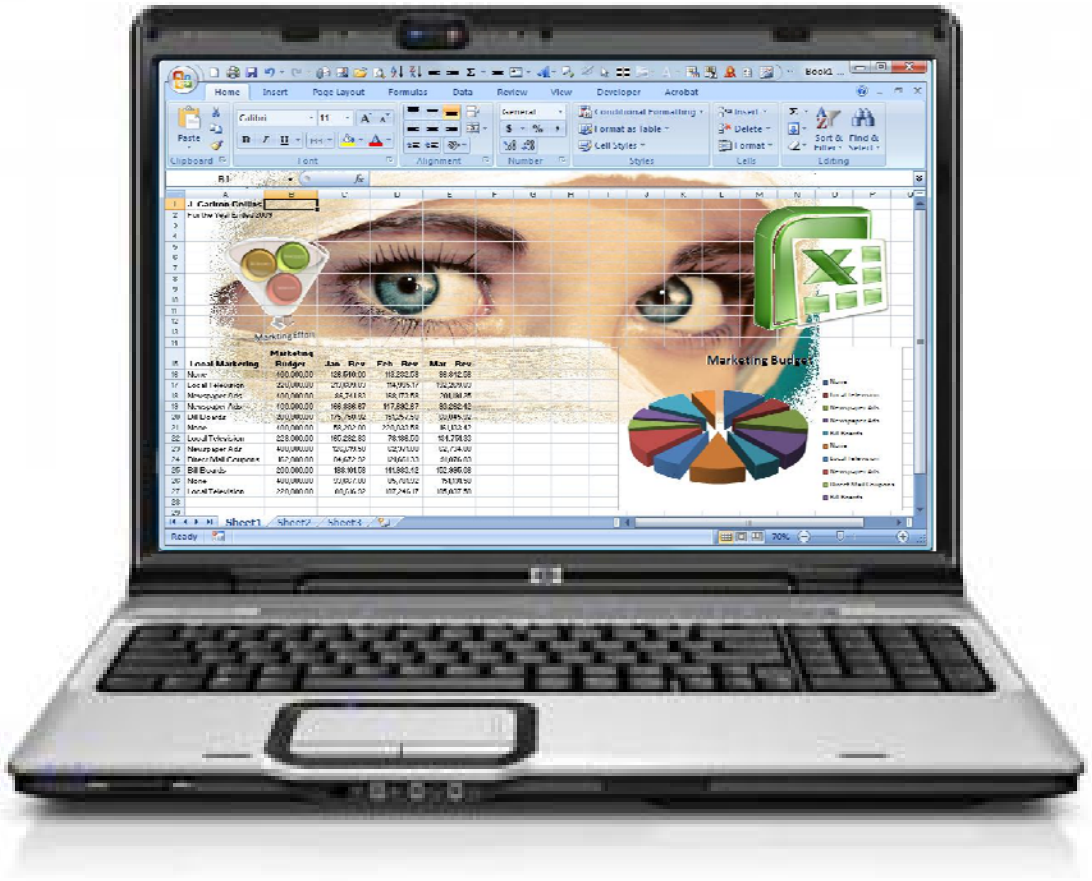
ASA Research

2010 Excel

for Intermediate Users



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2010 Excel for Intermediate Users
Course Information

Learning Objectives	To increase the productivity of accountants and CPAs using Excel by introducing them to more intermediate capabilities and case studies
Course Level	Intermediate with some Advanced
Pre-Requisites	Familiarity with Excel
Advanced Preparation	None
Presentation Method	Live lecture using full color projection systems and live Internet access with follow up course materials
Recommended CPE Credit	8 hours
Handouts	Templates, checklists, examples files via the web, manual
Instructors	J. Carlton Collins, CPA

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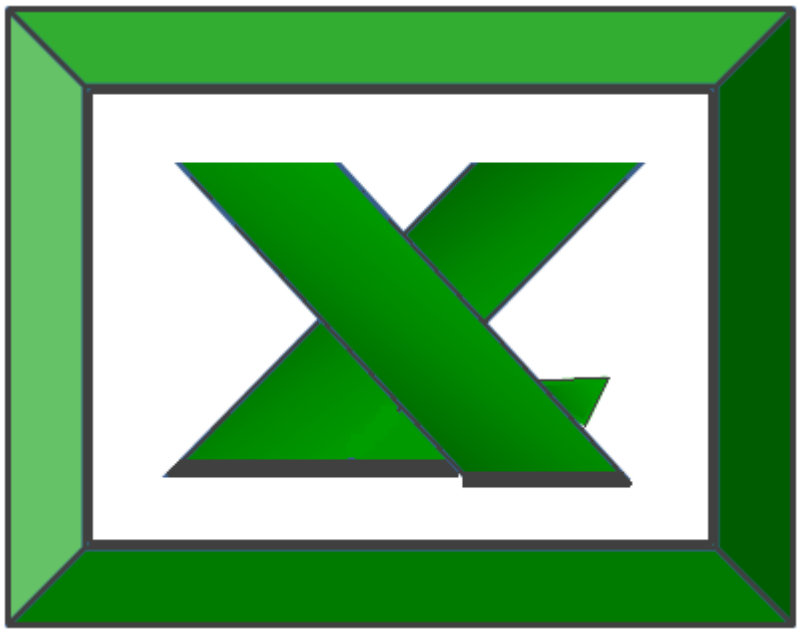


Excel Intermediate

Review of Excel Fundamentals

Excel Formulas – Quick Review

Writing formulas is the cornerstone of Excel, however there are many facets to writing, copying and editing formulas – and to make sure that you are up to speed, here is a very quick review of the key points to writing formulas in Excel.

1. Don't confuse formulas with functions – functions will be covered after formulas.
2. Simple Formulas - adding, subtracting, multiplying, and dividing numbers.
3. Simple Formulas - adding, subtracting, multiplying, and dividing cell references.
4. Writing Formulas – always start with an equals sign.
5. Writing Formulas by typing cell references.
6. **Writing Formulas by using "mouse point and click" to refer to cell references.**
7. **Writing Formulas by pointing to cells on other worksheets.**
8. **Writing Formulas by pointing to cells in other Excel workbooks (File linking).**
9. **Embedded assumptions versus organizing assumptions in well labeled cells.**
10. Copying Formulas – copying & pasting one cell, multiple cells, a column, or a row
11. **Copying Formulas Relatively – As a default, formula references change relative to the row or column to which they are copied.**
12. **Copying Formulas Absolutely – by using "$" signs embedded in formula cell references, formulas can be copied absolutely.**
13. **Copying Formulas with Mixed References – by using some "$" signs embedded in formula cell references, formulas can be copied with mixed relative and absolute results.**
14. **Inserting absolute references in formulas using the F4 key.**
15. **Referring to a named range in a formula.**
16. **Editing Formulas – "Formula Bar" editing versus "In-Cell" editing.**
17. **Range Finder – Color coded cell references displayed when editing formulas.**
18. **Formula Auditing using the "CTRL ~" option or click "Show Formulas".**
19. **Formula Error - ### - indicates a column width problem.**
20. **Formula Error - #REF - indicates a cell reference problem.**
21. **Formula Error - #NAME indicates a formula spelling or syntax problem.**
22. **Formula Error - #DIV/0 indicates a divide by zero problem.**
23. Formula Error – You can locate errors by selecting GoTo (F5 key), Special and tick the Formulas, Errors checkbox.
24. **Replace a formula with the result - Press "F2" (to edit), "F9" (to calc), and "ENTER").**

Download an example Excel worksheet from the web which demonstrates each of these formula concepts at the following web site address:

http://www.asaresearch.com/web/formulas.xlsx

Excel Functions – Quick Review

Functions are basically prewritten formulas, but you must follow the proper syntax to use them. There are a total of 348 Functions built into Excel, categorized as follows:

	Function Categories	Number of Functions Per Category	Carlton's List of Best Functions for CPAs
1	Add-in	5	1
2	Cube	7	4
3	Database	12	7
4	Date and time	20	8
5	Engineering	39	0
6	Financial	53	8
7	Information	7	3
8	IS	11	2
9	Logical	7	6
10	Lookup/Reference	17	7
11	Math/Trig	60	8
12	Statistical	83	8
13	Text	27	15
	Total Functions	348	77

Many of these functions represent powerful tools for the CPA while others represent tools that have limited CPA application. For example most CPAs have little applications for CPAs for trigonometry functions that calculate logarithms, seines, or cosines, and perhaps even less opportunities to use engineering functions such as gammas, hypergeometric distribution, or coefficients of complex numbers. Based on my years of using Excel in a CPA environment, I find that the following 77 functions are most applicable to CPAs:

Add-in:	
=GETPIVOTDATA	Returns data stored in a PivotTable report
Database:	
=DCOUNT	Counts the cells that contain numbers in a database
=DCOUNTA	Counts nonblank cells in a database
=DGET	Extracts a single database record that matches the specified criteria
=DSUM	Adds numbers in the database that match the criteria
Date and time:	
=DATE	Returns the serial number of a particular date
=DATEVALUE	Converts a date in the form of text to a serial number
=DAY	Converts a serial number to a day of the month
=TODAY	Returns the serial number of today's date

=WEEKDAY	Converts a serial number to a day of the week
=WEEKNUM	Converts a serial number to week number 1 thru 52
=YEAR	Converts a serial number to a year
Financial:	
=FV	Returns the future value of an investment
=INTRATE	Returns the interest rate for a fully invested security
=IPMT	Returns the interest payment for an investment for a given period
=IRR	Returns the internal rate of return for a series of cash flows
=NPV	Returns the net present value of an investment based on a series of periodic cash flows and a discount rate
=PMT	Returns the periodic payment for an annuity
=PV	Returns the present value of an investment
=RATE	Returns the interest rate per period of an annuity
Information:	
=CELL	Returns information about the formatting, location, or contents of a cell
=INFO	Returns information about the current operating environment
IS :	
=ISBLANK	Returns TRUE if the value is blank
=ISERR	Returns TRUE if the value is any error value except #N/A
Logical:	
=AND	Returns TRUE if all of its arguments are TRUE
=FALSE	Returns the logical value FALSE
=IF	Specifies a logical test to perform
=IFERROR	Returns a value you specify if error; otherwise, returns the result
=NOT	Reverses the logic of its argument
=OR	Returns TRUE if any argument is TRUE
Lookup/Reference	
=ADDRESS	Returns a reference as text to a single cell in a worksheet
=CHOOSE	Chooses a value from a list of values
=HLOOKUP	Looks in the top row of an array and returns the value of the indicated cell
=HYPERLINK	Creates link to open a document stored on your computer or the Internet
=LOOKUP	Looks up values in a vector or array
=TRANSPOSE	Returns the transpose of an array
=VLOOKUP	Looks in the first column of an array and moves across the row to return the value of a cell
Math/Trigonometry	
=RAND	Returns a random number between 0 and 1
=RANDBETWEEN	Returns a random number between the numbers you specify
=ROUND	Rounds a number to a specified number of digits
=ROUNDDOWN	Rounds a number down, toward zero
=ROUNDUP	Rounds a number up, away from zero
=SUBTOTAL	Returns a subtotal in a list or database
=SUM	Adds its arguments

=SUMIF	Adds the cells specified by a given criteria
Text:	
=CLEAN	Removes all nonprintable characters from text
=CONCATENATE	Joins several text items into one text item
=FIND,	Finds one text value within another (case-sensitive)
=LEFT,	Returns the leftmost characters from a text value
=LEN,	Returns the number of characters in a text string
=LOWER	Converts text to lowercase
=MID,	Returns specific characters from a text string starting where you specify
=PROPER	Capitalizes the first letter in each word of a text value
=REPLACE,	Replaces characters within text
=RIGHT,	Returns the rightmost characters from a text value
=SUBSTITUTE	Substitutes new text for old text in a text string
=TEXT	Formats a number and converts it to text
=TRIM	Removes spaces from text
=UPPER	Converts text to uppercase
=VALUE	Converts a text argument to a number
Statistical:	
=AVERAGE	Returns the average of its arguments
=COUNT	Counts how many numbers are in the list of arguments
=COUNTA	Counts how many values are in the list of arguments
=COUNTBLANK	Counts the number of blank cells within a range
=COUNTIF	Counts the number of cells within a range that meet the given criteria
=MAX	Returns the maximum value in a list of arguments
=MEDIAN	Returns the median of the given numbers
=MIN	Returns the minimum value in a list of arguments

Functions can save time and promote accuracy. Best of all, they eliminate the need for CPAs to create complex formulas because these functions do most of the work for you. To fully utilize functions in Excel, a user should study the various functions listed above and be aware of the following facets regarding functions:

1. The Insert Function Tool
2. Formula AutoComplete, Syntax Reminder, Insert Function options
3. Insert Function – Help
4. The AutoSum Function Tool
5. Demonstration of the following selected functions:

Financial	Logical	Text	Date/Time	Lookup	Math	More
=PMT	=IF	=LEFT	=TODAY	=VLOOKUP	=ROUND	=COUNT
	=AND	=MID	=NOW	=HLOOKUP	=SUBTOTAL	=CELL
	=OR	=RIGHT	=MONTH	=CHOOSE	=SUMIF	=INFO
		=FIND	=YEAR		=RAND	
		=LEN	=DAY		=RANDBETWEEN	
		=SUBSTITUTE	=WEEKDAY			
		=CONCANTENATE				
		=VALUE				

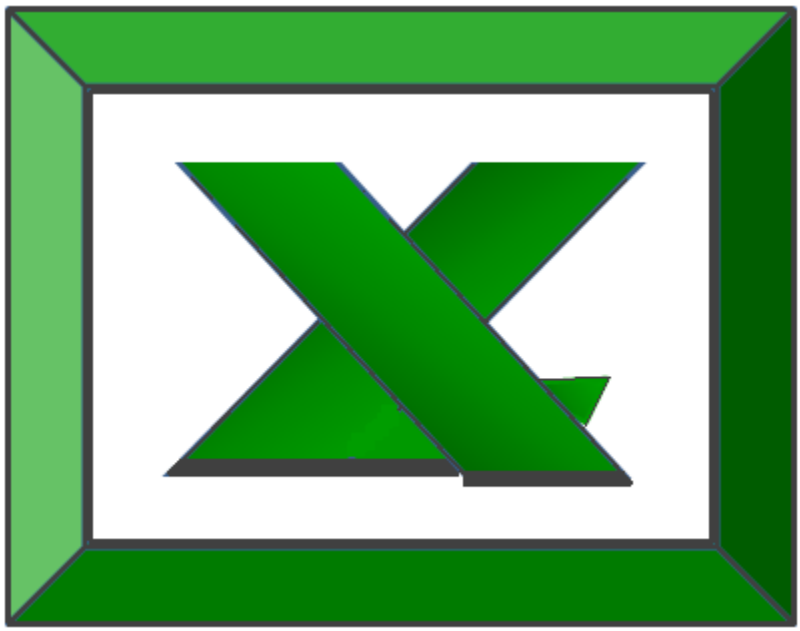
Download an example Excel worksheet from the web which demonstrates each of these function concepts at the following web site address:

http://www.asaresearch.com/web/functions.xlsx

Formatting:

Formulas and Functions represent the power Excel has to offer, but your final product must be neat, readable, and well-organized. Excel's built-in formatting tools are designed to help you produce financial reports and data that are of presentation quality. The key formatting concepts that CPA's should be aware of are as follows:

1. Number Formats – Controlling commas, decimals, currency symbols, and negatives.
2. Date Formats – Controlling days, months, years, seconds, hours and minute.
3. Alignment - Left, Middle, Right, Top, Middle, & Bottom.
4. Alignment – Text Wrapping.
5. Alignment – Text Orientation.
6. Alignment – Text Shrink to Fit.
7. Alignment – Text Direction.
8. Fonts - Font Size, Bold, Italics, Color.
9. Fonts – Strikethroughs, Superscripts & Subscripts.
10. Fonts – In-Cell Formatting Character-by-Character.
11. Fonts – Underlines & Double Underlines.
12. Cells – Borders, Colors & Line Styles.
13. Cells – Fill Colors & Fill Effects.
14. Cells – Merging Cells.
15. Cells - Fill Color, Pattern, Effect.
16. Conditional Formatting – Highlighting with Colors.
17. Conditional Formatting – Top & Bottom Formatting.
18. Conditional Formatting – Data Bars.
19. Conditional Formatting – Traffic Lights.
20. Column Width and Row Height – Changing one row or column.
21. Column Width and Row Height – Changing multiple rows or columns.
22. Column Width and Row Height – Auto adjusting row height and columns widths.
23. Styles – Using Excel's Default Styles.
24. Styles – Creating Custom Styles.
25. Tables – Table Formatting.



Excel Intermediate Essentials

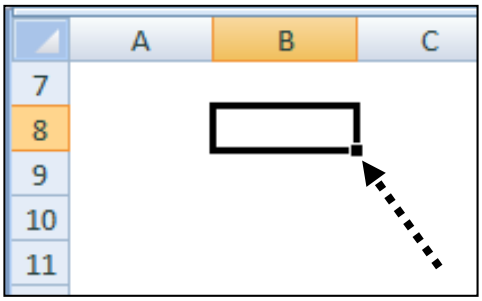
The Fill Handle

The Fill Handle is that tiny little black box located at the bottom right hand corner of a selected cell, or selected range of cells. This section covers the following concepts:

1. **AutoFill –** By clicking and dragging the "Fill Handle", you can generate a series of text or data.
2. **Custom Fill -** You can also use the Fill Handle to generate your own personal list such as a list of names or chart of accounts.
3. **Use Scroll Tips to Figure out Where to Stop –** Please notice in the screen below that "Scroll Tips" or "pop up indicators" display the value that AutoFill will insert in each cell.
4. **AutoFill Trends** – A more advanced application of the Fill Handle's AutoFill is achieved when you ask Excel to fill a range based on the trend represented by two cells.
5. **Regression Analysis Using the Fill Handle** – When using the Fill Handle with more than two cells of data (ie: three or more cells of data), AutoFill will automatically use Linear Regression Analysis (The Least Squares Method) to generate the additional data.
6. **Temporarily Disable AutoFill** – Press the "Control Key" while dragging the File Handle to temporarily disable the "AutoFill" effect.
7. **Using AutoFill To Erase Cells with Formatting** – I like to erase data by using the Fill Handle to drag a blank cell, or range of blank cells over existing data. This not only does this erase the data, but gets rid of the formatted fonts, number formats, colors, and borders as well.
8. **Double Click the Fill Handle to Fill an Entire Column** – Another way to use the Fill handle is to double click it to copy a cell or range of cells down the page.
9. **Fill Handle Options -** You can select "Auto Fill Options" from the Fill Handle's Options Box by right clicking on the Fill Handle. This will allow you to choose for how to fill the selection. For example, you can choose to fill formatting only or fill without formatting.
10. **Insert Rows using the Fill Handle** - You can insert or delete rows or columns by holding down the SHIFT key while dragging the fill handle.

The Fill Handle

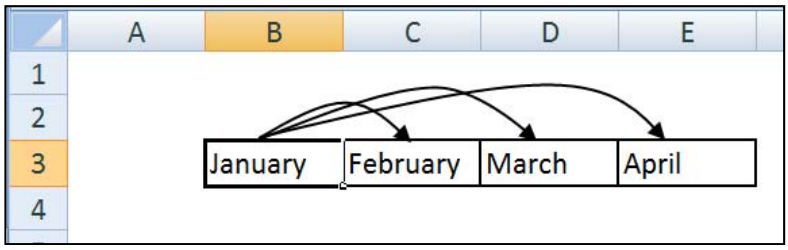
The Fill Handle is that tiny little black box located at the bottom right hand corner of a selected cell, or selected range of cells.



The Fill Handle

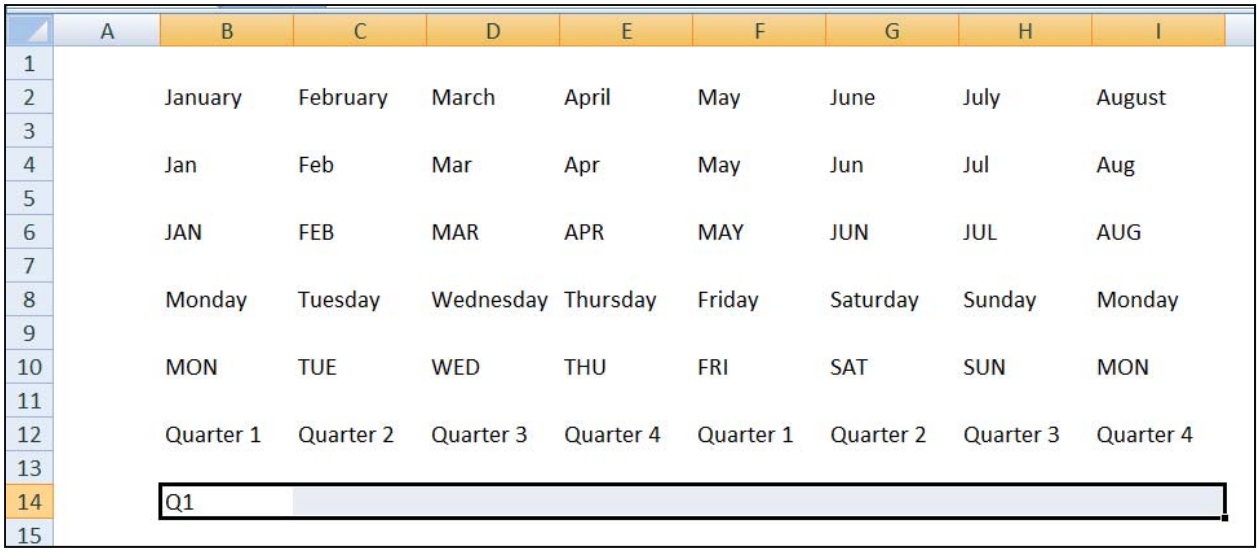
This "Fill Handle" has many applications and can be used to accomplish many things in Excel such as copying data, inserting lists, and inserting calculations. The text below will walk you through the power of the Fill handle, starting with basic applications and continuing to more complex applications.

1. **AutoFill –** By clicking and dragging the "Fill Handle", you can generate a series of text or data. For example, type the word "January" in a cell, then click and drag that cell's Fill Handle. Excel will automatically fill in the range you highlight with "February", "March", "April," and so on. This works in any direction – right, left, up, or down. Excel is smart enough to guess that you would like to insert a list of months and it will fill in the range for you.



Dragging the Fill handle Auto Completes the Selected Range

Now repeat this process using other phrases such as "Jan", "JAN", "Monday", "Mon", "MON", "Quarter 1", "Q1". The results of clicking and dragging the Fill Handle are shown below.



	A	B	C	D	E	F	G	H	I
1									
2		January	February	March	April	May	June	July	August
3									
4		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
5									
6		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
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									

Example Results using the Fill Handle

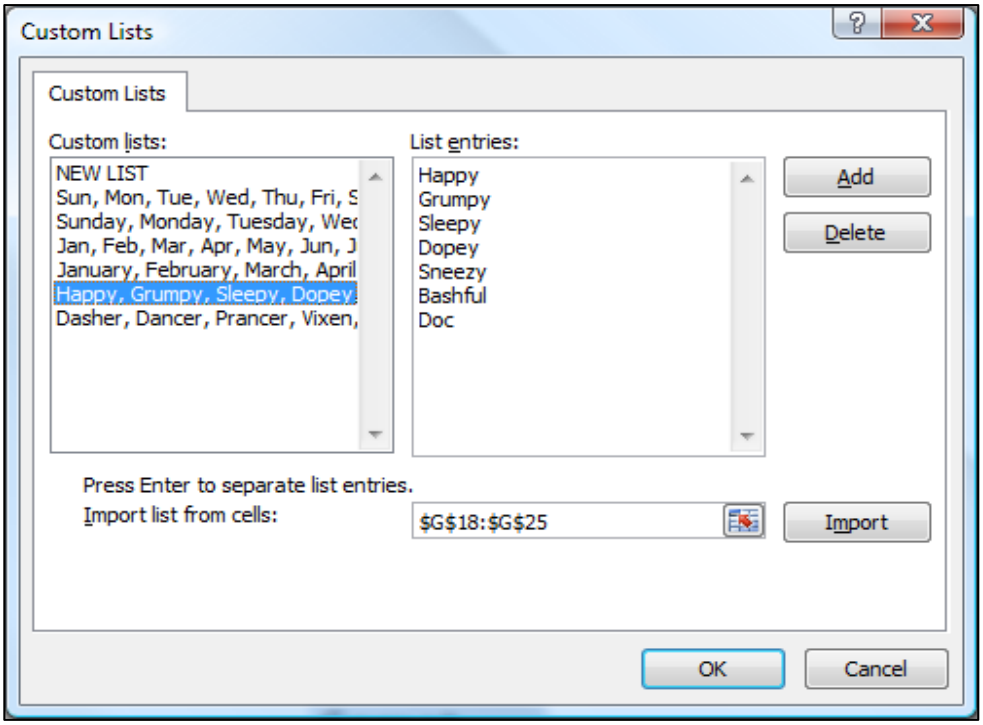
Notice that Excel is smart enough to figure out that you are trying to fill a range with a list, and it uses the data in the cell to identify that list. The result is that in many cases you can fill a range of cells much faster by just typing in the first cell, and dragging the results out the proper number of cells.

2. **Custom Fill -** You can also use the Fill Handle to generate your own personal list such as a list of names or chart of accounts. To accomplish this, you must first set up a customer list as follows:

   In Excel 2007 and Later - Choose the "Office Start Button", "Excel Options Button", and the "Edit Custom Lists…" Button.

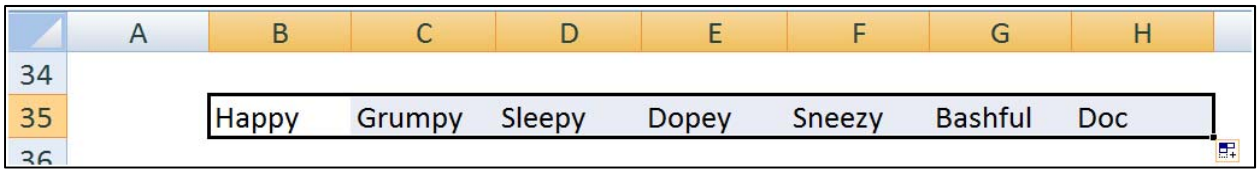
   In Excel 2003 and Earlier - select "Tools", "Options", and the "Custom Lists" Tab.

The following dialog box will be displayed. Type in the list you would like to create in the "List Entries" box as shown below, and click the "Add" button.



The Custom Lists Dialog Box

Thereafter, you can use the Fill Handle to recreate this list any time you want just by typing in one of the entries, and then clicking and dragging that cell's Fill Handle out the desired number of cells. For example, as shown below the word Happy is typed into cell B35, and the Fill Handle is used to fill in the remaining names of Snow White's seven dwarfs.



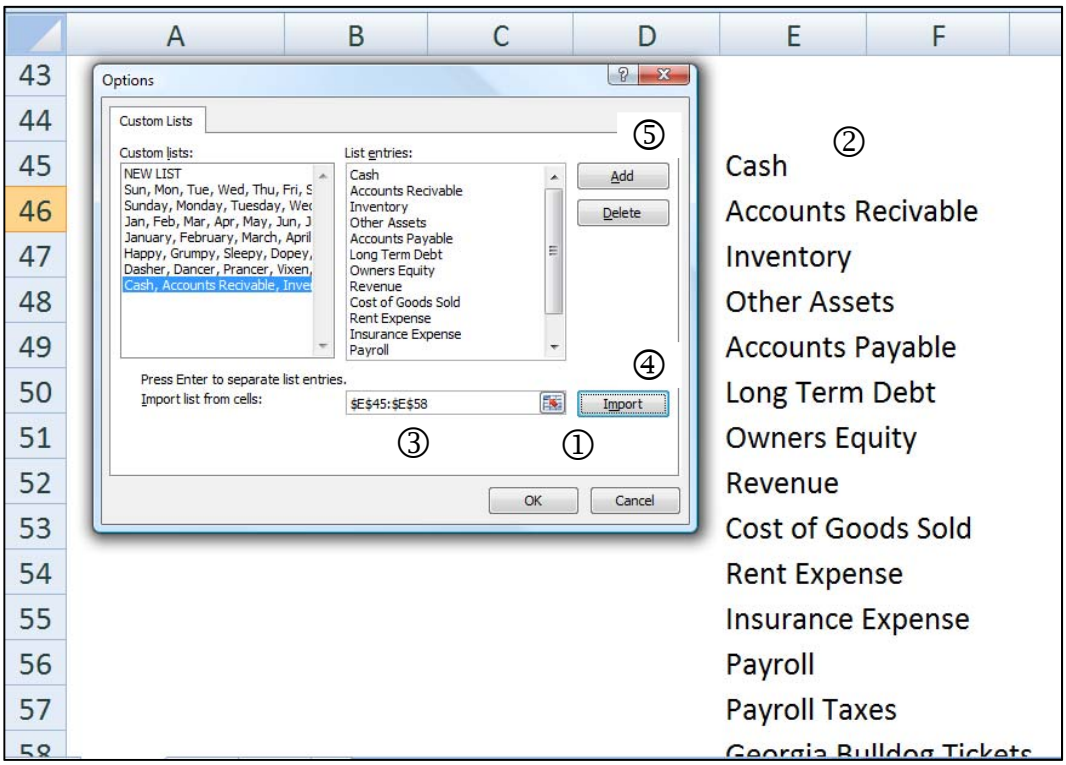
The Custom Lists dialog box can save time and effort when entering labels or lists that you frequently use such as employee names, locations, department titles, or even account numbers and account descriptions. If you find yourself inputting the same list over and over again, you should consider setting up your list as a pre-defined custom list in Excel as described above.

Tip 1 – Excel 2007 and later provide up to 512 items in a list while Excel 2003 and earlier are limited to just 99 items in a list.

Tip 2 – The "Custom List" dialog box offers a great "Import Tool" that allows you to create a new custom list from any list you have previously entered into Excel. *(This means you do not have to re-type the complete list in order to create a new "Custom List".)* Notice that the Import button is located in the bottom right hand corner of the "Custom List" dialog box. In

my hands on Excel classes I have found that even some of my advanced students often have trouble using this feature for the first time because they leave out some of the necessary steps. To help you, here is a list of all of the steps you will need to follow to successfully use this feature:

1. Click the "Cell Chooser Button"
2. Highlight the desired list in your Excel worksheet
3. Click Enter to display the selected range in the "Import List from Cells" Box
4. Then Click the "Import" Button
5. Then Click the "Add" Button.



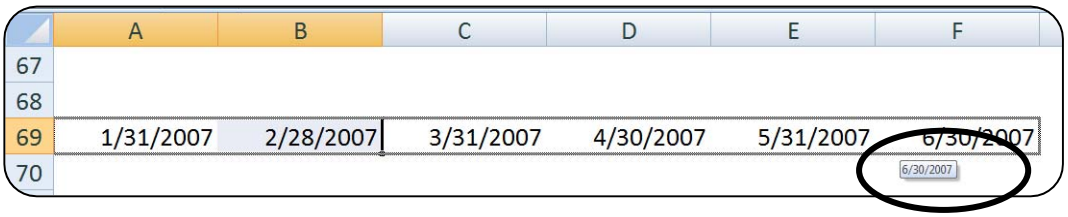
The Custom Lists Dialog Box

In the example above, the chart of accounts has been set up as a Custom List. In the future the user can fill in the complete chart of accounts simply by typing the word "Cash" and dragging that cell's Fill Handle the required number of spaces. It's not hard at all, but for some reason many students are tripped up on this feature. Once you've used this "Import Custom List" feature once, it is easy to use again in the future.

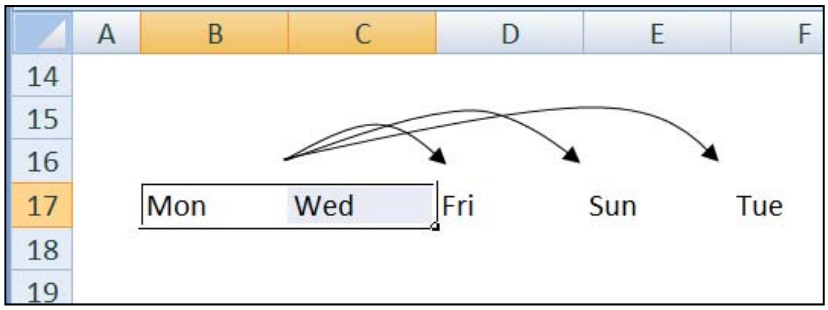
Of course your "Custom Lists" can be deleted when no longer needed. Further if you purchase a new computer your "Custom Lists" can be migrated to your new computer.

Once you create a custom list you can use AutoFill 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.

3. **Use Scroll Tips to Figure out Where to Stop –** Please notice in the screen below that "Scroll Tips" or "pop up indicators" display the value that AutoFill will insert in each cell. This makes it easier to select a fill range of appropriate size. This "Scroll Tips" feature also works when filling Custom Lists.



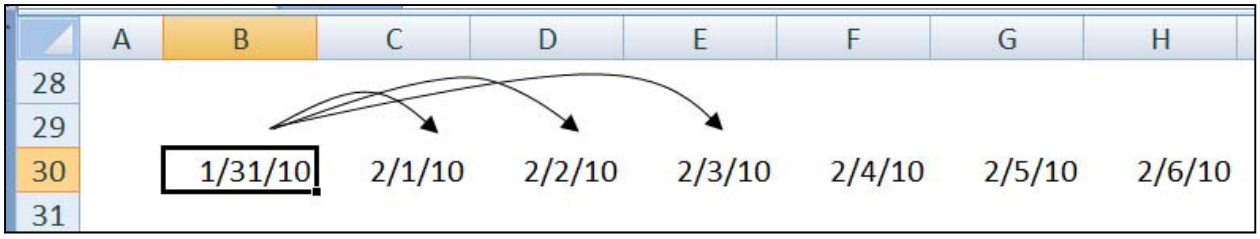
4. **AutoFill Trends** – A more advanced application of the Fill Handle's AutoFill is achieved when you ask Excel to fill a range based on the trend represented by two cells. For example, type in the words "Mon" and "Wed" in two adjacent cells as shown below. Next highlight both cells and drag the Fill Handle to the right. The results are that Excel displays every other day.



Using the Fill Handle with Two Selected Cells

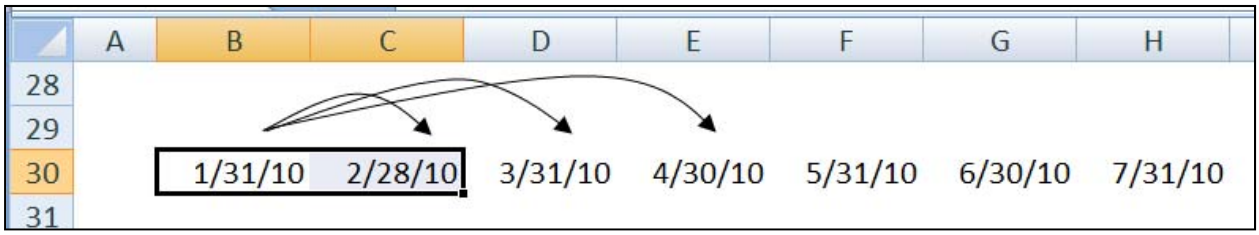
In this case, Excel evaluates the data in both cells and determines that you wish to display every other day, and obeying your wishes, Excel fills in the remaining range using the day of the week list based on every other day.

A more useful example of this feature can be seen when working with dates. Suppose a user wants to display the end of the month as a date at the top of twelve columns. The user starts by typing 1/31/2010 in cell B30 as shown below, and drags the cell's Fill handle to the right. Unfortunately in this case Excel generates a list displaying every day – not the end of month as desired.



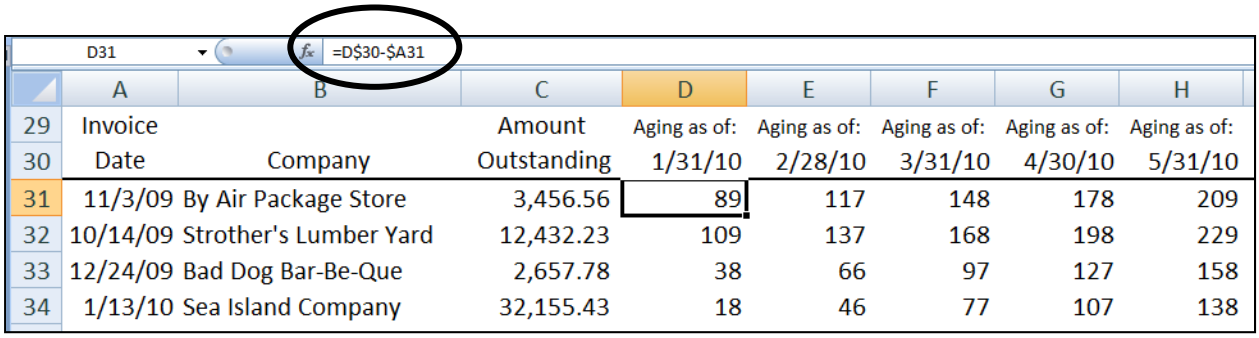
Dragging the Fill Handle of a Single Date Cell Does not Produce the Desired Results

To achieve the desired results, the users types in the date 2/28/2010 in cell C30, selects the two cells and then drags the Fill Handle to the right. In this case Excel is able to evaluate the data and determine that the user wants to display the end of each month – and Excel complies as shown below.



Dragging the Fill Handle of Two Dates Cell Does Produce the Desired Results

In some cases users prefer to have date headings displayed as true dates such as 1/31/10 or "2/28/10" rather than text phrases such as "January" or "February". This is because it is far easier to produce calculations that refer to these column headings. Consider the example below in which the user refers to column headings in order to age a list of invoices.



	A	B	C	D	E	F	G	H
29	Invoice		Amount	Aging as of:	Aging as of:	Aging as of:	Aging as of:	Aging as of:
30	Date	Company	Outstanding	1/31/10	2/28/10	3/31/10	4/30/10	5/31/10
31	11/3/09	By Air Package Store	3,456.56	89	117	148	178	209
32	10/14/09	Strother's Lumber Yard	12,432.23	109	137	168	198	229
33	12/24/09	Bad Dog Bar-Be-Que	2,657.78	38	66	97	127	158
34	1/13/10	Sea Island Company	32,155.43	18	46	77	107	138

Example in Which Column Heading is Referred to in Invoice Aging Calculation

5. **Regression Analysis Using the Fill Handle** – When using the Fill Handle with more than two cells of data (ie: three or more cells of data), AutoFill will automatically use Linear Regression Analysis (The Least Squares Method) to generate the additional data. As you will see, this capability has a profound impact when preparing a budget, projection or forecast. Presented below is a simple example, followed by a more detailed example.

Simple Regression Example: In the first screen below we start with three columns of data for the months of January, February and March.

	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							

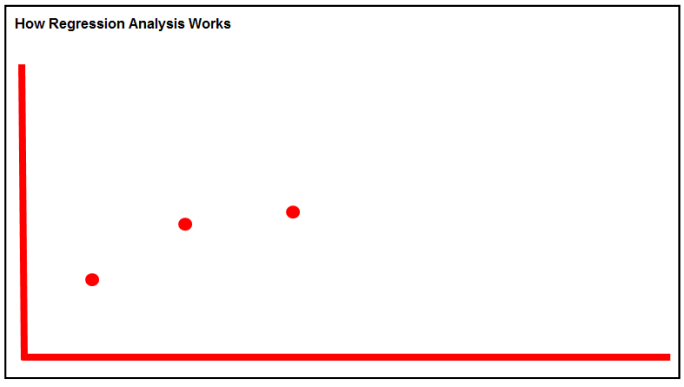
Start with Three Simple Columns of Data

These three columns are highlighted and the Fill Handle is dragged out three additional columns. The results are that Excel fills in columns for April, May and June – column including headings, totals and data. But where does this new data come from? The answer is that Excel uses Linear Regression Analysis to produce this data.

	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

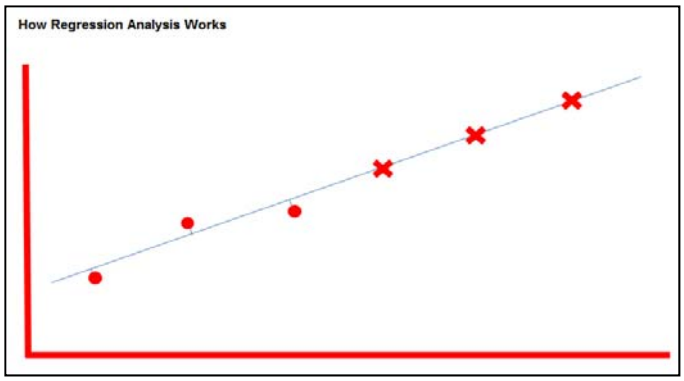
The Fill Handle Uses Regression to Project April, May and June

Excel evaluates the data for January, February, and March on a row by row basis, and uses this information to project the following variables. To help you better understand this concept, here is how regression works from a visual perspective:



Excel Plots the Beginning Data in a Chart As Shown Above

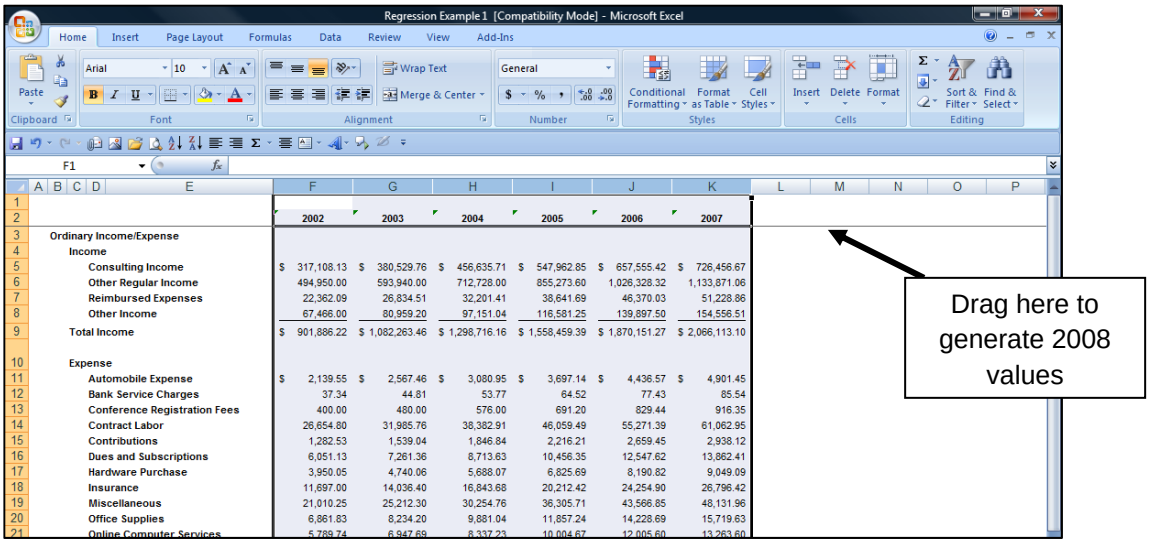
Excel then draws a straight line through these three data points. There is only one true line in which the distance between the data points and the line is the least amount. Excel then uses this line and the intervals between the original points to project the next values which are shown in X's below.



Excel Draws a Straight Line Thru the Data Points Which is Used to Project the New Data

Of course Excel does not really plot the data or draw a line on a chart, but this is in essence what happens. Excel calculates the results using algebra's linear equation formulas based on vectors. For more information, linear algebra is described here in the Wikipedia: http://en.wikipedia.org/wiki/Linear_algebra.

More Detailed Example: In the example shown below I have exported the income statements for the past six years from my accounting system. The next step is to highlight these six columns from 2002 through 2007 as shown below, and drag the Fill Handle to project 2008 values. (Please note that in this example I have selected the entire columns and the Fill Handle is shown in the upper right hand corner of the selected range.)



	2002	2003	2004	2005	2006	2007
Ordinary Income/Expense						
Income						
Consulting Income	$ 317,108.13	$ 380,529.76	$ 456,635.71	$ 547,962.85	$ 657,555.42	$ 726,456.67
Other Regular Income	494,950.00	593,940.00	712,728.00	855,273.60	1,026,328.32	1,133,871.06
Reimbursed Expenses	22,362.09	26,834.51	32,201.41	38,641.69	46,370.03	51,228.86
Other Income	67,466.00	80,959.20	97,151.04	116,581.25	139,897.50	154,556.51
Total Income	$ 901,886.22	$ 1,082,263.46	$ 1,298,716.16	$ 1,558,459.39	$ 1,870,151.27	$ 2,066,113.10
Expense						
Automobile Expense	$ 2,139.55	$ 2,567.46	$ 3,080.95	$ 3,697.14	$ 4,436.57	$ 4,901.45
Bank Service Charges	37.34	44.81	53.77	64.52	77.43	85.54
Conference Registration Fees	400.00	480.00	576.00	691.20	829.44	916.35
Contract Labor	26,654.80	31,985.76	38,382.91	46,059.49	55,271.39	61,062.95
Contributions	1,282.53	1,539.04	1,846.84	2,216.21	2,659.45	2,938.12
Dues and Subscriptions	6,051.13	7,261.36	8,713.63	10,456.35	12,547.62	13,862.41
Hardware Purchase	3,950.05	4,740.06	5,688.07	6,825.69	8,190.82	9,049.09
Insurance	11,697.00	14,036.40	16,843.68	20,212.42	24,254.90	26,796.42
Miscellaneous	21,010.25	25,212.30	30,254.76	36,305.71	43,566.85	48,131.96
Office Supplies	6,861.83	8,234.20	9,881.04	11,857.24	14,228.69	15,719.63
Online Computer Services	5,789.74	6,947.69	8,337.23	10,004.67	12,005.60	13,263.60

Using the Fill Handle to Create a Budget for 2008 based on Six Years of Actual Data

In this example, Excel projects the 2008 beginning budget values based on the actual data for the past six years. Do you have a better way to prepare a budget for the coming year? I doubt it. Do you have a faster way? I doubt it. Give it a try.

Warning - Regression only works when the underlying data follows a consistent trend. If revenue has grown steadily for the past six years, then regression will likely project a reasonable value for year seven. However if revenue has jumped all over the board for the past six years, then regression will likely give you a worthless projection for year seven.

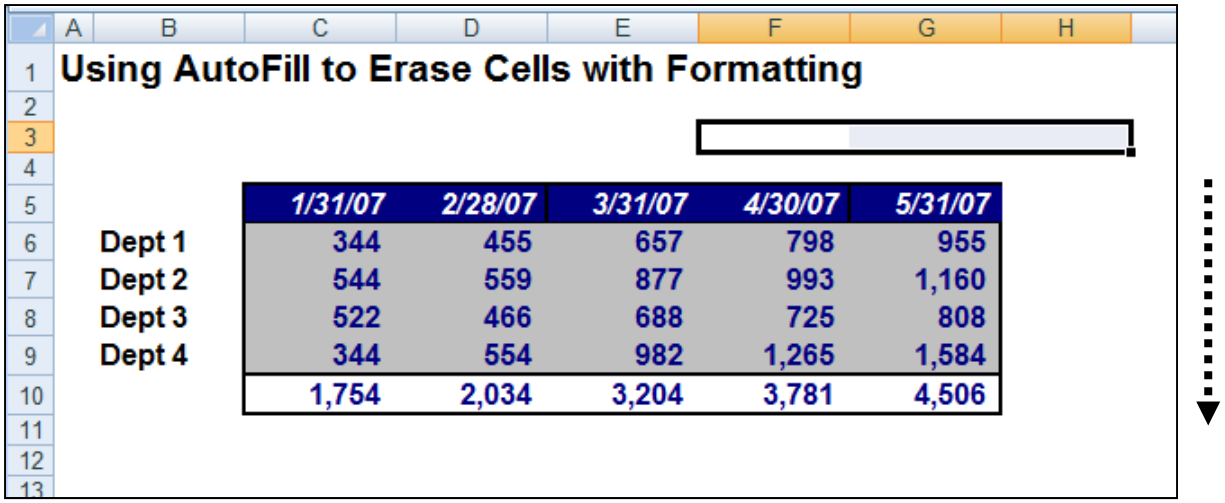
Consider that in 2008 gasoline prices jumped from $1.60 per gallon to more than $4.00 per gallon. If you use regression to predict gasoline prices for 2009 based on this 2008 increase, regression will likely predict gasoline prices in the $10.00+ per gallon range for 2009, when in fact gasoline prices have dropped back down. Therefore after applying regression techniques, you should always visit each line item in the projection and consider whether the projected values make sense, or whether some other basis offers a better alternative.

For example, a new lease agreement or revised depreciation schedule would provide a better basis for a 2008 budget than would any regression projection – therefore you would use these more accurate numbers instead of regression's projected numbers.

6. **Temporarily Disable AutoFill** – Sometimes you would like to use the Fill Handle without the "AutoFill" affect. For example you might really want to copy the word "January" or the year "2009" from one cell to another. In this situation, press the "Control Key" while dragging the File Handle to temporarily disable the "AutoFill" affect.

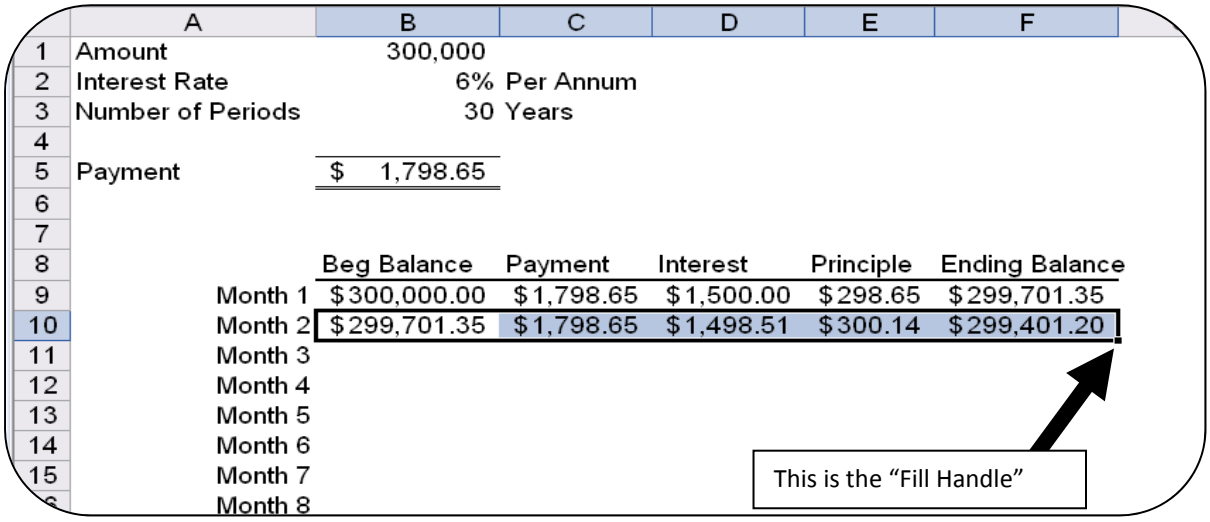
7. **Using AutoFill To Erase Cells with Formatting** – I like to erase data by using the Fill Handle to drag a blank cell, or range of blank cells over existing data. This not only erases the data, but gets rid of the formatted fonts, number formats, colors, and borders as well.

   It helps to understand that cells in a worksheet are set to a general format as a default, but once data is entered in that cell, the format changes immediately. If you enter a percentage amount, then that cell now holds onto a percentage format – even if you erase the contents. If you enter a date, that cell now holds onto a date format even if you erase the contents. By using the Fill Handle to erase cells, you not only erase the content and formatting of that cell, you also reset the cell's formatting back to general so that it is ready to use again without the clutter of left over formatting. In the screen shown below, the user is preparing to drag the Fill Handle downward over the columns for April and May – thereby erasing all contents and formatting from these cells.



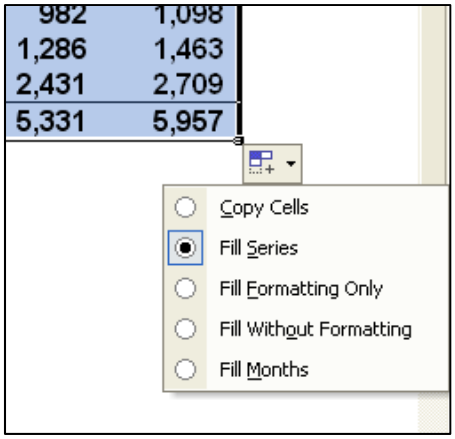
The Fill Handle Can Be Used to Drag Blank Cells over Data Cells, Effectively Erasing Them

8. **Double Click the Fill Handle to Fill an Entire Column** – Another way to use the Fill handle is to double click it to copy a cell or range of cells down the page. For example, 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 - simply double click on the fill handle as shown below to fill columns B thru F with the formulas from row 10. The copy will continue down the page as long as the adjacent column A contains data.

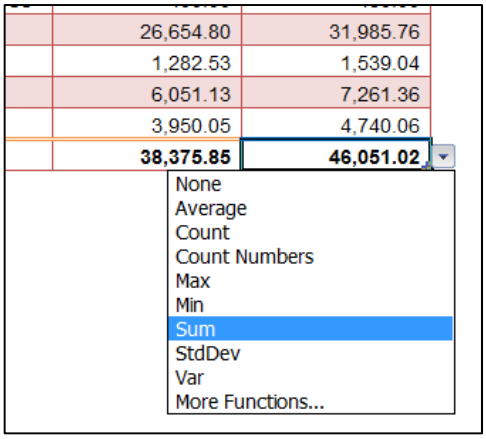


Double Clicking the Fill Handle Copies the Selected Range Downward Adjacent to Data in Column A

9. **Fill Handle's Options** - You can select "Auto Fill Options" from the Fill Handle's Options Box by right clicking on the Fill Handle. This will allow you to choose for how to fill the selection. For example, you can choose to fill formatting only or fill without formatting.



Excel 2003 Screen



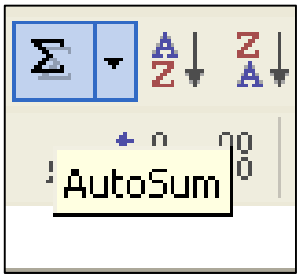
Excel 2007 Screen

The Fill day, Fill months, etc. will only be available if the selected cell or range contains a date.

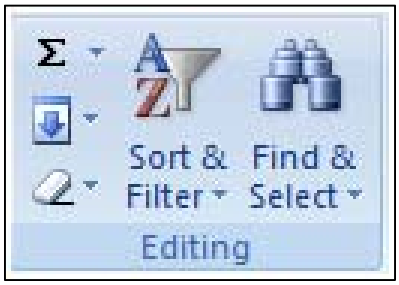
10. **Insert Rows using the Fill Handle** - You can also insert or delete rows or columns by holding down the SHIFT key while dragging the Fill Handle. To do this, click a row or range of rows, hold down the Shift key, and drag downward.

The AutoSum Tool

The AutoSum tool makes it easy to inserting totals, averages, and other functions into your worksheet. The AutoSum icon is located on the Standard tool bar in Excel 2003 and earlier, and on the Home Ribbon in Excel 2007 and later – as shown below.



