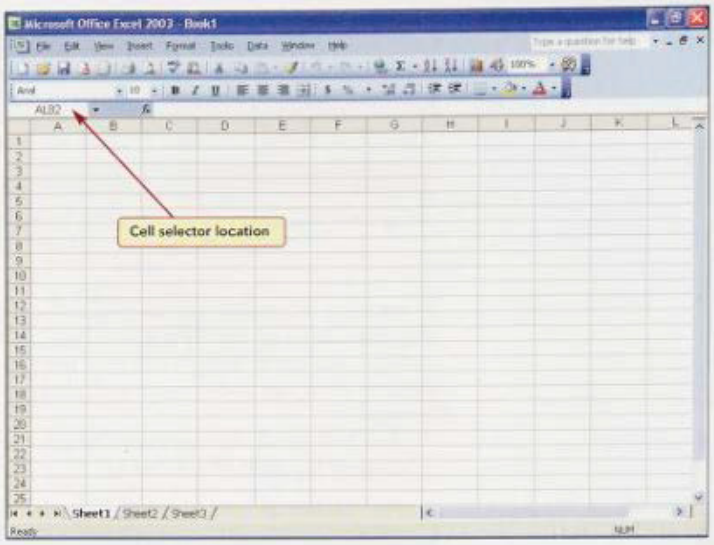


Figure 1.7

Notice that the Name box displays the cell selector location as AL82. When you use the scroll bar to scroll the worksheet, the cell selector does not move.

4. Practice moving the cell selector around the worksheet using each of the keys presented in the table on page EX1.10.

- Press Ctrl + Home to move to cell A1.

Another Method

You can also type a cell address in the Name box to move to that location.

Your screen should be similar to Figure 1.8

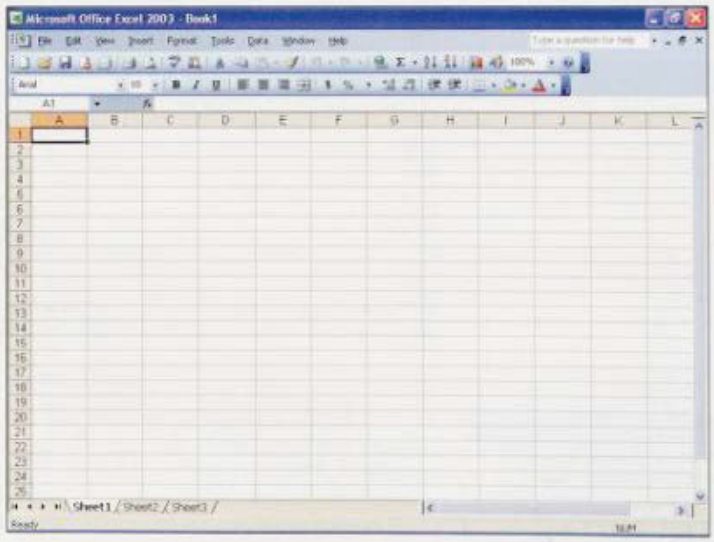


Figure 1.8

You can use the mouse or the keyboard with most of the exercises in these labs. As you use both the mouse and the keyboard, you will find that it is more efficient to use one or the other in specific situations.

Creating New Worksheets

Now that you are familiar with the parts of the workbook and with moving around the worksheet, you are ready to create a worksheet showing the forecast for the first three months of operation for the Downtown Internet Cafe. As you create a new worksheet, the development progresses through several stages.

Developing a Worksheet

Worksheet development consists of four steps: planning, entering and editing, testing, and formatting. The objective is to create well-designed worksheets that produce accurate results and are clearly understood, adaptable, and efficient.

Step	Description
1. Plan	Specify the purpose of the worksheet and how it should be organized. This means clearly identifying the data that will be input, the calculations that are needed to achieve the results, and the output that is desired. As part of the planning step, it is helpful to sketch out a design of the worksheet to organize the worksheet's structure. The design should include the worksheet title and row and column headings that identify the input and output. Additionally, sample data can be used to help determine the formulas needed to produce the output.
2. Enter and edit	Create the structure of the worksheet using Excel by entering the worksheet labels, data, and formulas. As you enter information, you are likely to make errors that need to be corrected or edited, or you will need to revise the content of what you have entered to clarify it or to add or delete information.
3. Test	Test the worksheet for errors. Use several sets of real or sample data as the input, and verify the resulting output. The input data should include a full range of possible values for each data item to ensure the worksheet can function successfully under all possible conditions.
4. Format	Enhance the appearance of the worksheet to make it more readable or attractive. This step is usually performed when the worksheet is near completion. It includes many features such as boldface text, italic, and color.

As the complexity of the worksheet increases, the importance of following the design process increases. Even for simple worksheets like the one you will create in this lab, the design process is important. You will find that you will generally follow these steps in the order listed above for your first draft of a worksheet. However, you will probably retrace steps such as editing and formatting as the final worksheet is developed.

During the planning phase, you have spoken with the Cafe manager regarding the purpose of the worksheet and the content in general. The primary purpose is to develop a forecast for sales and expenses for the next year. First, Evan wants you to develop a worksheet for the first quarter forecast and then extend it by quarters for the year. After reviewing past budgets and consulting with Evan, you have designed the basic layout for the first quarter forecast for the Cafe, as shown below.

Downtown Internet Cafe
First Quarter Forecast

Sales:				
Beverage	Janurary	February	March	Total
	$13,600	$14,600	$15,600	$43,800 (sum of beverage sales)
Food	XX,XXX			
Total Sales	$XX,XXX (Sum of monthly sales)	$XX,XXX	$XX,XXX	$XXX,XXX (sum of total sales)
Expenses:				
Cost of Goods	$(.25 * beverage sales + .50 * food sales)			$(sum of cost of goods)
Salary				
Total Expenses	$XX,XXX (sum of monthly expenses)	$XX,XXX	$XX,XXX	$XXX,XXX (sum of total expenses)
Income				
Net Income	$(Total Sales - Total Expenses)			
Profit Margin	$(Total Expenses ÷ Total Sales)			

Entering and Editing Data

Additional Information
You can also enter data in Dictation mode using the Speech Recognition feature.

Now that you understand the purpose of the worksheet and have a general idea of the content, you are ready to begin entering the data. When you first start Office Excel, a new blank Excel workbook file is opened containing three blank worksheets. Each worksheet is like a blank piece of paper that already has many predefined settings. These settings, called **default** settings, are generally the most commonly used settings. You will use the blank worksheet with the default settings to create the worksheet for the Cafe.

As you can see, the budget you designed above contains both descriptive text entries and numeric data. These are two types of entries you can make in a worksheet.

Concept 1

Text and Numeric Entries

1 The information or data you enter in a cell can be text, numbers, or formulas. Text entries can contain any combination of letters, numbers, spaces, and any other special characters. **Number** entries can include only the digits 0 to 9 and any of the special characters, + - ( ) , . / $ % ? =. Number entries can be used in calculations. The third type of entry is a formula. Formulas perform calculations on values in the worksheet. You will learn about formula entries later in the lab.

Entering Text

You enter data into a worksheet by moving to the cell where you want the data displayed and typing the entry using the keyboard. First, you will enter the worksheet headings. Row and column **headings** are entries that are used to create the structure of the worksheet and describe other worksheet entries. Generally, headings are text entries. The column headings in this worksheet consist of the three months (January through March) and a total (sum of entries over three months) located in columns B through E. To enter data in a worksheet, you must first select the cell where you want the entry displayed. The column heading for January will be entered in cell B2.

1 Move to B2.

Type January.

Having Trouble?
Do not be concerned if you made a typing error. You will learn how to correct it shortly.

Your screen should be similar to Figure 1.9

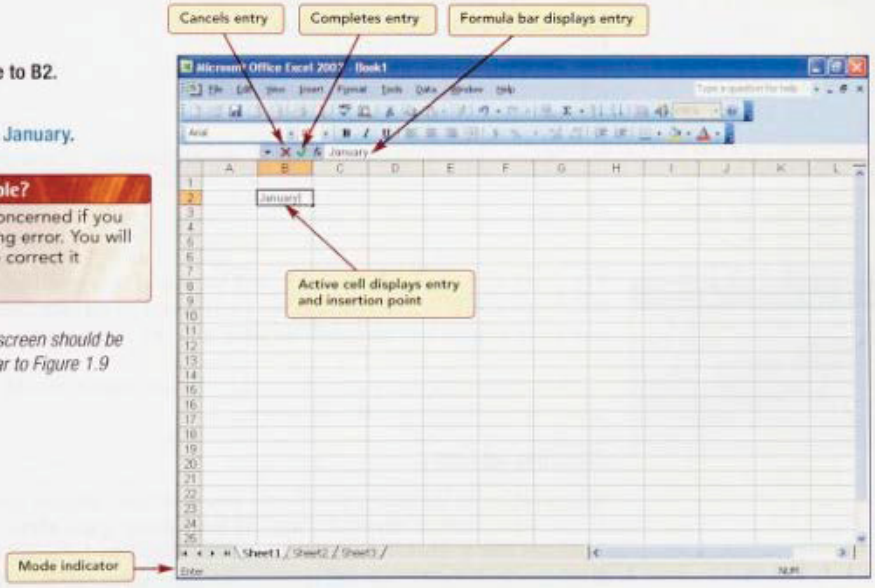


Figure 1.9

Several changes have occurred in the window. As you type, the entry is displayed both in the active cell and in the formula bar. An insertion point appears in the active cell and marks your location in the entry. Two new

buttons, ✗ and ✓, appear in the formula bar. They can be used with a mouse to cancel your entry or complete it.

Notice also that the mode displayed in the status bar has changed from Ready to Enter. This notifies you that the current mode of operation in the worksheet is entering data.

Although the entry is displayed in both the active cell and the formula bar, you need to press the Enter key or click ✓ to complete your entry. If you press Esc or click ✗, the entry is cleared and nothing appears in the cell. Since your hands are already on the keyboard, it is quicker to press Enter than it is to use the mouse to click ✓.

2 Press Enter.

Your screen should be similar to Figure 1.10

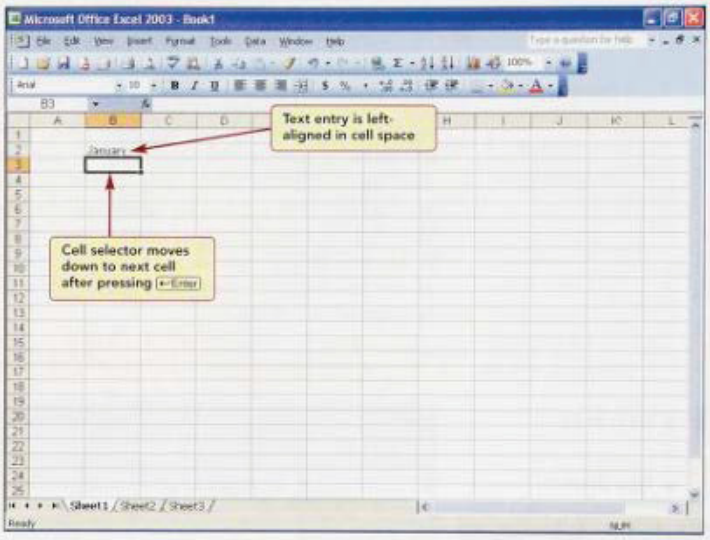


Figure 1.10

Additional Information

Pressing Shift + Enter to complete an entry moves the cell selector up a cell, and Ctrl + Enter completes the entry without moving the cell selector.

The entry January is displayed in cell B2, and the mode has returned to Ready. In addition, the cell selector has moved to cell B3. Whenever you use the Enter key to complete an entry, the cell selector moves down one cell.

Notice that the entry is positioned to the left side of the cell space. This is one of the worksheet default settings.

Clearing an Entry

After looking at the entry, you decide you want the column headings to be in row 3 rather than in row 2. This will leave more space above the column headings for a worksheet title. The Delete key can be used to clear the contents from a cell. You will remove the entry from cell B2 and enter it in cell B3.

1. Move to B2.
2. Press Delete.

Another Method

The menu equivalent is **E**dit/Clear/**C**ontents and the voice command is "Delete." Clear Contents is also an option on the shortcut menu.

3. Move to B3.
4. Type January.
5. Click ✓.

Your screen should be similar to Figure 1.11

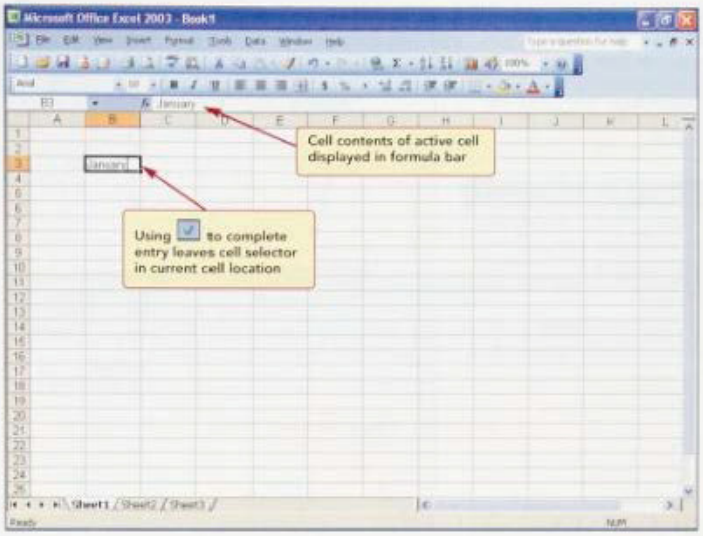


Figure 1.11

The cell selector remains in the active cell when you use ✓ to complete an entry. Because the cell selector is positioned on a cell containing an entry, the contents of the cell are displayed in the formula bar.

Editing an Entry

Next, you decide to change the heading from January to JAN. An entry in a cell can be entirely changed in the Ready mode or partially changed or edited in the Edit mode. To use the Ready mode, you move the cell selector to the cell you want to change and retype the entry the way you want it to appear. As soon as a new character is entered, the existing entry is cleared.

Generally, however, if you need to change only part of an entry, using the Edit mode is quicker. To change to Edit mode, double-click on the cell whose contents you want to edit.

1. Double-click B3.

Having Trouble?

The mouse pointer must be ✥ when you double-click on the cell.

Another Method

Pressing the F2 key will also change to Edit mode. The insertion point is positioned at the end of the entry.

Your screen should be similar to Figure 1.12

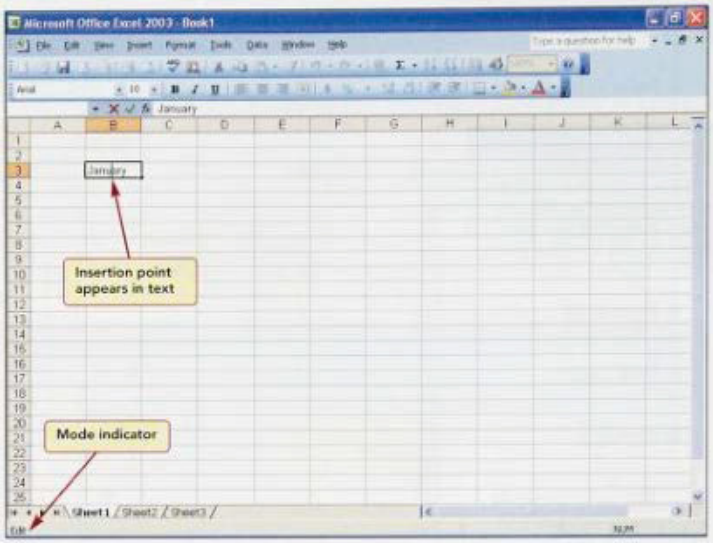


Figure 1.12

The status bar shows that the new mode of operation is Edit. The insertion point appears in the entry, and the mouse pointer changes to an I-beam when positioned on the cell. The mouse pointer can now be used to move the insertion point in the entry by positioning the I-beam and clicking. You can also use the arrow keys located on the numeric keypad or the directional keypad to move the insertion point. The keyboard directional keys and voice commands used to move within text are described in the following table.

Key	Voice	Movement
→	Right	One character to right
←	Left	One character to left
↑	Up	One line up
↓	Down	One line down
Ctrl + →	Next word	One word to right
Ctrl + ←	Back word	One word to left
Home	Home	Left end of line
End	Go end	Right end of line

Holding down a directional key or key combination moves quickly in the direction indicated, saving multiple presses of the key. Many of the insertion point movement keys can be held down to execute multiple moves.

Another Method

Using voice commands, you can say "Delete" or "Backspace."

Additional Information

You can also use Ctrl + Delete to delete everything to the right of the insertion point.

After the insertion point is appropriately positioned, you can edit the entry by removing the incorrect characters and typing the correct characters. The Delete key erases characters to the right of the insertion point, and the Backspace key erases characters to the left of the insertion point. You will change this entry to JAN.

2. If necessary, move the insertion point to the end of the entry.
- Press Backspace (4 times).
- Press Home.
- Press →.
- Press Caps Lock.
- Press Insert.

Additional Information

The status bar displays CAPS and OVR to let you know these features are on.

- Type AN.
- Press ↵Enter.

Your screen should be similar to Figure 1.13

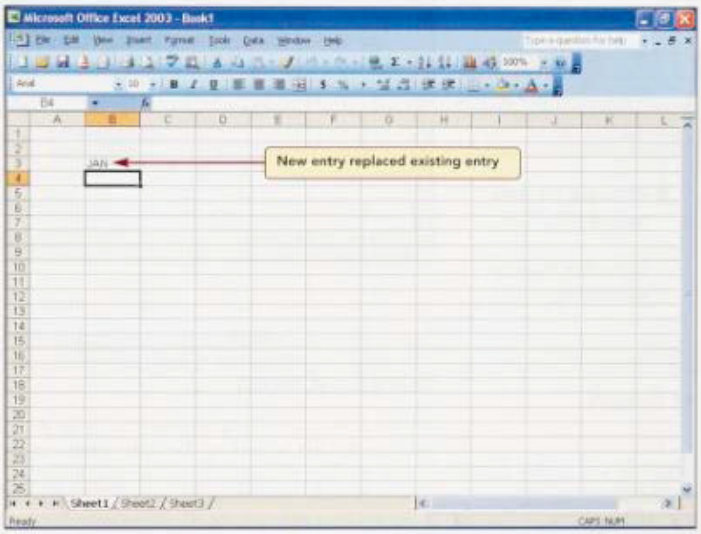


Figure 1.13

Additional Information

The Caps Lock indicator light on your keyboard is lit when this feature is on.

Additional Information

Overwrite is automatically turned off when you leave Edit mode or if you press Insert again.

The four characters at the end of the entry were deleted using Backspace. Turning on the Caps Lock feature produced an uppercase letters AN without having to hold down ⇧Shift. Finally, by pressing Insert the program switched from inserting text to overwriting text as you typed. The insertion point changed to a highlight to show that the character will be replaced.

The new heading JAN is entered into cell B3, replacing January. As you can see, editing will be particularly useful with long or complicated entries.

Next, you will enter the remaining three headings in row 3. You can also complete an entry by moving to any other worksheet cell.

3. Move to C3.
- Type FEB.
- Press → or Tab or click D3.
- Complete the column headings by entering MAR in cell D3 and TOTAL in cell E3.

Having Trouble?
Remember to press Enter or an arrow key to complete each entry.

- When you are done, turn off Caps Lock.

Your screen should be similar to Figure 1.14

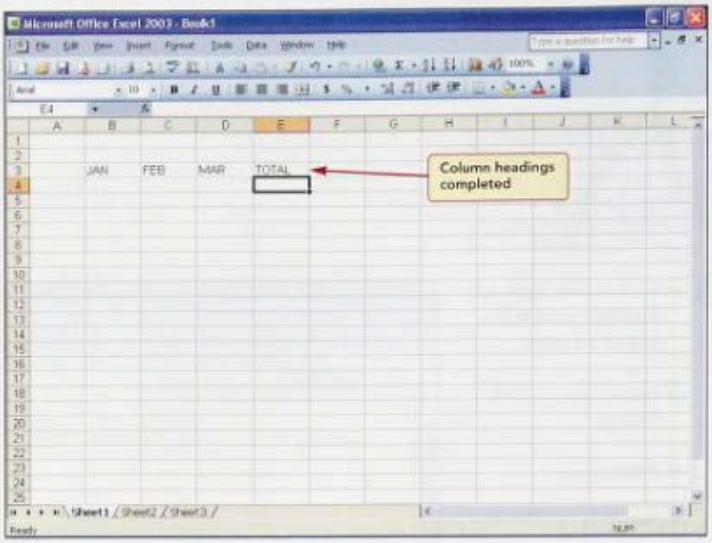


Figure 1.14

The column headings are now complete for the first quarter.

Using AutoCorrect

As soon as you complete an entry in a cell, Excel checks the entry for accuracy. This is part of the automatic correcting feature of Office Excel.

Concept 2

AutoCorrect

2 The **AutoCorrect** feature makes some basic assumptions about the text you are typing and, based on these assumptions, automatically corrects the entry. The AutoCorrect feature automatically inserts proper capitalization at the beginning of sentences and in the names of days of the week. It will also change to lowercase letters any words that were incorrectly capitalized because of the accidental use of the Caps Lock key. In addition, it also corrects many common typing and spelling errors automatically.

One way the program automatically makes corrections is by looking for certain types of errors. For example, if two capital letters appear at the beginning of a word, the second capital letter is changed to a lowercase letter. If a lowercase letter appears at the beginning of a sentence, the first letter of the first word is capitalized. If the name of a day begins with a lowercase letter, the first letter is capitalized.

Another way the program makes corrections is by checking all entries against a built-in list of words that are commonly spelled incorrectly or typed incorrectly. If it finds the entry on the list, the program automatically replaces the error with the correction. For example, the typing error "aboutthe" is automatically changed to "about the" because the error is on the AutoCorrect list. You can also add words that you want to be automatically corrected to the AutoCorrect list. Words you add are added to the list on the computer you are using and will be available to anyone who uses the machine later.

Above the column headings, in rows 1 and 2, you want to enter a title for the worksheet. While entering the title, you will intentionally misspell two words to demonstrate how the AutoCorrect feature works.

1. **Move to B1.**
- **Type** Downtown Internet Cafe.
- **Press** Enter.
- **Type** Firts Quater Forecast.
- **Press** Enter.

Your screen should be similar to Figure 1.15

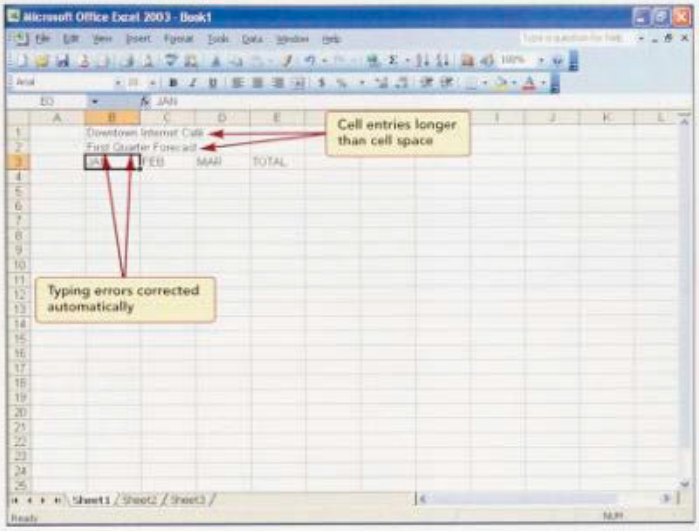


Figure 1.15

Additional Information
Excel automatically adds an accent over the e in Café if the feature to recognize French words is enabled.

The two typing errors were automatically corrected when you completed the entry. When a text entry is longer than the cell's column width, Excel will display as much of the entry as it can. If the cell to the right is empty, the whole entry will be displayed. If the cell to the right contains an entry, the overlapping part of the entry is not displayed.

Next, the row headings need to be entered into column A of the worksheet. The row headings and what they represent are shown on the next page.

Heading	Represents
Sales	
Drink	Income from sales of drinks (espresso, gourmet coffee, cold drinks)
Food	Income from sales of sandwiches and salads
Internet	Income from Internet connection time charges
Merchandise	Income from sales of Cafe tee shirts, mugs, etc.
Total Sales	Sum of all sales
Expenses	
Cost of Goods	Cost of beverage and food items sold
Salary	Personnel expenses
Computers	Monthly payment for computer hardware
Lease	Monthly lease expense
Miscellaneous	Monthly expenses for T1 line, phone, electricity, water, trash removal, etc.
Income	
Net Income	Total sales minus total expenses
Profit Margin	Net income divided by total sales

2 **Complete the row headings for the Sales portion of the worksheet by entering the following headings in the indicated cells:**

Cell	Heading
A4	Sales
A5	Drink
A6	Food
A7	Internet
A8	Merchandise
A9	Total Sales

Having Trouble?
Remember to press ←Enter or an arrow key to complete each entry.

