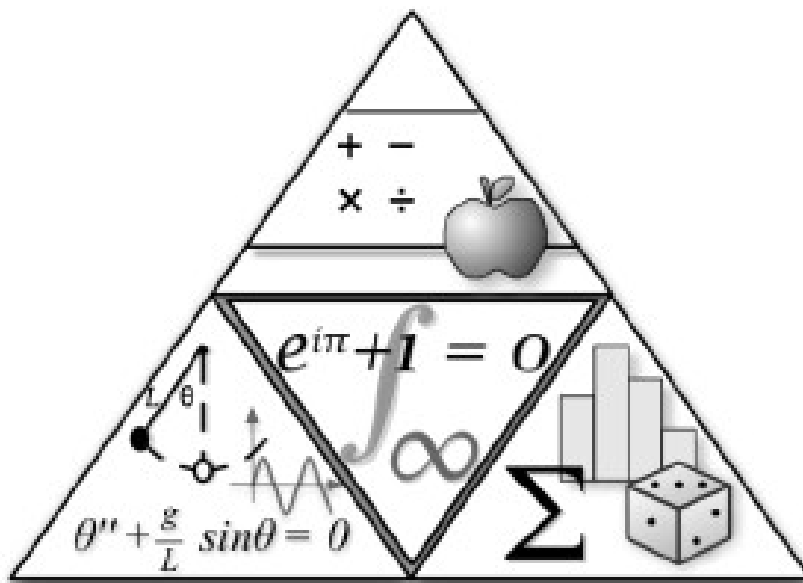


Microsoft Excel (2007)

Complete Tutorial
With Picture

Arithmetic Operation
Statistics Formulas
Business Functions
Presentation with Graph



Designed by: **Shakeel Armaan**

Microsoft Excel

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Excel Tutorial 1

Getting Started with Excel

Objectives

- Understand the use of spreadsheets and Excel
- Learn the parts of the Excel window
- Scroll through a worksheet and navigate between worksheets
- Create and save a workbook file
- Enter text, numbers, and dates into a worksheet
- Resize, insert, and remove columns and rows
- Select and move cell ranges
- Insert formulas and functions
- Insert, delete, move, and rename worksheets
- Work with editing tools
- Preview and print a workbook

Introducing Excel

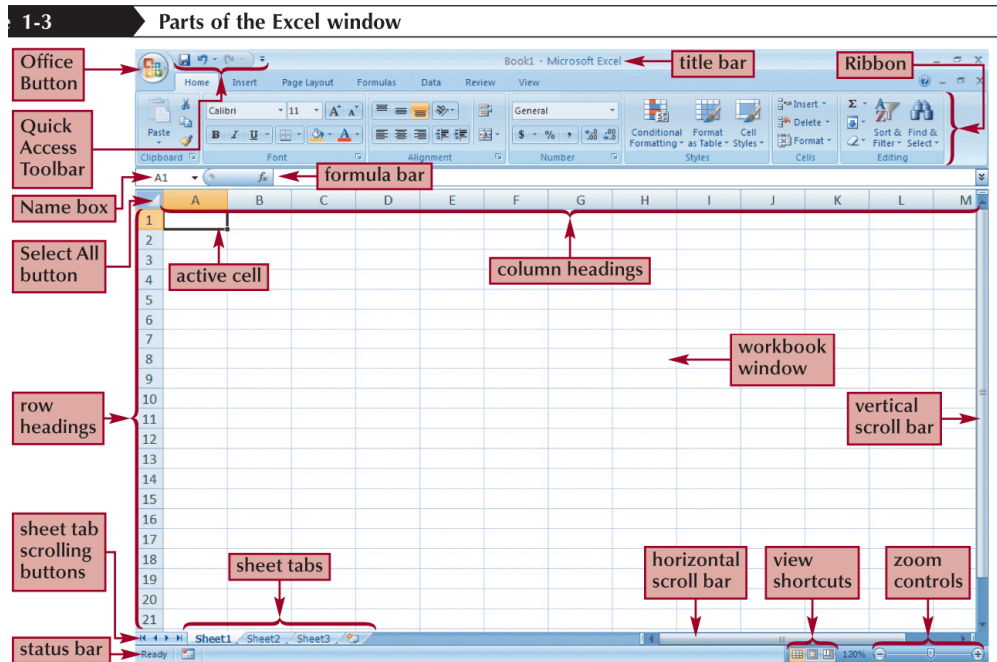
- **Microsoft Office Excel 2007** (or **Excel**) is a computer program used to enter, analyze, and present quantitative data
- A **spreadsheet** is a collection of text and numbers laid out in a rectangular grid.
 - Often used in business for budgeting, inventory management, and decision making
- **What-if analysis** lets you change one or more values in a spreadsheet and then assess the effect those changes have on the calculated values

Introducing Excel

Spreadsheet data in Excel

Cash Flow Comparison			
Budgeted vs. Actual			
Jan-10			
	Budgeted	Actual	
Cash balance (start of month)	\$4,500.00	\$4,500.00	
Cash receipts			
Cash sales	12,600.00	14,688.00	
Cash expenditures			
Advertising	1,200.00	1,425.00	
Wages	7,200.00	7,850.00	
Supplies	3,600.00	4,350.00	
Total cash expenditures	12,000.00	13,625.00	
Net cash flow	600.00	1,063.00	
Cash balance (end of month)	\$5,100.00	\$5,563.00	

Exploring Excel



Exploring Excel

Description of the Excel window elements	
Feature	Description
Office Button	A button that provides access to work book-level features and program settings
Quick Access Toolbar	A collection of buttons that provide one-click access to commonly used commands, such as Save, Undo and Repeat
Title bar	A bar that displays the name of the active workbook and the Excel program name
Ribbon	The main set of commands organized by task into tabs and groups
Column headings	The letters that appear along the top of the worksheet window to identify the different columns in the worksheet
Workbook window	A window that displays an Excel workbook
Vertical scroll bar	A scroll bar used to scroll vertically through the workbook window
Horizontal scroll bar	A scroll bar used to scroll horizontally through the workbook window
Zoom controls	Controls for magnifying and shrinking the content displayed in the active workbook window
View shortcuts	Buttons used to change how the worksheet content is displayed – Normal, Page Layout, or Page Brea Preview view
Sheet tabs	Tabs that display the names of the worksheets in the workbook
Sheet tab scrolling buttons	Buttons to scroll the list of sheet tabs in the workbook
Row headings	The numbers that appear along the left of the worksheet window to identify the different rows in the worksheet
Select All button	A button used to select all of the cells in the active worksheet
Active Cell	The cell currently selected in the active worksheet
Name box	A box that displays the cell reference of the active cell
Formula bar	A bar that displays the value or formula entered in the active cell

Navigating a Worksheet

- Excel provides several ways to navigate a worksheet

Excel navigation keys	
Press	To move the active cell
↑,↓,←,→	Up, down, left or right one cell
Home	To column A of the current row
Ctrl+Home	To cell A1
Ctrl+End	To the last cell in the worksheet that contains data
Enter	Down on row or to the start of the next row of data
Shift+Enter	Up one row
Tab	One column to the right
Shift+Tab	One column to the left
Page Up, Page Down	Up or down the screen
Ctrl+Page Up, Ctrl+Page Down	To the previous or next sheet in the workbook

Planning a Workbook

- Before you begin to enter data into a workbook, you should develop a plan
 - **Planning analysis sheet**

Planning Analysis Sheet

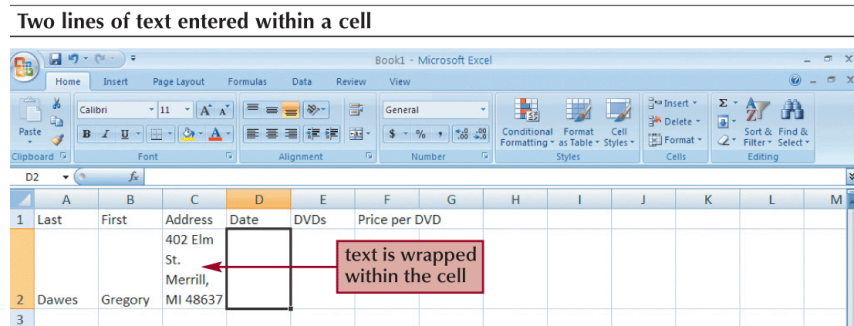
<p>Planning Analysis Sheet</p> <p>Author : Amanda Dunn</p> <p>Date : 01/02/2010</p> <p><u>What problems do I want to solve?</u></p> <ul style="list-style-type: none"> • I need to have contact information for each RipCity Digital customer. • I need to track how many DVDs I create for my customers. • I need to record how much I charge my customers for my service. • I need to determine how much revenue RipCity Digital is generating. <p><u>What data do I need?</u></p> <ul style="list-style-type: none"> • Each customer's name and contact information • The date each customer order was placed • The number of DVDs created for each customer • The cost of creating each DVD <p><u>What calculations do I need to enter?</u></p> <ul style="list-style-type: none"> • The total charge for each order • The total number of DVDs I create for all orders • The total revenue generated from all orders <p><u>What from should my solutions take?</u></p> <ul style="list-style-type: none"> • The customer orders should be placed in a grid with each row containing data on a different on a different customer • Information about each customer should be placed in separate columns. • The last column should contain the total charge for each customer. • The last row should contain the total number of DVDs created and the total revenue from all customer orders.
--

Entering Text, Numbers, and Dates in Cells

- The **formula bar** displays the content of the active cell
- **Text data** is a combination of letters, numbers, and some symbols
- **Number data** is any numerical value that can be used in a mathematical calculation
- **Date** and **time data** are commonly recognized formats for date and time values

Entering Multiple Lines of Text within a Cell

- Click the cell in which you want to enter the text
- Type the first line of text
- For each additional line of text, press the Alt+Enter keys (that is, hold down the Alt key as you press the Enter key), and then type the text



Changing Column Width and Row Height

- A **pixel** is a single point on a computer monitor or printout
- The default column width is 8.38 standard-sized characters
- Row heights are expressed in points or pixels, where a **point** is 1/72 of an inch
- **Autofitting** eliminates any empty space by matching the column to the width of its longest cell entry or the row to the height of its tallest cell entry

Changing the Column Width and Row Height

- Drag the right border of the column heading left to decrease the column width or right to increase the column width
 - Drag the bottom border of the row heading up to decrease the row height or down to increase the row height
- Or*
- Double-click the right border of a column heading or the bottom border of a row heading to AutoFit the column or row to the cell contents (or select one or more columns or rows, click the Home tab on the Ribbon, click the Format button in the Cells group, and then click AutoFit Column Width or AutoFit Row Height)
- Or*
- Select one or more columns or rows
 - Click the Home tab on the Ribbon, click the Format button in the Cells group, and then click Column Width or Row Height
 - Enter the column width or row height you want, and then click the OK button

Inserting a Column or Row

- Select the column(s) or row(s) where you want to insert the new column(s) or row(s); Excel will insert the same number of columns or rows as you select
- In the Cells group on the Home tab, click the Insert button (or right-click a column or row heading or selected column and row headings, and then click Insert on the shortcut menu)

Inserting a Column or Row

New column inserted in the worksheet

	A	B	C	D	E	F	G
1	Last	First	Address	Phone	Date	DVDs	Price per DVD
2	Dawes	Gregory	402 Elm St. Merrill, MI 48637 1025 Drake Ave.	(989) 555-3433	3/13/2010	7	\$17.29
3	Garcia	Susan	Exeter, NH 03833 5 North Ln.	(603) 555-1091	3/14/2010	25	\$15.79
4	Torbet	Dr. Lilla	Oswego, NY 13126 24 Mountain Dr.	(315) 555-7823	3/17/2010	32	\$12.99
5	Rhoden	Tony	Auburn, ME 04210	(207) 555-9915	3/24/2010	20	\$15.79
6							
7							

1-16 New row inserted in the worksheet

	A	B	C	D	E	F	G	H	I
1	Last	First	Address	Phone	Date	DVDs	Price per DVD		
2	Ferris	Andrew	135 College Ave. Bar Harbor, ME 04609	(207) 555-0101	3/5/2010	2	\$17.29		
3	Dawes	Gregory	402 Elm St. Merrill, MI 48637 1025 Drake Ave.	(989) 555-3433	3/13/2010	7	\$17.29		
4	Garcia	Susan	Exeter, NH 03833 5 North Ln.	(603) 555-1091	3/14/2010	25	\$15.79		
5	Torbet	Dr. Lilla	Oswego, NY 13126 24 Mountain Dr.	(315) 555-7823	3/17/2010	32	\$12.99		
6	Rhoden	Tony	Auburn, ME 04210	(207) 555-9915	3/24/2010	20	\$15.79		
7									

Deleting and Clearing a Row or Column

- **Clearing** data from a worksheet removes the data but leaves the blank cells
- **Deleting** data from the worksheet removes both the data and the cells

Working with Cells and Cell Ranges

- A group of cells is called a **cell range** or **range**
- An **adjacent range** is a single rectangular block of cells
- A **nonadjacent range** consists of two or more distinct adjacent ranges
- A **range reference** indicates the location and size of a cell range

Selecting Cell Ranges

To select an adjacent range:

- Click the cell in the upper-left corner of the adjacent range, drag the pointer to the cell in the lower-right corner of the adjacent range, and then release the mouse button
or
- Click the cell in the upper-left corner of the adjacent range, press the Shift key as you click the cell in the lower-right corner of the adjacent range, and then release the Shift key

To select a nonadjacent range of cells:

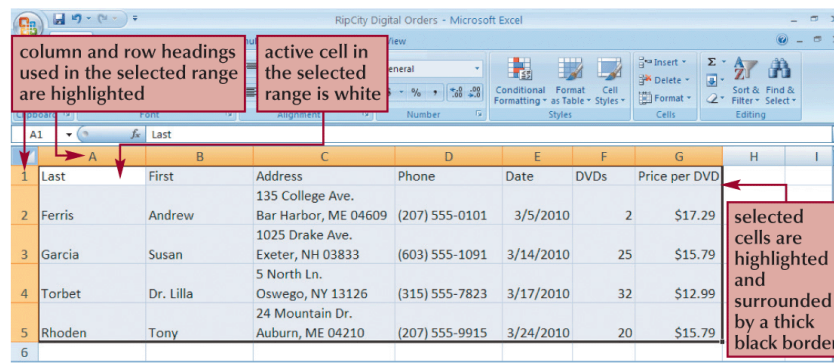
- Select a cell or an adjacent range, press the Ctrl key as you select each additional cell or adjacent range, and then release the Ctrl key