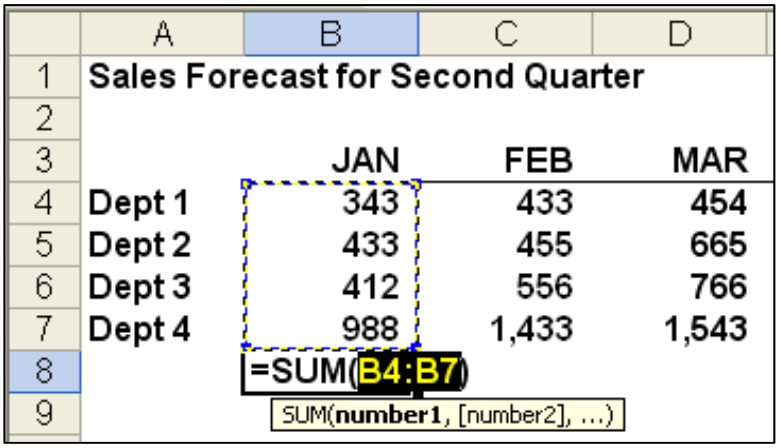
Excel 2003 Screen



Excel 2007 Screen

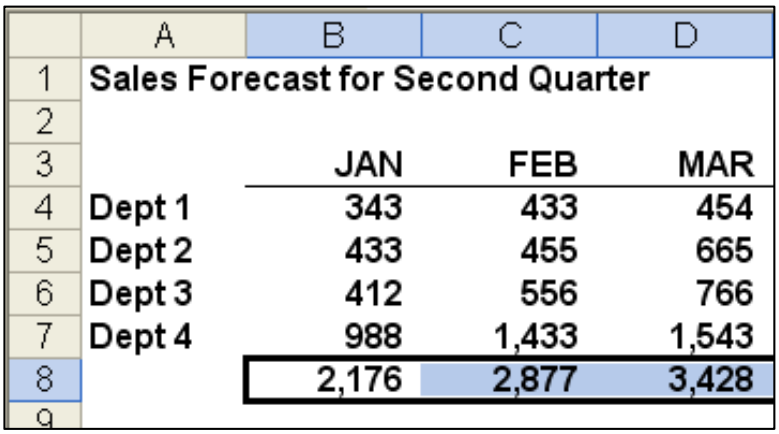
The AutoSum features works the same way in all versions of Excel. However, the way in which this tool behaves depends upon how you select the data to be totaled. So that you can better understand this concept, presented below are five different approaches to using the AutoSum tool.

A. **One Cell At A Time -** The first approach is to select a blank cell under a column of numbers and click the AutoSum tool to create a formula. In this case, Excel will insert a box of marching ants (animated dashes) around the numbers it believes you want to total. (At this point you can change the selection using the arrow keys or the mouse pointer.) You must then confirm that the selection is correct by pressing the enter key. Once you have created the first formula, you can then move to the next column and repeat the process, or simply copy the resulting formula to other cells as desired.



Inserting a Total Formula with AutoSum Tool – One Cell At a Time

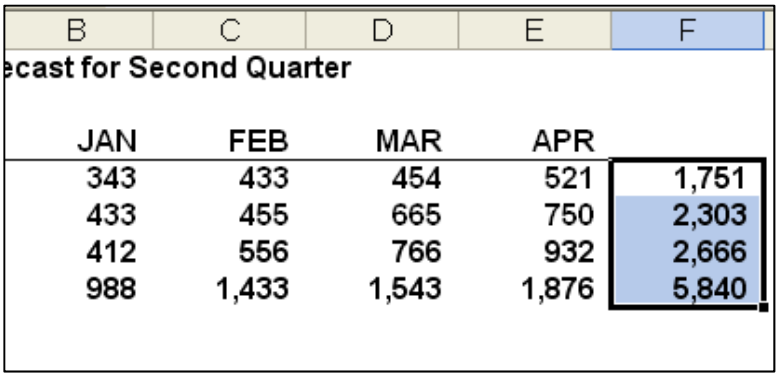
B. **One Row At A Time -** The second method for using the AutoSum tool is to select the entire row underneath a matrix of numbers as shown below (cells B8 thru D8 have been selected). Next click the AutoSum tool and Excel will insert totaling formulas underneath each of the columns of numbers automatically – there will not be a pause in the action allowing you to select a different range or asking you to confirm the selected range.



	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				

Inserting a Total Formula with AutoSum Tool – One Row at a Time

C. **One Column at a Time** – Similar to method B described above, you can also select an entire column next to a matrix of numbers as shown below (cells in column F have been selected). Next click the AutoSum tool and Excel will insert totaling formulas next to each of the rows of numbers automatically – once again there will not be a pause in the action allowing you to select a different range or asking you to confirm the selected range.



B	C	D	E	F
ecast 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

Inserting a Total Formula with AutoSum Tool – One Column at a Time

D. **Use AutoSum by Highlighting the Data Matrix** – Perhaps the best way to use the AutoSum tool is to highlight all of the data, and then drop down one blank row and over one blank column as shown below.

	B	C	D	E	F
	orecast 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

Inserting Total Formulas with AutoSum Tool by Highlight the Data Matrix

This approach to using the AutoSum tool inserts row totals, column totals and even the cross footing total. It is more accurate than the other three methods described above because the totals include all data in your painted range – you do not have to rely on excel to make the correct selection for you.

E. Using AutoSum when the Data Matrix Contains Blanks – The real power of using the approach of highlighting the entire data matrix becomes clear when the data contains blank cells, blank rows, or blank columns. Using the first three AutoSum methods described above in this situation could cause the totaling formulas to be incorrect because Excel picks the data to be summed by looking for blanks. With this solution, you are able to accurately control exactly which data is included in the total formulas.

	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

Overcoming Blank Rows When Using AutoSum

Data Consolidation

CPAs often have a need to consolidate data such as:

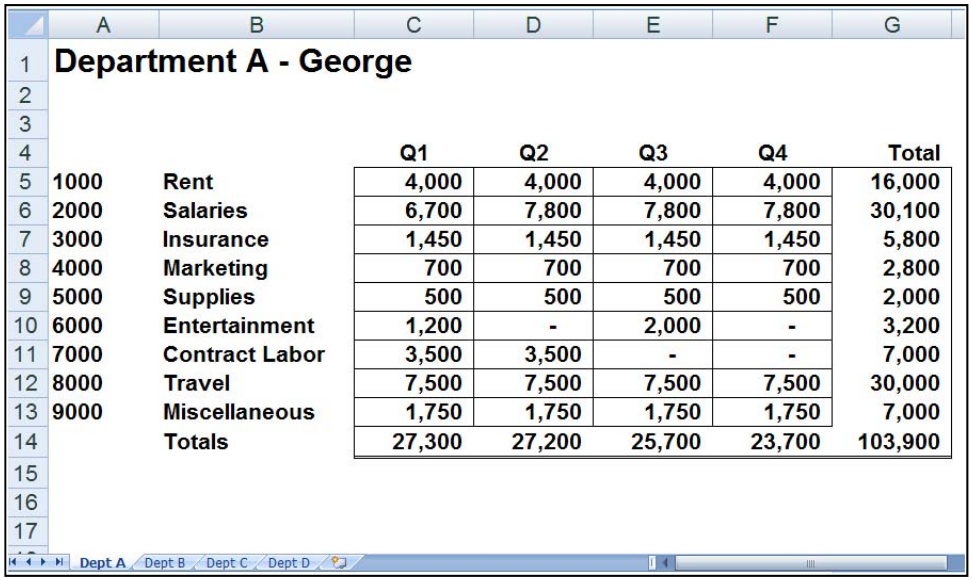
1. Months
2. Departments
3. Locations
4. Warehouses
5. Sale Representatives

In this section we will explore two different methods of consolidating data that is similar, and two more methods for consolidating data that is dissimilar. These four methods are as follows:

1. Using simple formulas to consolidate similar data.
2. Using spearing formulas to consolidate similar data.
3. Using the "Data Consolidate Command" to consolidate dissimilar similar data.
4. Using the "PivotTable Wizard" to consolidate dissimilar similar data.

A. Using Simple Formulas To Consolidate Similar Data

The workbook below contains identical budgets for Departments A, B, C and D. The goal is to consolidate these four budgets into one consolidated budget.



	A	B	C	D	E	F	G
1	**Department A - George**						
2							
3							
4			Q1	Q2	Q3	Q4	Total
5	1000	Rent	4,000	4,000	4,000	4,000	16,000
6	2000	Salaries	6,700	7,800	7,800	7,800	30,100
7	3000	Insurance	1,450	1,450	1,450	1,450	5,800
8	4000	Marketing	700	700	700	700	2,800
9	5000	Supplies	500	500	500	500	2,000
10	6000	Entertainment	1,200	-	2,000	-	3,200
11	7000	Contract Labor	3,500	3,500	-	-	7,000
12	8000	Travel	7,500	7,500	7,500	7,500	30,000
13	9000	Miscellaneous	1,750	1,750	1,750	1,750	7,000
14		Totals	27,300	27,200	25,700	23,700	103,900
15							
16							
17							

Dept A | Dept B | Dept C | Dept D

1. **CTRL + Drag Tab –** Select worksheet labeled "Dept D". Use the CTRL + Drag Tab keystroke combination to create a duplicate worksheet of Dept D.

2. **Clean –** Clean the new worksheet by deleting the data in the grid area.

3. **Relabel –** Change the worksheet labels in Cells A1 and on the worksheet tab to read "consolidated".

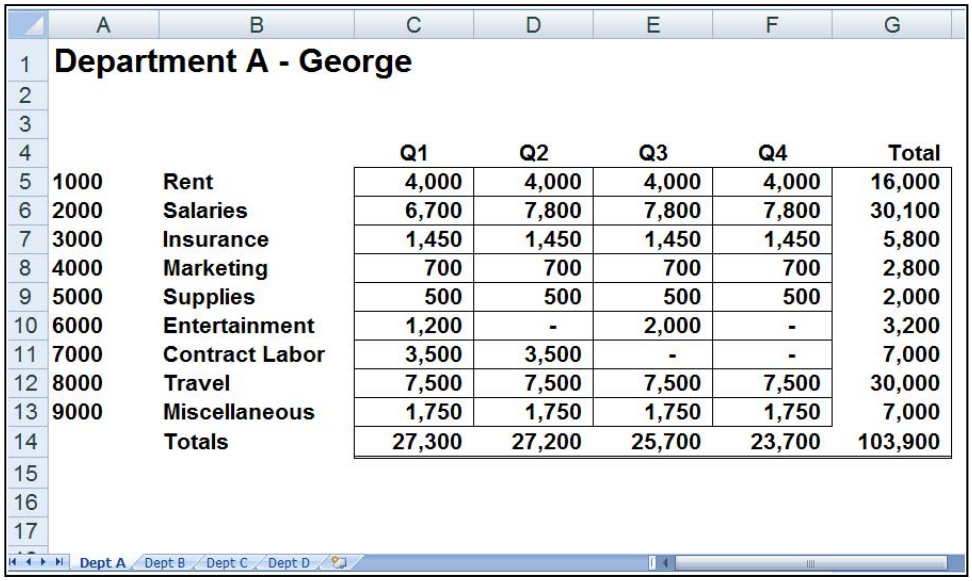
4. **Formula –** In cell C5, enter a formula adding the C5 cells in the four budget sheets. The formula should look like this:

='Dept A'!C5+'Dept B'!C5+'Dept C'!C5+'Dept D'!C5

5. **Copy –** Copy the formula down and across the grid area, and you are done.

B. Using Spearing Formulas To Consolidate Similar Data

The workbook below contains identical budgets for Departments A, B, C and D. The goal is to consolidate these four budgets into one consolidated budget.



	A	B	C	D	E	F	G
1	**Department A - George**						
2							
3							
4			Q1	Q2	Q3	Q4	Total
5	1000	Rent	4,000	4,000	4,000	4,000	16,000
6	2000	Salaries	6,700	7,800	7,800	7,800	30,100
7	3000	Insurance	1,450	1,450	1,450	1,450	5,800
8	4000	Marketing	700	700	700	700	2,800
9	5000	Supplies	500	500	500	500	2,000
10	6000	Entertainment	1,200	-	2,000	-	3,200
11	7000	Contract Labor	3,500	3,500	-	-	7,000
12	8000	Travel	7,500	7,500	7,500	7,500	30,000
13	9000	Miscellaneous	1,750	1,750	1,750	1,750	7,000
14		Totals	27,300	27,200	25,700	23,700	103,900
15							
16							
17							

Dept A | Dept B | Dept C | Dept D

1. **CTRL + Drag Tab –** Select worksheet labeled "Dept D". Use the CTRL + Drag Tab keystroke combination to create a duplicate worksheet of Dept D.

2. **Clean –** Clean the new worksheet by deleting the data in the grid area.

3. **Relabel –** Change the worksheet labels in Cells A1 and on the worksheet tab to read "consolidated".

4. **Formula –** In cell C5, enter a spearing formula that adds cell C5 cells in the four budget sheets. The formula should look like this:

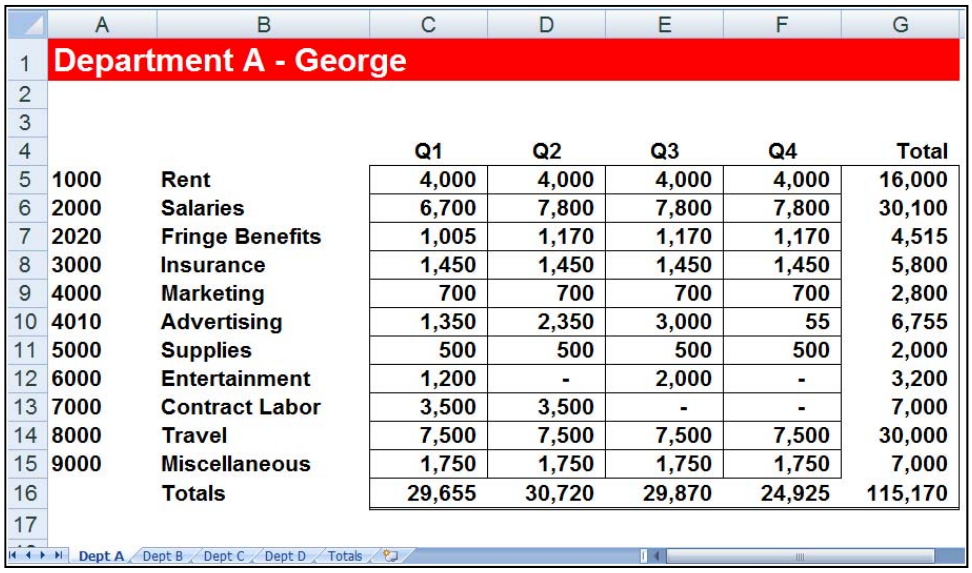
=SUM('Dept A:Dept D'!C5)

I use the mouse to accomplish this step. Start by typing "=SUM(", then click on cell C5 in Dept A, hold the shift key down, and click cell C5 in Dept D.

5. **Copy –** Copy the formula down and across the grid area, and you are done.

C. Using The "Data Consolidate Command" To Consolidate Dissimilar Similar Data

The workbook below contains dis-similar budgets for Departments A, B, C and D. In other words, each worksheet contains some different row descriptions and more or less rows than the other worksheets. The goal is to consolidate these four budgets.



	A	B	C	D	E	F	G
1	Department A - George						
2							
3							
4			Q1	Q2	Q3	Q4	Total
5	1000	Rent	4,000	4,000	4,000	4,000	16,000
6	2000	Salaries	6,700	7,800	7,800	7,800	30,100
7	2020	Fringe Benefits	1,005	1,170	1,170	1,170	4,515
8	3000	Insurance	1,450	1,450	1,450	1,450	5,800
9	4000	Marketing	700	700	700	700	2,800
10	4010	Advertising	1,350	2,350	3,000	55	6,755
11	5000	Supplies	500	500	500	500	2,000
12	6000	Entertainment	1,200	-	2,000	-	3,200
13	7000	Contract Labor	3,500	3,500	-	-	7,000
14	8000	Travel	7,500	7,500	7,500	7,500	30,000
15	9000	Miscellaneous	1,750	1,750	1,750	1,750	7,000
16		Totals	29,655	30,720	29,870	24,925	115,170
17							

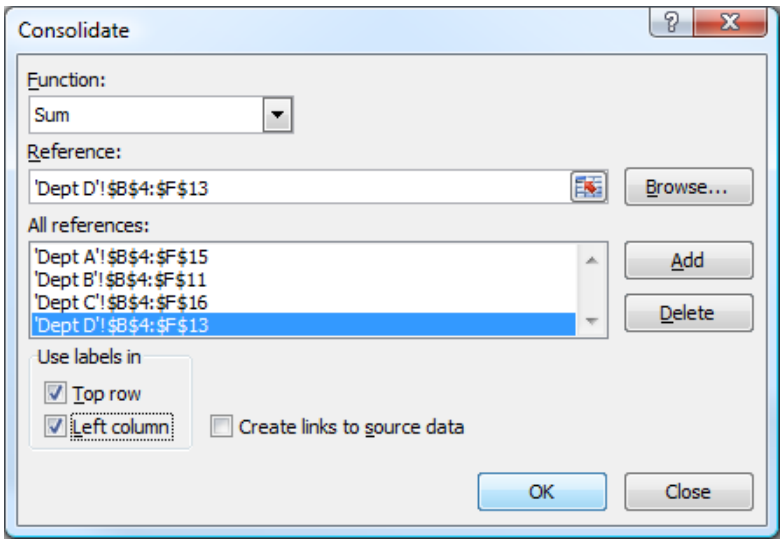
Dept A | Dept B | Dept C | Dept D | Totals

1. **New Worksheet –** Insert a new worksheet.

2. **Label –** Label the new worksheet in Cells A1 and on the worksheet tab to read "Consolidated".

3. **Select Cell –** Select a blank cell such as B5.

4. **Data, Consolidate** – Select Data, Consolidate to display the Consolidate dialog box as shown below. Make sure to click the Cell Choose button, then highlight the data only on Dept A, click "Enter", and then click "Add". Repeat this process for Dept B, C and D.



Click the check boxes to use Labels in the "Top Row" and "Left Column".

5. **Finish** – Click OK to produce the results

6. **Add Totals** - Highlight your data and expand the selection to include a blank bottom row and blank right column. Click the AutoSum tool, add formatting and you are done.

	A	B	C	D	E	F	G
1	**Total Budget for All Departments**						
2							
3			Q1	Q2	Q3	Q4	
4		Rent	14,500	14,500	14,500	14,500	58,000
5		Salaries	24,600	24,800	24,800	24,800	99,000
6		Fringe Benefits	1,005	1,170	1,170	1,170	4,515
7		Insurance	2,680	2,150	2,150	2,150	9,130
8		Marketing	1,000	1,000	1,000	1,000	4,000
9		Advertising	1,350	2,350	3,000	55	6,755
10		Supplies	1,460	1,460	1,460	1,460	5,840
11		Equipment	3,240	1,230	679	4,500	9,649
12		Client Gifts	500	500	500	500	2,000
13		Cell Phones	1,250	1,250	1,250	1,250	5,000
14		Entertainment	3,205	1,660	4,830	1,800	11,495
15		Contract Labor	7,050	7,050	50	50	14,200
16		Travel	24,500	24,500	24,500	24,500	98,000
17		Air Fare	4,000	4,000	5,000	2,300	15,300
18		Hotels	2,300	1,450	3,000	2,030	8,780
19		Miscellaneous	5,350	5,350	5,350	5,350	21,400
20			97,990	94,420	93,239	87,415	373,064
21							
22							
23							

Dept A | Dept B | Dept C | Dept D | Totals

7. **Comments**:

   a. **Row Descriptions -** Note that the consolidation works only to the extent that the different worksheets contain the same row descriptions. Had you department heads

used the descriptions Rent, Rent EXP, and Rent Expense, then those rows would not actually consolidate but would be shown as three separate rows on the resulting consolidation report.

b. **Account Numbers –** As an option, you might insert account numbers to the left of the row descriptions to consolidate dissimilar information which contains dis-similar row descriptions.

c. **To Update** – To Update the results, place your cursor in the upper left hand corner of the Consolidation range, and rerun the Consolidate command. If the resulting report is a different size, you will need to add totals or clean up left behind data.

d. **Consolidate Different Workbooks** – Excel can also consolidate data from different workbooks. The procedure is exactly the same except that you use the Browse button instead of the Cell Chooser button to point to your data ranges.

D. Using The "PivotTable Wizard" To Consolidate Dissimilar Similar Data

The workbook below contains dis-similar budgets for Departments A, B, C and D. In other words, each worksheet contains some different row descriptions and more or less rows than the other worksheets. The goal is to consolidate these four budgets.

Department A - George

		Q1	Q2	Q3	Q4	Total
1000	Rent	4,000	4,000	4,000	4,000	16,000
2000	Salaries	6,700	7,800	7,800	7,800	30,100
2020	Fringe Benefits	1,005	1,170	1,170	1,170	4,515
3000	Insurance	1,450	1,450	1,450	1,450	5,800
4000	Marketing	700	700	700	700	2,800
4010	Advertising	1,350	2,350	3,000	55	6,755
5000	Supplies	500	500	500	500	2,000
6000	Entertainment	1,200	-	2,000	-	3,200
7000	Contract Labor	3,500	3,500	-	-	7,000
8000	Travel	7,500	7,500	7,500	7,500	30,000
9000	Miscellaneous	1,750	1,750	1,750	1,750	7,000
	Totals	29,655	30,720	29,870	24,925	115,170

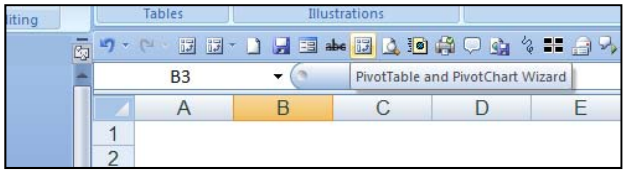
Dept A | Dept B | Dept C | Dept D | Totals

1. **New Worksheet –** Insert a new worksheet.

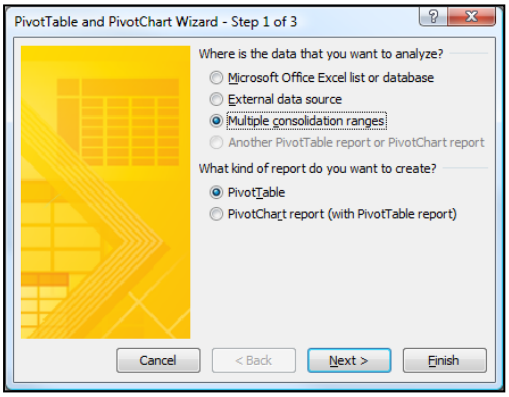
2. **Label –** Label the new worksheet in Cells A1 and on the worksheet tab to read "Consolidated".

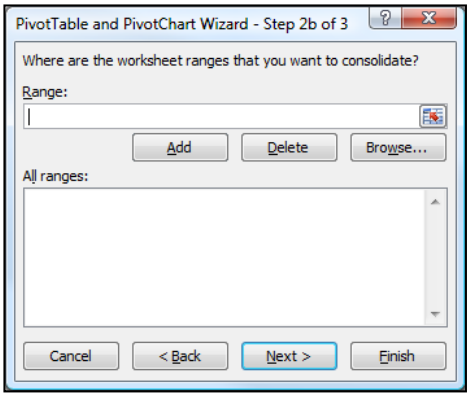
3. **Select Cell –** Select a blank cell such as B5.

4. **PivotTable Wizard** – In Excel 2007 and excel 2010, you must first customize your Quick Access Toolbar and insert the icon titled PivotTable and PivotChart Wizard as shown below. This is a hidden tool in Excel 2007 and cannot be used unless you first add it to your Quick Access Tool bar. (The Insert PivotTable command in Excel 2007 does not allow you to select multiple consolidation ranges).



5. **PivotTable** – Click the PivotTable and PivotChart Wizard icon to display the PivotTable and PivotChart Wizard dialog box as shown below. Choose multiple Consolidation ranges and click Next, and Next again. The dialog box on the right should now be displayed.





Click the Cell Chooser button, then highlight the data only on Dept A, click "Enter", and then click "Add". Repeat this process for Dept B, C and D.

6. **Finish** – Click "FINISH" to produce the results.

7. **Add Formatting** - Highlight your data and add formatting, then you are done.

	A	B	C	D	E	F	G
1		Page1	(All)				
2							
3		Sum of Value	Column Labels				
4		Row Labels	Q1	Q2	Q3	Q4	Grand Total
5		Advertising	1,350	2,350	3,000	55	6,755
6		Air Fare	4,000	4,000	5,000	2,300	15,300
7		Cell Phones	1,250	1,250	1,250	1,250	5,000
8		Client Gifts	500	500	500	500	2,000
9		Contract Labor	7,050	7,050	50	50	14,200
10		Entertainment	3,205	1,660	4,830	1,800	11,495
11		Equipment	3,240	1,230	679	4,500	9,649
12		Fringe Benefits	1,005	1,170	1,170	1,170	4,515
13		Hotels	2,300	1,450	3,000	2,030	8,780
14		Insurance	2,680	2,150	2,150	2,150	9,130
15		Marketing	1,000	1,000	1,000	1,000	4,000
16		Miscellaneous	5,350	5,350	5,350	5,350	21,400
17		Rent	14,500	14,500	14,500	14,500	58,000
18		Salaries	24,600	24,800	24,800	24,800	99,000
19		Supplies	1,460	1,460	1,460	1,460	5,840
20		Travel	24,500	24,500	24,500	24,500	98,000
21		**Grand Total**	**97,990**	**94,420**	**93,239**	**87,415**	**373,064**

8. **Comments**:

   a. The PivotTable approach is superior to the Data Consolidate approach for many reasons as follows:
      i. Totals are automatic inserted.
      ii. AutoFilter buttons are automatic inserted.
      iii. Simply click refresh to update.
      iv. The resulting PivotTable is drillable.
      v. The resulting PivotTable can be pivoted.
      vi. The PivotTable report offers many PivotTable tools such as formatting which data Consolidate does not offer.

Data Queries

It is a fact of life that CPAs work with data...but CPAs don't make the data up. The data actually comes from somewhere and in this day and age, the data is usually already in a electronic format. Therefore, there is very little reason to retype data. Excel's data query commands are useful for grabbing data, whether that data exists in another application, a database, or even a web page.

Do not confuse excel's "Import" commands with Excel's "Data Query" commands. They differ in that data queries result in establishing a permanent link to the original source data. The user need only press the Refresh button to retrieve new data from the exact same source. Using the import command works, but it condemns the user to repeat the same import, parse, and format commands over and over, each time you wish to update your data. On the other hand, the data query command makes future updates as quick as a click of a button.

Existing Connections - Web Queries

Excel includes pre-designed "queries" that can import commonly used data in 10 seconds. For example, you could use a web query to create a stock portfolio. 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 Excel 2007 and later use the Data Ribbon, Existing Connections, Stock Quotes option. In seconds, Excel will retrieve 20 minute delayed stock prices from the web (during the hours when the stock market is open) and display a grid of complete up-to-date stick price information that is synchronized to the stock market's changing stock prices. With each click of the "Refresh" button, the stock price information in Excel is updated - this sure beats picking numbers out of the newspaper.

Friday, April 24, 2009

11:34:42 AM

Stock Quotes Provided by MSN Money

Click here to visit MSN Money

				Last	Previous Close	High	Low	Volume	Change	% Change	52 Wk High	52 Wk Low
Microsoft Corp	Chart	News		20.29	18.92	20.45	19.5	66,077,415	1.37	7.24%	32.1	14.87
Apple Inc	Chart	News		124.32	125.4	125.14	123.73	6,275,076	-1.08	-0.86%	192.24	78.2
Coca-Cola Co	Chart	News		42.87	42.92	43.09	42.71	3,205,193	-0.05	-0.12%	61	37.44
United Parcel Service Inc	Chart	News		53.48	53.33	54.04	52.53	2,533,150	0.15	0.28%	74.14	37.99
International Business Machines Corp	Chart	News		100.33	101.42	101.97	100.09	2,665,080	-1.09	-1.07%	130.93	69.5
Wal-Mart Stores Inc	Chart	News		48.73	48.86	49.56	48.51	8,042,577	-0.13	-0.27%	63.85	46.25

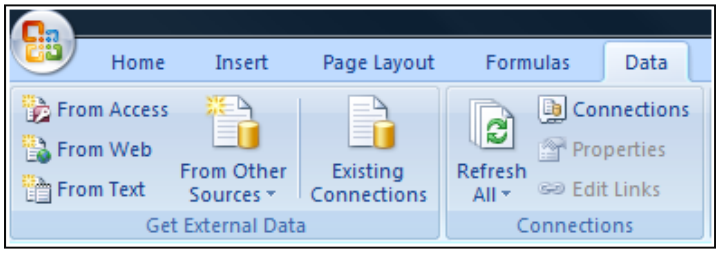
Completing the Stock Portfolio – Next link the grid data to another worksheet, and insert new columns containing the number of shares owned, as wells as an additional column to computer the total value based on shares owned, as shown below.

Friday, April 24, 2009
11:40:17 AM

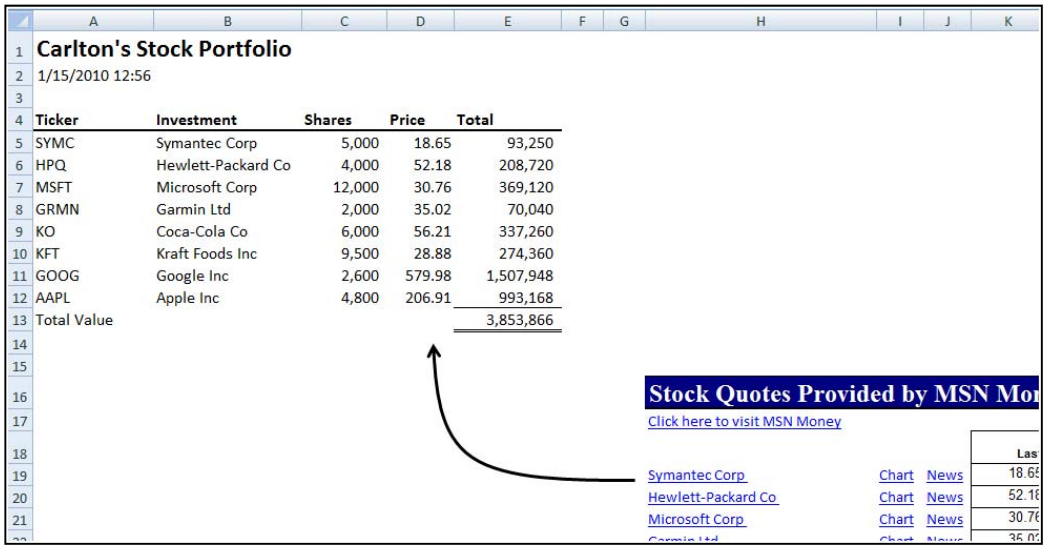
Stock Quotes Provided by MSN Money

	Last	Shares Owned	Current Value	Previous Close	High	Low	Volume	Change	% Change
Microsoft Corp	20.29	13,500	273,915	18.92	20.45	19.5	66077415	1.37	0.0724
Apple Inc	124.32	2,400	298,368	125.4	125.14	123.73	6275076	-1.08	-0.0086
Coca-Cola Co	42.87	12,000	514,440	42.92	43.09	42.71	3205193	-0.05	-0.0012
United Parcel Service Inc	53.48	1,780	95,194	53.33	54.04	52.53	2533150	0.15	0.0028
International Business Machines	100.33	2,800	280,924	101.42	101.97	100.09	2665080	-1.09	-0.0107
Wal-Mart Stores Inc	48.73	8,300	404,459	48.86	49.56	48.51	8042577	-0.13	-0.0027
			1,867,300						

Refreshing the Stock Prices **-** Once you have created your portfolio, simply click the Refresh Data button on the "External Data" Toolbar in Excel 2003 or on the "Data Ribbon" in Excel 2007 shown below to update the current value of your Portfolio.

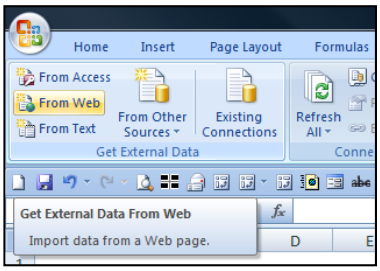


Query Parameters **-** There are several options to help you extract exactly the data you want they way you want it. The "Web Query Parameters Box", "Web Query Options box" and "External Data Properties Box" provide options for controlling your web query. The final stock report might appear as follows:

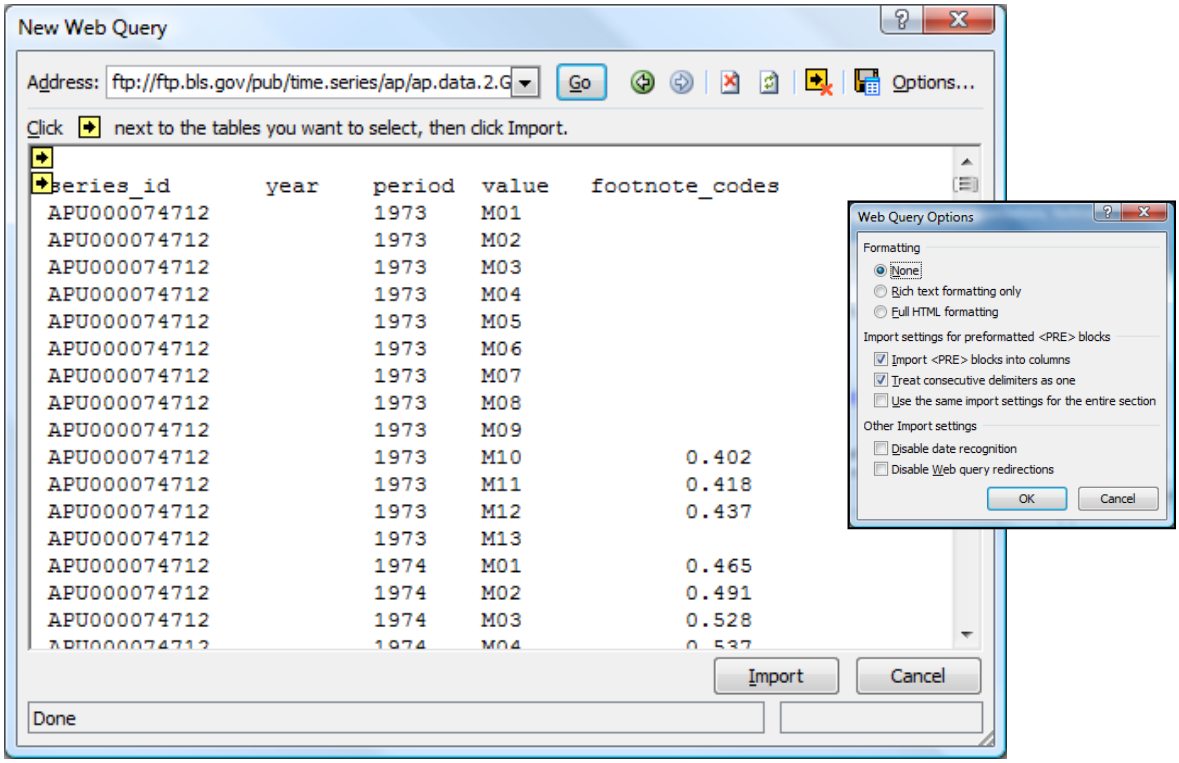


Web Page Queries **-** How many web pages are there in the world? According to Wikipedia, there were 39 billion web pages as of March 2010 – and Excel provides the capability to

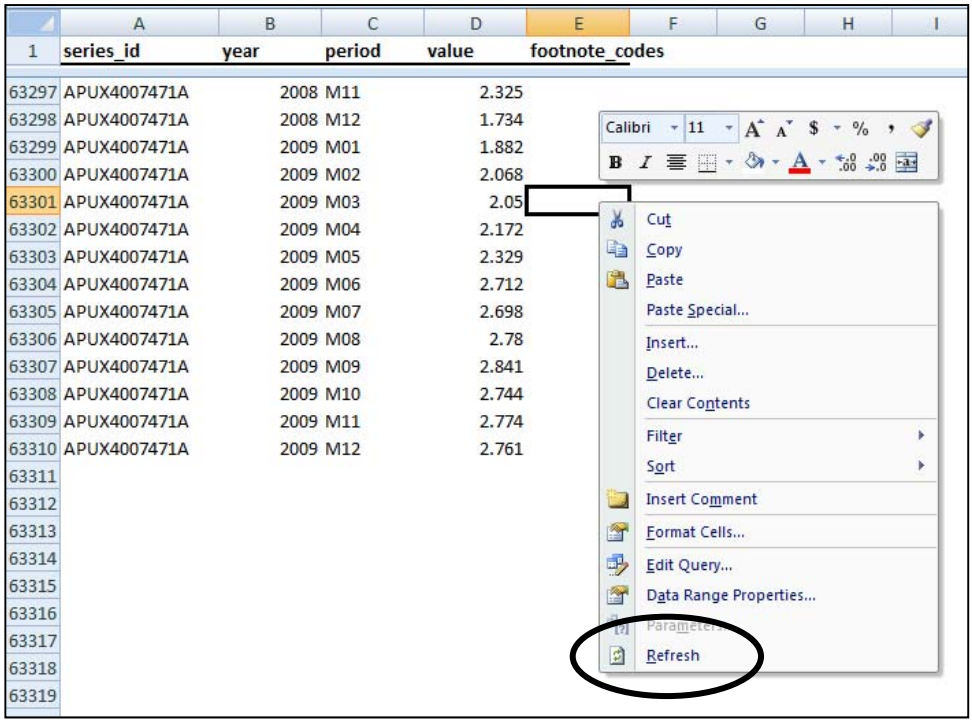
query everyone of them. Here's how it works: Select the "Get External Data", "From Web" option from the data Ribbon as shown below.



The new Web Query dialog box will be displayed. Type in any web page address (such as ftp://ftp.bls.gov/pub/time.series/ap/ap.data.2.Gasoline), choose the desired options from the options box, and select import.



Excel will then embed the web page in question directly in Excel. Thereafter, each time you click the REFRESH button in Excel, the current web site information will be displayed in Excel. You can link to the information using formulas an functions.



Database Queries (Querying Accounting Systems)

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.

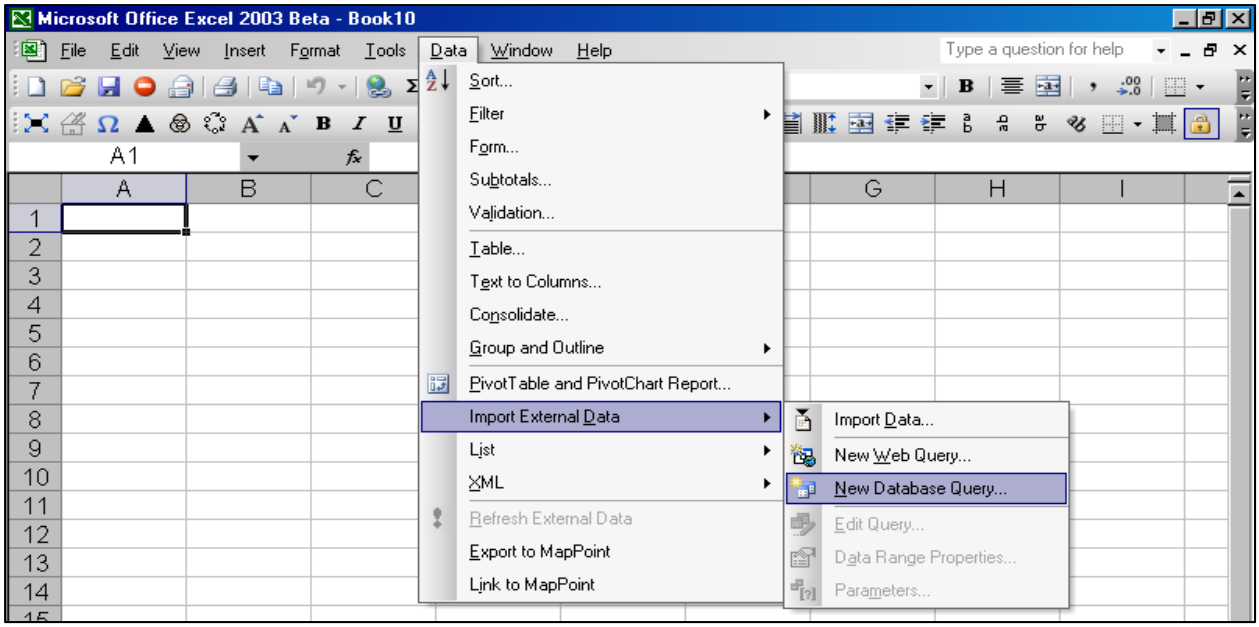
To use Microsoft Query to retrieve external data, you must:

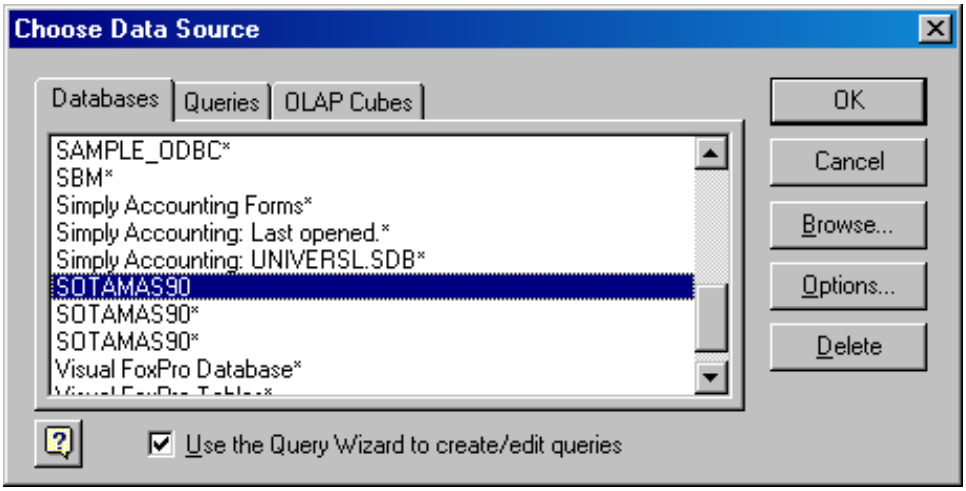
1. **Have Access To An External Data Source -** If the data is not on your local computer, you may need to see the administrator of the external database for a password, user permission, or other information about how to connect to the database.

2. **Install Microsoft Query -** If Microsoft Query is not available, you might need to install it.

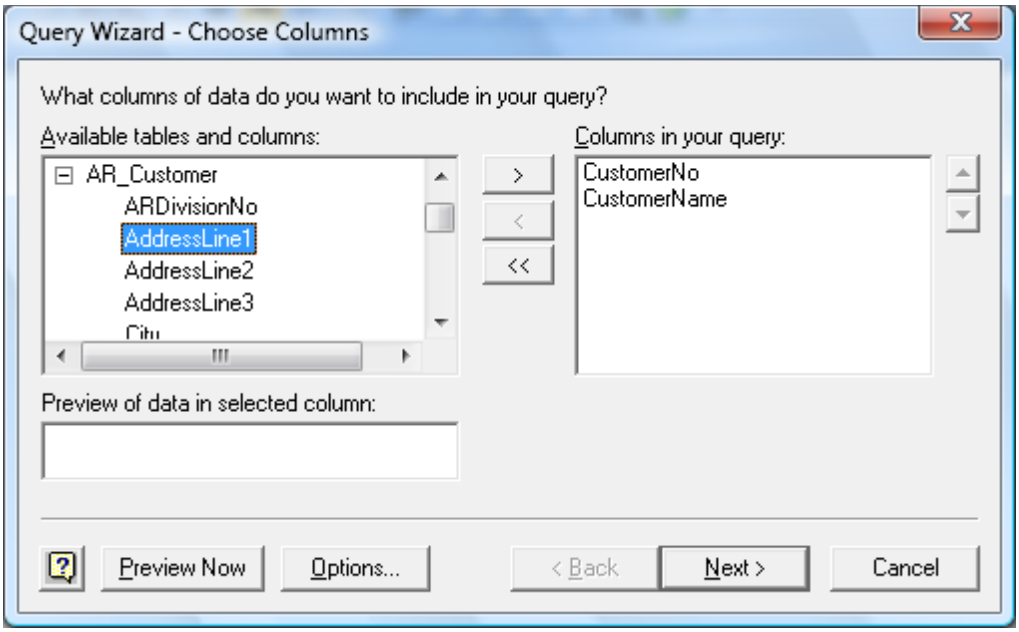
3. **Specify a Source To Retrieve Data From, and Then Start Using Microsoft Query** - For example, if you want to insert database information, display the Database toolbar, click Insert Database, click Get Data, and then click MS Query.

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.

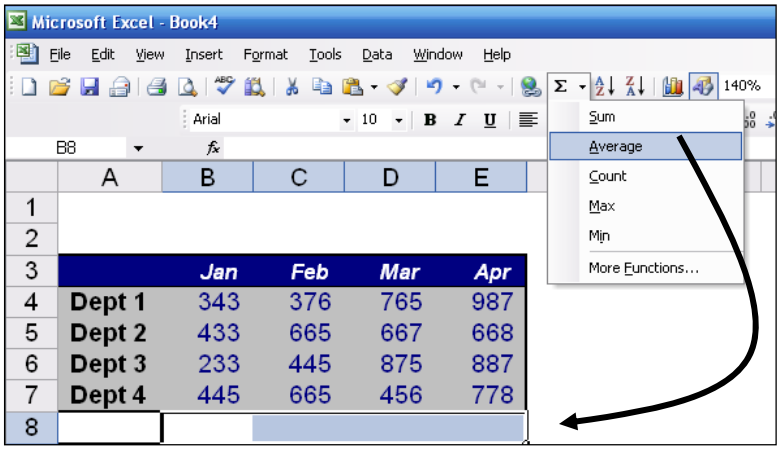


Upon the selection of the desired database a list of tables will be presented. Choose the desired tables, and select the desired data fields to be imported. You will then have the option to filter and sort the data before it is imported. Finally you will be given the option to save the query so that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

	A	B	C	D	E	F	G
1	**CustomerNo**	**CustomerName**	**State**	**CurrentBalance**	**AvgDaysOverDue**		
2	ABF	American Business Futures	WI	5732.36	0		
3	AVNET	Avnet Processing Corp	WI	7377.37	52		
4	BRESLIN	Breslin Parts Supply	WI	11828.26	0		
5	HILLSB	Hillsboro Service Center	WI	2902.86	0		
6	RSSUPPL	R & S Supply Corp.	WI	7086.74	0		
7	SHEPARD	Shepard Motorworks	WI	513339.95	0		
8	ALLENAP	Allen's Appliance Repair	CA	645.51	0		
9	AMERCON	American Concrete Service	CA	13743.8	57		
10	ATOZ	A To Z Carpet Supply	CA	8732.4	37		
11	AUTOCR	Autocraft Accessories	CA	23954.02	0		
12	BAYPYRO	Bay Pyrotronics Corp.	CA	16644.94	106		
13	CAPRI	Capri Sailing Ships	CA	56169.33	31		
14	CUSTOM	Custom Craft Products	CA	19446.43	0		
15	GREALAR	Greater Alarm Company	CA	825.5	0		
16	JELLCO	Jellco Packing	CA	5055.91	0		
17	ORANGE	Orange Door & Window Co.	CA	263.37	0		
18							
19							
20							

The AutoSum Drop-Down

Beginning in Excel 2003 and later, the AutoSum tool includes a drop-down box that allows the user to apply other formulas such as “Averaging”, “Counting”, “Minimum”, “Maximum”, Etc. The AutoSum tool stills works the same way as described in the five steps above, but with more power in that the user can control the type of formula applied to the data. This drop down functionality is shown in the screen below.

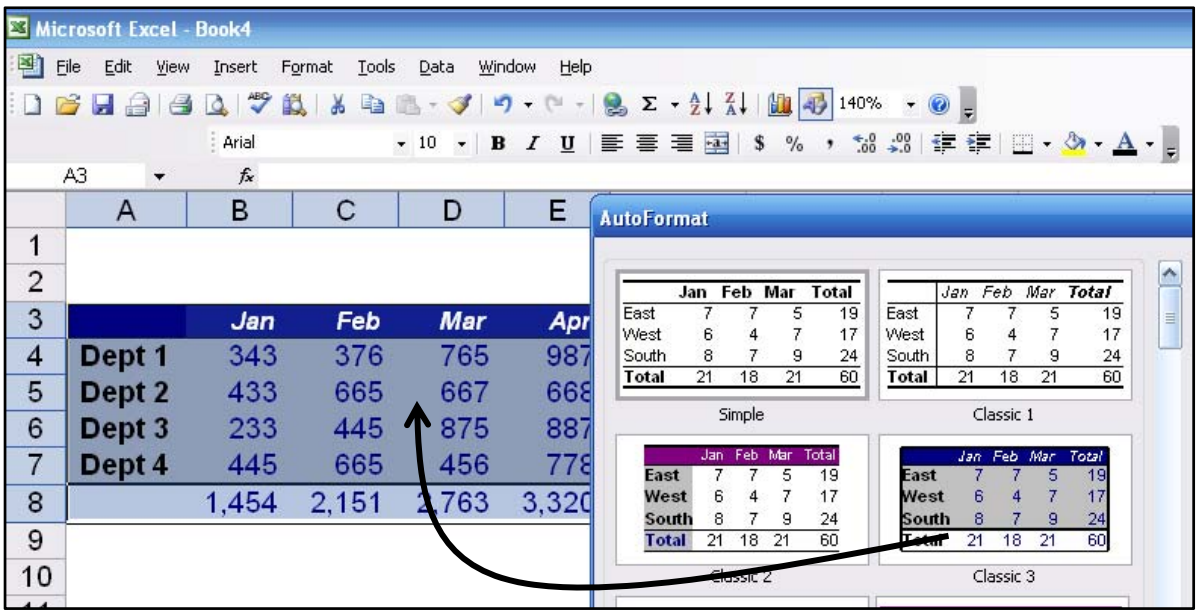


The AutoSum Drop-Down Functionality

Tip - AutoSum applies the same number format as the first cell in the range to be summed (unless you applied a different number format to the cell that will hold the SUM formula)

The AutoFormat Tool in Excel 2003

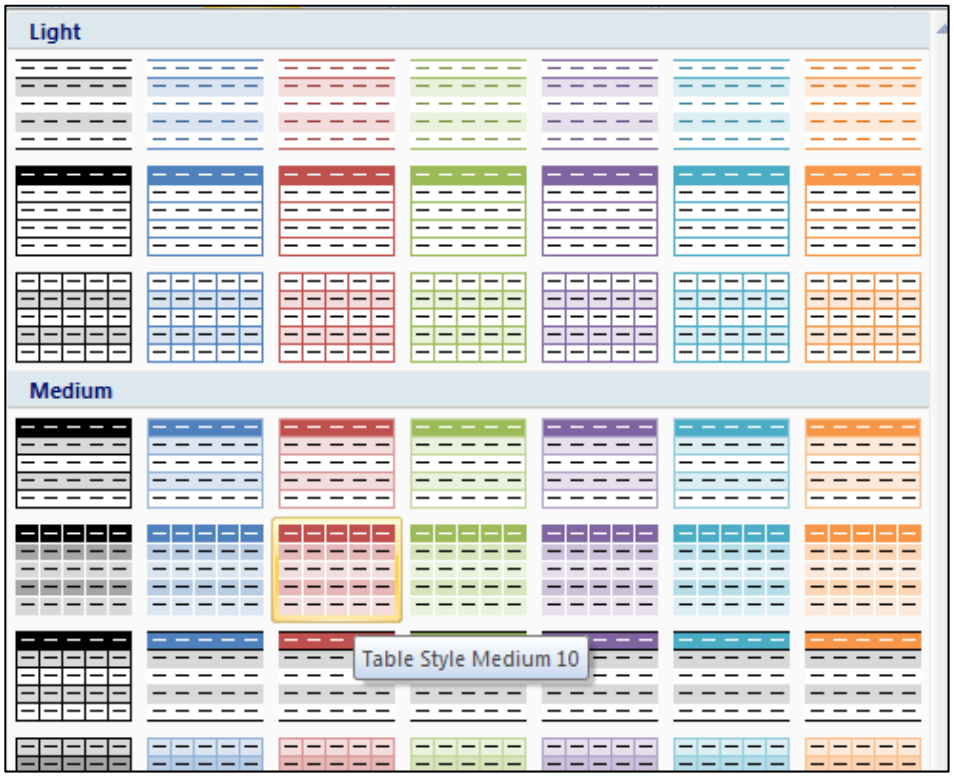
In Excel 2003 and earlier versions, Excel offers an AutoFormat feature that applies a format automatically to a range of data. To use this feature, start by placing the cursor in any single cell within the contiguous data range to be formatted, or highlight the entire range to be formatted. Next select AutoFormat from the Tools menu and excel will display a selection of 16 predefined formats that you can use to automatically format your data.



The AutoFormat Tool in Excel 2003 and Earlier Versions

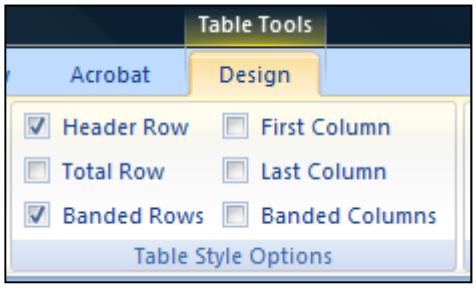
The AutoFormat Tool in Excel 2007

In Excel 2007 and later versions, this AutoFormat functionality has been improved and expanded to include a larger gallery of formats including better styles, table formats, conditional formats, cell formats and more. Examples of the 60 predefined default AutoFormats are shown in the screen below. The built-in tools allow the user to create additional custom defined formats.

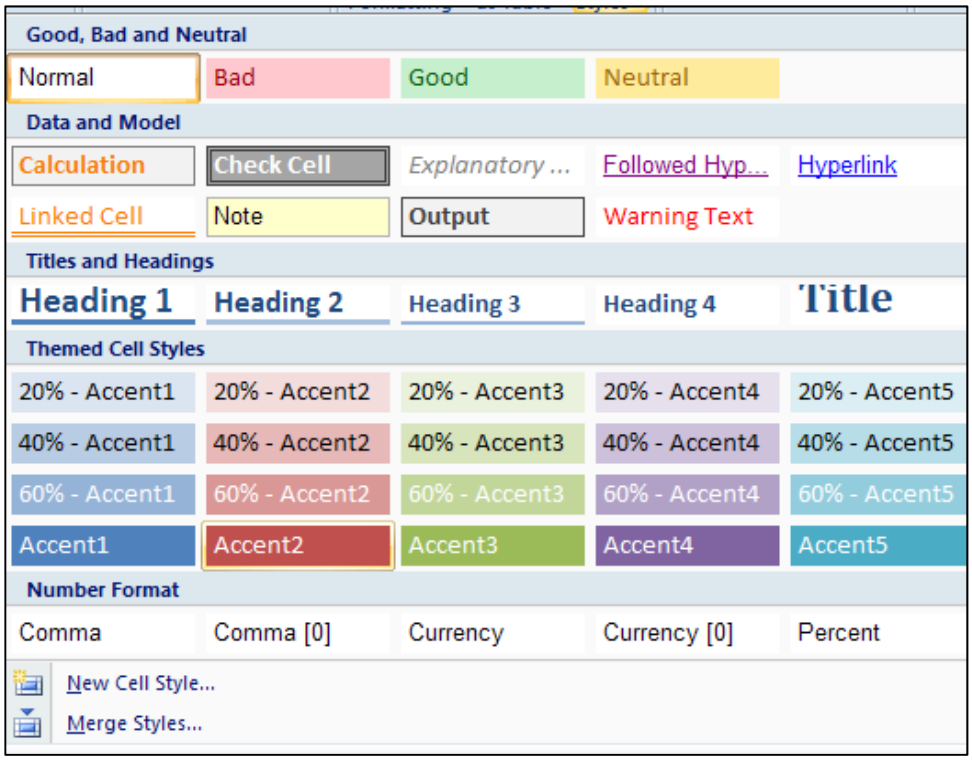


The Table Styles in Excel 2007 Replace the AutoFormat Capabilities in Excel 2003

In addition, the new Table Tools Ribbon shown below provides the user with the ability to control formatting by rows, columns, headers, and totals.



