

ASA Research

Microsoft Excel Hands On



ASA RESEARCH

J. Carlton Collins, CPA
ASA Research
Atlanta, Georgia
770.734.0950

Carlton@ASAResearch.com

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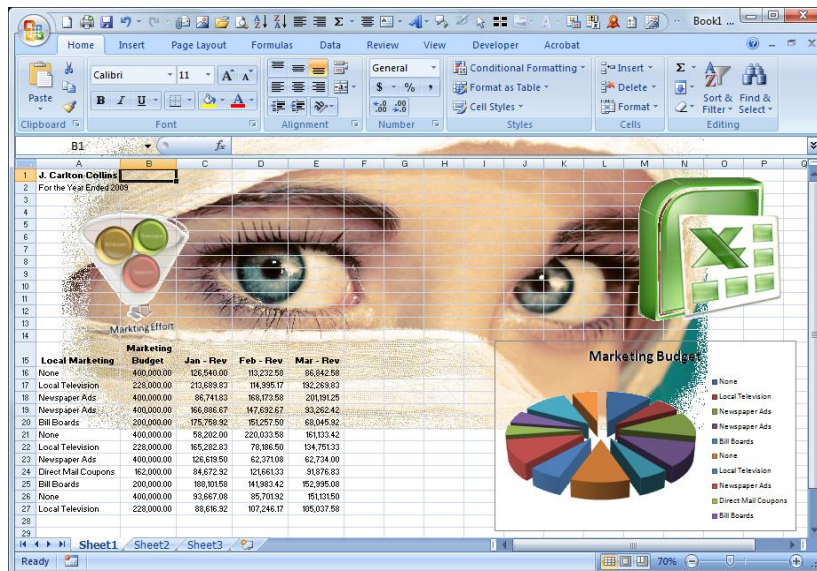
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Excel Hands On Course Information

Learning Objectives	To increase the productivity of accountants and CPAs using Excel's best functions & commands hands on
Course Level	Intermediate
Pre-Requisites	Good Familiarity with Microsoft Excel, must bring laptop computer pre-loaded with Excel
Advanced Preparation	None
Presentation Method	Live lecture using full color projection systems with hands on practice & course materials
Recommended CPE Credit	8 hours
Handouts	Templates, checklists, web examples, manual
Instructors	J. Carlton Collins, CPA



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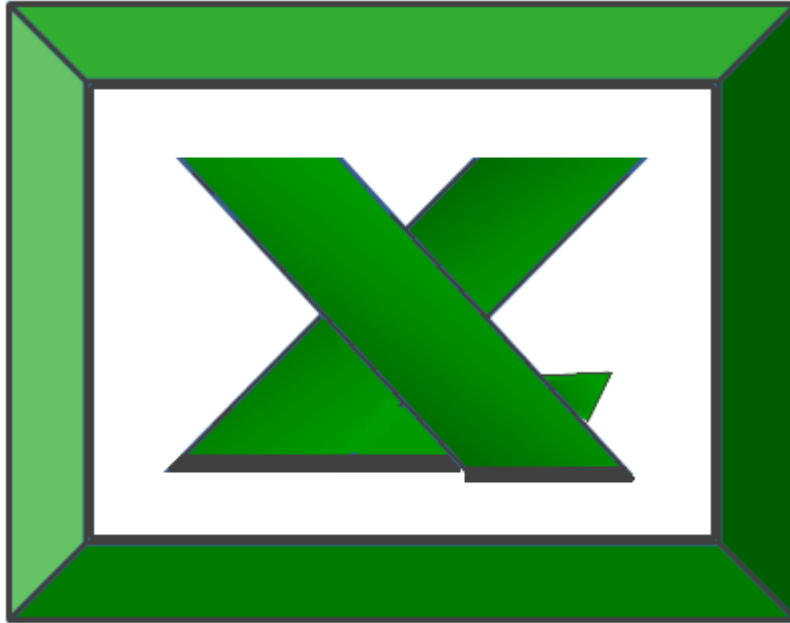
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Contact Information:

J. Carlton Collins

carlton@asaresearch.com



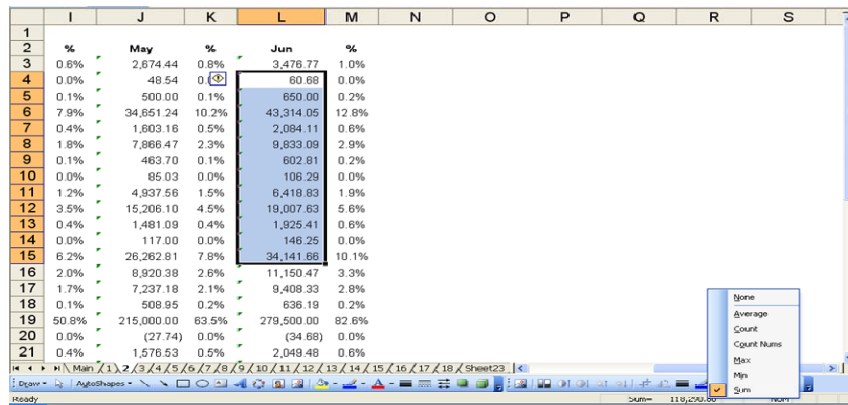
Chapter 1

Excel Essentials for CPAs Hands On Practice

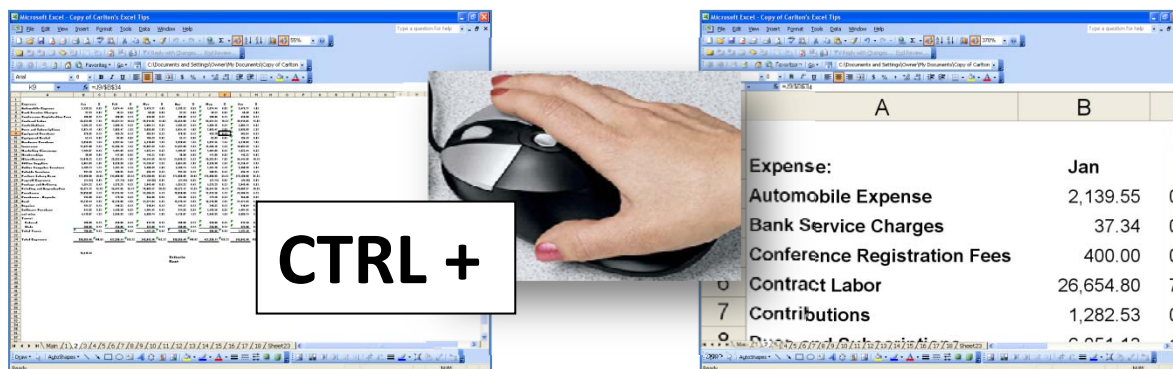
Hands on Practice – Using Excel

These materials are intended to be used in conjunction with the Excel data files that are supplied with this course. These files can also be downloaded from the following web site address: www.exceladvisor.net and the password to open these files is “2007collins”.

- 1. Right Click Status Bar - (*View sums, averages, mins, maxes immediately*)** – Sometimes you just want to make a quick check of the data you’ve entered to make sure that the amounts enter foot properly or that the proper number of entries were made. This status bar information helps you achieve this goal.



- 2. CTRL + Mouse Scroll - (*Zoom in & out with your mouse*)**



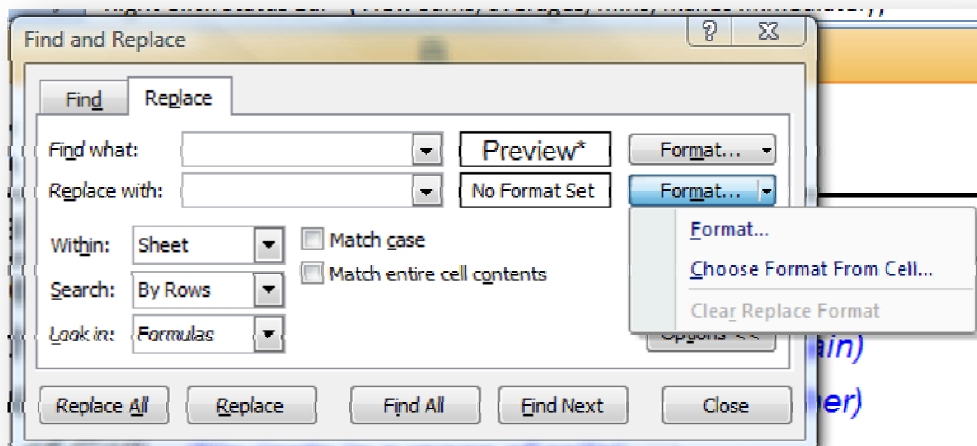
- 3. Double Click the Format Painter - (*Tool sticks until clicked again*)** - The format painter tool is a great tool for applying the format from one cell to other cells. However, a little known secret is that you can double click the Format painter Tool, and the tool will “stick” allowing you to apply the format to multiple cells, rows, columns, or worksheets. The tool sticks until you press the ESC key or click the format Painter tool again. Go ahead, give it a try.



- 4. Replace Formatting - (*Find and replace one formatting with another*)**- The search and replace command is a great command, but it contains a powerful little option that enables you to search

for a particular format and replace it with another format . More to the point, this options allows you to select a format that already exists in your worksheet and enables you to replace it with a different format that already exists in your worksheet.

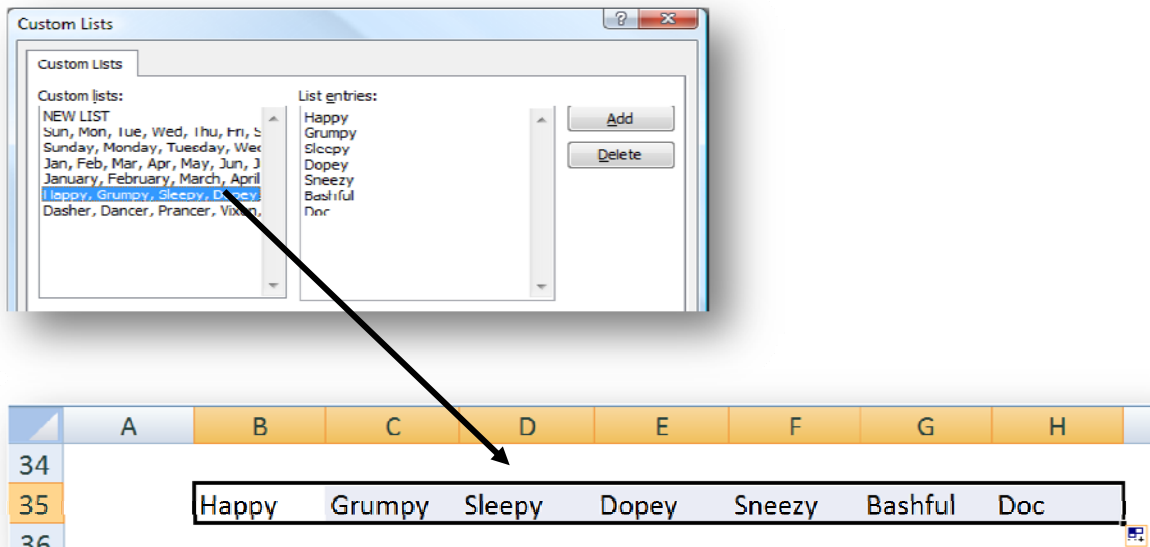
For example, assume that you have created a gigantic worksheet that contains thousands of percentage calculations scattered throughout the worksheet that shows each percentage to 1 decimal place. After a partner review, you have been asked to change the format of all percentages to 2 decimals places, because the fractional round could have a material impact. In this case, use the Search and replace command, Options Button to select a format to be replaced, and designate the new format. This action can update all of the percentages throughout the worksheet to display 2 decimal places in a matter of seconds.



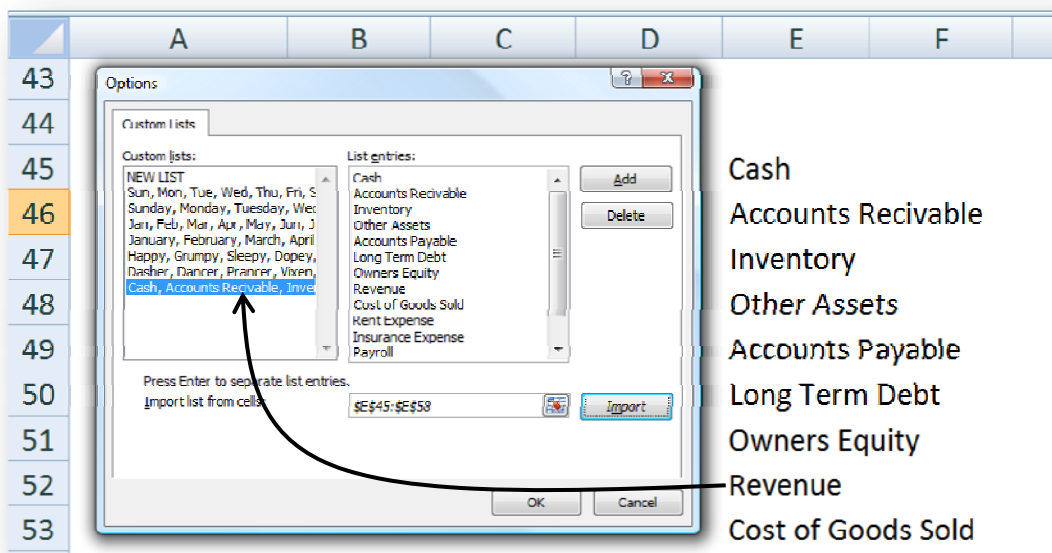
- 5. AutoFill – January, Monday, Quarter** – By grabbing the “Fill Handle” on the bottom right corner of a cell, you can drag a series of text or data out to the right, or down. Excel is fairly smart and will fill in the range for you.

	A	B	C	D	E	F	G	H	I
1									
2		January	February	March	April	May	June	July	August
3									
4		JAN	JAN	JAN	JAN	JAN	JAN	JAN	JAN
5									
6		Jan	Jan	Jan	Jan	Jan	Jan	Jan	Jan
7									
8		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday
9									
10		MON	TUE	WED	THU	FRI	SAT	SUN	MON
11									
12		Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 1	Quarter 2	Quarter 3	Quarter 4
13									
14		Q1							
15									

6. **Custom Fill** - You can also create your own custom fill lists with the Tool, Options, Custom Lists tab in Excel 2003. In Excel 2007, Click the Microsoft Office Button, and then click Excel Options. Click **Popular**, and then under **Top options for working with Excel**, click **Edit Custom Lists**.



7. **Custom Lists** - The Custom Lists dialog box can save time and effort when entering labels that you frequently use such as department titles in your business. Excel comes with a few of the most common lists pre-programmed. However, if you have a list of titles, headings, people names, places, etc. that you find yourself inputting over and over again you can add these labels to the pre defined custom lists.

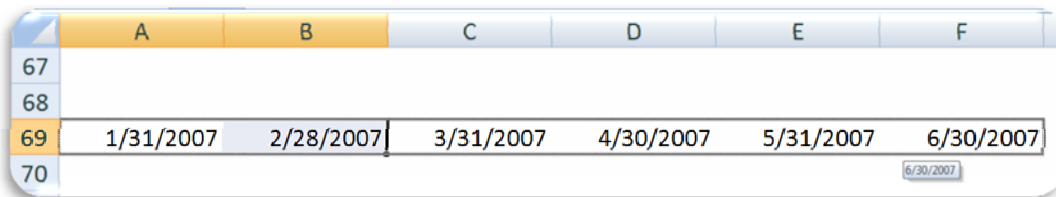


The Custom Lists Dialog Box

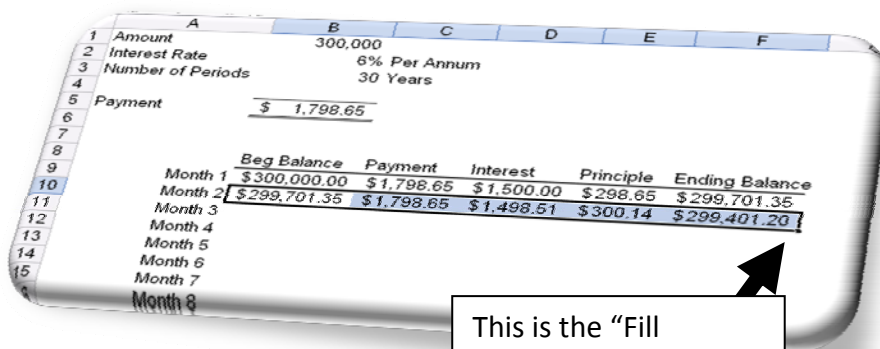
Notice that you can enter your list in the right frame and add it to your lists. Or, you can highlight a range you have already entered in Excel, select Tools/Options/Custom List and then import

the highlighted range directly into your lists. Lists can be deleted when no longer needed. Once you create a custom list you can use auto fill to quickly and easily enter the labels in the list into any row or column. Simply type any of the labels in the list and drag it down or across with the fill handle.

- Using AutoFill Trends** – A more advanced application of AutoFill is achieved when you provide Excel a trend from which to generate the fill range. For example, type in the month end as a true date and drag the cell to the right. This result will yield incremental days. However, to produce month end results, you will need to give Excel an example of the trend you are looking for by typing the end of two consecutive months (as shown in cells A69 and B69 in the screen below). Next highlight both dates and drag to the right to fill in the following month end dates in true date form. This approach is better for writing formulas that refer to column headings, for example to age outstanding receivables.



- Use Scroll Tips to Figure out Where to Stop** – Also note in the screen above that “Scroll Tips” are pop up indicators that display the value that AutoFill will insert in each cell. This makes it easier to paint a fill range of appropriate size.
- Temporarily Disable AutoFill - Press the “Control Key” when using “AutoFill” to temporarily disable the “AutoFill” affect.**
- Double Click the Fill Handle to Fill an Entire Column** - In financial worksheets such as loan amortization schedules you are often faced with the task of building a formula and copying it down dozens or even hundreds of cells. In these situations there is frequently an adjacent column that goes down as far as you would like to copy the new formula. In these cases simply double click on the fill handle in the cell to fill the entire column with the formula all the way down as far as the adjacent cell has data.



Fill Entire Columns with One Double Click

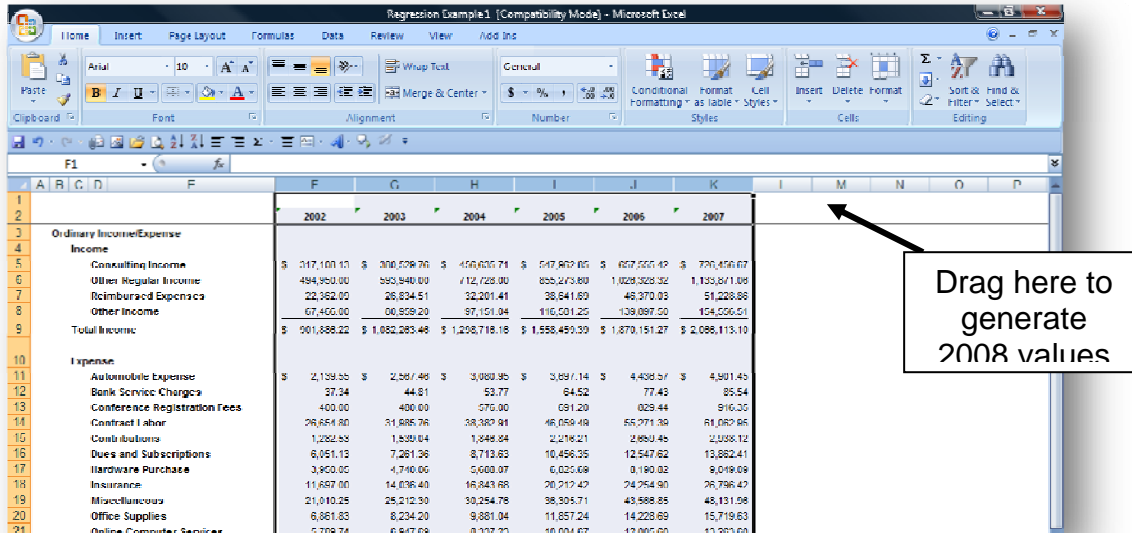
12. Using AutoFill To Erase Cells with Formatting – I like to erase data by using AutoFill to drag a blank cell, or range of blank cells over existing data. This not only erases the data, but gets rid of the formatted fonts, colors and borders as well.

13. Using AutoFill's Regression Analysis – When using AutoFill with more than two cells, AutoFill will automatically use Linear Regression Analysis (the least squares method) to generate the additional data. Presented below is a simple example:

	A	B	C	D	E	F	G
1	Sales Forecast for the Second Quarter						
2							
3		Jan	Feb	Mar			
4	Dept 1	343	476	588			
5	Dept 2	455	459	755			
6	Dept 3	327	633	589			
7	Dept 4	432	455	512			
8		1,557	2,023	2,444			
9							Jun

	A	B	C	D	E	F	G
1	Sales Forecast for the Second Quarter						
2							
3		Jan	Feb	Mar	Apr	May	Jun
4	Dept 1	343	476	588	714	837	959
5	Dept 2	455	459	755	856	1,006	1,156
6	Dept 3	327	633	589	778	909	1,040
7	Dept 4	432	455	512	546	586	626
8		1,557	2,023	2,444	2,895	3,339	3,782

14. More Detailed Regression Example - As an example, CPAs could use this to highlight actual revenue and expenses for 2002 through 2007 as show below, and use AutoFill's Regression Analysis to predict 2008 values.



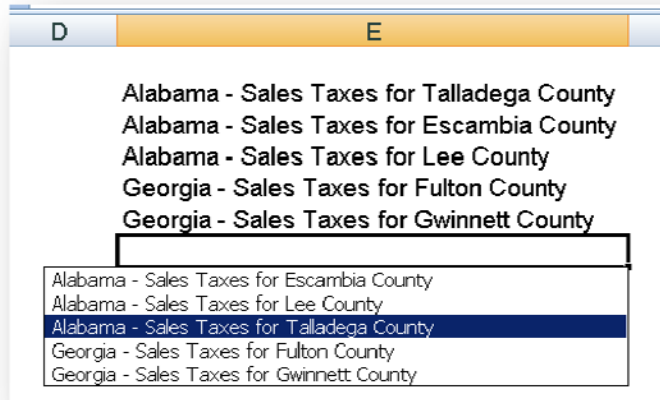
15. Click on Edge of Cell - (*Navigate in a range of cells*) – You can navigate a range of cells by double clicking on the edge of the cell where the cursor resides. For example, double clicking on the bottom moves the cursor to the bottom of a range.

16. Control Tilde (CTRL + ~) - (*View underlying formulas*) You can view all formulas in a worksheet simply pressing the CTRL+Tilde buttons. Not only does this display underlying formulas, it also displays the formula auditing toolbar.

	D	E	F	G	H	I
1						
2	Feb	%	Mar	%	Apr	%
3	=B3/0.8	=D3/\$B\$34	=D3*1.3	=F3/\$B\$34	2139.55	=H3/\$B\$34
4	=B4*1.3	=D4/\$B\$34	=D4/0.8	=F4/\$B\$34	37.34	=H4/\$B\$34
5	=B5/0.8	=D5/\$B\$34	=D5*1.3	=F5/\$B\$34	400	=H5/\$B\$34
6	=B6*1.3	=D6/\$B\$34	=D6/0.8	=F6/\$B\$34	26654.8	=H6/\$B\$34
7	=B7/0.8	=D7/\$B\$34	=D7*1.3	=F7/\$B\$34	1282.53	=H7/\$B\$34
8	=B8*1.3	=D8/\$B\$34	=D8/0.8	=F8/\$B\$34	8051.13	=H8/\$B\$34
9	=B9/0.8	=D9/\$B\$34	=D9*1.3	=F9/\$B\$34	370.96	=H9/\$B\$34
10	=B10*1.3	=D10/\$B\$34	=D10/0.8	=F10/\$B\$34	85.41	=H10/\$B\$34
11	=B11/0.8	=D11/\$B\$34	=D11*1.3	=F11/\$B\$34	3950.05	=H11/\$B\$34
12	=B12*1.3	=D12/\$B\$34	=D12/0.8	=F12/\$B\$34	11697	=H12/\$B\$34
13	=B13/0.8	=D13/\$B\$34	=D13*1.3	=F13/\$B\$34	1184.87	=H13/\$B\$34

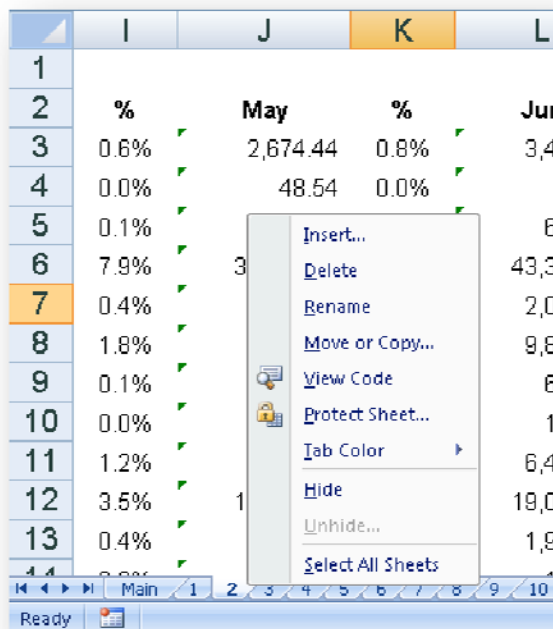
17. Indent Icon - (*Indent cells or columns instantly*) - The indent icon can be used to indent text instantly. As an option, you could hold down the control key and select different ranges of cells, and then indent them all together with one simple command.

18. Drop Down List - ALT + Down Arrow (or Shift-F10) - (*Pick from a drop down list*) – When typing information in a list which is repetitive with some of the entries from above, pressing the ALT+ Down Arrow keys will pop up a list of unique values from which you can choose.

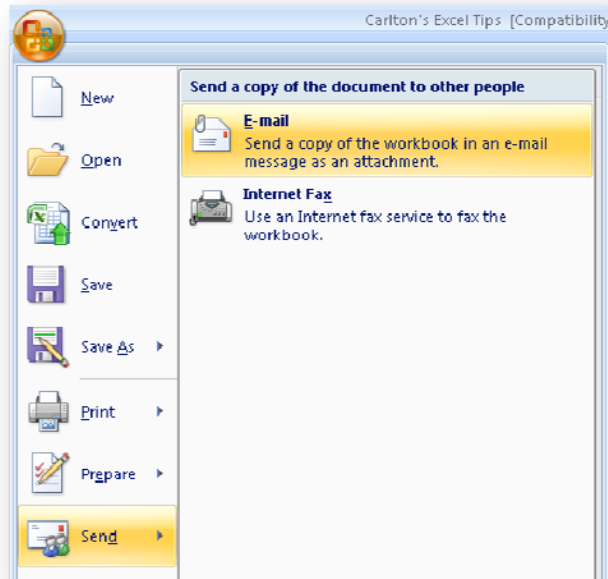


19. Repeat the Last Command using F4 - (*Repeat the last command such as insert rows or change row height, or inserting new worksheets*)

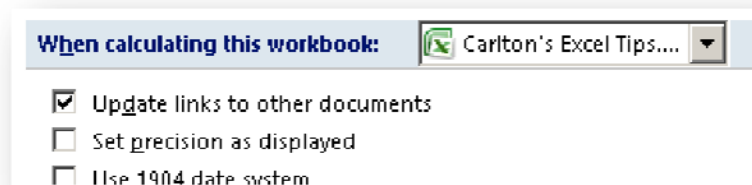
20. Right Click Tab, Copy, Create Copy - (*Insert new sheet with headers, footers, etc*)- A common complaint CPAs make is that of inserting a new worksheet only to have to format the page settings of that worksheet to reflect the desired headers, footers, margins, etc. Using the Create Copy Command, users can make a copy of an existing worksheet including headers, footers, and margins settings. This approach avoids the need to format new worksheets as they are inserted.



21. File, Send To, Mail Recipient - (*E-Mail a worksheet, workbook or chart*) Word, Excel, PowerPoint and other Office applications allow users to e-mail files directly from within that file. For example in Excel, the user can e-mail the current worksheet to a recipient from within Excel. Best of all, the utility that enables users to do this is integrated with outlook so all outlook contacts and groups are available, and sent items are shown in the Outlook Sender's Folder.



- 22. Double Click Fill Handle** - (*Copies formula down the relevant range*) – This procedure enables users to copy a cell or highlighted range of cells down to underlying cells adjacent to data already entered in the column immediately to the left. It is a faster way to copy down, especially when copying to a large destination range. However, this feature only works if the column to the immediate left contains values with absolutely no blank cells.
- 23. Paste Special, Transpose** - (*Invert a matrix of numbers*) – Sometimes it is useful to transpose a matrix of values or data for data analysis or presentation purposes. Excel can accomplish this procedure very quickly with the paste transpose command.
- 24. Tools, Options, Calculation, Precision as Displayed** (*Avoid rounding errors*) – Excel can produce rounding errors when more decimals are involved than displayed. You can avoid rounding errors by turning on the “Precision As Displayed” option. If you use this feature, it might be a good idea to turn it off immediately because leaving this feature on may have unintended consequences in the event that you change the decimal format of a cell later on.



- 25. Right Click Toolbar, Options, Uncheck the Option “Show Full Menus”** - (*Show all menu options*) – As a default, Excel has an annoying habit of presenting the most recently used menu options, and the remaining menu options 3 seconds later. The problem is that this approach wastes three seconds every time you want to use a menu option that you have not used in a while, and the menus are constantly presented to you in a resorted order forcing you to often search for the menu option which shows up in different locations in the menu. To avoid these problems, turn the delay feature off.

26. Tools, AutoCorrect, Smart Tags, None - (Turn off Smart Tags) – Smart tags can clutter the screen and hide the full contents of a cell. Use this command to turn off Smart Tags – or Dumb Tags as I call them.

27. Chart with F11 - (Produce a quick chart) – Pressing the F11 key while your cursor is positioned on a range of values will automatically produce a chart. This can be a quick way of looking at your data in a visual form.

28. =Substitute - (Remove or replace unwanted characters) – This function can be used to remove unwanted characters. For example, if you have a column of text that contains quotes, extra spaces, or unwanted characters, you can use the substitute command to remove those characters. For example, below the exclamation points have been removed.

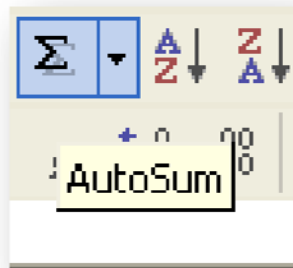
B	C	D	E	F	G	H
The !United States of America!				The United States of America		
The !United States of America!				=SUBSTITUTE(B4,"!", "")		

29. Copy Formula, to Blank Cells - (Fill in missing data in a list) - The F5 key can be used to select blank cells within a range. This can be used to paste data to numerous blank cells scattered throughout a range that contains values, without overwriting the values. For example, in the screen below, the user can fill in the missing state and city information by entering one formula referencing the cell above, and pasting it to all of the blank cells in columns A and B. It is hard to describe this feature in a book, but when you see it in action you can easily understand and appreciate the power of this tip.

	A	B	C	D	E	F	G	H	I
1	Carlton's Rental Properties								
2	2007 Analysis								
3									
4	State	City	Type	Manager	Revenue	Expense	Profit		
5	Florida	Daytona	Duplex	Steve	75,254	58,698	16,556		
6			Duplex	Steve	77,184	87,218	(10,034)		
7			Duplex	Steve	77,184	68,634	8,430		
8			Duplex	Steve	76,213	60,213	16,006		
9			Townhome	Steve	52,140	41,191	10,949	35.6%	
10			Townhome	Steve	52,800	58,664	(6,864)	25.5%	
11			Townhome	Steve	52,140	41,191	10,949	27.6%	
12			Triplex	Ginger	110,772	94,156	16,616	33.8%	
13			Triplex	Ginger	121,198	112,714	8,484	45.0%	
14			Triplex	Ginger	121,198	112,714	8,484	23.3%	
15	Tampa		Apartment	Ginger	128,563	119,564	8,999	33.8%	
16			Apartment	Ginger	217,504	184,878	32,626	53.3%	
17			Duplex	Steve	79,114	64,873	14,240	25.5%	
18			Townhome	Steve	33,600	38,016	(4,416)	54.4%	
19			Townhome	Steve	51,480	40,154	11,326	25.5%	
20			Townhome	Steve	54,120	44,378	9,742	31.5%	
21			Townhome	Steve	54,120	44,378	9,742	56.4%	
22			Triplex	Ginger	31,224	127,714	(96,490)	24.7%	

Fill in these blank cells with the appropriate state and city names using this

30. AutoSum - The AutoSum tool offers a variety of functionality and methods for inserting totals, averages, and other functions into your worksheet. The screen shots below demonstrate some of this functionality.



Excel 2003 Screen

	A	B	C	D
1	Sales Forecast for Second Quarter			
2				
3		JAN	FEB	MAR
4	Dept 1	343	433	454
5	Dept 2	433	455	665
6	Dept 3	412	556	766
7	Dept 4	988	1,433	1,543
8		=SUM(B4:B7)		
9		SUM(number1, [number2], ...)		

