Objectives

After completing this lab, you will know how to:

1 Create new worksheets.

2 Enter and edit data.

3 Modify column widths.

4 Use proofing tools.

5 Copy and paste cell contents.

6 Create formulas.

7 Insert and delete rows and columns.

8 Format cells and cell content.

9 Hide and unhide rows and columns.

10 Create a basic chart.

11 Format values as a date.

12 Preview and print a worksheet.

13 Display and print formulas.

14 Change worksheet orientation and scale content.

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 and installing a wireless network. He plans to offer free Wi-Fi service for customers to use with their own laptop computers. In addition, he has set up several computer kiosks for customers to use who do not have laptops and has provided a printer and copier for all customers to use. He also has decided to rent an MP3 download kiosk for customers who may want to update the music on their iPods or PDAs. Finally, to reflect the new emphasis of the café, he has changed its name to the Downtown Internet Café.

You and Evan expect to increase sales by attracting techno-savvy café-goers, who you hope will use the Downtown Internet Café as a place to meet, study, work, or download music for their iPods and PDAs. You also believe the rental computers will be a draw for vacationers who want to check e-mail during their travels.
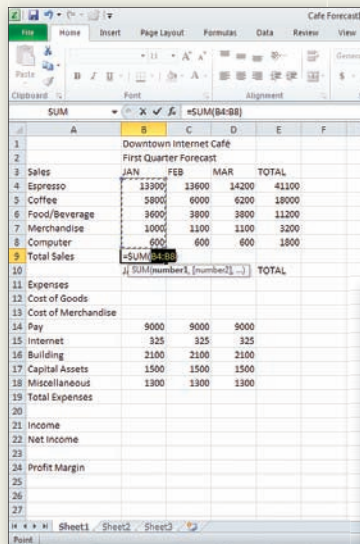
Evan wants to create a forecast estimating sales and expenses for the first quarter. As part of a good business plan, you and Evan need a realistic set of financial estimates and goals.

In this lab, you will help with the first quarter forecast by using Microsoft Office Excel 2010, 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.
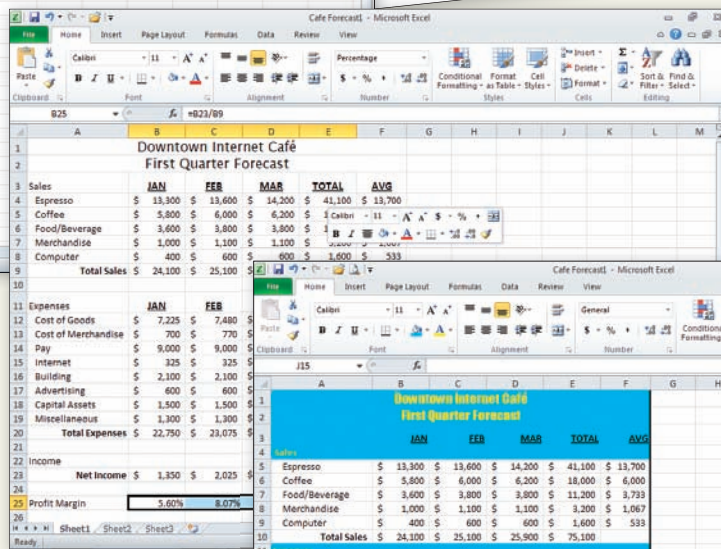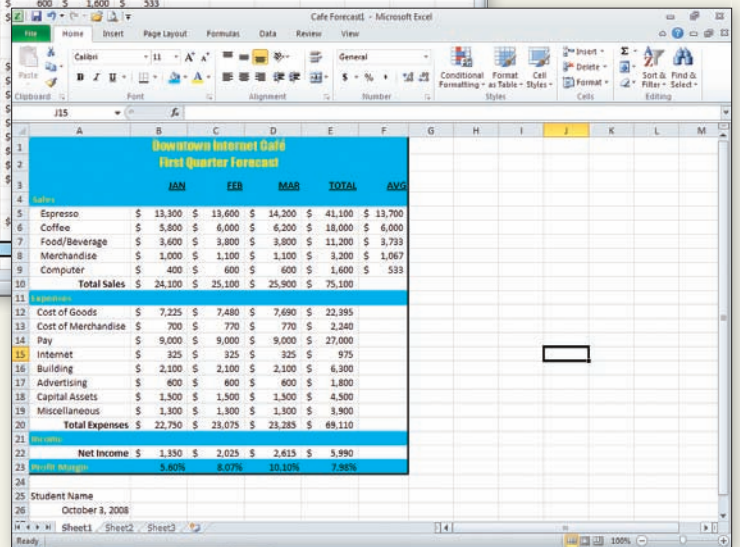
Enter labels, numbers, and formulas to create the basic structure of a worksheet.

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.

The following concepts will be introduced in this lab:

1 Data The basic information or data you enter in a cell can be text or numbers.

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 column width is the size or width of a column and 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 Range A selection consisting of two or more cells on a worksheet is a range.

7 Formula A formula is an equation that performs a calculation on data contained in a worksheet.

8 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.

9 Function A function is a prewritten formula that performs certain types of calculations automatically.

10 Recalculation When a number in a referenced cell in a formula changes, Excel automatically recalculates all formulas that are dependent upon the changed value.

11 Alignment Alignment settings allow you to change the horizontal and vertical placement and the orientation of an entry in a cell.

12 Number Formats Number formats change the appearance of numbers onscreen and when printed, without changing the way the number is stored or used in calculations.

Creating a Workbook

As part of the renovation of the Downtown Internet Café, Evan upgraded the office computer with the latest version of the Microsoft Office System suite of applications, Office 2010. You are very excited to see how this new and powerful application can help you create professional budgets and financial forecasts for the Café.

You will use the spreadsheet application Excel 2010 included in the Microsoft Office 2010 System suite to create the first-quarter forecast for the Café.

1

- Start Microsoft Excel 2010.

- If necessary, maximize the Excel application window.

Your screen should be similar to Figure 1.1

Ribbon

Title bar displays default file name

Name box

Formula bar

Mouse pointer

Workbook window
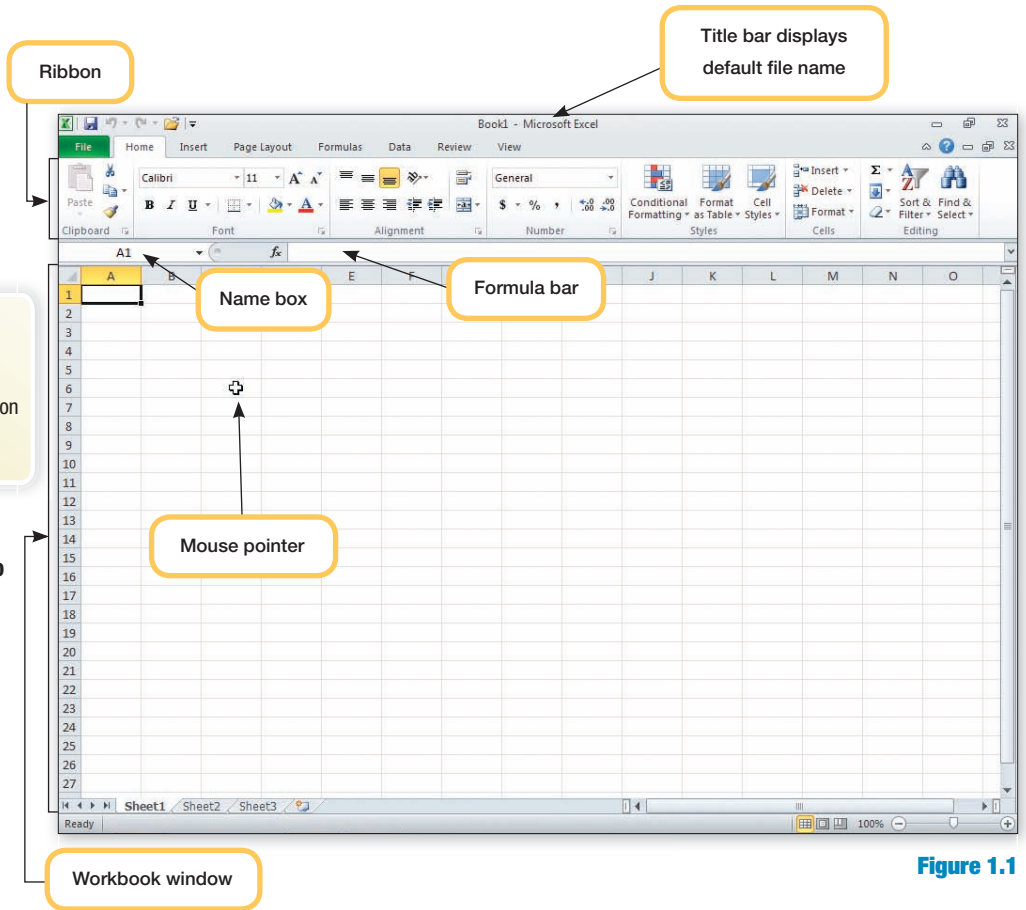
Figure 1.1

Additional Information

Because the Ribbon can adapt to the screen resolution and orientation, your Ribbon may look slightly different. It also may display additional tabs if other application add-ins associated with Office 2010 are on.

Additional Information

You will learn all about using these features throughout these labs.

After a few moments, the Excel application window is displayed. Because Excel remembers many settings that were in use when the program was last closed, your screen might look slightly different.

The Excel application window title bar displays the default file name, Book1, and program name. The Ribbon below the title bar consists of seven tabs that provide access to the commands and features you will use to create and modify a worksheet.

Below the Ribbon 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 large center area of the program window is the **workbook window**. A **workbook** is an Excel file that stores the information you enter using the program. You will learn more about the different parts of the workbook window 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 work-book window and when it appears as a ⬚, it is used to choose items, such as commands from the Ribbon.

2

● Move the mouse pointer into the center of the workbook window to see it appear as ✛.

● Move the mouse pointer to the Ribbon to see it appear as ▷.

Your screen should be similar to Figure 1.2

Mouse pointer with selection capabilities

Zoom feature

View Options

Status bar displays current mode

Figure 1.2

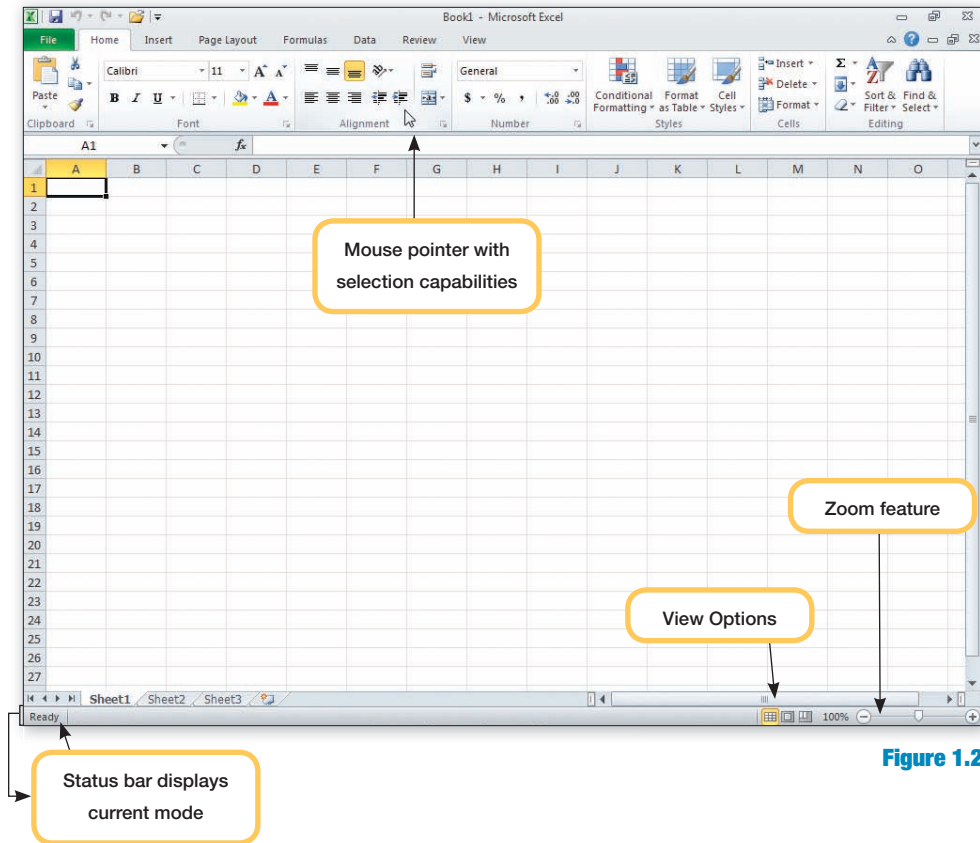The status bar at the bottom of the Excel window displays information about various Excel settings. The left side of the status bar displays the current mode or state of operation of the program, in this case, Ready. When Ready is displayed, you can move around the workbook, enter data, use the function keys, or choose a command. As you use the program, the status bar displays the current mode. The right side of the status bar contains buttons to change the view and a zoom feature.

Exploring the Workbook Window

When you first start Excel 2010, the workbook window displays a new blank workbook that has many predefined settings. These settings, called **default** settings, are stored in the default workbook template file named Book.xltx. A **template** is a file that contains settings that are used as the basis for a new file you are creating.

The default workbook file includes 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 16,384 columns to the right and 1,048,576 rows down.
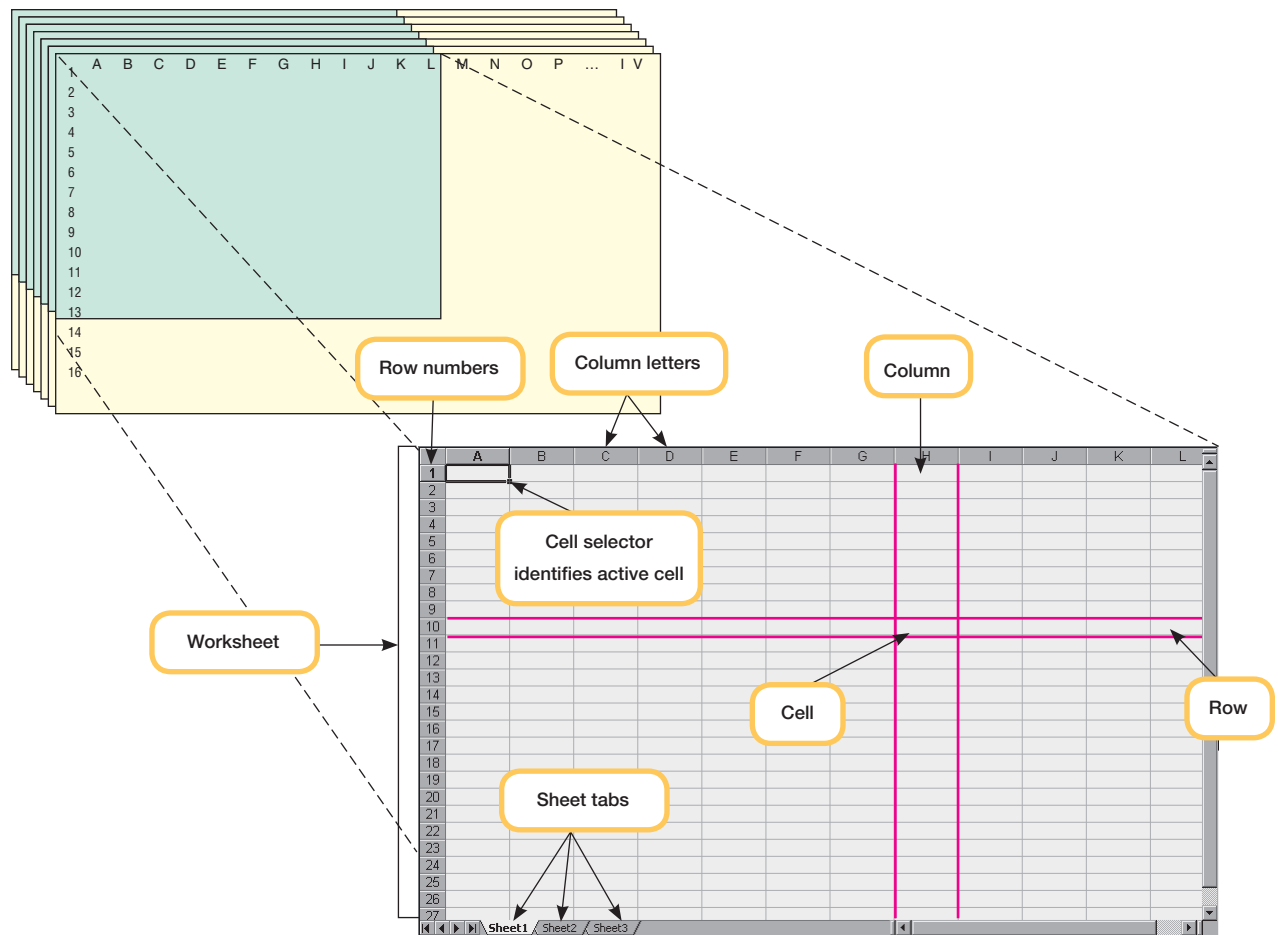
The **row numbers** along the left side and the **column letters** across the top of the workbook window identify each worksheet row and column. The intersection of a row and column creates a **cell**. Notice the black border, called the **cell selector**, surrounding the cell located at the intersection of column A and row 1. This 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.

Your screen should be similar to Figure 1.3

Blank worksheet in Sheet2
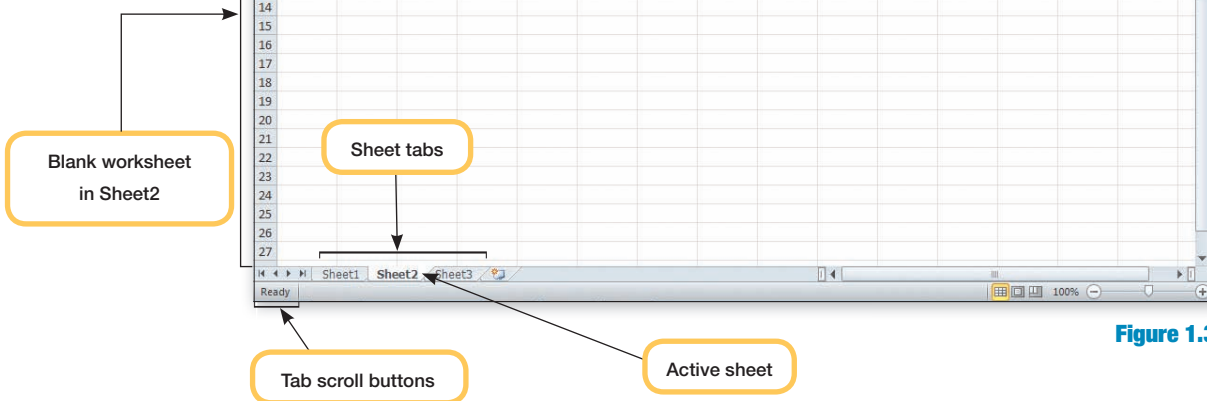
Sheet tabs

Tab scroll buttons

Active sheet

Figure 1.3

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.

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 sheet tabs than can be seen. You will learn about these features throughout the labs.

MOVING AROUND THE WORKSHEET

Additional Information

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

The mouse or keyboard 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 make Sheet1 active again and use the mouse, then the keyboard to move in the worksheet.

1

- **Click the Sheet1 tab to make it the active sheet again.**

- **Click cell B3.**

- **Press** → **(3 times).**

- **Press** ↓ **(4 times).**

Your screen should be similar to Figure 1.4

Name box displays cell reference

Cell selector identifies active cell

Highlighted row number and column letter identify location of active cell

Figure 1.4

Cell E7 is outlined in black, indicating this cell is 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. The keyboard procedures shown in the table that follows can be used to move around the worksheet.
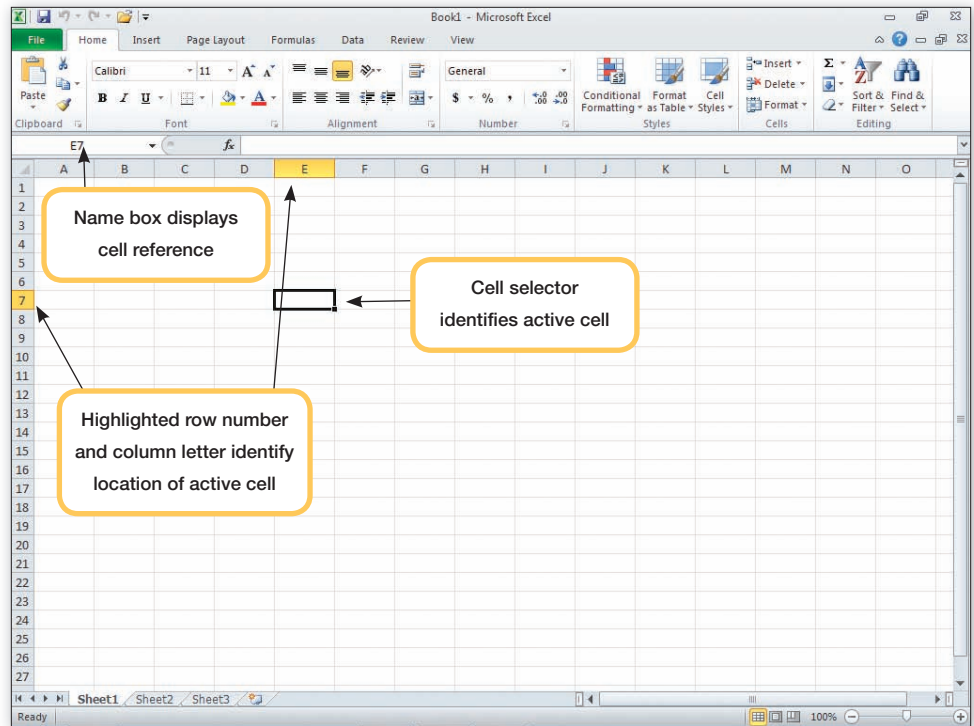
Having Trouble?

Refer to the Scrolling the Document Window section of the Introduction to Office 2010 for more keyboard and mouse procedures.

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

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 active cell does not change until you click on a cell that is visible in the window.

You will scroll the worksheet to see the rows below row 27 and the columns to the right of column O.

2

● Press [Page Down] (3 times).

● Press [Alt] + [Page Down] (3 times).

Having Trouble?

Do not use the numeric keypad [Page Up] and [Page Down] keys, as this may enter a character in the cell.

Your screen should be similar to **Figure 1.5**

Having Trouble?

Your screen may display more or fewer rows and columns and the active cell may be a different cell. This is a function of your screen and system settings.

Additional Information

If you have a mouse with a scroll wheel, rotating the wheel forward or back scrolls up or down a few rows at a time.

Columns AT through BH

Active cell AX88

Rows 82 through 108

Drag vertical scroll box to move up and down
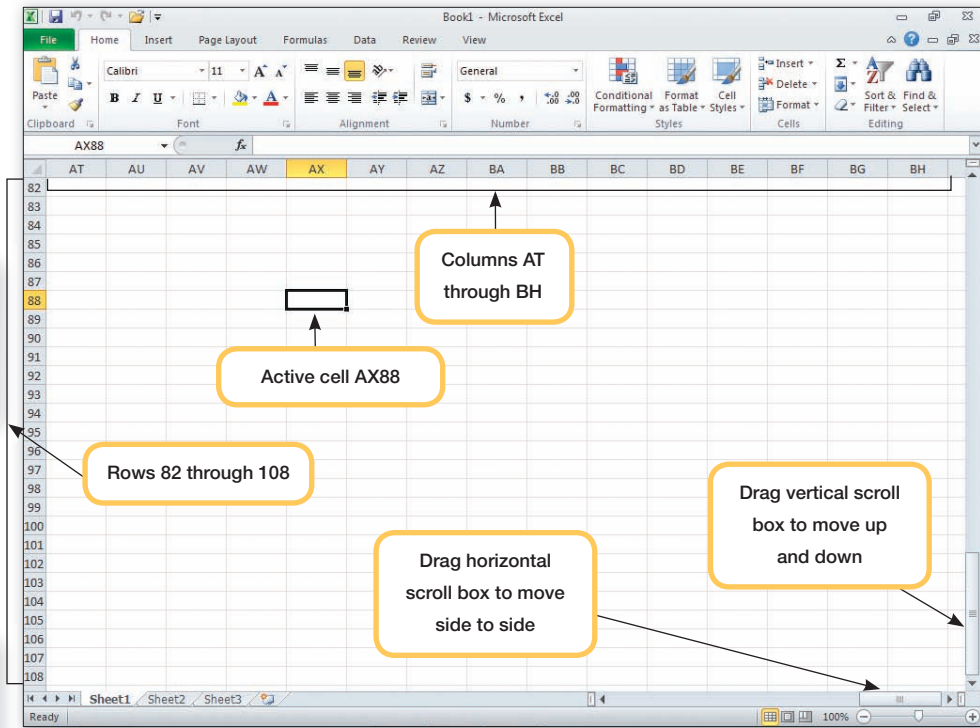
Drag horizontal scroll box to move side to side

Figure 1.5

The worksheet scrolled downward and left three full windows, and the window displays rows 82 through 106 and columns AT through BH of the worksheet. The active cell is cell AX88. As you scroll the worksheet using the keyboard, the active cell also changes.

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

As you scroll, the scroll bar identifies the current row position at the top of the window or column position at the left side of the window in a ScreenTip.
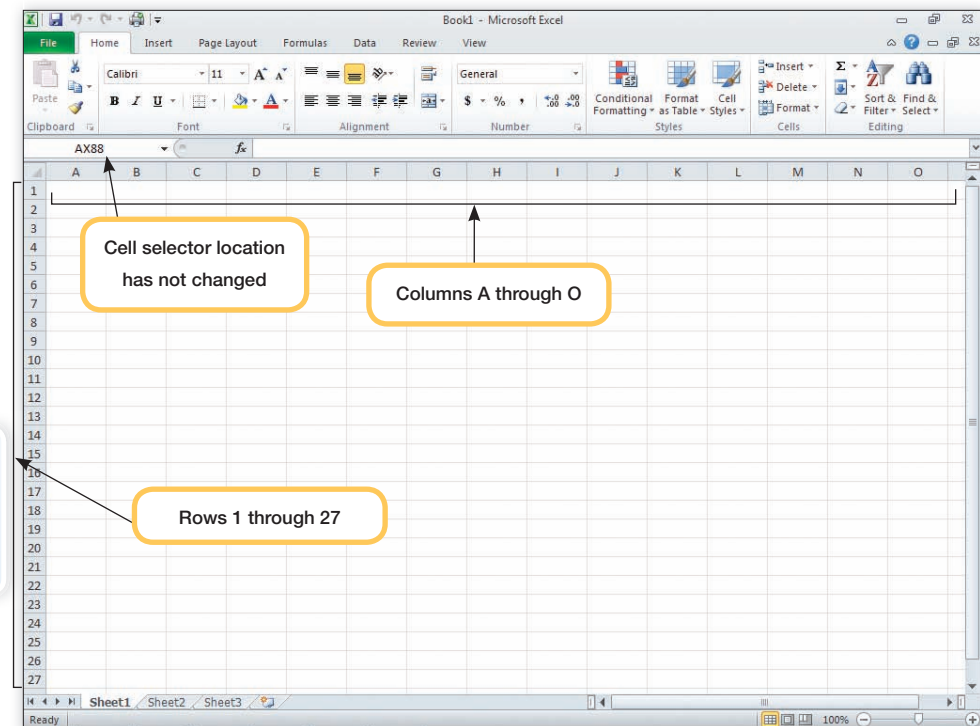
Your screen should be similar to **Figure 1.6**

Cell selector location has not changed

Columns A through O

Rows 1 through 27

Figure 1.6

Notice that the Name box displays the active cell location as AX88. When you use the scroll bar to scroll the worksheet, the active cell does not change.

4

• **Practice moving around the worksheet using the keys presented in the table on page EX1.x.**

• **Press** Ctrl **+** Home **to move to cell A1.**

Additional Information

Some of the keys presented in the table will not change the worksheet location until the worksheet contains data.

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.

DEVELOPING A WORKSHEET

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 Café.

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 Café manager, Evan, 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 Café, as shown on the next page.

Downtown Internet Café
First Quarter Forecast

Sales:

Beverage	January	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

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 Microsoft Excel 2010, 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 Café.

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

Concept 1 Data

The basic information or **data** you enter in a cell can be text, numbers, dates, or times. **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.

Text and number entries generally appear in the cell exactly as they are entered. However, some entries such as formulas direct Excel to perform a calculation on values in the worksheet. In these cases, the result of the formula appears in the cell, not the formula itself. You will learn about formulas later in the lab.

Adding Text Entries

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

● **Click on cell B2 to move to it.**

● **Type January**

Your screen should be similar to Figure 1.7
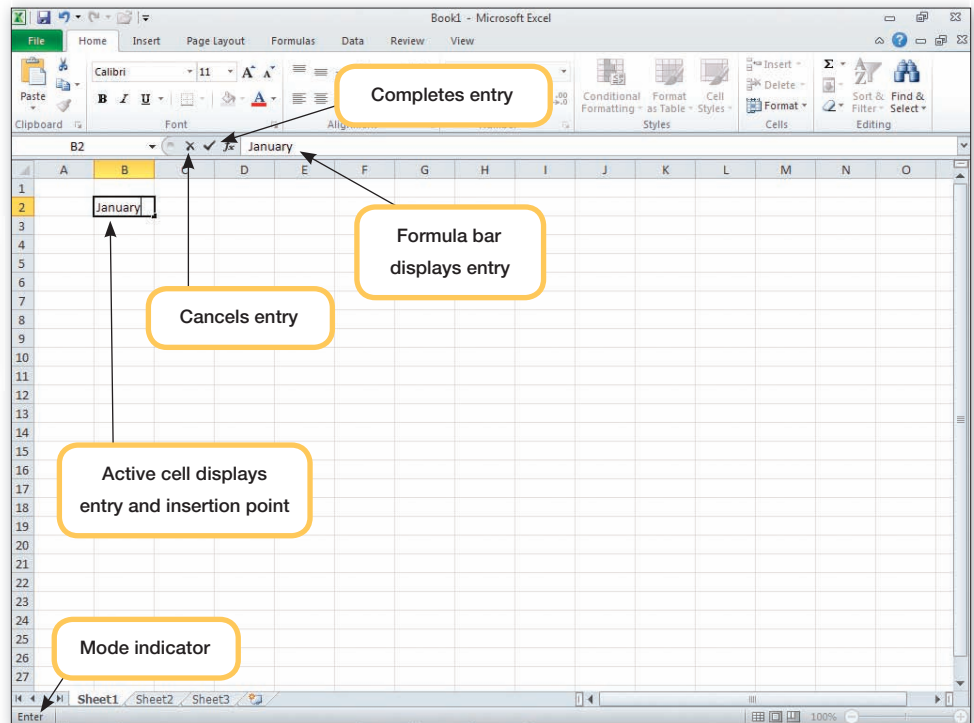
Figure 1.7

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 or Tab key, click ✓, or click on any other cell 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 or Tab than it is to use the mouse.

2

Press [←Enter].

Your screen should be similar to
Figure 1.8

Figure 1.8

The entry January is displayed in cell B2, and the mode has returned to Ready. In addition, the active cell is 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.**

● **Press** [Delete].

● **Move to B3.**

● **Type January**

● **Click** ☑ **Enter.**

Another Method

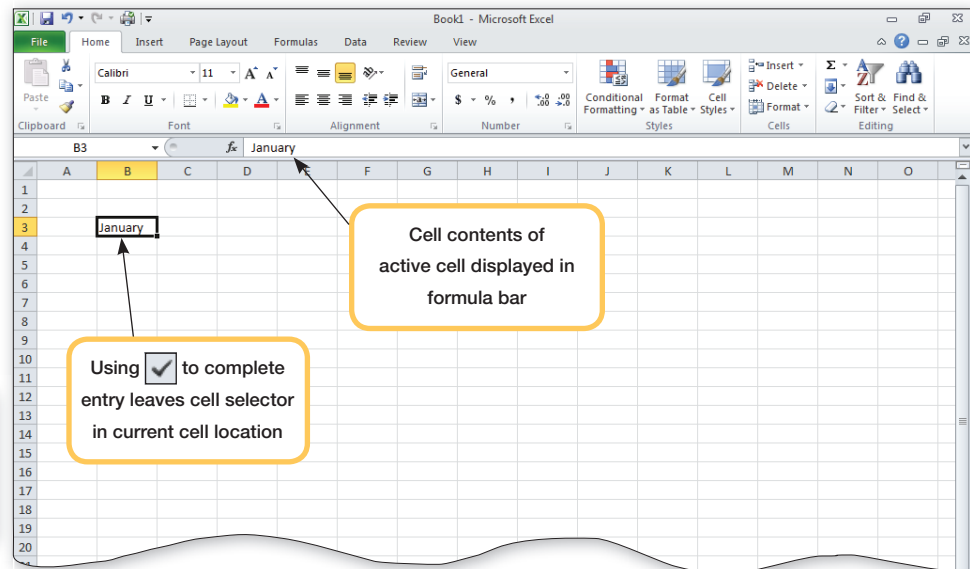You also can use ✐ ▾ Clear/Clear Contents in the Editing group of the Home tab.

Your screen should be similar to
Figure 1.9

Figure 1.9

The active cell does not change when you use ☑ to complete an entry. Because the active cell contains an entry, the cell content is 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 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 also will change to Edit mode. The insertion point is positioned at the end of the entry.

Your screen should be similar to Figure 1.10

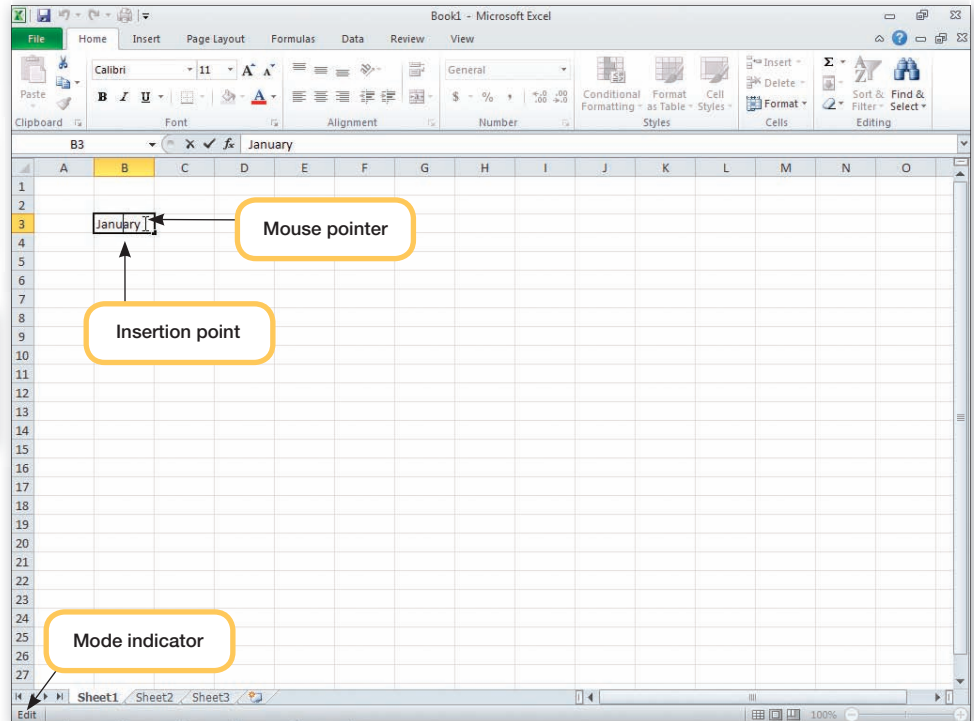**Having Trouble?**

Refer to the Entering and Editing Text and Selecting Text sections of the Introduction to Office 2010 to review these features.

Additional Information

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

The status bar shows that the new mode of operation is Edit. The insertion point appears at the location you clicked in the entry, and the mouse pointer changes to an I-beam when positioned on the cell. Now you can click again or use the directional keys to move the insertion point within the cell entry to the location of the text you want to change.

After the insertion point is appropriately positioned, you can edit the entry by removing the incorrect characters and typing the correct characters. To do this, you can use the [Backspace] and [Delete] keys to delete text character by character and enter the new text, or you can select the text to be changed and then type the correction. You will change this entry to JAN.