In addition, Excel 2007 has stronger style supports for individual cells. As shown in the screen below there are 59 pre-defined cell formats and you can also create your own cell styles for easy application in the future.

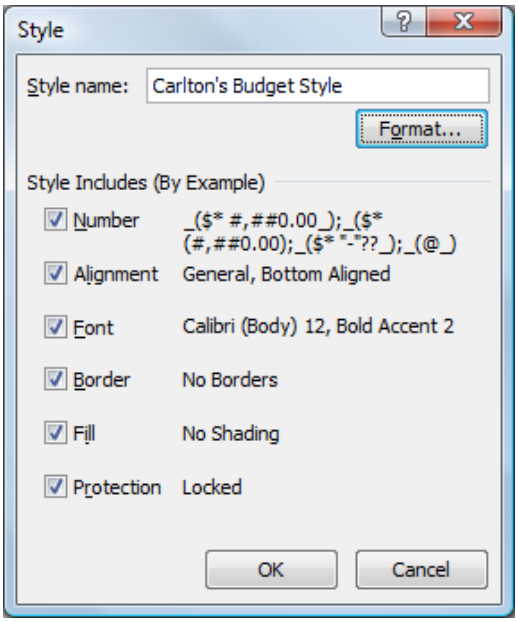


Cell Styles in Excel 2007

Styles enable users to create and 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.

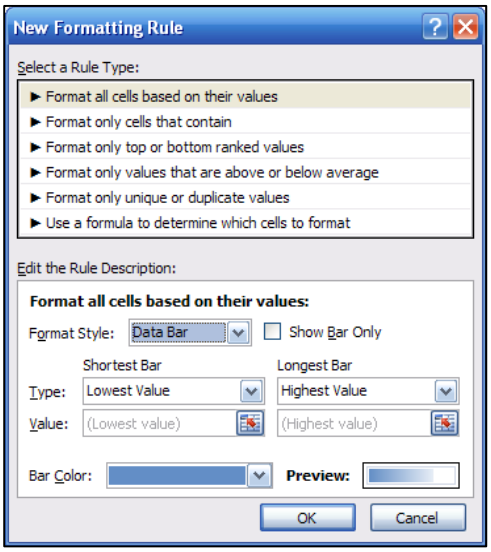
The custom cell format design dialog box is shown to the right.

Tip - To prevent anyone from making changes to specific cells, you can also use a cell style that locks cells.

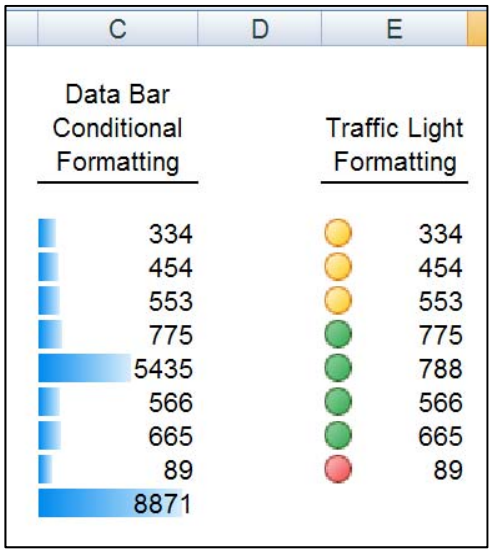


The Conditional Format Tool in Excel 2007

Excel 2003 provides the ability to format cells based on conditions. For example a number might be displayed in red if it is a negative number. However, Excel 2007 and later has expanded this conditional formatting capability with "Data Bar" and "Traffic Light" reporting, as well as an improved menu for applying conditional formats. Presented below is the "Data "Bar" dialog box and an example of "Data Bar" and "Traffic Light" formatting.



The Conditional Formatting Dialog Box



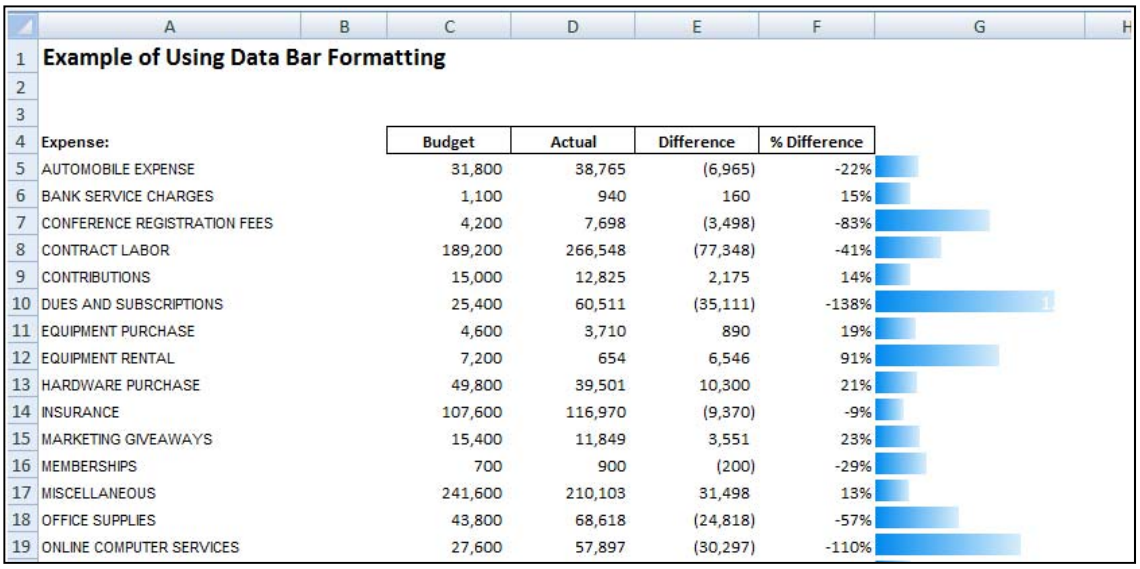
Examples of Conditional Formatting

The "Data Bar" formatting tool enables you to easily identify those numbers that are significantly larger or smaller than the rest of the numbers in a column or range.

Data Bar Example - In the example below, actual data is compared to budget and the difference is shown in column E. Column F calculates the percentage difference from budget. Not visible to you are the Absolute (ie: "=ABS(F5)") formulas in column F which then convert the percentage differences in Column E to positive numbers. When analyzing data at this point, we are not concerned about whether the number is over or under budget, rather we are concerned about those items that are close to budget rather than way under or over budgeted amounts.

The "Data Bar" Format is then applied to the absolute differences ion Column F. As shown below, the larger bars indicate those lines items that are significantly over or under budget – these items need the most attention. Notice that this approach enables the user to concentrate on percentage out of budget rather than dollar amount out of budget. For example, *Conference Registration Fees* (row 7) are only $3,498 out of budget while *Miscellaneous* (row 17) is $31,498 out of budget. Obviously *Miscellaneous* is a larger

amount, but based on percentages the *Conference Registration Fees* are 84% out of budget compared to only a 13% variance for *Miscellaneous*. The "Data Bar" formatting helps the reader identify those items significantly out of budget, even if the amount is a smaller amount.

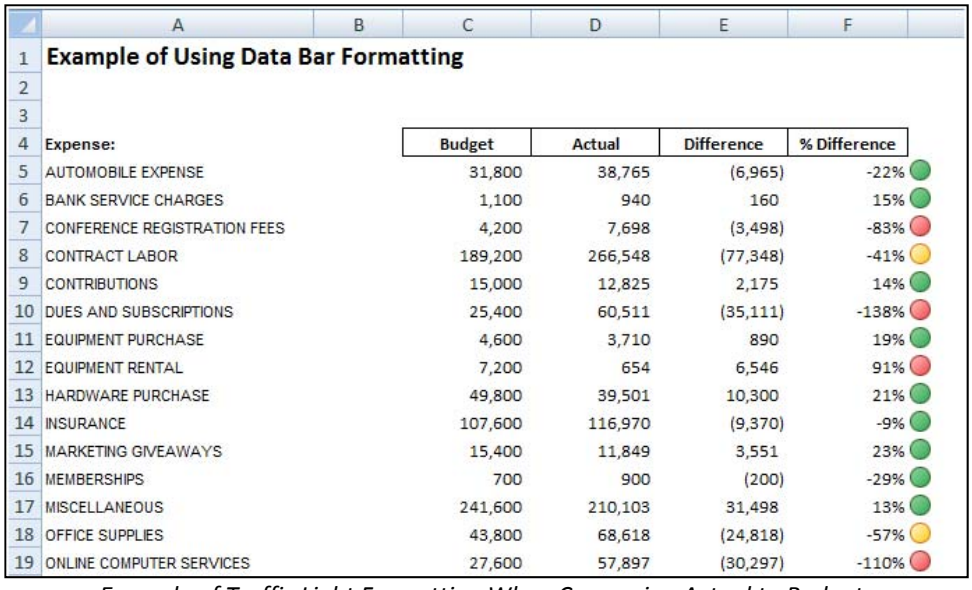


Example of Using Data Bar Formatting

Expense:	Budget	Actual	Difference	% Difference
AUTOMOBILE EXPENSE	31,800	38,765	(6,965)	-22%
BANK SERVICE CHARGES	1,100	940	160	15%
CONFERENCE REGISTRATION FEES	4,200	7,698	(3,498)	-83%
CONTRACT LABOR	189,200	266,548	(77,348)	-41%
CONTRIBUTIONS	15,000	12,825	2,175	14%
DUES AND SUBSCRIPTIONS	25,400	60,511	(35,111)	-138%
EQUIPMENT PURCHASE	4,600	3,710	890	19%
EQUIPMENT RENTAL	7,200	654	6,546	91%
HARDWARE PURCHASE	49,800	39,501	10,300	21%
INSURANCE	107,600	116,970	(9,370)	-9%
MARKETING GIVEAWAYS	15,400	11,849	3,551	23%
MEMBERSHIPS	700	900	(200)	-29%
MISCELLANEOUS	241,600	210,103	31,498	13%
OFFICE SUPPLIES	43,800	68,618	(24,818)	-57%
ONLINE COMPUTER SERVICES	27,600	57,897	(30,297)	-110%

Example of Data Bar Formatting When Comparing Actual to Budgets

Similarly "Traffic Light" reporting allows you to create formats based on formulas to help identify items requiring attention. In the example below we have created a rule to display a green light if actual is with 33% of budget; a yellow light if actual is from 33% to 67% within budget, and a red light if actual exceeds the budget amount by more than 67%.



Example of Using Data Bar Formatting

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CONTRACT LABOR	189,200	266,548	(77,348)	-41%
CONTRIBUTIONS	15,000	12,825	2,175	14%
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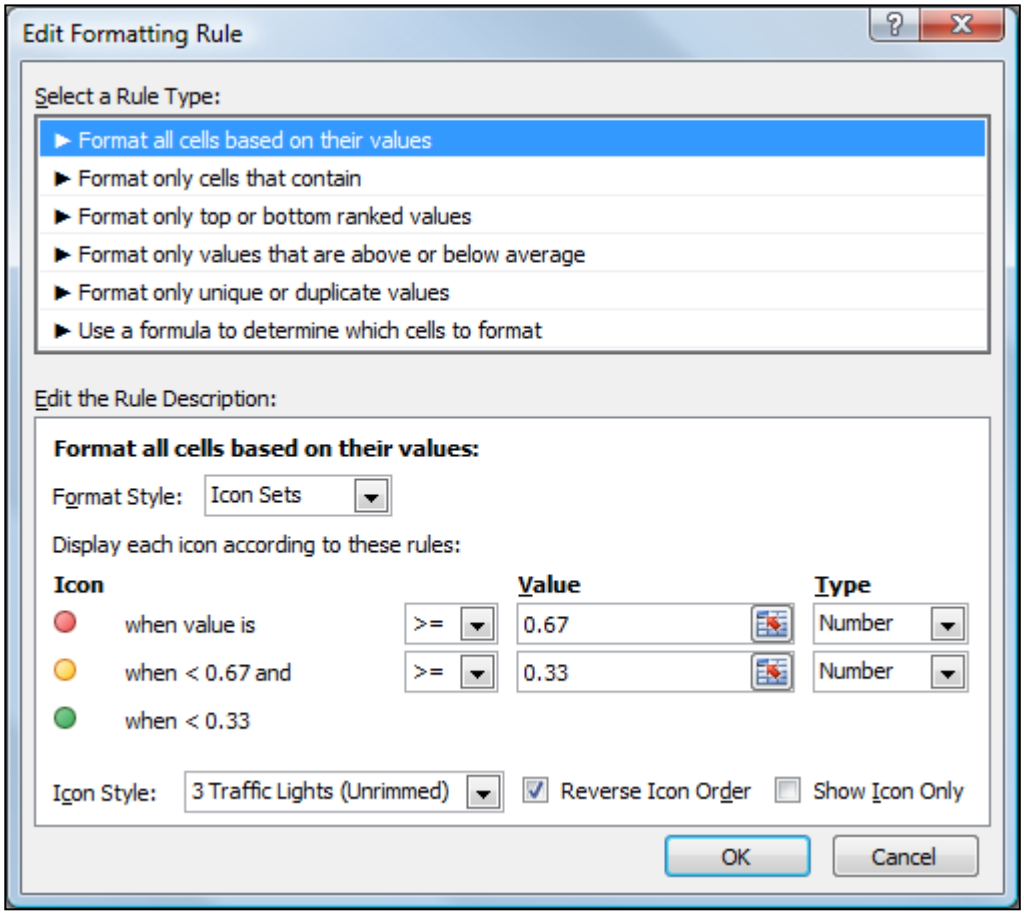
MEMBERSHIPS	700	900	(200)	-29%
MISCELLANEOUS	241,600	210,103	31,498	13%
OFFICE SUPPLIES	43,800	68,618	(24,818)	-57%
ONLINE COMPUTER SERVICES	27,600	57,897	(30,297)	-110%

Example of Traffic Light Formatting When Comparing Actual to Budgets

There are thousands of different ways in which these conditional formats can be applied – limited only by the user's imagination. To help you understand this power, presented below are the rule settings used to create the "Traffic Light" report shown above.



The Conditional Formatting Dialog Box for Managing Traffic Light Rules

Other enhancements to Excel 2007 include new "Top/Bottom" tools for displaying the top or bottom values in a range; "Highlight" tools for displaying duplicates, equivalents, conditional dates, and other types of data; and "Color Scale" tools for identifying specific data by color.

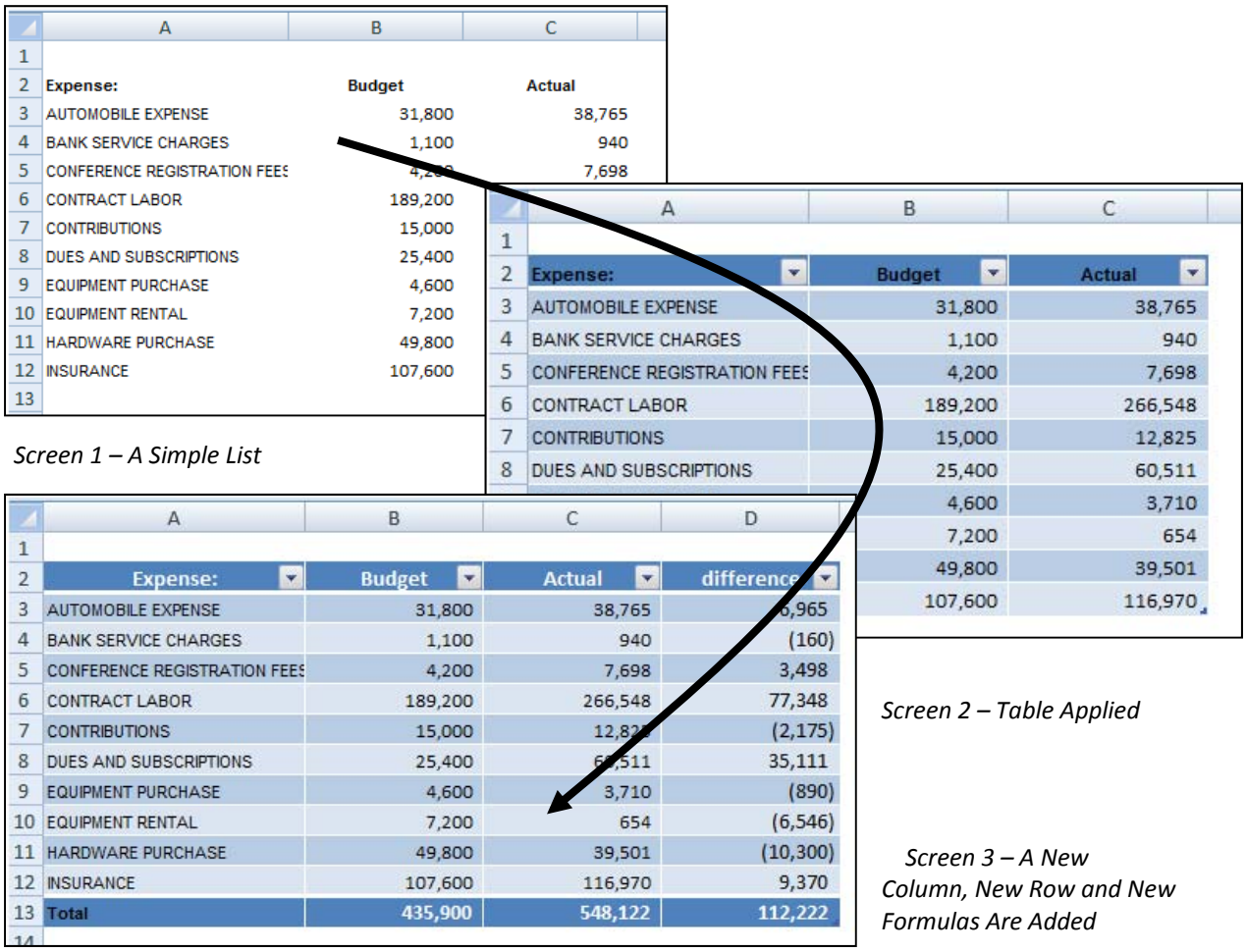
Managing Tables in Excel 2007

Excel 2007 and later editions introduce the concept of a "Table" (Not be confused with data tables, pivot tables or what-if analysis tables). Tables are similar to the "Lists" found in Excel 2003, but offer new functionality. To create a "Table" simply highlight a range and "insert a table" – the resulting range then takes on new features such as:

1. Apply formats from a gallery of format styles.
2. Headers automatically have drop down filter buttons.

3. Apply banded row formatting.
4. Expand the table's columns merely by typing in a new column heading.
5. Expand the table's rows merely by typing the Tab Key on the last row.
6. Insert new columns and headers are
7. Drop down functions appear at the bottom of each column.
8. Insert Sum Functions and other functions at the bottom of the tables
9. Publish the table to a server running Microsoft Windows SharePoint Services 3.0

The three screens below show the progression of creating a table, starting with a simple list of data in screen 1, followed by the application of formatting, headers, and drop down filter buttons in screen 2, and the insertion of a new column and total row in screen 3. What is difficult to see in these pictures is that Excel automatically expanded the table when the Difference column was added including the automatic application of new formatting in column D. Additionally, when the new formula was typed in cell D3, Excel automatically copied that formula to the cells below. This functionality makes working with tables faster and easier in many cases.



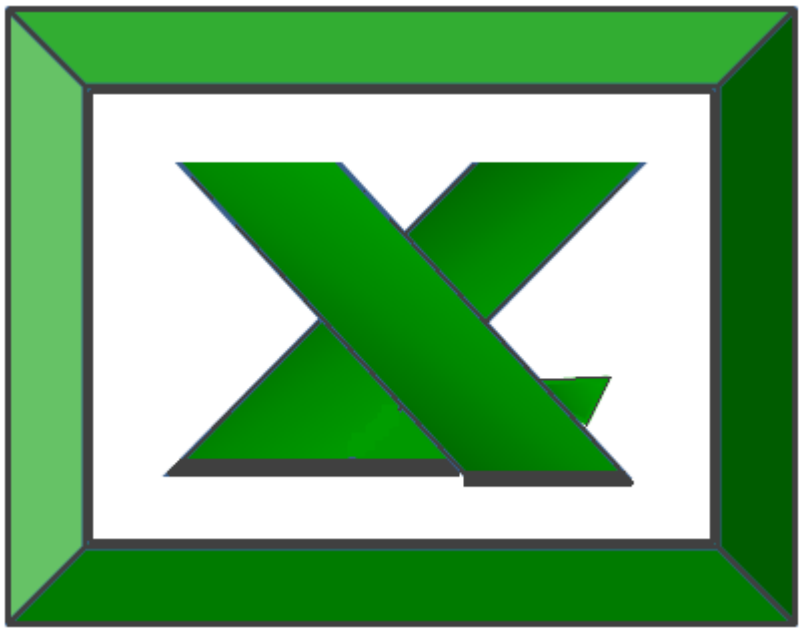
	A	B	C
1			
2	**Expense:**	**Budget**	**Actual**
3	AUTOMOBILE EXPENSE	31,800	38,765
4	BANK SERVICE CHARGES	1,100	940
5	CONFERENCE REGISTRATION FEES	4,200	7,698
6	CONTRACT LABOR	189,200	266,548
7	CONTRIBUTIONS	15,000	12,825
8	DUES AND SUBSCRIPTIONS	25,400	60,511
9	EQUIPMENT PURCHASE	4,600	3,710
10	EQUIPMENT RENTAL	7,200	654
11	HARDWARE PURCHASE	49,800	39,501
12	INSURANCE	107,600	116,970
13			

Screen 1 – A Simple List

	A	B	C	D
1				
2	**Expense:**	**Budget**	**Actual**	**difference**
3	AUTOMOBILE EXPENSE	31,800	38,765	6,965
4	BANK SERVICE CHARGES	1,100	940	(160)
5	CONFERENCE REGISTRATION FEES	4,200	7,698	3,498
6	CONTRACT LABOR	189,200	266,548	77,348
7	CONTRIBUTIONS	15,000	12,825	(2,175)
8	DUES AND SUBSCRIPTIONS	25,400	60,511	35,111
9	EQUIPMENT PURCHASE	4,600	3,710	(890)
10	EQUIPMENT RENTAL	7,200	654	(6,546)
11	HARDWARE PURCHASE	49,800	39,501	(10,300)
12	INSURANCE	107,600	116,970	9,370
13	**Total**	**435,900**	**548,122**	**112,222**
14				

Screen 2 – Table Applied

Screen 3 – A New Column, New Row and New Formulas Are Added



Excel Intermediate

EXAMPLE Case Studies

Amortization Schedule Case Study

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 $75,000 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.

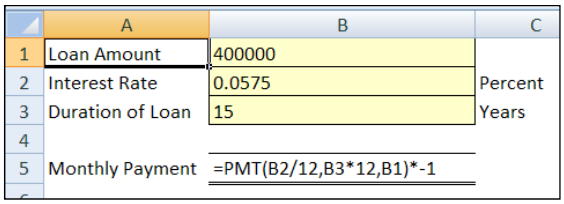
4. Create another copy of the amortization and adjust the principle payments by $15,000 annually to obtain an answer for Doug.

This Case Study Covers the following Excel Features and Concepts:

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

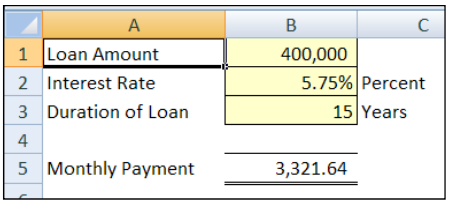
Steps:

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	

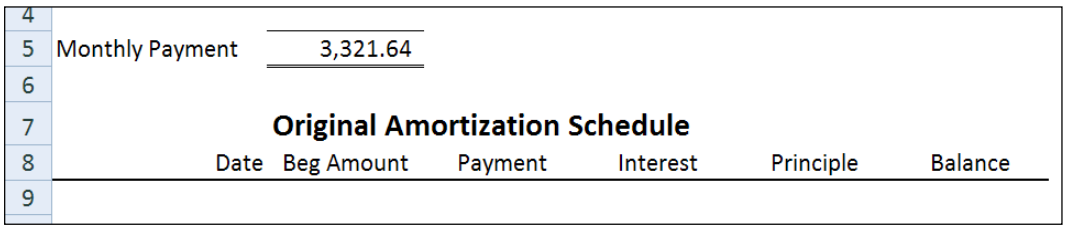
Formulas



	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	3,321.64				
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					

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

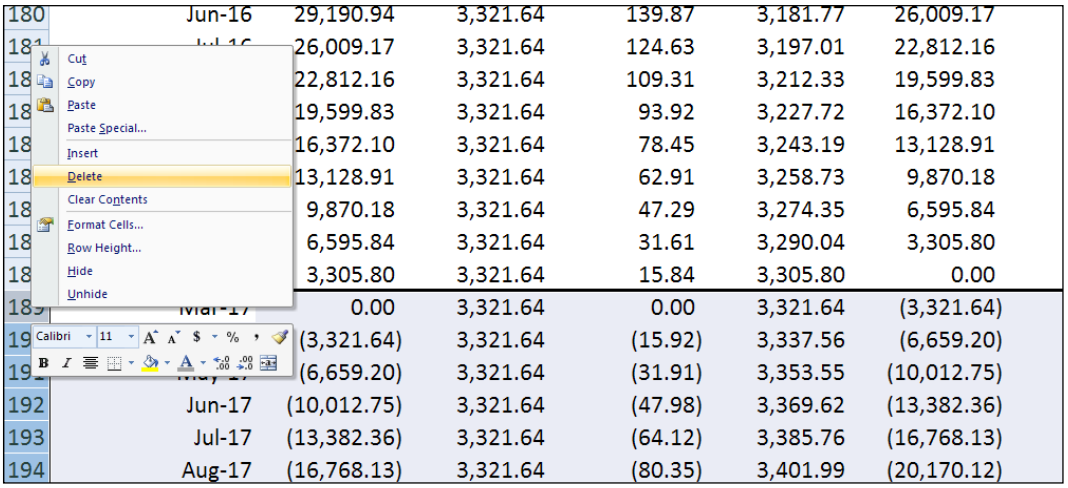
5. Highlight the newly entered formulas on the second row and drag them down several hundred rows to complete the Amortization schedule.

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		1,438.96	391,468.53
Sep-02	391,468.53	3,321.64		1,445.85	390,022.67
Oct-02	390,022.67	3,321.64		1,452.78	388,569.89
Nov-02					

Copy Row 2 Down

6. 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.

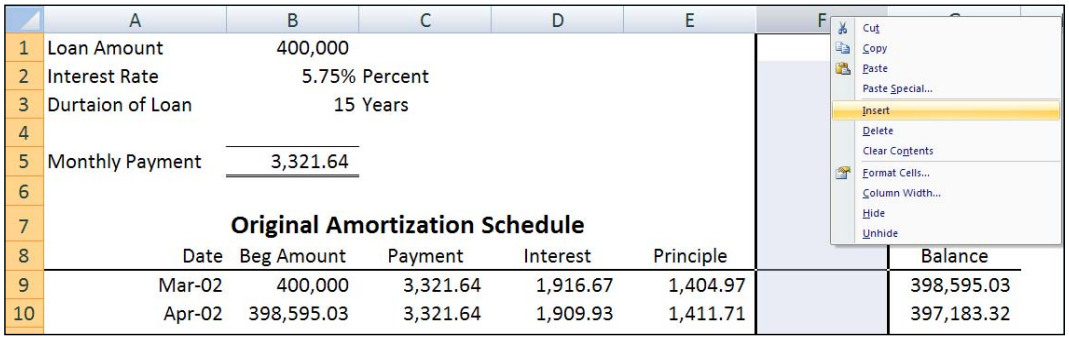


180	Jun-16	29,190.94	3,321.64	139.87	3,181.77	26,009.17
181		26,009.17	3,321.64	124.63	3,197.01	22,812.16
182		22,812.16	3,321.64	109.31	3,212.33	19,599.83
183		19,599.83	3,321.64	93.92	3,227.72	16,372.10
184		16,372.10	3,321.64	78.45	3,243.19	13,128.91
185		13,128.91	3,321.64	62.91	3,258.73	9,870.18
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		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)

7. 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	

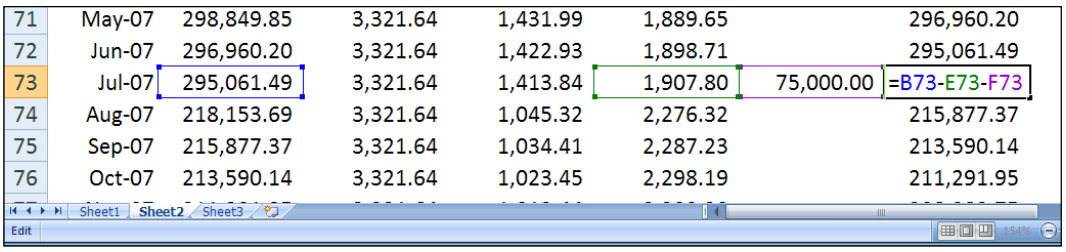
8. Select Sheet1 and copy the contents to Sheet2. Next copy Sheet1 and paste the Column Widths to Sheet2. Insert a new blank column before the ending balance column to accommodate additional principle payments.



	A	B	C	D	E	F	G
1	Loan Amount	400,000					
2	Interest Rate	5.75% Percent					
3	Durtaion 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

9. 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.

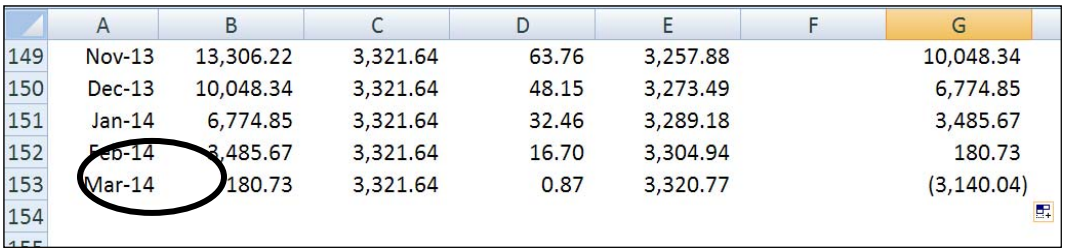


71	May-07	298,849.85	3,321.64	1,431.99	1,889.65		296,960.20
72	Jun-07	296,960.20	3,321.64	1,422.93	1,898.71		295,061.49
73	Jul-07	295,061.49	3,321.64	1,413.84	1,907.80	75,000.00	=B73-E73-F73
74	Aug-07	218,153.69	3,321.64	1,045.32	2,276.32		215,877.37
75	Sep-07	215,877.37	3,321.64	1,034.41	2,287.23		213,590.14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

Sheet1 Sheet2 Sheet3

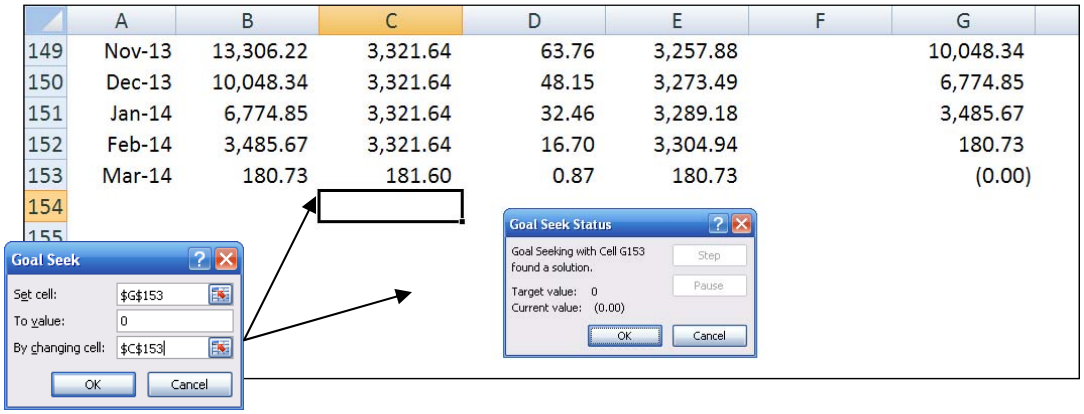
Edit

10. 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.

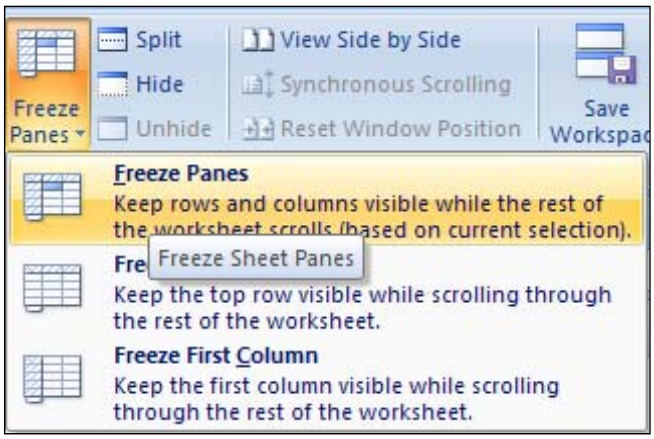
151	Jan-14	6,774.85	3,321.64	32.46	3,289.18		3,485.67
152	Feb-14	3,485.67	3,321.64	16.70	3,304.94		180.73
153	Mar-14	180.73	181.60	0.87	180.73		(0.00)
154	Totals			153,497.81	325,000.00	75,000.00	
155							
156	Total Interest Savings			44,397.45			
157							

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	Interest	Funds Removed	Balance	
9	1,916.67	1,404.97		398,595.03						

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	Interest	Funds 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

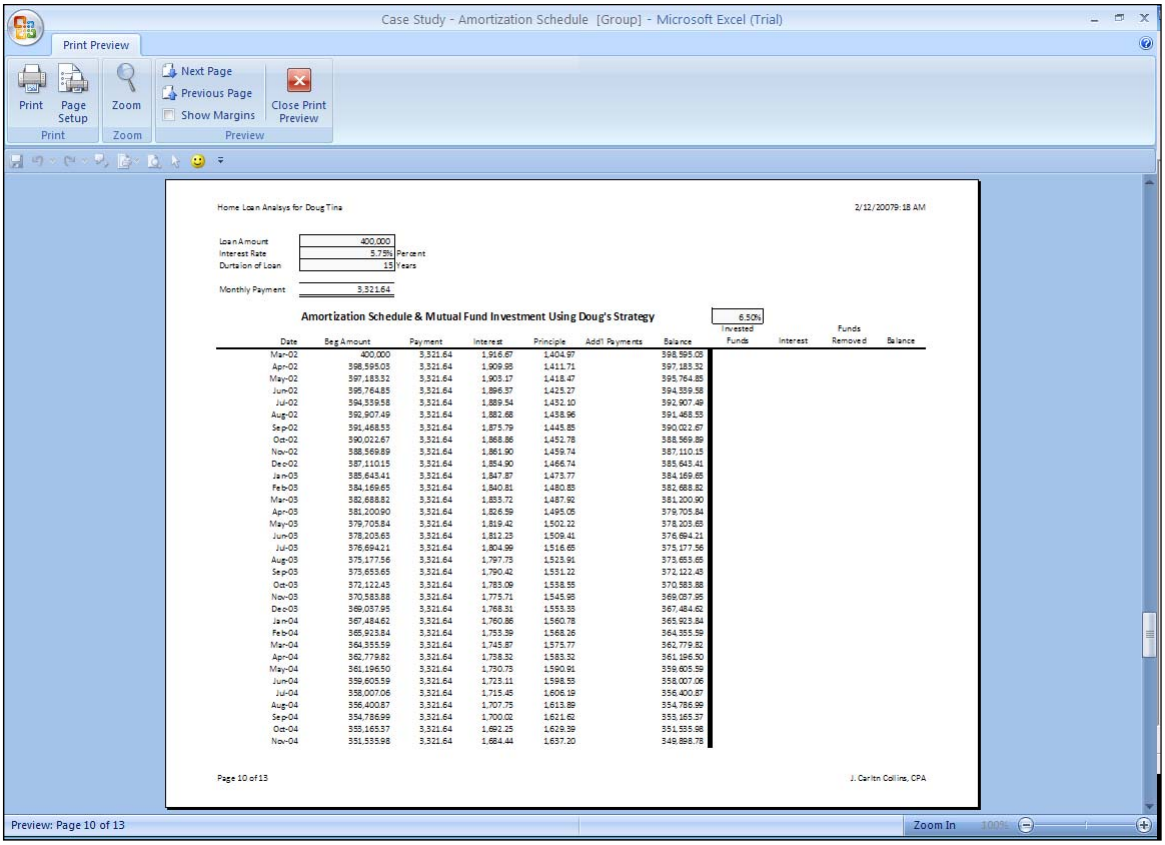
16. Copy the formulas down the page several hundred rows. Fill in the withdrawal of $15,000 each December beginning in 2007 and continuing until the mutual fund is empty. Insert formulas in the amortization schedule section of the worksheet to show that annual withdrawals of $15,000 in mutual funds are 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								

17. 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).

18. 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.



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.

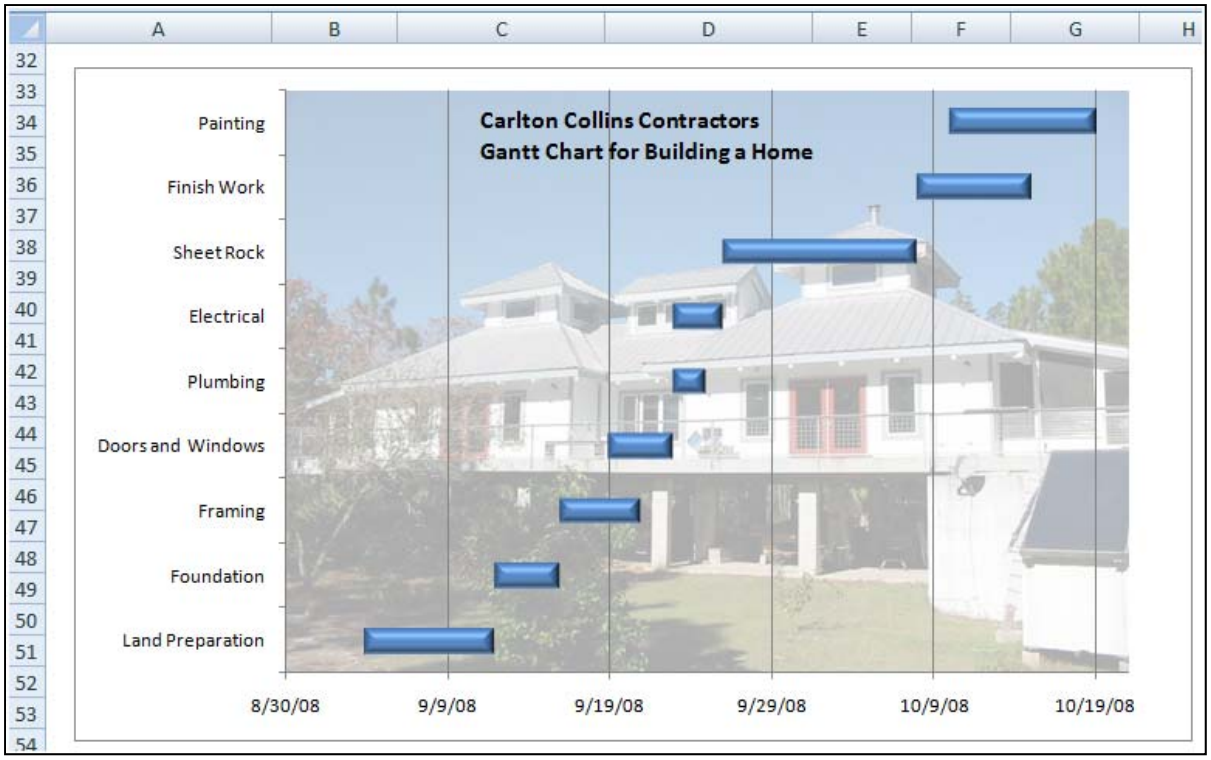
Trick Excel into Creating a Gantt Chart

Let's start by tricking Excel into creating a Gantt Chart. Of course Excel does not do Gantt charts, so we will apply clever tricks to achieve the desired affects. It's really not that hard and it works just as well in Excel 2003 as it does in Excel 2007. Start by preparing a simple list of tasks including start dates, duration of each task, and end dates (formulas in Excel can calculate the end dates). An example is shown below:

	A	B	C	D
1	**Trick Excel into Creating a Gantt Chart**			
2				
3				
4	**Tasks**	**Start Date**	**Duration (Days)**	**End Date**
5	Land Preparation	9/4/2008	8	9/12/2008
6	Foundation	9/12/2008	4	9/16/2008
7	Framing	9/16/2008	5	9/21/2008
8	Doors and Windows	9/19/2008	4	9/23/2008
9	Plumbing	9/23/2008	2	9/25/2008
10	Electrical	9/23/2008	3	9/26/2008
11	Sheet Rock	9/26/2008	12	10/8/2008
12	Finish Work	10/8/2008	7	10/15/2008
13	Painting	10/10/2008	9	10/19/2008

1. Start by creating a stacked bar chart
2. Remove the Data Series by right mouse clicking and choosing Select Data Source
3. Add a new Data Source Named Starting Date, and point to the range of start dates for the values
4. Add another new data source named Duration (Days), and point to the range of duration days for the values
5. Add Category Axis Labels and point to the Task names in Column A
6. Remove legend by selecting legend and pressing the Delete key
7. Click on the beginning series and set the Fill and Borders to None
8. Right mouse click on the task labels, choose format Axis, and check the Categories in Reverse Order box (if needed)
9. In two blank cells, write a formula referencing the start and end dates, convert these dates to numbers with formatting
10. Use the resulting numbers to set the scale of the Gantt Chart (perhaps use a slightly larger range of dates)
11. Right mouse click on the date range, set the minimum and maximums to fixed using the numbers acquired in the above step
12. Format the date range to show a short date
13. Format the remaining data bars to display a 3-D bevel
14. For added touch, search Google images for a nice picture of a house, save it to your hard drive.
15. Set the background plot area to picture, and wash out the picture enough so that the chart is still readable.
16. Add a title or text boxes as needed to complete the description of the Gantt Chart

The resulting Gantt chart is shown below. At this point, changing any of the start dates or duration dates will automatically update the Gantt chart.



Combination Chart

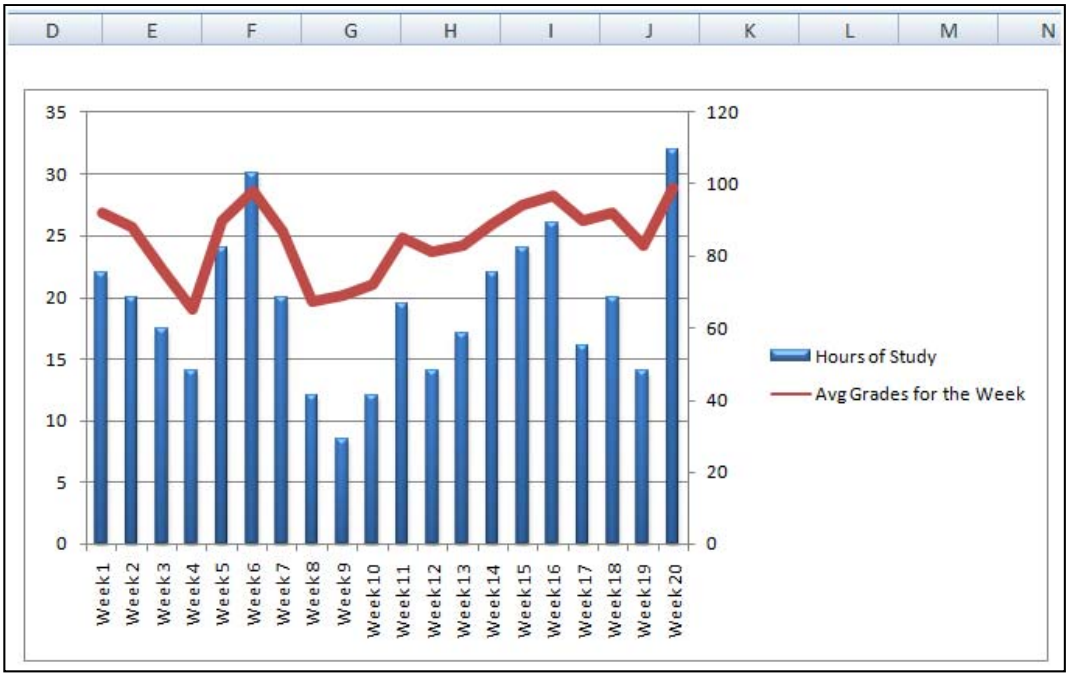
A combination chart is used to show one chart on top of another chart, using the same scale by percentage. This allows the reader to better study the data to determine whether relationships, if any, exist between the two sets of data. For example, consider the simple study hours and resulting grade information shown to the right for a new college student – we will call him Austin.

We have compiled a worksheet showing the number of hours in which Austin studied each week, and the average scores he achieved on his homework, quizzes, test and exams.

1. Start by creating a line chart from your entire data range
2. Rescale the top line by right clicking and change the series option to use a secondary axis
3. Note the ranges on each side of the chart
4. Next right mouse click one of the lines and choose Change Series Chart type, and choose a column chart format
5. Now apply a chart format and study your date for any useful relationships

Combination Charts

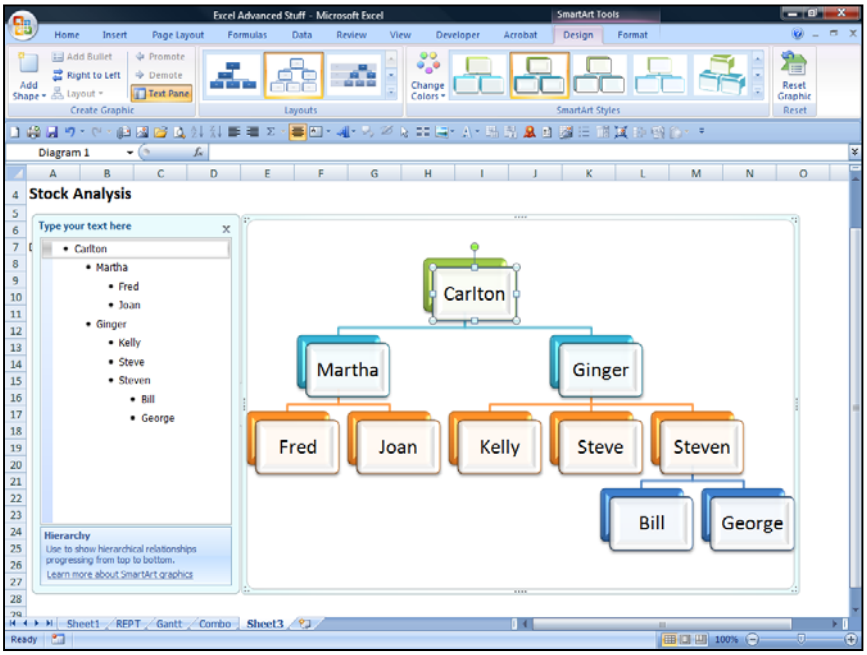
Week	Hours of Study	Avg Grades for the Week
Week 1	22	92
Week 2	20	88
Week 3	17.5	76
Week 4	14	65
Week 5	24	90
Week 6	30	98
Week 7	20	87
Week 8	12	67
Week 9	8.5	69
Week 10	12	72
Week 11	19.5	85
Week 12	14	81
Week 13	17	83
Week 14	22	89
Week 15	24	94
Week 16	26	97
Week 17	16	90
Week 18	20	92
Week 19	14	83
Week 20	32	99



As we can see by the resulting combination chart, approximately 26 hours of study are required each week in order to achieve an average grade of 90 or above, and approximately 20 to 22 hours of study are required each week to achieve a B average above 80. In our next case study we might want to analyze whether the amount of money his parents send to him each week affects the number of hours of study he puts forth each week.

Creating an Organization Chart

Next we will create an organizational chart using the SmartArt capabilities in Excel 2007. Excel 2003 offers a similar tool, but not as pretty. Start by choosing SmartArt and point to the desired chart format.



Portfolio Case Study

The Situation - Your individual client (Mr. Slade) has been very successful in his business dealings, and has accumulated $1 million in cash and investments. Previously Mr. Slade has invested these funds rather haphazardly, in a potpourri of investments without much strategy or thought. Presented below is a summary of his funds as they are currently invested:

Cash	275,000
Speculative Stocks	400,000
Mutual Funds	325,000

In speaking with Mr. Slade, with your help he determines that he would like to spread his investments around in a variety of investments in an effort to diversify his portfolio. Together, you come up with the following criteria for Mr. Slade's investment strategy:

1. Mr. Slade wants to spread his investments around, including blue chip stocks, growth stocks, speculation stocks, cash, real estate and mutual funds.
2. Mr. Slade needs between $100,000 and $150,000 in liquid cash.
3. Mr. Slade wants to carry about 25% to 35% of the portfolio in blue chip stocks.
4. Mr. Slade would like to no more than 20% of the portfolio invested in speculative stocks.
5. Mr. Slade wants no more than 20% of his investments in mutual funds.

The next step in this process is to estimate the expected return on investment (ROI) for each of investments. Some of these numbers are easy to come by and some are a little more difficult. For example, it is known that the checking account pays 2.2% interest, and of course there is no growth. Mr. Slade's speculative stock investments have grown at an

average of 12%, with no dividend payments while his mutual funds have grown 7% per year. A little research reveals that blue chip stocks grow on average 6.0% per year, and pay about 4% in dividends annually, and growth stocks grow at about 8% per year. The real estate market has shown steady growth of 12% per year, but there is an annual cost of about 3.5% for taxes, insurance and maintenance.

Mr. Slade wants you to help him figure out which portfolio mix maximizes his earnings, while obeying his stated constraints. Thereafter, Mr. Slade wants you to set up a organized approach for tracking these investments in the future.

The Big Picture - Your Goals Are:

1. Install the Solver tool in Excel.

2. Use Solver to calculate the best mix of investments that also obeys Mr. Slade's stated investment goals and criteria.

3. Set up an Excel worksheet that organizes and tracks these investments.

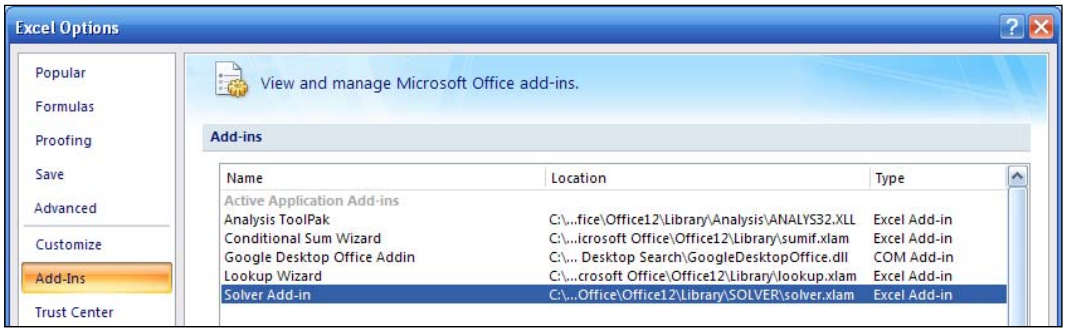
4. Create web queries that will import stock prices and mutual fund information directly into Excel.

This Case Study Covers the following Excel Features and Concepts:

1. Add-ins
2. Solver Overview
3. Solver Worksheet
4. Solver Constraints
5. Solver Targets
6. Solver Reporting
7. Portfolio Design
8. Web Queries
9. Web Query Parameters
10. Editing Web Queries
11. Refreshing Web Queries
12. Subtotaling
13. Outlining
14. Tables
15. PivotTables
16. Format Gallery

Steps:

1. To use the Solver Add-in, you need to load it first. To do this, Click the Microsoft Office Button, and then click Excel Options. Click Add-Ins, and then in the Manage box, select Excel Add-ins. Click Go. In the Add-Ins available box, select the Solver Add-in check box, and then click OK. After you load the Solver Add-in, the Solver command is available in the Analysis group on the Data tab.



2. Set up the "Investment Mix" worksheet, starting with the row and column labels shown below.

	A	B	C	D	E	F	G	H	I	J
1	Portfolio Case Study - Using Solver									
2										
3										
4				Annual Earnings Rate	Annual Growth Rate	Amount of Investment	Percentage Investment	Annual Earnings Rate	Annual Growth Rate	Projected Total
5		Blue Chip Stocks								
6		Growth Stocks								
7		Speculation Stocks								
8		Checking Account								
9		Real Estate								
10		Mutual Fund								
11										

3. Enter the percentage returns for each investment, including earnings and growth rate. Note that the earnings rate for real estate is a negative number because the owner must pay money annually for taxes, insurance and maintenance.

	A	B	C	D	E	F	G	H	I	J
1	Portfolio Case Study - Using Solver									
2										
3										
4				Annual Earnings Rate	Annual Growth Rate	Amount of Investment	Percentage Investment	Annual Earnings Rate	Annual Growth Rate	Projected Total
5		Blue Chip Stocks		4%	6%					
6		Growth Stocks		0%	8%					
7		Speculation Stocks		0%	12%					
8		Checking Account		2.20%	0					
9		Real Estate		-3.50%	12%					
10		Mutual Fund		0	7%					
11										

4. Enter an amount of funds for each investment, the total of which sums to the $1 million that Mr. Slade owns. **It does not matter which amounts you enter here**; these are the amounts that will eventually be adjusted by Solver. (For example, you could enter $1 for the first five investments and $999,995 for the last investment if you wanted to.)

		Annual Earnings Rate	Annual Growth Rate	Amount of Investment	Percentage Investment	Annual Earnings Rate	Annual Growth Rate	Projected Total
4								
5	Blue Chip Stocks	4%	6%	150000				
6	Growth Stocks	0%	8%	150000				
7	Speculation Stocks	0%	12%	150000				
8	Checking Account	2.20%	0	150000				
9	Real Estate	-3.50%	12%	150000				
10	Mutual Fund	0	7%	250000				
11				1000000				

5. Enter formulas to calculate the percentage of each investment as a percentage to the total investments. This is best accomplished by typing in the top formula, applying absolute references to the denominator, and double clicking the fill handle to copy the formula down.

		Annual Earnings Rate	Annual Growth Rate	Amount of Investment	Percentage Investment	Annual Earnings Rate	Annual Growth Rate	Projected Total
4								
5	Blue Chip Stocks	4%	6%	150000	15%			
6	Growth Stocks	0%	8%	150000	15%			
7	Speculation Stocks	0%	12%	150000	15%			
8	Checking Account	2.20%	0	150000	15%			
9	Real Estate	-3.50%	12%	150000	15%			
10	Mutual Fund	0	7%	250000	25%			
11				1000000	100%			

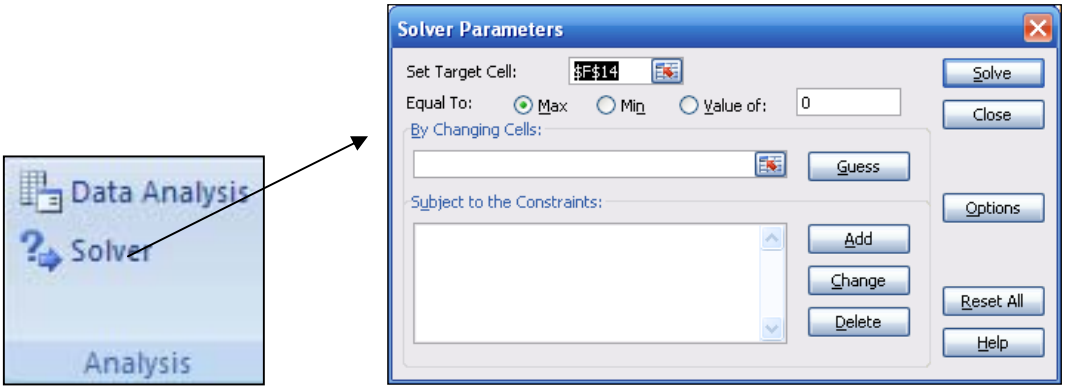
6. Enter the remaining formulas to complete the schedule. These formulas are straight forward and they are best accomplished by typing the formula once, applying the proper absolute column reference to the “Amount of Investment” cell reference, and then copying this formula down and across. The final column simply sums the earnings and growth to derive a total return on investment.