AutoSum – Single Cell



Excel 2007 Screen

	A	B	C	D
1	Sales Forecast for Second Quarter			
2				
3		JAN	FEB	MAR
4	Dept 1	343	433	454
5	Dept 2	433	455	665
6	Dept 3	412	556	766
7	Dept 4	988	1,433	1,543
8		2,176	2,877	3,428
9				

AutoSum – By Row

	B	C	D	F	F
Forecast for Second Quarter					
	JAN	FEB	MAR	APR	
	343	433	454	521	1,751
	433	455	665	760	2,303
	412	556	766	932	2,666
	988	1,433	1,543	1,876	5,840

AutoSum – By Columns
Footings

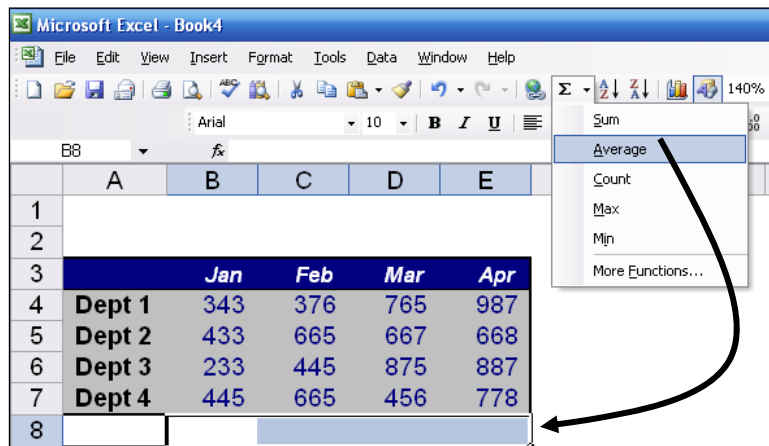
	B	C	D	E	F
Forecast for Second Quarter					
	JAN	FEB	MAR	APR	
	343	433	454	521	1,751
	433	455	665	750	2,303
	412	556	766	932	2,666
	988	1,433	1,543	1,876	5,840
	2,176	2,877	3,428	4,079	12,560

AutoSum Row, Columns, & Cross

	A	B	C	D	E	F
1	Sales Forecast for Second Quarter					
2						
3		JAN	FEB	MAR	APR	
4	Dept 1	343	433	454	521	1,751
5	Dept 2	433	455	665	750	2,303
6						
7	Dept 3	412	556	766	932	2,666
8	Dept 4	988	1,433	1,543	1,876	5,840
9		2,176	2,877	3,428	4,079	12,560

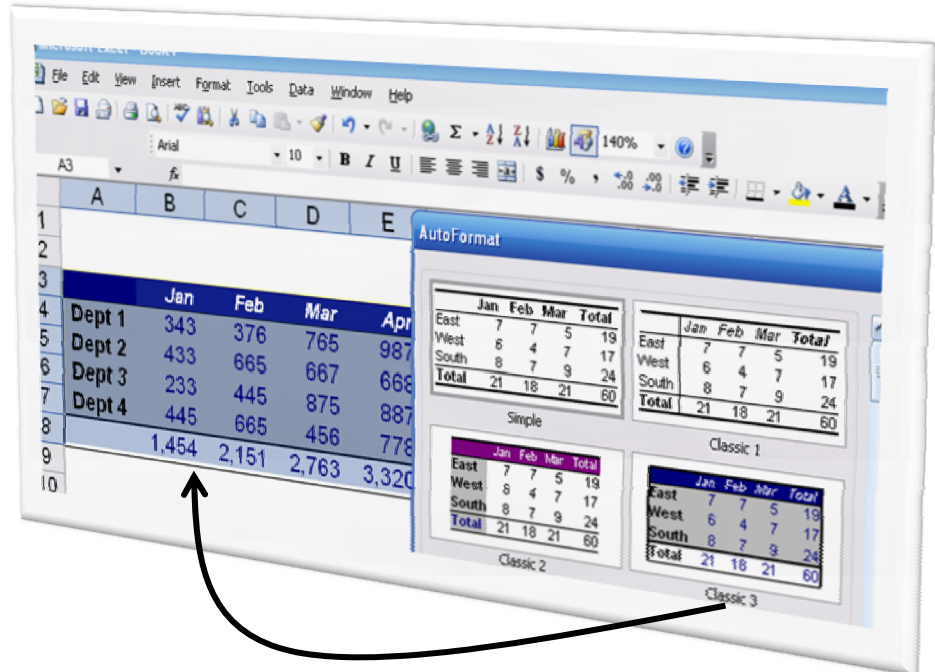
AutoSum – Overcoming Blank Rows

31. AutoSum Drop Down – Averaging, Counting, Minimum, Maximum, Etc.

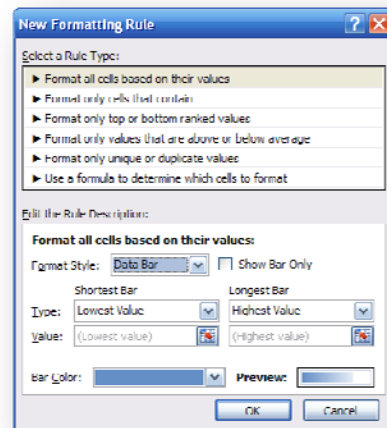
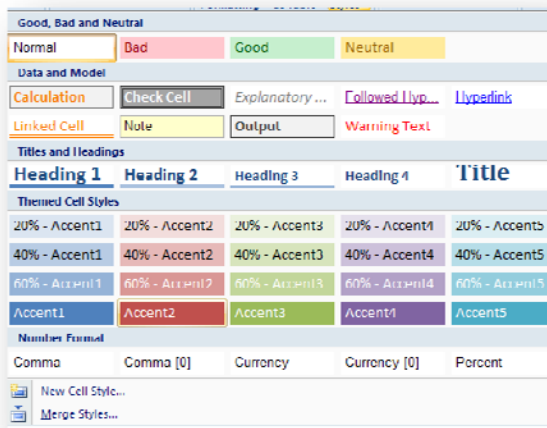


As shown above, the AutoSum function can be used to compute other formulas besides SUM such as Average, Count, Min, Max, and more functions.

32. AutoFormat - In Excel 2003 and earlier versions, Excel offers an AutoFormat feature that applies a format automatically to a range of data. In Excel 2007, this functionality has been improved and expanded to include a large gallery of formats.

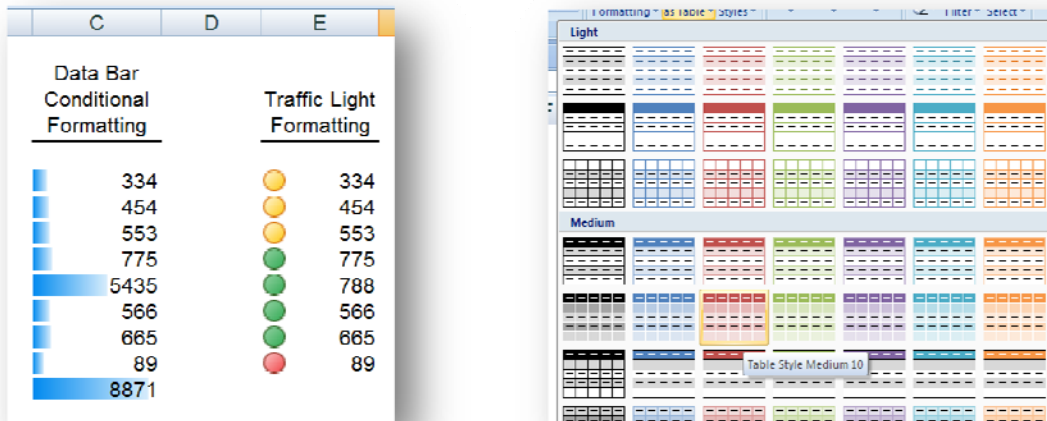


33. Conditional Formatting with Data Bars and Traffic Lights - In Excel 2007, the format features have been expanded to include better styles, table formats, conditional formats, cell formats and more. Styles enable users to apply a specific style, including font, font size, fill color, font color, underlines, borders, bolding, and italics to a cell, or multiple cells. Later, if you change the format style, your changes will automatically update all the cells that have been formatted with that style. Even if you never change your mind, often the use of styles can make formatting a large workbook quicker and easier. The “Cell Styles” tool offers users a gallery of predefined styles to choose from, as shown in the screen below and to the left, or you can also create your own unique styles.



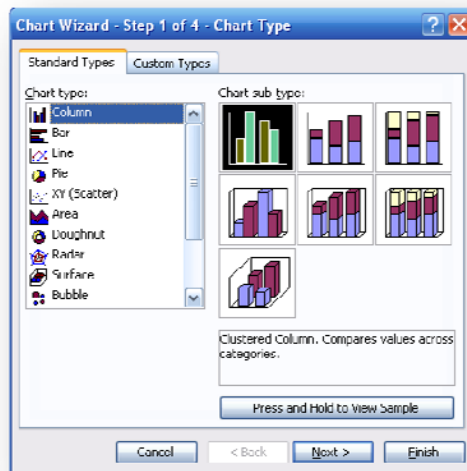
The Conditional Formatting tool is vastly improved with “Data Bar” and “Traffic Light” reporting, as well as an improved menu for applying conditional formats. Presented below (left) are examples of conditional formats. Below (right) are examples of “Table Styles” that can be

applied to data ranges. Excel 2007 also provides tools for creating your own user-defined “Table Styles”.



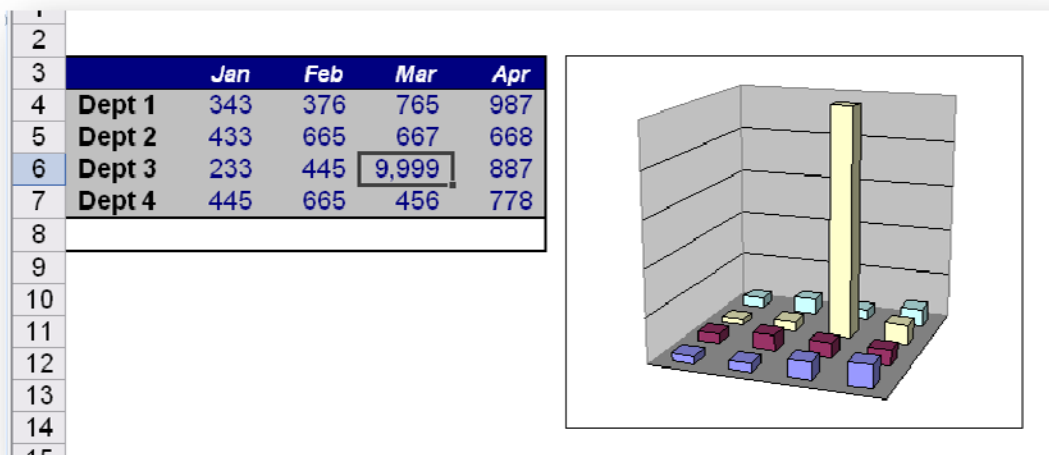
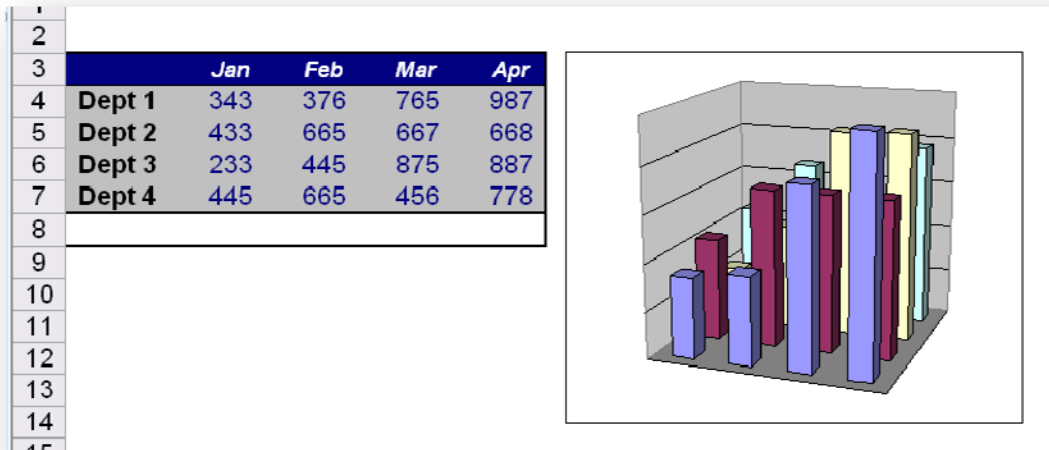
Other enhancements include new “Top/Bottom” tools and rules for displaying the top or bottom values in a range; “Highlight” tools and rules for displaying duplicates, equivalents, conditional dates, and other types of data; and “Color Scale” tools and rules for identifying specific data by color.

- 34. **The Chart Wizard** – In Excel 2003, to create a quick chart, simply place your cursor in a range of data and press the F11 key. This action will create a quick chart. However, for more control over the results, click the Charting ICON from the standard tool bar. This will walk you through the wizard shown below. In the first screen you can select the type of chart you desire.



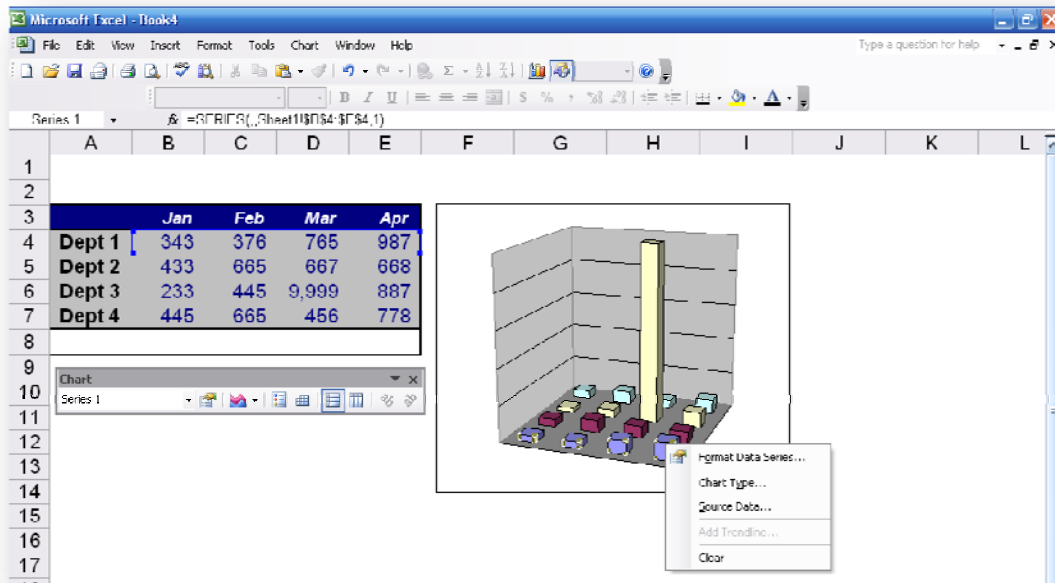
Subsequent dialog boxes enable you to edit the data range, set the chart series by columns or rows, create titles, control the X and Y axes, control gridlines, create the legend, include or exclude data labels, and add a data table. The final step allows the user to indicate the location for the resulting chart.

- 35. **The Resulting Chart is Automatically Linked to Data** - Of course charts created from data are automatically linked to that data. As the data changes, so does the chart.

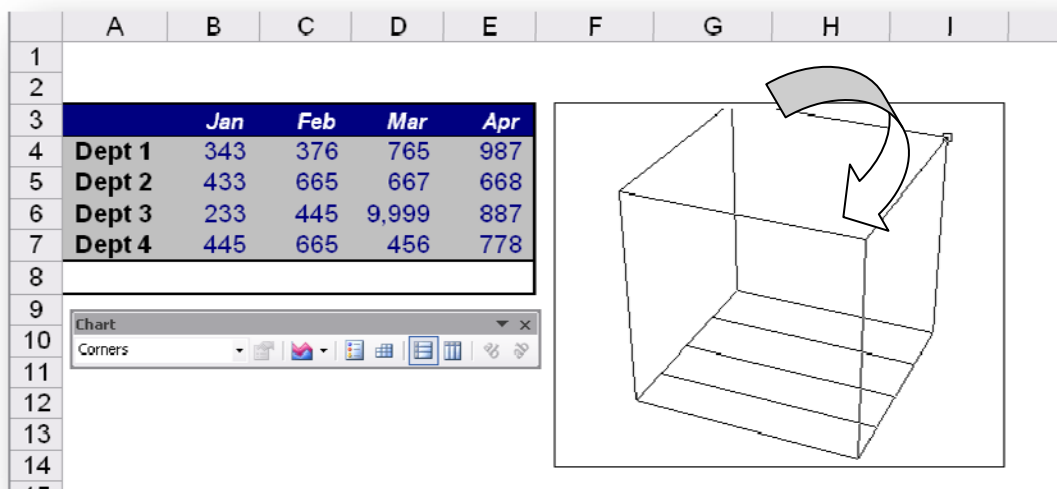


Note that the chart changes as the data changes

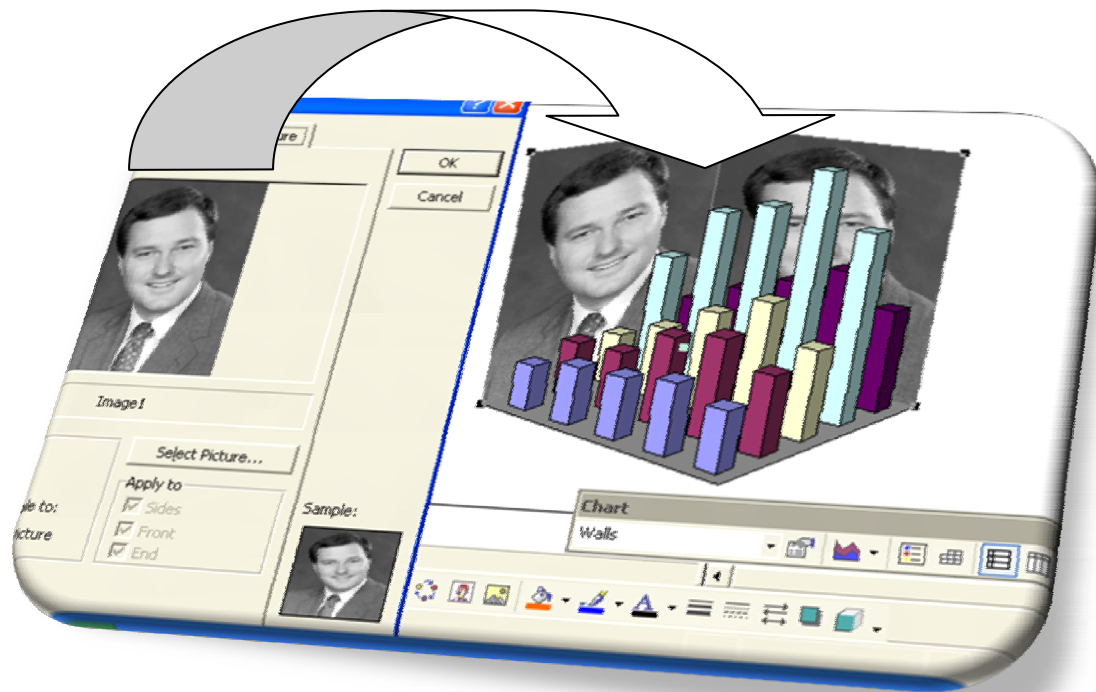
36. Chart – Deleting & Adding Data - You can add or delete data from your chart simply by clicking on the chart bars and pressing delete, or by dragging data from your worksheet and dropping it on the chart. As shown below, when you click on a bar in the chart, Excel automatically highlights the relevant data range. Pressing delete eliminates this data range from the chart. Later, highlighting this data range and dragging it onto the chart adds these bars back to the chart. Give it a try.



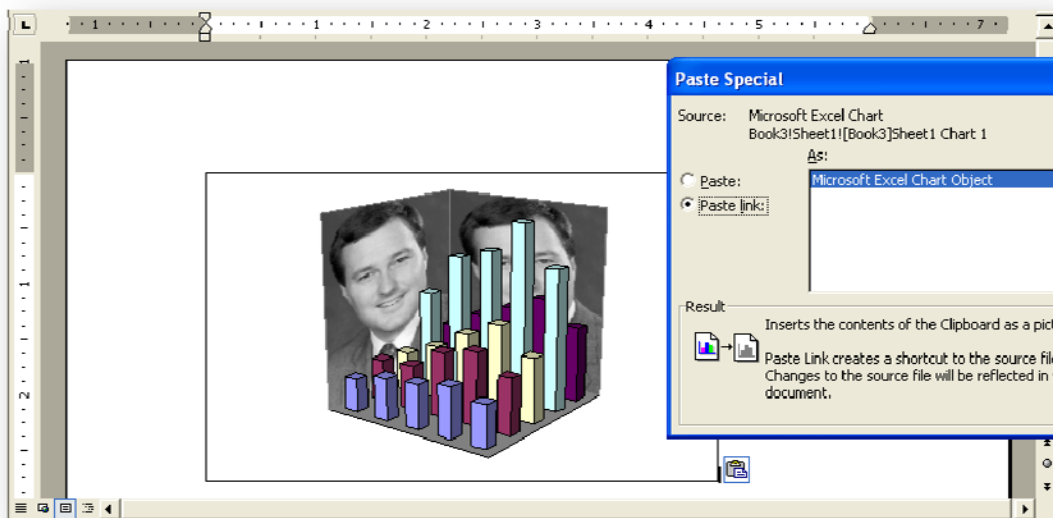
37. Charts – Rotating the Chart - If some of the bars in the chart are difficult to see, you can rotate the chart by clicking on the corner. This action reveals a wire frame which you can then rotate to the desired position, as shown below.



38. Charts – Formatting the walls and bars - The chart can be dressed up a bit by clicking on any part of the chart, and choosing format. This will allow you to apply different colors, patterns, and even pictures to the walls and bars within the chart. You can see below how this chart appears to be much more attractive than the original.

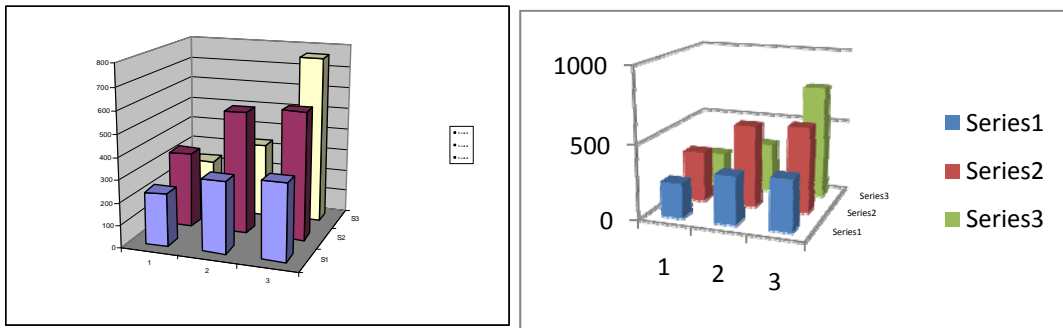


39. Charts – Paste Link to Word - Charts in Excel, can be paste linked into Word (or PowerPoint, Publisher, etc) using the paste special command. Thereafter, as the chart changes in Excel, it is automatically updated in Word.

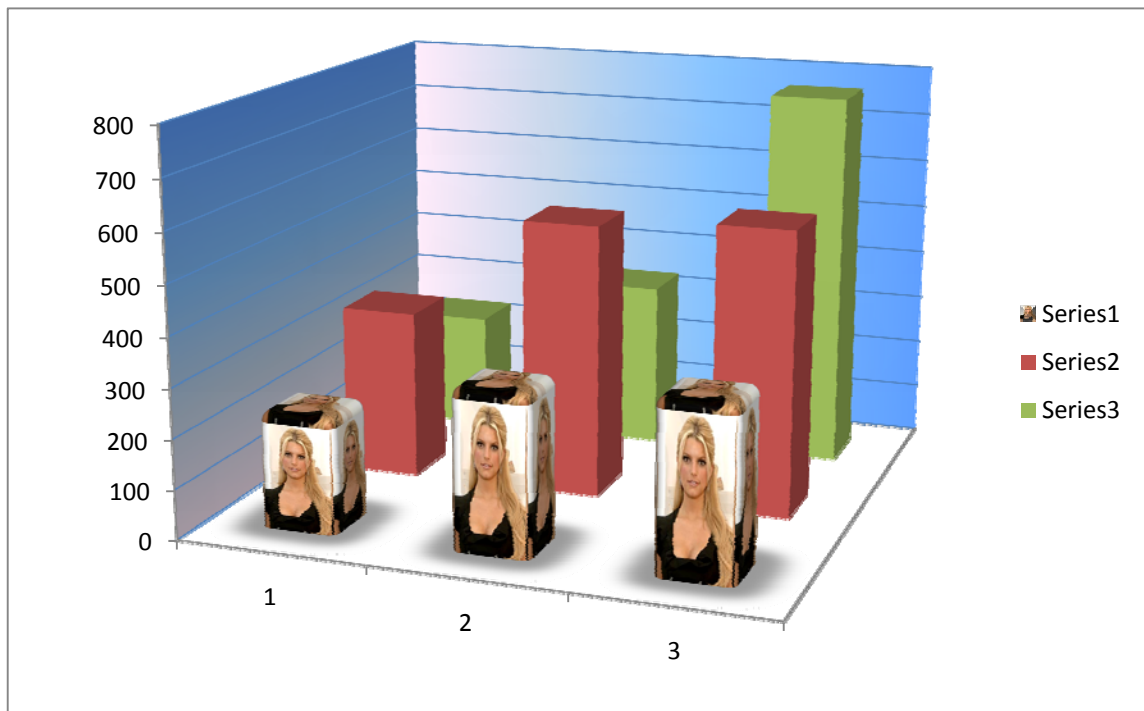


40. Chart Tool Improvements in Excel 2007 - In Excel 2007, the Charts tools provide users with the ability to insert and create the same wide variety of charts that were available in previous versions of Excel. A key difference is that Excel 2007 charts provide a more published appearance with far more professional publishing controls for adjusting shadows, shadow angles, shadow blur, shadow transparency, 3-D effects, bevels, contours, depth, lighting, surface material, gap width, gap depth, solid fills, gradient fills, picture fills, shapes, lines,

borders, colors, and more. The results are a dramatically improved appearance of Excel 2007 charts. A few sample charts are shown below.



41. Crisper Charts in 2007 - The two screens above show the same chart as produced in Excel 2003 (left), and Excel 2007 (right). Notice that the lines in the Excel 2003 chart are jagged and the colors are flat. By contrast, the lines and colors in the Excel 2007 chart are crisp – hence a more professional look is achieved. The screen below shows the above chart after shadows, 3-D bevels, and picture fills are added to the first data series as well as the chart wells.



42. AutoFilter & Advanced AutoFilter - Have you ever had a list of information you needed to sift through? If so, you probably wanted to filter the data and review or print only specific subsets of the data. With the AutoFilter command, you can! To use this tool, start with any list of data (for example from a database, accounting program, ASCII text, or a large worksheet). Position your cursor in the column you want to filter.

	A	B	C	D	E	F	G	H
2	Month	Campaign	City	Cost	Quantity Redeemed	Resulting Sales	Profit	
3	April	Coupon	Atlanta	12,000	299	35,581	23,581	
4	January	Direct Mail	Atlanta	22,000	78	9,282	(12,718)	
5	July	Coupon	Atlanta	3,300	276	32,844	29,544	
6	October	Direct Mail	Atlanta	12,500	61	7,259	(5,241)	
7	April	Radio Spot	Atlanta	12,000	299	35,581	23,581	
8	January	Direct Mail	Atlanta	22,000	78	9,282	(12,718)	
9	July	Local Ads	Atlanta	3,300	276	32,844	29,544	
10	April	Direct Mail	Atlanta	9,500	17	2,023	(7,477)	
11	October	Direct Mail	Atlanta	8,800	455	54,145	45,345	

Next select **Data, Filter, AutoFilter** from the menu. Notice that a small down-arrow appears in each header row cell. Clicking on these arrows will allow you to select the filter category you desire. Note one, more, or all cells may be filtered. Select your criteria carefully, however, make sure to test the accuracy of your results to insure that the table is meaningful!

	A	B	C	D	E	F	G	H
2	Month	Campaign	City	Cost	Quantity Redeemed	Resulting Sales	Profit	
3	April	(All)	Atlanta	12,000	299	35,581	23,581	
4	January	(Top 10...)	Atlanta	22,000	78	9,282	(12,718)	
5	July	(Custom...)	Atlanta	3,300	276	32,844	29,544	
6	October	Coupon	Atlanta	12,500	61	7,259	(5,241)	
7	April	Direct Mail	Atlanta	12,000	299	35,581	23,581	
8	January	Local Ads	Atlanta	22,000	78	9,282	(12,718)	
9	July	Radio Spot	Atlanta	3,300	276	32,844	29,544	
10	April	Direct Mail	Atlanta	9,500	17	2,023	(7,477)	
11	October	Direct Mail	Atlanta	8,800	455	54,145	45,345	
12	April	Direct Mail	Columbus	9,500	17	2,023	(7,477)	
13	January	Coupon	Columbus	12,500	80	9,520	(2,980)	
14	January	Radio Spot	Columbus	17,500	56	6,664	(10,836)	
15	January	Coupon	Columbus	8,800	25	2,975	(5,825)	
16	July	Local Ads	Columbus	7,000	100	11,900	4,900	
17	July	Coupon	Columbus	9,500	93	11,067	1,567	
18	October	Coupon	Columbus	9,500	29	3,451	(6,049)	
19	April	Local Ads	Columbus	9,500	17	2,023	(7,477)	

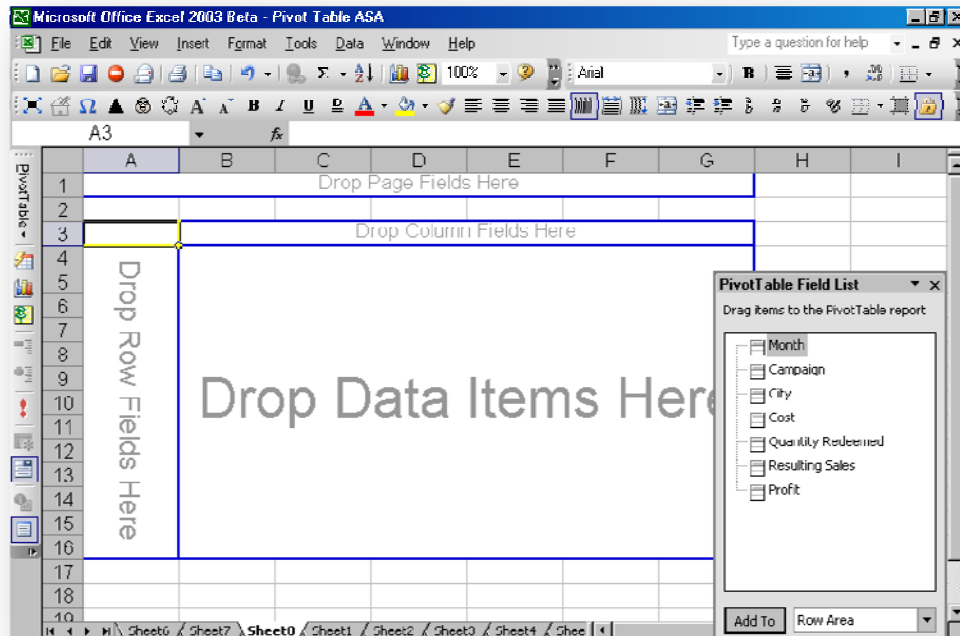
	A	B	C	D	E	F	G	H
2	Month	Campaign	City	Cost	Quantity Redeemed	Resulting Sales	Profit	
3	April	Coupon	Atlanta	12,000	299	35,581	23,581	
4	January	Direct Mail	Atlanta	22,000	78	9,282	(12,718)	
5	July	Coupon	Atlanta	3,300	276	32,844	29,544	
6	October	Direct Mail	Atlanta	12,500	61	7,259	(5,241)	
7	April	Radio Spot	Atlanta	12,000	299	35,581	23,581	
8	January	Direct Mail	Atlanta	22,000	78	9,282	(12,718)	
9	July	Local Ads	Atlanta	3,300	276	32,844	29,544	
10	April	Direct Mail	Atlanta	9,500	17	2,023	(7,477)	
11	October	Direct Mail	Atlanta	8,800	455	54,145	45,345	
12	April	Direct Mail	Columbus	9,500	17	2,023	(7,477)	
13	January	Coupon	Columbus	12,500	80	9,520	(2,980)	
14	January	Radio Spot	Columbus	17,500	56	6,664	(10,836)	
15	January	Coupon	Columbus	8,800	25	2,975	(5,825)	
16	July	Local Ads	Columbus	7,000	100	11,900	4,900	
17	July	Coupon	Columbus	9,500	93	11,067	1,567	
18	October	Coupon	Columbus	9,500	29	3,451	(6,049)	

Start the PivotTable process by running the PivotTable wizard as shown below:



The PivotTable Wizard will walk you through the process of creating your initial PivotTable. The PivotTable can be easily changed as the PivotTable Wizard can be recalled instantly to modify the PivotTable changes.

The results are that Excel creates a blank PivotTable as shown below, and the user must drag and drop the various fields from the PivotTable Field List onto the appropriate column, row, or data section. As you drag and drop these items, the resulting report is displayed on the fly.



45. Presented below are but a few examples of hundreds of possible reports that could be viewed with this data through the PivotTable format.

Month	Coupon	Direct Mail	Local Ads	Radio Spot	Grand Total
January	37485	27846	67116	19992	152439
April	101507	45101	62713	117691	327012
July	64855	58072	77588	101150	301665
October	82943	115549	54264	61047	313803
Grand Total	266790	246566	261681	299660	1094919

This report shown above shows the total resulting sales for each marketing campaign for each of the 4 months marketing campaigns were conducted.

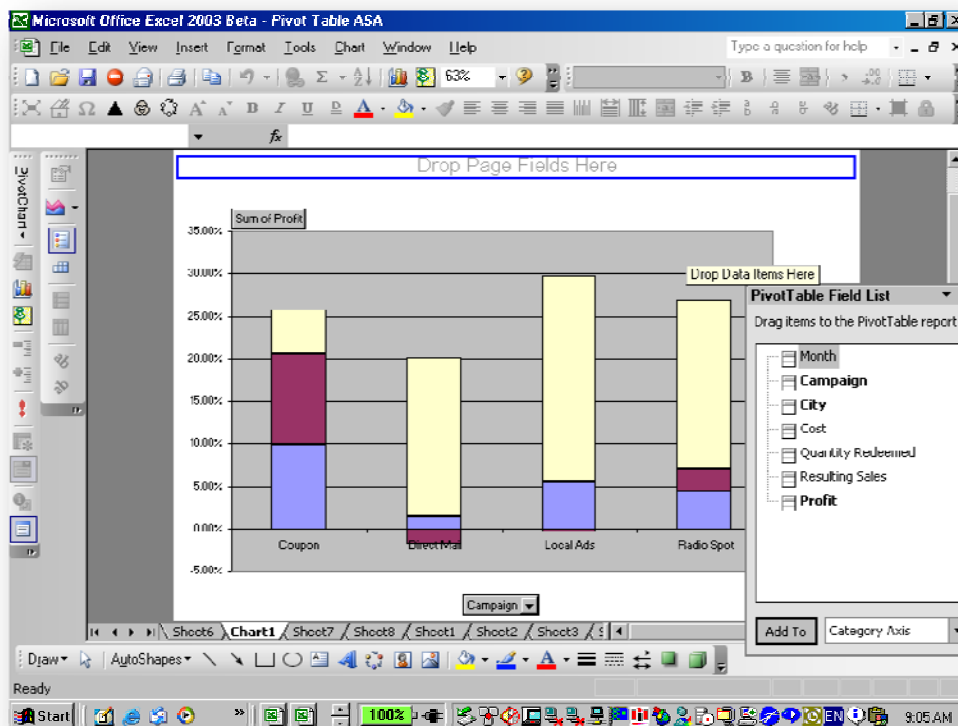
Month	Coupon	Direct Mail	Local Ads	Radio Spot	Grand Total
January	3.42%	2.54%	6.13%	1.83%	13.92%
April	9.27%	4.12%	5.73%	10.75%	29.87%
July	5.92%	5.30%	7.09%	9.24%	27.55%
October	7.58%	10.55%	4.96%	5.58%	28.66%
Grand Total	26.19%	22.52%	23.90%	27.39%	100.00%

In this screen we see the same information is shown as a percentage of the total. A few observations include the fact that overall Radio Spots are the most profitable type of campaign,

but only in April and July. In January and October, local ads and direct mail, respectively, produce better results. Further, April campaigns had the best response overall.

Campaign	Atlanta	Columbus	New York	Grand Total
Coupon	6.25%	16.22%	3.73%	26.19%
Direct Mail	7.49%	3.21%	11.82%	22.52%
Local Ads	3.00%	1.27%	19.63%	23.90%
Radio Spot	3.75%	6.99%	17.15%	27.39%
Grand Total	19.99%	27.68%	52.33%	100.00%

Further analysis in the screen above tells us that our results vary widely from one city to the next. In New York, coupons were least effective, but coupons were most effective in Columbus. Pivot charts based on PivotTable data can be modified by pivoting and/or narrowing the data. They can also be published on the Internet (or on an Intranet) as interactive Web pages. This allows users to “play” with the data. The chart below provides a visual look at the data shown above.