2

- **Select and delete uary.**
- **Press** [Home]**.**
- **Press** [→]**.**
- **Press** [Caps Lock]**.**
- **Press** [Insert]**.**
- **Type AN**
- **Press** [←Enter]**.**

Your screen should be similar to Figure 1.11

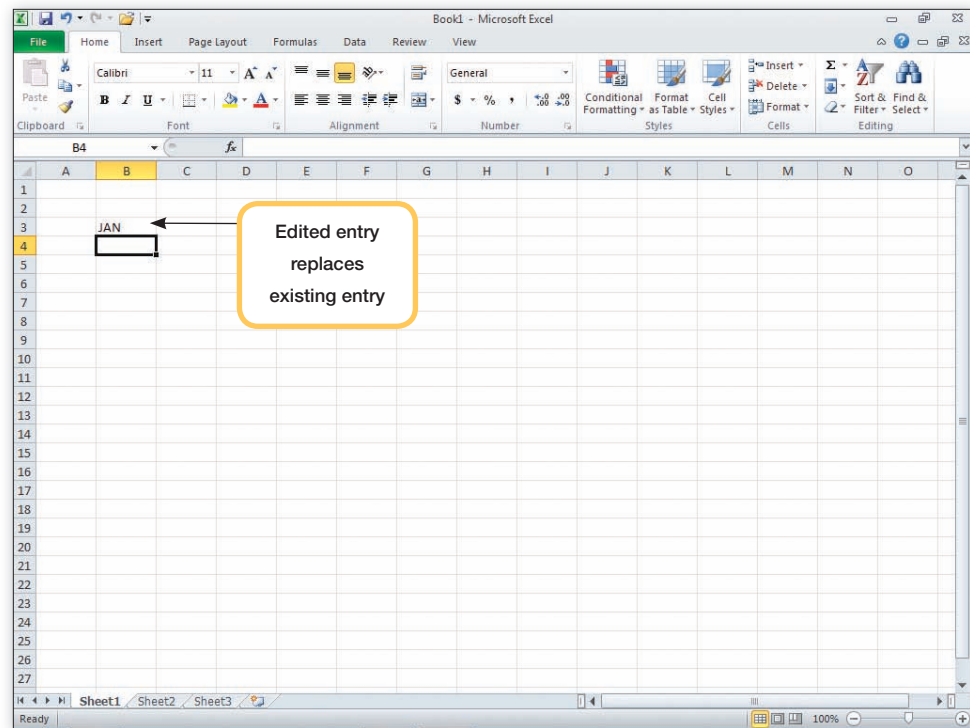JAN

> Edited entry replaces existing entry

Figure 1.11

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 you press [Insert] again.

The four characters at the end of the entry were deleted. Turning on the Caps Lock feature produced the 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. Because you want to move to the right one cell to enter the next month label, you will complete the entries using [→] or [Tab ↹].

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

Your screen should be similar to Figure 1.10

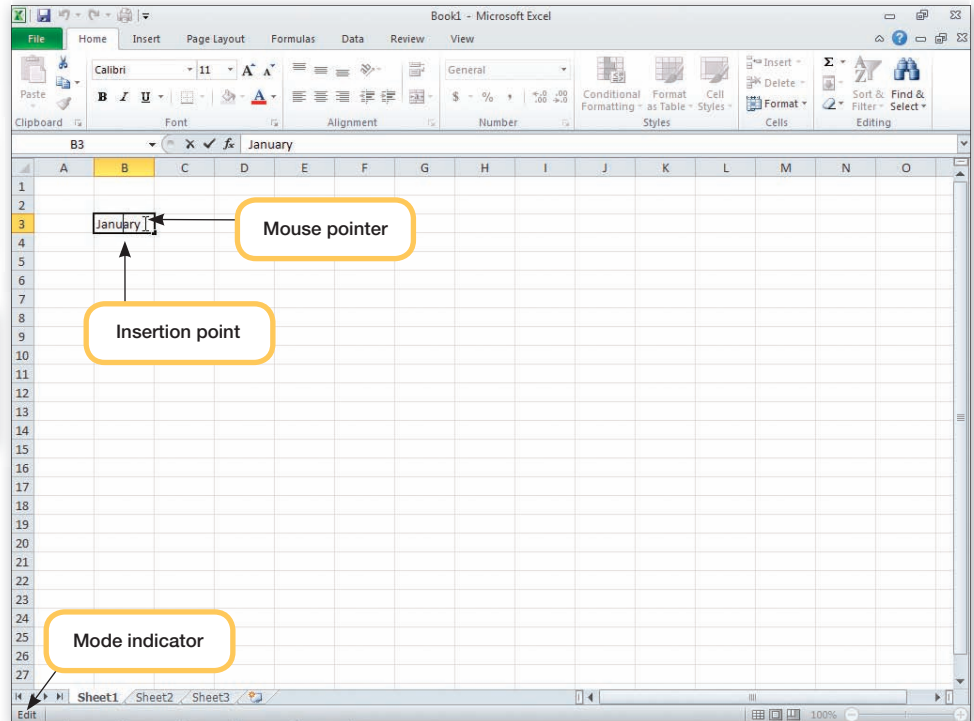**Figure 1.10**

Having Trouble?

Refer to the Entering and Editing Text and Selecting Text sections of the Introduction to Office 2010 to review these features.

Additional Information

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

The status bar shows that the new mode of operation is Edit. The insertion point appears at the location you clicked in the entry, and the mouse pointer changes to an I-beam when positioned on the cell. Now you can click again or use the directional keys to move the insertion point within the cell entry to the location of the text you want to change.

After the insertion point is appropriately positioned, you can edit the entry by removing the incorrect characters and typing the correct characters. To do this, you can use the ⟨Backspace⟩ and ⟨Delete⟩ keys to delete text character by character and enter the new text, or you can select the text to be changed and then type the correction. You will change this entry to JAN.

2

Press [←Enter].

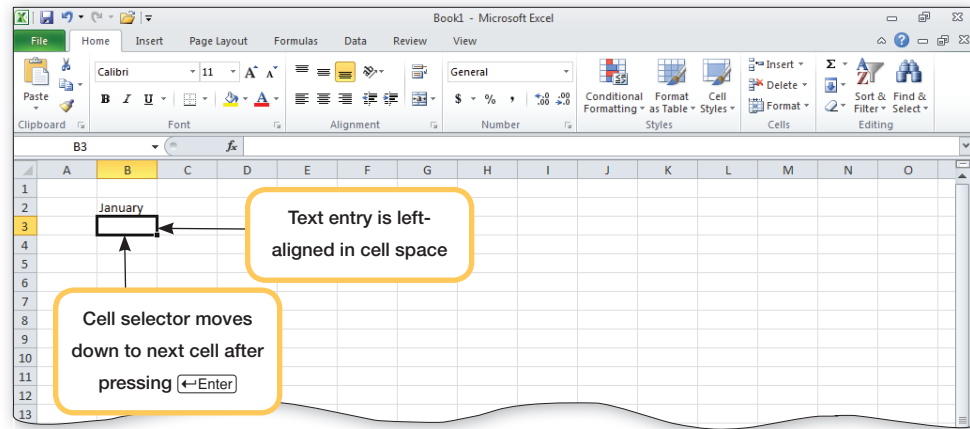Your screen should be similar to
Figure 1.8

Text entry is left-aligned in cell space

Cell selector moves down to next cell after pressing [←Enter]

Figure 1.8

The entry January is displayed in cell B2, and the mode has returned to Ready. In addition, the active cell is 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.

Press [Delete].

Move to B3.

Type January

Click ✓ Enter.

Your screen should be similar to
Figure 1.9

Cell contents of active cell displayed in formula bar
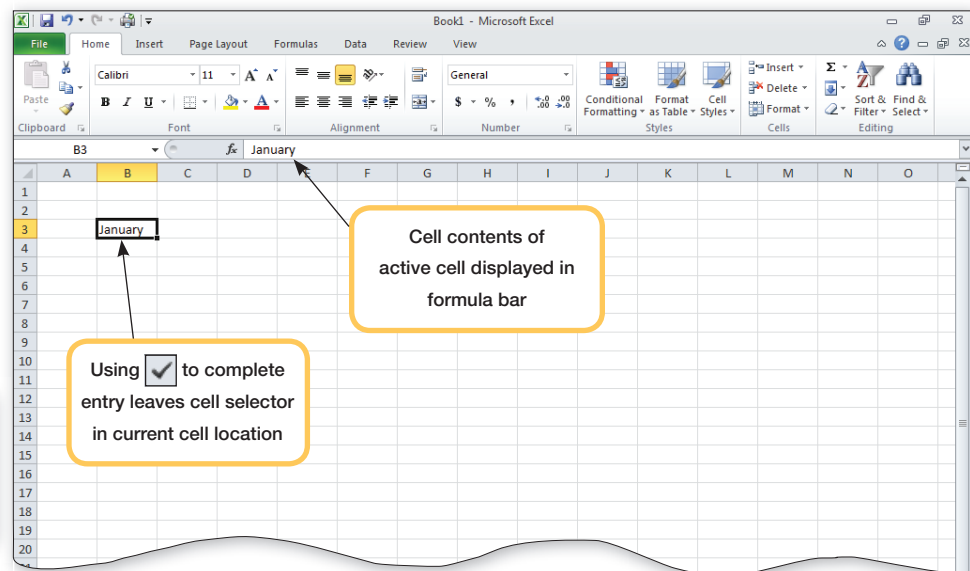
Using ✓ to complete entry leaves cell selector in current cell location

Figure 1.9

The active cell does not change when you use ✓ to complete an entry. Because the active cell contains an entry, the cell content is displayed in the formula bar.

The two typing errors were automatically corrected as soon as you completed a word by pressing space. If the entry was a single word, it would be checked as soon as you completed the entry.

Next, the row headings need to be entered into column A of the worksheet. The row headings and what they represent are shown in the following table.

Heading	Description
Sales	
Espresso	Income from sales of espresso-based drinks
Coffee	Income from drip coffee sales
Food/Beverage	Income from sales of baked goods, sandwiches, and salads and other beverages
Merchandise	Income from sales of mugs, books, magazines, candy, etc.
Computer	Income from computer rental usage, printing, copier use, and MP3 downloads
Total Sales	Sum of all sales
Expenses	
Cost of Goods	Cost of espresso, coffee, and food items sold
Cost of Merchandise	Cost of merchandise other than food and beverage
Wages	Manager and labor costs
Internet	Wi-Fi access, MP3 kiosk rental, etc.
Building	Lease, insurance, electricity, water, etc.
Capital Assets	Equipment leases, interest, depreciation
Miscellaneous	Maintenance, phone, office supplies, outside services, taxes, 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.

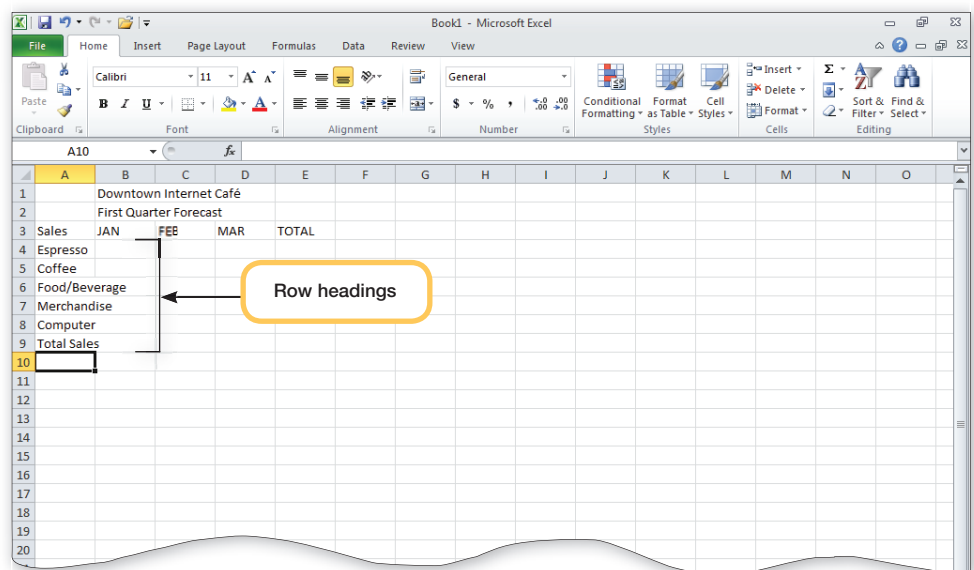| Cell	Heading
A3	Sales
A4	Espresso
A5	Coffee
A6	Food/Beverage
A7	Merchandise
A8	Computer
A9	Total Sales

Figure 1.15

Your screen should be similar to Figure 1.15

ADDING NUMBER ENTRIES

Next, you will enter the expected Espresso sales numbers for January through March into cells B4 through D4. 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 espresso sales for January first. Unlike text entries, Excel displays number entries right-aligned in the cell space by default.

1

● **Move to B4.**

● **Type 13300 and press ⏎Enter.**

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

Cell	Number
B5	5800
B6	3600
B7	1000
B8	600

Your screen should be similar to Figure 1.16

Long text entries are cut off because cell to the right contains an entry
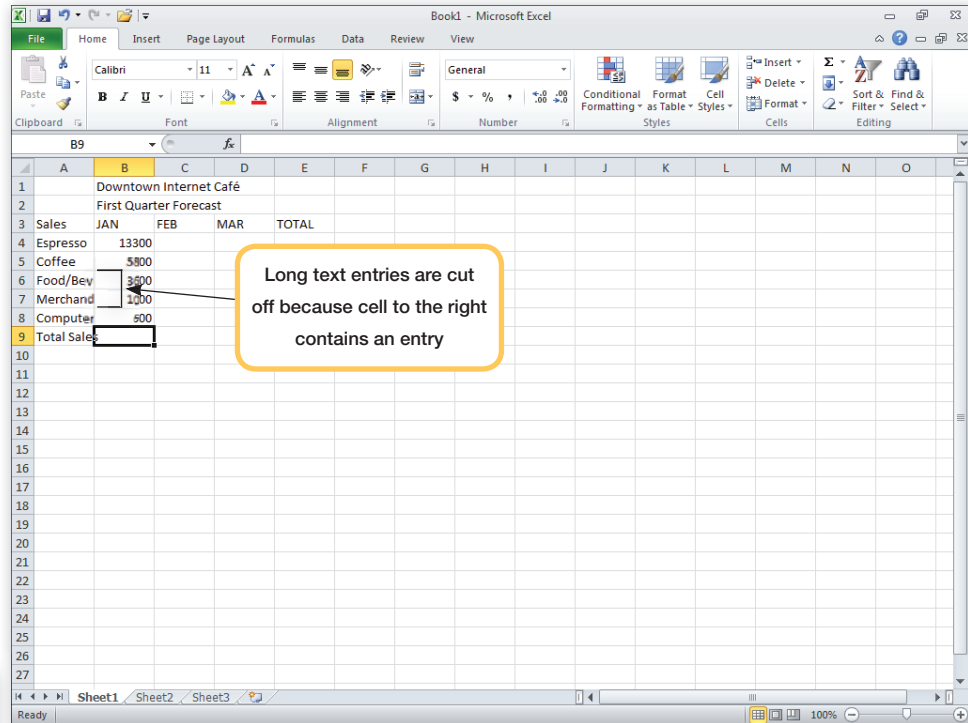
Figure 1.16

After entering the numbers for January in column B, any long headings in column A are cut off or interrupted. Notice that the entries in cells A6 and A7 are no longer completely displayed. They contain long text entries and because the cells to the right now contain 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.

Modifying 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

The **column width** is the size or width of a column and 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 0 to 255. If it is set to 0, the column is hidden.

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.

There are several ways to change the column width. Using the mouse, you can change the width by dragging the boundary of the column heading. You also can set the column width to an exact value or to automatically fit the contents of the column.

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 and when the mouse pointer changes to ↔, click and drag the mouse pointer to the right.

● When the ScreenTip displays 24.00, release the mouse button.

Your screen should be similar to Figure 1.17

Mouse pointer indicates you can change the size of the column

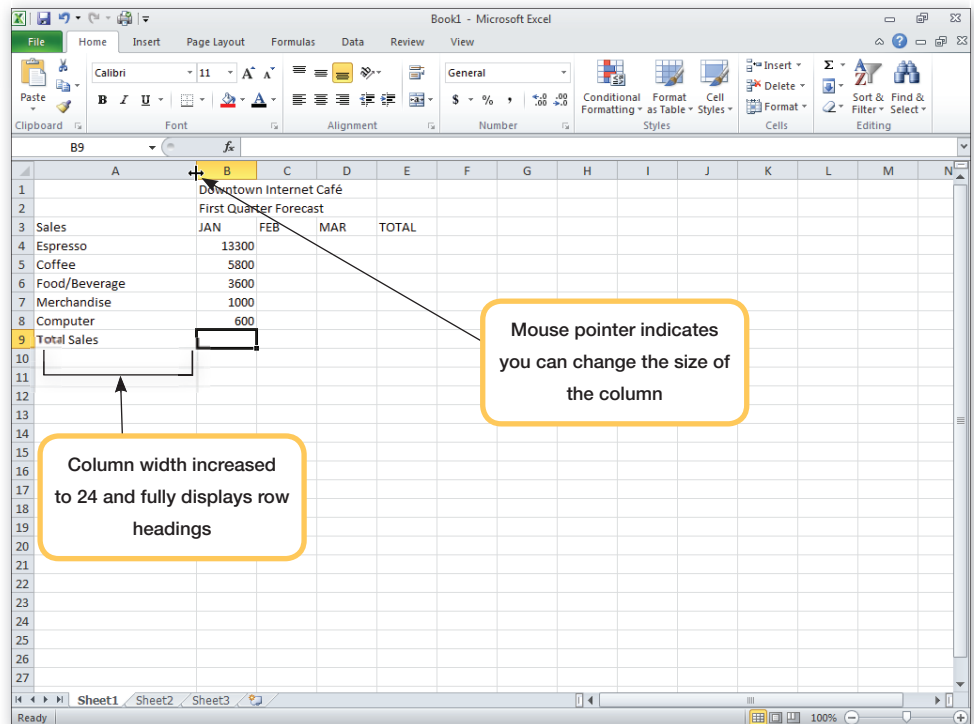Column width increased to 24 and fully displays row headings

Figure 1.17

Now column A is more than wide enough to fully display all the row headings.

USING A SPECIFIED VALUE
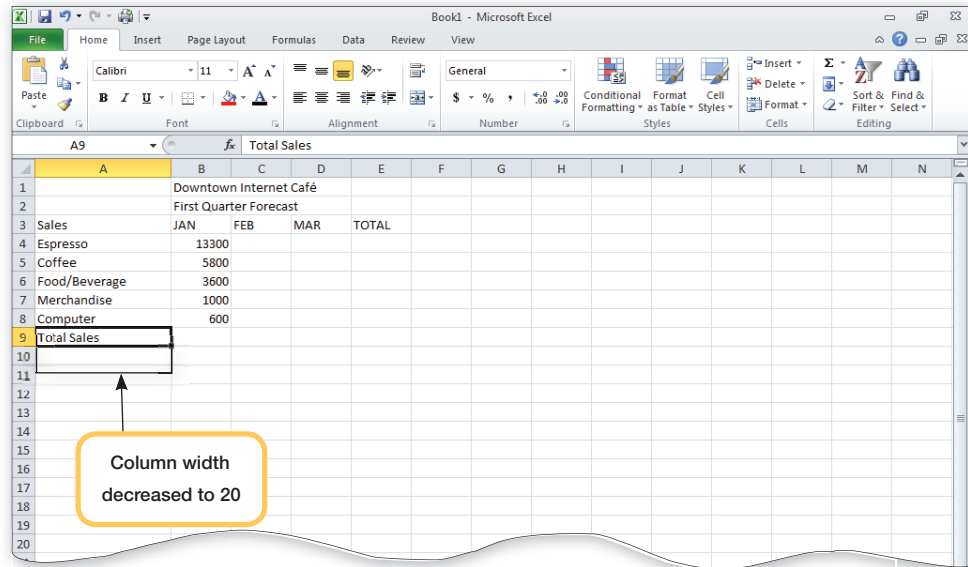
Next, you will reduce the width of column A to 15.

1

- Move to any cell in column A.

- Click ⊞ Format ▾ in the Cells group and choose Column Width.

- Type **20** in the Column width text box and click ⟦ OK ⟧.

Your screen should be similar to Figure 1.18

Figure 1.18

Although this is close, you would like to refine it a little more.

Additional Information

You can quickly return the column width to the default width setting using ⊞ Format ▾/Default Width.

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. When using AutoFit, double-click the boundary to the right of the column heading of the column you want to fit to contents.

1

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

Having Trouble?

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

Your screen should be similar to Figure 1.19
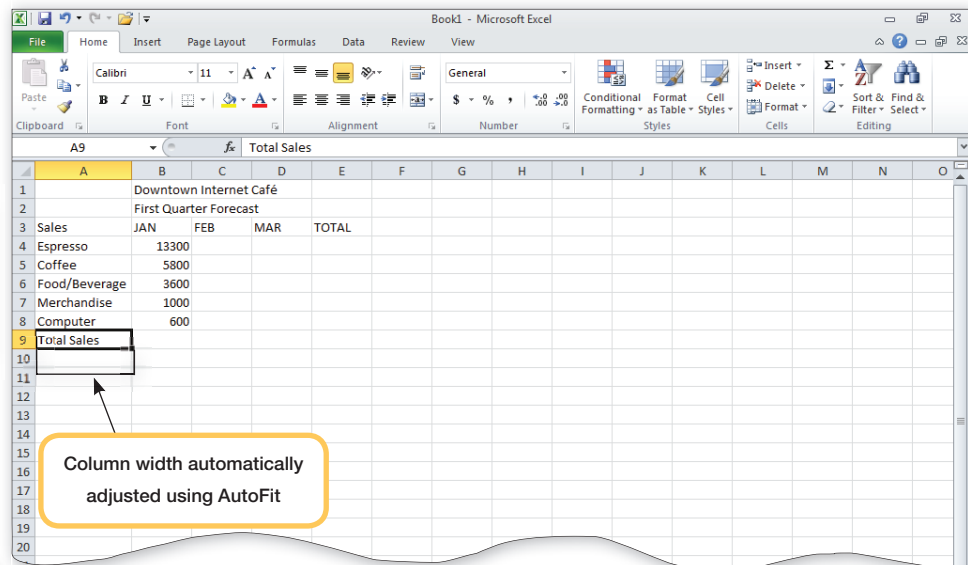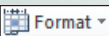
Figure 1.19

Another Method

You also can use ⊞ Format ▾ /AutoFit Column Width.

The column width is sized to just slightly larger than the longest cell contents. You also can adjust the height of a row using the same procedures you used to adjust the column width.

Saving, Closing, and Opening a Workbook File

You have a meeting you need to attend shortly, so you want to save the work you have completed so far on the workbook to a file and then close the file. You will name the file Cafe Forecast and use the default file type settings of Excel Workbook (*.xlsx). The file extension .xlsx identifies the file as an Excel 2007 or 2010 workbook. The default file type saves the workbook file in XML (Extensible Markup Language) format.

Excel 2003 and earlier versions used the .xls file extension. If you plan to share a file with someone using Excel 2003 or earlier, you can save the file using the .xls file type; however, some features may be lost. Otherwise, if you save it as an .xlsx file type, the recipient may not be able to view all the features.

1

- Click 💾 **Save** in the Quick Access Toolbar.

- Select the location where you want to save your file.

- Click in the File Name text box to highlight the proposed file name, or if necessary triple-click on the file name to select it.

- Type **Cafe Forecast**

- Click **Save** or press **⏎Enter**.
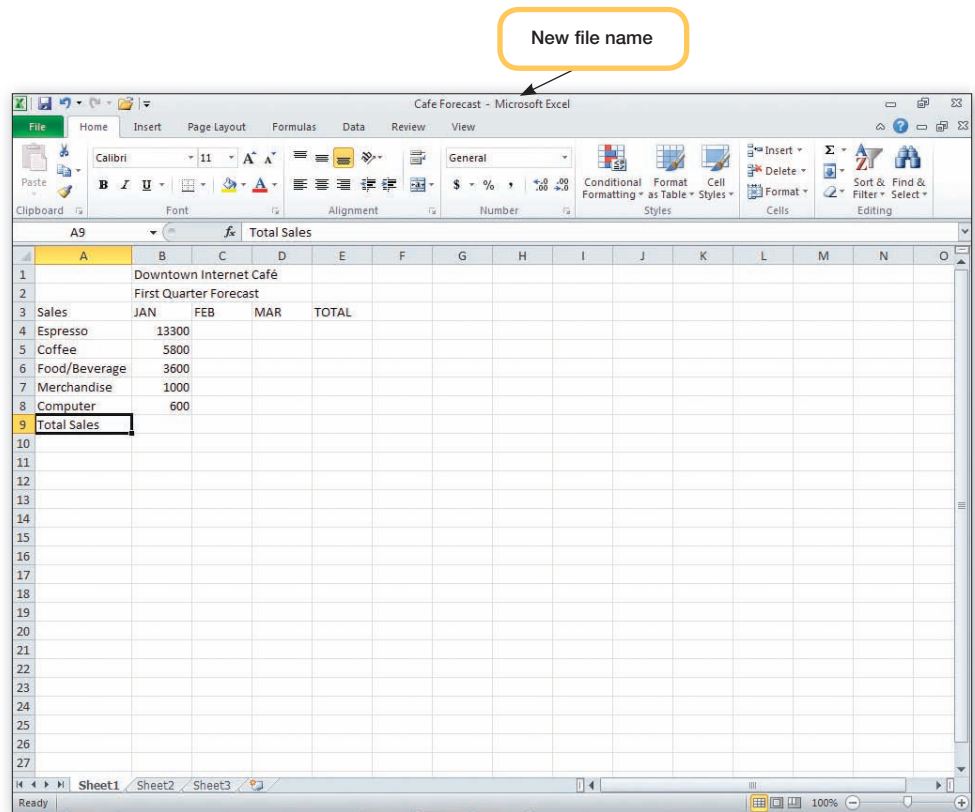
Your screen should be similar to Figure 1.20

New file name

Figure 1.20

The new file name is displayed in the application window title bar. The worksheet data that was on your screen and in the computer's memory is now saved at the location you specified in a new file called Cafe Forecast.

You are now ready to close the workbook file.

2

- Open the File tab and click 📁 **Close** .

Because you did not make any changes to the workbook after saving it, the workbook file is closed immediately and the Excel window displays an empty workbook window. If you had made changes to the file before closing it, you would have been prompted to save the file to prevent the accidental loss of data.

After attending your meeting, you continued working on the Café forecast. To see what has been done so far, you will open the workbook file named ex01_CafeForecast1.
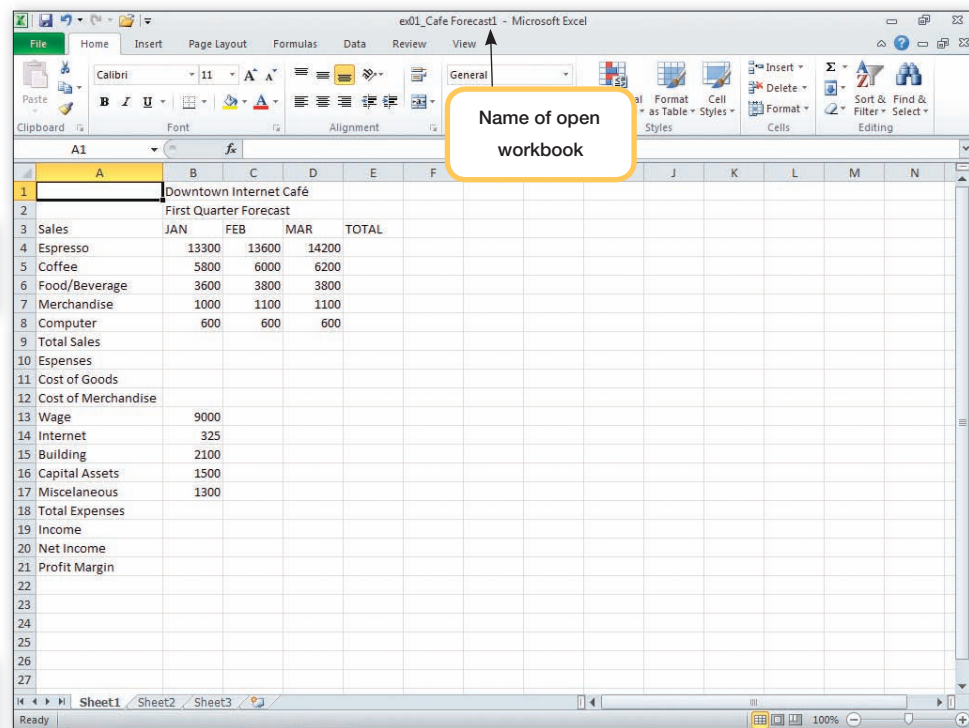
3

● **Open the File tab and click** Open.

Another Method

The keyboard shortcut is Ctrl + O.

● **Select the location containing your data files.**

● **Select** ex01_Cafe Forecast1.

● **Click** Open.

Another Method

You also could double-click the file name to both select it and choose Open.

● **If necessary, maximize the workbook window.**

Your screen should be similar to Figure 1.21

Figure 1.21

The workbook is opened and displayed in the workbook window. The workbook contains the additional sales values for February and March, the expense row headings, and several of the expense values for the month of January.

Using Proofing Tools

When entering information into a worksheet, you are likely to make spelling and typing errors. To help locate and correct these errors, the spelling checker feature can be used. Additionally, you may find that the descriptive headings you have entered may not be exactly the word you want. The thesaurus can suggest better words to clarify the meaning of the worksheet.

CHECKING SPELLING

In your rush to get the row headings entered you realize you misspelled a few words. For example, the Expenses label is spelled "Espenses." Just to make sure there are no other spelling errors, you will check the spelling of all text entries in this worksheet.

Concept 4 Spelling Checker

The **spelling checker** locates misspelled words, duplicate words, and capitalization irregularities in the active worksheet and proposes the correct spelling. This feature works by comparing each word to a dictionary of words, called the **main dictionary**, that is supplied with the program. You also can create a **custom dictionary** to hold words you commonly use but that are not included in the main dictionary. If the word does not appear in the main dictionary or in a custom dictionary, it is identified as misspelled.

When you check spelling, the contents of all cell entries in the entire active sheet are checked. If you are in Edit mode when you check spelling, only the contents of the text in the cell are checked. The Spell Checker does not check spelling in formulas or in text that result from formulas.

Excel begins checking all worksheet entries from the active cell forward.

1

- If necessary, move to A1.

- Open the Review tab.

- Click ![ABC Spelling] in the Proofing group.

Another Method

The keyboard shortcut is F7.
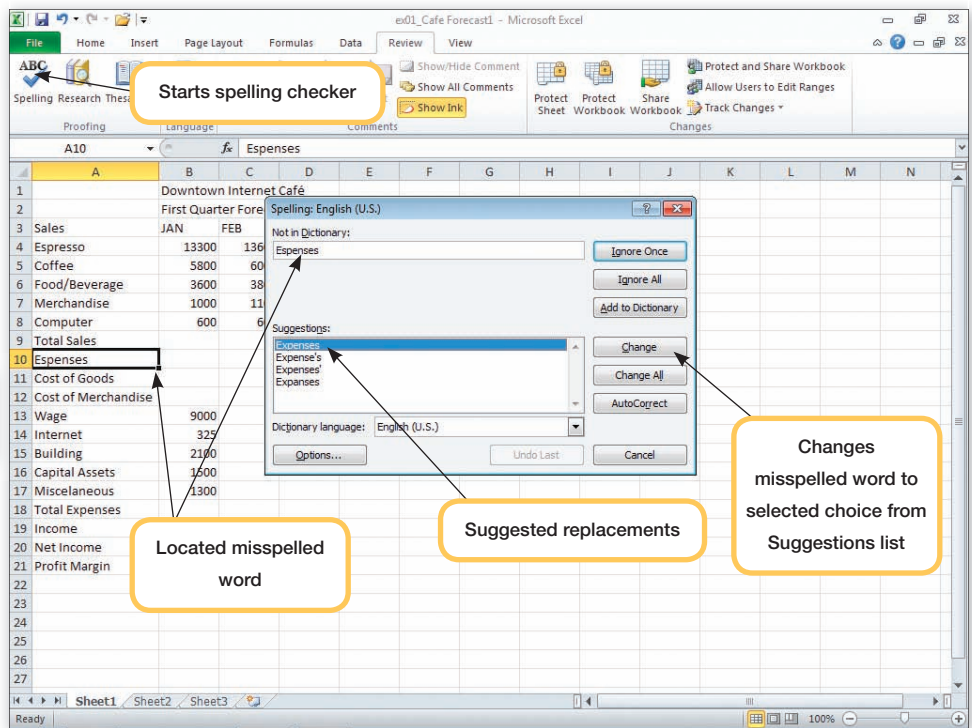
Your screen should be similar to Figure 1.22

Figure 1.22

Additional Information

Spell checking operates the same way in all Office 2010 programs. The dictionaries are shared between Office applications.

The spelling checker immediately begins checking the worksheet for words that it cannot locate in its main dictionary. The first cell containing a misspelled word, in this case Espenses, is now the active cell and the Spelling dialog box is displayed. The word it cannot locate in the dictionary is displayed in the Not in Dictionary text box. The Suggestions text box displays a list of possible replacements. If the selected replacement is not correct, you can select
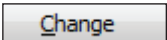
another choice from the suggestions list or type the correct word in the Not in Dictionary text box.

The option buttons shown in the table below have the following effects:

Option	Effect
Ignore Once	Leaves selected word unchanged
Ignore All	Leaves this word and all identical words in worksheet unchanged
Add to Dictionary	Adds selected word to a custom dictionary so Excel will not question this word during subsequent spell checks
Change	Changes selected word to word highlighted in Suggestions box
Change All	Changes this word and all identical words in worksheet to word highlighted in Suggestions box
AutoCorrect	Adds a word to the AutoCorrect list so the word will be corrected as you type

You want to accept the suggested replacement, Expenses.

2

Click Change .

Your screen should be similar to Figure 1.23
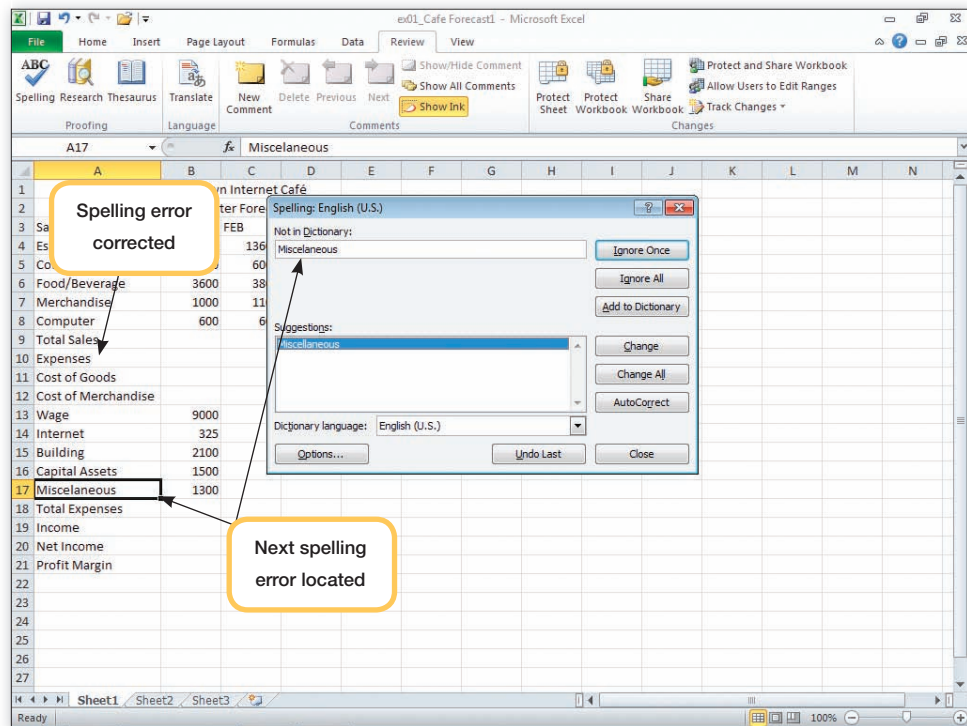
Figure 1.23

The correction is made in the worksheet, and the program continues checking the worksheet and locates another error, Miscelaneous. You will make this correction. When no other errors are located, a dialog box is displayed, informing you that the entire worksheet has been checked.

3

Change this word to Miscellaneous.

Click OK **to end spell checking.**

The worksheet is now free of spelling errors.

USING THE THESAURUS

The next text change you want to make is to find a better word for "Wage" in cell A14. To help find a similar word, you will use the thesaurus tool.

Concept **5** Thesaurus

The **thesaurus** is a reference tool that provides synonyms, antonyms, and related words for a selected word or phrase. **Synonyms** are words with a similar meaning, such as "cheerful" and "happy." **Antonyms** are words with an opposite meaning, such as "cheerful" and "sad." Related words are words that are variations of the same word, such as "cheerful" and "cheer." The thesaurus can help to liven up your documents by adding interest and variety to your text.

To use the thesaurus, first move to the cell containing the word you want to change. If a cell contains multiple words, you need to select the individual word in the cell.

1

Move to A13.

Click [Thesaurus] **in the Proofing group.**

Another Method

You also can hold down [Alt] while clicking on the cell containing the word you want looked up to access the Thesaurus in the Research task pane.

Your screen should be similar to Figure 1.24
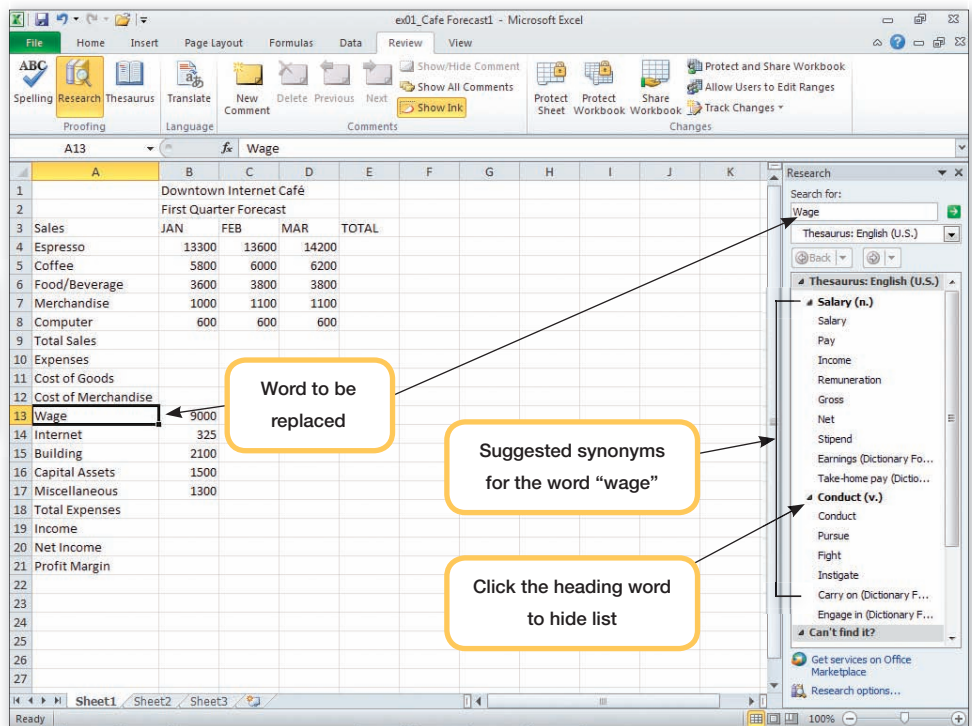
Figure 1.24

Additional Information

Clicking on the word is the same as using the Lookup menu option.