		Annual Earnings Rate	Annual Growth Rate	Amount of Investment	Percentage Investment	Annual Earnings Rate	Annual Growth Rate	Projected Total
4								
5	Blue Chip Stocks	4%	6%	150,000	15%	6,000	9,000	15,000
6	Growth Stocks	0%	8%	150,000	15%	-	12,000	12,000
7	Speculation Stocks	0%	12%	150,000	15%	-	18,000	18,000
8	Checking Account	2.20%	0	150,000	15%	3,300	-	3,300
9	Real Estate	-3.50%	12%	150,000	15%	(5,250)	18,000	12,750
10	Mutual Fund	0	7%	250,000	25%	-	17,500	17,500
11				1,000,000	100%	4,050	74,500	78,550

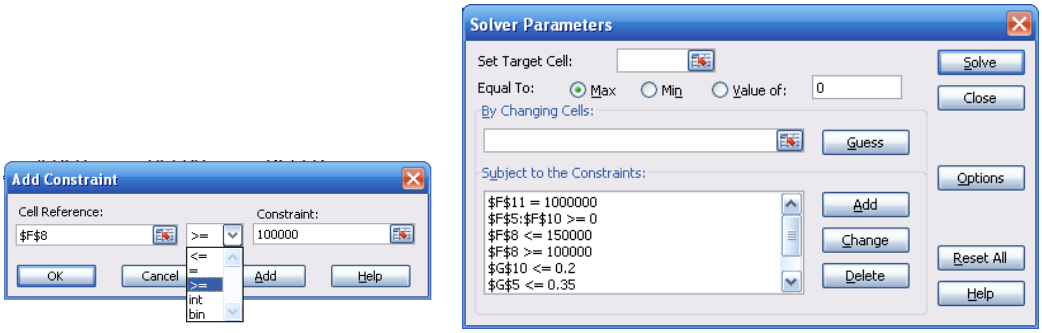
7. Presented below is an auditing view of this schedule with all data and formulas displayed so that you can check your work. This computation represents the Solver Problem which Solver with solve.

		Annual Earnings Rate	Annual Growth Rate	Amount of Investment	Percentage Investment	Annual Earnings Rate	Annual Growth Rate	Projected Total
5	Blue Chip Stocks	0.04	0.06	150000	=F5/$F$11	=D5*$F5	=E5*$F5	=I5+H5
6	Growth Stocks	0	0.08	150000	=F6/$F$11	=D6*$F6	=E6*$F6	=I6+H6
7	Speculation Stocks	0	0.12	150000	=F7/$F$11	=D7*$F7	=E7*$F7	=I7+H7
8	Checking Account	0.022	0	150000	=F8/$F$11	=D8*$F8	=E8*$F8	=I8+H8
9	Real Estate	-0.035	0.12	150000	=F9/$F$11	=D9*$F9	=E9*$F9	=I9+H9
10	Mutual Fund	0	0.07	250000	=F10/$F$11	=D10*$F10	=E10*$F10	=I10+H10
11				=SUM(F5:F10)	=F11/$F$11	=SUM(H5:H10)	=SUM(I5:I10)	=SUM(J5:J10)
12								

8. Now that your investment schedule is complete, you are ready to use solver to determine the optimum investment mix that yields the top return, yet obeys Mr. Slade's stated investment objectives. Launch the Solver tool from the Data menu's Analysis chunk.



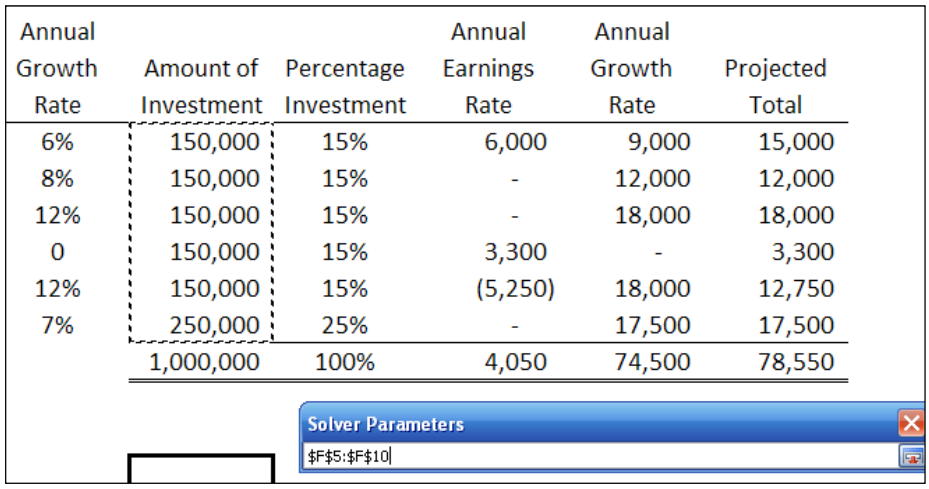
9. Enter the Constraints into the solver Parameters dialog box one at a time. For example, the amount of cash is to be at least $100,000 and at most $150,000. These constraints are expressed as $F$8 >= 100000 and $F$8 <= 150000.



Further, in order to make solver work, you must add two additional constraints as follows. A constraint that tells solver the total amount of available funds must also be added by instructing Solver that total funds are $1,000,000. Another constraint that indicates that no investment shall be less than $0.00 must also be added, otherwise solver will try to maximize earnings by suggesting negative investment

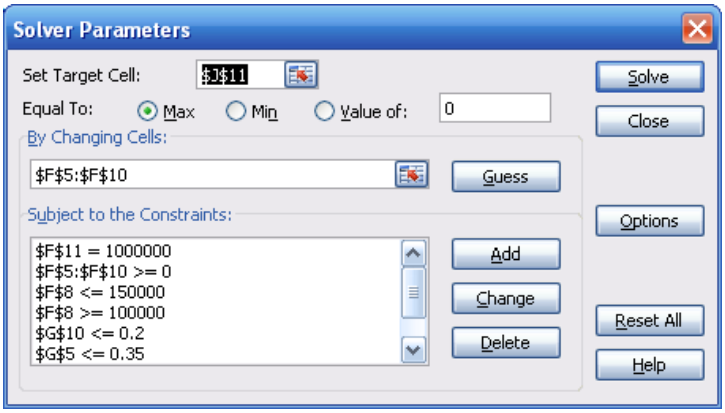
amounts. (Sure, this sounds crazy, but Solver is not a thinking intelligent being, its just a calculation.)

10. Complete the Solver by referencing the cells to be changed and the cell to be maximized in the solution. The cells to be changed are the 6 cells containing the amounts to be invested in each type of investment, as shown in the dotted line box below.



Annual Growth Rate	Amount of Investment	Percentage Investment	Annual Earnings Rate	Annual Growth Rate	Projected Total
6%	150,000	15%	6,000	9,000	15,000
8%	150,000	15%	-	12,000	12,000
12%	150,000	15%	-	18,000	18,000
0	150,000	15%	3,300	-	3,300
12%	150,000	15%	(5,250)	18,000	12,750
7%	250,000	25%	-	17,500	17,500
	1,000,000	100%	4,050	74,500	78,550

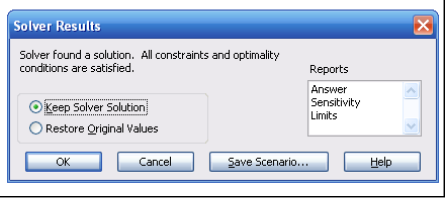
11. The cell to be maximized is the total amount of return on investment, or the total of the "Projected Total" column.



Solver is Ready to Run

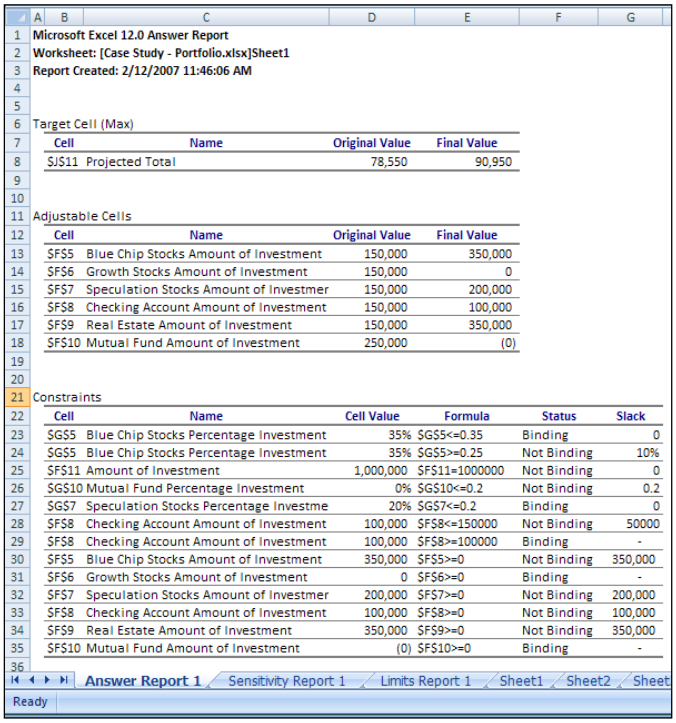
12. With all constraints, changing cells, and maximized cell properly referenced, you are now ready to produce the solution by pressing the Solve button. This action will adjust the portfolio mix schedule to provide those top results which obey the stated investment objectives.

		Annual Earnings Rate	Annual Growth Rate	Amount of Investment	Percentage Investment	Annual Earnings Rate	Annual Growth Rate	Projected Total
4								
5	Blue Chip Stocks	4%	6%	350,000	35%	14,000	21,000	35,000
6	Growth Stocks	0%	8%	0	0%	-	0	0
7	Speculation Stocks	0%	12%	200,000	20%	-	24,000	24,000
8	Checking Account	2.20%	0	100,000	10%	2,200	-	2,200
9	Real Estate	-3.50%	12%	350,000	35%	(12,250)	42,000	29,750
10	Mutual Fund	0	7%	(0)	0%	-	(0)	(0)
11				1,000,000	100%	3,950	87,000	90,950



As you can see by the serene above, solver has adjusted the portfolio investment mix to show that total earnings of $90,950 can be achieved by maximizing the investments in blue chip stocks, avoiding growth stocks, placing the minimum amount of $100,000 in checking, etc. After producing this report, Mr. Slade may decide that additional constraints are needed, and if so, the numbers can be massaged accordingly.

13. Solver now offers a variety of options for reporting the results. The report can be saved as a scenario. Thereafter, Solver will produce various reports to help you understand the results. The first of these reports is the Answers Report shown to the right.



Microsoft Excel 12.0 Answer Report
Worksheet: [Case Study - Portfolio.xlsx]Sheet1
Report Created: 2/12/2007 11:46:06 AM

Target Cell (Max)

Cell	Name	Original Value	Final Value
$J$11	Projected Total	78,550	90,950

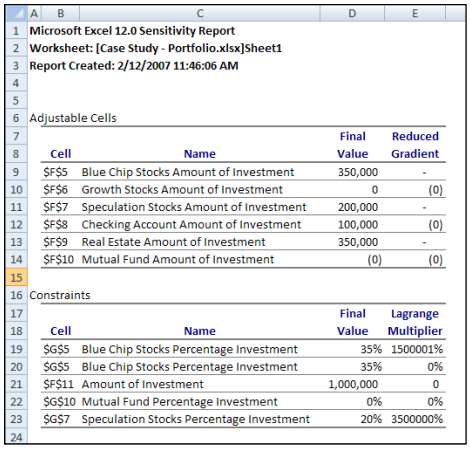
Adjustable Cells

Cell	Name	Original Value	Final Value
$F$5	Blue Chip Stocks Amount of Investment	150,000	350,000
$F$6	Growth Stocks Amount of Investment	150,000	0
$F$7	Speculation Stocks Amount of Investmer	150,000	200,000
$F$8	Checking Account Amount of Investment	150,000	100,000
$F$9	Real Estate Amount of Investment	150,000	350,000
$F$10	Mutual Fund Amount of Investment	250,000	(0)

Constraints

Cell	Name	Cell Value	Formula	Status	Slack
$G$5	Blue Chip Stocks Percentage Investment	35%	$G$5<=0.35	Binding	0
$G$5	Blue Chip Stocks Percentage Investment	35%	$G$5>=0.25	Not Binding	10%
$F$11	Amount of Investment	1,000,000	$F$11=1000000	Not Binding	0
$G$10	Mutual Fund Percentage Investment	0%	$G$10<=0.2	Not Binding	0.2
$G$7	Speculation Stocks Percentage Investme	20%	$G$7<=0.2	Binding	0
$F$8	Checking Account Amount of Investment	100,000	$F$8<=150000	Not Binding	50000
$F$8	Checking Account Amount of Investment	100,000	$F$8>=100000	Binding	-
$F$5	Blue Chip Stocks Amount of Investment	350,000	$F$5>=0	Not Binding	350,000
$F$6	Growth Stocks Amount of Investment	0	$F$6>=0	Binding	-
$F$7	Speculation Stocks Amount of Investmer	200,000	$F$7>=0	Not Binding	200,000
$F$8	Checking Account Amount of Investment	100,000	$F$8>=0	Not Binding	100,000
$F$9	Real Estate Amount of Investment	350,000	$F$9>=0	Not Binding	350,000
$F$10	Mutual Fund Amount of Investment	(0)	$F$10>=0	Binding	-

14. The Sensitivity and Limit Reports provide details into how the final answers were derived.



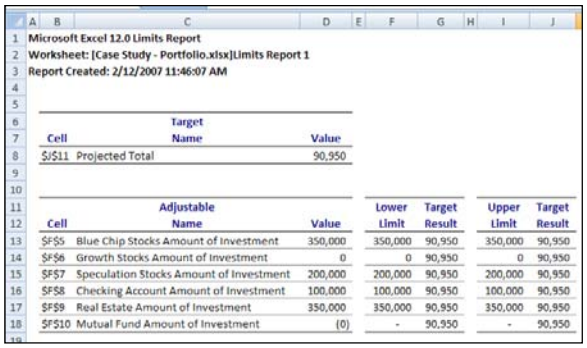
Microsoft Excel 12.0 Sensitivity Report
Worksheet: [Case Study - Portfolio.xlsx]Sheet1
Report Created: 2/12/2007 11:46:06 AM

Adjustable Cells

Cell	Name	Final Value	Reduced Gradient
$F$5	Blue Chip Stocks Amount of Investment	350,000	-
$F$6	Growth Stocks Amount of Investment	0	(0)
$F$7	Speculation Stocks Amount of Investment	200,000	-
$F$8	Checking Account Amount of Investment	100,000	(0)
$F$9	Real Estate Amount of Investment	350,000	-
$F$10	Mutual Fund Amount of Investment	(0)	(0)

Constraints

Cell	Name	Final Value	Lagrange Multiplier
$G$5	Blue Chip Stocks Percentage Investment	35%	1500001%
$G$5	Blue Chip Stocks Percentage Investment	35%	0%
$F$11	Amount of Investment	1,000,000	0
$G$10	Mutual Fund Percentage Investment	0%	0%
$G$7	Speculation Stocks Percentage Investment	20%	3500000%



Microsoft Excel 12.0 Limits Report
Worksheet: [Case Study - Portfolio.xlsx]Limits Report 1
Report Created: 2/12/2007 11:46:07 AM

Cell	Target Name	Value
$J$11	Projected Total	90,950

Cell	Adjustable Name	Value	Lower Limit	Target Result	Upper Limit	Target Result
$F$5	Blue Chip Stocks Amount of Investment	350,000	350,000	90,950	350,000	90,950
$F$6	Growth Stocks Amount of Investment	0	0	90,950	0	90,950
$F$7	Speculation Stocks Amount of Investment	200,000	200,000	90,950	200,000	90,950
$F$8	Checking Account Amount of Investment	100,000	100,000	90,950	100,000	90,950
$F$9	Real Estate Amount of Investment	350,000	350,000	90,950	350,000	90,950
$F$10	Mutual Fund Amount of Investment	(0)	-	90,950	-	90,950

15. Now that the Portfolio Investment Mix and Solver worksheets have both been created, they can be rerun as frequently as desired in just a few seconds. For example, assume that the checking account interest rate changes, blue chip returns fall, and Mr. Slade's objectives change. This is no problem as you can open the worksheets and make these adjustments in only a few seconds. Specifically, assume that Mr. Slade decides that at least 10% of the investments should be invested in Mutual funds. Simply add this new constraint to Solver and recomputed the results.

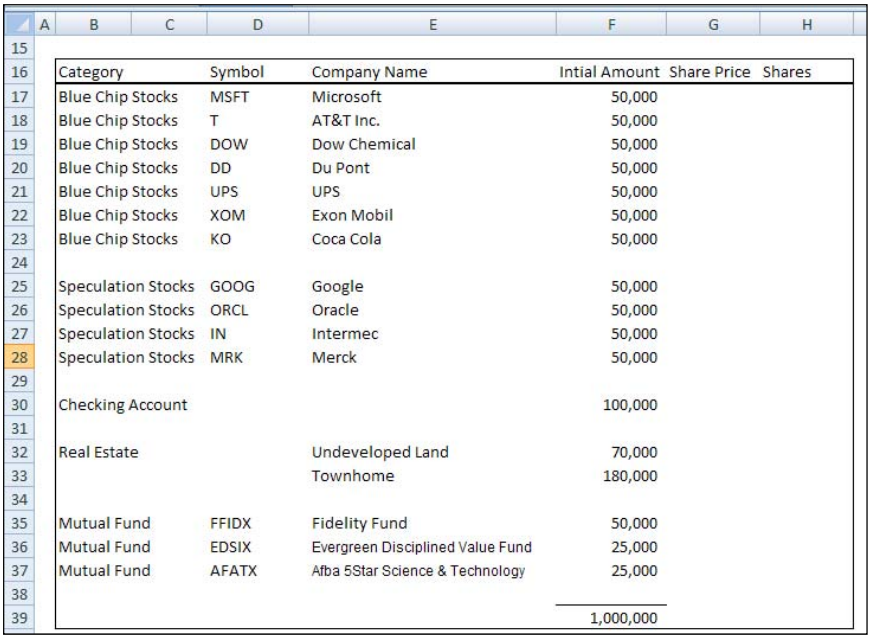
	Annual Earnings Rate	Annual Growth Rate	Amount of Investment	Percentage Investment	Annual Earnings Rate	Annual Growth Rate	Projected Total
Blue Chip Stocks	4%	6%	350,000	35%	14,000	21,000	35,000
Growth Stocks	0%	8%	0	0%	-	0	0
Speculation Stocks	0%	12%	200,000	20%	-	24,000	24,000
Checking Account	2.20%	0	100,000	10%	2,200	-	2,200
Real Estate	-3.50%	12%	250,000	25%	(8,750)	30,000	21,250
Mutual Fund	0	7%	100,000	10%	-	7,000	7,000
			1,000,000	100%	7,450	82,000	89,450

As market conditions change, the Investment Mix Schedule assumptions can be updated and Solver can be re-run to produce new results. Thereafter, Mr. Slade needs only to track investments and move them around as the amounts grow to match his desired investment goals.

16. The next step is to assist Mr. Slade in selecting investments from each category, and then creating a worksheet to track those investments. While the selection of each individual investment is complex, strategic and personal (and hence beyond the scope of this case study), let us assume that Mr. Slade has decided upon the following specific investments:

Category	Symbol	Company Name	Intial Amount
Blue Chip Stocks	MSFT	Microsoft	50,000
Blue Chip Stocks	T	AT&T Inc.	50,000
Blue Chip Stocks	DOW	Dow Chemical	50,000
Blue Chip Stocks	DD	Du Pont	50,000
Blue Chip Stocks	UPS	UPS	50,000
Blue Chip Stocks	XOM	Exon Mobil	50,000
Blue Chip Stocks	KO	Coca Cola	50,000
Speculation Stocks	GOOG	Google	50,000
Speculation Stocks	ORCL	Oracle	50,000
Speculation Stocks	IN	Intermec	50,000
Speculation Stocks	MRK	Merck	50,000
Checking Account			100,000
Real Estate		Undeveloped Land	70,000
		Townhome	180,000
Mutual Fund	FFIDX	Fidelity Fund	50,000
Mutual Fund	EDSIX	Evergreen Disciplined Value Fund	25,000
Mutual Fund	AFATX	Afba 5Star Science & Technology	25,000
			1,000,000

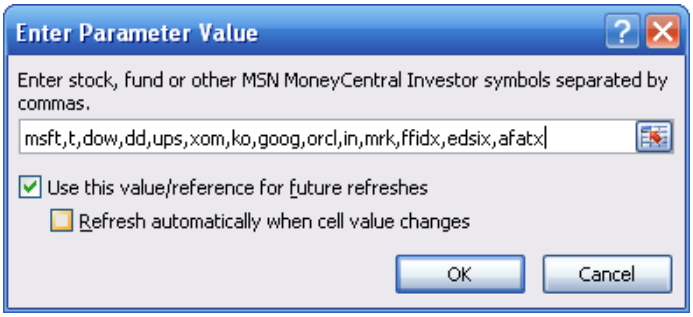
17. Set up an initial Portfolio that list these investments and the initial amounts that Mr. Slade has decided to place in each investment. Include a column for share price and the total number of shares as shown below.



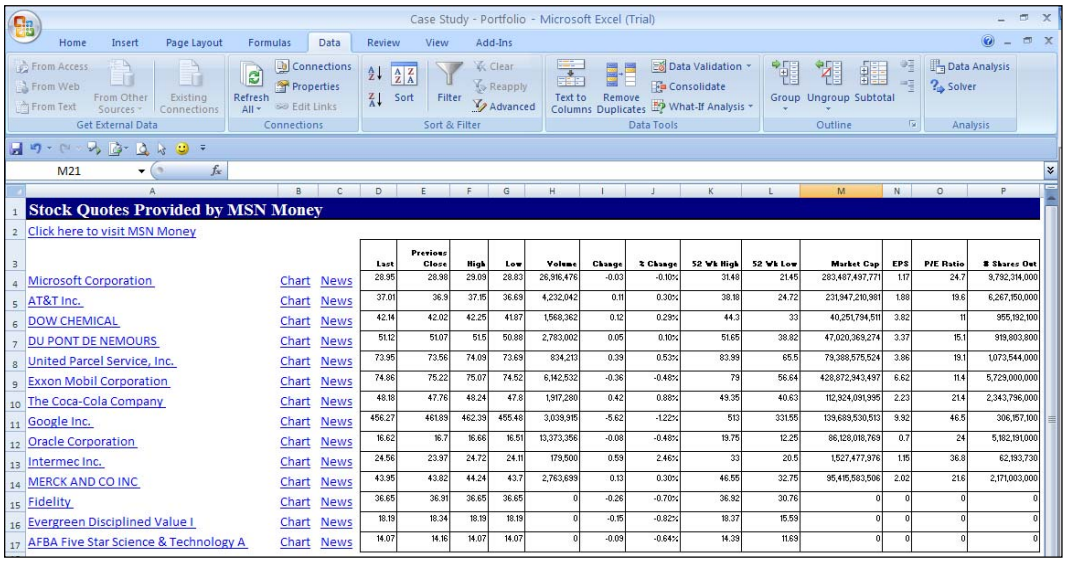
Category	Symbol	Company Name	Intial Amount	Share Price	Shares
Blue Chip Stocks	MSFT	Microsoft	50,000		
Blue Chip Stocks	T	AT&T Inc.	50,000		
Blue Chip Stocks	DOW	Dow Chemical	50,000		
Blue Chip Stocks	DD	Du Pont	50,000		
Blue Chip Stocks	UPS	UPS	50,000		
Blue Chip Stocks	XOM	Exon Mobil	50,000		
Blue Chip Stocks	KO	Coca Cola	50,000		
Speculation Stocks	GOOG	Google	50,000		
Speculation Stocks	ORCL	Oracle	50,000		
Speculation Stocks	IN	Intermec	50,000		
Speculation Stocks	MRK	Merck	50,000		
Checking Account			100,000		
Real Estate		Undeveloped Land	70,000		
		Townhome	180,000		
Mutual Fund	FFIDX	Fidelity Fund	50,000		
Mutual Fund	EDSIX	Evergreen Disciplined Value Fund	25,000		
Mutual Fund	AFATX	Afba 5Star Science & Technology	25,000		
			1,000,000		

18. On a separate sheet, insert a Web Query to retrieve these stock and mutual fund prices using the ticker symbols provided. To do this, select “Existing Connections from the Data Ribbon’s “Get External Data” Chunk, and select “Stock Quotes”. Enter

the ticker symbols in the “Enter Parameter Value” dialog box shown below. Be sure to check the checkbox titled “Use this value/reference for future refreshes”.



19. This action will cause Excel to reach out to a stock portfolio database on the Internet and create the following summary report:

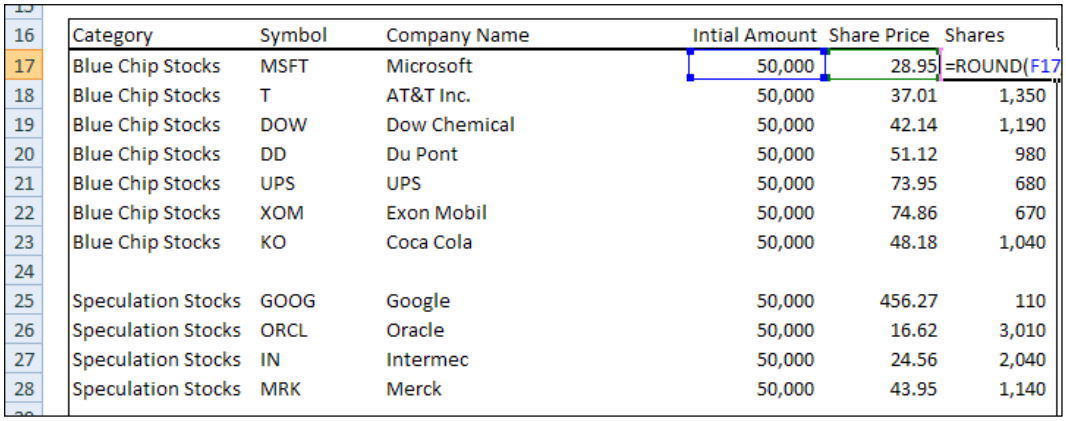


			Last	Previous Close	High	Low	Volume	Change	% Change	52 Wk High	52 Wk Low	Market Cap	EPS	P/E Ratio	# Shares Out
Microsoft Corporation	Chart	News	28.95	28.98	29.09	28.83	26,916,476	-0.03	-0.10%	31.48	21.45	283,487,497,771	1.17	24.7	9,792,314,000
AT&T Inc.	Chart	News	37.01	36.9	37.15	36.69	4,232,042	0.11	0.30%	38.18	24.72	231,947,210,981	1.88	19.6	6,267,150,000
DOW CHEMICAL	Chart	News	42.14	42.02	42.25	41.87	1,568,362	0.12	0.29%	44.3	33	40,251,794,511	3.82	11	955,192,100
DU PONT DE NEMOURS	Chart	News	51.12	51.07	51.5	50.88	2,783,002	0.05	0.10%	51.65	38.82	47,020,368,274	3.37	15.1	919,803,800
United Parcel Service, Inc.	Chart	News	73.95	73.56	74.09	73.69	834,213	0.39	0.53%	83.99	65.5	79,388,575,524	3.86	19.1	1,073,544,000
Exxon Mobil Corporation	Chart	News	74.86	75.22	75.07	74.52	6,142,532	-0.36	-0.48%	79	56.64	428,872,943,497	6.62	11.4	5,729,000,000
The Coca-Cola Company	Chart	News	48.18	47.76	48.24	47.8	1,917,280	0.42	0.88%	49.35	40.63	112,924,091,995	2.23	21.4	2,343,796,000
Google Inc.	Chart	News	456.27	461.89	462.39	455.48	3,039,915	-5.62	-1.22%	513	331.55	139,689,530,513	9.92	46.5	306,157,100
Oracle Corporation	Chart	News	16.62	16.7	16.86	16.51	13,373,356	-0.08	-0.48%	19.75	12.25	86,128,018,769	0.7	24	5,182,191,000
Intermec Inc.	Chart	News	24.56	23.97	24.72	24.11	179,500	0.59	2.46%	33	20.5	1,527,477,376	1.15	36.8	62,193,730
MERCK AND CO INC	Chart	News	43.95	43.82	44.24	43.7	2,763,699	0.13	0.30%	46.55	32.75	95,415,583,506	2.02	21.6	2,171,003,000
Fidelity	Chart	News	36.65	36.91	36.65	36.65	0	-0.26	-0.70%	36.92	30.76	0	0	0	0
Evergreen Disciplined Value I	Chart	News	18.19	18.34	18.19	18.19	0	-0.15	-0.82%	18.37	15.59	0	0	0	0
AFBA Five Star Science & Technology A	Chart	News	14.07	14.16	14.07	14.07	0	-0.09	-0.64%	14.39	11.69	0	0	0	0

20. Return to the Portfolio and insert formulas to pull stock price data from the web query into the Portfolio as shown below.

Category	Symbol	Company Name	Intial Amount	Share Price	Shares
Blue Chip Stocks	MSFT	Microsoft	50,000	=Sheet3!D4	
Blue Chip Stocks	T	AT&T Inc.	50,000	37.01	
Blue Chip Stocks	DOW	Dow Chemical	50,000	42.14	
Blue Chip Stocks	DD	Du Pont	50,000	51.12	
Blue Chip Stocks	UPS	UPS	50,000	73.95	
Blue Chip Stocks	XOM	Exon Mobil	50,000	74.86	
Blue Chip Stocks	KO	Coca Cola	50,000	48.18	
Speculation Stocks	GOOG	Google	50,000	456.27	
Speculation Stocks	ORCL	Oracle	50,000	16.62	
Speculation Stocks	IN	Intermec	50,000	24.56	
Speculation Stocks	MRK	Merck	50,000	43.95	

21. Add formulas in the shares column by dividing the amount of each investment by the share price in order to determine the appropriate number of shares of each investment Mr. Slade should purchase to meet his investment goals. Be sure to use the round function and round to the nearest tenth.



	Category	Symbol	Company Name	Intial Amount	Share Price	Shares
16						
17	Blue Chip Stocks	MSFT	Microsoft	50,000	28.95	=ROUND(F17
18	Blue Chip Stocks	T	AT&T Inc.	50,000	37.01	1,350
19	Blue Chip Stocks	DOW	Dow Chemical	50,000	42.14	1,190
20	Blue Chip Stocks	DD	Du Pont	50,000	51.12	980
21	Blue Chip Stocks	UPS	UPS	50,000	73.95	680
22	Blue Chip Stocks	XOM	Exon Mobil	50,000	74.86	670
23	Blue Chip Stocks	KO	Coca Cola	50,000	48.18	1,040
24						
25	Speculation Stocks	GOOG	Google	50,000	456.27	110
26	Speculation Stocks	ORCL	Oracle	50,000	16.62	3,010
27	Speculation Stocks	IN	Intermec	50,000	24.56	2,040
28	Speculation Stocks	MRK	Merck	50,000	43.95	1,140

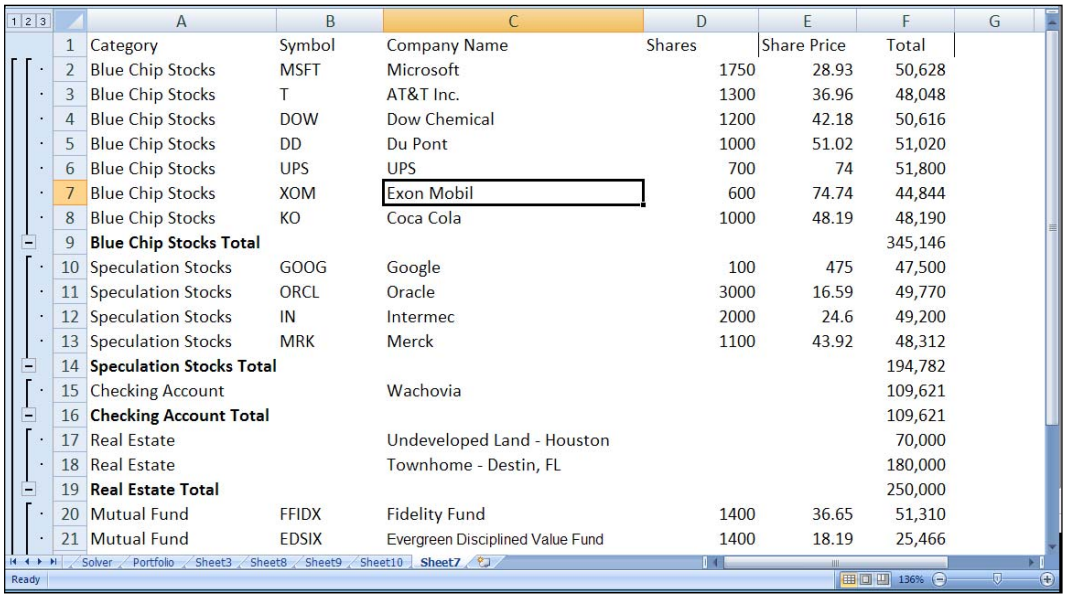
22. Once Mr. Slade has made all of the necessary investments, recreate the portfolio on a new sheet, and make the necessary adjustments to reflect the actual results of these transactions. Due to the requirements of purchasing bocks of shares, Mr. Slade will not be able to purchase the exact number of shares indicated above at the exact same price indicated above. Therefore there will be slight discrepancies. Once those transactions are completed, Mr. Slade will need a worksheet that documents the beginning point in which Mr. Slade begins to track his investments. For example, the resulting Portfolio might look like this:

	A	B	C	D	E	F	G
1	Category		Symbol	Company Name	Shares	Share Price	Shares
2	Blue Chip Stocks		MSFT	Microsoft	1750	28.95	50,663
3	Blue Chip Stocks		T	AT&T Inc.	1300	37.01	48,113
4	Blue Chip Stocks		DOW	Dow Chemical	1200	42.14	50,568
5	Blue Chip Stocks		DD	Du Pont	1000	51.12	51,120
6	Blue Chip Stocks		UPS	UPS	700	73.95	51,765
7	Blue Chip Stocks		XOM	Exon Mobil	600	74.86	44,916
8	Blue Chip Stocks		KO	Coca Cola	1000	48.18	48,180
9	Speculation Stocks		GOOG	Google	100	456.27	45,627
10	Speculation Stocks		ORCL	Oracle	3000	16.62	49,860
11	Speculation Stocks		IN	Intermec	2000	24.56	49,120
12	Speculation Stocks		MRK	Merck	1100	43.95	48,345
13	Checking Account			Wachovia			109,621
14	Real Estate			Undeveloped Land - Houston			70,000
15	Real Estate			Townhome - Destin, FL			180,000
16	Mutual Fund		FFIDX	Fidelity Fund	1400	36.65	51,310
17	Mutual Fund		EDSIX	Evergreen Disciplined Value Fund	1400	18.19	25,466
18	Mutual Fund		AFATX	Afba 5Star Science & Technology	1800	14.07	25,326
19							
20							1,000,000

23. Once created, the portfolio can be updated at any time by pressing the "Refresh Data" button. As an example, just moments after completing this portfolio, Mr. Slade's investments had grown by $1,651, as shown below. Of course changes in the real estate holdings and checking account balance will need to be input manually on a periodic basis such as every 6 months or each year.

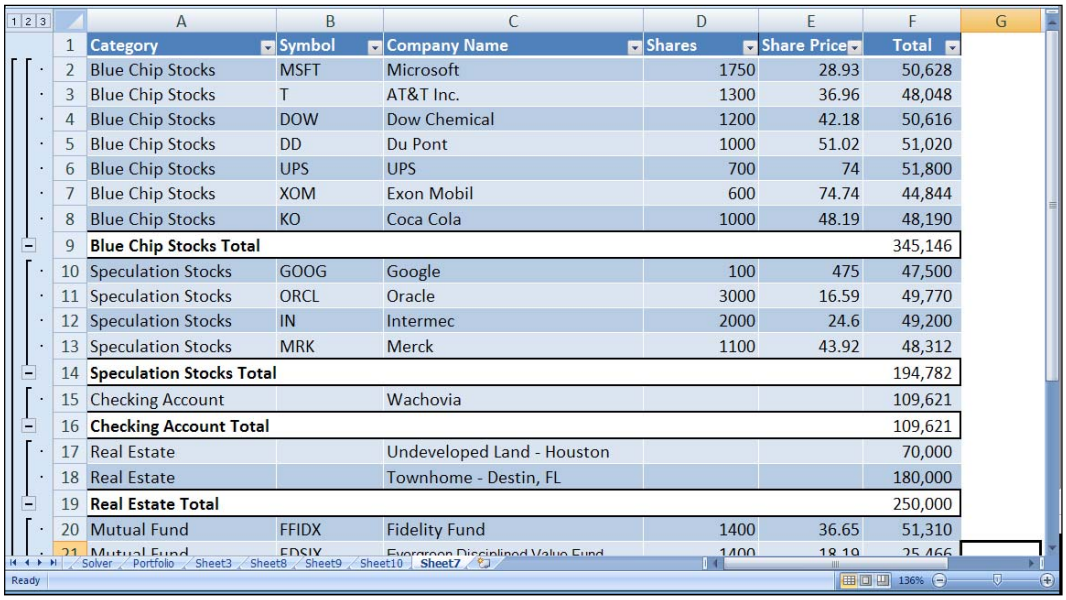
24. Next, practice converting this data to both a table, and a PivotTable. Therefore select the top cell referencing the share price, and press F2 and then F$ to toggle on the absolute references. Use the down arrow and repeat this until all share formulas have an absolute reference. Copy the Portfolio to a new sheet, and again to yet another new sheet.

25. Select one of the portfolio examples and apply Subtotals to the Portfolio using the "Subtotal" tool from the Data Ribbon's "Outline" Chunk. This action will automatically subtotal the Portfolio by category as shown below.



	A	B	C	D	E	F	G
1	Category	Symbol	Company Name	Shares	Share Price	Total	
2	Blue Chip Stocks	MSFT	Microsoft	1750	28.93	50,628	
3	Blue Chip Stocks	T	AT&T Inc.	1300	36.96	48,048	
4	Blue Chip Stocks	DOW	Dow Chemical	1200	42.18	50,616	
5	Blue Chip Stocks	DD	Du Pont	1000	51.02	51,020	
6	Blue Chip Stocks	UPS	UPS	700	74	51,800	
7	Blue Chip Stocks	XOM	Exon Mobil	600	74.74	44,844	
8	Blue Chip Stocks	KO	Coca Cola	1000	48.19	48,190	
9	**Blue Chip Stocks Total**					345,146	
10	Speculation Stocks	GOOG	Google	100	475	47,500	
11	Speculation Stocks	ORCL	Oracle	3000	16.59	49,770	
12	Speculation Stocks	IN	Intermec	2000	24.6	49,200	
13	Speculation Stocks	MRK	Merck	1100	43.92	48,312	
14	**Speculation Stocks Total**					194,782	
15	Checking Account		Wachovia			109,621	
16	**Checking Account Total**					109,621	
17	Real Estate		Undeveloped Land - Houston			70,000	
18	Real Estate		Townhome - Destin, FL			180,000	
19	**Real Estate Total**					250,000	
20	Mutual Fund	FFIDX	Fidelity Fund	1400	36.65	51,310	
21	Mutual Fund	EDSIX	Evergreen Disciplined Value Fund	1400	18.19	25,466	

26. Convert the portfolio to a table using the "Table" tool from the Insert Ribbon's "Tables" Chunk. This will automatically apply formatting and drop down filters to the Portfolio. Yu change the formatting using the gallery or by applying new formats to individual rows or columns.

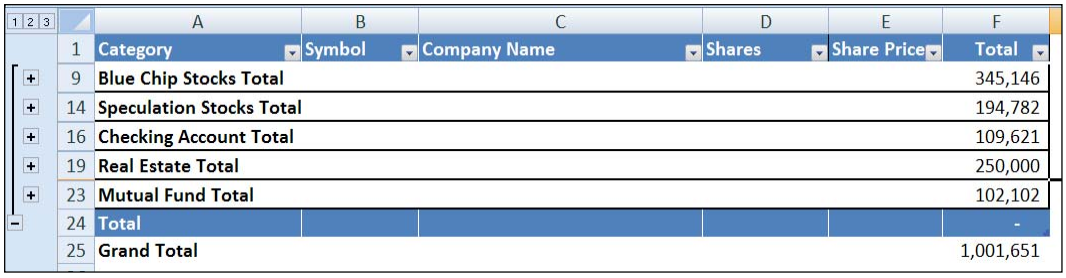


	A	B	C	D	E	F	G
1	Category	Symbol	Company Name	Shares	Share Price	Total	
2	Blue Chip Stocks	MSFT	Microsoft	1750	28.93	50,628	
3	Blue Chip Stocks	T	AT&T Inc.	1300	36.96	48,048	
4	Blue Chip Stocks	DOW	Dow Chemical	1200	42.18	50,616	
5	Blue Chip Stocks	DD	Du Pont	1000	51.02	51,020	
6	Blue Chip Stocks	UPS	UPS	700	74	51,800	
7	Blue Chip Stocks	XOM	Exon Mobil	600	74.74	44,844	
8	Blue Chip Stocks	KO	Coca Cola	1000	48.19	48,190	
9	**Blue Chip Stocks Total**					345,146	
10	Speculation Stocks	GOOG	Google	100	475	47,500	
11	Speculation Stocks	ORCL	Oracle	3000	16.59	49,770	
12	Speculation Stocks	IN	Intermec	2000	24.6	49,200	
13	Speculation Stocks	MRK	Merck	1100	43.92	48,312	
14	**Speculation Stocks Total**					194,782	
15	Checking Account		Wachovia			109,621	
16	**Checking Account Total**					109,621	
17	Real Estate		Undeveloped Land - Houston			70,000	
18	Real Estate		Townhome - Destin, FL			180,000	
19	**Real Estate Total**					250,000	
20	Mutual Fund	FFIDX	Fidelity Fund	1400	36.65	51,310	
21	Mutual Fund	FDSIX	Evergreen Disciplined Value Fund	1400	18.19	25,466	

Solver | Portfolio | Sheet3 | Sheet8 | Sheet9 | Sheet10 | Sheet7

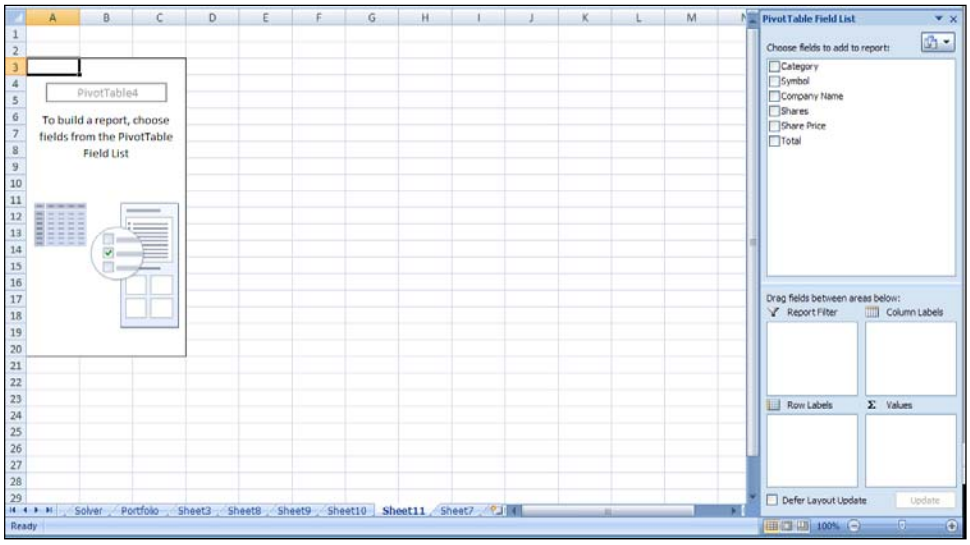
Ready 136%

27. Next click the “Outline” selection number 2 to display the collapsed version of the data, displaying subtotals and grand totals only.

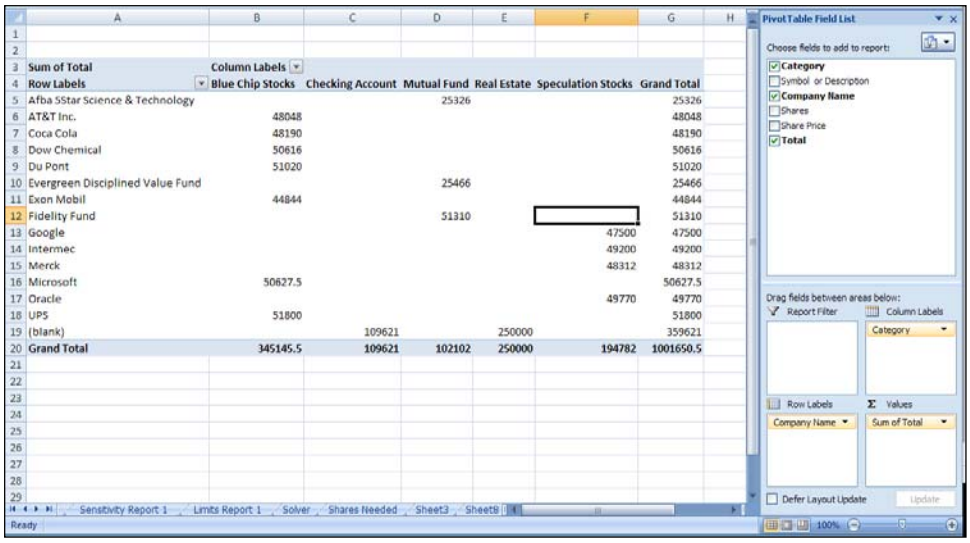


	A	B	C	D	E	F
1	Category	Symbol	Company Name	Shares	Share Price	Total
9	**Blue Chip Stocks Total**					345,146
14	**Speculation Stocks Total**					194,782
16	**Checking Account Total**					109,621
19	**Real Estate Total**					250,000
23	**Mutual Fund Total**					102,102
24	**Total**					-
25	**Grand Total**					1,001,651

28. Now select the second copy of the Portfolio, and with your cursor positioned on any cell in the table, select the “PivotTable” tool from the Insert Ribbon’s PivotTable Chunk. This action will produce a new Sheet with a Blank Pivot Pallet displayed as shown below.



29. In the Pivot Table Field List dialog box, check the “Category”, “Company Name” and “Total” column. Next drag the Category field from the Row Labels box and drop it in the Column labels box. The resulting pivot report should appear as follows:



Sum of Total	Column Labels					
Row Labels	Blue Chip Stocks	Checking Account	Mutual Fund	Real Estate	Speculation Stocks	Grand Total
Afba 5Star Science & Technology			25326			25326
AT&T Inc.	48048					48048
Coca Cola	48190					48190
Dow Chemical	50616					50616
Du Pont	51020					51020
Evergreen Disciplined Value Fund			25466			25466
Exon Mobil	44844					44844
Fidelity Fund			51310			51310
Google					47500	47500
Intermec					49200	49200
Merck					48312	48312
Microsoft	50627.5					50627.5
Oracle					49770	49770
UPS	51800					51800
(blank)		109621		250000		359621
Grand Total	345145.5	109621	102102	250000	194782	1001650.5

30. Finish by formatting the table with a “Dark” design from the “Format as Table” tool on the Home Ribbon’s Styles chunk. Also apply comma formatting.

Sum of Total	Column Labels					
Row Labels	Blue Chip Stocks	Checking Account	Mutual Fund	Real Estate	Speculation Stocks	Grand Total
Afba 5Star Science & Technology			25,326			25,326
AT&T Inc.	48,048					48,048
Coca Cola	48,190					48,190
Dow Chemical	50,616					50,616
Du Pont	51,020					51,020
Evergreen Disciplined Value Fund			25,466			25,466
Exon Mobil	44,844					44,844
Fidelity Fund			51,310			51,310
Google					47,500	47,500
Intermec					49,200	49,200
Merck					48,312	48,312
Microsoft	50,628					50,628
Oracle					49,770	49,770
UPS	51,800					51,800
(blank)		109,621		250,000		359,621
Grand Total	**345,146**	**109,621**	**102,102**	**250,000**	**194,782**	**1,001,651**

In conclusion, you have assisted Mr. Slade in planning an investment strategy which diversifies his holdings, yet maximizes earnings. Additionally, you have created a worksheet that tracks these investments. As all of the factors change, Mr. Slade can easily determine which monies, if any, need to be moved around to maintain his desired diversity. For example, assume that Mr. Slade makes an additional $200,000 in 2007, and his checking account increases accordingly. He need only insert the new checking account balance into solver, along with any other known adjustments such as changes in earnings, and rerun solver to obtain a new mix, which can be compared to the current investment mix to determine which investments need to be adjusted.

Budget Case Study

The Situation – You are the new CFO for a $30 million organization called ***"PaperCut"*** that sells, implements, and supports paperless systems. The company has 3 locations – Atlanta, Boston and San Francisco. You are the CFO in charge of the Atlanta Budget, as well as the overall budget. The Boston and San Francisco operations are headed up by Controllers David and Lynn, respectively. Each location has 4 Departments – Sales, Implementation, Support and Administration. Previously the company has not used an official and does not have a budget budgeting system. Your task is to implement a formal budgeting system, and to work with David and Lynn to prepare the budget for 2008.

The Big Picture - Your Goals Are:

1. Start by creating a budget template for use by the various department heads in Excel.

2. Make the template available to David and Lynn, as well as other company officials by publishing the budget template to the Internet using a Sharepoint site, or an ordinary web site.

3. Request David and Lynn to complete the budgets for their respective locations.

4. Consolidate the budget worksheets into one overall budget.

5. Produce a variety of pivot reports that can be used to study the budget.

6. Apply finishing touches such as rounding, charts, and summary pages.

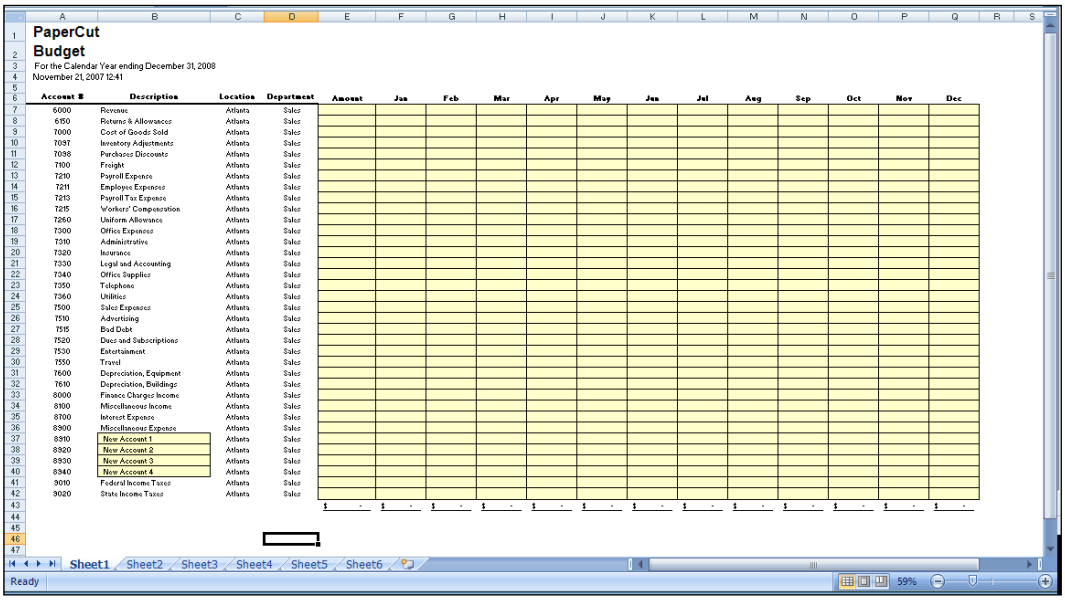
7. Produce a second worksheet summarizing the budget worksheets into a single worksheet of Raw Data.

8. Create PivotTable Reports and Pivot Charts.

This Case Study Covers the following Excel Features and Concepts:

1. Labeling Worksheets
2. Simple & Distribution Formulas
3. Subtotal Formulas
4. The Double Underline Format
5. Data Input Identification
6. Copying Worksheets
7. Double Clicking the Fill Handle to Copy
8. Dragging the Fill Handle to Copy
9. Suppressing Dollar Signs
10. Document Inspector
11. Un-protecting Cells
12. Password protecting an Excel File
13. Duplicating Templates
14. Sharing Excel Files Across the Internet
15. Accessing Excel Files Via the Internet
16. Using Linear Regression Analysis
17. Totaling Multiple Worksheets
18. File Linking, Creating Linking Formulas
19. Copying Linking Formulas
20. Linking Strategies
21. Inserting Worksheets
22. Selecting Entire Worksheets
23. Copying Worksheets Between Files
24. Grouping Worksheets
25. Editing Grouped Worksheets
26. Absolute References
27. Naming Worksheet Tabs
28. The Round Function
29. Freezing Panes
30. Charting
31. 3-D Pie Charts
32. Pie Chart Borders, Effects & Fill
33. Dragging Pie Slices
34. Working with Tables
35. Working with Drop Down Filters
36. Error Checking
37. Pivot Tables
38. The PivotTable Palette & Field List
39. Pivoting Strategies
40. Pivot Table Styles
41. Drilling PivotTables
42. Filtering PivotTables
43. Using Text Formulas
44. Expanding Table Ranges
45. Debugging PivotTable Results
46. Labeling Worksheet tabs
47. Duplicate Copies of Worksheets
48. Moving Columns in PivotTables
49. Refreshing Data Links
50. PivotCharts
51. Filtering PivotCharts
52. Inserting Picture Fills in PivotCharts

Start with a clean worksheet and create a budget grid like the one shown below.



Comments about this grid follow:

- The top of this worksheet is properly labeled with company name, report title, date, and time stamp.

- The account numbers and the chart of accounts are included in columns A & B. A few additional rows have been inserted to accommodate new accounts, if any.

- Columns for location and department are included in columns C & D.

- A column for the total is provided in column E

- The next 12 columns contain formulas that divide the total amount by 12, and distribute the budget across twelve months.

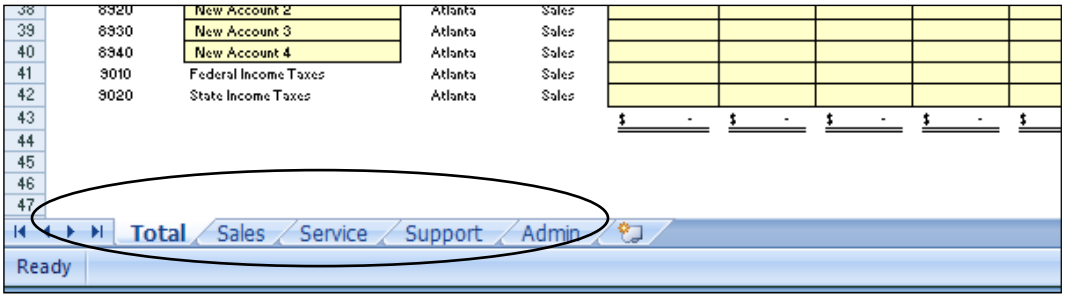
- Subtotals are provided at the bottom of the total and monthly columns. Use the Accounting Double Underline Format to provide underlines which do not touch.