Your screen should be similar to Figure 1.16

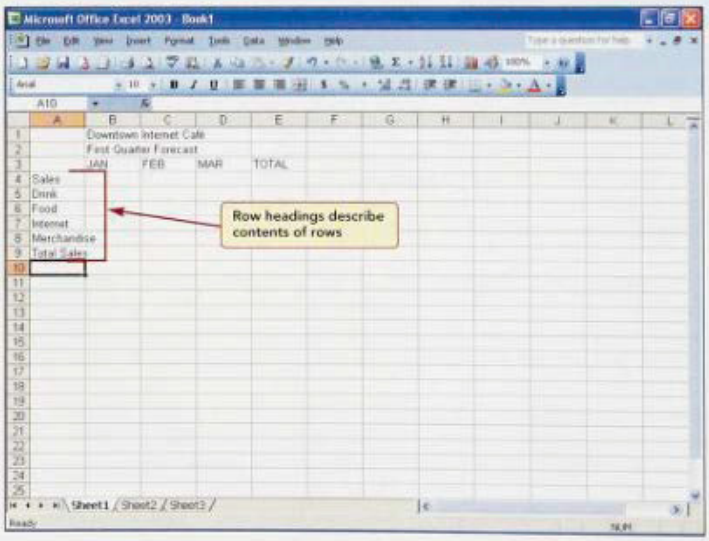


Figure 1.16

Entering Numbers

Next, you will enter the expected beverage sales numbers for January through March into cells B5 through D5. As you learned earlier, number entries can include the digits 0 to 9 and any of these special characters: + – ( ), . / $ % ? =. When entering numbers, it is not necessary to type the comma to separate thousands or the currency ($) symbol. You will learn about adding these symbols shortly.

You will enter the expected beverage sales for January first. Unlike text entries, Excel displays number entries right-aligned in the cell space by default.

1. Move to B5.
- Type 13600.
- Press ↵Enter.

Additional Information

You can use the number keys above the alphabetic keys or the numeric keypad area to enter numbers. If you use the numeric keypad, the Num Lock key must be on.

- In the same manner, enter the January sales numbers for the remaining items using the values shown below.

Cell	Number
B6	7100
B7	3600
B8	3100

- Move to A8.

Your screen should be similar to Figure 1.17

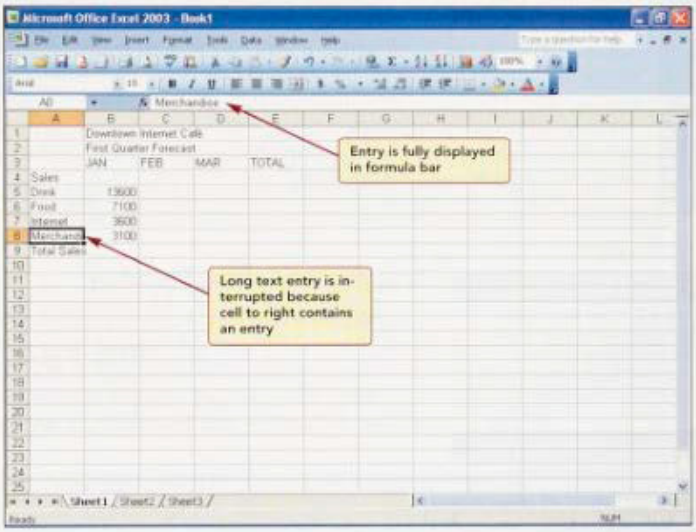


Figure 1.17

After entering the numbers for January in column B, any long headings in column A were cut off or interrupted. Notice that the entry in cell A8 is no longer completely displayed. It is a long text entry and because the cell to the right (B8) now contains an entry, the overlapping part of the entry is shortened. However, the entire entry is fully displayed in the formula bar. Only the display of the entry in the cell has been shortened.

Changing Column Widths

To allow the long text entries in column A to be fully displayed, you can increase the column's width.

Concept 3

Column Width

3 The size or width of a column controls the amount of information that can be displayed in a cell. A text entry that is larger than the column width will be fully displayed only if the cells to the right are blank. If the cells to the right contain data, the text is interrupted. On the other hand, when numbers are entered in a cell, the column width is automatically increased to fully display the entry.

The default column width setting is 8.43. The number represents the average number of digits that can be displayed in a cell using the standard type style. The column width can be any number from 1 to 255.

When the worksheet is printed, it appears as it does currently on the screen. Therefore, you want to increase the column width to display the largest entry. Likewise, you can decrease the column width when the entries in a column are short.

Additional Information

ScreenTips are displayed next to the mouse pointer and give you additional information about the feature you are using.

Additional Information

You can also adjust the size of any row by dragging the row divider line or by using Format/Row/Height.

Dragging the Column Boundary

The column width can be quickly adjusted by dragging the boundary line located to the right of the column letter. Dragging it to the left decreases the column width, while dragging it to the right increases the width. As you drag, a temporary column reference line shows where the new column will appear and a ScreenTip displays the width of the column.

1. Point to the boundary line to the right of the column letter A, then click and drag the mouse pointer to the right.

Having Trouble?

Make sure the mouse pointer changes to ✛ before you drag the column boundary line to size the column.

2. When the ScreenTip displays 15.00, release the mouse button.

Another Method

The menu equivalent is Format/Column/Width.

Your screen should be similar to Figure 1.18

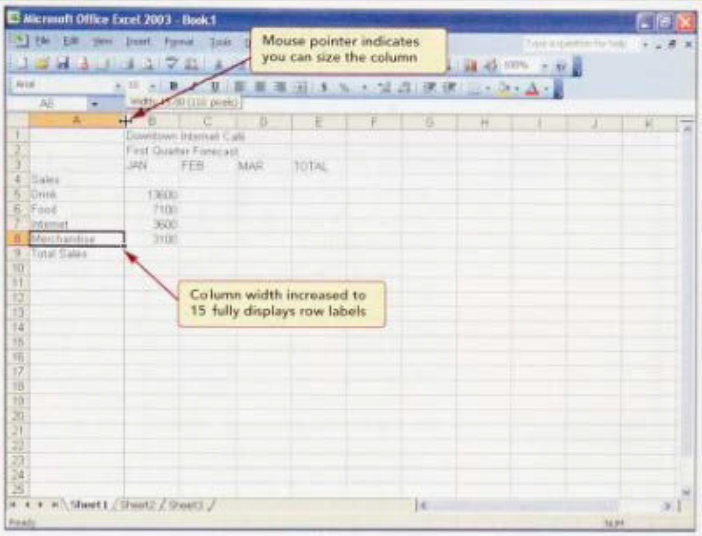


Figure 1.18

Now, however, the column width is wider than needed.

Using AutoFit

Another way to change the column width is to use the **AutoFit** feature to automatically adjust the width to fit the column contents.

1. Double-click the right A column boundary line.

Having Trouble?

Make sure the mouse pointer changes to ✛ before you double-click on the column boundary line.

Another Method

The menu equivalent is Format/Column/AutoFit Selection.

Your screen should be similar to Figure 1.19

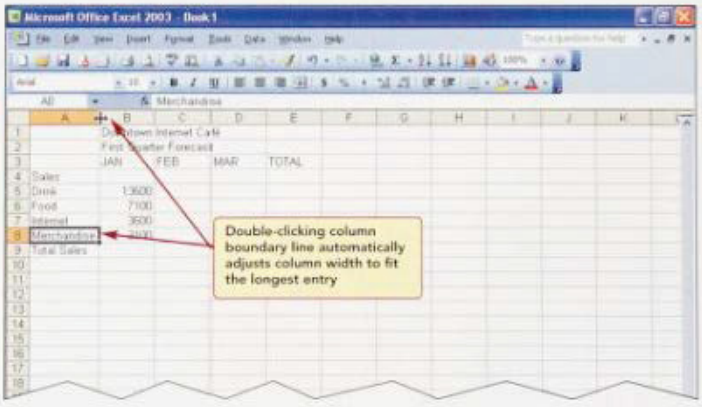


Figure 1.19

The column width is sized to just slightly larger than the longest cell contents. When using AutoFit, double-click the boundary to the right of the column heading of the column you want to fit to contents.

Saving, Closing, and Opening Workbooks

You have a meeting you need to attend shortly, so you want to save your work to a file and close the file. As you enter and edit data to create a new workbook, the changes you make are immediately displayed onscreen and are stored in your computer's memory. However, they are not permanently stored until you save your work to a file on a disk. After a workbook is saved as a file, it can be closed and opened again at a later time to be further edited.

As a backup against the accidental loss of work because of power failure or other mishap, Office 2003 applications include an AutoRecover feature. When this feature is on, as you work you may see a pulsing disk icon briefly appear in the status bar. This icon indicates that the program is saving your work to a temporary recovery file. The time interval between automatic saving can be set to any period you specify; the default is every 10 minutes. When you start up again, the recovery file is automatically opened containing all changes you made up to the last time it was saved by AutoRecover. You then need to save the recovery file. If you do not save it, it is deleted when closed. While AutoRecover is a great feature for recovering lost work, it should not be used in place of regularly saving your work.

Saving a New Workbook

You will save the work you have completed so far on the workbook. The Save or Save As commands on the File menu are used to save files. The Save command or the Save button will save the active file using the same file name by replacing the contents of the existing file with the document as it appears on your screen. The Save As command is used to save a file with a new file name or to a new location. This action leaves the original file unchanged.

When a workbook is saved for the first time, either command can be used. It is especially important to save a new file very soon after you create it as the AutoRecovery feature does not work until a file name has been specified.

Charting Worksheet Data

LAB 2

Objectives

After completing this lab, you will know how to:

1. Use styles.
2. Insert and size a graphic.
3. Create a chart using the Chart Wizard.
4. Move, size, and format a chart.
5. Change the type of chart.
6. Create, explode, and rotate a pie chart.
7. Apply patterns and color to a chart.
8. Document a workbook.
9. Size and align a sheet on a page.
10. Add predefined headers and footers

Case Study

Downtown Internet Café

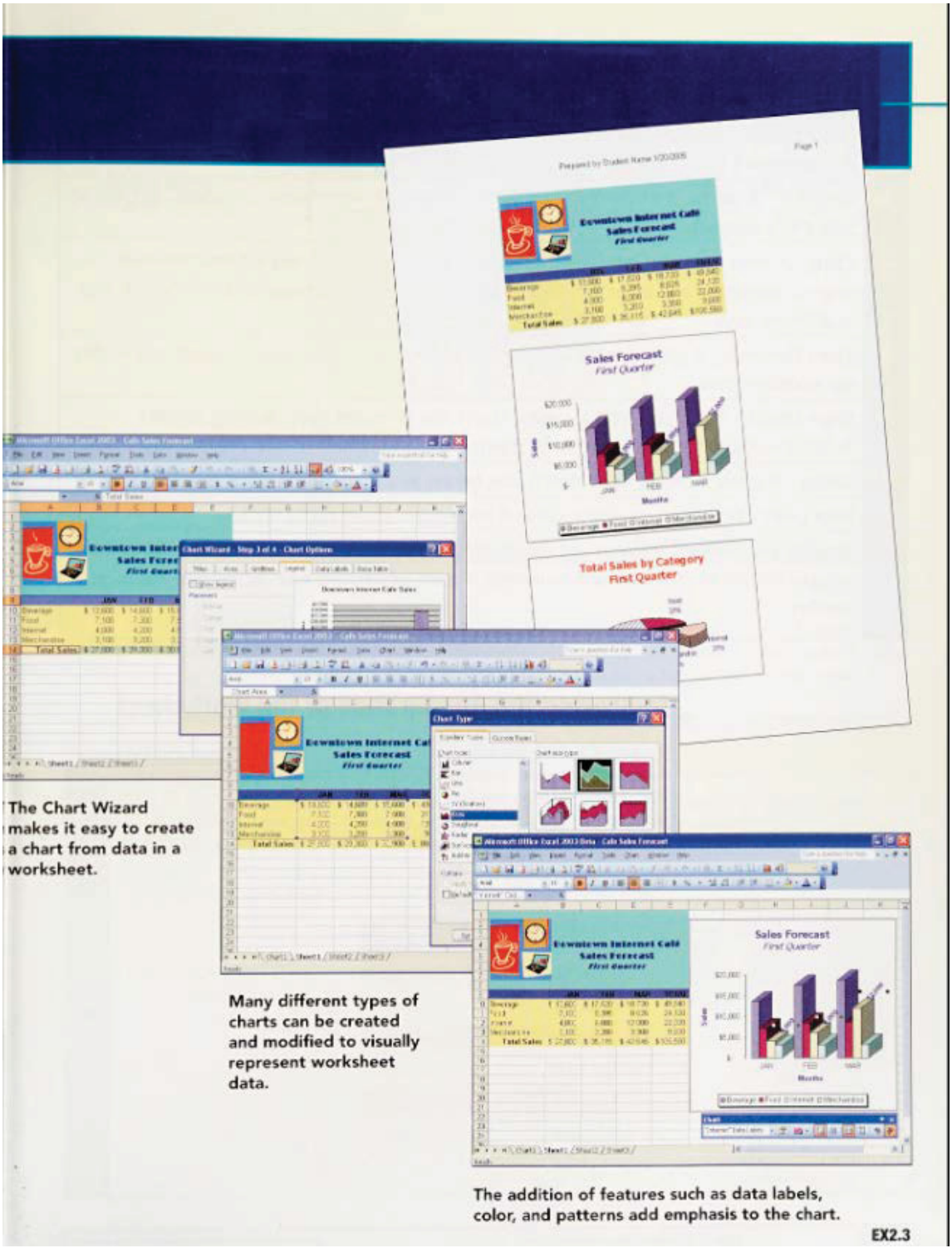
Evan is impressed with how quickly you were able to create the first quarter sales forecast for the Downtown Internet Café. He made several suggestions to improve the appearance of the worksheet, including applying different formats and adding a graphic. Evan also expressed concern that the sales values seem a little low and has asked you to contact several other Internet cafes to inquire about their startup experiences.

While speaking with other Internet cafe managers, you heard many exciting success stories. Internet connections attract more customers, and the typical customer stays longer at an Internet cafe than at a regular cafe. As a result, they spend more money. In your discussions you have found that Internet connection sales are responsible for approximately 25 percent of their total sales.

You would like to launch an aggressive advertising campaign to promote the new Internet aspect of the Downtown Internet Café. You believe that the campaign will lead to an increase in sales not only in Internet connection time but also in food and beverage sales. To convince Evan, you need an effective way to illustrate the sales growth you are forecasting. You will use Excel 2003's chart-creating and formatting features to produce several different charts of your sales estimates, as shown on the following page.



© Corbis



The Chart Wizard makes it easy to create a chart from data in a worksheet.

Many different types of charts can be created and modified to visually represent worksheet data.

The addition of features such as data labels, color, and patterns add emphasis to the chart.

EX2.3

Concept Preview

The following concepts will be introduced in this lab:

1. **Style** A style consists of a combination of formats that have been named and that can be quickly applied to a selection.
2. **Graphics** A graphic is a non-text element or object, such as a drawing or picture, that can be added to a document.
3. **Chart** A chart is a visual representation of data that is used to convey information in an easy-to-understand and attractive manner. Different types of charts are used to represent data in different ways.
4. **Chart Elements** A chart consists of a number of elements that are used to graphically display the worksheet data.
5. **Chart Object** A chart object is a graphic object that is created using charting features included in Excel. A chart object can be inserted into a worksheet or into a special chart sheet.
6. **Group** A group is two or more objects that behave as a single object when moved or sized.
7. **Data Label** Data labels provide additional information about a data marker.
8. **Headers and Footers** Headers and footers provide information that typically appears at the top and bottom of each page and commonly include information such as the date and page number.

Improving the Appearance of the Worksheet

To focus Evan's attention solely on the sales values for the Downtown Internet Cafe, you created a new worksheet containing only those values. You have added some formatting to it already, but want to improve its appearance by changing the format of the sales values and adding a graphic. Then you will create the charts to see the sales trends better.

Using Styles

You saved the sales portion of the worksheet in a new file.

1. Start Office Excel 2003.
2. Open the file ex02_Cafe Sales.

Your screen should be similar to Figure 2.1

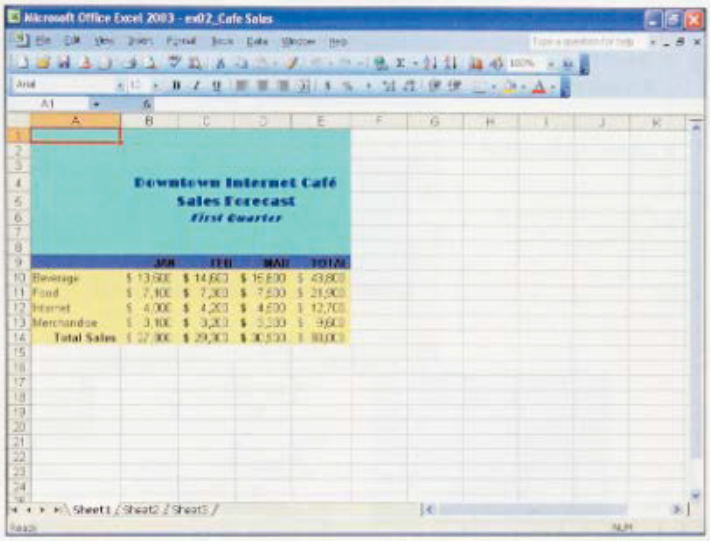


Figure 2.1

You first want to change the format of the Food, Internet, and Merchandise values to display commas only, without dollar signs. Another way to apply number formats is to select a predefined format style.

Concept 1

Style

1 A style consists of a combination of formats that have been named and that can be quickly applied to a selection. Excel includes six predefined styles, or you can create your own custom styles. The default worksheet style is Normal. It sets the number format to General and controls other format settings that are applied to all entries, including font type, font size, alignment, and indentation. Examples of the six predefined styles are shown below.

Style	Example
Normal	89522
Comma	89,522.00
Comma [0]	89,522
Currency	$ 89,522.00
Currency [0]	$ 89,522
Percent	89.52200%

Currently the worksheet values are formatted using the Accounting style with zero decimal places displayed. This format is the same as the Currency [0] style. You will use the Comma [0] style for the three rows you want to change.

2. Select the range B11 through E13.
   - Choose Format/Style.

Your screen should be similar to Figure 2.2

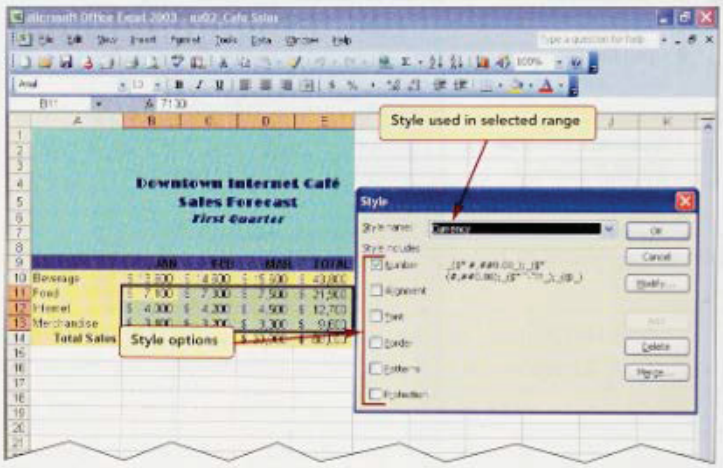


Figure 2.2

The Style dialog box displays the name of the style used in the selected range, Currency, in the Style Name list box. The check boxes in the Style Includes area of the dialog box show the options that are included in this style followed by a description or sample. You want to use the Comma [0] style.

3. Open the Style Name drop-down list box.
   - Select Comma [0].
   - Click OK.

Additional Information

Using Comma Style on the Formatting toolbar or the voice command "Comma style" applies the Comma number format with two decimal places.

Your screen should be similar to Figure 2.3

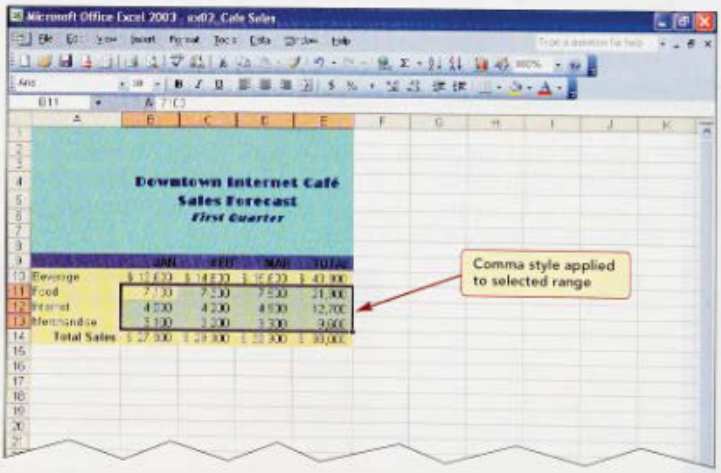


Figure 2.3

The Comma [0] style applies the comma number format with zero decimal places. Using a style applies many formats in one easy step making it quicker to apply formats to cells.

Working with Graphics

Now you want to add a graphic next to the worksheet title to add interest.

Concept 2

Graphics

2 A **graphic** is a non-text element or object, such as a drawing or picture, that can be added to a document. An **object** is an item that can be sized, moved, and manipulated.

A graphic can be a simple drawing object consisting of shapes, such as lines and boxes, that can be created using features on the Drawing toolbar. A **drawing object** is part of the Excel workbook. A **picture** is an illustration such as a scanned photograph. Pictures are graphics that were created from another program and inserted in the worksheet as embedded objects. An **embedded object** becomes part of the Excel workbook and can be opened and edited using the **source program**, the program in which it was created.



drawing object



graphic illustration



photograph

Add graphics to your worksheets to help the reader understand concepts, to add interest, and to make your worksheet stand out from others.

Inserting a Graphic

You want to insert a graphic to the left of the title in the worksheet. Graphic files can be obtained from a variety of sources. Many simple drawings called **clip art** are found in the Clip Organizer that comes with Office 2003 as well as in Microsoft's Clip Art and Media Web site. You can also create graphic files using a scanner to convert any printed document, including photographs, to an electronic format. Most images that are scanned are stored as Windows bitmap files (.bmp). All types of graphics, including clip art, photographs, and other types of images, can be found on the Internet. These files are commonly stored as .jpg or .pcx files. Keep in mind that any images you locate on the Internet may be protected by copyright and should be used only with permission. You can also purchase CDs containing graphics for your use.

You decide to use the Clip Organizer to find a suitable graphic.

1. Move to cell A1.
2. Click to display the Drawing toolbar.
3. Click Insert Clip Art on the Drawing toolbar.

Another Method

The menu equivalent is Insert/Picture/Clip Art. You could also display the Getting Started task pane and select Clip Art from the task pane menu. The voice command is "Insert clip art."

Your screen should be similar to Figure 2.4

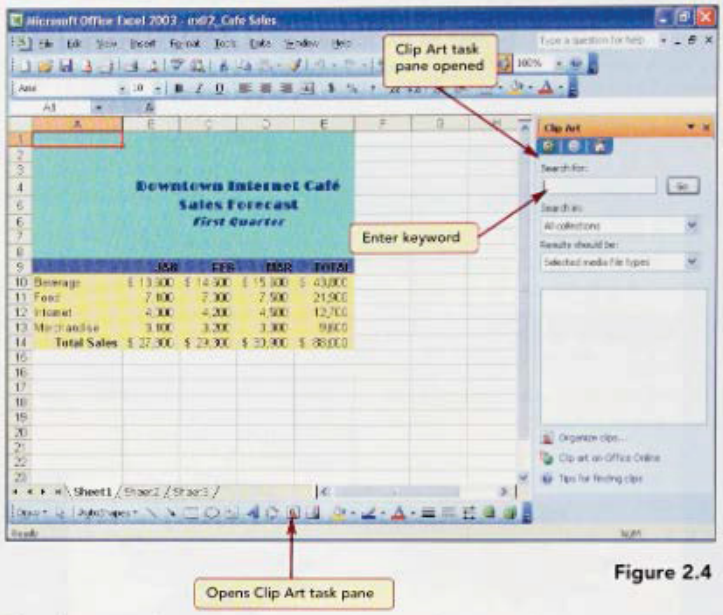


Figure 2.4

Additional Information

You can also insert graphics directly from files on your computer using Insert/Picture/From File or Insert Picture from file. The voice command is "Insert picture from file."

The Clip Art task pane appears. In the Search For text box, you can enter a **keyword**, a word or phrase that is descriptive of the type of graphic you want to locate. The graphics in the Clip Organizer are organized by topic and are identified with several keywords that describe the graphic. You can also specify the locations to search and the type of media files, such as clip art, movies, photographs, or sound, that you want displayed in the search results. You want to find clip art and photographs of computers.

2. In the Search text box, type computer.

Having Trouble?
If the Search text box already contains text, highlight the existing text before typing the new keyword.

- If All Collections is not displayed in the Search In text box, select Everywhere from the drop-down list.

Having Trouble?
Click the box next to an option to select or deselect it (clear the checkmark).