The Research task pane opens and the word in the active cell, Wage, is entered in the Search for text box and the list box displays words in the Thesaurus that have similar meanings for this word. The list contains synonyms for "wage" used as a noun or as a verb. The first word at the top of each group is the group heading and is closest in meaning. It is preceded with a ◢ symbol and the word is bold. The ◢ indicates the list of synonyms is displayed. Clicking the heading word will hide the list of synonyms.

When you point to a word in the list, a drop-down list of three menu options, Insert, Copy, and Lookup, becomes available. The Insert option inserts the word into the active cell. The Copy option is used to copy and then paste the word into any worksheet cell. The Lookup option displays additional related words for the current word. You decide to use the word "Pay" and will insert the word into cell A13 in place of "Wage."

2

- Point to "Py" and Click ▼ to display the menu.

- Choose Insert.

- Click ✕ in the title bar of the Research task pane to close it.

Your screen should be similar to Figure 1.25
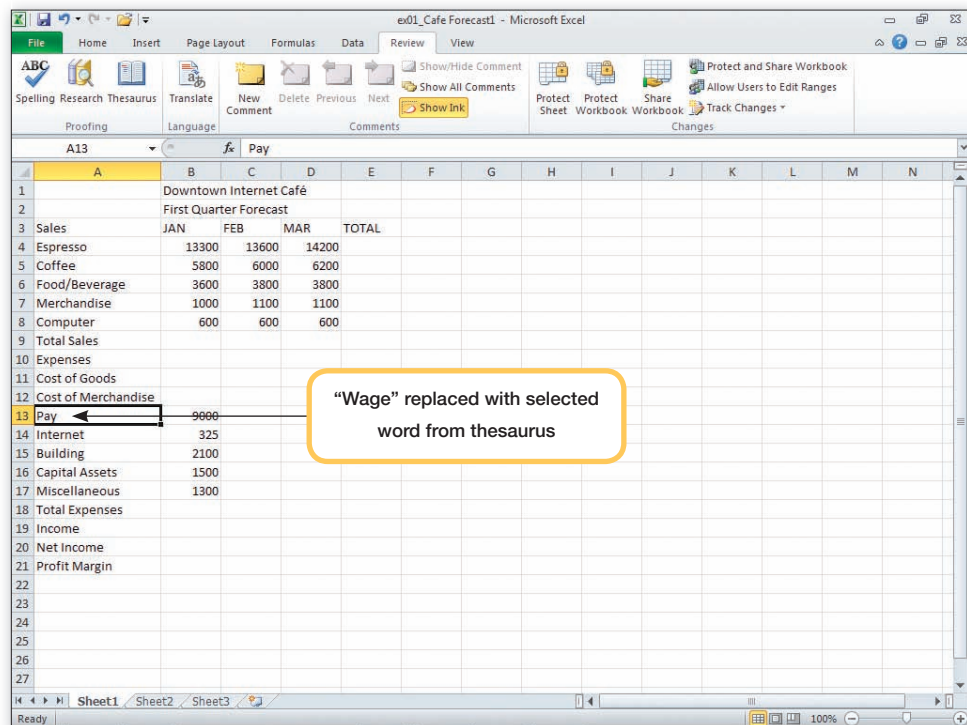
Figure 1.25

The word "Wage" is replaced with the selected word from the thesaurus. Notice the replacement word is capitalized correctly. This is because the replacement text follows the same capitalization as the word it replaces.

Copying and Pasting Cell Contents

Having Trouble?

Refer to the section Copying and Moving Selections in the Introduction to Microsoft Office 2010 to review this feature.

Next, you want to enter the estimated expenses for salary, computers, lease, and miscellaneous for February and March. They are the same as the January expense numbers. Because these values are the same, instead of entering the same number repeatedly into each cell you can quickly copy the contents of one cell to another. You also want to move information from one location in the worksheet to another.

COPYING AND PASTING DATA

To use the Copy command, you first must select the cell or cells in the source containing the data to be copied. You will copy the Pay value in cell B13 into cells C13 and D13.

1

- Move to B13.

- Open the Home tab.

- Click 📋 **Copy** in the Clipboard group.

Another Method

The shortcut key is [Ctrl] + [C]. Copy is also available on the context menu.
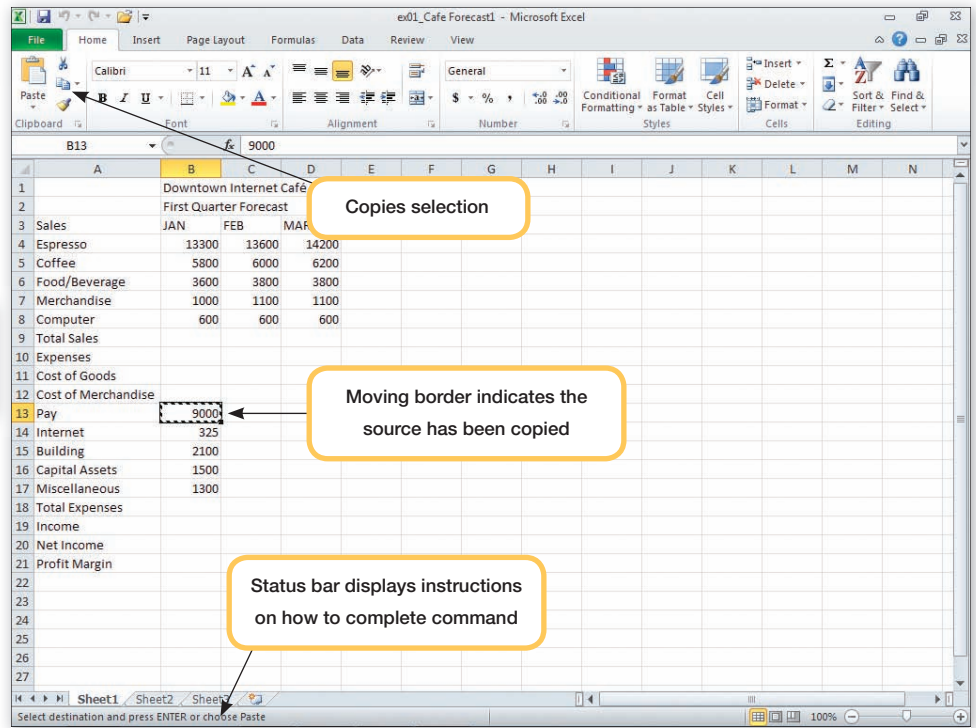
Your screen should be similar to Figure 1.26

Copies selection

Moving border indicates the source has been copied

Status bar displays instructions on how to complete command

Figure 1.26

A moving border identifies the source and indicates that the contents have been copied to the system Clipboard. The instructions displayed in the status bar tell you to select the destination where you want the contents copied. You will copy it to cell C13.

2

- Move to C13.

- Click the top part of the 📋 Paste button.

Additional Information

The 📋 Paste button is a split button.

Clicking the top part of the button pastes using the default settings. Clicking the lower part displays a menu of options.

Another Method

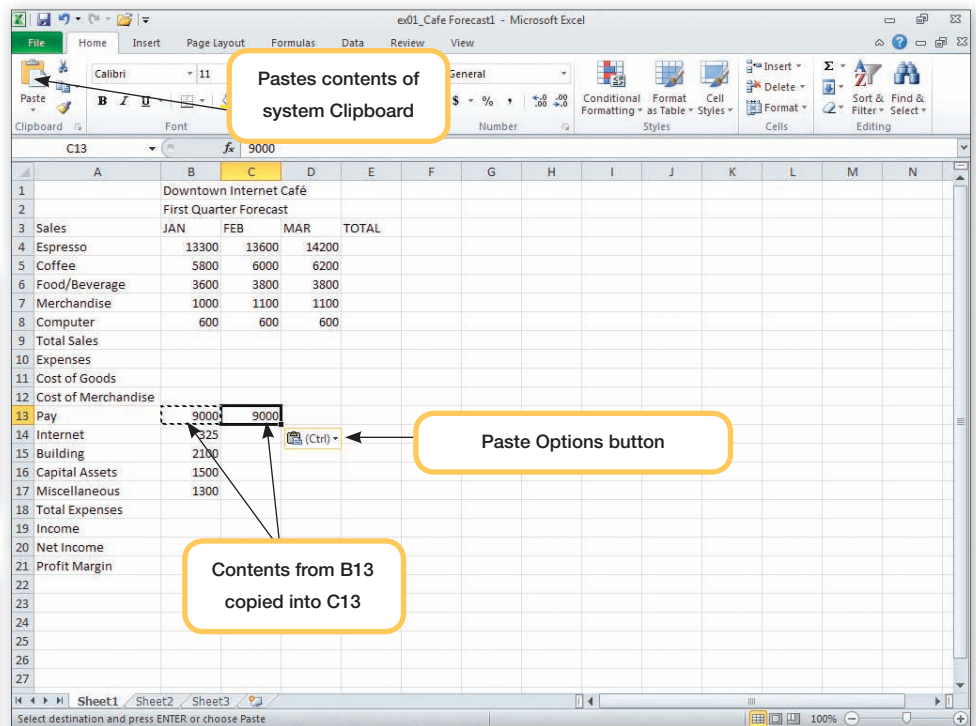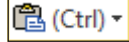The shortcut key is [Ctrl] + [V]. Paste is also available on the context menu and on the 📋 Paste button's drop-down menu.

Your screen should be similar to Figure 1.27

Pastes contents of system Clipboard

Paste Options button

Contents from B13 copied into C13

Figure 1.27

Copying and Pasting Cell Contents   **EX1.29**

Additional Information

You will learn about the different Excel paste options in later labs.

The contents of the system Clipboard are inserted at the specified destination location. Each time the Paste command is used, the [📋 (Ctrl) ▾] Paste Options button is available. Clicking on the button opens the Paste Options menu that allows you to control how the information you are pasting is inserted. Be careful when pasting to the new location because any existing entries are replaced.

The moving border is still displayed, indicating the system Clipboard still contains the copied entry. Now you can complete the data for the Pay row by pasting the value again from the system Clipboard into cell D13. While the moving border is still displayed, you also can simply press [←Enter] to paste. However, as this method clears the contents of the system Clipboard immediately, it can only be used once.

3

● **Move to D13.**

● **Press** [←Enter].
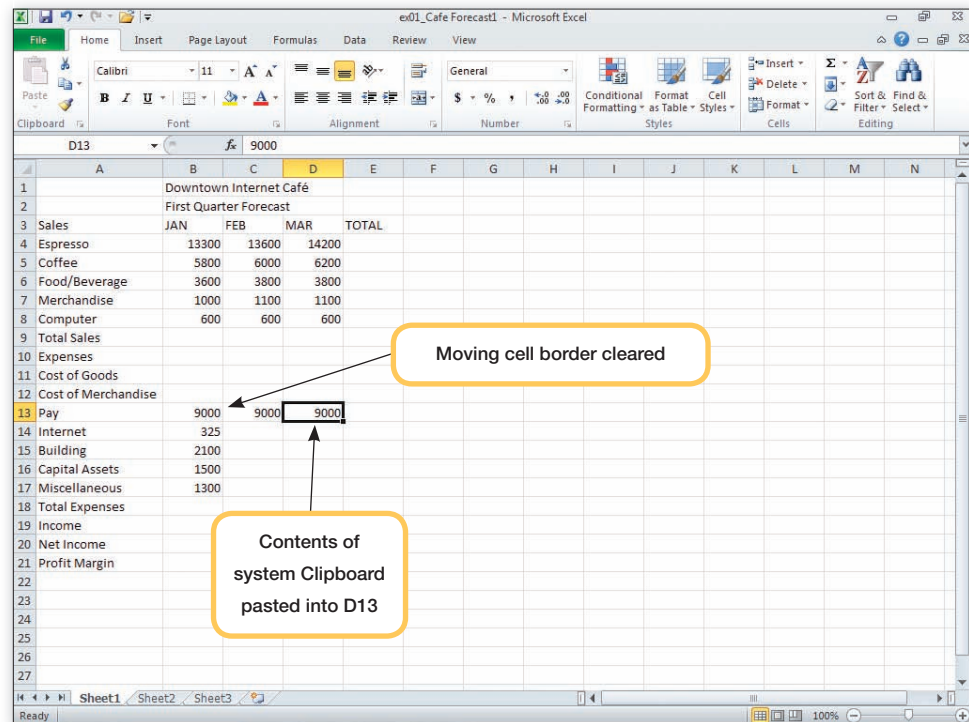
Your screen should be similar to Figure 1.28

Figure 1.28

Additional Information

You also can cancel a moving border and clear the system Clipboard contents by pressing [Esc].

The contents of the system Clipboard are inserted at the specified destination location and the moving border is cleared, indicating the system Clipboard is empty.

SELECTING A RANGE

Now you need to copy the Internet value in cell B14 to February and March. You could copy and paste the contents individually into each cell as you did with the Pay values. A quicker method, however, is to select a range and paste the contents to all cells in the range at once.

Concept 6 Range

A selection consisting of two or more cells on a worksheet is a **range**. The cells in a range can be adjacent or nonadjacent. An **adjacent range** is a rectangular block of adjoining cells. A **nonadjacent range** consists of two or more selected cells or ranges that are not adjoining. In the example shown below, the shaded areas show valid adjacent and nonadjacent ranges. A **range reference** identifies the cells in a range. A colon is used to separate the first and last cells of an adjacent range reference. For example, A2:C4 indicates the range consists of cells A2 through C4. Commas separate the cell references of a nonadjacent range. For example, A10,B12,C14 indicates the range consists of cells A10, B12, and C14 of a nonadjacent range.
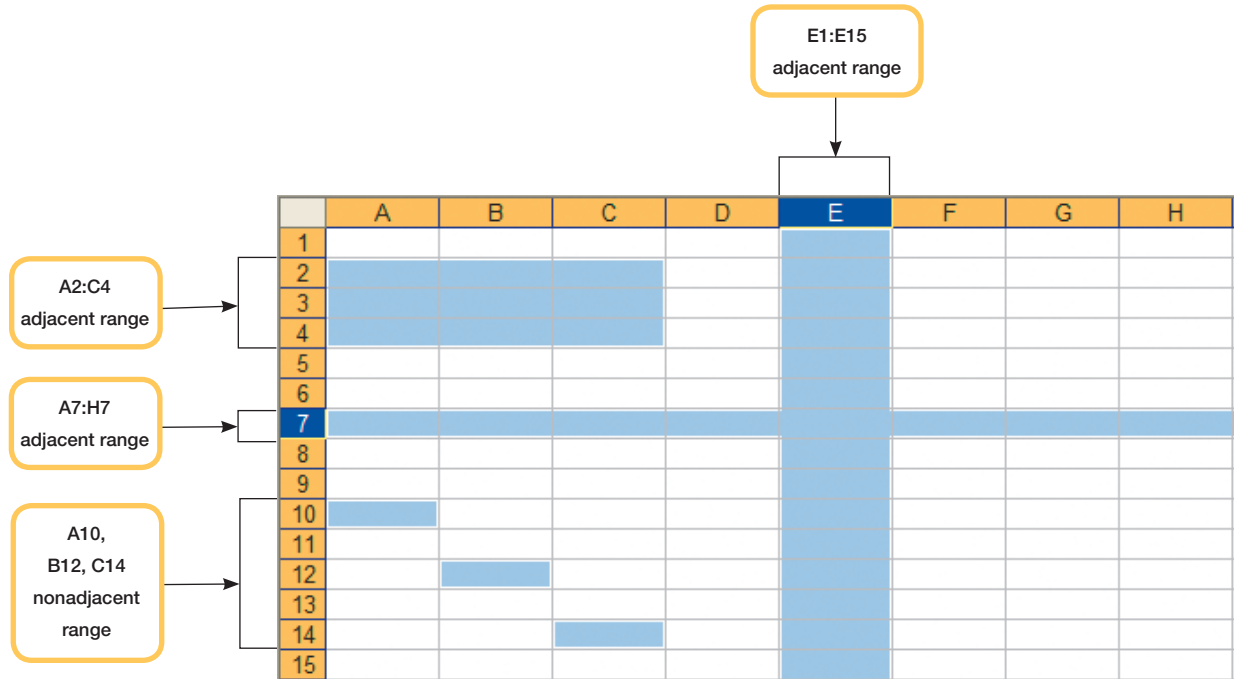
You can select a range using the mouse procedures shown in the following table. You also can select using the keyboard by moving to the first cell of the range, holding down ⇧Shift or pressing F8 and using the navigational keys to expand the highlight. Using the F8 key turns on and off Extend mode. When this mode is on, Extend Selection appears in the status bar.

To Select	Mouse
A range	Click first cell of range and drag to the last cell.
A large range	Click first cell of range, hold down ⇧Shift, and click last cell of range.
All cells on worksheet	Click the ◢ All button located at the intersection of the row and column headings.
Nonadjacent cells or ranges	Select first cell or range, hold down Ctrl while selecting the other cell or range.
Entire row or column	Click the row number or column letter heading.
Adjacent rows or columns	Drag across the row number or column letter headings.
Nonadjacent rows or columns	Select first row or column, hold down Ctrl, and select the other rows or columns

To complete the data for the Internet row, you want to copy the value in cell B14 to the system Clipboard and then copy the system Clipboard contents to the adjacent range of cells C14 through D14.

1

● **Move to B14.**

● **Click [icon] Copy.**

● **Drag to select the range of cells C14 through D14.**

● **Click [Paste icon].**

Your screen should be similar to Figure 1.29
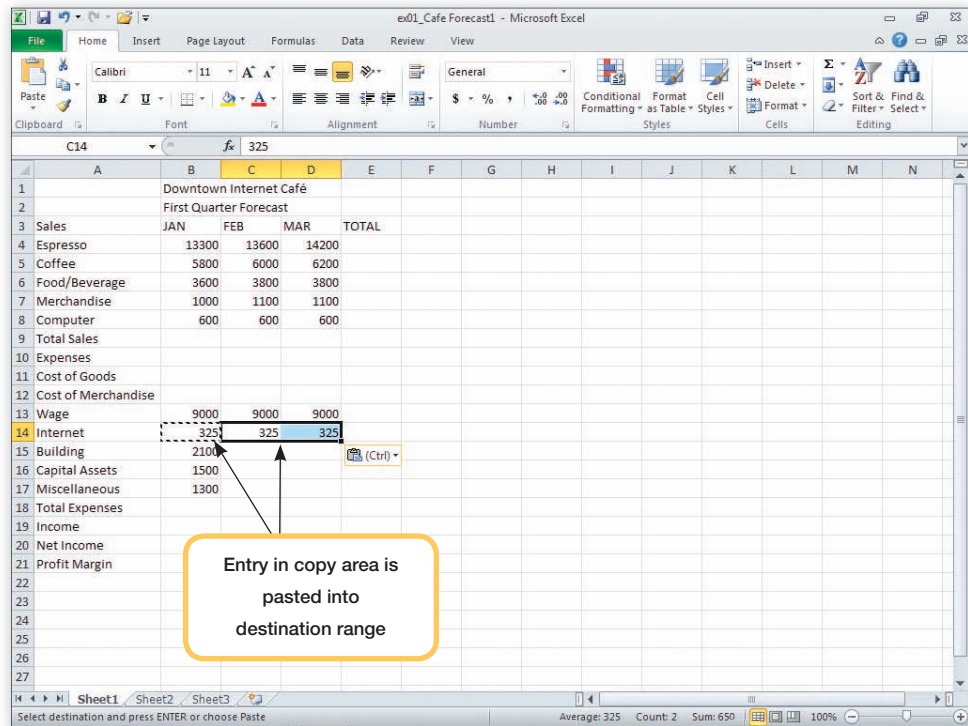
Entry in copy area is pasted into destination range

Figure 1.29

Information about contents of selected range

The destination range is highlighted and identified by a dark border surrounding the selected cells. The entry copied from cell B14 was pasted into the selected destination range. Also notice the status bar now displays the average, count, and sum of values in the selected range.

USING THE FILL HANDLE

Next, you will copy the January Building expenses to cells C15 through D15, the Capital Assets expenses to cells C16 through D16, and the Miscellaneous expenses to cells C17 through D17. You can copy all values at the same time across the row by first specifying a range as the source. Another way to copy is to drag the **fill handle**, the black box in the lower-right corner of a selection.

1

● Press [Esc] to clear the moving border.

● Drag to select cells B15 through B17.

● Point to the fill handle and when the mouse pointer is a **+**, drag the mouse to extend the selection to cells D15 through D17.
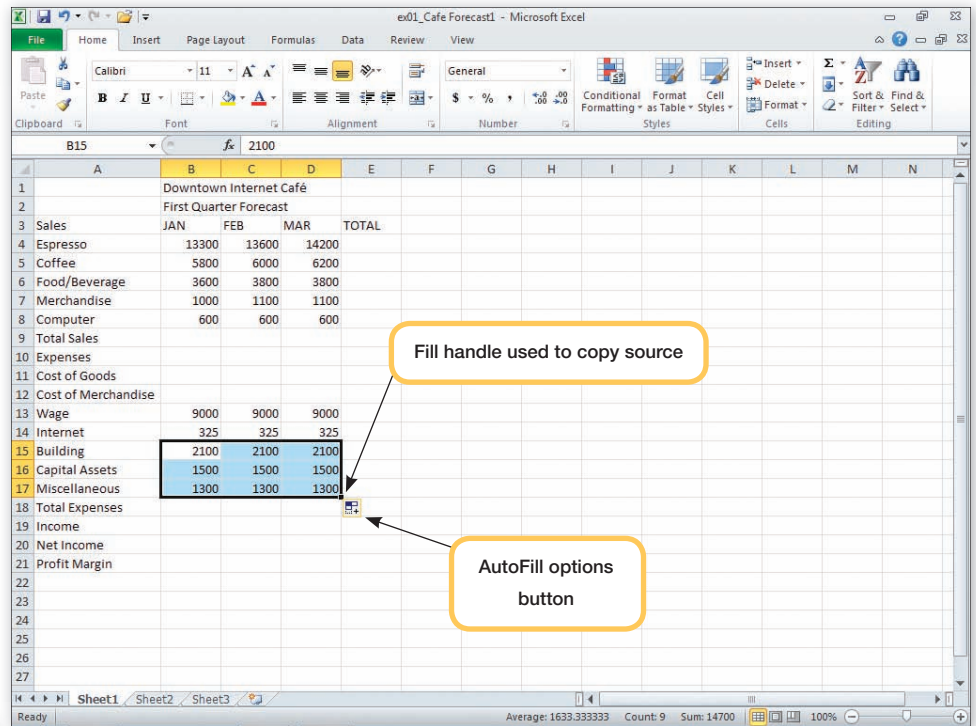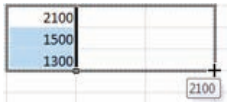

● Release the mouse button.

Your screen should be similar to Figure 1.30

Additional Information

You will learn more about the AutoFill feature in later labs.

Figure 1.30

The range of cells to the right of the source is filled with the same values as in the source range. The Fill Series command does not copy the source to the system Clipboard and therefore you cannot paste the source multiple times. When you copy by dragging the fill handle, the AutoFill Options button [icon] appears. Its menu commands are used to modify how the fill operation was performed. It will disappear as soon as you make an entry in the worksheet.

INSERTING COPIED CELL CONTENT

You also decide to include another row of month headings above the expenses to make the worksheet data easier to read. To do this quickly, you can insert copied data between existing data. To indicate where to place the copied content, you move the cell selector to the upper-left cell of the area where you want the selection inserted.

The column headings you want to copy are in cells B3 through E3. You will also copy cell A3, and clear the text in column A of the new row when you paste the contents.

1

- Copy the contents of cells A3 through E3.

- Move to A10.

- Click [Insert ▾] in the Cells group.

- Select cell A10 and delete the word "Sales."
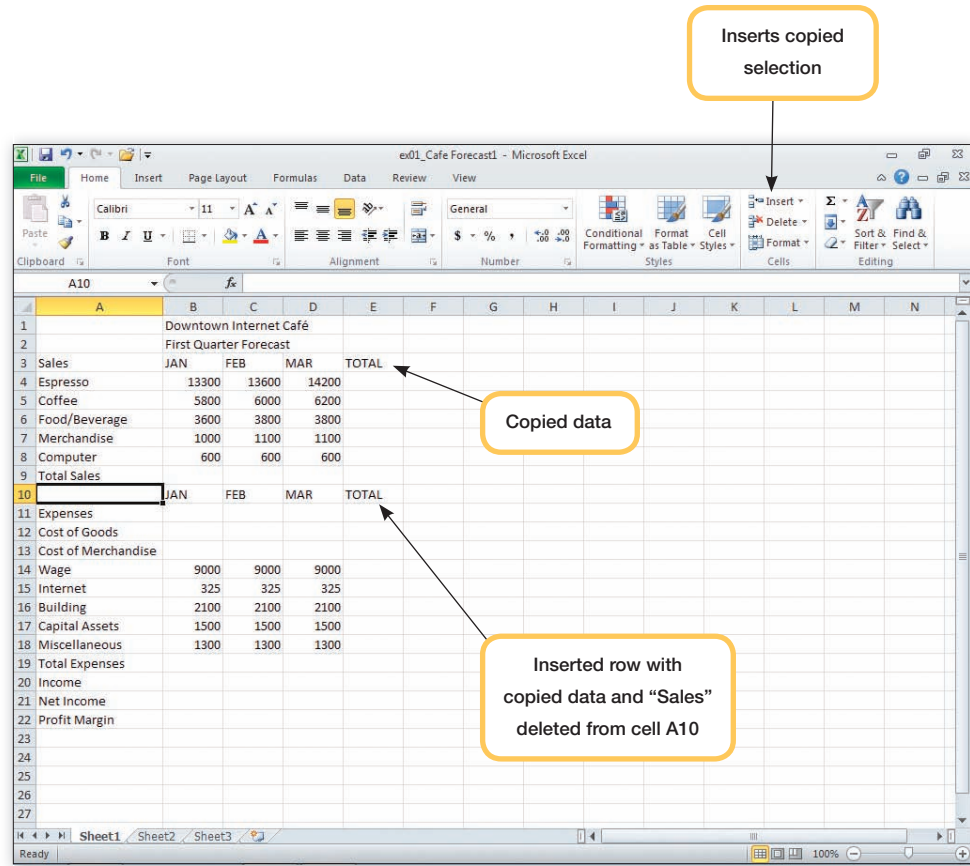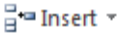
Your screen should be similar to Figure 1.31

Inserts copied selection

Copied data

Inserted row with copied data and "Sales" deleted from cell A10

Figure 1.31

The copied data is inserted into the existing row (10) and all entries below are moved down one row.

CUTTING AND PASTING DATA

Next, you decide the Income, Net Income, and Profit Margin rows of data would stand out more if a blank row separated them from the expenses. Also, the Profit Margin row of data would be better separated from the Net Income row by a blank row. You will first remove the cell contents of the three cells using [✂] Cut and then paste the contents from the system Clipboard into the new location. The pasted content will copy over any existing content. You will use the keyboard shortcuts for these commands to complete this process.

1

- Select cells A20 through A22.

- Press Ctrl + x.

- Move to cell A21.

- Press Ctrl + V.

Your screen should be similar to Figure 1.32

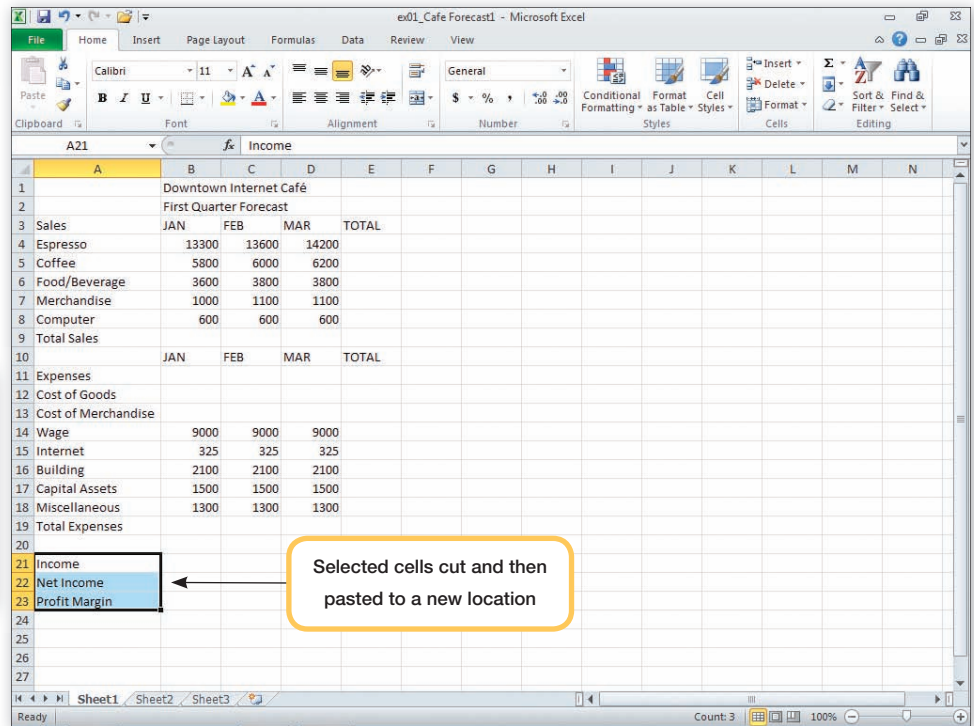Selected cells cut and then pasted to a new location

Figure 1.32

The contents of the three selected cells are copied to the system Clipboard. Then, when you paste, the cell contents are removed and inserted at the new location, copying over any existing content.

Another way you can cut and paste is to use drag and drop to move the cell contents. This method is quickest and most useful when the distance between cells is short and they are visible within the window, whereas cut and paste is best for long-distance moves. You will use this method to move the Profit Margin entry down one cell.

②

● **Move to cell A23.**

● **Point to the border of the selection and when the mouse pointer shape is ✛, drag the selection down one row to cell A24 and release the mouse button.**

Cell entry moved using drag and drop

Drag and drop mouse pointer

Figure 1.33

Additional Information

As you drag, an outline of the cell selection appears and the mouse pointer displays the cell reference to show its new location in the worksheet.

● **Open the File tab and click** 🗎 **Save As .**
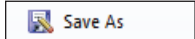
● **Save the changes you have made to the workbook as** Café Forecast1 **to your solution file location.**

Your screen should be similar to Figure 1.33

Additional Information

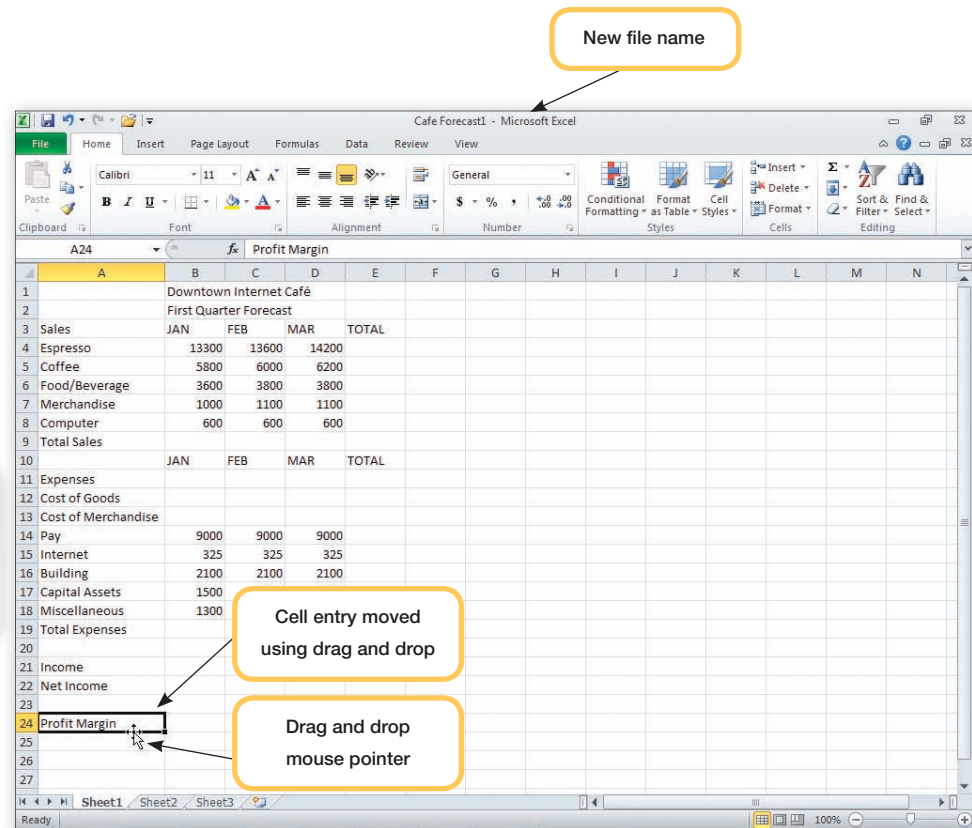You also can hold down Ctrl and drag a selection to copy it to a new location. The mouse pointer appears as ▷⁺ as you drag when copying.

The cell contents were moved into cell A24 and cleared from the original cell.

When you use the Copy and Cut commands, the contents are copied to the system Clipboard and can be copied to any location in the worksheet, another workbook, or a document in another application multiple times. When you use 🔽 ▾ Fill or drag the fill handle, the destination must be in the same row or column as the source, and the source is not copied to the system Clipboard. Dragging the cell border to move or copy also does not copy the source to the system Clipboard.

NOTE If you are running short on lab time, this is an appropriate place to end your session.

Working with Formulas

The remaining entries that need to be made in the worksheet are formula entries.

Concept **7** Formula

A **formula** is an equation that performs a calculation on data contained in a worksheet. A formula always begins with an equal sign (=) and uses arithmetic operators. An **operator** is a symbol that specifies the type of numeric operation to perform. Excel includes the following operators: + (addition), − (subtraction), / (division), * (multiplication), % (percent), and ^ (exponentiation). The calculated result from formulas is a **variable** value because it can change if the data it depends on changes. In contrast, a number entry is a **constant** value. It does not begin with an equal sign and does not change unless you change it directly by typing in another entry.

In a formula that contains more than one operator, Excel calculates the formula from left to right and performs the calculation in the following order: percent, exponentiation, multiplication and division, and addition and subtraction (see Example A). This is called the **order of precedence**. If a formula contains operators with the same precedence (for example, addition and subtraction), they are again evaluated from left to right. The order of precedence can be overridden by enclosing the operation you want performed first in parentheses (see Example B). When there are multiple sets of parentheses, Excel evaluates them working from the innermost set of parentheses out.

Example A: =5*4−3   Result is 17 (5 times 4 to get 20, and then subtract 3 for a total of 17)
Example B: =5*(4−3)   Result is 5 (4 minus 3 to get 1, and then 1 times 5 for a total of 5)

The values on which a numeric formula performs a calculation are called **operands**. Numbers or cell references can be operands in a formula. Usually cell references are used, and when the numeric entries in the referenced cell(s) change, the result of the formula is automatically recalculated.

ENTERING FORMULAS

The first formula you will enter will calculate the total Espresso sales for January through March (cell E4) by summing the numbers in cells B4 through D4. You will use cell references in the formula as the operands and the + arithmetic operator to specify addition. A formula is entered in the cell where you want the calculated value to be displayed. As you enter the formula, Excel helps you keep track of the cell references by identifying the referenced cell with a colored border and using the same color for the cell reference in the formula.

1

Move to E4.

Type =b
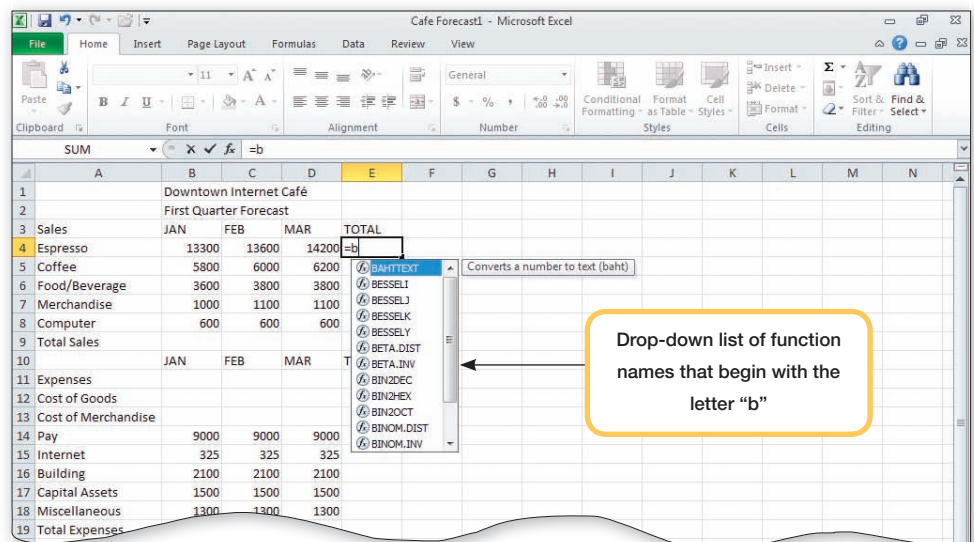
Your screen should be similar to Figure 1.34

Figure 1.34

A drop-down list of function names that begin with the letter "b" are displayed. Functions are a type of formula entry that you will learn about shortly.