- A yellow background and grid border have been included everywhere that data is intended to be entered into the worksheet. This helps prevent others from inadvertently overwriting formulas amounts elsewhere in the worksheet.

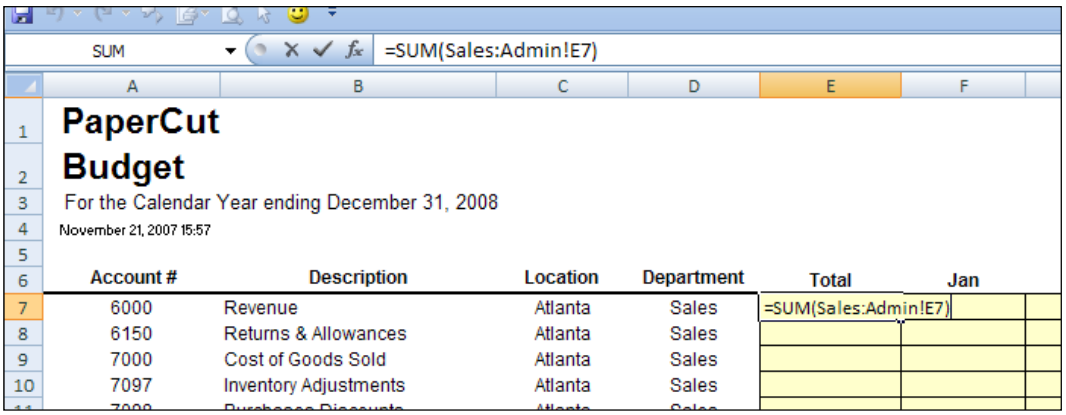
1. Once the initial budget grid has been created on Sheet1, copy this worksheet (including formatting and column widths) to four additional worksheets. Do this as follows:

    a. Select the entirety of Sheet1;
    b. Press “Ctrl+C” to copy;
    c. Select Sheets 2, 3, 4, and 5 (use the Ctrl + mouse click to select the sheet tabs);
    d. Press “Ctrl+V” to Paste.
    e. Edit the “Department” columns to read “Sales”, “Service”, “Support”, & “Admin”.
    f. Label the sheet tabs according to their department.

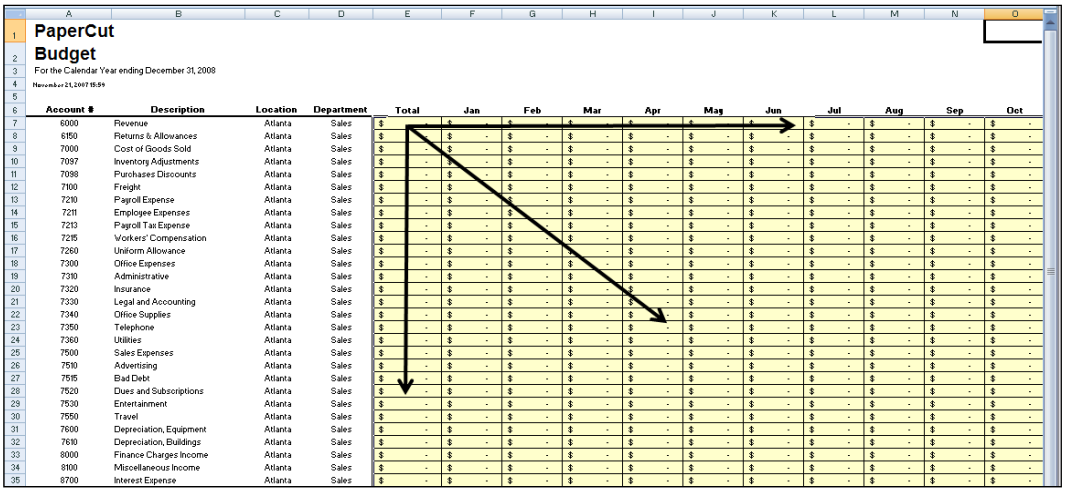
    The results should appear as follows:



2. On the “Total” sheet (formerly Sheet1), type a formula in the top left hand corner of the input grid (E7 in this case) to sum the amounts in E7 on the following 4 worksheets. The formula should appear as follows:



3. Copy this formula down and across to fill in the entire grid, as suggested by the arrows in the screen below.



PaperCut
Budget
For the Calendar Year ending December 31, 2008

Account #	Description	Location	Department	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
6000	Revenue	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
6150	Returns & Allowances	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7000	Cost of Goods Sold	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7097	Inventory Adjustments	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7098	Purchases Discounts	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7100	Freight	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7210	Payroll Expense	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7211	Employee Expenses	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7213	Payroll Tax Expense	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7215	Workers' Compensation	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7260	Uniform Allowance	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7300	Office Expenses	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7310	Administrative	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7320	Insurance	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7330	Legal and Accounting	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7340	Office Supplies	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7350	Telephone	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7360	Utilities	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7500	Sales Expenses	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7510	Advertising	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7515	Bad Debt	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7520	Dues and Subscriptions	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7530	Entertainment	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7550	Travel	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7600	Depreciation, Equipment	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7610	Depreciation, Buildings	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
8000	Finance Charges Income	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
8100	Miscellaneous Income	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
8700	Interest Expense	Atlanta	Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

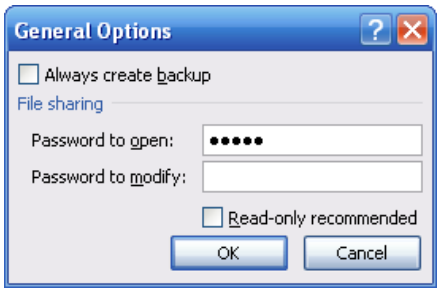
Since these cells on the Total worksheet now contain formulas, remove the yellow background so that other users do not confuse this worksheet as a data input worksheet. Also, change the department column to read “All Departments”.

4. Format the cells to suppress dollar signs, except for the top and bottom rows of the data input grid. This step is intended to help eliminate unnecessary screen clutter. Make this change to all five worksheets at the same time by selecting all five worksheet tabs.

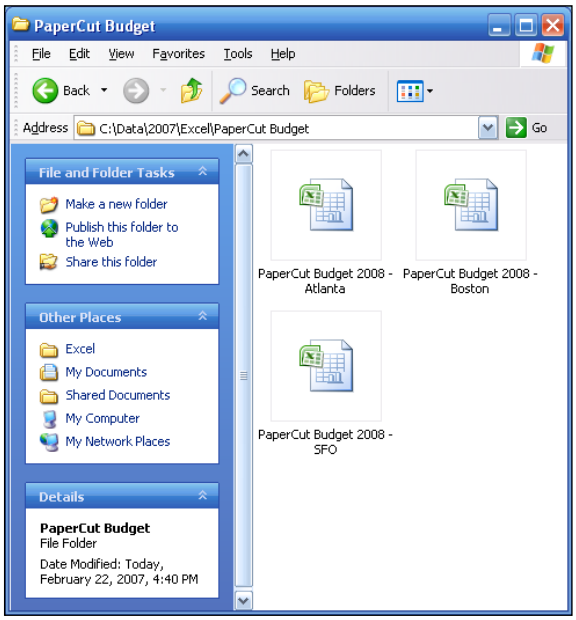
5. Run the “Document Inspector” and add the appropriate information in the “File Properties” from the Excel Menu’s Prepare option (discussed in depth in the Expense Report Case Study).

6. Unprotect the cells with a yellow background, and turn on worksheet protection. (discussed in depth in the Expense Report Case Study).

7. Save the file three times as “PaperCut Budget 2008 – Atlanta”, “PaperCut Budget 2008 – SFO”, and “PaperCut Budget 2008 – Boston”. As you save these files, apply a password to each file using the Excel Menu’s File, Save As, Tools, General Options menu options. The following dialog box will appear requesting that you supply a password.

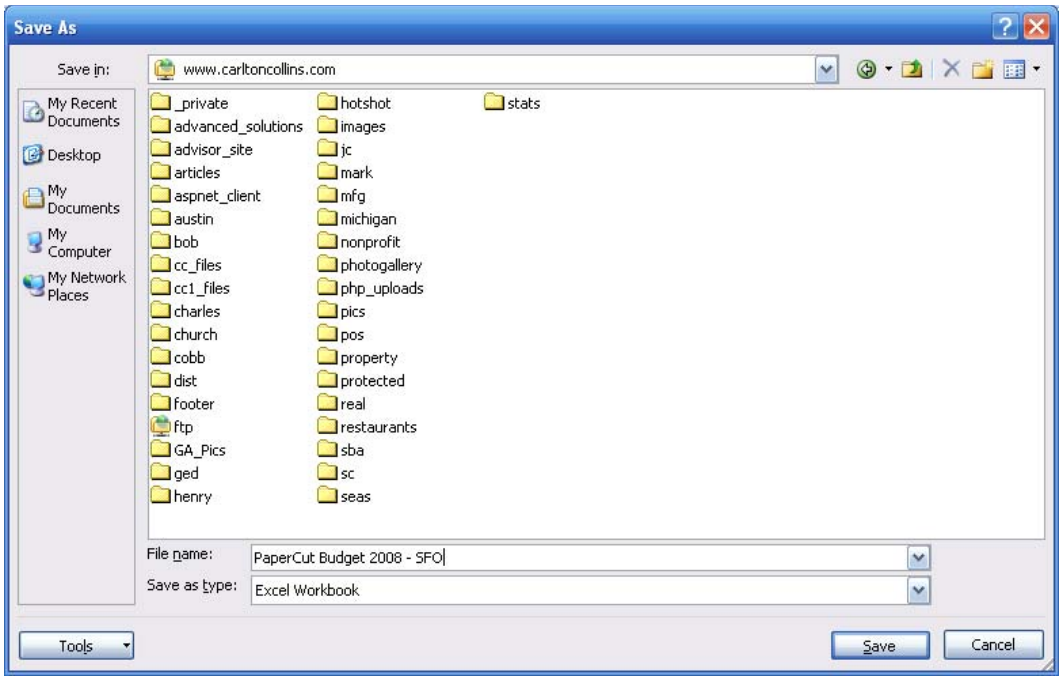


8. Next, edit the San Francisco and Boston files so that they reflect the proper location on all five worksheets in the location column. Once again, make this change to all five worksheets at the same time by selecting all five tabs, typing in the new location name in the top cell of the location column, and then copy down. When completed, re-save these files. You should end up with three files, one each for Atlanta, San Francisco, and Boston. These files might appear as follows in a window on your computer.



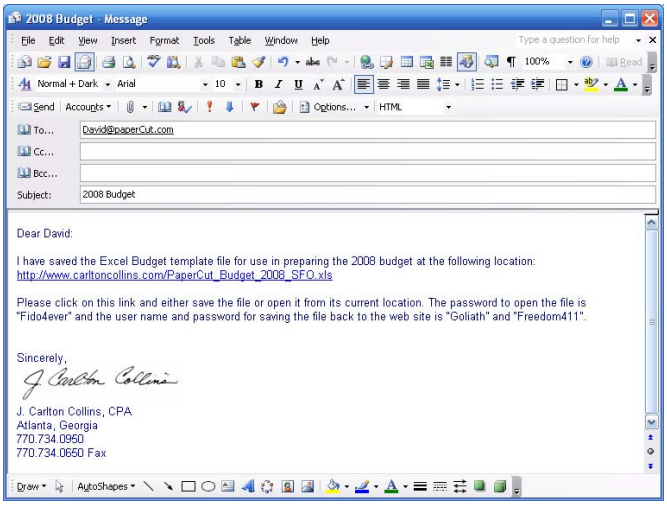
9. Next save these file to your Internet Web Site or Sharepoint web site. If you have never saved a file to your Internet web site before, it is virtually the same procedure as you are already used to, except you browse to your web site instead of your computer or file server. Further, you will need to supply the necessary web site password in order to complete the save process. For example, when I perform this procedure I simply open the SFO Excel file and select “Save As” from the Excel menu, and provide the following address:

“HTTP://www.CarltonCollins.com/PaperCut Budget 2008 - SFO”

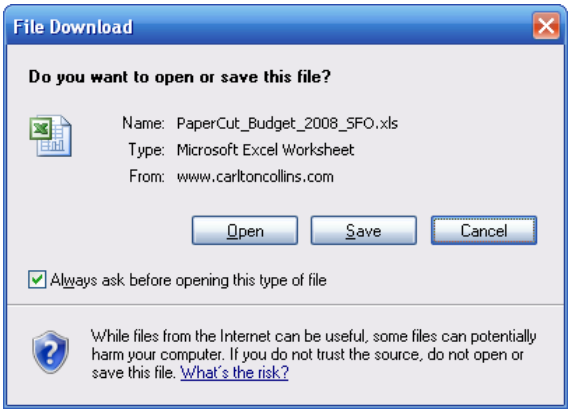


You will be prompted to provide your user name and password, and then this procedure will save your file to the Internet. Repeat this process for the Boston file.

10. Send an e-mail to David and Lynn containing links to these two files. Call them to let them know the passwords to both the Excel files, and the web site so that they can open and use the Excel files directly from the web server (You should call because you would not want to send passwords through e-mail unless your e-mail is also encrypted.

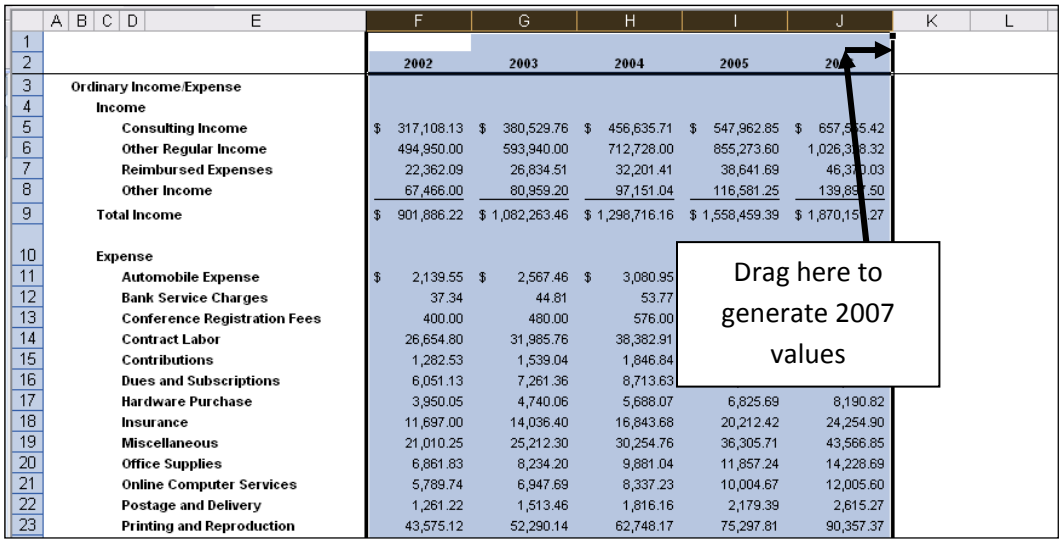


11. Clicking on the resulting link will launch the following dialog box enabling David and Lynn to either save the file to their computer, or launch it from it's current location on the web site.



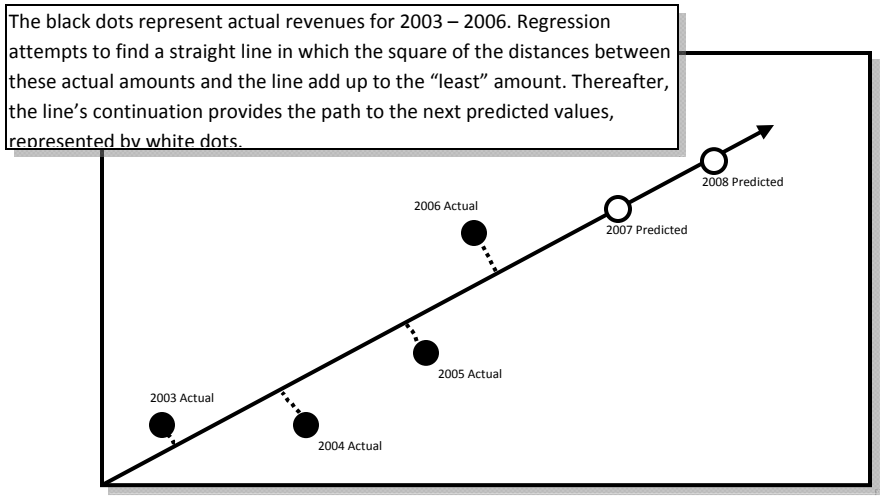
12. The next step is for you, David, and Lynn to input the budget data into the respective budget templates. There are a variety of approaches to accomplishing this next step, and an interesting approach is to use linear regression analysis applied against the actual revenue and expenses data for the past four or five years.

    As an example of this, the screen below shows how a CPA has highlighted the actual revenue and expenses for 2002 through 2006, and then used AutoFill's Regression Analysis to predict 2007 values. Whenever Excel is presented with the task of filling values based on three or more values, it defaults to using Linear Regression Analysis to predict the next values.



	2002	2003	2004	2005	2006
Ordinary Income/Expense					
Income					
Consulting Income	$ 317,108.13	$ 380,529.76	$ 456,635.71	$ 547,962.85	$ 657,555.42
Other Regular Income	494,950.00	593,940.00	712,728.00	855,273.60	1,026,328.32
Reimbursed Expenses	22,362.09	26,834.51	32,201.41	38,641.69	46,370.03
Other Income	67,466.00	80,959.20	97,151.04	116,581.25	139,897.50
Total Income	$ 901,886.22	$ 1,082,263.46	$ 1,298,716.16	$ 1,558,459.39	$ 1,870,151.27
Expense					
Automobile Expense	$ 2,139.55	$ 2,567.46	$ 3,080.95		
Bank Service Charges	37.34	44.81	53.77		
Conference Registration Fees	400.00	480.00	576.00		
Contract Labor	26,654.80	31,985.76	38,382.91		
Contributions	1,282.53	1,539.04	1,846.84		
Dues and Subscriptions	6,051.13	7,261.36	8,713.63		
Hardware Purchase	3,950.05	4,740.06	5,688.07	6,825.69	8,190.82
Insurance	11,697.00	14,036.40	16,843.68	20,212.42	24,254.90
Miscellaneous	21,010.25	25,212.30	30,254.76	36,305.71	43,566.85
Office Supplies	6,861.83	8,234.20	9,881.04	11,857.24	14,228.69
Online Computer Services	5,789.74	6,947.69	8,337.23	10,004.67	12,005.60
Postage and Delivery	1,261.22	1,513.46	1,816.16	2,179.39	2,615.27
Printing and Reproduction	43,575.12	52,290.14	62,748.17	75,297.81	90,357.37

    As a quick refresher, consider how Regression works in the following chart.



13. The regression example above suggests one possible strategy for predicting budget values.

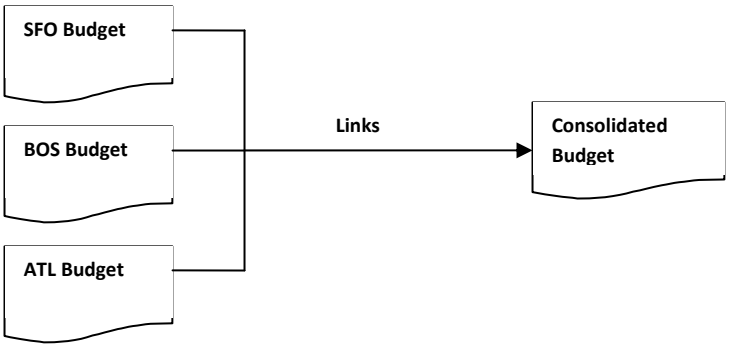
    In this case study the budget workbook we designed is designed to accommodate a more straightforward approach in which the budget line item amounts are entered into the total column (for each of the four department worksheets), and formulas then spread the amounts evenly across twelve months.

    However, the user is not restricted to this approach only. As alternatives, the user may wish to instead enter monthly amounts in the "month" columns, and a formula to total these monthly amounts in the "total" column. Or, the user may wish to input the total budget for the location in the "Total" Sheet, and use formulas to distribute those amounts across the various departments and months. One of the primary reasons Excel is so popular for creating budgets is this flexibility to create budgets, reports and workbooks using practically any approach desired.

    The budget template also includes a summary sheet (named "Totals") so that the personnel using this template can not only see the individual departmental budgets, but the overall budget for all departments as well.

14. Once the budget information has been entered for Atlanta, San Francisco and Boston, it is time to consolidate the budget into a single Excel file. There are many ways to accomplish this task and many users would simply copy and paste the resulting data into a single file. The problem with this "Copy and Paste" approach is that if the original budget files are edited for any reason, then the consolidated Excel file is not automatically updated. Therefore for purposes of this case study, we will link the consolidating budget excel File to the three underlying budgets for Atlanta, San Francisco and Boston. In this manner, if you, David or Lynn decide to make any changes to your budgets, those changes will automatically flow through to the

consolidated budget and final budget reports. The graphic below shows the relationship of the four Excel files that will ultimately comprise the 2008 budget.



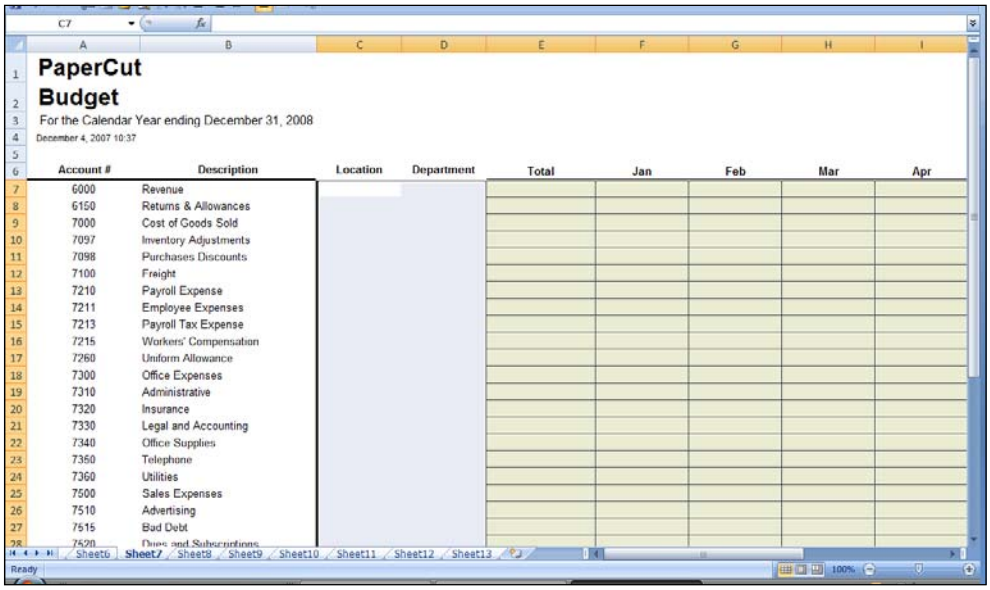
Consolidation Approach #1

15. There are many approaches to creating links between worksheets, and most preparers take the approach that formulas summarizing data should be linked from one sheet to another. I prefer a more detailed approach in which all data is completely replicated through links from all supporting files to one consolidating file, and then summarized. I prefer this approach because it is straight forward and it results in a better audit trail for tracing data from the reports back to their origin.

16. To start, begin with a blank worksheet, and insert new worksheets until you have a total of 13 blank worksheets. Save the file to a name called “Budget Consolidation”. Naming the file now will make it easier to navigate the files back and forth as links are built in the new worksheet.

17. Next, copy one of the worksheets in the completed Atlanta budget file and paste it to the 13 new worksheets in the new consolidated budget file. To copy, click in the upper left hand corner of the worksheet to select the entire worksheet. To paste, toggle to the new consolidating worksheet, select all 13 worksheets as a group, and then paste. This will place a copy of the budget template on all 13 worksheets.

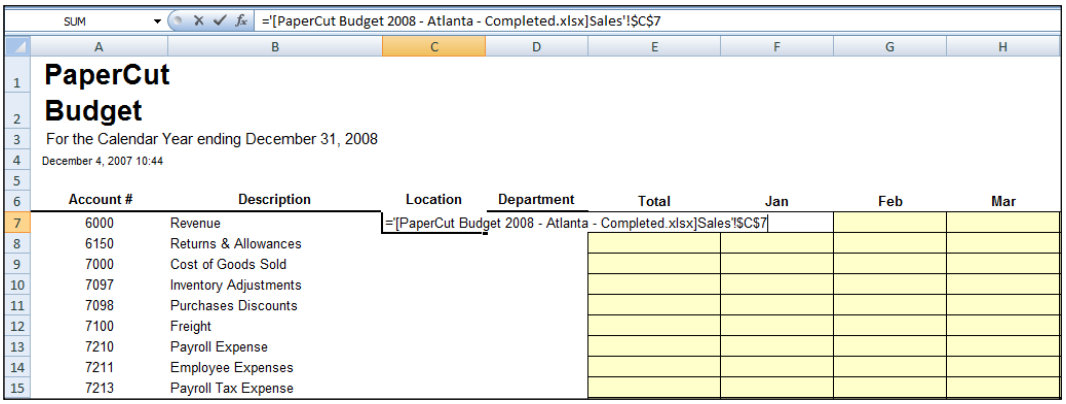
18. With all 13 worksheets still selected, erase the data in the columns labeled “Location”, “Department”, “Total”, and the various “Months”. Turn off the gridlines. Your consolidating worksheet should appear as follows:



PaperCut
Budget
For the Calendar Year ending December 31, 2008
December 4, 2007 10:37

Account #	Description	Location	Department	Total	Jan	Feb	Mar	Apr
6000	Revenue							
6150	Returns & Allowances							
7000	Cost of Goods Sold							
7097	Inventory Adjustments							
7098	Purchases Discounts							
7100	Freight							
7210	Payroll Expense							
7211	Employee Expenses							
7213	Payroll Tax Expense							
7215	Workers' Compensation							
7260	Uniform Allowance							
7300	Office Expenses							
7310	Administrative							
7320	Insurance							
7330	Legal and Accounting							
7340	Office Supplies							
7350	Telephone							
7360	Utilities							
7500	Sales Expenses							
7510	Advertising							
7515	Bad Debt							
7520	Dues and Subscriptions							

19. Next, select Sheet2 in the consolidating budget file, and place your cursor in cell C7, or the first data cell under the Location column. Enter an equals sign ("="), and then toggle to the completed Atlanta Budget file and point to cell C7 on the "Sales" Sheet, and press Enter. This action will create the first link in your consolidating budget file as shown below.



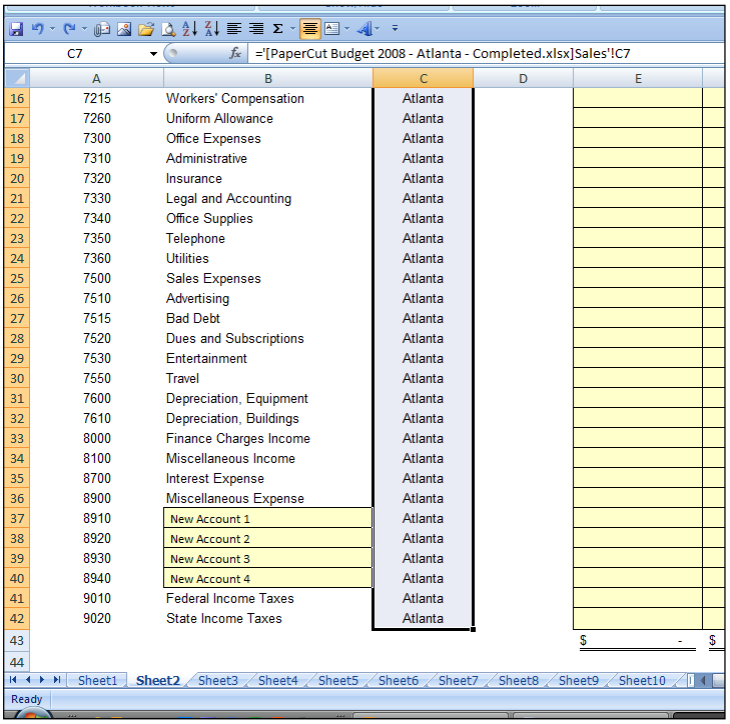
=[PaperCut Budget 2008 - Atlanta - Completed.xlsx]Sales'!$C$7

PaperCut
Budget
For the Calendar Year ending December 31, 2008
December 4, 2007 10:44

Account #	Description	Location	Department	Total	Jan	Feb	Mar
6000	Revenue	=[PaperCut Budget 2008 - Atlanta - Completed.xlsx]Sales'!$C$7					
6150	Returns & Allowances						
7000	Cost of Goods Sold						
7097	Inventory Adjustments						
7098	Purchases Discounts						
7100	Freight						
7210	Payroll Expense						
7211	Employee Expenses						
7213	Payroll Tax Expense						

20. Edit the formula in cell C7 to remove the absolute references. Use the F4 key in edit mode to toggle the absolute references off.

21. Copy this formula down by double clicking the fill handle. This action will automatically copy cell C7 down thru cell C42, because the cells in the adjacent column B all contain values. Your worksheet should appear as follows:



	A	B	C	D	E
16	7215	Workers' Compensation	Atlanta		
17	7260	Uniform Allowance	Atlanta		
18	7300	Office Expenses	Atlanta		
19	7310	Administrative	Atlanta		
20	7320	Insurance	Atlanta		
21	7330	Legal and Accounting	Atlanta		
22	7340	Office Supplies	Atlanta		
23	7350	Telephone	Atlanta		
24	7360	Utilities	Atlanta		
25	7500	Sales Expenses	Atlanta		
26	7510	Advertising	Atlanta		
27	7515	Bad Debt	Atlanta		
28	7520	Dues and Subscriptions	Atlanta		
29	7530	Entertainment	Atlanta		
30	7550	Travel	Atlanta		
31	7600	Depreciation, Equipment	Atlanta		
32	7610	Depreciation, Buildings	Atlanta		
33	8000	Finance Charges Income	Atlanta		
34	8100	Miscellaneous Income	Atlanta		
35	8700	Interest Expense	Atlanta		
36	8900	Miscellaneous Expense	Atlanta		
37	8910	New Account 1	Atlanta		
38	8920	New Account 2	Atlanta		
39	8930	New Account 3	Atlanta		
40	8940	New Account 4	Atlanta		
41	9010	Federal Income Taxes	Atlanta		
42	9020	State Income Taxes	Atlanta		
43					$ - $
44					

22. With the cells C7 through C42 still highlighted, now drag the fill handle over to the December column. This will copy the linking formulas in the Location column across the page, creating a mirror image of the Atlanta sales data as shown below.

PaperCut
Budget
For the Calendar Year ending December 31, 2008
December 4, 2007 10:51

Account #	Description	Location	Department	Total	Jan	Feb
6000	Revenue	Atlanta	Sales	-7303453.44	-608621.12	-608621.12
6150	Returns & Allowances	Atlanta	Sales	12545.52	1045.46	1045.46
7000	Cost of Goods Sold	Atlanta	Sales	1100753.52	91729.46	91729.46
7097	Inventory Adjustments	Atlanta	Sales	140242.68	11686.89	11686.89
7098	Purchases Discounts	Atlanta	Sales	45476.76	3789.73	3789.73
7100	Freight	Atlanta	Sales	100770.72	8397.56	8397.56
7210	Payroll Expense	Atlanta	Sales	1297688.4	108140.7	108140.7
7211	Employee Expenses	Atlanta	Sales	170164.8	14180.4	14180.4
7213	Payroll Tax Expense	Atlanta	Sales	271412.88	22617.74	22617.74
7215	Workers' Compensation	Atlanta	Sales	182996.76	15249.73	15249.73
7260	Uniform Allowance	Atlanta	Sales	106025.76	8835.48	8835.48
7300	Office Expenses	Atlanta	Sales	132601.56	11050.13	11050.13
7310	Administrative	Atlanta	Sales	75850.92	6320.91	6320.91
7320	Insurance	Atlanta	Sales	121469.64	10122.47	10122.47
7330	Legal and Accounting	Atlanta	Sales	18142.56	1511.88	1511.88
7340	Office Supplies	Atlanta	Sales	11511.12	959.26	959.26
7350	Telephone	Atlanta	Sales	29087.76	2423.98	2423.98
7360	Utilities	Atlanta	Sales	237947.88	19828.99	19828.99
7500	Sales Expenses	Atlanta	Sales	88980.36	7415.03	7415.03

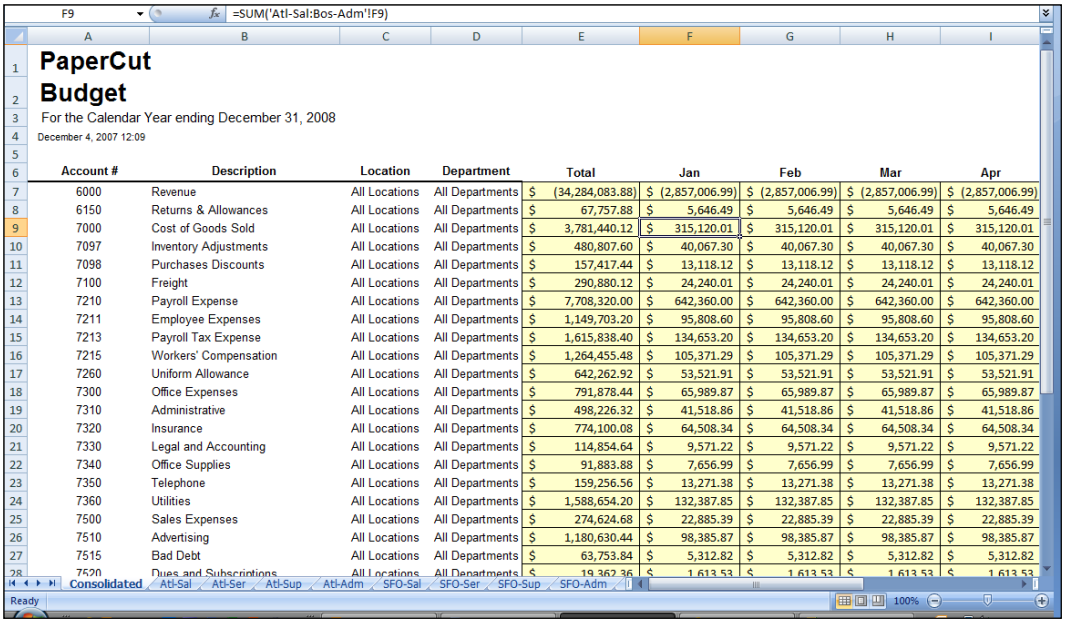
23. Repeat this process for the remaining eleven 11 worksheets (3 through 13), linking the consolidating budget file to all three of the budget files for Atlanta, Boston and San Francisco.

24. Touch up the consolidating budget file by labeling the Worksheet Tabs and formatting the worksheets by using the Format Painter to apply the formatting from worksheet 1 to the 12 budget worksheets.

25. On worksheet 1, label the worksheet tab “Consolidated” and create a formula to combine the amounts on Sheets 2 through 13, as shown below.

	Account #	Description	Location	Department	Total	Jan
7	6000	Revenue			=SUM('Atl-Sal:Bos-Adm'!E7)	
8	6150	Returns & Allowances				
9	7000	Cost of Goods Sold				
10	7097	Inventory Adjustments				

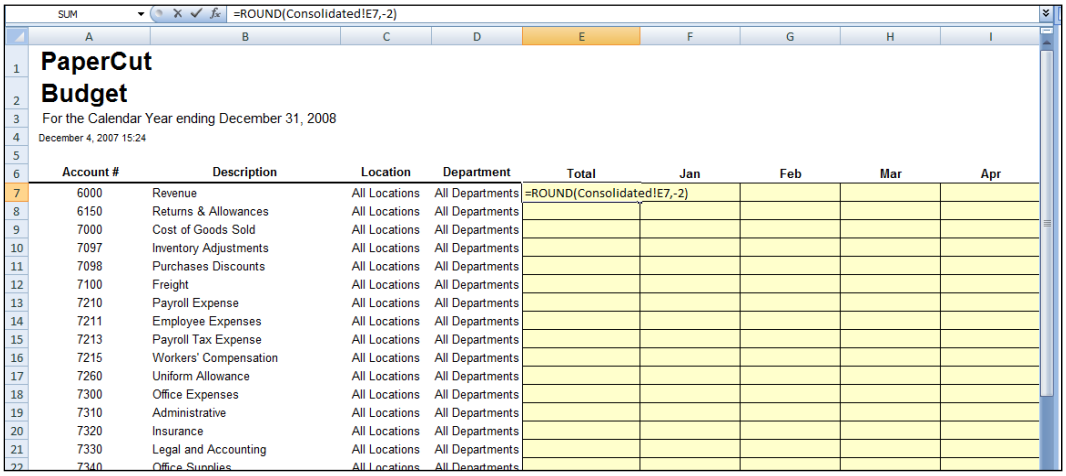
26. Copy this formula down and across to fill the data area. Label the “Location” and “Department” Columns as “All” Locations” and “All Departments”.



PaperCut
Budget
For the Calendar Year ending December 31, 2008
December 4, 2007 12:09

Account #	Description	Location	Department	Total	Jan	Feb	Mar	Apr
6000	Revenue	All Locations	All Departments	$ (34,284,083.88)	$ (2,857,006.99)	$ (2,857,006.99)	$ (2,857,006.99)	$ (2,857,006.99)
6150	Returns & Allowances	All Locations	All Departments	$ 67,757.88	$ 5,646.49	$ 5,646.49	$ 5,646.49	$ 5,646.49
7000	Cost of Goods Sold	All Locations	All Departments	$ 3,781,440.12	$ 315,120.01	$ 315,120.01	$ 315,120.01	$ 315,120.01
7097	Inventory Adjustments	All Locations	All Departments	$ 480,807.60	$ 40,067.30	$ 40,067.30	$ 40,067.30	$ 40,067.30
7098	Purchases Discounts	All Locations	All Departments	$ 157,417.44	$ 13,118.12	$ 13,118.12	$ 13,118.12	$ 13,118.12
7100	Freight	All Locations	All Departments	$ 290,880.12	$ 24,240.01	$ 24,240.01	$ 24,240.01	$ 24,240.01
7210	Payroll Expense	All Locations	All Departments	$ 7,708,320.00	$ 642,360.00	$ 642,360.00	$ 642,360.00	$ 642,360.00
7211	Employee Expenses	All Locations	All Departments	$ 1,149,703.20	$ 95,808.60	$ 95,808.60	$ 95,808.60	$ 95,808.60
7213	Payroll Tax Expense	All Locations	All Departments	$ 1,615,838.40	$ 134,653.20	$ 134,653.20	$ 134,653.20	$ 134,653.20
7215	Workers' Compensation	All Locations	All Departments	$ 1,264,455.48	$ 105,371.29	$ 105,371.29	$ 105,371.29	$ 105,371.29
7260	Uniform Allowance	All Locations	All Departments	$ 642,262.92	$ 53,521.91	$ 53,521.91	$ 53,521.91	$ 53,521.91
7300	Office Expenses	All Locations	All Departments	$ 791,878.44	$ 65,989.87	$ 65,989.87	$ 65,989.87	$ 65,989.87
7310	Administrative	All Locations	All Departments	$ 498,226.32	$ 41,518.86	$ 41,518.86	$ 41,518.86	$ 41,518.86
7320	Insurance	All Locations	All Departments	$ 774,100.08	$ 64,508.34	$ 64,508.34	$ 64,508.34	$ 64,508.34
7330	Legal and Accounting	All Locations	All Departments	$ 114,854.64	$ 9,571.22	$ 9,571.22	$ 9,571.22	$ 9,571.22
7340	Office Supplies	All Locations	All Departments	$ 91,883.88	$ 7,656.99	$ 7,656.99	$ 7,656.99	$ 7,656.99
7350	Telephone	All Locations	All Departments	$ 159,256.56	$ 13,271.38	$ 13,271.38	$ 13,271.38	$ 13,271.38
7360	Utilities	All Locations	All Departments	$ 1,588,654.20	$ 132,387.85	$ 132,387.85	$ 132,387.85	$ 132,387.85
7500	Sales Expenses	All Locations	All Departments	$ 274,624.68	$ 22,885.39	$ 22,885.39	$ 22,885.39	$ 22,885.39
7510	Advertising	All Locations	All Departments	$ 1,180,630.44	$ 98,385.87	$ 98,385.87	$ 98,385.87	$ 98,385.87
7515	Bad Debt	All Locations	All Departments	$ 63,753.84	$ 5,312.82	$ 5,312.82	$ 5,312.82	$ 5,312.82
7520	Dues and Subscriptions	All Locations	All Departments	$ 19,362.36	$ 1,613.53	$ 1,613.53	$ 1,613.53	$ 1,613.53

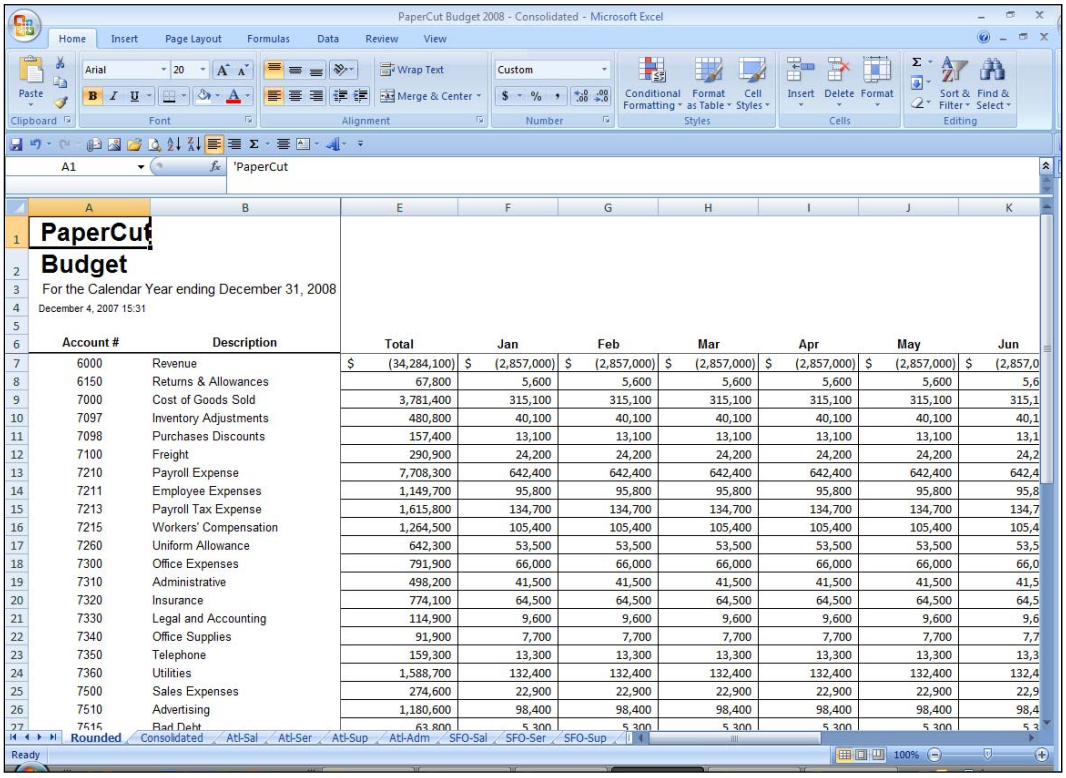
27. Next, insert a new worksheet, label the tab “Rounded Budget” and copy the consolidated worksheet to this new blank worksheet. Insert a formula in cell C7 using the Round function as shown below:



PaperCut
Budget
For the Calendar Year ending December 31, 2008
December 4, 2007 15:24

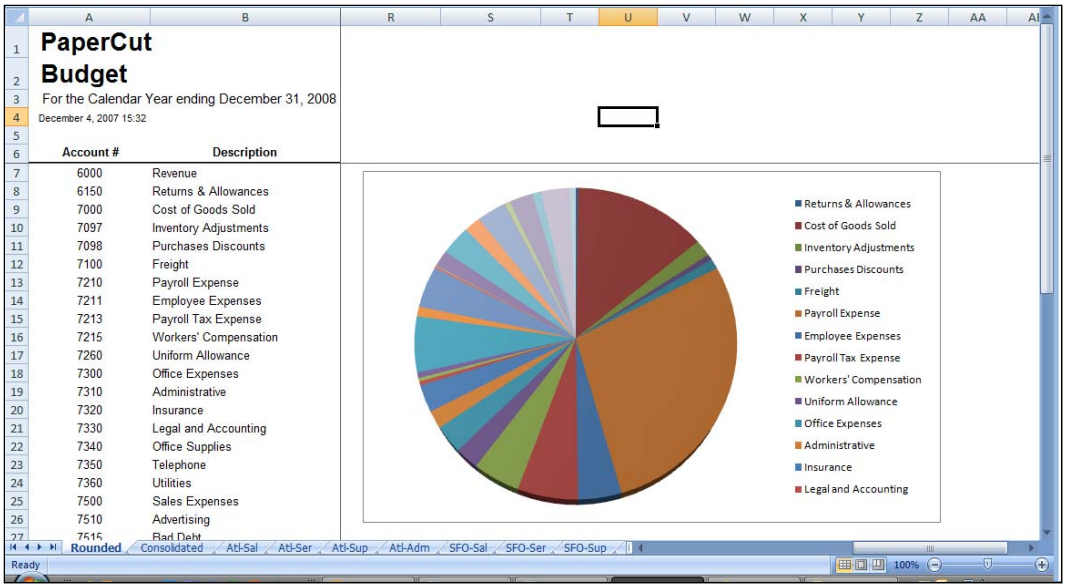
Account #	Description	Location	Department	Total	Jan	Feb	Mar	Apr
6000	Revenue	All Locations	All Departments	=ROUND(Consolidated!E7,-2)				
6150	Returns & Allowances	All Locations	All Departments					
7000	Cost of Goods Sold	All Locations	All Departments					
7097	Inventory Adjustments	All Locations	All Departments					
7098	Purchases Discounts	All Locations	All Departments					
7100	Freight	All Locations	All Departments					
7210	Payroll Expense	All Locations	All Departments					
7211	Employee Expenses	All Locations	All Departments					
7213	Payroll Tax Expense	All Locations	All Departments					
7215	Workers' Compensation	All Locations	All Departments					
7260	Uniform Allowance	All Locations	All Departments					
7300	Office Expenses	All Locations	All Departments					
7310	Administrative	All Locations	All Departments					
7320	Insurance	All Locations	All Departments					
7330	Legal and Accounting	All Locations	All Departments					
7340	Office Supplies	All Locations	All Departments					

28. Copy this formula down and across to create a consolidated budget with rounded numbers. Hide Columns C & D (Location and Department). Freeze the panes with your cursor in cell E7. Your final budget is now ready for distribution and review.

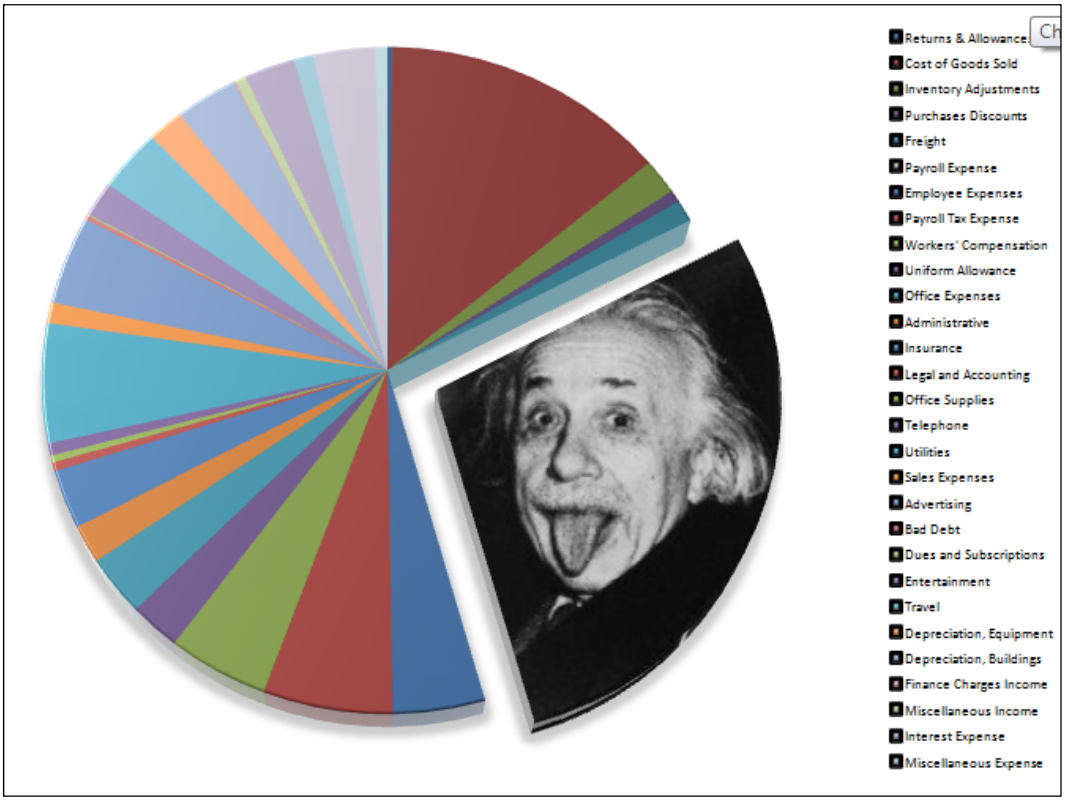


Account #	Description	Total	Jan	Feb	Mar	Apr	May	Jun
6000	Revenue	$ (34,284,100)	$ (2,857,000)	$ (2,857,000)	$ (2,857,000)	$ (2,857,000)	$ (2,857,000)	$ (2,857,0
6150	Returns & Allowances	67,800	5,600	5,600	5,600	5,600	5,600	5,6
7000	Cost of Goods Sold	3,781,400	315,100	315,100	315,100	315,100	315,100	315,1
7097	Inventory Adjustments	480,800	40,100	40,100	40,100	40,100	40,100	40,1
7098	Purchases Discounts	157,400	13,100	13,100	13,100	13,100	13,100	13,1
7100	Freight	290,900	24,200	24,200	24,200	24,200	24,200	24,2
7210	Payroll Expense	7,708,300	642,400	642,400	642,400	642,400	642,400	642,4
7211	Employee Expenses	1,149,700	95,800	95,800	95,800	95,800	95,800	95,8
7213	Payroll Tax Expense	1,615,800	134,700	134,700	134,700	134,700	134,700	134,7
7215	Workers' Compensation	1,264,500	105,400	105,400	105,400	105,400	105,400	105,4
7260	Uniform Allowance	642,300	53,500	53,500	53,500	53,500	53,500	53,5
7300	Office Expenses	791,900	66,000	66,000	66,000	66,000	66,000	66,0
7310	Administrative	498,200	41,500	41,500	41,500	41,500	41,500	41,5
7320	Insurance	774,100	64,500	64,500	64,500	64,500	64,500	64,5
7330	Legal and Accounting	114,900	9,600	9,600	9,600	9,600	9,600	9,6
7340	Office Supplies	91,900	7,700	7,700	7,700	7,700	7,700	7,7
7350	Telephone	159,300	13,300	13,300	13,300	13,300	13,300	13,3
7360	Utilities	1,588,700	132,400	132,400	132,400	132,400	132,400	132,4
7500	Sales Expenses	274,600	22,900	22,900	22,900	22,900	22,900	22,9
7510	Advertising	1,180,600	98,400	98,400	98,400	98,400	98,400	98,4
7515	Bad Debt	63,800	5,300	5,300	5,300	5,300	5,300	5,3

29. To provide a visual representation of the budget expenses, highlight the expenses in the total budget column, and include the expense descriptions. Insert a 3-D pie chart from the Insert menu. Drag the resulting pie chart to a clean part of the worksheet and resize as needed. You results should appear as follows:

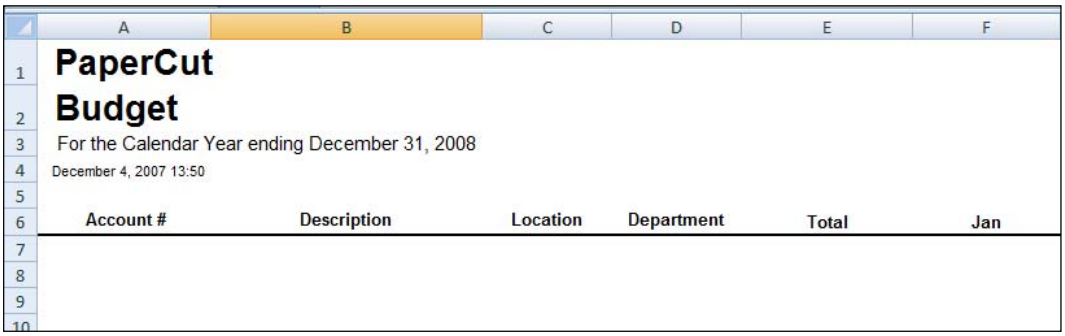


30. Edit the Pie Chart by inserting solid line borders and increase the width of the borders. Change the fill effect, and drag one of the pie slice away from the pie slightly. Select the pie slice and insert a picture to "Fill" the slice. Your results might appear as follows:

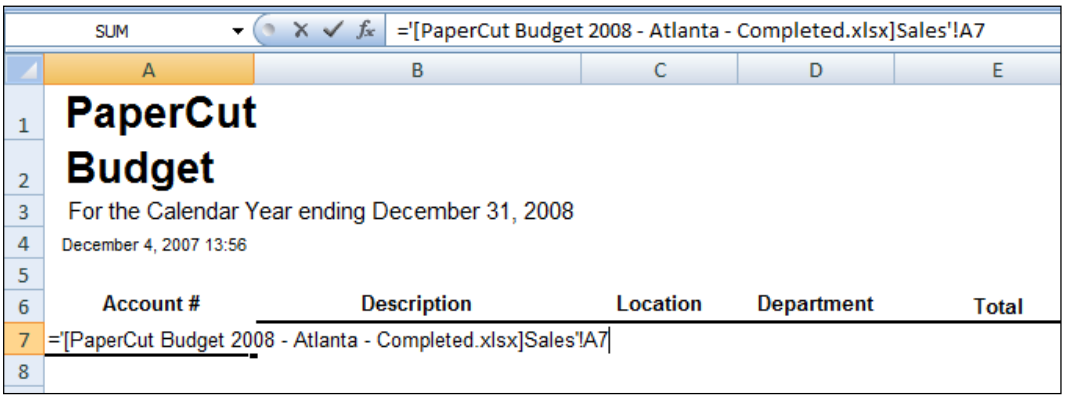


Consolidation Approach #2

31. As an alternative approach, we will now consolidate the original completed budgets for the three locations into a single budget worksheet. This approach will make it easy to use Pivot Tables, Subtotals and Data Filters to consolidate, analyze and report the data. Start with a blank worksheet, and copy the column headings from any of the completed budgets to the new blank worksheet as a starting point as shown below.



32. Starting in the first data cell (A7) in column 1 (Account #), type an equals sign (("=") and toggle to the completed Atlanta Budget file and point to cell A7 on the "Sales" Sheet, and press Enter. This action will create the first link in your consolidating budget file as shown below.