- Open the Results Should Be drop-down list, select Photographs and Clip Art and deselect all other options.
- Click Go.

Your screen should be similar to Figure 2.5

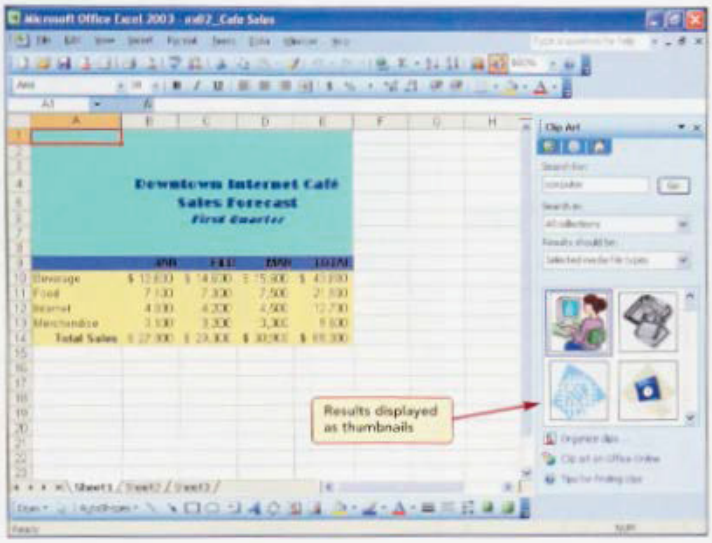


Figure 2.5

Having Trouble?
If your thumbnails appear in a single column, increase the width of your task pane by dragging the left edge of the pane until two columns are displayed.

The program searches all locations on your computer and, if you have an Internet connection established, Microsoft's Clip Art and Media Web site for clip art and graphics that match your search term. The Results area displays **thumbnails**, miniature representations of pictures, of all located graphics. Pointing to a thumbnail displays a ScreenTip containing the keywords associated with the picture and information about the picture properties. It also displays a drop-down list bar that accesses the item's shortcut menu.

Additionally, because it is sometimes difficult to see the graphic in the thumbnail, you can preview it in a larger size.

3 Point to any thumbnail to see a ScreenTip.

Click next to any graphic to open the shortcut menu.

Additional Information

The shortcut menu commands are used to work with and manage the items in the Clip Organizer.

Choose **Preview/Properties**.

Your screen should be similar to Figure 2.6

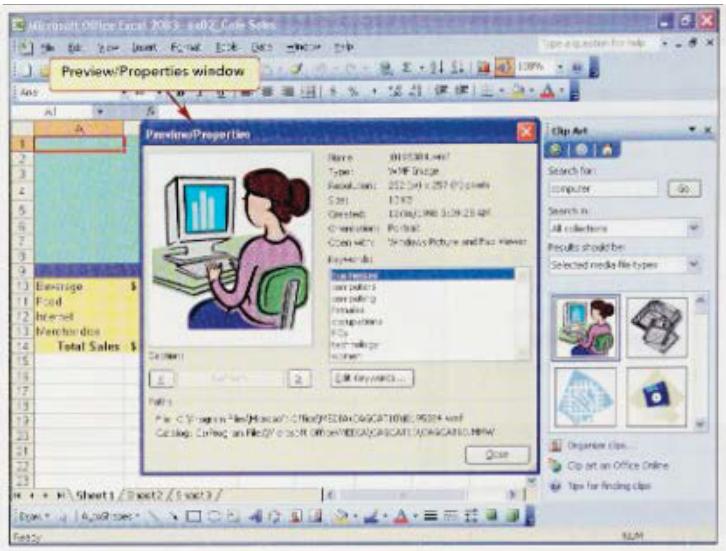


Figure 2.6

Having Trouble?

Your Preview/Properties dialog box will display information about the graphic you selected.

Additional Information

Entering keywords separated with a comma will expand the search to any graphics associated with either keyword.

The Preview/Properties dialog box displays the selected graphic larger so it is easier to see. It also displays more information about the properties associated with the graphic.

Because so many pictures were located, you decide to narrow your search to display only pictures of computers and coffee. Adding a second word to your search will narrow the number of graphics located. This is because it requires that both words be associated with the graphic in order for it to appear in the results.

4. Click Close to close the Preview dialog box.
   - Add the word coffee to the Search For text box.
   - Click Go.
   - If necessary, scroll the results area to locate the graphic of a coffee cup, clock, and computer. 

Your screen should be similar to Figure 2.7

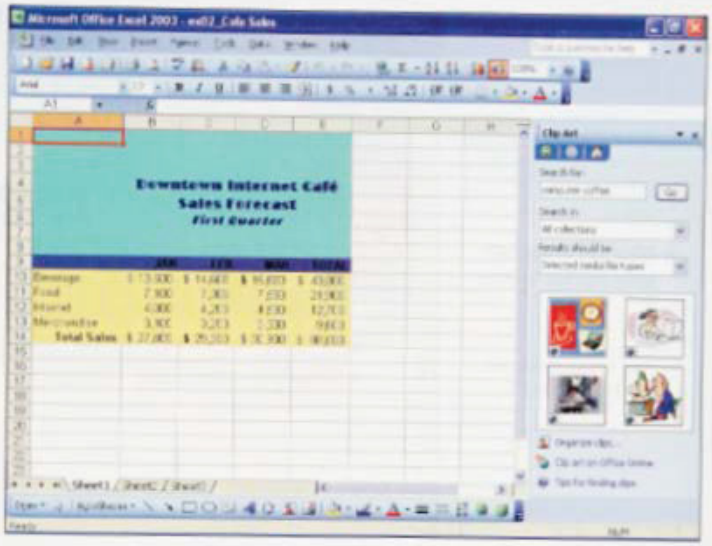


Figure 2.7

Having Trouble?

If this graphic is not available close the Clip Art task pane, choose Insert/Picture/From File or click and choose ex02_computer.bmp from your data file location. Skip to the next section, Sizing Graphics.

Because the search term is more specific, fewer results are displayed. You believe this is a good choice and will insert it into the document.

5 Click on the graphic to insert it in the document.

Another Method

You could also choose Insert from the thumbnail's shortcut menu.

- Click ☒ in the task pane title bar to close it.

Your screen should be similar to Figure 2.8

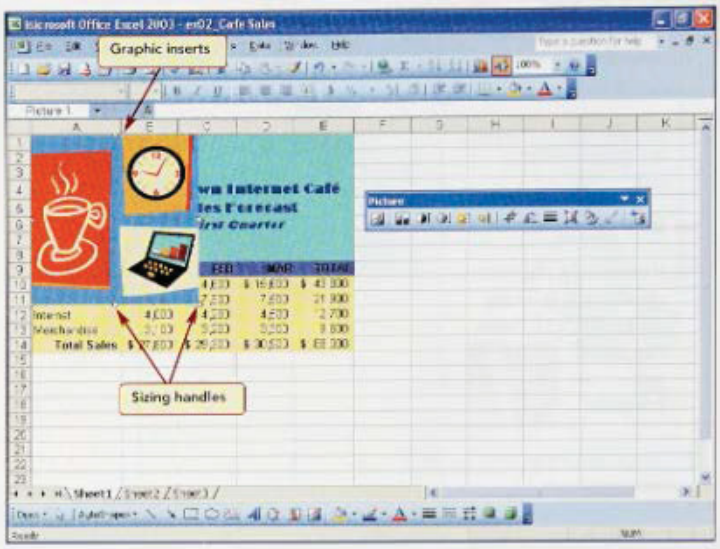


Figure 2.8

Sizing Graphics

The ClipArt image is inserted in the worksheet, but it is much too large. When a graphic object is inserted into the workbook, it can be manipulated in many ways. You can change its size, add borders or shading, or move it to another location, including the margin, headers and footers, or on top of or below other objects.

Additional Information

A selected graphic object can be deleted by pressing Delete.

You want to reduce the size of the graphic and position it next to the title. The picture is surrounded by eight small circles, called **sizing handles**, indicating that it is a selected object and can now be sized and moved anywhere in the document. The handles are used to size the object. The mouse pointer changes to ↔ when pointing to a handle. The direction of the arrow indicates the direction in which you can drag to size the graphic. When you hold down the mouse button and drag to size the graphic the mouse pointer shape changes to a +. A graphic object is moved by dragging it to the new location. The mouse pointer changes to ✥ when you can move the graphic.

Having Trouble?

If the Picture toolbar is not displayed, right-click on any toolbar to open the shortcut menu and select Picture, or use View/Toolbars/Picture.

The Picture toolbar is also automatically displayed. Its buttons are used to modify the selected picture object. Your Picture toolbar may be floating or docked along an edge of the window, depending on its location when last used.

1. Point to the lower-right corner sizing handle.
2. With the pointer as a ↘, drag the mouse inward to reduce the size of the graphic until the bottom of the graphic is even with row 6.

Additional Information

Dragging a corner handle maintains the original proportions of the pictures.

3. Point to the center of the graphic, and when the mouse pointer is ✥, drag the graphic to position it as in Figure 2.9.
4. Click outside the graphic to deselect the object.
5. Turn off the Drawing toolbar.
6. Save the revised worksheet as Café Sales Forecast to your data file location.

Your screen should be similar to Figure 2.9

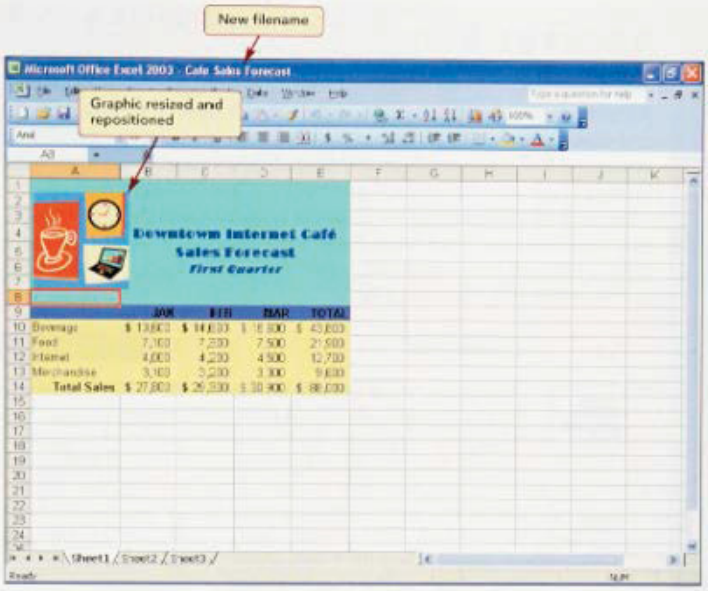


Figure 2.9

The addition of a graphic adds a nice touch to the worksheet title.

Working with Charts

Although the worksheet shows the sales data for each category, it is difficult to see how the different categories change over time. To make it easier to see the sales trends, you decide to create a chart of this data.

Concept 3

Charts

3 A **chart** is a visual representation of data that is used to convey information in an easy-to-understand and attractive manner. Different types of charts are used to represent data in different ways. The type of chart you create depends on the type of data you are charting and the emphasis you want the chart to impart.

Excel 2003 can produce 14 standard types of graphs or charts, with many different sub-types for each standard type. In addition, Excel includes professionally designed, built-in custom charts that include additional formatting and chart refinements. The basic chart types and how they represent data are described in the following table.

Type	Description
	Area charts show the magnitude of change over time by emphasizing the area under the curve created by each data series.
	Bar charts display data as evenly spaced bars. The categories are displayed along the Y axis and the values are displayed horizontally, placing more emphasis on comparisons and less on time.
	Column charts display data as evenly spaced bars. They are similar to bar charts, except that categories are organized horizontally and values vertically to emphasize variation over time.
	Line charts display data along a line. They are used to show changes in data over time, emphasizing time and rate of change rather than the amount of change.
	Pie charts display data as slices of a circle or pie. They show the relationship of each value in a data series to the series as a whole. Each slice of the pie represents a single value in the series.
	Doughnut charts are similar to pie charts except that they can show more than one data series.

Type	Description
	Radar charts display a line or area chart wrapped around a central point. Each axis represents a set of data points.
	XY (scatter) charts are used to show the relationship between two ranges of numeric data.
	Surface charts display values in a form similar to a rubber sheet stretched over a 3-D column chart. These are useful for finding the best combination between sets of data.
	Bubble charts compare sets of three values. They are similar to a scatter chart with the third value displayed as the size of bubble markers.
	Stock charts are high-low-close charts. They require three series of values in this order.
	Cylinder charts display values with a cylindrical shape.
	Cone charts display values with a conical shape.
	Pyramid charts display values with a pyramid shape.

Creating a Single Data Series Chart

All charts are drawn from data contained in a worksheet. To create a new chart, you select the worksheet range containing the data you want displayed as a chart plus any row or column headings you want used in the chart. Excel then translates the selected data into a chart based upon the shape and contents of the worksheet selection.

A chart consists of a number of parts or elements that are important to understand so that you can identify the appropriate data to select in the worksheet.

Concept 4

Chart Elements

4 A chart consists of a number of elements that are used to graphically display the worksheet data. In a two-dimensional chart, the selected worksheet data is visually displayed within the X- and Y-axis boundaries. The **X axis**, also called the category axis, is the bottom boundary line of the chart and is used to label the data being charted. The left boundary line of the chart is the **Y axis**, also called the **value axis**. This axis is a numbered scale whose numbers are determined by the data used in the chart. Typically, the X-axis line is the horizontal line and the Y-axis line is the vertical line. In 3-D charts there can also be an additional axis, called the **Z axis**, which allows you to compare data within a series more easily. This axis is the vertical axis, while the X and Y axes depict the horizontal surface of the chart.

Other basic elements of a two-dimensional chart are:

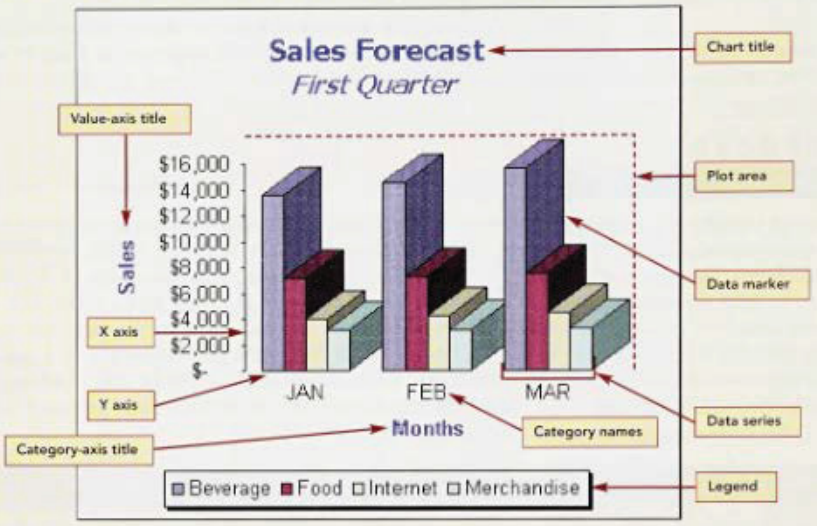
Element	Description
Category names	Labels that correspond to the headings for the worksheet data that is plotted along the X axis
Plot area	The area within the X- and Y-axis boundaries where the chart appears
Data series	Related data points that are distinguished by different colors or patterns
Data marker	A bar, dot, or other symbol that represents one number from the worksheet
Chart gridlines	Lines extending from the axis line across the plot area that make it easier to read the chart data
Legend	A box that identifies the chart data series and data markers
Chart title	A descriptive label displayed above the charted data that explains the contents of the chart
Category-axis title	A descriptive label displayed along the X axis
Value-axis title	A descriptive label displayed along the Y axis

(continued)

Concept 4 (continued)

Chart Elements

4 The basic parts of a two-dimensional chart are shown in the figure below.



Selecting the Data to Chart

The first chart you want to create will show the total sales pattern over the three months. This chart will use the month headings in cells B9 through D9 to label the X axis. The numbers to be charted are in cells B14 through D14. In addition, the heading Total Sales in cell A14 will be used as the chart legend, making the entire range A14 through D14.

	A	B	C	D
9		JAN	FEB	MAR
10	Beverage	$ 13,600	$ 14,600	$ 15,600
11	Food	$ 7,100	$ 7,300	$ 7,500
12	Internet	$ 4,000	$ 4,200	$ 4,500
13	Merchandise	$ 3,100	$ 3,200	$ 3,300
14	**Total Sales**	$ 27,800	$ 29,300	$ 30,900

X-axis labels

Data to chart

Chart legend

Notice that the two ranges, B9 through D9 and A14 through D14, are not adjacent and are not the same size. When plotting nonadjacent ranges in a chart, the selections must form a rectangular shape. To do this, you will include the blank cell, A9, in the selection. You will specify the range and create the chart.

1. Select A9 through D9.
   - Hold down Ctrl.
   - Select A14 through D14.

Your screen should be similar to Figure 2.10

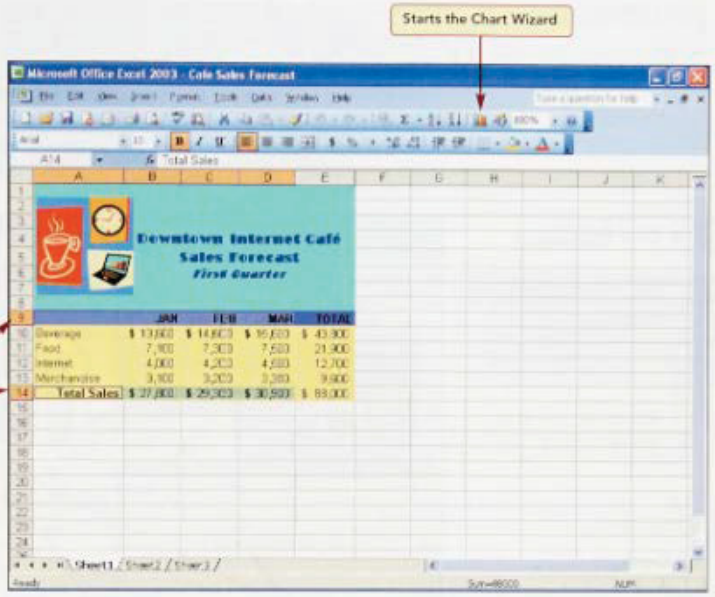


Figure 2.10

Using the Chart Wizard

Additional Information
Wizards are available in all Office 2003 applications.

Next you will use the Chart Wizard to help you create the chart. A **wizard** is an interactive program that guides you through the steps to help you quickly perform many complicated tasks, in this case create a chart, by asking you questions and creating the item based on your responses.

1. Click Chart Wizard.

Another Method
The menu equivalent is Insert/Chart and the voice command is "Chart Wizard."

- Move the Chart Wizard dialog box to the right to see as much of the worksheet as possible.

Having Trouble?
Drag the title bar of the dialog box to move it.

Your screen should be similar to Figure 2.11

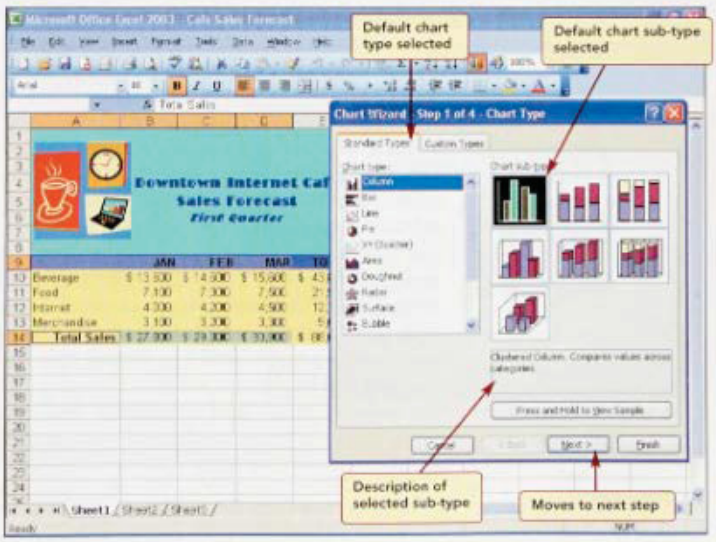


Figure 2.11

The first step is to select the chart type from the Chart Type list box. The default chart type is a column chart. Each type of chart includes many variations. The variations associated with the column chart type are displayed as buttons in the Chart Sub-type section of the dialog box. The default column sub-type is a clustered column. A description of the selected sub-type is displayed in the area below the sub-type buttons. You will use the default column chart type and move to the next step.

2 Click Next >.

Another Method

You can also press ←Enter or say "Next" to move to the next step.

Your screen should be similar to Figure 2.12

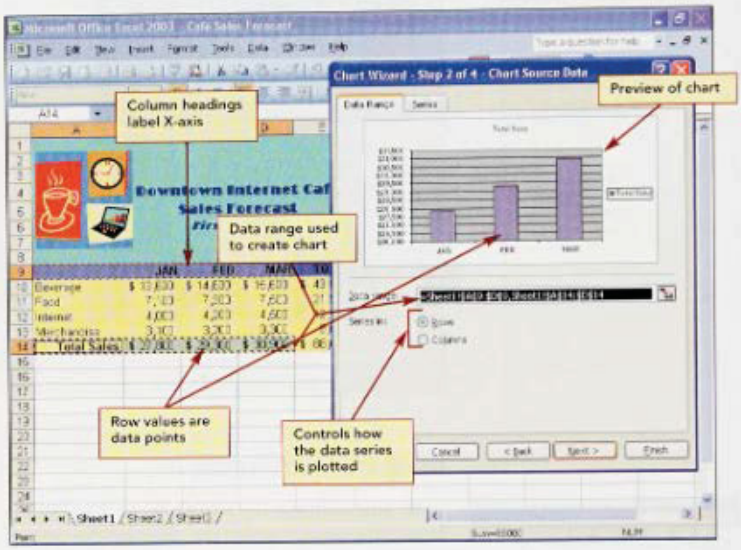


Figure 2.12

In the second Chart Wizard dialog box, you specify the data range on the worksheet you want to plot. Because you selected the data range before starting the Chart Wizard, the range is correctly displayed in the Data Range text box. In addition, the data range is identified with a moving border in the worksheet. The dialog box also displays a preview of the chart that will be created using the specified data and selected chart type.

The two Series In options change the way that Excel plots the data series from the rows or columns in the selected data range. The orientation Excel uses by default varies depending upon the type of chart selected and the number of rows and columns defined in a series. The worksheet data range that has the greater number of rows or columns appears along the X axis and the smaller number is charted as the data series. When the data series is an equal number of rows and columns, as it is in this case, the default is to plot the rows. The first row defines the X-axis category labels and the second row the plotted data. The content of the first cell in the second row is used as the legend text. You will accept the default settings and continue to the next step.

3 Click Next > .

- If necessary, open the Titles tab.

Your screen should be similar to Figure 2.13

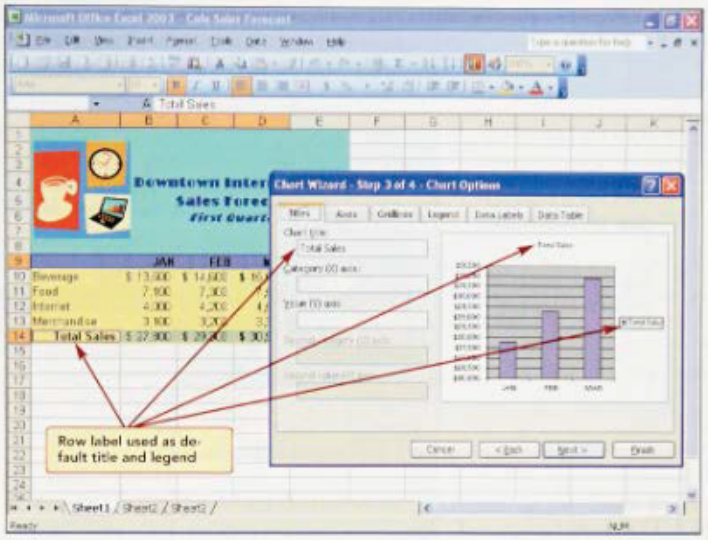


Figure 2.13

In the step 3 dialog box, you can turn some standard options on and off and change the appearance of chart elements such as a legend and titles. To clarify the data in the chart, you will add a more descriptive chart title as well as titles along the X and Y axes. As you add the titles, the preview chart will update to display the new settings.

4 In the Chart Title text box, replace the existing text with Downtown Internet Cafe Sales.

- Press Tab .

Having Trouble?

Do not use ↵Enter after typing the title text as this is the same as clicking Next > . Click < Back if needed to return to the previous Wizard step.

- In the Category (X) Axis text box, enter Months.
- In the Value (Y) Axis text box, enter Total Sales.