To select all the cells in a worksheet:

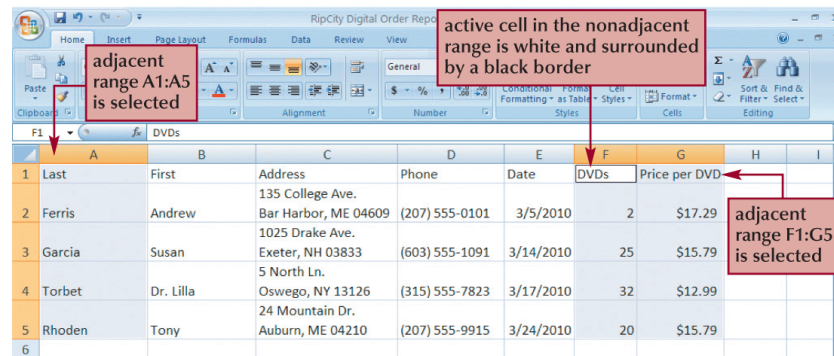
- Click the Select All button located at the intersection of the row and column headings (or press the Ctrl+A keys)

Selecting Cell Ranges

Adjacent range A1:G5 selected



Nonadjacent range A1:A5;F1:G5 selected

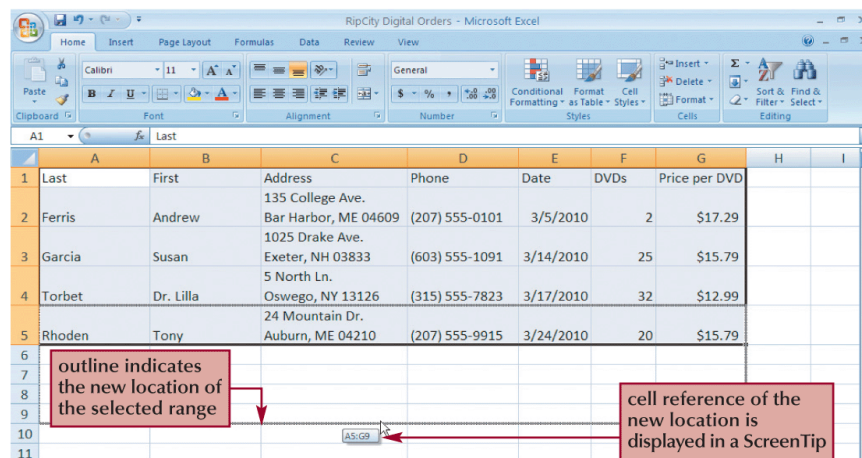


Moving or Copying a Cell or Range

- Select the cell or range you want to move or copy
 - Move the mouse pointer over the border of the selection until the pointer changes shape
 - To move the range, click the border and drag the selection to a new location (or, to copy the range, hold down the Ctrl key and drag the selection to a new location)
- Or*
- Select the cell or range you want to move or copy
 - In the Clipboard group on the Home tab, click the Cut button or the Copy button (or right-click the selection, and then click Cut or Copy on the shortcut menu)
 - Select the cell or upper-left cell of the range where you want to move or copy the content
 - In the Clipboard group, click the Paste button (or right-click the selection, and then click Paste on the shortcut menu)

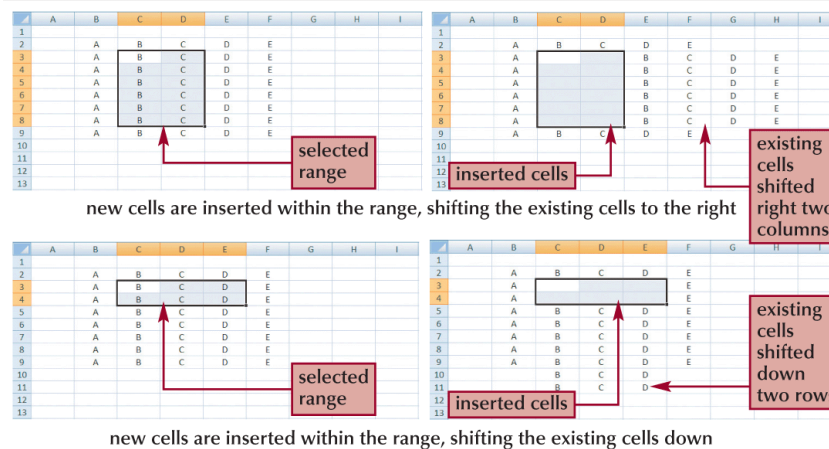
Moving or Copying a Cell or Range

Selected range being moved



Inserting and Deleting a Cell Range

Cells inserted within a cell range



Inserting or Deleting a Cell Range

- Select a range that matches the range you want to insert or delete
- In the Cells group on the Home tab, click the Insert button or the Delete button
or
- Select the range that matches the range you want to insert or delete
- In the Cells group, click the Insert button arrow and then click the Insert Cells button or click the Delete button arrow and then click the Delete Cells command (or right-click the selected range, and then click Insert or Delete on the shortcut menu)
- Click the option button for the direction in which you want to shift the cells, columns, or rows
- Click the OK button

Entering a Formula

- A **formula** is an expression that returns a value
- A formula is written using **operators** that combine different values, returning a single value that is then displayed in the cell
 - The most commonly used operators are **arithmetic operators**
- The **order of precedence** is a set of predefined rules used to determine the sequence in which operators are applied in a calculation

Entering a Formula

Arithmetic operators			
Operation	Arithmetic Operator	Example	Description
Addition	+	=10+A1 =B1+B2+B3	Adds 10 to the value in cell A1 Adds the values in cells B1, B2 and B3
Subtraction	-	=C9+B2 =1-D2	Subtracts the value in cell B2 from the value in cell C9 Subtracts the value in cell D2 from 1
Multiplication	*	=C9*B9 =E5*0.06	Multiplies the values in cells C9 and B9 Multiplies the value in cell E5 by 0.06
Division	/	C9/B9 =D15/12	Divides the value in cell C9 by the value in cell B9 Divides the value in cell D15 by 12
Exponentiation	^	=B5^3 =3^B5	Raises the value of cell B5 to the third power Raises 3 to the value in cell B5

Entering a Formula

Order of precedence rules		
Formula (A1=50, B1=10, C1=5)	Order of Precedence Rule	Result
=A1+B1*C1	Multiplication before addition	100
=(A1+B1)*C1	Expression inside parentheses executed before expression outside	300
=A1/B1-C1	Division before subtraction	0
=A1/(B1=C1)	Expression inside parentheses executed before expression outside	10
=A1/B1*C1	Two operators at same precedence level, leftmost operator evaluated first	25
=A1/(B1*C1)	Expression inside parentheses executed before expression outside	1

Entering a Formula

- Click the cell in which you want the formula results to appear
- Type = and an expression that calculates a value using cell references and arithmetic operators
Press the Enter key or press the Tab key to complete the formula

Entering a Formula

Formula references color coded

The screenshot shows an Excel spreadsheet with a table of customer orders. The formula bar at the top displays '=F6*G6'. Red callouts point to the formula bar, the cell G6 (which has a blue border), and the formula text inside G6.

Copying and Pasting Formulas

- With formulas, however, Excel adjusts the formula's cell references to reflect the new location of the formula in the worksheet

Formula copied and pasted

The screenshot shows the same Excel spreadsheet. The formula from cell G6 has been copied and pasted into cells H8 and H9. The formula bar now shows '=F8*G8'. Red callouts point to the formula bar, the source cell G6, and the resulting values in H8 and H9.

Inserting and Deleting a Worksheet

- To insert a new worksheet into the workbook, right-click a sheet tab, click Insert on the shortcut menu, select a sheet type, and then click the OK button
- You can delete a worksheet from a workbook in two ways:
 - You can right-click the sheet tab of the worksheet you want to delete, and then click Delete on the shortcut menu
 - You can also click the Delete button arrow in the Cells group on the Home tab, and then click Delete Sheet

Renaming a Worksheet

- To rename a worksheet, you double-click the sheet tab to select the sheet name, type a new name for the sheet, and then press the Enter key
- Sheet names cannot exceed 31 characters in length, including blank spaces
- The width of the sheet tab adjusts to the length of the name you enter

Moving and Copying a Worksheet

- You can change the placement of the worksheets in a workbook
- To reposition a worksheet, you click and drag the sheet tab to a new location relative to other worksheets in the workbook
- To copy a worksheet, just press the Ctrl key as you drag and drop the sheet tab

Editing Your Work

- To edit the cell contents, you can work in **editing mode**
- You can enter editing mode in several ways:
 - double-clicking the cell
 - selecting the cell and pressing the F2 key
 - selecting the cell and clicking anywhere within the formula bar

Editing Your Work

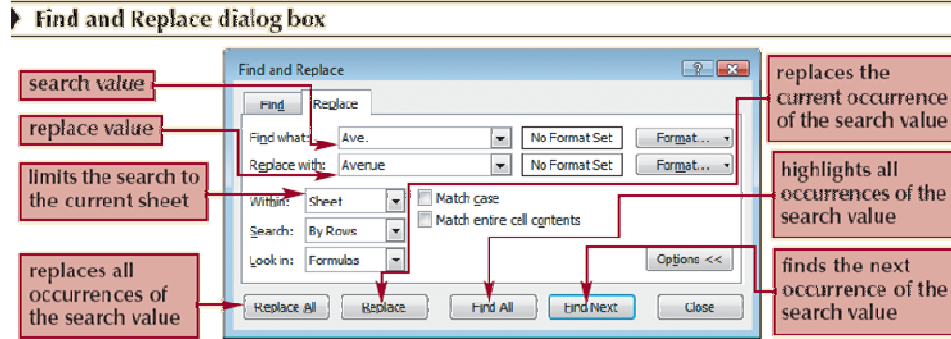
Working in editing mode ◀

	A	B	C	D	E	F	G	H	I
1	RipCity Digital								
2	Customer Orders								
3	3/31/2010								
4									
5	Last	First	Address	Phone	Date	DVDs	Price per DVD	Charge	
6	Ferris	Andrew	135 College Ave. Bar Harbor, ME 04609	(207) 555-0101	3/5/2010	2	18.29	\$34.58	
7	Garcia	Susan	1025 Drake Ave. Exeter, NH 03833	(603) 555-1091	3/14/2010	25	\$15.79	\$394.75	
8	Torbet	Dr. Lilla	5 North Ln. Oswego, NY 13126	(315) 555-7823	3/17/2010	32	\$12.99	\$415.68	
9	Rhoden	Tony	24 Mountain Dr. Auburn, ME 04210	(207) 555-9915	3/24/2010	20	\$15.79	\$315.80	
10					TOTAL	79		\$1,160.81	
11									
12									
13									
14									
15									
16									
17									

status bar indicates Excel is in editing mode

Using Find and Replace

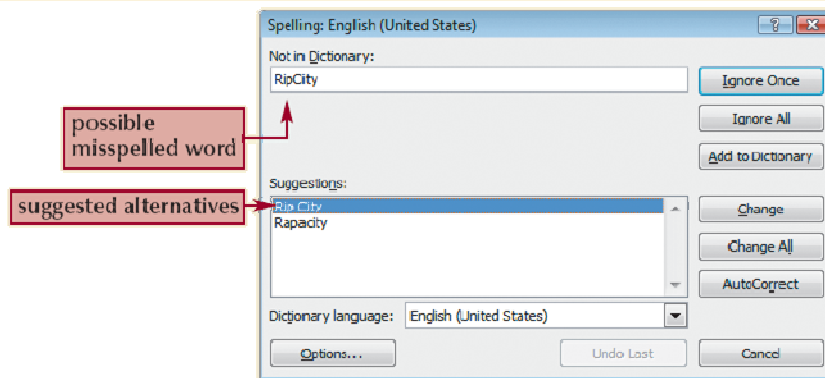
- You can use the **Find** command to locate numbers and text in the workbook and the **Replace** command to overwrite them



Using the Spelling Checker

- The **spelling checker** verifies the words in the active worksheet against the program's dictionary

Spelling dialog box

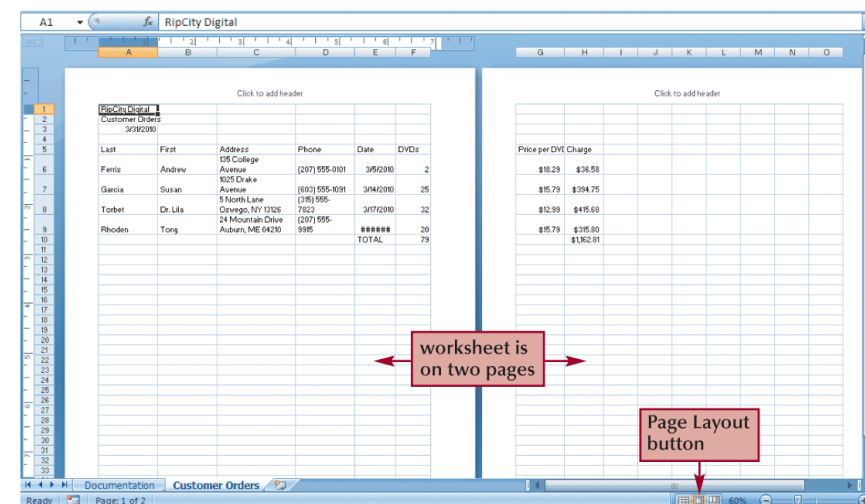


Changing Worksheet Views

- You can view a worksheet in three ways:
 - **Normal view** simply shows the contents of the worksheet
 - **Page Layout view** shows how the worksheet will appear on the page or pages sent to the printer
 - **Page Break Preview** displays the location of the different page breaks within the worksheet

Changing Worksheet Views

Worksheet displayed in Page Layout view



Changing Worksheet Views

Worksheet displayed in Page Break Preview

	A	B	C	D	E	F	G	H
1	RipCity Digital							
2	Customer Orders							
3	3/31/2010							
4								
5	Last	First	Address	Phone	Date	DVDs	Price per DVD	Charge
6	Ferris	Andrew	125 College Avenue Bar Harbor, ME 04609	(207) 555-0101	3/5/2010	2	\$18.29	\$36.58
7	Garcia	Susan	1025 Drake Avenue Exeter, NH 03833	(603) 555-1091	3/14/2010	25	\$15.79	\$394.75
8	Torbet	Dr. Lila	5 North Lane Oswego, NY 13126	(315) 555-7823	3/17/2010	32	\$12.99	\$415.68
9	Rhoden	Tony	24 Mountain Drive Auburn, ME 04210	(207) 555-9915	3/24/2010	20	\$15.79	\$315.80
10					TOTAL	79		\$1,162.81
11								
12								
13								
14								
15								
16								
17								