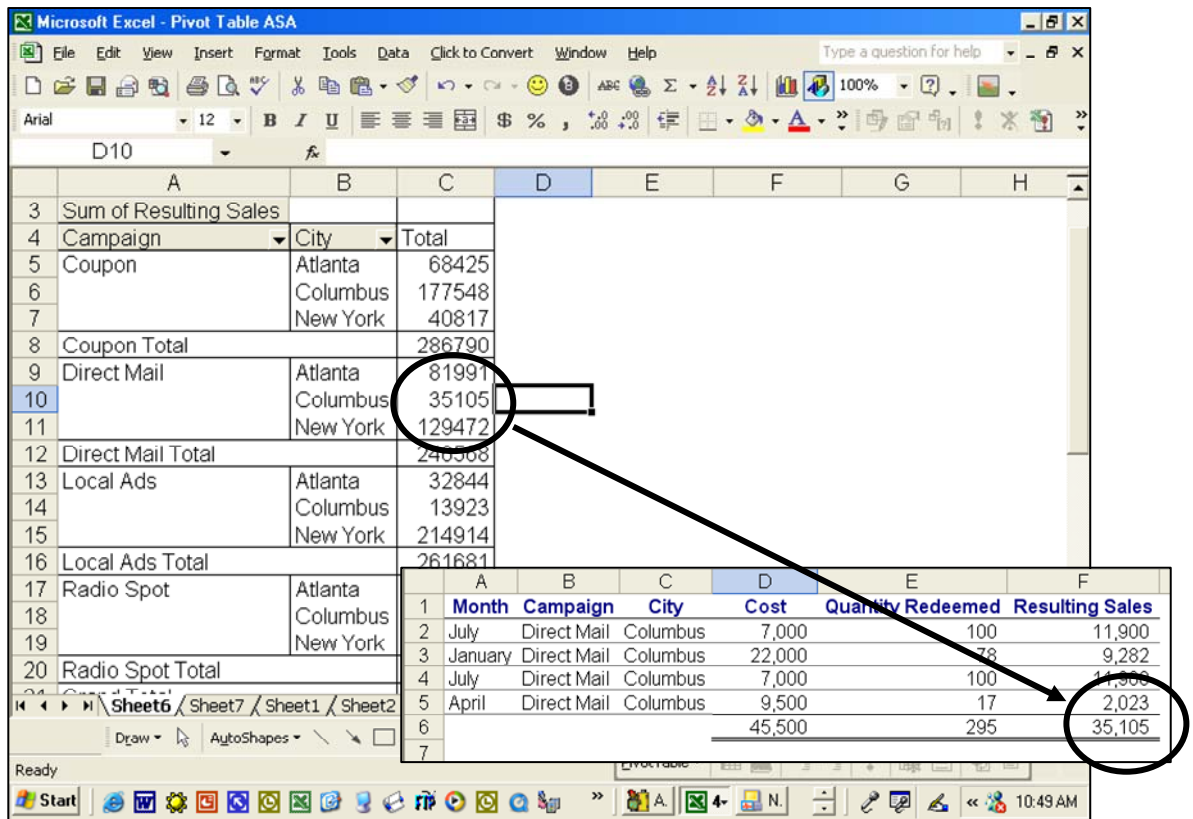


46. Filtering Pivot Tables - If you take a close look at your resulting pivot tables, you will notice that Excel automatically inserts a filter button on each field list as shown by the drop down arrows in the screen below:

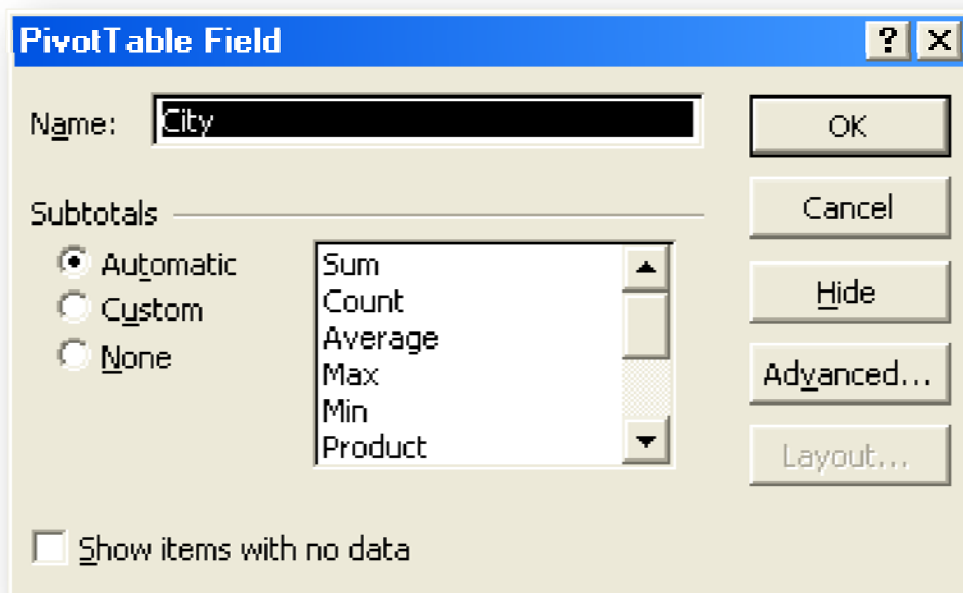
	City	New York	Grand Total
3	Sum of Profit		
4	Campaign		
5	Coupon	5.24%	25.76%
6	Direct Mail	8.73%	18.13%
7	Local Ads	4.22%	29.26%
8	Radio Spot	9.72%	26.85%
9	Grand Total	7.91%	100.00%

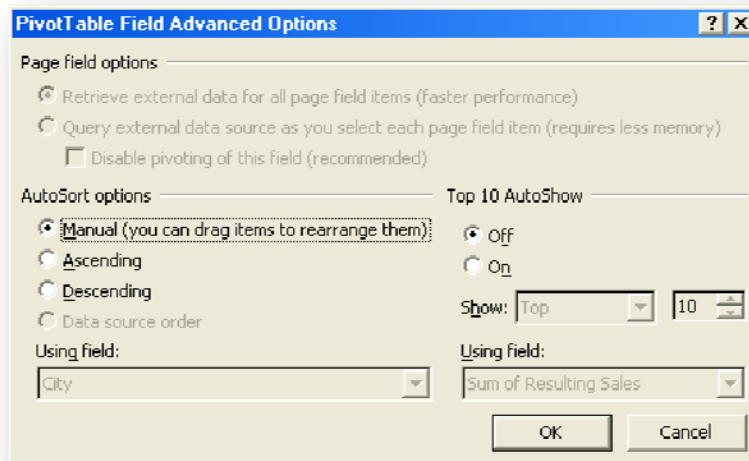
This drop down filter list makes it easy to refine your report to include just the data you want.

47. Drilling Pivot Tables - Another nice feature in pivot tables is that they are automatically drillable. Simply double click on any number in a pivot report top have Excel automatically insert a new sheet and produce the detailed report underlying the number you clicked on. An example of this is shown below:

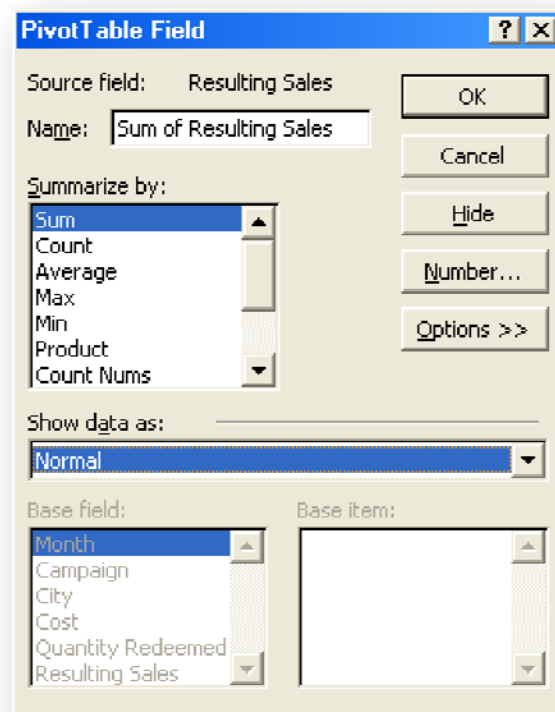


48. **Pivot Table Options** - By right mouse clicking on your pivot table you will reveal several option settings boxes as shown below:





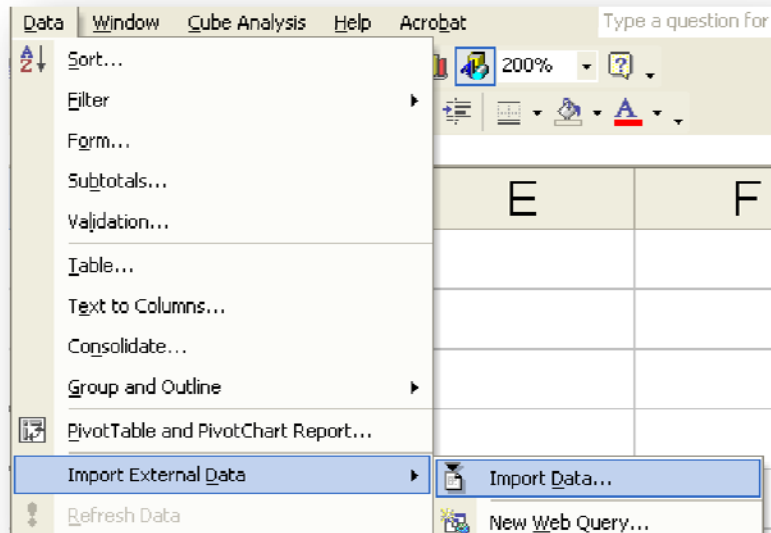
For example, these options boxes control the types of subtotals produced in your pivot reports.



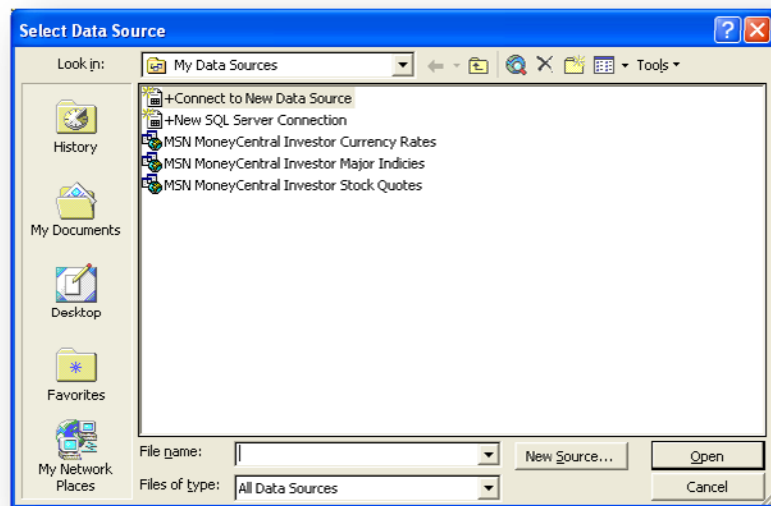
Excel also offers a pivot table options box as well as a layout wizard that makes producing pivot tables a little easier.

49. Web Queries - Excel includes pre-designed “queries” that can create extensive stock portfolios in less than 10 seconds. All you need is a connection to the Internet and of course, some stock ticker symbols. In Excel 2003 select “Data, Import External Data, Import Data” and walk through the web query wizard for importing stock quotes. In seconds, a complete up-to-date portfolio is automatically displayed and is synchronized to the stock market’s changing stock prices. With

each click of the “Refresh” button, the stock prices change before your eyes. Just add columns for the number of shares you own, and the total value of those shares – and this beats picking numbers out of the newspaper.



Excel 2003’s “**Import External Data, Import Data**” menu option is shown above. The screen below shows several web query options that are included in Excel.



Choosing the “**Stock Quotes**” option allows you to input up to 20 ticker symbols for the stock prices you would like to download, and then resulting query returns the desired data either in your current worksheet, or in a new worksheet – dependent upon your choice. The resulting stock data as retrieved from the Internet is shown:

Stock Quotes Provided by MSN Money						
Click here to visit MSN Money						
			Last	Previous Close	High	
4	Microsoft Corporation	Chart	News	25.11	24.91	25.17
5	Home Depot, Inc.	Chart	News	27.24	26.65	27.25
6	Southern Company	Chart	News	28.65	28.56	28.67
7	Coca-Cola Company	Chart	News	40.11	39.9	40.33
8	United Parcel Service, Inc.	Chart	News	58.14	57.73	58.23
9	AT&T Corp.	Chart	News	13.98	13.66	14.01
10	PC Connection, Inc.	Chart	News	5.45	5.3	5.76

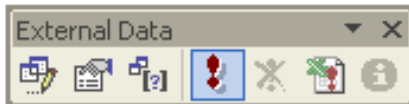
You can tell when the query is running and actively extracting data because Excel displays the spinning icon of the world on the status bar.



50. Completing the Stock Portfolio - Next add a column containing the number of shares owned, as well as an additional column to computer the total value based on shares owned, as shown below.

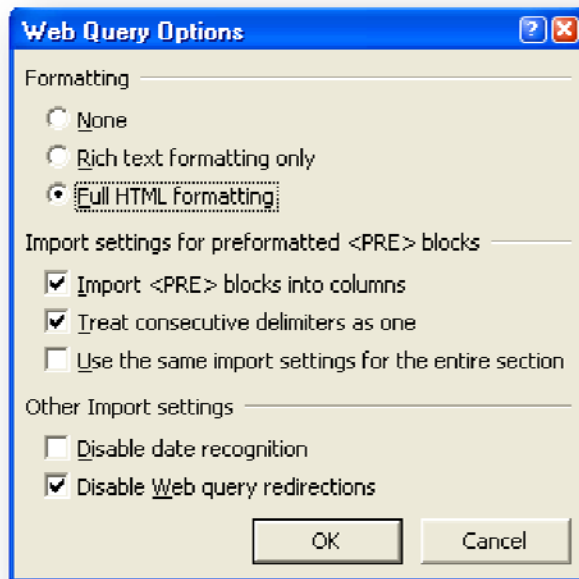
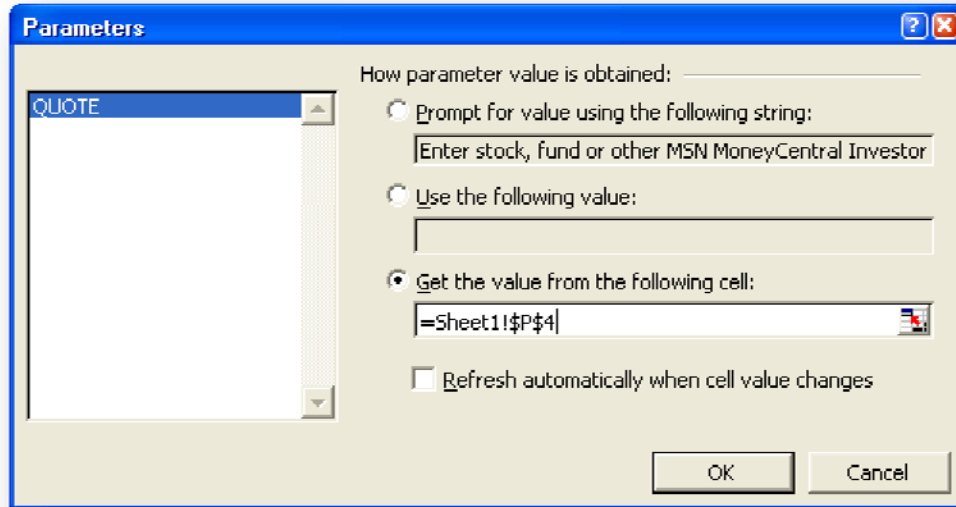
	P	Q	R	S	T
1					
2					
3			Shares owned	Extended Value	
4		# Shares Out			
5		10,701,000,000	4,000	100,760	
6		2,326,000,000	4,000	110,040	
7		716,000,000	4,000	114,160	
8		2,470,979,000	4,000	160,200	
9		1,123,852,000	4,000	230,520	
10		784,732,000	4,000	55,880	
11		24,660,000	4,000	22,800	
12				<u>794,360</u>	

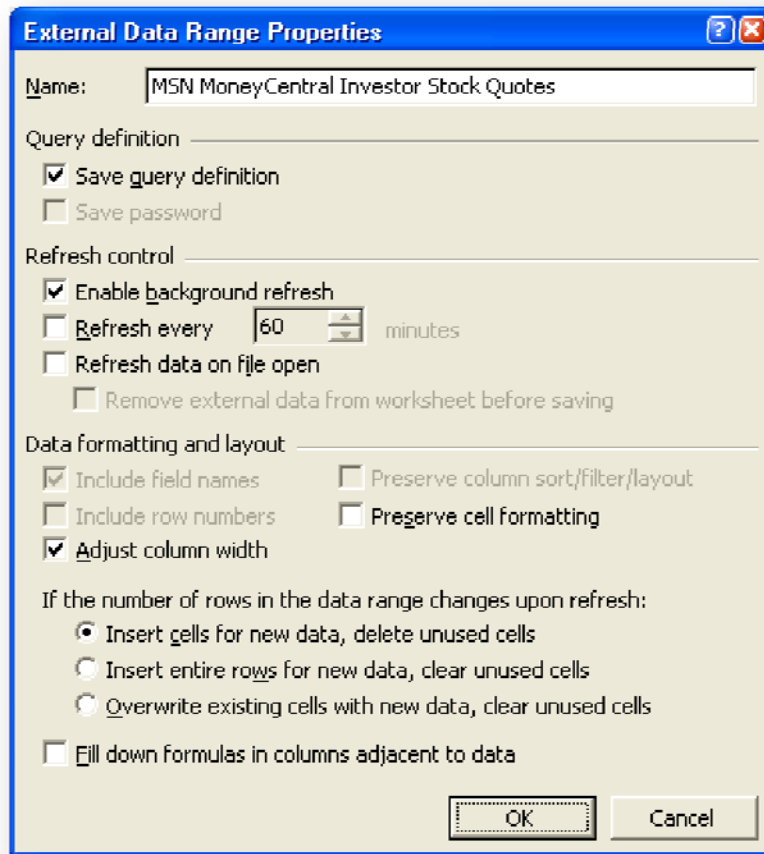
51. Refreshing the Stock Prices - Once you have created your portfolio, simply click the Refresh Data button on the **External Data** Toolbar shown below to see the current value of your Portfolio.



Refresh Data

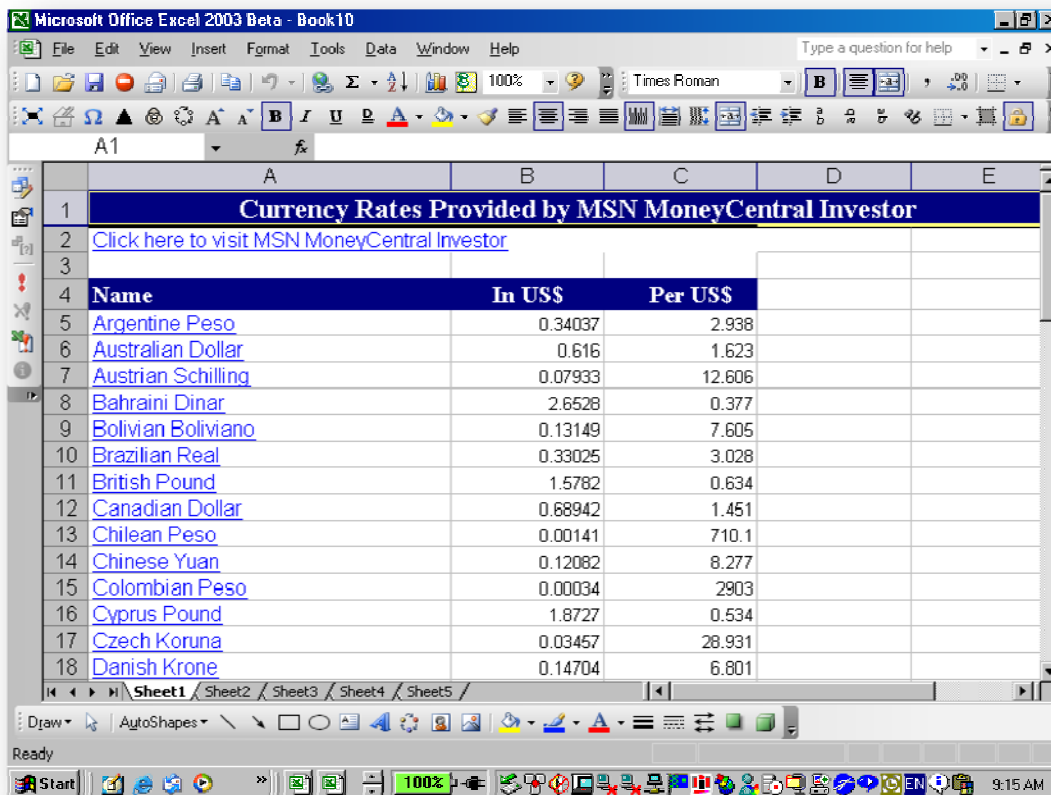
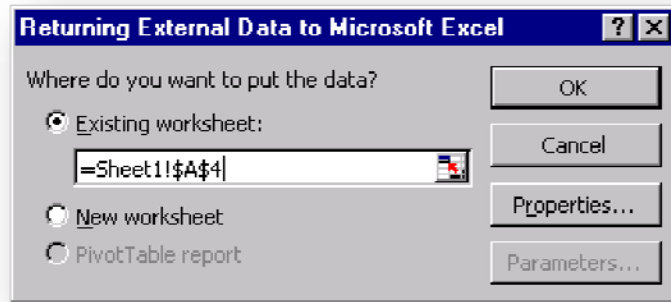
52. Query Parameters - There are numerous options to help you extract exactly the data you want they way you want. As examples, the Parameters Box, Web Query Options box and External Data Properties Box (all three of which are shown below) displays these options.





There are several key options shown above, including the ability to tie your web query to ticker symbols entered into a particular Excel cell; the ability to preserve formatting, and the ability to fill formulas (such as our calculations for total value), as more data is extracted by Excel. This is a great feature and using this technology, you can extract data out of any ODBC compliant database directly into Excel. All you need is the ODBC (Open Database Connectivity) driver for the desired database loaded on your computer, and in almost all cases, this is a free downloaded driver.

53. Exchange Rate Query – Using Excel’s query feature you can also build a query to import live currency exchange rates. In Excel 2003 start by selecting **“Data – Import External Data, Currency Rates”**. The query dialog box will appear. The Wizard will ask you where you would like to import the data.



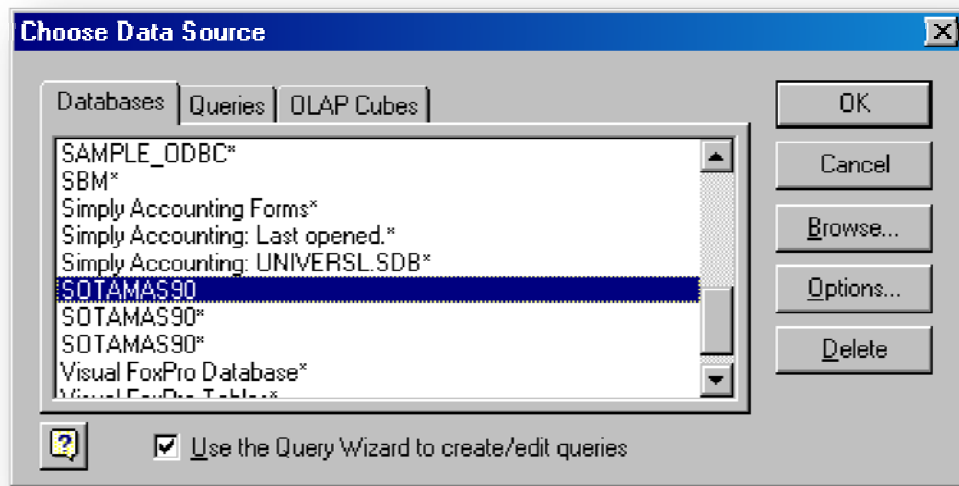
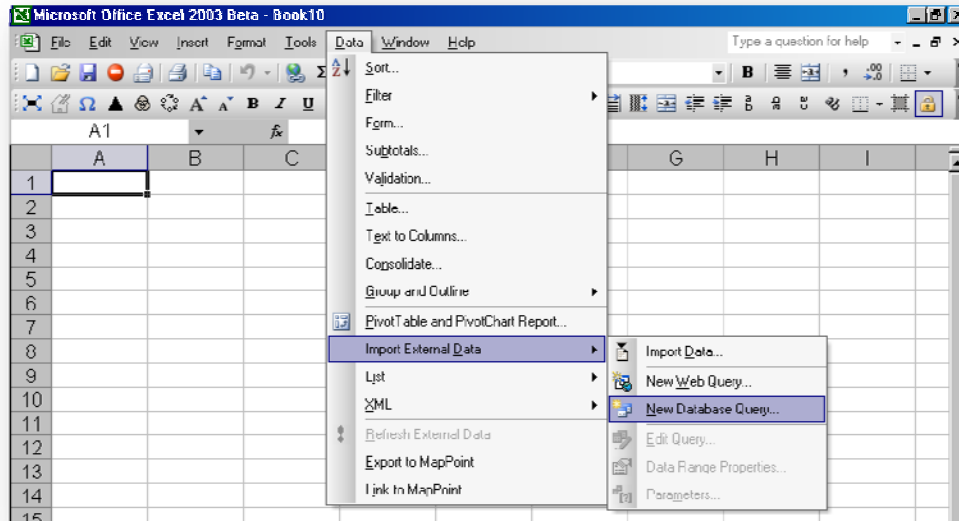
54. Database Queries – Microsoft Excel can also query and retrieve data you want from an external data source. For example, you can retrieve Microsoft Excel data about a specific product by region. You can create a simple query by using the Query Wizard, or you can create a more complex query by using the advanced features of Microsoft Query.

To use Microsoft Query to retrieve external data, you must:

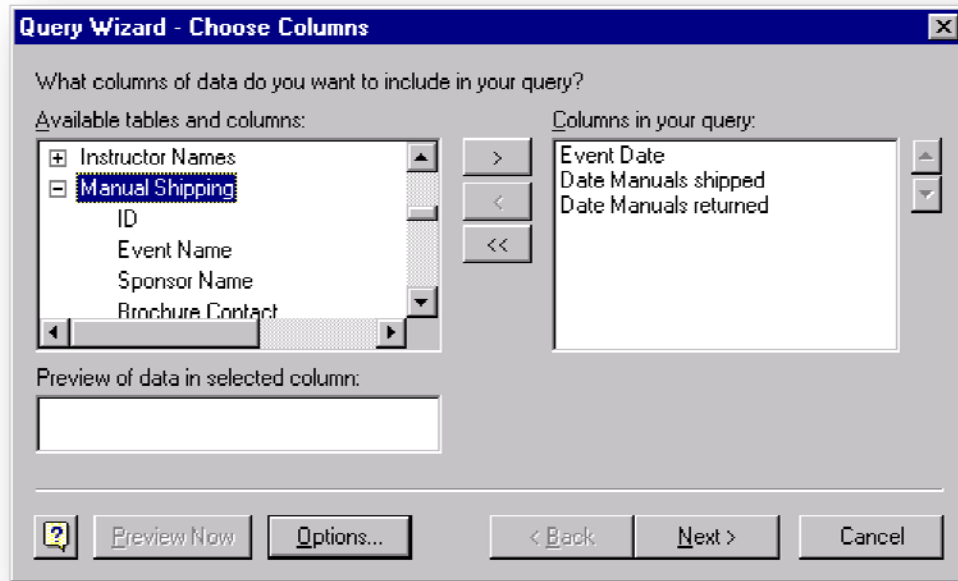
1. **Have access to an external data source** - If the data is not on your local computer, you may need to see the administrator of the external database for a password, user permission, or other information about how to connect to the database.
2. **Install Microsoft Query** - If Microsoft Query is not available, you might need to install it.

3. **Specify a source to retrieve data from, and then start using Microsoft Query** - For example, if you want to insert database information, display the Database toolbar, click Insert Database, click Get Data, and then click MS Query.

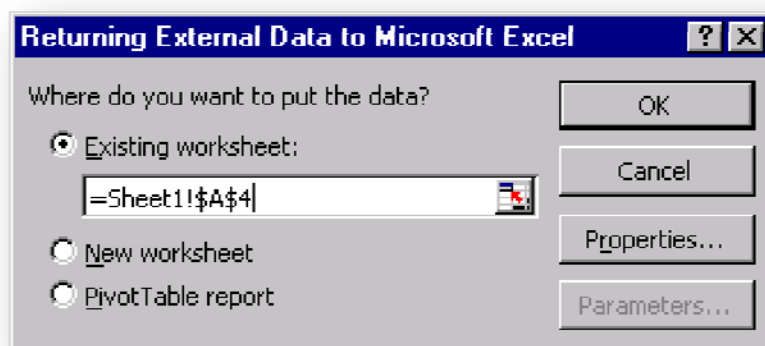
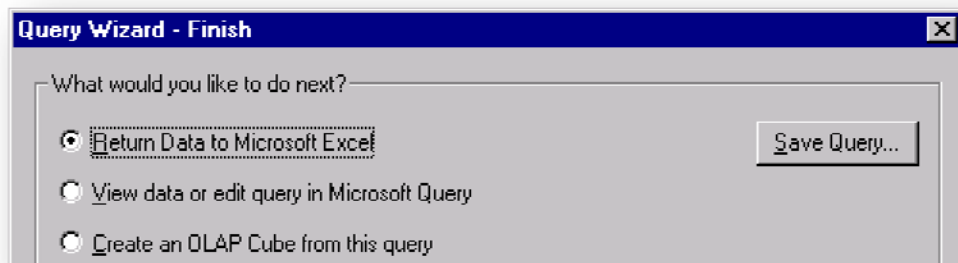
For example, suppose we have some data in our accounting system – Sage MAS 200 ERP that we would like to analyze in Excel. We can use the Database Query Wizard to build a query that will extract the data we need and place it in an Excel spreadsheet.



The first step is to select the type of database you want to query and to select the specific database.

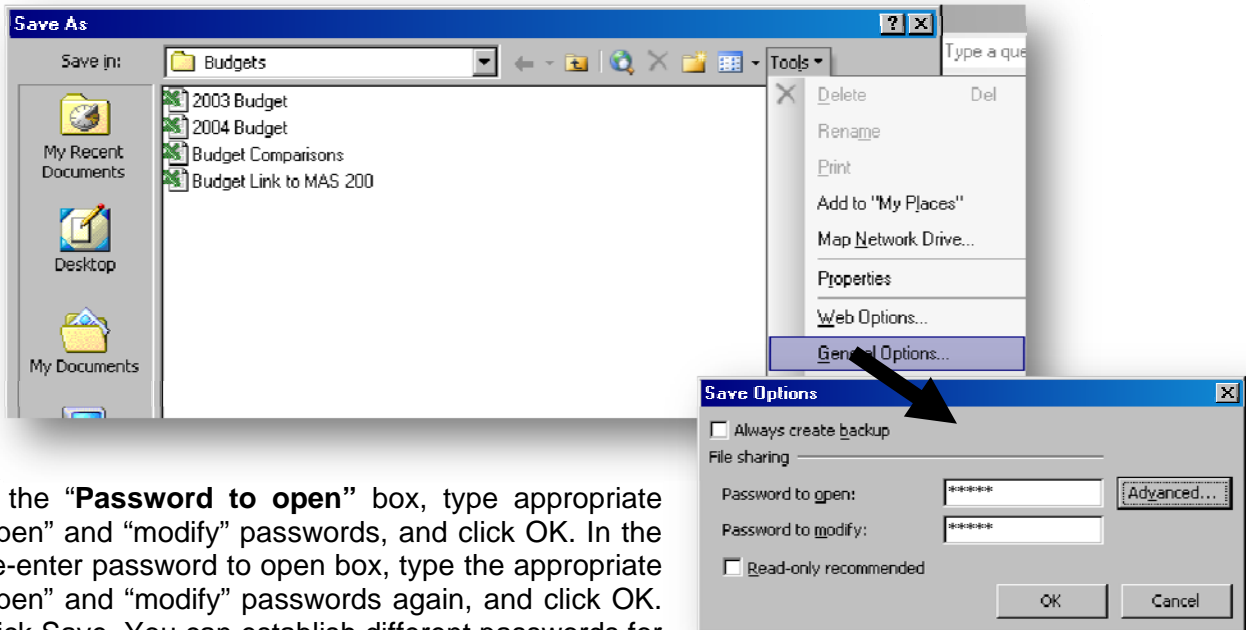


Upon the selection of the desired database a list of tables will be presented. Choose the desired tables, and select the desired data fields to be imported. You will then have the option to filter and sort the data before it is imported. Finally you will be given the option to save the query so that you can run it at a later date without having to start from scratch.

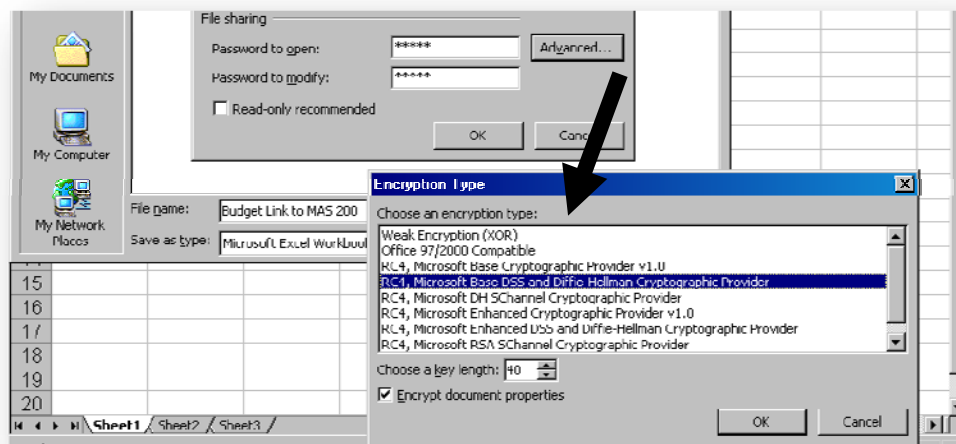


55. Protecting Excel Files with Passwords - Excel files can be protected in a variety of ways. The easiest method is to use Excel's built in password feature which allows you to create a password when a file is saved. With this tool, you can create a password which prevents either opening or modifying the file. The following are the steps needed to save a password protected Excel file in Excel 2003:

- On the **"File"** menu, click **"Save As"**.
- On the **"Tools"** menu in the **"Save As"** dialog box, click **"General Options"**.

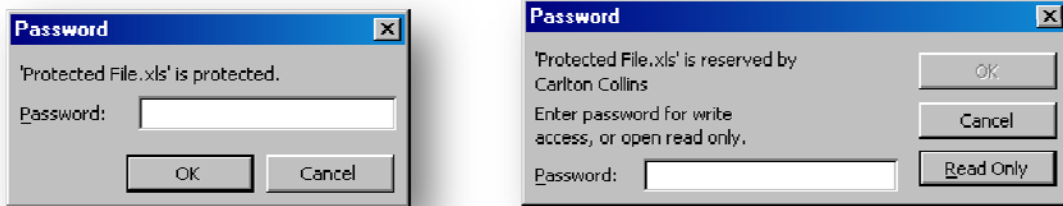


In the **"Password to open"** box, type appropriate "open" and "modify" passwords, and click OK. In the Re-enter password to open box, type the appropriate "open" and "modify" passwords again, and click OK. Click Save. You can establish different passwords for opening or modifying an Excel file.