Your screen should be similar to Figure 2.14

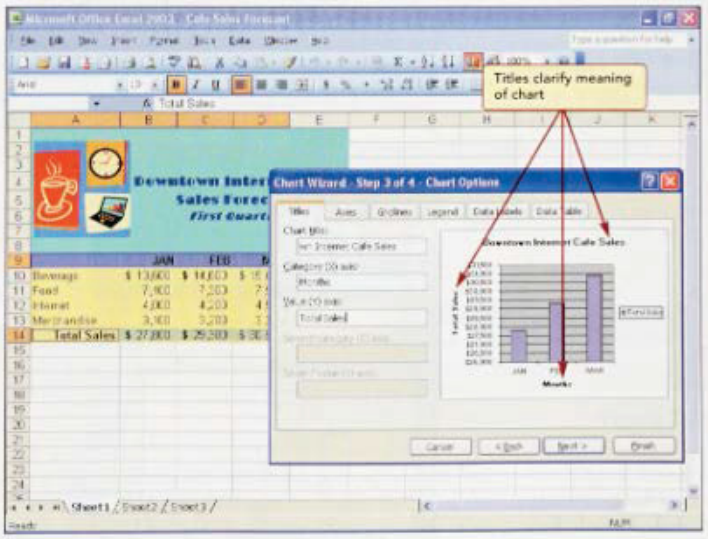


Figure 2.14

The titles clearly describe the information displayed in the chart. Now, because there is only one data range, and the category title fully explains this data, you decide to clear the display of the legend.

5 **Open the Legend tab.**

Click Show Legend to clear the checkmark.

Your screen should be similar to Figure 2.15

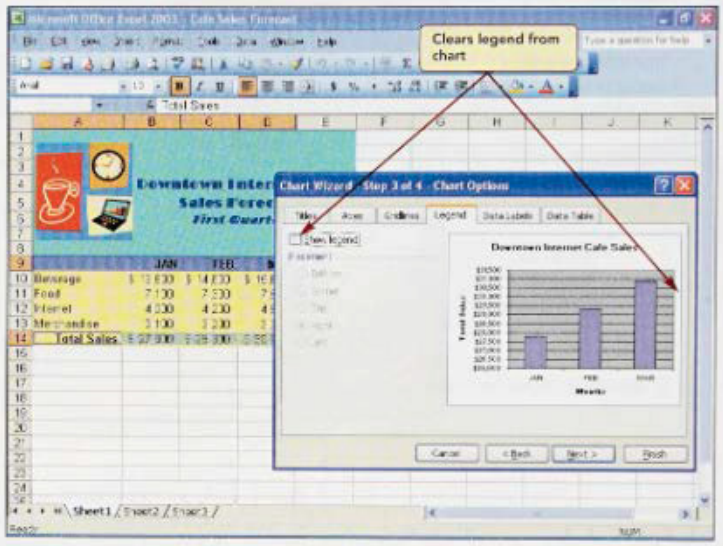


Figure 2.15

The legend is removed and the chart area resized to occupy the extra space.

6 **Click** Next > .

Your screen should be similar to Figure 2.16

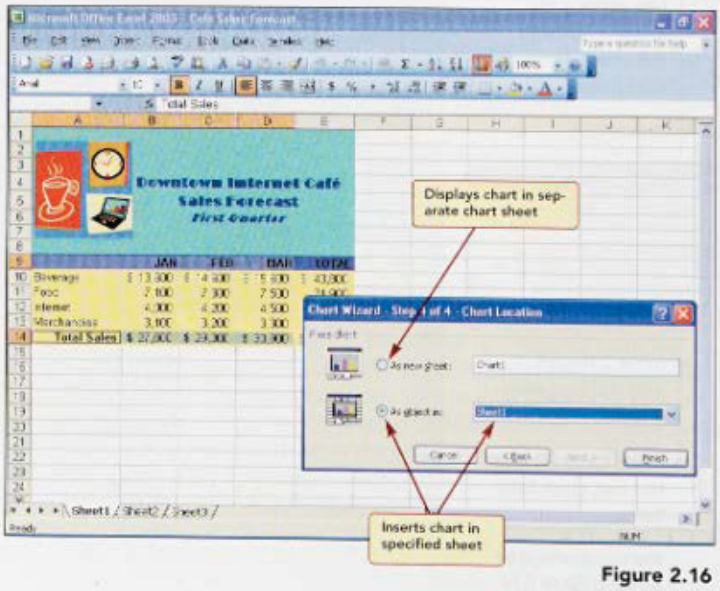


Figure 2.16

In the last step, you specify where you want the chart displayed in the worksheet. A chart can be displayed in a separate chart sheet or as an object in an existing sheet.

Concept 5

Chart Object

5 A **chart object** is a graphic object that is created using charting features included in Excel. A chart object can be inserted into a worksheet or into a special chart sheet.

Charts that are inserted into a worksheet are embedded objects. An **embedded chart** becomes part of the sheet in which it is inserted and is saved as part of the worksheet when you save the workbook file. Like all graphic objects, an embedded chart object can be sized and moved in a worksheet. A worksheet can contain multiple charts.

A chart that is inserted into a separate chart sheet is also saved with the workbook file. Only one chart can be added to a chart sheet and it cannot be sized and moved.

You would like this chart displayed as an object in the Sales Forecast worksheet. This is the default selection. You have provided all the information needed by the Wizard to create the chart.

7 Click Finish.

- If necessary, move the Chart toolbar to the bottom-right corner of the window.

Having Trouble?

If your Chart toolbar is not automatically displayed, open it by selecting it from the toolbar shortcut menu. Move toolbars by dragging the title bar of a floating toolbar or the move handle of a docked toolbar.

Your screen should be similar to Figure 2.17

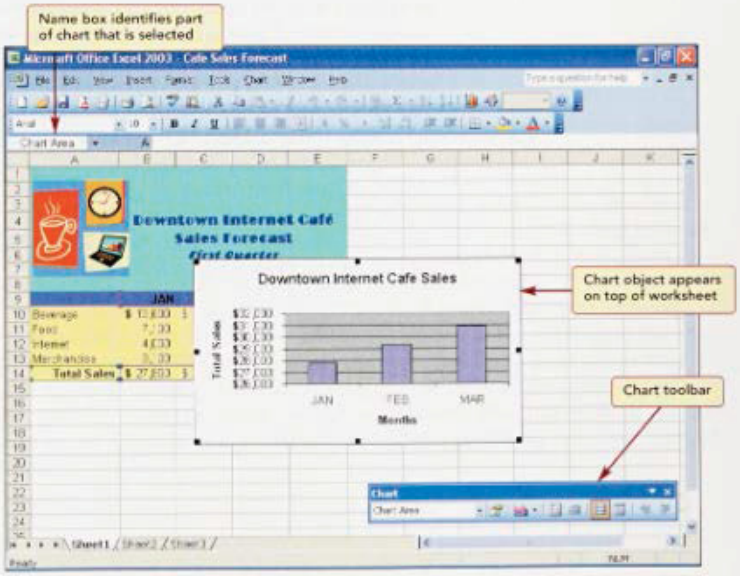
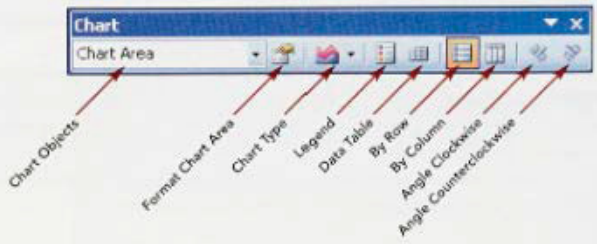


Figure 2.17

The chart with the settings you specified using the Chart Wizard is displayed in the worksheet. It covers some of the worksheet data because it is a separate chart object that can be moved and sized within the worksheet.

Notice that the Name box displays "Chart Area." The Name box identifies the part of the chart that is selected, in this case the entire chart and all its contents.

Also notice that the Chart toolbar is automatically displayed whenever a chart is selected. The Chart toolbar contains buttons for the most frequently used chart editing and formatting features. These buttons are identified below.



Moving and Sizing a Chart

You want to move the chart so that it is displayed to the right of the worksheet data. In addition, you want to increase the size of the chart. A selected chart object is moved by pointing to it and dragging it to a new location. When you move the mouse pointer into the selected chart object, it will display a chart ScreenTip to advise you about the chart element that will be affected by your action. When moving the entire chart, the chart ScreenTip must display "Chart Area." Then you will increase the size of the chart by dragging a sizing handle. This is the same as sizing a graphic object. If you hold down Alt while dragging to move and size a chart object, the chart automatically snaps into position or aligns with the closest worksheet cell when you release the mouse button. Release the mouse button before you release Alt.

1. Move the mouse pointer to different elements within the chart and note the different chart ScreenTips that appear.

- With the chart ScreenTip displaying "Chart Area," drag the chart object so the upper-left corner is in cell F4.

Additional Information

The mouse pointer changes to a ✣ while dragging to move an object.

- Point to the bottom-center sizing handle, hold down Alt, and drag the chart border line down until it is even with the bottom of row 20.

Your screen should be similar to Figure 2.18

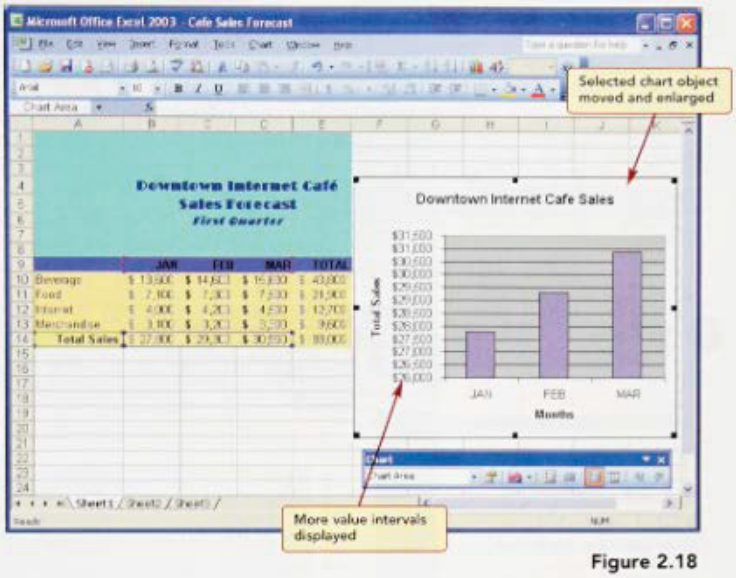


Figure 2.18

Additional Information

Your chart may display different value intervals.

As you enlarge the chart, more value intervals are displayed along the Y axis, making the data in the chart easier to read. Additionally, the fonts in the chart change proportionally as you resize the chart. The chart includes standard formats that are applied to the selected chart sub-type, such as a shaded background in the plot area and blue columns.

It is now easy to see how the worksheet data you selected is represented in the chart. Each column represents the total sales for that month in row 14. The month labels in row 9 have been used to label the X-axis category labels. The range or scale of values along the Y axis is determined from the data in the worksheet. The upper limit is the maximum value in the worksheet rounded upward to the next highest interval.

Changing the Chart Location

Although this chart compares the total sales for the three months, you decide you are more interested in seeing a comparison for the sales categories. You could delete this chart simply by pressing Delete while the chart is selected. Instead, however, you will move it to a separate worksheet in case you want to refer to it again.

When a chart is selected, the Chart menu replaces the Data menu on the menu bar. In addition, many of the commands under the other menus change to commands that apply to charts only. The Chart menu contains commands that can be used to modify the chart.

1. Choose **Chart/Location.**
2. Select **As new sheet.**
3. Click **OK**.
4. Save the workbook.

Your screen should be similar to Figure 2.19

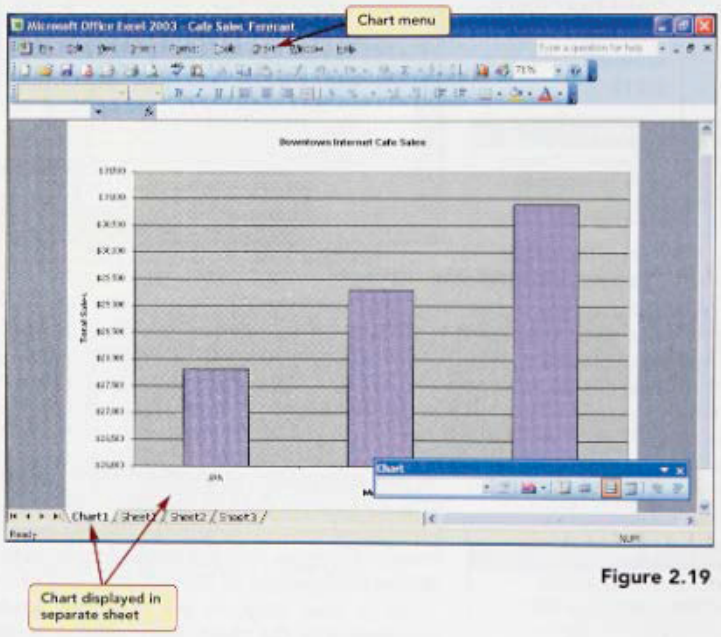


Figure 2.19

The column chart is now an object displayed in a separate chart sheet. Generally, you display a chart in a chart sheet when you want the chart displayed separately from the associated worksheet data. The chart is still automatically linked to the worksheet data from which it was created. The new chart sheet, named Chart1, was inserted to the left of the worksheet, Sheet1. The chart sheet is the active sheet, or the sheet in which you are currently working.

Creating a Multiple Data Series Chart

Now you are ready to continue your analysis of sales trends. You want to create a second chart to display the sales data for each category for the three months. You could create a separate chart for each category and then compare the charts; however, to make the comparisons between the categories easier, you will display all the categories on a single chart.

The data for the three months for the four categories is in cells B10 through D13. The month headings (X-axis data series) are in cells B9 through D9 and the legend text is in the range A10 through A13.

1. Click the Sheet1 tab.
2. Select A9 through D13.
3. Click Chart Wizard.
4. Click Next >.

Your screen should be similar to Figure 2.20

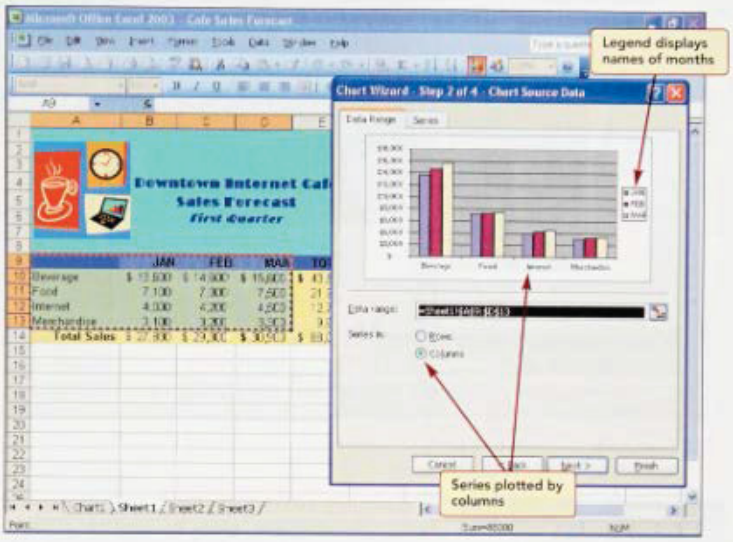


Figure 2.20

Additional Information

If you want to change the series orientation of an existing chart, you can use By Row or By Column in the Chart toolbar. The voice commands are "By row" or "By column."

When plotting the data for this chart, the Chart Wizard selected Columns as the data series orientation because the data range has fewer columns than rows. This time, however, you want to change the data series to Rows so that the months are along the X axis.

2 **Select Rows.**

Your screen should be similar to Figure 2.21

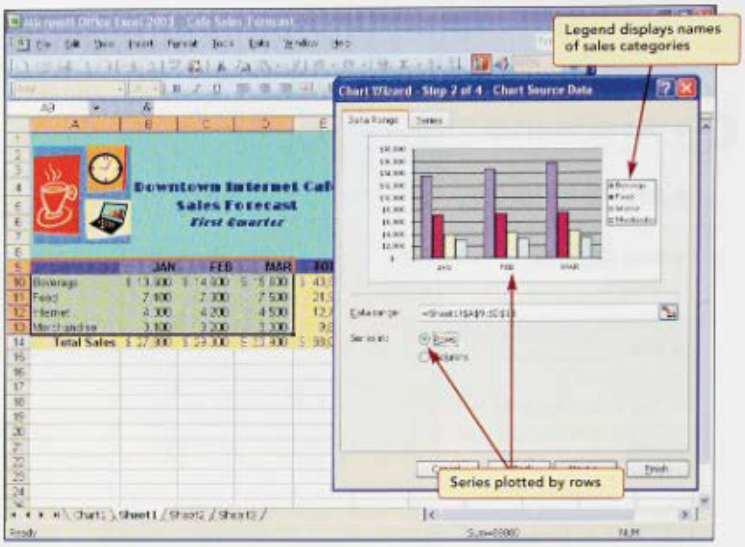


Figure 2.21

Additional Information

You can finish the chart at any time while running the Chart Wizard, which accepts the default settings for the remaining steps.

The sample chart is redrawn with the new orientation. The column chart now compares the sales by month rather than by category. The legend displays the names of the sales categories. Next, you will specify the chart titles and finish the chart.

3. Click Next >.

- Open the Titles tab and enter the titles shown below:

Title	Entry
Chart title	Sales Forecast
Category	Months
Value	Sales

- Click Finish.
- Move and size the chart until it covers cells F2 through K22.

Your screen should be similar to Figure 2.22

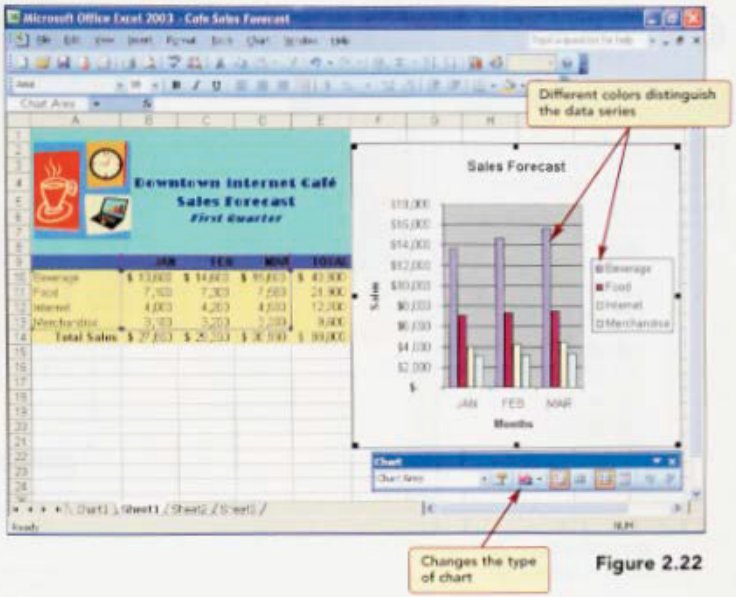


Figure 2.22

A different column color identifies each data series, and the legend identifies the categories. The column chart shows that sales in all categories are increasing, with the greatest increase occurring in beverage sales.

Changing the Chart Type

Next, you would like to see how the same data displayed in the column chart would look as a line chart. A line chart displays data as a line and is commonly used to show trends over time. You can change the chart type easily using the Chart Type button on the Chart toolbar.

1. Open the Chart Type drop-down list.

Another Method

The menu equivalent is Chart/Chart Type and the voice command is "Chart type" followed by the chart type name.



Click Line Chart.

Your screen should be similar to Figure 2.23

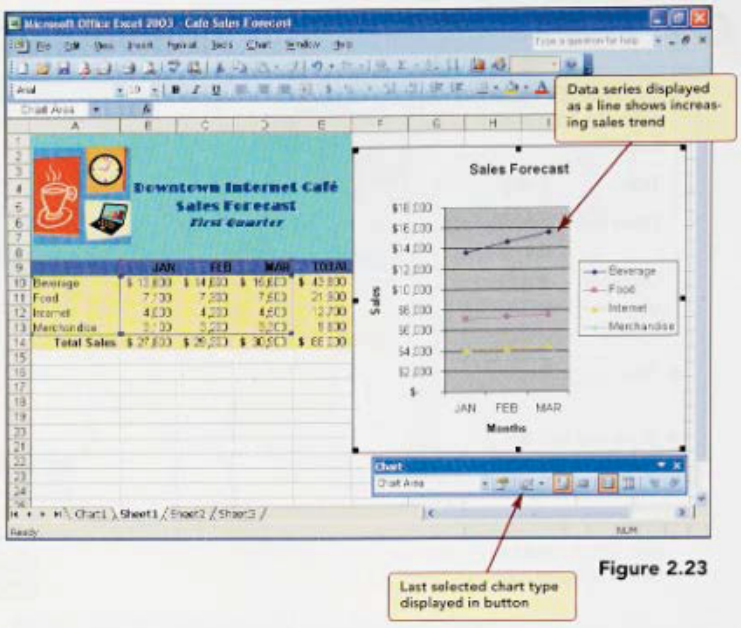


Figure 2.23

The line chart shows the increasing sales trend from month to month. Notice that the Chart Type button displays a line chart, reflecting the last-selected chart type. You do not find this chart very interesting, so you will change it to a 3-D bar chart next.

2. Open the Chart Type drop-down list.

Click 3-D Bar Chart.

Your screen should be similar to Figure 2.24

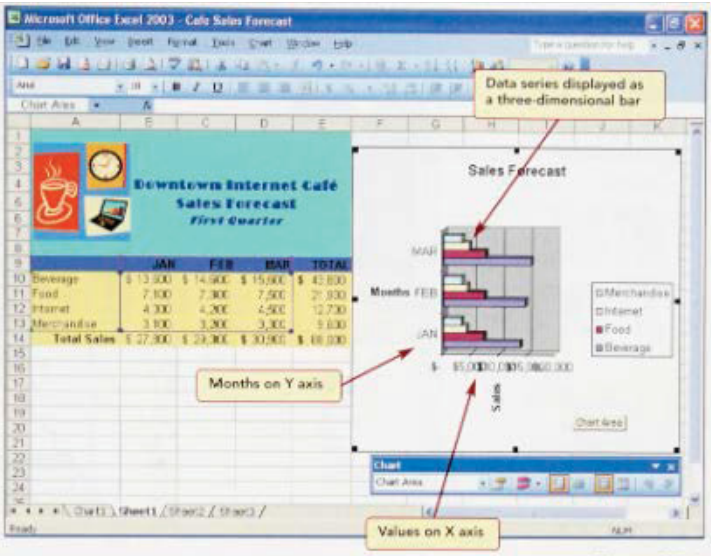


Figure 2.24

The 3-D bar chart reverses the X and Y axes and displays the data series as a three-dimensional bar. As you can see, it is very easy to change the chart type and format after the data series are specified. The same data can be displayed in many different ways. Depending upon the emphasis you want the chart to make, a different chart style can be selected.

Although the 3-D bar chart shows the sales trends for the three months for the sales categories, again it does not look very interesting. You decide to look at several other chart types to see whether you can improve the appearance. First you would like to see the data represented as an area chart. An area chart represents data the same as a line chart, but, in addition, it shades the area below each line to emphasize the degree of change.

3 Open the Chart Type drop-down list.

Click Area Chart.

Your screen should be similar to Figure 2.25

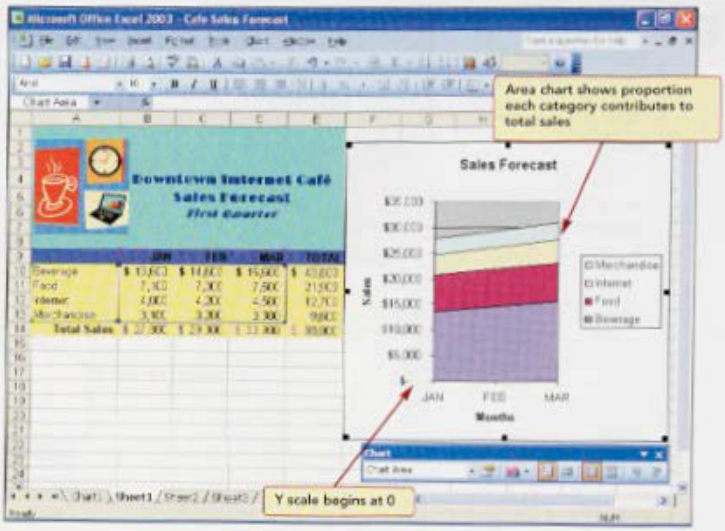


Figure 2.25

The Y-axis scale has changed to reflect the new range of data. The new Y-axis range is the sum of the four categories or the same as the total number in the worksheet. Using this chart type, you can see the magnitude of change that each category contributes to the total sales in each month.

Again, you decide that this is not the emphasis you want to show and will continue looking at other types of charts. Because all chart types are not available from the Chart Type drop-down list, you will use the Chart Type menu option in the Chart menu instead.