Working with Portrait and Landscape Orientation

- In **portrait orientation**, the page is taller than it is wide
- In **landscape orientation**, the page is wider than it is tall
- By default, Excel displays pages in portrait orientation

Working with Portrait and Landscape Orientation

- To change the page orientation:
 - Click the **Page Layout** tab on the Ribbon
 - In the Page Setup group, click the **Orientation** button, and then click **Landscape**
 - The page orientation switches to landscape

Printing the Workbook

- You can print the contents of your workbook by using the Print command on the Office Button
- The Print command provides three options:
 - You can open the Print dialog box from which you can specify the printer settings, including which printer to use, which worksheets to include in the printout, and the number of copies to print
 - You can perform a Quick Print using the print options currently set in the Print dialog box
 - Finally, you can preview the workbook before you send it to the printer

Viewing and Printing Worksheet Formulas

- You can view the formulas in a workbook by switching to **formula view**, a view of the workbook contents that displays formulas instead of the resulting values
- To change the worksheet to formula view, press the **Ctrl+`** keys
- **Scaling** a printout reduces the width and the height of the printout to fit the number of pages you specify by shrinking the text size as needed

Viewing and Printing Worksheet Formulas

Worksheet in formula view

	D		G	H
1				
2				
3				
4				
5	Phone	Date	DVDs	Price per DVD
6	(207) 555-0101	40242	2	18.29
7	(603) 555-1091	40251	25	15.79
8	(315) 555-7823	40254	32	12.99
9	(207) 555-9915	40261	20	15.79
10		TOTAL	=SUM(F6:F9)	=SUM(H6:H9)
11				
12				

Viewing and Printing Worksheet Formulas

Printout scaled to one page

printout width and height set to a single page

text size reduced to fit the worksheet on one page

zoom level set to 50%

Excel Tutorial 2

Formatting a Workbook

Objectives

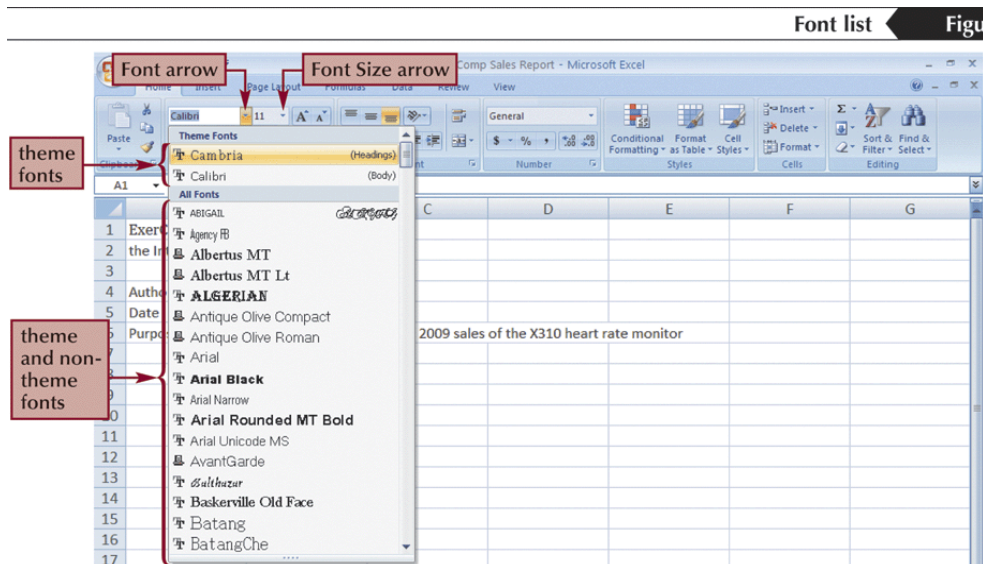
- Format text, numbers, and dates
- Change font colors and fill colors
- Merge a range into a single cell
- Apply a built-in cell style
- Select a different theme
- Apply a built-in table style
- Add conditional formats to tables with highlight rules and data bars
- Hide worksheet rows
- Insert print titles, set print areas, and insert page breaks
- Enter headers and footers

Formatting Workbooks

- **Formatting** is the process of changing a workbook's appearance by defining the fonts, styles, colors, and decorative features
- A **theme** is a collection of formatting that specifies the fonts, colors, and graphical effects used throughout the workbook
- As you work, **Live Preview** shows the effects of formatting options on the workbook's appearance before you apply them

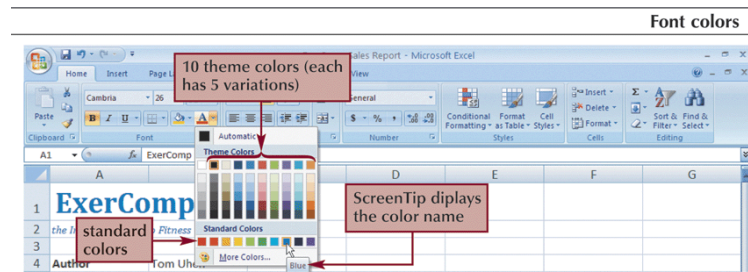
Formatting Text

- The appearance of text is determined by its **typeface**, which is the specific design used for the characters
 - **Font**
 - **Serif fonts**
 - **Sans serif fonts**
 - **Theme font**
 - **Non-theme font**
 - **Font Style**
 - **Font Size**
 - Measured in **points**



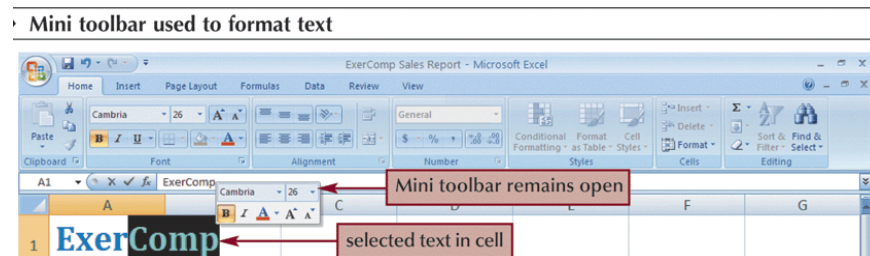
Working with Color

- **Theme colors** are the 12 colors that belong to the workbook's theme
- **Standard** and **custom colors**
- Apply a color by selecting a cell or range of cells, clicking the Font Color or Fill Color button arrow, and then selecting an appropriate color



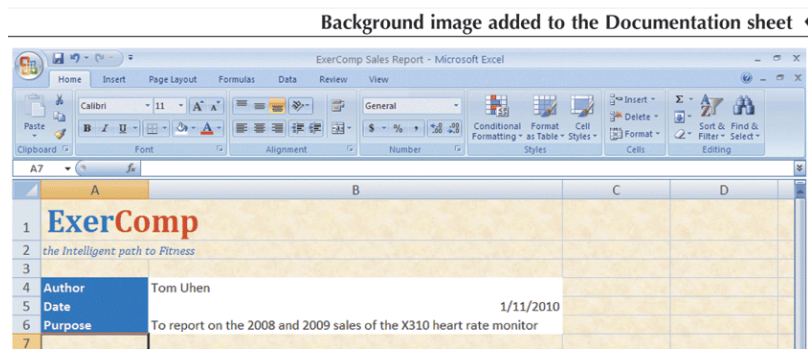
Formatting Text Selections

- The **Mini toolbar** appears when you select text and contains buttons for commonly used text formats



Setting a Background Image

- You can use a picture or image as the background for all the cells in a worksheet
- Click the **Page Layout** tab on the Ribbon
- Click the **Background** button
- Locate the background, and then click the **Insert** button



Formatting Data

- By default, values appear in the **General number format**, which, for the most part, displays numbers exactly as you enter them
- The Number group on the Home tab has buttons for formatting the appearance of numbers
- **Comma style** button
- **Decrease Decimal** button
- **Percent Style** button
- **Increase Decimal** button
- **Accounting Number Format** button

Formatting Data

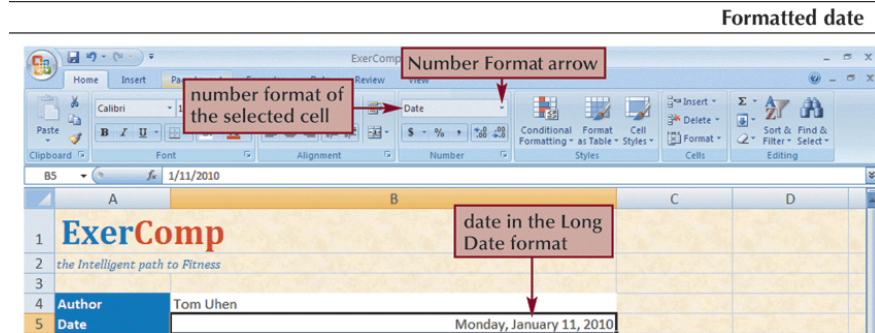
2-8 Worksheet after formatting numbers

Units Sold	Region	2008 Sales	2009 Sales	Increase	% Increase
R01		3,605	3,853	248	6.88%
R02		3,966	3,842	(124)	-3.13%
R03		3,760	4,035	275	7.31%
R04		3,777	4,063	286	7.57%
R05		3,974	3,725	(249)	-6.27%
R06		3,656	3,937	281	7.69%
R07		3,554	3,875	321	9.03%
R08		3,844	3,844	-	0.00%
Total		30,136	31,174	1,038	3.44%

Revenue	Region	2008 Sales	2009 Sales	Increase	% Increase
R01		\$ 104,364.75	\$ 115,397.35	\$ 11,032.60	10.57%
R02		114,815.70	115,067.90	252.20	0.22%
R03		108,852.00	120,848.25	11,996.25	11.02%
R04		109,344.15	121,686.85	12,342.70	11.29%
R05		115,047.30	111,563.75	(3,483.55)	-3.03%
R06		105,841.20	117,913.15	12,071.95	11.41%
R07		102,888.30	116,056.25	13,167.95	12.80%
R08		111,283.80	115,127.80	3,844.00	3.45%
Total		\$ 872,437.20	\$ 933,661.30	\$ 61,224.10	7.02%

Formatting Dates and Times

- Although dates and times in Excel appear as text, they are actually numbers that measure the interval between the specified date and time and January 1, 1900 at 12:00 a.m.



Aligning Cell Content

- In addition to left and right alignments, you can change the vertical and horizontal alignments of cell content to make a worksheet more readable
- Alignment buttons are located on the Home tab

Alignment buttons	
Buttons	Description
	Aligns the cell content with the cell's top edge
	Vertically centers the cell content within the cell
	Aligns the cell content with the cell's bottom edge
	Aligns the cell content with the cell's left edge
	Horizontally centers the cell content within the cell
	Aligns the cell content with the cell's right edge
	Decreases the size of the indentation used in the cell
	Increases the size of the indentation used in the cell
	Rotates the cell content to an angle within the cell
	Forces the cell text to wrap within the cell borders
	Merges the selected cells into a single cell

Indenting Cell Content

- You increase the indentation by roughly one character each time you click the Increase Indent button in the Alignment group on the Home tab

Centered and indented text

Units Sold	Region	2008 Sales	2009 Sales	Increase	% Increase
7	R01	3,605	3,853	248	6.88%
8	R02	3,966	3,842	(124)	-3.13%
9	R03	3,760	4,035	275	7.31%
10	R04	3,777	4,063	286	7.57%
11	R05	3,974	3,725	(249)	-6.27%
12	R06	3,656	3,937	281	7.69%
13	R07	3,554	3,875	321	9.03%
14	R08	3,844	3,844	-	0.00%
15	Total	30,136	31,174	1,038	3.44%

Region	2008 Sales	2009 Sales	Increase	% Increase
R01	\$ 104,364.75	\$ 115,397.35	\$ 11,032.60	10.57%
R02	114,815.70	115,067.90	252.20	0.22%
R03	108,852.00	120,848.25	11,996.25	11.02%
R04	109,344.15	121,686.85	12,342.70	11.29%
R05	115,047.30	111,563.75	(3,483.55)	-3.03%
R06	105,841.20	117,913.15	12,071.95	11.41%
R07	102,888.30	116,056.25	13,167.95	12.80%
R08	111,283.80	115,127.80	3,844.00	3.45%
Total	\$ 872,437.20	\$ 933,661.30	\$ 61,224.10	7.02%

Merging Cells

- One way to align text over several columns or rows is to **merge**, or combine, several cells into one cell

Merged range with centered text

A	B	E	F	G
1	ExerComp			
2	the Intelligent path to Fitness			
3				
4	X310 Yearly Sales Analysis			
5				

Rotating Cell Content

- To save space or to provide visual interest to a worksheet, you can rotate the cell contents so that they appear at any angle or orientation
- Select the range
- In the Alignment group, click the **Orientation** button and choose a proper rotation

Rotating Cell Content

Merged and rotated cell text

Region	2008 Sales	2009 Sales	Increase	% Increase
R01	3,605	3,853	248	6.88%
R02	3,966	3,842	(124)	-3.13%
R03	3,760	4,035	275	7.31%
R04	3,777	4,063	286	7.57%
R05	3,974	3,725	(249)	-6.27%
R06	3,656	3,937	281	7.69%
R07	3,554	3,875	321	9.03%
R08	3,844	3,844	-	0.00%
Total	30,136	31,174	1,038	3.44%

Region	2008 Sales	2009 Sales	Increase	% Increase
R01	\$ 104,364.75	\$ 115,397.35	\$ 11,032.60	10.57%
R02	114,815.70	115,067.90	252.20	0.22%
R03	108,852.00	120,848.25	11,996.25	11.02%
R04	109,344.15	121,686.85	12,342.70	11.29%
R05	115,047.30	111,563.75	(3,483.55)	-3.03%
R06	105,841.20	117,913.15	12,071.95	11.41%
R07	102,888.30	116,056.25	13,167.95	12.80%
R08	111,283.80	115,127.80	3,844.00	3.45%
Total	\$ 872,437.20	\$ 933,661.30	\$ 61,224.10	7.02%

Adding Cell Borders

- You can add borders to the left, top, right, or bottom of a cell or range, around an entire cell, or around the outside edges of a range using the **Border button arrow**