2

Type 4+c4+d4

Additional Information

Cell references can be typed in either uppercase or lowercase letters. Spaces between parts of the formula are optional.

Your screen should be similar to Figure 1.35

Formula cell references are color coded
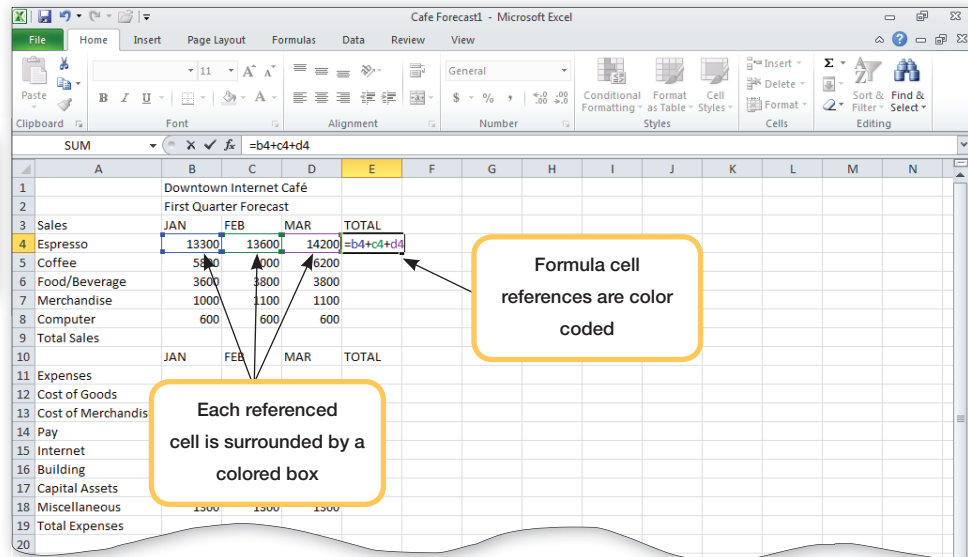
Each referenced cell is surrounded by a colored box

Figure 1.35

As you enter the formula, each cell that is referenced in the formula is surrounded by a colored box that matches the color of the cell reference in the formula.

3

Press Ctrl + ←Enter or Click ✓ Enter in the Formula bar.

Your screen should be similar to Figure 1.36

Formula displayed in formula bar

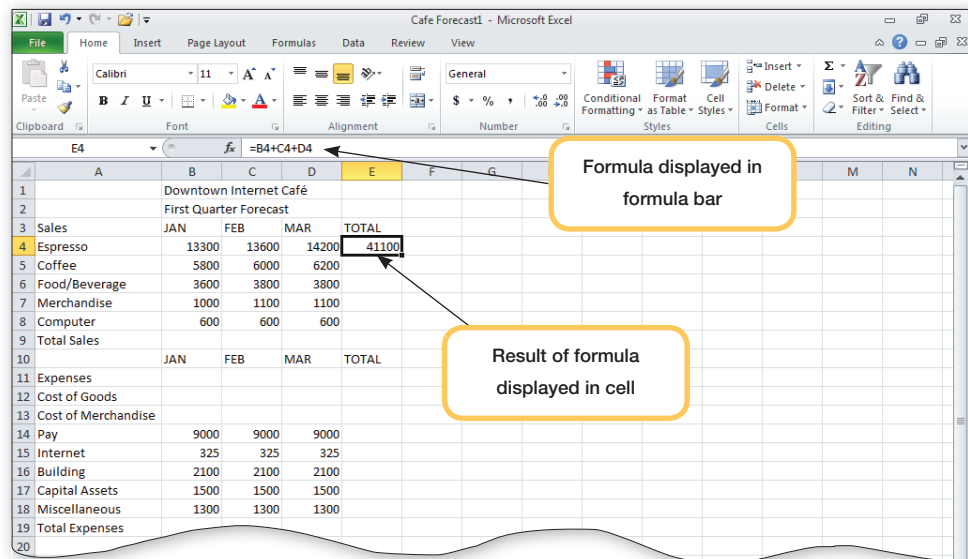Result of formula displayed in cell

Figure 1.36

The number 41100 is displayed in cell E4, and the formula that calculates this value is displayed in the formula bar.

COPYING FORMULAS WITH RELATIVE REFERENCES

The formulas to calculate the total sales for rows 5 through 8 can be entered next. Just as you can with text and numeric entries, you can copy formulas from one cell to another.

1

- Copy the formula in cell E4 to cells E5 through E8 using any of the copying methods.

- Move to E5.

- If necessary, press [Esc] to clear the moving border.

Your screen should be similar to Figure 1.37

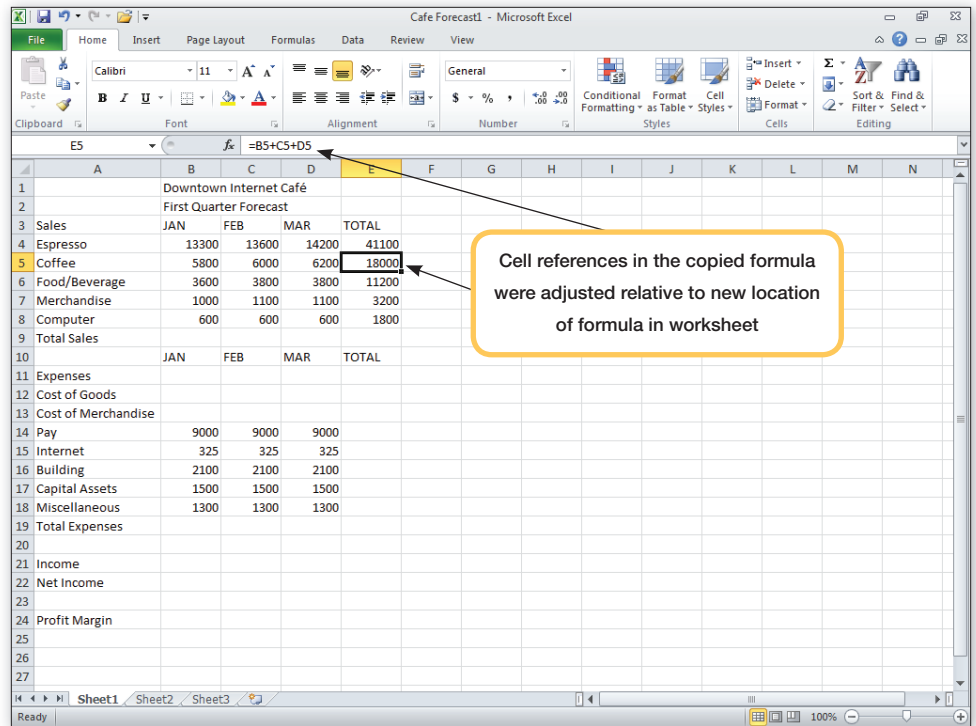Cell references in the copied formula were adjusted relative to new location of formula in worksheet

Figure 1.37

The calculated result, 18000, is displayed in the cell. The formula displayed in the formula bar is =B5+C5+D5. The formula to calculate the Coffee total sales is not an exact duplicate of the formula used to calculate the Espresso total sales (=B4+C4+D4). Instead, the cells referenced in the formula have been changed to reflect the new location of the formula in row 5. This is because the references in the formula are relative references.

Concept **8** Relative Reference

A **relative reference** is a cell or range reference in a formula whose location is interpreted by Excel in relation to the position of the cell that contains the formula. When a formula is copied, the referenced cells in the formula automatically adjust to reflect the new worksheet location. The relative relationship between the referenced cell and the new location is maintained. Because relative references automatically adjust for the new location, the relative references in a copied formula refer to different cells than the references in the original formula. The relationship between cells in both the copied and the pasted formulas is the same although the cell references are different.

For example, in the figure here, cell A1 references the value in cell A4 (in this case, 10). If the formula in A1 is copied to B2, the reference for B2 is adjusted to the value in cell B5 (in this case, 20).

2

Move to cell E6, E7, and then to cell E8.
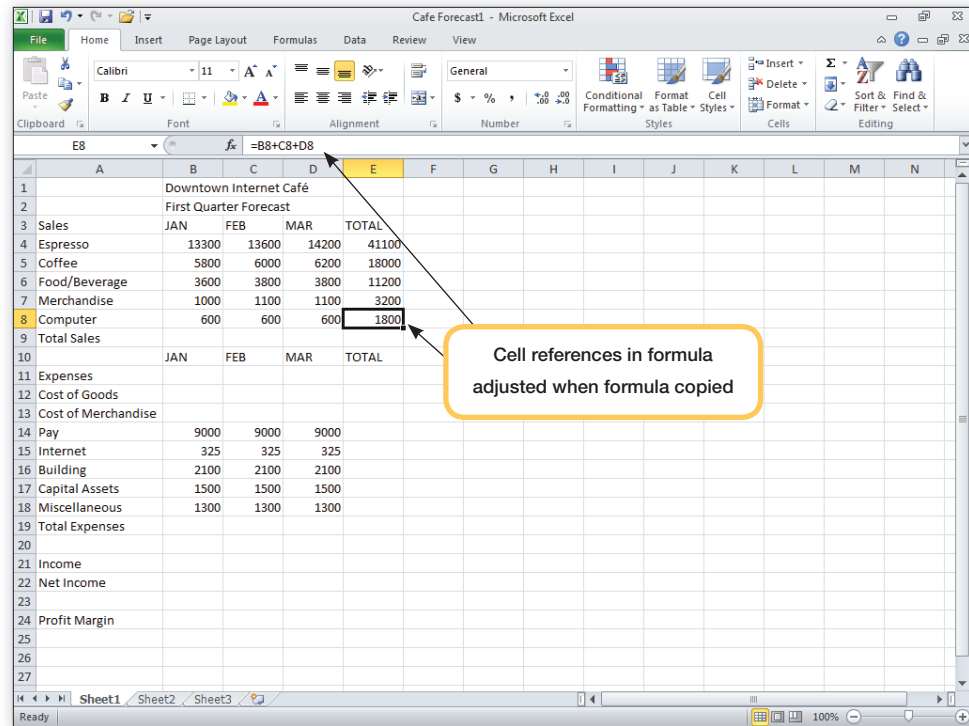
Your screen should be similar to Figure 1.38

	A	B	C	D	E	F	G	H
1		Downtown Internet Café						
2		First Quarter Forecast						
3	Sales	JAN	FEB	MAR	TOTAL			
4	Espresso	13300	13600	14200	41100			
5	Coffee	5800	6000	6200	18000			
6	Food/Beverage	3600	3800	3800	11200			
7	Merchandise	1000	1100	1100	3200			
8	Computer	600	600	600	1800			
9	Total Sales							
10		JAN	FEB	MAR	TOTAL			
11	Expenses							
12	Cost of Goods							
13	Cost of Merchandise							
14	Pay	9000	9000	9000				
15	Internet	325	325	325				
16	Building	2100	2100	2100				
17	Capital Assets	1500	1500	1500				
18	Miscellaneous	1300	1300	1300				
19	Total Expenses							
20								
21	Income							
22	Net Income							
23								
24	Profit Margin							

Cell references in formula adjusted when formula copied

E8 — =B8+C8+D8

Figure 1.38

The formulas in these cells also have changed to reflect the new row location and to appropriately calculate the total based on the sales.

SUMMARIZING DATA

Next, you will calculate the monthly total sales. The formula to calculate the total sales for January needs to be entered in cell B9 and copied across the row. You could use a formula similar to the formula used to calculate the category sales in column E. The formula would be =B4+B5+B6+B7+B8. However, it is faster and more accurate to use a function.

Concept 9 Function

A **function** is a prewritten formula that performs certain types of calculations automatically. The **syntax** or rules of structure for entering all functions is

=Function name (argument1, argument2, . . .)

The function name identifies the type of calculation to be performed. Most functions require that you enter one or more arguments following the function name. An **argument** is the data the function uses to perform the calculation. The type of data the function requires depends upon the type of calculation being performed. Most commonly, the argument consists of numbers or references to cells that contain numbers. The argument is enclosed in parentheses, and commas separate multiple arguments. The beginning and ending cells of a range are separated with a colon.

Some functions, such as several of the date and time functions, do not require an argument. However, you still need to enter the opening and closing parentheses; for example, =NOW(). If a function starts the formula, enter an equal sign before the function name; for example, =SUM(D5:F5)/25.

Excel includes several hundred functions divided into 11 categories. Some common functions from each category and the results they calculate are shown in the following table.

Category	Function	Calculates
Financial	PMT	Calculates the payment for a loan based on constant payments and a constant interest rate
	PV	Returns the present value of an investment—the total amount that a series of future payments is worth now
	FV	Returns the future value of an investment—the total amount that a series of payments will be worth
Date & Time	TODAY	Returns the serial number that represents today's date
	DATE	Returns the serial number of a particular date
	NOW	Returns the serial number of the current date and time
Math & Trig	SUM	Adds all the numbers in a range of cells
	ABS	Returns the absolute value of a number (a number without its sign)
Statistical	AVERAGE	Returns the average (arithmetic mean) of its arguments
	MAX	Returns the largest value in a set of values; ignores logical values and text
	MIN	Returns the smallest value in a set of values; ignores logical values and text
	COUNT	Counts the number of cells in a range that contain numbers
	COUNTA	Counts the number of cells in a range that are not empty
	COLUMNS	Returns the number of columns in an array or reference
Lookup & Reference	HLOOKUP	Looks for a value in the top row of a table and returns the value in the same column from a row you specify
	VLOOKUP	Looks for a value in the leftmost column of a table and returns the value in the same row from a column you specify
Database	DSUM	Adds the numbers in the field (column) or records in the database that match the conditions you specify
	DAVERAGE	Averages the values in a column in a list or database that match conditions you specify
Text	PROPER	Converts text to proper case in which the first letter of each word is capitalized
	UPPER	Converts text to uppercase
	LOWER	Converts text to lowercase
	SUBSTITUTE	Replaces existing text with new text in a text string
Logical	IF	Returns one value if a condition you specify evaluates to TRUE and another value if it evaluates to FALSE
	AND	Returns TRUE if all its arguments are TRUE; returns FALSE if any arguments are FALSE
	OR	Returns TRUE if any arguments are TRUE; returns FALSE if all arguments are FALSE
	NOT	Changes FALSE to TRUE or TRUE to FALSE
	IFERROR	Returns value-if-error if expression is an error and the value of the expression itself otherwise
Information	ISLOGICAL	Returns TRUE if value is a logical value, either TRUE or FALSE
	ISREF	Returns TRUE if value is a reference
Engineering	BIN2DEC	Converts a binary number to decimal
	CONVERT	Converts a number from one measurement system to another
Cube	CUBESETCOUNT	Returns the number of items in a set

You will use the SUM function to calculate the total sales for January. Because the SUM function is the most commonly used function, it has its own command button.

1

● Move to B9.

● Click **Σ ▾** **Sum** in the Editing group.

Another Method

Pressing **Alt** + **=** is the keyboard shortcut for Sum. This function is also available on the Formulas tab.

Your screen should be similar to Figure 1.39

Figure 1.39

Additional Information

The **Σ ▾** Sum button also can calculate a grand total if the worksheet contains subtotals. Select a cell below or to the right of a cell that contains a subtotal and then Click **Σ ▾** Sum.
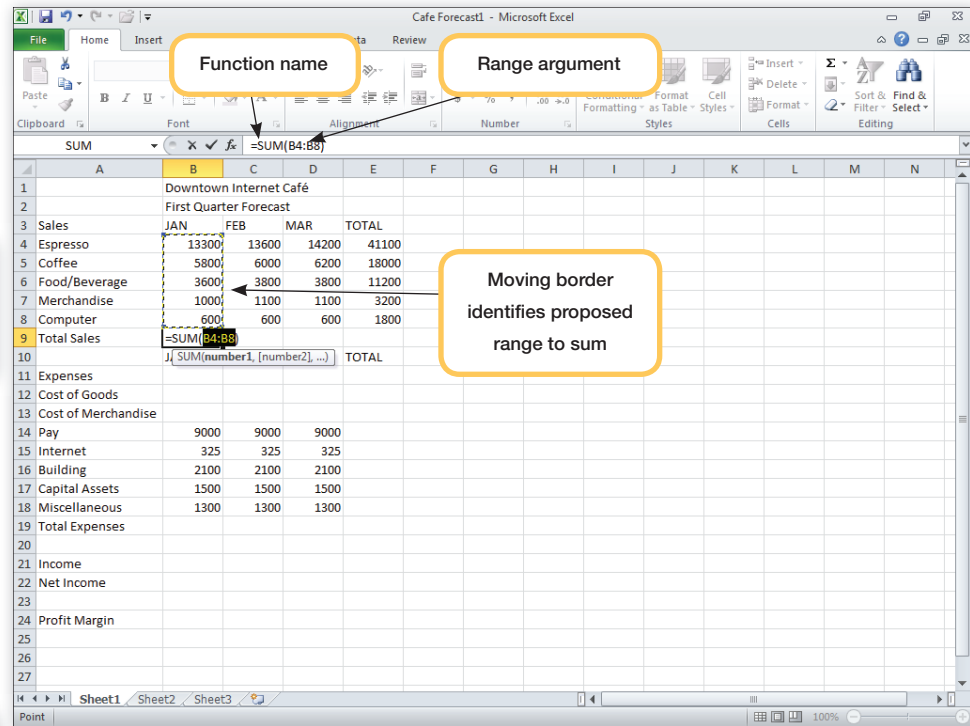
Excel automatically proposes a range based upon the data above or to the left of the active cell. The formula bar displays the name of the function followed by the range argument enclosed in parentheses. You will accept the proposed range and enter the function.

2

● Click **✓** **Enter.**

Your screen should be similar to Figure 1.40
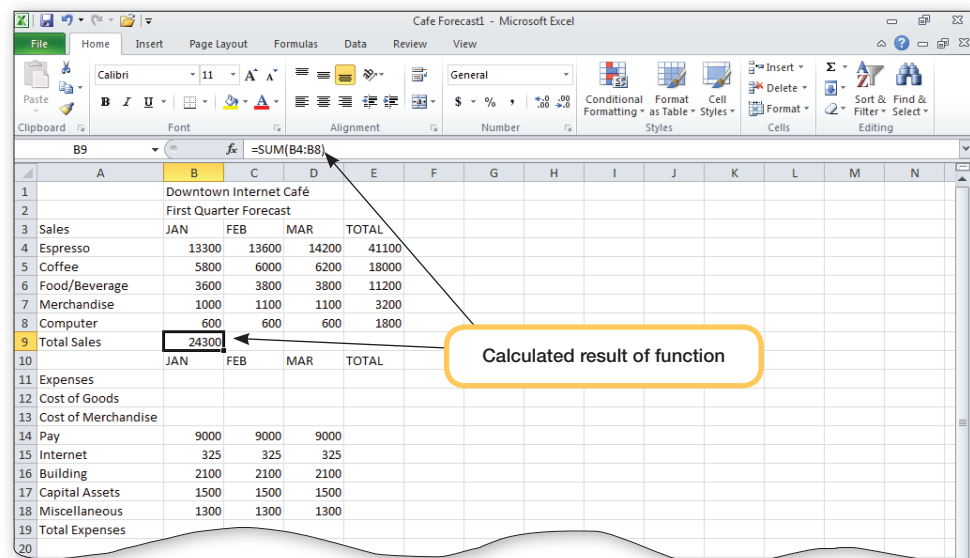
Figure 1.40

The result, 24300, calculated by the SUM function is displayed in cell B9. Next you need to calculate the total sales for February and March and the Total column.

3

- Copy the function from cell B9 to cells C9 through E9.
- Move to C9.

Your screen should be similar to **Figure 1.41**

Range references adjusted relative to new location of function in worksheet
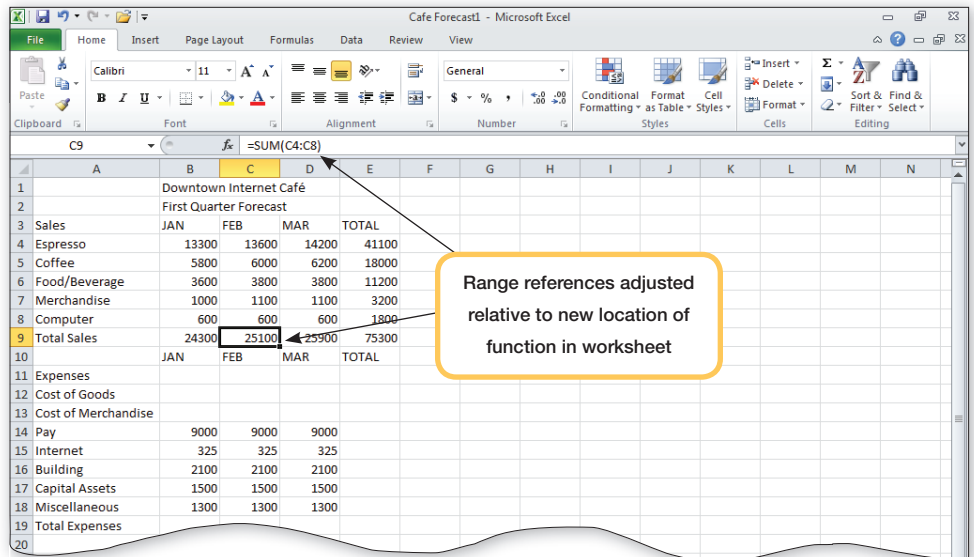
Figure 1.41

The result calculated by the function, 25100, is displayed in cell C9 and the copied function is displayed in the formula bar. The range reference in the function is adjusted relative to its new cell location because it is a relative reference.

You also decide to calculate the minimum, maximum, and average sales for each sales category. You will add appropriate column headings and enter the functions in columns F, G, and H. The Σ ▾ Sum button also includes a drop-down menu from which you can select several other common functions. As you enter these functions, the proposed range will include the Total cell. Simply select another range to replace the proposed range.

4

- Enter **MIN** in cell F3, **MAX** in cell G3, and **AVG** in cell H3.
- Move to F4.
- Open the Σ ▾ Sum drop-down menu and choose Min.

Having Trouble?
Click ▾ to the right of the button to open the drop-down menu.

- Select the range B4 through D4 to specify the January through March sales values and Click ✔ Enter.

Your screen should be similar to **Figure 1.42**

Calculated result of function
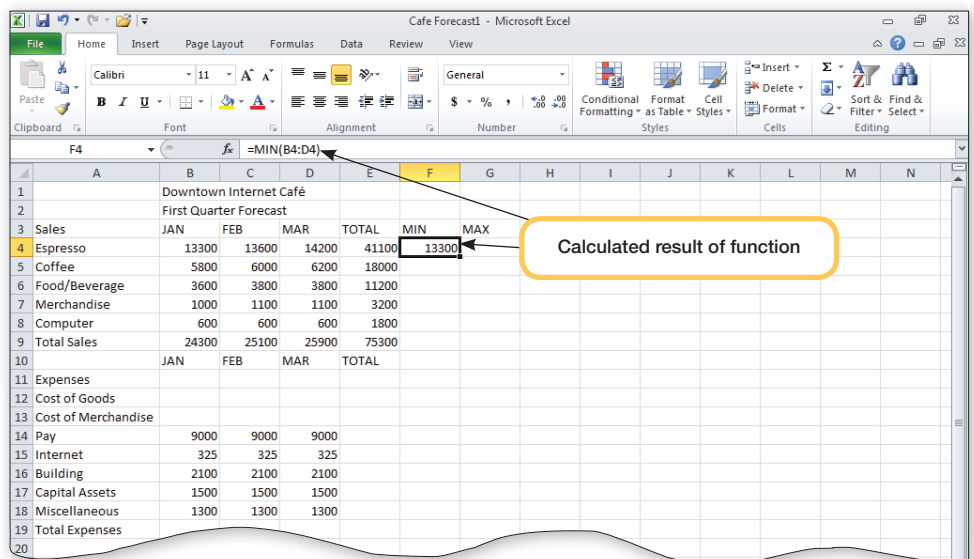
Figure 1.42

The MIN function correctly displays 13300, the smallest value in the range.

Next you will enter the MAX and AVG values for the Espresso sales. Then you will copy the functions down the column through row 8.

Enter the MAX function in cell G4 and the AVG function in cell H4 to calculate the Espresso sales values for January through March.

Copy the functions in cells F4 through H4 to F5 through H8.

Move to H8.

Your screen should be similar to Figure 1.43
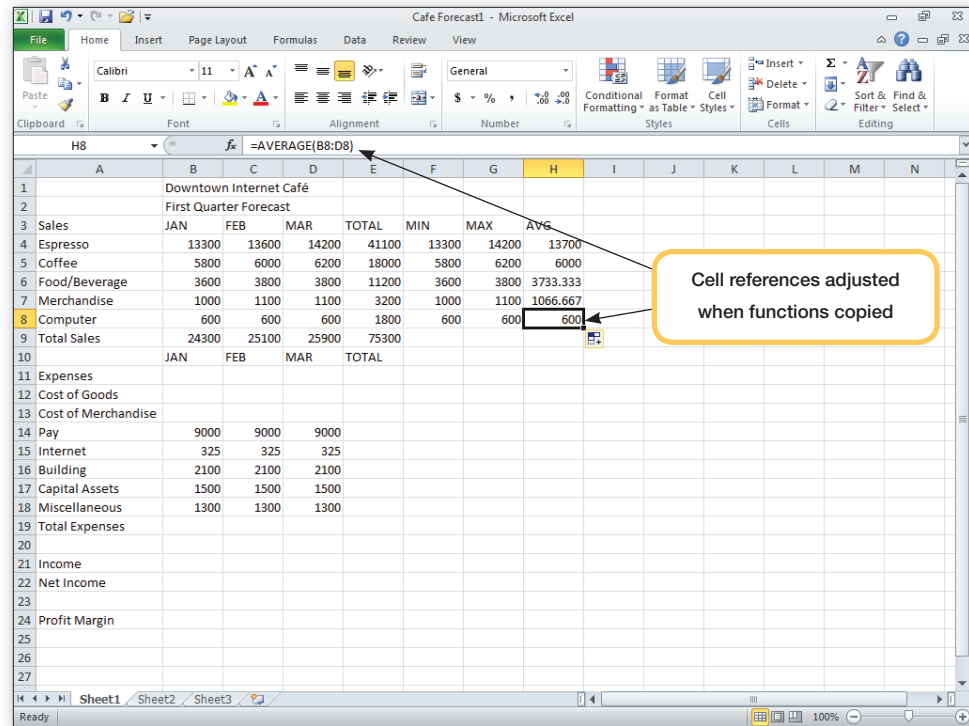
Figure 1.43

The minimum, maximum, and average values for the five sales categories have been calculated. The Average column displays as many decimal places as cell space allows.

USING POINTING TO ENTER A FORMULA

Next, you will enter the formula to calculate the cost of goods for espresso, coffee, and food and beverages sold. These numbers are estimated by using a formula to calculate the number as a percent of sales. Evan suggested using estimated percents for this worksheet so he could get an idea of what to expect from the first three months after the remodel. He wants you to calculate espresso expenses at 25 percent of espresso sales, coffee expenses at 30 percent of coffee sales, and food and beverage expenses at 60 percent of food sales.

Rather than typing in the cell references for the formula, you will enter them by selecting the worksheet cells. In addition, to simplify the process of entering and copying entries, you can enter data into the first cell of a range and have it copied to all other cells in the range at the same time by using Ctrl + ↵Enter to complete the entry. You will use this feature to enter the formulas to calculate the beverage expenses for January through March. This formula needs to calculate the beverage cost of goods at 25 percent first and add it to the food cost of goods calculated at 50 percent.

1

- Select B12 through D12.

- Type **=**

- Click cell B4.

Your screen should be similar to Figure 1.44

Cell reference of selected cell is entered in formula

Moving border surrounds selected cell

Preselected range

Mode indicator
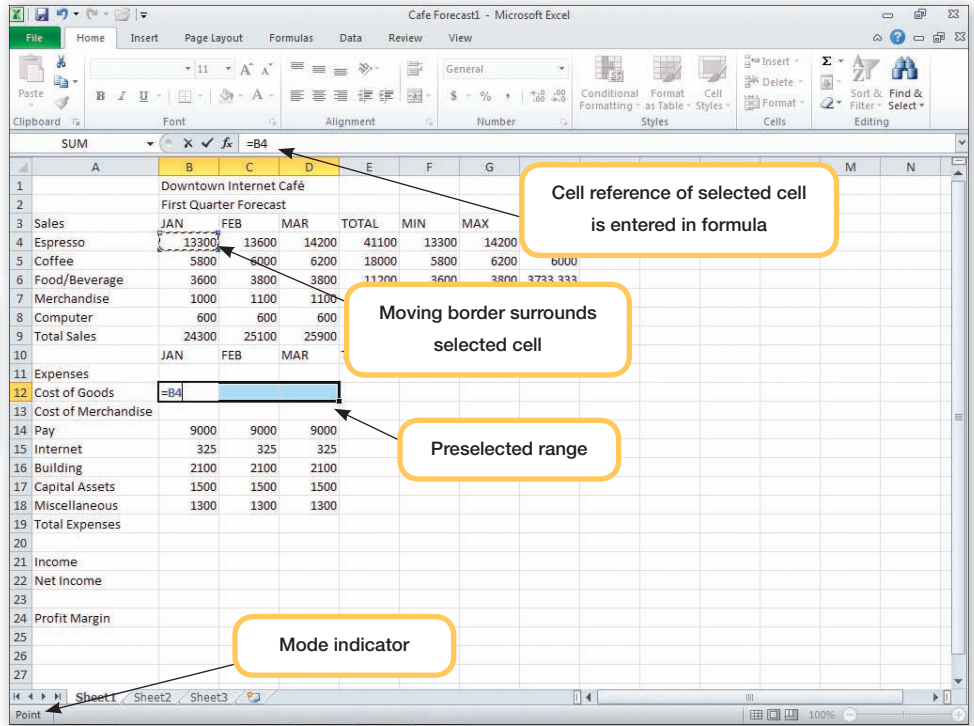
Figure 1.44

Notice that the status bar displays the current mode as Point. This tells you that the program is allowing you to select cells by highlighting them. The cell reference, B4, is entered following the = sign. You will complete the formula by entering the percentage value to multiply by and adding the Food percentage to the formula.

2

- Type ***25%+**

- Click on B5.

- Type ***30%+**

- Click on B6.

- Type ***60%**

- Press [Ctrl] + [↵Enter].

Your screen should be similar to Figure 1.45
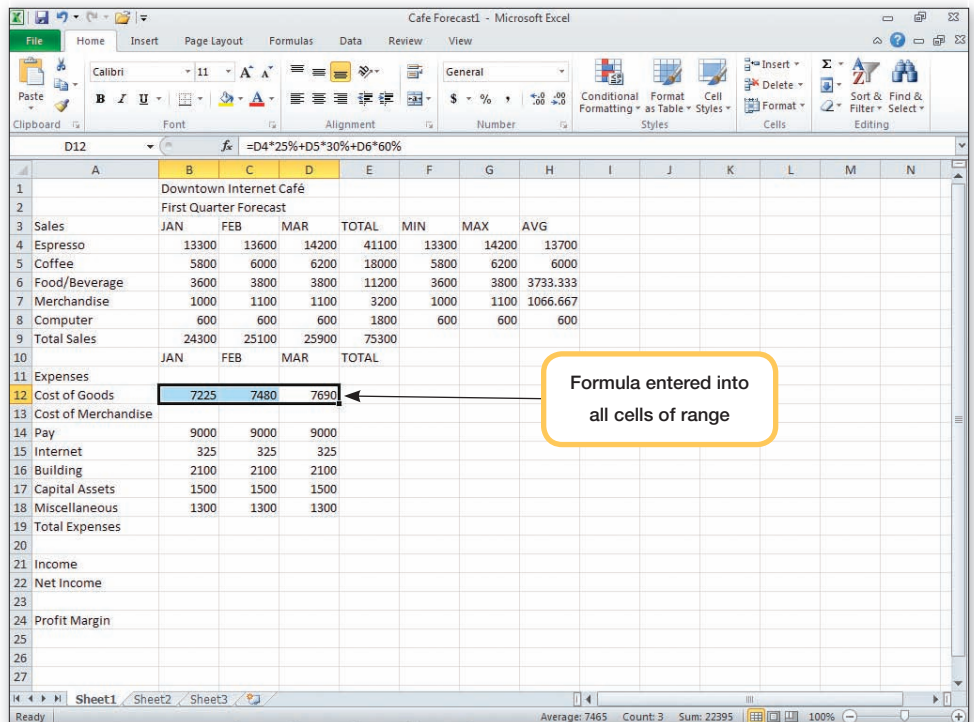
Formula entered into all cells of range

Figure 1.45

Working with Formulas   **EX1.45**

The formula to calculate the January cost of goods expense was entered in cell B12 and copied to all cells of the selected range.

Now you will enter the cost of merchandise by multiplying the value in B8 by 70%. Then you will calculate the total expenses in row 19 and column E. To do this quickly, you will preselect the range and use the $\boxed{\Sigma\ \blacktriangledown}$ Sum button.

Then you will enter the formula to calculate the net income. Net income is calculated by subtracting total expenses from total sales.

3

• Select cells B13 through D13.

• Type **=**

• Click on B7.

• Type ***70%**

• Press [Ctrl] + [←Enter].

• Select B12 through E19.

• Click $\boxed{\Sigma\ \blacktriangledown}$ Sum.

• Select B22 through E22.

• Enter the formula **=B9-B19**

• Press [Ctrl] + [←Enter].

Your screen should be similar to **Figure 1.46**

Figure 1.46

The formulas were quickly entered into all cells of the specified ranges.

Finally, you will enter the formula to calculate the profit margin. Profit margin is calculated by dividing net income by total sales.

Select B24 through E24.

Enter the formula =B22/B9

Press Ctrl **+** ←Enter.

Your screen should be similar to Figure 1.47

Formula entered into all cells of range
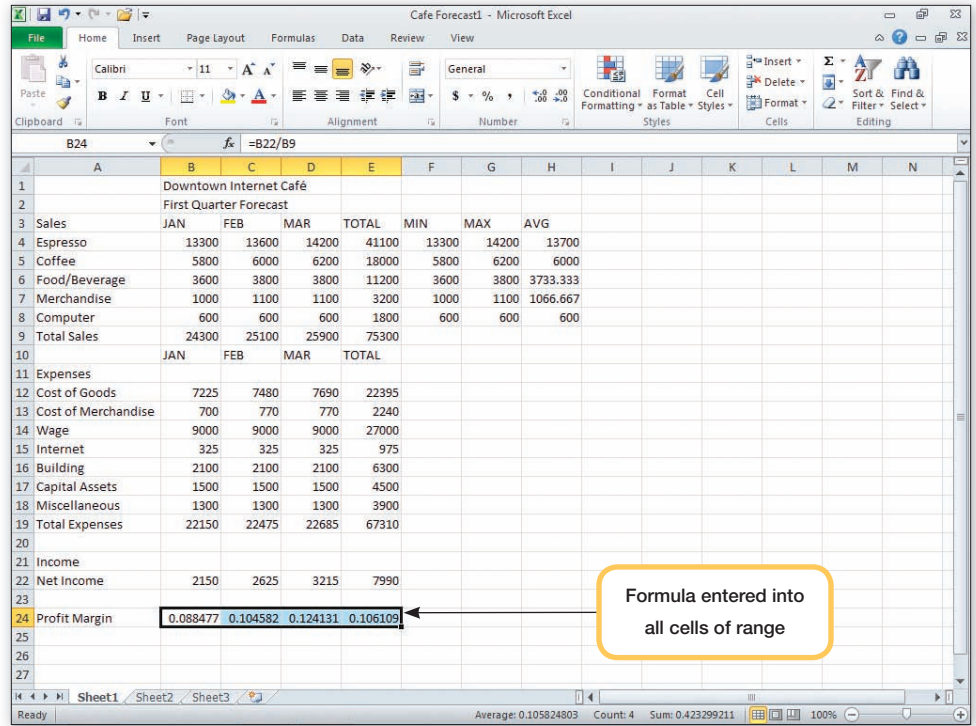
Figure 1.47

The net income and profit margins are calculated and displayed in the worksheet.

RECALCULATING THE WORKSHEET

Now that you have created the worksheet structure and entered some sample data for the forecasted sales for the first quarter, you want to test the formulas to verify that they are operating correctly. A simple way to do this is to use a calculator to verify that the correct result is displayed. You can then further test the worksheet by changing values and verifying that all cells containing formulas that reference the value are appropriately recalculated.

Concept 10 Recalculation

When a number in a referenced cell in a formula changes, Excel automatically **recalculates** all formulas that are dependent upon the changed value. Because only those formulas directly affected by a change in the data are recalculated, the time it takes to recalculate the workbook is reduced. Without this feature, in large worksheets it could take several minutes to recalculate all formulas each time a number is changed in the worksheet. Recalculation is one of the most powerful features of electronic worksheets.

After considering the sales estimates for the three months, you decide that the estimated sales generated from Computer usage for January are too high and you want to decrease this number from 600 to 400.