4. **Choose Chart/Chart Type.**

Your screen should be similar to Figure 2.26

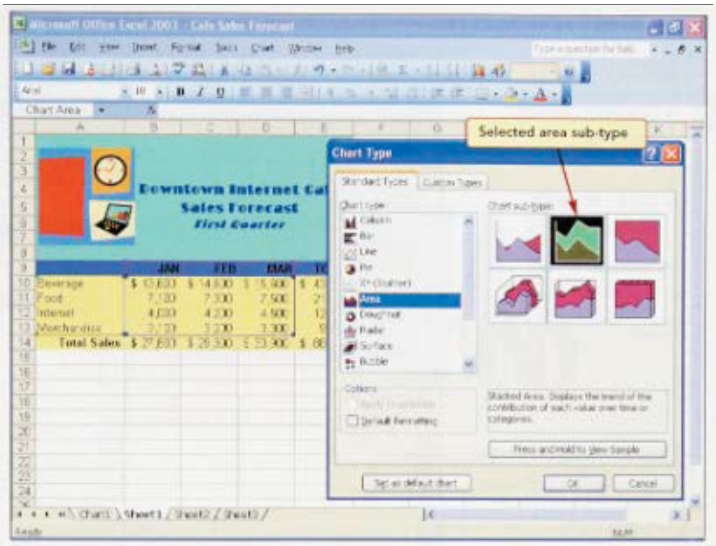


Figure 2.26

The Chart Type dialog box contains the same options as the Chart Wizard—Step 1 dialog box. The current chart type, Area, is the selected option. You want to see how this data will look as a stacked-column chart.

5. **Select** Column.

- **Select** Stacked column with a 3-D visual effect.
- **Click and hold** Press and Hold to View Sample.

Your screen should be similar to Figure 2.27

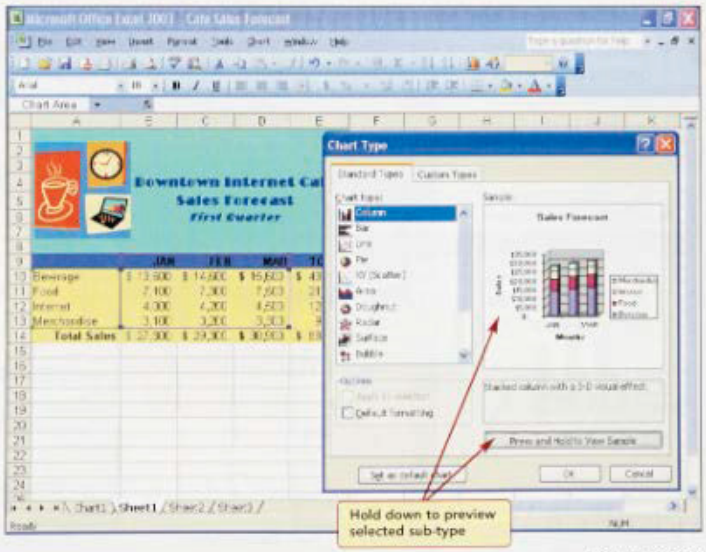


Figure 2.27

The sample chart is redrawn showing the data as a **stacked-column chart**. This type of chart also shows the proportion of each sales category

to the total sales. You want to see the other types of charts that are available.

6 **Open the Custom Types tab.**

Click Area Blocks.

Your screen should be similar to Figure 2.28

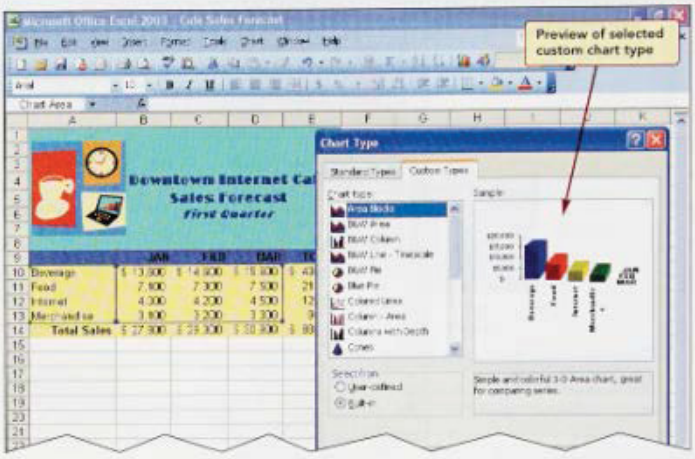


Figure 2.28

The Sample area shows how the data you selected for the chart will appear in this style. Custom charts are based upon standard types that are enhanced with additional display settings and custom formatting. Although this chart is interesting, you feel that the data is difficult to read.

7 **Select several other custom chart types to see how the data appears in the Sample area.**

Select Columns with Depth.

Your screen should be similar to Figure 2.29

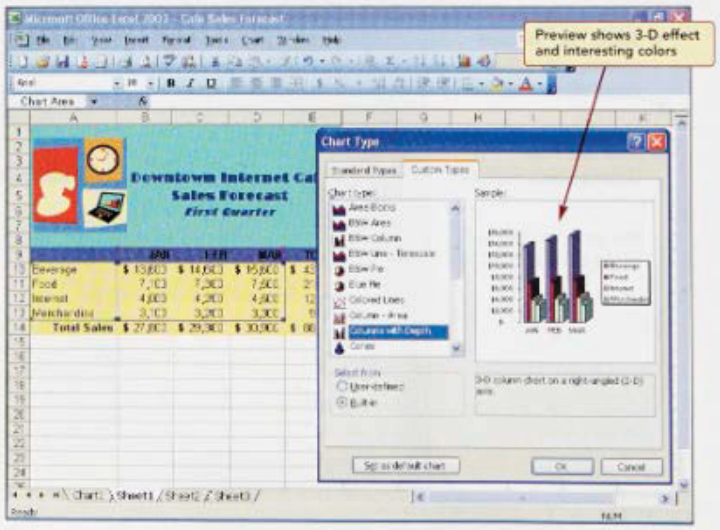


Figure 2.29

This chart shows the sales for each category for each month with more interesting colors and three-dimensional depth.

8 Click OK.

Your screen should be similar to Figure 2.30

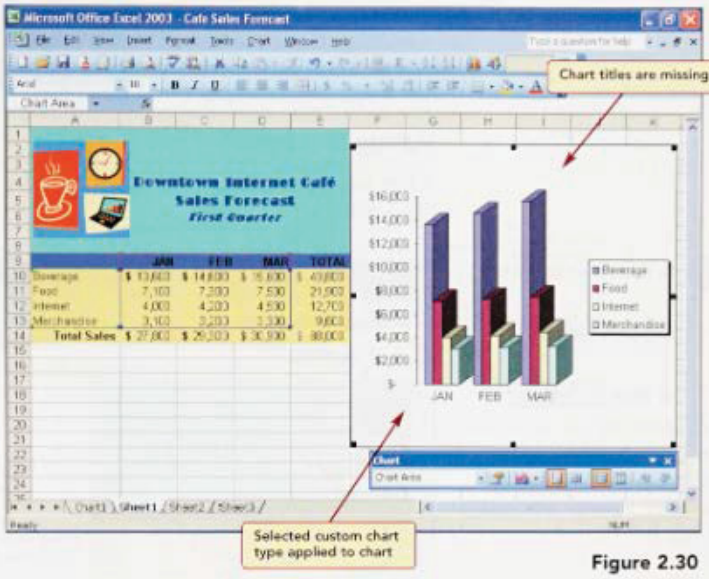


Figure 2.30

In a column chart that includes a 3-D visual effect, the front part of the column identifies the plotted value.

Adding Chart Titles

Unfortunately, when applying a custom chart type, the chart titles are deleted and you need to add them again.

1 Choose Chart/Chart Options.

In the Titles tab, enter the following titles:

Title	Entry
Chart title	Sales Forecast
Category	Months
Value (Z) axis	Sales

Your screen should be similar to Figure 2.31

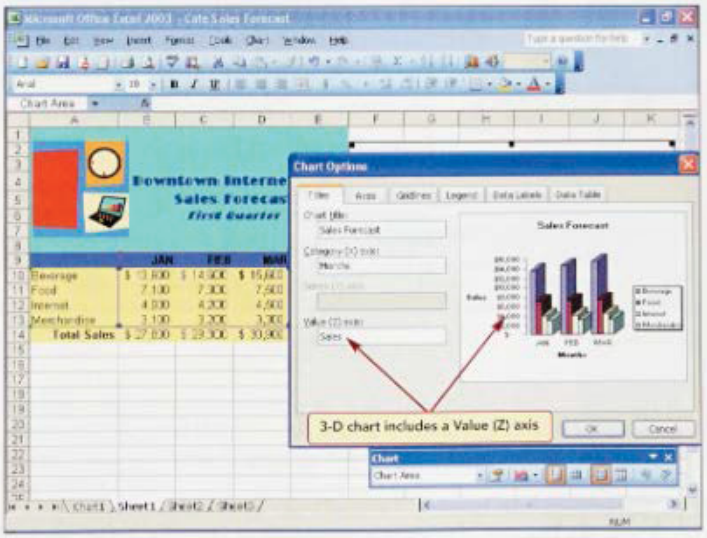


Figure 2.31

Notice that this time instead of entering the value-axis data in the Y axis, you entered it in the Z axis. This is because the Y axis is used as a series axis on a three-dimensional chart. This three-dimensional chart has only one series of data so the Y axis is not used.

Moving the Legend

While looking at the preview chart, you decide to move the legend below the X axis.

1. Open the Legend tab.
   - Select Bottom.
   - Click OK.

Your screen should be similar to Figure 2.32

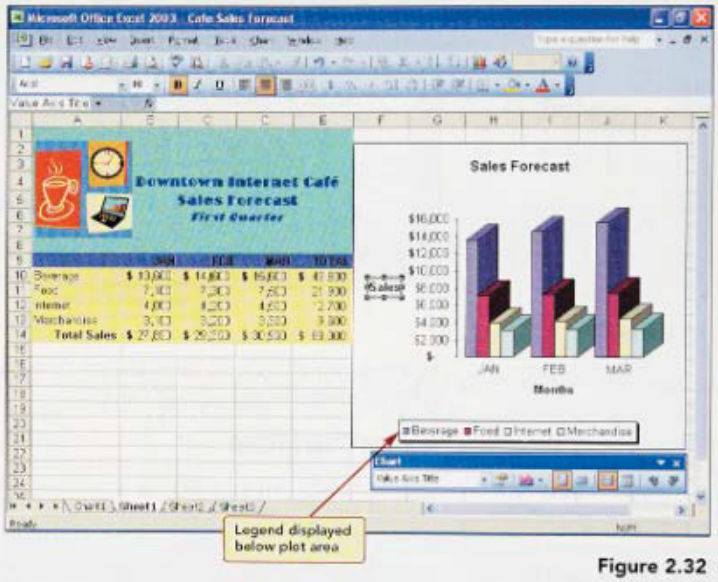


Figure 2.32

The legend is centered below the plot area of the chart and resized to fit the space.

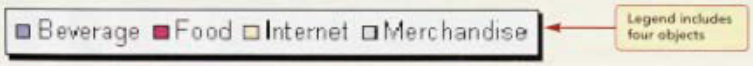
Formatting Chart Elements

Next, you want to improve the appearance of the chart by applying formatting to the different chart parts. All the different parts of a chart are separate objects. Because a chart consists of many separate objects, it is a group.

Concept 6

Group

6 A **group** is two or more objects that behave as a single object when moved or sized. A chart consists of many separate objects. For example, the chart title is a single object within the chart object. Some of the objects in a chart are also groups that consist of other objects. For example, the legend is a group object consisting of separate items, each identifying a different data series.



Other objects in a chart are the axis lines, a data series, a data marker, the entire plot area, or the entire chart.

The first formatting change you want to make is to improve the appearance of the chart title. An entire group or each object in a group can be individually selected and then formatted or edited. By selecting the entire group, you can format all objects within the group at once. Alternatively, you can select an object within a group and format it individually.

1 **Click on the chart title to select it.**

Your screen should be similar to Figure 2.33

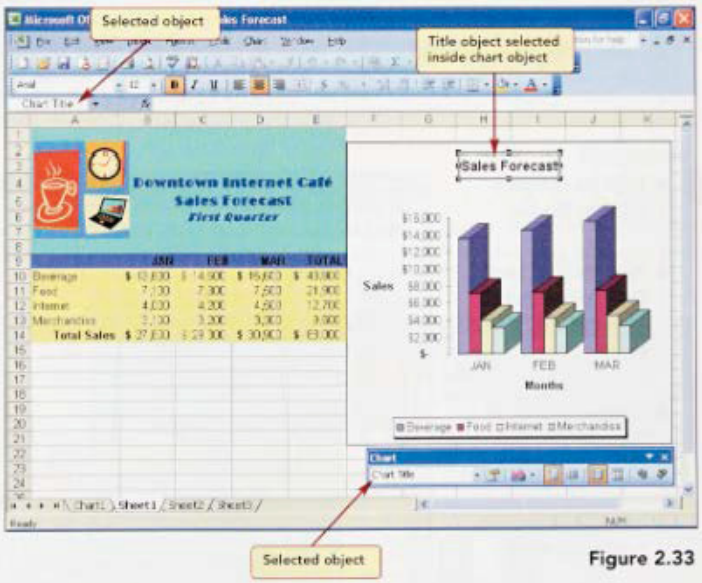


Figure 2.33

The title object is surrounded by a dotted border, indicating that it is a selected object and that the text inside it can be modified. In addition, the Name box and Chart Objects button display "Chart Title" as the selected chart object.

As different objects in the chart are selected, the commands on the Format menu change to commands that can be used on the selected object. In addition, the Format Object button on the Chart toolbar can be used to format the selected object.

2. Click Format Chart Title.

Another Method

The menu equivalent is Format/Selected Chart Title and the shortcut is Ctrl + 1.

- Open the Font tab.
- Scroll the Font list and select Tahoma.
- Scroll the Size list and select 14.
- Open the Color list and select blue.
- Click OK.

Your screen should be similar to Figure 2.34

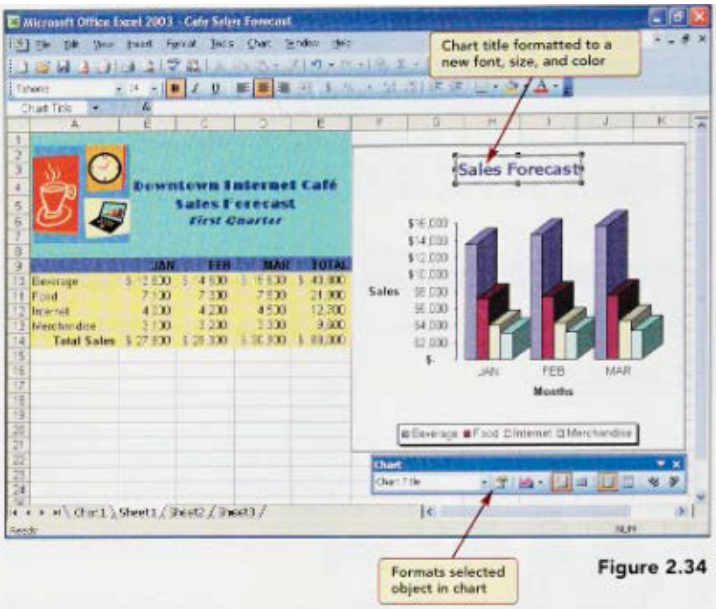


Figure 2.34

Next, you want to change the color of the axis titles. A quicker way to make many formatting changes is to use the Formatting toolbar buttons.

3. Click the category-axis title Months.
- Open the Font Color palette and change the color to blue.
- Change the color of the Sales title to blue in the same manner.
- Click outside the title to deselect it.

Your screen should be similar to Figure 2.35

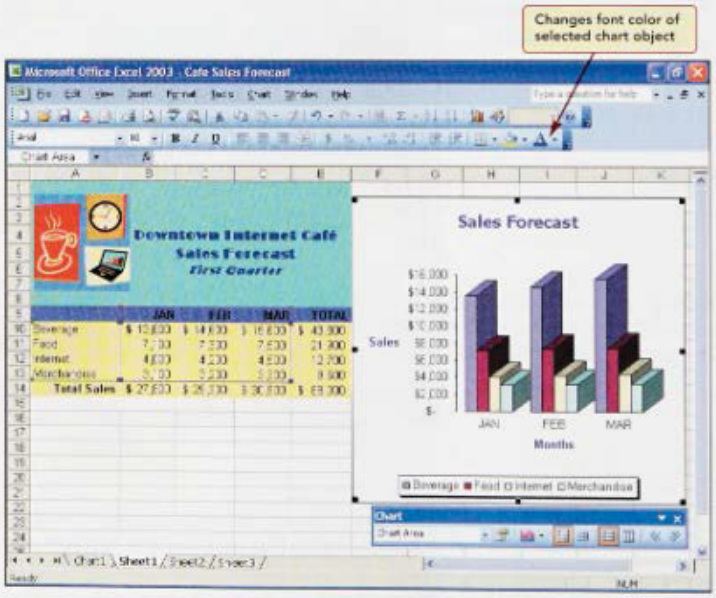


Figure 2.35

Changing Title Orientation

You also want to change the orientation of the Sales title along the axis so that it is parallel with the axis line. To do this, you will rotate the label 90 degrees. You can quickly select a chart object and open the related Format dialog box by double-clicking the object.

1. Double-click the Sales title to open the Format Axis Title dialog box.
2. Open the Alignment tab.
3. Drag the Orientation indicator line upward to rotate the text 90 degrees.

Your screen should be similar to Figure 2.36

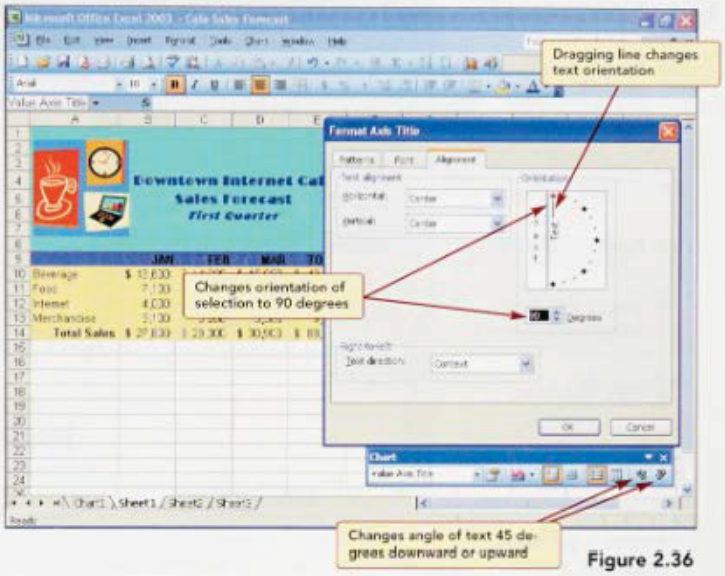


Figure 2.36

You could also enter a positive number in the Degrees box to rotate the selection from lower left to upper right or a negative number to rotate text in the opposite direction. Alternatively, you can use the Degrees scroll buttons to increase and decrease the degrees.

2. Click OK.

Your screen should be similar to Figure 2.37

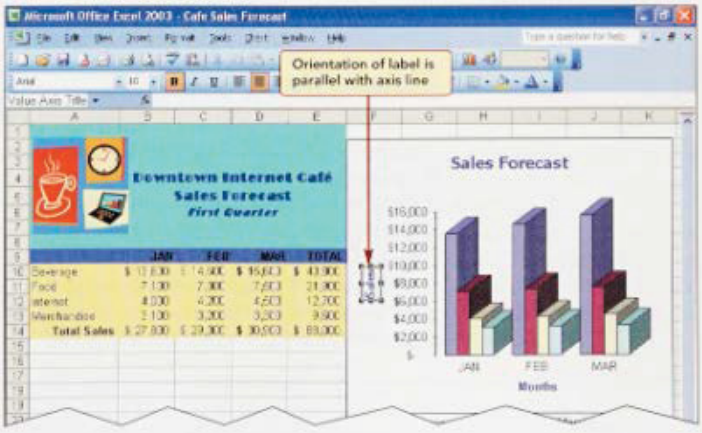


Figure 2.37

The Sales label is now displayed parallel with the Y-axis line.

Finally, you want to add a second line to the chart title. You want the subtitle to be in a smaller font size and italicized. You can select individual sections of text in an object and apply formatting to them just as you would format any other text entry.

3. Select the chart title.
- Click at the end of the title to place the insertion point.
- Press ↵Enter.
- Type First Quarter.
- Drag to select the words "First Quarter."
- Click *I* Italic.
- Change the font size to 12.
- Click in the title to deselect it.
- Save the workbook.

Your screen should be similar to Figure 2.38

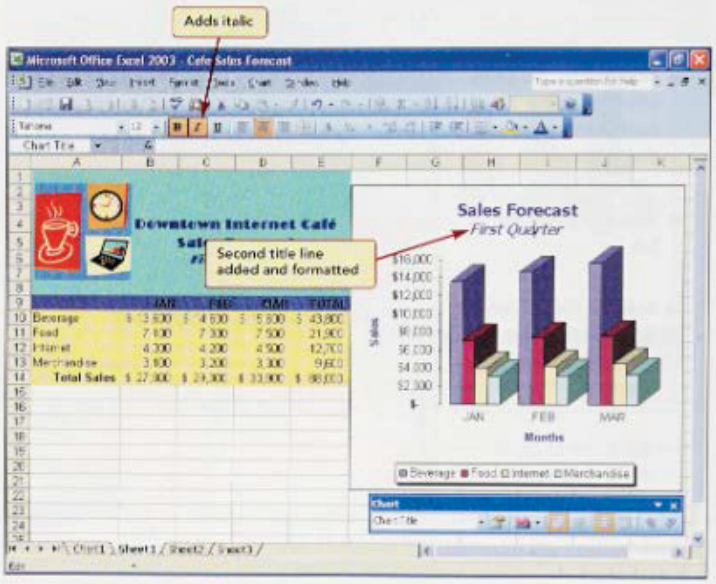


Figure 2.38

Changing Worksheet Data

So far, the charts you have created reflect your original sales estimates for the quarter. You are planning to heavily promote the Internet aspect of the Cafe, and anticipate that Internet usage will increase dramatically in February and March and then level off in the following months. You also expect to see an increase in the food and beverage sales. You want to change the worksheet to reflect these increases.

1. Change the February Internet sales value to 6000.
2. Change the March Internet sales value to 12000.
3. Increase the February and March Beverage sales by 20%.
4. Increase the February and March Food sales by 15%.

Having Trouble?

Change the entry to a formula and multiply the existing value by 1.20 or 1.15.

Your screen should be similar to Figure 2.39

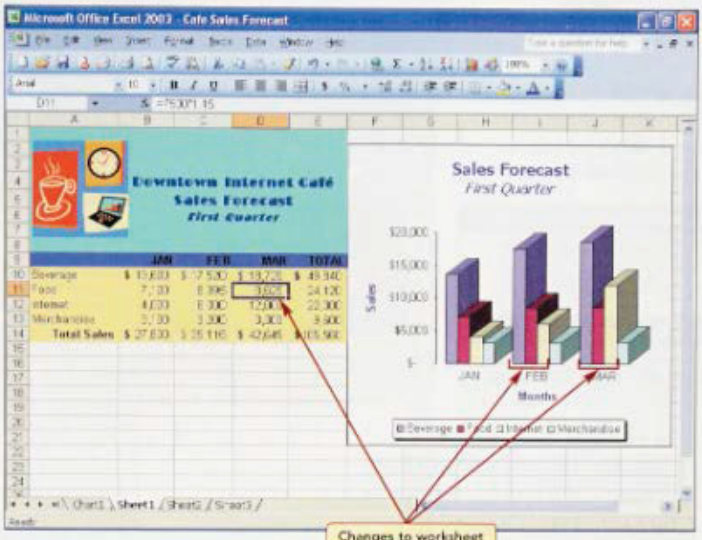


Figure 2.39

The worksheet has been recalculated, and the chart columns that reference those worksheet cells have been redrawn to reflect the change in the sales data. Because the chart is linked to the source data, changes to the source data are automatically reflected in the chart.

Adding Data Labels

Finally, to make sure that Evan sees your projected increase in Internet sales, you will include data labels containing the actual numbers plotted for the Internet sales on the column chart.

Concept 7

Data Labels

7 Data labels provide additional information about a data marker. They can consist of the value of the marker, the name of the data series or category, a percent value, or a bubble size. The different types of data labels that are available depend on the type of chart and the data that is plotted.

Value data labels are helpful when the values are large and you want to know the exact value for one data series. Data labels that display a name are helpful when the size of the chart is large and when the data point does not clearly identify the value. The percent data label is used when you want to display the percent of each series on charts that show parts of the whole. Bubble size is used on bubble charts to help the reader quickly see how the different bubbles vary in size.

1. Click on any Internet data column series to select the Internet data series.

Having Trouble?
The Screen tip will display "Series Internet" Point.

Another Method
Choose "Series Internet" from the Chart Objects list.

- Click Format Data Series.
- Open the Data Labels tab.

Another Method
The menu equivalent is Format/Selected Data Series/Data Labels.