Borders added to cells

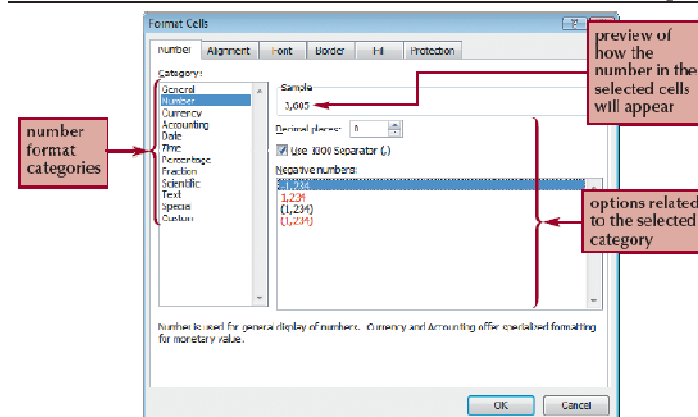
Region	2008 Sales	2009 Sales	Increase	% Increase
R01	3,605	3,853	248	6.88%
R02	3,966	3,842	(124)	-3.13%
R03	3,760	4,035	275	7.31%
R04	3,777	4,063	286	7.57%
R05	3,974	3,725	(249)	-6.27%
R06	3,656	3,937	281	7.69%
R07	3,554	3,875	321	9.03%
R08	3,844	3,844	-	0.00%
Total	30,136	31,174	1,038	3.44%

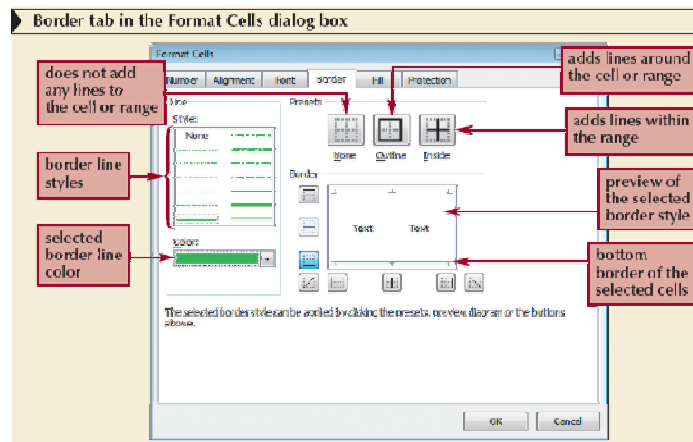
Region	2008 Sales	2009 Sales	Increase	% Increase
R01	\$ 104,364.75	\$ 115,397.35	\$ 11,032.60	10.57%
R02	114,815.70	115,067.90	252.20	0.22%
R03	108,852.00	120,848.25	11,996.25	11.02%
R04	109,344.15	121,686.85	12,342.70	11.29%
R05	115,047.30	111,563.75	(3,483.55)	-3.03%
R06	105,841.20	117,913.15	12,071.95	11.41%
R07	102,888.30	116,056.25	13,167.95	12.80%
R08	111,283.80	115,127.80	3,844.00	3.45%
Total	\$ 872,437.20	\$ 933,661.30	\$ 61,224.10	7.02%

Working with the Format Cells Dialog Box

- The Format Cells dialog box has six tabs, each focusing on a different set of formatting options

Number tab in the Format Cells dialog box





Copying Formats with the Format Painter

- The **Format Painter** copies the formatting from one cell or range to another cell or range, without duplicating any of the data
- Select the range containing the format you wish to copy
- Click the **Format Painter** button on the Home tab
- Click the cell to which you want to apply the format

Copying Formats with the Paste Options Button

Using the Paste Options button

	A	B	C	D	E	F	G	H	I	J
1										
2		2008 Sales	Model	R01	R02	R03	Total			
3			X310	3,605	3,996	3,760	11,361			
4			X410	1,875	1,924	2,112	5,911			
5			X510	850	912	750	2,512			
6			Total	6,330	6,832	6,622	19,784			
7										
8										
9		2009 Sales	Model	R01	R02	R03	Total			
10			X310	3,853	3,842	4,035	11,730			
11			X410	2,112	1,801	2,304	6,217			
12			X510	1025	1,115	912	3,052			
13			Total	6,990	6,758	7,251	20,999			
14										
15										

Paste Options button

pastes only the formats

- Keep Source Formatting
- Use Destination Theme
- Match Destination Formatting
- Values Only
- Values and Number Formatting
- Values and Source Formatting
- Keep Source Column Widths
- Formatting Only
- Link Cells

Copying Formats with Paste Special

Paste Special dialog box

Paste Special dialog box

Paste

- All
- Formulas
- Values
- Formats
- Comments
- Validation

Operation

- None
- Add
- Subtract
- Multiply
- Divide

Skip blanks

Transpose

Paste Link

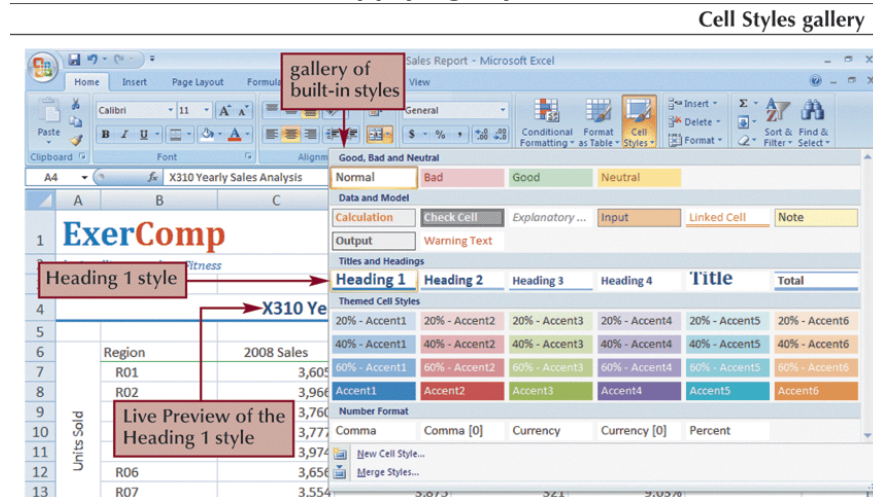
OK Cancel

paste the selected range rotated 90 degrees

Applying Styles

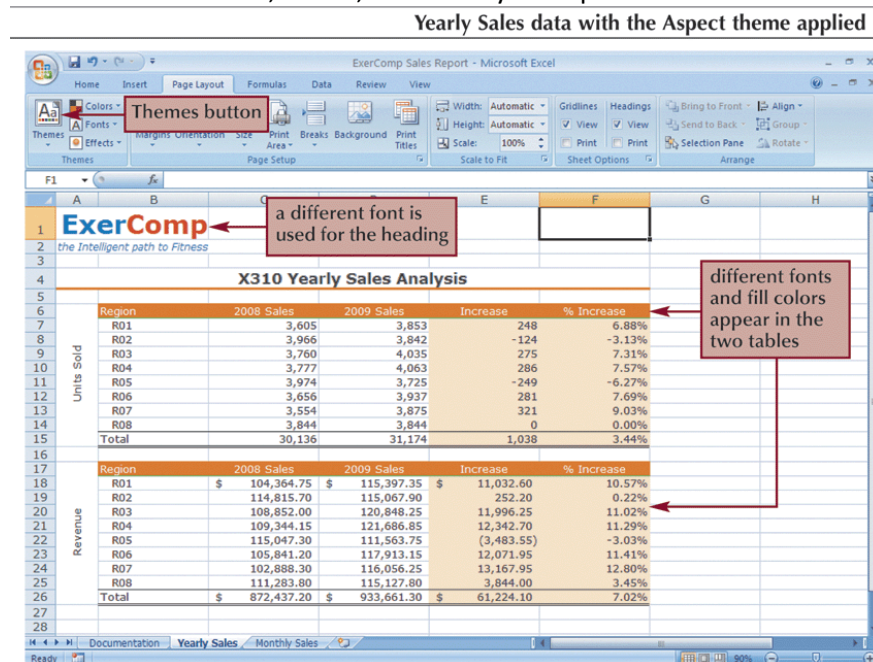
- A **style** is a collection of formatting
- Select the cell or range to which you want to apply a style
- In the Styles group on the Home tab, click the Cell Styles button
- Point to each style in the Cell Styles gallery to see a Live Preview of that style on the selected cell or range
- Click the style you want to apply to the selected cell or range

Applying Styles



Working with Themes

- The appearance of these fonts, colors, and cell styles depends on the workbook's current theme



Applying a Table Style to an Existing Table

- You can treat a range of data as a distinct object in a worksheet known as an **Excel table**
- Select the range to which you want to apply the table style
- In the Styles group on the Home tab, click the Format as Table button
- Click a table style in the Table Style gallery

Applying a Table Style to an Existing Table

Banded rows effect applied manually and with a table style

The figure shows three versions of a table with columns A (Region), B (2008 Sales), C (2009 Sales), D (Difference), and E (blank). The original table (top) has alternating pink and white rows. The middle table, formatted with a table style, retains the banded rows even after some rows are deleted. The right table, formatted manually, loses the banded rows effect after some rows are deleted.

Annotations:

- fill color is pink
- fill color is changed to white, retaining the banded rows effect
- original table with banded rows
- fill color remains pink, losing the banded rows effect
- table formatted with a table style retains banded rows after rows are deleted
- table formatted manually loses banded rows after rows are deleted

Selecting Table Style Options

- After you apply a table style, you can choose which table elements you want included in the style

The screenshot shows the 'Table Style Options' task pane with 'Banded Rows' and 'Banded Columns' checked. The table below has a header row (Month, R01-R08, Total) and data rows (Jan-Dec, Total). Annotations indicate that the header row is formatted, the last column is formatted, and banded rows are removed.

Annotations:

- selected table elements
- header row formatted
- table styles show formatting for selected elements
- banded rows removed
- last column formatted

Introducing Conditional Formats

- A **conditional format** applies formatting only when a cell's value meets a specified condition
- Select the range or ranges to which you want to add data bars.
- In the Styles group on the Home tab, click the Conditional Formatting button, point to Data Bars, and then click a data bar color
- Or
- Select the range in which you want to highlight cells that match a specified range
- In the Styles group, click the Conditional Formatting button, point to Highlight Cells Rules or Top/Bottom Rules, and then click the appropriate rule
- Select the appropriate options in the dialog box, and then click the OK button

Adding Data Bars

- A **data bar** is a horizontal bar added to the background of a cell to provide a visual indicator of the cell's value
- Select the cell(s)
- In the Styles group on the Home tab, click the **Conditional Formatting** button, point to **Data Bars**, and then click the DataBar option you wish to apply

Adding Data Bars

Figure 2-27 Data bars added to the regional monthly sales data

January sales for the R01 region are lower than expected

Month	R01	R02	R03	R04	R05	R06	R07	R08	Total
Jan	288	345	326	307	364	310	316	352	2,608
Feb	278	304	294	297	310	278	275	294	2,330
Mar	294	320	297	304	316	291	297	307	2,426
Apr	288	313	300	300	320	284	275	295	2,375
May	284	329	304	297	313	288	275	310	2,400
Jun	313	339	316	315	326	307	288	329	2,533
Jul	313	332	320	310	313	300	304	336	2,528
Aug	294	339	315	339	339	304	307	323	2,560
Sep	284	310	310	304	316	284	281	304	2,393
Oct	284	326	304	297	316	281	281	300	2,389
Nov	339	364	326	320	364	345	294	336	2,688
Dec	346	345	348	387	377	384	361	358	2,906
Total	3,605	3,966	3,760	3,777	3,974	3,656	3,554	3,844	30,136

Hiding Worksheet Data

- Hiding rows, columns, and worksheets is an excellent way to conceal extraneous or distracting information
- In the Cells group on the Home tab, click the **Format** button, point to **Hide & Unhide**, and then click your desired option

Changing the Page Orientation to Landscape

- Click the **Page Layout** tab on the Ribbon
- In the Page Setup group, click the **Orientation** button, and then click **Landscape**

Defining the Print Area

- By default, all parts of the active worksheet containing text, formulas, or values are printed
- You can select the cells you want to print, and then define them as a **print area**
- Select the range, in the Page Setup group on the Page Layout tab, click the **Print Area** button, and then click **Set Print Area**

Inserting Page Breaks

- Excel prints as much as fits on a page and then inserts a **page break** to continue printing the remaining worksheet content on the next page
- **Manual page breaks** specify exactly where the page breaks occur

Setting and Removing Page Breaks

To set a page break:

- Select the first cell below the row where you want to insert a page break
- In the Page Setup group on the Page Layout tab, click the Breaks button, and then click Insert Page Break

To remove a page break:

- Select any cell below or to the right of the page break you want to remove
- In the Page Setup group on the Page Layout tab, click the Breaks button, and then click Remove Page Break (or click Reset All Page Breaks to remove all the page breaks from the worksheet)

Setting and Removing Page Breaks

Worksheet in Page Break Preview

The screenshot shows a worksheet with three pages. The first page (rows 8-19) contains monthly sales data for 2008. The second page (rows 21-34) contains monthly sales data for 2009. The third page (rows 36-44) contains monthly sales data for 2010. Red boxes and arrows indicate the first, second, and third pages. A box labeled "manual page breaks" points to the break lines between rows 19 and 20, and between rows 34 and 35.