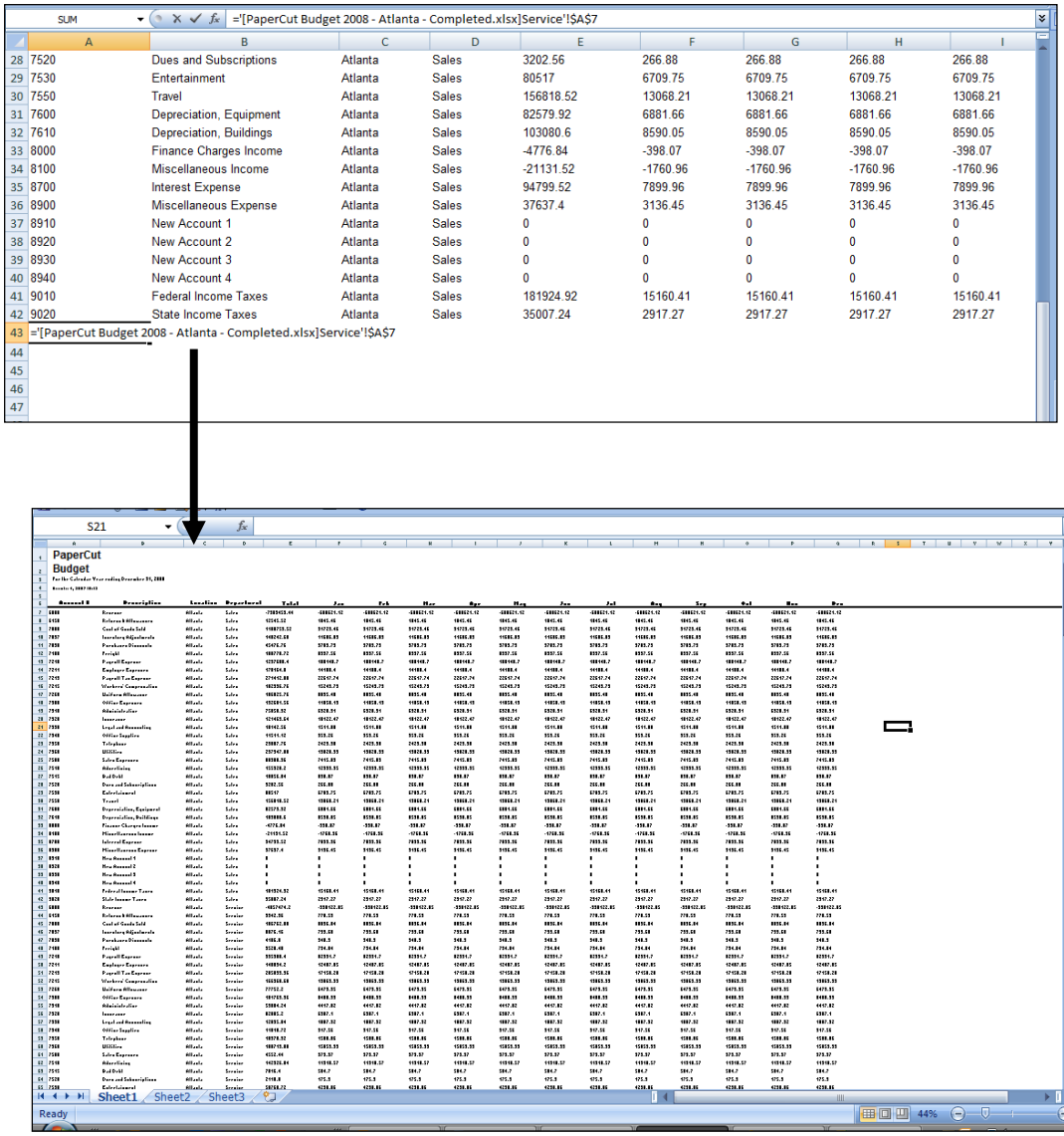


33. Edit the formula in cell A7 to remove the absolute references. Use the F4 key in edit mode to toggle the absolute references off.

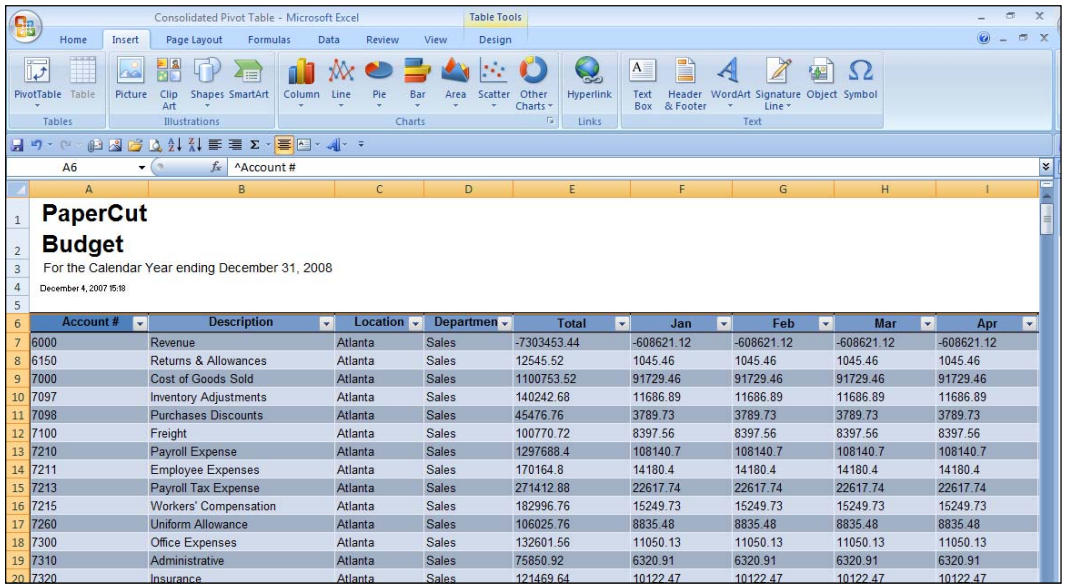
34. Copy this formula down by dragging the fill handle down to cell A42. Your worksheet should appear as follows:

	A	B	C	D	E	F	G	H	I
1	**PaperCut**								
2	**Budget**								
3	For the Calendar Year ending December 31, 2008								
4	December 4, 2007 14:02								
5									
6	**Account #**	**Description**	**Location**	**Department**	**Total**	**Jan**	**Feb**	**Mar**	**Apr**
7	6000	Revenue	Atlanta	Sales	-7303453.44	-608621.12	-608621.12	-608621.12	-608621.12
8	6150	Returns & Allowances	Atlanta	Sales	12545.52	1045.46	1045.46	1045.46	1045.46
9	7000	Cost of Goods Sold	Atlanta	Sales	1100753.52	91729.46	91729.46	91729.46	91729.46
10	7097	Inventory Adjustments	Atlanta	Sales	140242.68	11686.89	11686.89	11686.89	11686.89
11	7098	Purchases Discounts	Atlanta	Sales	45476.76	3789.73	3789.73	3789.73	3789.73
12	7100	Freight	Atlanta	Sales	100770.72	8397.56	8397.56	8397.56	8397.56
13	7210	Payroll Expense	Atlanta	Sales	1297688.4	108140.7	108140.7	108140.7	108140.7
14	7211	Employee Expenses	Atlanta	Sales	170164.8	14180.4	14180.4	14180.4	14180.4
15	7213	Payroll Tax Expense	Atlanta	Sales	271412.88	22617.74	22617.74	22617.74	22617.74
16	7215	Workers' Compensation	Atlanta	Sales	182996.76	15249.73	15249.73	15249.73	15249.73
17	7260	Uniform Allowance	Atlanta	Sales	106025.76	8835.48	8835.48	8835.48	8835.48
18	7300	Office Expenses	Atlanta	Sales	132601.56	11050.13	11050.13	11050.13	11050.13
19	7310	Administrative	Atlanta	Sales	75850.92	6320.91	6320.91	6320.91	6320.91

35. Repeat this process of creating links to the remaining 11 worksheets of budget data as shown in the screen below.

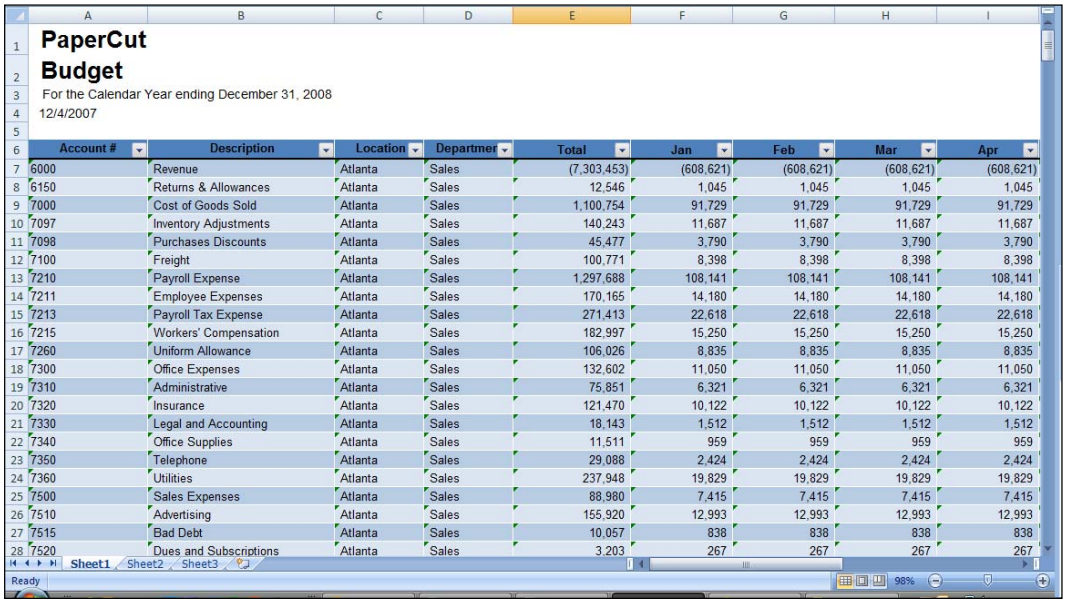


36. Now that the data is consolidated into a single worksheet, you can now use the various data tools to analyze the resulting budget data. To start with, filter the data by placing your cursor in any cell in the data area, and select Table from the insert menu. This action will automatically convert your data to a table and apply filter drop downs to each column as shown below.



Account #	Description	Location	Departmen	Total	Jan	Feb	Mar	Apr
6000	Revenue	Atlanta	Sales	-7303453.44	-608621.12	-608621.12	-608621.12	-608621.12
6150	Returns & Allowances	Atlanta	Sales	12545.52	1045.46	1045.46	1045.46	1045.46
7000	Cost of Goods Sold	Atlanta	Sales	1100753.52	91729.46	91729.46	91729.46	91729.46
7097	Inventory Adjustments	Atlanta	Sales	140242.68	11686.89	11686.89	11686.89	11686.89
7098	Purchases Discounts	Atlanta	Sales	45476.76	3789.73	3789.73	3789.73	3789.73
7100	Freight	Atlanta	Sales	100770.72	8397.56	8397.56	8397.56	8397.56
7210	Payroll Expense	Atlanta	Sales	1297688.4	108140.7	108140.7	108140.7	108140.7
7211	Employee Expenses	Atlanta	Sales	170164.8	14180.4	14180.4	14180.4	14180.4
7213	Payroll Tax Expense	Atlanta	Sales	271412.88	22617.74	22617.74	22617.74	22617.74
7215	Workers' Compensation	Atlanta	Sales	182996.76	15249.73	15249.73	15249.73	15249.73
7260	Uniform Allowance	Atlanta	Sales	106025.76	8835.48	8835.48	8835.48	8835.48
7300	Office Expenses	Atlanta	Sales	132601.56	11050.13	11050.13	11050.13	11050.13
7310	Administrative	Atlanta	Sales	75850.92	6320.91	6320.91	6320.91	6320.91
7320	Insurance	Atlanta	Sales	121469.64	10122.47	10122.47	10122.47	10122.47

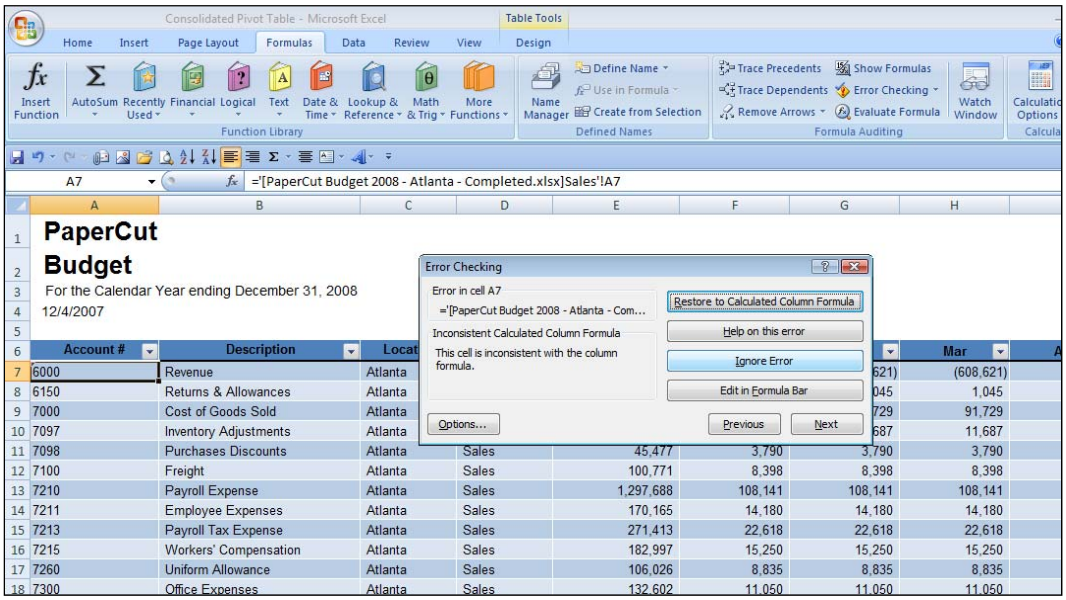
37. Highlight the columns after Column A and apply a comma formatting with no decimal places.



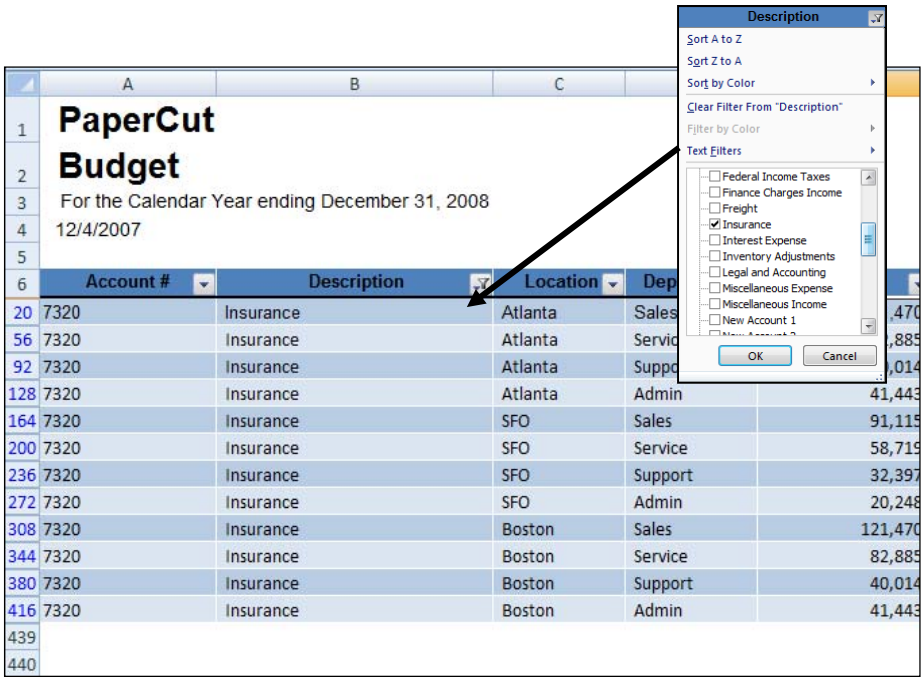
Account #	Description	Location	Departmen	Total	Jan	Feb	Mar	Apr
6000	Revenue	Atlanta	Sales	(7,303,453)	(608,621)	(608,621)	(608,621)	(608,621)
6150	Returns & Allowances	Atlanta	Sales	12,546	1,045	1,045	1,045	1,045
7000	Cost of Goods Sold	Atlanta	Sales	1,100,754	91,729	91,729	91,729	91,729
7097	Inventory Adjustments	Atlanta	Sales	140,243	11,687	11,687	11,687	11,687
7098	Purchases Discounts	Atlanta	Sales	45,477	3,790	3,790	3,790	3,790
7100	Freight	Atlanta	Sales	100,771	8,398	8,398	8,398	8,398
7210	Payroll Expense	Atlanta	Sales	1,297,688	108,141	108,141	108,141	108,141
7211	Employee Expenses	Atlanta	Sales	170,165	14,180	14,180	14,180	14,180
7213	Payroll Tax Expense	Atlanta	Sales	271,413	22,618	22,618	22,618	22,618
7215	Workers' Compensation	Atlanta	Sales	182,997	15,250	15,250	15,250	15,250
7260	Uniform Allowance	Atlanta	Sales	106,026	8,835	8,835	8,835	8,835
7300	Office Expenses	Atlanta	Sales	132,602	11,050	11,050	11,050	11,050
7310	Administrative	Atlanta	Sales	75,851	6,321	6,321	6,321	6,321
7320	Insurance	Atlanta	Sales	121,470	10,122	10,122	10,122	10,122
7330	Legal and Accounting	Atlanta	Sales	18,143	1,512	1,512	1,512	1,512
7340	Office Supplies	Atlanta	Sales	11,511	959	959	959	959
7350	Telephone	Atlanta	Sales	29,088	2,424	2,424	2,424	2,424
7360	Utilities	Atlanta	Sales	237,948	19,829	19,829	19,829	19,829
7500	Sales Expenses	Atlanta	Sales	88,980	7,415	7,415	7,415	7,415
7510	Advertising	Atlanta	Sales	155,920	12,993	12,993	12,993	12,993
7515	Bad Debt	Atlanta	Sales	10,057	838	838	838	838
7520	Dues and Subscriptions	Atlanta	Sales	3,203	267	267	267	267

38. Notice that Excel will tag each formula with a green triangle I the upper left hand corner indicating that you have inconsistent formulas in your range. This is a good

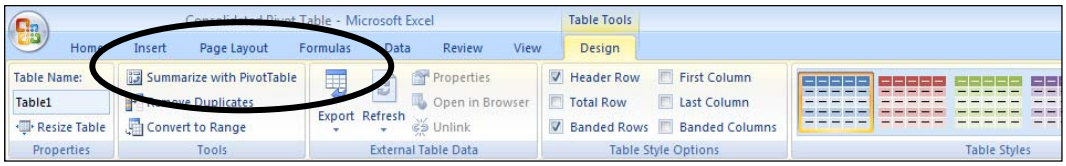
feature as Excel helps identify potential errors, but in this case the inconsistent formulas are intended. In this situation, you have two options. You can either turn off error checking for inconsistent formulas (Under Excel Options, Formulas, Error Checking Rules), or you can select each cell and instruct Excel to ignore these errors (By selecting Error Checking from the Formulas Ribbon as shown below).



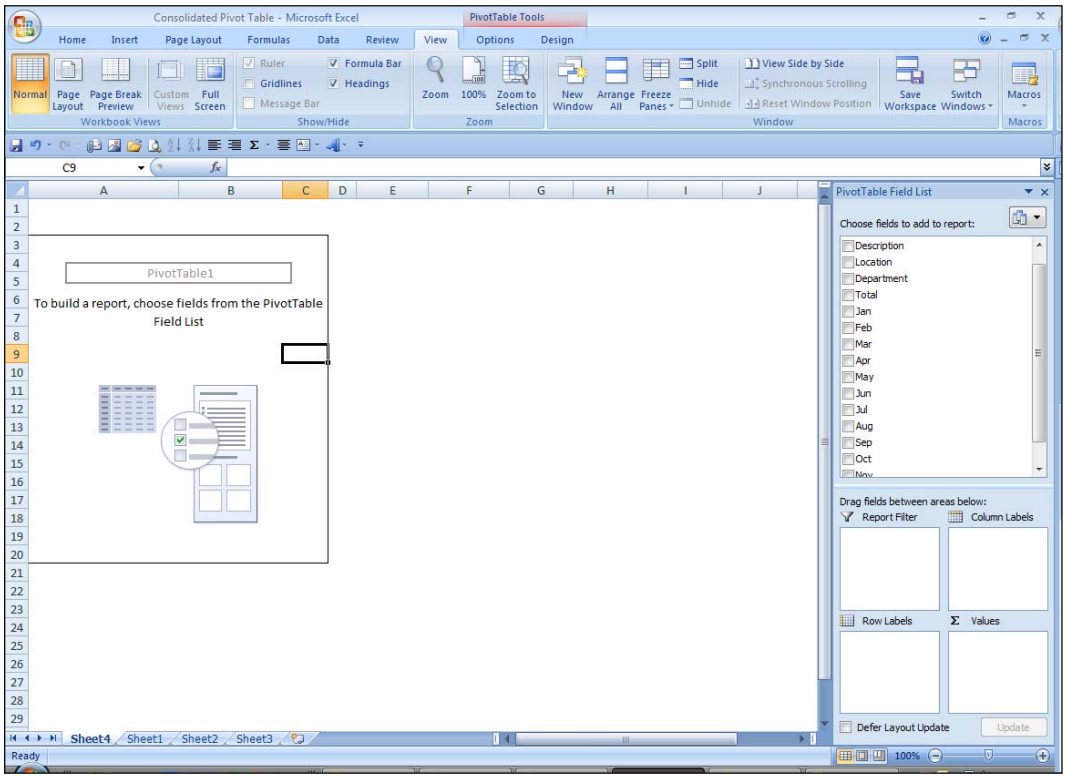
39. Use the filter to display only the Insurance expense items as shown below.



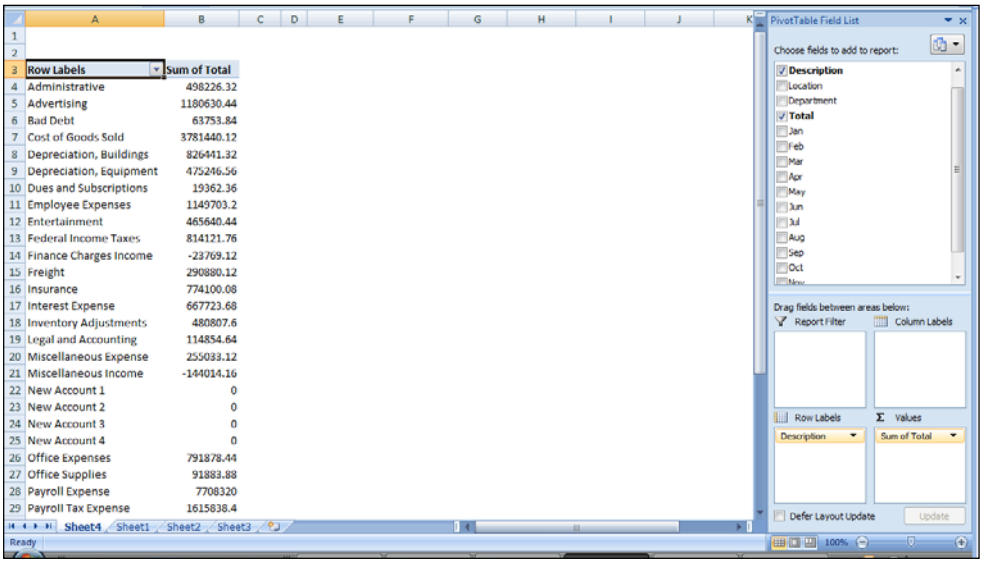
40. Remove the filter to display all data, and place your cursor in the Description column. Sort the data from high to low. With your cursor in the Table range, select “Summarize with PivotTable” from the “Design” Ribbon’s “Tools” chunk.



41. This action will create a new worksheet with a blank Pivot Palette as shown below.

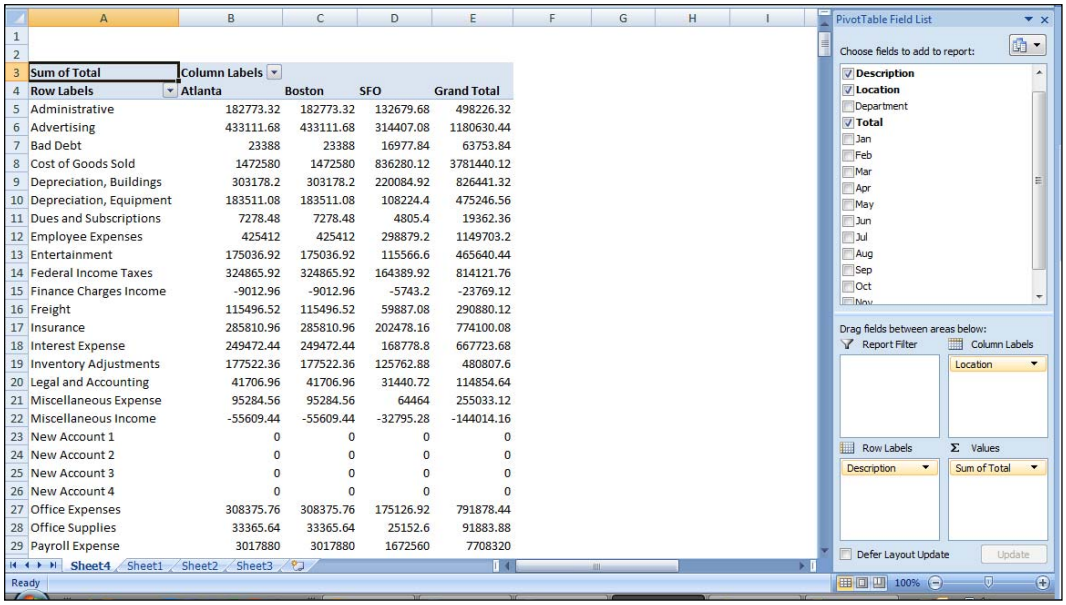


42. In the PivotTable Field List Box (to the right), check the Description and Total Check Boxes.



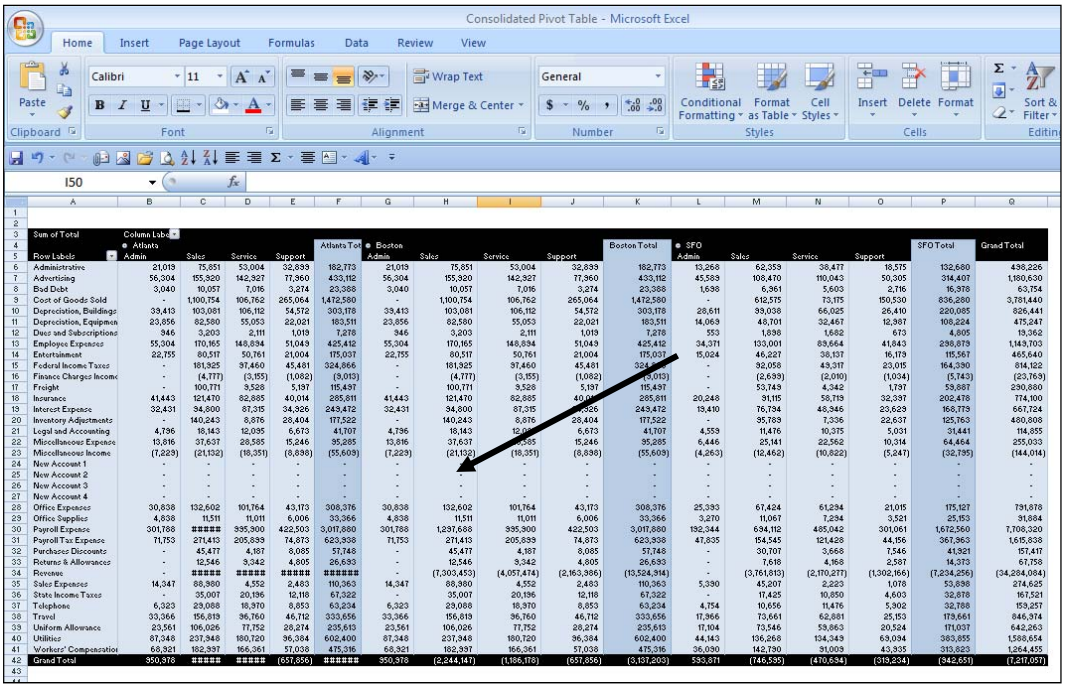
Row Labels	Sum of Total
Administrative	498226.32
Advertising	1180630.44
Bad Debt	63753.84
Cost of Goods Sold	3781440.12
Depreciation, Buildings	826441.32
Depreciation, Equipment	475246.56
Dues and Subscriptions	19362.36
Employee Expenses	1149703.2
Entertainment	465640.44
Federal Income Taxes	814121.76
Finance Charges Income	-23769.12
Freight	290880.12
Insurance	774100.08
Interest Expense	667723.68
Inventory Adjustments	480807.6
Legal and Accounting	114854.64
Miscellaneous Expense	255033.12
Miscellaneous Income	-144014.16
New Account 1	0
New Account 2	0
New Account 3	0
New Account 4	0
Office Expenses	791878.44
Office Supplies	91883.88
Payroll Expense	7708320
Payroll Tax Expense	1615838.4

43. Expand the Pivot Table to also include “Locations”. Drag the “Locations” drag box from the Row Labels to the Column Labels area of the PivotTable Field List as shown below.

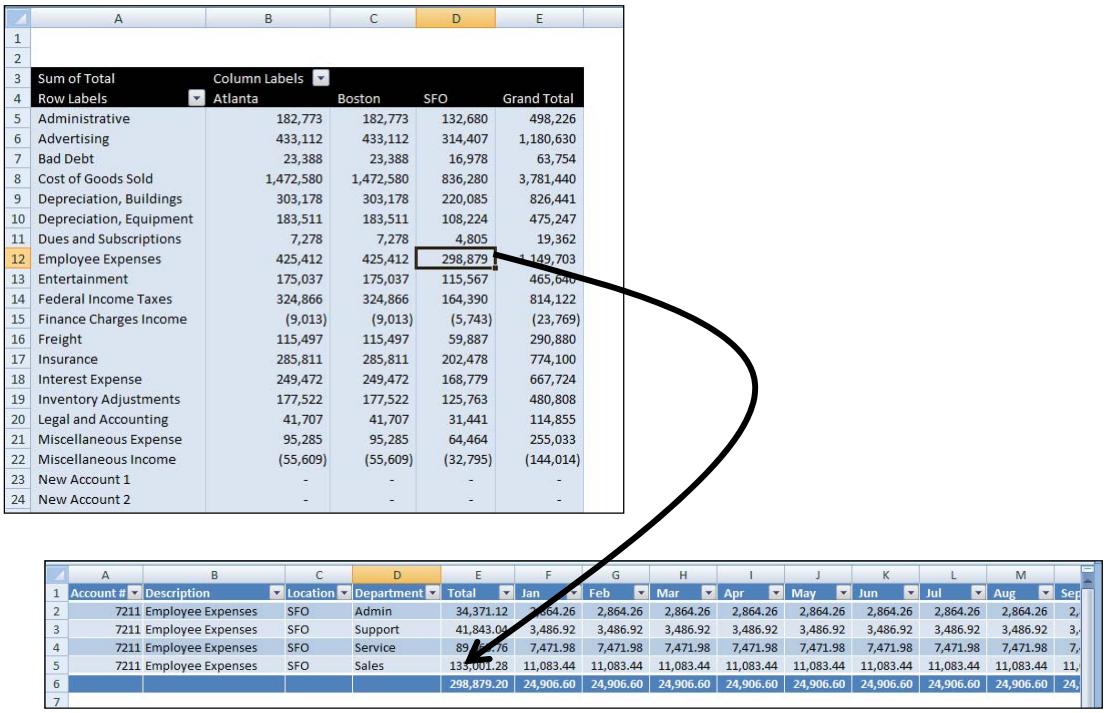


Sum of Total	Column Labels			
Row Labels	Atlanta	Boston	SFO	Grand Total
Administrative	182773.32	182773.32	132679.68	498226.32
Advertising	433111.68	433111.68	314407.08	1180630.44
Bad Debt	23388	23388	16977.84	63753.84
Cost of Goods Sold	1472580	1472580	836280.12	3781440.12
Depreciation, Buildings	303178.2	303178.2	220084.92	826441.32
Depreciation, Equipment	183511.08	183511.08	108224.4	475246.56
Dues and Subscriptions	7278.48	7278.48	4805.4	19362.36
Employee Expenses	425412	425412	298879.2	1149703.2
Entertainment	175036.92	175036.92	115566.6	465640.44
Federal Income Taxes	324865.92	324865.92	164389.92	814121.76
Finance Charges Income	-9012.96	-9012.96	-5743.2	-23769.12
Freight	115496.52	115496.52	59887.08	290880.12
Insurance	285810.96	285810.96	202478.16	774100.08
Interest Expense	249472.44	249472.44	168778.8	667723.68
Inventory Adjustments	177522.36	177522.36	125762.88	480807.6
Legal and Accounting	41706.96	41706.96	31440.72	114854.64
Miscellaneous Expense	95284.56	95284.56	64464	255033.12
Miscellaneous Income	-55609.44	-55609.44	-32795.28	-144014.16
New Account 1	0	0	0	0
New Account 2	0	0	0	0
New Account 3	0	0	0	0
New Account 4	0	0	0	0
Office Expenses	308375.76	308375.76	175126.92	791878.44
Office Supplies	33365.64	33365.64	25152.6	91883.88
Payroll Expense	3017880	3017880	1672560	7708320

44. Expand the Pivot Table further to also include “Departments”. Drag the “Departments” drag box from the “Row Labels” to the “Column Labels” area of the “PivotTable Field List” as shown below. Highlight the PivotTable area and change the numeric formatting to comma, no decimal places. Choose a PivotTable Style from the Design Ribbon. The results might appear as follows:



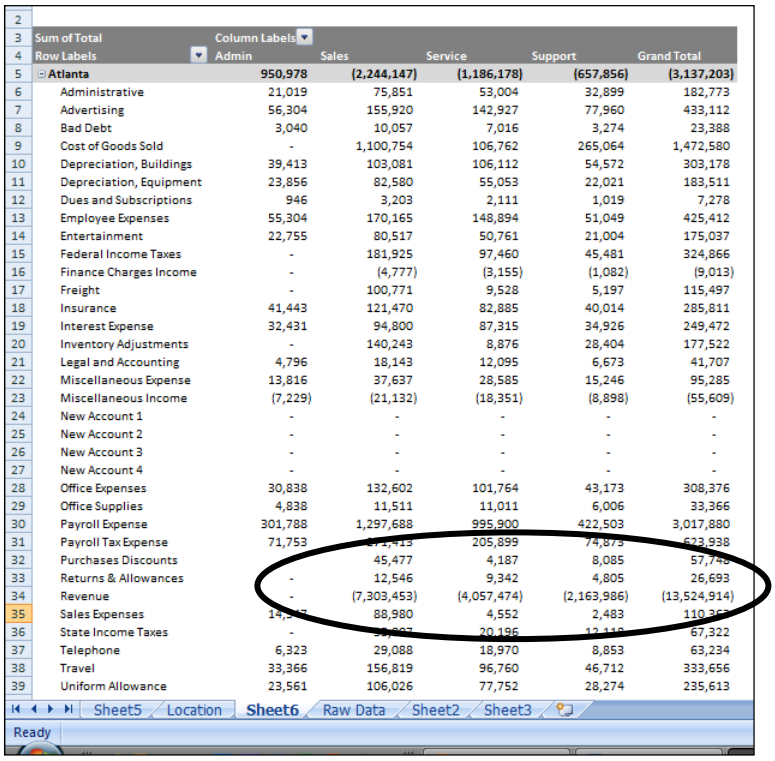
45. Uncheck the "Departments" checkbox in the PivotTable Field List, and double click on any amount in the PivotTable, such as Insurance for San Francisco in the amount of $298,879. This action will automatically drill into the summary data, creating a new worksheet summarizing all of the supporting data as shown below.



Sum of Total	Column Labels			
Row Labels	Atlanta	Boston	SFO	Grand Total
Administrative	182,773	182,773	132,680	498,226
Advertising	433,112	433,112	314,407	1,180,630
Bad Debt	23,388	23,388	16,978	63,754
Cost of Goods Sold	1,472,580	1,472,580	836,280	3,781,440
Depreciation, Buildings	303,178	303,178	220,085	826,441
Depreciation, Equipment	183,511	183,511	108,224	475,247
Dues and Subscriptions	7,278	7,278	4,805	19,362
Employee Expenses	425,412	425,412	298,879	1,149,703
Entertainment	175,037	175,037	115,567	465,640
Federal Income Taxes	324,866	324,866	164,390	814,122
Finance Charges Income	(9,013)	(9,013)	(5,743)	(23,769)
Freight	115,497	115,497	59,887	290,880
Insurance	285,811	285,811	202,478	774,100
Interest Expense	249,472	249,472	168,779	667,724
Inventory Adjustments	177,522	177,522	125,763	480,808
Legal and Accounting	41,707	41,707	31,441	114,855
Miscellaneous Expense	95,285	95,285	64,464	255,033
Miscellaneous Income	(55,609)	(55,609)	(32,795)	(144,014)
New Account 1	-	-	-	-
New Account 2	-	-	-	-

Account #	Description	Location	Department	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
7211	Employee Expenses	SFO	Admin	34,371.12	2,864.26	2,864.26	2,864.26	2,864.26	2,864.26	2,864.26	2,864.26	2,864.26	2,
7211	Employee Expenses	SFO	Support	41,843.04	3,486.92	3,486.92	3,486.92	3,486.92	3,486.92	3,486.92	3,486.92	3,486.92	3,
7211	Employee Expenses	SFO	Service	89,976	7,471.98	7,471.98	7,471.98	7,471.98	7,471.98	7,471.98	7,471.98	7,471.98	7,
7211	Employee Expenses	SFO	Sales	133,001.28	11,083.44	11,083.44	11,083.44	11,083.44	11,083.44	11,083.44	11,083.44	11,083.44	11,
				298,879.20	24,906.60	24,906.60	24,906.60	24,906.60	24,906.60	24,906.60	24,906.60	24,906.60	24,

46. Next, return to the "Raw Data" page and produce a second PivotTable that includes both Locations and Departments. Assign a Pivot Style and comma formatting. The results are shown below.

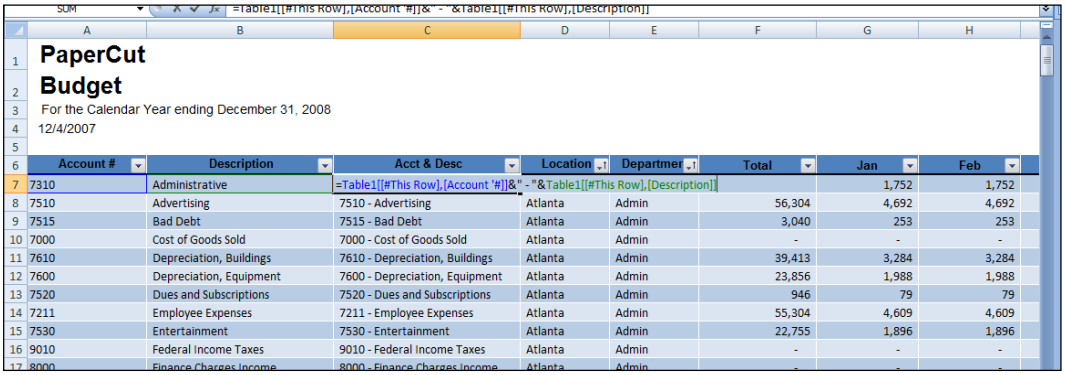


Sum of Total	Column Labels				
Row Labels	Admin	Sales	Service	Support	Grand Total
Atlanta	950,978	(2,244,147)	(1,186,178)	(657,856)	(3,137,203)
Administrative	21,019	75,851	53,004	32,899	182,773
Advertising	56,304	155,920	142,927	77,960	433,112
Bad Debt	3,040	10,057	7,016	3,274	23,388
Cost of Goods Sold	-	1,100,754	106,762	265,064	1,472,580
Depreciation, Buildings	39,413	103,081	106,112	54,572	303,178
Depreciation, Equipment	23,856	82,580	55,053	22,021	183,511
Dues and Subscriptions	946	3,203	2,111	1,019	7,278
Employee Expenses	55,304	170,165	148,894	51,049	425,412
Entertainment	22,755	80,517	50,761	21,004	175,037
Federal Income Taxes	-	181,925	97,460	45,481	324,866
Finance Charges Income	-	(4,777)	(3,155)	(1,082)	(9,013)
Freight	-	100,771	9,528	5,197	115,497
Insurance	41,443	121,470	82,885	40,014	285,811
Interest Expense	32,431	94,800	87,315	34,926	249,472
Inventory Adjustments	-	140,243	8,876	28,404	177,522
Legal and Accounting	4,796	18,143	12,095	6,673	41,707
Miscellaneous Expense	13,816	37,637	28,585	15,246	95,285
Miscellaneous Income	(7,229)	(21,132)	(18,351)	(8,898)	(55,609)
New Account 1	-	-	-	-	-
New Account 2	-	-	-	-	-
New Account 3	-	-	-	-	-
New Account 4	-	-	-	-	-
Office Expenses	30,838	132,602	101,764	43,173	308,376
Office Supplies	4,838	11,511	11,011	6,006	33,366
Payroll Expense	301,788	1,297,688	995,900	422,503	3,017,880
Payroll Tax Expense	71,753	[illegible]	205,899	74,875	[illegible]
Purchases Discounts		45,477	4,187	8,085	57,749
Returns & Allowances	-	12,546	9,342	4,805	26,693
Revenue	-	(7,303,453)	(4,057,474)	(2,163,986)	(13,524,914)
Sales Expenses	[illegible]	88,980	4,552	2,483	[illegible]
State Income Taxes	-	[illegible]	20,196	[illegible]	67,322
Telephone	6,323	29,088	18,970	8,853	63,234
Travel	33,366	156,819	96,760	46,712	333,656
Uniform Allowance	23,561	106,026	77,752	28,274	235,613

Sheet5 | Location | Sheet6 | Raw Data | Sheet2 | Sheet3

Ready

Notice that the data contains the line item titled Revenue. To fix this problem, some users will try to resort the Pivot Table. Others will attempt to add in the accounts. Both of these solutions are incorrect. The proper avenue is to return to the "Raw Data" worksheet and add a column which uses Text Formulas to combine the account and description together.



=Table1[[#This Row],[Account #]]&" - "&Table1[[#This Row],[Description]]

PaperCut

Budget

For the Calendar Year ending December 31, 2008

12/4/2007

Account #	Description	Acct & Desc	Location	Departmer	Total	Jan	Feb
7310	Administrative	=Table1[[#This Row],[Account #]]&" - "&Table1[[#This Row],[Description]]				1,752	1,752
7510	Advertising	7510 - Advertising	Atlanta	Admin	56,304	4,692	4,692
7515	Bad Debt	7515 - Bad Debt	Atlanta	Admin	3,040	253	253
7000	Cost of Goods Sold	7000 - Cost of Goods Sold	Atlanta	Admin	-	-	-
7610	Depreciation, Buildings	7610 - Depreciation, Buildings	Atlanta	Admin	39,413	3,284	3,284
7600	Depreciation, Equipment	7600 - Depreciation, Equipment	Atlanta	Admin	23,856	1,988	1,988
7520	Dues and Subscriptions	7520 - Dues and Subscriptions	Atlanta	Admin	946	79	79
7211	Employee Expenses	7211 - Employee Expenses	Atlanta	Admin	55,304	4,609	4,609
7530	Entertainment	7530 - Entertainment	Atlanta	Admin	22,755	1,896	1,896
9010	Federal Income Taxes	9010 - Federal Income Taxes	Atlanta	Admin	-	-	-
8000	Finance Charges Income	8000 - Finance Charges Income	Atlanta	Admin	-	-	-

With this new column added, select "Convert to Range" from the "Design" Ribbon's "Tools" chunk, and then select "Table" from the "Insert" Ribbon's "Tables" chunk. This action will reestablish the table range to include the newly inserted column of

data. (Caution this action also breaks the link to other PivotTables if they were created using the "Summarize with PivotTable" command, but not if they were created with the "Insert PivotTable" command. Now, create a new PivotTable by selecting Summarize with PivotTable from the Design Ribbon's Tools chunk, and use the newly created column "Acct & Desc" to produce the next PivotTable as shown below:

Sum of Total	Column Labels				
Row Labels	Admin	Sales	Service	Support	Grand Total
Atlanta	**950,978**	**(2,244,147)**	**(1,186,178)**	**(657,856)**	**(3,137,203)**
6000 - Revenue	-	(7,303,453)	(4,057,474)	(2,163,986)	(13,524,914)
6150 - Returns & Allowances	-	12,546	9,342	4,805	26,693
7000 - Cost of Goods Sold	-	1,100,754	106,762	265,064	1,472,580
7097 - Inventory Adjustments	-	140,243	8,876	28,404	177,522
7098 - Purchases Discounts	-	45,477	4,187	8,085	57,748
7100 - Freight	-	100,771	9,528	5,197	115,497
7210 - Payroll Expense	301,788	1,297,688	995,900	422,503	3,017,880
7211 - Employee Expenses	55,304	170,165	148,894	51,049	425,412
7213 - Payroll Tax Expense	71,753	271,413	205,899	74,873	623,938
7215 - Workers' Compensation	68,921	182,997	166,361	57,038	475,316
7260 - Uniform Allowance	23,561	106,026	77,752	28,274	235,613
7300 - Office Expenses	30,838	132,602	101,764	43,173	308,376
7310 - Administrative	21,019	75,851	53,004	32,899	182,773
7320 - Insurance	41,443	121,470	82,885	40,014	285,811
7330 - Legal and Accounting	4,796	18,143	12,095	6,673	41,707
7340 - Office Supplies	4,838	11,511	11,011	6,006	33,366
7350 - Telephone	6,323	29,088	18,970	8,853	63,234
7360 - Utilities	87,348	237,948	180,720	96,384	602,400
7500 - Sales Expenses	14,347	88,980	4,552	2,483	110,363
7510 - Advertising	56,304	155,920	142,927	77,960	433,112
7515 - Bad Debt	3,040	10,057	7,016	3,274	23,388
7520 - Dues and Subscriptions	946	3,203	2,111	1,019	7,278
7530 - Entertainment	22,755	80,517	50,761	21,004	175,037
7550 - Travel	33,366	156,819	96,760	46,712	333,656

Sheet5 | Location | Sheet6 | Sheet7 | Sheet8 | **Sheet9** | Raw Data | Sheet2 | Sheet3

Ready

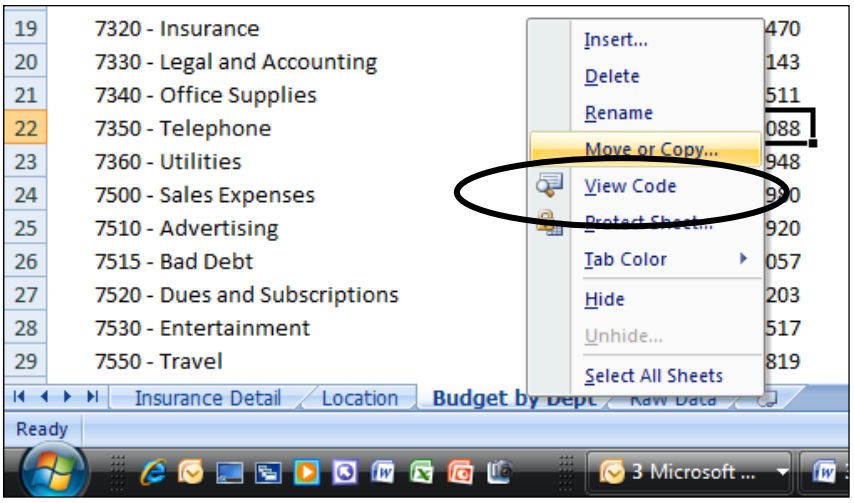
Notice that Revenue now appears at the top of each "Location" budget report section, as it should. Too often CPAs bog themselves down in PivotTables attempting to debug their results by manipulating the PivotTable settings and sorting when the true solution is found by adding columns and formulas to the raw data on the "Raw Data" page.

47. Tidy the Excel file by eliminating unnecessary worksheets and labeling each worksheet tab using a reasonable name, such as those shown below.

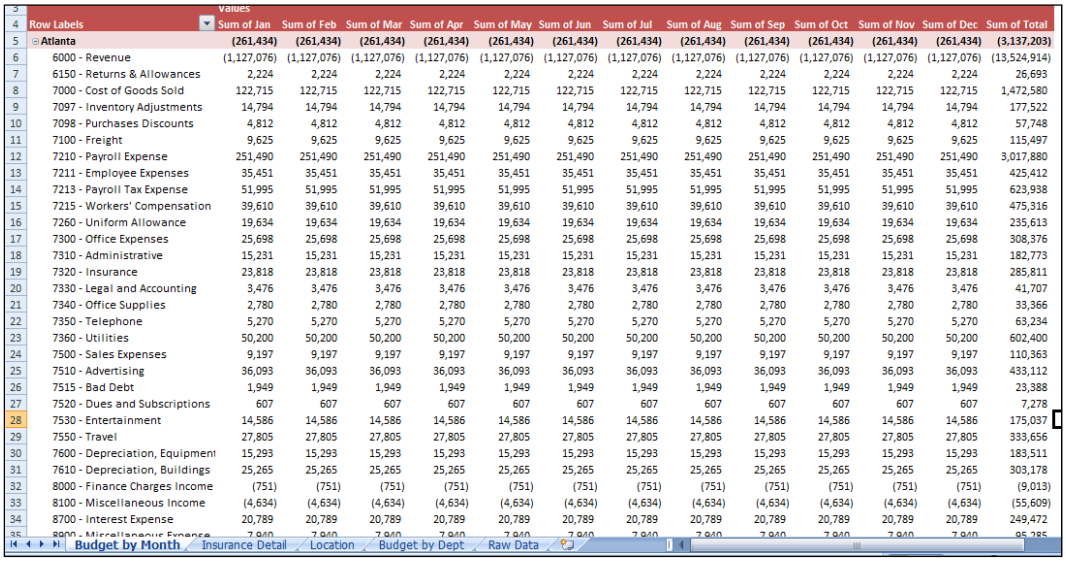
33	7098	Purchases Discounts	7098 - Purchases Discounts	Atlanta
34	6150	Returns & Allowances	6150 - Returns & Allowances	Atlanta
35	6000	Revenue	6000 - Revenue	Atlanta

Insurance Detail | Location | Budget by Dept | **Raw Data**

48. Make a copy of the “Budget by Department” worksheet by right mouse clicking on the worksheet tab and selecting Move of Copy, and checking the “Create A Copy” checkbox.



49. Rename this worksheet “Budget by Months”. Deselect the “Departments” field. Add the “individual month” fields to this PivotTable report. Remove the “Totals” field, and then add back the “Totals” field (this action will move the totals to the end of the report). Your results might appear as follows:



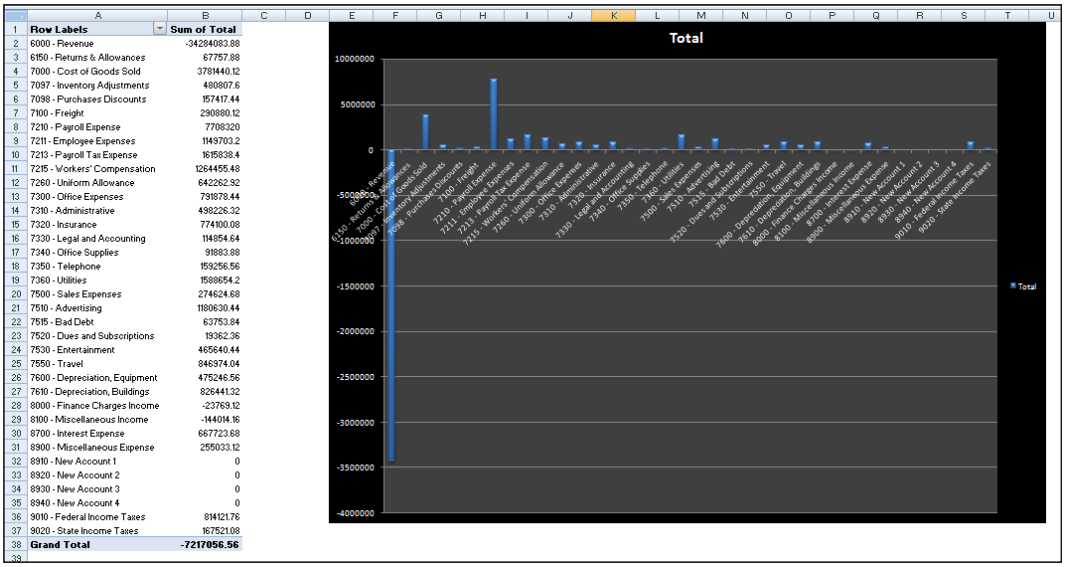
Values													
Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Total
Atlanta	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(3,137,203)
6000 - Revenue	(1,127,076)	(1,127,076)	(1,127,076)	(1,127,076)	(1,127,076)	(1,127,076)	(1,127,076)	(1,127,076)	(1,127,076)	(1,127,076)	(1,127,076)	(1,127,076)	(13,524,914)
6150 - Returns & Allowances	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224	26,693
7000 - Cost of Goods Sold	122,715	122,715	122,715	122,715	122,715	122,715	122,715	122,715	122,715	122,715	122,715	122,715	1,472,580
7097 - Inventory Adjustments	14,794	14,794	14,794	14,794	14,794	14,794	14,794	14,794	14,794	14,794	14,794	14,794	177,522
7098 - Purchases Discounts	4,812	4,812	4,812	4,812	4,812	4,812	4,812	4,812	4,812	4,812	4,812	4,812	57,748
7100 - Freight	9,625	9,625	9,625	9,625	9,625	9,625	9,625	9,625	9,625	9,625	9,625	9,625	115,497
7210 - Payroll Expense	251,490	251,490	251,490	251,490	251,490	251,490	251,490	251,490	251,490	251,490	251,490	251,490	3,017,880
7211 - Employee Expenses	35,451	35,451	35,451	35,451	35,451	35,451	35,451	35,451	35,451	35,451	35,451	35,451	425,412
7213 - Payroll Tax Expense	51,995	51,995	51,995	51,995	51,995	51,995	51,995	51,995	51,995	51,995	51,995	51,995	623,938
7215 - Workers' Compensation	39,610	39,610	39,610	39,610	39,610	39,610	39,610	39,610	39,610	39,610	39,610	39,610	475,316
7260 - Uniform Allowance	19,634	19,634	19,634	19,634	19,634	19,634	19,634	19,634	19,634	19,634	19,634	19,634	235,613
7300 - Office Expenses	25,698	25,698	25,698	25,698	25,698	25,698	25,698	25,698	25,698	25,698	25,698	25,698	308,376
7310 - Administrative	15,231	15,231	15,231	15,231	15,231	15,231	15,231	15,231	15,231	15,231	15,231	15,231	182,773
7320 - Insurance	23,818	23,818	23,818	23,818	23,818	23,818	23,818	23,818	23,818	23,818	23,818	23,818	285,811
7330 - Legal and Accounting	3,476	3,476	3,476	3,476	3,476	3,476	3,476	3,476	3,476	3,476	3,476	3,476	41,707
7340 - Office Supplies	2,780	2,780	2,780	2,780	2,780	2,780	2,780	2,780	2,780	2,780	2,780	2,780	33,366
7350 - Telephone	5,270	5,270	5,270	5,270	5,270	5,270	5,270	5,270	5,270	5,270	5,270	5,270	63,234
7360 - Utilities	50,200	50,200	50,200	50,200	50,200	50,200	50,200	50,200	50,200	50,200	50,200	50,200	602,400
7500 - Sales Expenses	9,197	9,197	9,197	9,197	9,197	9,197	9,197	9,197	9,197	9,197	9,197	9,197	110,363
7510 - Advertising	36,093	36,093	36,093	36,093	36,093	36,093	36,093	36,093	36,093	36,093	36,093	36,093	433,112
7515 - Bad Debt	1,949	1,949	1,949	1,949	1,949	1,949	1,949	1,949	1,949	1,949	1,949	1,949	23,388
7520 - Dues and Subscriptions	607	607	607	607	607	607	607	607	607	607	607	607	7,278
7530 - Entertainment	14,586	14,586	14,586	14,586	14,586	14,586	14,586	14,586	14,586	14,586	14,586	14,586	175,037
7550 - Travel	27,805	27,805	27,805	27,805	27,805	27,805	27,805	27,805	27,805	27,805	27,805	27,805	333,656
7600 - Depreciation, Equipment	15,293	15,293	15,293	15,293	15,293	15,293	15,293	15,293	15,293	15,293	15,293	15,293	183,511
7610 - Depreciation, Buildings	25,265	25,265	25,265	25,265	25,265	25,265	25,265	25,265	25,265	25,265	25,265	25,265	303,178
8000 - Finance Charges Income	(751)	(751)	(751)	(751)	(751)	(751)	(751)	(751)	(751)	(751)	(751)	(751)	(9,013)
8100 - Miscellaneous Income	(4,634)	(4,634)	(4,634)	(4,634)	(4,634)	(4,634)	(4,634)	(4,634)	(4,634)	(4,634)	(4,634)	(4,634)	(55,609)
8700 - Interest Expense	20,789	20,789	20,789	20,789	20,789	20,789	20,789	20,789	20,789	20,789	20,789	20,789	249,472
8900 - Miscellaneous Expense	7,940	7,940	7,940	7,940	7,940	7,940	7,940	7,940	7,940	7,940	7,940	7,940	95,285

Budget by Month | Insurance Detail | Location | Budget by Dept | Raw Data

50. As a grand finale, go back to one of the competed budgets, say for Boston, and change one of the budget amounts. Watch as the change instantly flow to and appear in both of your consolidated budget files, including all subsequent Tables, Reports, Charts, and PivotTables. Now if you, David or Lynn make even a single change in any of the budget templates, the results are updated everywhere without

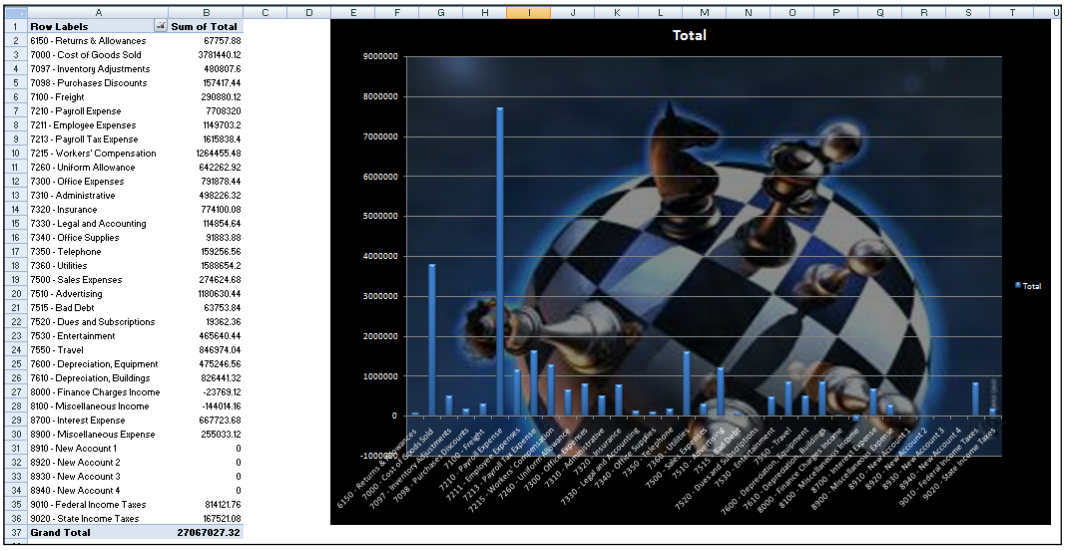
any further action on your part, aside from recalculating your data sources using the "Refresh" command. Go ahead, give it a try!