Your screen should be similar to Figure 2.40

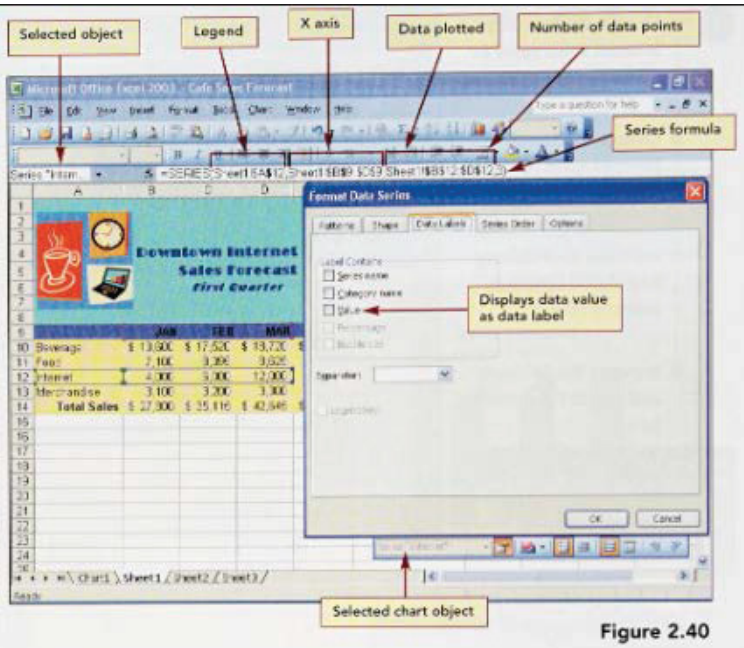


Figure 2.40

Notice that the formula bar displays a series formula. A **series formula** links the chart object to the source worksheet, in this case, Sheet1. The formula contains four arguments: a reference to the cell that includes the data series name (used in the legend), references to the cells that contain the categories (X-axis numbers), references to the numbers plotted, and an integer that specifies the number of data series plotted.

You want to display the Internet values as the data labels for the data series.

2. Select Value.
   - Click OK.
   - Click on any data label to select the series.
   - Click Angle Counterclockwise (on the Chart toolbar).
   - Click B Bold.
   - Change the font color of the data labels to blue.
   - Select each data label and drag it to position the labels as in Figure 2.41.
   - Save the workbook.

Your screen should be similar to Figure 2.41

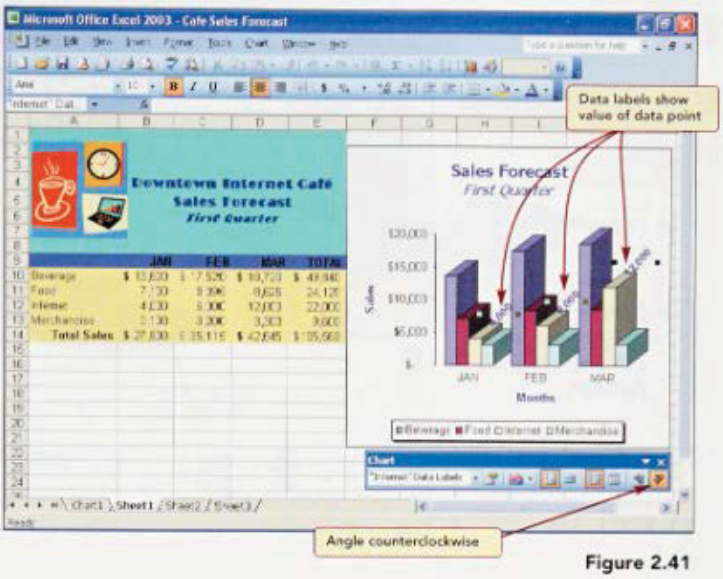


Figure 2.41

Additional Information

Use Angle Clockwise to rotate labels 45 degrees clockwise. The voice commands are "Angle clockwise" or "Angle counterclockwise."

Data labels containing the actual values for total sales are displayed above the Internet sales columns on the chart. Using Angle Counterclockwise quickly changed the angle of a label to 45 degrees in a counterclockwise direction.

Creating and Formatting a Pie Chart

The last chart you will make will use the Total worksheet data in column E. You want to see what proportion each type of sales is of total sales for the quarter. The best chart for this purpose is a pie chart.

A pie chart compares parts to the whole in a similar manner to a stacked-column chart. However pie charts have no axes. Instead, the worksheet data that is charted is displayed as slices in a circle or pie. Each slice is displayed as a percentage of the total.

Selecting the Pie Chart Data

Additional Information

You can also create a chart using the default chart type (column) in a new chart sheet by selecting the data range and pressing F11.

The use of X (category) and data series settings in a pie chart is different from their use in a column or line chart. The X series labels the slices of the pie rather than the X axis. The data series is used to create the slices in the pie. Only one data series can be specified in a pie chart.

The row labels in column A will label the slices, and the total values in column E will be used as the data series.

In addition to creating a chart using the Wizard, you can create a chart by selecting the chart type from the Chart Type toolbar button after the data series has been selected.

1. Select A10:A13 and E10:E13.

Having Trouble?
Hold down Ctrl while selecting nonadjacent ranges.

- Display the Chart toolbar.
- Open the Chart Type drop-down menu and choose 3-D Pie Chart.

Your screen should be similar to Figure 2.42

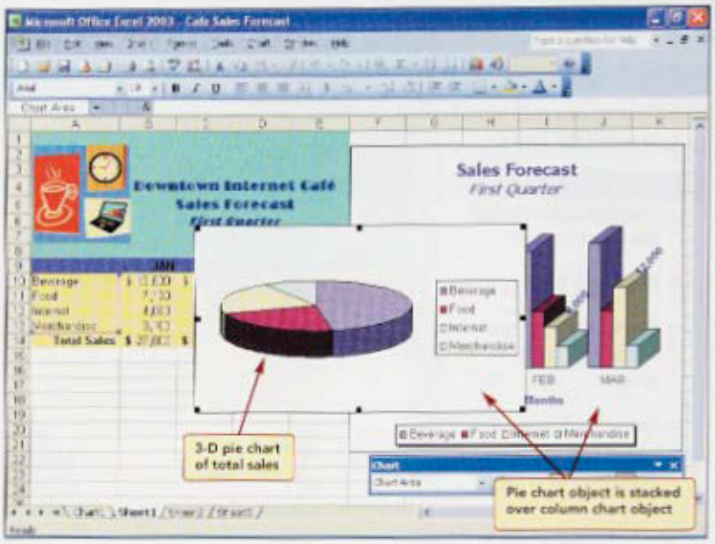


Figure 2.42

A three-dimensional pie chart is drawn in the worksheet. Each value in the data series is displayed as a slice of the pie chart. The size of the slice represents the proportion of total sales that each sales category represents.

As objects are added to the worksheet, they automatically **stack** in individual layers. The stacking order is apparent when objects overlap. Stacking allows you to create different effects by overlapping objects. Because you can rearrange the stacking order, you do not have to add or create the objects in the order in which you want them to appear.

2. Move the column chart to top-align with cell A17 below the worksheet data.

Additional Information

Hold down Alt while moving to snap the chart to the cells.

- Move and size the pie chart to be displayed over cells F1 through K14.

Your screen should be similar to Figure 2.43

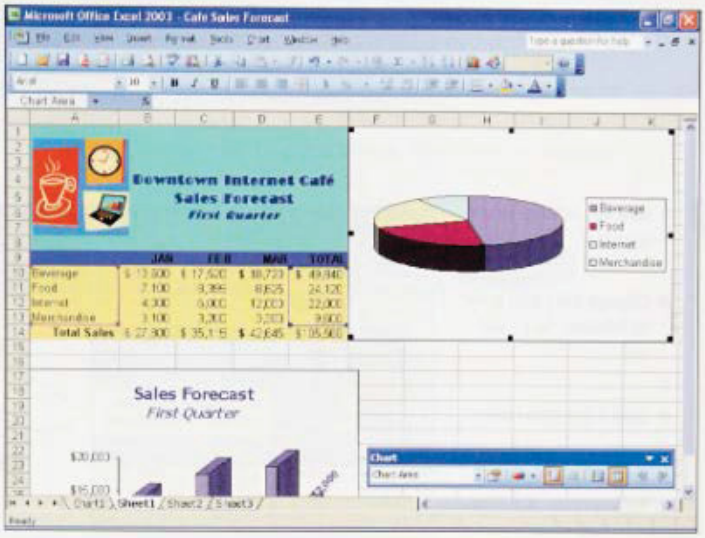


Figure 2.43

Formatting the Pie Chart

To clarify the meaning of the chart, you need to add a chart title. In addition, you want to turn off the legend and display data labels to label the slices of the pie.

1. Choose Chart/Chart Options.
- Open the Titles tab.
- In the Chart Title text box, type Total Sales by Category.
- Open the Legend tab and clear the Show Legend option.

Another Method

You can also click Legend to turn on/off the display of the legend. The voice command is "Legend."

- Open the Data Labels tab and select the Category name and Percentage options.
- Click OK.

Your screen should be similar to Figure 2.44

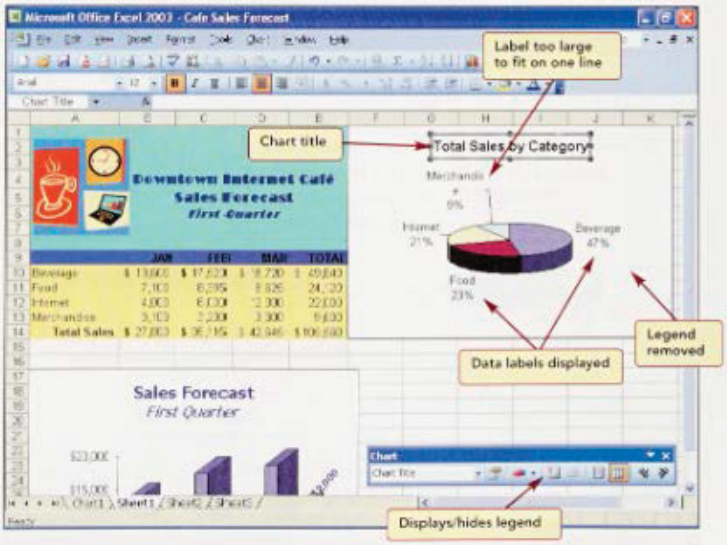


Figure 2.44

The pie chart is redrawn to show the data labels and percents. The data label size is based on the size of the chart and the text is appropriately sized. Because the default size of data labels is a little too large, the entire Merchandise label does not appear on one line. To fix this, you will change the font of the data label text. You also want to enhance the appearance of the data labels and title.

2. **Add the subtitle First Quarter.**
- **Change both title lines to Tahoma, 14 pt and red.**
- **Select the data labels.**
- **Change the font to Arial Narrow and blue.**

Your screen should be similar to Figure 2.45

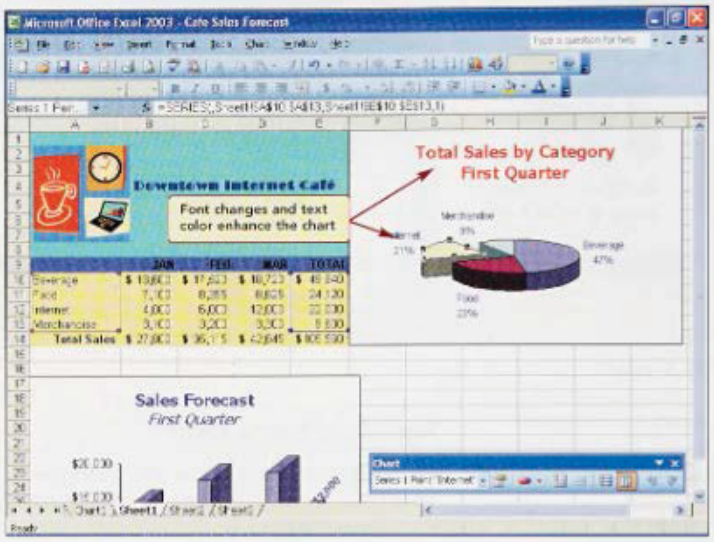


Figure 2.45

Exploding and Rotating the Pie

Next, you want to separate slightly or **explode** the Internet slice of the pie to emphasize the data in that category. The Internet slice is an object within the pie chart group. To select an object within a group, first select the group and then select the object within the group. Sizing handles surround the selected object.

1. Click on the pie chart to select the group.
2. Click on the Internet slice.
3. Drag the selected slice away from the pie.

Your screen should be similar to Figure 2.46

Additional Information

If all slices on the pie are selected, dragging one slice explodes all slices at the same time.

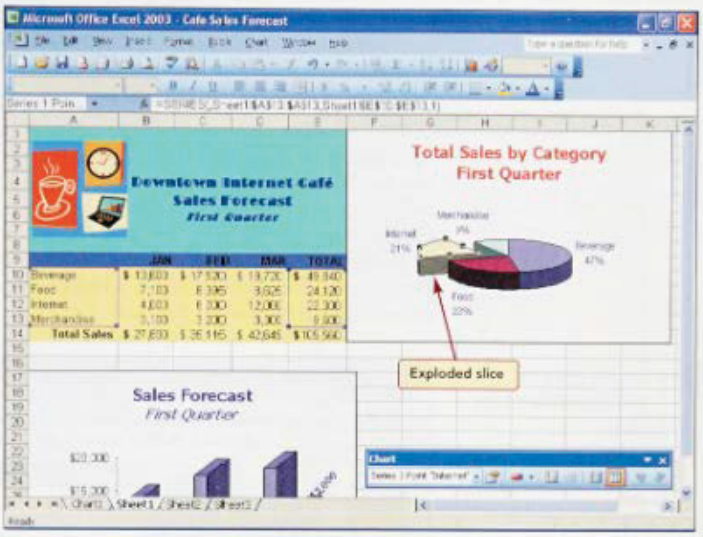


Figure 2.46

The slice is separated from the rest of the pie chart. You also want to change the position of the Internet slice so that it is toward the front of the pie. When a pie chart is created, the first data point is placed to the right of the middle at the top of the chart. The rest of the data points are placed in order to the right until the circle is complete. To change the order in which the slices are displayed, you can rotate the pie chart.

2. Double-click the Internet data series slice.
3. Open the Options tab.
4. Change the Angle of first slice setting to 180 degrees.
5. Click OK.

Your screen should be similar to Figure 2.47

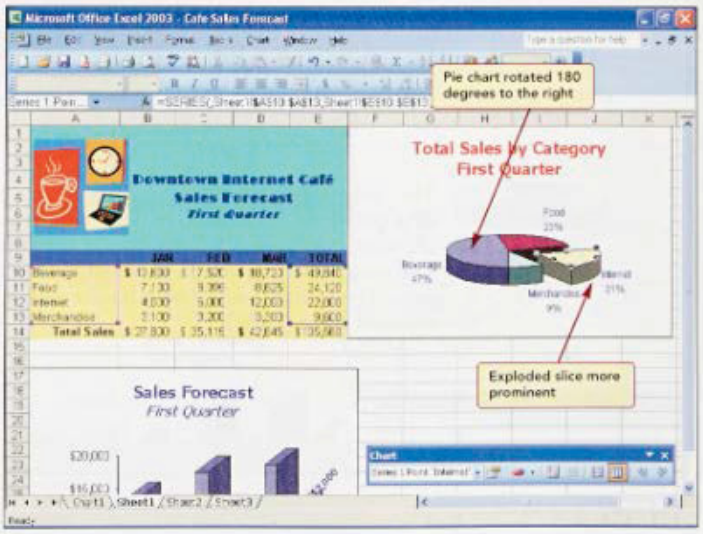


Figure 2.47

The entire pie chart has rotated 180 degrees to the right and now the Internet data slice appears toward the front of the chart.

Applying Patterns and Color

The last change you would like to make is to add patterns to the pie chart data points. As you have seen, when Excel creates a chart each data series (or data point in the case of a pie chart) is automatically displayed in a different color. Although the data series are easy to distinguish from one another onscreen, if you do not have a color printer the colors are printed as shades of gray and may be difficult to distinguish. To make the data series more distinguishable on a black-and-white printer, you can apply a different pattern to each data series object.

1. **Double-click the Beverage data series slice.**
2. **Open the Patterns tab.**

Your screen should be similar to Figure 2.48

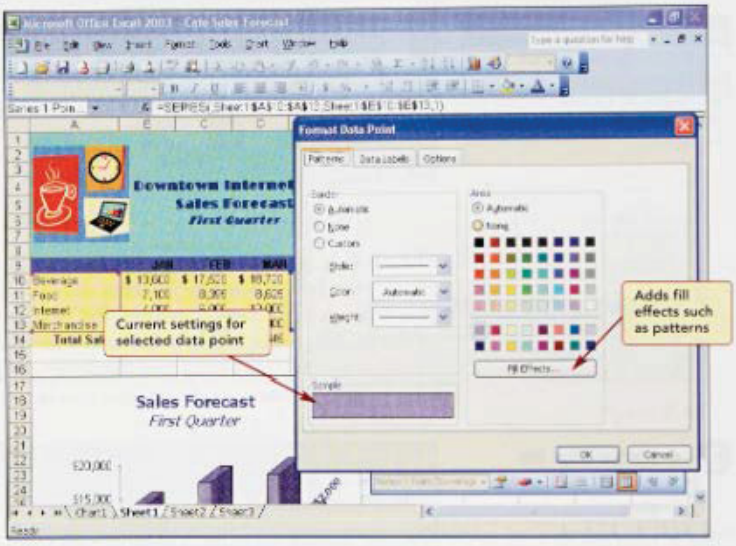


Figure 2.48

The options available in the Patterns tab vary depending upon the type of data point that is selected. In this case, because the selected data point is a pie slice, the options let you change the border and the background area. The current setting for the selected data point is displayed in the sample area. This consists of a black border with a fill color of periwinkle blue. You will add a pattern.

2. Click Fill Effects... .

- Open the Pattern tab.

Your screen should be similar to Figure 2.49

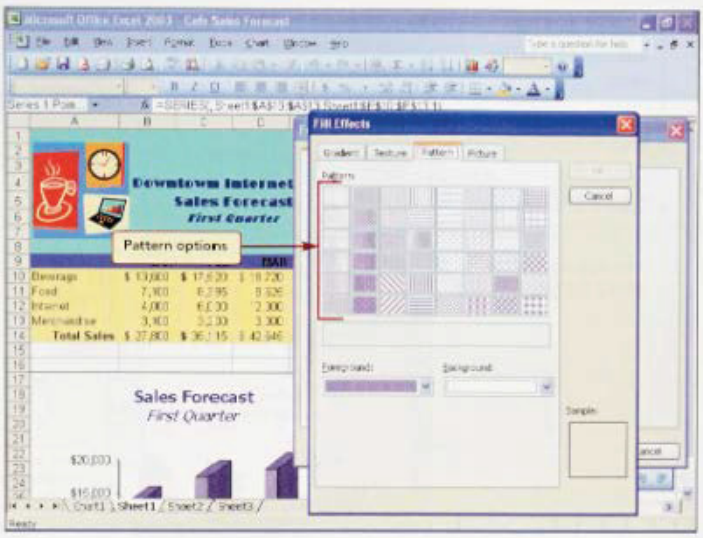


Figure 2.49

From the Fill Effects dialog box, you can change options for gradients, textures, patterns, and pictures used in formatting the selected object. You will add a pattern to the existing fill.

3. From the Pattern palette, select the Wide upward diagonal pattern.

Additional Information

The name of the selected pattern appears in the text box below the Pattern options box.

- Click OK (twice) to close both dialog boxes.

Your screen should be similar to Figure 2.50

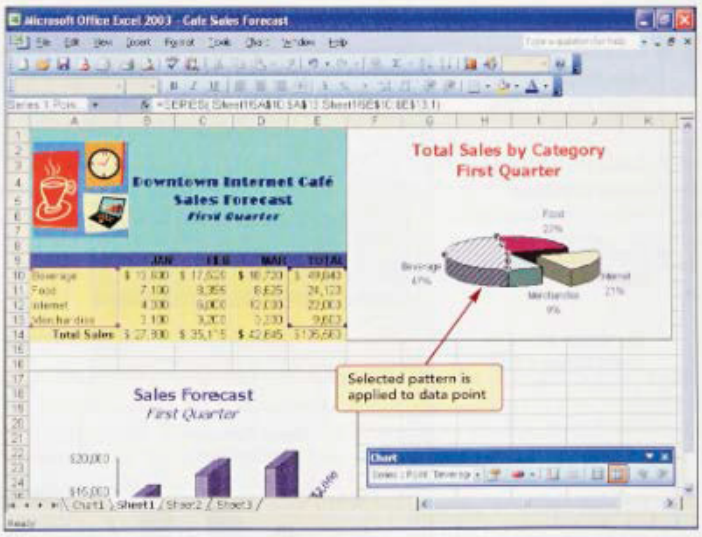


Figure 2.50

The pattern is applied to the selected data point. Next, you will add a pattern to the Internet data series slice.

4. Double-click the Internet data series slice.
   - Click [Fill Effects...].
   - Open the Pattern tab.

Your screen should be similar to Figure 2.51

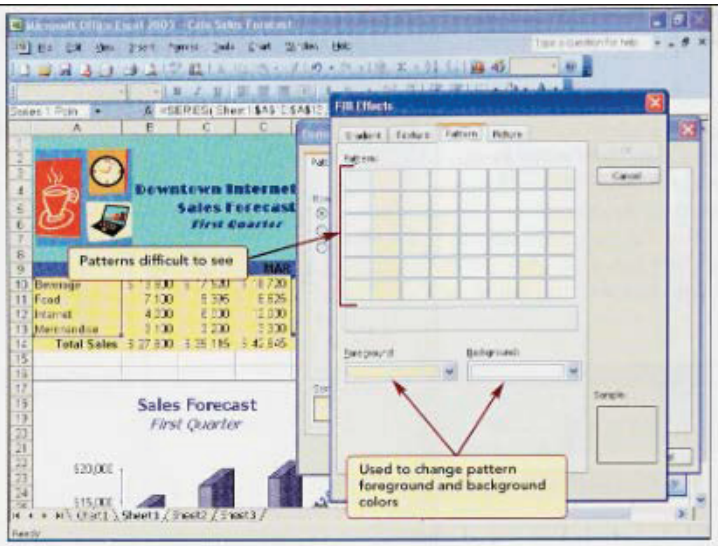


Figure 2.51

Because yellow is a light color, it is difficult to see the patterns in the Fill Effects dialog box. A pattern consists of a foreground color and a background color. The default foreground color is the same as the fill color and the background color is white. To increase the contrast, you can change the color selection of either.

5. From the Foreground color drop-down list, select the red color.
   - Select the Outlined diamond pattern.
   - Click [OK] (twice).

Your screen should be similar to Figure 2.52

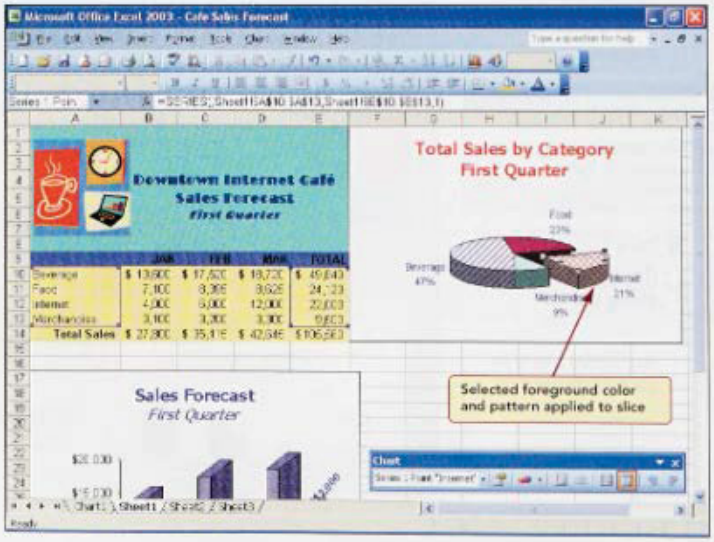


Figure 2.52

You will leave the other two data points without patterns. Now that you have finished working on the pie chart, you will move it below the column chart.

6. Select the pie chart and move it below the column chart to top-align with cell A39.
- Deselect the chart.
- Close the Chart toolbar.
- Save the workbook.