Year	Month	F101	F102	F103	F104	F105	F106	F107	F108	Total
2008	Jan	278	304	297	310	278	275	294		2,330
	Feb	294	326	304	313	298	297	300		2,436
	Mar	288	313	304	313	300	284	275		2,375
	Apr	284	329	304	307	310	288	275		2,480
	May	310	339	316	315	326	307	288		2,533
	Jun	313	332	320	310	313	300	304		2,538
	Jul	294	339	315	329	310	304	307		2,540
	Aug	284	330	310	304	316	284	281		2,393
	Sep	284	326	304	297	316	291	291		2,389
	Oct	319	344	328	320	314	345	294		2,849
	Nov	346	345	340	377	377	384	361		2,848
	Dec	346	345	340	377	377	384	361		2,848
Total		3,695	3,966	3,769	3,777	3,974	3,656	3,554	3,844	30,156
2009	Jan	292	364	345	352	336	361	325	342	2,977
	Feb	297	326	310	313	288	300	297	300	2,431
	Mar	307	323	326	316	316	316	310	316	2,540
	Apr	313	316	329	326	317	304	310	352	2,597
	May	310	323	326	326	304	313	313	300	2,515
	Jun	313	348	348	320	329	319	326	326	2,638
	Jul	323	326	348	329	313	316	326	329	2,610
	Aug	323	320	326	355	316	326	326	306	2,595
	Sep	300	297	326	326	297	310	307	293	2,494
	Oct	300	288	332	313	291	310	313	307	2,454
	Nov	355	297	355	384	297	361	323	323	2,997
	Dec	360	304	364	403	332	401	384	345	2,888
Total		3,853	3,842	4,035	4,063	3,725	3,937	3,875	3,844	31,174
2010	Jan	84	35	19	45	28	51	9	-10	85
	Feb	18	22	16	16	-22	22	22	6	101
	Mar	13	13	29	12	0	25	13	9	114
	Apr	25	7	29	26	-10	20	16	87	186
	May	26	-4	22	29	-8	25	38	-10	116
	Jun	0	5	32	5	5	12	48	-3	196
	Jul	10	-4	12	12	0	16	22	-7	92
	Aug	26	1	12	12	0	16	22	-7	92

Adding Print Titles

- You can repeat information, such as the company name, by specifying which rows or columns in the worksheet act as **print titles**, information that prints on each page
- In the Page Setup group on the Page Layout tab, click the **Print Titles** button
- Click the **Rows to repeat at top** box, move your pointer over the worksheet, and then select the range
- Click the **OK** button

Adding Print Titles

Second page of the printout

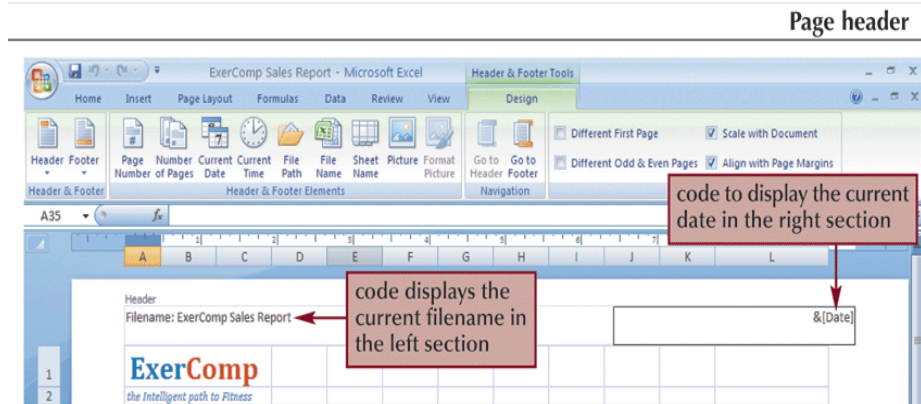
The screenshot shows the second page of a printout. The ExerComp logo and the title "X310 Monthly Sales Analysis" are repeated at the top of the page. A red box and arrow indicate that the print title is repeated on every page.

Year	Month	F101	F102	F103	F104	F105	F106	F107	F108	Total
2009	Jan	292	364	345	352	336	361	325	342	2,977
	Feb	297	326	310	313	288	300	297	300	2,431
	Mar	307	323	326	316	316	316	310	316	2,540
	Apr	313	316	329	326	317	304	310	352	2,597
	May	310	323	326	326	304	313	313	300	2,515
	Jun	313	348	348	320	329	319	326	326	2,638
	Jul	323	326	348	329	313	316	326	329	2,610
	Aug	323	320	326	355	316	326	326	306	2,595
	Sep	300	297	326	326	297	310	307	293	2,494
	Oct	300	288	332	313	291	310	313	307	2,454
	Nov	355	297	355	384	297	361	323	323	2,997
	Dec	360	304	364	403	332	401	384	345	2,888

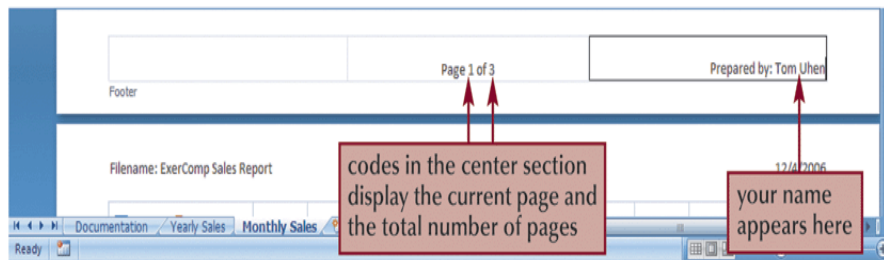
Adding Headers and Footers

- A **header** is the text printed in the top margin of each page
- A **footer** is the text printed in the bottom margin of each page
- Scroll to the top of the worksheet, and then click the left section of the header directly above cell A1 to display the Header & Footer Tools contextual tab

Adding Headers and Footers



Page footer



Excel Tutorial 3

Working with Formulas and Functions

Objectives

- Copy formulas
- Build formulas containing relative, absolute, and mixed references
- Review function syntax
- Insert a function with the Insert Function dialog box
- Search for a function
- Type a function directly in a cell
- Use AutoFill to fill in a formula and complete a series
- Enter the IF logical function
- Insert the date with the TODAY function
- Calculate monthly mortgage payments with the PMT financial function

Using Relative References

Formula using a relative reference

	A	B	C	D
original formula with a relative reference	10	20	30	
	=A1			

	A	B	C	D
formula copied to a new range (column and row references shift based on cell location)	10	20	30	
	=A1	=B1	=C1	

	A	B	C	D
formula results	10	20	30	
	10	20	30	

Using Absolute References

Formula using an absolute reference

	A	B	C	D
original formula with an absolute reference	10	20	30	
	=\$A\$1			

	A	B	C	D
formula copied into a new range (column and row references fixed regardless of cell location)	10	20	30	
	=\$A\$1	=\$A\$1	=\$A\$1	

	A	B	C	D
formula results	10	20	30	
	10	10	10	

Using Mixed References

Formulas using mixed references				
	A	B	C	D
original formula with a mixed reference	1	10	20	30
	2			
	3	=A\$1		
	4			
	5			
formula copied to a new range (row reference fixed on row 1, column reference shifts based on the cell location)	1	10	20	30
	2			
	3	=A\$1	=B\$1	=C\$1
	4	=A\$1	=B\$1	=C\$1
	5	=A\$1	=B\$1	=C\$1
formula results	1	10	20	30
	2			
	3	10	20	30
	4	10	20	30
	5	10	20	30

Entering Relative, Absolute, and Mixed References

- To enter a relative reference, type the cell reference as it appears in the worksheet. For example, enter B2 for cell B2
 - To enter an absolute reference, type \$ (a dollar sign) before both the row and column references. For example, enter \$B\$2
 - To enter a mixed reference, type \$ before either the row or column reference. For example, enter \$B2 or B\$2
- or
- Select the cell reference you want to change
 - Press the F4 key to cycle the reference from relative to absolute to mixed and then back to relative

Understanding Function Syntax

- Every function has to follow a set of rules, or **syntax**, which specifies how the function should be written

-- Arguments

Categories of Excel Functions	
Category	Contains functions that
Cube	Retrieve data from multidimensional databases involving online analytical processing or OLAP
Database	Retrieve and analyze data stored in databases
Date & Time	Analyze or create date and time values and time intervals
Engineering	Analyze engineering problems
Financial	Have financial applications
Information	Return information about the format, location, or contents of worksheet cells
Logical	Return logical (true-false) values
Lookup & Reference	Look up and return data matching a set of specified conditions from a range
Math & Trig	Have math and trigonometry applications
Statistical	Provide statistical analyses of a set of data
Text	Return text values or evaluate text

Understanding Function Syntax

Math, Trig and Statistical functions		
Function	Category	Description
AVERAGE(number1[,number2, number3, ...])	Statistical	Calculates the average of a collection of numbers, where <i>number1</i> , <i>number2</i> and so forth are either numbers or cell references. Only <i>number1</i> is required. For more than one cell reference or to enter numbers directly into the function, use the optional arguments <i>number2</i> , <i>number3</i> and so forth.
COUNT (value1 [,value2, value3, ...])	Statistical	Counts how many cells in a range contain numbers, where <i>value1</i> , <i>value2</i> , and so forth are text, numbers, or cell references. Only <i>value1</i> is required. For more than one cell reference or to enter numbers directly into the function, use the optional arguments <i>value2</i> , <i>value3</i> , and so forth.
COUNTA(value1 [,value2, value3, ...])	Statistical	Counts how many cells are not empty in range <i>value1</i> , <i>value2</i> and so forth, or how many numbers are listed within <i>value1</i> , <i>value2</i> , and so forth.
INT (number)	Math & Trig	Displays the integer portion of a number, <i>number</i> .
MAX (number1[,number2, number3, ...])	Statistical	Calculates the maximum value of collection of numbers, where <i>number1</i> , <i>number2</i> , and so forth are either numbers or cell references.
MEDIAN (number1[,number2, number3, ...])	Statistical	Calculates the median, or middle, value of a collection of numbers, where <i>number1</i> , <i>number2</i> , and so forth are either numbers or cell references.
MIN (number1[,number2, number3, ...])	Statistical	Calculates the minimum value of a collection of numbers, where <i>number1</i> , <i>number2</i> , and so forth are either numbers or cell references.
RAND ()	Math & Trig	Returns a random number between 0 and 1.
ROUND (number, num_digits)	Math & Trig	Rounds a number to a specified number of digits, where <i>number</i> is the number you want to round and <i>num_digits</i> specifies how many digits to which you want to round the number.
SUM (number1[,number2, number3, ...])	Math & Trig	Adds a collection of numbers, where <i>number1</i> , <i>number2</i> , and so forth are either numbers or cell references.

Inserting a Function

- Click the Formulas tab on the Ribbon
- To insert a function from a specific category, click the appropriate category button in the Function Library group. To search for a function, click the Insert Function button in the Function Library group, enter a description of the function, and then click the Go button
- Select the appropriate function from the list of functions
- Enter the argument values in the Function Arguments dialog box, and then click the OK button

Inserting a Function

Figure 3-8 Function Arguments dialog box

Tip

You can click the Collapse Dialog Box button to shrink the Function Arguments dialog box to see more of the worksheet, select the range, and then click the Expand Dialog Box button to restore the dialog box.

required argument

optional argument

description of the function

text that will be displayed in the worksheet

description of the Number1 argument

list of values in the range

preview of the value returned by the function with the current argument values

Inserting a Function

Figure 3-10 Insert Function dialog box

Tip

You can also open the Insert Function dialog box by clicking the Insert Function button on the formula bar.

description of function

list of functions that match the search description

syntax and description of the selected function

Typing a Function

- As you begin to type a function name within a formula, a list of functions that begin with the letters you typed appears

Typing a function

ScreenTip describes the selected function

list shows functions starting with MI

Year-End Summary		Total Take-Home Pay	37,950
	Monthly Average		3,163
	Monthly Minimum	=MI	
	Monthly Maximum		
	Total Expenses		
	Monthly Average		
	Monthly Minimum		
	Monthly Maximum		

Take-Home Pay & Expenses		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Pay	Diane	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
	Glenn	950	950	950	950	950	1,800	1,800	1,800	

Working with AutoFill

- **AutoFill** copies content and formats from a cell or range into an adjacent cell or range
- Select the cell or range that contains the formula or formulas you want to copy
- Drag the fill handle in the direction you want to copy the formula(s) and then release the mouse button
- To copy only the formats or only the formulas, click the AutoFill Options button and select the appropriate option

Or

- Select the cell or range that contains the formula or formulas you want to copy
- In the Editing group on the Home tab, click the Fill button
- Select the appropriate fill direction and fill type (or click Series, enter the desired fill series options, and then click the OK button)

Working with AutoFill

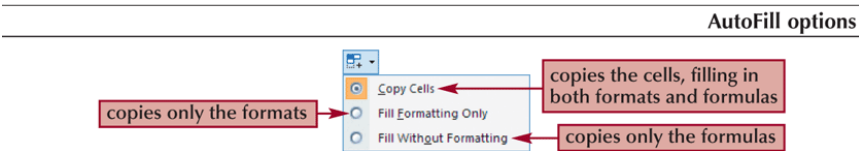
Formulas and formats copied with AutoFill

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
18										
19	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
20	950	950	950	1,800	1,800	1,800	950	950	950	950
21	3,450	3,450	3,450	4,300	4,300	4,300	3,450	3,450	3,450	3,450
22	850	850	850	850	850	850	850	850	850	850
23	650	650	650	650	650	650	650	650	650	650
24	175	165	120	135	145	145	140	140	170	210
25	75	75	75	75	75	75	75	75	75	75
26	175	175	175	175	175	175	175	175	175	175
27	125	125	125	125	125	125	125	125	125	125
28	0	0	0	900	0	1,900	0	0	0	0
29	0	0	0	300	0	700	0	0	0	0
30	150	450	120	180	720	400	130	150	250	300
31	150	150	150	150	150	150	150	150	150	150
32	2,350	2,640	2,265	3,540	2,890	5,170	2,295	2,315	2,445	2,535
33	1,100	810	1,185	760	1,410	-870	1,155	1,135	1,005	915
34										
35										
36										

Diagram annotations: A red box labeled "formula and formats copied to the selected range" points to the range B33:D33. A red box labeled "fill handle" points to the small square at the bottom-right corner of cell B33. A red box labeled "AutoFill Options button" points to the small square at the bottom-right corner of cell D33.

Using the AutoFill Options Button

- By default, AutoFill copies both the formulas and the formats of the original range to the selected range
- You can specify what is copied by using the AutoFill Options button that appears after you release the mouse button



Filling a Series

- AutoFill can also be used to create a series of numbers, dates, or text based on a pattern

AutoFill extends a numeric sequence

	A	B
1	1	
2	2	
3	3	
4		
5		
6		
7		
8		
9		
10		
11		
12		

Diagram annotations: A red box labeled "initial range establishes the series pattern" points to the range A1:A3. A red box labeled "fill handle" points to the small square at the bottom-right corner of cell A3.

	A	B
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	
10	10	
11		
12		

Diagram annotations: A red box labeled "dragging the fill handle extends the pattern to a larger range" points to the small square at the bottom-right corner of cell A10.