Change the entry in cell B8 to 400

Your screen should be similar to **Figure 1.48**

All dependent formulas have been automatically recalculated
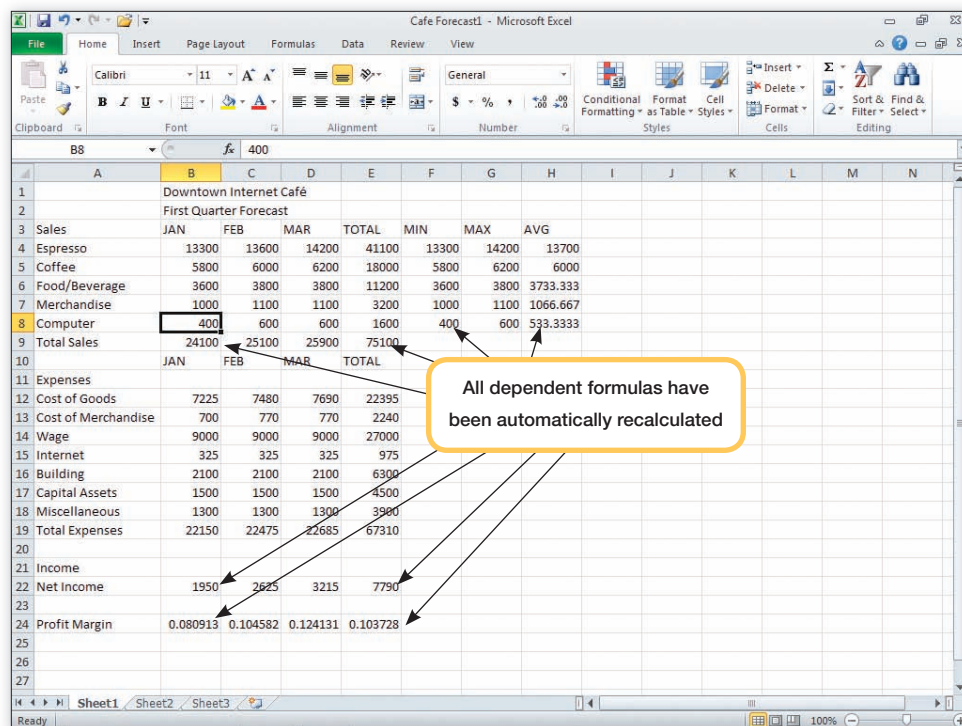
Figure 1.48

The Computer total in cell E8 has been automatically recalculated. The number displayed is now 1600. The MIN and AVG values in cells F8 and H8 have been recalculated to 400 and 533.3333 respectively. Likewise, the January total in cell B9 of 24100 and the grand total in cell E9 of 75100 each decreased by 200 from the previous totals to reflect the change in cell B8. Finally, the Net Income and Profit Margin values also have adjusted appropriately.

The formulas in the worksheet are correctly calculating the desired result. The Sales portion of the worksheet is now complete.

Inserting and Deleting Rows and Columns

As you are developing a worksheet, you may realize you forgot to include information or decide that other information is not needed. To quickly add and remove entire rows and columns of information, you can insert and delete rows and columns. A new blank row is inserted above the active cell location and all rows below it shift down a row. Similarly, you can insert blank cells and columns in a worksheet. Blank cells are inserted above or to the left of the active cell and blank columns are inserted to the left of the active cell. Likewise, you can quickly delete selected cells, rows, and columns and all information in surrounding cells, rows, or columns automatically shifts appropriately to fill in the space.

Additionally, whenever you insert or delete cells, rows, or columns, all formula references to any affected cells adjust accordingly.

INSERTING ROWS

You realize that you forgot to include a row for the Advertising expenses. To add this data, you will insert a blank row above the Capital Assets row.

1

- **Move to A17.**

- **Open the** Insert **drop-down menu in the Cells group and choose Insert Sheet Rows.**

- **Enter the heading Advertising in cell A17 and the value 600 in cells B17 through D17.**

- **Copy the function from cell E16 to E17 to calculate the total advertising expense.**

- **Move to cell B20.**

- **Click** 💾 **Save to save the workbook using the same file name.**

Your screen should be similar to Figure 1.49

Additional Information

Click Insert ▾ to insert blank cells, shifting existing cells down, and Insert ▾/Sheet Columns to insert blank columns, shifting existing columns right.

Formula range reference includes data from inserted row

New row inserted and values entered

Formulas recalculated
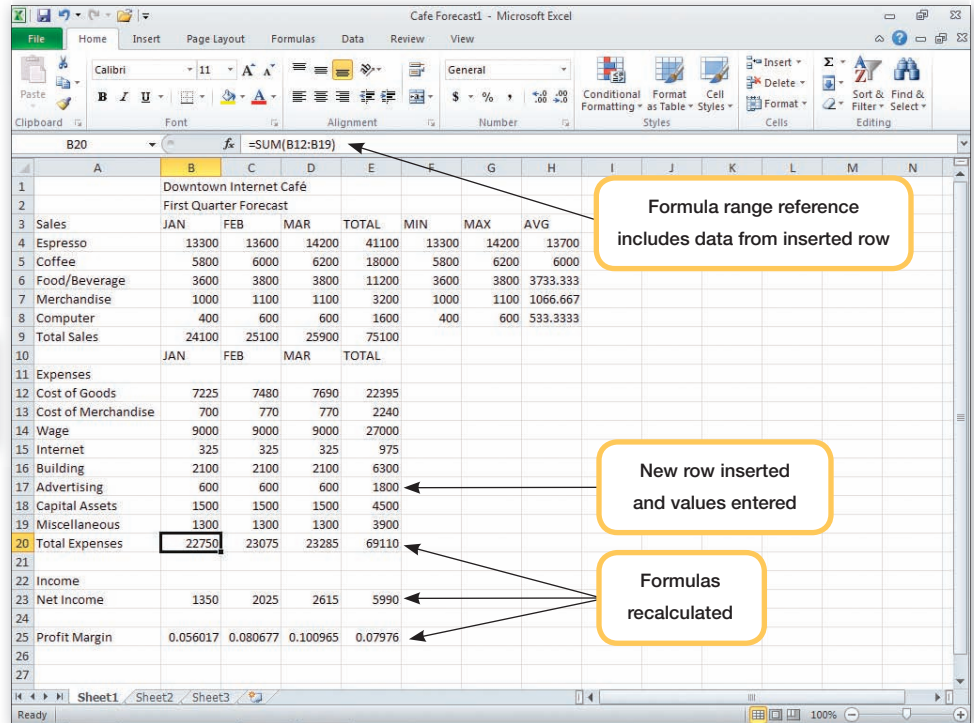
Figure 1.49

A blank row was inserted in the worksheet and the cell references in all formulas and functions below the inserted row adjusted appropriately. The range in the formula to calculate monthly total expenses in row 20 has been adjusted to include the data in the inserted row and the total expense for the first quarter is 69110. Additionally, the net income in row 23 and the profit margin in row 25 have been recalculated to reflect the change in data.

DELETING COLUMNS

As you look at the worksheet data, you decide the minimum and maximum values are not very useful since this data is so easy to see in this small worksheet. You will delete these two columns from the worksheet to remove this information. To specify which column to delete, select any cell in the column.

1

● **Select cells F20 and G20.**

● **Open the**
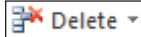
Delete ▼

drop-down menu in the Cells group and choose Delete Sheet Columns.

Your screen should be similar to Figure 1.50
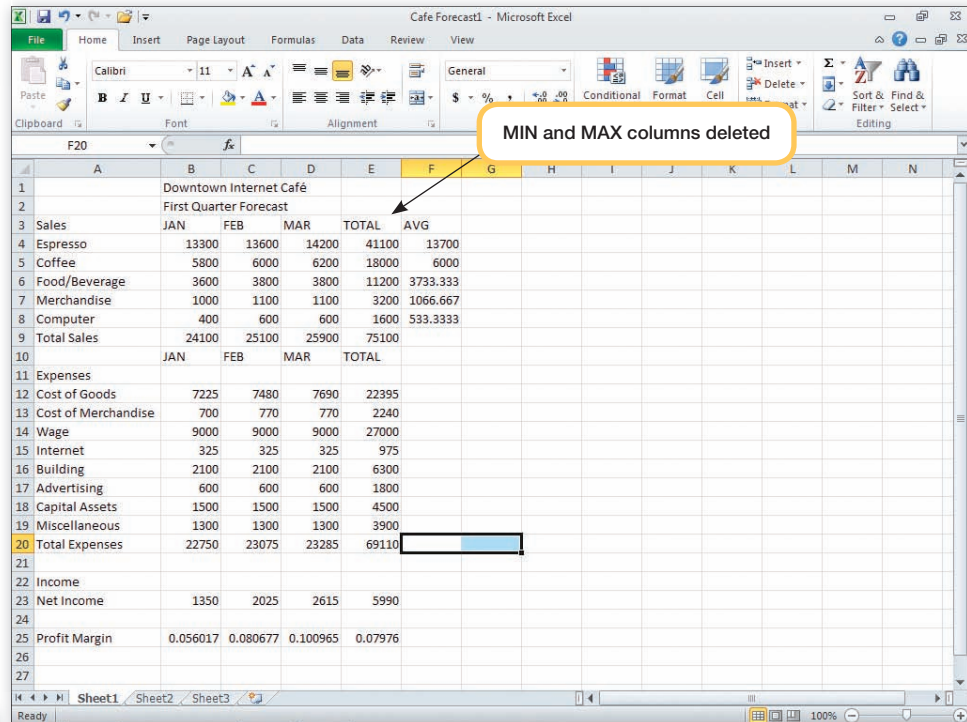
Figure 1.50

Additional Information

Select a cell or row and choose

Delete ▼ /Delete Cells or Delete Sheet Rows to delete it and shift the other cells or rows up or to the left.

The two columns have been removed and the columns to the right of the deleted columns automatically shifted to the left.

Formatting Cells and Cell Content

Now that the worksheet data is complete, you want to improve the appearance of the worksheet. Applying different formatting to text and numbers can greatly enhance the appearance of the document. In Excel, formats control how entries are displayed in a cell and includes such features as the position of data in a cell, character font and color, and number formats such as commas and dollar signs.

You want to change the appearance of the row and column headings and apply formatting to the numbers. Applying different formats greatly improves both the appearance and the readability of the data in a worksheet.

CHANGING CELL ALIGNMENT

You decide the column headings would look better if they were right-aligned in their cell spaces, so that they would appear over the numbers in the column. Alignment is a basic format setting that is used in most worksheets.

Concept **11** **Alignment**

Alignment settings allow you to change the horizontal and vertical placement and the orientation of an entry in a cell.

Horizontal placement allows you to left-, right-, or center-align text and number entries in the cell space.

Text	Text	Text

Entries also can be indented within the cell space, centered across a selection, or justified. You also can fill a cell horizontally with a repeated entry.

Text		
	Text	Text

Vertical placement allows you to specify whether the cell contents are displayed at the top, the bottom, or the center of the vertical cell space or justified vertically.

Text	Text	Text	Text

You also can change the angle of text in a cell by varying the degrees of rotation.

The default workbook horizontal alignment settings left-align text entries and right-align number entries. The vertical alignment is set to Bottom for both types of entries, and the orientation is set to zero degrees rotation from the horizontal position. You want to change the horizontal alignment of the month headings in rows 3 and 10 to right-aligned.

The Alignment group contains commands to control the horizontal and vertical placement of entries in a cell. You can quickly apply formatting to a range of cells by selecting the range first. A quick way to select a range of filled cells is to hold down ⇧Shift and double-click on the edge of the active cell in the direction in which you want the range expanded. For example, to select the range to the right of the active cell, you would double-click the right border. You will use this method to select and right-align these entries.

Additional Information

If you do not hold down ⇧Shift while double-clicking on a cell border, the active cell moves to the last-used cell in the direction indicated.

1

- Move to B3.

- Hold down ⇧Shift and double-click the right cell border of cell B3.

Having Trouble?

The mouse pointer must be ⟨pointer⟩ when you click the cell border.

- Click ☰ Align Text Right from the Alignment group.
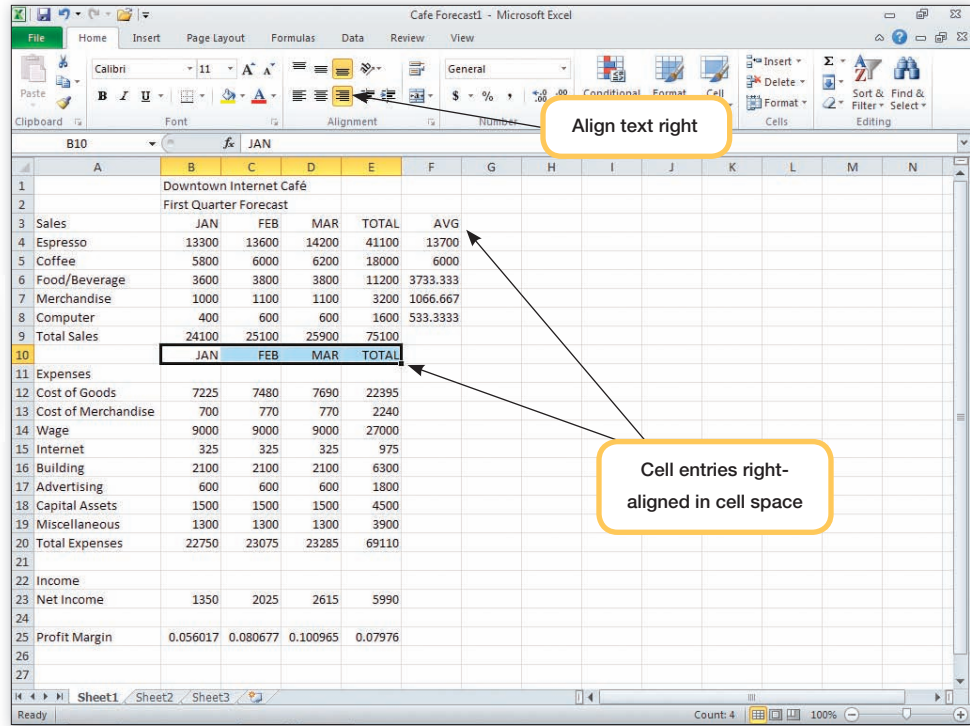
- Select B10 through E10.

- Click ☰ Align Text Right.

Your screen should be similar to Figure 1.51

Figure 1.51

The entries in the selected ranges are right-aligned in their cell spaces. You notice the month labels do not stand out well and decide to try rotating them.

2

- Select cells B3 through F3.

- Click ⟨orientation icon⟩ Orientation and choose Angle Counterclockwise.

Your screen should be similar to Figure 1.52
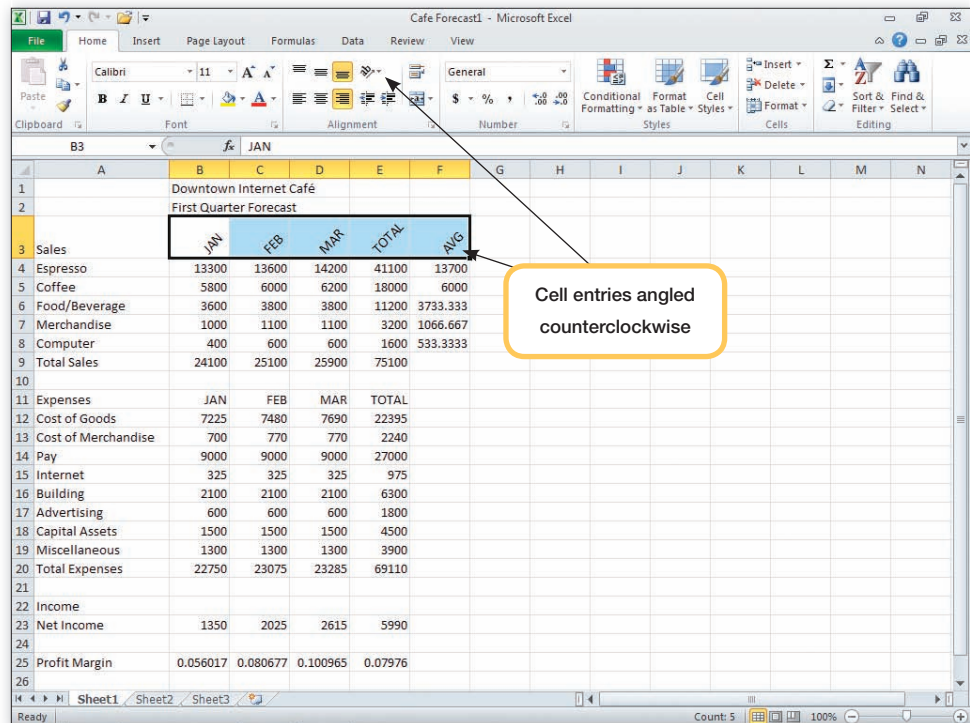
Figure 1.52

Notice how the row height increased automatically to accommodate the change in size. You don't like the way it looks rotated and decide to undo the change and to add height to the row manually to help identify the month label row better and to center align the labels. You also decide to move the month labels in row 10 down a row to match the first row of month labels.

3

- Click ↩ Undo.

- Move the entries in cells B10 through E10 into the same columns in row 11.

- Change the row height to 22.5 for rows 3 and 11.

- Select the text in cells B3 through F3 and Click ≡ Center.

- Do the same for cells B11 through E11.

Your screen should be similar to Figure 1.53
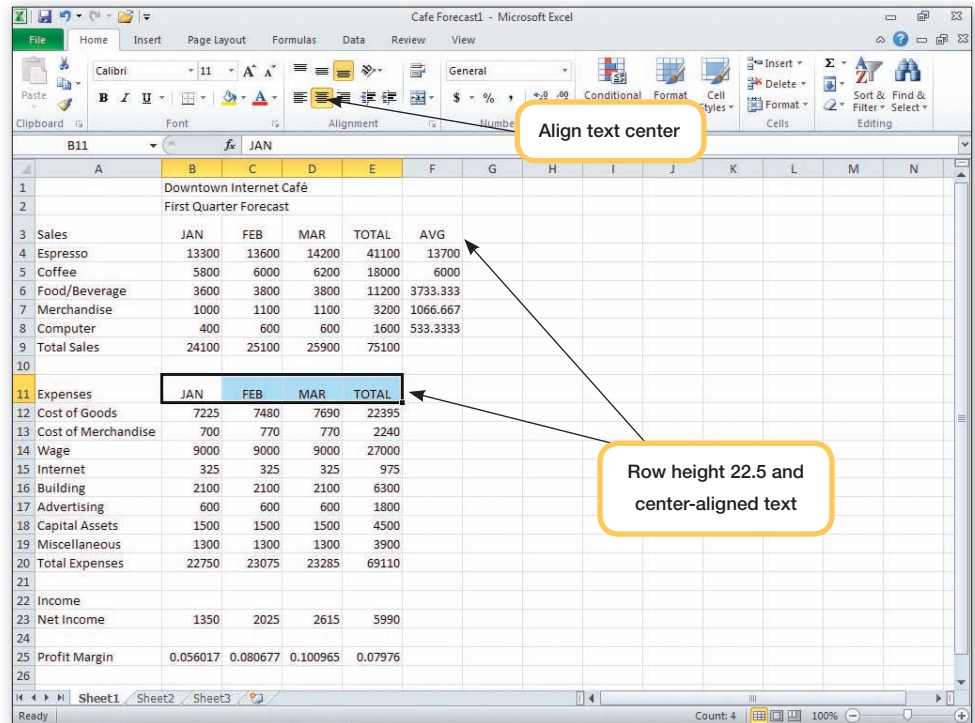
Figure 1.53

INDENTING CELL CONTENT

Next, you would like to indent the row headings in cells A4 through A8 and A12 through A19 to increase the space between the cell border and the entry. You want to indent the headings in both ranges at the same time. To select nonadjacent cells or cell ranges, after selecting the first cell or range, hold down Ctrl while selecting each additional cell or range. You will select the cells and indent their contents.

1

- Select A4 through A8.

- Hold down Ctrl.

- Select A12 through A19.

- Release Ctrl.

- Click ≣ Increase Indent in the Alignment group.

- AutoFit the width of column A.
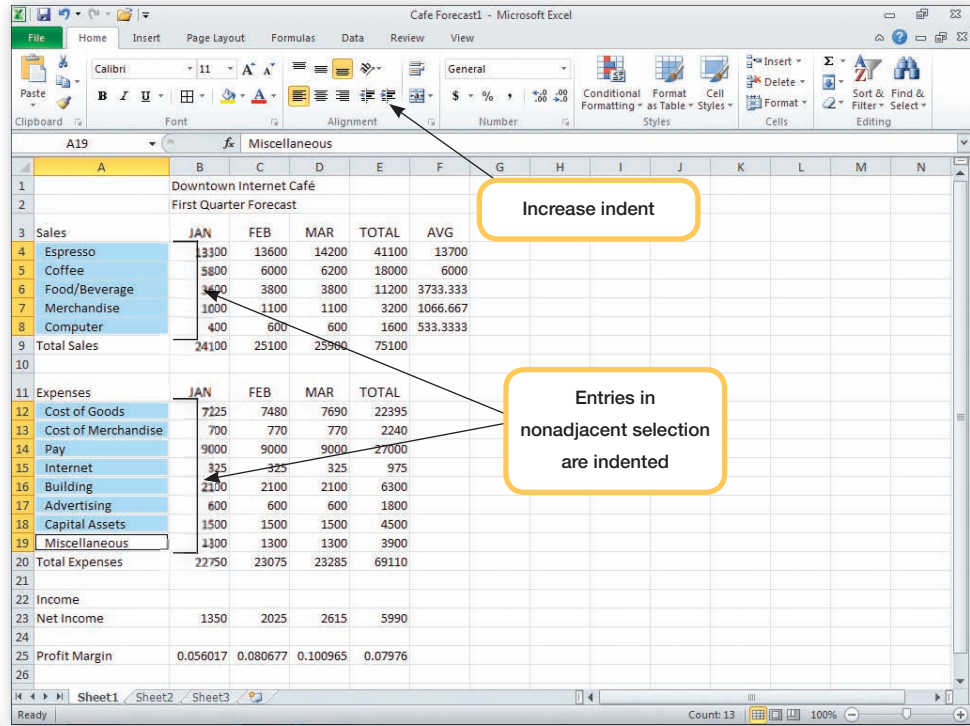
Your screen should be similar to Figure 1.54

Figure 1.54

Each entry in the selected range is indented two spaces from the left edge of the cell. Finally, you want to right-align the Total Sales, Total Expenses, and Net Income headings.

2

- Select A9, A20, and A23.

- Click ≣ Align Text Right.

Your screen should be similar to Figure 1.55
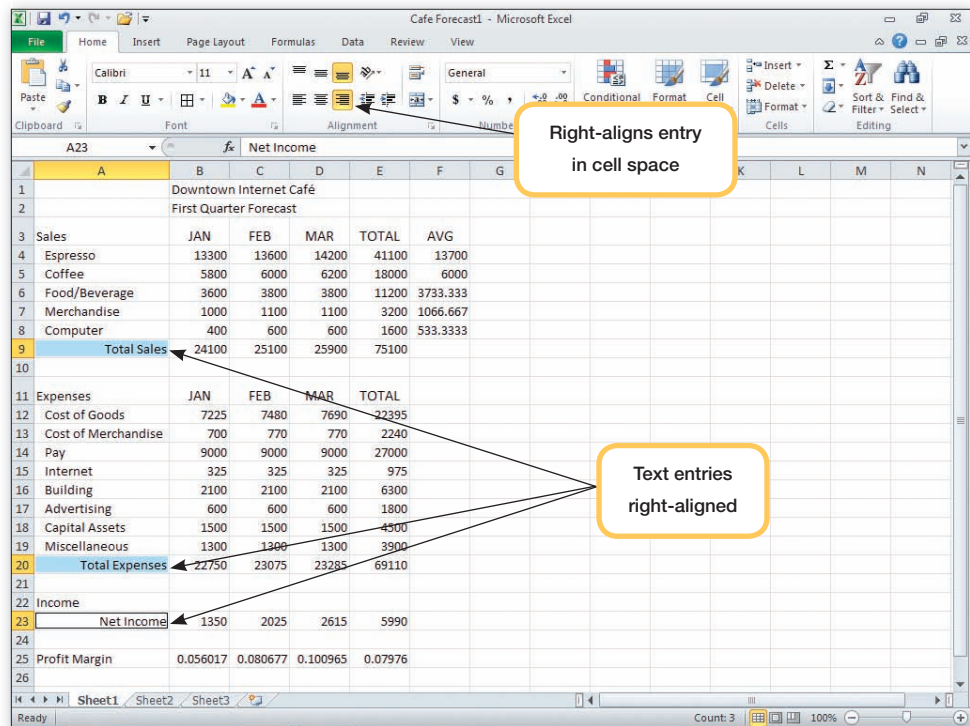
Figure 1.55

MERGING CELLS

Next, you want to center the worksheet titles across columns A through E so they are centered over the worksheet data. To do this, you will merge or combine the cells in the range over the worksheet data (A1 through F1) into a single large **merged cell** and then center the contents of the range in the merged cell. This process is easily completed in one simple step using the Merge & Center command.

1

- Select A1 through F1.
- Click Merge & Center in the Alignment group.

Your screen should be similar to Figure 1.56
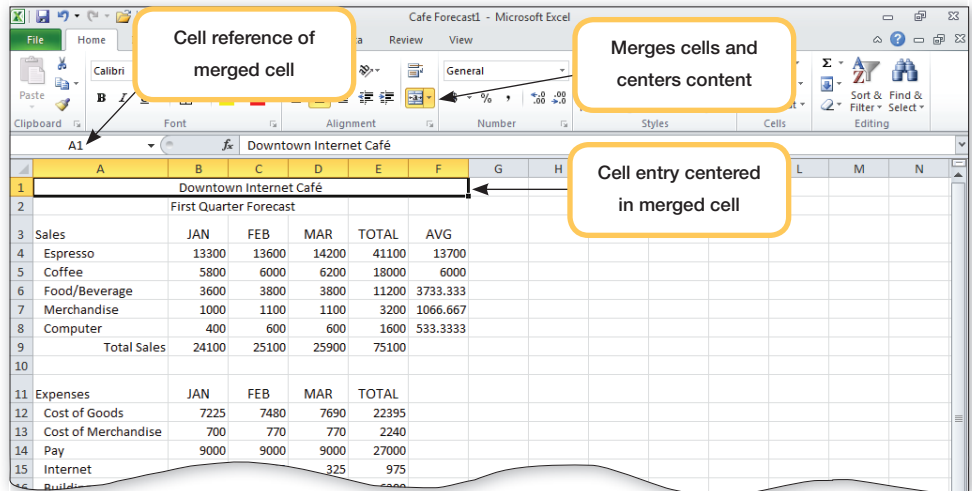
The six cells in the selection have been combined into a single large cell and the entry that was in cell B1 is centered within the merged cell space. Only the contents of the first cell containing an entry in the upper-leftmost section of the selected range are centered in the merged cell. If other cells to the right of that cell contain data, it would be deleted. The cell reference for a merged cell is the upper-left cell in the original selected range, in this case A1.

2

- Merge and center the second title line across columns A through F.
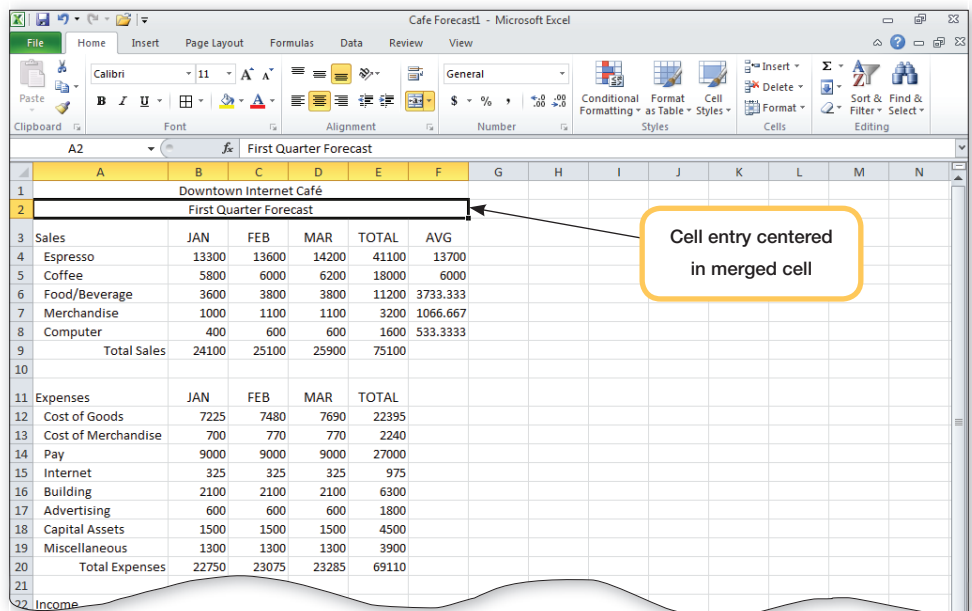
Your screen should be similar to Figure 1.57

You also can use the commands in the [icon] Merge & Center drop-down menu shown in the following table to control a merge. You can merge cells horizontally and vertically.

Merge Menu	Action
[icon] Merge & Center	Merges cells and centers entry
[icon] Merge Across	Merges cells horizontally
[icon] Merge Cells	Merges cells horizontally and vertically
[icon] UnMerge Cells	Splits cells that have been merged back into individual cells

CHANGING FONTS AND FONT SIZES

Finally, you want to improve the worksheet appearance by enhancing the appearance of the title. One way to do this is to change the font and font size used in the title. There are two basic types of fonts: serif and sans serif. **Serif** fonts have a flare at the base of each letter that visually leads the reader to the next letter. Two common serif fonts are Roman and Times New Roman. Serif fonts generally are used in paragraphs. **Sans serif** fonts do not have a flare at the base of each letter. Arial and Helvetica are two common sans serif fonts. Because sans serif fonts have a clean look, they are often used for headings in documents. It is good practice to use only two types of fonts in a worksheet, one for text and one for headings. Too many styles can make your document look cluttered and unprofessional.

Here are several examples of the same text in various fonts and sizes.

Typeface	Font Size (12 pt/18 pt)
Calibri (Sans Serif)	This is 12 pt. This is 18 pt.
Times New Roman (Serif)	This is 12 pt. This is 18 pt.
Book Antiqua (Serif)	This is 12 pt. This is 18 pt.

Using fonts as a design element can add interest to your document and give readers visual cues to help them find information quickly. First you will try a different font for the title and a larger font size.

1

● Select A1 and A2.

● Open the

[Calibri ▼]

Font drop-down list box in the Font group.

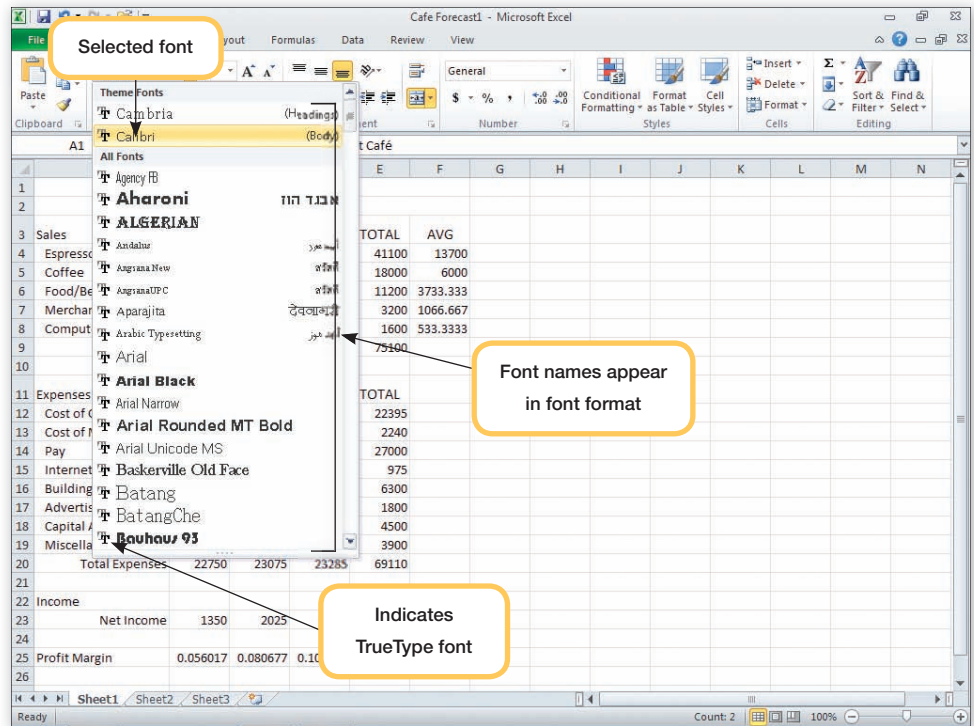**Your screen should be similar to Figure 1.58**

Figure 1.58

The Font drop-down list displays examples of the available fonts on your system in alphabetical order. The default worksheet font, Calibri, is highlighted. Notice the 𝕿 preceding the font name. This indicates the font is a TrueType font. TrueType fonts appear onscreen as they will appear when printed. They are installed when Windows is installed. Fonts that are preceded with a blank space are printer fonts. These fonts are supported by your printer and are displayed as closely as possible to how they will appear onscreen but may not match exactly when printed. You will change the font and increase the font size to 14. As you point to the font options, the Live Preview will show how it will appear if chosen.

- Scroll the list and choose Lucida Sans.

Having Trouble?

You will not be able to see the Fonts Live Preview because the drop-down menu covers the selection to be formatted.

- Open the [11 ▾] Font Size drop-down list box.

- Point to several different font sizes in the list to see the Live Preview.
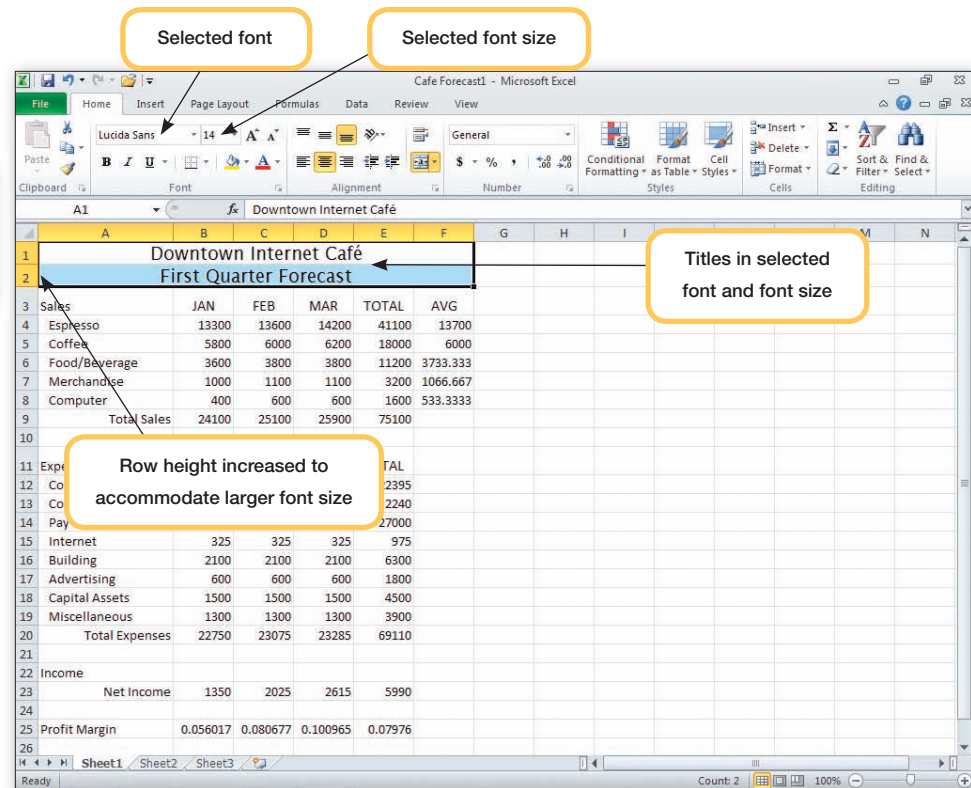
- Choose 14.

Your screen should be similar to Figure 1.59

Selected font   Selected font size

Titles in selected font and font size

Row height increased to accommodate larger font size

Figure 1.59

Another Method

The Font and Font Size commands are also available on the Mini toolbar.

The title appears in the selected typeface and size and the Font and Size buttons display the name of the font and the size used in the active cell. Notice that the height of the row has increased to accommodate the larger font size of the heading.

APPLYING TEXT EFFECTS

In addition to changing font and font size, you can apply different text effects to enhance the appearance of text. The table below describes some of the text effects and their uses.

Format	Example	Use
Bold	**Bold**	Adds emphasis
Italic	*Italic*	Adds emphasis
Underline	<u>Underline</u>	Adds emphasis
Strikethrough	~~Strikethrough~~	Indicates words to be deleted
Superscript	"To be or not to be."[1]	Used in footnotes and formulas
Subscript	H_2O	Used in formulas
Color	Color Color Color	Adds interest

First you want to enhance the appearance of the column headings by increasing the font size and adding bold, italic, and underlines.

1

- Select B3 through F3.

- Increase the font size to 12.

- Click **B** Bold.

- Click **U** ▾ Underline.