Your screen should be similar to Figure 2.53

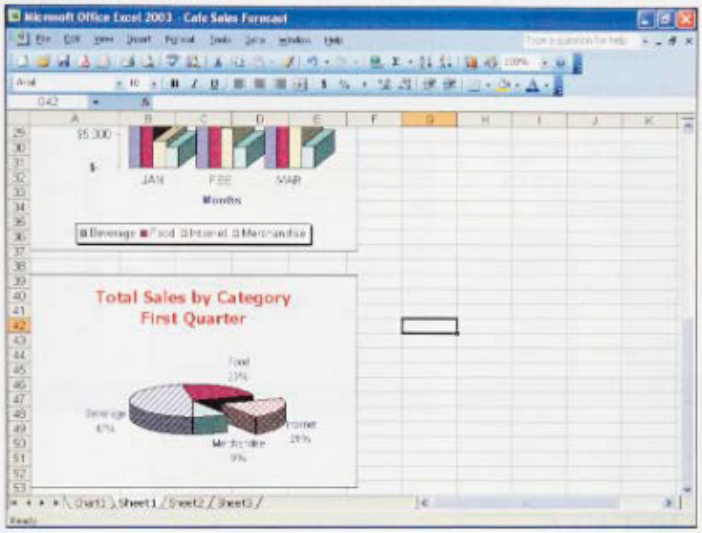


Figure 2.53

Setting File Properties

You have finished working on the worksheet for now and want to save the changes you have made to the file. Along with the content of the file, each file can include additional **file properties** or settings that are associated with the file. Some of these properties are automatically generated. These include statistics such as the date the file was created and last modified. Others, such as the author of the file, are properties that you can add to the file.

Documenting a Workbook

The information you can associate with the file includes a title, subject, author, keywords, and comments about the workbook file. Additionally, you can specify that a picture of the first page of the file should be saved for previewing in the Open dialog box. This information helps you locate the workbook file you want to use and helps indicate the objectives and use of the workbook. You will look at the file properties and add documentation to identify you as the author and to specify a title for the document.

Managing Large Worksheets

Now that the workbook is much larger, you are finding that it takes a lot of time to scroll to different areas within and between worksheets. To make managing large worksheets easier, you can zoom a worksheet, split the workbook window, and freeze panes.

Zooming the Worksheet

The Year worksheet displays all of the quarterly data. The entire worksheet, however, is not visible in the window. You can change how much information is displayed in the window to make it easier to navigate, view, and select worksheet data by adjusting the zoom percentage. The default zoom setting is 100 percent. This setting displays data onscreen the same size that it will appear on the printed page. You can reduce or enlarge the amount of information displayed onscreen by changing the magnification from between 10 to 400 percent. You want to decrease the zoom percent to display more information in the window.

Additional Information
The Zoom feature is common in all Office 2003 applications.

1. **Open the Zoom drop-down menu.**



Additional Information
The Selection option adjusts the percentage to fit the selected range in the current window size.

- **Choose 75%.**

Another Method
The menu equivalent is **V**iew/**Z**oom and the voice command is "Zoom" followed by the percent value or zoom option.

Your screen should be similar to Figure 3.37

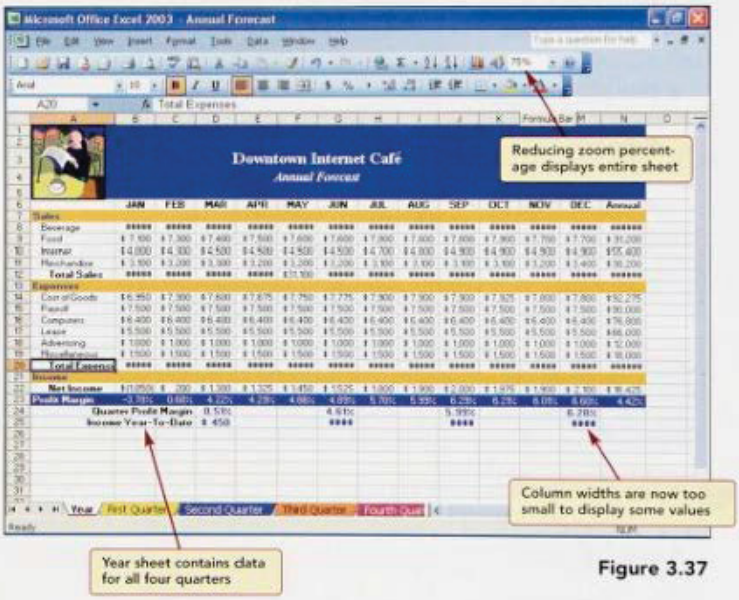


Figure 3.37

Additional Information
Pointing to the #### error value will display the cell value in a ScreenTip.

You can now see the entire worksheet. As you reduce the percentage, more worksheet area is visible in the window. However, it gets more difficult to read, and many cells display the error value ##### because the column width is not wide enough to fully display the entry.

Using Solver, Creating Templates, and Evaluating Scenarios

LAB 4

Objectives

After you have read this chapter, you should be able to:

1. Use Solver.
2. Create an Answer report.
3. Create and use workbook templates.
4. Protect a worksheet.
5. Open and use multiple workbooks.
6. Link workbooks.
7. Hide worksheets.
8. Create diagrams
9. Create, edit, and use scenarios.
10. Create a Scenario Summary report.
11. Display the current date and time.

Case Study

Downtown Internet Café

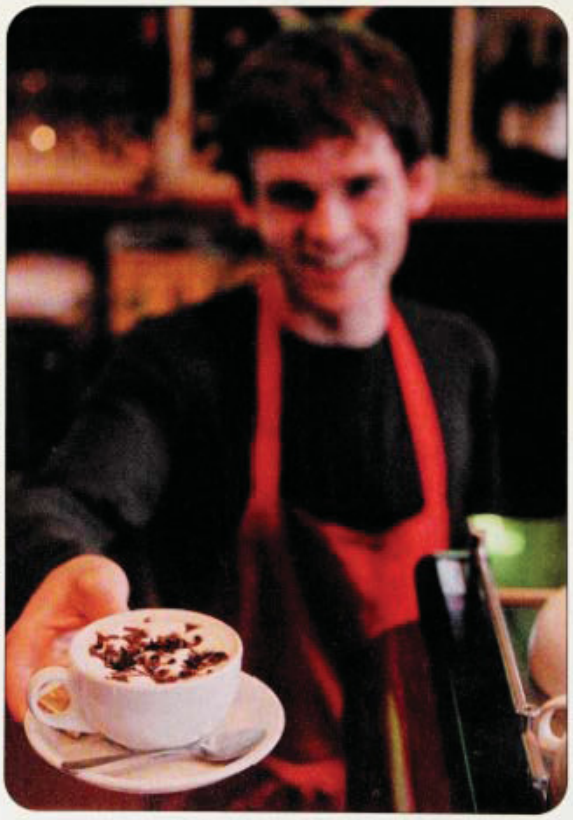
After further discussion with Evan, the owner of the Downtown Internet Café, you continued to refine the forecast analysis for the year. Based on Evan's input, you used Goal Seek to revise the third quarter sales to show a 6 percent monthly profit margin. In the fourth quarter, because Evan expects sales to increase approximately 10 percent over third quarter sales, you adjusted the sales to reflect the expected increase. You also increased the payroll expenses to manage the larger sales volume.

Evan thinks these changes are more realistic but wants you to further refine the fourth quarter analysis to show a quarterly profit margin of 8.5 percent. You will use the Solver tool to determine the values.

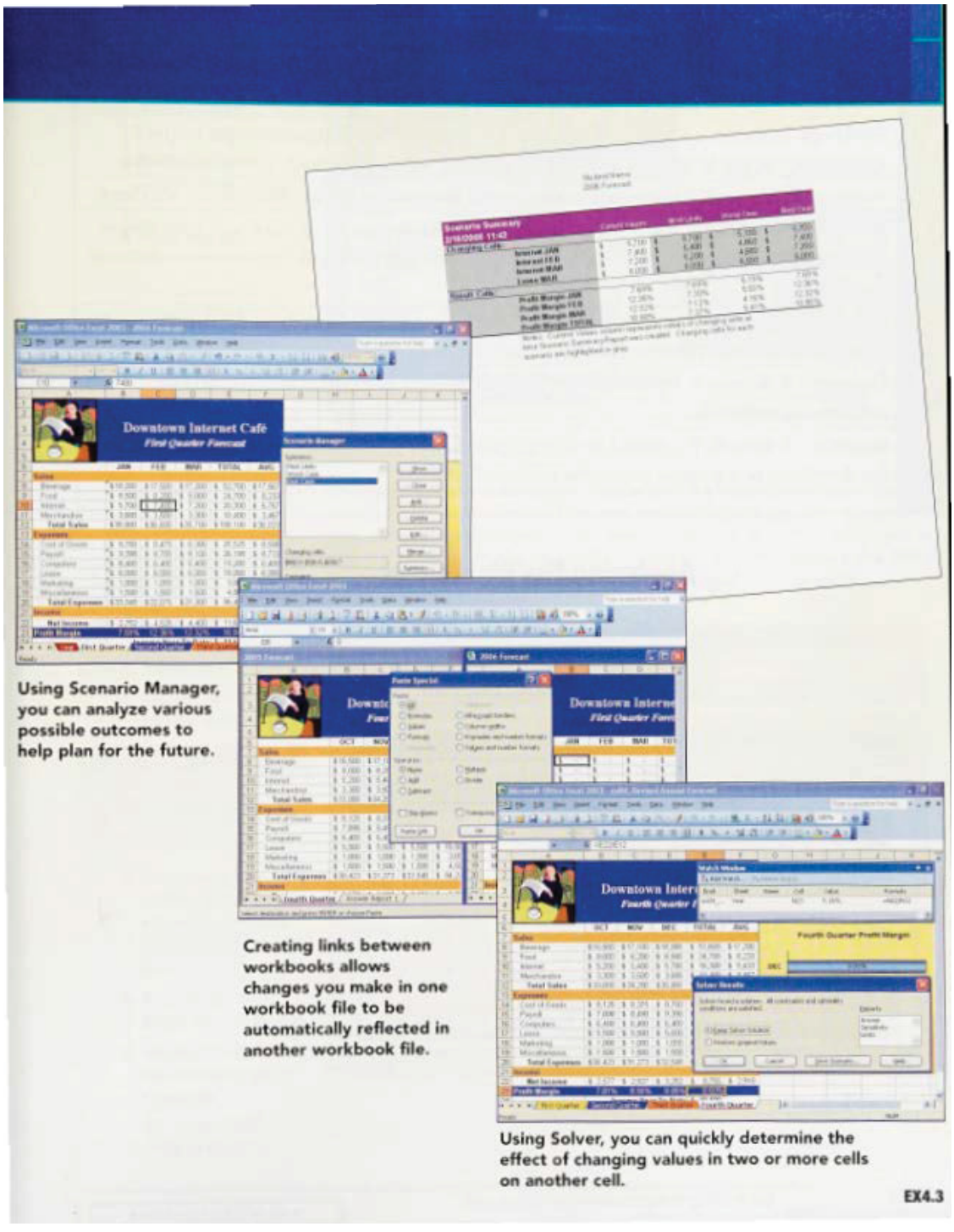
Once the annual forecast for the current year (2005) is complete, Evan wants you to use the same procedure to create the forecast for the following year (2006). You will use the current year annual forecast worksheet to create a template for the next year's forecast. Then you will use the template to create the first quarter forecast for that year.

Additionally, Evan wants to see a visualization of the sales in the form of a diagram. You will use Office Excel 2003 to create a drawing of a pyramid to show how the four sales are related.

Finally, you have been asked to create three different scenarios that will show the best, worst, and most likely scenarios for the first-quarter forecast for the following year. The completed scenario summary report is shown here.



Brand X pictures/Getty Images



Using Scenario Manager, you can analyze various possible outcomes to help plan for the future.

Creating links between workbooks allows changes you make in one workbook file to be automatically reflected in another workbook file.

Using Solver, you can quickly determine the effect of changing values in two or more cells on another cell.

EX4.3

Concept Preview

The following concepts will be introduced in this lab:

1. **Solver** Solver is a tool used to perform what-if analysis to determine the effect of changing values in two or more cells on another cell.
2. **Workbook Template** A workbook template is a workbook file that contains predesigned worksheets that can be used as a pattern for creating similar worksheets in new workbooks.
3. **Protection** The protection feature controls what information can be changed in a workbook.
4. **Window Arrangement** The window arrangement feature displays all open workbook files in separate windows on the screen, making it easy to view and work with information in different workbooks.
5. **Link** A link creates a connection between files that automatically updates the data in one file whenever the data in the other file changes.
6. **Diagram** A diagram is a graphic object that can be used to illustrate concepts and to enhance the workbook.
7. **Scenario** A scenario is a named set of input values that you can substitute in a worksheet to see the effects of a possible alternative course of action.

Analyzing the Worksheet

After seeing how the payroll values changed each month to achieve higher second and third quarter profit margins, Evan would like you to do a similar analysis on the fourth quarter. First you want to look at the current profit margin value for the fourth quarter.

1. Start Office Excel 2003.
2. Open the workbook file ex04_Revised Annual Forecast.
3. Make the Fourth Quarter sheet active.
4. Select cell E23.

Your screen should be similar to Figure 4.1

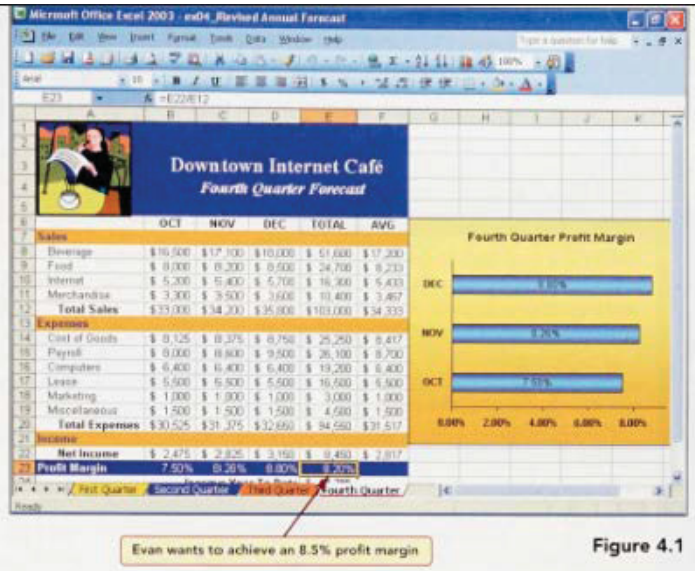


Figure 4.1

The current total profit margin for the fourth quarter is 8.20 percent. Evan would like to achieve an 8.5 percent quarterly profit margin. Again, to do this, you will need to reduce the monthly payroll expenses. While you are making changes to the quarterly worksheet, you will display the Watch Window to see how the changes affect the annual profit margin.

2. Move to the Year sheet.
3. Select cell N23.
4. Open the Watch Window toolbar.

Having Trouble?

Open the Watch Window toolbar from the toolbar shortcut menu. Click Add Watch... to set the watch cell.

5. If necessary, select any existing watch cells in the toolbar and click Delete Watch to delete them.
6. Add cell N23 to the Watch Window toolbar.
7. Size and position the Watch Window as in Figure 4.2.

Your screen should be similar to Figure 4.2

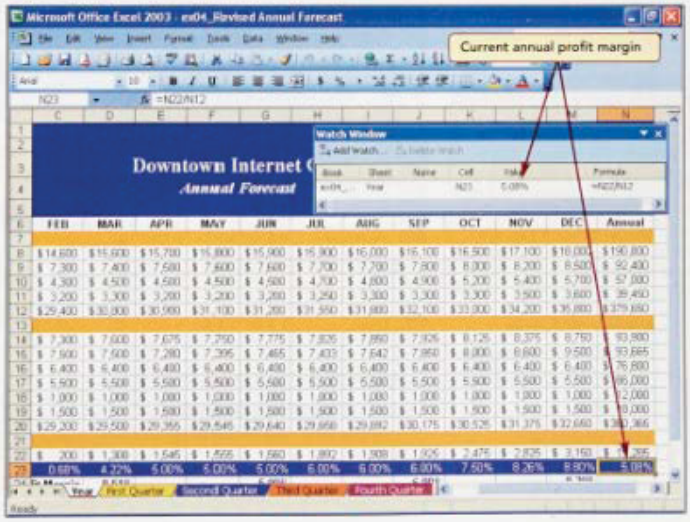


Figure 4.2

Using Solver

Although you could manually perform what-if analysis or use the Goal Seek feature to determine the desired profit margin value, it would be much quicker to use the Solver tool.

Concept 1

Solver

1 **Solver** is a tool used to perform what-if analysis to determine the effect of changing values in two or more cells, called the **adjustable cells**, on another cell, called the **target cell**. Solver calculates a formula to achieve a given value by changing one of the variables that affect the formula. To do this, Solver works backward from the result of a formula to find the numbers. The cells you select must be related through formulas on the worksheet. If they are not related, changing one will not change the other. You can also include constraints to restrict the values Solver can use. The constraints can refer to other cells that affect the target cell formula.

Solver can also produce three types of reports about the solution: Answer, Sensitivity, and Limits. In an Answer report, the original and final values of the target cell and adjustable cells are listed along with any constraints and information about the constraints. Information about how sensitive the solution is to small changes in the target cell formula or in the constraints is provided in a Sensitivity report. A Limits report includes the original and target values of the target cell and adjustable cells. It also lists the lower limit, or the smallest value that the adjustable cell can take while holding all other adjustable cells fixed and still satisfying the constraints and upper or greatest value.

1. **Display the Fourth Quarter sheet.**
- **Choose Tools/Solver.**

Having Trouble?

The first time you try to use Solver it may not appear on the menu. To add the Solver option to the menu, choose Tools/Add-Ins/Solver Add-in. Note: You may need the original install CD if you are using your own computer to load this add-in.

- **Move the Solver Parameters dialog box to the right side of the screen.**

Your screen should be similar to Figure 4.3

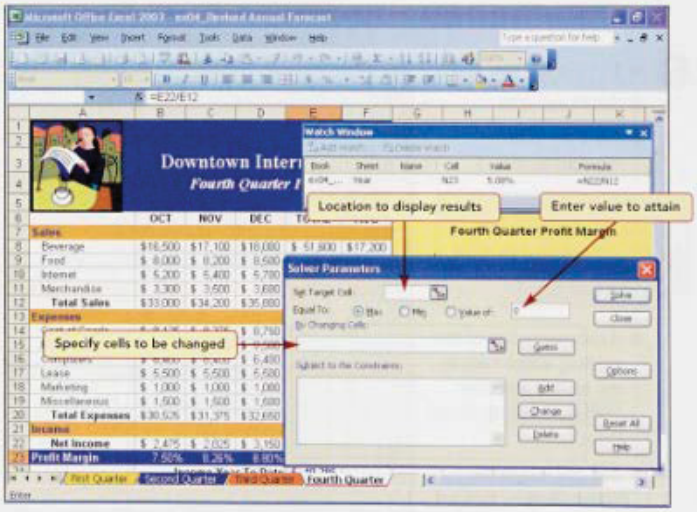


Figure 4.3

In the Solver Parameters dialog box, you need to supply three items of information: the target cell where the result will appear, the desired result value, and the cell or cells that will be changed to achieve the result.

The cell reference of the cell containing the formula you want to solve is entered in the Set Target Cell text box. The number you want as the result of the formula is entered in the Equal To text box. You can set the number to be a maximum, minimum, or an exact number. The maximum option sets the target cell to the highest possible number, while the minimum option sets the target cell to the lowest possible number.

The final information needed is the cell or cell range whose contents can be changed when the formula is computed. This range is entered in the By Changing Cells text box. In the fourth quarter, you are looking for a value of 8.5 percent by changing the values in the range of cells B15 through D15.

2. Specify cell E23 as the Set target cell.
   - Select Value of.
   - Type .085 in the Value Of text box.
   - Specify the range B15 through D15 in the By Changing Cells text box.

Having Trouble?

You can minimize the dialog box using the button and select the range by highlighting it in the worksheet.

Your screen should be similar to Figure 4.4

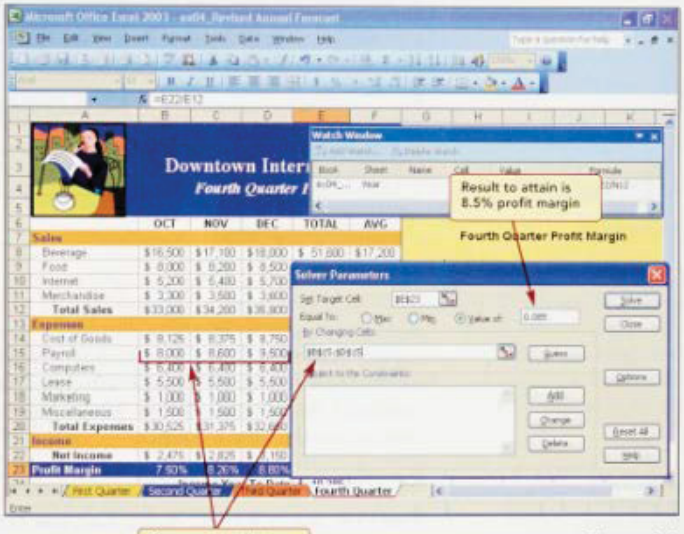


Figure 4.4

Now you are ready to have Solver find the values to meet the parameters you specified.

3 Click Solve.

Your screen should be similar to Figure 4.5

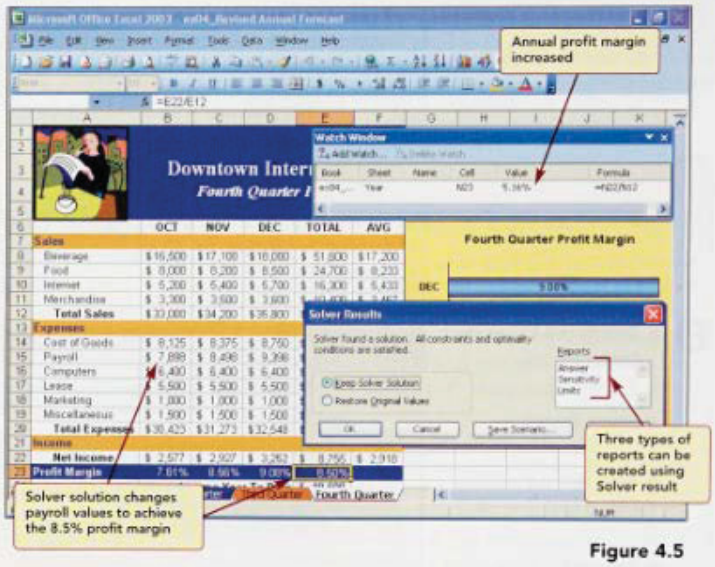


Figure 4.5

The Solver Results dialog box tells you that Solver found a solution. The new payroll numbers are entered in the worksheet range and the worksheet is automatically recalculated. By reducing the payroll expenses slightly each month, the total profit margin for the quarter is 8.5 percent. As you can see in the Watch Window, the profit margin for the year increased from 5.08 to 5.16 percent as a result of reducing payroll expenses in the fourth quarter.

Creating an Answer Report

From the Solver Results dialog box, you can choose whether to keep the solution or restore the original values. In addition, you can have Solver create Answer, Sensitivity, and Limits Reports. You decide to keep the solution and create an Answer report.

1. Select Answer from the Reports list box.
2. Click OK.
3. Make the Answer Report 1 sheet active.

Your screen should be similar to Figure 4.6

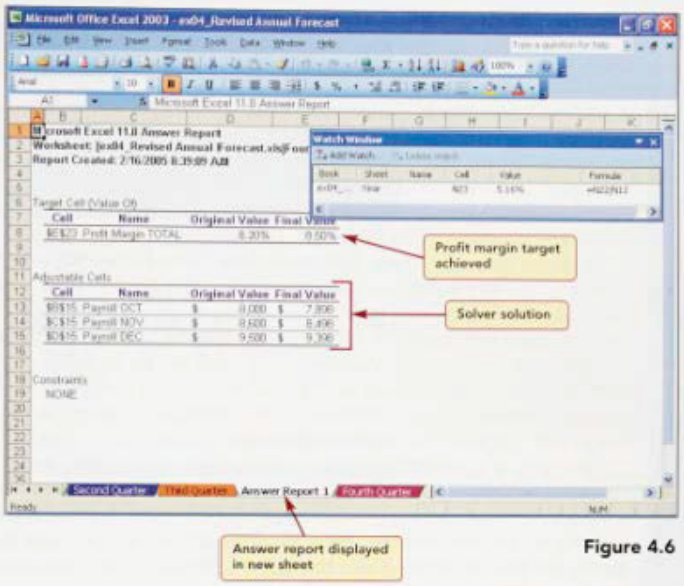


Figure 4.6

The Answer Report 1 sheet displays the Answer report that was generated. The target cell section of the report shows the original profit margin value of 8.20 percent and the final value of 8.50 percent. The Adjustable Cells area shows the original and final values for each cell that was changed to achieve the profit margin of 8.50 percent. The forecast for 2005 is now complete.

2. Move the Answer Report 1 sheet after the Fourth Quarter sheet.
3. Close the Watch Window toolbar.
4. Make the Year sheet active.
5. Move to cell A6 and save the workbook file as 2005 Forecast.

Creating a Custom Template

After seeing the effects of your analyses on the Year sheet, Evan has found Solver to be a valuable tool for planning and managing operations. He has asked you to create a new workbook containing a forecast for the following year. You could create this new forecast workbook by starting all over again, specifying the formats and formulas. However, as the current workbook already contains this information, you decide to use it as a model or template for future forecasts.