Filling a Series

AutoFill applied to different series		
Type	Initial Entry	Extended Series
Values	1, 2, 3	4, 5, 6,
	2, 4, 6	8, 10, 12,
Dates Times	Jan	Feb, Mar, Apr,....
	January	February, March, April,
	15-Jan, 15-Feb	15-Mar, 15-Apr, 15-May,
	12/30/2010	12/31/2010, 1/1/2011, 1/2/2011,
	12/31/2010, 1/31/2011	2/28/2011, 3/31/2011, 4/30/2011,
	Mon	Tue, Wed, Thu,
	Monday	Tuesday, Wednesday, Thursday,
	11:00 AM	12:00PM, 1:00PM, 2:00PM,
Patterned Text	1 st period	2nd period, 3rd period, 4th period,
	Region 1	Region 2, Region 3, Region 4,
	Quarter 3	Quarter 4, Quarter 1, Quarter 2,
	Qtr 3	Qtr4, Qtr1, Qtr2,

Creating a Series with AutoFill

- Enter the first few values of the series into a range
- Select the range, and then drag the fill handle of the selected range over the cells you want to fill
Or
- Enter the first few values of the series into a range
- Select the entire range into which you want to extend the series
- In the Editing group on the Home tab, click the Fill button, and then click Down, Right, Up, Left, Series, or Justify to set the direction you want to extend the series

Working with Logical Functions

- A **logical function** is a function that works with values that are either true or false
- The **IF function** is a logical function that returns one value if the statement is true and returns a different value if the statement is false
- $IF(\text{logical_test}, \text{value_if_true}, [\text{value_if_false}])$

Working with Logical Functions

- A **comparison operator** is a symbol that indicates the relationship between two values

Comparison operators		
Operator	Statement	Tests Whether
=	A1 = B1	The value in cell A1 <i>is equal to</i> the value in cell B1
>	A1 > B1	The value in cell A1 <i>is greater than</i> the value in cell B1
<	A1 < B1	The value in cell A1 <i>is less than</i> the value in cell B1
>=	A1 >= B1	The value in cell A1 <i>is greater than or equal to</i> the value in cell B1
<=	A1 <= B1	The value in cell A1 <i>is less than or equal to</i> the value in cell B1
<>	A1 <> B1	The value in cell A1 <i>is not equal to</i> the value in cell B1

Working with Logical Functions

- =IF(A1="YES", "DONE", "RESTART")
- =IF(A1="MAXIMUM", MAX(B1:B10), MIN(B1:B10))
- =IF(D33>0, \$K\$10, 0)

Working with Logical Functions

Function arguments for the IF function

test condition that is either true or false

value returned if the condition is true

value returned if the condition is false

Function Arguments

IF

Logical_test: D33>0 = FALSE

Value_if_true: \$K\$10 = \$C0

Value_if_false: 0 = 0

Checks whether a condition is met, and returns one value if TRUE, and another value if FALSE.

Value_if_false is the value that is returned if Logical_test is FALSE. If omitted, FALSE is returned.

Formula result = 0

Help on this function

OK Cancel

Working with Date Functions

Date Functions	
Function	Description
DATE (<i>year, month, day</i>)	Creates a date value for the date represented by the <i>year</i> , <i>month</i> and <i>day</i> arguments
DAY (<i>day</i>)	Extracts the day of the month from the <i>date</i> value
MONTH (<i>date</i>)	Extracts the month number from the <i>date</i> value where 1=January, 2=February, and so forth
YEAR(<i>date</i>)	Extracts the year number from the <i>date</i> value
WEEKDAY (<i>date</i> , <i>[return_type]</i>)	Calculates the day of the week from the <i>date</i> value, where 1=Sunday, 2=Monday, and so forth; to choose a different numbering scheme, set the optional <i>return_type</i> value to "1" (1=Sunday, 2=Monday, ...) "2" (1=Monday, 2=Tuesday, ...), or "3" (0=Monday, 1=Tuesday, ...)
NOW ()	Displays the current date and time
TODAY ()	Displays the current date

Working with Financial Functions

Financial functions for loans and investments	
Function	Description
FV (<i>rate, nper, pmt</i> , <i>[pv=0]</i> <i>[type=0]</i>)	Returns the future value of an investment, where <i>rate</i> is the interest rate per period, <i>nper</i> is the total number of periods, <i>pmt</i> is the payment in each period, <i>pv</i> is the present value of the investment, and <i>type</i> indicates whether payments should be made at the end of the period (0) or the beginning of the period (1)
PMT (<i>rate, nper, pv</i> , <i>[fv=0]</i> <i>[type=0]</i>)	Calculates the payments required each period on a loan or investment
IPMT (<i>rate, per, nper, pv</i> <i>[fv=0]</i> <i>[type=0]</i>)	Calculates the amount of a loan payment devoted to paying the loan interest, where <i>per</i> is the number of the payment period

PPMT (rate, per, nper, pv [fv=0][type=0])	Calculates the amount of a loan payment devoted to paying off the principal of a loan, where <i>per</i> is the number of the payment period
PV (rate, nper, pmt, [fv=0][type=0])	Calculates the present value of a loan or investment based on periodic, constant payments
NPER (rate, pmt, pv, [fv=0][type=0])	Calculates the number of periods required to pay off a loan or investment
RATE (nper, pmt, pv, [fv=0][type=0])	Calculates the interest rate of a loan or investment based on periodic, constant payments

Using the PMT Function to Determine a Monthly Loan Payment

- For loan or investment calculations, you need to know the following information:
 - The annual interest rate
 - The payment period, or how often payments are due and interest is compounded
 - The length of the loan in terms of the number of payment periods
 - The amount being borrowed or invested
- $PMT(\text{rate}, \text{nper}, \text{pv}, [\text{fv}=0] [\text{type}=0])$

Using the PMT Function to Determine a Monthly Loan Payment

Function Arguments dialog box for the PMT function

Function Arguments

PMT

Rate: B5 = 0.005416667

Nper: B7 = 240

Pw: B8 = 160000

Fv: = number

Type: = number

= -1192.917017

Calculates the payment for a loan based on constant payments and a constant interest rate.

Fv is the future value, or a cash balance you want to attain after the last payment is made, 0 (zero) if omitted.

Formula result: = -1192.917017

[Help on this function](#)

OK Cancel

Using the PMT Function to Determine a Monthly Loan Payment

- Monthly payment for a \$160,000 loan

Drake Family Budget - Microsoft Excel

Home Insert Page Layout Formulas Data Review View

Clipboard Font Alignment Styles Cells Editing

B9 =PMT(B5,B7,B8)

PMT function entered in cell B9

1	Home Loan	
2		
3	Annual Interest Rate	6.50%
4	Interest Payments per Year	12
5	Interest Rate per Period	0.0054167
6	Number of Years	20
7	Number of Payments	240
8	Loan Amount	160,000
9	Monthly Loan Payment	\$1,192.92
10		

value returned by the PMT function

Excel Tutorial 4

Working with Charts and Graphics

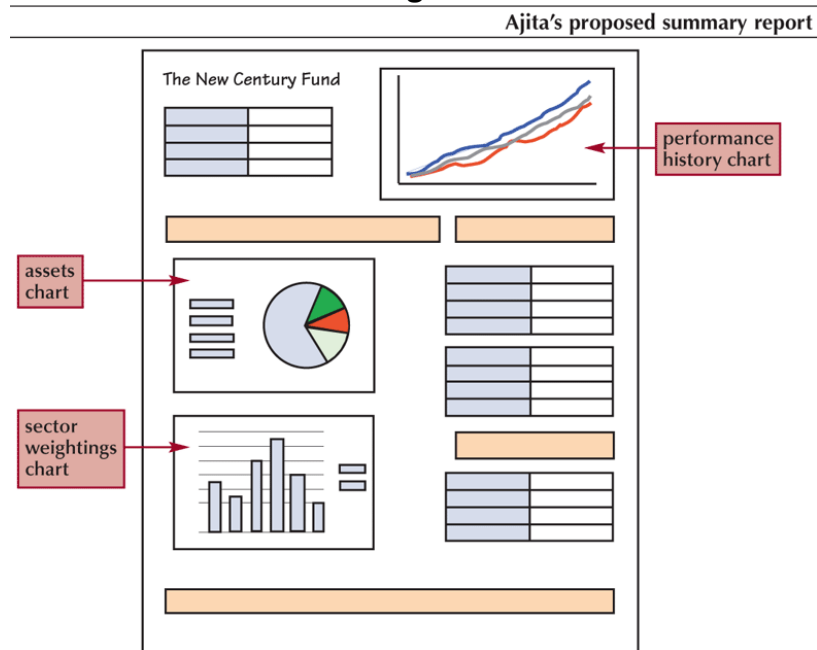
Objectives

- Create an embedded chart
- Work with chart titles and legends
- Create and format a pie chart
- Work with 3D charts
- Create and format a column chart
- Create and format a line chart
- Use custom formatting with chart axes
- Work with tick marks and scale values
- Create and format a combined chart
- Insert and format a graphic shape
- Create a chart sheet

Creating Charts

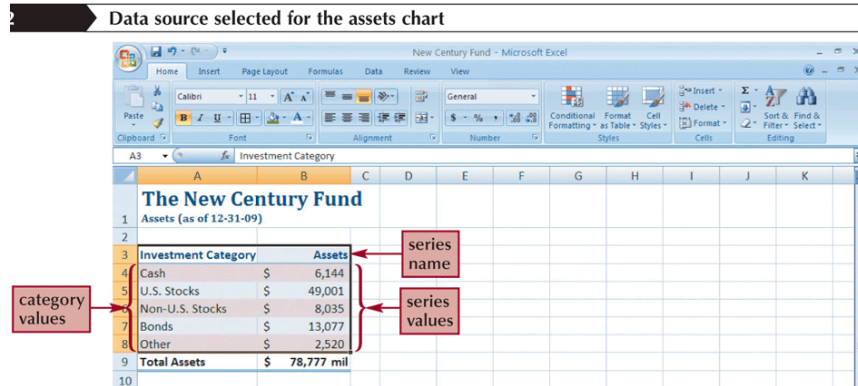
- A **chart**, or **graph**, is a visual representation of a set of data
- Select the data source with the range of data you want to chart
- In the Charts group on the Insert tab, click a chart type, and then click a chart subtype in the Chart gallery
- In the Location group on the Chart Tools Design tab, click the Move Chart button to place the chart in a chart sheet or embed it into a worksheet

Creating Charts



Selecting a Data Source

- The **data source** is the range that contains the data you want to display in the chart
- **Data series**
- **Series name**
- **Series values**
- **Category values**



Selecting a Chart Type

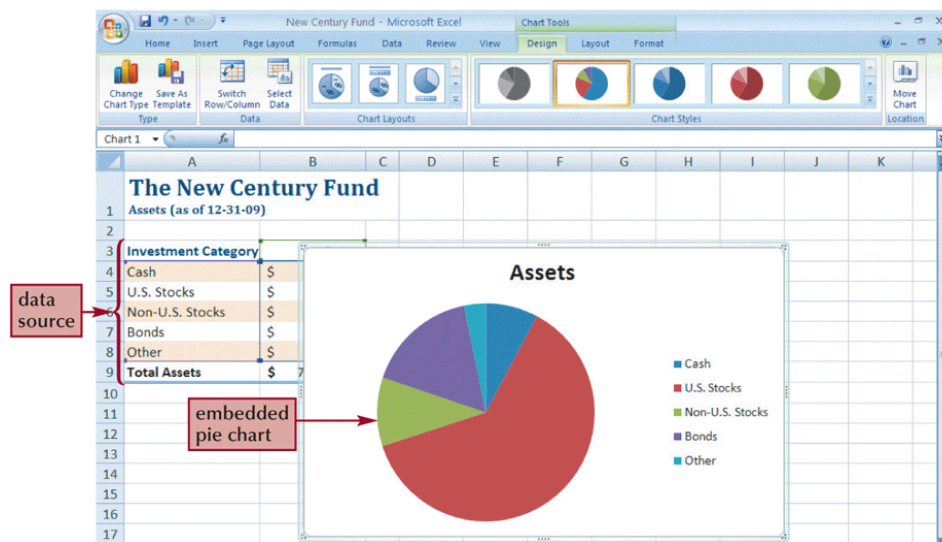
Categories of Excel Chart types

Chart Type	Description
Column	Compares values from different categories. Values are indicated by the height of the columns.
Line	Compares values from different categories. Values are indicated by the height of the line. Often used to show trends and changes over time.
Pie	Compares relative values of different categories to the whole. Values are indicated by the area of the pie slices.
Bar	Compares values from different categories. Values are indicated by the length of the bars.
Area	Compares values from different categories. Similar to the line chart except that areas under the lines contain a fill color.
XY (Scatter)	Show the patterns or relationship between two or more sets of values. Often used in scientific studies and statistical analyses.
Stock	Displays stock market data, including the high, low, opening and closing prices of a stock.
Surface	Compares three sets of values in a three-dimensional chart.
Doughnut	Compares relative values of different categories to the whole. Similar to the pie chart except that it can display multiple sets of data.
Bubble	Shows the patterns or relationship between two or more sets of values. Similar to the XY (Scatter) chart except the size of the data marker is determined by a third value.
Radar	Compares a collection of values from several different data sets.