51. Complete the budget process by producing a PivotChart from the "Raw Data" worksheet by selecting "Insert Column Chart" from the "Insert" Ribbon's "Chart" chunk. Resize the Chart and apply a "Chart Style".



Row Labels	Sum of Total
6000 - Revenue	-34284083.88
6150 - Returns & Allowances	67757.88
7000 - Cost of Goods Sold	3781440.12
7097 - Inventory Adjustments	480807.6
7098 - Purchases Discounts	157417.44
7100 - Freight	290880.12
7210 - Payroll Expense	7708320
7211 - Employee Expenses	1149703.2
7213 - Payroll Tax Expense	1615838.4
7215 - Workers' Compensation	1264455.48
7260 - Uniform Allowance	642262.92
7300 - Office Expenses	791878.44
7310 - Administrative	498226.32
7320 - Insurance	774100.08
7330 - Legal and Accounting	114854.64
7340 - Office Supplies	91883.88
7350 - Telephone	159256.56
7360 - Utilities	1588654.2
7500 - Sales Expenses	274624.68
7510 - Advertising	1180630.44
7515 - Bad Debt	63753.84
7520 - Dues and Subscriptions	19362.36
7530 - Entertainment	465640.44
7550 - Travel	846974.04
7600 - Depreciation, Equipment	475246.56
7610 - Depreciation, Buildings	826441.32
8000 - Finance Charges Income	-23769.12
8100 - Miscellaneous Income	-144014.16
8700 - Interest Expense	667723.68
8900 - Miscellaneous Expense	255033.12
8910 - New Account 1	0
8920 - New Account 2	0
8930 - New Account 3	0
8940 - New Account 4	0
9010 - Federal Income Taxes	814121.76
9020 - State Income Taxes	167521.08
Grand Total	**-7217056.56**

Notice that the revenue line item severely skews the chart's appearance. To correct this problem, use the drop down filter to deselect the revenue line item to produce the following Chart. Format the plot area with a suitable image.



Row Labels	Sum of Total
6150 - Returns & Allowances	67757.88
7000 - Cost of Goods Sold	3781440.12
7097 - Inventory Adjustments	480807.6
7098 - Purchases Discounts	157417.44
7100 - Freight	290880.12
7210 - Payroll Expense	7708320
7211 - Employee Expenses	1149703.2
7213 - Payroll Tax Expense	1615838.4
7215 - Workers' Compensation	1264455.48
7260 - Uniform Allowance	642262.92
7300 - Office Expenses	791878.44
7310 - Administrative	498226.32
7320 - Insurance	774100.08
7330 - Legal and Accounting	114854.64
7340 - Office Supplies	91883.88
7350 - Telephone	159256.56
7360 - Utilities	1588654.2
7500 - Sales Expenses	274624.68
7510 - Advertising	1180630.44
7515 - Bad Debt	63753.84
7520 - Dues and Subscriptions	19362.36
7530 - Entertainment	465640.44
7550 - Travel	846974.04
7600 - Depreciation, Equipment	475246.56
7610 - Depreciation, Buildings	826441.32
8000 - Finance Charges Income	-23769.12
8100 - Miscellaneous Income	-144014.16
8700 - Interest Expense	667723.68
8900 - Miscellaneous Expense	255033.12
8910 - New Account 1	0
8920 - New Account 2	0
8930 - New Account 3	0
8940 - New Account 4	0
9010 - Federal Income Taxes	814121.76
9020 - State Income Taxes	167521.08
Grand Total	**27067027.32**

Financial Statements Projections with Tax Calculations

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.

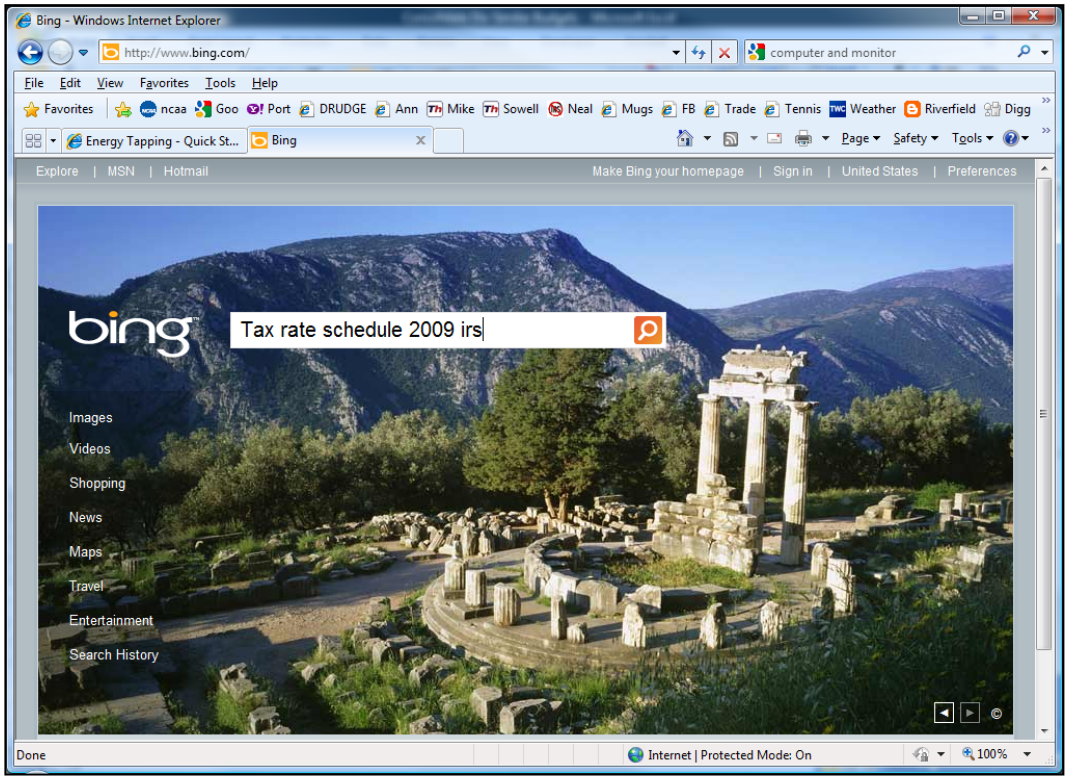
This Case Study Covers the following Excel Features and Concepts:

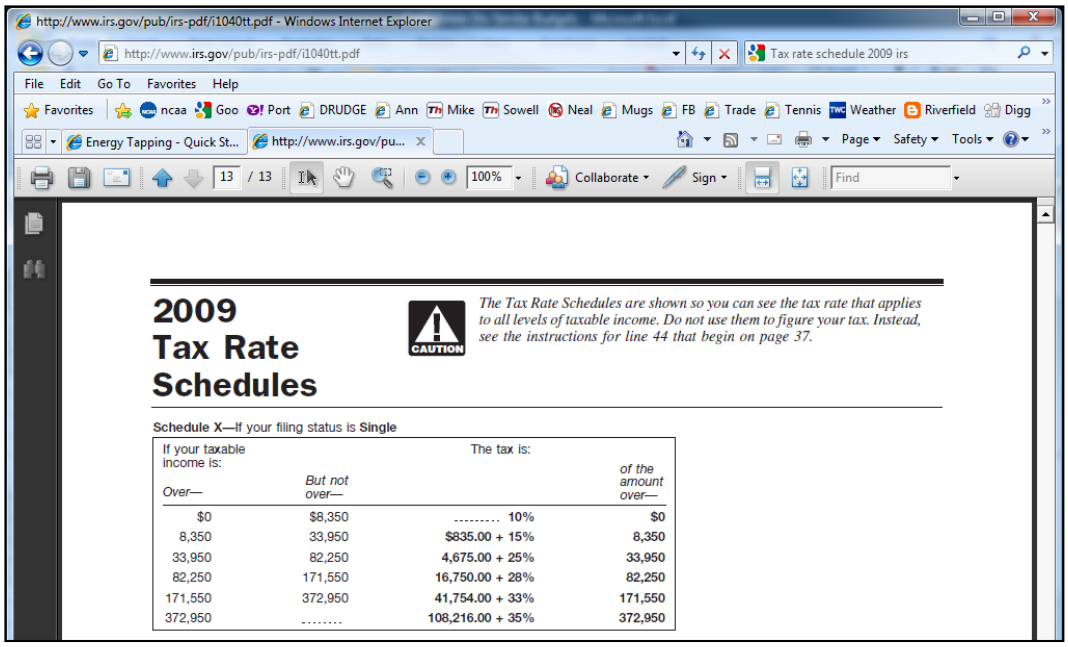
1. Copying Web Data to Excel
2. Parsing Data
3. =FIND
4. =MID
5. =VALUE
6. =VLOOKUP
7. Absolute vs Relative References
8. Worksheet Design
9. 3-D Worksheets

The =HLOOKUP & =VLOOKUP Functions

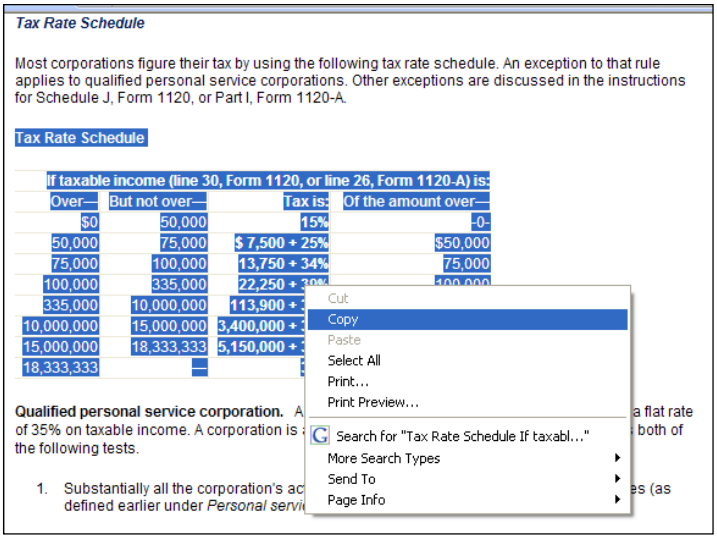
HLOOKUP and VLOOKUP refer to looking up data in a table horizontally or vertically. For example you perform such a lookup whenever you refer to an IRS tax rate schedule. CPAs and tax practitioners frequently find the need to reference tax rate schedules in their spreadsheets, but they don't know exactly 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.





2. Copy the tax rate schedule from the IRS web site. Clean up the tax rate schedule as needed.



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

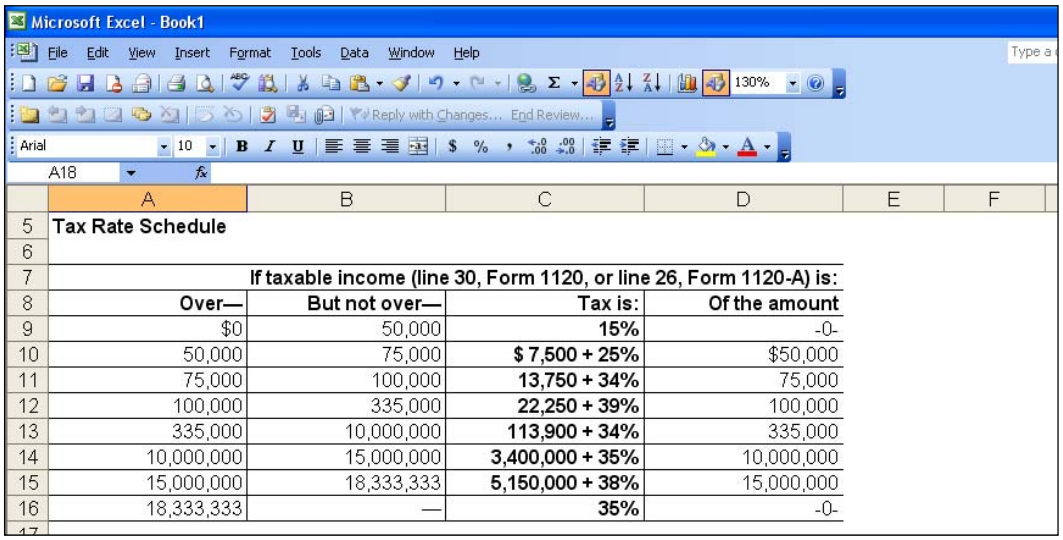
If taxable income (line 30, Form 1120, or line 26, Form 1120-A) is:			
Over—	But not over—	Tax is:	Of the amount over—
$0	50,000	15%	-0-
50,000	75,000	$ 7,500 + 25%	$50,000
75,000	100,000	13,750 + 34%	75,000
100,000	335,000	22,250 + 39%	100,000
335,000	10,000,000	113,900 + 34%	335,000
10,000,000	15,000,000	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-

Cut
Copy
Paste
Select All
Print...
Print Preview...
Search for "Tax Rate Schedule If taxabl..."
More Search Types
Send To
Page Info

Qualified personal service corporation. A ... a flat rate of 35% on taxable income. A corporation is ... both of the following tests.

1. Substantially all the corporation's ac... ...s (as defined earlier under *Personal servi...*

3. Paste the results into Excel.



Microsoft Excel - Book1

File Edit View Insert Format Tools Data Window Help

130%

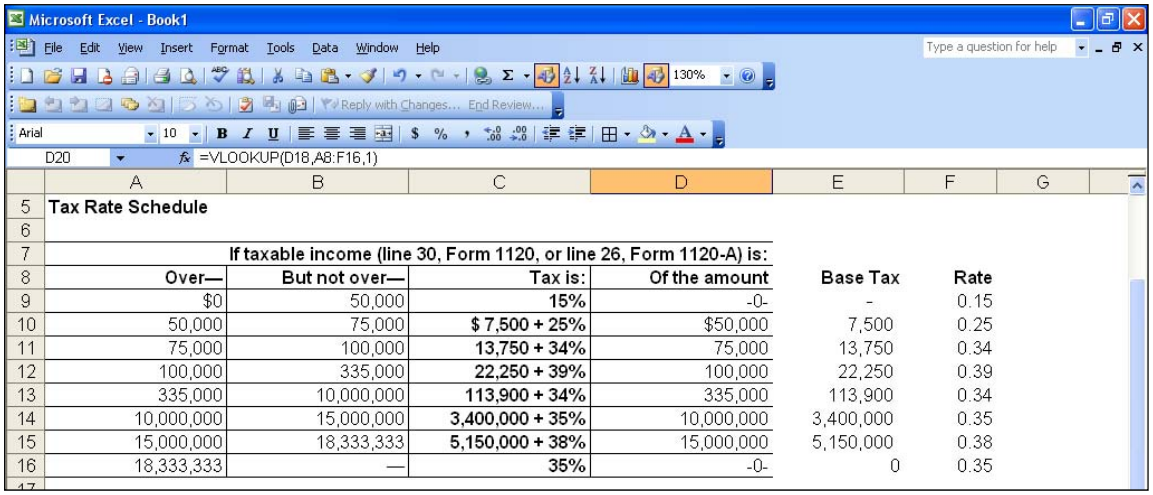
Reply with Changes... End Review...

Arial 10

A18

	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.



	A	B	C	D	E	F	G
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**	**Base Tax**	**Rate**	
9	$0	50,000	**15%**	-0-	-	0.15	
10	50,000	75,000	**$ 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.

, Form 1120, or line 26, Form 1120-A) is:			
Of the amount over—		**Base Tax**	**Rate**
-0-	0		=VALUE(C9)
000	=VALUE(MID(C10,2,7))		=VALUE(MID(C10,FIND("+",C10)+2,3))
000	=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.

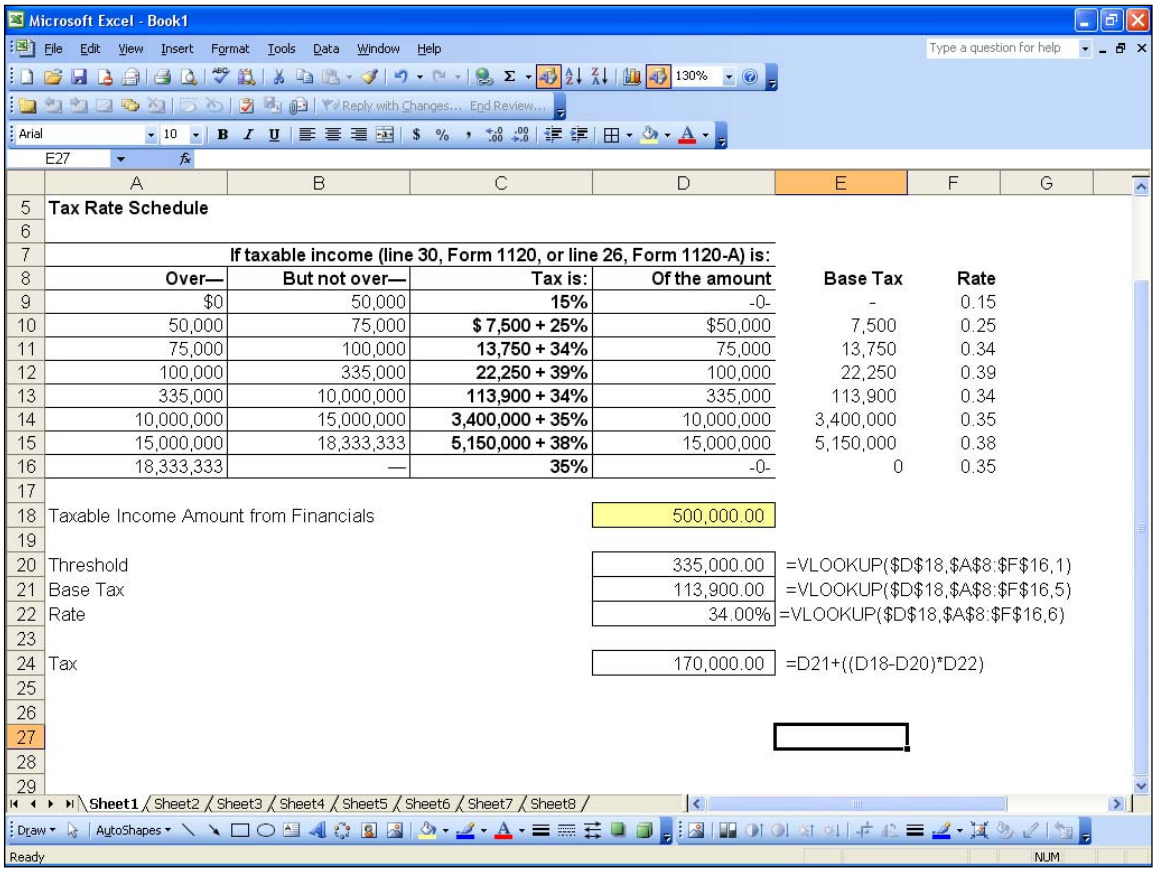
	A	B	C	D	E	F	G
5	**Tax Rate Schedule**						
6							
7				**If taxable income (line 30, Form 1120, or line 26, Form 1120-A) is:**			
8	**Over—**	**But not over—**	**Tax is:**	**Of the amount**	**Base Tax**	**Rate**	
9	$0	50,000	**15%**	-0-	-	0.15	
10	50,000	75,000	**$ 7,500 + 25%**	$50,000	7,500	0.25	
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-			
17							
18	Taxable Income Amount from Financials						
19							
20	Threshold						
21	Base Tax						
22	Rate						
23							

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

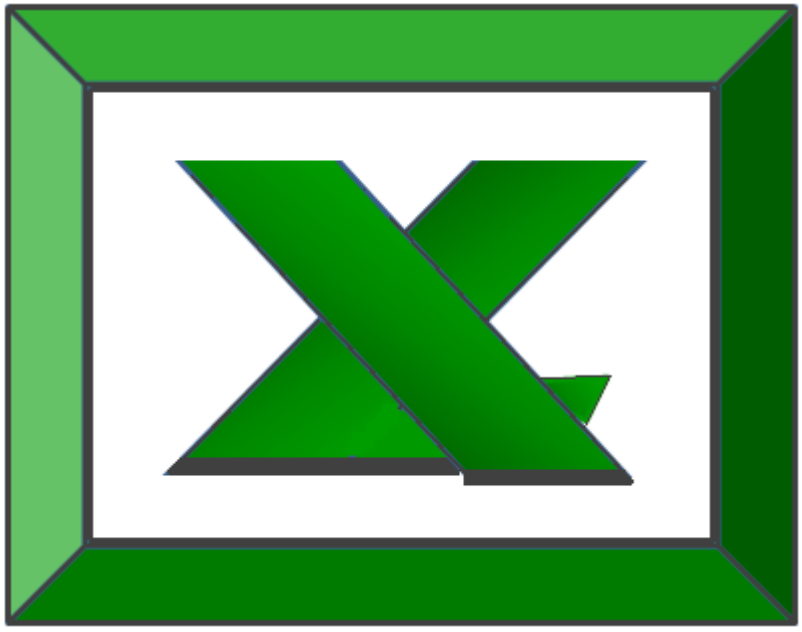
Microsoft Excel - Book1

	A	B	C	D	E	F	G
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**	**Base Tax**	**Rate**	
9	$0	50,000	**15%**	-0-	-	0.15	
10	50,000	75,000	**$ 7,500 + 25%**	$50,000	7,500	0.25	
11	75,000	100,000	**13,750 + 34%**	75,000	13,750	0.34	
12	100,000	335,000	**22,250 + 39%**	100,000	22,250	0.39	
13	335,000	10,000,000	**113,900 + 34%**	335,000	113,900	0.34	
14	10,000,000	15,000,000	**3,400,000 + 35%**	10,000,000	3,400,000	0.35	
15	15,000,000	18,333,333	**5,150,000 + 38%**	15,000,000	5,150,000	0.38	
16	18,333,333	—	**35%**	-0-	0	0.35	
17							
18	Taxable Income Amount from Financials			500,000.00			
19							
20	Threshold			335,000.00	=VLOOKUP($D$18,$A$8:$F$16,1)		
21	Base Tax			113,900.00	=VLOOKUP($D$18,$A$8:$F$16,5)		
22	Rate			34.00%	=VLOOKUP($D$18,$A$8:$F$16,6)		

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



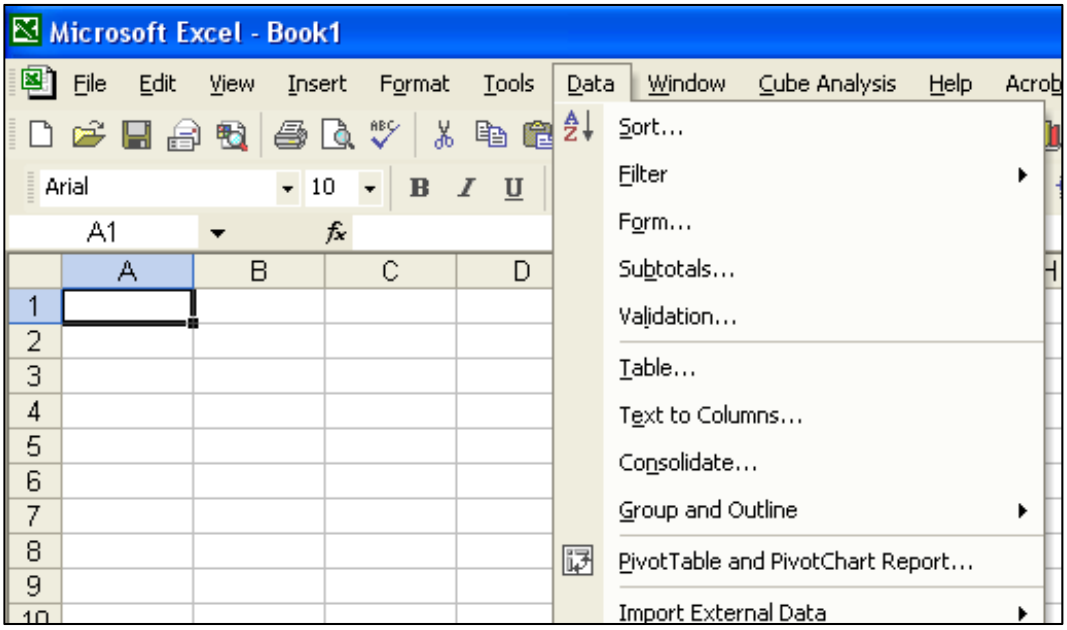
	A	B	C	D	E	F	G
5	**Tax Rate Schedule**						
6							
7			**If taxable income (line 30, Form 1120, or line 26, Form 1120-A) is:**				
8	**Over—**	**But not over—**	**Tax is:**	**Of the amount**	**Base Tax**	**Rate**	
9	$0	50,000	**15%**	-0-	-	0.15	
10	50,000	75,000	**$ 7,500 + 25%**	$50,000	7,500	0.25	
11	75,000	100,000	**13,750 + 34%**	75,000	13,750	0.34	
12	100,000	335,000	**22,250 + 39%**	100,000	22,250	0.39	
13	335,000	10,000,000	**113,900 + 34%**	335,000	113,900	0.34	
14	10,000,000	15,000,000	**3,400,000 + 35%**	10,000,000	3,400,000	0.35	
15	15,000,000	18,333,333	**5,150,000 + 38%**	15,000,000	5,150,000	0.38	
16	18,333,333	—	**35%**	-0-	0	0.35	
17							
18	Taxable Income Amount from Financials			500,000.00			
19							
20	Threshold			335,000.00	=VLOOKUP($D$18,$A$8:$F$16,1)		
21	Base Tax			113,900.00	=VLOOKUP($D$18,$A$8:$F$16,5)		
22	Rate			34.00%	=VLOOKUP($D$18,$A$8:$F$16,6)		
23							
24	Tax			170,000.00	=D21+((D18-D20)*D22)		
25							
26							
27							
28							
29							

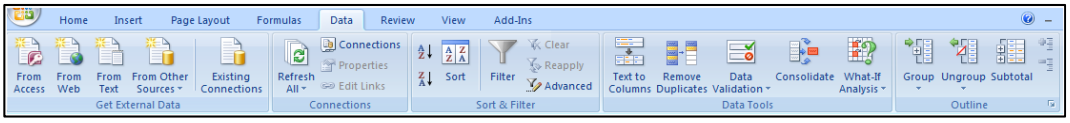


Excel Intermediate

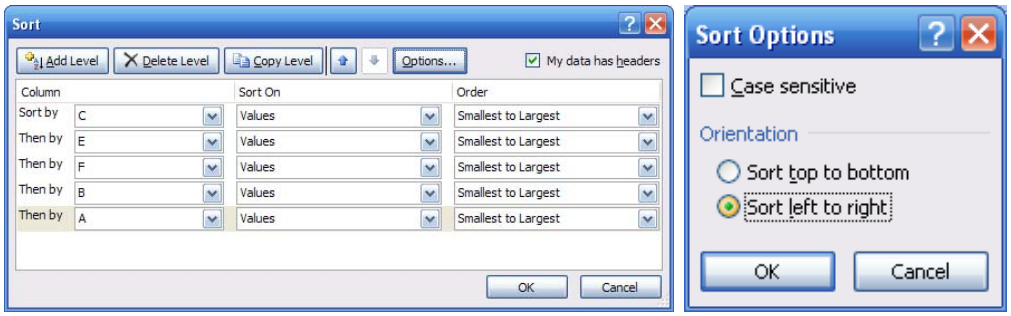
Data Commands

The Data Menu - Perhaps the parts of Excel that are of most value to CPAs, but least used by CPAs are the Data commands found under the Data menu in Excel 2003 and earlier, and on the data Ribbon in Excel 2007. These commands are shown below, and we will concentrate the next hour to studying these commands.





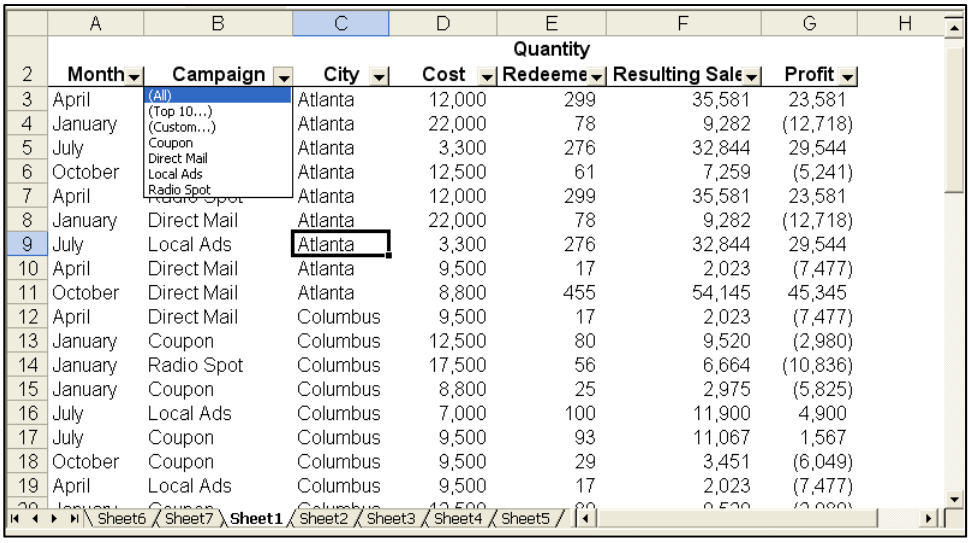
Data Sort - The Sort & Filter tools do exactly what they imply – they sort and filter data. The "A to Z" sorting tool can sort large matrix of data automatically as long as the data is contiguous. Simply place the cursor in the desired column for sorted, and press the A to Z or Z to A button as the case may be. Excel will automatically sort all continuous columns that have headings and all contiguous rows from the top row under the heading labels down to the last row in the selected column that contains data. The "Sort" tool is dramatically enhanced in Excel 2007 as it now provides the ability to sort by up to 64 columns, instead of just 3 columns. Also included in this tool is the ability to sort left to right and to sort by font color and cell color.



Data Filter - 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!

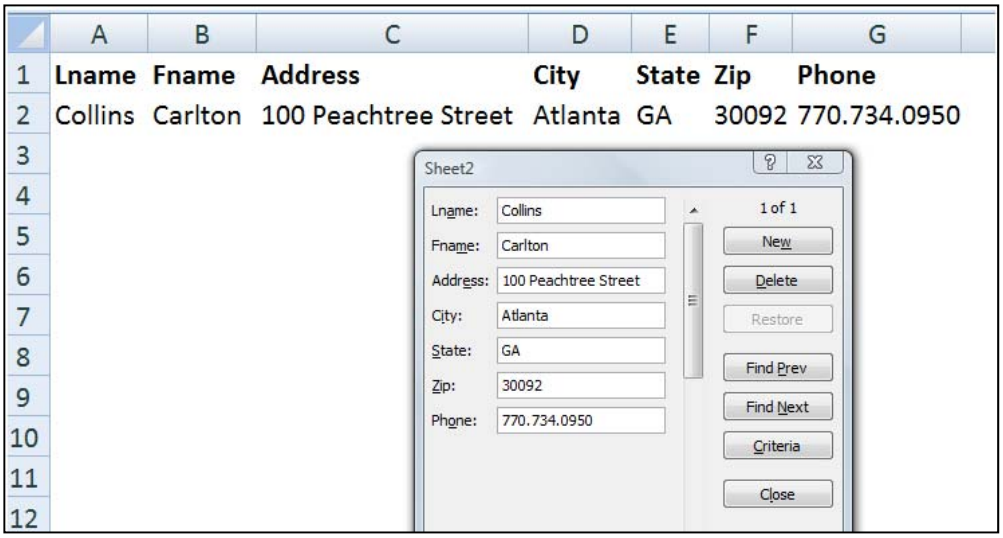


	A	B	C	D	E	F	G	H
					Quantity			
2	Month	Campaign	City	Cost	Redeeme	Resulting Sale	Profit	
3	April	(All)	Atlanta	12,000	299	35,581	23,581	
4	January	(Top 10...)	Atlanta	22,000	78	9,282	(12,718)	
5	July	(Custom...)	Atlanta	3,300	276	32,844	29,544	
6	October	Coupon	Atlanta	12,500	61	7,259	(5,241)	
7	April	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)	

In Excel 2007, the AutoFilter tool is accessed differently. In order to use this tool, you convert you list to a table using the Insert ribbon's Table tool. As a result, AutoFilter drop down boxes are inserted automatically.

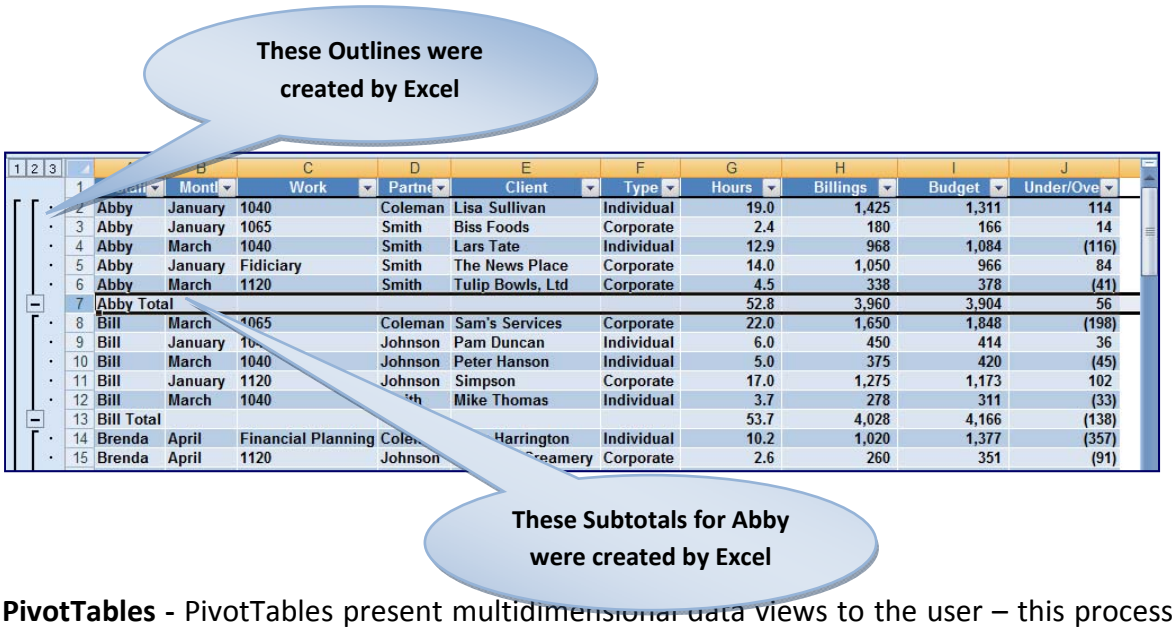
Column1	Column2	Column3
Automobile Expense	$2,139.55	$2,567.46
Bank Service Charges	37.34	44.81
Conference Registration Fees	400.00	480.00
Contract Labor	26,654.80	31,985.76
Contributions	1,282.53	1,539.04
Dues and Subscriptions	6,051.13	7,261.36
Hardware Purchase	3,950.05	4,740.06
Total	**38,375.85**	**46,051.02**

Data Form - The Data Form makes Excel look more and behave more like a database, such as Microsoft Access. (The Form button has not been included on the Office Fluent user interface Ribbon, but you can still use it in Office Excel 2007 by adding the Form button to the Quick Access Toolbar.)



A data form provides a convenient means to enter or display one complete row of information in a range or table without scrolling horizontally. You may find that using a data form can make data entry easier than moving from column to column when you have more columns of data than can be viewed on the screen. Use a data form when a simple form of text boxes that list the column headings as labels is sufficient and you don't need sophisticated or custom form features, such as a list box or spin button.

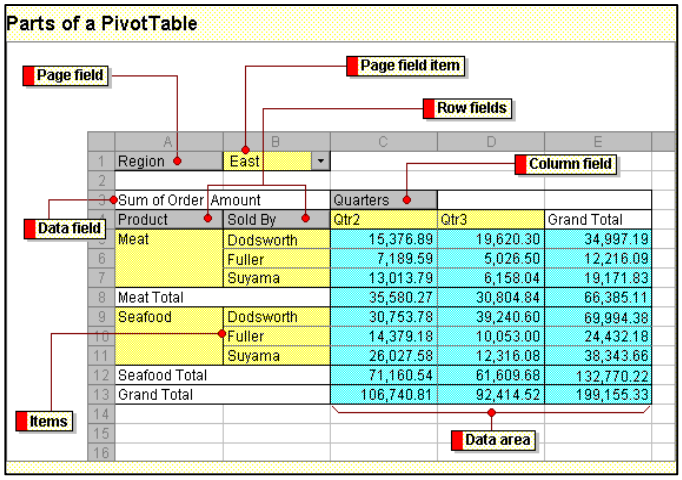
Data Subtotals – Excel will automatically calculate subtotals and grand totals in a list when you use the Subtotal command. Once inserted, Excel recalculates subtotal and grand total values automatically as you enter and edit the detail data. The Subtotal command also outlines the list so that you can display and hide the detail rows for each subtotal.



	B	C	D	E	F	G	H	I	J
1	Month	Work	Partner	Client	Type	Hours	Billings	Budget	Under/Over
2	Abby	January	1040	Coleman	Lisa Sullivan	Individual	19.0	1,425	1,311	114
3	Abby	January	1065	Smith	Biss Foods	Corporate	2.4	180	166	14
4	Abby	March	1040	Smith	Lars Tate	Individual	12.9	968	1,084	(116)
5	Abby	January	Fidiciary	Smith	The News Place	Corporate	14.0	1,050	966	84
6	Abby	March	1120	Smith	Tulip Bowls, Ltd	Corporate	4.5	338	378	(41)
7	Abby Total						52.8	3,960	3,904	56
8	Bill	March	1065	Coleman	Sam's Services	Corporate	22.0	1,650	1,848	(198)
9	Bill	January	10	Johnson	Pam Duncan	Individual	6.0	450	414	36
10	Bill	March	1040	Johnson	Peter Hanson	Individual	5.0	375	420	(45)
11	Bill	January	1120	Johnson	Simpson	Corporate	17.0	1,275	1,173	102
12	Bill	March	1040		Mike Thomas	Individual	3.7	278	311	(33)
13	Bill Total						53.7	4,028	4,166	(138)
14	Brenda	April	Financial Planning	Cole	Harrington	Individual	10.2	1,020	1,377	(357)
15	Brenda	April	1120	Johnson	reamery	Corporate	2.6	260	351	(91)

PivotTables - PivotTables present multidimensional data views to the user – this process is often referred to as "modeling", "data-cube analysis", or "OLAP data cubes". To re-arrange the PivotTable data, just drag and drop column and row headings to move data around. PivotTables are a great data analysis tool for management.

The enhanced PivotTable now provides multidimensional data analysis. If you have never used a PivotTable before, initially the concept can be difficult to grasp. The best way to understand a PivotTable is to create a blank pivot Table and then drag and drop field names onto that blank table. This way you will see the resulting pivot table magically appear and it will help you better understand the important relationship between the pivot pallet and the field name list.

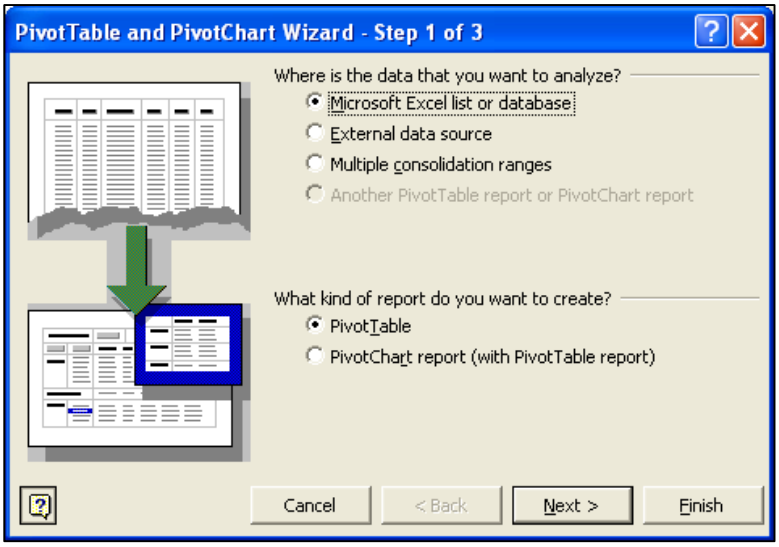


To create a PivotTable, start with an Excel worksheet data that contains several columns of data – the data must include column and row headings. Select PivotTable from the Data menu in Excel 2003 and click Finish, or from the insert Ribbon in Excel 2007. This process is shown below: Let's start with a page of data summarizing the results of 4 separate marketing campaigns conducted in three different cities as shown below:

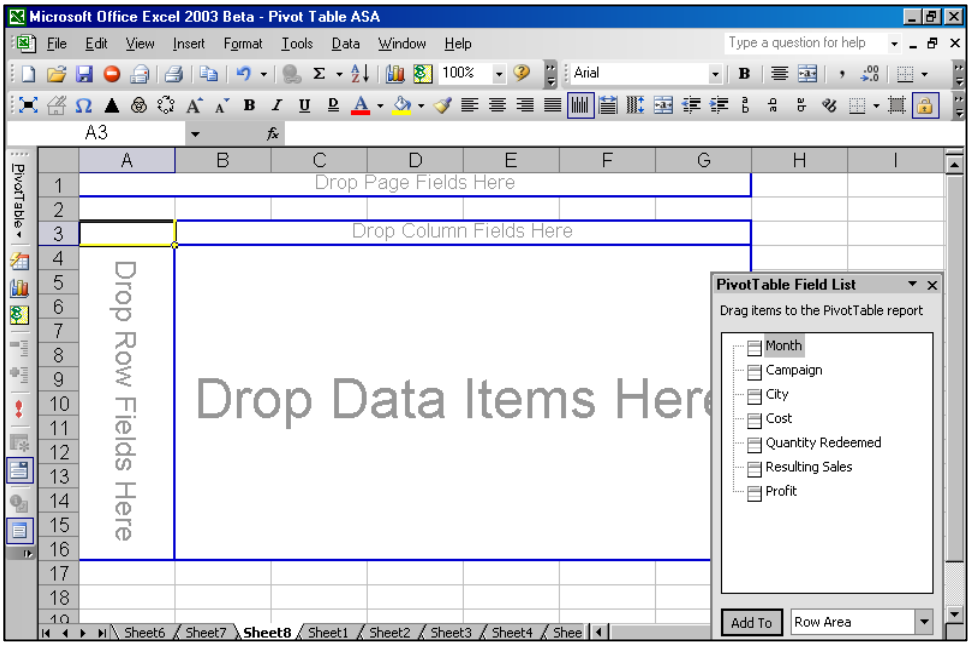
	A	B	C	D	E	F	G	H
2	Month	Campaign	City	Cost	Quantity Redeemed	Resulting Sales	Profit	
3	April	Coupon	Atlanta	12,000	299	35,581	23,581	
4	January	Direct Mail	Atlanta	22,000	78	9,282	(12,718)	
5	July	Coupon	Atlanta	3,300	276	32,844	29,544	
6	October	Direct Mail	Atlanta	12,500	61	7,259	(5,241)	
7	April	Radio 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)	

Sheet6 Sheet7 Sheet8 Sheet1 Sheet2 Sheet3 Sheet4 Sheet5

Start the PivotTable process by placing your cursor anywhere in the data, and then select PivotTable and the Finish button (in Excel 2003 only) as shown below:



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.



Now drag and drop field names from the Pivot Table field list onto the Pivot pallet. This action will automatically create Pivot Table reports – and they will change each time you drop additional field names, or move field names around. Presented below are but a few examples of hundreds of possible reports that could be viewed with this data through the PivotTable format.

	A	B	C	D	E	F
1	Drop Page Fields Here					
2						
3	Sum of Resulting Sales	Campaign				
4	Month	Coupon	Direct Mail	Local Ads	Radio Spot	Grand Total
5	January	37485	27846	67116	19992	152439
6	April	101507	45101	62713	117691	327012
7	July	64855	58072	77588	101150	301665
8	October	82943	115549	54264	61047	313803
9	Grand Total	286790	246568	261681	299880	1094919

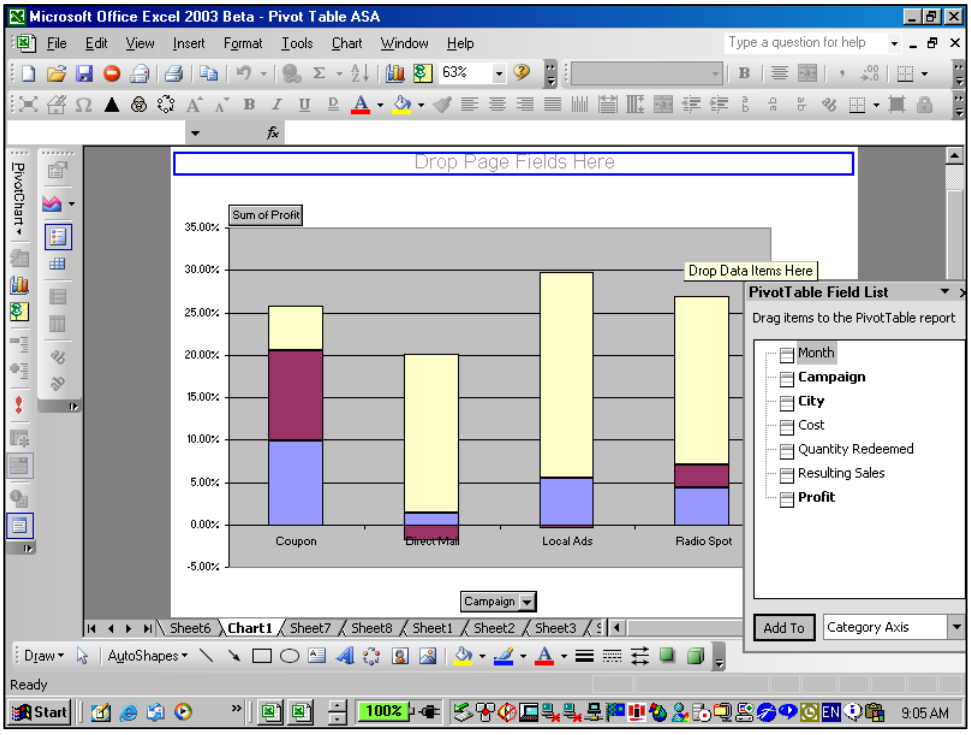
This report shown above shows the total resulting sales for each marketing campaign for each of the 4 months marketing campaigns were conducted.

	A	B	C	D	E	F
1	Drop Page Fields Here					
2						
3	Sum of Resulting Sales	Campaign				
4	Month	Coupon	Direct Mail	Local Ads	Radio Spot	Grand Total
5	January	3.42%	2.54%	6.13%	1.83%	13.92%
6	April	9.27%	4.12%	5.73%	10.75%	29.87%
7	July	5.92%	5.30%	7.09%	9.24%	27.55%
8	October	7.58%	10.55%	4.96%	5.58%	28.66%
9	Grand Total	26.19%	22.52%	23.90%	27.39%	100.00%

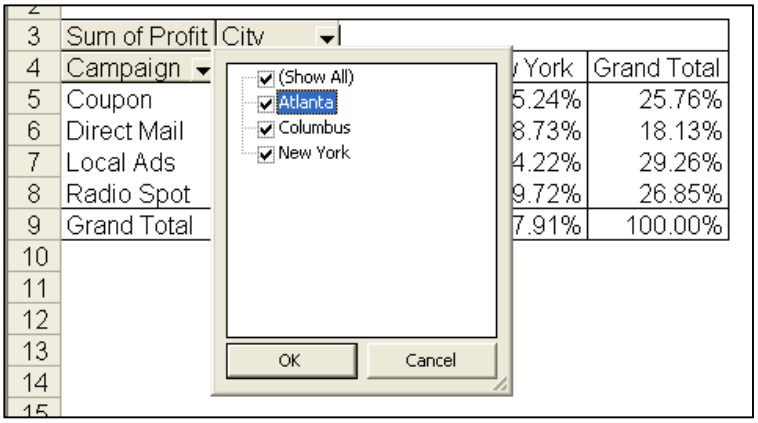
In this screen we see the same information is shown as a percentage of the total. A few observations include the fact that overall Radio Spots are the most profitable type of campaign, but only in April and July. In January and October, local ads and direct mail, respectively, produce better results. Further, April campaigns had the best response overall.

	A	B	C	D	E	F	G
1	Drop Page Fields Here						
2							
3	Sum of Resulting Sales	City					
4	Campaign	Atlanta	Columbus	New York	Grand Total		
5	Coupon	6.25%	16.22%	3.73%	26.19%		
6	Direct Mail	7.49%	3.21%	11.82%	22.52%		
7	Local Ads	3.00%	1.27%	19.63%	23.90%		
8	Radio Spot	3.25%	6.99%	17.15%	27.39%		
9	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.