Concept 2

Workbook Template

2 A workbook **template** is a workbook file that contains predesigned worksheets that can be used as a pattern for creating similar worksheets in new workbooks. Every Excel workbook is based on a template. The default settings for a basic blank workbook are stored in the Book.xlt template file. Whenever you create a new workbook using this template, the same default settings are used. Templates can contain text, graphics, formats, page layouts, headers and footers, functions and formulas, and macros.

Templates are useful in any application where input and output are required using the same format. By not having to redesign the worksheet form each time the report is needed, you save time and increase accuracy. You can go back to the original design repeatedly by saving the workbook containing the data under a different file name than the one you used to save the workbook template.

Many other templates are available within Excel and on the Microsoft Internet site that are designed to help you create professional-looking workbooks. They include templates that create different styles of balance sheets, expense statements, loan amortizations, sales invoices, and timecards. You can also design and save your own workbook templates.

Excel saves a workbook template using a special file format with the file extension .xlt. Workbook templates are also stored in a special Templates folder. To use a workbook template, you select the template file name from the General tab of the New File dialog box. When you save the workbook after entering data in the template, Excel automatically displays the Save As dialog box so that you can specify the new file name. It also changes the file type to an Excel workbook (.xls). This ensures that you do not unintentionally save over the template file.

Designing the Template

A well-designed template allows you to enter information into the appropriate locations while protecting formulas and basic formats. Since the basic workbook design you want to use for your template is already in place, you will modify the worksheets in the workbook to create the template. The first steps are to eliminate the Answer Report 1 sheet and to change the values in the quarter sheets to zeros.

1. Delete the Answer Report 1 sheet.
2. Select the First Quarter through Fourth Quarter sheets.

Having Trouble?
Hold down ⇧Shift to extend the sheet selection.

3. Enter 0 in cells B8 through D11 and cells B15 through D19 in the First Quarter sheet.
4. Move to cell B20.

Your screen should be similar to Figure 4.7

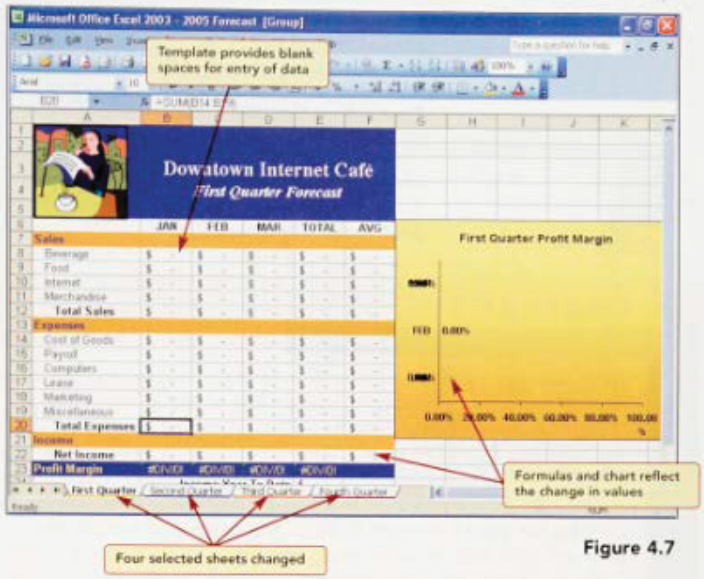


Figure 4.7

The selected cell format displays cells containing zero values with a dash symbol. All other worksheet cells containing formulas as well as the chart reflect the change in the values.

5. Look at each of the three other quarter sheets to verify that the values have been replaced.
6. Make the Year sheet active and move to cell B8.

Your screen should be similar to Figure 4.8

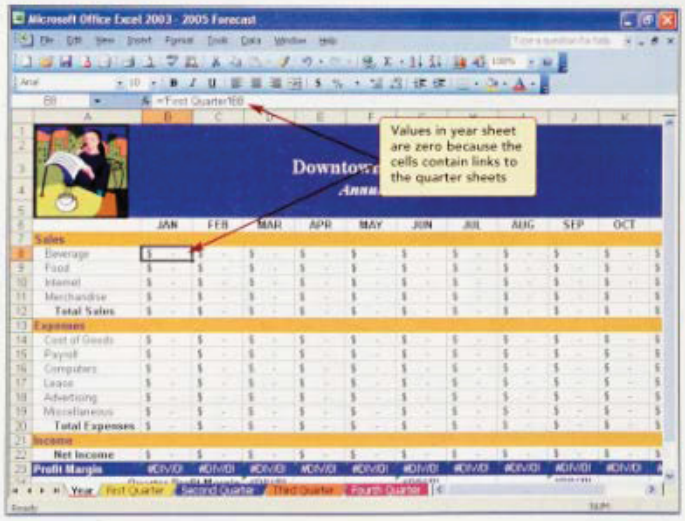


Figure 4.8

Because the Year sheet contains formulas that link to the values in the quarter sheets, this sheet also displays zero values. Now, whenever you are

creating another annual forecast, you will simply enter the new values in place of the blanks in the quarter sheets and the annual sheet will automatically be completed.

Protecting the Worksheet

Now that all the values have been removed and the template is ready to use, you want to prevent unwanted changes to the worksheets that would cause headings and formulas to be altered or cleared. To do this, you can protect the worksheet.

Concept 3

Protection

3 The **protection** feature controls what information can be changed in a workbook. Excel includes two levels of protection: worksheet protection and workbook protection.

Worksheet protection prevents users from changing a worksheet's contents by protecting the entire worksheet or specified areas of it. When a worksheet is protected, all cells and graphic objects on it are locked. The contents of a locked cell cannot be changed. If you want to leave some cells unlocked for editing, such as in a worksheet that you use as an entry form, you can lock cells containing labels and formulas but unlock the entry fields so that other users can fill them in. This type of protection prevents you from entering or changing an entry in any locked cells.

Workbook-level protection prevents changes to an entire workbook in two ways. First, you can protect the structure of a workbook so that sheets cannot be moved or deleted or new sheets inserted. Second, you can protect a workbook's windows. This prevents changes to the size and position of windows and ensures that they appear the same way each time the workbook is opened.

In addition, you can include a **password** that prevents any unauthorized person from either viewing or saving changes to the workbook. Two separate passwords can be used: one to open and view the file and another to edit and save the file. If you use a password, you must remember the password in order to turn protection off in the future.

Initially all cells in a worksheet are locked. However, you can enter data in the cells because the worksheet protection feature is not on. When protection is turned on, all locked cells are protected. Therefore, before protecting this sheet, you need to unlock the areas in the worksheet where you want to allow users to make changes to information.

The only area of the Year sheet that needs to be unprotected is the subtitle where the year will be entered when the template is used. You will unlock the cell containing the subtitle and add protection to the rest of the worksheet.

1. Move to cell D4.
2. Choose Format/Cells.
3. Open the Protection tab.
4. Clear the Locked option.

Your screen should be similar to Figure 4.9

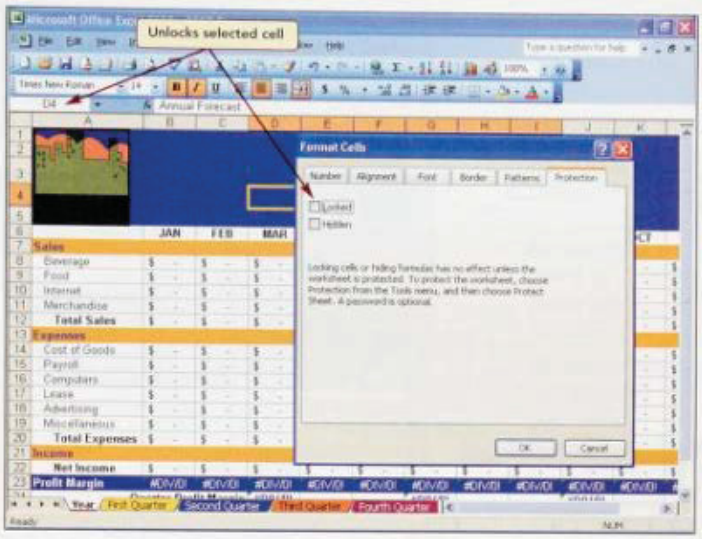


Figure 4.9

Once the cells you want to allow changes to in a worksheet are unlocked, you can add protection.

2. Click OK.
3. Display the Protection toolbar.
4. Click Protect Sheet.

Another Method

The menu equivalent is Tools/Protection/Protect Sheet.

Your screen should be similar to Figure 4.10

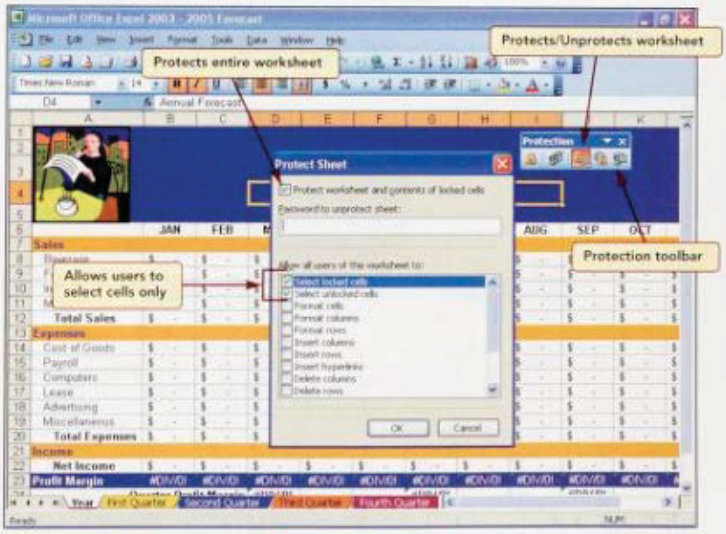


Figure 4.10

In the Protect Sheet dialog box, you can enter a password to prevent unauthorized people from removing protection from the sheet and specify the options that you want to enable for all users of the template. The

Select Locked Cells and Select Unlocked Cells options are enabled by default. Leaving these selected and the others unselected provides complete protection for the worksheet. You will complete the command to protect this sheet and then you will unlock the data entry areas of the four quarter sheets.

3. Click OK.
- Select the First Quarter through Fourth Quarter sheets.
- Select cells B8 through D11 and B15 through D19.

Having Trouble?
Hold down Ctrl to select nonadjacent ranges.

- Choose Format/Cells.
- Clear the Locked option in the Protection tab.
- Click OK.

Your screen should be similar to Figure 4.11

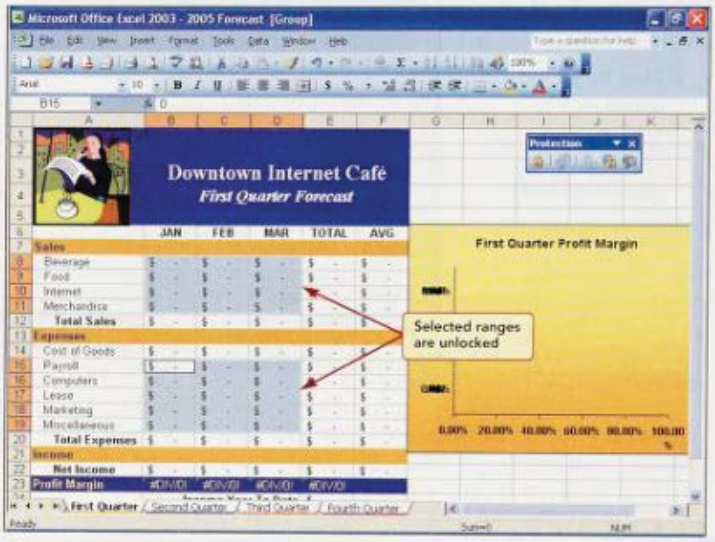


Figure 4.11

When protecting worksheets, you must protect each sheet individually. You will ungroup the sheets and protect each sheet.

4. Select **Ungroup Sheets** from the sheet tab shortcut menu.

Another Method

You can also hold down Shift while clicking a sheet tab to ungroup sheets.

- If necessary, make the First Quarter sheet active.
- Click Protect Sheet.
- Click OK.
- In a similar manner protect the other three quarter sheets.

Your screen should be similar to Figure 4.12

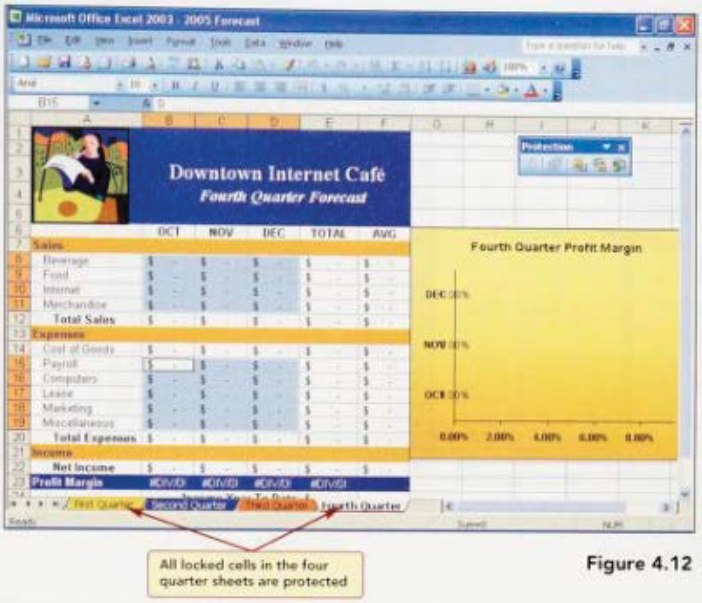


Figure 4.12

Now all locked cells in the four quarter sheets are protected. Only those cells you unlocked prior to turning on protection can be changed. To test this out, you will try to make an entry in a protected cell.

5. Type any character in cell B6 of the Fourth Quarter sheet.

Your screen should be similar to Figure 4.13

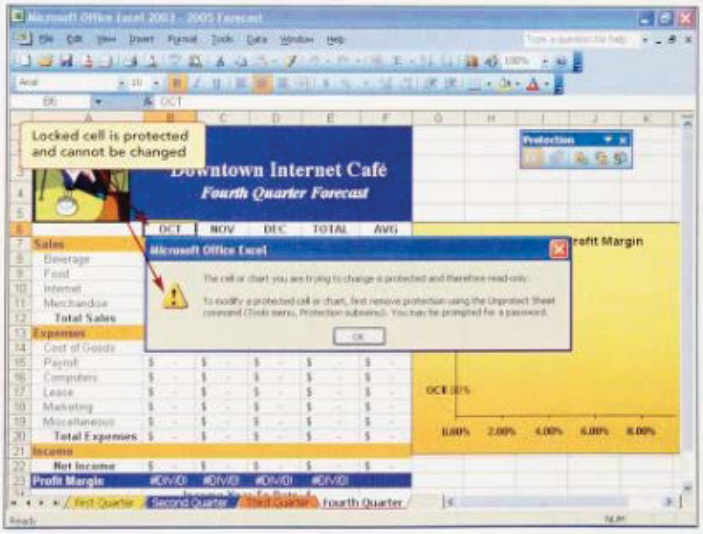


Figure 4.13

The warning dialog box informs you that you cannot change entries in locked cells. Next, you will enter a value in an unlocked cell.

6. Click OK to clear the message.

- Type 1250 in cell B8 and press ↵Enter.

Your screen should be similar to Figure 4.14

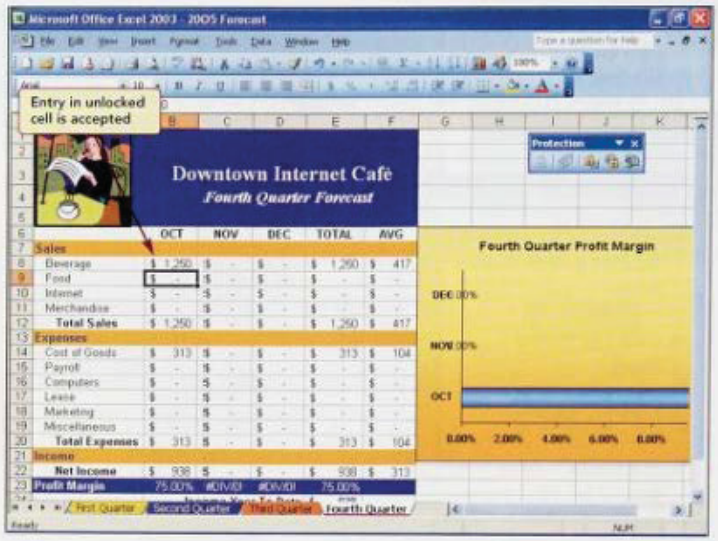


Figure 4.14

The entry is accepted because the cell was unlocked before protection was applied to the sheet.

Saving the Template

Now that the sheets are protected, you will save this workbook as a template file. First, you will clear the test entry and move the cell pointer to the location in the worksheet where you want it to appear when opened.

1. Click Undo to remove the test entry.
- Move to cell B8 in each of the other quarter sheets.
- Move to cell D4 in the Year sheet.
- Close the Protection toolbar.
- Choose File/Save As.
- Enter the new name, Forecast Template, in the File Name text box.
- From the Save As Type list box, select Template.

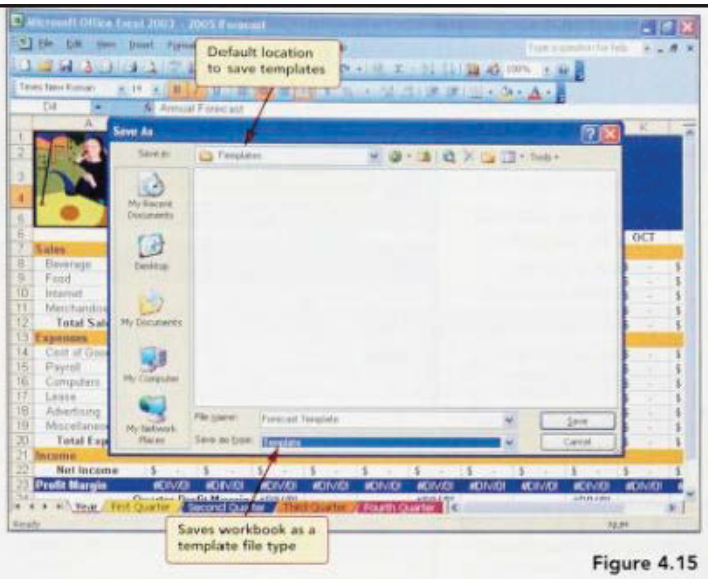


Figure 4.15

Additional Information

You cannot save a workbook as a template by typing the file extension .xlt in a file name. You must select the Template file type from the Save As Type list box.

Your screen should be similar to Figure 4.15

Templates are saved by default to the Templates folder on your system. You can also save templates to other locations just like any other workbook file.

2. Click Save.

Having Trouble?

If a file already exists with this name, click Yes to replace it.

- Close the Forecast Template file.

The Forecast Template workbook is now ready to use.

Using the Template

Now you will use the Forecast Template file to create a new forecast workbook for the following year, 2006.

1. **Choose File/New.**
2. **Click On my computer from the Templates section of the New Workbook task pane.**

Your screen should be similar to Figure 4.16

Additional Information

Only templates saved to the Template folder will be listed.

Additional Information

Your General tab may display additional icons depending on how many and what kind of templates have been created and saved in Excel.

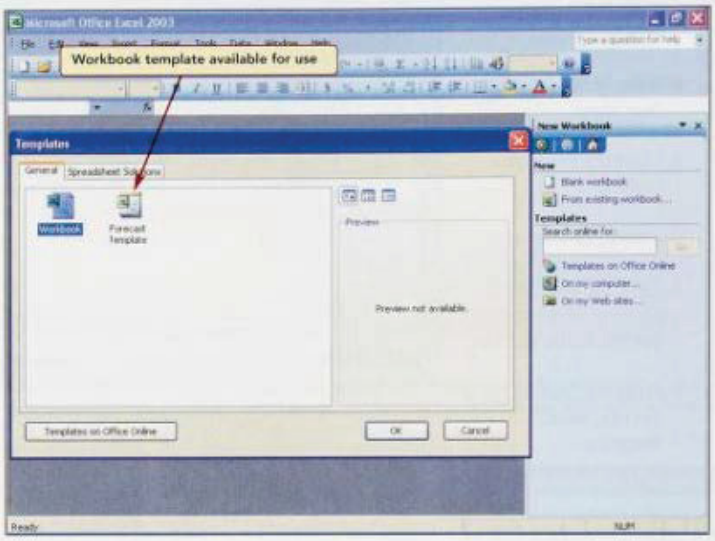


Figure 4.16

The Forecast Template file name appears in the General tab of the Templates dialog box. You will open the template and change the subtitle in the Year sheet to display the year 2006.

2. **Select** Forecast Template.
3. **Click** OK.
4. **Change the subtitle in cell D4 of the Year sheet to** 2006 Annual Forecast.

Your screen should be similar to Figure 4.17

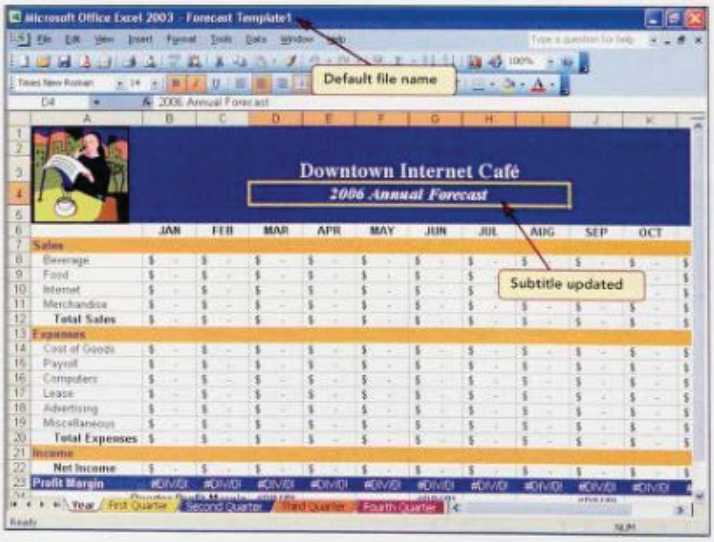


Figure 4.17

Before continuing, you want to save the revised template file as a new workbook file for use in entering the 2006 forecast data. Notice the file name in the title bar is Forecast Template1. Excel automatically adds a number to the file name when the template is opened to prevent you from accidentally overwriting the original template file when saving. Additionally, when using a template to create a new workbook file, even if you use the Save command, Excel automatically displays the Save As dialog box so that you can specify a new file name.

3. Click Save.

- Enter the new name, 2006 Forecast, in the File Name text box.

Additional Information

To ensure that you do not unintentionally save over the template file, Excel automatically assigns the .xls workbook extension as the file type.

- Change the Save In location to the appropriate location to save your files.
- Click Save.

Your screen should be similar to Figure 4.18

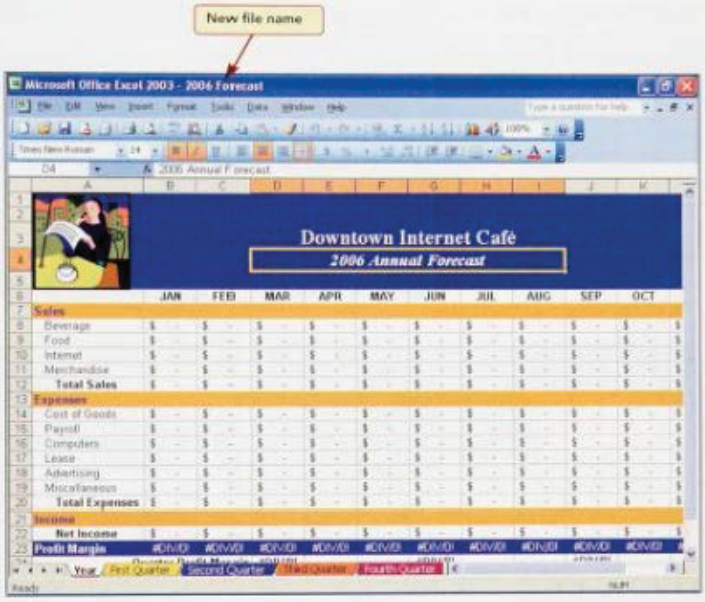


Figure 4.18

Working with Multiple Workbooks

Evan wants you to focus on the 2006 first quarter forecast. Because he expects all sales and expenses to remain the same as the December 2005 values, you can obtain this data from the 2005 Forecast workbook. To do this, you want to copy the data from one workbook to the other. In Excel, you can open multiple workbook files at the same time. Each workbook is opened in its own window. You can also open additional separate windows to display different parts of the active workbook. The open windows can be arranged so that you can see them simultaneously to make it easy to work with data in multiple workbooks at the same time.

Opening a Second Workbook File

You will open the workbook file containing the 2005 forecast data you saved earlier.

2003

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ISBN-13: 978-0-07-283568-7
ISBN-10: 0-07-283568-0
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