Selecting a Chart Type

- Click the **Insert** tab on the Ribbon
- In the **Charts** group, click the **Pie** button

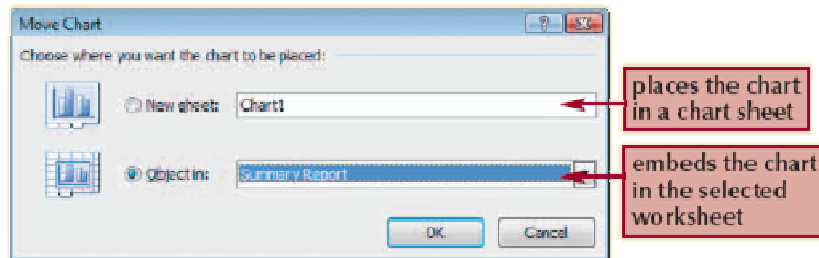
➔ Pie chart inserted in the Assets sheet



Moving and Resizing Charts

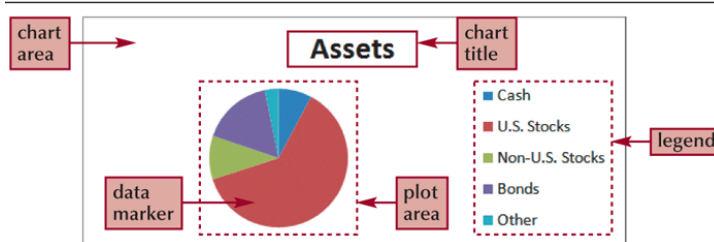
- By default, a chart is inserted as an **embedded chart**, which means the chart is placed in a worksheet next to its data source
- You can also place a chart in a **chart sheet**
- In the **Location** group on the Chart Tools Design tab, click the **Move Chart** button

Move Chart dialog box



Selecting Chart Elements

Common chart elements



Choosing a Chart Style and Layout

Style 26 chart style applied

pie slice style is changed

Style 26 chart style selected

Fees & Expenses	
Sales Charges	
Front-End Load	5.75%
Deferred Load	NA
Fund Expenses	
Management Fees	0.29%
12b1 Expense	0.25%
Net Expense Ratio	0.62%
Gross Expense Ratio	0.68%
Risk and Return Profile	

Choosing a Chart Style and Layout

Pie chart layouts		
Layout	Name	Pie Chart with
	Layout 1	Chart title, labels and percentages
	Layout 2	Chart title, percentages and legend above the pie
	Layout 3	Legend below the pie
	Layout 4	Label in pie slices
	Layout 5	Chart title and labels in pie slices
	Layout 6	Chart title, percentages and legend to the right of the pie
	Layout 7	Legend to the right of the pie

Working with the Chart Title and Legend

- Click the chart title to select it
- Type the chart title, and then press the **Enter** key
- Click the **Chart Tools Layout** tab on the Ribbon
- In the Labels group, click the **Legend** button, and then click the desired legend position

Working with the Chart Title and Legend

Chart legend moved and formatted

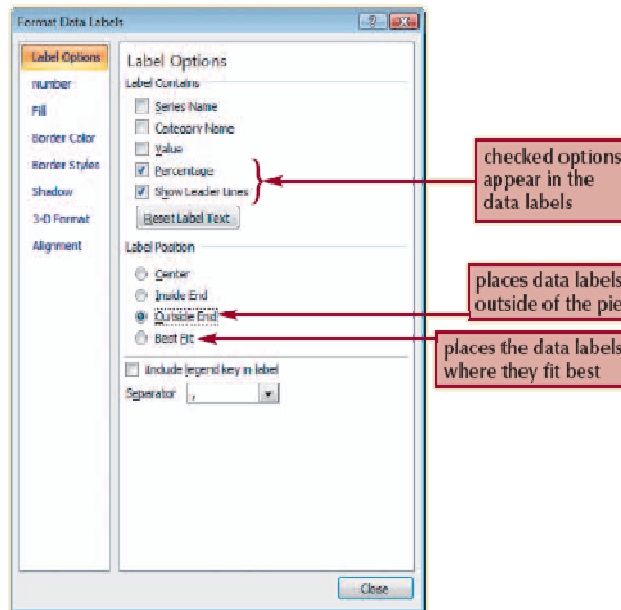
legend with an orange border appears on the left side of the chart

Fees & Expenses	
Sales Charges	
Front-End Load	5.75%
Deferred Load	NA
Fund Expenses	
Management Fees	0.29%
12b1 Expense	0.25%
Net Expense Ratio	0.62%
Gross Expense Ratio	0.68%

Formatting a Pie Chart

- Click the chart to select it
- In the Labels group on the Chart Tools Layout tab, click the **Data Labels** button, and then click **More Data Label Options**

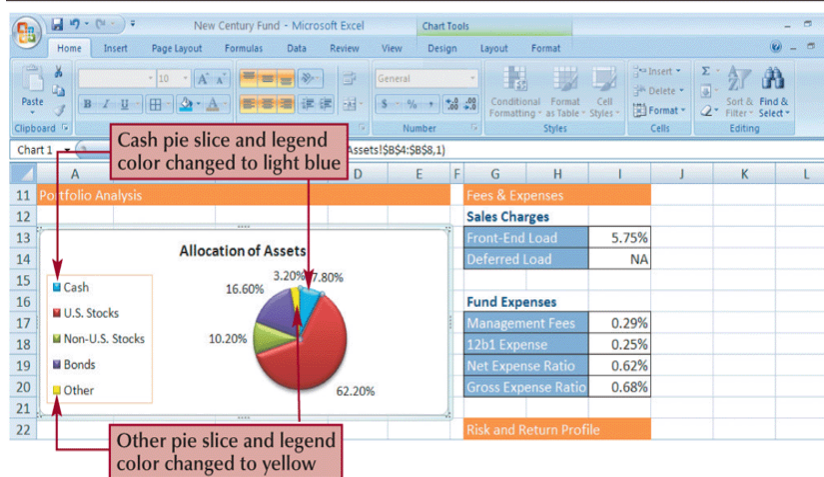
Label Options in the Format Data Labels dialog box



Setting the Pie Slice Colors

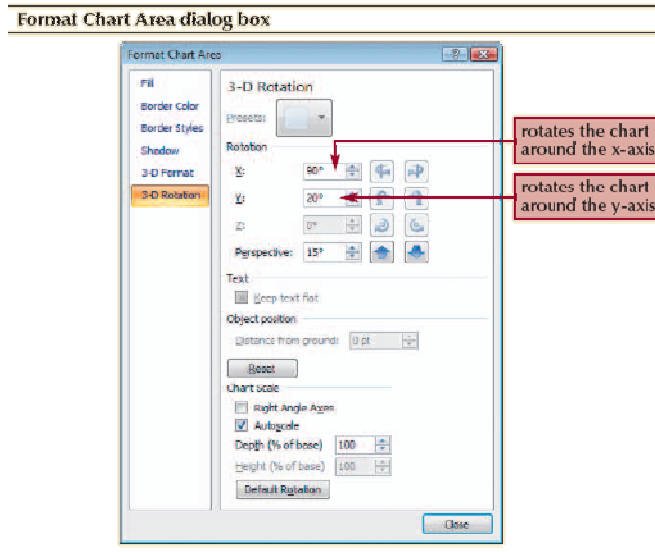
- In pie charts with legends, it's best to make the slice colors as distinct as possible to avoid confusion
- Click the pie to select the entire data series, and then click the slice you wish to change
- Change the fill color

Pie slices with new colors



Working with 3D Options

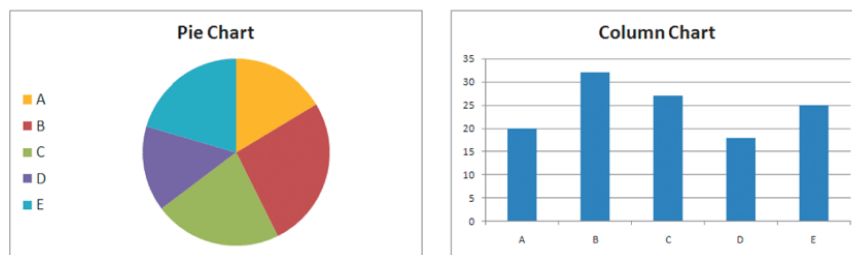
- To increase the 3D effect, you need to rotate the chart
- Click the **Chart Tools Layout** tab on the Ribbon, and then, in the Background group, click the **3-D Rotation** button



Creating a Column Chart

- A **column chart** displays values in different categories as columns; the height of each column is based on its value
- The **bar chart** is a column chart turned on its side, so each bar length is based on its value

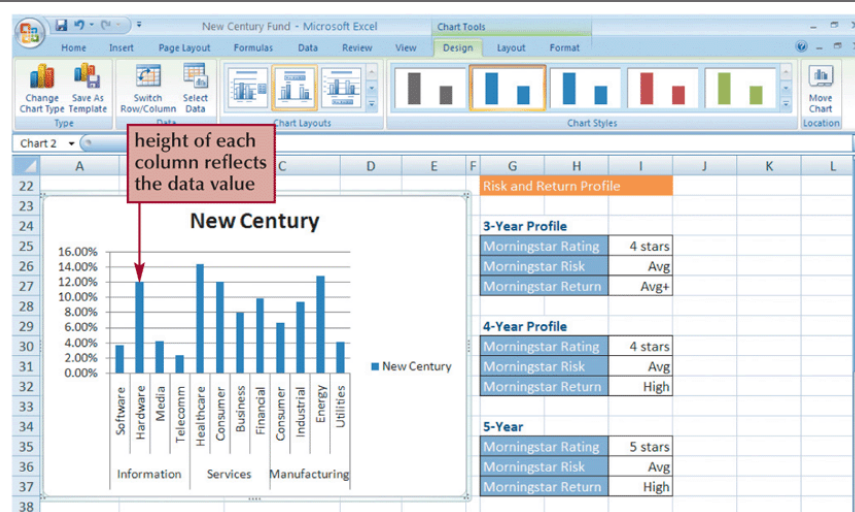
Same data displayed as a pie chart and a column chart



Creating a Column Chart

- Select the range
- Click the **Insert** tab on the Ribbon
- In the Charts group, click the **Column** button and then choose the chart subtype

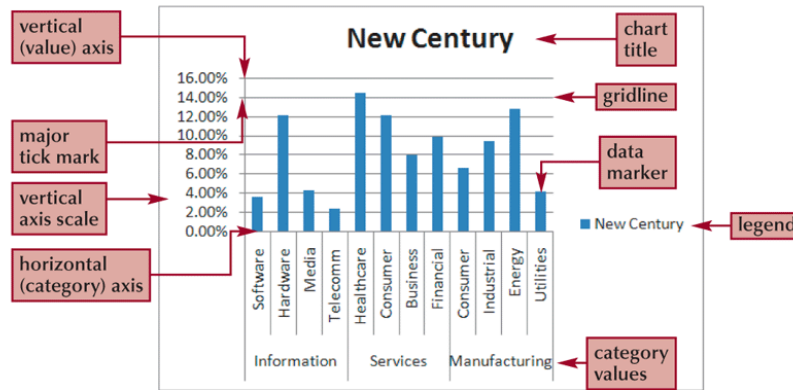
Column chart moved and resized in the Summary Report worksheet



Formatting Column Chart Elements

- Click the **Chart Tools Layout** tab on the Ribbon

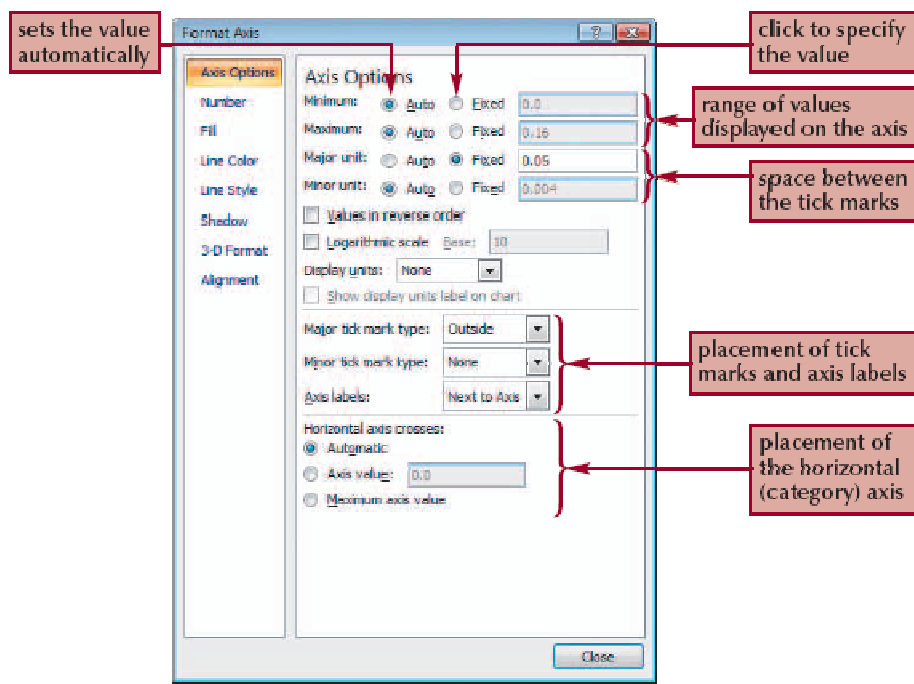
Elements of the column chart



Formatting the Chart Axes

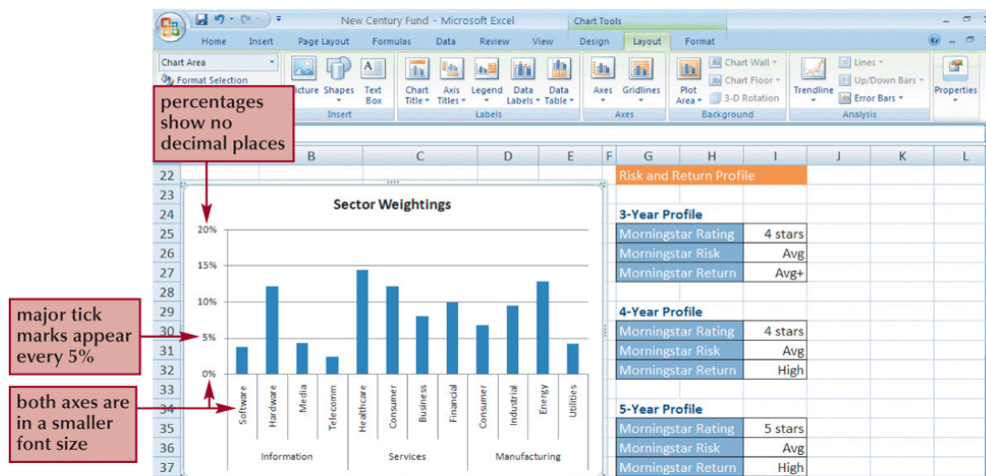
Click the **Chart Tools Layout** tab on the Ribbon

Axis Options in the Format Axis dialog box



Formatting the Chart Axes

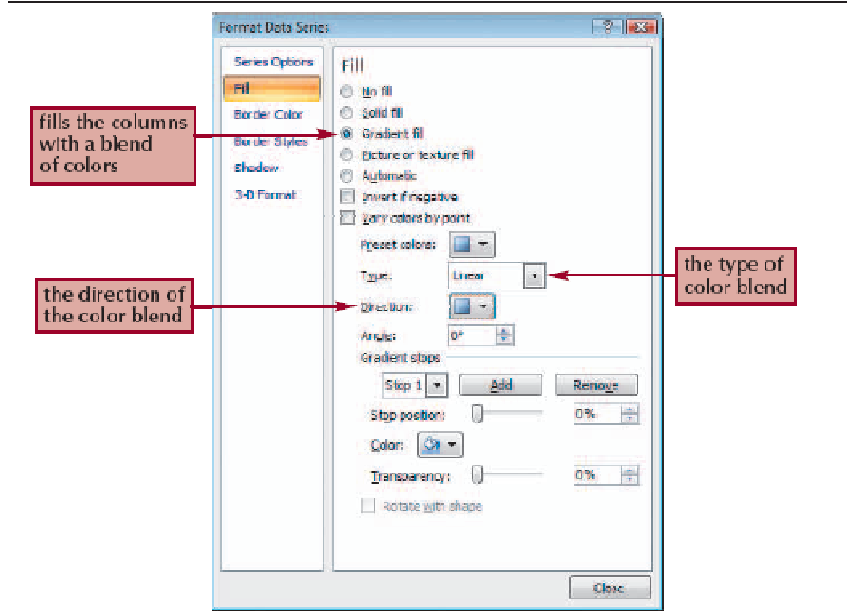
Figure 4-25 Formatted chart axes



Formatting Chart Columns

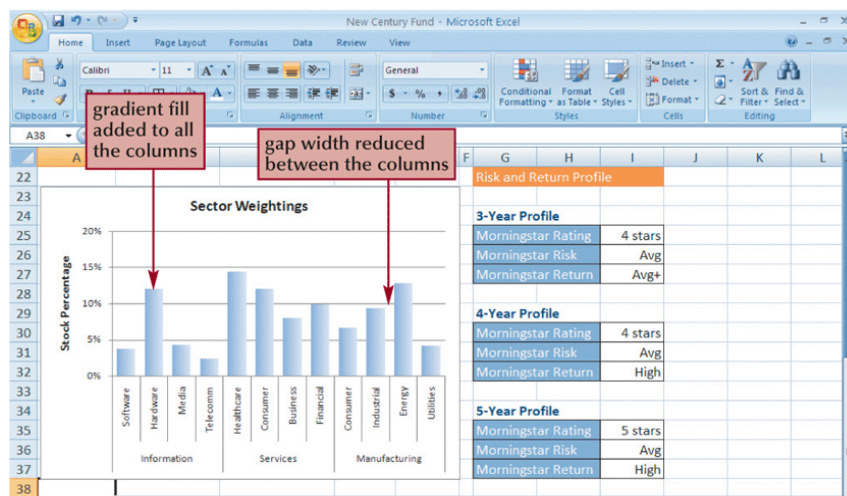
- Click any column in the Sector Weightings chart
- In the Current Selection group on the Chart Tools Layout tab, click **Format Selection**

Fill options set in the Format Data Series dialog box



Formatting Chart Columns

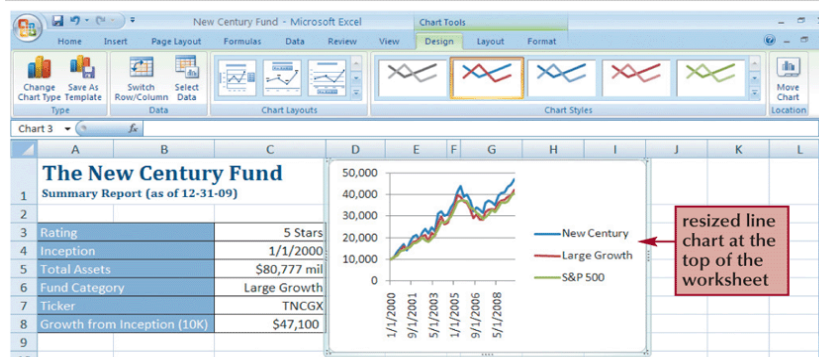
Formatted chart columns



Creating a Line Chart

- Select the range
- Click the **Insert** tab on the Ribbon
- In the Charts group, click the **Line** button, and then click the **Line** chart

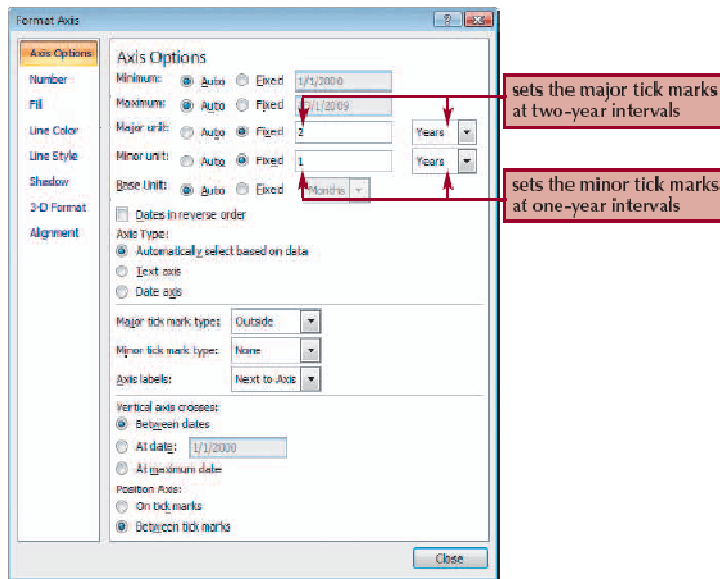
Moved and resized line chart



Formatting Date Labels

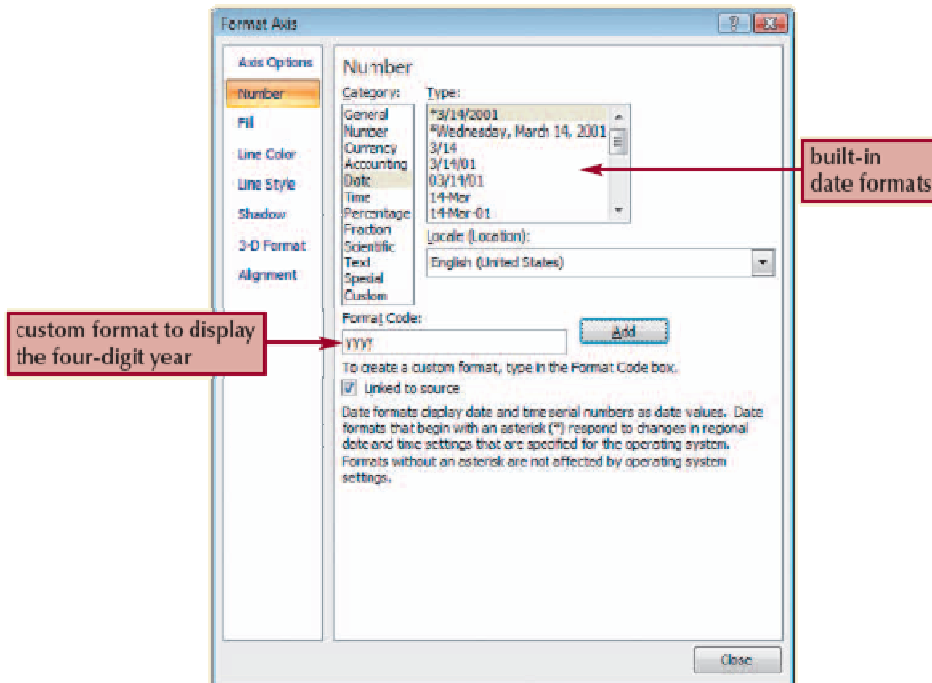
- Click the **Chart Tools Layout** tab on the Ribbon
- In the Axes group, click the **Axes** button, point to **Primary Horizontal Axis**, and then click **More Primary Horizontal Axis Options**

Date intervals for tick marks



Formatting Date Labels

Number options

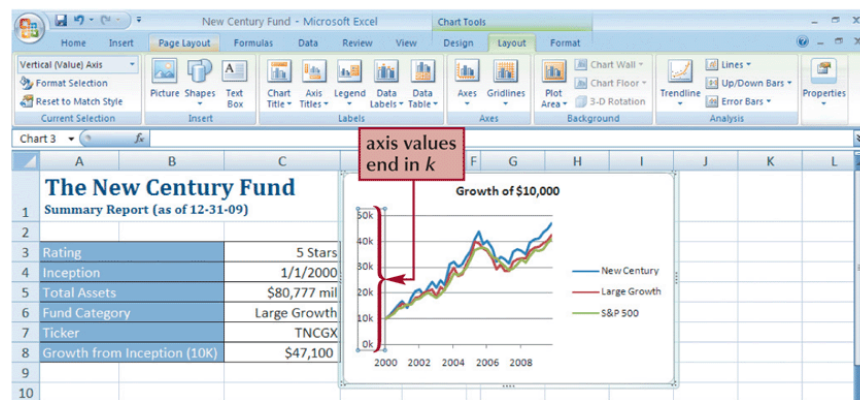


Setting Label Units

- In the Axes group on the Chart Tools Layout tab, click the **Axes** button, point to **Primary Vertical Axis**, and then click **More Primary Vertical Axis Options**
- Click the **Display units** arrow and then make your selection

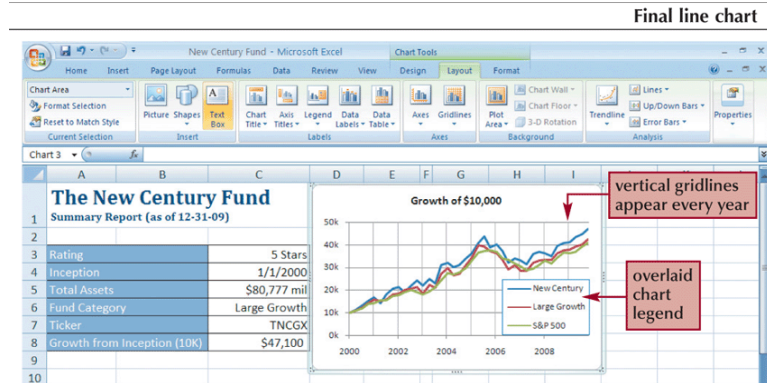
Setting Label Units

Formatted labels in the vertical axis



Overlaying a Legend

- In the Labels group on the Chart Tools Layout tab, click the **Legend** button, and then click **More Legend Options**
- Click the **Show the legend without overlapping the chart** check box to remove the check mark

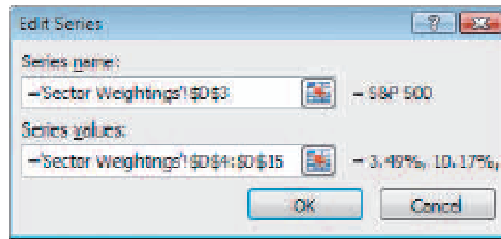


Adding a Data Series to an Existing Chart

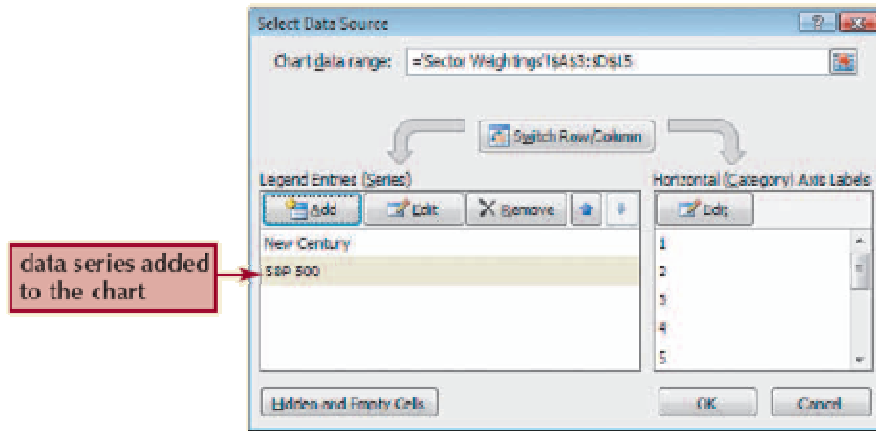
- Select the chart to which you want to add a data series
- In the Data group on the Chart Tools Design tab, click the **Select Data** button
- Click the **Add** button in the **Select Data Source** dialog box
- Select the range with the series name and series values you want for the new data series
- Click the **OK** button in each dialog box

Adding a Data Series to an Existing Chart

Edit Series dialog box



Select Data Source dialog box

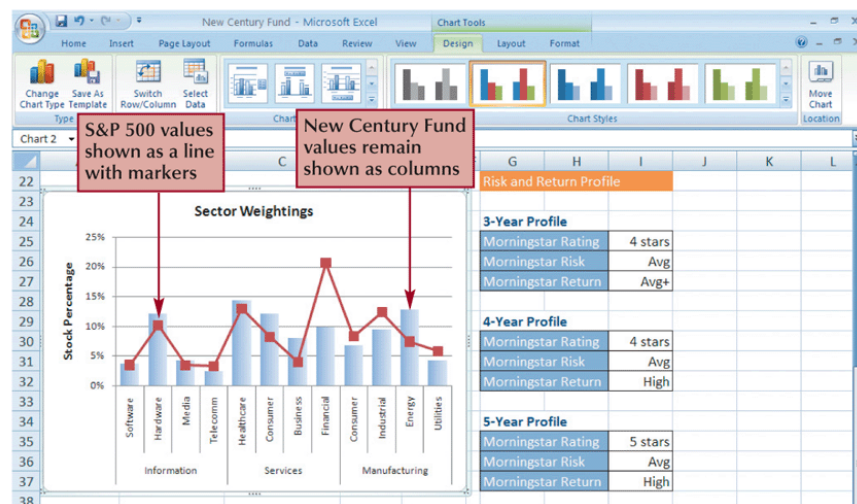


Creating a Combination Chart

- Select a data series in an existing chart that you want to appear as another chart type
- In the Type group on the Chart Tools Design tab, click the Change Chart Type button, and then click the chart type you want
- Click the OK button

Creating a Combination Chart

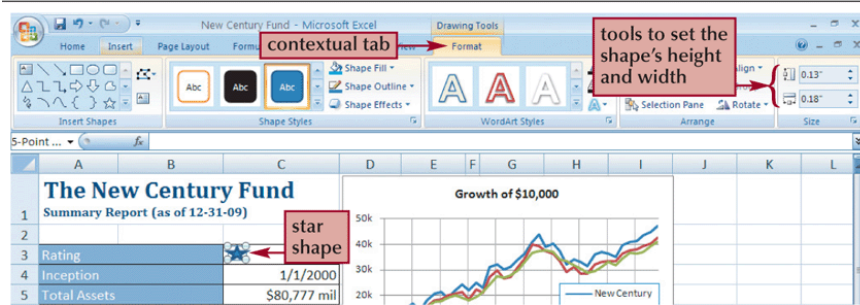
Combination chart



Inserting a Shape

- Click the **Insert** tab on the Ribbon
- In the Illustrations group, click the **Shapes** button, and then choose the shape you want
- Draw the shape in your worksheet

▶ Star shape embedded in cell C3



Aligning and Grouping Shapes

- Hold down the **Shift** key and then click each shape to select it
- Click the **Drawing Tools Format** tab on the Ribbon
- In the Arrange group, click the **Align** button, and then click your alignment option
- To group several shapes into a single unit, select the shapes, and then click the **Group** button in the Arrange group on the Drawing Tools Format tab

Aligning and Grouping Shapes

▶ Grouped and aligned star shapes