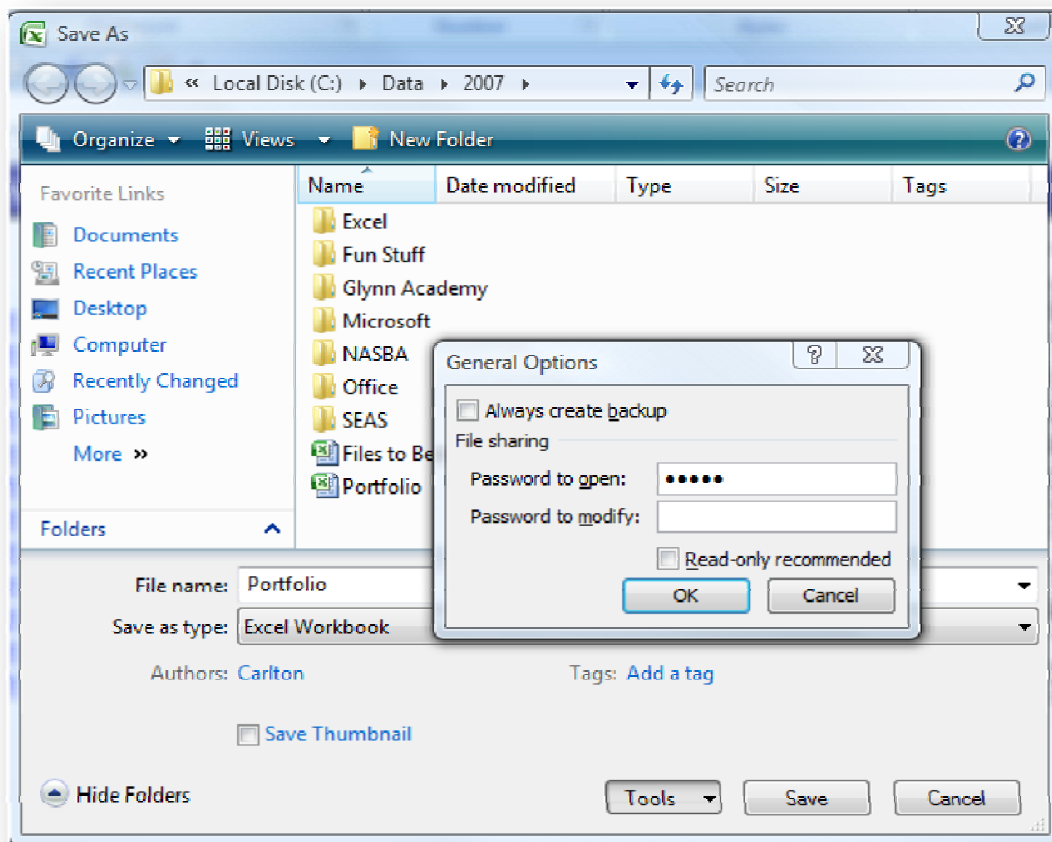
For the truly paranoid, Excel offers a wide range of encryption options, including control over the encryption technology and size of the encryption key used – ranging from 40 bit to 128 bit

encryption. The dialog boxes shown below are what you will see when you attempt to open a password protected Excel file:



As you can see from the above screens, you can create a password that will be needed to open the file, or a password that will be needed to modify the file, or both. If you only create a password to modify the file, anyone can open the file, but will not be able to save the file unless they use a different file name or save the file in a different location. If you do not create a password for either but click the "Read-only recommended" check box, the person opening the file will simply get a suggestion that they open the file as a read only file. However, they are not required to do so, and can, at their option open the file as an unrestricted normal file.

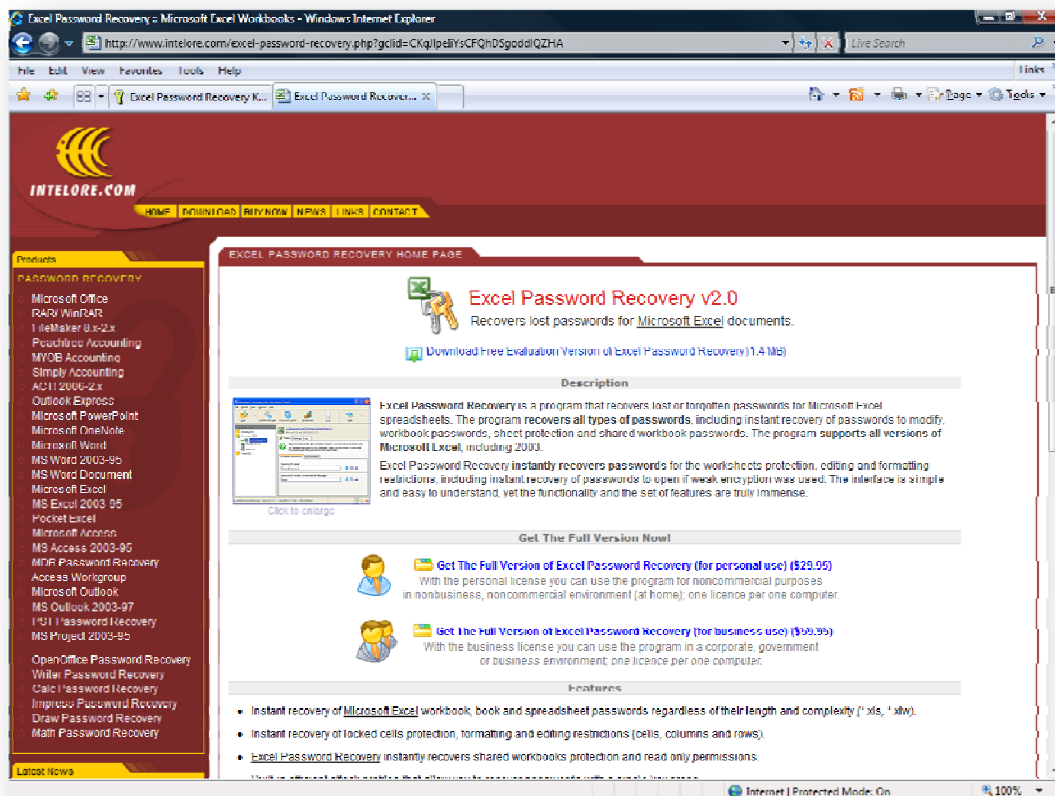
56. Password Protection in Excel 2007 – Password protection works the same way in excel 2007, except that the default level of encryption is 128 bit. This means that if you forget the password, there is no recovery option.



57. Opening Files When You Forget The Password - When you create a password, you should write it down and keep it in a secure place. If a password to a critical file is lost, or if the employee who knows the password leaves or dies, then valuable data and hundreds of people-hours could be at risk.

If you lose the password for an Excel 2003 file saved with the default 40-bit encryption, you may be able to open the file using third party services and utilities for finding a missing password - some people call these hacking tools. These third party services and utilities are not free and can take several weeks so you need to estimate the cost of the loss before proceeding. Some of the utilities involve dictionary-based solutions and others use the brute force method where every possible combination of characters is used. One company even uses an approach that looks for data encryption keys. Since the maximum length of a password is 15 characters, the brute force method is reasonably possible with enough computing power. The following are some Web sites that provide password cracking utilities and/or password recovery services:

www.lostpassword.com	www.crak.com
www.elcomsoft.com	http://lastbit.com/default.asp
www.accessdata.com	http://www.passwordportal.net/
www.pwcrack.com/excel.htm	http://www.intelore.com/



Example Source of Software to Recover MS Excel Passwords

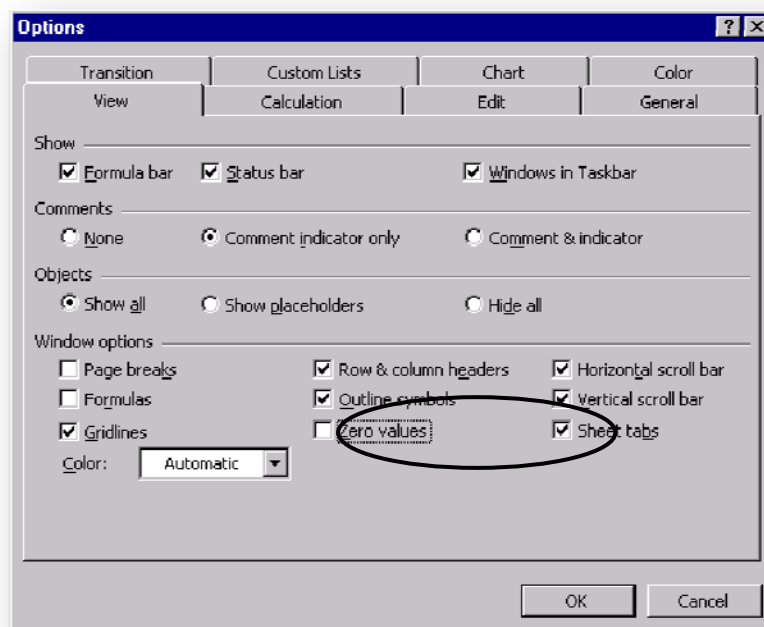
Basically some of these tools simply extract the data and open it in a blank Excel file. Others attempt to open the files using a large database of common passwords. Still others use the brute force method of testing every known prime number up to 40 bits (5 characters) in an attempt to find the password. For example, you may use 128 bit encryption to lock your file, but the password that accesses the 128 bit encryption key is “sunshine” which is not strong enough to protect the file.

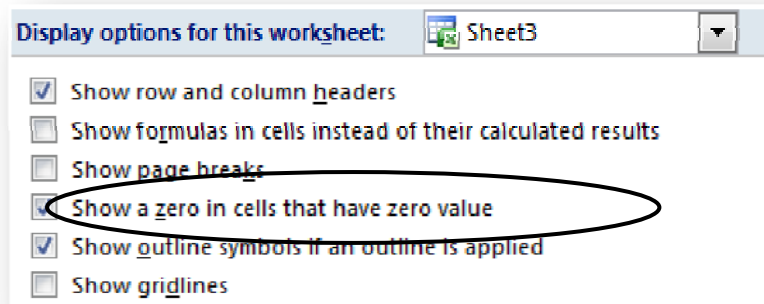
Please be warned that password cracking web sites frequently feature pornography, so searching for this topic at the office in plain view of others might not be a good idea. For stubborn cases, you might consider using a password cracking service; some of these services offer a money back guarantee. If they don't crack the password, you don't pay.

58. CTRL + SHFT + Arrow Key - The CTRL + SHFT + arrow key can be used easily to select rows or columns of data. Simply position your cursor at the top of a column or beginning of a row and press this key combination.

59. Hiding Zero Values - Frequently CPAs prefer to suppress zero values, and display blanks or dashes instead. This can be accomplished in three ways.

1. The first method suppresses all the zeros in the worksheet. It is accomplished by removing the check from the “Zero Values” check box in the “**Tools, Options, View**” dialog box in Excel 2003, or “**Excel Options, Advanced, Display Options, Show Zero**” in Excel 2007.





The screen below shows the results of hiding zero values in Excel.

Funds	400,000	480,000	576,000	691,200	829,440
Seminar Revenue:					
Average Attendance	40	40	40	40	40
Number of courses	75	75	75	75	75
Revenue Per Attendee	99	99	99	99	99
Total	297,000	297,000	297,000	297,000	297,000
Web Site Sales:					
Accounting Library and Reports	40,000	48,000	57,600	69,120	82,944
Consulting Sales	-	7,880	9,456	11,347	13,617
Vendor Advertising	-	-	9,000	12,600	17,640
Reseller Advertising	-	-	3,000	4,200	5,880
Vendor Consulting Jobs	-	-	-	-	120,000
	737,000	832,880	952,056	1,085,467	1,366,521

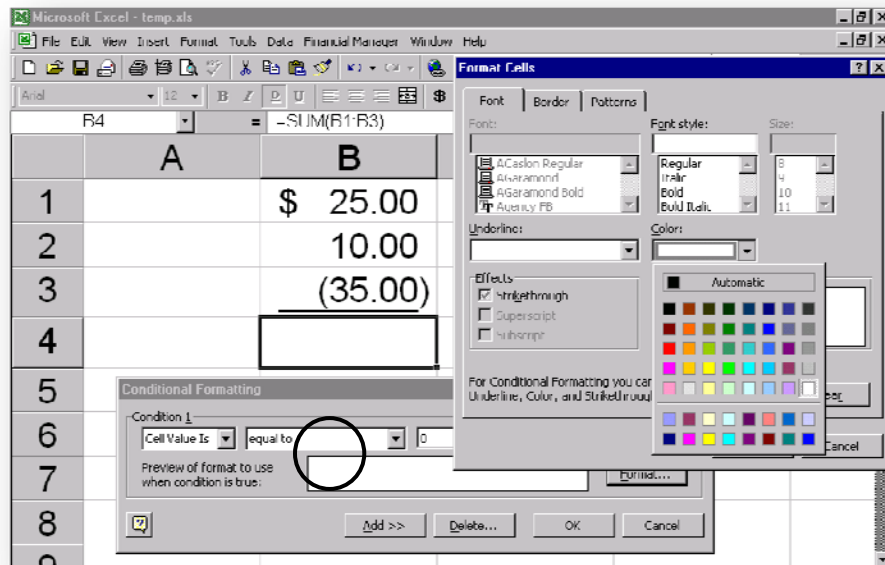
2. The second method is often more useful as it allows you to hide zero values in selected cells. This is accomplished by placing a special “Custom Format” in those cells where you do not want the zero to appear. The following are the steps used to suppress zeros in selected cells:

1. Select the cells that contain the zeros (0's) you want to hide.
2. On the Format menu, click Cells, and then click the Number tab.
3. In the Category list, click Custom.
4. In the Type box, type 0;-0;;@

There is one drawback to the above mentioned method of suppressing zeros. If the value in one of these cells changes to a nonzero value, the format of the value will be similar to the General number format. To get around this drawback you can use the third method to hide zeros which is “Conditional Formatting”. You can even have negative numbers formatted differently than positive numbers. The following are the steps necessary to hide zeros with the Conditional Formatting feature while at the same time preserving the format you want for positive and negative numbers.

1. Select the cell(s) that you want to affect.
2. Open the Format Menu and choose Conditional Formatting.
3. Select from the dropdown lists the options necessary to build an equation equal to zero.
4. Next, click Format.
5. Click the dropdown arrow to display the Color palette and select white (or the appropriate background color for your worksheet)

6. Click OK to return to the Conditional Formatting dialog box.
7. Click OK to accept the settings you have made.



3. **The Accounting Format** - The accounting format has several advantages but one disadvantage is that it will yield a “-” (dash) rather than a zero when a cell evaluates to be zero. This can be easily fixed by creating a custom format that slightly modifies the accounting format.

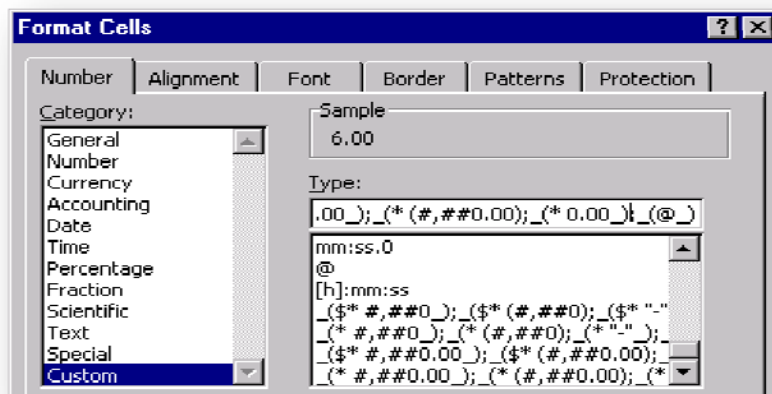
Accounting Format Before Modification

(* #,##0.00);_(* (#,##0.00);_(* "-"??_);_(@_)

Accounting Format Modified to Get 0.00 Rather and - for Zero Values

(* #,##0.00);_(* (#,##0.00);_(* 0.00_);_(@_)

The easiest way to create this custom format is to first format the cell using the accounting format. Next bring up the format dialog box and select Custom Format. The current cell format (i.e. the accounting format) will be displayed in the Custom Format dialog box and all you will have to do is to modify the format sequence.



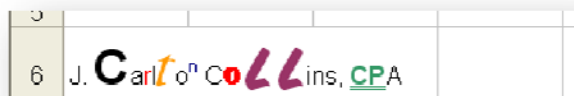
60. Using The Accounting Format to Underline Labels - The accounting format is useful in financial spreadsheets because it allows the user to create single and double underlines that do not change with the size of the number in the cell and are always just a little narrower than the cell.

	A	B	C
1	\$ 457.98	\$ 457.98	Accounting Format
2	457.98	457.98	Accounting Format
3	\$457.98	\$458.98	Currency Format
4	457.98	458.98	General Format
5	\$457.98	\$458.98	Currency with Borders
6	457.98	458.98	General with Borders

The accounting format can also have a very favorable affect on labels you are trying to underline, especially when those labels are centered across multiple cells.

	A	B	C	D	E	F
1	Controlling Underline Behavior					
2						
3						
4						
5	<u>Carlton Collins</u>					
6	Centered across selection with the accounting format					
7						
8						
9	Carlton Collins					
10	Centered across selection without the accounting format					

61. Formatting Individual Letters in Excel - You can apply formatting to individual letters in edit mode, two examples of which are shown below.



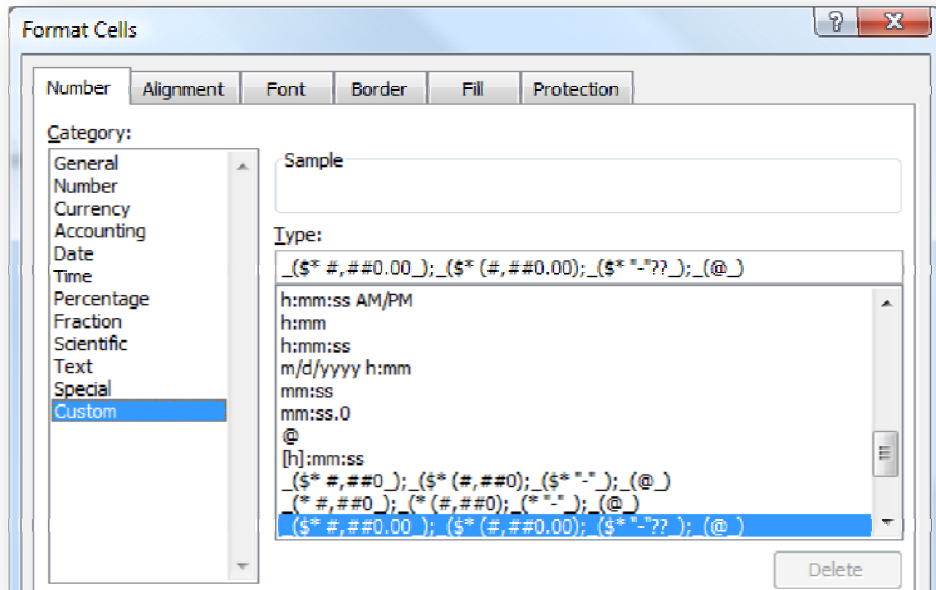
	A	B
13		
14	Cash	345,000
15	Accounts Receivable <i>(See Note 1)</i>	1,253,000
16	Inventory <i>(See Note 2)</i>	754,000
17	Property & Equipment <i>(See Note 3)</i>	386,000
18	Long Term Assets	2,300,000

62. Using Custom Formats to Control Numbers - If the number format options provided by Excel don't meet your needs you can easily create your own custom formats. Excel offers tools for creating very specialized number and date formats. These capabilities even include the ability to include labels as part of the format. For example, a format could include the label "Per Unit" as part of the format.

1. Select the cells you want to format.
2. On the Format menu, click Cells, and then click the Number tab.
3. In the Category list, click a category, and then click a built-in format that resembles the one you want.
4. In the Category list, click Custom.
5. In the Type box, edit the number format codes to create the format you want. (Editing a built-in format does not remove the format.)

You can specify up to four sections of format codes. The sections, separated by semicolons, define the formats for positive numbers, negative numbers, zero values, and text, in that order. If you specify only two sections, the first is used for positive numbers and zeros, and the second is used for negative numbers. If you specify one section, all numbers use that format. If you skip a section, include the ending semicolon for that section. Use format codes that describe how you want to display:

1. A number
2. Date or time
3. Currency, percentage, or scientific notation
4. Text or spacing



Number Format Codes

1. # displays only significant digits and does not display insignificant zeros.
2. 0 (zero) displays insignificant zeros if a number has fewer digits than there are zeros in the format.
3. ? adds spaces for insignificant zeros on either side of the decimal point so that decimal points align when formatted with a fixed-width font, such as Courier New. You can also use ? for fractions that have varying numbers of digits.

For example: To have 12 displayed as 12.0 and 1234.568 displayed as 1234.57 you would use the #.0# custom format. To have 44.398, 102.65, and 2.8 with aligned decimals you would use the ????.??? custom format. Here are visual examples:

0000####
 0002300
 00012
 0005444
 0007663

???.????
 12.3
 12.5544
 1322.655
 3.4

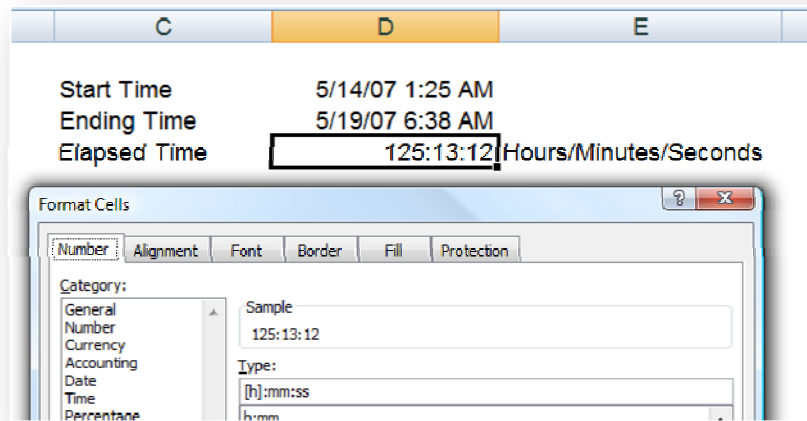
Date and Time Format Codes

To display days, months, and years, include the following format codes in a section. If you use "m" immediately after the "h" or "hh" code or immediately before the "ss" code, Microsoft Excel displays minutes instead of the month.

If the format contains an AM or PM, the hour is based on the 12-hour clock, where "AM" or "A" indicates times from midnight until noon and "PM" or "P" indicates times from noon until midnight. Otherwise, the hour is based on the 24-hour clock. The "m" or "mm" code must appear immediately after the "h" or "hh" code or immediately before the "ss" code; otherwise, Microsoft Excel displays the month instead of minutes.

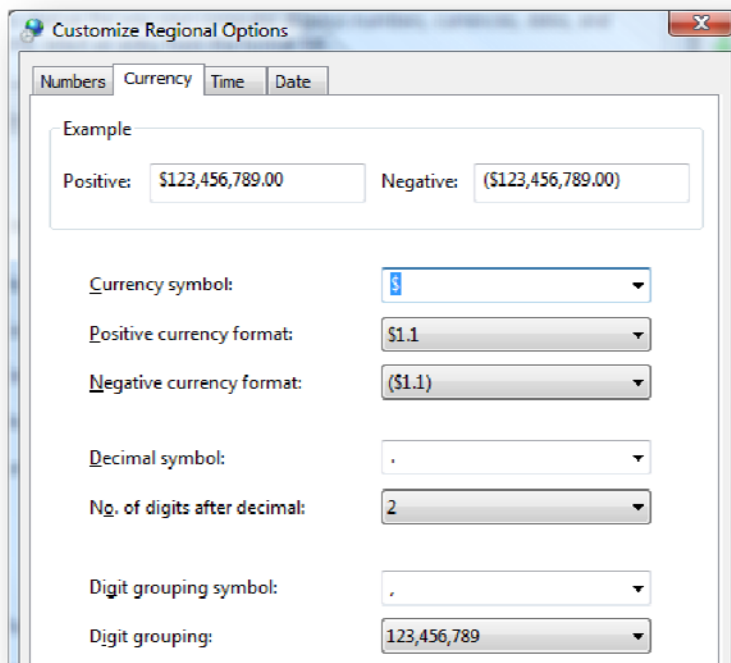
To Display	Use this Code
Months as 1–12	M
Months as 01–12	Mm
Months as Jan–Dec	Mmm
Months as January–December	Mmmm
Months as the first letter of the month	Mmmmm
Days as 1–31	D
Days as 01–31	Dd
Days as Sun–Sat	Ddd
Days as Sunday–Saturday	Dddd
Years as 00–99	Yy
Years as 1900–9999	Yyyy
Hours as 0–23	H
Hours as 00–23	Hh
Minutes as 0–59	M
Minutes as 00–59	Mm
Seconds as 0–59	S
Seconds as 00–59	Ss
Hours as 4 AM	h AM/PM
Time as 4:36 PM	h:mm AM/PM
Time as 4:36:03 P	h:mm:ss A/P
Elapsed time in hours; for example, 25.02	[h]:mm
Elapsed time in minutes; for example, 63:46	[mm]:ss
Elapsed time in seconds	[ss]
Fractions of a second	h:mm:ss.00

In addition to the above formatting characters, Excel allows you to use the left and right bracket around any time or date code to make Excel show elapsed time. For example, let's assume you have a start time (or date) as a fixed value in a cell and you have a formula that calculates the current time and date (i.e. =now()) in another cell. You can subtract the beginning time or date from the current time and date and have the elapsed time (or number of days, or number of minutes, or number of seconds, etc.) displayed using the left and right brackets.



Keep in mind that you can also custom format formulas as well.

63. Note Regarding Custom Formats - Custom formats are saved with the workbook. To have Microsoft Excel always use a specific currency symbol, change the currency symbol selected in Regional Settings in Control Panel before you start Excel.

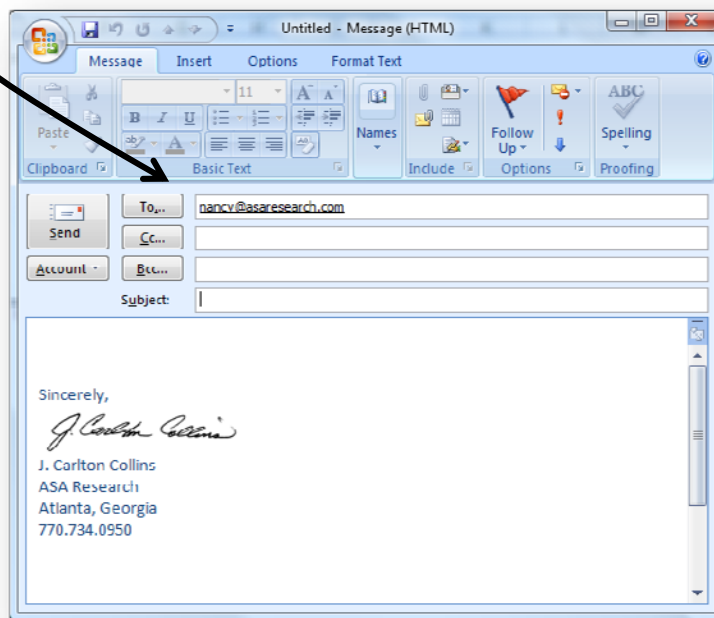
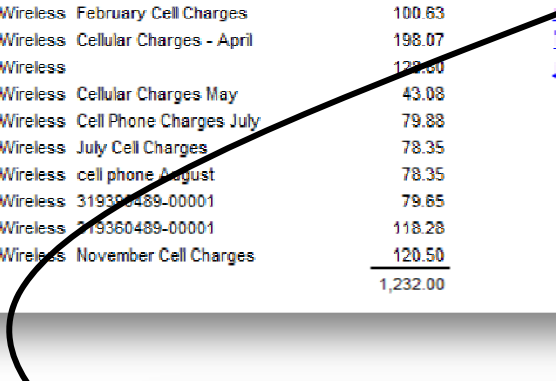


64. Percentage Formats - To display numbers as a percentage of 100, include the percent sign (%) in the number format. For example, a number such as .08 appears as 8%; 2.8 appears as 280%.

65. E-Mail Hyperlinks in Excel Workbooks - Excel automatically recognizes e-mail hyperlinks in worksheets. In some cases this feature can make it easier for users of the worksheet to communicate with one another.

To use this feature, simply type the relevant e-mail addresses, and excel automatically converts them to a hyperlink. Thereafter, worksheet users can click on these addresses to launch their e-mail application, complete with e-mail address inserted.

	A	B	C	D	E	F	G	H	I
1	Cell Phone Bill Analysis								
2	01/24/2005	Verizon Wireless	January Cell Charges		100.63				
3	02/25/2005	Verizon Wireless	February Cell Charges		105.78		susan@asaresearch.com		
4	03/21/2005	Verizon Wireless	February Cell Charges		100.63		nancy@asaresearch.com		
5	04/20/2005	Verizon Wireless	Cellular Charges - April		198.07		bill@verizon.com		
6	05/22/2005	Verizon Wireless			120.20		phillip@bellsouth.net		
7	06/17/2005	Verizon Wireless	Cellular Charges May		43.08				
8	07/26/2005	Verizon Wireless	Cell Phone Charges July		79.88				
9	08/19/2005	Verizon Wireless	July Cell Charges		78.35				
10	09/15/2005	Verizon Wireless	cell phone August		78.35				
11	10/21/2005	Verizon Wireless	319360489-00001		79.85				
12	11/17/2005	Verizon Wireless	719360489-00001		118.28				
13	12/16/2005	Verizon Wireless	November Cell Charges		120.50				
14					1,232.00				

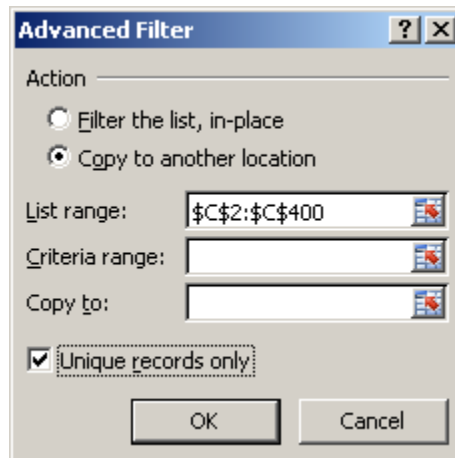


66. Text to Speech – Excel provides the ability to read text aloud. Excel 2007’s Speak Cells Tool sounds better and clearer than Excel 2003’s text to Speech capabilities. The actual voice used can be changed in the Control Panel.

67. SUMIF – The SUMIF function can be used to sum only selected cells in arrange when adjacent cells meet a specified criteria. For example, assume column A has a list of 20 repeating names, and that list is 400 lines long. Further assume that column B has values. Your goal is to total the cell values for a selected name, such as “Amy” as shown in the example below:

fx =SUMIF(C2:C400,F2,D2:D400)				
C	D	E	F	G
Sam	53,890		Amy	1,604,180
Florence	49,680			
Florence	28,390			
Stephen	90,710			
Mike	12,650			
Amy	4,500			

68. Data Filter Advanced – If you have a long list of text or values, and you want to extract only a unique list of those values, you can use the data, Filter, Advanced Filter, Unique Records Only command to accomplish this task.



69. COMBO Box – The combo box tool can turn a list into a drop down box. A drawback of the Excel combo box tool is that it only returns the number of the selection, not the selection itself. Therefore the Combo Box tool is often used in conjunction with the VLOOKUP function).

D	E	F	G	H	I
	Names				
1	Sam			Beth	1,612,770
2	Florence				
3	Stephen				
4	Mike				
5	Amy				
6	Cassie				
7	Debra				
8	Stev				
9	Ted				
10	Sam				
11	Mark				
12	Beth				

Amortization Schedule Hands on Practice

The Situation - Your client (Doug and Tina) have an outstanding home loan which was originally obtained in March of 2002 in the amount of \$400,000 at 5.75% interest, payable over 15 years. In 2007, your clients inherit some money and they want to explore various strategies for using this money to pay down the loan amount. They cannot seem to agree on which strategy is best, and they want your help to better understand the implications of both strategies. Tina wants to pay down the principle now and Doug wants to pay down the principle more slowly, keeping the cash more readily available to earn interest and use in case of an emergency.



Specifically, Tina wants to know how much sooner the loan will be completely repaid if they apply \$75,000 to the principle amount of the loan in July 2007, and how much interest this would save over the remaining loan period. Doug wants to know the same thing if the \$75,000 is placed in a mutual fund earning 6.5% a year, and \$15,000 is withdrawn from that mutual fund each year to pay down the principle amount at year end, beginning in December 2007.

The Big Picture - Your Goals Are:

1. Create a loan amortization schedule in Excel using Doug and Tina's original loan terms.
2. Create a copy of the amortization schedule and reduce the principle payments by \$75,000 in July 2007 to obtain an answer for Tina.
3. Create an investment schedule showing the growth of \$75,000 at 6.5%, with \$15,000 removed each year end.
4. Create another copy of the amortization and adjust the principle payments by \$15,000 annually to obtain an answer for Doug.

This Scenario Covers the following Excel Features and Concepts:

- | | |
|---|--|
| 1. The =PMT Function | 9. Pasting Column Widths |
| 2. Filling Dates | 10. Inserting Columns |
| 3. Absolute References in Formulas | 11. Double Clicking the Fill Handle to Copy Down |
| 4. Using the F4 Key to Insert Absolute References | 12. Goal Seeking |
| 5. Copying with the Fill Handle | 13. Freezing Panes |
| 6. Deleting Rows | 14. Print preview |
| 7. The =SUM Formula | 15. Fit-To Printing |
| 8. Copying Sheets | 16. Headers and Footers |

Steps:

1. On Sheet1, set up a loan assumptions and monthly payment calculation section as shown below.

	A	B	C
1	Loan Amount	400000	
2	Interest Rate	0.0575	Percent
3	Duration of Loan	15	Years
4			
5	Monthly Payment	$=PMT(B2/12,B3*12,B1)*-1$	

Formulas

	A	B	C
1	Loan Amount	400,000	
2	Interest Rate	5.75%	Percent
3	Duration of Loan	15	Years
4			
5	Monthly Payment	3,321.64	

Results

2. On Sheet1, set up the headings for an amortization schedule as shown below.

4							
5	Monthly Payment	<u>3,321.64</u>					
6							
7	Original Amortization Schedule						
8		Date	Beg Amount	Payment	Interest	Principle	Balance
9							

3. On Sheet1, insert dates below the “Date” heading. Enter March 2002 and April 2002, and then use the Fill handle to extend the dates down several hundred rows.

7	Original Amortization Schedule						
8		Date	Beg Amount	Payment	Interest	Principle	Balance
9		Mar-02					
10		Apr-02					
11		May-02					
12		Jun-02					
13		Jul-02					

4. On Sheet1, enter the formulas for the first two rows of the amortization schedule. Make sure to insert the proper “\$” symbols to control relative and absolute references in the formulas. Use the F4 key to toggle these absolute references on or off.

7	Original Ar						
8		Date	Beg Amount	Payment	Interest	Principle	Balance
9	37316	=B1	=B\$5	=B9*\$B\$2/12	=C9-D9	=B9-E9	
10	37347	=F9	=B\$5	=B10*\$B\$2/12	=C10-D10	=B10-E10	

Formulas

Original Amortization Schedule					
Date	Beg Amount	Payment	Interest	Principle	Balance
Mar-02	400,000	3,321.64	1,916.67	1,404.97	398,595.03
Apr-02	398,595.03	3,321.64	1,909.93	1,411.71	397,183.32

Results

- Highlight the newly entered formulas on the second row and drag them down several hundred rows to complete the Amortization schedule.

Original Amortization Schedule					
Date	Beg Amount	Payment	Interest	Principle	Balance
Mar-02	400,000	3,321.64	1,916.67	1,404.97	398,595.03
Apr-02	398,595.03	3,321.64	1,909.93	1,411.71	397,183.32
May-02	397,183.32	3,321.64	1,903.17	1,418.47	395,764.85
Jun-02	395,764.85	3,321.64		1,425.27	394,339.58
Jul-02	394,339.58	3,321.64		1,432.10	392,907.49
Aug-02	392,907.49	3,321.64	1,884.08	1,438.96	391,468.53
Sep-02	391,468.53	3,321.64	1,875.79	1,445.85	390,022.67
Oct-02	390,022.67	3,321.64	1,867.86	1,452.78	388,569.89
Nov-02					

Copy Row 2
Down

- Scroll down the amortization schedule and locate the point in which the outstanding balance is reduced to zero, and delete all of the rows below that point.

180	Jun-16	29,190.94	3,321.64	139.87	3,181.77	26,009.17
181	Jul-16	26,009.17	3,321.64	124.63	3,197.01	22,812.16
182		22,812.16	3,321.64	109.31	3,212.33	19,599.83
183		19,599.83	3,321.64	93.92	3,227.72	16,372.10
184		16,372.10	3,321.64	78.45	3,243.19	13,128.91
185		13,128.91	3,321.64	62.91	3,258.73	9,870.18
186		9,870.18	3,321.64	47.29	3,274.35	6,595.84
187		6,595.84	3,321.64	31.61	3,290.04	3,305.80
188		3,305.80	3,321.64	15.84	3,305.80	0.00
189	Jun-17	0.00	3,321.64	0.00	3,321.64	(3,321.64)
190		(3,321.64)	3,321.64	(15.92)	3,337.56	(6,659.20)
191		(6,659.20)	3,321.64	(31.91)	3,353.55	(10,012.75)
192	Jun-17	(10,012.75)	3,321.64	(47.98)	3,369.62	(13,382.36)
193	Jul-17	(13,382.36)	3,321.64	(64.12)	3,385.76	(16,768.13)
194	Aug-17	(16,768.13)	3,321.64	(80.35)	3,401.99	(20,170.12)

- Enter a formula under the interest column to calculate the total amount of interest paid.

	A	B	C	D	E	F
186	Dec-16	9,870.18	3,321.64	47.29	3,274.35	6,595.84
187	Jan-17	6,595.84	3,321.64	31.61	3,290.04	3,305.80
188	Feb-17	3,305.80	3,321.64	15.84	3,305.80	0.00
189				197,895.26	400,000.00	

- Select Sheet1 and copy the contents to Sheet2. Next copy Sheet1 and paste the Column Widths to Sheet2. Insert a new blank column before the ending balance column to accommodate additional principle payments.



	A	B	C	D	E	F
1	Loan Amount	400,000				
2	Interest Rate	5.75% Percent				
3	Duration of Loan	15 Years				
4						
5	Monthly Payment	3,321.64				
6						
7	Original Amortization Schedule					
8	Date	Beg Amount	Payment	Interest	Principle	Balance
9	Mar-02	400,000	3,321.64	1,916.67	1,404.97	398,595.03
10	Apr-02	398,595.03	3,321.64	1,909.93	1,411.71	397,183.32

- Edit the first outstanding balance formula to subtract both the principle portion of the monthly payments, and the additional principle payments. Copy this formula down the column by double clicking on the formula cell's Fill Handle. Scroll down to July 2007 and enter a principle payment amount of \$75,000 into this newly created column.

71	May-07	298,849.85	3,321.64	1,431.99	1,889.65	296,960.20	
72	Jun-07	296,960.20	3,321.64	1,422.93	1,898.71	295,061.49	
73	Jul-07	295,061.49	3,321.64	1,413.84	1,907.80	75,000.00	=B73-E73-F73
74	Aug-07	218,153.69	3,321.64	1,045.32	2,276.32	215,877.37	
75	Sep-07	215,877.37	3,321.64	1,034.41	2,287.23	213,590.14	
76	Oct-07	213,590.14	3,321.64	1,023.45	2,298.19	211,291.95	

- Scroll down the amortization schedule to the point in which the outstanding balance of the loan is paid in full. Note the date in which this occurs and report that information to Doug and Tina. Delete the rows after the loan amount is paid in full and insert a SUM formula under the interest and principle columns.

	A	B	C	D	E	F	G
149	Nov-13	13,306.22	3,321.64	63.76	3,257.88		10,048.34
150	Dec-13	10,048.34	3,321.64	48.15	3,273.49		6,774.85
151	Jan-14	6,774.85	3,321.64	32.46	3,289.18		3,485.67
152	Feb-14	3,485.67	3,321.64	16.70	3,304.94		180.73
153	Mar-14	180.73	3,321.64	0.87	3,320.77		(3,140.04)
154							

11. Use Excel's Goal Seek command (Data Ribbon, What-If Analysis, Goal Seek) to determine the amount of payment needed in the last month in order to completely pay off the loan amount and accrued interest.

	A	B	C	D	E	F	G
149	Nov-13	13,306.22	3,321.64	63.76	3,257.88		10,048.34
150	Dec-13	10,048.34	3,321.64	48.15	3,273.49		6,774.85
151	Jan-14	6,774.85	3,321.64	32.46	3,289.18		3,485.67
152	Feb-14	3,485.67	3,321.64	16.70	3,304.94		180.73
153	Mar-14	180.73	181.60	0.87	180.73		(0.00)
154							

12. Insert SUM formulas under the interest and principle columns, and create another formula to subtract the total interest on Sheet1 by the total interest calculated on Sheet2.

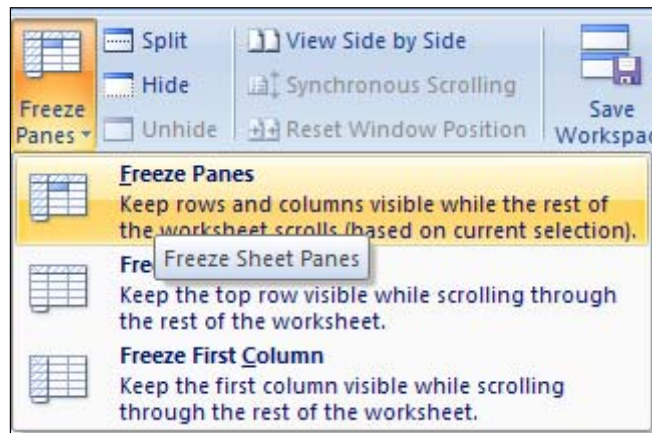
151	Jan-14	6,774.85	3,321.64	32.46	3,289.18		3,485.67
152	Feb-14	3,485.67	3,321.64	16.70	3,304.94		180.73
153	Mar-14	180.73	181.60	0.87	180.73		(0.00)
154	Totals			153,497.81	325,000.00	75,000.00	
155							
156	Total Interest Savings			44,397.45			
157							

Under the original terms of the loan, the entire loan would be paid off in February 2017 with a total amount of interest of \$197,895.26. Under the revised plan that Tina proposes, the loan would be paid off 3 years early on March 2014, thereby saving \$44,397.45 in interest expense.

13. Create a copy of Sheet2 on Sheet3. Paste the Column Widths as well. Erase the \$75,000 principle payment. Add columns to the right to accommodate the mutual fund investment.

	D	E	F	G	H	I	J	K	L	M
7	chedule					6.50%				
8	Interest	Principle	Add'l Payments	Balance	Invested Funds		Funds Interest Removed Balance			
9	1,916.67	1,404.97		398,595.03						
10	1,000.02	1,411.71		207,182.22						

14. Place your cursor underneath the headings, and to the right of the date column. Next, fix the headings by selecting “Freeze Panes, Freeze Sheet Panes” from the View Ribbon’s Widow chunk as shown below. This will enable you to scroll the data and still see the row and column headings even when scrolling the data.



15. Beginning in July 2007, enter the amount of invested funds and formulas to calculate the amount of interest earnings and withdrawals of capital as shown in the screens below.

	A	I	J	K	L
8	Date	Invested Funds	Interest	Funds Removed	Balance
72	39234				
73	39264	=75000	=I73*\$I\$7/12	0	=I73+J73-K73
74	39295	=L73	=I74*\$I\$7/12	0	=I74+J74-K74
75	39326				
76	39356				
77	39387				

Formulas

	A	E	F	G	H	I	J	K	L
8	Date	Principle	Add'l Payments	Balance	Invested Funds		Funds Interest Removed Balance		
72	Jun-07	1,898.71		295,061.49					
73	Jul-07	1,907.80		293,153.69		75,000.00	406.25	-	75,406.25
74	Aug-07	1,916.95		291,236.74		75,406.25	408.45	-	75,814.70
75	Sep-07	1,926.13		289,310.61					
76	Oct-07	1,935.36		287,375.25					

Results

- Copy the formulas down the page several hundred rows. Fill in the withdrawal of \$15,000 each December beginning in 2007 and continuing until the mutual fund is empty. Insert formulas in the amortization schedule section of the worksheet to show that annual withdrawals of \$15,000 in mutual funds are used to reduce the loan amount by \$15,000 each year. Make the necessary adjustments to the bottom of both the amortization and mutual fund schedules and report the results.

	A	B	C	D	E	F	G	H	I	J	K	L
8	Date	Beg Amount	Payment	Interest	Principle	Add'l Payments	Balance	Invested Funds	Interest	Funds Removed	Balance	
146	Aug-13	20,870.18	3,321.64	100.00	3,221.64	-	17,648.54	669.07	3.62		672.69	
147	Sep-13	17,648.54	3,321.64	84.57	3,237.07	-	14,411.47	672.69	3.64		676.33	
148	Oct-13	14,411.47	3,321.64	69.05	3,252.59	-	11,158.88	676.33	3.66		680.00	
149	Nov-13	11,158.88	3,321.64	53.47	3,268.17	-	7,890.71	680.00	3.68		683.68	
150	Dec-13	7,890.71	3,321.64	37.81	3,283.83	687.38	3,919.49	683.68	3.70	687.38	-	
151		3,919.49	3,321.64	18.78	3,302.86	-	616.64					
152		616.64	619.59	2.95	616.64	-	0.00					
153												
154	Totals			166,301.54	309,312.62	90,687.38			15,687.38			
155												
156	Total Interest Savings			44,397.45								
157												
158	Interest Savings From Doug's Plan Compared to Tina's Plan			2,883.65								

- Using Doug's strategy, some of the inherited funds would be available in case of an emergency, and if not, Doug's strategy would pay off the home loan 1 month earlier than Tina's plan on February 2014 instead of March 2014, and would produce an additional \$2,883.65 in net interest savings (including the interest earned by the mutual fund).
- Finally, Print Preview all three Sheets displaying the original amortization schedule, the revised schedule using Tina's plan, and the expanded and revised schedule using Doug's plan. Use the "Fit-To" printing options to print Sheet1 in Portrait mode on 4 pages, and Sheets 2 & 3 in Landscape mode, 1 page wide. Insert headers and footers as needed.

Case Study - Amortization Schedule (Group) - Microsoft Excel (Trial)

Print Preview

Print Page Setup Zoom Next Page Previous Page Show Margins Close Print Preview

Home Loan Analysis for Doug Tina 2/12/2007 9:18 AM

Loan Amount: 400,000
 Interest Rate: 5.75% Percent
 Duration of Loan: 13 Years
 Monthly Payment: 3,321.64

Amortization Schedule & Mutual Fund Investment Using Doug's Strategy 6.50%

Date	Seg Amount	Payment	Interest	Principle	Addl Payments	Balance	Funds Invested	Interest	Funds Removed	Balance
Mar-02	400,000	3,321.64	1,928.67	1,402.97		598,985.03				
Apr-02	398,595.03	3,321.64	1,909.95	1,411.71		597,183.32				
May-02	397,183.32	3,321.64	1,903.17	1,418.47		595,764.85				
Jun-02	395,764.85	3,321.64	1,896.37	1,423.27		594,339.58				
Jul-02	394,339.58	3,321.64	1,889.54	1,427.10		592,907.49				
Aug-02	392,907.49	3,321.64	1,882.68	1,430.96		591,468.53				
Sep-02	391,468.53	3,321.64	1,875.79	1,444.85		590,022.67				
Oct-02	390,022.67	3,321.64	1,868.86	1,452.78		588,569.89				
Nov-02	388,569.89	3,321.64	1,861.90	1,459.74		587,110.15				
Dec-02	387,110.15	3,321.64	1,854.90	1,466.74		585,643.41				
Jan-03	385,643.41	3,321.64	1,847.87	1,473.77		584,169.65				
Feb-03	384,169.65	3,321.64	1,840.81	1,480.83		582,688.82				
Mar-03	382,688.82	3,321.64	1,833.72	1,487.92		581,200.90				
Apr-03	381,200.90	3,321.64	1,826.58	1,495.05		379,705.84				
May-03	379,705.84	3,321.64	1,819.42	1,502.22		378,203.63				
Jun-03	378,203.63	3,321.64	1,812.23	1,509.41		376,694.21				
Jul-03	376,694.21	3,321.64	1,804.99	1,516.65		375,177.56				
Aug-03	375,177.56	3,321.64	1,797.73	1,523.91		373,653.65				
Sep-03	373,653.65	3,321.64	1,790.42	1,531.22		372,122.43				
Oct-03	372,122.43	3,321.64	1,783.06	1,538.58		370,583.86				
Nov-03	370,583.86	3,321.64	1,775.71	1,545.93		369,037.93				
Dec-03	369,037.93	3,321.64	1,768.31	1,553.33		367,484.62				
Jan-04	367,484.62	3,321.64	1,760.86	1,560.78		365,923.84				
Feb-04	365,923.84	3,321.64	1,753.39	1,568.26		364,355.59				
Mar-04	364,355.59	3,321.64	1,745.87	1,575.77		362,779.82				
Apr-04	362,779.82	3,321.64	1,738.32	1,583.32		361,196.50				
May-04	361,196.50	3,321.64	1,730.73	1,590.91		359,605.59				
Jun-04	359,605.59	3,321.64	1,723.11	1,598.53		358,007.06				
Jul-04	358,007.06	3,321.64	1,715.45	1,606.19		356,400.87				
Aug-04	356,400.87	3,321.64	1,707.75	1,613.89		354,786.99				
Sep-04	354,786.99	3,321.64	1,700.02	1,621.62		353,165.37				
Oct-04	353,165.37	3,321.64	1,692.25	1,629.39		351,535.98				
Nov-04	351,535.98	3,321.64	1,684.44	1,637.20		349,898.78				

Page 10 of 13 J. Carlton Collins, CPA

Preview: Page 10 of 13 Zoom In 100%

Conclusion, the decision to use funds in a given manner is a personal preference decision that Doug and Tina will need to make on their own. However, since Tina's primary goal is to pay off the home loan earlier, and Doug's main goal is to keep some liquidity, Doug's plan accomplishes both objectives best. Using Excel you are able to advise your clients accordingly, and back up your recommendations with detailed reports to support your conclusions.



Financial Statements Projections with Tax Calculations Hands on Practice

The Situation - Your Company (PaperCut, Inc.) is in the process of preparing projections for the coming year, however the current projections do not include estimated tax payments. Your job is to incorporate tax projections into the current projections.

The Big Picture - Your Goals Are:

1. Edit PaperCut's projections to include tax estimates.

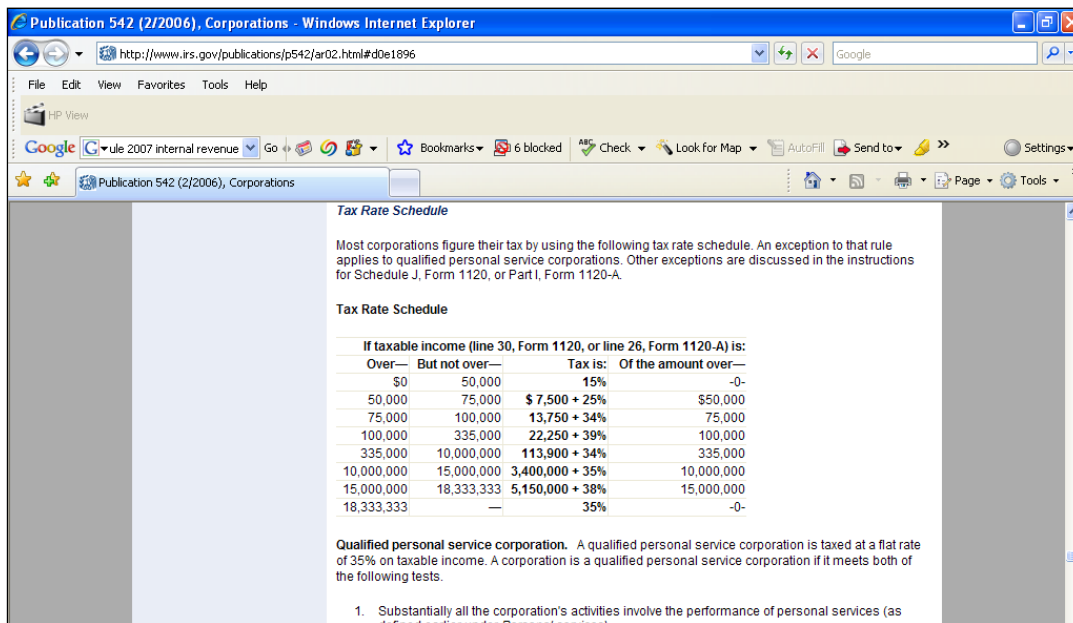
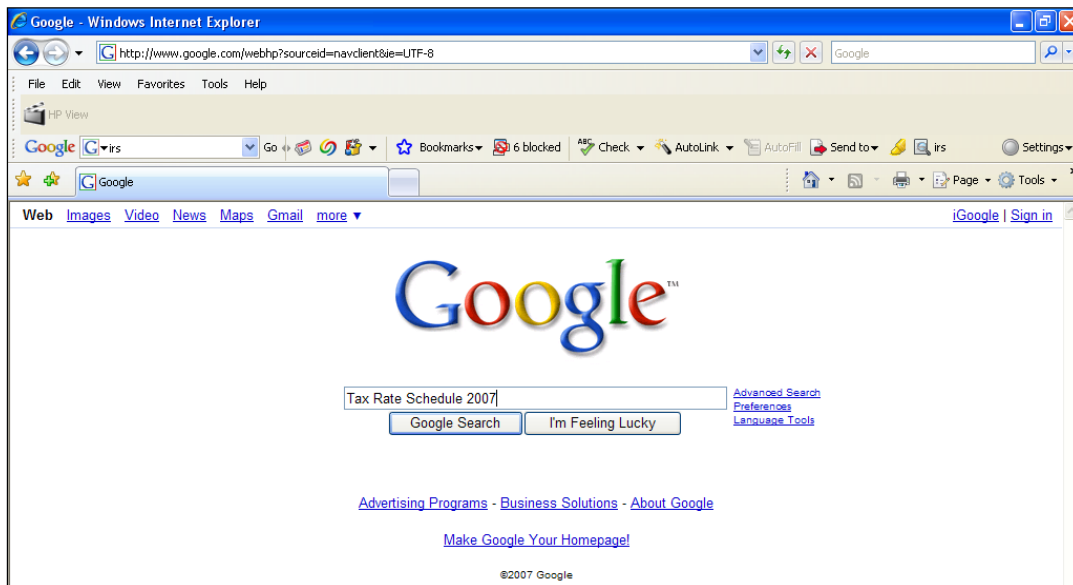
This Case Study Covers the following Excel Features and Concepts:

1. Copying Web Data to Excel
2. Parsing Data
3. =FIND
4. =MID
5. =VALUE
6. =VLOOKUP
7. Absolute vs Relative References
8. Worksheet Design
9. 3-D Worksheets

The =HLOOKUP & =VLOOKUP Functions

HLOOKUP and VLOOKUP refer to looking up data in a table horizontally or vertically. For example you perform such a lookup whenever you refer to an IRS tax rate schedule. CPAs and tax practitioners frequently find the need to reference tax rate schedules in their spreadsheets, but they don't know exactly how to do that. The first step is to obtain a rate schedule and type that rate schedule into your spreadsheet as shown in the left side of the spreadsheet below. Our case study begins by looking up the necessary tax rate schedule on the IRS web site.

1. Search the Internet for the IRS corporate rate schedule.



- Copy the tax rate schedule from the IRS web site.

Tax Rate Schedule

Most corporations figure their tax by using the following tax rate schedule. An exception to that rule applies to qualified personal service corporations. Other exceptions are discussed in the instructions for Schedule J, Form 1120, or Part I, Form 1120-A.

Tax Rate Schedule

If taxable income (line 30, Form 1120, or line 26, Form 1120-A) is:

Over—	But not over—	Tax is:	Of the amount over—
\$0	50,000	15%	-0-
50,000	75,000	\$ 7,500 + 25%	\$50,000
75,000	100,000	13,750 + 34%	75,000
100,000	335,000	22,250 + 39%	100,000
335,000	10,000,000	113,900 + 34%	335,000
10,000,000	15,000,000	3,400,000 + 35%	10,000,000
15,000,000	18,333,333	5,150,000 + 38%	15,000,000
18,333,333		35%	-0-

Qualified personal service corporation. A corporation is a qualified personal service corporation if it is a corporation and if it meets both of the following tests:

- Substantially all the corporation's activity is in the field of personal services as defined earlier under *Personal services*.

- Paste the results into Excel.

Microsoft Excel - Book1

File Edit View Insert Format Tools Data Window Help

Arial 10 B I U

	A	B	C	D	E	F
5	Tax Rate Schedule					
6						
7	If taxable income (line 30, Form 1120, or line 26, Form 1120-A) is:					
8	Over—	But not over—	Tax is:	Of the amount		
9	\$0	50,000	15%	-0-		
10	50,000	75,000	\$ 7,500 + 25%	\$50,000		
11	75,000	100,000	13,750 + 34%	75,000		
12	100,000	335,000	22,250 + 39%	100,000		
13	335,000	10,000,000	113,900 + 34%	335,000		
14	10,000,000	15,000,000	3,400,000 + 35%	10,000,000		
15	15,000,000	18,333,333	5,150,000 + 38%	15,000,000		
16	18,333,333		35%	-0-		

4. Create two new columns and enter the income threshold and tax rate information from column 3 as values in these new columns. Given the amount of line items, you can simply retype these numbers, or if you prefer use formulas to convert these numbers.

	Over—	But not over—	Tax is:	Of the amount	Base Tax	Rate
8	\$0	50,000	15%	-0-	-	0.15
10	50,000	75,000	\$ 7,500 + 25%	\$50,000	7,500	0.25
11	75,000	100,000	13,750 + 34%	75,000	13,750	0.34
12	100,000	335,000	22,250 + 39%	100,000	22,250	0.39
13	335,000	10,000,000	113,900 + 34%	335,000	113,900	0.34
14	10,000,000	15,000,000	3,400,000 + 35%	10,000,000	3,400,000	0.35
15	15,000,000	18,333,333	5,150,000 + 38%	15,000,000	5,150,000	0.38
16	18,333,333	—	35%	-0-	0	0.35

The following screen shows the formulas used to convert the text in column 3 into values in columns 5 and 6.

Of the amount over—	Base Tax	Rate
-0- 0	=VALUE(C9)	
0000	=VALUE(MID(C10,2,7))	=VALUE(MID(C10,FIND("+",C10)+2,3))
0000	=VALUE(MID(C11,1,7))	=VALUE(MID(C11,FIND("+",C11)+2,3))
0000	=VALUE(MID(C12,1,7))	=VALUE(MID(C12,FIND("+",C12)+2,3))
5000	=VALUE(MID(C13,1,7))	=VALUE(MID(C13,FIND("+",C13)+2,3))
000000	=VALUE(MID(C14,1,10))	=VALUE(MID(C14,FIND("+",C14)+2,3))
000000	=VALUE(MID(C15,1,10))	=VALUE(MID(C15,FIND("+",C15)+2,3))
-0- 0		0.35

5. Add cell labels and use borders to layout the remainder of the worksheet.

	Over—	But not over—	Tax is:	Of the amount	Base Tax	Rate
8	\$0	50,000	15%	-0-	-	0.15
10	50,000	75,000	\$ 7,500 + 25%	\$50,000	7,500	0.25
11	75,000	100,000	13,750 + 34%	75,000	13,750	0.34
12	100,000	335,000	22,250 + 39%	100,000	22,250	0.39
13	335,000	10,000,000	113,900 + 34%	335,000	113,900	0.34
14	10,000,000	15,000,000	3,400,000 + 35%	10,000,000	3,400,000	0.35
15	15,000,000	18,333,333	5,150,000 + 38%	15,000,000	5,150,000	0.38
16	18,333,333	—	35%	-0-		
18	Taxable Income Amount from Financials					
20	Threshold					
21	Base Tax					
22	Rate					

6. Add VLOOKUP functions to extract the necessary information from the tax rate schedule.

The screenshot shows a Microsoft Excel spreadsheet with a 'Tax Rate Schedule' table. The table has columns for 'Over', 'But not over', 'Tax is:', 'Of the amount', 'Base Tax', and 'Rate'. Below the table, there are cells for 'Taxable Income Amount from Financials' (500,000.00), 'Threshold' (335,000.00), 'Base Tax' (113,900.00), and 'Rate' (34.00%). The formulas for these cells are: Threshold: =VLOOKUP(\$D\$18,\$A\$8:\$F\$16,1); Base Tax: =VLOOKUP(\$D\$18,\$A\$8:\$F\$16,5); Rate: =VLOOKUP(\$D\$18,\$A\$8:\$F\$16,6).

Tax Rate Schedule					
If taxable income (line 30, Form 1120, or line 26, Form 1120-A) is:					
Over—	But not over—	Tax is:	Of the amount	Base Tax	Rate
\$0	50,000	15%	-0-	-	0.15
50,000	75,000	\$ 7,500 + 25%	\$50,000	7,500	0.25
75,000	100,000	13,750 + 34%	75,000	13,750	0.34
100,000	335,000	22,250 + 39%	100,000	22,250	0.39
335,000	10,000,000	113,900 + 34%	335,000	113,900	0.34
10,000,000	15,000,000	3,400,000 + 35%	10,000,000	3,400,000	0.35
15,000,000	18,333,333	5,150,000 + 38%	15,000,000	5,150,000	0.38
18,333,333	—	35%	-0-	0	0.35

Taxable Income Amount from Financials: 500,000.00

Threshold: 335,000.00 =VLOOKUP(\$D\$18,\$A\$8:\$F\$16,1)

Base Tax: 113,900.00 =VLOOKUP(\$D\$18,\$A\$8:\$F\$16,5)

Rate: 34.00% =VLOOKUP(\$D\$18,\$A\$8:\$F\$16,6)

7. Complete the worksheet. Reference the resulting tax amount to the appropriate place in your financial projections.

The screenshot shows the same Microsoft Excel spreadsheet as above, but with an additional row for 'Tax'. The 'Tax' cell (D24) contains the formula =D21+((D18-D20)*D22) and the value 170,000.00. The 'Rate' cell (D22) now contains the value 34.00%.

Tax Rate Schedule					
If taxable income (line 30, Form 1120, or line 26, Form 1120-A) is:					
Over—	But not over—	Tax is:	Of the amount	Base Tax	Rate
\$0	50,000	15%	-0-	-	0.15
50,000	75,000	\$ 7,500 + 25%	\$50,000	7,500	0.25
75,000	100,000	13,750 + 34%	75,000	13,750	0.34
100,000	335,000	22,250 + 39%	100,000	22,250	0.39
335,000	10,000,000	113,900 + 34%	335,000	113,900	0.34
10,000,000	15,000,000	3,400,000 + 35%	10,000,000	3,400,000	0.35
15,000,000	18,333,333	5,150,000 + 38%	15,000,000	5,150,000	0.38
18,333,333	—	35%	-0-	0	0.35

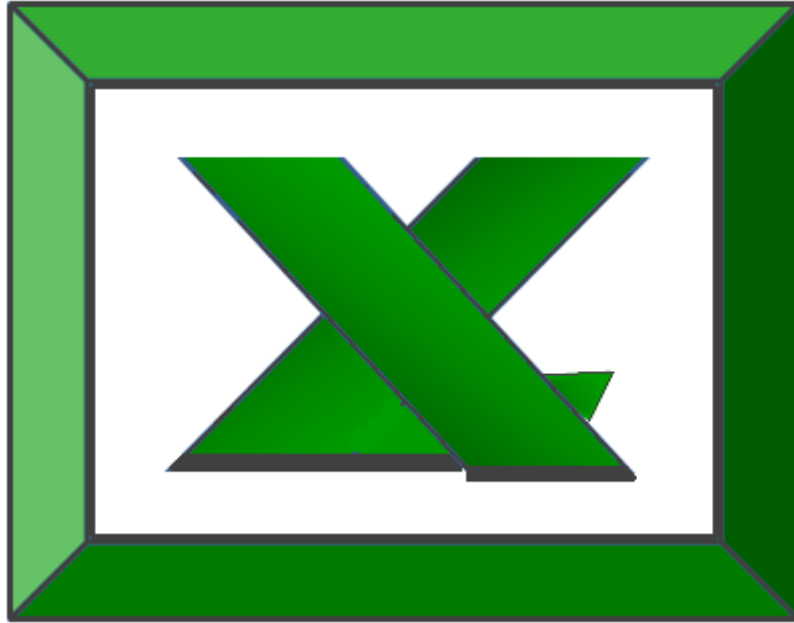
Taxable Income Amount from Financials: 500,000.00

Threshold: 335,000.00 =VLOOKUP(\$D\$18,\$A\$8:\$F\$16,1)

Base Tax: 113,900.00 =VLOOKUP(\$D\$18,\$A\$8:\$F\$16,5)

Rate: 34.00% =VLOOKUP(\$D\$18,\$A\$8:\$F\$16,6)

Tax: 170,000.00 =D21+((D18-D20)*D22)



Chapter 2

50 Excel Hands On Quick Tips

50 Quick Tips

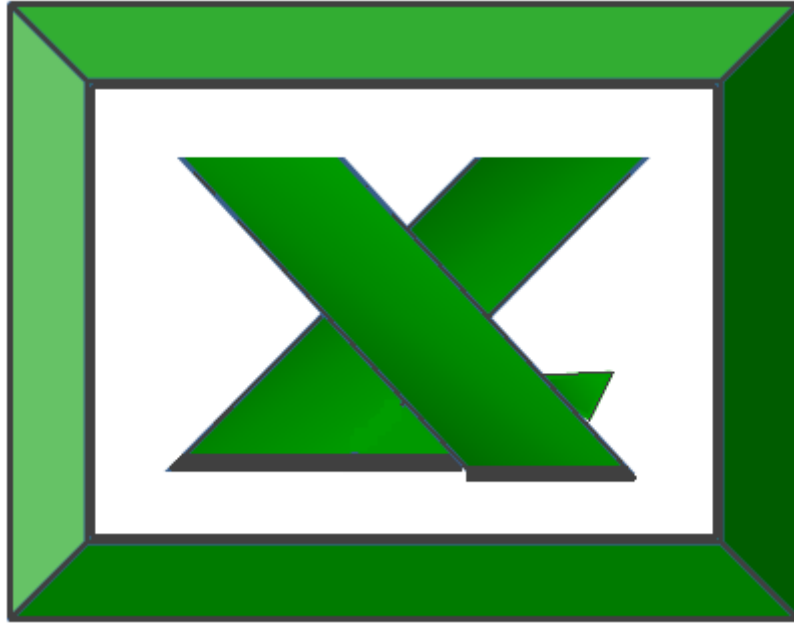
The Excel workbook used in class to demonstrate these quick tips can be downloaded instantly at the following address: www.ExcelAdvisor.net Password: 2007collins

1	Right Click Status Bar - <i>(View sums, averages, mins, maxes immediately)</i>
2	CTRL + Mouse Scroll - <i>(Zoom in & out with your mouse)</i>
3	Double Click the Format Painter - <i>(Tool sticks until clicked again)</i>
4	Replace Formatting - <i>(Find and replace one formatting with another)</i>
5	Click on Edge of Cell - <i>(Navigate in a range of cells)</i>
6	Turn off Task Pane - <i>(Put an end to TaskPane)</i>
7	Control Tilde (CTRL + ~) - <i>(View underlying formulas)</i>
8	Indent Icon - <i>(Indent cells or columns instantly)</i>
9	ALT + Down Arrow (or Shift-F10) - <i>(Pick from a drop down list)</i>
10	F4 - <i>(Repeat the last command such as insert rows or change row height)</i>
11	Alt + Enter - <i>(Wrap text instantly)</i>
12	& - <i>(Combine text from multiple cells)</i>
13	Right Click Tab, Copy, Create Copy - <i>(Insert new sheet with headers, footers, etc)</i>
14	File, Send To, Mail Recipient - <i>(E-Mail a worksheet, workbook or chart)</i>
15	ComboBox from Forms Toolbar - <i>(Insert a combobox)</i>
16	Double Click Fill Handle - <i>(Copies formula down the relevant range)</i>
17	=Upper, =Lower, =Proper - <i>(Change text case)</i>
18	Paste Special, Values - <i>(Convert formulas to numbers)</i>
19	F4 in Edit Mode - <i>(Toggle Absolute References)</i>
20	Paste Special, Transpose - <i>(Invert a matrix of numbers)</i>
21	Ctrl + D - <i>(Copy Data to the down)</i>
22	Ctrl + R - <i>(Copy data to the right)</i>
23	Defined Names - <i>(Refer to names rather than cell addresses)</i>
24	Data, AutoFilter, Advanced, Copy, Unique - <i>(Extract unique values)</i>
25	Tools, Options, Calculation, Precision as Displayed <i>(Avoid rounding errors)</i>
26	Right Click Toolbar, Options, Show Full Menus - <i>(Show all menu options)</i>
27	Tools, View, Zero Values - <i>(Hide zero values)</i>
28	Tools, AutoCorrect, Smart Tags, None - <i>(Turn off Smart Tags)</i>
29	Filter Data, Apply Color, Un-filter Data - <i>(Color filtered results)</i>
30	PDF2XL - <i>(\$95 product converts PDF's to Excel files)</i>
31	Data Validation - <i>(Insert a pop up comment into a cell)</i>
32	Ctrl+Shft+End - <i>(Select row to the right)</i>
33	Ctrl+Shft+Home - <i>(Select row to the left)</i>
34	F11 - <i>(Produce a quick chart)</i>
35	Print Area in Name Box - <i>(Quickly identify the print area)</i>
36	Displaying the Styles Tool - <i>(Toolbar access to styles)</i>
37	Format, Styles - <i>(Create new styles)</i>
38	Control Panel, Regional Options - <i>(Control how dates are displayed)</i>
39	=Substitute - <i>(Remove or replace unwanted characters)</i>
40	View, Sized with Window - <i>(Resizes chart to fit Window)</i>
41	Ctrl+Spacebar - <i>(Select a column)</i>

42	Shift+Spacebar - <i>(Select a row)</i>
43	Alt+Tab - <i>(Toggle between applications or Excel workbooks)</i>
44	Delete Blank Rows and Columns, Ctrl+S - <i>(Reduce relevant area and scroll bar)</i>
45	Copy Formula, to Blank Cells - <i>(Fill in missing data in a list)</i>
46	=ISTEXT(A1) - <i>(Use this formula in conditional formatting to format text only)</i>
47	Replace, Within - <i>(Tip for replacing throughout entire workbook)</i>
48	=LEN(A1)-LEN(SUBSTITUTE(A1,A2,"")) - <i>(Count the occurrence of a character)</i>
49	=MID(A25,FIND("*",SUBSTITUTE(A25,"\\","*",LEN(A25)-LEN(SUBSTITUTE(A25,"\\",""))))+1,LEN(A25)) - <i>(Extract the Filename)</i>
50	=SumIF - <i>(Sum only those numbers that meet specific criteria)</i>

Bonus Tips – 20 Additional Excel Tips:

1.	=Left
2.	=Find
3.	=Mid
4.	=Right
5.	=Len
6.	Transition turned on
7.	Move on edit turned off
8.	AutoCorrect
9.	Rename Tab
10.	Color Tab
11.	Reorder Tabs
12.	Select Multiple Tabs
13.	Fixed decimal places
14.	Turn off AutoComplete - Tools, Options, Edit
15.	Enter Formats automatically
16.	Show 50 / 9 recently used files
17.	Default File Format - Tools, Options, Transition
18.	Embedded Voice clips
19.	Embedded Video Clips
20.	Organization Charts



Chapter 3

Excel Functions

Introduction to Excel Functions

Excel Functions are preprogrammed formulas that make the task of writing complex formulas easier. There are a total of 333 functions in Excel. These functions are separated into 11 categories as follows:

Categories & Number Of Functions In Each Category

1. Database Functions (12)
2. Date and Time Functions (20)
3. Engineering Functions (39)
4. Financial Functions (53)
5. Information Functions (17)
6. Logical Functions (6)
7. Lookup and Reference Functions (18)
8. Math and Trigonometry Functions (59)
9. Statistical Functions (80)
10. Text Functions (27)
11. External Functions (2)

Relevance to CPAs - Some Excel functions are more powerful than others and some are more relevant to the CPA than others. For example, most CPAs will find the IF, SUM, COUNT, SUBTOTAL, TEXT, and VLOOKUP are very relevant to the CPA while other engineering and trigonometry functions such as LOG, PI, RADIENS, DELTA, TAN, COMPLEX, and HAX2DEC are typically less relevant to CPAs. It has been my experience that the following 75 functions are most relevant to the CPA; therefore in my opinion, CPAs wishing to increase their command of Excel functions should concentrate on these functions first.

Carlton's List of The Top 75 Functions Most Relevant to CPAs

(Sorted By Carlton's Opinion of Usefulness)

Open an Excel file Containing Function Examples:

<http://www.ASAResearch.com/web/functions.xlsx>

1. **IF** - Specifies a logical test to perform
2. **SUM** - Adds its arguments
3. **SUBTOTAL** - Returns a subtotal in a list or database
4. **SUMIF** - Adds the cells specified by a given criteria
5. **COUNT** - Counts how many numbers are in the list of arguments
6. **COUNTA** - Counts how many values are in the list of arguments
7. **AVERAGE** - Returns the average of a range of numbers
8. **COUNTBLANK** - Counts the number of blank cells within a range
9. **COUNTIF** - Counts the number of nonblank cells within a range that meet the given criteria
10. **VALUE** - Converts text to a number
11. **TEXT** - Formats a number and converts it to text
12. **VLOOKUP** - Looks in the first column and moves across the row to return the value of a cell

13. **HLOOKUP** - Looks in the top row of an array and returns the value of the indicated cell
14. **TWO WAY LOOKUP** – Using both VLOOKUP and HLOOKUP together
15. **LOOKUP** - Looks up values in a vector or array
16. **MATCH** - Looks up values in a reference or array
17. **TRIM** - Removes spaces from text
18. **PROPER** - Capitalizes the first letter in each word of a text value
19. **LOWER** - Converts text to lowercase
20. **UPPER** - Converts text to uppercase
21. **LEFT** - Returns the leftmost characters from a text value
22. **RIGHT** - Returns the rightmost characters from a text value
23. **MID** - Returns a specific number of characters from a string starting at the position you specify
24. **FIND** - Finds one text value within another (case-sensitive)
25. **SUBSTITUTE** - Substitutes new text for old text in a text string
26. **LEN** - Returns the number of characters in a text string
27. **REPLACE** - Replaces text in a string with alternative text
28. **CONCATENATE** - Joins several text items into one text item
29. **CLEAN** - Removes all nonprintable characters from text
30. **NOW** - Returns the serial number of the current date and time
31. **TODAY** - Returns the serial number of today's date
32. **DATE** - Returns the serial number of a particular date
33. **MONTH** - Converts a serial number to a month
34. **DAY** - Converts a serial number to a day of the month
35. **YEAR** - Converts a serial number to a year
36. **WEEKDAY** - Converts a serial number to a day of the week
37. **ROUND** - Rounds a number to a specified number of digits
38. **ROUNDDOWN** - Rounds a number down, toward zero
39. **ROUNDUP** - Rounds a number up, away from zero
40. **MAX** - Returns the maximum value in a list of arguments
41. **DMAX** - Returns the maximum value from a table array based on a list of arguments
42. **MIN** - Returns the minimum value in a list of arguments
43. **DMIN** - Returns the minimum value from a table array based on a list of arguments
44. **MEDIAN** - Returns the median of the given numbers
45. **MODE** - Returns the most common value in a data set
46. **PERCENTILE** - Returns the k-th percentile of values in a range
47. **PERCENTRANK** - Returns the percentage rank of a value in a data set
48. **PMT** - Returns the periodic payment for an annuity
49. **NPV** - Returns the net present value of an investment based on periodic cash flows
50. **DSUM** - Adds the numbers in the field column of records in the database that match the criteria
51. **DCOUNT** - Counts the cells that contain numbers in a database
52. **DCOUNTA** - Counts nonblank cells in a database
53. **AND** - Returns TRUE if all of its arguments are TRUE
54. **OR** - Returns TRUE if any argument is TRUE
55. **CHOOSE** - Chooses a value from a list of values
56. **TIME** - Returns the serial number of a particular time
57. **FV** - Returns the future value of an investment

- 58. **IRR** - Returns the internal rate of return for a series of cash flows
- 59. **YIELD** - Returns the yield on a security that pays periodic interest
- 60. **CELL** - Returns information about the formatting, location, or contents of a cell
- 61. **INFO** - Returns information about the current operating environment
- 62. **ERROR.TYPE** - Returns a number corresponding to an error type
- 63. **ISBLANK** - Returns TRUE if the value is blank
- 64. **ISNA** - Returns TRUE if the value is the #N/A error value
- 65. **GETPIVOTDATA** - Returns data stored in a PivotTable
- 66. **HYPERLINK** - Creates a shortcut that opens a file on a network server, intranet, or the Internet
- 67. **TRANSPOSE** - Returns the transpose of an array
- 68. **ABS** - Returns the absolute value of a number
- 69. **RAND** - Returns a random number between 0 and 1
- 70. **RANDBETWEEN** - Returns a random number between the numbers you specify
- 71. **REPT** - Repeats text a given number of times
- 72. **SLN** - Returns the straight-line depreciation of an asset for one period
- 73. **SYD** - Returns the sum-of-years' digits depreciation of an asset for a specified period
- 74. **DDB** - Returns the double declining balance depreciation of an asset for a specified period
- 75. **DGET** - Extracts from a database a single record that matches the specified criteria

All 333 Excel Functions

Organized By Category, Including A Description Of Each Function

Database Functions		
	Function	Description
1	DAVERAGE	Returns the average of selected database entries
2	DCOUNT	Counts the cells that contain numbers in a database
3	DCOUNTA	Counts nonblank cells in a database
4	DGET	Extracts from a database a single record that matches the specified criteria
5	DMAX	Returns the maximum value from selected database entries
6	DMIN	Returns the minimum value from selected database entries
7	DPRODUCT	Multiplies the values in a particular field of records that match the criteria in a database
8	DSTDEV	Estimates the standard deviation based on a sample of selected database entries
9	DSTDEVP	Calculates the standard deviation based on the entire population of selected database entries
10	DSUM	Adds the numbers in the field column of records in the database that match the criteria
11	DVAR	Estimates variance based on a sample from selected database entries
12	DVARP	Calculates variance based on the entire population of selected database entries
Date and Time Functions		

	Function	Description
13	DATE	Returns the serial number of a particular date
14	DATEVALUE	Converts a date in the form of text to a serial number
15	DAY	Converts a serial number to a day of the month
16	DAYS360	Calculates the number of days between two dates based on a 360-day year
17	EDATE	Returns the serial number of the date that is the indicated number of months before or after the start date
18	EOMONTH	Returns the serial number of the last day of the month before or after a specified number of months
19	HOUR	Converts a serial number to an hour
20	MINUTE	Converts a serial number to a minute
21	MONTH	Converts a serial number to a month
22	NETWORKDAYS	Returns the number of whole workdays between two dates
23	NOW	Returns the serial number of the current date and time
24	SECOND	Converts a serial number to a second
25	TIME	Returns the serial number of a particular time
26	TIMEVALUE	Converts a time in the form of text to a serial number
27	TODAY	Returns the serial number of today's date
28	WEEKDAY	Converts a serial number to a day of the week
29	WEEKNUM	Converts a serial number to a number representing where the week falls numerically with a year
30	WORKDAY	Returns the serial number of the date before or after a specified number of workdays
31	YEAR	Converts a serial number to a year
32	YEARFRAC	Returns the year fraction representing the number of whole days between start_date and end_date
	Engineering Functions	
	Function	Description
33	BESSELI	Returns the modified Bessel Function $I_n(x)$
34	BESSELJ	Returns the Bessel Function $J_n(x)$
35	BESSELK	Returns the modified Bessel Function $K_n(x)$
36	BESSELY	Returns the Bessel Function $Y_n(x)$
37	BIN2DEC	Converts a binary number to decimal
38	BIN2HEX	Converts a binary number to hexadecimal
39	BIN2OCT	Converts a binary number to octal
40	COMPLEX	Converts real and imaginary coefficients into a complex number
41	CONVERT	Converts a number from one measurement system to another
42	DEC2BIN	Converts a decimal number to binary
43	DEC2HEX	Converts a decimal number to hexadecimal
44	DEC2OCT	Converts a decimal number to octal

45	DELTA	Tests whether two values are equal
46	ERF	Returns the error Function
47	ERFC	Returns the complementary error Function
48	GESTEP	Tests whether a number is greater than a threshold value
49	HEX2BIN	Converts a hexadecimal number to binary
50	HEX2DEC	Converts a hexadecimal number to decimal
51	HEX2OCT	Converts a hexadecimal number to octal
52	IMABS	Returns the absolute value (modulus) of a complex number
53	IMAGINARY	Returns the imaginary coefficient of a complex number
54	IMARGUMENT	Returns the argument theta, an angle expressed in radians
55	IMCONJUGATE	Returns the complex conjugate of a complex number
56	IMCOS	Returns the cosine of a complex number
57	IMDIV	Returns the quotient of two complex numbers
58	IMEXP	Returns the exponential of a complex number
59	IMLN	Returns the natural logarithm of a complex number
60	IMLOG10	Returns the base-10 logarithm of a complex number
61	IMLOG2	Returns the base-2 logarithm of a complex number
62	IMPOWER	Returns a complex number raised to an integer power
63	IMPRODUCT	Returns the product of from 2 to 29 complex numbers
64	IMREAL	Returns the real coefficient of a complex number
65	IMSIN	Returns the sine of a complex number
66	IMSQRT	Returns the square root of a complex number
67	IMSUB	Returns the difference between two complex numbers
68	IMSUM	Returns the sum of complex numbers
69	OCT2BIN	Converts an octal number to binary
70	OCT2DEC	Converts an octal number to decimal
71	OCT2HEX	Converts an octal number to hexadecimal
	Financial Functions	
	Function	Description
72	ACCRINT	Returns the accrued interest for a security that pays periodic interest
73	ACCRINTM	Returns the accrued interest for a security that pays interest at maturity
74	AMORDEGRC	Returns the depreciation for each accounting period by using a depreciation coefficient
75	AMORLINC	Returns the depreciation for each accounting period
76	COUPDAYBS	Returns the number of days from the beginning of the coupon period to the settlement date
77	COUPDAYS	Returns the number of days in the coupon period that contains the settlement date
78	COUPDAYSNC	Returns the number of days from the settlement date to the next coupon date

79	COUPNCD	Returns the next coupon date after the settlement date
80	COUPNUM	Returns the number of coupons payable between the settlement date and maturity date
81	COUPPCD	Returns the previous coupon date before the settlement date
82	CUMIPMT	Returns the cumulative interest paid between two periods
83	CUMPRINC	Returns the cumulative principal paid on a loan between two periods
84	DB	Returns the depreciation of an asset for a specified period by using the fixed-declining balance method
85	DDB	Returns the depreciation of an asset for a specified period by using the double-declining balance method or some other method that you specify
86	DISC	Returns the discount rate for a security
87	DOLLARDE	Converts a dollar price, expressed as a fraction, into a dollar price, expressed as a decimal number
88	DOLLARFR	Converts a dollar price, expressed as a decimal number, into a dollar price, expressed as a fraction
89	DURATION	Returns the annual duration of a security with periodic interest payments
90	EFFECT	Returns the effective annual interest rate
91	FV	Returns the future value of an investment
92	FVSCHEDULE	Returns the future value of an initial principal after applying a series of compound interest rates
93	INTRATE	Returns the interest rate for a fully invested security
94	IPMT	Returns the interest payment for an investment for a given period
95	IRR	Returns the internal rate of return for a series of cash flows
96	ISPMT	Calculates the interest paid during a specific period of an investment
97	MDURATION	Returns the Macauley modified duration for a security with an assumed par value of \$100
98	MIRR	Returns the internal rate of return where positive and negative cash flows are financed at different rates
99	NOMINAL	Returns the annual nominal interest rate
100	NPER	Returns the number of periods for an investment
101	NPV	Returns the net present value of an investment based on a series of periodic cash flows and a discount rate
102	ODDFPRICE	Returns the price per \$100 face value of a security with an odd first period
103	ODDFYIELD	Returns the yield of a security with an odd first period
104	ODDLPRICE	Returns the price per \$100 face value of a security with an odd last period
105	ODDLYIELD	Returns the yield of a security with an odd last period
106	PMT	Returns the periodic payment for an annuity
107	PPMT	Returns the payment on the principal for an investment for a given period
108	PRICE	Returns the price per \$100 face value of a security that pays periodic interest
109	PRICEDISC	Returns the price per \$100 face value of a discounted security
110	PRICEMAT	Returns the price per \$100 face value of a security that pays interest at maturity
111	PV	Returns the present value of an investment

112	RATE	Returns the interest rate per period of an annuity
113	RECEIVED	Returns the amount received at maturity for a fully invested security
114	SLN	Returns the straight-line depreciation of an asset for one period
115	SYD	Returns the sum-of-years' digits depreciation of an asset for a specified period
116	TBILLEQ	Returns the bond-equivalent yield for a Treasury bill
117	TBILLPRICE	Returns the price per \$100 face value for a Treasury bill
118	TBILLYIELD	Returns the yield for a Treasury bill
119	VDB	Returns the depreciation of an asset for a specified or partial period by using a declining balance method
120	XIRR	Returns the internal rate of return for a schedule of cash flows that is not necessarily periodic
121	XNPV	Returns the net present value for a schedule of cash flows that is not necessarily periodic
122	YIELD	Returns the yield on a security that pays periodic interest
123	YIELDDISC	Returns the annual yield for a discounted security; for example, a Treasury bill
124	YIELDMAT	Returns the annual yield of a security that pays interest at maturity
	Information Functions	
	Function	Description
125	CELL	Returns information about the formatting, location, or contents of a cell
126	ERROR.TYPE	Returns a number corresponding to an error type
127	INFO	Returns information about the current operating environment
128	ISBLANK	Returns TRUE if the value is blank
129	ISERR	Returns TRUE if the value is any error value except #N/A
130	ISERROR	Returns TRUE if the value is any error value
131	ISEVEN	Returns TRUE if the number is even
132	ISLOGICAL	Returns TRUE if the value is a logical value
133	ISNA	Returns TRUE if the value is the #N/A error value
134	ISNONTEXT	Returns TRUE if the value is not text
135	ISNUMBER	Returns TRUE if the value is a number
136	ISODD	Returns TRUE if the number is odd
137	ISREF	Returns TRUE if the value is a reference
138	ISTEXT	Returns TRUE if the value is text
139	N	Returns a value converted to a number
140	NA	Returns the error value #N/A
141	TYPE	Returns a number indicating the data type of a value
17		
	Logical Functions	
	Function	Description
142	AND	Returns TRUE if all of its arguments are TRUE

143	FALSE	Returns the logical value FALSE
144	IF	Specifies a logical test to perform
145	NOT	Reverses the logic of its argument
146	OR	Returns TRUE if any argument is TRUE
147	TRUE	Returns the logical value TRUE
	Lookup and Reference Functions	
	Function	Description
148	ADDRESS	Returns a reference as text to a single cell in a worksheet
149	AREAS	Returns the number of areas in a reference
150	CHOOSE	Chooses a value from a list of values
151	COLUMN	Returns the column number of a reference
152	COLUMNS	Returns the number of columns in a reference
153	GETPIVOTDATA	Returns data stored in a PivotTable
154	HLOOKUP	Looks in the top row of an array and returns the value of the indicated cell
155	HYPERLINK	Creates a shortcut or jump that opens a document stored on a network server, an intranet, or the Internet
156	INDEX	Uses an index to choose a value from a reference or array
157	INDIRECT	Returns a reference indicated by a text value
158	LOOKUP	Looks up values in a vector or array
159	MATCH	Looks up values in a reference or array
160	OFFSET	Returns a reference offset from a given reference
161	ROW	Returns the row number of a reference
162	ROWS	Returns the number of rows in a reference
163	RTD	Retrieves real-time data from a program that supports COM automation (Automation: A way to work with an application's objects from another application or development tool. Formerly called OLE Automation, Automation is an industry standard and a feature of the Component Object Model (COM).)
164	TRANSPOSE	Returns the transpose of an array
165	VLOOKUP	Looks in the first column of an array and moves across the row to return the value of a cell
	Math and Trigonometry Functions	
	Function	Description
166	ABS	Returns the absolute value of a number
167	ACOS	Returns the arccosine of a number
168	ACOSH	Returns the inverse hyperbolic cosine of a number
169	ASIN	Returns the arcsine of a number
170	ASINH	Returns the inverse hyperbolic sine of a number
171	ATAN	Returns the arctangent of a number

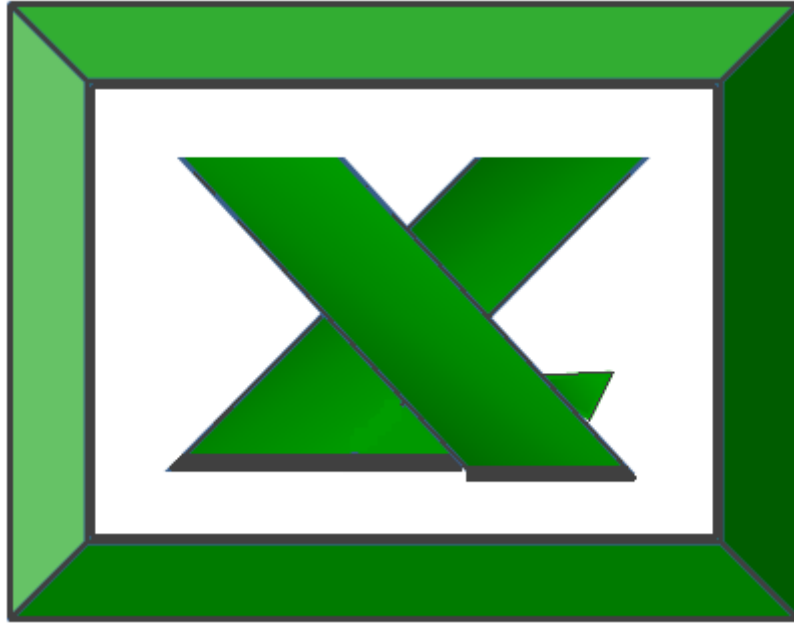
172	ATAN2	Returns the arctangent from x- and y-coordinates
173	ATANH	Returns the inverse hyperbolic tangent of a number
174	CEILING	Rounds a number to the nearest integer or to the nearest multiple of significance
175	COMBIN	Returns the number of combinations for a given number of objects
176	COS	Returns the cosine of a number
177	COSH	Returns the hyperbolic cosine of a number
178	DEGREES	Converts radians to degrees
179	EVEN	Rounds a number up to the nearest even integer
180	EXP	Returns e raised to the power of a given number
181	FACT	Returns the factorial of a number
182	FACTDOUBLE	Returns the double factorial of a number
183	FLOOR	Rounds a number down, toward zero
184	GCD	Returns the greatest common divisor
185	INT	Rounds a number down to the nearest integer
186	LCM	Returns the least common multiple
187	LN	Returns the natural logarithm of a number
188	LOG	Returns the logarithm of a number to a specified base
189	LOG10	Returns the base-10 logarithm of a number
190	MDETERM	Returns the matrix determinant of an array
191	MINVERSE	Returns the matrix inverse of an array
192	MMULT	Returns the matrix product of two arrays
193	MOD	Returns the remainder from division
194	MROUND	Returns a number rounded to the desired multiple
195	MULTINOMIAL	Returns the multinomial of a set of numbers
196	ODD	Rounds a number up to the nearest odd integer
197	PI	Returns the value of pi
198	POWER	Returns the result of a number raised to a power
199	PRODUCT	Multiplies its arguments
200	QUOTIENT	Returns the integer portion of a division
201	RADIANS	Converts degrees to radians
202	RAND	Returns a random number between 0 and 1
203	RANDBETWEEN	Returns a random number between the numbers you specify
204	ROMAN	Converts an arabic numeral to roman, as text
205	ROUND	Rounds a number to a specified number of digits
206	ROUNDDOWN	Rounds a number down, toward zero
207	ROUNDUP	Rounds a number up, away from zero
208	SERIESSUM	Returns the sum of a power series based on the formula
209	SIGN	Returns the sign of a number
210	SIN	Returns the sine of the given angle

211	SINH	Returns the hyperbolic sine of a number
212	SQRT	Returns a positive square root
213	SQRTPI	Returns the square root of (number * pi)
214	SUBTOTAL	Returns a subtotal in a list or database
215	SUM	Adds its arguments
216	SUMIF	Adds the cells specified by a given criteria
217	SUMPRODUCT	Returns the sum of the products of corresponding array components
218	SUMSQ	Returns the sum of the squares of the arguments
219	SUMX2MY2	Returns the sum of the difference of squares of corresponding values in two arrays
220	SUMX2PY2	Returns the sum of the sum of squares of corresponding values in two arrays
221	SUMXMY2	Returns the sum of squares of differences of corresponding values in two arrays
222	TAN	Returns the tangent of a number
223	TANH	Returns the hyperbolic tangent of a number
224	TRUNC	Truncates a number to an integer
	Statistical Functions	
	Function	Description
225	AVEDEV	Returns the average of the absolute deviations of data points from their mean
226	AVERAGE	Returns the average of its arguments
227	AVERAGEA	Returns the average of its arguments, including numbers, text, and logical values
228	BETADIST	Returns the beta cumulative distribution Function
229	BETAINV	Returns the inverse of the cumulative distribution Function for a specified beta distribution
230	BINOMDIST	Returns the individual term binomial distribution probability
231	CHIDIST	Returns the one-tailed probability of the chi-squared distribution
232	CHIINV	Returns the inverse of the one-tailed probability of the chi-squared distribution
233	CHITEST	Returns the test for independence
234	CONFIDENCE	Returns the confidence interval for a population mean
235	CORREL	Returns the correlation coefficient between two data sets
236	COUNT	Counts how many numbers are in the list of arguments
237	COUNTA	Counts how many values are in the list of arguments
238	COUNTBLANK	Counts the number of blank cells within a range
239	COUNTIF	Counts the number of nonblank cells within a range that meet the given criteria
240	COVAR	Returns covariance, the average of the products of paired deviations
241	CRITBINOM	Returns the smallest value for which the cumulative binomial distribution is less than or equal to a criterion value

242	DEVSQ	Returns the sum of squares of deviations
243	EXPONDIST	Returns the exponential distribution
244	FDIST	Returns the F probability distribution
245	FINV	Returns the inverse of the F probability distribution
246	FISHER	Returns the Fisher transformation
247	FISHERINV	Returns the inverse of the Fisher transformation
248	FORECAST	Returns a value along a linear trend
249	FREQUENCY	Returns a frequency distribution as a vertical array
250	FTEST	Returns the result of an F-test
251	GAMMADIST	Returns the gamma distribution
252	GAMMAINV	Returns the inverse of the gamma cumulative distribution
253	GAMMALN	Returns the natural logarithm of the gamma Function, $\Gamma(x)$
254	GEOMEAN	Returns the geometric mean
255	GROWTH	Returns values along an exponential trend
256	HARMEAN	Returns the harmonic mean
257	HYPGEOMDIST	Returns the hypergeometric distribution
258	INTERCEPT	Returns the intercept of the linear regression line
259	KURT	Returns the kurtosis of a data set
260	LARGE	Returns the k-th largest value in a data set
261	LINEST	Returns the parameters of a linear trend
262	LOGEST	Returns the parameters of an exponential trend
263	LOGINV	Returns the inverse of the lognormal distribution
264	LOGNORMDIST	Returns the cumulative lognormal distribution
265	MAX	Returns the maximum value in a list of arguments
266	MAXA	Returns the maximum value in a list of arguments, including numbers, text, and logical values
267	MEDIAN	Returns the median of the given numbers
268	MIN	Returns the minimum value in a list of arguments
269	MINA	Returns the smallest value in a list of arguments, including numbers, text, and logical values
270	MODE	Returns the most common value in a data set
271	NEGBINOMDIST	Returns the negative binomial distribution
272	NORMDIST	Returns the normal cumulative distribution
273	NORMINV	Returns the inverse of the normal cumulative distribution
274	NORMSDIST	Returns the standard normal cumulative distribution
275	NORMSINV	Returns the inverse of the standard normal cumulative distribution
276	PEARSON	Returns the Pearson product moment correlation coefficient
277	PERCENTILE	Returns the k-th percentile of values in a range
278	PERCENTRANK	Returns the percentage rank of a value in a data set
279	PERMUT	Returns the number of permutations for a given number of objects

280	POISSON	Returns the Poisson distribution
281	PROB	Returns the probability that values in a range are between two limits
282	QUARTILE	Returns the quartile of a data set
283	RANK	Returns the rank of a number in a list of numbers
284	RSQ	Returns the square of the Pearson product moment correlation coefficient
285	SKEW	Returns the skewness of a distribution
286	SLOPE	Returns the slope of the linear regression line
287	SMALL	Returns the k-th smallest value in a data set
288	STANDARDIZE	Returns a normalized value
289	STDEV	Estimates standard deviation based on a sample
290	STDEVA	Estimates standard deviation based on a sample, including numbers, text, and logical values
291	STDEVP	Calculates standard deviation based on the entire population
292	STDEVPA	Calculates standard deviation based on the entire population, including numbers, text, and logical values
293	STEYX	Returns the standard error of the predicted y-value for each x in the regression
294	TDIST	Returns the Student's t-distribution
295	TINV	Returns the inverse of the Student's t-distribution
296	TREND	Returns values along a linear trend
297	TRIMMEAN	Returns the mean of the interior of a data set
298	TTEST	Returns the probability associated with a Student's t-test
299	VAR	Estimates variance based on a sample
300	VARA	Estimates variance based on a sample, including numbers, text, and logical values
301	VARP	Calculates variance based on the entire population
302	VARPA	Calculates variance based on the entire population, including numbers, text, and logical values
303	WEIBULL	Returns the Weibull distribution
304	ZTEST	Returns the one-tailed probability-value of a z-test
	Text Functions	
	Function	Description
305	ASC	Changes full-width (double-byte) English letters or katakana within a character string to half-width (single-byte) characters
306	BAHTTEXT	Converts a number to text, using the ฿ (baht) currency format
307	CHAR	Returns the character specified by the code number
308	CLEAN	Removes all nonprintable characters from text
309	CODE	Returns a numeric code for the first character in a text string
310	CONCATENATE	Joins several text items into one text item
311	DOLLAR	Converts a number to text, using the \$ (dollar) currency format

312	EXACT	Checks to see if two text values are identical
313	FIND, FINDB	Finds one text value within another (case-sensitive)
314	FIXED	Formats a number as text with a fixed number of decimals
315	JIS	Changes half-width (single-byte) English letters or katakana within a character string to full-width (double-byte) characters
316	LEFT, LEFTB	Returns the leftmost characters from a text value
317	LEN, LENB	Returns the number of characters in a text string
318	LOWER	Converts text to lowercase
319	MID, MIDB	Returns a specific number of characters from a text string starting at the position you specify
320	PHONETIC	Extracts the phonetic (furigana) characters from a text string
321	PROPER	Capitalizes the first letter in each word of a text value
322	REPLACE, REPLACEB	Replaces characters within text
323	REPT	Repeats text a given number of times
324	RIGHT, RIGHTB	Returns the rightmost characters from a text value
325	SEARCH, SEARCHB	Finds one text value within another (not case-sensitive)
326	SUBSTITUTE	Substitutes new text for old text in a text string
327	T	Converts its arguments to text
328	TEXT	Formats a number and converts it to text
329	TRIM	Removes spaces from text
330	UPPER	Converts text to uppercase
331	VALUE	Converts a text argument to a number
	External Functions	
	Function	Description
332	EUROCONVERT	Converts a number to euros, converts a number from euros to a euro member currency, or converts a number from one euro member currency to another by using the euro as an intermediary (triangulation)
333	SQL.REQUEST	Connects with an external data source and runs a query from a worksheet, then returns the result as an array without the need for macro programming



Chapter 4

Using Functions To Crunch & Clean Data

Cleaning Data Using Functions

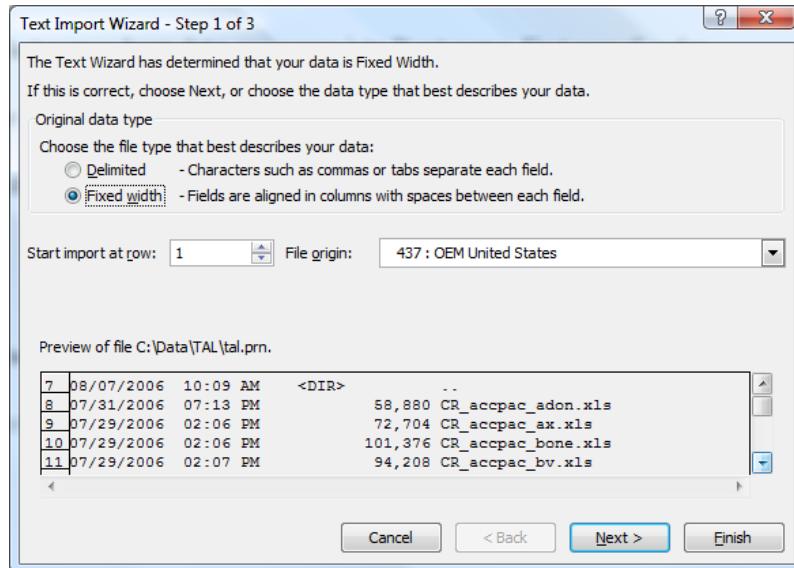
CPAs often receive or retrieve data from many sources in a wide variety of formats such as Text or CSV formats. You don't always have control over the format and type of data that you import from an external data source, such as a database, text file, or a Web page. Before you can analyze the data, you often need to clean it up. Fortunately, Office Excel has many features to help you get data in the precise format that you want. Sometimes, the task is straightforward and there is a specific feature that does the job for you.

For example, you can easily use Spell Checker to clean up misspelled words in columns that contain comments or descriptions. Or, if you want to remove duplicate rows, you can quickly do this by using the **Remove Duplicates** dialog box. At other times, you may need to manipulate one or more columns by using a formula to convert the imported values into new values.

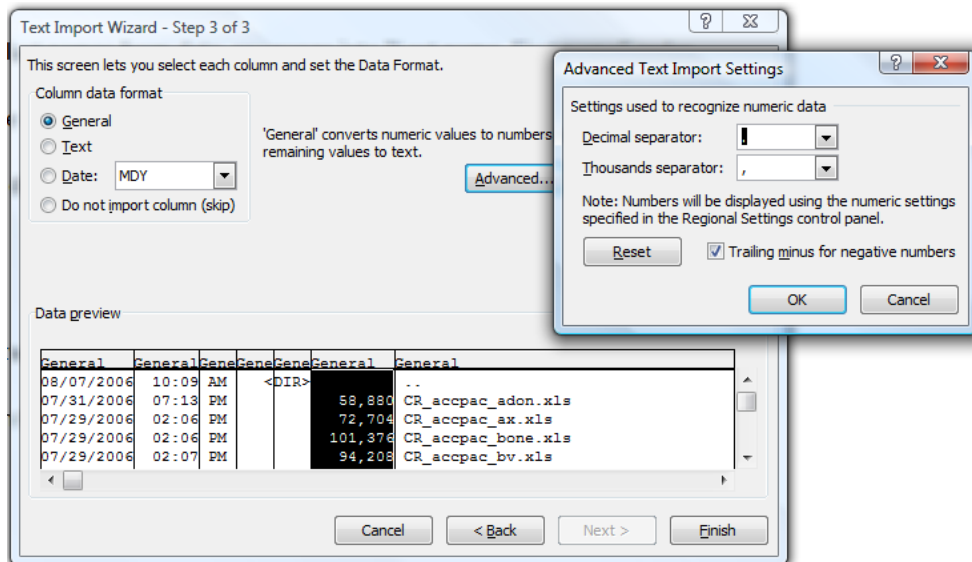
For example, if you want to remove trailing spaces, you can create a new column to clean the data by using a formula, filling down the new column, converting that new column's formulas to values, and then removing the original column. Excel provides many functions to help you clean your data as follows:

- | | | |
|----------------------|------------------|-------------|
| 1. Import | 10. =SEARCH | 19. =TEXT |
| 2. Text to Columns | 11. =LEN | 20. =TRIM |
| 3. Remove Duplicates | 12. =SUBSTITUTE | 21. =CLEAN |
| 4. Find & Replace | 13. =REPLACE | 22. =FIXED |
| 5. Spell Check | 14. =LEFT | 23. =DOLLAR |
| 6. =UPPER | 15. =MID | 24. =CODE |
| 7. =LOWER | 16. =RIGHT | 25. Macros |
| 8. =PROPER | 17. =VALUE | |
| 9. =FIND | 18. =CONCATENATE | |

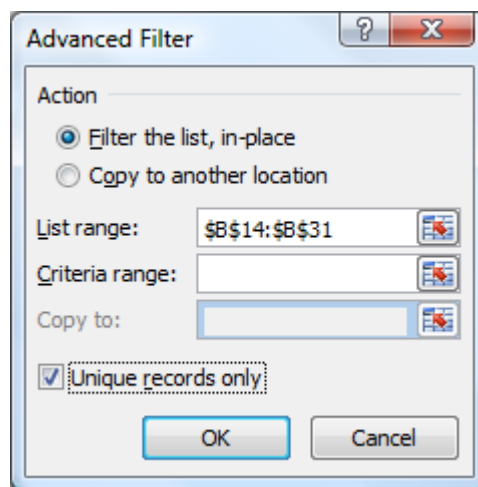
- 1. Importing Data into Excel** – Of course excel opens up excel files, but what happens when you attempt to open data that is not contained in an Excel format? The answer is that Excel automatically imports that data on the fly and displays a Import Wizard to help you complete the process. The Text Import Wizard examines the text file that you are importing and helps you import the data the way that you want. To start the Text Import Wizard, on the Data tab, in the Get External Data group, click From Text. Then, in the Import Text File dialog box, double-click the text file that you want to import. The following dialog box will be displayed:



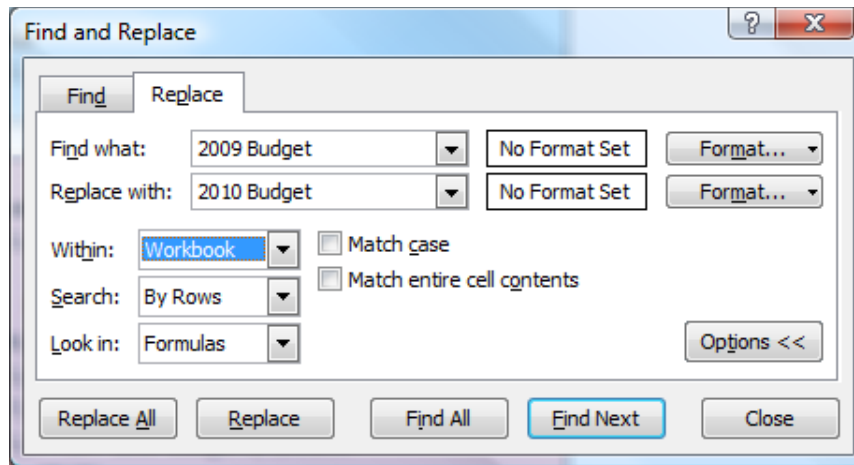
If items in the text file are separated by tabs, colons, semicolons, spaces, or other characters, select Delimited. If all of the items in each column are the same length, select Fixed width. In step 3, click the Advanced button to specify that one or more numeric values may contain a trailing minus sign. Also click the desired data format for each column to be imported.



2. **Text to Columns** – The Text to Columns command located on the Data Ribbon works exactly the same way as described above – the user simply launches it to convert data within an existing worksheet.
3. **Removing Duplicate Rows** - Duplicate rows are a common problem when you import data. You can identify and remove duplicate rows by using the Data, Advanced Filter, Unique Records Only tool as show in the screen below.

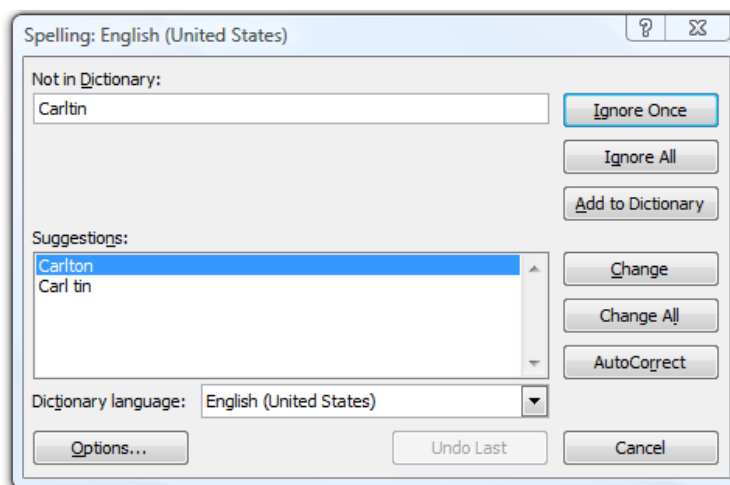


4. **Find and Replace Text** – This tool can be used to identify and remove leading string, such as a label followed by a colon and space, or a suffix, such as a parenthetic phrase at the end of the string that is obsolete or unnecessary. You can do this by finding instances of that text and then replacing it with no text or other text.



Noteworthy Find and Replace Points:

1. You can search and replace for an entire worksheet, or the entire workbook.
 2. You can find and replace formats with new formats.
 3. There is a cell chooser option that makes it easier to find and replace formats.
 4. If you highlight a range of cells, then search and replace only searches and replaces within that range of cells.
 5. You can replace all at once or one at a time.
 6. You could also find and replace references in a formula.
5. **Spell Check** - You can use a spell checker to not only find misspelled words, but to find values that are not used consistently, such as product or company names, by adding those values to a custom dictionary. The spell check function also checks your grammar as well.



Changing The Case Of Text – You can use one or more of the three Case functions to convert text to lowercase letters, such as e-mail addresses, uppercase letters, such as product codes, or proper case, such as names or book titles.

6. =UPPER - Converts text to uppercase letters.

A15		fx =UPPER(A13)			
	A	B	C	D	E
13	Keith Bell	118 Belvedere Lane	Peachtree City, GA 30269	770-632-9875	
14					
15	KEITH BELL	118 BELVEDERE LANE	PEACHTREE CITY, GA 30269	770-632-9875	

7. =LOWER - Converts all uppercase letters in a text string to lowercase letters.

A15		fx =LOWER(A13)			
	A	B	C	D	E
13	KEITH BELL	118 BELVEDERE LANE	PEACHTREE CITY, GA 30269	770-632-9875	
14					
15	keith bell	118 belvedere lane	peachtree city, ga 30269	770-632-9875	

8. =PROPER - Capitalizes the first letter in a text string and any other letters in text that follow any character other than a letter. Converts all other letters to lowercase letters.

A15		fx =PROPER(A13)			
	A	B	C	D	E
13	KEITH BELL	118 BELVEDERE LANE	PEACHTREE CITY, GA 30269	770-632-9875	
14					
15	Keith Bell	118 Belvedere Lane	Peachtree City, Ga 30269	770-632-9875	

Merging And Splitting Columns - A common task after importing data from an external data source is to either merge two or more columns into one, or split one column into two or more columns. For example, you may want to split a column that contains a full name into a first and last name. Or, you may want to split a column that contains an address field into separate street, city, region, and postal code columns. The reverse may also be true. Presented below are functions that to help you accomplish these tasks:

9. =FIND – Use Returns the starting position of a character, string of characters or word with a cell. Find is case sensitive.

I3		fx =FIND(" ",A3)									
	A	B	C	D	E	F	G	H	I	J	
3	Alan Akers,316 Wild Heron Road,St. Simons Island, GA 31522,(912) 638-5009,alan@akers.com									60	

10. =SEARCH – Returns the starting position of a character, string of characters or word with a cell. Search is not case sensitive.

I3		fx =SEARCH(" ",A3)									
	A	B	C	D	E	F	G	H	I	J	
3	Alan Akers,316 Wild Heron Road,St. Simons Island, GA 31522,(912) 638-5009,alan@akers.com									60	

11. =LEN – Displays the length or number of characters in a cell.

B3		fx		=LEN(A3)	
		A			B
3	Alan Akers,(912) 638-5009,alan@Yahoo.com, alan@Gmail.com,AlanAkers@SSI.com				74

12. **=SUBSTITUTE** – Replaces a character or characters with a character or characters that you specify.

A8		fx		=SUBSTITUTE(A6,"AOL","America Online")	
		A			
6	Teresa Baldwin, (912) 265-2616, Teresa@AOL.com				
7					
8	Teresa Baldwin, (912) 265-2616, Teresa@America Online.com				

13. **=REPLACE** - Replaces a character or characters with a character or characters that you specify.

A8		fx		=REPLACE(A6,40,3,"America Online")	
		A			
6	Teresa Baldwin, (912) 265-2616, Teresa@AOL.com				
7					
8	Teresa Baldwin, (912) 265-2616, Teresa@America Online.com				

14. **=LEFT** – Extracts the specified number of characters from a cell, starting from the left.

H4		fx		=LEFT(G4,7)	
		G			H
4	Memphis, TN (Briarcrest Christina HS)			Memphis	

15. **=MID** – Extracts the specified number of characters from a cell, starting from somewhere in the middle of the cell.

H4		fx		=MID(G4,10,2)	
		G			H
4	Memphis, TN (Briarcrest Christina HS)			TN	

16. **=RIGHT** – Extracts the specified number of characters from a cell, starting from the right.

F4		fx		=RIGHT(G4,3)	
	F	G	H		
4	268	6-5/268	Memphis, TN (Briarcrest Christina HS)		

17. **=Value** – Converts text to values so the data can be added, subtracted, multiplied, divided or referenced in a function.

F4		fx		=VALUE(RIGHT(G4,3))	
	D	E	F	G	H
4	Fr.	HS	268	6-5/268	Memphis, TN (Briarcrest Christina HS)

18. **=CONCATENATE** - Joins two or more text strings into one text string.

	D5			
	A	B	C	D
3	Collins	Carlton	Carlton Collins	

Variations of these functions that are used when working with foreign languages:

- =**FINDB** – Use this when working with foreign characters like these (京, "東京都)
- =**SEARCHB** – Use this when working with foreign characters like these (京, "東京都)
- =**REPLACEB** – Use this when working with foreign characters like these (京, "東京都)
- =**LEFTB** – Use this when working with foreign characters like these (京, "東京都)
- =**RIGHTB** – Use this when working with foreign characters like these (京, "東京都)
- =**LENB** – Use this when working with foreign characters like these (京, "東京都)
- =**MIDB** – Use this when working with foreign characters like these (京, "東京都)

Cleaning Text – (Removing Spaces And Nonprinting Characters From Text) - Sometimes text values contain leading, trailing, or multiple embedded space characters (Unicode character set values 32 and 160), or nonprinting characters (Unicode character set values 0 to 31, 127, 129, 141, 143, 144, and 157). These characters can sometimes cause unexpected results when you sort, filter, or search. For example, in the external data source, users may make typographical errors by inadvertently adding extra space characters, or imported text data from external sources may contain nonprinting characters that are embedded in the text. Because these characters are not easily noticed, the unexpected results may be difficult to understand. Following is a list of functions you can use to remove these unwanted characters:

19. =**TEXT** - Converts a value to text in a specific number format.

	A10		=A5&" sold "&TEXT(B5, "\$0.00")&" worth of units."
	A	B	
5	Carlton Collins	\$ 2,800.00	Mo
6	Mickey Mouse	40%	
7			
8	Examples		
9	Carlton Collins2800		Simple com
10	Carlton Collins sold \$2800.00		Combines c

20. =**TRIM** - Removes the 7-bit ASCII space character (value 32) from text.

	C4		=TRIM(B4)
	B	C	
4	American Institute of Certified Public Accountants	American Institute of Certified Public Accountants	

21. =**CLEAN** - Removes the first 32 nonprinting characters in the 7-bit ASCII code (values 0 through 31) from text.

D4 fx =CLEAN(B4)			
	A	B	D
4		•Accounts Receivable•	Accounts Receivable

22. **=FIXED** - Rounds a number to the specified number of decimals, formats the number in decimal format by using a period and commas, and returns the result.

B15 fx =FIXED(B13,2)				
	A	B	C	D
13	Insurance	11,826.9537	15,375.0398	19,218.7997
14				
15		11,826.95	15,375.04	19,218.80

23. **=DOLLAR** - Converts a number to text format and applies a currency symbol.

B15 fx =DOLLAR(B13,2)				
	A	B	C	D
13	Insurance	11,826.9537	15,375.0398	19,218.7997
14				
15		\$11,826.95	\$15,375.04	\$19,218.80

24. **=CODE** - Returns a numeric code for the first character in a text string.

Fixing Dates and Times - There are many different date formats, and these varied formats may be confused with numbered part codes or other strings that contain slash marks or hyphens, dates and times often need to be converted and reformatted. Presented below is a list of functions that help you accomplish this task.

25. **=DATE** - Returns the sequential serial number that represents a particular date. If the cell format was General before the function was entered, the result is formatted as a date.

A7 fx =DATE(A4,B4,C4)						
	A	B	C	D	E	F
3	Year	Month	Day	Data		
4	2008	1	1	20081125		
5						
6	Examples:					
7	1/1/2008			Serial date for the date derived by using cells A2, B2, and C2 as t		

26. **=DATEVALUE** - Converts a date represented by text to a serial number.

C4		fx =DATEVALUE(A4)			
	A	B	C	D	E
4	1/1/2008		39448		

27. **=TIME** - Returns the decimal number for a particular time. If the cell format was General before the function was entered, the result is formatted as a date.

28. **=TIMEVALUE** - Returns the decimal number of the time represented by a text string. The decimal number is a value ranging from 0 (zero) to 0.99999999, representing the times from 0:00:00 (12:00:00 AM) to 23:59:59 (11:59:59 P.M.).

Transforming And Rearranging Columns And Rows - Most of the analysis and formatting features in Office Excel assume that the data exists in a single, flat two-dimensional table. Sometimes you may want to make the rows become columns, and the columns become rows. At other times, data is not even structured in a tabular format, and you need a way to transform the data from a nontabular to a tabular format. The following function can help you achieve this goal:

29. **=TRANSPOSE** - Returns a vertical range of cells as a horizontal range, or vice versa.

SUM		fx =TRANSPOSE(A2:FC18)																			
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	=Transpose (You must select a range, Press F2, and then press CTRL+SHIFT+ENTER)																				
2	Name	My Area is:	Public Practice	Industry	Government	Education	Other 1:	I am a CPA	My Position is:	Owner or Partner	Manager	Supervisor	Senior or staff	Administrative	Other 2	My Experience is:	0-5 years	6-10 years	11-20 years	21 - 30 Years	More than 30 years
3	Heydon		1								1										1
4	Forsberg			1			1						1					1			
5	Morris		1				1	1												1	
6	Olson			1			1	1											1		
7	Morlock		1				1	1												1	
8	Sheehan		1				1	1											1		
9	Adank						1	1					1							1	
10	Hage		1				1														1
11	Bartholomay			1						1										1	
12	Myers			1					1												1
13	Dickson		1								1									1	
14	Hillstrom		1									1					1				
15	Marshman		1				1				1							1			
16	Stroud		1				1	1											1		
17	Chilcote		1				1					1						1			
18	DeMars		1									1					1				
19																					
20	=TRANSPOSE(A2:FC18)																				

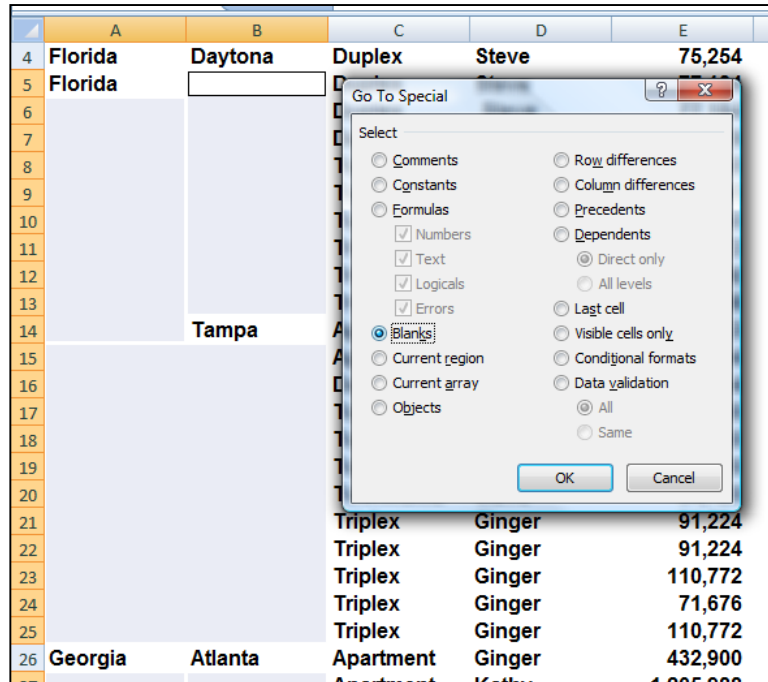
30. **Data Fill In Trick** – A clever trick for filling in missing data can be accomplished using the GOTO, Special, Blanks command. Here is how it works. This trick works well when you have a large volume of data but descriptions are not provided for every row, as shown in the example below:

	A	B	C	D	E	F	G	H
26	Georgia	Atlanta	Apartment	Ginger	432,900	367,965	64,935	24.7%
27			Apartment	Kathy	1,205,988	1,073,329	132,659	43.2%
28			Apartment	Ginger	96,768	70,641	26,127	53.3%
29			Apartment	Kathy	328,563	305,564	22,999	39.8%
30			Duplex	Steve	57,888	55,572	2,316	31.5%
31			Duplex	Steve	79,114	64,873	14,240	27.6%
32			Duplex	Steve	57,888	55,572	2,316	18.7%
33			Duplex	Steve	79,114	64,873	14,240	54.4%
34			Townhome	Steve	39,600	38,016	1,584	56.4%
35			Townhome	Steve	51,480	58,172	(6,692)	26.5%
36			Triplex	Ginger	181,988	205,646	(23,658)	43.2%
37			Triplex	Steve	71,676	70,959	717	53.3%
38			Triplex	Ginger	121,198	112,714	8,484	15.4%
39		Macon	Apartment	Ginger	128,563	119,564	8,999	15.4%
40			Apartment	Steve	296,700	216,591	80,109	23.3%
41			Apartment	Ginger	128,563	119,564	8,999	13.4%
42			Duplex	Steve	76,219	60,213	16,006	26.5%
43			Duplex	Steve	75,254	58,698	16,556	35.6%
44			Townhome	Steve	52,800	46,992	5,808	18.7%
45		Savannah	Apartment	Ginger	76,032	75,272	760	65.0%
46	Texas	Dallas	Apartment	Fred	432,900	367,965	64,935	24.7%
47			Apartment	Martha	1,205,988	1,073,329	132,659	43.2%
48			Apartment	Kathy	328,563	305,564	22,999	39.8%
49			Duplex	Steve	57,888	55,572	2,316	31.5%

Start by entering a simple formula referencing the data label in the above cell, just like this:

	A	B	C	D	E	F
3	State	City	Type	Manager	Revenue	Expenses
4	Florida	Daytona	Duplex	Steve	75,254	58,698
5	=A4		Duplex	Steve	77,184	87,218

- Next copy that formula...
- Highlight the entire range containing data labels in columns A and B. columns...
- Press the F5 key to launch the GoTo dialog box...
- Select the Options Box...
- Click on the "Blanks" radio button...
- Press Enter...
- Paste.



This action will cause all data labels to repeat in the empty cells beneath. Next:

- h. Copy columns A & B...
- i. Paste Special as values to convert the formulas to text based data labels...
- j. You are now ready to sort, filter, subtotal and pivot your data.

Fetching Data - Occasionally, database administrators use Office Excel to find and correct matching errors when two or more tables are joined. This might involve reconciling two tables from different worksheets, for example, to see all records in both tables or to compare tables and find rows that don't match.

31. =VLOOKUP - Searches for a value in the first column of a table array and returns a value in the same row from another column in the table array. For example, consider the example below which uses a =VLOOKUP function to calculate the appropriate amount of tax due based on the IRS rate schedule.

Schedule Y-1 — Married Filing Jointly or Qualifying				
If Taxable Income	But Not Over--	The Tax Is:	Base Tax	Tax Rate
\$0	\$14,600	over \$0	-	10%
\$14,600	\$59,400	15% of the amount	1,460.00	15%
\$59,400	\$119,950	the amount over	8,180.00	25%
\$119,950	\$182,800	28% of the amount	23,317.50	28%
\$182,800	\$326,450	33% of the amount	40,915.50	33%
\$326,450	no limit	35% of the amount	88,320.00	35%

Taxable Income (from profit & loss statement on Sheet 2)	224,209
Taxable Income Threshold Amount (from Column 1 Above)	182,800.00
Tax Rate (from Column 5 Above)	33%
Base Tax Amount (from Column 4 Above)	40,915.50
Total Amount of Taxes Due	54,580.47

Income Statement - Schedule C		2009
Revenue		
Sales		\$2,300,322
Cost of Goods Sold		1,546,577
Gross Margin		\$ 753,745
Expenses:		
Rent	\$ 86,230	
Salaries	326,300	
Supplies	12,988	
Insurance	36,788	
Travel	67,230	
Total Expenses	\$ 529,536	
Net Income Before Taxes	\$ 224,209	
Taxes	\$ 54,580	
Net Income After Taxes	\$ 169,629	

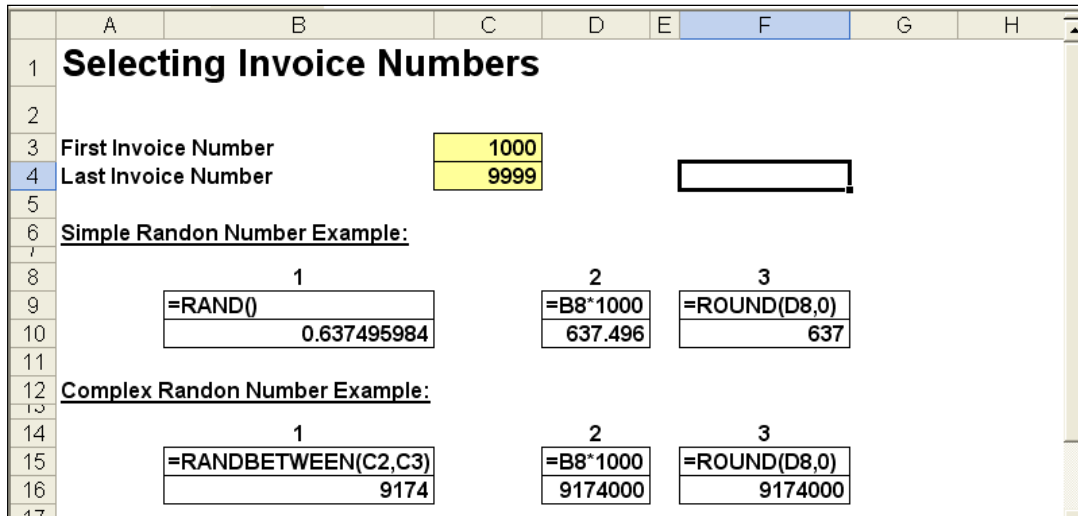
As the Income statement shown in the shaded area is updated , the resulting taxable income amount is referenced in Cell F13. Next, 3 VLOOKUP functions pull the appropriate rate, base and threshold information from the rate schedule to be used in calculating income tax. Once calculated, the resulting tax is referenced back to the income statement for the purposes of computing Net income After taxes.

Key points to Consider when Using VLOOKUP:

- If you are looking up based on text, the first column containing lookup values must be sorted alphabetically in descending order – else it will not work properly.
- If you are looking up based on text, you must have an exact match between the lookup value and the table array value.
- If you are looking up based on values, the first column containing lookup values must be sorted numerically in descending order – else it will not work properly.
- If you are looking up based on values, then Excel will choose the closest value without going over. For example, if the lookup value is 198,000 and the table array contains values of 100,000 and 200,000, the n excel will choose 100,000 because 200,000 goes over or exceeds 198,000. (It might be helpful to think back to the old Bob barker game show the Price is Right.)



- 32. **=HLOOKUP** - Searches for a value in the top row of a table or an array of values, and then returns a value in the same column from a row you specify in the table or array.
- 33. **=INDEX** - Returns a value or the reference to a value from within a table or range. There are two forms of the INDEX function: the array form and the reference form.
- 34. **=MATCH** - Returns the relative position of an item in an array that matches a specified value in a specified order. Use MATCH instead of one of the LOOKUP functions when you need the position of an item in a range instead of the item itself.
- 35. **=OFFSET** - Returns a reference to a range that is a specified number of rows and columns from a cell or range of cells. The reference that is returned can be a single cell or a range of cells. You can specify the number of rows and the number of columns to be returned.
- 36. **Data Cleaning with Macros** - To periodically clean the same data source, consider recording a macro or writing code to automate the entire process. There are also a number of external add-ins written by third-party vendors, listed in the Third-party providers section, that you can consider using if you don't have the time or resources to automate the process on your own.
- 37. **RAND(), RANDBETWEEN(), ROUND()** – In Excel 2003, RANDBETWEEN is not in the standard EXCEL installation but if the analysis tool pack is installed and the add-in activated it is an extremely useful function.



38. Informational Functions

CELL(info_type,reference) - Info_type is a text value that specifies what type of cell information you want. The following list shows the possible values of info_type and the corresponding results.

Info_type	Returns
"address"	Reference of the first cell in reference, as text.
"col"	Column number of the cell in reference.
"color"	1 if the cell is formatted in color for negative values; otherwise returns 0 (zero).
"contents"	Value of the upper-left cell in reference; not a formula.
"filename"	Filename (including full path) of the file that contains reference, as text. Returns empty text ("") if the worksheet that contains reference has not yet been saved.
"format"	Text value corresponding to the number format of the cell. The text values for the various formats are shown in the following table. Returns "-" at the end of the text value if the cell is formatted in color for negative values. Returns "(" at the end of the text value if the cell is formatted with parentheses for positive or all values.
"parentheses"	1 if the cell is formatted with parentheses for positive or all values; otherwise returns 0.
"prefix"	Text value corresponding to the "label prefix" of the cell. Returns single quotation mark (') if the cell contains left-aligned text, double quotation mark (") if the cell contains right-aligned text, caret (^) if the cell contains centered text, backslash (\) if the cell contains fill-aligned text, and empty

- text ("") if the cell contains anything else.
- "protect" 0 if the cell is not locked, and 1 if the cell is locked.
- "row" Row number of the cell in reference.
- "type" Text value corresponding to the type of data in the cell. Returns "b" for blank if the cell is empty, "l" for label if the cell contains a text constant, and "v" for value if the cell contains anything else.
- "width" Column width of the cell rounded off to an integer. Each unit of column width is equal to the width of one character in the default font size.

Reference the cell that you want information about. If omitted, information specified in info_type is returned for the last cell that was changed. The following list describes the text values CELL returns when info_type is "format", and reference is a cell formatted with a built-in number format.

If the Microsoft Excel format is	CELL returns
General	"G"
0	"F0"
#,##0	","0"
0.00	"F2"
#,##0.00	","2"
\$#,##0_);(\$#,##0)	"C0"
\$#,##0_);[Red](\$#,##0)	"C0-"
\$#,##0.00_);(\$#,##0.00)	"C2"
\$#,##0.00_);[Red](\$#,##0.00)	"C2-"
0%	"P0"
0.00%	"P2"
0.00E+00	"S2"
# ?/? or # ??/??	"G"
m/d/yy or m/d/yy h:mm or mm/dd/yy	"D4"
d-mmm-yy or dd-mmm-yy	"D1"
d-mmm or dd-mmm	"D2"

mmm-yy	"D3"
mm/dd	"D5"
h:mm AM/PM	"D7"
h:mm:ss AM/PM	"D6"
h:mm	"D9"
h:mm:ss	"D8"

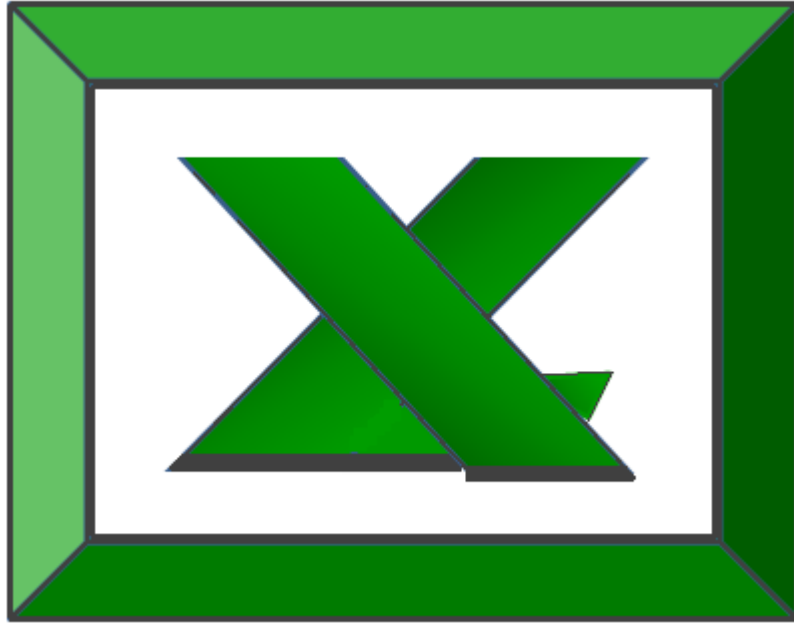
If the info_type argument in the CELL formula is "format", and if the cell is formatted later with a custom format, then you must recalculate the worksheet to update the CELL formula.

Examples of Cell Information

44	2	=CELL("col",B5)
	G	=CELL("format",B5)
	8	=CELL("width",B6)
	\$B\$5	=CELL("address",B5)

Third-Party Solutions – In case Excels built in functions are not sufficient to meet your needs, following is a partial list of third-party providers that have products that are used to clean data in a variety of ways.

Provider	Product
Add-in Express Ltd. Wizard	Advanced Find & Replace, Merge Cells
Add-Ins.com	Duplicate Finder
AddinTools	AddinTools Assist
CDX	Zip Stream
Click 2 Convert	Converts PDF to Excel formats
DigDB	Add-ins for Excel®
JKP Application Development	Flexfind for Excel
J-Walk & Associates, Inc.	Power Utility Pak Version 7
Office Assistance LLC	Similar Data Finder for Excel®
PATools	PATools Advanced Find Replace
PDF2XL	Converts PDF files to Excel Formats
Spinnaker Software Solutions	Spinnaker DB tools for Excel
Vonnix	Excel Power Expander 4.6
WinPure	ListCleaner Lite
ListCleaner Pro	
Clean and Match 2007	



Chapter 5

The =IF Function

=IF

The “IF” function is the most powerful of all functions – not just in Excel, but in any programming language. Commonly referred to as “Conditional Programming”, it is the IF function that enables us to introduce logical thinking into any program. This function is also referred to as the “If-Then-Else” command, “conditional expressions”, or “Propositional Logic”. The following Wikis explains this concept in more detail:

[http://en.wikipedia.org/wiki/Conditional_\(programming\)](http://en.wikipedia.org/wiki/Conditional_(programming)).
http://en.wikipedia.org/wiki/Logical_conditional#Conditional_statements

The clever CPA can use the IF Function to build elaborate Excel templates and financial models containing an almost unlimited amount of sophisticated programming. Presented below are several examples to help you better understand the application of this powerful tool.

Simple IF - The IF function returns one value if a condition you specify evaluates to TRUE, and another value if that condition evaluates to FALSE. Presented below is a simple example:

D4		fx =IF(C4>B4,"Over Budget","")				
	A	B	C	D	E	F
1	Simple IF Example					
2						
3		Budget	Actual			
4	Travel Expense	2,300.00	2,492.43	Over Budget		

Simple IF with Calculation – Presented below is an example that is a little more complex:

D18		fx =IF(C18>B18,"Over Budget by \$"&C18-B18,"")						
	A	B	C	D	E	F	G	H
15	A Little More Complex IF Example							
16								
17		Budget	Actual					
18	Travel Expense	2,300.00	2,492.43	Over Budget by \$192.43				
19								

Simple IF – Larger Example - Presented below is yet another IF example on a little larger scale – this example shows how one might apply the IF function to evaluate budget versus actual comparisons.

D13 fx =IF(C13>B13,"Over Budget by \$"&C13-B13,"")

	A	B	C	D	E	F
11	IF Example - A Slightly Larger Example:					
12		Budget	Actual			
13	AUTOMOBILE EXPENSE	2,139.55	2,674.44	Over Budget by \$534.89		
14	BANK SERVICE CHARGES	37.34	48.54	Over Budget by \$11.2		
15	CONFERENCE REGISTRATION FEES	750.00	500.00			
16	CONTRACT LABOR	26,654.80	34,651.24	Over Budget by \$7996.44		
17	CONTRIBUTIONS	1,282.53	1,603.16	Over Budget by \$320.63		
18	DUES AND SUBSCRIPTIONS	6,051.13	7,866.47	Over Budget by \$1815.34		
19	EQUIPMENT PURCHASE	1,235.87	1,544.84	Over Budget by \$308.97		
20	EQUIPMENT RENTAL	124.50	85.03			
21	HARDWARE PURCHASE	3,950.05	4,937.56	Over Budget by \$987.51		
22	INSURANCE	11,697.00	15,206.10	Over Budget by \$3509.1		
23	MARKETING GIVEAWAYS	1,876.70	1,481.09			
24	MEMBERSHIPS	90.00	117.00	Over Budget by \$27		
25	MISCELLANEOUS	21,010.25	26,262.81	Over Budget by \$5252.56		
26	OFFICE SUPPLIES	6,861.83	8,920.38	Over Budget by \$2058.55		
27	ONLINE COMPUTER SERVICES	5,789.74	7,237.18	Over Budget by \$1447.44		
28	OUTSIDE SERVICES	4,563.21	508.95			
29	PARTNER SALARY DRAW	172,000.00	215,000.00	Over Budget by \$43000		
30	PAYROLL EXPENSES	564.67	655.43	Over Budget by \$90.76		

Simple IF with Drop Down - In the following example, the IF function is checking to see if they have signed up for insurance. If they have, the deduction amount is entered.

D9 fx =IF(C9="Yes",235,0)

	A	B	C	D
5	Name	Hire Date	Insurance?	Deduction
6	Wells, Diane	3/1/2008	Yes	235.00
7	Thomas, Doug	11/1/2005	No	0.00
8	Singh, Lisa	6/1/2003	No	0.00
9	Smith, John	2/1/2007	Yes	235.00
10	Simpleton, Fred	2/22/2006		0.00
11	Norris, Carnie	4/7/2002		0.00
12	Hall, Nancy	8/2/2005		0.00

Simple IF with Calculation - The next IF function example is determining each employees earned vacation days. If they have worked for more than a year, they have earned 5 vacation days plus one day for each additional full year.

D8 fx =IF(C8>1,INT(C8)+4,0)				
	A	B	C	D
6	8/8/2009			
7		Hire Date	Years Employed	Vacation Days Earned
8	Garcia, Jorge	3/1/2008	1.44	5.00
9	Jones, Joe	11/1/2005	3.77	7.00
10	Singh, Lisa	6/1/2003	6.19	10.00
11	Smith, John	2/1/2009	0.51	0.00
12				

Nested IF Functions - In this sample, there are four possibilities for bonuses.

D6 fx =IF(C6="B. Basic Bonus",,\$I\$5,IF(C6="C. High performance Bonus",,\$I\$6,IF(C6="D. Super Bonus",,\$I\$7,\$I\$4)))											
	A	B	C	D	E	F	G	H		I	J
4	8/8/2009							A. No Bonus		-	
5	Employee	Hire date	Bonus Level	Deduction				B. Basic Bonus		1,500	
6	Garcia, Jorge	3/1/2008	B. Basic Bonus	1,500.00				C. High Performance Bonus		2,500	
7	Jones, Joe	11/1/2005	C. High Performance Bonus	0.00				D. Super Bonus		4,000	
8	Singh, Lisa	6/1/2003	D. Super Bonus	4,000.00				A. No Bonus		0.00	
9	Smith, John	2/1/2007	A. No Bonus	0.00				B. Basic Bonus		1,500.00	
10	Wells, Diane	3/1/2008	B. Basic Bonus	1,500.00				C. High Performance Bonus		0.00	
11	Thomas, Doug	11/1/2005	C. High Performance Bonus	0.00				A. No Bonus		0.00	
12	Simpleton, Fred	2/22/2006	A. No Bonus	0.00				D. Super Bonus		4,000.00	
13	Norris, Carnie	4/7/2002	D. Super Bonus	4,000.00				A. No Bonus		0.00	
14	Hall, Nancy	8/2/2005	A. No Bonus	0.00							

IF Function with Logical OR Argument - Teams A and C meet on Tuesday, Teams B and D meet on Thursday. We want to list the meeting days in column D.

D7 fx =IF(OR(C7="A",C7="C"),"Tuesday","Thursday")					
	A	B	C	D	E
5	8/8/2009				
6	Employee	Hire date	Team	Meeting Day	
7	Garcia, Jorge	3/1/2008	A	Tuesday	
8	Jones, Joe	11/1/2005	B	Thursday	
9	Singh, Lisa	6/1/2003	C	Tuesday	
10	Smith, John	2/1/2007	D	Thursday	
11	Wells, Diane	3/1/2008	A	Tuesday	
12	Thomas, Doug	11/1/2005	B	Thursday	
13	Simpleton, Fred	2/22/2006	C	Tuesday	
14	Norris, Carnie	4/7/2002	D	Thursday	
15	Hall, Nancy	8/2/2005	A	Tuesday	
16					

More Complex IF Function Example - The following IF example shows a more complex application in which the user selects a taxpayer status from a drop down list, which then retrieves the correct tax base, threshold, and incremental tax rates to be used in calculating tax.

This example illustrates how a CPA might prepare an income statement template that calculates the appropriate amount of taxes as net income and the taxpayer status changes. Essentially the template calculates the correct tax given all four possible taxpayer statuses, and the IF statements are used to select the correct answers based on the taxpayer status selected.

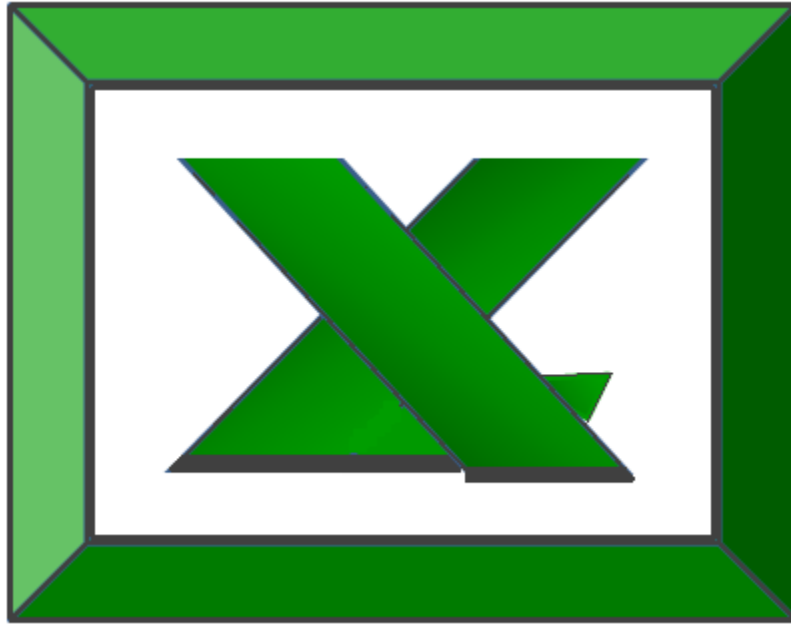
If Example - 2009 IRS Tax Rate Schedules:									
A. Single		B. Married/Widower		C. Married - Sep		D. Head /Household		Tax Rate	
Low	High	Low	High	Low	High	Low	High		
-	8,350	-	16,700	-	8,350	-	11,950	10%	
8,351	33,950	16,701	67,900	8,351	33,950	11,951	45,500	15%	
33,951	82,250	67,901	137,050	33,951	68,525	45,501	117,450	25%	
82,251	171,550	137,051	208,850	68,526	104,425	117,451	190,200	28%	
171,551	372,950	208,851	372,950	104,426	186,475	190,201	372,950	33%	
372,951		372,951		186,476		372,951		35%	

12	Taxable Income	124,325			
13	Taxpayer Status	A. Single			
14		A. Single			
15		B. Married/Widower			
16	Tax Base	A. Single	B. Married/Widower	C. Married - Sep	D. Head/Household
17	Incremental Rate	23,030	16,975	34,461	32,886
18	Threshold	28%	25%	33%	28%
19		82,251	67,901	104,426	117,451
20	Tax	34,811	31,081	41,027	34,811

Keep in mind that despite the many accolades mentioned above, the IF Function is not always the best solution. For example, the VLOOKUP would be a better and easier function to use to extract data from a list as shown in the nested IF Function a few examples above. Many Excel Functions also provide built-in “IF-Then-Else” functionality.

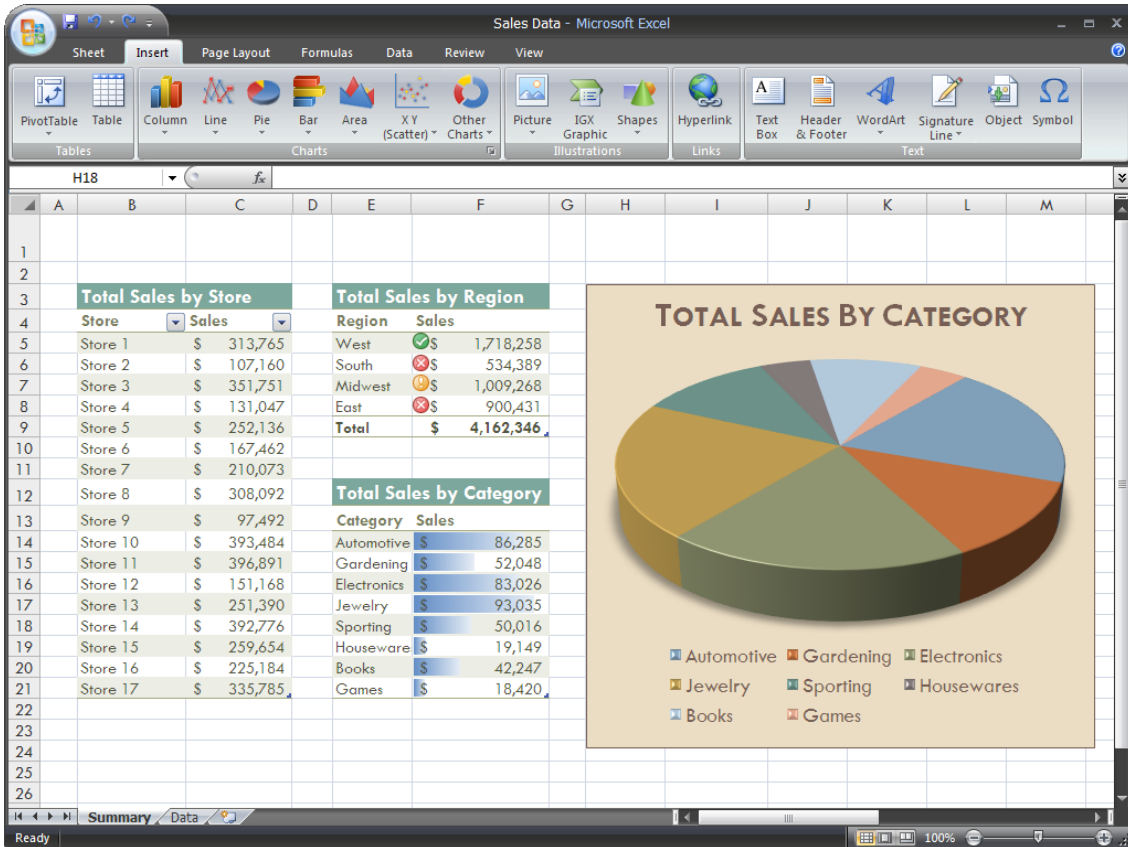
Key Pointers for Using the IF Function:

- Nesting** – You can embed up to 8 nested IF functions in a single formula in Excel 2003, and up to 64 IF nested functions in Excel 2007.
- AND, OR** – You can use the AND and/or OR operator to add more conditions to an IF Function.
- Variations of IF** - Excel offers several variations of the IF function as follows: COUNTIF, COUNTIFS, SUMIF, SUMIFS.
- Evaluating an IF Error** – Since the IF statement provides only a true or false result, there is no way to evaluate an IF Function to ERROR. If you receive an error, you wrote the formula wrong.
- The Null Set** - The Double Quotes is the Null Set, or absence of a value. For example, when testing for a Zero balance or testing for a blank cell, the following IF functions would apply:
 - =IF(A1=0,"ZERO", "")
 - =IF(A1="", "Blank", "")
 (Excel also provides an ISBLANK Function that would also work.)



Chapter 6

What's New in Excel 2007?



Enhancements to Excel 2007

1. **More Columns** - Increased the total number of available columns in Excel from 256 (2^8) to 16,000 (2^{14}).
2. **More Rows** - Increased the total number of available rows in Excel from 64,000 (2^{16}) to 1,000,000 (2^{20}).
3. **More Memory** - Increased the total amount of PC memory that Excel can use from 1GB to as much RAM as Windows sees.
4. **Dual Core Chips** - Office Excel 2007 supports multiple microcomputer processors and multithreaded chipsets.
5. **More Colors** - Excel 2007 now supports up to 16 million colors, up from 256.
6. **Sort by Color.** Wow!
7. **More Sorting Criteria** - Increased the number of levels of sorting on a range or table from 3 to 64.

8. **More Characters in a cell** - Increased the total number of characters that can display in a cell by 32-fold. More specifically, this limit was increased from 1k (when the text is formatted) to 32k or unlimited (regardless of formatting).
9. **Find More items** - Increased the maximum number of items found by "Find All" from 65,472 to 2 Billion.
10. **More Pivot Rows** - Increased the number of rows allowed in a PivotTable from 64k to 1,000,000 (2²⁰).
11. **Arrays Reference More Rows** - Eliminated the limit on the number of rows of a column or columns that can be referred to in an array formula.
12. **More Conditional Formats** - Increased the number of conditional format conditions on a cell from 3 conditions to limited by available memory.
13. **More AutoFilter Results** - Increased the number of items shown in the Auto-Filter dropdown from 1,000 to 10,000.
14. **Print More Characters in a Cell** - Increased the number of characters per cell that Excel can print from 1k to 32k.
15. **More Styles** - Increased the total number of unique cell styles in a workbook (combinations of all cell formatting) from 4,000 to 64,000.
16. **Larger Formulas** - Increased the maximum length of formulas (in characters) from 1,000 characters to 8,000 characters.
17. **More Formula Nesting** - Increased the number of levels of nesting that Excel allows in formulas from 7 to 64.
18. **More Arguments** - Increased the maximum number of arguments to a function from 30 to 255.
19. **More Pivot Columns** - Increased the number of columns allowed in a Pivot Table from 255 to 16,000.
20. **More Unique Pivot Items** - Increased maximum number of unique items within a single Pivot Field from 32,000 to 1,000,000.
21. **More Pivot Fields** - Increased the number of fields (as seen in the field list) that a single PivotTable can have from 255 to 16,000.
22. **Longer Pivot Names** - Increased length of the MDX name for a Pivot Table item; also the string length for a relational Pivot Table from 255 characters to 32,000.
23. **Better Pivot Truncation** - Increased the length at which fields' labels are truncated when added to PivotTable; this also includes caption length limitations from 255 to 32,000.

24. **Better Partial Calculations** - Increased the number of cells that may depend on a single area before Excel must do full calculations instead of partial calculations (because it can no longer track the dependencies required to do partial calculations) from 8,000 to limited by available memory.
25. **More Array References** - Increased the number of array formulas in a worksheet that can refer to another (given) worksheet from 65,000 to limited by available memory.
26. **Bucket More Functions** - Increased the number of categories that custom functions can be bucketed into from 32 to 255.
27. **Better External Updates** - Increased the number of characters that may be updated in a non-resident external workbook reference from 255 to 32,000.
28. **Themes** - Excel allows users to format data by applying a theme using a specific style.
29. **Share Themes** - Themes can be shared across other 2007 Office release programs. You can also customize a theme style.
30. **Chart Styles** – Excel offers predefined chart styles, but you cannot create your own chart styles.
31. **Quicker Styles** - Excel now provides a quicker method to apply a predefined cell style.
32. **Better Conditional Formatting** - Use conditional formatting to visually annotate your data for both analytical and presentation purposes.
33. **Stronger Conditional Formatting** - To easily find exceptions and to spot important trends in your data, you can implement and manage multiple conditional formatting rules that apply rich visual formatting in the form of gradient colors, data bars, and icon sets to data that meets those rules. Conditional formats are also easy to apply—in just a few clicks, you can see relationships in your data that you can use for your analysis purposes.
34. **Resizable formula bar** - The formula bar automatically resizes to accommodate long, complex formulas, which prevents the formulas from covering other data in your worksheet.
35. **Function AutoComplete** - Function AutoComplete helps users write formulas using the proper formula syntax.
36. **Structured References** - In addition to cell references, such as A1 and R1C1, Excel now provides structured references to named ranges and tables in a formula.
37. **Easier Access to Named Ranges** - Excel name manager organizes, updates, and manages multiple named ranges in a central location, which helps anyone who needs to work on your worksheet interpret its formulas and data.
38. **New OLAP** - When you work with multidimensional databases (such as SQL Server Analysis Services) Excel can use OLAP formulas to build complex, free form, OLAP data bound reports. New cube functions are used to extract OLAP data (sets and values) from Analysis Services and

display it in a cell. OLAP formulas can be generated when you convert PivotTable formulas to cell formulas or when you use AutoComplete for cube function arguments when you type formulas.

39. **Enhanced Filtering** - Filter data by color or by dates, display more than 1000 items in the AutoFilter drop-down list, select multiple items to filter, and filter data in PivotTables.
40. **Table Enhancements** - New or improved functionality for tables includes the following features:
 - a. **Table Header Rows** - Table header rows can be turned on or off. When table headers are displayed, they stay visible with the data in the table columns by replacing the worksheet headers when you move around in a long table.
 - b. **Calculated Columns** - A calculated column uses a single formula that adjusts for each row. It automatically expands to include additional rows so that the formula is immediately extended to those rows. All that you have to do is enter a formula once—you don't need to use the Fill or Copy commands.
 - c. **Automatic Autofiltering** - AutoFilter is turned on by default in a table to enable powerful sorting and filtering of table data.
 - d. **Structured References** - This type of reference allows you to use table column header names in formulas instead of cell references, such as A1 or R1C1.
 - e. **Total Rows** - In a total row, you can now use custom formulas and text entries.
 - f. **Table Styles** - You can apply a table style to quickly add designer-quality, professional formatting to tables. If an alternate-row style is enabled on a table, Excel will maintain the alternating style rule through actions that would have traditionally disrupted this layout, such as filtering, hiding rows, or manual rearranging of rows and columns.
41. **Presentation Quality Charts** - New charting tools to create professional-looking charts. The new, up-to-date look for charts includes special effects, such as 3-D, transparency, and soft shadows.
42. **Chart Themes** – Charts follow the theme that is applied to your workbook.
43. **Visual Chart Element Pickers** - Quickly change every element of the chart to best present your data. For example, in a few clicks, you can add or remove titles, legends, data labels, trendlines, and other chart elements.
44. **A Modern look with OfficeArt** - Because charts in Excel are now drawn with OfficeArt, almost anything you can do to an OfficeArt shape can also be done to a chart and its elements. For example, you can add a soft shadow or bevel effect to make an element stand out or use transparency to make elements visible that are partially obscured in a chart layout. You can also use realistic 3-D effects.
45. **Clear Lines and Fonts** - Lines in charts appear less jagged, and ClearType fonts are used for text to improve readability.

46. **Chart Templates** - Save your favorite charts as a chart template.
47. **Using Excel Charts in Other Programs** - Charts shared between Excel, Word, and PowerPoint now incorporate the powerful charting features of Excel, including the use of formulas, filtering, sorting, and the ability to link a chart to external data sources, such as Microsoft SQL Server and Analysis Services (OLAP), for up-to-date information in your chart.
48. **Copying charts to other programs** Charts can be easily copied and pasted between documents or from one program to another. When you copy a chart from Excel to Word or PowerPoint, it automatically changes to match the Word document or PowerPoint presentation, but you can also retain the Excel chart format. The Excel worksheet data can be embedded in the Word document or PowerPoint presentation, but you can also leave it in the Excel source file.
49. **Animating charts in PowerPoint** In PowerPoint, you can more easily use animation to emphasize data in an Excel-based chart. You can animate the entire chart or the legend entry and axis labels. In a column chart, you can even animate individual columns to better illustrate a specific point. Animation features are easier to find and you have a lot more control. For example, you can make changes to individual animation steps, and use more animation effects.
50. **New PivotTable Controls** - New PivotTable controls provide better drag and drop zone targets.
51. **New PivotTable Features** - New or improved features are provided to summarize, analyze, and format PivotTable data.
52. **Using Undo in PivotTables** - You can now undo most actions that you take to create or rearrange a PivotTable.
53. **Plus and Minus Drill-Down Indicators** - These indicators are used to indicate whether you can expand or collapse parts of the PivotTable to see more or less information.
54. **Sorting and filtering** Sorting is now as simple as selecting an item in the column that you want to sort and using sort buttons. You can filter data by using PivotTable filters, such as date filters, label filters, value filters, or manual filters.
55. **Conditional formatting** You can apply conditional formatting to an Office Excel 2007 Pivot Table by cell or by intersection of cells.
56. **PivotTable style and layout** Just like you can for Excel tables and charts, you can quickly apply a predefined or custom style to a PivotTable. And changing the layout of a PivotTable is also much easier to do in the new user interface.
57. **PivotCharts** Like PivotTables, PivotCharts are much easier to create in the new user interface. All of the filtering improvements are also available for PivotCharts. When you create a PivotChart, specific PivotChart tools and context menus are available so that you can analyze the data in the chart. You can also change the layout, style, and format of the chart or its elements the same way that you can for a regular chart. In Office Excel 2007, the chart formatting that

you apply is preserved when you make changes to the PivotChart, which is an improvement over the way it worked in earlier versions of Excel.

58. **Quick Connections To External Data** In Office Excel 2007, you no longer need to know the server or database names of corporate data sources. Instead, you can use Quick Launch to select from a list of data sources that your administrator or workgroup expert has made available for you. A connection manager in Excel allows you to view all connections in a workbook and makes it easier to reuse a connection or to substitute a connection with another one.
59. **New File Formats Xml-Based File Format** In 2007 Microsoft Office system, Microsoft is introducing new file formats for Word, Excel, and PowerPoint, known as the Office Open XML formats. These new file formats facilitate integration with external data sources, and also offer reduced file sizes and improved data recovery. In Office Excel 2007, the default format for an Excel workbook is the Office Excel 2007 XML-based file format (.xlsx). Other available XML-based formats are the Office Excel 2007 XML-based and macro-enabled file format (.xlsm), the Office Excel 2007 file format for an Excel template (.xltx), and the Office Excel 2007 macro-enabled file format for an Excel template (.xltn).
60. **Office Excel 2007 binary file format** In addition to the new XML-based file formats, Office Excel 2007 also introduces a binary version of the segmented compressed file format for large or complex workbooks. This file format, the Office Excel 2007 Binary (or BIFF12) file format (.xls), can be used for optimal performance and backward compatibility.
61. **Compatibility with earlier versions of Excel** You can check an Office Excel 2007 workbook to see if it contains features or formatting that are not compatible with an earlier version of Excel so that you can make the necessary changes for better backward compatibility. In earlier versions of Excel, you can install updates and converters that help you open an Office Excel 2007 workbook so that you can edit it, save it, and open it again in Office Excel 2007 without losing any Office Excel 2007-specific functionality or features.
62. **Page Layout View** The **Normal** view and **Page Break Preview** view, Office Excel 2007 provides a **Page Layout** View. You can use this view to create a worksheet while keeping an eye on how it will look in printed format. In this view, you can work with page headers, footers, and margin settings right in the worksheet, and place objects, such as charts or shapes, exactly where you want them. You also have easy access to all page setup options on the **Page Layout** tab in the new user interface so that you can quickly specify options, such as page orientation. It's easy to see what will be printed on every page, which will help you avoid multiple printing attempts and truncated data in printouts.
63. **Saving to PDF and XPS format** You can save as a PDF or XPS file from a 2007 Microsoft Office system program only after you install an add-in.
64. **Using Excel Services to share your work** If you have access to Excel Services, you can use it to share your Office Excel 2007 worksheet data with other people, such as executives and other stakeholders in your organization. In Office Excel 2007, you can save a workbook to Excel Services and specify the worksheet data that you want other people to see. In a browser, they can then use Microsoft Office Excel Web Access to view, analyze, print, and extract this worksheet data. They can also create a static snapshot of the data at regular intervals or on

demand. Office Excel Web Access makes it easy to perform activities, such as scrolling, filtering, sorting, viewing charts, and using drill-down in PivotTables. You can also connect the Excel Web Access Web Part to other Web Parts to display data in alternative ways. And with the right permissions, Excel Web Access users can open a workbook in Office Excel 2007 so that they can use the full power of Excel to analyze and work with the data on their own computers if they have Excel installed. Using this method to share your work ensures that other people have access to one version of the data in one location, which you can keep current with the latest details. If you need other people, such as team members, to supply you with comments and updated information, you may want to share a workbook the same way that you did in earlier versions of Excel to collect the information you need before you save it to Excel Services.

65. **Using Document Management Server** Excel Services can be integrated with Document Management Server to create a validation process around new Excel reports and workbook calculation workflow actions, such as a cell-based notification or a workflow process based on a complex Excel calculation. You can also use Document Management Server to schedule nightly recalculation of a complex workbook model.

66. **Quick Access To More Templates** In Office Excel 2007, you can base a new workbook on a variety of templates that are installed with Excel, or you can quickly access and download templates from the Microsoft Office Online Web site.

What's Missing in Excel 2007?

While it may appear that there is a lot of stuff missing in Excel 2007 compared to the 2003 edition, almost everything is still there – you just may need to look for it a while to find it. A few of the hard-to-find things I had trouble located were as follows:

1. The “Create PivotTable from Multiple sources” feature is gone from the insert PivotTable menu, but you can still find it by customizing your Quick-Launch toolbar and adding the “PivotTable and Chart Wizard” icon. You will see that this functionality is still there.
2. The ability to send a worksheet as body of e-mail is also gone from the Start, Send, E-mail option. but you can still find it by customizing your Quick-Launch toolbar and adding the “Send to mail Recipient” icon. You will see that this functionality is also still there.
3. The data Form tool is still there – you have to add “Form” to the Quick Access Tool Bar.
4. The “Speak Cells” command is missing from the ribbons, but this command is still available by customizing the Quick Launch toolbar and adding the “Speak Cells” command.
5. In fact there are a total of 219 commands in Excel that do not appear on the Excel Ribbon – you can view a complete list of these commands by customizing the Quick Launch Toolbar and choosing the option to view “Commands Not in the Ribbon”.

However, there are some things that have disappeared as follows:

1. No more publishing interactive web pages.
2. Embedded video clips and sound clips no longer play within Excel, they switch the user over to Media player instead.
3. The AutoFormat as we knew it is gone. It has been replaced with the “Format as Table” option in the Styles group of the Home tab, but it does more than format your table. It converts your table to what Excel used to call an Excel List, complete with list arrows and filter options and all kinds of junk you really don't need and probably don't want if your goal is just to dress up your data. Unfortunately this new functionality does not apply a unique format to subtotal rows like Excel 2003 did. Bummer. Therefore you must collapse your rows in Outline, select visible cells, and apply a different color, then expand your rows again to pull off this type of format.



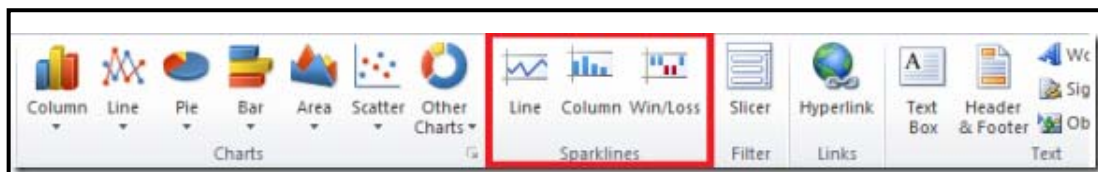
What's New in Microsoft Excel 2010

What's New in Microsoft Office 2010?

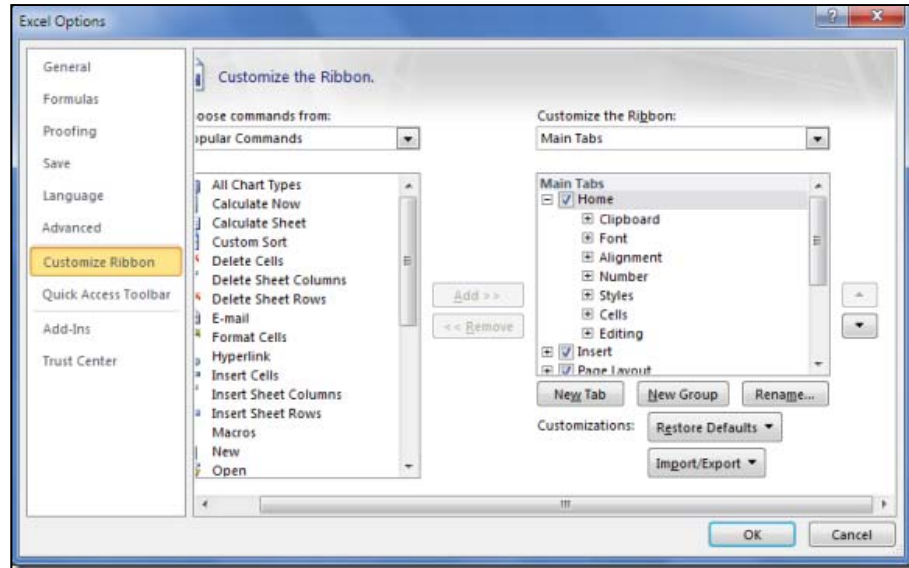
Microsoft has announced that it will begin shipping Office 2010 in Spring 2010. This begs the question, what's new in Office 2010? The short answer is that there are a dozen or so interesting improvements each in Word, Excel, PowerPoint, and Access - but for the most part Office's core products are unchanged. This is because when Office 2007 was released in January 2007, the new menus only appeared in 4.5 of the applications – Word, Excel, Access, PowerPoint and half of Outlook. With Office 2010, Microsoft has brought the other applications up-to-date with the newer menu style as well. Therefore don't expect to see many differences in Word, Excel, Access, or PowerPoint. However, these are a few improvements Office 2010's core products, as follows:

What's New in Excel 2010?

1. **Sparklines** – Sparklines are small cell-sized charts that you can embed in a worksheet next to data to get a quick visual representation of the data. For example, if you had a worksheet that tracked the performance of several dozen stocks, you could create a Sparkline for each stock that graphed its performance over time, in a very compact way. Here is an example:



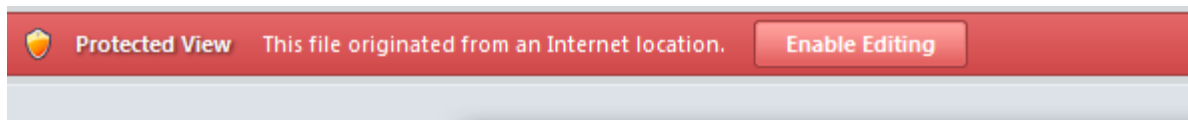
2. **Conditional Formatting Improvements** – Microsoft has improved and added more styles and icons regarding the ability to apply a format to a range of cells, and then have the formatting change according to the value of the cell or formula.
3. **Improved Sharing** – As with all of the Office 2010 applications, Excel **2010** has new and improved tools for sharing data with other people, including multiple people working on a document at a time.
4. **Millions of Rows** - Microsoft now offers Project Gemini add-on for Excel 2010 that can handle very large amounts of data -- even worksheets that include hundreds of millions of rows. It will ship as part of SQL Server 2008 R2 in the first half of 2010; a community technology preview will be available in the second half of 2009.
5. **Enhanced Ribbon Toolbar** - The Ribbon tool bar has been enhanced to be highly customizable now.



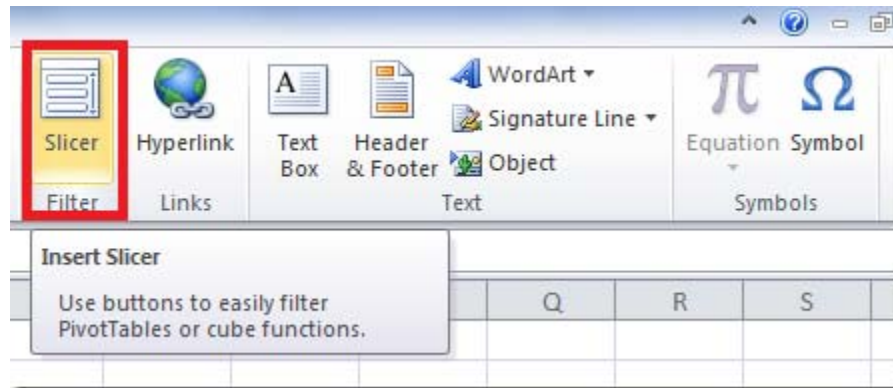
- 6. Compatibility of .xlsx** - In Excel 2007, Microsoft introduced a new XML format (.xlsx) which was not compatible with former .xls spreadsheet formats. This problem has been resolved - Excel files created in Excel 2010 may easily be opened in versions of Excel prior to Excel 2007. Now Excel 2010 will save files just as safe as the former Excel 2007, and the spreadsheet size is 75% smaller than the old .XLS version.



- 7. Protected Mode** - Each time you download a document , Microsoft Office 2010 automatically opens it in Protected Mode which means that Excel will not allow you to edit the documents unless document editing is enabled. To do this, click the *Enable Editing* option in order to enable document editing as shown in the following screen shot.



- 7. Slicer** - The Slicer feature provides new slice and dice capabilities within PivotTables – this helps you dynamically segment and filter the data. This feature is located on the *Insert* Tab.



8. **Macro** - Macros in Excel 2010 now support working with shapes, including creating, moving or editing shapes.
9. **Enhanced Chart Diagram** - In Excel 2010 double clicking a chart element automatically opens the chart's format dialog box.
10. **Web Version of Excel 2010** – A new web version of Excel 2010 allows you to create, edit and save spreadsheet via your web browser directly and share them online. The web version reportedly will be available for free to everyone who has Windows Live account. The web version is as same as the Excel 2010 on desktop, with some of Excel functionality disabled.
11. **64-bit version of Excel 2010** - Excel 2010 is now available in a 64-bit version, which means that it can take full advantage of your computer's 64-bit motherboard and access more than 4 GBs of RAM. The result is even faster performance.
12. **Microsoft SQL Server PowerPivot for Excel** - Excel 2010 now includes an add-in tool called Microsoft SQL Server PowerPivot which is a Business Intelligence tool that enables you to query multiple SQL Server databases across multiple corporate systems and web data on a real-time basis to produce PivotTables that can be shared via SharePoint. You can try this online at the following Virtual Labs web site: <https://cmg.vlabcenter.com/prepare.aspx?moduleid=ad3bd3e9-8d2b-498d-94fa-e41e1b09730d&ticks=633992819904236083>.
13. **Named Sets** - Named Sets have been added to Microsoft Excel 2010, allows you to create your own named sets. Simply locate the *Fields, Items, & Sets* button under the Ribbon, and it will allow you to define your own Named Sets.



Bio for J. Carlton Collins, CPA

ASA Research Carlton@ASAResearch.com 770.734.0950

J. Carlton Collins, CPA is a Certified Public Accountant with experience in technology, tax, auditing, accounting systems, financial reporting, and bond financing. He is an author, lecturer, and technology & accounting systems consultant. He has published more than two dozen books, two hundred articles, and thousands of web pages. As a public speaker, Mr. Collins has delivered more than 2,000 lectures in 44 states and 5 countries addressing more than 500,000 business professionals, including numerous keynote lectures at national and international conferences. Key awards include: "[AICPA Lifetime Achievement Award](#)", "[Tom Radcliffe Outstanding Discussion Leader Award](#)", "[GSCPA Outstanding Discussion Leader Award](#)", and "[Accounting Technologies' Top Ten CPA Technologists Award](#)". As a consultant, Mr. Collins has assisted 275+ large and small companies with the selection and implementation of accounting systems. Mr. Collins has a Bachelors degree in Accounting from the University of Georgia, is a 26 year member of the AICPA and the Georgia Society of CPAs, and is also a licensed realtor.

At the University of Georgia Mr. Collins was elected President of the Phi Eta Sigma Honor Society, was initiated into the BIFTAD Honor Society, was a member of Alpha Tau Omega fraternity, and served three years in the Judicial Defender/Advocate program. At Glynn Academy High School Mr. Collins was Senior Class President, Class Valedictorian, and received a principle nomination to Annapolis Naval Academy. Mr. Collins has been married for 25 years and has two children. He devotes his leisure time to family, travel, tennis, fishing, snow skiing, and riding motorcycles (dirt and street). Mr. Collins is president of his home owners association, participates in the Gwinnett Clean and Beautiful program, and volunteers for Cooperative Ministries food drive.

Selected Positions, Awards & Accomplishments:

1. 2008 and 2009 Chairman of the Southeast Accounting Show - the south's largest CPA event.
2. Recipient of the 2008 Tom Radcliff Outstanding Discussion Leader Award.
3. Named "Top Ten CPA Technologists" by Accounting Technologies Magazine; Named "Top 100 Most Influential CPAs" by Accounting Technologies Magazine in multiple years.
4. Has personally delivered over 1,500 technology lectures around the world.
5. Has published 80+ pages of accounting software articles in the Journal of Accountancy.
6. Recipient of the AICPA Lifetime Technical Contribution to the CPA Profession Award.
7. Recipient of the Outstanding Discussion Leader Award from the Georgia Society of CPAs.
8. Lead author for PPC's Guide to Installing Microcomputer Accounting Systems.
9. Has installed accounting systems for more than 200 companies.
10. Past Chairperson of the AICPA Technology Conference.
11. Has delivered keynote and session lectures at dozens of accounting software conferences including seven Microsoft Partner Conferences, five Sage Conferences, and multiple conferences for Epicor, Open Systems, Exact Software, Sage ACCPAC ERP, Dynamics.NAV, Dynamics. AX, SouthWare, Axapta .
12. Has provided consulting services to many computer companies (including Compaq, IBM, Microsoft, Apple, Novell, Peachtree, Epicor, Sage Software, Exact, ACCPAC, Intuit, Peachtree, Great Plains, and others).

As an auditor Mr. Collins has audited businesses in the areas of health care, construction, distribution, automobile dealerships, insurance, manufacturing, and general business. Mr. Collins' tax experience includes corporate, individual, partnership, fiduciary, and estate tax planning work. In the area of finance, Mr. Collins has prepared feasibility studies and financial forecasts for nearly 300 projects seeking more than \$3 billion in startup capital, including field work for 80 of those projects. Mr. Collins is familiar with bond issues, Medicare and Medicaid reimbursement, and conventional financing matters. As a consultant, Mr. Collins worked with the entire Microsoft Excel development team contributing more than 500 pages of design improvements - many of which are found in Excel today.