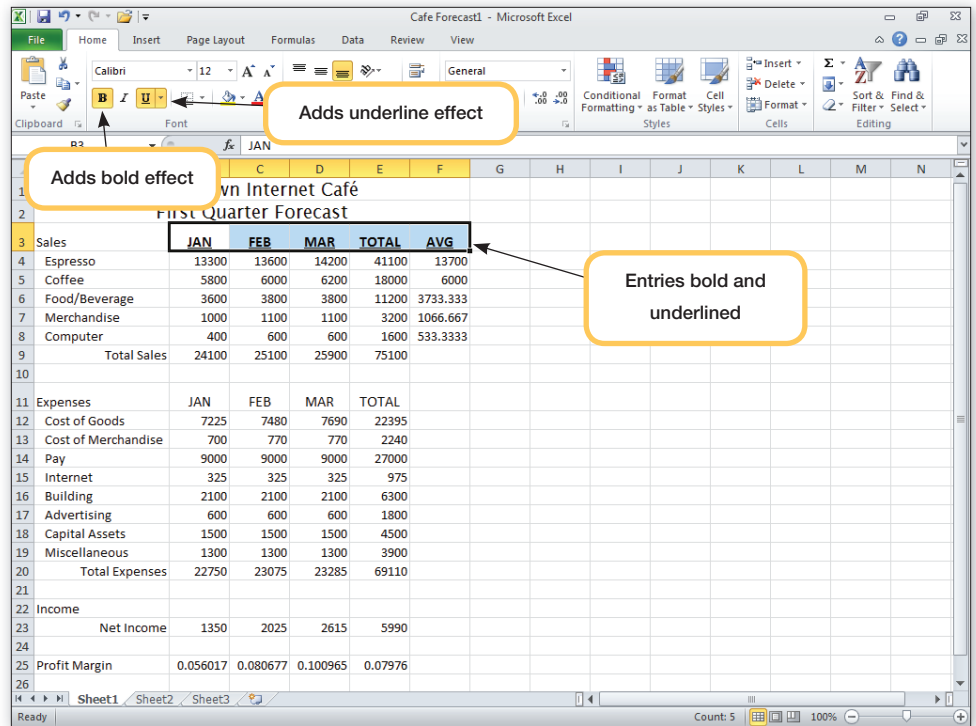Your screen should be similar to **Figure 1.60**

Adds bold effect

Adds underline effect

Entries bold and underlined

Many of the formatting commands are also available on the Mini toolbar that appears when you display the shortcut menu. To use the Mini toolbar, choose command buttons just as you would from the Ribbon.

2

- Select A4 through A8.

- Right-click on the selection to display the Mini toolbar.

- Click **B** Bold.

- Click *I* Italic.

Another Method

The keyboard shortcut for bold is Ctrl + B; for italic, it is Ctrl + I; and for underline, it is Ctrl + U.

Your screen should be similar to **Figure 1.61**

Adds bold effect

Adds italic effect

Entries bold and italic
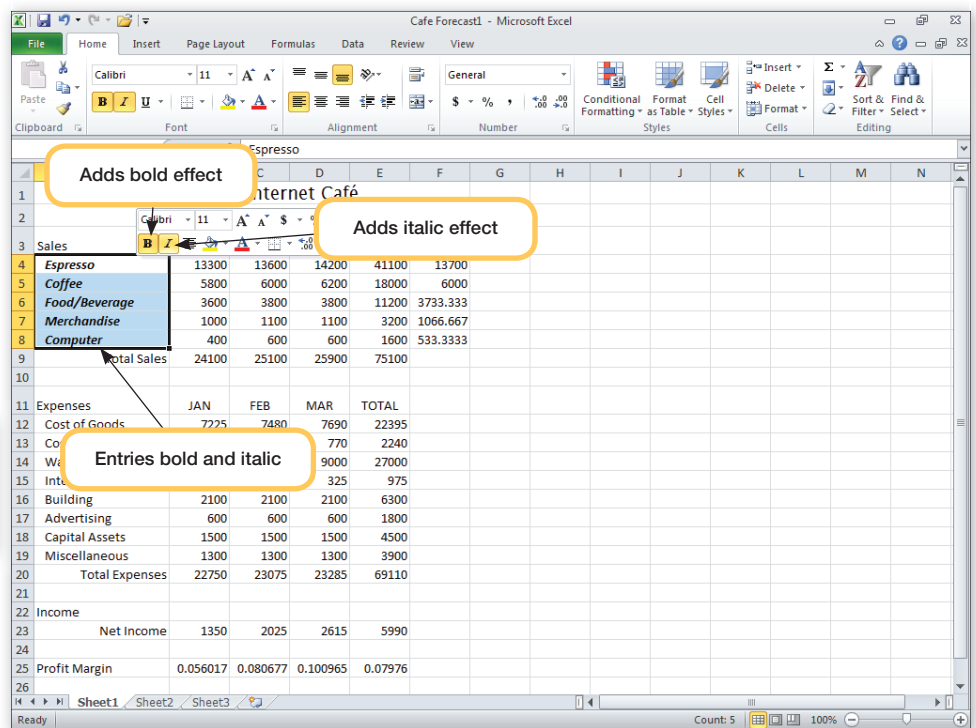
CLEARING FORMATS

Sometimes formatting changes you make do not have the expected result. In this case, you feel that the sales category names would look better without the formatting. One way to remove the format from cells is to use [⌀▾] Clear in the Editing group and choose Clear Formats. Because this will remove all formatting in the selected cells, you will need to redo the indenting in those cells.

1

- With cells A4 through A8 still selected, open the [⌀▾] Clear drop-down list in the Editing group.
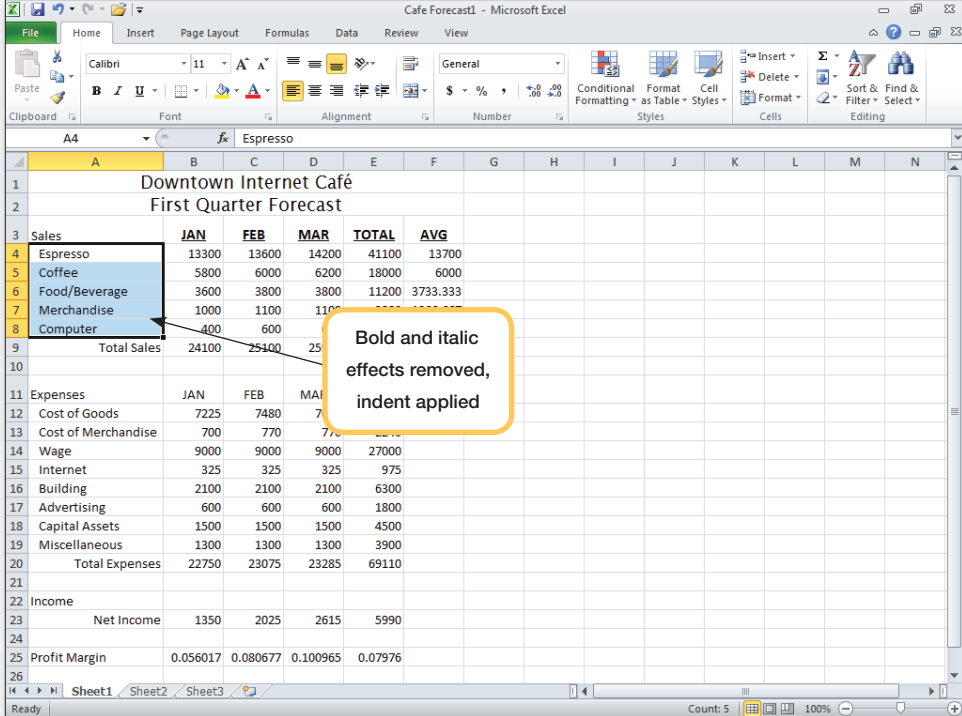
- Choose Clear Formats.

- Click [≣] Increase Indent.

Another Method

You could also use [↩] Undo to remove the formats by reversing your last actions.

Your screen should be similar to **Figure 1.62**

Additional Information

You can remove both formatting and content using [⌀▾] Clear/Clear All.

Figure 1.62

USING FORMAT PAINTER

You do think, however, that the Total Sales, Total Expenses, and Net Income headings would look good in bold. You will bold the entry in cell A9 and then copy the format from A9 to the other cells using Format Painter. You also will format the headings in row 11.

- **Apply bold to cell A9.**

- **With cell A9 selected, double-Click** **Format Painter in the Clipboard group.**

- **Click A20.**

- **Click A23.**

- **Click** **Format Painter to turn it off.**

- **Use Format Painter to copy the format from cell B3 to cells B11 through E11.**

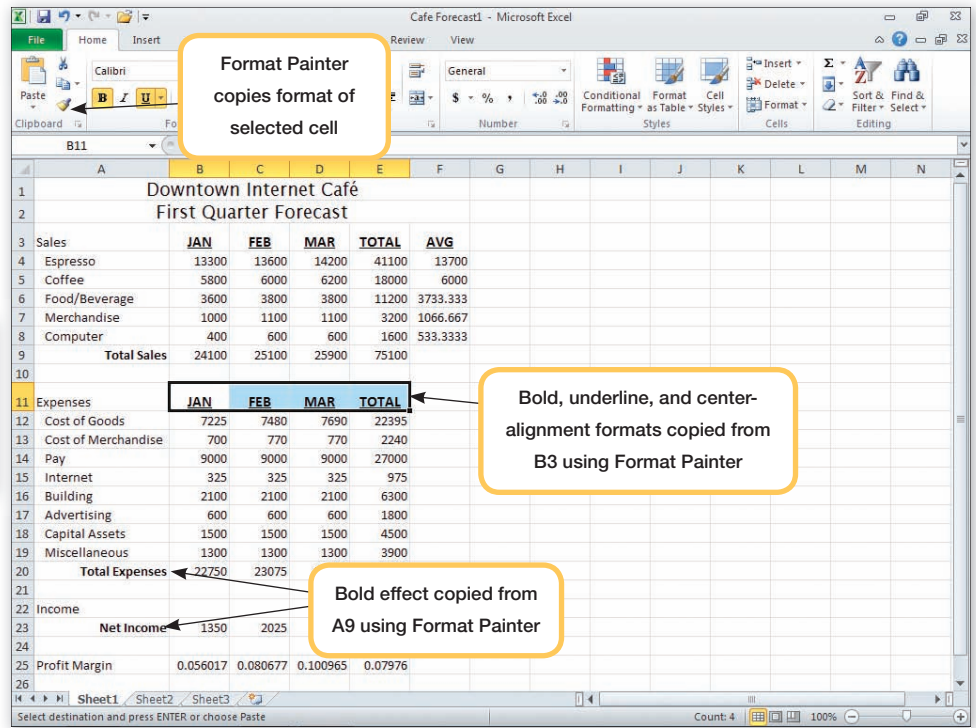**Your screen should be similar to Figure 1.63**

Figure 1.63

The formatting was quickly added to each cell or range as it was selected.

FORMATTING NUMBERS

You also want to improve the appearance of the numbers in the worksheet by changing their format.

Concept 12 Number Formats

Number formats change the appearance of numbers onscreen and when printed, without changing the way the number is stored or used in calculations. When a number is formatted, the formatting appears in the cell while the value without the formatting is displayed in the formula bar.

The default number format setting in a worksheet is General. General format, in most cases, displays numbers just as you enter them, unformatted. Unformatted numbers are displayed without a thousands separator such as a comma, with negative values preceded by a − (minus sign), and with as many decimal place settings as cell space allows. If a number is too long to be fully displayed in the cell, the General format will round numbers with decimals and use scientific notation for large numbers.

First, you will change the number format of cells B5 through F10 to display as currency with dollar signs, commas, and decimal places.

①

- **Select cells B4 through F9.**

- **Open the**

  General ▼

  Number Format drop-down list in the Number group.

- **Choose Currency.**

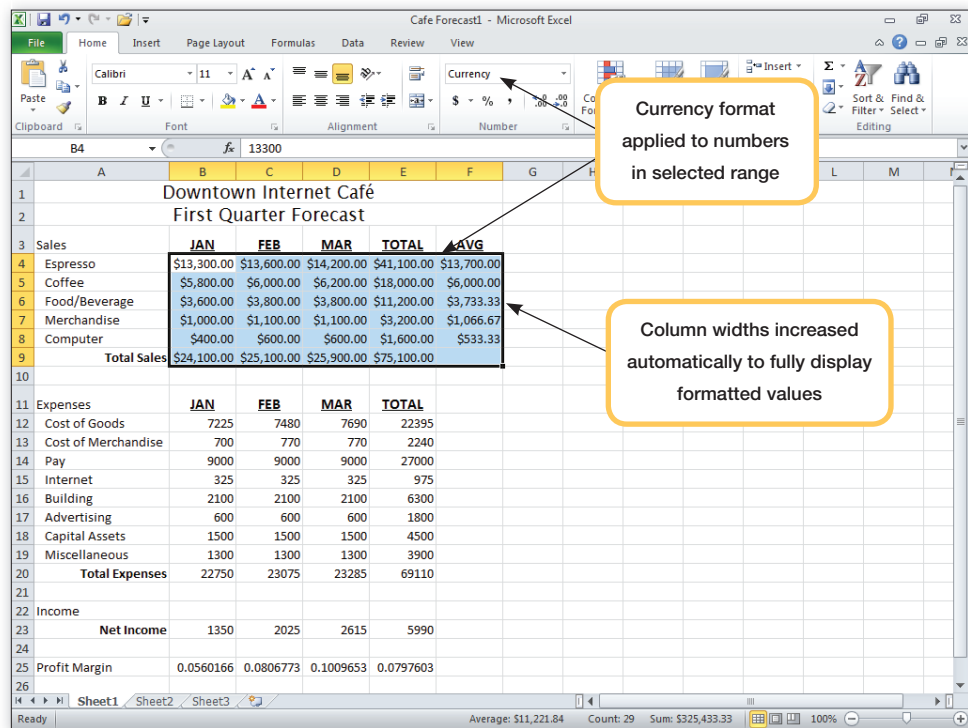**Your screen should be similar to Figure 1.64**

Figure 1.64

Another Method

Excel will also automatically apply a format to a cell based on the symbols you use when entering the number. For example, entering 10,000 in a cell formats the cell to Comma format, and entering $102.20 formats the cell to Currency with two decimal places.

The number entries in the selected range appear with a currency symbol, comma, and two decimal places. The column widths increased automatically to fully display the formatted values.
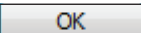
A second format category that displays numbers as currency is Accounting. You will try this format next on the same range. Additionally, you will specify zero as the number of decimal places because most of the values are whole values. To specify settings that are different than the default setting for a format, you can use the Format Cells dialog box.

2

- **Make sure you still have cells B4 through F9 selected.**

- **Click** [⬚] **in the Number group to open the Format Cells: Number dialog box.**

- **From the Category list box, choose Accounting.**

- **Reduce the decimal places to 0.**

- **Click** [OK].
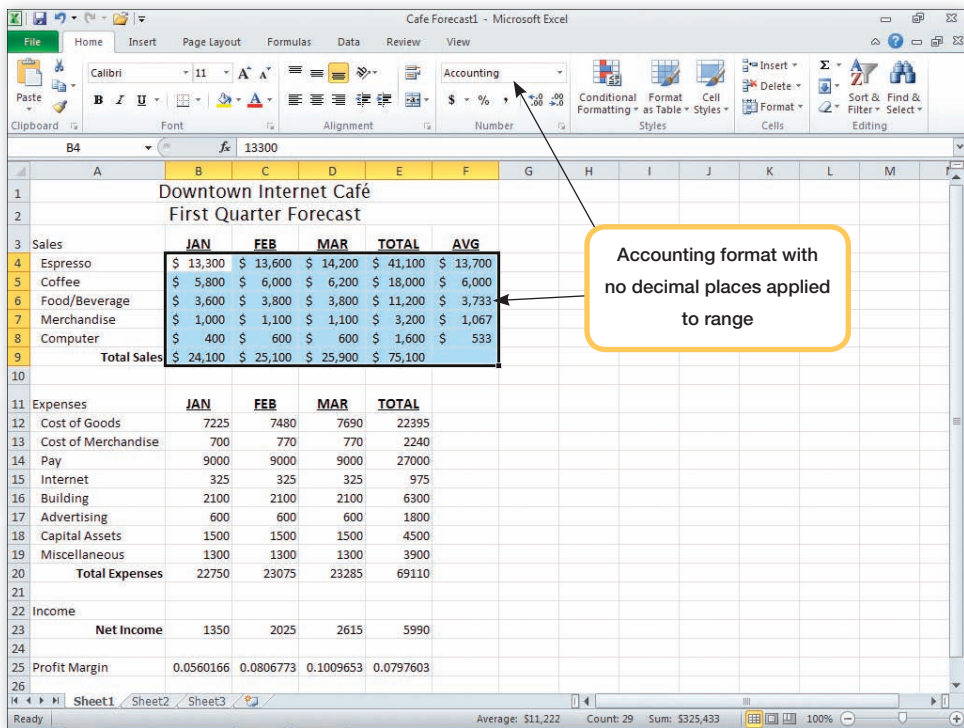
Your screen should be similar to Figure 1.65

Figure 1.65

The numbers now appear in Accounting format. The primary difference between the Accounting and the Currency formats is that the Accounting format aligns numbers at the decimal place and places the dollar sign in a column at the left edge of the cell space. In addition, it does not allow you to select different ways of displaying negative numbers but displays them in black in parentheses.

You decide the Accounting format will make it easier to read the numbers in a column and you will use this format for the rest of the worksheet. An easier way to apply the Accounting format with 0 decimals is to use the commands in the Number group.

3

- **Select the range B12 through E20.**

- **Click** [$ ▾] **Accounting Number Format in the Number group.**

- **Click** [.00→] **Decrease Decimal twice.**

Your screen should be similar to Figure 1.66

Figure 1.66

Formatting Cells and Cell Content   **EX1.63**

Notice the Number Format box displays Custom because you modified a copy of the existing Accounting number format code. The custom number format is added t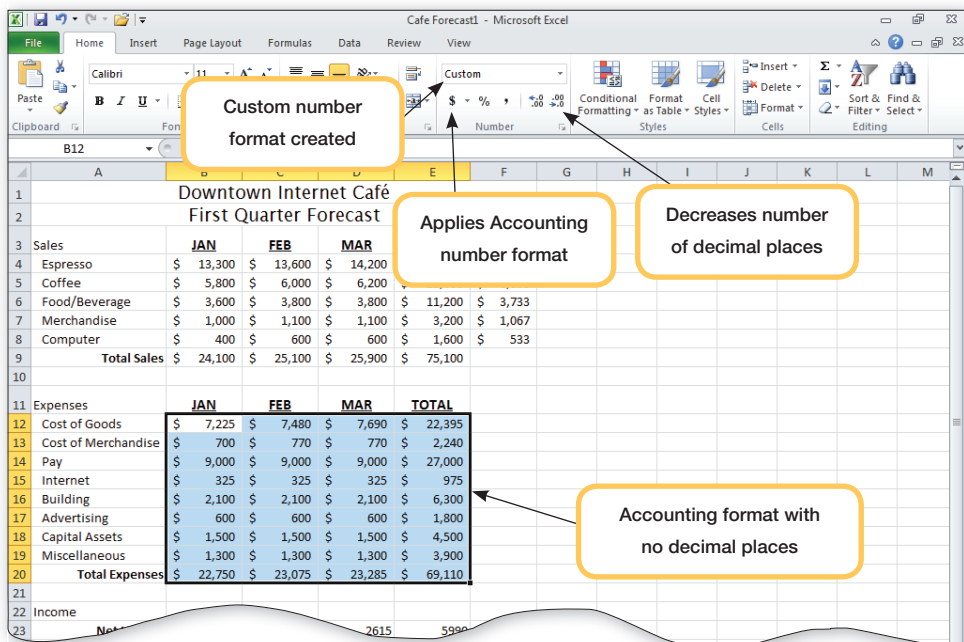o the list of number format codes. Between 200 and 250 custom formats can be added depending on the language version of Excel you are using. You can then reapply the custom format by selecting it from the Custom category of the Format Cells: Number dialog box. This is useful for complicated formats, but not for formats that are easy to recreate.

Finally, you will format the Net Income as Accounting with zero decimal places and the Profit Margin values to percentages with two decimal places. You will do this using the Mini toolbar. This feature is particularly helpful when working at the bottom of the worksheet window.

4

● Select B23 through E23.

● Click $ ▾ Accounting Number Format on the Mini toolbar.

Having Trouble

Right-click on the selection to display the Mini toolbar.

● Click .00→.0 Decrease Decimal twice on the Mini toolbar.

● Select B25 through E25.

● Click % Percent Style on the Mini toolbar.

● Click ←.0.00 Increase Decimal twice on the Mini toolbar.

Your screen should be similar to Figure 1.67

Formatted as percent with two decimal places
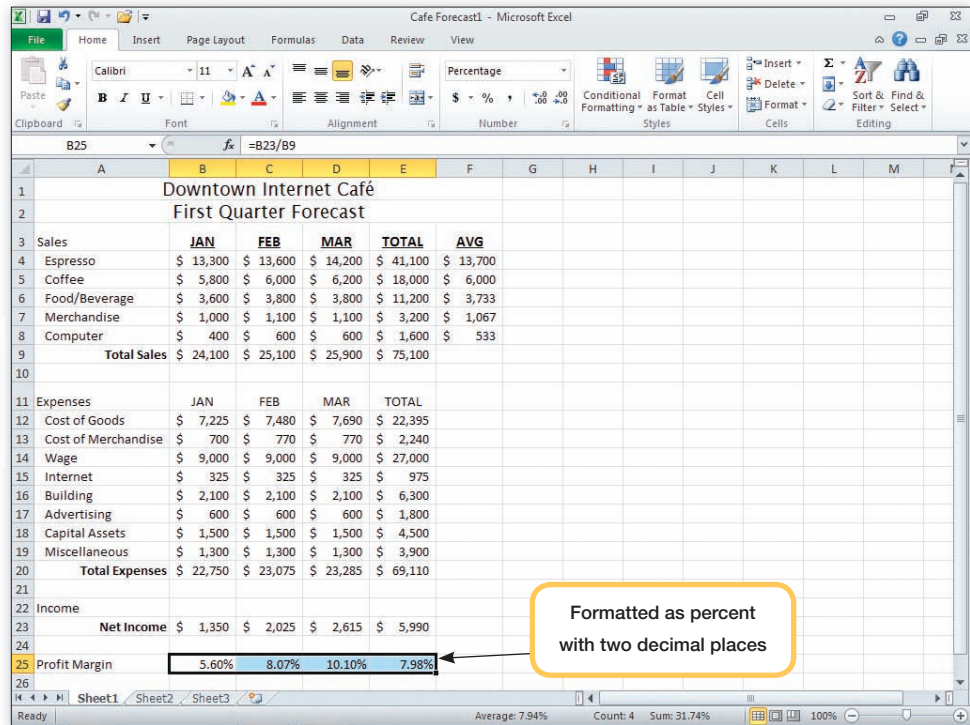
Figure 1.67

ADDING FONT COLOR

The last formatting change you would like to make to the worksheet is to add color to the text of selected cells. Font color can be applied to all the text in a selected cell or range or to selected words or characters in a cell.

- Select A1 through A2.

- Open the [A▼] Font Color drop-down menu in the Font group.

Another Method

[A ▼] Font Color is also available on the Mini toolbar.

Your screen should be similar to Figure 1.68

Font color palette
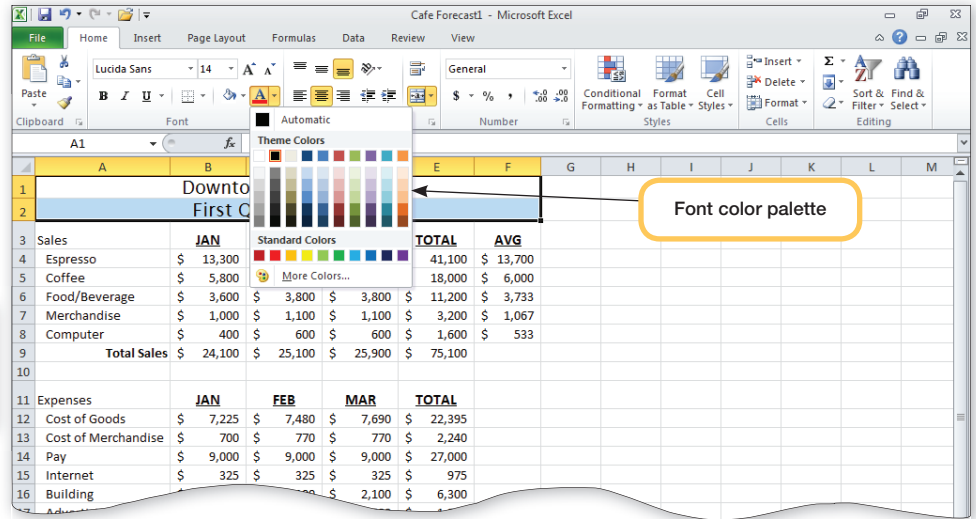
Figure 1.68

Additional Information

You will learn about using Document Themes in Lab 2.

A palette of colors is displayed. Automatic is the default text color setting. This setting automatically determines when to use black or white text. Black text is used on a light background and white text on a dark background. The center area of the palette displays the Theme colors. Theme colors are a set of colors that are associated with a document **theme**, a predefined set of fonts, colors, and effects that can be applied to an entire worksheet. If you change the theme, the theme colors change. The Standard Colors bar displays 10 colors that are always the same.

As you point to a color, the entry in the selected cell changes color so you can preview how the selection would look. A ScreenTip displays the name of the standard color or the description of the theme color as you point to it.

- Choose Yellow from the Standard Colors bar.

- Click [B] Bold.

Your screen should be similar to Figure 1.69

Font color applied to selection

Figure 1.69

The font color of all the text in cells A1 and A2 has changed to the selected color and bold. The selected color appears in the button and can be applied again simply by clicking the button.

ADDING FILL COLOR

Next, you will change the cell background color, also called the fill color, behind the titles and in several other areas 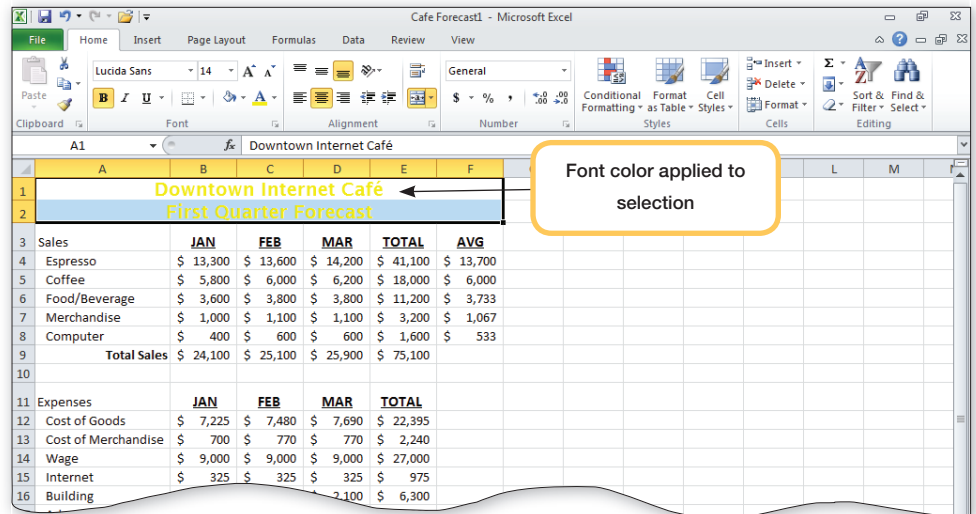of the worksheet. Generally, when adding color to a worksheet, use a dark font color with a light fill color or a light font color with a dark fill color.

1

- Select cells A1 through F3.

- Open the 🪣 ▼ Fill Color drop-down color palette.

- Point to several colors to see a Live Preview.

- Select the Light Blue color from the Standard Colors bar.

- Select cells A11 through F11 and Click 🪣 ▼ Fill Color to apply the last selected fill color.

- Apply the same fill color to A22 through F22 and A25 through F25.

Applies displayed fill color

Opens fill color drop-down menu

Fill color applied to selections
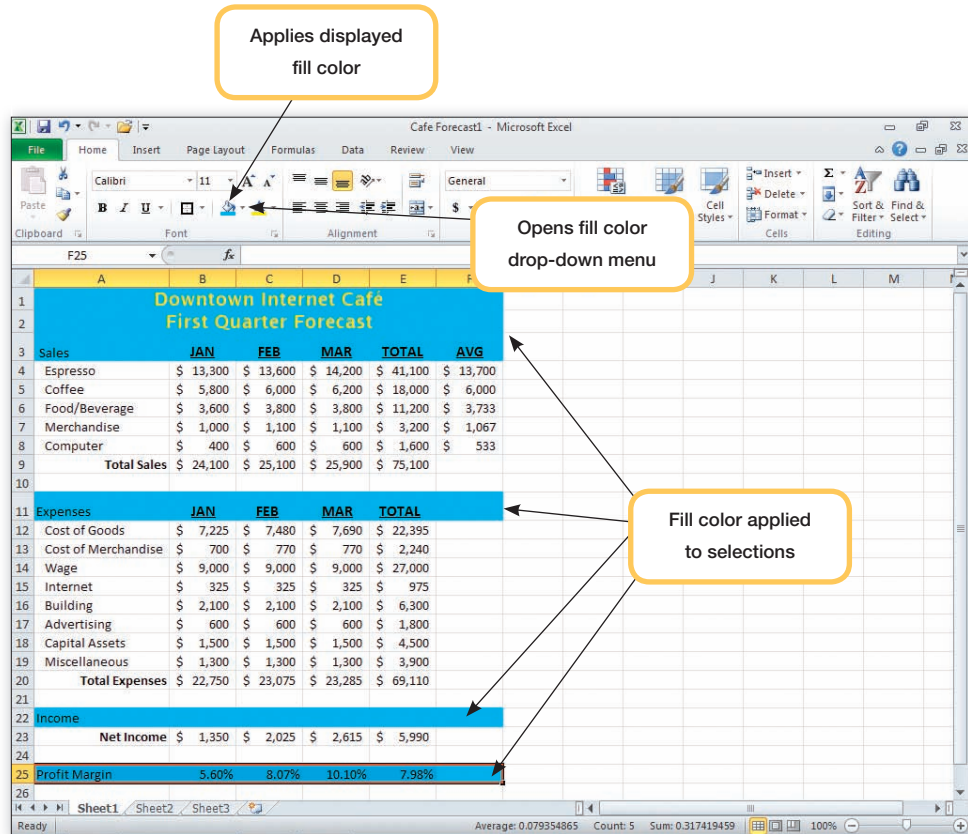
Figure 1.70

Your screen should be similar to Figure 1.70

The color highlight helps distinguish the different areas of the worksheet.

ADDING AND REMOVING CELL BORDERS

Finally, you decide to add a border around the entire worksheet area. Excel includes many predefined border styles that can be added to a single cell or to a range of cells. Then you will make several additional formatting changes to improve the appearance and readability of the worksheet.

1

● **Select the range A1 through F25.**

● **Open the** ⊞ ▾ **Borders drop-down menu in the Font group and choose the Thick Box Border style.**

● **Click outside the range to see the border.**

Your screen should be similar to Figure 1.71
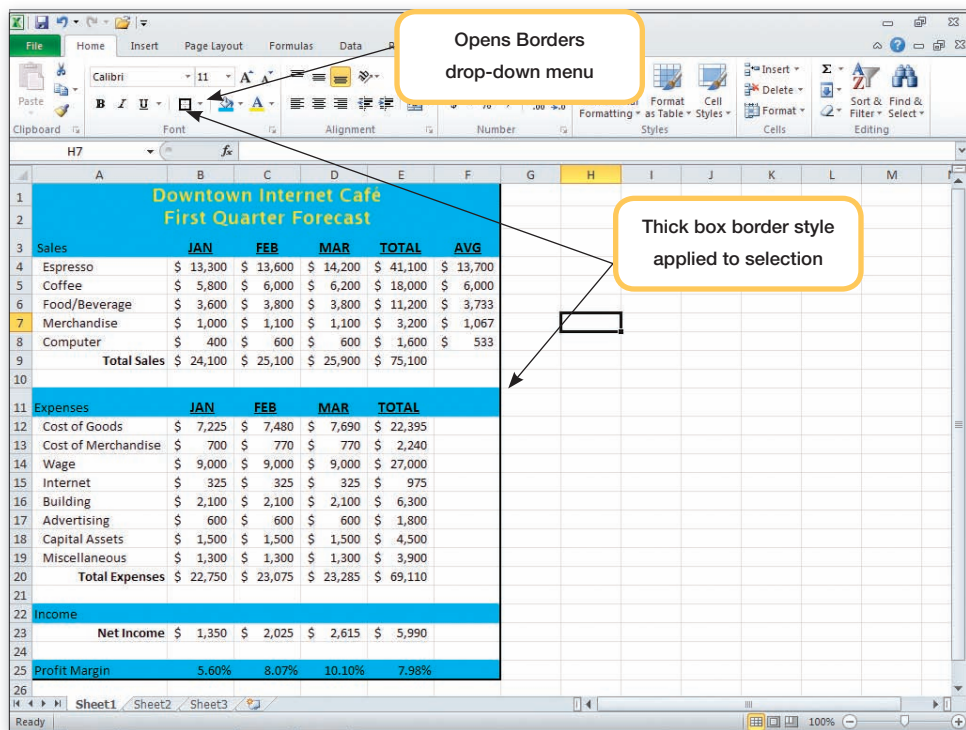
Figure 1.71

The range is considered a single block of cells and the box border surrounds the entire worksheet selection.

When adding borders, the border also is applied to adjacent cells that share a bordered cell boundary. In this case, cells G1 through G26 acquired a left border and cells A27 through F27 acquired a top border. When pasting a cell that includes a cell border, the border is included unless you specify that the paste does not include the border. To see how this works, you will first copy a cell and its border, and then you will copy it again without the border.

2

● **Copy cell A1 and paste it in cell G2.**

● **Move to G4, open the** 📋 Paste **drop-down menu and choose No Borders.**

● **Move to G6 to see the changes.**

Your screen should be similar to Figure 1.72

Figure 1.72

If you want to add additional borders or replace an existing border with another, select the range and then add the border. However, if you want to remove a border style from one area of a selection and add a border to another

Formatting Cells and Cell Content **EX1.67**

area, you need to remove all borders first and then apply the new border styles. You will try these features next on the entry in cell G2.

3

● Move to G2 and choose No Border from the Borders drop-down menu.
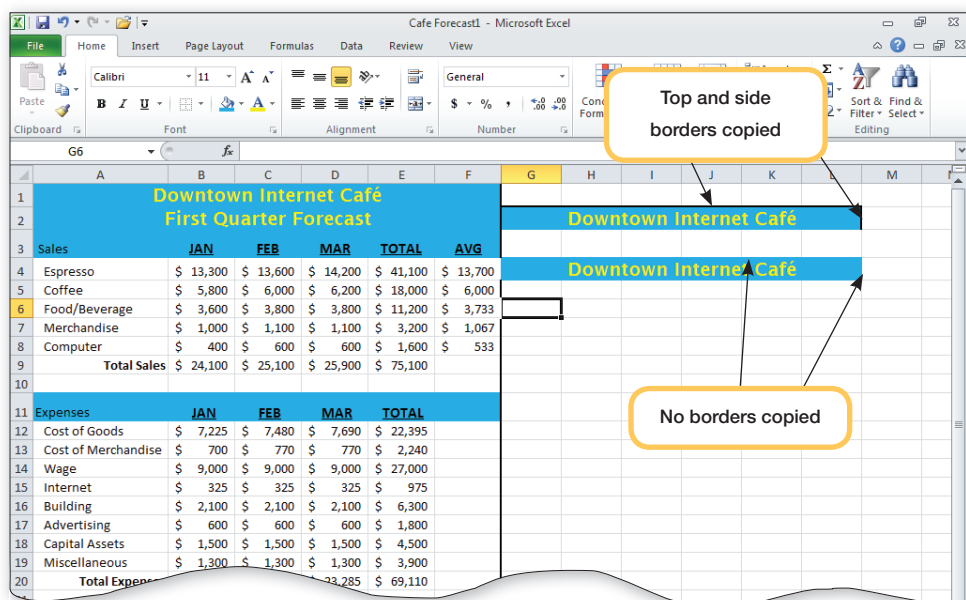
● Apply a Bottom Double Border to the selection.

● Move to G6 to see the changes.

Your screen should be similar to Figure 1.73
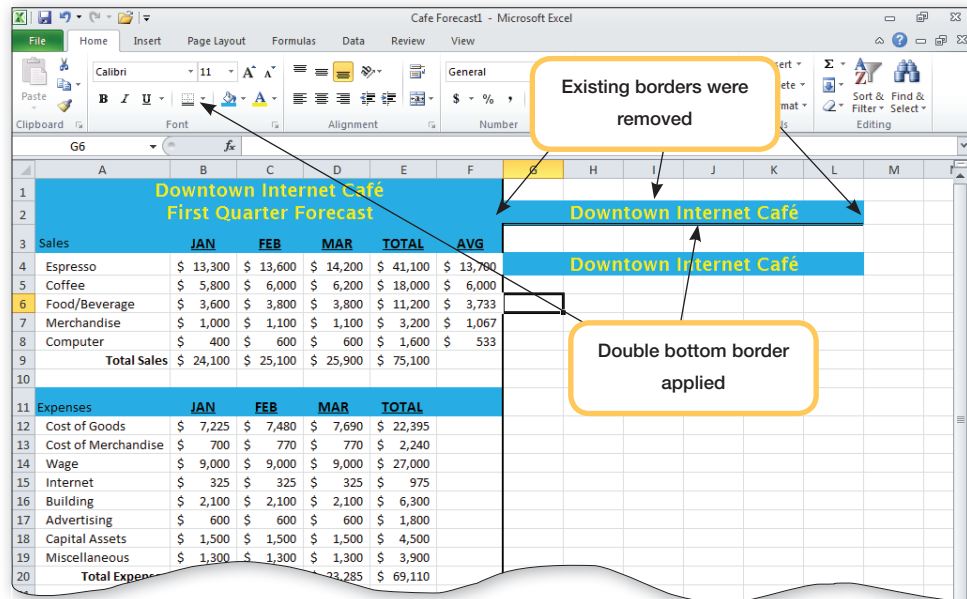
Figure 1.73

All existing borders were removed, including those that share a cell boundary, and the new double bottom border is applied to the selection. You will restore the worksheet to how it was prior to copying the title using Undo and then make some final adjustments to the worksheet.

4

● Undo your last four actions.

● Move to any cell in row 10 and choose Delete Sheet Rows from the Delete ▾ drop-down menu in the Cells group.

● In the same manner, delete the blank rows 20 and 23.

● Add bold and yellow font color to cells A3, A10, A20, and A22.

● Click 🖫 Save to save the worksheet changes.
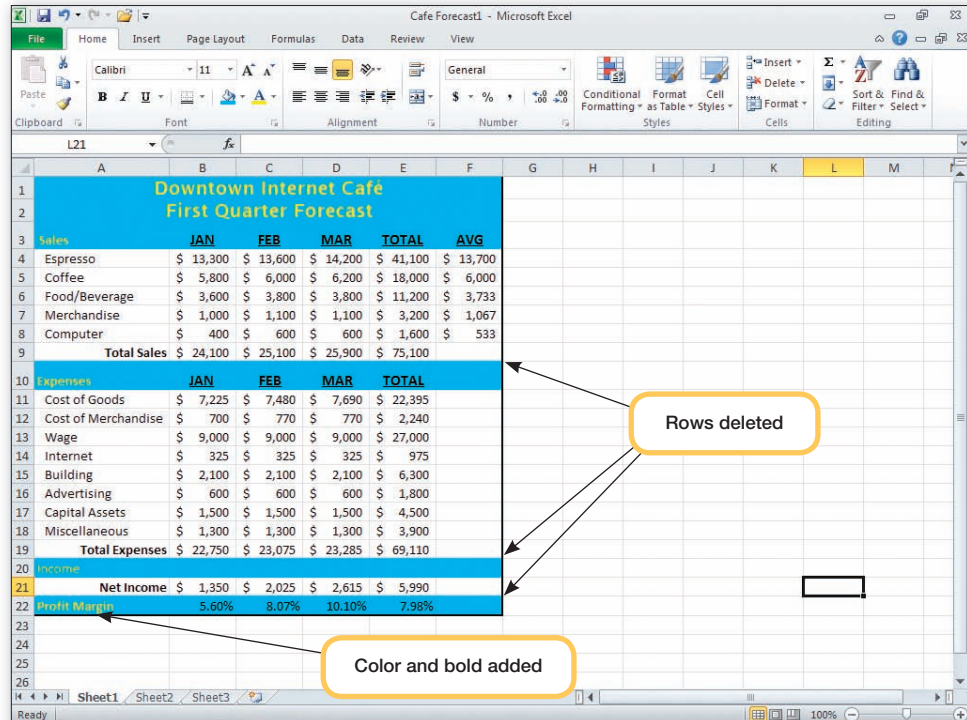
Your screen should be similar to Figure 1.74

Figure 1.74

Hide and Unhide Rows and Columns

Now that the worksheet is nicely formatted, you want to focus on the data. One way to do this is to hide areas of data that you do not want to see in order to emphasize others. You will use this method to emphasize the total data.

1

● **Select columns B through D.**

Additional Information

Any range of cells within the area you want to hide can be selected.

● **Open the**

Format ▾

drop-down menu in the Cells group and select Hide & Unhide.

● **Choose Hide Columns.**

Your screen should be similar to Figure 1.75

Columns B through D hidden
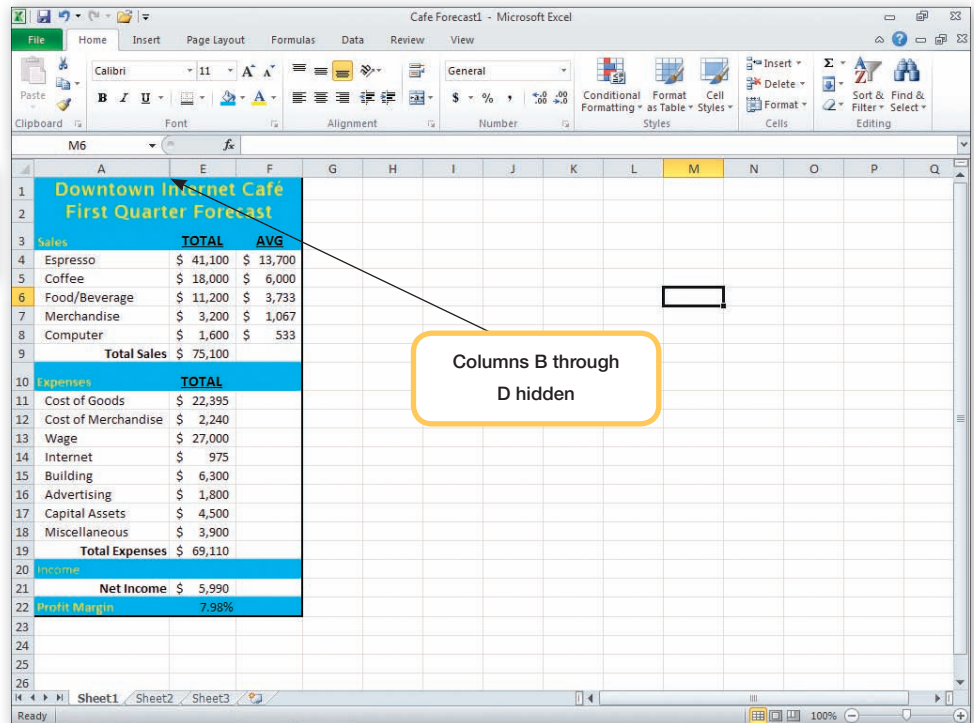
Figure 1.75

Another Method

You could also right-click on the selected columns and choose Hide from the context menu.

Now the worksheet focus is on the monthly total values, not the month values. The columns were hidden by reducing their column width to zero. Instead, you want to hide the rows instead.

2

- Click on column A and drag to select columns A and E.
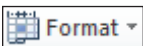
- In the Cells group, Click ⊞ Format ▾ and select Hide & Unhide, and then choose Unhide Columns.

- Select any range of cells within rows 4 through 8.

- Open the ⊞ Format ▾ drop-down menu, select Hide & Unhide and then choose Hide Rows.

- Repeat to hide rows 11 through 18.
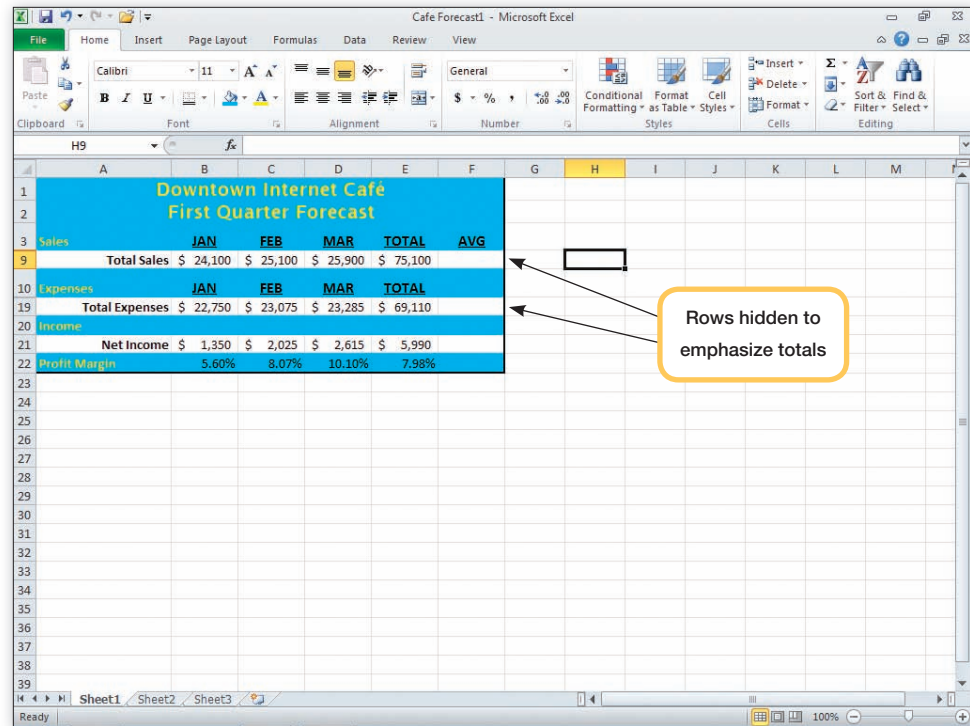
Figure 1.76

Notice how hiding the rows emphasizes the monthly totals by category.

Your screen should be similar to Figure 1.76

3

- Click ↩ Undo twice to unhide the rows.

Creating a Simple Chart

Another way to better understand the data in a worksheet is to create a chart. A **chart** is a visual representation of data that is used to convey information in an easy-to-understand and attractive manner. You decide to create a chart of the sales data for the three months.

SPECIFYING THE DATA TO CHART

To tell Excel what data to chart, you need to select the range containing the data you want to appear in the chart plus any row or column headings you want used in the chart.

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1

● Select cells A3 through D8.

● Hold down the [Alt] key and press [F1].

Your screen should be similar to Figure 1.77
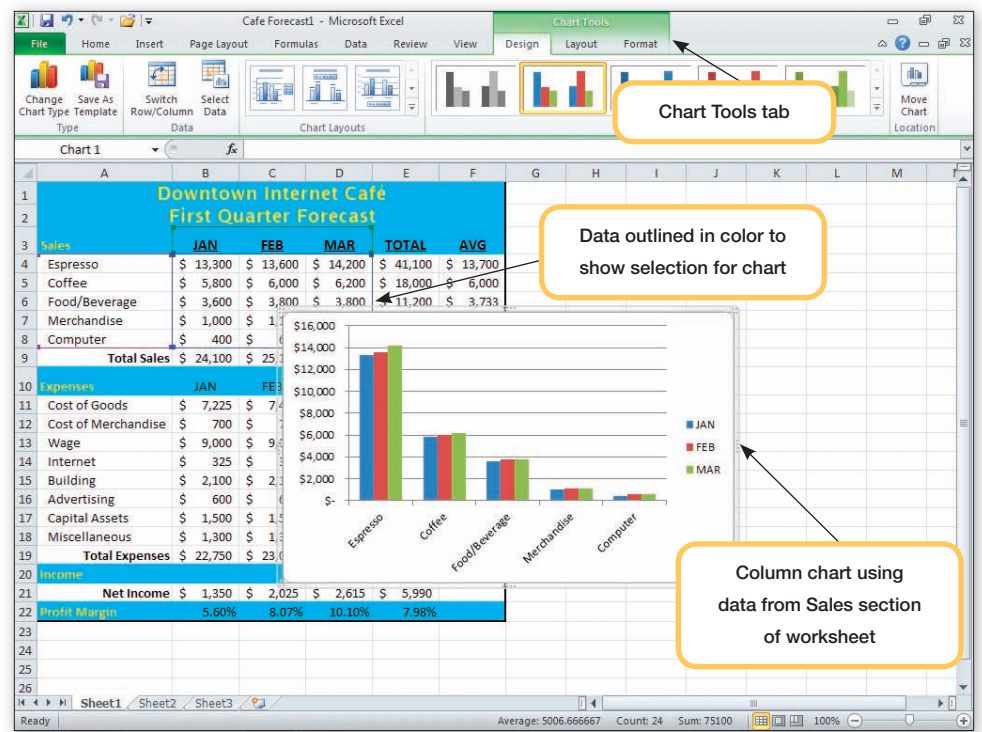
Figure 1.77

Additional information

You will learn all about creating charts in Lab 2.

The information in the selected range was translated into a chart based on the shape and contents of the selection. A column chart showing the sales for the five items over three months was quickly created.

2

● Point to the edge of the chart object and drag to move it below the worksheet to cover rows 24 to 38.

● Click outside the chart object to deselect it.

Formatting Values as a Date

Now that the worksheet is complete, you want to include your name and the date in the worksheet as documentation. There are many ways to enter the date. For example, you could type the date using the format mm/dd/yy or as month dd, yyyy. When a date is entered as text, Excel converts the entry to a numeric entry that allows dates to be used in calculations. Excel stores all dates as **serial values** with each day numbered from the beginning of the 20th century. The date serial values are consecutively assigned beginning with 1, which corresponds to the date January 1, 1900, and ending with 2958465, which is December 31, 9999.

1

- Enter your first and last name in cell A40.

- Type the current date as mm/dd/yy in cell A41.

Your screen should be similar to Figure 1.78

Chart moved

Date displayed in default format
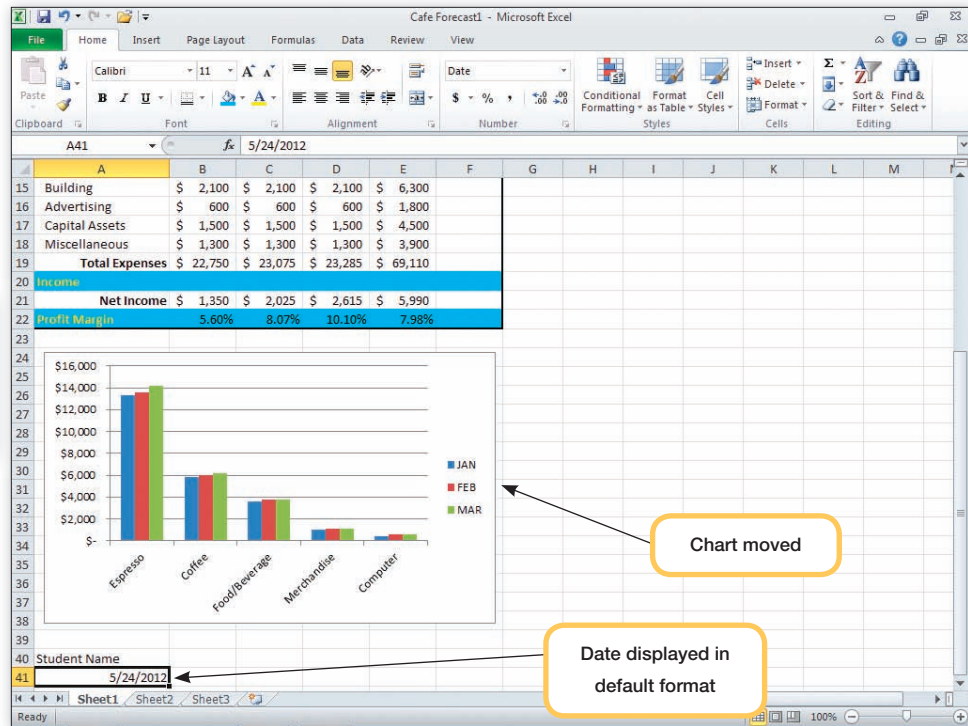
Figure 1.78

The date is displayed using the default date format, which is based on the settings in Windows. It is right-aligned in the cell because it is a numeric entry. You can change the date format in the worksheet without changing the Windows settings using the Format Cells: Number dialog box.

2

- If necessary, move to cell A41.

- Click ▣ in the Number group to open the Format Cells dialog box.

- Choose the month xx, xxxx (March 14, 2001) date format from the Type list.

- Click OK.

Your screen should be similar to Figure 1.79

Date in chosen format
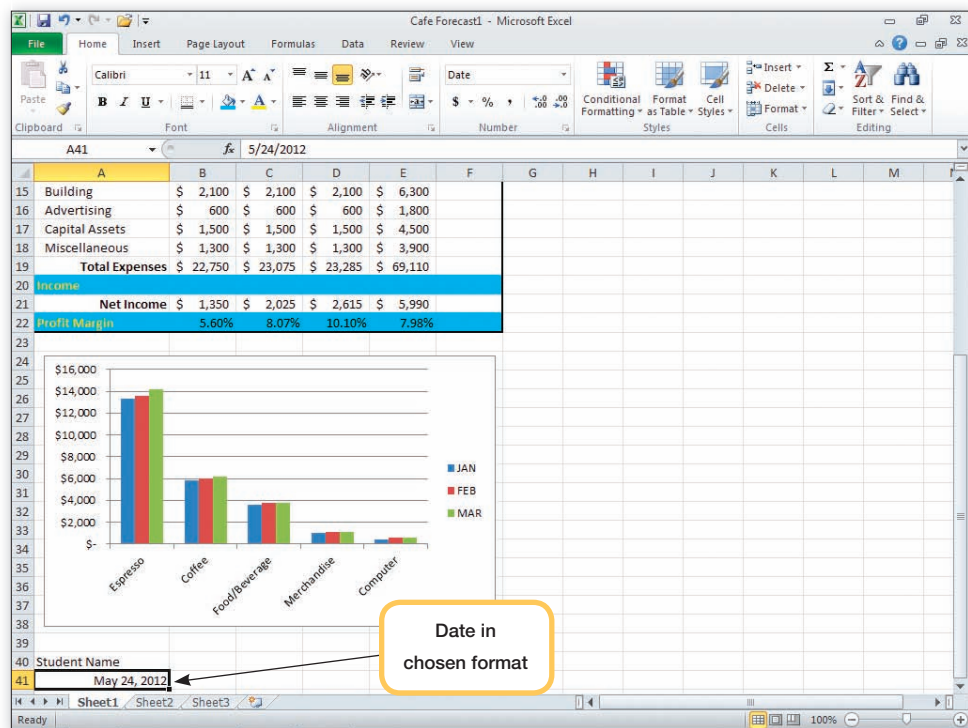
Figure 1.79

The date appears in the specified format.

Documenting a Workbook

You are finished working on the worksheet for now and want to save the changes you have made to the file. In addition, you want to update the file properties to include your name as the author, a title, and keywords.

1

- **Open the File tab.**

- **In the Backstage view Info window enter the following information in the appropriate boxes.**

  Title   **Downtown Internet Café**

  Tags   **Sales Projections**

  Author **Your Name**

Additional Information

The Author text box may be blank or may show your school or some other name. Clear the existing contents first if necessary.
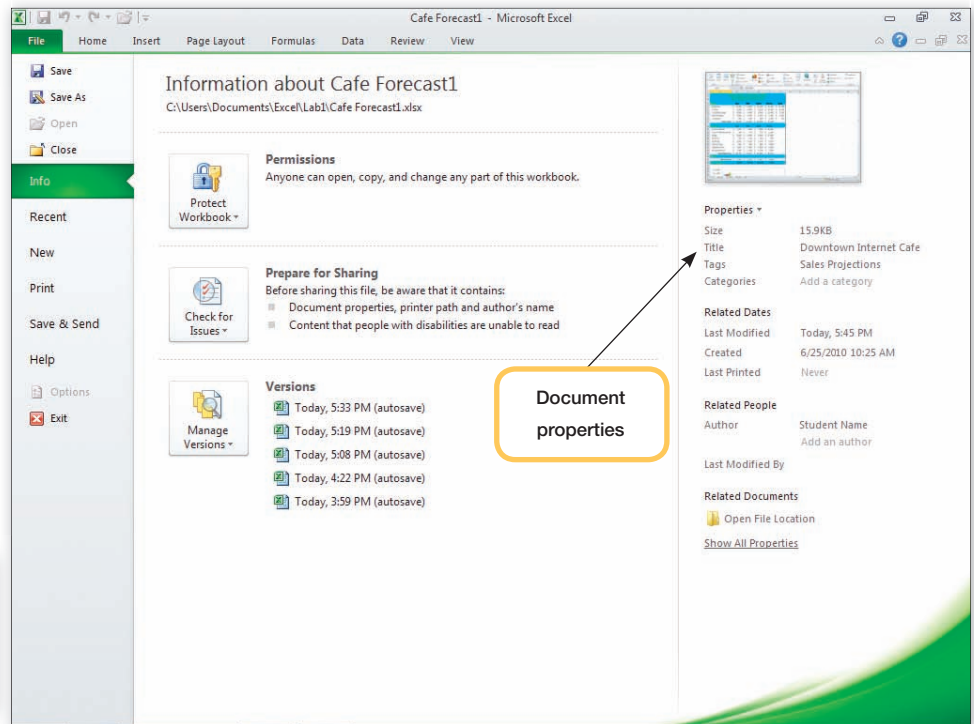
Figure 1.80

Your screen should be similar to Figure 1.80

Previewing and Printing a Worksheet

Although you still plan to make more changes to the worksheet, you want to print a copy of the estimated first-quarter forecast for the owner to get feedback regarding the content and layout.

1

Choose Print and view the preview in the right pane.

Your screen should be similar to Figure 1.81

Additional Information

If you have a monochrome printer, the preview appears in shades of gray, as it will appear when printed.

Print preview

Gridlines do not print
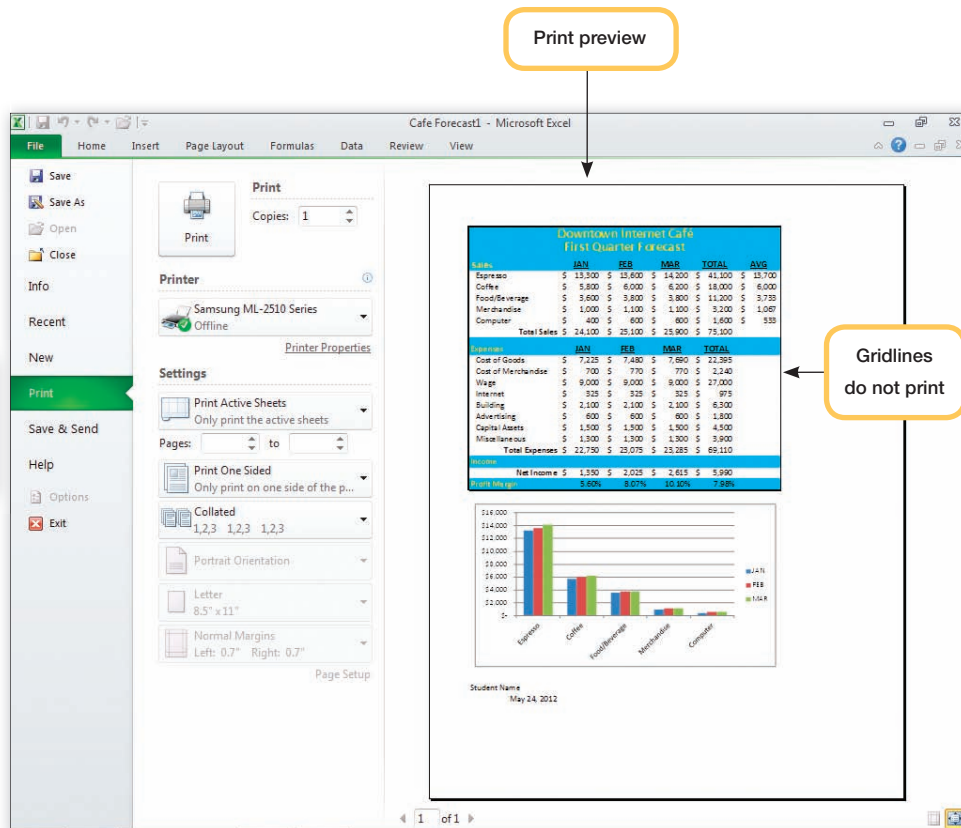
Figure 1.81

Another Method

You also can use the keyboard shortcut Ctrl + P from the worksheet window to open the Print tab of Backstage view.

Additional Information

You can change printer-specific settings, such as color, by clicking Printer Properties and specifying the settings you want in the Printer Properties dialog box.

The preview displays the worksheet as it will appear on the printed page. Notice that the row and column gridlines are not displayed and will not print. This is one of the default worksheet print settings.

The preview of your worksheet may appear slightly different from that shown in Figure 1.81. This is because the way pages appear in the preview depends on the available fonts, the resolution of the printer, and the available colors. If your printer is configured to print in black and white, the preview will not display in color.

The Excel print settings let you specify how much of the worksheet you want printed. The options are described in the following table.

Option	Action
Print Active Sheets	Prints the active worksheet (default)
Print Entire Workbook	Prints all worksheets in the workbook
Print Selection	Prints selected range only
Pages	Prints pages you specify by typing page numbers in the text box

The worksheet looks good and does not appear to need any further modifications immediately. Now you are ready to print the worksheet using the default print settings.

NOTE Please consult your instructor for printing procedures that may differ from the following directions.

Having Trouble?

Refer to the section "Printing a Document" in the Introduction to Microsoft Office 2010 to review this feature.

2

● If necessary, make sure your printer is on and ready to print.

● If you need to change the selected printer to another printer, open the Printer drop-down list box and select the appropriate printer.

● Click [🖶 Print].

The printed copy should be similar to the document shown in the preview area.

When printing is complete, Backstage view is automatically closed. A dotted line may appear between columns G and H. This is the automatic page break line that shows where one printed page ends and the next begins.

DISPLAYING AND PRINTING FORMULAS

Often, when verifying the accuracy of the data in a worksheet, it is helpful to display all the formulas in a worksheet rather than the resulting values. This way you can quickly verify that the formulas are referencing the correct cells and ranges.

1

● Open the Formulas tab.

● Click
[📊 Show Formulas]
in the Formula Auditing group.

Another Method

You also can use [Ctrl] + [`] (accent grave is located to the left of the number 1 key) to toggle between values and formulas.

● Move to B9.

Your screen should be similar to Figure 1.82

Figure 1.82

The display of the worksheet has changed to display unformatted values and the formulas and functions. It has automatically increased the column widths so the formulas and text do not overflow into the adjacent cells.

CHANGING WORKSHEET ORIENTATION AND SCALING CONTENT

Next, you will print the worksheet with formulas. Because the worksheet is so much wider, you will need to change the orientation to landscape, which prints across the length of the paper. Then you will reduce the scale of the worksheet so it fits on one page. The **scaling** feature will reduce or enlarge the wor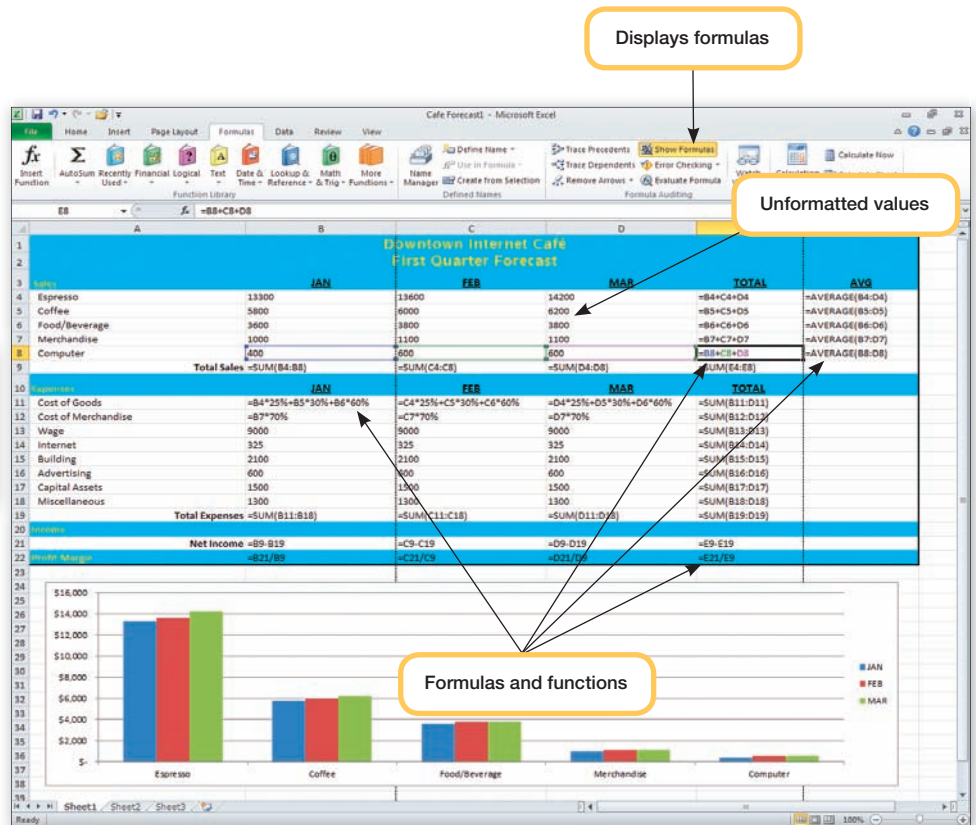ksheet contents by a percentage or to fit it to a specific number of pages by height and width. You want to scale the worksheet to fit on one page.

1

● **Open the File tab and choose Print.**

● **Change the orientation setting to Landscape Orientation.**

● **Open the**

   drop-down menu and choose Fit Sheet on One Page.

Your screen should be similar to Figure 1.83

Page orientation changed to landscape

Worksheet sized to fit on one page

Figure 1.83
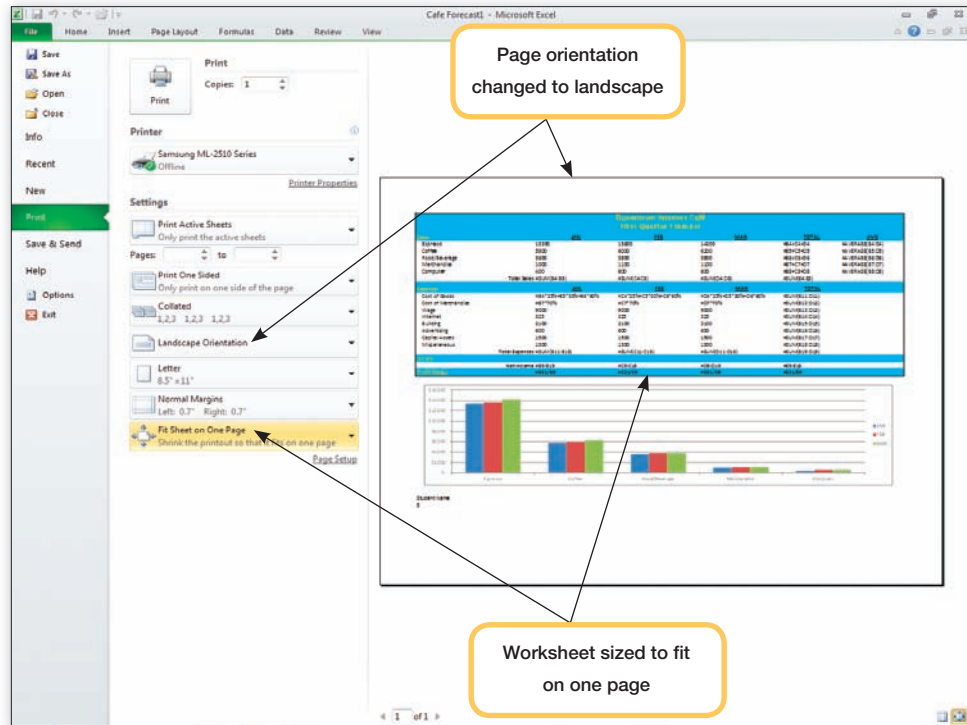
The entire worksheet will easily print across the length of the page when printed using landscape orientation and scaled to fit a single page.

Another Method

You also can scale the worksheet using **Scale:** in the Scale to Fit group of the Page Layout tab and setting the scale percentage.

2

● **Print the worksheet.**

● **Press** Ctrl **+** ` **to return the display to values.**
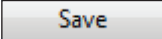
Exiting Excel 2010

You are now ready to exit the Excel application. If you attempt to close the application without first saving the workbook, Excel displays a warning asking whether you want to save your work. If you do not save your work and you exit the application, all changes you made from the last time you saved are lost.

1

- **Move to cell A1.**

- **Click** ☒ **Close (in the application window title bar).**

- **Click** | Save | **to resave the worksheet.**

Additional Information

Excel saves the file with the cell selector in the same cell location it is in at the time it is saved.

Because you added the date since last saving the worksheet, you were prompted to save it again before closing it.

FOCUS ON CAREERS

EXPLORE YOUR CAREER OPTIONS

Fan Coordinator

Did you know that 40 percent of the advertised positions in sports are for marketing and promotion? A marketing graduate hired as a basketball fan coordinator would use Excel to keep track of the income and expenses for coordinated half-time activities at professional sporting events. These worksheets would provide valuable information for promoting sponsors' products and services at games. A fan coordinator might start out as an unpaid intern, but after graduation could expect to earn from $25,000 to $45,000.

Lab 1 CONCEPT SUMMARY | Creating and Editing a Worksheet

Data Entries (EX1.xx)

The basic information or data you enter in a cell can be text or numbers.

AutoCorrect (EX1.xx)

The AutoCorrect feature makes some basic assumptions about the text you are typing and, based on these assumptions, automatically corrects the entry.

Column Width (EX1.xx)

The column width is the size or width of a column and controls the amount of information that can be displayed in a cell.

Column Width

AutoCorrect

Data Entries

Spelling Checker (EX1.xx)

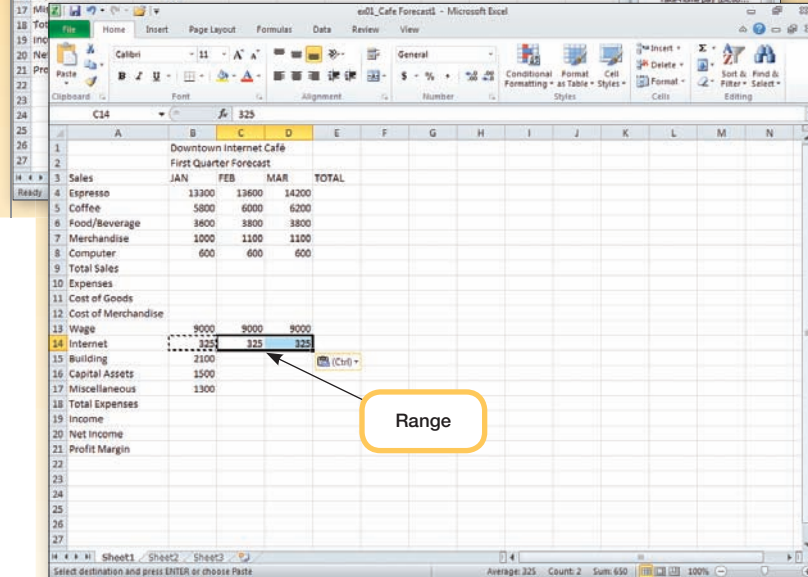The spelling checker locates misspelled words, duplicate words, and capitalization irregularities in the active worksheet and proposes the correct spelling.

Thesaurus (EX1.xx)

The thesaurus is a reference tool that provides synonyms, antonyms, and related words for a selected word or phrase.

Range (EX1.xx)

A selection consisting of two or more cells on a worksheet is a range.

Thesaurus

Spelling Checker

Range

Formula (EX1.xx)

A formula is an equation that performs a calculation on data contained in a worksheet.

Relative Reference (EX1.xx)

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.

Function (EX1.xx)

A function is a prewritten formula that performs certain types of calculations automatically.

Recalculation (EX1.xx)

When a number in a referenced cell in a formula changes, Excel automatically recalculates all formulas that are dependent upon the changed value.

Alignment (EX1.xx)

Alignment settings allow you to change the horizontal and vertical placement and the orientation of an entry in a cell.

Number Format (EX1.xx)

Number formats change the appearance of numbers onscreen and when printed, without changing the way the number is stored or used in calculations.

Concept Summary **EX1.79**
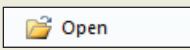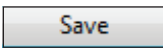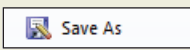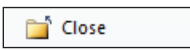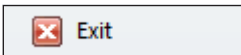
KEY TERMS

active cell EX1.xx
active sheet EX1.xx
adjacent range EX1.xx
alignment EX1.xx
antonym EX1.xx
argument EX1.xx
AutoCorrect EX1.xx
AutoFit EX1.xx
cell EX1.xx
cell reference EX1.xx
cell selector EX1.xx
chart EX1.xx
column EX1.xx
column letter EX1.xx
column width EX1.xx
constant EX1.xx
custom dictionary EX1.xx
data EX1.xx
default EX1.xx
fill handle EX1.xx
formula EX1.xx
formula bar EX1.xx
function EX1.xx
heading EX1.xx
main dictionary EX1.xx
merged cell EX1.xx
Name box EX1.xx
nonadjacent range EX1.xx
number EX1.xx

number format EX1.xx
operand EX1.xx
operator EX1.xx
order of precedence EX1.xx
range EX1.xx
range reference EX1.xx
recalculation EX1.xx
relative reference EX1.xx
row EX1.xx
row number EX1.xx
sans serif EX1.xx
scaling EX1.xx
serial value EX1.xx
serif EX1.xx
sheet EX1.xx
sheet tab EX1.xx
spelling checker EX1.xx
spreadsheet EX1.xx
synonym EX1.xx
syntax EX1.xx
tab scroll buttons EX1.xx
template EX1.xx
text EX1.xx
theme EX1.xx
thesaurus EX1.xx
variable EX1.xx
workbook EX1.xx
workbook window EX1.xx
worksheet EX1.xx

COMMAND SUMMARY

Command		Shortcut	Action
File			
[Open icon]	Open	Ctrl + O	Opens an existing workbook file
[Save icon]	Save	Ctrl + S	Saves file using same file name
[Save As icon]	Save As	F12	Saves file using a new file name
[Close icon]	Close	Ctrl + F4	Closes open workbook file
New		Ctrl + N	Opens a new blank workbook
Print/ [Print icon]		Ctrl + P	Prints a worksheet
Print/ [No Scaling dropdown] /Fit sheet on one page			Scales worksheet to fit on a single page
[Exit icon]		X or Alt + F4	Exits Excel program
Quick Access Toolbar			
[Save icon]	Save	Ctrl + S	Saves document using same file name
[Undo icon]	Undo	Ctrl + Z	Reverses last editing or formatting change
[Redo icon]	Redo	Ctrl + Y	Restores changes after using Undo
Home tab			
Clipboard group			
[Paste icon]		Ctrl + V	Pastes selections stored in system Clipboard
[Cut icon]	Cut	Ctrl + X	Cuts selected data from the worksheet
[Copy icon]	Copy	Ctrl + C	Copies selected data to system Clipboard
[Format Painter icon]	Format Painter		Copies formatting from one place and applies it to another
Font group			
[Calibri dropdown]	Font		Changes text font
[11 dropdown]	Font Size		Changes text size
[B]	Bold	Ctrl + B	Bolds selected text
[I]	Italic	Ctrl + I	Italicizes selected text

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Column Width (EX1.xx)

The column width is the size or width of a column and controls the amount of information that can be displayed in a cell.

Spelling Checker (EX1.xx)

The spelling checker locates misspelled words, duplicate words, and capitalization irregularities in the active worksheet and proposes the correct spelling.

Thesaurus (EX1.xx)

The thesaurus is a reference tool that provides synonyms, antonyms, and related words for a selected word or phrase.

Range (EX1.xx)

A selection consisting of two or more cells on a worksheet is a range.

Column Width

AutoCorrect

Data Entries

Thesaurus

Spelling Checker

Range
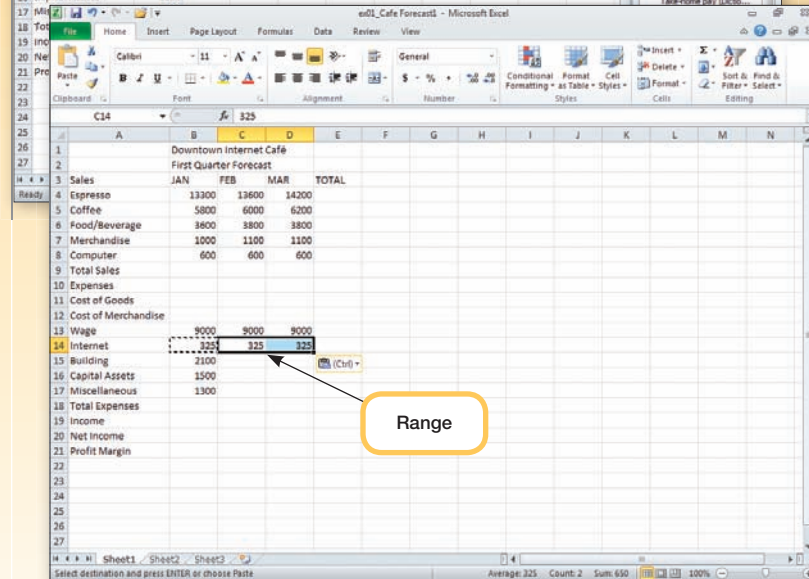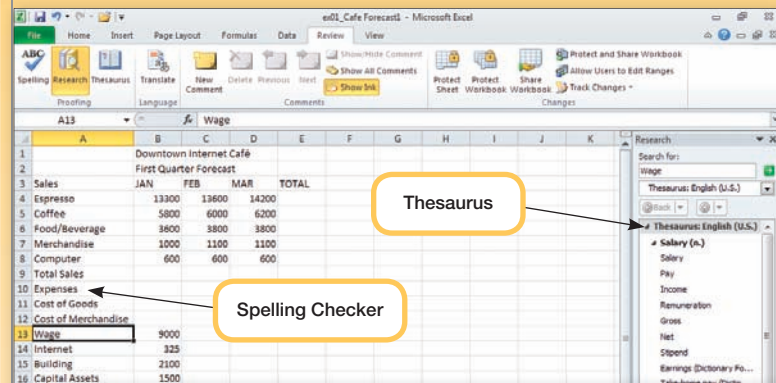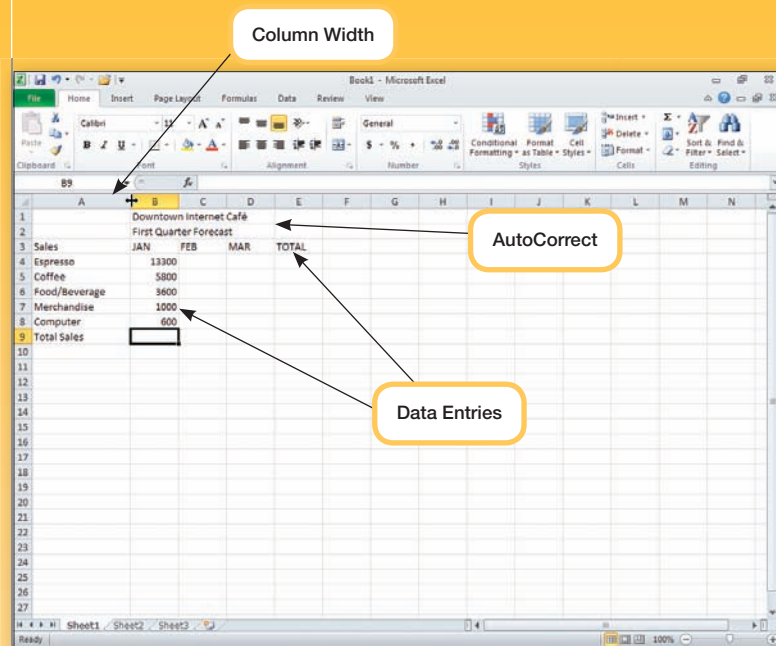
COMMAND SUMMARY (CONTINUED)

Command	Shortcut	Action
Delete ▾ /Delete Sheet Columns		Deletes selected columns, shifting existing columns left
Format ▾ /Row Height		Changes height of selected row
Format ▾ /AutoFit Row Height		Changes row height to match the tallest cell entry
Format ▾ /Column Width		Changes width of selected column
Format ▾ /AutoFit Column Width		Changes column width to match widest cell entry
Format ▾ /Default Width		Returns column width to default width
Editing group		
Σ ▾ Sum		Calculates the sum of the values in the selected cells
Σ ▾ Sum/Average		Calculates the average of the values in the selected range
Σ ▾ Sum/Min		Returns the smallest of the values in the selected range
Σ ▾ Sum/Max		Returns the largest of the values in the selected range
⬇ ▾ Fill/Right	Ctrl + R	Continues a pattern to adjacent cells to the right
✐ ▾ Clear		Removes both formats and contents from selected cells
✐ ▾ Clear/Clear Formats		Clears formats only from selected cells
✐ ▾ Clear/Clear Contents	Delete	Clears contents only from selected cells
Formulas tab		
Formula Auditing group		
Show Formulas	Ctrl + `	Displays and hides worksheet formulas
Review tab		
Proofing group		
ABC Spelling	F7	Spell-checks worksheet
Thesaurus		Opens the Thesaurus for the selected word in the Research task pane

LAB EXERCISES

SCREEN IDENTIFICATION

1. In the following Excel 2010 screen, letters identify important elements. Enter the correct term for each screen element in the space provided.
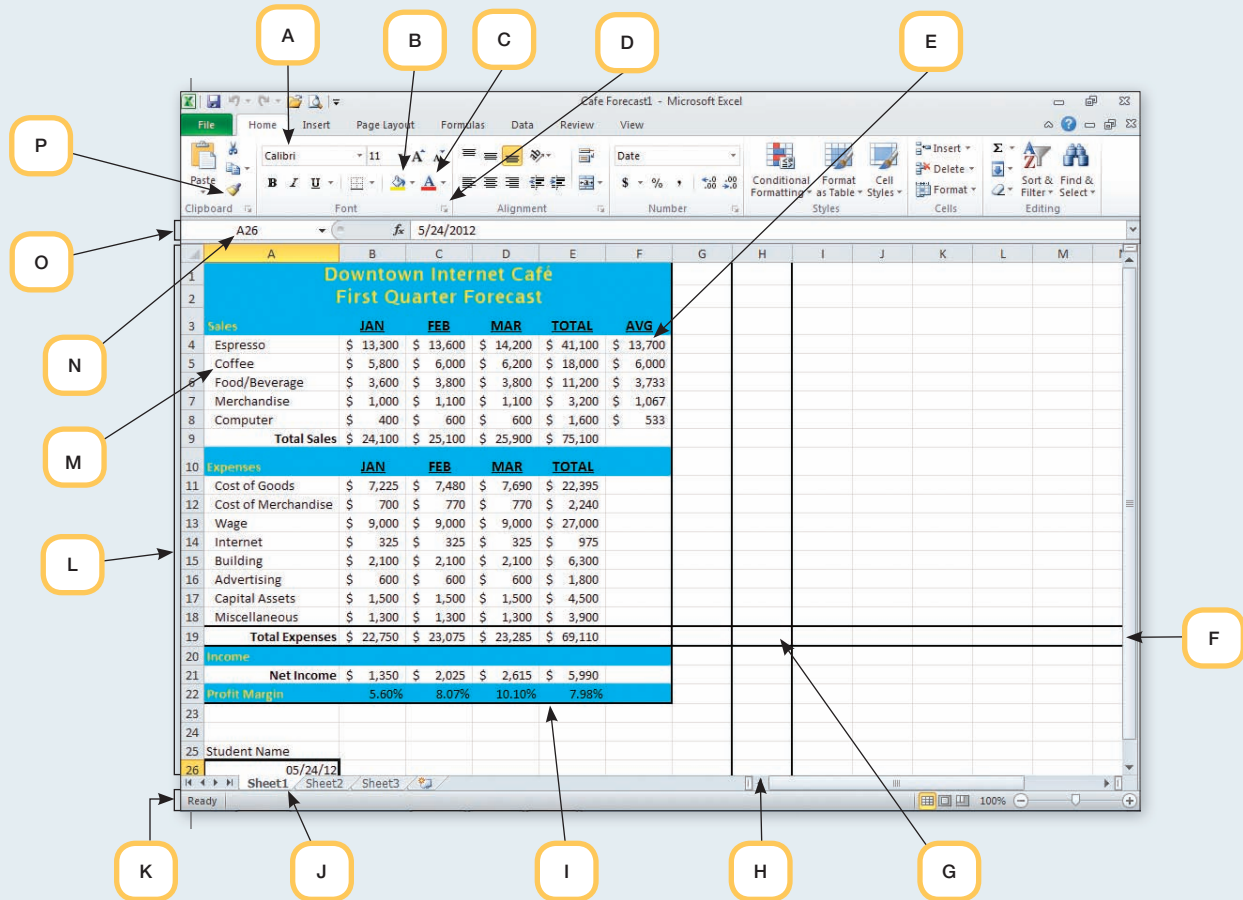
Possible answers for the screen identification are

Column	Workbook window	A. _____	I. _____
Status bar	Cell	B. _____	J. _____
Font color	Formula bar	C. _____	K. _____
Numeric entry	Active sheet	D. _____	L. _____
Fill color	Text label	E. _____	M. _____
Font	Cell reference	F. _____	N. _____
Range	Format painter	G. _____	O. _____
Formula	View buttons	H. _____	P. _____
Row	Border		
Column labels	Sheet tabs		

MATCHING

Match the lettered item on the right with the numbered item on the left.

1.
2. .xlsx
3.
4. chart
5. /
6.
7. =C19*A21
8. D11
9. range
10.
11.

_____ a. an arithmetic operator
_____ b. changes the width of a column
_____ c. a graphic representation of data
_____ d. Excel workbook file name extension
_____ e. two or more worksheet cells
_____ f. enters a SUM function
_____ g. adds a cell border
_____ h. merges cells and centers entry
_____ i. a formula multiplying the values in two cells
_____ j. a cell reference
_____ K. format painter

TRUE/FALSE

Circle the correct answer to the following questions.

1. Number formats affect the way that numbers are used in calculations.   True   False
2. Charts are visual representations of the data in a worksheet.   True   False
3. A colon is used to separate cell references in nonadjacent ranges.   True   False
4. A function is a prewritten formula that performs a calculation.   True   False
5. The default column width setting is 10.12.   True   False
6. When a formula containing relative references is copied, the cell references
   in the copied formula refer to the same cells that are referenced in the
   original formula.   True   False
7. An adjacent range is two or more selected cells or ranges that are adjoining. True   False
8. The spell checker can only find misspelled words if they are entered
   in the main dictionary.   True   False
9. Recalculation is one of the most powerful features of electronic worksheets. True   False
10. Cell alignment allows you to change the horizontal and vertical placement
    and the orientation of an entry in a cell.   True   False

LAB EXERCISES

FILL-IN

Complete the following statements by filling in the blanks with the correct key terms.

1. Cells or ranges that are included in the same selection but are not located next to each other are part of a(n) _____.

2. _____ are integers assigned to the days from January 1, 1900, through December 31, 2099, that allow dates to be used in calculations.

3. The _____ displays the cell selector and will be affected by the next entry or procedure.

4. A(n) _____ window is used to display an open workbook file.

5. By default, text entries are _____-aligned and number entries are _____-aligned.

6. A(n) _____ entry is used to perform a calculation.

7. The _____ function automatically adds all the numbers in a range of cells.

8. A(n) _____ is a rectangular grid of rows and columns.

9. The _____ dictionary holds words the user enters that are not included in the main dictionary.

10. A(n) _____ cell is a cell made up of several selected cells combined into one.

MULTIPLE CHOICE

Circle the correct response to the questions below.

1. _____ entries can contain any combination of letters, numbers, spaces, and any other special characters.
   a. Number
   b. Variable
   c. Constant
   d. Text

2. The _____ is a small black square, located in the lower-right corner of the selection, used to create a series or copy to adjacent cells.
   a. sheet tab
   b. fill handle
   c. scroll box
   d. sizing handle

3. Rotating entries, using color, and using character effects are three ways to _____.
   a. emphasize information
   b. create reports
   c. perform calculations
   d. update spreadsheets

4. The amount of information that is displayed in a cell is determined by the _____.
   a. column size
   b. row size
   c. column width
   d. row height

5. Which of the following is a valid Excel formula?
   a. =(5 + 8)(2 + 1)
   b. 5 + 8*2 + 1
   c. =5 + 8(2 + 1)
   d. =(5 + 8)*(2 + 1)

6. Whenever a formula containing _____ references is copied, the referenced cells are automatically adjusted.
   a. relative
   b. automatic
   c. fixed
   d. variable

7. The _____ feature in Excel automatically inserts proper capitalization at the beginning of sentences and in the names of days of the week.
   a. AutoName
   b. AutoCorrect
   c. CorrectWords
   d. Word Wrap

8. The Currency number format can display _____.
   a. dollar signs
   b. commas
   c. decimal places
   d. all of the above

9. When a number in a referenced cell is changed, all the formulas that use the cell reference are _____.
   a. recalculated
   b. reformatted
   c. redefined
   d. left unchanged

10. The _____ is a reference tool that provides synonyms and related words for a selected word.
    a. synonym locator
    b. thesaurus
    c. spelling checker
    d. research book

STEP-BY-STEP

TEENAGE CELL PHONE USAGE DATA ANALYSIS ★

1. Mary Collins works for a cell phone company. She's been asked to analyze data gathered in a survey of teenage cell phone users to find possible service packages for the company to offer. After following the directions below to complete the worksheet, your solution will be similar to that shown here.

Teenage Cell Phone Usage

	Never	Sometimes	A Lot
Email	5,340	10,832	1,693
Instant Message	508	3,164	14,209
Listen to Music	2,455	7,271	8,163
Shop Online	9,857	6,439	1,153
Online Banking	2,894	10,847	4,016
Get News	4,816	7,391	5,548
Web Surf	4,231	5,939	7,602
Watch Videos	3,865	6,242	7,571
Get Directions	8,426	5,887	3,489
Check Sports Scores	12,940	3,142	1,640

Student Name
6/12/2012
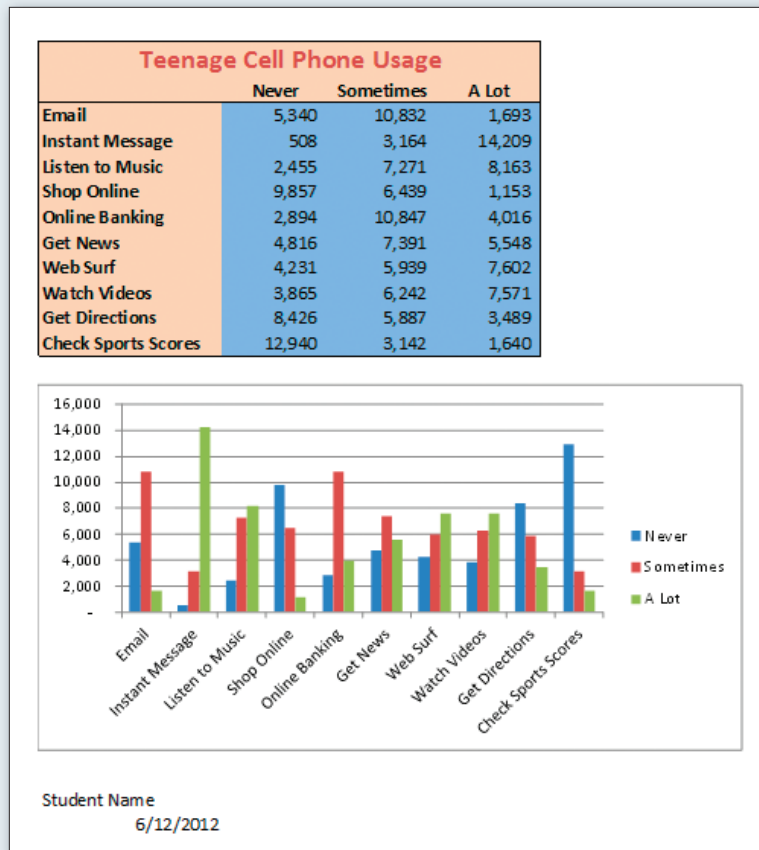
a. Open an Excel 2010 workbook.

b. Enter the data here into the spreadsheet.

Row	Col A	Col B	Col C	Col D
1		Never	Sometimes	A Lot
2	Email	5340	10832	1693
3	Instant Message	508	3164	14209
4	Listen to Music	2455	7271	8163
5	Shop Online	9857	6439	1153
6	Online Banking	2894	10847	4016
7	Get News	4816	7391	5548
8	Web Surf	4231	5939	7602
9	Watch Videos	3865	6242	7571
10	Get Directions	8426	5887	3489
11	Check Sports Scores	12940	3142	1640

c. AutoFit the width of column A. Insert a new row above row 1.

d. In cell A1, enter the worksheet title **Teenage Cell Phone Usage**.

e. Merge and center the worksheet title over columns A through D.

f. Change the font in cell A1 to 16 points.

g. Bold the column labels in row 2 and the row labels in column A.

h. Add an outside border around A1 through D2, and another around A3 through D12.

i. Center the column headings and data in cells B2 through D12. AutoFit column C.

j. Apply the comma number format with zero decimal places to the data in B3 through D12.

k. Add fill color of your choice, using one color for rows 1 and 2 and the row labels in column A and a different color for cells B3 through D12. Change text color for readability if needed. Add font color of your choice and bold to the worksheet title.

l. Create a chart using the data in the worksheet, and move the chart to row 14.

m. Type your name in cell A30 and the date in cell A31.

n. Save the workbook as Teenage Cell Phone Usage to your solution file location. Print the worksheet.

LAB EXERCISES

ANIMAL RESCUE FOUNDATION ADOPTION ANALYSIS ★

2. Edward Corwin works for the Animal Rescue Foundation. One of his responsibilities is to collect and analyze data on the animals that enter the shelters. He has compiled a list of the cost of housing animals by the local shelters for the past four years. After following the directions below to complete the worksheet, your solution will be similar to that shown here.

   a. Open the workbook ex01_Animal Housing. Spell check the worksheet and correct any misspelled words.

   b. Modify the title in cell B2 so the first letter of each word is capitalized. Increase the font size to 14 point and change the row height to 22.5. Merge and center both title lines across columns A through E.

   c. Bold and center the headings in row 5. Format cells B5 and C5 to text. Insert a blank row above row 6.

   d. In row 17, enter a function to total the data under the 2009 column and a function to total the data under the 2010 column.

   e. Format the numbers in rows 7 and 17 using the Accounting style with zero decimal places. Format the numbers in rows 8 through 16 using the Comma style with zero decimal places.

   f. Adjust the column widths so all the data is fully displayed. Insert a blank row above row 17.

Animal Angels Housing Analysis
Years 2009 through 2012

	2009	2010	2011	2012
Nobody's Pets	$ 127,000	$ 154,200	$ 142,600	$ 152,800
Pets Unlimited	154,500	251,000	213,500	220,300
ASPCA	129,100	154,300	148,500	142,400
FOCAS	14,500	19,200	12,500	14,700
Wood Green Animal Shelter	2,300	2,500	2,200	4,200
Pet Where Shelter	1,200	1,500	1,400	1,600
New River Animal Shelter	11,200	1,530	11,700	10,500
New Pet Shelter	19,300	19,900	18,900	25,300
City of Dogs Shelter	10,200	11,500	14,200	13,500
Humane World	29,100	12,500	26,700	29,900
Total	$ 498,400	$ 628,130	$ 592,200	$ 615,200

Student Name
August 3, 2012

g. Edward has just received the information for the last two years. Enter the following data in the cells indicated.

Row	Col D	Col E
5	2011	2012
7	142600	152800
8	213500	220300
9	12500	14700
10	2200	4200
11	1400	1600
12	148500	142400
13	11700	10500
14	18900	25300
15	14200	13500
16	26700	29900

h. Format the column heads to match the style of the corresponding information in columns B and C.

i. Copy the Total function in cell B18 to calculate the total for each of the new years. Increase the indent in cell A18

j. Add font and fill colors to the worksheet as you like.

k. Add a thick box border around A1through E18.

l. Move the row of ASPCA data to above the row of FOCAS data.

m. Delete the word "Shelter" in cell A5.

n. Next you want to create a chart showing the annual data for the three largest shelter groups. Select the range A5 through E9 and create a chart displaying the data. Move the chart to cell A20.

o. Enter your name in cell A35 and the current date in cell A36. Format cell A36 to display the month, day, and year (March 14, 2001) date format.

p. Move to cell A1. Save the workbook as Animal Housing Analysis to your solution file location. Preview and print the worksheet.

q. Print the worksheet with formulas using landscape orientation so that it fits on one page.

LAB EXERCISES

HURRICANE ANALYSIS WORKSHEET ★

3. Mary Ellen is a manager for an insurance agency. One of her responsibilities is to collect and analyze data on weather conditions in geographical areas. She has compiled a list of hurricanes from the National Weather Service. After following the directions below to complete the worksheet, your solution will be similar to that shown here.

   a. Open the workbook ex01_US Hurricanes. Spell check the worksheet and correct any misspelled words.

   b. Modify the title in cell A1 so the first letter of each word is capitalized, except "by." Merge and center the two worksheet titles across columns A through I. Increase the font size to 12 point. Bold the titles.

   c. Enter the heading **% Major to All** in cell I3 and increase the widths of columns H and I to fully display their headings.

   d. Merge and center cells A3 and A4. Merge and center cells I3 and I4.

   e. Adjust the width of column A so all the data is fully displayed.

   f. Insert new rows above row 1 and below row 3.

   g. Bold the titles in rows 5 and 6. Merge and center cells B5:H5. Underline and center the titles in cells B6 through H6.

   h. Enter the formula **=H7/G7** in cell I7. Copy the formula down column I for the rest of the states. Format the numbers in column I as a percent with one decimal place.

   i. Center the data in cells B7 through I33.

   j. Add font and fill colors to the worksheet as you like.

   k. In the All column, locate the four states with the highest percent of major hurricanes and fill the cells containing the percentages with a different fill color.

   l. In cells K7 through K10, enter the names of the four states with the highest percent of major hurricanes. In cells L7 through L10, enter the corresponding numbers. Enter "Total Hurricanes" in cell L6. Add color to the cells to match the data.

   m. Create a chart using the data in the table you just created and move it cell J12.

   n. Enter your name and the current date on separate rows just below the chart. Format the date to display the month, day, and year (March 14, 2001) date format.

   o. Move to cell A1. Save the workbook as US Hurricanes Analysis to your solution file location. Print the worksheet in landscape orientation on one page.
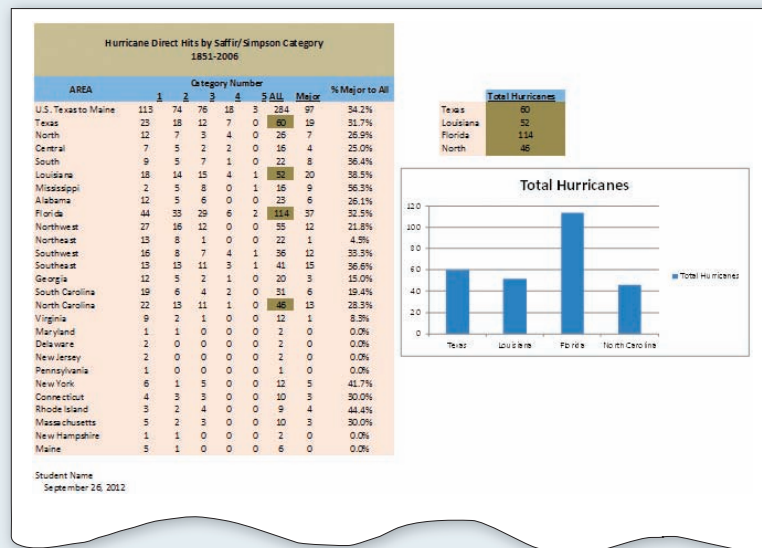
COMPARATIVE MEDIAN INCOME FOR FOUR-PERSON FAMILIES ★★★

4. Terrence Lewis works for an employment agency and needs to provide information about salaries in different states for his clients. He has started a worksheet with data from the years 2006–2008. After following the directions below to complete the worksheet, the first page of your solution will be similar to that shown here.

a. Open the workbook ex01_Family Income. Spell check the worksheet and correct any misspelled words.

b. Edit the title in cell A1 by capitalizing the first letter of each word except the word "by" and by deleting the comma following "income." Merge and center the title across columns A through F. Increase the font size to 12, and bold and apply a font color of your choice to the title.

c. Center-align and underline the column headings in row 2. Adjust the width of column A to fully display the labels. Insert blank rows above and below the title.

d. Right-align cells B5 through D56 and format the cells as Accounting with zero decimal places.

e. Enter the heading **Average** in cell E4. Center and underline the heading. Calculate the average income in cell E5 using the function =Average(B5:D5). Copy the formula to cells E6 through E56.

f. Next, you would like to calculate the percent of change from 2006 to 2008. Enter the heading **% Change** in cell F4. Center and underline the title. Enter the formula **=(D5–B5)/D5** in cell F5. Format the cell as a percentage with two decimal places. Copy the formula to cells F6 through F56.

g. AutoFit columns B through F.

h. Add font and fill colors to the worksheet as you like. Locate the state with the highest positive % change and the state with the highest negative % change. Surround their entire rows with a box border and a different fill color.

i. Enter your name and the current date on separate rows just below the last lines. Format the date to day, month, year (14-Mar-01) date format.

Median Household Income by State

	2006	2007	2008	Average	% Change
United States	48,201	50,233	50,303	49,579	4.18%
Alabama	37,952	42,212	44,476	41,547	14.67%
Alaska	56,418	62,993	63,989	61,133	11.83%
Arizona	46,657	47,215	46,914	46,929	0.55%
Arkansas	37,057	40,795	39,586	39,146	6.39%
California	55,319	55,734	57,014	56,022	2.97%
Colorado	55,697	61,141	60,943	59,260	8.61%
Connecticut	62,404	64,141	64,682	63,742	3.52%
Delaware	52,438	54,589	50,702	52,576	-3.42%
District of Columbia	48,477	50,783	55,590	51,617	12.80%
Florida	45,676	45,794	44,857	45,442	-1.83%
Georgia	49,344	48,641	46,227	48,071	-6.74%
Hawaii	60,470	64,022	61,521	62,004	1.71%
Idaho	46,213	49,184	47,420	47,606	2.55%
Illinois	48,671	52,506	53,254	51,477	8.61%
Indiana	45,407	47,453	46,520	46,460	2.39%
Iowa	48,126	48,908	50,142	49,059	4.02%
Kansas	45,552	48,497	47,877	47,309	4.86%
Kentucky	39,485	39,452	41,148	40,028	4.04%
Louisiana	36,488	41,313	39,563	39,121	7.77%
Maine	45,642	47,894	47,228	46,921	3.36%
Maryland	63,668	65,630	63,711	64,336	0.07%
Massachusetts	55,330	58,463	60,320	58,038	8.27%
Michigan	48,647	49,370	49,788	49,268	2.29%
Minnesota	56,211	58,058	54,925	56,398	-2.34%
Mississippi	34,733	37,279	36,446	36,153	4.70%
Missouri	44,579	46,005	46,038	45,541	3.17%
Montana	41,105	43,655	42,900	42,553	4.18%
Nebraska	48,145	49,174	50,728	49,349	5.09%
Nevada	52,282	54,058	54,744	53,695	4.50%
New Hampshire	61,970	67,576	66,176	65,241	6.36%
New Jersey	68,059	60,508	65,306	64,624	-4.22%
New Mexico	40,028	44,356	42,102	42,162	4.93%
New York	48,222	48,944	50,461	49,209	4.44%
North Carolina	39,797	43,513	42,930	42,080	7.30%
North Dakota	41,047	47,205	49,631	45,961	17.30%
Ohio	45,900	49,099	46,934	47,311	2.20%
Oklahoma	38,838	43,216	46,111	42,722	15.77%
Oregon	47,091	50,236	51,727	49,685	8.96%
Pennsylvania	48,477	48,437	51,402	49,439	5.69%
Rhode Island	53,736	54,210	53,241	53,729	-0.93%
South Carolina	39,617	44,213	42,155	41,995	6.02%
South Dakota	45,427	46,418	51,600	47,815	11.96%
Tennessee	40,693	41,195	39,702	40,530	-2.50%
Texas	43,307	46,053	46,490	45,283	6.85%
Utah	54,628	53,529	62,537	56,898	12.65%
Vermont	51,981	47,390	50,706	50,026	-2.51%
Virginia	57,119	59,161	61,985	59,422	7.85%
Washington	54,723	58,080	56,631	56,478	3.37%
West Virginia	38,419	42,091	37,994	39,501	-1.12%
Wisconsin	51,692	51,277	51,200	51,390	-0.96%
Wyoming	47,041	48,744	53,337	49,707	11.80%

Student Name

19-Jan-11

Data from US Census http://www.census.gov/hhes/www/income/histino/inchhtoc.html

j. Move to cell A1. Save the workbook as Family Income to your solution file location. Change page size to legal to fit on one page, and print the worksheet.

k. Print the worksheet again with formulas on one page using landscape orientation.

PECAN GROVES HOMEOWNERS ASSOCIATION ★★★

5. The Pecan Groves Homeowners Association is planning a large building project and wants to project how much there is likely to be in the cash budget after expenses. Using last year's final budget numbers, you will create a projected budget for 2012. After following the directions below to complete the worksheet, your solution will be similar to that shown here.

a. Open the workbook file ex01_ Pecan Groves Budget. Spell check the worksheet and correct any misspelled words.

b. Change the font type, size, and color and fill color of the three worksheet title lines to a format of your choice. Merge and center the titles across columns A through E.

c. Set the width of column A to 25. Insert a column between columns B and C. Merge and center cell B5 across columns B and C. Merge and center cell D5 across columns D and E. Set the fill color of cells B5 and D5 to match the fill color in the titles.

d. Center the text in cell A6 and change the font color and fill color to a color of your choice. Apply the same formats to cell A13.

e. Right-justify the text in cells A12 and A25. Indent the text in cells A19:A23. Indent the text in cell A23 again. Move the data in cells B14:B17 to C14:C17. Move the data in cell B24 to C24.

f. In cell C12, sum the income data. In cell C23, sum the maintenance expenditure data. In cell C25, sum all the expenditures items. In cell C27, enter a formula to calculate the ending cash balance. (Hint: =C12-C25)

g. Each of the 2012 Income items is projected to increase by 6 percent over the previous year. Enter a formula in cell D7 to calculate the increase in cash on hand. (Hint: =B7*1.06) Copy this formula down column D to the other Income items. Enter the appropriate function into cell E12 to calculate the 2012 total income value.

Pecan Groves Homeowners Association Projected Budget for 2012				
	2011		2012	
Income				
Cash on hand	$	16,701	$	17,703
Funds		2,200		2,332
Member Dues		219,500		232,670
Transfer Fees		1,700		1,802
Interest - savings		1,200		1,272
Total Income		$ 241,301		$ 255,779
Expenditures				
Administration		$ 120,000		$ 134,400
Insurance		16,000		17,920
Audit & Tax Preparation		21,200		23,744
Lawyer		27,000		30,240
Maintenance				
Street Repair	$	2,700	$	3,105
Street Cleaning		1,582		1,819
Snow Removal		550		633
Street Signs		4,985		5,733
Total Maintenance		9,817		11,290
Miscellaneous		3,000		3,360
Total Expenditures		$ 197,017		$ 220,954
Ending Cash Balance		$ 44,284		$ 34,826

Student Name
7/6/2012

h. Each of the 2012 expenditure items except for the maintenance expenditures is projected to increase by 12 percent over the previous year. Enter the appropriate formulas in column E to reflect this change. Each maintenance expense is projected to increase 15 percent. Enter the appropriate formulas in column D. Enter the appropriate function in cell E23 to calculate the total maintenance expenses. Use formulas to calculate the value for 2012's total expenditures and ending cash balance.

i. Format cells B7, B19, C12, C14, C25, C27, D7, D19, E12, E14, E25, and E27 as Accounting with zero decimal places. Format all other cells containing numbers except for B5 and D5 to comma with zero decimal places. Set the column widths of columns B through E to 12. Fill the cells A27:E27 with the same fill color used for the titles. Delete column F. Surround the entire worksheet with a thick box border.

j. Enter your name and the current date on separate rows just below the worksheet.

k. Save the workbook file as Pecan Groves Budget to your solution file location. Print the worksheet.

l. Print the worksheet again with formulas using landscape orientation.

ON YOUR OWN

TRACKING YOUR CALORIES ★

1. A worksheet can be used to track your calories for the day. Design and create a worksheet to record the food you consume and the exercise you do on a daily basis. The worksheet should include your food consumption for all meals and snacks and the activities you performed for a week. Use the Web as a resource to find out the calorie values for the items you consumed, or refer to the calorie information on the product packaging, and to find out the caloric expenditure for the exercises you do. Include an appropriate title, row and column headings, and formulas to calculate your total calorie intake and expenditure on a daily basis. Include a formula to calculate the percent deviation from your recommended daily calorie intake. Format the worksheet appropriately using features presented in this lab. Enter real or sample data. Include your name and date above the worksheet. Spell check the worksheet. Save the workbook as Calorie Tracking and print the worksheet.

LAB EXERCISES

CREATING A PERSONAL BUDGET ★

2. In a blank Excel 2010 workbook, create a personal three-month budget. Enter an appropriate title and use descriptive labels for your monthly expenses (food, rent, car payments, insurance, credit card payments, etc.). Spell check your worksheet. Enter your monthly expenses (or, if you prefer, any reasonable sample data). Use formulas to calculate total expenses for each month and the average monthly expenditures for each expense item. Add a column for projection for the next year showing a 2.5 percent increase in the cost of living. Enhance the worksheet using features you learned in this lab. Enter your name and the current date on separate rows just below the worksheet. Save the workbook as Personal Budget. Preview and print the worksheet.

TRACKING PROJECT HOURS ★ ★

3. Samantha Johnson is the project manager for a small publishing company. She has four part-time employees (Melanie, Bob, Vanessa, and Rudy). Using the steps in the planning process, plan and create a worksheet for Samantha that can be used to record and analyze the hours each employee works per day during the month on two projects: magazine and brochure. Hours-worked data for each employee will be entered into the worksheet. Using that data, the worksheet will calculate the total number of hours for each person per project. Additionally, it will calculate the total weekly hours for each project. Write a short paragraph describing how you used each of the planning steps. Enter sample data in a worksheet. Include your name and the current date on separate rows just below the worksheet. Spell check the worksheet. Save the workbook as Project Hours. Preview and print the worksheet.

MUSIC ANALYSIS ★ ★ ★

4. Use the library and/or the Web to locate information on trends in CD sales versus music downloads on the Internet. Create a worksheet to display information relating to the increasing usage by country, age group, or any other trend you locate. Calculate totals or averages based on your data. Enhance the worksheet using features you learned in this lab. Enter your name and the current date on separate rows just below the worksheet. Spell check the worksheet. Save the workbook as Music Analysis. Preview and print the worksheet.

HOME ELECTRONICS ANALYSIS ★ ★ ★

5. A national electronics retailer wants to analyze the trend in home electronics sales and usage for the past three years. Design and create a worksheet to record the number of households (one-person, two-person, and four-person) who have computers, Internet access, televisions, and cable TV access. Include an appropriate title, row and column headings, and formulas to calculate average by category and by year. Include a formula to calculate the percent growth over the three years. Format the worksheet appropriately using features presented in this tutorial. Enter sample data for the three years. Include your name and date above the worksheet. Spell check the worksheet. Save the workbook as Home Electronics Analysis and print the worksheet.