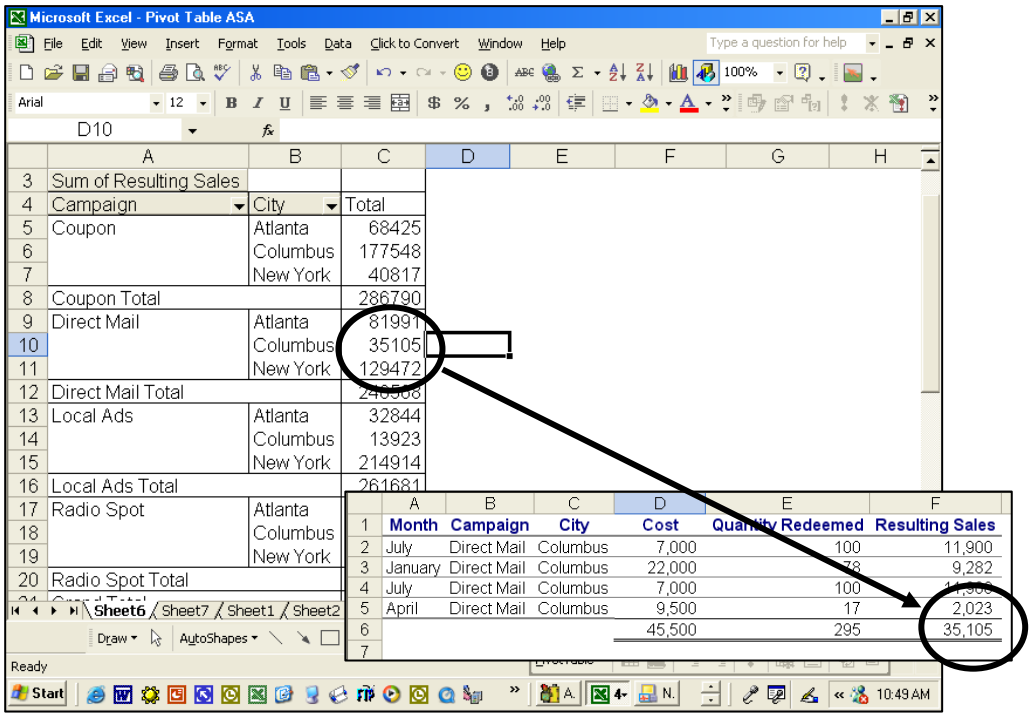


Filtering Pivot Tables - If you take a close look at your resulting pivot tables, you will notice that Excel automatically inserts a filter button on each field list as shown by the drop down arrows in the screen below:

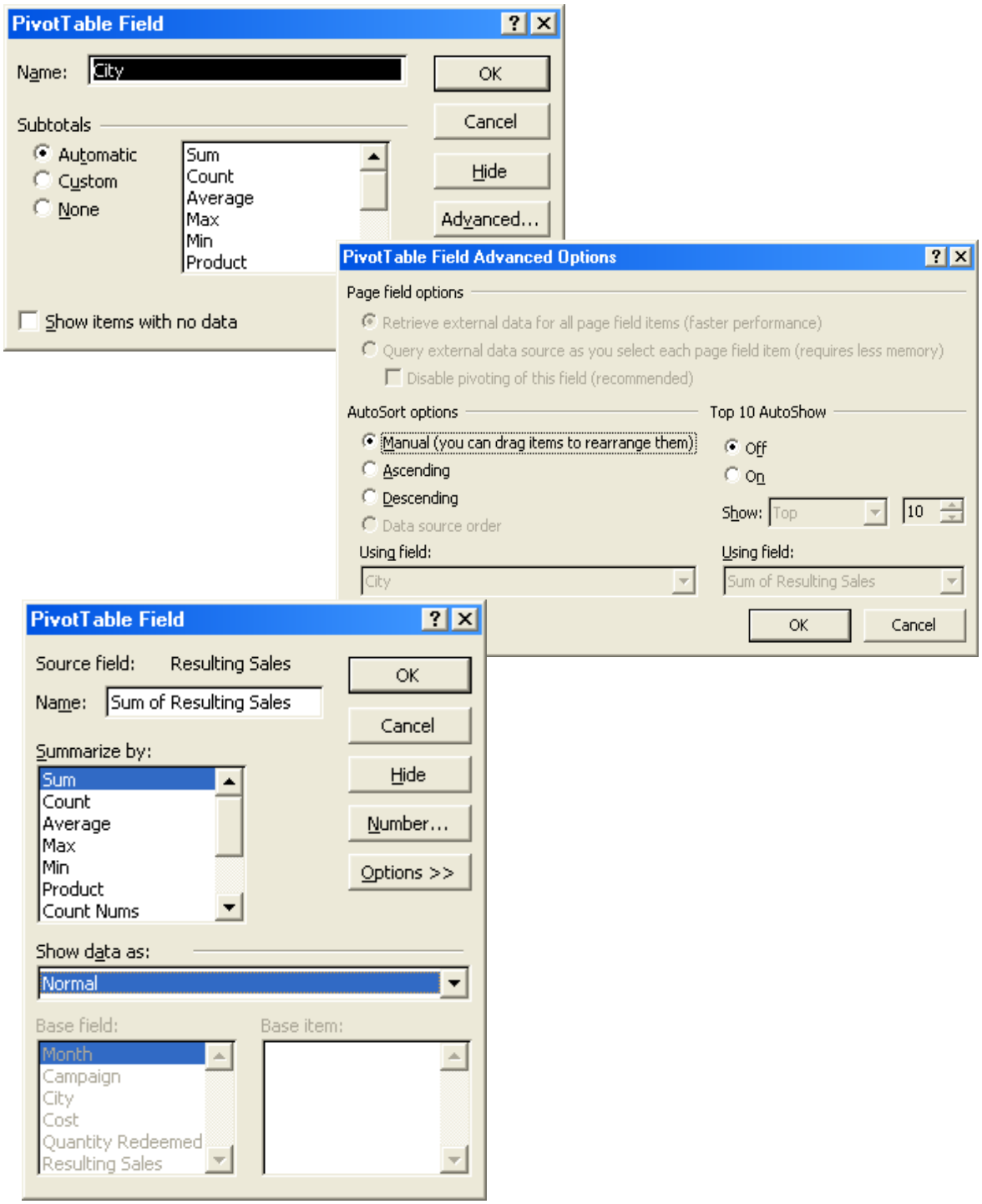


This drop down filter list makes it easy to refine your report to include just the data you want.

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:

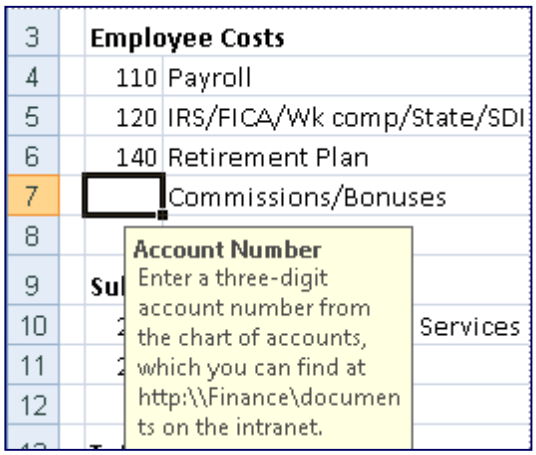

Microsoft Excel - Pivot Table ASA
Sum of Resulting Sales
Campaign
City
Total
Coupon
Atlanta 68425
Columbus 177548
New York 40817
Coupon Total 286790
Direct Mail
Atlanta 81991
Columbus 35105
New York 129472
Direct Mail Total
Local Ads
Atlanta 32844
Columbus 13923
New York 214914
Local Ads Total 261681
Radio Spot
Atlanta
Columbus
New York
Radio Spot Total
Month Campaign City Cost Quantity Redeemed Resulting Sales
July Direct Mail Columbus 7,000 100 11,900
January Direct Mail Columbus 22,000 78 9,282
July Direct Mail Columbus 7,000 100
April Direct Mail Columbus 9,500 17 2,023
45,500 295 35,105
Sheet6 Sheet7 Sheet1 Sheet2
Ready
10:49 AM

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.

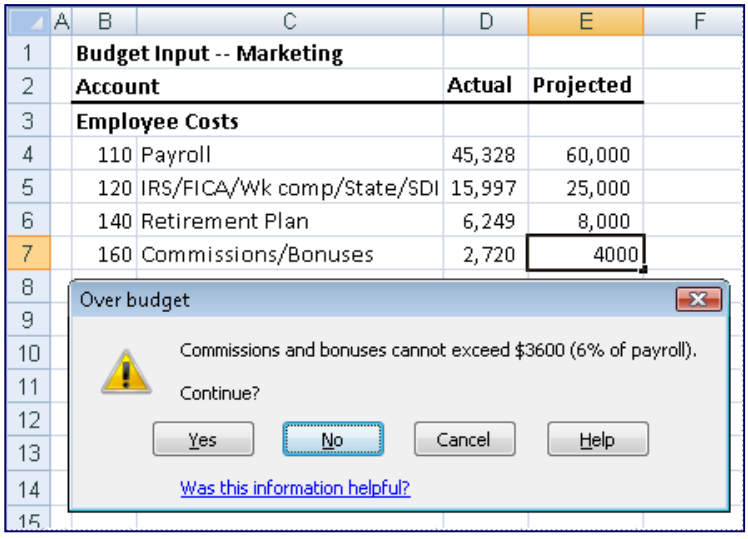


Data Validation - Data validation is an Excel feature that you can use to define restrictions on what data can or should be entered in a cell. This allows you to configure data validation to prevent users from entering data that is not valid. If you prefer, you can allow users to enter invalid data but warn them when they try to type it in the cell. You can also provide messages to define what input you expect for the cell, and instructions to help users correct any errors.

For example, in a marketing workbook, you can set up a cell to allow only account numbers that are exactly three characters long. When users select the cell, you can show them a message such as this one:



If users ignore this message and type invalid data in the cell, such as a two-digit or five-digit number, you can show them an actual error message. In a more advanced scenario, you might use data validation to calculate the maximum allowed value in a cell based on a value elsewhere in the workbook. In the following example, the user has typed $4,000 in cell E7, which exceeds the maximum limit specified for commissions and bonuses.



If the payroll budget were to increase or decrease, the allowed maximum in E7 would automatically increase or decrease with it.

Data Table ("what-if analysis") - Data tables are part of a suite of commands that are called what-if analysis tools. When you use data tables, you are doing "what-if analysis". What-if analysis is the process of changing the values in cells to see how those changes will affect the outcome of formulas on the worksheet. For example, you can use a data table to vary the interest rate and term length that are used in a loan to determine possible monthly payment amounts.

Kinds of what-if analysis - There are three kinds of what-if analysis tools in Excel:

1. Scenarios
2. Data Tables
3. Goal Seek

Scenarios and data tables take sets of input values and determine possible results. Goal Seek works differently from scenarios and data tables in that it takes a result and determines possible input values that produce that result. Like scenarios, data tables help you explore a set of possible outcomes. Unlike scenarios, data tables show you all the outcomes in one table on one worksheet. Using data tables makes it easy to examine a range of possibilities at a glance. Because you focus on only one or two variables, results are easy to read and share in tabular form.

A data table cannot accommodate more than two variables. If you want to analyze more than two variables, you should instead use scenarios. Although it is limited to only one or two variables (one for the row input cell and one for the column input cell), a data table can include as many different variable values as you want. A scenario can have a maximum of 32 different values, but you can create as many scenarios as you want.

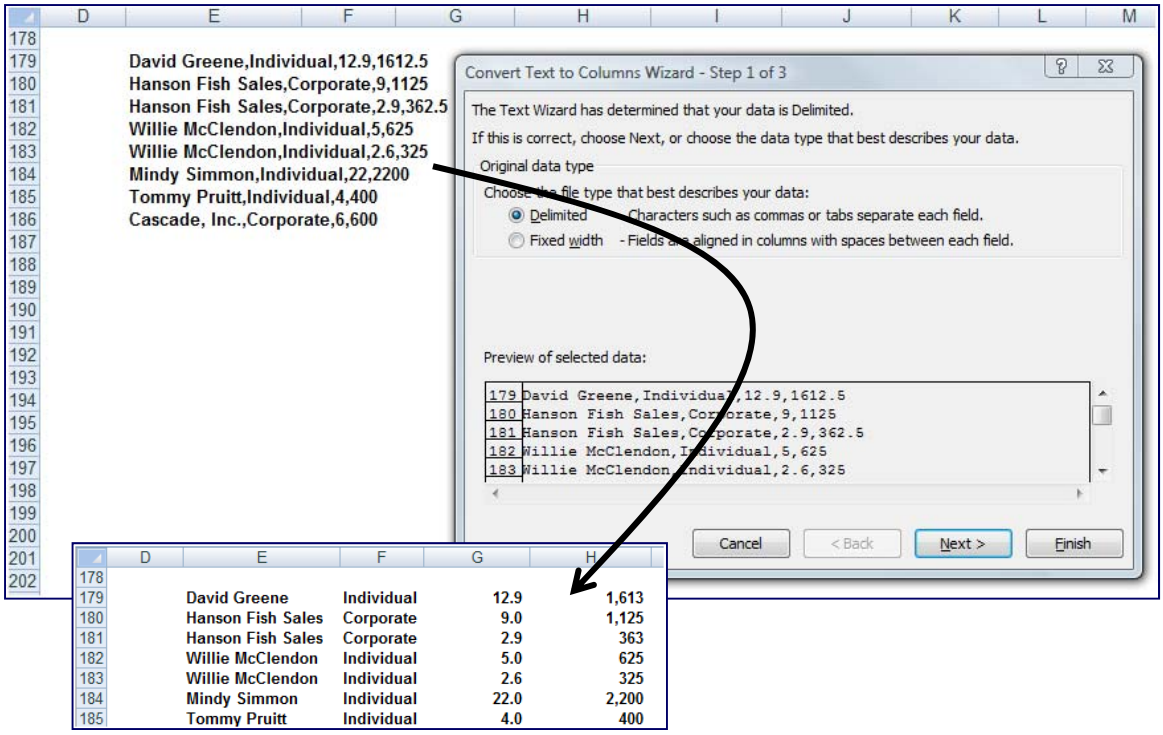
For example, in the screen below, a 5 column data table has been used to extract the Open, High, low, Close and Volume data from a voluminous database of raw stock price data – according to dates.

Date	Open	High	Low	Close/Last	Volume
10:08	24.100	25.570	24.000	25.210	2,348,918*
05/14/2007	19.080	20.080	18.970	20.010	1,336,356
05/11/2007	18.660	19.370	18.400	19.215	847,931
05/10/2007	18.490	18.760	18.120	18.750	343,975
05/09/2007	18.300	18.740	18.250	18.600	435,189
05/08/2007	18.200	18.430	18.100	18.370	181,809
05/07/2007	18.310	18.310	18.120	18.210	127,152
05/04/2007	18.340	18.480	17.950	18.240	116,229
05/03/2007	18.000	18.430	17.840	18.360	176,585
05/02/2007	17.660	18.080	17.450	18.000	234,498
05/01/2007	17.060	17.570	17.050	17.530	372,021
04/30/2007	18.110	18.110	17.070	17.350	785,046
04/27/2007	17.970	18.210	17.750	18.000	374,349
04/26/2007	18.520	18.600	17.960	18.250	310,891
04/25/2007	18.400	18.900	18.400	18.610	296,899
04/24/2007	18.960	18.960	18.250	18.570	106,788
04/23/2007	18.820	19.110	18.720	19.050	496,431
04/20/2007	18.930	19.040	18.620	18.900	108,157
04/19/2007	18.740	19.160	18.600	18.910	235,627

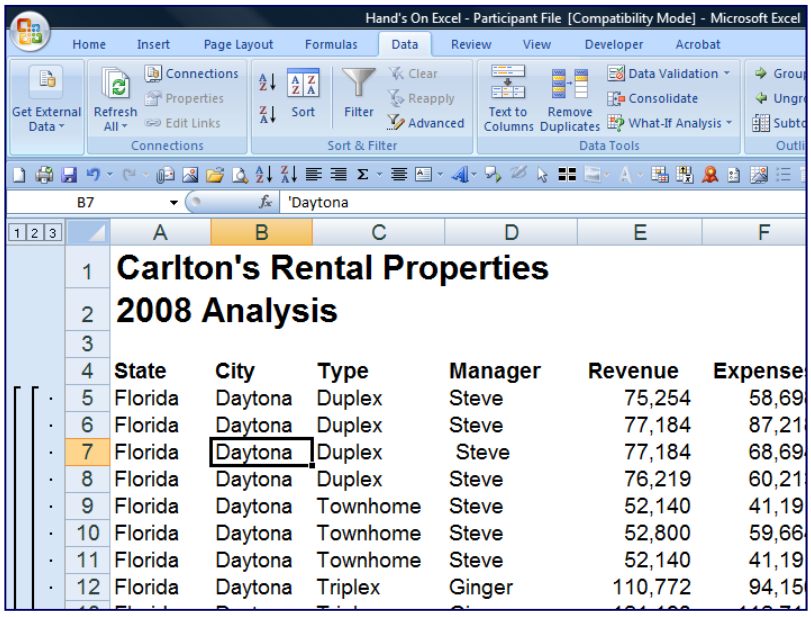
Data - Text to Columns – Often CPAs receive data from their clients or IT departments that is in text form. When this happens, Excel can split the contents of one or more cells in a column and distribute those contents as individual parts across other cells in adjacent columns. For example, the worksheet below contains a column of full names and amounts that you want to split into separate columns. The Text to Columns Wizard parses the data automatically into separate

Select the cell, range (range: Two or more cells on a sheet. The cells in a range can be adjacent or nonadjacent.), or entire column that contains the text values that you want to split.

Note A range that you want to split can include any number of rows, but it can include no more than one column. You also should keep enough blank columns to the right of the selected column to prevent existing data in adjacent

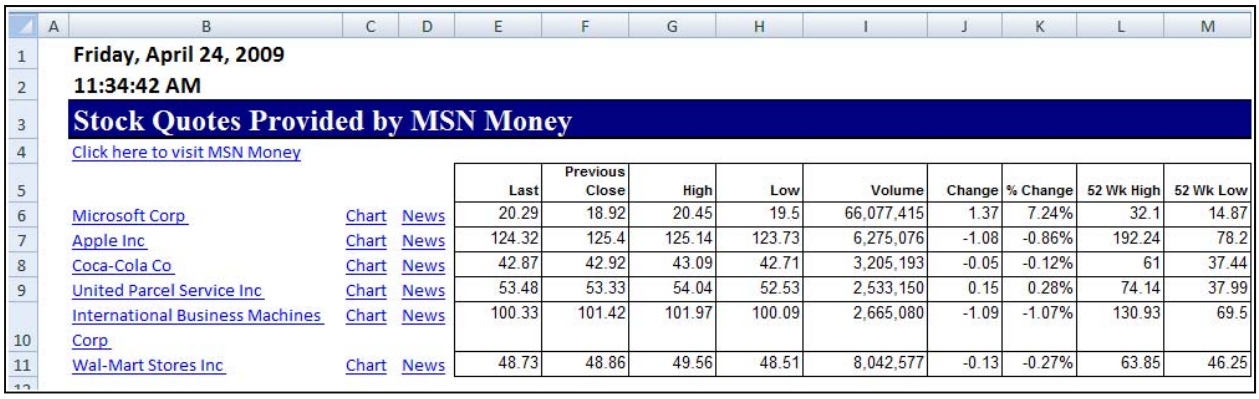


Data Grouping & Outlining - If you have a list of data that you want to group and summarize, you can create an outline of up to eight levels, one for each group. Each inner level, represented by a higher number in the outline symbols displays detail data for the preceding outer level, represented by a lower number in the outline symbols. Use an outline to quickly display summary rows or columns, or to reveal the detail data for each group. You can create an outline of rows (as shown in the example below), an outline of columns, or an outline of both rows and columns.



Data Import and Export – Excel can import data from almost any database – that is any database that is ODBC compliant – and they almost all are ODBC compliant. For example, excel can import data from a database across the internet – this is known as a web query.

Web Queries - Excel includes pre-designed "queries" that can import commonly used data in 10 seconds. For example, you could use a web query to create a stock portfolio. 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 Excel 2007 and later use the Data Ribbon, Existing Connections, Stock Quotes option. In seconds, Excel will retrieve 20 minute delayed stock prices from the web (during the hours when the stock market is open) and display a grid of complete up-to-date stick price information that is synchronized to the stock market's changing stock prices. With each click of the "Refresh" button, the stock price information in Excel is updated - this sure beats picking numbers out of the newspaper.



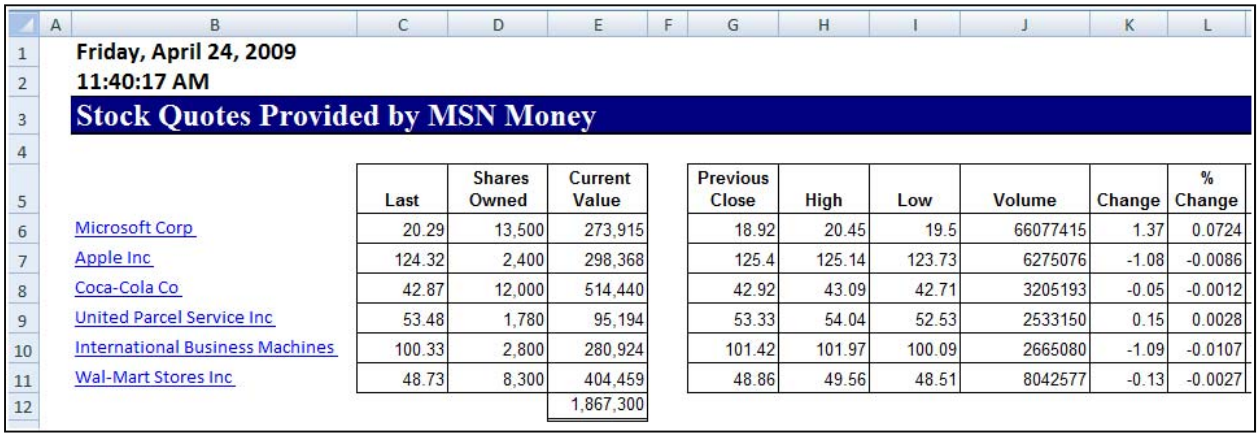
Friday, April 24, 2009
11:34:42 AM

Stock Quotes Provided by MSN Money

Click here to visit MSN Money

			Last	Previous Close	High	Low	Volume	Change	% Change	52 Wk High	52 Wk Low
Microsoft Corp	Chart	News	20.29	18.92	20.45	19.5	66,077,415	1.37	7.24%	32.1	14.87
Apple Inc	Chart	News	124.32	125.4	125.14	123.73	6,275,076	-1.08	-0.86%	192.24	78.2
Coca-Cola Co	Chart	News	42.87	42.92	43.09	42.71	3,205,193	-0.05	-0.12%	61	37.44
United Parcel Service Inc	Chart	News	53.48	53.33	54.04	52.53	2,533,150	0.15	0.28%	74.14	37.99
International Business Machines Corp	Chart	News	100.33	101.42	101.97	100.09	2,665,080	-1.09	-1.07%	130.93	69.5
Wal-Mart Stores Inc	Chart	News	48.73	48.86	49.56	48.51	8,042,577	-0.13	-0.27%	63.85	46.25

Completing the Stock Portfolio – Next link the grid data to another worksheet, and insert new columns containing the number of shares owned, as wells as an additional column to computer the total value based on shares owned, as shown below.

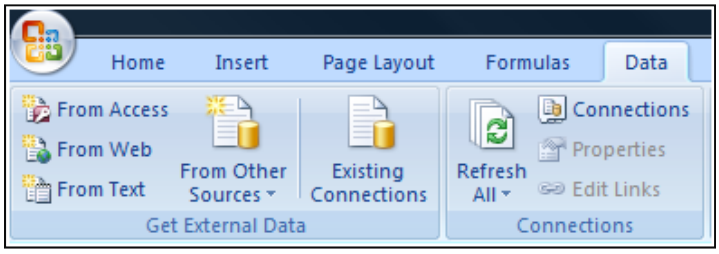


Friday, April 24, 2009
11:40:17 AM

Stock Quotes Provided by MSN Money

	Last	Shares Owned	Current Value	Previous Close	High	Low	Volume	Change	% Change
Microsoft Corp	20.29	13,500	273,915	18.92	20.45	19.5	66077415	1.37	0.0724
Apple Inc	124.32	2,400	298,368	125.4	125.14	123.73	6275076	-1.08	-0.0086
Coca-Cola Co	42.87	12,000	514,440	42.92	43.09	42.71	3205193	-0.05	-0.0012
United Parcel Service Inc	53.48	1,780	95,194	53.33	54.04	52.53	2533150	0.15	0.0028
International Business Machines	100.33	2,800	280,924	101.42	101.97	100.09	2665080	-1.09	-0.0107
Wal-Mart Stores Inc	48.73	8,300	404,459	48.86	49.56	48.51	8042577	-0.13	-0.0027
			1,867,300						

Refreshing the Stock Prices **-** Once you have created your portfolio, simply click the Refresh Data button on the "External Data" Toolbar in Excel 2003 or on the "Data Ribbon" in Excel 2007 shown below to update the current value of your Portfolio.



Query Parameters **-** There are numerous options to help you extract exactly the data you want they way you want it. The "Web Query Parameters Box", "Web Query Options box" and "External Data Properties Box" provide numerous options for controlling your web query.

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.

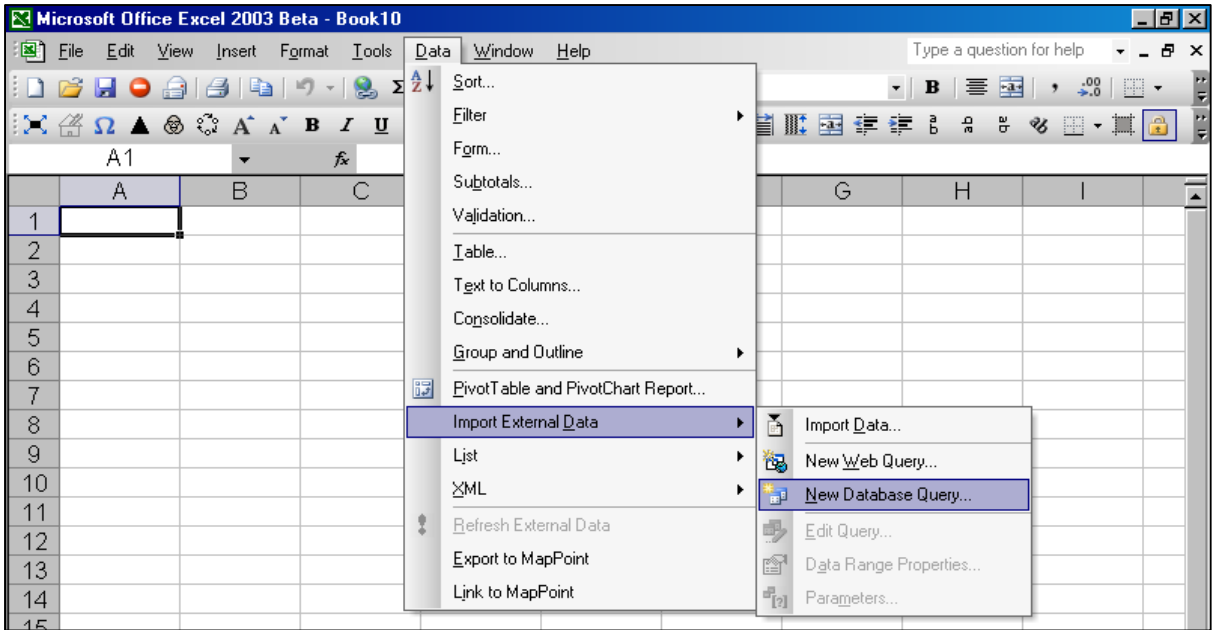
To use Microsoft Query to retrieve external data, you must:

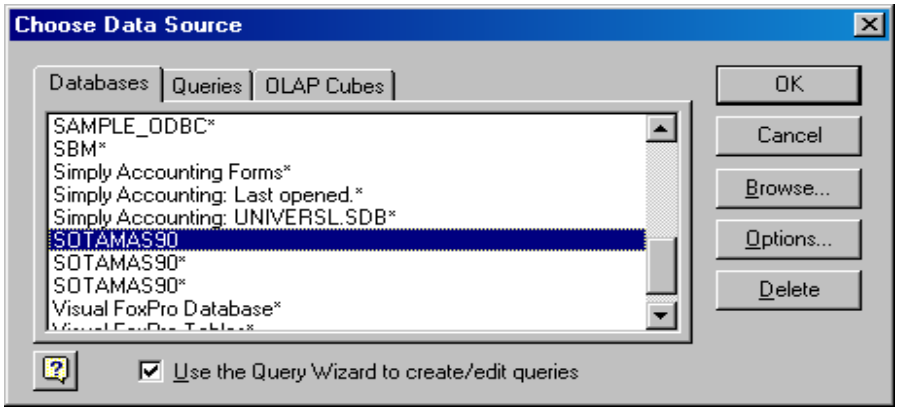
1. **Have access to an external data source -** If the data is not on your local computer, you may need to see the administrator of the external database for a password, user permission, or other information about how to connect to the database.

2. **Install Microsoft Query -** If Microsoft Query is not available, you might need to install it.

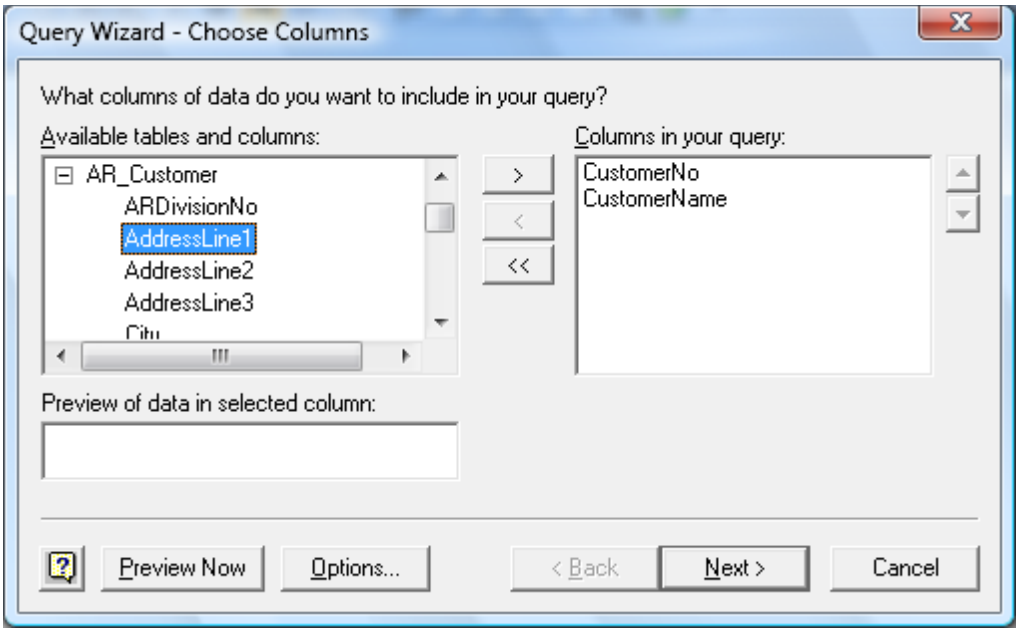
3. **Specify a source to retrieve data from, and then start using Microsoft Query** - For example, if you want to insert database information, display the Database toolbar, click Insert Database, click Get Data, and then click MS Query.

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. Excel will then return a table full of the data you requested as shown in the screen below.

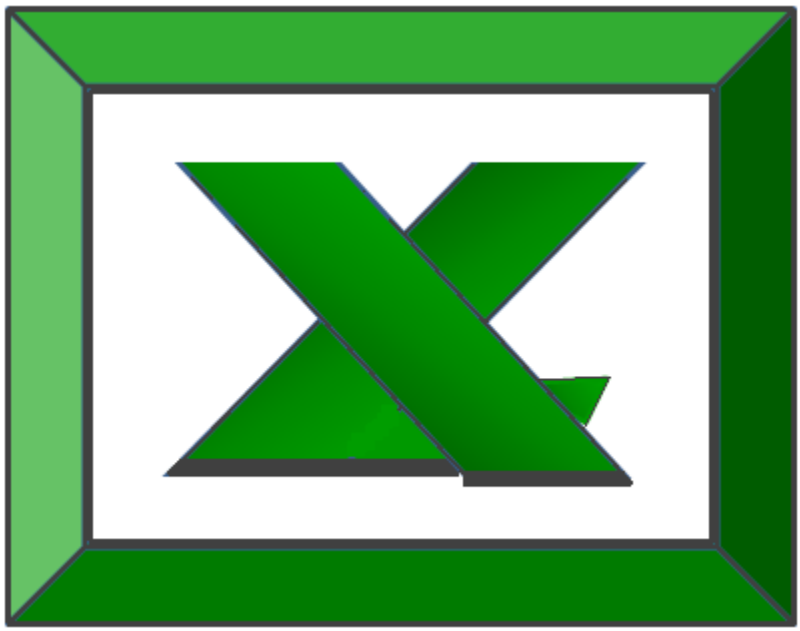
Microsoft Excel - Book1

File Edit View Insert Format Tools Data Window Help

Arial 10 100%

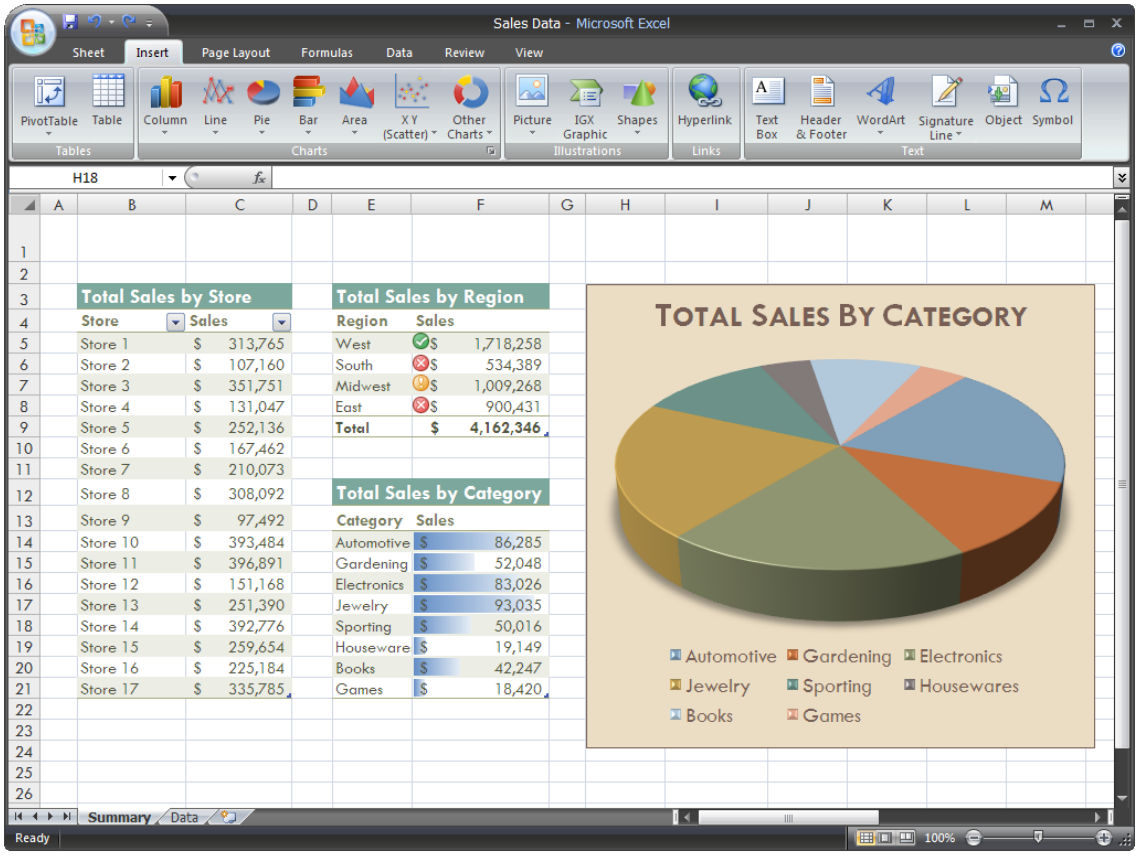
A1

	A	B	C	D	E	F	G
1	**CustomerNo**	**CustomerName**	**State**	**CurrentBalance**	**AvgDaysOverDue**		
2	ABF	American Business Futures	WI	5732.36	0		
3	AVNET	Avnet Processing Corp	WI	7377.37	52		
4	BRESLIN	Breslin Parts Supply	WI	11828.26	0		
5	HILLSB	Hillsboro Service Center	WI	2902.86	0		
6	RSSUPPL	R & S Supply Corp.	WI	7086.74	0		
7	SHEPARD	Shepard Motorworks	WI	513339.95	0		
8	ALLENAP	Allen's Appliance Repair	CA	645.51	0		
9	AMERCON	American Concrete Service	CA	13743.8	57		
10	ATOZ	A To Z Carpet Supply	CA	8732.4	37		
11	AUTOCR	Autocraft Accessories	CA	23954.02	0		
12	BAYPYRO	Bay Pyrotronics Corp.	CA	16644.94	106		
13	CAPRI	Capri Sailing Ships	CA	56169.33	31		
14	CUSTOM	Custom Craft Products	CA	19446.43	0		
15	GREALAR	Greater Alarm Company	CA	825.5	0		
16	JELLCO	Jellco Packing	CA	5055.91	0		
17	ORANGE	Orange Door & Window Co.	CA	263.37	0		
18							
19							
20							



Excel Intermediate

What's New in Excel 2007?



Enhancements to Excel 2007

No New Features - There are more than 128 improvements to Excel 2007, however there are virtually no improvements in the features and functionality of excel 2007. In other words, Excel 2003 still does everything Excel 2007 does – nothing new was added to the commands or functions. The changes that were made can be summarized in the following three categories:

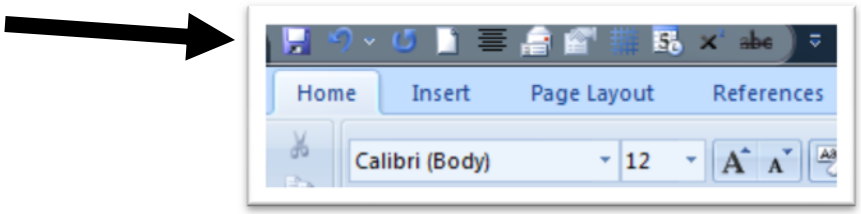
1. New Menu Design
2. Larger Capacities
3. Prettier Output (Presentation Quality Results)

New Menus Are Better - The new menus are considered by all to be a royal pain to relearn, however once they are mastered, most Excel users eventually find the new menus far better than the older Excel 2003 menus. Here's why: Excel 2007 uses a new "Contextual Menu" system which presents certain toolbars to you in "context" of what you are doing. For example, when you click a chart, the chart tools appear. When you click a picture, the picture tools appear. When you click a table, the table tools appear. When you click a PivotTable, the PivotTable tools appear. And so on.

A Few Menu Points - Excel 2007 provides more tools to you in the menus arranged so you can get to them easier. However, you should know:

1. You must click on the Office Start Button to access the primary menu for opening, saving, printing Excel workbooks.

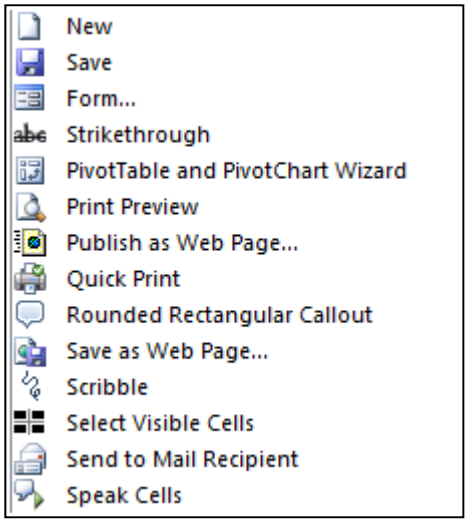
2. You should also know that the Quick Access Toolbar needs to be customized to display those tools that you frequently use, and other tools which Excel does not display.



You should right click on your Quick Access Tool Bar and choose "Customize Quick Access Toolbar". Then pick "Tools Not Shown in the Ribbon" from the drop down menu. Finally, use the arrow button to select tools that you want easy access to.

The Quick Access Tool Bar is also where you add Macro buttons for those macros that have global use across multiple workbooks.

A few tool which I recommend you add to the Quick Access Tool Bar are as follows:



Listed below are a summary of the new enhancements to Excel 2007:

Larger Capacities:

1. **More Columns -** Increased the number of columns from 256 (2^8) to 16,000 (2^14).
2. **More Rows -** Increased the number of rows from 64,000 (2^16) to 1,000,000 (2^20).
3. **More Memory -** Increased the total amount of memory that Excel can use from 1GB (in Excel 2003) to as much RAM as Windows sees.
4. **More Core processor Chips -** Excel 2007 supports multiple microcomputer processors and multithreaded chipsets. Excel 2003 only supported one processor chip.
5. **More Colors** - Excel 2007 supports 16 million colors, up from just 256 colors in Excel 2003.
6. **More Sorting Criteria -** Increased the number of levels of sorting on a range or table from 3 to 64.
7. **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).
8. **Finds More Items -** Increased the maximum number of items found by "Find All" from 65,472 to 2 Billion.
9. **More Pivot Rows** - Increased the number of rows allowed in a PivotTable from 64k to 1,000,000 (2^20).
10. **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.
11. **More Conditional Formats -** Increased the number of conditional format conditions on a cell from 3 conditions to limited by available memory.
12. **More AutoFilter Results -** Increased the number of items shown in the Auto-Filter dropdown from 1,000 to 10,000.
13. **Print More Characters in a Cell -** Increased the number of characters per cell that Excel can print from 1k to 32k.
14. **More Styles -** Increased the total number of unique cell styles in a workbook (combinations of all cell formatting) from 4,000 to 64,000.

15. **Larger Formulas -** Increased the maximum length of formulas (in characters) from 1,000 characters to 8,000 characters.

16. **More Formula Nesting -** Increased the number of levels of nesting that Excel allows in formulas from 7 to 64.

17. **More Arguments -** Increased the maximum number of arguments to a function from 30 to 255.

18. **More Pivot Columns -** Increased the number of columns allowed in a Pivot Table from 255 to 16,000.

19. **More Unique Pivot Items -** Increased maximum number of unique items within a single Pivot Field from 32,000 to 1,000,000.

20. **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.

21. **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.

22. **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.

23. **Bucket More Functions -** Increased the number of categories that custom functions can be bucketed into from 32 to 255.

Menu Changes

24. **Resizable Formula Bar** - The formula bar automatically resizes to accommodate long, complex formulas, which prevents the formulas from covering other data in your worksheet.

Presentation Quality and Other Improvements:

25. **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.

26. **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.

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. **Sort by Color**. Wow!

29. **Themes -** Excel allows users to format data by applying a theme using a specific style.

30. **Share Themes -** Themes can be shared across other 2007 Office release programs. You can also customize a theme style.

31. **Chart Styles –** Excel offers predefined chart styles, but you cannot create your own chart styles.

32. **Quicker Styles -** Excel now provides a quicker method to apply a predefined cell style.

33. **Better Conditional Formatting -** Use conditional formatting to visually annotate your data for both analytical and presentation purposes.

34. **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.

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 (.xltm).

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 Excel 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. Yu 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 "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.

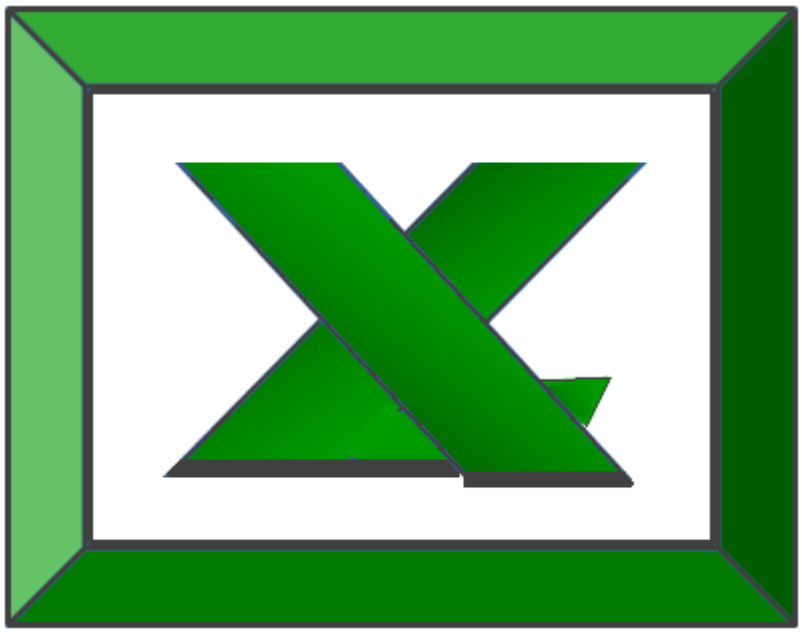
4. In fact there are a total of 219 commands in Excel that do not appear on the Excel Ribbon – you can view a complete list of these commands by customizing the Quick Launch Toolbar and choosing the option to view "Commands Not in the Ribbon".

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.



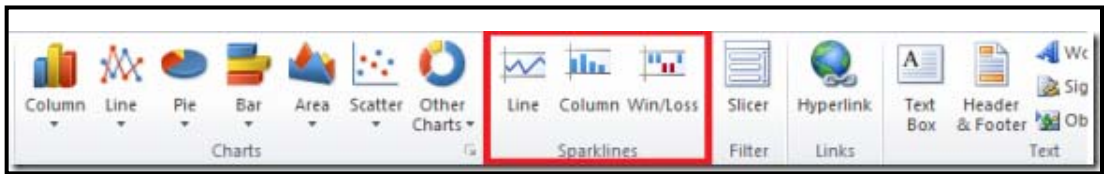
Excel Intermediate

What's New in Excel 2010?

What's New in Excel 2010?

Microsoft has announced that it will begin shipping Office 2010 in Spring 2010. This begs the question, what's new in Excel 2010? The short answer is that there are a dozen or so interesting improvements, but for the most part Excel 2010 looks a lot like Excel 2007. This is because when Office 2010 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 new menu as well. Therefore don't expect to see many differences in Word, Excel, Access, or PowerPoint. However, these are a few improvements in Excel 2010, as follows:

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:

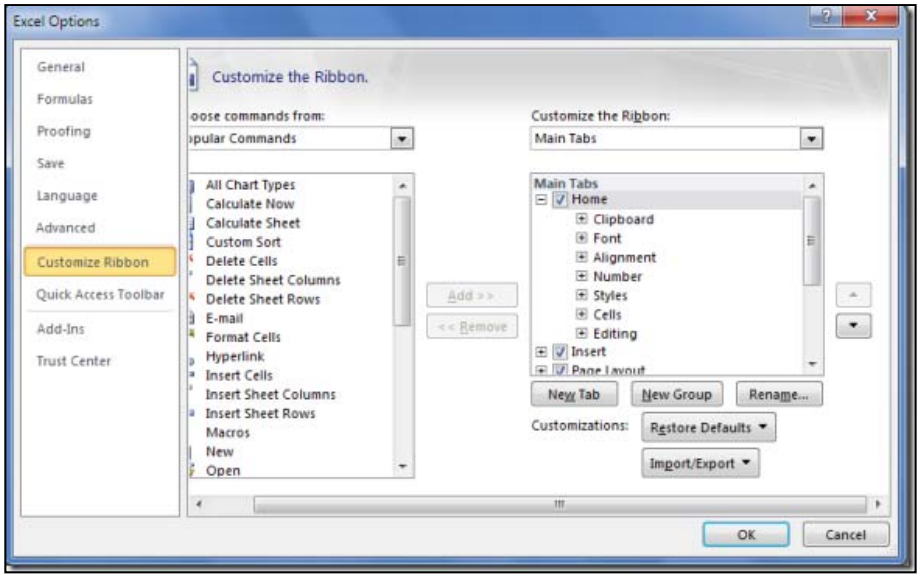


2. **Conditional Formatting Improvements** – Microsoft has improved and added more styles and icons regarding the ability to apply a format to a range of cells, and then have the formatting change according to the value of the cell or formula.

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.

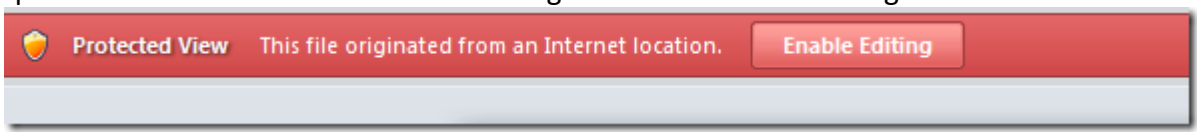
4. **Millions of Rows -** Microsoft now offers Project Gemini add-on for Excel 2010 that can handle very large amounts of data -- even worksheets that include hundreds of millions of rows. It will ship as part of SQL Server 2008 R2 in the first half of 2010; a community technology preview will be available in the second half of 2009.

5. **Enhanced Ribbon Toolbar -** The Ribbon tool bar has been enhanced to be highly customizable now.

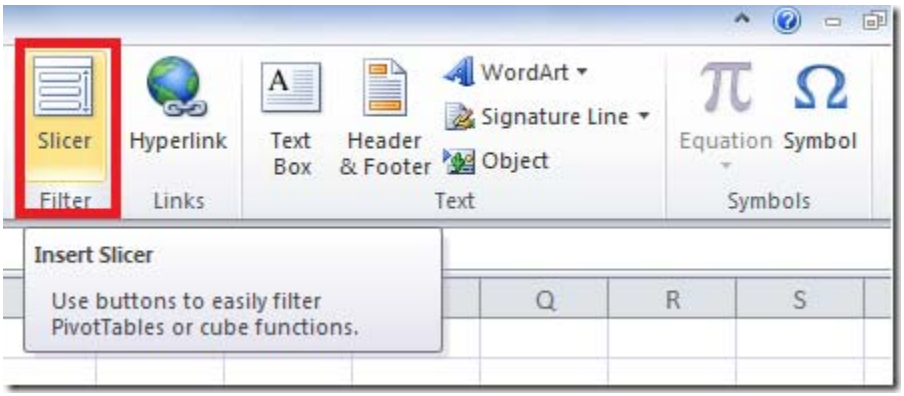


6. **Compatibility of .xlsx -** In Excel 2007, Microsoft introduced a new XML format (.xlsx) which was not compatible with former .xls spreadsheet formats. This problem has been resolved - Excel files created in Excel 2010 may easily be opened in versions of Excel prior to Excel 2007. Now Excel 2010 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.

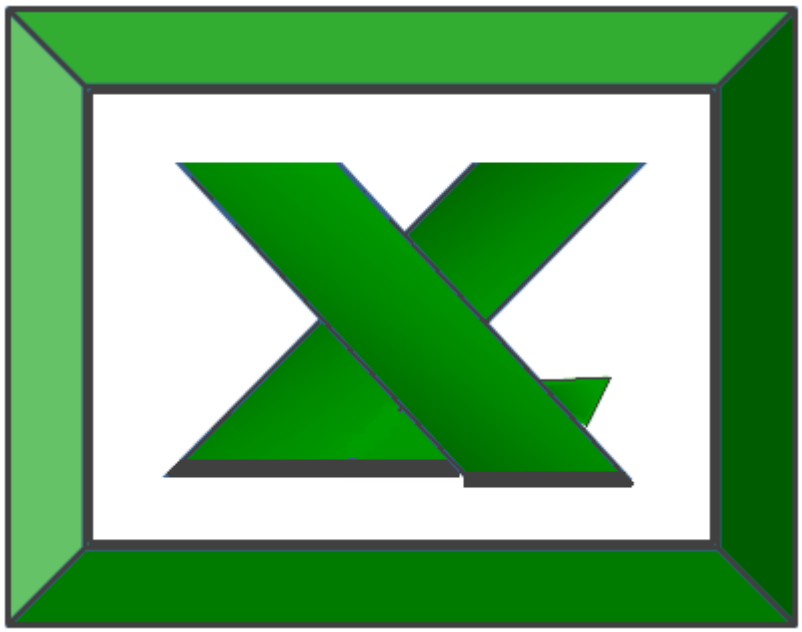
9. **Enhanced Chart Diagram -** In Excel 2010 double clicking a chart element automatically opens the chart's format dialog box.

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.



Excel Intermediate

Quick Tips

50 Quick Tips
Table of Contents

The Excel workbook used in class to demonstrate these quick tips can be downloaded instantly at the following address: www.CarltonCollins.com, Click the "Excel" tab, and click the file called **Carlton's 50 Quick Tips**. Choose "Save" and then Choose "Open".

21	Ctrl + D - *(Copy Data to the down)*
22	Ctrl + R - *(Copy data to the right)*
23	Defined Names - *(Refer to names rather than cell addresses)*
24	Data, AutoFilter, Advanced, Copy, Unique - *(Extract unique values)*
25	Tools, Options, Calculation, Precision as Displayed *(Avoid rounding errors)*
26	Right Click Toolbar, Options, Show Full Menus - *(Show all menu options)*
27	Tools, View, Zero Values - *(Hide zero values)*
28	Tools, AutoCorrect, Smart Tags, None - *(Turn off Smart Tags)*
29	Filter Data, Apply Color, Un-filter Data - *(Color filtered results)*
30	PDF2XL - *($95 product converts PDF's to Excel files)*
31	Data Validation - *(Insert a pop up comment into a cell)*
32	Ctrl+Shft+End - *(Select row to the right)*
33	Ctrl+Shft+Home - *(Select row to the left)*
34	F11 - *(Produce a quick chart)*
35	Print Area in Name Box - *(Quickly identify the print area)*
36	Displaying the Styles Tool - *(Toolbar access to styles)*
37	Format, Styles - *(Create new styles)*
38	Control Panel, Regional Options - *(Control how dates are displayed)*
39	=Substitute - *(Remove or replace unwanted characters)*
40	View, Sized with Window - *(Resizes chart to fit Window)*
41	Ctrl+Spacebar - *(Select a column)*
42	Shift+Spacebar - *(Select a row)*
43	Alt+Tab - *(Toggle between applications or Excel workbooks)*
44	Delete Blank Rows and Columns, Ctrl+S - *(Reduce relevant area and scroll bar)*
45	Copy Formula, to Blank Cells - *(Fill in missing data in a list)*

46	=ISTEXT(A1) - *(Use this formula in conditional formatting to format text only)*
47	Replace, Within - *(Tip for replacing throughout entire workbook)*
48	=LEN(A1)-LEN(SUBSTITUTE(A1,A2,"")) - *(Count the occurrence of a character)*
49	=MID(A25,FIND("*",SUBSTITUTE(A25,"\","*",LEN(A25)- LEN(SUBSTITUTE(A25,"\",""))))+1,LEN(A25)) - *(Extract the Filename)*
50	=SumIF - *(Sum only those numbers that meet specific criteria)*

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 9 recently used files
17. Default File Format - Tools, Options, Transition
18. Embedded Voice clips
19. Embedded Video Clips
20. Organization Charts

J. Carlton Collins, CPA

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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.

CPE Course Evaluation Form

(In accordance with State Board guidelines, this form is retained as a permenant record of your attendance)

COURSE TITLE: 2010 Excel Intermediate for CPAs DATE:

NAME:

COMPANY:

ADDRESS :

CITY, STATE, ZIP:

TELEPHONE: E-MAIL:

Instructor's Name: **J. Carlton Collins**

	Excellent= 5	Very Good=4	Average=3	Fair=2	Poor=1
1. The Discussion Leader's knowledge of the subject matter was:	⑤	④	③	②	①
2. The Discussion Leader's presentation skills were:	⑤	④	③	②	①
3. The learning objectives were met	⑤	④	③	②	①
4. The course materials were valuable and contributed to learning	⑤	④	③	②	①
5. The course content was relevant	⑤	④	③	②	①
6. Time allocations were appropriate	⑤	④	③	②	①
7. Please rate the quality of the facilities	⑤	④	③	②	①
8. Were prerequisite requirements appropriate	⑤	④	③	②	①
9. Please rate the effectiveness of the audio / visual systems	⑤	④	③	②	①

COMMENTS

My Area is:
- ☐ Public Practice
- ☐ Industry
- ☐ Government
- ☐ Education
- ☐ Other:

My Work Experience is:
- ☐ None
- ☐ 0-5 years
- ☐ 6-10 years
- ☐ 11-20 years
- ☐ More than 20 years

My Industry is:
- ☐ Finance
- ☐ Manufacturing
- ☐ Retail
- ☐ Services
- ☐ Other:

The Size of my Company is:
- ☐ 5 or less employees
- ☐ 6 to 25 employees
- ☐ 26 to 100 employees
- ☐ 101 to 500 employees
- ☐ 501 or more employees

My Position is:
- ☐ Owner or Partner
- ☐ Manager/CFO
- ☐ Supervisor
- ☐ Senior or Staff
- ☐ Administrative
- ☐ Other

My Reason for Attending:
- ☐ Course Reputation
- ☐ Instructor
- ☐ Location
- ☐ Price
- ☐ Subject
- ☐ Other:

I heard about this course:
- ☐ Course Brochure
- ☐ Newsletter Ad
- ☐ Telemarketing Call
- ☐ Web Site
- ☐ Word of mouth
- ☐ Other:

My Computer Experience is:
- ☐ None
- ☐ Very Little
- ☐ Moderate
- ☐ Substantial
- ☐ Excellent

I Use the Internet:
- ☐ Never
- ☐ A Little Bit
- ☐ Moderately
- ☐ Daily
- ☐ All the Time
- ☐ Other :

My Primary Computer is:
- ☐ New
- ☐ 1 year old
- ☐ 2 years old
- ☐ 3 years old
- ☐ 4 years old
- ☐ 5 years old

My Opinion of Computers:
- ☐ Can't live without them
- ☐ They are very useful
- ☐ Somewhat useful
- ☐ Occasionally useful
- ☐ More trouble than worth
- ☐ I hate them

I get my CPE from:
- ☐ CPA Society Seminars
- ☐ Other Seminars
- ☐ Self Study Courses
- ☐ Online CPE web sites
- ☐ Conferences
- ☐ Other:

