ASA Research

Microsoft Excel

Budgeting, Projections & Cash Flow Forecasting

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Excel Budgeting, Projections & Cash Flow Forecasting
Course Information

Learning Objectives	To increase the productivity of accountants and CPAs using Excel's Budgeting & Financial Reporting commands
Course Level	Intermediate
Pre-Requisites	Familiar with Microsoft 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, web examples, manual
Instructors	J. Carlton Collins, CPA

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Summary of Excel Budgeting, Projections & Cash Flow Forecasting Discussion Points

1. Consolidating Budgets
2. Using Regression to create budgets
3. Rounding Budgets
4. The importance of a budget
5. Most people start with prior year numbers and work from there
6. Exporting your prior year trial balance to Excel
7. Creating a budget preparation template
8. Delegating budget preparation and sending a template
9. Create budgets by month
10. Budgeting revenue is different from expenses
11. Start by analyzing the seasonality of your revenue for past years
12. Forecast balance sheets and cash flow too
13. Budgeting the profit margin
14. No embedded assumptions in formulas
15. Explain all underlying assumptions thoroughly
16. Administrative page
17. Using Hyperlinks to navigate budgets
18. Using macro buttons to print budgets
19. Grouping budget data
20. Produce budget to actual comparison reports
21. Adding Columns to Pivot Tables
22. Investigate overages
23. Investigate under spending (could be an error or perhaps you failed to pay someone)
24. Revise budgets throughout the year as needed
25. Importing budgets from Excel into your accounting system
26. Excel functions useful for budgeting
27. Charting Budgets versus Actual Results
28. How Charts Lie
29. Managing review and approvals
30. Protecting the Integrity of the Budget
31. Sharing a Workbook in the Cloud
32. Copying Across the Excel Page
33. Using Ratios Create Budgets
34. Budgeting units of production or hours to be billed
35. Hiding Data in Excel
36. Copying down – Ctrl + D
37. Using split screen
38. Using Excel Zoom
39. Sticky Format Painter
40. Absolute/relative referencing
41. Hide Zero Values
42. Display Zero Values As A Dash

"The secret to a good lecture is to have a good beginning and a good ending and have the two as close together as possible."

Chapter 1

Budgeting and Financial Reporting Concepts in Excel

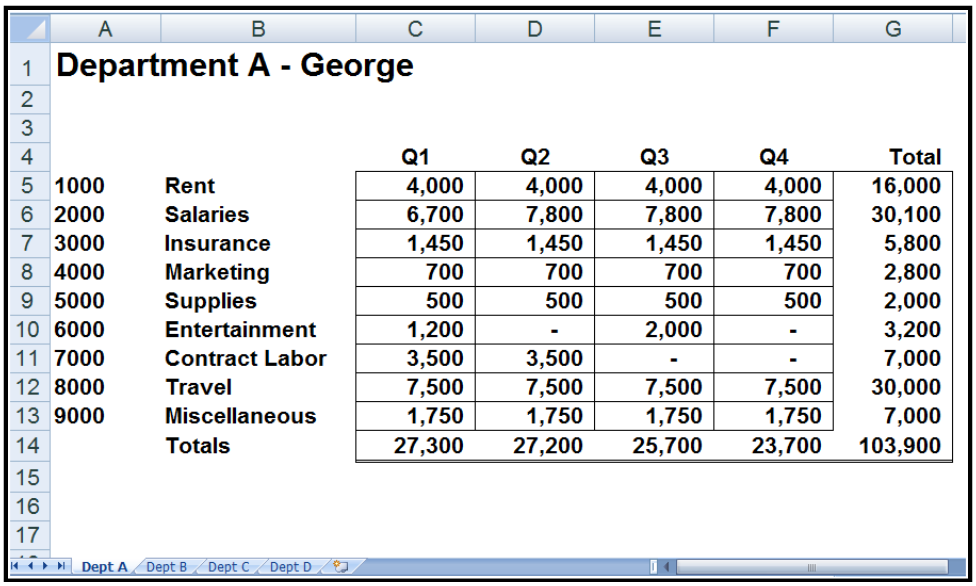
1. **Consolidating Budgets** – CPAs often have a need to consolidate data such as:

   - Months
   - Departments
   - Locations
   - Warehouses
   - Sale Representatives

   In this section we will explore four consolidation methods - two methods for 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.

1. 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.



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
3000	Insurance	1,450	1,450	1,450	1,450	5,800
4000	Marketing	700	700	700	700	2,800
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	27,300	27,200	25,700	23,700	103,900

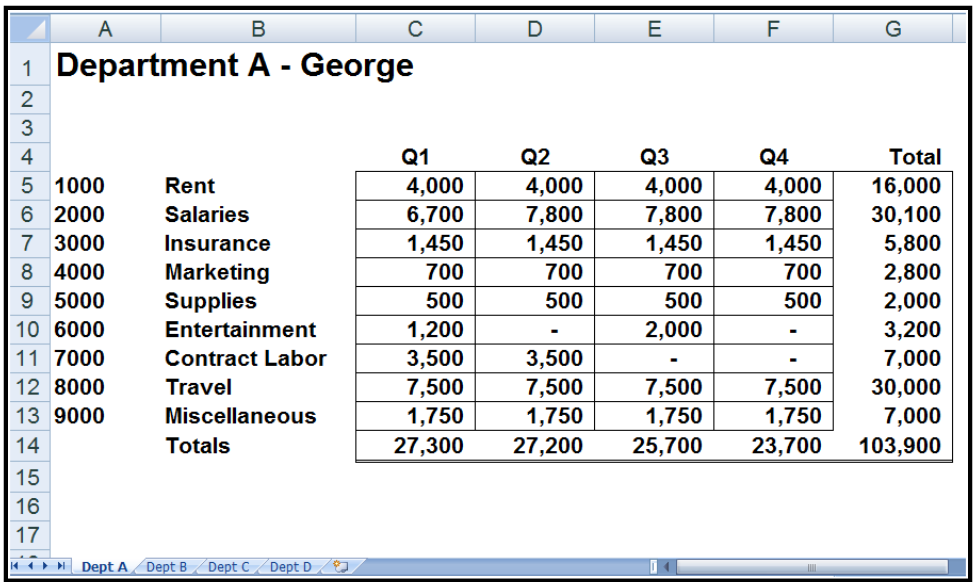
Dept A | Dept B | Dept C | Dept D

- **CTRL + Drag Tab –** Select worksheet labeled "Dept D". Use the CTRL + Drag Tab keystroke combination to create a duplicate worksheet of Dept D.
- **Clean –** Clean the new worksheet by deleting the data in the grid area.
- **Relabel –** Change the worksheet labels in Cells A1 and on the worksheet tab to read "consolidated".
- **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

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

2. **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.



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
3000	Insurance	1,450	1,450	1,450	1,450	5,800
4000	Marketing	700	700	700	700	2,800
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	27,300	27,200	25,700	23,700	103,900

Dept A | Dept B | Dept C | Dept D

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

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

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

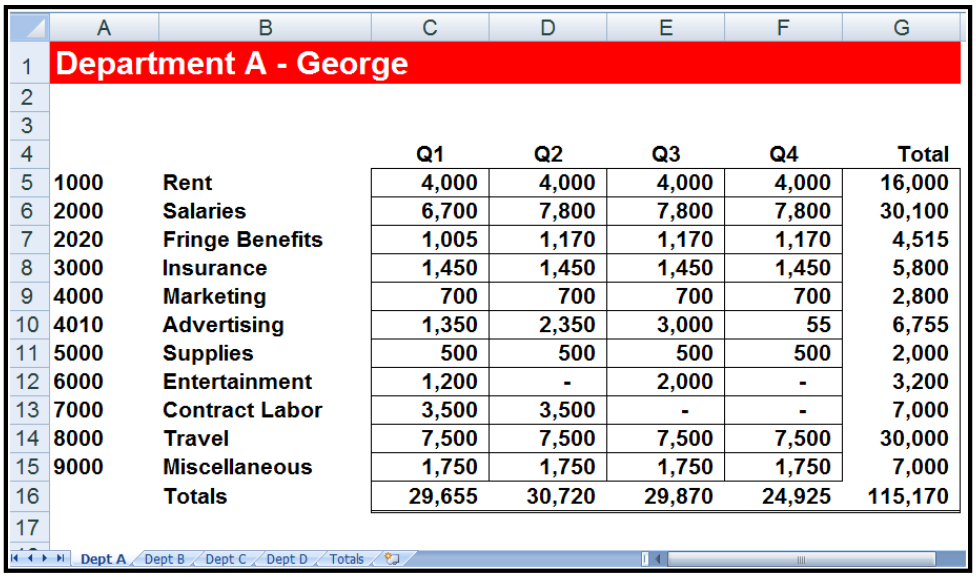
- **Formula –** In cell C5, enter a spearing formula that adds cell C5 cells in the four budget sheets. The formula should look like this:

=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.

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

3. **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.



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

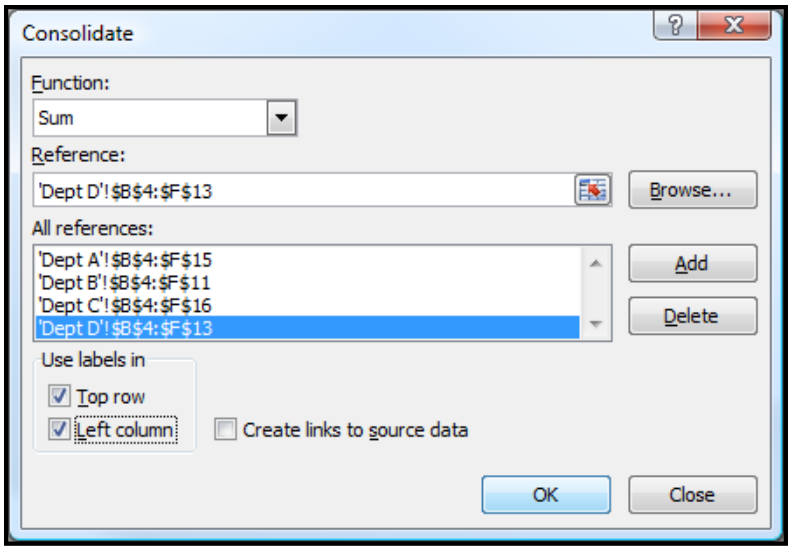
Dept A | Dept B | Dept C | Dept D | Totals

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

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

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

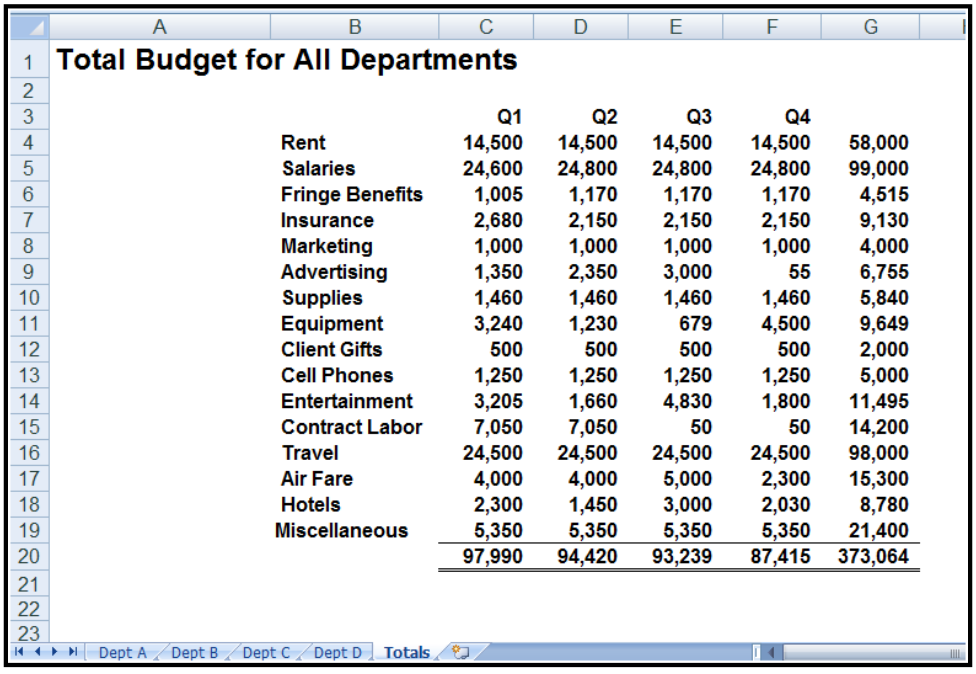
- **Data, Consolidate** – Select Data, Consolidate to display the Consolidate dialog box as shown below. Make sure to click the Cell Choose button, then highlight the data only on Dept A, click "Enter", and then click "Add". Repeat this process for Dept B, C and D.



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

- **Finish** – Click OK to produce the results

- **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.



Total Budget for All Departments

	Q1	Q2	Q3	Q4	
Rent	14,500	14,500	14,500	14,500	58,000
Salaries	24,600	24,800	24,800	24,800	99,000
Fringe Benefits	1,005	1,170	1,170	1,170	4,515
Insurance	2,680	2,150	2,150	2,150	9,130
Marketing	1,000	1,000	1,000	1,000	4,000
Advertising	1,350	2,350	3,000	55	6,755
Supplies	1,460	1,460	1,460	1,460	5,840
Equipment	3,240	1,230	679	4,500	9,649
Client Gifts	500	500	500	500	2,000
Cell Phones	1,250	1,250	1,250	1,250	5,000
Entertainment	3,205	1,660	4,830	1,800	11,495
Contract Labor	7,050	7,050	50	50	14,200
Travel	24,500	24,500	24,500	24,500	98,000
Air Fare	4,000	4,000	5,000	2,300	15,300
Hotels	2,300	1,450	3,000	2,030	8,780
Miscellaneous	5,350	5,350	5,350	5,350	21,400
	97,990	94,420	93,239	87,415	373,064

Comments:

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

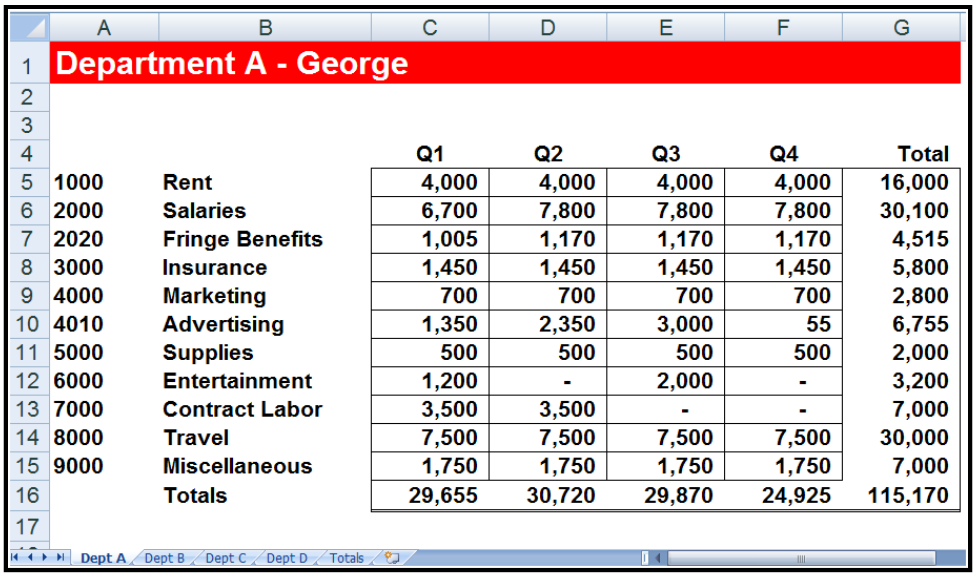
used the descriptions Rent, Rent EXP, and Rent Expense, then those rows would not actually consolidate but would be shown as three separate rows on the resulting consolidation report.

- **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.

- **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.

- **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.

4. **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.



	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							

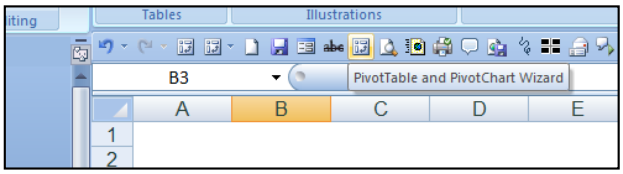
Dept A | Dept B | Dept C | Dept D | Totals

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

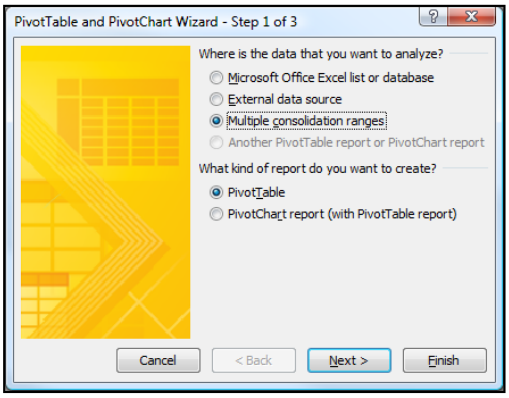
- **Label –** Label the new worksheet in Cells A1 and on the worksheet tab to read "Consolidated".

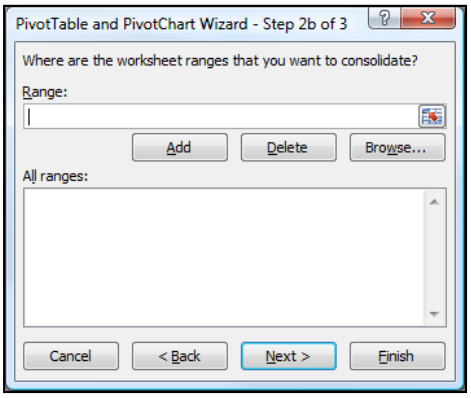
- **Select Cell –** Select a blank cell such as B5.

- **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).



- **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.

- **Finish** – Click “FINISH” to produce the results.

- **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**

Comments:

The PivotTable approach is superior to the Data Consolidate approach for many reasons as follows:

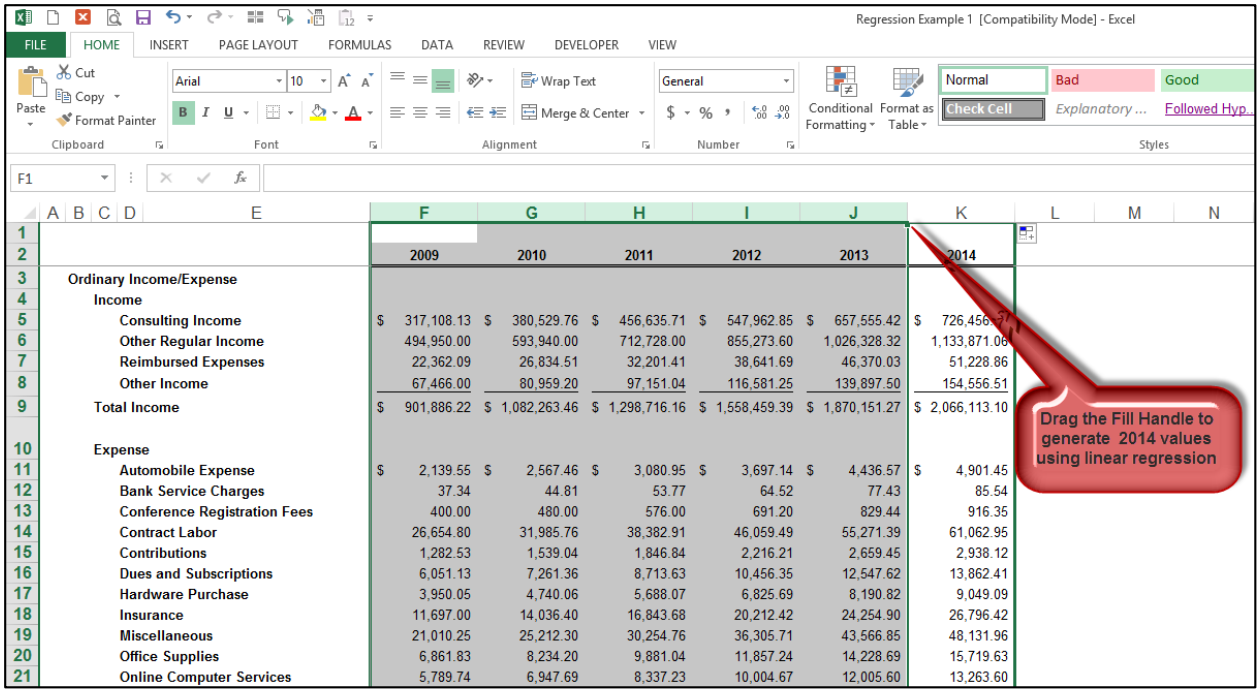
i. Totals are automatic inserted.
ii. AutoFilter buttons are automatic inserted.
iii. If the source data changes, simply click refresh to update.
iv. The resulting PivotTable is drillable.
v. The resulting PivotTable can be pivoted.
vi. The PivotTable report offers many PivotTable tools such as PivotTable formatting which Data Consolidate does not offer.

Using Regression to Create Budgets

Excel provides the ability to extrapolate data from your accounting system to produce budgets, projections or forecasts using the least squares method of linear regression. The process is extremely easy as illustrated in the following example.

A Quick Example:

In this example I have exported the income statements for the past six years from my QuickBooks accounting system. The next step is to highlight these five columns (from 2009 through 2013 as shown below), and drag the Fill Handle to project 2014 beginning budget 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.)*



		2009	2010	2011	2012	2013	2014
3	Ordinary Income/Expense						
4	Income						
5	Consulting Income	$ 317,108.13	$ 380,529.76	$ 456,635.71	$ 547,962.85	$ 657,555.42	$ 726,456.31
6	Other Regular Income	494,950.00	593,940.00	712,728.00	855,273.60	1,026,328.32	1,133,871.06
7	Reimbursed Expenses	22,362.09	26,834.51	32,201.41	38,641.69	46,370.03	51,228.86
8	Other Income	67,466.00	80,959.20	97,151.04	116,581.25	139,897.50	154,556.51
9	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
10	Expense						
11	Automobile Expense	$ 2,139.55	$ 2,567.46	$ 3,080.95	$ 3,697.14	$ 4,436.57	$ 4,901.45
12	Bank Service Charges	37.34	44.81	53.77	64.52	77.43	85.54
13	Conference Registration Fees	400.00	480.00	576.00	691.20	829.44	916.35
14	Contract Labor	26,654.80	31,985.76	38,382.91	46,059.49	55,271.39	61,062.95
15	Contributions	1,282.53	1,539.04	1,846.84	2,216.21	2,659.45	2,938.12
16	Dues and Subscriptions	6,051.13	7,261.36	8,713.63	10,456.35	12,547.62	13,862.41
17	Hardware Purchase	3,950.05	4,740.06	5,688.07	6,825.69	8,190.82	9,049.09
18	Insurance	11,697.00	14,036.40	16,843.68	20,212.42	24,254.90	26,796.42
19	Miscellaneous	21,010.25	25,212.30	30,254.76	36,305.71	43,566.85	48,131.96
20	Office Supplies	6,861.83	8,234.20	9,881.04	11,857.24	14,228.69	15,719.63
21	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 2014 based on Five Years of Actual Data

Why Does This Work?

But why does this work? How can a simple drag of a mouse create a sophisticated budget? To better understand the underlying workings of this concept, let's start with a more simplified example using simple regression.

Simple Regression Example:

In the 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

Simply highlight the three columns and drag the Fill Handle out an additional three columns. The result is that Excel fills in new columns for ***April***, ***May*** and ***June*** – including column headings, column totals and forecast data, as pictured below.

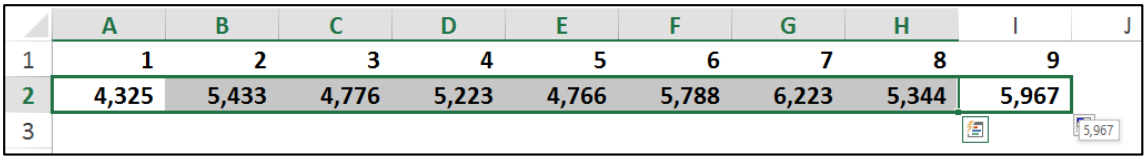
	A	B	C	D	E	F	G
1	Sales Forecast for the Second Quarter						
2							
3		Jan	Feb	Mar	Apr	May	Jun
4	Dept 1	343	476	588	714	837	959
5	Dept 2	455	459	755	856	1,006	1,156
6	Dept 3	327	633	589	778	909	1,040
7	Dept 4	432	455	512	546	586	626
8		1,557	2,023	2,444	2,895	3,339	3,782

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

Explaining Regression:

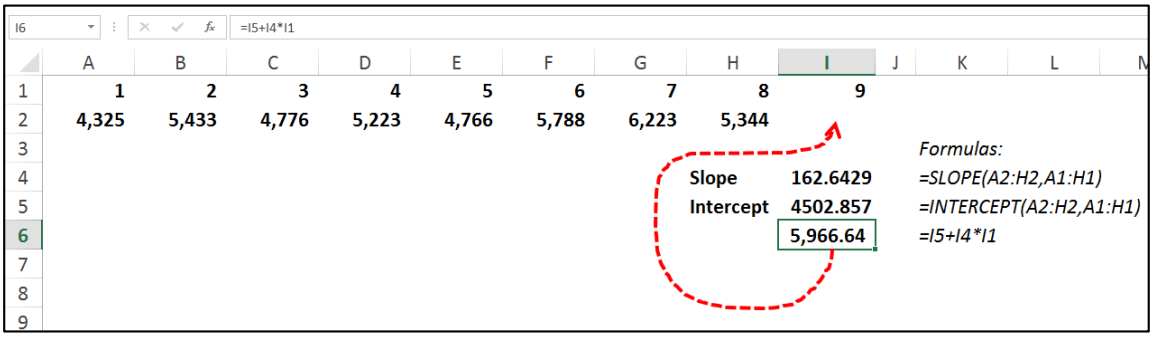
So where does this new data come from? The answer is that Excel uses linear regression to produce this data. Excel evaluates the data for ***January, February,*** and ***March*** on a row by row basis, and uses this information to project the subsequent variables. To help you better understand this concept, here is how regression works from a visual perspective:

1. Once again, a simple example using Excel's Fill handle. The 8 month's of data yields a projected value of 5,967.



	A	B	C	D	E	F	G	H	I	J
1	1	2	3	4	5	6	7	8	9	
2	4,325	5,433	4,776	5,223	4,766	5,788	6,223	5,344	5,967	
3										

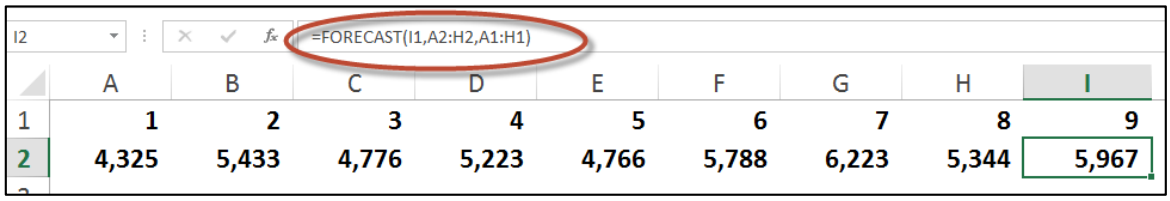
2. This time we use the same data, but instead of using the Fill handle, we use the **SLOPE** and **INTERCEPT** functions to solve for month 9's projected value.



	A	B	C	D	E	F	G	H	I	J	K	L
1	1	2	3	4	5	6	7	8	9			
2	4,325	5,433	4,776	5,223	4,766	5,788	6,223	5,344				
3											*Formulas:*	
4								Slope	162.6429		*=SLOPE(A2:H2,A1:H1)*	
5								Intercept	4502.857		*=INTERCEPT(A2:H2,A1:H1)*	
6									5,966.64		*=I5+I4*I1*	
7												
8												
9												

As you can see above, the slope and intercept functions produce the exact same result as does dragging the Fill Handle, thus proving that the math used by Excel is accurate.

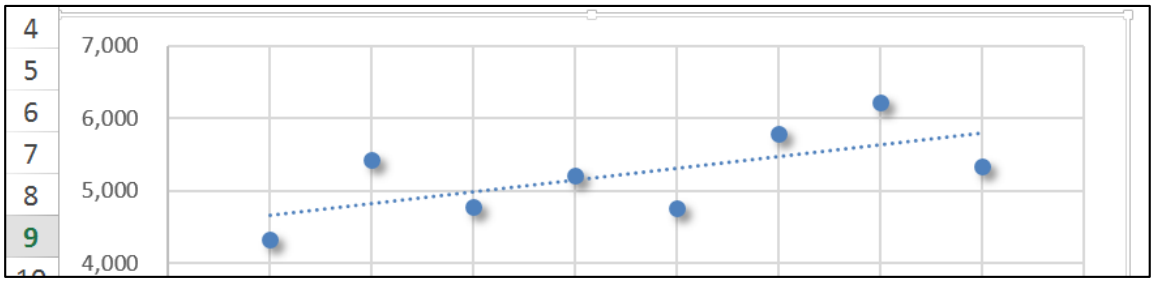
Yet another way to produce the same results is to use the **FORECAST** function, as follows:



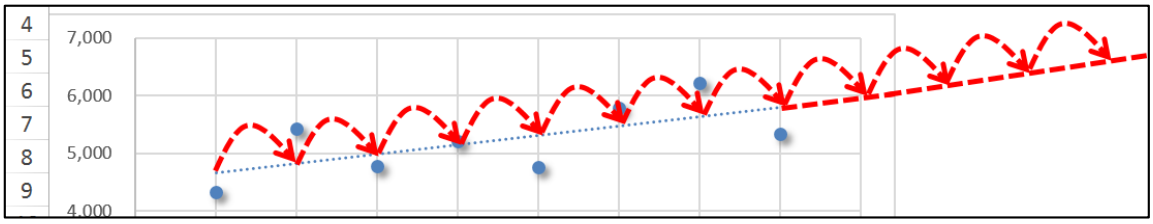
	A	B	C	D	E	F	G	H	I
1	1	2	3	4	5	6	7	8	9
2	4,325	5,433	4,776	5,223	4,766	5,788	6,223	5,344	5,967

As you can see in this above example, the **FORECAST** function also produces the same result as the Fill Handle and the **SLOPE** & **INTERCEPT** calculations.

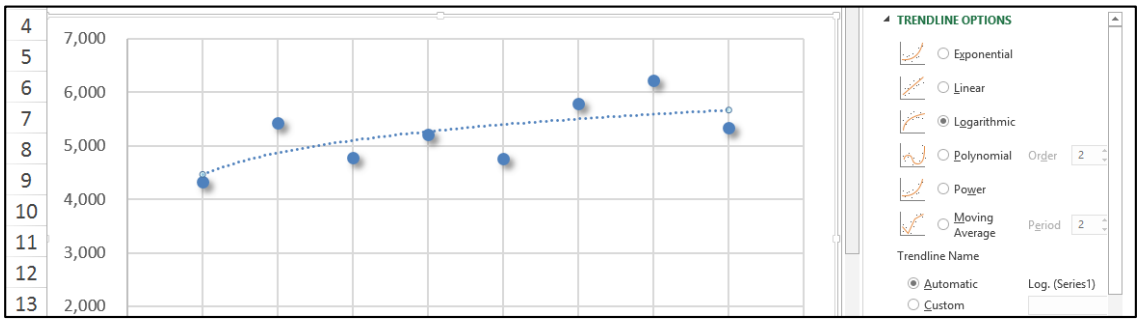
All three of these forecast calculations, which produce the same identical values, can be viewed visually by creating a **Scatter Chart**, and then applying a **Trendline**, as follows:



The dotted trend line above is based on linear regression as described in the preceding paragraphs. To forecast future values, Excel simply extends this trend line, and then uses the intervals of the original data to plot future values, as suggested by the red dotted arrows below.



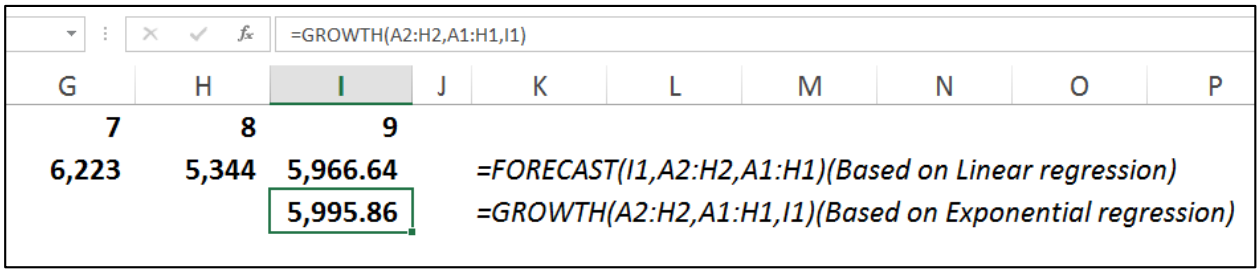
Now watch what happens when we base the trendline on logarithmic regression instead of linear regression. In the chart below, we see that the trendline is now curving slightly.



Non-Linear Regression:

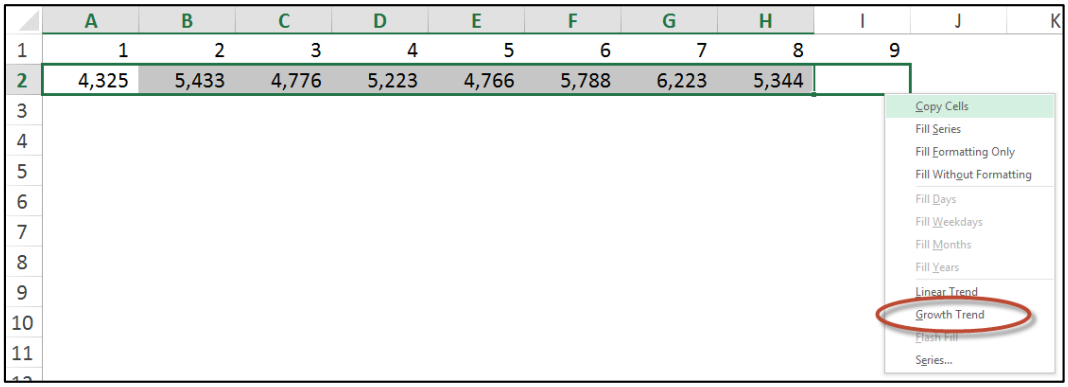
Excel provides 5 forms of non-linear regression *(as shown in the Trendline Options box in the image above)* – Exponential, Logarithmic, Polynomial, Power and Moving Average. Collectively, these 5 Trendline options are based on different forms of non-linear regression, which is explained in detail on this Wikipedia page http://en.wikipedia.org/wiki/Nonlinear_regression. The Wikipedia's explanation is very complicated, but to simplify: non-linear calculations weight the data points differently based on their position on the trendline (with linear regression all data points are weighted the same). Some mathematicians and CPAs maintain that non-linear methods produce more accurate results as more recent data points tend to be more relevant to producing a trend than older data points.

You can calculate forecast values in Excel using the Exponential form of regression by using the **GROWTH** function, as follows.



Notice that the projected value for month 9 is 5,995.86 using Exponential regression, which in this example which is 29.22 higher than the projected value based on linear regression.

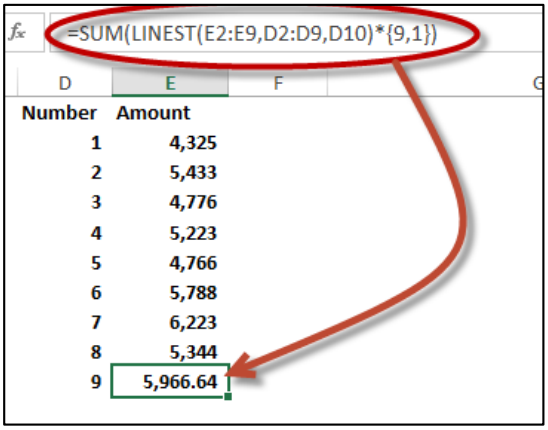
The simplest way to forecast values using **Exponential** regression is to drag the **Fill Handle** while holding down the right mouse button, then selecting Growth from the popup menu as pictured below.



This action will fill in the 9th month with a forecast value based on exponential regression instead of linear regression.

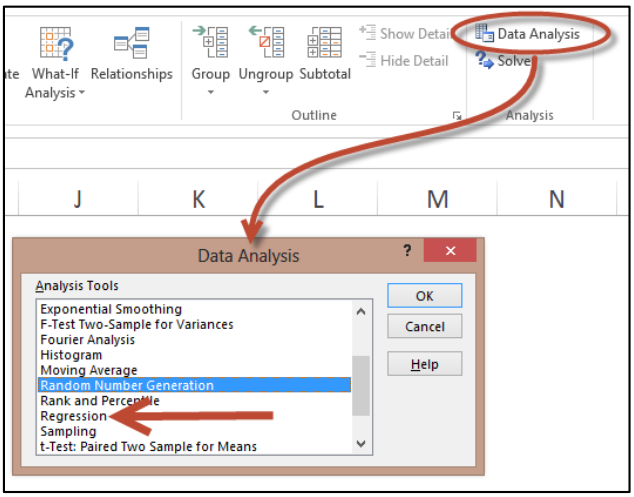
LINEST and TREND Functions

Although not used in this case study, you should be aware that Excel provides two additional forecasting functions - **LINEST** and **TREND.** These functions basically forecast values using linear regression exactly like the **FORECAST** function. The **FORECAST** and **TREND** functions are simpler to use than **LINEST**, but the advantage of the **LINEST** function is that it can also be used as an **Array** function to fill in values for a large range of data. Presented below is a simple example of the **LINEST** function.

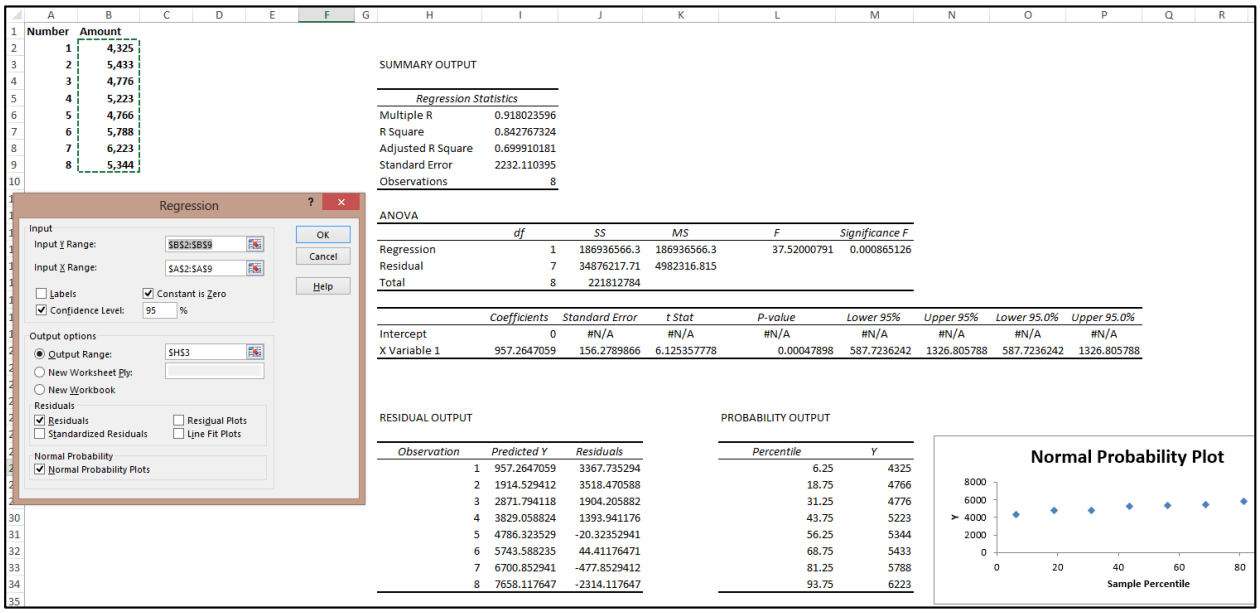


Data Analysis ToolPak

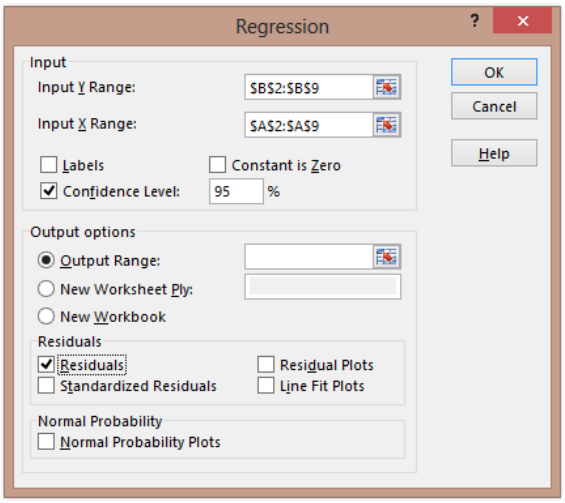
To use the LINEST function most efficiently, you should first load Excel's Analysis ToolPak, as follows. From the **File** tab, select **Options**, **Add-Ins**. In the Manage box, select **Excel Add-ins,** then click **Go**. In the Add-Ins dialog box, select the **Analysis ToolPak** check box, and then click OK. The Data Analysis ToolPak will then appear in your Data Ribbon.



The **Data Analysis ToolPak's** Regression analysis tool uses the **LINEST** function to perform more complicated regression analysis which includes controlling the confidence levels and calculating and plotting residuals. The screenshot below shows an example of the Analysis ToolPak's Regression tool along (shown in the dialog box) and an example of the output generated by this tool beginning in column H. As you can see the output is very complicated, but the resulting output can then be used to fine tune various regression calculations.



Closer inspection of the ToolPak's regression tool reveals options for setting the **Constant to Zero**, adjusting the **Confidence Level**, and utilizing a combination of **Residuals**, **Standardized Residuals**, **Residual Plots**, **Line Fit Plots**, and **Normal Probability Plots**.



These detailed aspects of regression are beyond the scope for our particular budgeting purposes, but following are links for those that wish to delve further:

1. The 2002 report ***Using Dummy Variables in Regression*** by Hun Myoung Park of Indiana University (**www.iuj.ac.jp/faculty/kucc625/documents/dummy.pdf** is a good place to start for educating yourself about these variables.

2. This Wikipedia page titled ***Errors and residuals in statistics*** goes further in depth into residuals. (**http://en.wikipedia.org/wiki/Errors_and_residuals_in_statistics**)

3. A 6-page Duke University report walking you through an example for using the Data Analysis ToolPak's Regression tool is available here (**http://tinyurl.com/cueqap2**).

Shortcomings with the Data Analysis ToolPak's Regression Tool:

To be fair, I should point out that Excel's ToolPak Regression tool has a number of shortcomings, including:

1. ***Missing Functionality*** – Other regression tools offer hierarchical regression and case weighting, but Excel's tool does not.

2. ***Inadequate Diagnostic Charts*** - Several common diagnostic charts are not included in Excel (for example, scatterplot charts, residuals against predicted values, and normality plot of the residuals.) Charting typically goes hand-in-hand with forecasting to help visualize the results.

3. ***No Standardized Coefficients*** – Without a standardized coefficient, it may be difficult to interpret your results.

4. ***Inadequate Diagnostic Statistics*** – The lack of collinearity diagnostics makes it more difficult to understand the forecast data model, although Excel's **PEARSON, RSQAURE** and **SKEW** functions could be used to aide in understanding.

Two More Statistical Measures

Two other Excel functions that might also be useful for analyzing the suitability of data for regression include **KURTOSIS** and **SKEW**, which both measure the symmetry of data along a bell curve. For example, data that is perfectly symmetrical will yield a **SKEW** score of 0 (zero). The closer a data's **SKEW** is to zero, the less suitable that data is for regression, because the data's trend is considered unreliable, be it trending upwards or downwards. The **KURTOSIS** works similarly, although it's scoring is different as it is designed to measure multiple peaks, whereas the **SKEW** measures a single Peak.

Alternatives To Regression

If data is found to be inadequate for regression calculations, then other forecasting methods will be necessary. For example, you might:

1. **Inflation Forecasting -** Forecast future amounts based on prior year amounts inflated for inflation, increases in the consumer price index, or some other inflation factor.

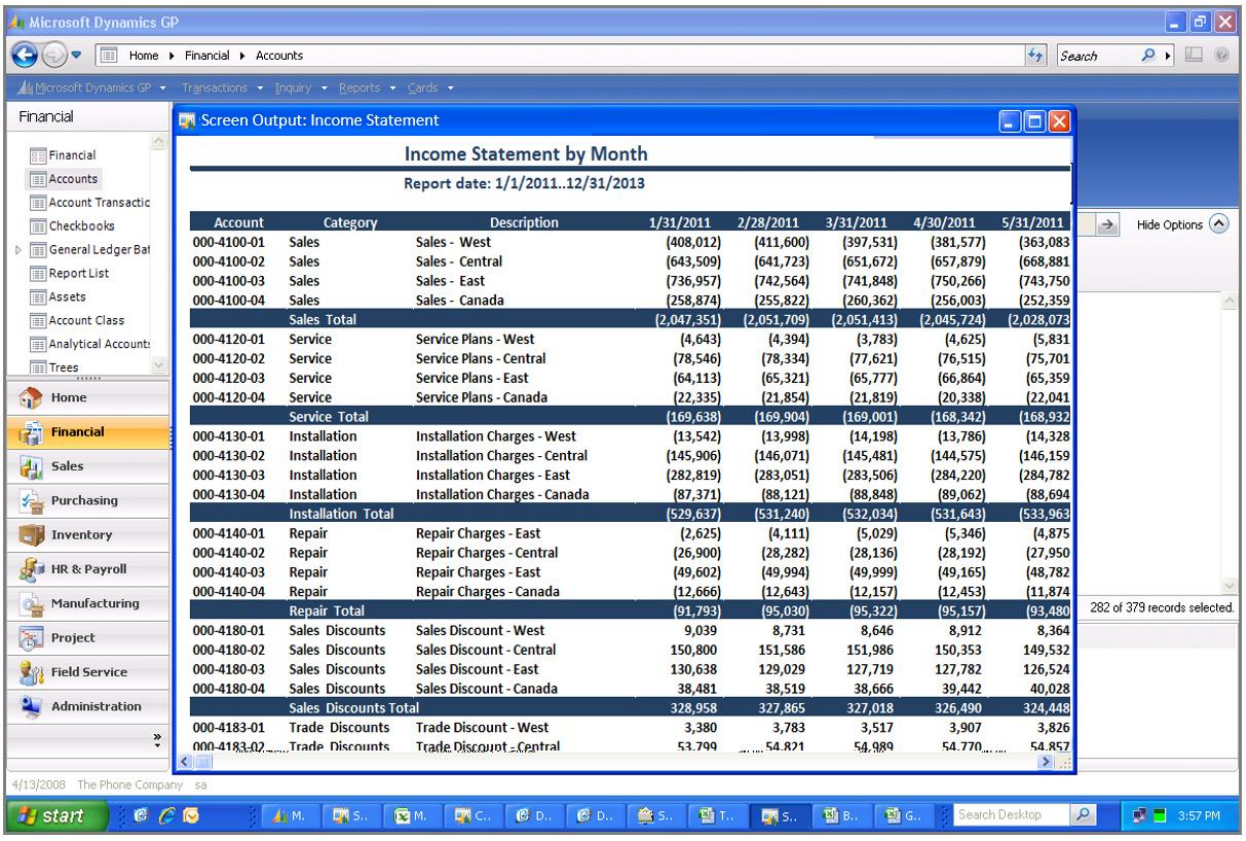
2. **Percentage Forecasting** - Forecast future amounts as a percentage of another line item, such as sales or payroll. For example, **Cost of Goods Sold (COGS)** might be forecast as 45% of forecast **Sales** since historically, COGS does approximate that percentage amount. Or you might forecast **Fringe Benefits** as 15% of **Payroll** since historically, **Fringe Benefits** do approximate that percentage amount.

3. **Best Guess Forecasting** - You might come up with another forecast amount based on discussions with department heads. For example, the training budget might be forecast much higher than regression, inflation, or percentage methods because you know that since the new version of Windows 8 and Office 2013 will be implemented, a significantly higher than normal amount of training will be needed to bring everyone up to speed on those products.

Detailed Budget Example Using Regression

Starting with Dynamics GP

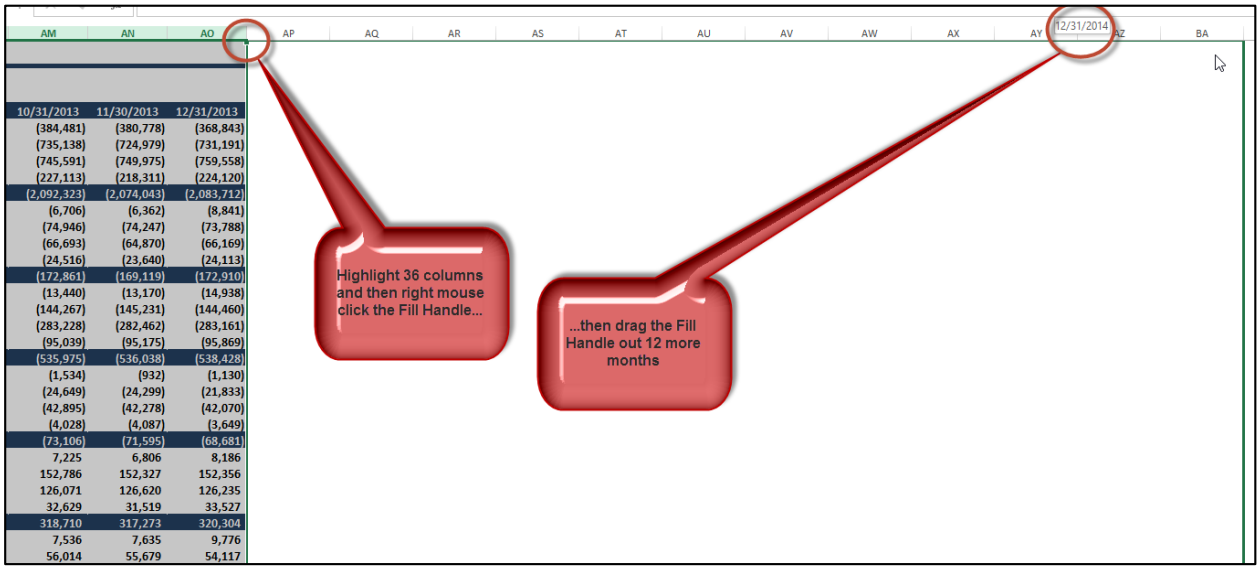
Now that we've discussed the various concepts related to regression, you are now ready to see it in action. In this example, we will start by exporting 4 years' worth of income statement data from Dynamics GP to Microsoft Excel (virtually every accounting system on the planet enables users to complete this step). In Dynamics GP, we start by printing a 36-month income statement to the screen (as pictured below) and exporting it to Excel.



Account	Category	Description	1/31/2011	2/28/2011	3/31/2011	4/30/2011	5/31/2011
000-4100-01	Sales	Sales - West	(408,012)	(411,600)	(397,531)	(381,577)	(363,083
000-4100-02	Sales	Sales - Central	(643,509)	(641,723)	(651,672)	(657,879)	(668,881
000-4100-03	Sales	Sales - East	(736,957)	(742,564)	(741,848)	(750,266)	(743,750
000-4100-04	Sales	Sales - Canada	(258,874)	(255,822)	(260,362)	(256,003)	(252,359
	Sales Total		(2,047,351)	(2,051,709)	(2,051,413)	(2,045,724)	(2,028,073
000-4120-01	Service	Service Plans - West	(4,643)	(4,394)	(3,783)	(4,625)	(5,831
000-4120-02	Service	Service Plans - Central	(78,546)	(78,334)	(77,621)	(76,515)	(75,701
000-4120-03	Service	Service Plans - East	(64,113)	(65,321)	(65,777)	(66,864)	(65,359
000-4120-04	Service	Service Plans - Canada	(22,335)	(21,854)	(21,819)	(20,338)	(22,041
	Service Total		(169,638)	(169,904)	(169,001)	(168,342)	(168,932
000-4130-01	Installation	Installation Charges - West	(13,542)	(13,998)	(14,198)	(13,786)	(14,328
000-4130-02	Installation	Installation Charges - Central	(145,906)	(146,071)	(145,481)	(144,575)	(146,159
000-4130-03	Installation	Installation Charges - East	(282,819)	(283,051)	(283,506)	(284,220)	(284,782
000-4130-04	Installation	Installation Charges - Canada	(87,371)	(88,121)	(88,848)	(89,062)	(88,694
	Installation Total		(529,637)	(531,240)	(532,034)	(531,643)	(533,963
000-4140-01	Repair	Repair Charges - East	(2,625)	(4,111)	(5,029)	(5,346)	(4,875
000-4140-02	Repair	Repair Charges - Central	(26,900)	(28,282)	(28,136)	(28,192)	(27,950
000-4140-03	Repair	Repair Charges - East	(49,602)	(49,994)	(49,999)	(49,165)	(48,782
000-4140-04	Repair	Repair Charges - Canada	(12,666)	(12,643)	(12,157)	(12,453)	(11,874
	Repair Total		(91,793)	(95,030)	(95,322)	(95,157)	(93,480
000-4180-01	Sales Discounts	Sales Discount - West	9,039	8,731	8,646	8,912	8,364
000-4180-02	Sales Discounts	Sales Discount - Central	150,800	151,586	151,986	150,353	149,532
000-4180-03	Sales Discounts	Sales Discount - East	130,638	129,029	127,719	127,782	126,524
000-4180-04	Sales Discounts	Sales Discount - Canada	38,481	38,519	38,666	39,442	40,028
	Sales Discounts Total		328,958	327,865	327,018	326,490	324,448
000-4183-01	Trade Discounts	Trade Discount - West	3,380	3,783	3,517	3,907	3,826
000-4183-02	Trade Discounts	Trade Discount - Central	53,799	54,821	54,989	54,770	54,857

Next in Excel, Regression Creates the Initial Budget

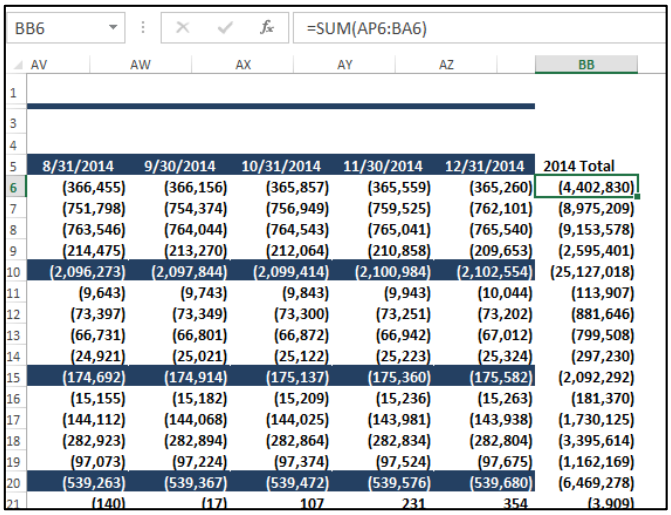
Once in Excel, to create the initial budget, select the 36 columns with numeric data, then left click and drag the "Fill Handle" out twelve additional columns to create the 2014 budget, as suggested below.



The result is that Excel uses linear regression analysis to predict the future values. Keep in mind that this is just an initial starting point.

Budget Totals

Now that we have generated regression amounts, and overwritten those amounts where we have more accurate numbers and also those where regression is not suitable, we continue by totaling the 12 months to produce the annual 2014 budget amounts, as pictured below.



The purpose of totaling the annual budget is so we can adjust the monthly budget for seasonality, as discussed below.

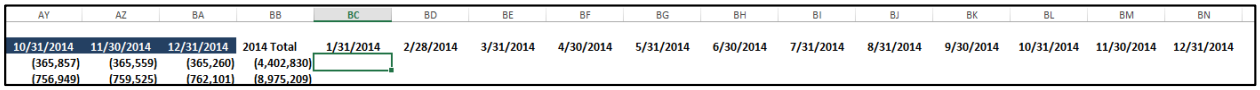
Adjusting for Seasonality

Annual budget amounts are not very useful because they do not allow you to compare actual to budgeted results on a monthly basis – you must produce monthly budget amounts. However, simply dividing an annual budget by 12 to produce monthly amounts is not good enough because many line items are typically seasonal. For example, actual revenue may be twice as high in some months compared to other months, but comparing these seasonal sales amounts to a non-seasonal budget is virtually meaningless because you can't tell whether you are on target, off target, or by how much. Therefore, it is difficult to determine whether corrective measures are needed on a month to month basis.

Seasonal budgets make a big difference. I believe one of the primary reasons companies fail to properly analyze their budgets to actuals throughout the year is because their budgets are not seasonal to begin with, and therefore such comparisons are virtually meaningless.

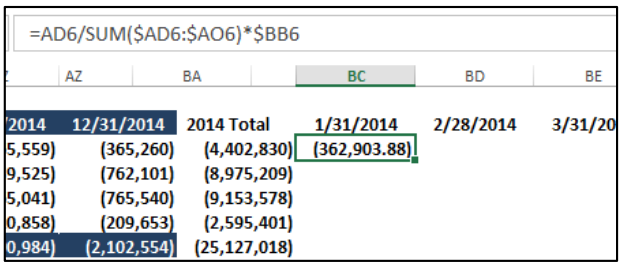
To add seasonality to your budget; simply spread the annual amount of each budget line item across the 12 months based on the ratio of last's year's monthly amounts compared to last year's annual amount, as follows.

Start by creating column headings for the seasonal budget, as pictured below.

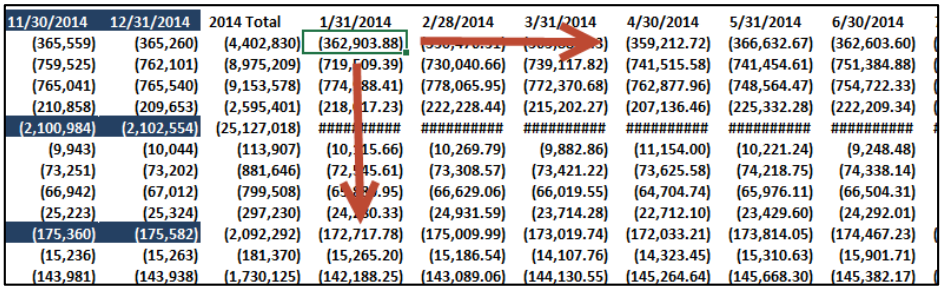


AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN
10/31/2014	11/30/2014	12/31/2014	2014 Total	1/31/2014	2/28/2014	3/31/2014	4/30/2014	5/31/2014	6/30/2014	7/31/2014	8/31/2014	9/30/2014	10/31/2014	11/30/2014	12/31/2014
(365,857)	(365,559)	(365,260)	(4,402,830)												
(756,949)	(759,525)	(762,101)	(8,975,209)												

Next, enter a formula using last year's January value (as of January 2013) as a the numerator and the **SUM** of all of 2013's values as the denominator, and then multiplied times the 2014 annual budget amount (**=AD6/SUM($AD6:$AO6)*$BB6**), as pictured below.



Notice in this formula I have used dollar signs to anchor the column references so that I may copy the formula down and across to complete the seasonality adjustments.



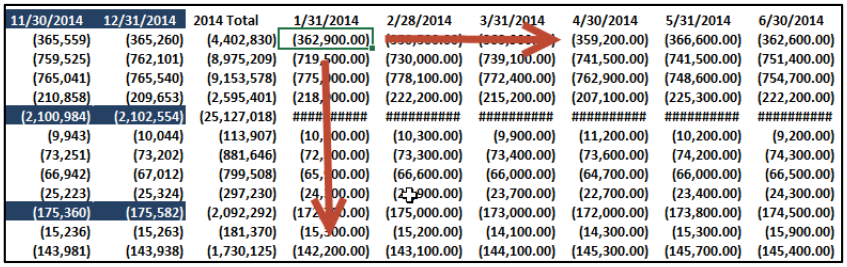
11/30/2014	12/31/2014	2014 Total	1/31/2014	2/28/2014	3/31/2014	4/30/2014	5/31/2014	6/30/2014
(365,559)	(365,260)	(4,402,830)	(362,903.88)	[illegible]	[illegible]	(359,212.72)	(366,632.67)	(362,603.60)
(759,525)	(762,101)	(8,975,209)	(719,[illegible]09.39)	(730,040.66)	(739,117.82)	(741,515.58)	(741,454.61)	(751,384.88)
(765,041)	(765,540)	(9,153,578)	(774,[illegible]88.41)	(778,065.95)	(772,370.68)	(762,877.96)	(748,564.47)	(754,722.33)
(210,858)	(209,653)	(2,595,401)	(218,[illegible]17.23)	(222,228.44)	(215,202.27)	(207,136.46)	(225,332.28)	(222,209.34)
(2,100,984)	(2,102,554)	(25,127,018)	#######	##########	##########	##########	##########	##########
(9,943)	(10,044)	(113,907)	(10,[illegible]15.66)	(10,269.79)	(9,882.86)	(11,154.00)	(10,221.24)	(9,248.48)
(73,251)	(73,202)	(881,646)	(72,[illegible]45.61)	(73,308.57)	(73,421.22)	(73,625.58)	(74,218.75)	(74,338.14)
(66,942)	(67,012)	(799,508)	(65,[illegible]97.95)	(66,629.06)	(66,019.55)	(64,704.74)	(65,976.11)	(66,504.31)
(25,223)	(25,324)	(297,230)	(24,[illegible]00.33)	(24,931.59)	(23,714.28)	(22,712.10)	(23,429.60)	(24,292.01)
(175,360)	(175,582)	(2,092,292)	(172,717.78)	(175,009.99)	(173,019.74)	(172,033.21)	(173,814.05)	(174,467.23)
(15,236)	(15,263)	(181,370)	(15,265.20)	(15,186.54)	(14,107.76)	(14,323.45)	(15,310.63)	(15,901.71)
(143,981)	(143,938)	(1,730,125)	(142,188.25)	(143,089.06)	(144,130.55)	(145,264.64)	(145,668.30)	(145,382.17)

Rounding & Formatting

It is rather senseless to produce budgets with pennies, or even dollars; I recommend rounding the results by editing the seasonality formula. Edit the seasonality formula adding the ROUND function in front of the formula and "-2" to the end of the formula to round to the nearest hundredths, as pictured.

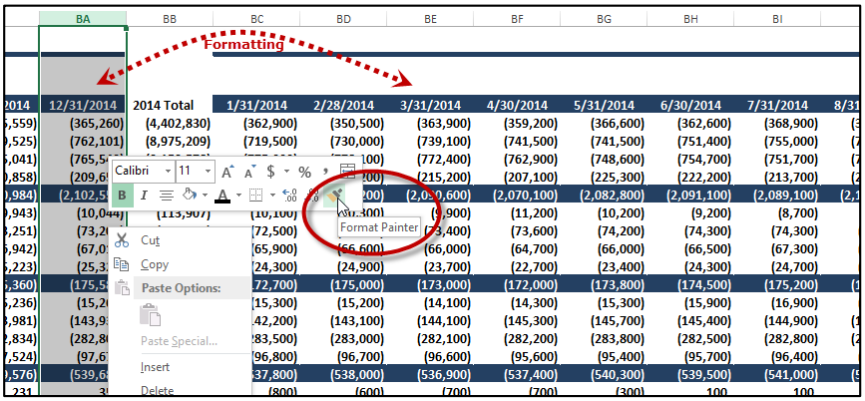
=ROUND((AD6/SUM($AD6:$AO6)*$BB6),-2)

Now recopy this revised formula (overwriting the previous seasonally adjusted budget data) to update the budget.



11/30/2014	12/31/2014	2014 Total	1/31/2014	2/28/2014	3/31/2014	4/30/2014	5/31/2014	6/30/2014
(365,559)	(365,260)	(4,402,830)	(362,900.00)	[illegible]	[illegible]	(359,200.00)	(366,600.00)	(362,600.00)
(759,525)	(762,101)	(8,975,209)	(719,[illegible]500.00)	(730,000.00)	(739,100.00)	(741,500.00)	(741,500.00)	(751,400.00)
(765,041)	(765,540)	(9,153,578)	(775,[illegible]00.00)	(778,100.00)	(772,400.00)	(762,900.00)	(748,600.00)	(754,700.00)
(210,858)	(209,653)	(2,595,401)	(218,[illegible]00.00)	(222,200.00)	(215,200.00)	(207,100.00)	(225,300.00)	(222,200.00)
(2,100,984)	(2,102,554)	(25,127,018)	#######	##########	##########	##########	##########	##########
(9,943)	(10,044)	(113,907)	(10,[illegible]00.00)	(10,300.00)	(9,900.00)	(11,200.00)	(10,200.00)	(9,200.00)
(73,251)	(73,202)	(881,646)	(72,[illegible]00.00)	(73,300.00)	(73,400.00)	(73,600.00)	(74,200.00)	(74,300.00)
(66,942)	(67,012)	(799,508)	(65,[illegible]00.00)	(66,600.00)	(66,000.00)	(64,700.00)	(66,000.00)	(66,500.00)
(25,223)	(25,324)	(297,230)	(24,[illegible]00.00)	(2[illegible]900.00)	(23,700.00)	(22,700.00)	(23,400.00)	(24,300.00)
(175,360)	(175,582)	(2,092,292)	(172,[illegible]00.00)	(175,000.00)	(173,000.00)	(172,000.00)	(173,800.00)	(174,500.00)
(15,236)	(15,263)	(181,370)	(15,[illegible]300.00)	(15,200.00)	(14,100.00)	(14,300.00)	(15,300.00)	(15,900.00)
(143,981)	(143,938)	(1,730,125)	(142,200.00)	(143,100.00)	(144,100.00)	(145,300.00)	(145,700.00)	(145,400.00)

Finally, select a formatted column (such as column BA in this example) and click the Format Painter tool; then highlight the twelve months budget to apply the formatting, as suggested below.



Always Use Your Better Numbers When You Have Them

(This should be obvious to all, but I will say it anyway…) Of course some budget line items should never be forecast using regression or other forecasting methods because they are known amounts. For example, regression may suggest that rent expense might be $236,433.12 for January 2014, but since I have signed a lease agreement, I know that rent expense will be exactly $220,000 for January 2014, so that is the amount I will use. The same goes for known line items such as depreciation expense, web-hosting expenses, interest payments on outstanding loans, and any other contractually known obligations. You would always use these more accurate numbers instead of regression's projected numbers.

Regression 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.

> *For example, consider that in the past five years gasoline prices jumped from $1.60 per gallon to more than $4.00 per gallon. If you use regression to predict gasoline prices for future years based on this prior increase, regression will likely predict gasoline prices in the $10.00+ per gallon range – but let's hope that such a prediction would be inaccurate – right?*

Critical Key Point to Understand

The key point is that regression represents a starting point for many of the budget line items, but not all budget line items. In all probability, a combination of forecasting methods will need to be applied depending on each particular line item – regression should not be relied upon for all forecast data.

Back to the Budget - Overwrite Those Line Items Where You Have Better Numbers

Once we have completed this process, we then insert better numbers on those line items where we have better budget amounts. For example, the current lease agreement will provide the most accurate amount to use for rent expense. We would use our depreciation schedule to provide the most accurate amounts for depreciation expense. For interest expense, we would look to the loan amortization schedule to prove these numbers (and so on). However for those numbers where you have no better basis to use for budget preparation purposes, why not use linear regression analysis to provide the answer?

To accomplish this task, it is best to use the split screen tool to split the screen into four areas so you can easily see the row descriptions and column headings for the corresponding budget line

items you are working with. (Excel 2013 no longer provides split screen tools on the scroll bars as did Excel 2003, 2007 and 2010 – you must click the **Split Screen** tool icon on the **View** tab and then adjust the splits by dragging them). Now scroll each line item and ask yourself if you have a more accurate basis for forecasting that line item, and if so, insert those more accurate values. For example, I have inserted new depreciation values (highlighted in grey) in the screenshot below.

D	E	AP	AQ	AR	AS	AT	AU
Category	Description	1/31/2014	2/28/2014	3/31/2014	4/30/2014	5/31/2014	6/30/2014
Insurance	Liability Insurance	1,058	976	895	813	732	650
Insurance	Casualty Insurance	9,899	9,863	9,827	9,792	9,756	9,720
Insurance Total		13,169	12,800	12,431	12,063	11,694	11,325
Depreciation	Depreciation Expense - Furniture & F	5,100	5,100	5,100	5,100	5,100	5,100
Depreciation	Depreciation Expense - Computer Eq	3,800	3,800	3,800	3,800	3,800	3,800
Depreciation	Depreciation Expense - Machinery &	2,400	2,400	2,400	2,400	2,400	2,400
Depreciation	Depreciation Expense - Fleet Vehicles	22,000	22,000	22,000	22,000	22,000	22,000
Depreciation	Amortization - Software	2,379	2,355	2,332	2,308	2,284	2,260
Depreciation Total		35,679	35,655	35,632	35,608	35,584	35,560
Repairs	Repairs & Maintenance Expense-Staf	10,666	10,789	10,912	11,034	11,157	11,280
Repairs	Repairs & Maintenance Expense-Line	1,652	1,529	1,405	1,282	1,158	1,035
Repairs Total		12,318	12,317	12,317	12,316	12,316	12,315
Purchases	Fixed Assets- Computer Cabinets	(1,365)	(1,477)	(1,588)	(1,700)	(1,812)	(1,924)
Purchases	Salaries and Wages - Purchasing/Rec	8,059	8,025	7,992	7,959	7,925	7,892

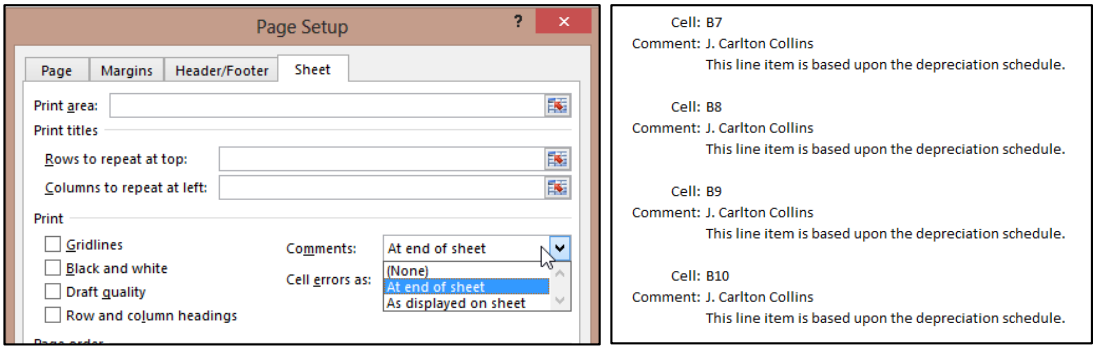
Back to the Budget - Document Your Budget Values

For each line item you change, you should document the basis for that budget line item with an Excel comment, (or some other method such as an adjacent in-cell comment). For example, in the screenshot below, I have inserted **Comments** next to each account description indicating the line item's forecasting basis. Comments are indicated by small red triangles in the upper right corner of a cell and the comment is displayed whenever you hover over the red tick mark with your mouse.

69		29,772	29,782	2	13,169
70	Depreciation Expense - Furniture & F	753	945		5,100
71	Depreciation Expense - Computer Eq	7,855	6,368		3,800
72	Depreciation Expense - Machinery &		6,728		2,400
73	Depreciation Expense - Fleet Vehicles		9,794	1	22,000
74	Amortization - Software		3,338		2,379
75			7,174	2	35,679
76	Repairs & Maintenance Expense-Staf	7,554	6,436		10,666
77	Repairs & Maintenance Expense-Line	5,552	5,085		1,652
78		13,106	11,521	1	12,318
79	Fixed Assets- Computer Cabinets	2,114	1,619		(1,365)
80	Salaries and Wages - Purchasing/Rec	8,004	6,934		8,059
81	Overtime Pay - Purchasing/Receiving	10,497	9,883		11,076
82	Bonuses - Purchasing/Receiving	10,395	11,416	1	14,949

J. Carlton Collins:
This line item is based upon the depreciation schedule.

To print comments, select **Page Setup** from the **Page Layout** tab, and on the **Sheet** tab select **At end of the sheet** from the **Comments** dropdown box, as pictured on the left below. Note that the comments do not show up in Print Preview, but they do appear as a printed page at the end of your print out; an example of which is pictured on the right below.



Testing Data's Suitability for Regression Calculations

Therefore, you should always visit each line item in the projection and consider whether the projected values make sense. Excel provides at least two good functions to help you accomplish this task – **PEARSON** and **RSQUARE**. For example, in the screen shot below, I have calculated the suitability of 5 different sets of data for regression, using both the **PEARSON** and **R SQUARE** functions. The first data set on row three has a perfect trend and scores a 100% in both the **PEARSON** and **R SQUARE** calculations. However, the data sets that follow are comprised of an increasingly less perfect trend, and the declining **PEARSON** and **R SQUARE** scores reflect this decline.

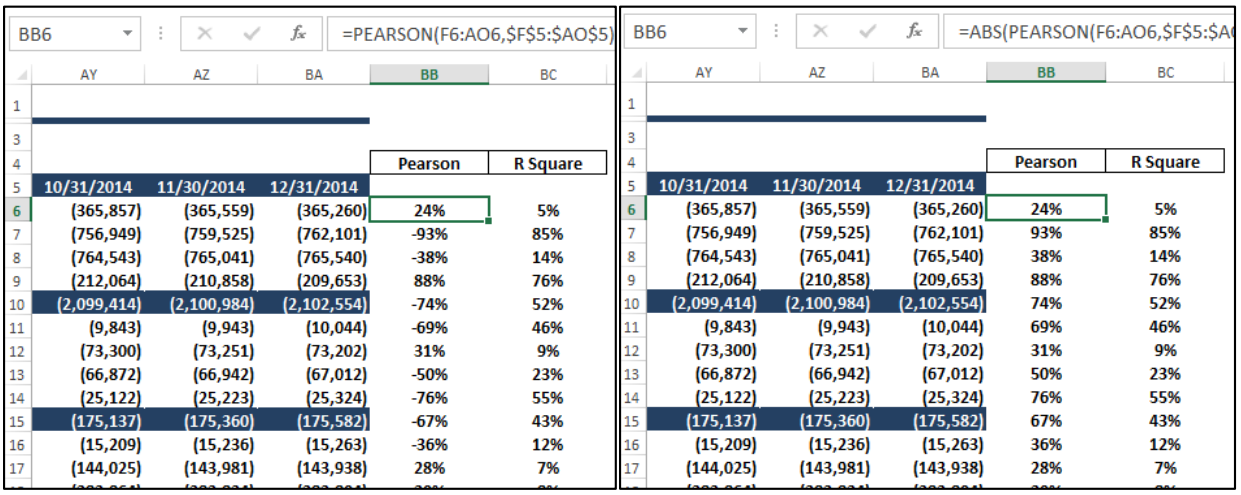
J3 =PEARSON(A3:H3,A2:H2)

	A	B	C	D	E	F	G	H	J	K
1									Pearson	R Square
2	1	2	3	4	5	6	7	8		
3	20	40	60	80	100	120	140	160	100%	100%
4										
5	1	2	3	4	5	6	7	8		
6	20	55	111	80	100	120	140	160	93%	86%
7										
8	1	2	3	4	5	6	7	8		
9	20	55	111	80	100	222	140	160	81%	66%
10										
11	1	2	3	4	5	6	7	8		
12	20	55	111	80	100	222	140	333	86%	74%
13										
14	1	2	3	4	5	6	7	8		
15	20	444	111	80	100	222	140	333	21%	4%

For example, I might conclude that the first four sets of data were found to have a sufficient trend as to provide a suitable basis for regression calculations but that the data set in row 15 does not. You should establish your threshold and consistently stick to that threshold. In this case, I might require a minimum 60% **PEARSON** score and 50% **R Square** score in order to justify reliance on that data as a basis for regression forecasting.

Back to the Budget - Testing Data for Regression Suitability

Next we will test each line item's data for regression suitability. This step will help us determine which rows, if any, need to be forecast using a method other than regression. We start this process by labeling a couple of blank columns **Pearson** and **R Square**, then enter the respective formulas to test the 36 columns of data row–by–row, as shown below, on the left.



	AY	AZ	BA	BB	BC
4				Pearson	R Square
5	10/31/2014	11/30/2014	12/31/2014		
6	(365,857)	(365,559)	(365,260)	24%	5%
7	(756,949)	(759,525)	(762,101)	-93%	85%
8	(764,543)	(765,041)	(765,540)	-38%	14%
9	(212,064)	(210,858)	(209,653)	88%	76%
10	(2,099,414)	(2,100,984)	(2,102,554)	-74%	52%
11	(9,843)	(9,943)	(10,044)	-69%	46%
12	(73,300)	(73,251)	(73,202)	31%	9%
13	(66,872)	(66,942)	(67,012)	-50%	23%
14	(25,122)	(25,223)	(25,324)	-76%	55%
15	(175,137)	(175,360)	(175,582)	-67%	43%
16	(15,209)	(15,236)	(15,263)	-36%	12%
17	(144,025)	(143,981)	(143,938)	28%	7%

	AY	AZ	BA	BB	BC
4				Pearson	R Square
5	10/31/2014	11/30/2014	12/31/2014		
6	(365,857)	(365,559)	(365,260)	24%	5%
7	(756,949)	(759,525)	(762,101)	93%	85%
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16	(15,209)	(15,236)	(15,263)	36%	12%
17	(144,025)	(143,981)	(143,938)	28%	7%

Notice that both the **PEARSON** and **R SQUARE** formulas return percentage values that are both negative and positive, which means the data is trending upward or downward. Since we don't care which direction the data is trending, (we only care that it scores high), we can edit the formulas to include the **ABSOLUTE** function (**ABS**) which changes all amounts to positive numbers, as picture above on the right.

Now we can set our thresholds to minimum scores, let's say 50% (Pearson) and 40% (R Square) for example, then apply conditional formatting to flush out those line items that meet our stated criteria. As pictured to the right, those line items in columns BB and BC containing formatting are not suitable for regression based on our stated criterion level, and another forecasting method will need to be used to forecast those amounts. For example, we may simply use last year's number inflated by the consumer price index.

	AY	AZ	BA	BB	BC
37	90,320	90,100	89,881	77%	57%
38	129,144	129,175	129,206	16%	2%
39	40,504	40,423	40,342	50%	23%
40	270,255	270,070	269,885	75%	55%
41	18,490	18,793	19,095	96%	91%
42	94,139	94,017	93,896	81%	64%
43	132,699	132,837	132,975	71%	49%
44	42,763	42,607	42,450	82%	66%
45	288,091	288,254	288,416	60%	34%
46	(3,604)	(3,670)	(3,736)	70%	47%
47	248	202	155	31%	9%
48	3,318	3,418	3,518	79%	60%
49	4,924	5,101	5,278	66%	42%
50	13,004	13,273	13,543	96%	91%
51	(8,027)	(8,236)	(8,444)	90%	80%
52	9,678	9,852	10,025	87%	74%
53	(9,951)	(10,164)	(10,378)	94%	88%
54	(9,843)	(10,083)	(10,323)	91%	82%
55	(253)	(307)	(362)	19%	3%
56	5,095	5,240	5,384	90%	80%
57	208,956	208,827	208,697	79%	61%
58	9,388	9,346	9,304	40%	15%
59	(6,244)	(6,540)	(6,835)	85%	71%
60	13,104	13,209	13,315	89%	78%
61	2,416	2,232	2,048	83%	68%
62	1,632	1,423	1,215	87%	75%
63	6,231	6,416	6,602	72%	50%
64	240,578	240,154	239,730	76%	56%
65	8,414	8,375	8,335	37%	13%
66	(8,467)	(8,679)	(8,891)	86%	72%
67	324	243	161	57%	31%
68	9,577	9,542	9,506	24%	5%
69	9,849	9,480	9,112	76%	56%
70	5,629	5,755	5,880	80%	62%
71	3,511	3,435	3,358	72%	49%
72	1,896	1,800	1,705	79%	61%
73	23,011	23,335	23,659	96%	92%
74	2,165	2,141	2,117	28%	7%
75	36,213	36,466	36,719	70%	47%
76	11,772	11,895	12,017	82%	65%
77	541	417	294	89%	78%
78	12,312	12,312	12,311	1%	0%

Budgeting Balance Sheets and Cash Flow

In many cases, budgets consist of a profit and loss statement only, but I believe this falls short.

By creating a budgeted balance sheet and cash flow statement, (which requires the creation of a budgeted balance sheet), a company can truly monitor expected results for every account, including the all-important cash flow balance. The process starts by forecasting the balance sheet and once created, forecasting cash flow is a simple matter of crunching the numbers.

To produce a budgeted balance sheet, assumptions are needed related to the days in accounts receivable, accounts payable and inventory. These day calculations are best derived by examining the historical days in accounts receivable, accounts payable and inventory for recent years, and using those amounts as a guide. For example:

1. **AR** - The budgeted accounts receivable balance may be calculated as 46 days of the prior month's sales.

2. **AP -** The budgeted accounts payable balance may be calculated as 28 days of the prior month's variable expenses.

3. **Inventory** - The budgeted inventory balance may be calculated as 62 days of the prior month's COGS amount.

4. **Loan Payments** – Loan repayments should be budgeted based on the actual amortization schedules, based on the principle payment amounts.

5. And so on.

Once the balance sheet items have been budgeted, the resulting cash flow budget is computed as follows:

	A	B	C	D	E	F	G	H	I
2		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
3	Beginning Cash		1,000	3,500	6,450	8,150	8,060	7,500	8,010
4									
5	**Budgeted P&L:**								
6	Revenue		10,000	11,000	12,100	8,000	6,200	15,000	16,500
7	COGS		4,000	4,400	4,840	3,200	2,480	6,000	6,600
8	Gross Margin		6,000	6,600	7,260	4,800	3,720	9,000	9,900
9									
10	Expense 1		500	-	-	-	500	-	-
11	Expense 2		600	1,450	1,750	1,200	800	600	600
12	Expense 3		200	200	200	700	700	1,000	1,000
13	Expense 4		400	400	400	-	-	600	600
14	Expense 5		700	200	450	500	600	600	300
15	Expense 6		1,200	1,200	2,800	3,300	2,100	4,300	3,000
16	Expense 7		100	200	100	200	50	50	100
17	Total Expenses		3,700	3,650	5,700	5,900	4,750	7,150	5,600
18									
19	Profit/Loss		2,300	2,950	1,560	(1,100)	(1,030)	1,850	4,300
20									
21	**Budgeted Balance Sheet:**								
22	A/R (46 days of sales)	1,150	1,260	1,390	1,520	1,010	780	1,890	2,080
23	A/P (28 days of expenses)	(270)	(270)	(270)	(410)	(430)	(350)	(520)	(410)
24	Inventory (62 days of COGS)	790	680	750	820	540	420	1,020	1,120
25	Loan Balance (From Amort. Schedule)	4,200	4,000	3,800	3,600	3,400	3,200	3,000	2,800
26									
27	Change in A/R		(110)	(130)	(130)	510	230	(1,110)	(190)
28	Change in A/P		-	-	140	20	(80)	170	(110)
29	Change in Inventory		110	(70)	(70)	280	120	(600)	(100)
30	Change in Loan		200	200	200	200	200	200	200
31									
32	Ending Cash		3,500	6,450	8,150	8,060	7,500	8,010	12,110

The area in yellow (rows 5 through 19) shows the profit and loss budget as projected using the methods described earlier above. The blue area (rows 21 through 25) depicts the assumptions and the changes in balance sheet balances. The green areas (rows 26 through 32) represent the forecast balance sheets and cash flow forecast. Because the income statement is seasonalized, the balance sheet balances and cash flow forecast will also be seasonalized.

This Income Statement Budget Is Not Yet Completed

At this point, we have prepared a complete monthly budget using regression supplemented with other forecasting methods, and this effort may be sufficient for your needs. However, please be aware that this budget example was simplified in order to more easily convey Excel's regression tools and concepts. There is more to the process for those truly dedicated to creating the most accurate budget possible – keep reading.

Forecasting Revenue

In the example above, for the purpose of explaining regression as simply as possible, I treated the budgeting process for revenue exactly the same as the budgeting process for expenses, but in reality budgeting revenue is usually a different process from budgeting expenses.

For established companies, many projected expenses can be reasonably determined using regression, inflation, percentage of sales or best guess forecasting methods. However, revenue is subject to far greater external factors such as competition, marketing, the state of the economy, inflationary pressures, changing attitudes, etc. For example, the appearance of a new competitor in the marketplace could steal away market share and thus negatively impact revenue. For example, in late 2012 Apple shares fell from $700 a share to almost $400 a share for no other reason than the prospects that Microsoft's, Google's and Samsung's new tablet PC offerings were expected to eat into Apple's market share.

Negative press related to the quality of your product (such as the gas pedal sticking for Toyotas) could adversely affect sales. By contrast, your product may become wildly popular if a well know celebrity starts wearing or using your product. A good marketing campaign can help significantly, or hurt if it happens to make the wrong impression.

The point is that regression is unable to incorporate factors like this, therefore a more detailed forecasting approach is usually needed. A good budget will consider all of the relevant factors and in the end, you may produce multiple budgets given differing anticipated scenarios.

Simple Example of Revenue Projection Based on Units

In the following example, Crazy Fred's has listed the number of training courses scheduled for each month of the budget year, and has projected attendance for each month based on the average attendance achieved in previous years for those same months. Crazy Fred charges a course fee of $100 per attendee, which is input in cell **A8**. Crazy Fred also knows that the fixed cost of printing the training manual and having the food catered will be $22 and $27, respectively – as input into cells **A11** and **A12**.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	**Crazy Fred's Training**														
2															
3			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
4		Number of Training Courses	10	20	25	10	-	10	10	30	30	25	20	20	
5		Projected Attendees Per Course	19.6	22.3	24.0	18.4	-	17.3	16.5	42.3	41.7	38.4	25.3	21.2	
6		Projected Total Attendees	196	446	600	184	-	173	165	1,269	1,251	960	506	424	6,174
7															
8	$ 100.00	Revenue	19,600	44,600	60,000	18,400	-	17,300	16,500	126,900	125,100	96,000	50,600	42,400	617,400
9															
10	**Vaiable Costs:**														
11	$ 22.00	Materials	4,312	9,812	13,200	4,048	-	3,806	3,630	27,918	27,522	21,120	11,132	9,328	
12	$ 27.00	Food	5,292	12,042	16,200	4,968	-	4,671	4,455	34,263	33,777	25,920	13,662	11,448	
13		Total Variable Costs	9,604	21,854	29,400	9,016	-	8,477	8,085	62,181	61,299	47,040	24,794	20,776	
14															
15	**Fixed Costs:**														
16		Meeting Room Lease	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	
17		Brochures & Marketing	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	
18		Miscellaneous	500	500	500	500	500	500	500	500	500	500	500	500	
19			3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250	
20															
21	**Profit or (Loss):**		6,746	19,496	27,350	6,134	(3,250)	5,573	5,165	61,469	60,551	45,710	22,556	18,374	
22															

Notice that this projection method does is not based on historical revenue amounts, only historical attendance figures have been used. In this example, the company knows how many classroom venues have been booked and has a fairly decent idea as to what attendance might be; therefore, regression based on historical revenue amounts would not be as accurate as using these known quantities to forecast revenues.

A more sophisticated example of forecasting revenues based on units of production is shown below. In this example, a CPA firm has listed each employee along with each employee's budgeted billable hours and billing rates by month.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	**CPA Firm Budget**															
2				15.0%	11.4%	12.4%	11.1%	5.1%	4.8%	4.2%	6.0%	6.1%	6.3%	8.3%	9.3%	100.0%
3	**Billable Hours**															
4	**Employee Name**	**Title**	**Annua**	**Jan-12**	**Feb-12**	**Mar-12**	**Apr-12**	**May-12**	**Jun-12**	**Jul-12**	**Aug-12**	**Sep-12**	**Oct-12**	**Nov-12**	**Dec-12**	
5	Jennifer W.	Partner	1,000	150.0	114.0	124.0	111.0	51.0	48.0	42.0	60.0	61.0	63.0	83.0	93.0	1,000.0
6	Lynne C.	Partner	1,000	150.0	114.0	124.0	111.0	51.0	48.0	42.0	60.0	61.0	63.0	83.0	93.0	1,000.0
7	Brenda J.	Manager	1,200	180.0	136.8	148.8	133.2	61.2	57.6	50.4	72.0	73.2	75.6	99.6	111.6	1,200.0
8	David S.	Manager	1,200	180.0	136.8	148.8	133.2	61.2	57.6	50.4	72.0	73.2	75.6	99.6	111.6	1,200.0
9	Billy T.	Supervisor	1,400	210.0	159.6	173.6	155.4	71.4	67.2	58.8	84.0	85.4	88.2	116.2	130.2	1,400.0
10	Craig R.	Supervisor	1,400	210.0	159.6	173.6	155.4	71.4	67.2	58.8	84.0	85.4	88.2	116.2	130.2	1,400.0
11	Sandra H.	Supervisor	1,400	210.0	159.6	173.6	155.4	71.4	67.2	58.8	84.0	85.4	88.2	116.2	130.2	1,400.0
12	Mary U.	Senior	1,650	247.5	188.1	204.6	183.2	84.2	79.2	69.3	99.0	100.7	104.0	137.0	153.5	1,650.0
13	Kris P.	Senior	1,650	247.5	188.1	204.6	183.2	84.2	79.2	69.3	99.0	100.7	104.0	137.0	153.5	1,650.0
14	Karen B.	Senior	1,650	247.5	188.1	204.6	183.2	84.2	79.2	69.3	99.0	100.7	104.0	137.0	153.5	1,650.0
15	Phillip L.	Senior	1,650	247.5	188.1	204.6	183.2	84.2	79.2	69.3	99.0	100.7	104.0	137.0	153.5	1,650.0
16	Nancy H.	Staff	1,800	270.0	205.2	223.2	199.8	91.8	86.4	75.6	108.0	109.8	113.4	149.4	167.4	1,800.0
17	Jerry M.	Staff	1,800	270.0	205.2	223.2	199.8	91.8	86.4	75.6	108.0	109.8	113.4	149.4	167.4	1,800.0
18	Benson G.	Staff	1,800	270.0	205.2	223.2	199.8	91.8	86.4	75.6	108.0	109.8	113.4	149.4	167.4	1,800.0
19	Gloria K.	Staff	1,800	270.0	205.2	223.2	199.8	91.8	86.4	75.6	108.0	109.8	113.4	149.4	167.4	1,800.0
20	Christine W.	Staff	1,800	270.0	205.2	223.2	199.8	91.8	86.4	75.6	108.0	109.8	113.4	149.4	167.4	1,800.0
21																
22	**Billing Rates**									10						
23	**Employee Name**	**Title**		**Jan-12**	**Feb-12**	**Mar-12**	**Apr-12**	**May-12**	**Jun-12**	**Jul-12**	**Aug-12**	**Sep-12**	**Oct-12**	**Nov-12**	**Dec-12**	
24	Jennifer W.	Partner		215	215	215	215	215	215	225	225	225	225	225	225	
25	Lynne C.	Partner		225	225	225	225	225	225	235	235	235	235	235	235	
26	Brenda J.	Manager		165	165	165	165	165	165	175	175	175	175	175	175	
27	David S.	Manager		175	175	175	175	175	175	185	185	185	185	185	185	
28	Billy T.	Supervisor		125	125	125	125	125	125	135	135	135	135	135	135	
29	Craig R.	Supervisor		115	115	115	115	115	115	125	125	125	125	125	125	
30	Sandra H.	Supervisor		115	115	115	115	115	115	125	125	125	125	125	125	
31	Mary U.	Senior		85	85	85	85	85	85	95	95	95	95	95	95	
32	Kris P.	Senior		85	85	85	85	85	85	95	95	95	95	95	95	
33	Karen B.	Senior		85	85	85	85	85	85	95	95	95	95	95	95	
34	Phillip L.	Senior		85	85	85	85	85	85	95	95	95	95	95	95	
35	Nancy H.	Staff		60	60	60	60	60	60	70	70	70	70	70	70	
36	Jerry M.	Staff		60	60	60	60	60	60	70	70	70	70	70	70	
37	Benson G.	Staff		60	60	60	60	60	60	70	70	70	70	70	70	
38	Gloria K.	Staff		60	60	60	60	60	60	70	70	70	70	70	70	
39	Christine W.	Staff		60	60	60	60	60	60	70	70	70	70	70	70	
40																
41	**Total Revenue:**															
42	**Employee Name**	**Title**		**Jan-12**	**Feb-12**	**Mar-12**	**Apr-12**	**May-12**	**Jun-12**	**Jul-12**	**Aug-12**	**Sep-12**	**Oct-12**	**Nov-12**	**Dec-12**	**Total**
43	Jennifer W.	Partner		32,250	24,510	26,660	23,865	10,965	10,320	9,450	13,500	13,725	14,175	18,675	20,925	219,020
44	Lynne C.	Partner		33,750	25,650	27,900	24,975	11,475	10,800	9,870	14,100	14,335	14,805	19,505	21,855	229,020
45	Brenda J.	Manager		29,700	22,572	24,552	21,978	10,098	9,504	8,820	12,600	12,810	13,230	17,430	19,530	202,824
46	David S.	Manager		31,500	23,940	26,040	23,310	10,710	10,080	9,324	13,320	13,542	13,986	18,426	20,646	214,824
47	Billy T.	Supervisor		26,250	19,950	21,700	19,425	8,925	8,400	7,938	11,340	11,529	11,907	15,687	17,577	180,628
48	Craig R.	Supervisor		24,150	18,354	19,964	17,871	8,211	7,728	7,350	10,500	10,675	11,025	14,525	16,275	166,628
49	Sandra H.	Supervisor		24,150	18,354	19,964	17,871	8,211	7,728	7,350	10,500	10,675	11,025	14,525	16,275	166,628
50	Mary U.	Senior		21,038	15,989	17,391	15,568	7,153	6,732	6,584	9,405	9,562	9,875	13,010	14,578	146,883
51	Kris P.	Senior		21,038	15,989	17,391	15,568	7,153	6,732	6,584	9,405	9,562	9,875	13,010	14,578	146,883
52	Karen B.	Senior		21,038	15,989	17,391	15,568	7,153	6,732	6,584	9,405	9,562	9,875	13,010	14,578	146,883
53	Phillip L.	Senior		21,038	15,989	17,391	15,568	7,153	6,732	6,584	9,405	9,562	9,875	13,010	14,578	146,883
54	Nancy H.	Staff		16,200	12,312	13,392	11,988	5,508	5,184	5,292	7,560	7,686	7,938	10,458	11,718	115,236
55	Jerry M.	Staff		16,200	12,312	13,392	11,988	5,508	5,184	5,292	7,560	7,686	7,938	10,458	11,718	115,236
56	Benson G.	Staff		16,200	12,312	13,392	11,988	5,508	5,184	5,292	7,560	7,686	7,938	10,458	11,718	115,236
57	Gloria K.	Staff		16,200	12,312	13,392	11,988	5,508	5,184	5,292	7,560	7,686	7,938	10,458	11,718	115,236
58	Christine W.	Staff		16,200	12,312	13,392	11,988	5,508	5,184	5,292	7,560	7,686	7,938	10,458	11,718	115,236
59				366,900	278,844	303,304	271,506	124,746	117,408	112,896	161,280	163,968	169,344	223,104	249,984	2,543,284
60																

In this example, projected revenue is again based upon units rather than historical revenue amounts, as regression methods applied to historical revenue amounts would likely yield less accurate projections.

Keep in mind that revenue is often more volatile than expenses. An effective marketing program might increase the number of units sold, a bad economy might adversely affect the number of units sold. Any foreseen or expected events like these should be incorporated into the budget and explained in detail.

In conclusion, while the regression example above was used to forecast both revenue and expenses, in many cases regression should probably only be used as a means of forecasting expenses only.

Calculating Your Desired Profit Margin

It is also useful for companies to budget and monitor their profit margins; a profit margin that misses its target speaks volumes. Once established, budget to actual profit margin comparisons can also be used as benchmarks to help detect fraud, errors or irregularities.

To calculate your desired profit margin, I suggest that you work backwards by asking yourself (or your client) two simple questions, as follows:

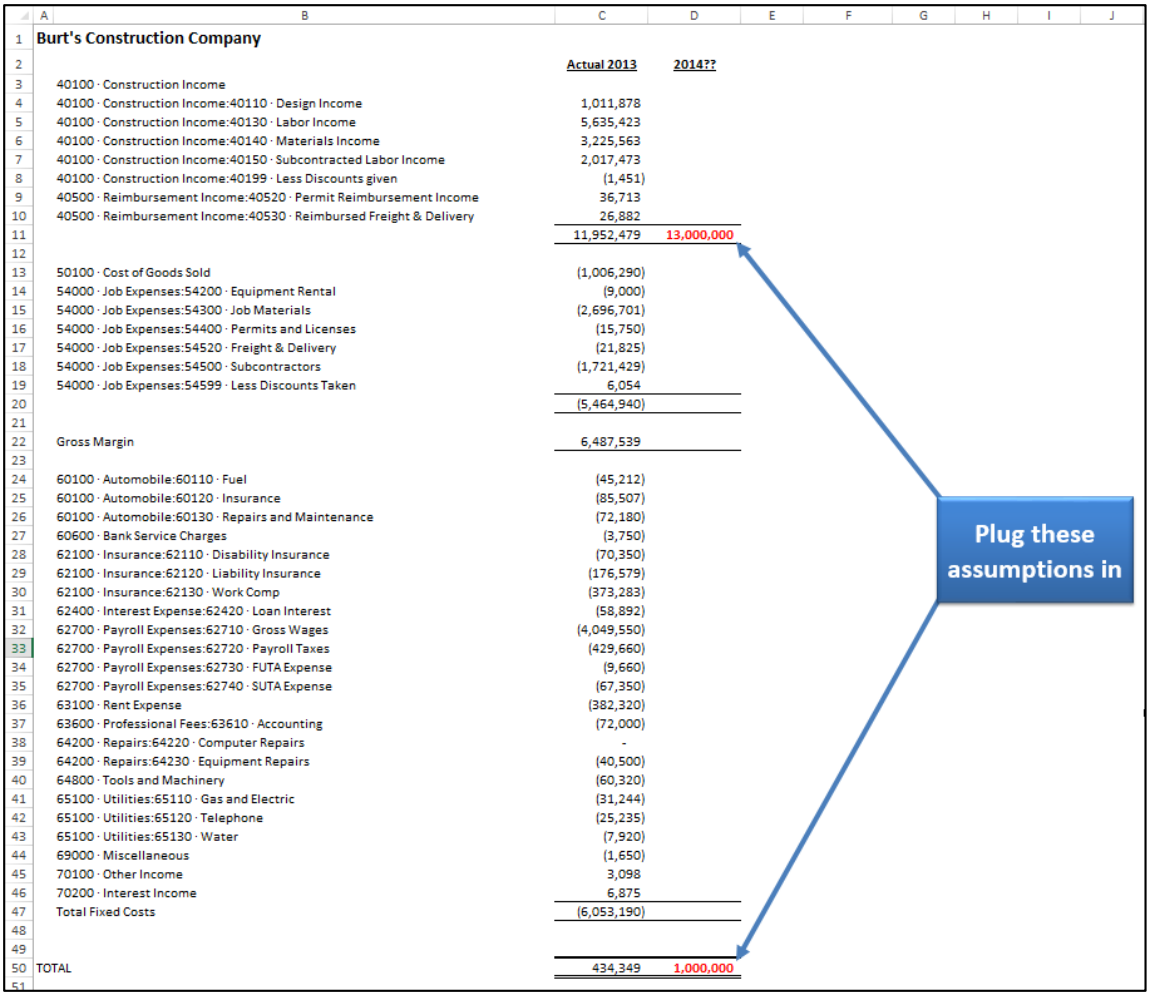
1. How much do you think revenue will be next year?
2. How much profit do you want to make?

For example:

Let's assume that Burt has owned and operated a construction company store for the past 17 years. As his CPA, I ask him two questions as follows: How much profit do you want to make next year and how much sales do you anticipate next year?

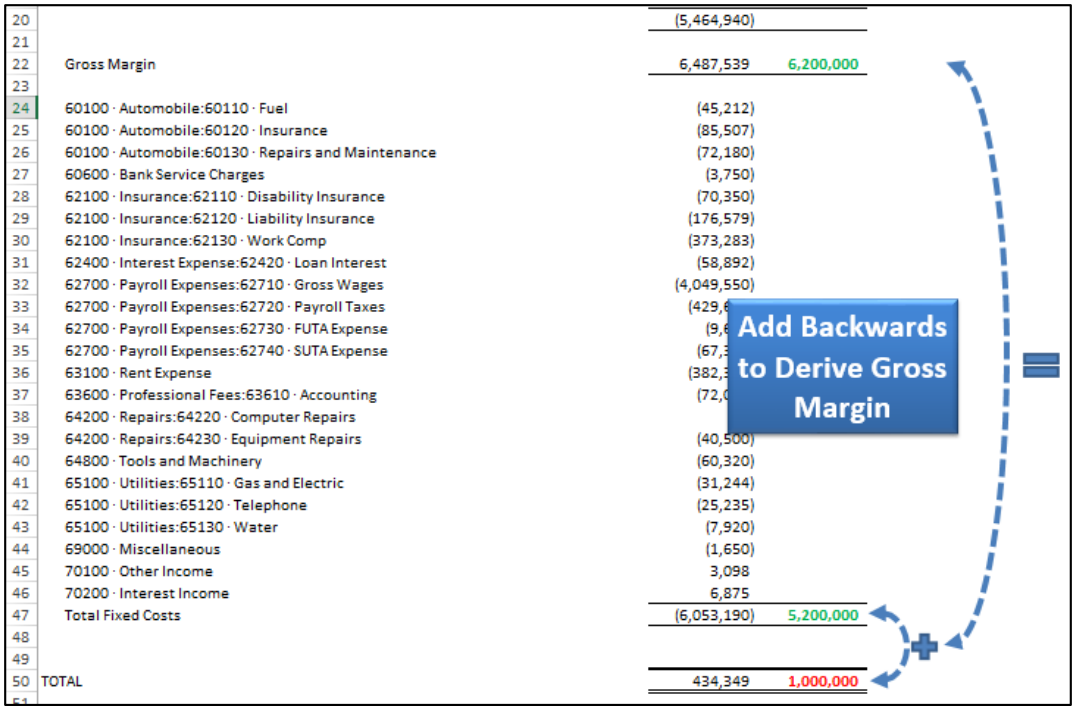
> *Burt responds – "that's easy, we've been growing at 8% a year for the past five years and last year (2013) we nearly reached $12 million sales, so we will probably hit $13 million in revenue next year (2014). Also, I'd like to make a million dollars profit – I think that's a reasonable goal."*

With just this little bit of data, we can work backwards based on Burt's prior year financial statements and advise him as follows:



		Actual 2013	2014??
1	**Burt's Construction Company**		
3	40100 · Construction Income		
4	40100 · Construction Income:40110 · Design Income	1,011,878	
5	40100 · Construction Income:40130 · Labor Income	5,635,423	
6	40100 · Construction Income:40140 · Materials Income	3,225,563	
7	40100 · Construction Income:40150 · Subcontracted Labor Income	2,017,473	
8	40100 · Construction Income:40199 · Less Discounts given	(1,451)	
9	40500 · Reimbursement Income:40520 · Permit Reimbursement Income	36,713	
10	40500 · Reimbursement Income:40530 · Reimbursed Freight & Delivery	26,882	
11		11,952,479	13,000,000
13	50100 · Cost of Goods Sold	(1,006,290)	
14	54000 · Job Expenses:54200 · Equipment Rental	(9,000)	
15	54000 · Job Expenses:54300 · Job Materials	(2,696,701)	
16	54000 · Job Expenses:54400 · Permits and Licenses	(15,750)	
17	54000 · Job Expenses:54520 · Freight & Delivery	(21,825)	
18	54000 · Job Expenses:54500 · Subcontractors	(1,721,429)	
19	54000 · Job Expenses:54599 · Less Discounts Taken	6,054	
20		(5,464,940)	
22	Gross Margin	6,487,539	
24	60100 · Automobile:60110 · Fuel	(45,212)	
25	60100 · Automobile:60120 · Insurance	(85,507)	
26	60100 · Automobile:60130 · Repairs and Maintenance	(72,180)	
27	60600 · Bank Service Charges	(3,750)	
28	62100 · Insurance:62110 · Disability Insurance	(70,350)	
29	62100 · Insurance:62120 · Liability Insurance	(176,579)	
30	62100 · Insurance:62130 · Work Comp	(373,283)	
31	62400 · Interest Expense:62420 · Loan Interest	(58,892)	
32	62700 · Payroll Expenses:62710 · Gross Wages	(4,049,550)	
33	62700 · Payroll Expenses:62720 · Payroll Taxes	(429,660)	
34	62700 · Payroll Expenses:62730 · FUTA Expense	(9,660)	
35	62700 · Payroll Expenses:62740 · SUTA Expense	(67,350)	
36	63100 · Rent Expense	(382,320)	
37	63600 · Professional Fees:63610 · Accounting	(72,000)	
38	64200 · Repairs:64220 · Computer Repairs	-	
39	64200 · Repairs:64230 · Equipment Repairs	(40,500)	
40	64800 · Tools and Machinery	(60,320)	
41	65100 · Utilities:65110 · Gas and Electric	(31,244)	
42	65100 · Utilities:65120 · Telephone	(25,235)	
43	65100 · Utilities:65130 · Water	(7,920)	
44	69000 · Miscellaneous	(1,650)	
45	70100 · Other Income	3,098	
46	70200 · Interest Income	6,875	
47	Total Fixed Costs	(6,053,190)	
50	TOTAL	434,349	1,000,000

Burt's fixed costs are a little more than $6 million in 2012, but let's say that we can adjust this amount down to $5,200,000 because the company was able to renegotiate and sign a new lease agreement. The point is that we are using 2012's fixed cost amount along with any known adjustments. This allows us to work backwards to calculate the projected Gross Margin of $6,200,000.



20		(5,464,940)	
21			
22	Gross Margin	6,487,539	6,200,000
23			
24	60100 · Automobile:60110 · Fuel	(45,212)	
25	60100 · Automobile:60120 · Insurance	(85,507)	
26	60100 · Automobile:60130 · Repairs and Maintenance	(72,180)	
27	60600 · Bank Service Charges	(3,750)	
28	62100 · Insurance:62110 · Disability Insurance	(70,350)	
29	62100 · Insurance:62120 · Liability Insurance	(176,579)	
30	62100 · Insurance:62130 · Work Comp	(373,283)	
31	62400 · Interest Expense:62420 · Loan Interest	(58,892)	
32	62700 · Payroll Expenses:62710 · Gross Wages	(4,049,550)	
33	62700 · Payroll Expenses:62720 · Payroll Taxes	(429,6	
34	62700 · Payroll Expenses:62730 · FUTA Expense	(9,8	
35	62700 · Payroll Expenses:62740 · SUTA Expense	(67,3	
36	63100 · Rent Expense	(382,3	
37	63600 · Professional Fees:63610 · Accounting	(72,0	
38	64200 · Repairs:64220 · Computer Repairs		
39	64200 · Repairs:64230 · Equipment Repairs	(40,500)	
40	64800 · Tools and Machinery	(60,320)	
41	65100 · Utilities:65110 · Gas and Electric	(31,244)	
42	65100 · Utilities:65120 · Telephone	(25,235)	
43	65100 · Utilities:65130 · Water	(7,920)	
44	69000 · Miscellaneous	(1,650)	
45	70100 · Other Income	3,098	
46	70200 · Interest Income	6,875	
47	Total Fixed Costs	(6,053,190)	5,200,000
48			
49			
50	TOTAL	434,349	1,000,000

From here we can compute **Cost of Goods Sold**, and then divide **Cost of Goods Sold** and **Gross Margin** by **Sales** to derive the desired **Profit Margin** that will cover **Fixed Costs**, **Variable Costs** and still have the desired **Net Income** of $1,000,000 left over. In conclusion, a **Profit Margin** of 47.7%will yield the desired results.

	A	B	C	D	E	F
1	**Burt's Construction Company**					
2			**Actual 2013**	**2014??**		
3		40100 · Construction Income				
4		40100 · Construction Income:40110 · Design Income	1,011,878			
5		40100 · Construction Income:40130 · Labor Income	5,635,423			
6		40100 · Construction Income:40140 · Materials Income	3,225,563			
7		40100 · Construction Income:40150 · Subcontracted Labor Income	2,017,473			
8		40100 · Construction Income:40199 · Less Discounts given	(1,451)			
9		40500 · Reimbursement Income:40520 · Permit Reimbursement Income	36,713			
10		40500 · Reimbursement Income:40530 · Reimbursed Freight & Delivery	26,882			
11			11,952,479	13,000,000		100.0%
12						
13		50100 · Cost of Goods Sold	(1,006,290)			
14		54000 · Job Expenses:54200 · Equipment Rental	(9,000)			
15		54000 · Job Expenses:54300 · Job Materials	(2,696,701)			
16		54000 · Job Expenses:54400 · Permits and Licenses	(15,750)			
17		54000 · Job Expenses:54520 · Freight & Delivery	(21,825)			
18		54000 · Job Expenses:54500 · Subcontractors	(1,721,429)			
19		54000 · Job Expenses:54599 · Less Discounts Taken	6,054			
20			(5,464,940)	6,800,000		52.3%
21						
22		Gross Margin	6,487,539	6,200,000		47.7%
23						

Now that the optimum profit margin is known, let's say that further analysis reveals that the inventory and labor items on average are priced at just 44.5% above cost, as the following calculations show, net income for 2014 would only be expected to reach $585,000 – well below Burt's desired profit.

	A	B	C	D	E	F
1	**Burt's Construction Company**					
2			**Actual 2013**	**2014??**		
3		40100 · Construction Income				
4		40100 · Construction Income:40110 · Design Income	1,011,878			
5		40100 · Construction Income:40130 · Labor Income	5,635,423			
6		40100 · Construction Income:40140 · Materials Income	3,225,563			
7		40100 · Construction Income:40150 · Subcontracted Labor Income	2,017,473			
8		40100 · Construction Income:40199 · Less Discounts given	(1,451)			
9		40500 · Reimbursement Income:40520 · Permit Reimbursement Income	36,713			
10		40500 · Reimbursement Income:40530 · Reimbursed Freight & Delivery	26,882			
11			11,952,479	**13,000,000**		**100.0%**
12						
13		50100 · Cost of Goods Sold	(1,006,290)	(1,328,538)		
14		54000 · Job Expenses:54200 · Equipment Rental	(9,000)	(11,882)		
15		54000 · Job Expenses:54300 · Job Materials	(2,696,701)	(3,560,277)		
16		54000 · Job Expenses:54400 · Permits and Licenses	(15,750)	(20,794)		
17		54000 · Job Expenses:54520 · Freight & Delivery	(21,825)	(28,814)		
18		54000 · Job Expenses:54500 · Subcontractors	(1,721,429)	(2,272,688)		
19		54000 · Job Expenses:54599 · Less Discounts Taken	6,054	7,993		
20			(5,464,940)	**7,215,000**		**55.5%**
21						
22		Gross Margin	6,487,539	**5,785,000**		**44.5%**
23						
24		60100 · Automobile:60110 · Fuel	(45,212)			
25		60100 · Automobile:60120 · Insurance	(85,507)			
26		60100 · Automobile:60130 · Repairs and Maintenance	(72,180)			
27		60600 · Bank Service Charges	(3,750)			
28		62100 · Insurance:62110 · Disability Insurance	(70,350)			
29		62100 · Insurance:62120 · Liability Insurance	(176,579)			
30		62100 · Insurance:62130 · Work Comp	(373,283)			
31		62400 · Interest Expense:62420 · Loan Interest	(58,892)			
32		62700 · Payroll Expenses:62710 · Gross Wages	(4,049,550)			
33		62700 · Payroll Expenses:62720 · Payroll Taxes	(429,660)			
34		62700 · Payroll Expenses:62730 · FUTA Expense	(9,660)			
35		62700 · Payroll Expenses:62740 · SUTA Expense	(67,350)			
36		63100 · Rent Expense	(382,320)			
37		63600 · Professional Fees:63610 · Accounting	(72,000)			
38		64200 · Repairs:64220 · Computer Repairs	-			
39		64200 · Repairs:64230 · Equipment Repairs	(40,500)			
40		64800 · Tools and Machinery	(60,320)			
41		65100 · Utilities:65110 · Gas and Electric	(31,244)			
42		65100 · Utilities:65120 · Telephone	(25,235)			
43		65100 · Utilities:65130 · Water	(7,920)			
44		69000 · Miscellaneous	(1,650)			
45		70100 · Other Income	3,098			
46		70200 · Interest Income	6,875			
47		Total Fixed Costs	(6,053,190)	**5,200,000**		
48						
49						
50	TOTAL		434,349	**585,000**		
51						

At this point, you need to convince Burt of the importance of pricing his products and services at the desired profit margin in an effort to target the desired results. To convey this point, you will tell Burt the following laughable story about the Florida boys who started a business in Gainesville, Florida selling onions. It goes like this:

These two Florida boys were running up to Georgia and buying Vidalia onions at 4 for $1.00 which they then took back to Gainesville and sold for a quarter a piece on the

> streets. The business was an instant success and soon those boys found themselves selling from a road side stand, to a small store, to a much bigger store. The customers kept coming and the business kept getting bigger. Soon they had customers lined up around the block to buy those onions, which they kept buying 4 for a dollar and selling for 25 cents apiece.
>
> After six months, one Florida boy turned to the other and said – "you know, business is great! But I don't think we're making any money – what do you think we should do?" The other Florida boy thought real hard and then blurted – "I think we need a bigger truck."

OK, it's an old exaggerated story, but there is a lesson to be learned here. If you don't price your products to make a profit, you will never make a profit. And, ***if you don't price your products to make your desired profit, you will never make your desired profits***. In our example above, Burt should consider setting his margin pricing to target a profit margin of 47.7%, instead of the current profit margin of 44.5% to ensure a chance of achieving his desired goals. Without this measure, Burt has absolutely no chance of reaching his goals, unless his revenue estimate is wildly under-stated.

To be sure, if Burt's costs go up or down, his prices will need to be adjusted accordingly to provide the desired profit margin. But when you think about it, this approach is one in which Burt sells his goods and services to his customers at the lowest price point possible that covers his fixed costs, variable costs, and desired profit – and not a penny more. It seems reasonable that every company in the world strive for this goal - right?

Here's a simplified way to look at this - suppose your business was to purchase candy bars for resell. Your only options are to sell the candy bars for:

A. *Below cost.*
B. *At cost.*
C. *At cost plus your desired profit.*
D. *At cost plus an egregiously high profit.*
E. *At cost plus some random profit that may or may not be sufficient.*

I can't see how any reasonable person could select any option other then C – yet I see many companies sell their products based on all of these scenarios because they don't take time to calculate their desired profit margin, and then monitor that amount throughout the year.

You can download this Profit margin template at **www.CarltonCollins.com/profitmargin.xlxs**.

Budgeting and Financial Reporting Concepts in Excel:

2. **The Importance Of A Budget** – Most of the company's I deal with either do not prepare a budget, or do not use their budget to compare their actual monthly results throughout the year. They seem to prepare a budget as if to "check the task off the list", and then refer to the budget gain at year-end and declare "oh well, we missed it". A budget is not just a document that sets out expenses, it also sets out revenue and profits. Companies should keep this in mind and purposely plan for their desired profit. If the budget is reasonable, then it should be followed carefully, compared to ongoing results to determine if the company is on target to het the budget, and if not, point out those areas that need addressing in time to make corrective measures.

3. **Most People Start With Prior Year Numbers And Work From There** – In most cases, prior year actual results are a great place to start when preparing next year's budget. Simply round the figures and visit each line item asking yourself how much that line is expected to increase or decrease, and adjust accordingly.

4. **Exporting Your Prior Year Trial Balance To Excel** – While there are several respected budgeting tools in the marketplace, excel is by far the most popular and most flexible tool to use. Most accounting systems can export monthly actual amounts to Excel. From there, the =ROUND() function can be applied to round the numbers. After that, inflation formulas designed to increase or decrease line items can be used to adjust the numbers. Alternatively, expenses can be projected as a percentage of revenue, or as a multiple of some statistical account such as hours worked or units produced.

5. **Creating A Budget Preparation Template** – In many cases CPAs prepare budget templates and send them out to department managers to fill in. Once completed the budgets are routed back to the CPA who then consolidates the results. This can be a good approach to take. To ensure that the results received are complete and accurate, and easily consolidated, the CPA should produce a well prepared template that is very clear, and contains the proper verbiage and field names, and column headings so that the end results are consistent. If the CPA receives a hodgepodge of mismatched data, then consolidating the data, or even making sense of it might be difficult.

6. **Delegating Budget Preparation And Sending A Template** – When budget templates are prepared and distributed, the CPA should pay close attention to the directions for completing the budget, and timeframe for delivering the results. Because this approach makes the CPA's budget preparation dependent upon the deliverables of others, clear directions, milestones, and continuous follow up are critical.

7. **Create Budgets By Month** – Annual budgets are not very useful as a tool because they make it difficult to monitor actual versus budget results throughout the year. Simply dividing an annual budget by 12 is not a very good approach either, because many line items are subject to seasonality. For example, actual revenue may be twice as high in

some months compared to other months, but comparing these seasonal sales amounts to a non-seasonal budget is virtually meaningless because you can't tell whether you are on target, off target, or by how much. Therefore it is difficult to determine if corrective measures are needed on a month to month basis.

8. **Budgeting Revenue Is Different From Budgeting Expenses** – For established companies, projected expenses are reasonably known, or can be reasonably determined. However, revenue is subject to far greater external factors such as competition, marketing, inflationary pressures, changing attitudes, etc. A new competitor into the marketplace could eat into your revenue. Negative press related to the quality of your product (such as the gas pedal sticking for Toyotas) could adversely affect sales. By contrast, your product may become wildly popular if a well know celebrity starts wearing or using your product. A good marketing campaign can help significantly, or hurt if it happens to make the wrong impression. The point is that a good budget will consider all of the relevant factors and in the end, you may produce multiple budgets given differing anticipated scenarios.

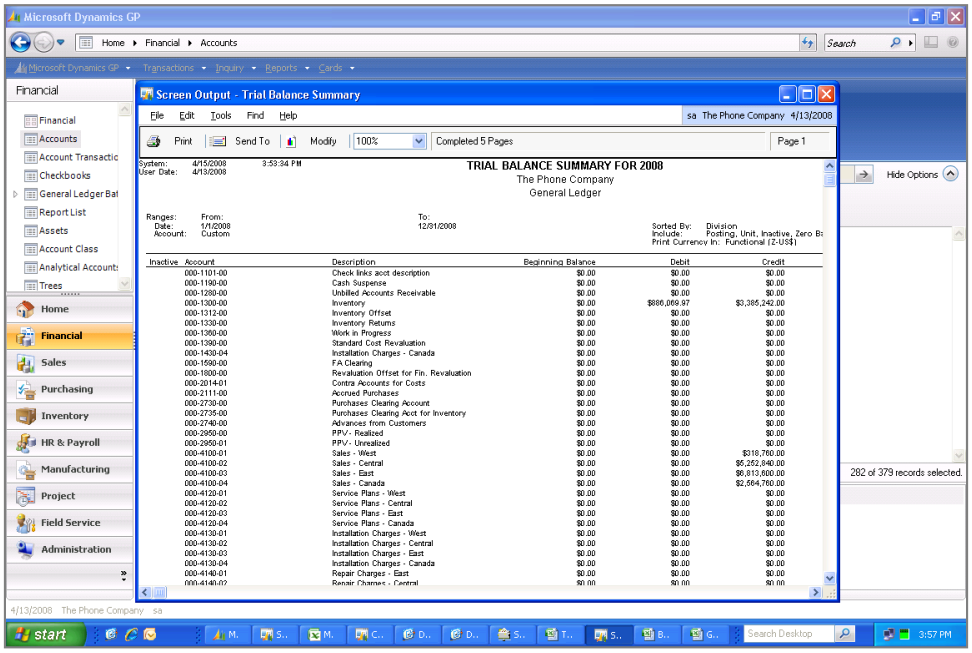
9. **Start By Analyzing The Seasonality Of Your Revenue For Past Years** – Seasonal budgets make all the difference in the world. I believe one of the primary reasons companies don't analyze their budgets to actuals throughout the year is because their budgets weren't seasonal to begin with, and therefore the comparison was virtually meaningless. You could start by calculating the percentage of a given line item's expense that occurs on a month-to-month basis. If the answers each year consistently show percentages significantly below or above 8.33% for a given month, then congratulations, you've just detected a seasonal lump or dip in your budget, and the percentage to use in predicting that same lump or dip next year.

10. **Forecast Balance Sheets And Cash Flow Too** – Too often budgets consist of a profit and loss statement, but this falls short. Companies are advised to create a budgeted cash flow statement as well, (which implies the creation of a budgeted balance sheet). Once the budget balance sheet items have been created, the budgeted cash flow budget is a simple matter of crunching the numbers. To produce a budgeted balance sheet, assumptions are needed related to the days in accounts receivable, accounts payable and inventory. These day calculations are best derived by examining the days in accounts receivable, accounts payable and inventory for recent years, and using those amounts as a guide.

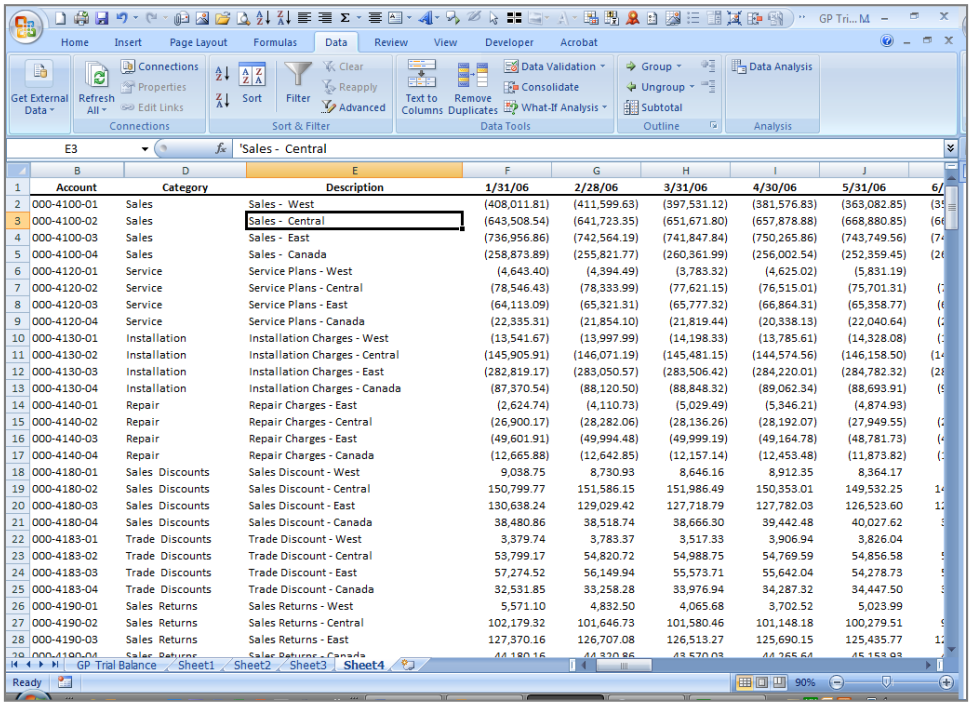
11. **Budgeting The Profit and Hence, Profit Margin** – When was the last time you asked your company or client "How much profit would you like to make? Once the company or client determines the desired profit, and expected revenue is reasonable projected you can calculate the necessary profit margin required to achieve the desired profit margin.

12. **Using Regression To Create Budgets** - Excel provides the ability to extrapolate data from your accounting system to produce budgets, projections or forecasts using the least squares method of linear regression analysis. The process is extremely easy as follows.

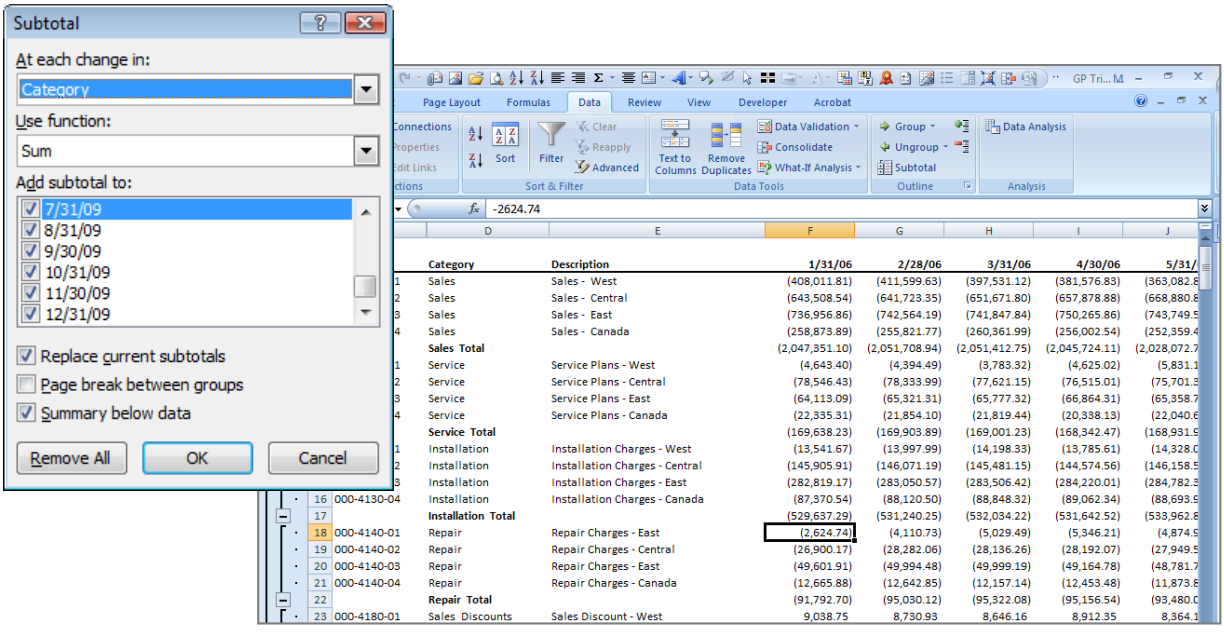
    In this example we start by exporting 3 year's worth of monthly trial balance data from Dynamics GP to Microsoft Excel. In Dynamics we have printed the report to the screen and also to a comma separated value print file.



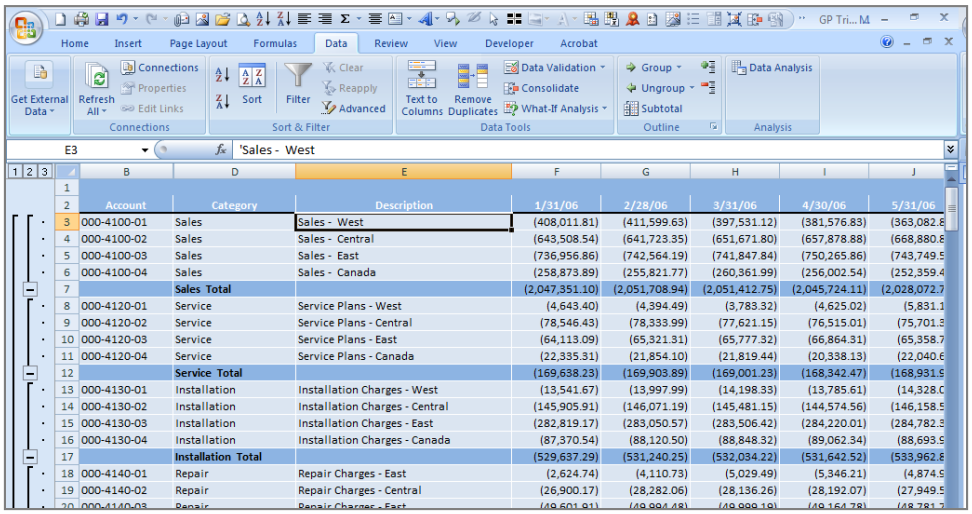
    This same data is then opened in Excel as shown in the following screen. I have deleted the balance sheet account line items and inserted a column called Category to help tidy the data.



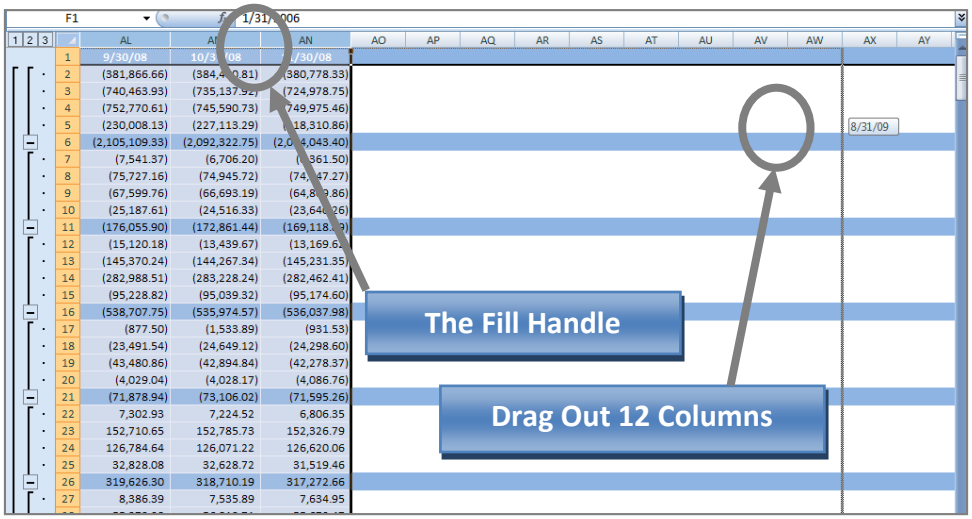
To create a budget for 2009, we will start by using the Subtotals Tool located on the Data Ribbon. This action inserts subtotals in each column below each change in the category column.



Next we collapse the outline to display only row totals and use the "Select Visible Cells Tool" to select the visible data in Excel. With only the subtotal and grand total rows displayed, we apply a color and then expand the outline. The result is that formatting has been applied to the subtotal and grand total rows to make them easier to read.



To create the budget, select the 36 columns with numeric data, then click and drag the "Fill Handle" out twelve additional columns to create the 2009 budget as shown below.

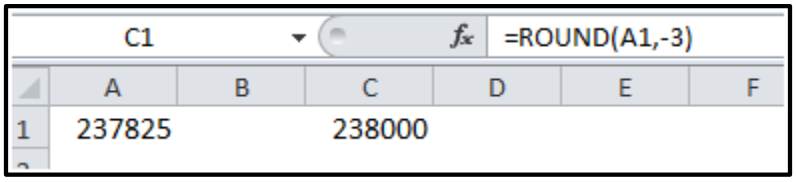


The result is that Excel uses linear regression analysis to predict the future values. Once you have completed this process you should insert better numbers on those line items where you have better budget amounts. For example, you would look to the lease agreement to determine the best amount to use for rent expense. You would use your depreciation schedule to provide numbers for depreciation expense. However for those numbers where you have no better basis to use for budget preparation purposes, why not use Linear Regression Analysis to provide the answer.

After all numbers have been updated, use the =ROUND() function to duplicate the budget on a separate workbook with all amounts properly rounded. Format as desired, label the budget appropriately, and you are done. A complete monthly budget prepared in less

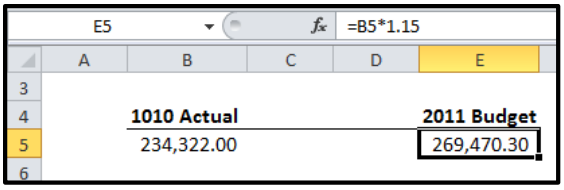
than 5 minutes. The great news now is that same budget can be imported back into Dynamics GP without reentering the data.

13. **Rounding Budgets** – The ROUND() function rounds a number to a specified number of digits. For example, if cell A1 contains 237825, and you want to round that value to the nearest thousands, you can use the following formula in cell C1:

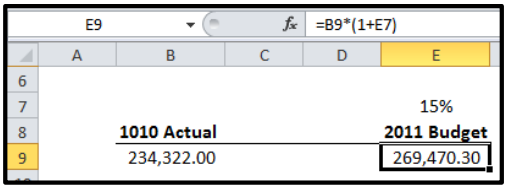


Note: To round a number to a specific multiple (for example, to round to the nearest 0.5), use the MROUND function.

14. **No Embedded Assumptions In Formulas** – It is always a good rule to not embed assumptions in your Excel formulas. The reason is that doing so makes it more difficult to later find those assumptions to change them, and unsuspecting users in the future (including yourself) may forget that there are embedded assumptions and they could accidentally render subsequent budgets inaccurate.



Wrong



Correct

15. **Explain All Underlying Assumptions Thoroughly** – It may be obvious to all when you are preparing a budget as to where the assumptions come from. However, later the source of those assumptions may not be so obvious. For this reason, the diligent CPA will document all assumptions and formulas used so that they and others can easily follow the logic later. Explanations can be documented in a variety of ways as follows:

- On an administrative page
- Next to the assumption in a cell
- Next to the assumption as a comment
- Next to the assumption as a Data Validation Comment
- Next to the assumption using a balloon call out

16. **Administrative Page** – For complex workbooks that are referred to frequently or used by others, it is a good idea to include an administrative page that helps the reader understand and navigate the workbook. Following is a list of potential elements you might add to your workbook administrative page:

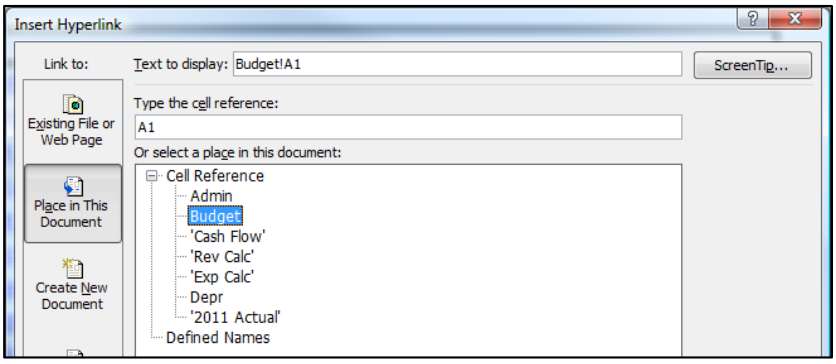
    - The name of the company or client to which the workbook pertains
    - The date the workbook was first crated, and notes related to subsequent enhancements
    - Table of contents with hyperlinks to the various contents
    - Macro buttons for easier printing of the various reports
    - A list of authors and reviewers contributing to the template
    - An explanation of the purpose of the workbook
    - An explanation of the assumptions used in the workbooks
    - Links to external data sources referenced in the workbook

    Read on to see an example and learn more about creating an administrative page.

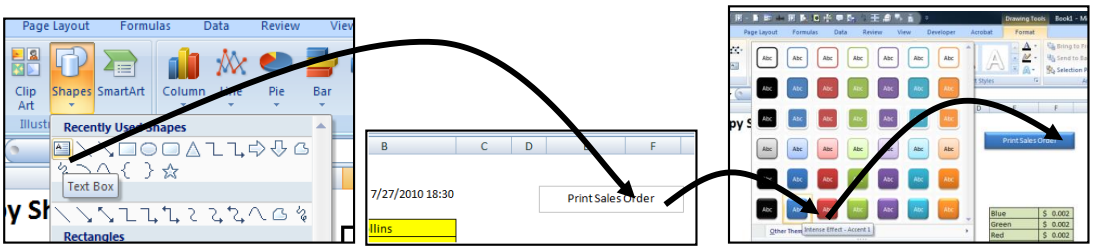
17. **Using Hyperlinks to Navigate Budgets** – As budgets are created, the various calculations tend to be based on data assembled from a variety of sources. In my opinion, all of the underlying calculations and source data used to create a budget should be included in the budget workbook along with the final budget, which might make the workbook somewhat cluttered. Therefore, the budget, calculations, data should not only be organized and well-labeled, but a hyperlinked table of contents should be inserted to aide in navigating the workbook, like the table of contents shown below.

To create a hyperlinked table of contents, list the various sections of your workbook in a table of contents format as shown above, then select each line and click Ctrl+K to assign

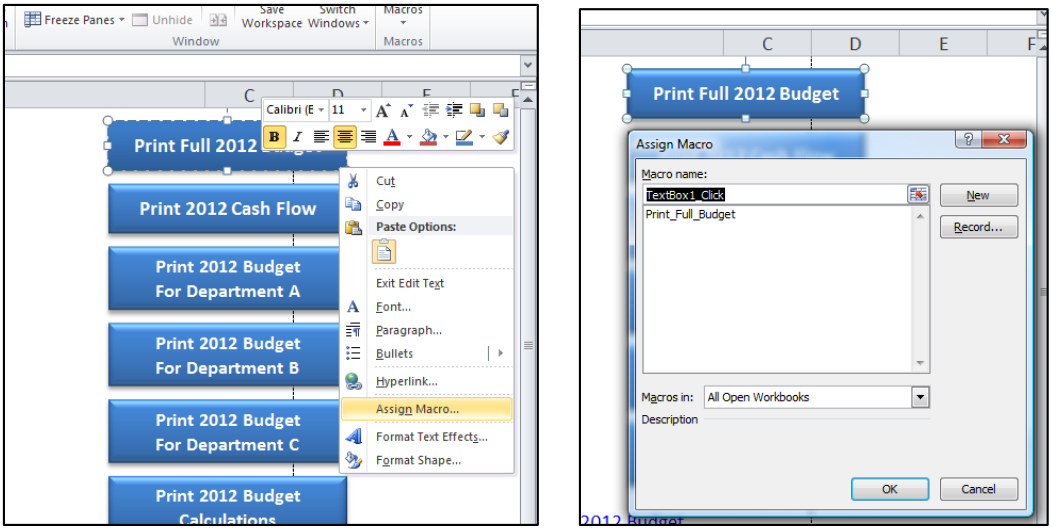
a hyperlink to that line. Notice below that the Insert Hyperlink dialog box allows you to assign a hyperlink to worksheets, cells, or defined names in the workbook.



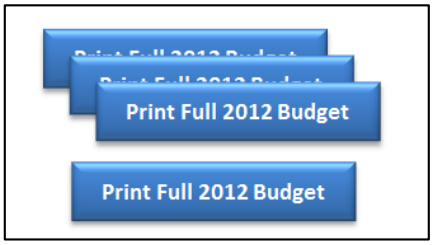
18. **Using Macro Buttons to Print Budgets** – You can make the budget workbook easier to use by inserting macro buttons to print the various reports. To start this process, create a single text box, and use the Drawing Tools to make it look fancy as indicated in the screens below:



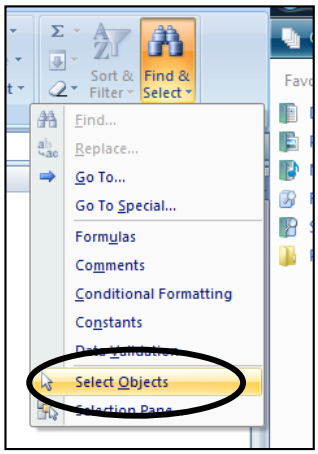
Create the Print Macro – Next create a print macro by selecting "Macro, Record Macro" from the "View Ribbon" *(make sure that no spaces are used in your macro name and save the macro to "This Workbook)*. Set the "Print Area" appropriately to display your full budget area. Next simply print the full budget, then stop recording the macro by selecting "Macro, Stop Recording" from the "View Ribbon". Once completed assign the Macro to the Print Sales Order Button by right mouse clicking and selecting "Assign Macro". The right click menu and the Assign Macro Dialog box are shown in the two screens below.

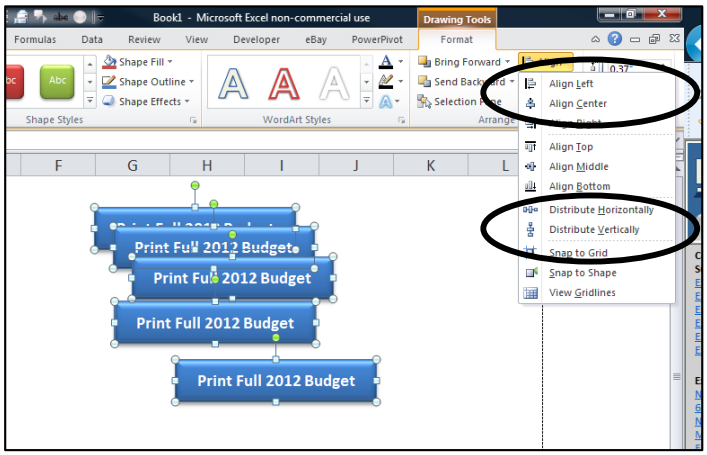


Additional Macro Buttons – Next right click on the edge of the existing macro button twice, and or press Ctrl+C to copy it; then click away from the button and Paste the button several times. This will create exact copies of your macro button. (You must right click twice on the edge of the button to display the second menu of options.)



Next on the **Home** tab in the **Editing** group, select **Find and Select**, **Select Objects**. Then lasso the three buttons and from the **Drawing Tools** tab, use the alignment tools to **Left Justify** and **Distribute Vertically** the macro buttons.

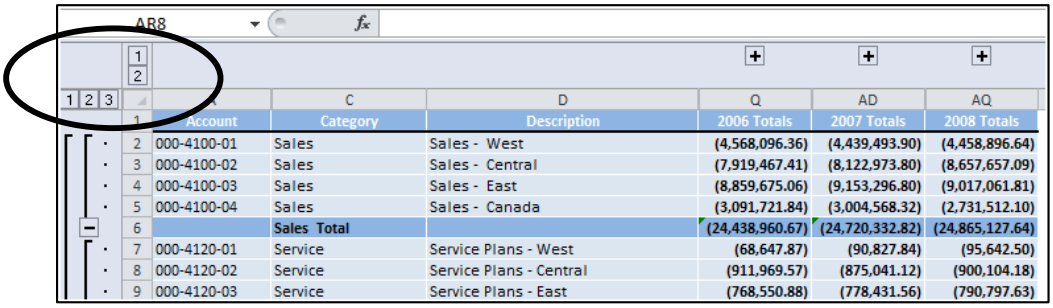




The results will appear as follows:

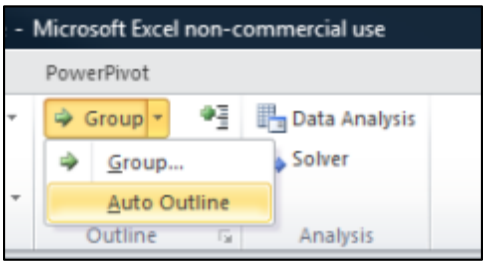
Press escape to deselect the "Object Pointer" tool, and return your cursor to normal. In the future, when you want to print any portion of your budget workbook, just click the appropriate buttons to produce the desired reports.

19. **Grouping Budget Data** - To group and summarize your budget, you can create an outline of up to eight levels, by row or by column. Once grouped, you can show or hide detailed data by selecting the desired outline level as circled in the screen below. To group data, simply highlight the rows or columns to be grouped, and select **Group** from the **Data** tab. The resulting grouped data will appear as follows:



	A	C	D	Q	AD	AQ
1	Account	Category	Description	2006 Totals	2007 Totals	2008 Totals
2	000-4100-01	Sales	Sales - West	(4,568,096.36)	(4,439,493.90)	(4,458,896.64)
3	000-4100-02	Sales	Sales - Central	(7,919,467.41)	(8,122,973.80)	(8,657,657.09)
4	000-4100-03	Sales	Sales - East	(8,859,675.06)	(9,153,296.80)	(9,017,061.81)
5	000-4100-04	Sales	Sales - Canada	(3,091,721.84)	(3,004,568.32)	(2,731,512.10)
6		Sales Total		(24,438,960.67)	(24,720,332.82)	(24,865,127.64)
7	000-4120-01	Service	Service Plans - West	(68,647.87)	(90,827.84)	(95,642.50)
8	000-4120-02	Service	Service Plans - Central	(911,969.57)	(875,041.12)	(900,104.18)
9	000-4120-03	Service	Service Plans - East	(768,550.88)	(778,431.56)	(790,797.63)

If you data contains subtotals or grand totals (limited to 8 levels of subtotals), then Excel can automatically apply groups for you. To use this feature, select Auto Outline from the Group dropdown arrow, as shown below.



20. **Producing Budget To Actual Comparison Reports** – There are several approaches to comparing actual to budget data, as follows:

    a. Side-by-side reports, with difference and difference percentage calculations. Probably my favorite approach personally. To improve this function, consider grouping the data.

    b. Side-by-side columns, with difference and difference percentage columns. This might be a better approach in some situations.

    c. Over and Under reports, with difference calculations. These reports are much harder to compare in my opinion, but many CPAs seem to use this approach.

    d. Side-by-side reports, with **Data Bar Formatting** applied to difference and difference percentage calculations. While extreme data can throw off the data bars, in many situations data bar formatting helps you quickly identify that data that needs further scrutiny.

    e. Reports without subtotals so data can be filtered, subtotaled and pivoted. Removing formula subtotals and inserting data subtotals is not as hard as you might think. In this example we will number the rows, use =RIGHT() to identify the subtotal rows, sort, delete the unwanted rows, then resort in order according to our numbered rows. This is a time-honored method used frequently by many CPAs

to clean data and prepare it for analysis. From here, I will demonstrate filtering, subtotaling and pivoting the data as well.

An Excel 2010 file containing examples of these types of comparisons is available for download on my web site at **www.ASAResearch.com/web/actual.xlsx**, or just navigate to the file using on the Excel tab menu. Example screen shots are shown below:

A.

	D	E	F	G	H	I	J	K	L	M	N
1	Description	January Actual	February Actual	March Actual	January Budget	February Budget	March Budget	January Difference	February Difference	March Difference	January Diff %
2	Sales - West	(408,011.81)	(411,599.63)	(397,531.12)	(362,400)	(351,500)	(365,600)	45,612	60,100	31,931	-12.6%
3	Sales - Central	(643,508.54)	(641,723.35)	(651,671.80)	(652,100)	(664,800)	(668,900)	(8,591)	(23,077)	(17,228)	1.3%
4	Sales - East	(736,956.86)	(742,564.19)	(741,847.84)	(742,600)	(743,500)	(760,500)	(5,643)	(936)	(18,652)	0.8%
5	Sales - Canada	(258,873.89)	(255,821.77)	(260,361.99)	(257,600)	(259,700)	(259,900)	1,274	(3,878)	462	-0.5%
6		(2,047,351.10)	(2,051,708.94)	(2,051,412.75)	(2,014,700)	(2,019,500)	(2,054,900)	32,651	32,209	(3,487)	-1.6%
7	Service Plans - West	(4,643.40)	(4,394.49)	(3,783.32)	(5,800)	(6,500)	(4,800)	(1,157)	(2,106)	(1,017)	19.9%
8	Service Plans - Central	(78,546.43)	(78,333.99)	(77,621.15)	(73,000)	(72,600)	(73,200)	5,546	5,734	4,421	-7.6%
9	Service Plans - East	(64,113.09)	(65,321.31)	(65,777.32)	(62,300)	(63,500)	(64,100)	1,813	1,821	1,677	-2.9%
10	Service Plans - Canada	(22,335.31)	(21,854.10)	(21,819.44)	(20,800)	(21,800)	(22,100)	1,535	54	(281)	-7.4%
11		(169,638.23)	(169,903.89)	(169,001.23)	(161,900)	(164,400)	(164,200)	7,738	5,504	4,801	-4.8%
12	Installation Charges - West	(13,541.67)	(13,997.99)	(14,198.33)	(13,100)	(14,200)	(13,600)	442	(202)	598	-3.4%
13	Installation Charges - Central	(145,905.91)	(146,071.19)	(145,481.15)	(145,500)	(144,600)	(144,300)	406	1,471	1,181	-0.3%
14	Installation Charges - East	(282,819.17)	(283,050.57)	(283,506.42)	(284,000)	(283,900)	(285,300)	(1,181)	(849)	(1,794)	0.4%
15	Installation Charges - Canada	(87,370.54)	(88,120.50)	(88,848.32)	(95,400)	(95,200)	(94,700)	(8,029)	(7,080)	(5,852)	8.4%

B.

	D	E	F	G	H	I	J	K	L	M
1	Description	January Actual	January Budget	January Difference	January Diff %	February Actual	February Budget	February Difference	February Diff %	Marc Actua
2	Sales - West	(408,011.81)	(362,400)	45,612	-12.6%	(411,599.63)	(351,500)	60,100	-17.1%	(397,5
3	Sales - Central	(643,508.54)	(652,100)	(8,591)	1.3%	(641,723.35)	(664,800)	(23,077)	3.5%	(651,6
4	Sales - East	(736,956.86)	(742,600)	(5,643)	0.8%	(742,564.19)	(743,500)	(936)	0.1%	(741,8
5	Sales - Canada	(258,873.89)	(257,600)	1,274	-0.5%	(255,821.77)	(259,700)	(3,878)	1.5%	(260,3
6		(2,047,351.10)	(2,014,700)	32,651	-1.6%	(2,051,708.94)	(2,019,500)	32,209	-1.6%	(2,051,4
7	Service Plans - West	(4,643.40)	(5,800)	(1,157)	19.9%	(4,394.49)	(6,500)	(2,106)	32.4%	(3,7
8	Service Plans - Central	(78,546.43)	(73,000)	5,546	-7.6%	(78,333.99)	(72,600)	5,734	-7.9%	(77,6
9	Service Plans - East	(64,113.09)	(62,300)	1,813	-2.9%	(65,321.31)	(63,500)	1,821	-2.9%	(65,7
10	Service Plans - Canada	(22,335.31)	(20,800)	1,535	-7.4%	(21,854.10)	(21,800)	54	-0.2%	(21,8
11		(169,638.23)	(161,900)	7,738	-4.8%	(169,903.89)	(164,400)	5,504	-3.3%	(169,0
12	Installation Charges - West	(13,541.67)	(13,100)	442	-3.4%	(13,997.99)	(14,200)	(202)	1.4%	(14,1
13	Installation Charges - Central	(145,905.91)	(145,500)	406	-0.3%	(146,071.19)	(144,600)	1,471	-1.0%	(145,4
14	Installation Charges - East	(282,819.17)	(284,000)	(1,181)	0.4%	(283,050.57)	(283,900)	(849)	0.3%	(283,5
15	Installation Charges - Canada	(87,370.54)	(95,400)	(8,029)	8.4%	(88,120.50)	(95,200)	(7,080)	7.4%	(88,8

C. (Not Pictured)

D.

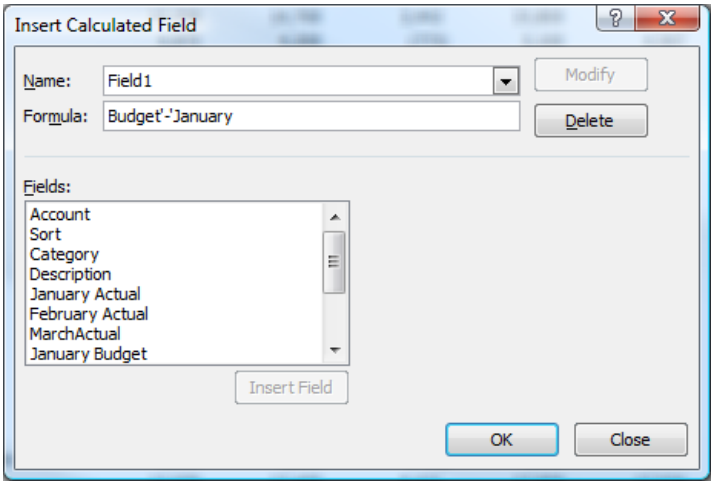
H	I	J	K	L	M	N	O	P
January Budget	February Budget	March Budget	January Difference	February Difference	March Difference	January Diff %	February Diff %	March Diff %
(362,400)	(351,500)	(365,600)	45,612	60,100	31,931	-12.6%	-17.1%	
(652,100)	(664,800)	(668,900)	(8,591)	(23,077)	(17,228)	1.3%	3.5%	
(742,600)	(743,500)	(760,500)	(5,643)	(936)	(18,652)	0.8%	0.1%	
(257,600)	(259,700)	(259,900)	1,274	(3,878)	462	-0.5%	1.5%	
(5,800)	(6,500)	(4,800)	(1,157)	(2,106)	(1,017)	19.9%	32.4%	
(73,000)	(72,600)	(73,200)	5,546	5,734	4,421	-7.6%	-7.9%	
(62,300)	(63,500)	(64,100)	1,813	1,821	1,677	-2.9%	-2.9%	
(20,800)	(21,800)	(22,100)	1,535	54	(281)	-7.4%	-0.2%	
(13,100)	(14,200)	(13,600)	442	(202)	598	-3.4%	1.4%	
(145,500)	(144,600)	(144,300)	406	1,471	1,181	-0.3%	-1.0%	
(284,000)	(283,900)	(285,300)	(1,181)	(849)	(1,794)	0.4%	0.3%	
(95,400)	(95,200)	(94,700)	(8,029)	(7,080)	(5,852)	8.4%	7.4%	
(4,500)	(5,200)	(5,200)	(1,875)	(1,089)	(171)	41.7%	20.9%	
(25,400)	(24,200)	(24,400)	1,500	4,082	3,736	-5.9%	-16.9%	
(45,200)	(45,500)	(44,500)	4,402	4,494	5,499	-9.7%	-9.9%	

E.

	A	B	C	D	E	F	G	H	I	J
3	Row Labels	Sum of January Actual	Sum of January Budget	January Difference	Sum of February Budget	Sum of February Actual	February Difference	Sum of March Budget	Sum of March Actual	March Difference
4	Accounting Fees	11,119	13,200	2,081	13,900	10,992	2,908	12,800	11,514	1,2
5	Advertising Expense	1,203	(2,400)	(3,603)	(3,200)	1,339	(4,539)	(2,700)	783	(3,4
6	Amortization - Software	3,346	1,300	(2,046)	2,100	3,338	(1,238)	2,900	3,521	(6
7	Assembly Variance	1,047	1,800	753	900	1,087	(187)	1,400	1,033	3
8	Bad Debts Expense	12,258	14,700	2,442	15,800	10,794	5,006	17,000	11,712	5,2
9	Bank Fees	4,973	4,200	(773)	3,100	4,567	(1,467)	3,300	4,422	(1,1
10	Billings in Excess of Earnings	9,123	11,600	2,477	11,100	9,343	1,757	11,100	9,928	1,1
11	Bonuses - Accounting	6,099	9,000	2,901	8,700	5,689	3,011	8,200	5,998	2,2
12	Bonuses - Administration	6,466	14,200	7,734	13,700	7,150	6,550	14,000	8,126	5,8
13	Bonuses - Consulting/Training Canada	1,504	(1,500)	(3,004)	(2,000)	1,163	(3,163)	(700)	1,158	(1,8
14	Bonuses - Consulting/Training US	5,885	1,800	(4,085)	1,100	6,078	(4,978)	2,300	6,401	(4,1
15	Bonuses - Purchasing/Receiving	10,395	12,000	1,605	13,400	11,416	1,984	13,300	10,710	2,5

As these examples illustrate, comparison reports are usually large and often confusing to construct and navigate. Any of the approaches described above may be suitable than the others, depending upon the data, situation and personal preference. Hopefully, knowledge of all of these approaches will be helpful to you.

21. **Adding Columns to Pivot Tables** – Many CPAs frequently ask how to add new columns to PivotTables, so here is the solution: Click a cell in your PivotTable to select it, then on the **PivotTable Tools** tab, select **Options; Calculations; Fields, Items & Sets; Calculated Field**. In the resulting Insert calculated Fields dialog box, build the desired formula and click the add button. For example in the screen below, I have inserted the following formula into the Formula box **=January Budget-January Actual**. (Note that the Excel Formula text box does a poor job of allowing you to view the complete formula).



When completed, click the Add button to insert a new column in the PivotTable. To complete the task, double click on the title of the new column and provide a new name that better describes the column.

22. **Investigate Overages** – Of course, any amount that exceeds the budget significantly should be investigated to determine the cause of the overage. A number of common explanations include:

    a. The costs went up.
    b. The company over purchased.
    c. The company double paid.
    d. There was a posting error.

A big worry CPAs should worry about is that the line item contains irrelevant data that should have been posted elsewhere, but was posted to the account as a measure to hide fraudulent activity. For example, a bookkeeper writing fraudulent checks to their

relative might try to hide those expenses in the repairs account, a place where more one-time payments seem to occur.

23. **Investigate Under Spending** – It might be easy to assume that an actual amount well under budget is good news, but that is not usually the case. In most cases under budget items are caused by errors or perhaps the company failed to pay a vendor their rightful fee. At a minimum this situation might suggest poor budgeting assumptions which should be avoided the following year.

24. **Revise Budgets Throughout The Year As Needed** - As conditions change, your initial budget may be rendered obsolete. For example, an epic disaster such as a hurricane or tsunami may have a tremendous impact on a charitable organization's donations and expenditures, rendering old budgets obsolete. In such instances, it is prudent to generate revised budgets to follow for the remainder of the year. Economic conditions can change multiple times throughout the year and they often do. For this reason, it is more realistic to consider the budgeting process to be an ongoing process, rather than a one-time event, which occurs at the beginning of each year.

25. **Importing Budgets From Excel Into Your Accounting System** – Most accounting systems provide the ability to import a budget directly into the accounting system from Excel. In most cases, the user must abide by the following rules:

    a. The Excel budget is typically saved as a comma separated value (CSV) file format, and this CSV file is imported into the accounting software system.

    b. The account numbers used in the Excel based budget must be an exact match to those in the accounting system in order for the import to work completely and correctly.

    c. Typically, the column heading labels in the Excel budget must match exactly the field names in the accounting system.

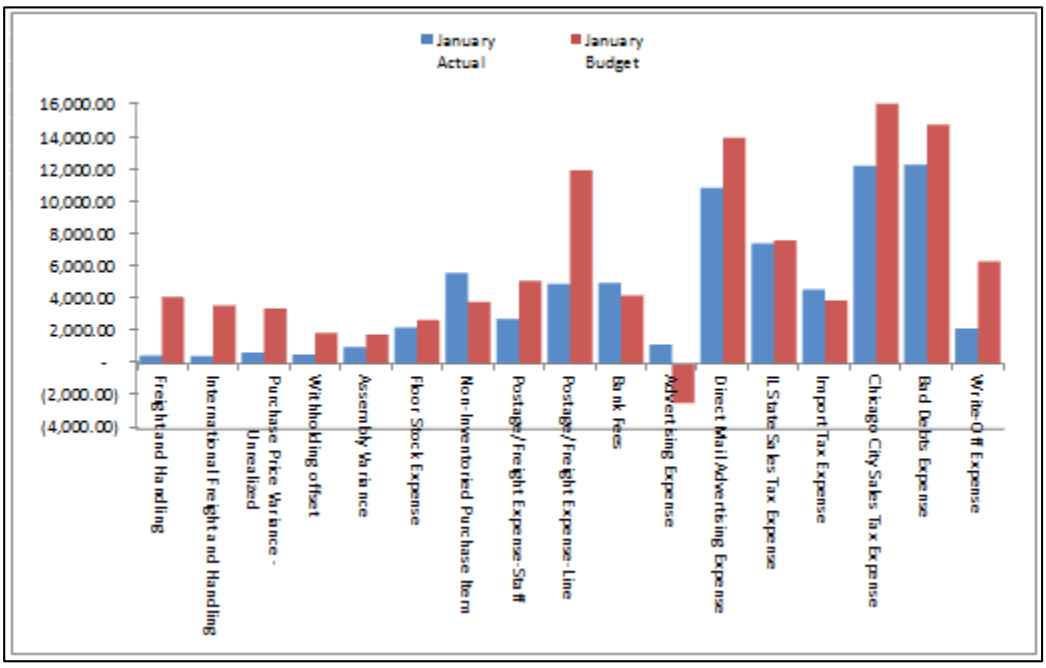
    d. In most cases, the easiest procedure is to first export a budget from your accounting system to Excel, and the resulting Excel file will contain all the correct account numbers and column headings. From this point, the user need only copy, paste or move the budget data to its correct position before creating the CSV file.

    e. Some accounting systems such as SAP R/3, have the ability to display budgets in an Excel format enabling the users to edit the budget directly in Excel. Thereafter, as the Excel file is saved, the data is automatically updated in the accounting system.

26. **Excel Functions Useful For Budgeting** – When creating budgets, the following functions are typically more useful than the others, and you should keep them in mind as you proceed with the budgeting process.

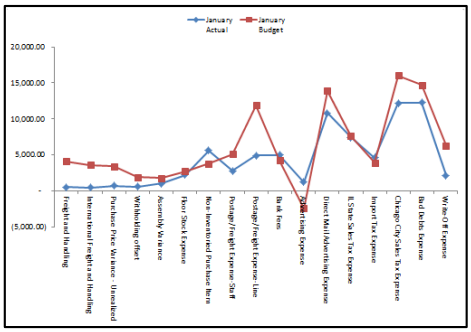
    a. **SUBTOTAL -** Returns a subtotal in a list or database
    b. **VLOOKUP** - Looks in the first column of an array and returns a cell on that row
    c. **HLOOKUP** - Looks in the top row of an array and returns the value of the indicated cell
    d. **MATCH** - Looks up values in a reference or array
    e. **TRIM** - Removes spaces from text
    f. **LEFT** - Returns the leftmost characters from a text value
    g. **RIGHT** - Returns the rightmost characters from a text value
    h. **MID** - Returns a specific number of characters from a text string starting at the position you specify
    i. **FIND** - Finds one text value within another (case-sensitive)
    j. **CONCATENATE** - Joins several text items into one text item
    k. **CLEAN** - Removes all nonprinttable characters from text
    l. **ROUND** - Rounds a number to a specified number of digits
    m. **ROUNDDOWN** - Rounds a number down, toward zero
    n. **ROUNDUP** - Rounds a number up, away from zero

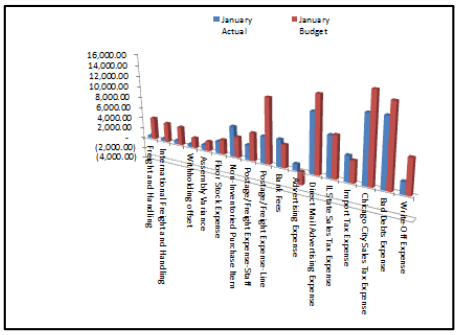
27. **Charting Budget versus Actual Results** – Charts can often be an effect method for comparing actual verses budgeted data. Presented below is an example:



In this example, I have avoided using 3D chart and rotation. I have also reduced the Gap between the data bars which effectively makes the data bars wider. The flat chart is slightly easier to read than line charts or 3-D chart (because 3-D charts distort the data a

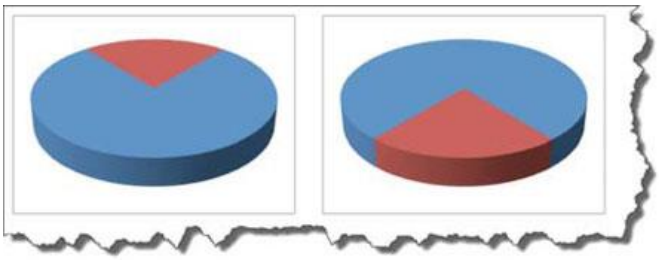
little, and make comparisons a little more difficult.) The same chart above is presented below as both a line chart and 3-D chart.



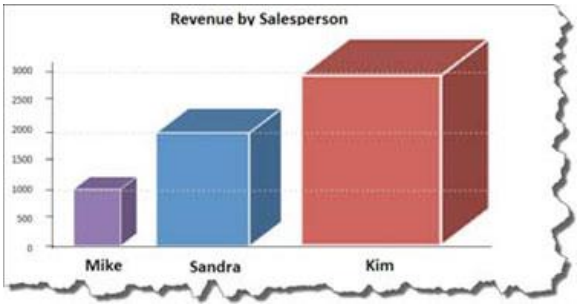


28. **How Charts Lie** – Charts are useful tools for visualizing and analyzing data. However, charts can sometimes be deceiving, and CPAs should be aware of this when creating or reading charts. Below are examples of charting methods that may distort data.

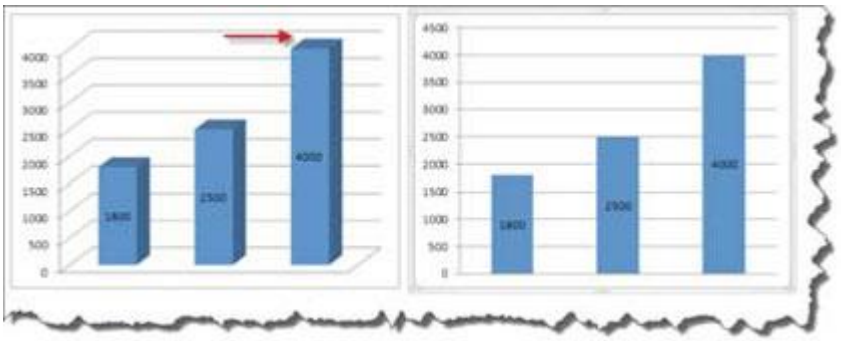
Rotating 3-D charts. The two charts shown below are identical, except for rotation. The red pie slice facing forward covers 107% more area (graphically) than the pie slice facing the rear. This technique might subliminally give the impression that the red pie slice represents a larger or smaller portion of the pie, depending upon your perspective.



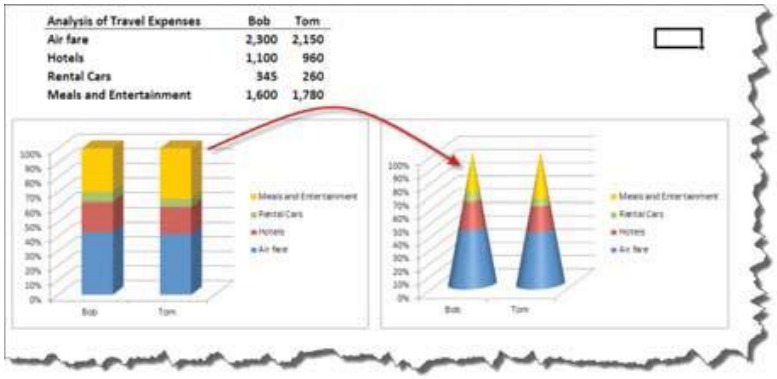
Picture charts. The chart below shows sales results for three salespersons. The chart shows that the third salesperson generated three times the amount of sales of the first salesperson ($3,000 compared with $1,000). Reading the chart based on data bar height, the chart reads accurately. However, because the data bars in the chart are taller and wider, the third data bar covers nine times the surface area of the first data bar, thus creating the illusion that sales were nine times higher.



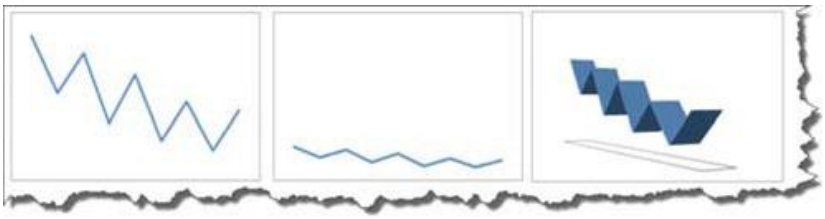
3-D bar charts. The two charts below are identical, except for the 3-D effect. Notice that in the 3-D chart, the third data bar representing 4,000 does not appear to reach the 4,000 hash mark on the Y-axis. By comparison, the same data bar displayed in a two-dimensional version of the chart does perceptibly touch the 4,000 hash mark. (The reason for this distortion is that the front of the 3-D bar lines up with the Y-axis labels on the left side of the chart, but the data bar's depth is not as great as the 3-D chart's depth.)



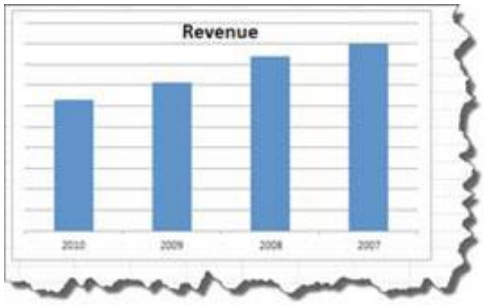
Cone charts. The two charts atop the next column are identical, except for the "cone" effect. Notice in the 3-D bar chart on the left, meals and entertainment expenses appear to represent a significant portion of the total travel expenses. However, in the cone chart on the right, meals and entertainment expenses visually appear to represent a much smaller fraction of the total travel expenses.



Distorted line charts using 3-D and rotation. The three charts below depict the same data. The first chart is a two-dimensional line chart, which suggests an overall downward trend in the data. The second chart is also a two-dimensional line chart, but the maximum value on the Y-axis has been increased tenfold compared to the first chart, thus flattening the line and suggesting that there is not much of a trend in the data. The third chart is a 3-D line chart, which has been rotated forward to emphasize the increase at the end of the chart. This third chart might give more of an impression that results are trending upward.



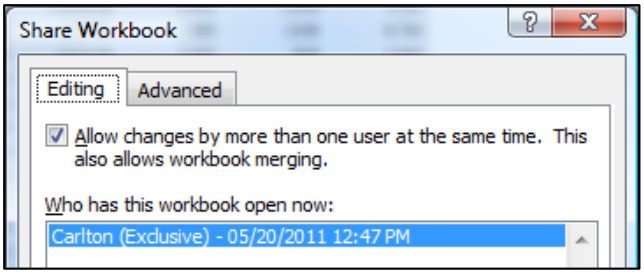
Reverse order charts. In the chart on the next page, the data are displayed chronologically from right to left. In this example, revenue has actually declined over the past three years; however, since most people read charts from left to right, they might miss the fact that the data is presented in the opposite direction.



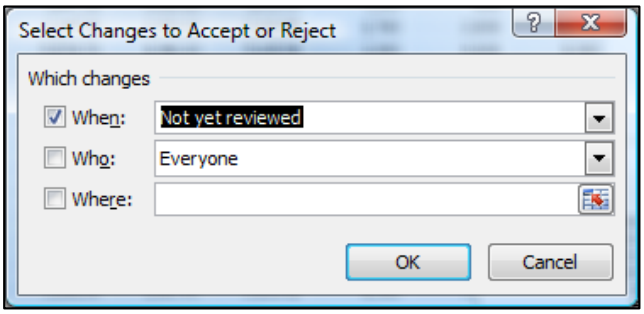
Armed with this information, you are in a better position to prepare and read charts without falling into distortion traps.

29. **Managing Review and Approvals** – In terms of preparing an Excel-based budget, one of the issues you should address is documentation of the preparation, review and approval of that budget. As the preparer, this means that a sufficient amount of documentation should be provided related to who prepared the budget, the assumptions used, when the budget was prepared, noted regarding changes made since the initial rough draft version, suggestions contributed but not used, etc. Once the budget goes to review, more notes should be added as to who conducted the review and what their findings were. Additional notes regarding how review points were handled should also be included in the workbook. I think this is obvious to all, yet I seldom see those notes included in budgets.

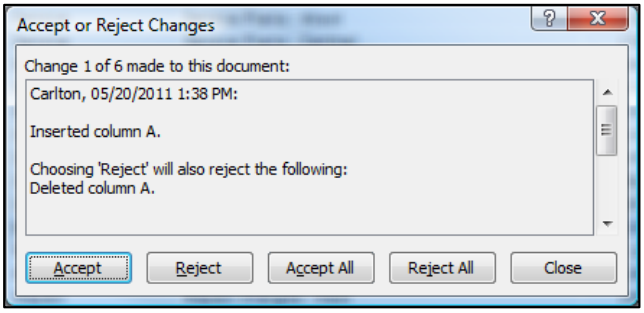
    The bigger issue is how does the reviewer know that once reviewed, the data is not changed further. The answer is that the workbook must be **Shared** so that future changes can be tracked. To use this feature, from the **Review** tab, select **Share Workbook** form the **Changes** group, and click the **Allow Changes** checkbox as shown below.



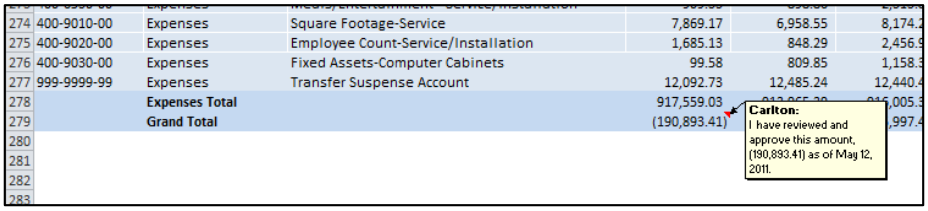
Once you have shared the workbook, all changes made by yourself and others are tracked in Excel. Therefore, upon the next review, the reviewer will be able to tell which cells have changed (and how) and which cells have not changed. This makes subsequent reviews much easier. To track changes, from the **Review** tab, select **Track Changes, Accept or Reject** from the **Changes** group. The following dialog box will appear.



Select the changes you want to review based on the date range in which the changes were made, who made the changes, and even in a selected portion of the workbook. Click **OK**. This action will launch the Accept or Reject Changes dialog box shown below, and will navigate to each change one at a time allowing the reviewer to click the accept button to keep the change and mark it as reviewed, or reject the change.



Another reviewer approach that is sometimes used is to insert comments at various points in the worksheet as an approval sign off, an example of which is shown below.



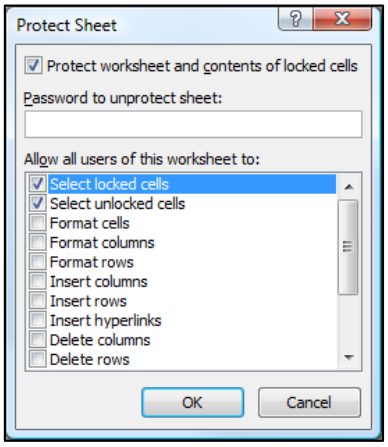
274	400-9010-00	Expenses	Square Footage-Service	7,869.17	6,958.55	8,174.2
275	400-9020-00	Expenses	Employee Count-Service/Installation	1,685.13	848.29	2,456.9
276	400-9030-00	Expenses	Fixed Assets-Computer Cabinets	99.58	809.85	1,158.3
277	999-9999-99	Expenses	Transfer Suspense Account	12,092.73	12,485.24	12,440.4
278		**Expenses Total**		917,559.03		
279		**Grand Total**		(190,893.41)		,997.4
280						
281						
282						
283						

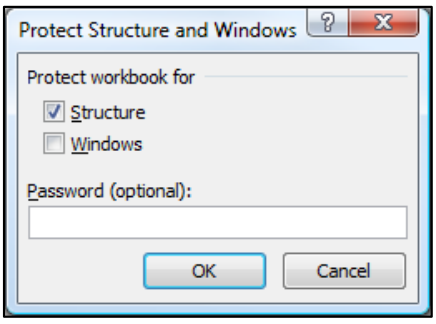
Carlton:
I have reviewed and approve this amount, (190,893.41) as of May 12, 2011.

30. **Protecting the Integrity of the Budget** – In a famous case from the 1990's, a disgruntled employee who had just been fired before leaving his office reportedly opened an Excel based budget for a proposed highway project, and changed the amount of concrete required from 50 million cubic yards to just 5 million cubic yards. The change was made after the budget had been reviewed and approved, and the employee's subsequent change was not detected. The bid was sent and the company was awarded the contract. The error was noticed months later as project managers compared the actual costs to the budget and projected a significant loss on the job. The company was able to compare the budget submitted to a printed version of the approved budget where they discovered how the problem occurred.

    To protect a workbook, it is a good idea to first Share the workbook so that you can track all changes and who made them. To further protect data to help prevent it from being changed, you can also specify a password that users must enter to modify the workbook. In addition, additional advanced protection settings also allow you to prevent users from changing the structure of a worksheet.

    Protecting A Worksheet - By default, when you protect a worksheet, all the cells on the worksheet are locked, and users cannot make any changes to a locked cell. If desired, you can unlock specific cells using the Format Cells dialog box prior to turning on worksheet protection. You can unlock cells for all users or for specific users. When you protect a worksheet or workbook, adding a password is optional. Once protected, the user must physically unprotect the worksheet (using the password if necessary) in order to make changes to locked cells. Presented below are both the protect Worksheet and Protect Workbook tools in Excel.





31. **Sharing a Workbook in the Cloud** – Microsoft's new Azure platform allows you to save your Excel Workbook to the Azure cloud, and others located anywhere in the world can access the workbook, provided they have the correct login name and password. The following video provides a short demonstration of this functionality:

    http://office.microsoft.com/en-us/videos/video-share-a-workbook-in-the-cloud-VA101267318.aspx?CTT=1

32. **Copying Across the Excel Page** – When creating budgets, the user often has a need to copy formulas or data across long columns in which arrowing down thousands of rows takes too much time. In this situation, there are two possible approaches you can use – the piggyback approach and the end-down-back approach. These approaches are explained as follows:

    a. **Piggyback Approach** – (Use an adjacent column to navigate.) For example, assume you want to copy a formula in cell D2 down to the next 48,000 blank cells. Column A contains 48,000 row labels, which can be piggy-backed. In this example, copy cell D2, then move to cell D3. Next, holding the **Shift** key down, press the **LEFT ARROW** 3 times to navigate to cell A3, then press the **END, DOWN ARROW** to navigate to the bottom of column A, then press the **RIGHT ARROW** three times to navigate across to cell D48001. Release the **Shift** key. You have now selected the range in column D from cell D3 to D48001. **Paste** to complete the operation.

    b. **End-Down-Back Approach** – (Use the bottom of the worksheet to navigate.) For example, once again assume you want to copy a formula in cell D2 down to the next 48,000 blank cells. Column A contains approximately 48,000 row labels, but there are too many blank cells to use that column for piggy-back purposes. In this example, copy cell D2, then move to cell D3. Next, holding the **Shift** key down, press the **END, DOWN ARROW** to navigate to the bottom of the worksheet – cell D1048575. Next press the LEFT AROOW three times to navigate to column A, then Press **END, UP ARROW** to navigate to the last label in Column A – cell A48001. Press the **RIGHT ARROW** three times to navigate across to cell D48001. Release the **Shift** key. You have now selected the range in column D from cell D3 to D48001. **Paste** to complete the operation.

33. **Using Ratios Create Budgets** – Many companies produce budgets in which at least some of the line items (such as Cost of Goods Sold) are projected as a percentage of Sales (or some other metric). For example, a company may examine its historical Cost of Goods Sold and calculate those costs to consistently be approximately 42.3% of sales. If the results are consistent over time, then such percentages might be a good basis for preparing budgets in the future. For this reason, companies should examine their historical data in an effort to identify line items that may be budgeted in this manner, and if so, determine the appropriate percentage to use.

This can be particularly useful for those new startup companies, or companies budgeting new ventures. Metric information is available from many sources that may provide insights into projected costs for budgeting purposes.

34. **Budgeting Units Of Production Or Hours To Be Billed** – Similar to budgeting by percentages, many companies produce budgets in which at least some of the line items are based on projected units of sale. In this case, the company starts by projecting units of sale and then ties revenue and expense items to those sales. For example, a training company may charge $100 per person to attend a training course, and the primary costs may consist of $22 per person for each set of materials, and $27 per person for breakfast, lunch and snack costs.

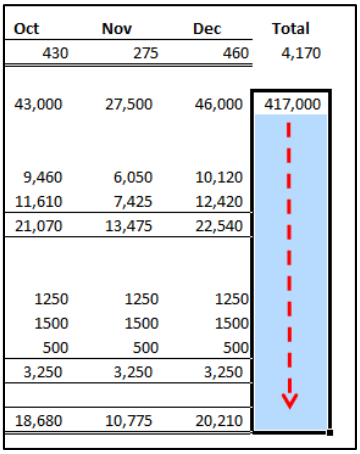
	A	B	C	D	E	F	G	H	I	J	K	L
1	**Crazy Fred's Training**											
2												
3			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**
4		Projected Attendees	230	450	520	215	0	200	250	400	740	430
5												
6	$ 100.00	Revenue	23,000	45,000	52,000	21,500	-	20,000	25,000	40,000	74,000	43,000
7												
8	**Vaiable Costs:**											
9	$ 22.00	Materials	5,060	9,900	11,440	4,730	-	4,400	5,500	8,800	16,280	9,460
10	$ 27.00	Food	6,210	12,150	14,040	5,805	-	5,400	6,750	10,800	19,980	11,610
11		Total Variable Costs	11,270	22,050	25,480	10,535	-	9,800	12,250	19,600	36,260	21,070
12												
13	**Fixed Costs:**											
14		Meeting Room Lease	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250
15		Brochures & Marketing	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
16		Miscellaneous	500	500	500	500	500	500	500	500	500	500
17			3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250
18												
19	**Profit or (Loss):**		8,480	19,700	23,270	7,715	(3,250)	6,950	9,500	17,150	34,490	18,680
20												

35. **Hiding Data in Excel** – Be aware that data cannot be hidden in Excel. Even if you hide columns containing sensitive data and turn on worksheet and workbook protection. A user could reveal that hidden data in one of the following ways:

    a. A user could select a range of columns that contains hidden columns, then copy and paste that data to reveal the hidden data in another workbook.

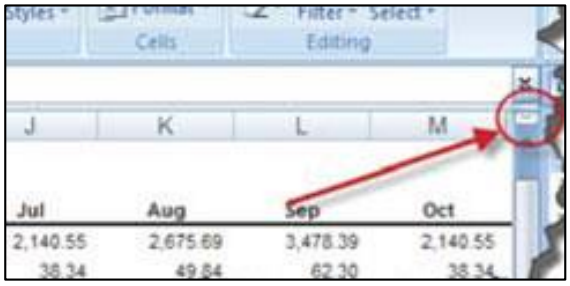
    b. A user could link to a hidden cell from another workbook, simply by typing a formula linking to that hidden cell.

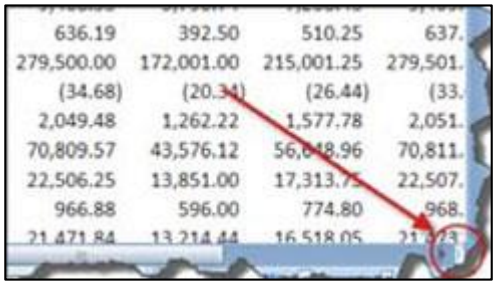
36. **Copying Down with Ctrl+D** – The Ctrl+D keystroke combination can be a quick way to copy data. To use this shortcut, highlight the cell you want to copy and the blank cells underneath where you want to paste, and press **Ctrl+D**, as shown below.



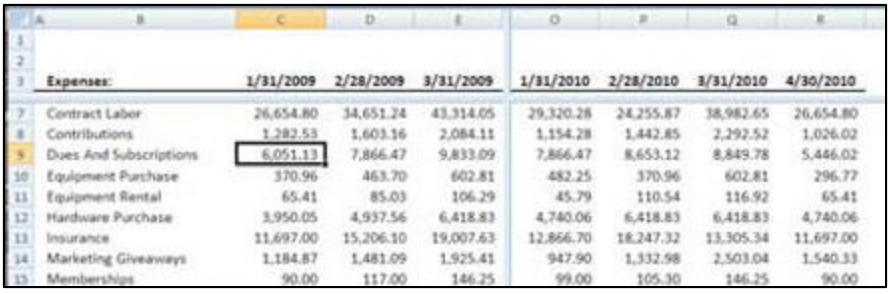
Oct	Nov	Dec	Total
430	275	460	4,170
43,000	27,500	46,000	417,000
9,460	6,050	10,120	
11,610	7,425	12,420	
21,070	13,475	22,540	
1250	1250	1250	
1500	1500	1500	
500	500	500	
3,250	3,250	3,250	
18,680	10,775	20,210	

37. **Using Split Screen** – Excel 2007 and 2010 contain two **Split** tools, which allow you to quickly split the Excel worksheet horizontally, vertically, or both. The **Split** tools make it easier to view and compare different portions of your data at the same time. To split your screen, click and drag the split tools to the desired positions. The **Split** tools are located in the upper right-hand corner and lower right-hand corner of the worksheet area in the scroll bars, as shown below.





You can also access this tool by selecting **Split** from the **Window** group on the **View** Ribbon. Many users find the click-and-drag method a little faster and easier to use than the menu method. In the example below, the **Vertical Split** tool has been used to display data for the first quarters of 2009 and 2010. (Notice that the columns jump from column E to column O). Additionally, the **Horizontal Split** tool has been used to fix the column headings at the top of the worksheet. (Notice that the row numbers jump from row 3 to row 7.)



Expenses:	1/31/2009	2/28/2009	3/31/2009	1/31/2010	2/28/2010	3/31/2010	4/30/2010
Contract Labor	26,654.80	34,651.24	43,314.05	29,320.28	24,255.87	38,982.65	26,654.80
Contributions	1,282.53	1,603.16	2,084.11	1,154.28	1,442.85	2,292.52	1,026.02
Dues And Subscriptions	6,051.13	7,866.47	9,833.09	7,866.47	8,653.12	8,849.78	5,446.02
Equipment Purchase	370.96	463.70	602.81	482.25	370.96	602.81	296.77
Equipment Rental	65.41	85.03	106.29	45.79	110.54	116.92	65.41
Hardware Purchase	3,950.05	4,937.56	6,418.83	4,740.06	6,418.83	6,418.83	4,740.06
Insurance	11,697.00	15,206.10	19,007.63	12,866.70	18,247.32	13,305.34	11,697.00
Marketing Giveaways	1,184.87	1,481.09	1,925.41	947.90	1,332.98	2,503.04	1,540.33
Memberships	90.00	117.00	146.25	99.00	105.30	146.25	90.00

Note: There are several alternative strategies for viewing Excel data side-by-side as follows:

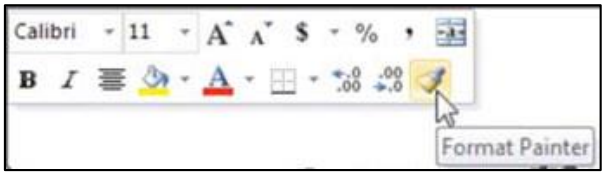
a. ***Freeze Panes.*** You can achieve similar results to **Split** by using **Freeze Panes,** located in the **Windows** group on the **View** Ribbon.

b. ***Second instance of Excel.*** You can also achieve similar results by launching a second instance of Excel and using it to open a second (read-only) copy of your Excel file. You can then resize both instances of Excel in side-by-side windows.

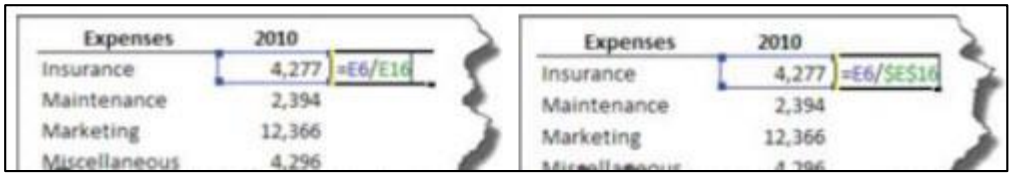
c. ***Formulas.*** For a more permanent solution, some CPAs use formulas to repeat data on a separate worksheet to produce a different view. For example, on **Sheet2** they may insert formulas that refer to data in columns A, B and C next to other formulas that refer to columns M, N and O. Using this approach, the side-by-side comparison is always available without the need for the above-mentioned manual procedures.

38. **Using Excel Zoom** - In Excel 2003, 2007 and 2010, you can zoom in and out instantly by holding down the Ctrl key while rolling the wheel on your scrolling mouse. This approach is faster and allows you to zoom up to a 400% view, down to a 10% view — and any option in between. This works in Microsoft Word, too. Microsoft Office 2007 and 2010 both include a sliding **Zoom** tool at the bottom right-hand corner of the screen that accomplishes the same result.

39. **Sticky Format Painter** - Double-clicking on the **Format Painter** icon will cause it to stick, so that you can continue to apply the desired format to multiple cells, ranges, columns or worksheets. To turn off this effect, either press the Esc key or click the **Format Painter** icon.



40. **Absolute/relative referencing** - Pressing the F4 key while in edit mode will insert absolute dollar sign references, which is an easier method than manually typing in the absolute dollar sign references. To do this, select a cell that contains a formula, and press the F2 key to enter edit mode. Within the formula, position the cursor over a cell reference and press the F4 key to insert absolute references. Before and after examples are shown below.



(***Note:*** Pressing the F4 key repeatedly will toggle you through the available absolute reference options—column only; row only; both column and row; or none.)

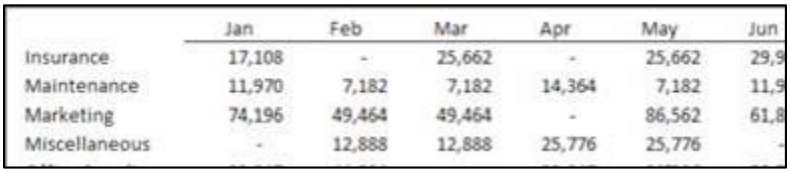
41. **Hide Zero Values -** You can hide all of the zero values in a worksheet by adjusting Excel's options as follows:

    a. In Excel 2003, select **Tools**, **Options**. On the **View** tab, uncheck the **Zero values** box and click **OK**.

    b. In Excel 2007, select the Office Button, **Excel Options**, **Advanced**. Under the **Display options for this worksheet** section, uncheck the box labeled **Show a zero in cells that have zero value** and click **OK**.

    c. In Excel 2010, select **File**, **Options**, **Advanced**. Under the **Display options for this worksheet** section, uncheck the box labeled **Show a zero in cells that have zero value** and click **OK**.

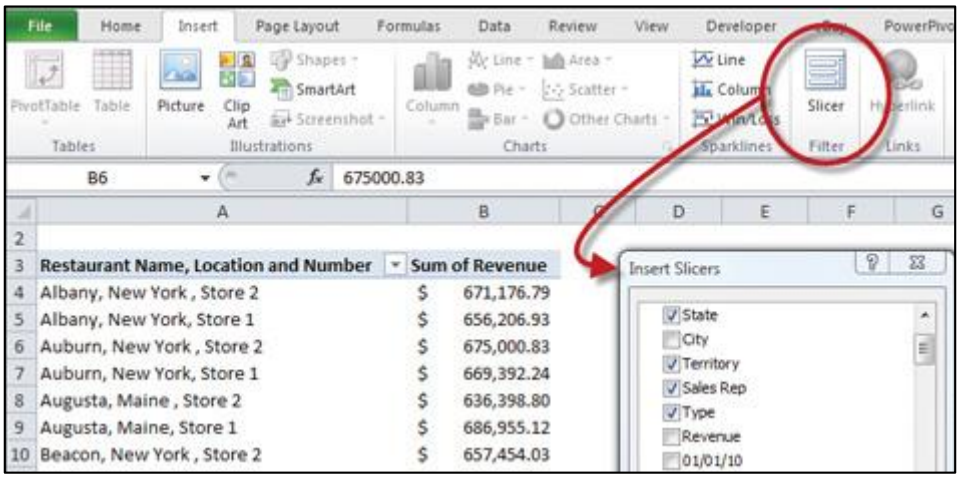
42. **Display Zero Values As A Dash** - You can display zero values in your worksheet as a dash by changing the cell's format to either the **Accounting** or **Comma Style** format.



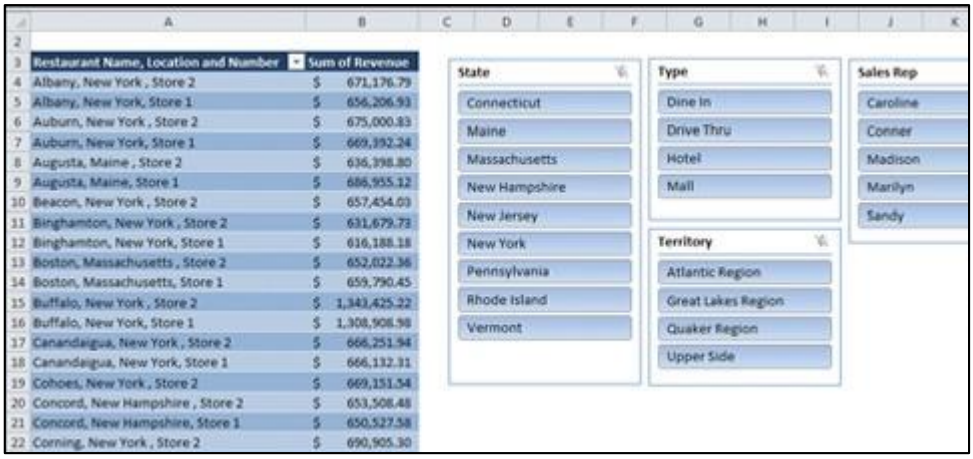
	Jan	Feb	Mar	Apr	May	Jun
Insurance	17,108	-	25,662	-	25,662	29,9
Maintenance	11,970	7,182	7,182	14,364	7,182	11,9
Marketing	74,196	49,464	49,464	-	86,562	61,8
Miscellaneous	-	12,888	12,888	25,776	25,776	-

43. **Black Parenthesis** - When building a complex formula that contains nested functions or multiple sets of parenthesis, Excel uses colors to help you identify parenthesis pairing, and the outside parenthesis are always black. This tip can help you determine whether you have inserted the proper number of parenthesis pairs in your formula.

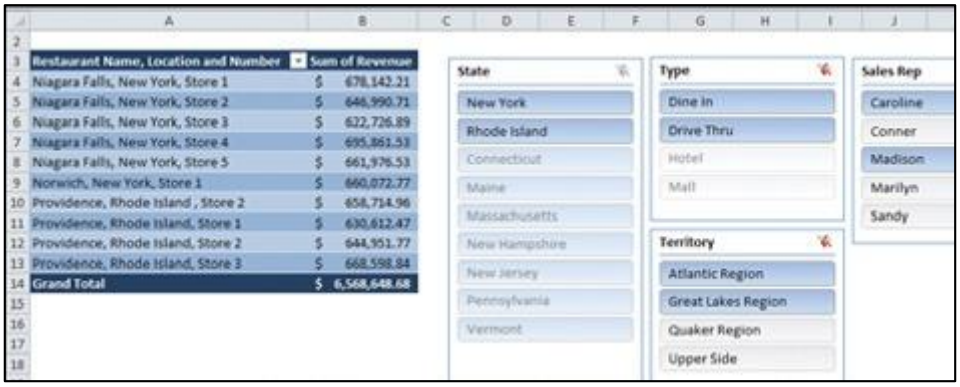
44. **Using Excel's New Slicer (Excel 2010 Only)** - Slicer is an enhancement to Excel 2010's **PivotTables** that inserts filter boxes that your superiors can click to display precisely the reports they desire. To use slicer, position your cursor anywhere in a PivotTable report and, from the **Insert** tab, select **Slicer** from the **Filter** group. This action will open the **Insert Slicers** dialog box shown below.



Place a checkmark in the box for each slicer you want to display and click **OK**. Excel will insert **Slicer** dialog boxes containing filter buttons into the worksheet for each field name you select, as shown in the example below.

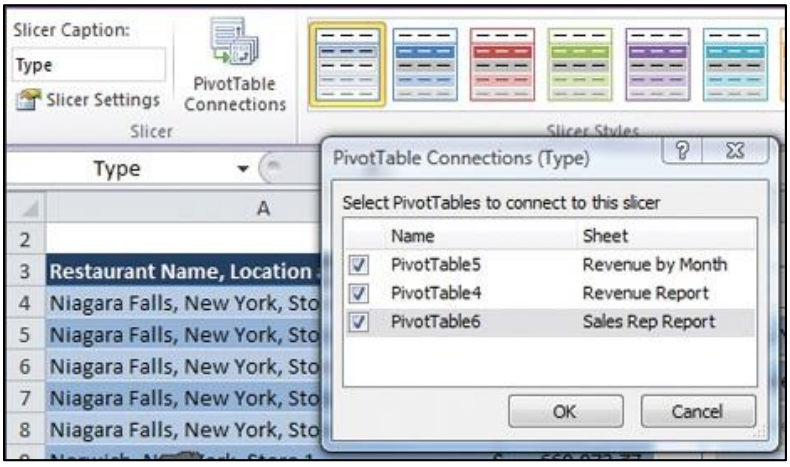


Simply click the various filter buttons to display different views of your data. For example, the second report in the next column summarizes revenue for those “Dine In” and “Drive Thru” restaurants managed by “Caroline” and “Madison” in the “Atlantic” and “Great Lakes” regions. (Holding down the Ctrl key allows you to make multiple selections within a **Slicer** dialog box.) The selected filter buttons are highlighted, and the non-selected filter buttons are grayed out, allowing you to see which filters have been applied to the report.



In the example shown above, the reader could produce up to 720 views of this one report (9 States × 4 Types × 4 Territories × 5 Sales Reps). In your situation, you could add three similar PivotTable reports summarizing your data by week, month and quarter, and e-mail the entire workbook to your superiors. This would limit the total number of reports you would need to prepare to just four, while providing your superiors the ability to view the data thousands of ways, according to their preference.

Advanced tip: A slicer can be shared with multiple PivotTable reports so that when filters are applied in one slicer, multiple Pivot Table reports are filtered. To share a slicer, click on the slicer to be shared to display the **Slicer Tools**, **Options** tab. In the **Slicer** group, select **PivotTable Connections** and place a checkmark next to the PivotTables you want to share the slicer as shown below.

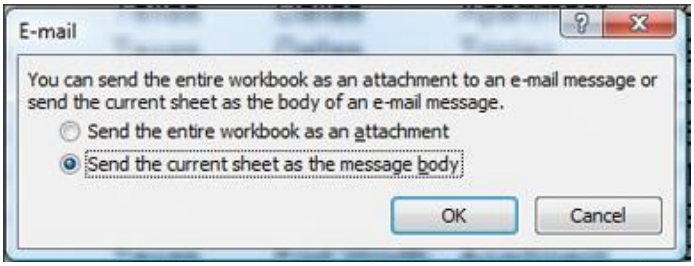


Hint: You can resize and reposition your slicers on the worksheet, and apply matching styles to both the PivotTables and slicers to produce professional-looking results.

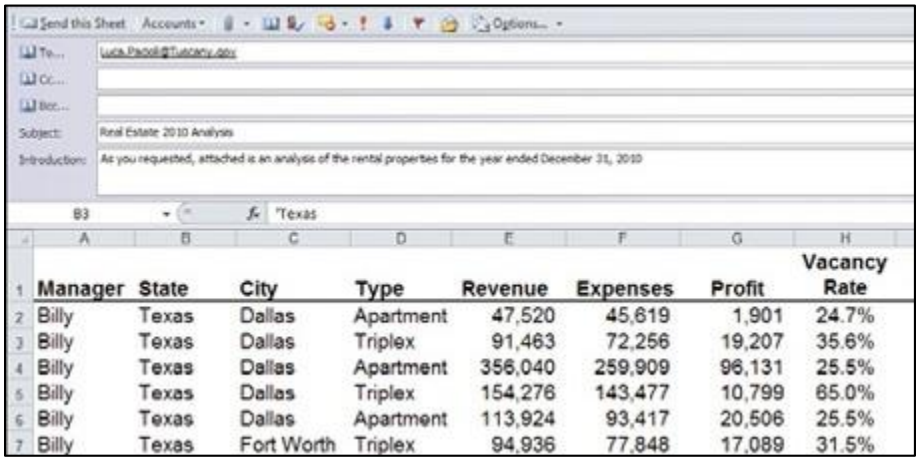
45. **E-Mailing a Single Excel Worksheet** - You can send a single worksheet (that is, not the entire workbook) from within Excel using the integrated Outlook **Send this Sheet** applet, as follows:

a. Launch the **E-Mail** dialog box tool as follows: Excel 2003—Select **File**, **Send to**, **Mail Recipient (for Review)**. Excel 2007 and 2010—To access the **E-Mail** dialog box in Excel 2007 and 2010, you must first add the tool to your Quick Access Toolbar. To do this, right-click on the Quick Access Toolbar and select **Customize Quick Access Toolbar**. In the **Choose commands from:** dropdown box, select **Commands Not in the Ribbon**. Scroll down and select **Send to Mail Recipient**, and click the **Add>>** button to include this command on your Quick Access Toolbar. Click **OK**. Click the **Send to Mail Recipient** icon on the Quick Access Toolbar.

b. In the **E-mail** dialog box, select the radio button labeled **Send the current sheet as the message body**, and click **OK**.



c. This action will create an e-mail using the worksheet contents as the e-mail message. Indicate the e-mail recipients and subject as you would normally when preparing an e-mail message and click **Send this Sheet**.



	Manager	State	City	Type	Revenue	Expenses	Profit	Vacancy Rate
2	Billy	Texas	Dallas	Apartment	47,520	45,619	1,901	24.7%
3	Billy	Texas	Dallas	Triplex	91,463	72,256	19,207	35.6%
4	Billy	Texas	Dallas	Apartment	356,040	259,909	96,131	25.5%
5	Billy	Texas	Dallas	Triplex	154,276	143,477	10,799	65.0%
6	Billy	Texas	Dallas	Apartment	113,924	93,417	20,506	25.5%
7	Billy	Texas	Fort Worth	Triplex	94,936	77,848	17,089	31.5%

The **Send this Sheet** menu is integrated with Outlook so that the **To…**, **Cc…**, and **Bcc…** dropdown fields will display the contacts and contact groups you maintain in Outlook. Once the e-mail is sent, a copy appears in your **Sent Items** box, similar to that of a regular e-mail.

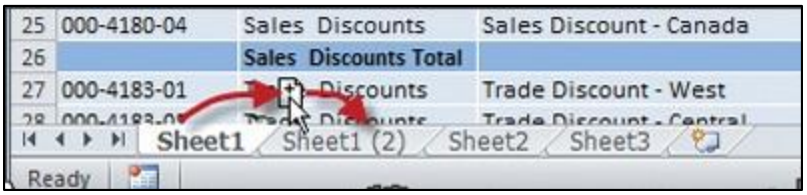
Cautionary note 1: When using the **Send the current sheet as the message body** option, the Excel data is converted from an Excel format into a table format containing only

values. To send a single worksheet with the Excel formulas intact, make a copy of the workbook, delete all of the worksheets except for the one you intend to send, and repeat the steps above using the **Send the entire workbook as an attachment** option.

Cautionary note 2: Note that this approach does not provide the full functionality of Outlook; for example, this method does not automatically insert your default signature block.

Cautionary note 3: This functionality works well with Outlook, but does not necessarily work with other e-mail client applications.

46. **Duplicating a Worksheet or Worksheets** - Excel 2003, 2007 and 2010 allow you to duplicate a worksheet by holding the Ctrl key down and dragging the worksheet's tab to the left or right. This action will insert a new worksheet, complete with the same headers, footers, margins, column widths, and cell contents, as the original worksheet. (In many situations, this method is quicker and easier than inserting a new worksheet and then adding headers, footers, margin settings and content.)

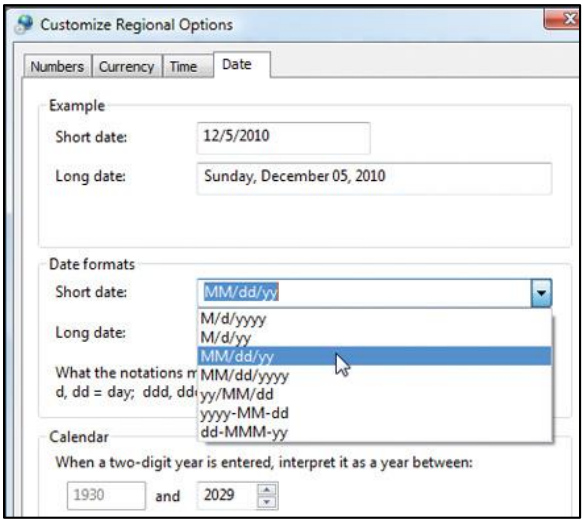


Alternative approach: To achieve the same results using the menus, select a worksheet tab (or group of tabs), right-click on that worksheet tab (or group of tabs), select **Move or Copy** from the pop-up menu, check the **Create a copy** box, and click **OK**.

Hint 1: Using the menu approach described above, you could also copy and create a duplicate worksheet in another workbook.

Hint 2: To duplicate multiple worksheets at the same time, select the first worksheet to be duplicated by clicking on the worksheet tab. Next, while holding down the Shift key, select the last worksheet to be duplicated by clicking on its tab. (This action will select those two tabs and all worksheet tabs in between.) Copy the group of worksheets by holding the Ctrl key down and dragging the group of worksheet tabs to the left or right.

47. **Displaying Two Digit Years** - Many of the default settings in Excel, including the date format, are governed by the default settings in the Windows operating system, as pictured in the screen below.



These default settings can be modified as follows:

1. In Windows XP, launch **Control Panel** and double-click the **Regional and Language Options** icon, then click the **Customize** button to open the **Customize Regional Options** dialog box. On the **Date** tab, click the **Short date format:** dropdown arrow in the **Short date** group and select a two-digit date format. Click **OK**, **OK** to complete the process.

2. In Windows Vista, launch **Control Panel** and select **System and Maintenance**. Next, from the left-hand menu select **Clock, Language, and Region**, then **Regional and Language Options**, then click the **Customize this format** button to open the **Customize Regional Options** dialog box. On the **Date** tab, click the **Short date:** dropdown arrow in the **Date formats** group and select a two-digit date format. Click **OK**, **OK** to complete the process.

3. In Windows 7, launch **Control Panel** and select **System and Security**. Next, from the left-hand menu, select **Clock, Language, and Region**, then **Region and Language**, then click the **Additional settings** button to open the **Customize Format** dialog box. On the **Date** tab, click the **Short date:** dropdown arrow in the **Date formats** group and select a two-digit date format. Click **OK**, **OK** to complete the process.

Note: You must close and restart Excel for any changes to take effect. Thereafter, Excel will display the two-digit date format you specified as the default.

Cautionary point: It is important to understand that even when you are displaying two-digit years, you should still make it a habit to enter four-digit years, otherwise Excel may assume the wrong century. This is because Excel interprets two-digit years ending in 00 through 29 as years 2000 through 2029. (For example, if you type the date 6/2/20, Excel assumes the date is June 2, 2020.) However, Excel interprets two-digit years ending in 30 through 99 as years 1930 through 1999. (For example, if you type the date 6/2/60, Excel

assumes the date is June 2, 1960.) You can change the way Excel interprets two-digit years by adjusting the **Calendar** setting located at the bottom of the **Customize Regional Options** dialog box (shown in the left-hand column).

48. **Hiding and Unhiding Columns** - To unhide a specific column in Excel 2003, 2007 or 2010, press the F5 key to launch the **Go To** dialog box and type in any cell address within the hidden column that you wish to unhide (such as G1), and click **OK**. This will place your cursor within column G, even if hidden. Next, while holding down the Alt key, type in order O, C, U to unhide the column.

    Alternatives. Once you have highlighted a column as described above, there are many alternatives for unhiding columns, several of which are presented below so you can use the approach that works best for you.

    1. ***Using the menu.*** To unhide a column using the menu in Excel 2007 and 2010, from the **Home** tab, select **Format** from the **Cells** group, **Hide & Unhide**, **Unhide Columns**. To unhide a column using the menu in Excel 2003, select **Column**, **Unhide** from the **Format** menu.

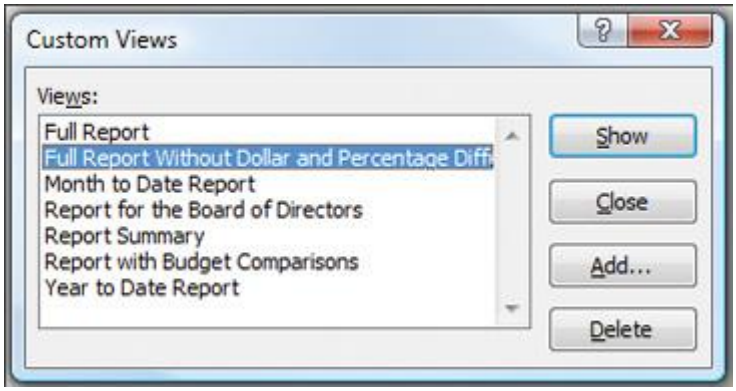
    2. ***Using the unhide shortcut.*** In Excel 2003, 2007 and 2010, Windows XP users can unhide a column by typing Ctrl+Shift+0, but this keystroke combination is inactive by default in Windows Vista and Windows 7. (***Hint:*** Microsoft support document 967893 describes advanced procedures to enable this keystroke combination to work properly in Windows Vista or Windows 7.)

    3. ***Adjusting column width.*** Instead of unhiding a column, you could simply increase the column width to make it visible. To do this, start by pressing the F5 key to open the **Go To** dialog box and enter a cell address to go to a hidden column. To resize column widths in Excel 2007 and 2010, from the **Home** tab, select **Format** from the **Cells** group, **Column Width**, enter the desired width, and click **OK**. To resize a column width in Excel 2003, from the **Format** menu select **Column**, **Width**, enter the desired width, and click **OK**.

    Advanced hint: You can make your task easier by assigning a name to a cell in each column you wish to hide or unhide using the Name Box (located just above the Column A heading). For example, you might assign the name **YTD** to cell G1, and the name **Budget** to cell H1. This will make it easier for you to use the **Go To** command because the name makes it more obvious which column is which. Further, you could also use the Name Box to assign a name to a group of columns, and use the same procedure described above to hide or unhide that group. For example, you might assign the name **PriorYear** to cells J1 through M1, and use the **Go To** command to go to those columns and unhide the entire lot.

49. **Custom Views -** Rather than constantly hiding and unhiding columns, a better approach might be to use the **Custom Views** feature in Excel 2003, 2007 and 2010. By creating

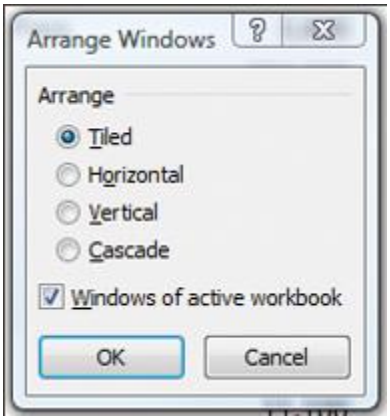
custom views, you can easily toggle back and forth between all of your views. To create your first custom view, select **Custom Views** from the **View** tab or menu, click the **Add** button and enter a description in the **Name** box, then click **OK**. Next, hide or unhide various columns in your workbook and repeat these steps to create a second view of your data that includes selected hidden columns. Continue to create additional custom views for each of your desired hidden column layouts. Thereafter, you can reduce or eliminate the need to hide and unhide columns by simply changing views. To toggle between custom views, from the **View** tab, select **Custom Views** in the **Workbook Views** group, and double-click the desired custom view as shown below.



50. **Displaying different tab from the same Excel worksheet on two monitors** - This can be accomplished. Start by displaying Excel across both monitors as follows: Click the Restore Down button in the upper-right corner of the Excel window. Hover the mouse over either the left or right edge of the Excel window until it becomes a double arrow and drag the edge of the Excel window across both monitors.

    With Excel now spanning two monitors, display two views of the same workbook in Excel 2007 or 2010 by selecting **New Window** from the **View** menu, then select **Arrange All**, **Tiled**, **OK**, also from the **View** menu. In Excel 2003, select **New Window** from the **Window** menu, then select **Arrange**, **Tiled**, **OK** also from the **Window** menu. This will allow you to view multiple worksheets from the same workbook side by side on two monitors. In this situation, each window will scroll independently and best of all, updates entered into one window will automatically update the other windows.

    Note: This feature works well on monitors of the same size with the same resolution settings, but can yield unpredictable results if monitor size or resolution settings differ.



Hint: To ignore other workbooks you have open, and arrange the windows for your current workbook only, check the **Windows of active workbook** box in the **Arrange Windows** dialog box in Excel 2010 (shown above), or the **Arrange All** dialog box in Excel 2007.

Chapter 2

Carlton's Do's and Don'ts of Financial Reporting

Carlton's Do's and Don'ts of Financial Reporting

You've probably read a thousand financial statements in your lifetime, and scoff at the idea that there could more to it than you already know. Nonetheless, here are my fifteen rules for preparing, delivering, reading and analyzing financial statements and reports.

The Whole Point is Financial Reporting

Financial Reporting is the most important function of an accounting system. According to the Intermediate Accounting textbook written by Keiso and Weygandt, ***"the primary objective of an accounting system is to summarize detailed transactional data into useful reports that management can use to run their business"***. Many businesses seem to miss this point as financial statements and reports are rarely produced, distributed and read on a continual basis. I believe that it is the job of the CPA to implement a financial reporting system that accomplishes the following:

1. Ensure that the company's accounting system produces accurate financial reports.
2. Ensure that the appropriate reports are produced on a daily, weekly, and monthly basis.
3. Ensure that those reports are distributed to the appropriate personnel.
4. Ensure that the appropriate personnel understand how to read the reports.
5. Ensure that the appropriate personnel are reading the reports and using the information.

Too often businesses produce financial reports only after year end, far too late to allow executives to monitor manage the business. There is great information in those reports, and an informed management team will make better decisions.

Achieve The Best Reporting Possible

Given the above importance of producing financial statements and reports, it is not enough to merely produce a few summary reports. To achieve the best possible results, a wide variety of reports must be produced to meet a wide variety of information needs. Accordingly, the checklist below is intended to help you achieve the best possible financial reporting for your company or client.

1. **One Number, By Itself, Is Almost Meaningless**

   If I told you that I spent $266,548 on Contract labor last month, could you tell me whether that was good or bad? No you couldn't. You would probably follow by asking "How much did you expect to spent? Oh, a budget? Sure, we have a budget and we expected to spend $293,200 on Contract Labor. From these two numbers you could deduce that we were under budget and that is a good.

   You might also ask me how much did you spend last month on Contract Labor, or the same month last year? Oh, historical amounts. Sure I can tell you that we spent $234,562

last month on Contract Labor and $214,036 the same month last year. Based on this new information, you might deduce that Contract Labor costs are up dramatically this month compared to historical numbers.

The next time you find yourself producing a single column financial report, rethink your decision. Adding historical and budget comparison data could make the report far more meaningful. Consider the two examples below.

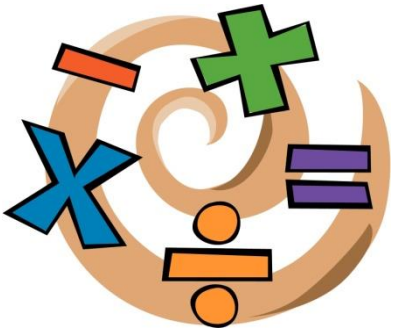
Expense:	Actual
Automobile Expense	38,765
Bank Service Charges	940
Conference Registration Fees	4,000
Contract Labor	266,548
Contributions	12,825
Dues And Subscriptions	60,511
Equipment Purchase	3,710
Equipment Rental	1,344
Hardware Purchase	39,501
Insurance	116,970
Marketing Giveaways	11,849
Memberships	900
Miscellaneous	210,103
Office Supplies	68,618
Online Computer Services	57,897
Outside Services	3,915
Partner Salary Draw	1,720,000
Postage And Delivery	12,612
Printing And Reproduction	435,751
Rent	132,134
Repairs	1,913
Software Purchase	9,117
Federal Taxes	5,000
State Taxes	2,000
Total Expenses	3,216,923

Less informative

Expense:	Actual	Budget
Automobile Expense	38,765	27,100
Bank Service Charges	940	1,000
Conference Registration Fees	4,000	3,400
Contract Labor	266,548	293,200
Contributions	12,825	9,000
Dues And Subscriptions	60,511	55,700
Equipment Purchase	3,710	3,900
Equipment Rental	1,344	500
Hardware Purchase	39,501	40,300
Insurance	116,970	131,000
Marketing Giveaways	11,849	13,400
Memberships	900	900
Miscellaneous	210,103	205,900
Office Supplies	68,618	83,000
Online Computer Services	57,897	73,500
Outside Services	3,915	3,400
Partner Salary Draw	1,720,000	1,548,000
Postage And Delivery	12,612	11,100
Printing And Reproduction	435,751	492,400
Rent	132,134	146,700
Repairs	1,913	2,200
Software Purchase	9,117	11,300
Federal Taxes	5,000	4,400
State Taxes	2,000	1,400
Total Expenses	3,216,923	3,162,700

More informative

2. Difference Reporting



Displaying comparison data is helpful, but such comparisons should also be accompanied by "Differences" to make it easier for the reader to comprehend, absorb and analyze the data. In the example below, columns have been added to show the differences between actual amounts compared to budget and historical amounts.

Expense:	Actual	Budget	Last Month	Same Month Last Year	Actual to Budget Difference	Actual to Prior Month Difference	Actual to PY, Same Month Difference
Automobile Expense	38,765	27,100	37,214	21,951	11,665	1,551	16,814
Bank Service Charges	940	1,000	705	733	(60)	235	207
Conference Registration Fees	4,000	3,400	5,320	1,200	600	(1,320)	2,800
Contract Labor	266,548	293,200	234,562	214,036	(26,652)	31,986	52,512
Contributions	12,825	9,000	9,875	8,730	3,825	2,950	4,095
Dues And Subscriptions	60,511	55,700	77,454	71,853	4,811	(16,943)	(11,342)
Equipment Purchase	3,710	3,900	2,968	3,120	(190)	742	590
Equipment Rental	1,344	500	693	585	844	651	759
Hardware Purchase	39,501	40,300	48,586	36,270	(800)	(9,085)	3,231
Insurance	116,970	131,000	83,049	151,960	(14,030)	33,921	(34,990)
Marketing Giveaways	11,849	13,400	12,086	17,554	(1,551)	(237)	(5,705)
Memberships	900	900	999	603	-	(99)	297
Miscellaneous	210,103	205,900	178,587	142,071	4,203	31,515	68,032
Office Supplies	68,618	83,000	58,326	89,640	(14,382)	10,293	(21,022)
Online Computer Services	57,897	73,500	61,371	61,005	(15,603)	(3,474)	(3,108)
Outside Services	3,915	3,400	6,788	9,800	515	(2,873)	(5,885)
Partner Salary Draw	1,720,000	1,548,000	1,685,600	1,654,770	172,000	34,400	65,230
Postage And Delivery	12,612	11,100	9,585	13,320	1,512	3,027	(708)
Printing And Reproduction	435,751	492,400	483,684	384,072	(56,649)	(47,933)	51,679
Rent	132,134	146,700	169,132	142,299	(14,566)	(36,998)	(10,165)
Repairs	1,913	2,200	2,085	2,816	(287)	(172)	(903)
Software Purchase	9,117	11,300	6,655	9,040	(2,183)	2,461	77
Federal Taxes	5,000	4,400	4,550	3,256	600	450	1,744
State Taxes	2,000	1,400	1,760	1,512	600	240	488
Total Expenses	3,216,923	3,162,700	3,181,635	3,042,196	54,223	35,288	174,727

You might think that this tip is obvious, however I see comparison financial statements and reports displayed all the time with no such comparison calculations. Without the difference calculations, the reader is forced to make mental calculations in their head which takes more time and is more prone to error.

Let's remind ourselves that the goal of producing financial reports is to help management make decisions to manage the company.

3. Difference Percentage Reporting

In some cases numerical data is more informative than percentage data; however in other cases just the opposite is true. Why not provide both? It is helpful to display differences as both a numerical and percentage amount. Remember the goal is to make it easier for the reader to comprehend, absorb and analyze the data. Consider the following data:

Expense:	Actual	Budget	Diff	Diff %
Automobile Expense	38,765	27,100	11,665	43%
Bank Service Charges	940	1,000	(60)	-6%
Conference Registration Fees	4,000	3,400	600	18%
Contract Labor	266,548	293,200	(26,652)	-9%
Contributions	12,825	9,000	3,825	43%
Dues And Subscriptions	60,511	55,700	4,811	9%
Equipment Purchase	3,710	3,900	(190)	-5%
Equipment Rental	1,344	500	844	169%
Hardware Purchase	39,501	40,300	(800)	-2%
Insurance	116,970	131,000	(14,030)	-11%
Marketing Giveaways	11,849	13,400	(1,551)	-12%
Memberships	900	900	-	0%
Miscellaneous	210,103	205,900	4,203	2%
Office Supplies	68,618	83,000	(14,382)	-17%
Online Computer Services	57,897	73,500	(15,603)	-21%
Outside Services	3,915	3,400	515	15%
Partner Salary Draw	1,720,000	1,548,000	172,000	11%
Postage And Delivery	12,612	11,100	1,512	14%
Printing And Reproduction	435,751	492,400	(56,649)	-12%
Rent	132,134	146,700	(14,566)	-10%
Repairs	1,913	2,200	(287)	-13%
Software Purchase	9,117	11,300	(2,183)	-19%
Federal Taxes	5,000	4,400	600	14%
State Taxes	2,000	1,400	600	43%
Total Expenses	3,216,923	3,162,700	54,223	2

In this example, take a look at the difference column. Immediately Partner Salary draws catch your attention because it is a whopping $172,000 over budget. However, the $844 overage for Equipment Rental barely catches your attention. However, when you analyze the Difference Percentage column, you immediately see that Equipment Rental is 169% over budget. The point is that you should consider both – look for actual amounts that grossly exceed your budgets in term so amounts and percentage differences, and concentrate more of your analytical efforts on these amounts.

4. Budgeting & Revised Budgets

I used to view the budgeting process as a wasteful little chore that caused everybody grief and provided little benefit. But that view was based on bad budgeting – of course if you don't do it right, poor budgeting is a big waste of time. However, if done correctly, budgeting can be one of the best measures you can take to help manage and run your business. Presented below is a checklist to help you ensure that budgeting is performed correctly in your organization.

1. **Integrated** – Your budget system should be integrated with your accounting system, and not maintained in an outside budgeting system such a an Excel workbook. This ensures that the accounting system can then produce the necessary budget-to-actual comparative financial reports on a regular basis.

2. **Stratified** - Budgets should be well-stratified (or categorized multiple ways). For example, budget data may be categorized by month (or reporting period), by segments (such as departments, locations, funds, etc.) and by projects or programs.

3. **Revisions** – As conditions change, your initial budget may be rendered obsolete. For example, an epic disaster such as a hurricane or tsunami may have a tremendous impact on a charitable organization's donations and expenditures, rendering old budgets obsolete. In such instances, it is prudent to generate revised budgets to follow for the remainder of the year. Economic conditions can change multiple times throughout the year and they often do. For this reason it is more realistic to consider the budgeting process to be an ongoing process, rather than a one-time event which occurs at the beginning of each year.

4. **Reporting** – Budget amounts should flow easily to, and be included in financial reports. Your accounting system should produce a wide variety of comparative reports such as "actual-to-budget" comparisons, "budget-to-prior-year-budget" comparisons, and "actual and budget to budget-revision" comparisons. These reports should also present differences in amounts and percentages, by row; and should be available across separate segments such as departments, divisions, funds, etc).

5. **Roll Up** – Budgets should be created by levels, and rolled up into various levels of reporting. For example, a world-wide charity with hundreds of locations would typically maintain separate departmental budgets for each location; by state, region, and country. The accounting system should allow the entity to roll up all actual and budgetary data to produce reports by location, state, region, and country.

6. **Statistical Amounts** – It is often useful for an organization to budget non-financial amounts in addition to financial amounts. Non-financial amounts are commonly known

as “statistical amounts”. As examples, a homeless shelter might budget the number of residents they expect to serve, or the number of meals they expect to provide; an association might budget the number of new members they expect to recruit; a charity might budget the number of magazine subscriptions they expect to sell.

7. **Variable Budgeting** – Associated with the ability to track statistical data is the ability to produce variable budgets – budgets that adjust themselves automatically based on certain levels, such as statistical data. For example, as a charitable organization sells more light bulbs, the organization’s revenues and expenditures adjust automatically based on the number of light bulbs sold.

8. **Budgeting Activities** – In addition to budgeting financial and statistical amounts, some budgeting systems allow for the budgeting of specific activities, campaigns, and capital projects.

9. **Tools** – To aid in the budgeting process, it is helpful for the system to provide user tools for inputting budget data. For example some systems enable the user to input one amount for the first month, and that amount can then be automatically replicated, or increased by a fixed percentage or amount, to fill in the remaining months.

10. **Balance Sheet Budgeting** – In addition to budget revenues and expenditures, many not-for-profit organizations find it necessary to budget balance sheet items such as cash and receivables as well.

11. **Import from Spreadsheet** – Microsoft Excel is the world’s most popular tool for creating budgets and therefore a good budgeting system will support the importing of data from this environment.

5. Per Unit Budgeting and Per Unit Reporting

In many instances, it may be helpful to also display financial information based on the "Per Unit" cost. This is because revenues and costs can vary from one month to the next due to volume. As volumes fluctuate, the process of comparing actual numbers to budget or historical numbers can be completely meaningless. However, the process of comparing actual Per Unit Revenue and Costs to Budgeted or Historical Per Unit Revenue and Costs can provide meaningful insights into your data. Listed below are a few industries in which volume can fluctuate widely from one month to the next depending upon many factors.

Manufacturer – Per Units Produced
Dentist – Per Number of Visits
Doctor or CPA Firm – Per Hours Billed
Airline – Per Number of Passengers Served
Builder – Per Number of Houses Constructed
Swimming Poll Cleaner – Per Number of Swimming Pools Cleaned
Hotdog Restaurant – Number of hotdogs served

This type of "Per Unit" revenue & cost accounting analysis can be revealing and informative. Consider the example below in which the Per Unit columns show which line items are askew when analyzed on a per unit basis.

Expense:	Actual	Budget	Same Month Last Year	Actual Per Unit	Budget Per Unit	Same Month Last Year Per Unit	Actual to Budget Difference Per Unit	Actual to Same Month Difference Per Unit
Automobile Expense	38,765	27,100	21,951	2.67	1.96	1.81	0.71	0.86
Bank Service Charges	940	1,000	733	0.06	0.07	0.06	(0.01)	0.00
Conference Registration Fees	4,000	3,400	1,200	0.28	0.25	0.10	0.03	0.18
Contract Labor	266,548	293,200	214,036	18.38	21.25	17.69	(2.86)	0.69
Contributions	12,825	9,000	8,730	0.88	0.65	0.72	0.23	0.16
Dues And Subscriptions	60,511	55,700	71,853	4.17	4.04	5.94	0.14	(1.77)
Equipment Purchase	3,710	3,900	3,120	0.26	0.28	0.26	(0.03)	(0.00)
Equipment Rental	1,344	500	585	0.09	0.04	0.05	0.06	0.04
Hardware Purchase	39,501	40,300	36,270	2.72	2.92	3.00	(0.20)	(0.27)
Insurance	116,970	131,000	151,960	8.07	9.49	12.56	(1.43)	(4.49)
Marketing Giveaways	11,849	13,400	17,554	0.82	0.97	1.45	(0.15)	(0.63)
Memberships	900	900	603	0.06	0.07	0.05	(0.00)	0.01
Miscellaneous	210,103	205,900	142,071	14.49	14.92	11.74	(0.43)	2.75
Office Supplies	68,618	83,000	89,640	4.73	6.01	7.41	(1.28)	(2.68)
Online Computer Services	57,897	73,500	61,005	3.99	5.33	5.04	(1.33)	(1.05)
Outside Services	3,915	3,400	9,800	0.27	0.25	0.81	0.02	(0.54)
Partner Salary Draw	1,720,000	1,548,000	1,654,770	118.62	112.17	136.76	6.45	(18.14)
Postage And Delivery	12,612	11,100	13,320	0.87	0.80	1.10	0.07	(0.23)
Printing And Reproduction	435,751	492,400	384,072	30.05	35.68	31.74	(5.63)	(1.69)
Rent	132,134	146,700	142,299	9.11	10.63	11.76	(1.52)	(2.65)
Repairs	1,913	2,200	2,816	0.13	0.16	0.23	(0.03)	(0.10)
Software Purchase	9,117	11,300	9,040	0.63	0.82	0.75	(0.19)	(0.12)
Federal Taxes	5,000	4,400	3,256	0.34	0.32	0.27	0.03	0.08
State Taxes	2,000	1,400	1,512	0.14	0.10	0.12	0.04	0.01
Total Expenses	3,216,923	3,162,700	3,042,196	221.86	229.18	251.42	(7.32)	(29.56)

6. As a Percentage of Sales Reporting

Many industries do not produce units or measure units that may be used as a basis for calculating Per Unit Revenue and Costs; however, their Sales may still fluctuate widely enough from one month to the next as to make month to month comparisons rather meaningless. In this case, it may be meaningful to use a "Percentage of Sales" calculation to analyze and compare costs from one month to the next.

For example, the financial report below displays financial data as well as "Percentage of Sales" calculations. Further, the final four columns calculate the percentage amount by which budgeted and prior month "Percentage of Sales" calculations differ from actual "Percentage of Sales" calculations. These changes are then highlighted by "Data Bar Formatting" to help the reader quickly identify those actual "Percentage of Sales" line items that fluctuate significantly from budget or prior month "Percentage of Sales" calculations.

Sales	4,182,000	3,950,150	3,634,227					
Expense:								
Automobile Expense	38,765	27,100	21,951	0.93%	0.69%	0.60%	0.24%	0.32%
Bank Service Charges	940	1,000	733	0.02%	0.03%	0.02%	0.00%	0.00%
Conference Registration Fees	4,000	3,400	1,200	0.10%	0.09%	0.03%	0.01%	0.06%
Contract Labor	266,548	293,200	214,036	6.37%	7.42%	5.89%	-1.05%	0.48%
Contributions	12,825	9,000	8,730	0.31%	0.23%	0.24%	0.08%	0.07%
Dues And Subscriptions	60,511	55,700	71,853	1.45%	1.41%	1.98%	0.04%	-0.53%
Equipment Purchase	3,710	3,900	3,120	0.09%	0.10%	0.09%	-0.01%	0.00%
Equipment Rental	1,344	500	585	0.03%	0.01%	0.02%	0.02%	0.02%
Hardware Purchase	39,501	40,300	36,270	0.94%	1.02%	1.00%	-0.08%	-0.05%
Insurance	116,970	131,000	151,960	2.80%	3.32%	4.18%	-0.52%	-1.38%
Marketing Giveaways	11,849	13,400	17,554	0.28%	0.34%	0.48%	-0.06%	-0.20%
Memberships	900	900	603	0.02%	0.02%	0.02%	0.00%	0.00%
Miscellaneous	210,103	205,900	142,071	5.02%	5.21%	3.91%	-0.19%	1.11%
Office Supplies	68,618	83,000	89,640	1.64%	2.10%	2.47%	-0.46%	-0.83%
Online Computer Services	57,897	73,500	61,005	1.38%	1.86%	1.68%	-0.48%	-0.29%
Outside Services	3,915	3,400	9,800	0.09%	0.09%	0.27%	0.01%	-0.18%
Partner Salary Draw	1,720,000	1,548,000	1,654,770	41.13%	39.19%	45.53%	1.94%	-4.40%
Postage And Delivery	12,612	11,100	13,320	0.30%	0.28%	0.37%	0.02%	-0.06%
Printing And Reproduction	435,751	492,400	384,072	10.42%	12.47%	10.57%	-2.05%	-0.15%
Rent	132,134	146,700	142,299	3.16%	3.71%	3.92%	-0.55%	-0.76%
Repairs	1,913	2,200	2,816	0.05%	0.06%	0.08%	-0.01%	-0.03%
Software Purchase	9,117	11,300	9,040	0.22%	0.29%	0.25%	-0.07%	-0.03%
Federal Taxes	5,000	4,400	3,256	0.12%	0.11%	0.09%	0.01%	0.03%
State Taxes	2,000	1,400	1,512	0.05%	0.04%	0.04%	0.01%	0.01%
Total Expenses	3,216,923	3,162,700	3,042,196	76.92%	80.07%	83.71%		

7. Industry Metrics & Benchmarks

Another approach to comparing data is to compare actual results to financial benchmarks of similar companies of similar sizes. Consider the following true story that occurred in 1998.

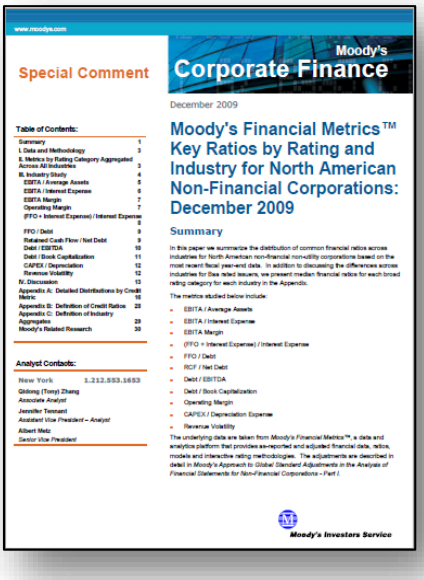
In 1998 I was installing a new accounting system for a southeastern aluminum products company. During the installation I noticed that its days-in-inventory level had risen from 72 and 75 days in 1995 and 1996, to 143 and 152 days in 1997 and 1998 respectively. Perplexed, I visited the local library to consult Moody's Industrial Guide where I looked up the typical days in inventory for a company of that size and in that SIC code. This guide confirmed that average days in inventory for a company of this nature was 76.2 days.

At that time, the company's inventory level was valued at $4,635,000, but a simple math calculation revealed that the inventory level should have been closer to $2,323,600 (4,635,000 / 152 * 76.2). Indeed for the previous two years the company's inventory was approximately $2,238,200 high compared to similar companies. At the time the company's interest rate on its' inventory note was 12.5% which means that the company had paid interest of $559,600 just to carry the additional inventory.

One of the reasons that management failed to detect the excess inventory was because no one was monitoring financial ratios. A manager told me that he was aware that inventory levels had increased along with sales and he assumed—incorrectly, as it turned out—that inventory was increasing in proportion to increases in sales. An investigation revealed that the company's new purchasing agent who had been hire two years earlier simply over ordered inventory so that the they would not run out. This made the project managers within the company very happy as they did not have to deal with inventory arriving just in time in order for them to meet their deadlines.

The manager then explained to me that not only did the company needlessly spend $559,600 in excess interest in order to carry the extra inventory, but in fact the company had already broken ground on a new $4,000,000 warehouse which they now determined was not really needed.

There are many sources for obtaining financial benchmark information, and in many cases you may have to pay for that information. A few example sources for benchmark information are listed below:


Special Comment

Moody's Corporate Finance

December 2009

Moody's Financial Metrics™ Key Ratios by Rating and Industry for North American Non-Financial Corporations: December 2009

Summary

Moody's Investors Service

Moody's Financial Metrics Key Ratios by Rating and Industry: 2009

http://www.bizminer.com/reports/samples/industry-financial.pdf

Financial Ratios: Turnover:					
	2005	2006	2007	2008	2009
Cash Turnover (X)	15.21	12.85	14.17	12.80	12.38
Current Asset Turnover	6.21	5.01	5.06	5.49	4.21
Fixed Asset Turnover	14.25	10.15	9.33	8.70	9.41
Inventory Turnover (X)	57.03	50.26	60.47	70.22	59.48
Receivables Turnover (X)	19.79	13.55	12.23	17.13	10.53
Total Asset Turnover (X)	3.81	3.01	3.06	3.02	2.50
Working Capital Turnover (X)	24.64	19.74	12.07	10.95	78.50

http://benchmark.kpilibrary.com ($20 per month)

http://www.finlistics.com/BenchmarkingTopDownArticle.html

CapitalStream | Moody's KMV | CCH

Experian | EQUIFAX | CaseWare

Standard & Poor's | Harland Financial Solutions | fiscal

8. Ratio Analysis

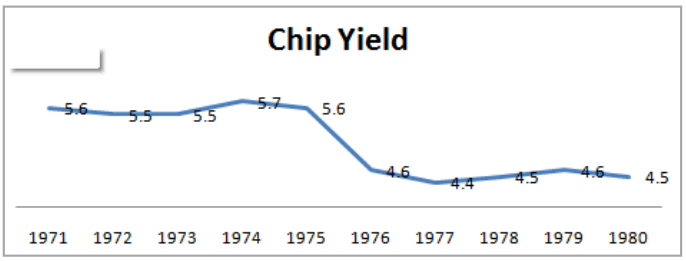
In many companies, ratio reporting appears to be a lost art form. However, ratios can be very revealing, especially if monitored over time. You can find a good listing of the various financial ratio calculations commonly used in the Wikipedia at this address:

http://en.wikipedia.org/wiki/Financial_ratio

If time permitted, I would probably cover numerous ratios, show you the formulas and explain what they each mean. However, as CPAs, you already know about ratios. My key point is that it's time to start using them. I am deeply saddened to find that virtually none of the accounting software products out there actually calculate financial ratios – BusinessWorks is one of the few. Instead I will provide you with this true story from 1981:

In 1981 I took an internship with ITT Rayonier where it was my job to use Arthur Anderson's Transaction Flow Analysis (TFA) technique to trace the flow of documents in the accounting systems of pulp mills. I was assigned to the pulp mill in Jesup, GA – (Yes I spent a whole summer in Jesup, GA, commuting each day from Saint Simons island).

During my work I calculated the chip yield for the previous 10 years. The chip yield is calculated by dividing the tons of paper that is produced by the pulp mill by the tons of pulp wood that are delivered to the pulp mill. The results showed that the chip yield had fallen as shown in the chart below.



I called my supervisor in Connecticut and reported the findings, and he told me *"Carlton, there is a reason for that and if you don't do anything else this summer, I want you to find it an explanation".* I spent the next several weeks looking for answers, however no one I talked to could explain the variation. Finally, one hot summer day I walked across the mill yard and interviewed a seasoned worker who knew the answer. The older gentlemen worked the scales and weighed each train car as it came in to deliver pulpwood. It was his job to record the weight of the train car full of pulpwood, and then subtract the stenciled weight on the side of the rail car to determine the total amount of pulpwood received.

For nearly five years this gentleman had noticed when the empty trains came back across the scales, the stenciled weight on many of the railroad cars was understated. That meant that he was reporting too much pulpwood had been delivered. For example, he would weigh a railcar in at 66 tons, and then subtract the stenciled weight of 23 tons to calculate the amount of pulpwood received (43 tons). However, the railcar actually weighed closer to 26 tons, which meant that the pulp mill was over paying for 3 tons of pulpwood that they never actually received. The scale worker had saved notes on the nearly 250 offending railcars. I was able to use his notes to recalculate the true amount of pulpwood received and the chip years calculations returned to normal. ITT Rayonier was able to go back to the supplier and collect approximately $250,000 in overpayments from that supplier.

This story underscores the importance of calculating key ratios over time, and analyzing them for consistency. The actual ratios you calculate will vary depending upon the nature of your company, but at a minimum I recommend that you calculate the following ratios with regularity:

1. Days in accounts payable
2. Days in accounts receivable
3. Days in inventory
4. Gross profit margin percentage
5. Current ratio
6. Quick ratio
7. Debt to equity

9. Event Triggered Reporting (Alarms)

All businesses should ideally employ a team of accountants dedicated exclusively to reviewing the company's books and financial statements continuously in order to identify potential problems. For example, if cash balance drops below a certain level, if profit margin percentages dip dangerously low, or if sales taper off suddenly, warning bells should be sounded and management should be alerted quickly so they can initiate corrective measures. Historically, this process has been out of reach for most companies, as manual accounting systems required the need for hundreds of continuous boring calculations, which rendered such a solution unreasonable.

However, with the advent of the computer, the evolution of application software, and the addition of e-mail, today's accounting systems can perform hundreds of business calculations continuously, comparing the results against pre-set conditions in order to identify emerging problems or trends. Once identified, these business alerts can be sent to the appropriate management personnel through e-mail, fax, or even a mobile phone. This type of reporting is known in programming circles as "Event-Triggered Reporting," "Alarms," or "Alerts." In business circles, this type of reporting is known as "Management by Exception." By any name, this type of reporting is being heralded as the most useful type of reporting on the planet today—and thanks to advancements in technology, this solution is now widely available to all businesses.

Six Advantages of Event-Triggered Reporting

Event-triggered reporting holds many advantages over the more traditional type of reporting, which typically involves the production of periodic financial statements and reports—usually thick, voluminous stacks of financial statements and reports. A summary of key advantages of event-triggered reporting is presented below.

1. **Immediate Reporting** - Event-triggered reports alert the appropriate personnel to emerging financial conditions as they occur. For example, if profit margins slip, the CFO is notified of this event immediately—often within a few seconds. The more traditional monthly reporting approach might mean the CFO receives this information in report format several weeks later, and even then there's the chance the CFO won't notice this particular event simply by perusing the financial statements.

2. **Continuous Monitoring** - Even the most diligent of employees will grow tired of constantly computing ratios and measures in search of significant observations or signs of trouble. However, an automated accounting system does not get bored—it can calculate numbers without tiring.

3. **Filtered Information** - The traditional approach of producing and circulating detailed financial reports often inundate management with mountains of information which they

must wade through in order to ferret out useful information. This process can be tedious and time consuming. By contrast, event-triggered reporting only provides people the information they need to act upon.

4. **Efficiency** - Event-triggered reporting helps people work more efficiently. For example, assume a customer's purchases decline for a given period. Traditionally, the sales manager might sift through a 400-page sales report in order to identify a customer with declining activity. Such laborious tasks are often set aside or even discarded. An event-triggered reporting system instantly notifies the sales manager whenever activity for a given customer slips. The sales manager need only act on the information—mountains of paperwork are thereby avoided, or at least reduced.

5. **Benchmarking** - When it comes to accounting, no single number is useful. To be useful, it must first be compared to another number. For example, knowing a company has 80 days worth of inventory is virtually useless. You must also fill the blanks to questions such as:

   • What was the number of days in inventory last month? Last quarter? Last year?
   • What is the average days in inventory for a company of our size and industry?
   • What is our budgeted days in inventory?

   Once a manager knows the days in inventory had been averaging 70 days over the past year, the industry average is 65 days, and the budgeted amount is 72 days, a call to action to reduce the current 80 day amount is evident. Event-triggered reporting is about comparing current financial conditions with benchmarks—hence, all information produced by this reporting process is concise and beneficial.

6. **Targeted Feedback -** Event-triggered reports typically send notifications to only those people who should be privy to the information. While the CFO may be copied on all event triggered reports, the sales manager may see only those notifications relevant to his or her job. Likewise, the president may be copied on notifications pertaining to sales, cash, and profits, but may not be bothered with notifications indicating a particular inventory item needs to be re-ordered.

Not Just Looking for Trouble

One might assume event-triggered reporting might focus on looking for potential problems and troubling trends, and indeed, event-triggered reporting is well-suited for this goal. However, event-triggered reporting can be just as useful for identifying positive events as well. For example, a sales manager might want to be alerted when a customer has earned a new discount threshold. In this occurrence, the sales manager might receive the following e-mail message from the alerts system:

Attention Sales Manager: Please call Julia Stevens and congratulate her for purchasing $50,000 this calendar year and earning an extra 1 percent discount on all future purchases. Her telephone number is 555-0100.

Think how much easier your job could be if your accounting system kept you well informed of key events such as this. Other examples might include notification of an employee who achieved a perfect attendance record for the year, sales representatives who have exceeded their goals, or a collections manager who has set a new record for the lowest days in accounts receivable.

Unlimited Business Alerts

An unlimited number of possible alert conditions exist that might help a company better manage its customers, vendors, employees, and resources. All companies would most likely want to monitor typical benchmarks, such as cash levels, current ratios, days in inventory, accounts receivable, and accounts payable. They would also employ this solution to keep an eye on profits, interest rates, and sales levels as well. However, the accounting system can also alert companies about particular inventory items whose quantity are running low, customers who are paying too slow, or even employees who have exceeded their vacation and sick time quotas. The creative CFO can set up hundreds of pre-set parameters in just a few hours, and thereafter, the accounting system will constantly compare these conditions to actual results without fail for years to come.

Sage ACCPAC Pro ERP, for example, not only monitors custom events, but it can alert mangers by sending them e-mails. As you would expect, many high-end accounting products—the so-called beginning enterprise resource planning (ERP) products, such as Epicor, offer event-triggered reporting. However, this high-end feature also can be found in an entry-level product, Peachtree Complete. Its alarms automatically monitor amounts related to account balances, customers, vendors and employees.

For accounting software packages that don't provide event-triggered alarms, a third-party solution often is available. For example, the CleverPath Portal (formerly known as Forest & Trees) from Computer Associates can extract data from a host of accounting software packages, spreadsheets and other databases. In addition, the software can send you a text message if it spots a potential problem. Likewise, the Cisco Agent can perform similar actions.

10. Accuracy

Of course this should go without saying, but financial statements and reports should be accurate. It seems ridiculous to mention this to a bunch of CPAs, however too often I encounter companies whose financial statements and reports are not accurate, and the readers of those statements know it. As a result, the financial statements and reports are not properly used to manage the business. To help ensure accuracy, follow these steps:

Monthly Entries - Make sure that someone is assigned to enter the necessary journal entries each month. Make sure that they are entered correctly. Write up notes and explanations directing the bookkeeper as to the correct process. For example, explain the monthly loan payment amount must be debited against the interest expense and outstanding loan accounts each month in differing amounts according to the amortization schedule.

Review – Make sure that someone knowledgeable is assigned to review the financial statements and reports each month for errors. Create a list of key steps to take such as preparing a bank reconciliation, performing a physical inventory count, spot checking key balances, comparing actual amounts to budgeted amounts and investigate any significant discrepancies.

Errors – As errors are identified, take time to determine what caused the error and train that person responsible so that the error does not recur.

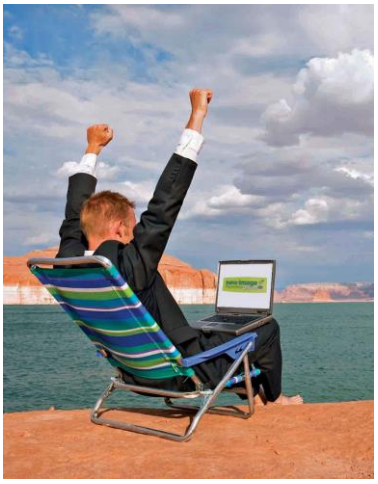
11. Reporting Frequency

Financial statements and reports should be issued on a regular basis – daily, weekly, monthly, quarterly and annually. It has been my experience that often the bookkeeper will sit on information believing that it is their job to protect the privacy of all information. This is incorrect. Just the opposite is true, it should be the bookkeeper's job to produce and deliver financial statements and reports on a continual and recurring basis. Both QuickBooks and Peachtree provide a tool that allows the bookkeeper you to print a batch of reports with a single click. As the CPA, you should make sure that these batches are set up properly.

12. Electronic Reporting

If possible, it is best to deliver electronic financial statements and reports via encrypted e-mail rather than to produce paper based reports for the following reasons:

a. Paper reports take time to print.
b. Paper reports must be delivered, faxed, or mailed.
c. Paper reports use paper.
d. Paper reports use toner.
e. Paper reports result in wear and tear on your printer.
f. Paper reports require you to go get paper, store paper, and load paper.
g. Paper reports require you to go get toner, store toner, and load toner.
h. Paper reports must be filed away in a drawer or filing cabinet.
i. Securing paper reports in binders takes time.
j. Report binders cost money.
k. Storing report binders full of reports takes up storage space.
l. Paper reports must later be moved to an archive room.
m. Ultimately paper reports must be shredded.
n. Paper reports cannot be copy and pasted into other applications such as Word.
o. Paper reports make what-if analysis impossible without reentering the data.
p. Paper reports make it impossible to generate a chart without re-entering the data.
q. Paper reports are harder and more expensive to secure than electronic reports.
r. Paper reports are more difficult to share with others.
s. Paper reports are far more difficult to back up.
t. Paper reports are impossible access remotely.
u. Paper reports do not allow the user to drill into details by double clicking a number.
v. Paper reports do not provide search tools to make it easy to locate an account.
w. Electronic reports can be accumulated conveniently in a single folder for easy access.



13. Automated Delivery

If possible, it is best to have the accounting system automatically generate and deliver electronic financial statements and reports via encrypted e-mail at regularly scheduled intervals. The benefits are as follows:

a. This eliminates the need for a bookkeeper to spend countless hours generating and delivering reports.
b. This enables readers of those reports to learn to expect and rely on various financial reports at regularly scheduled intervals, rather than wonder when if ever the reports are forth coming.

Some accounting systems provide the ability to schedule financial statements and reports to be delivered automatically at regularly scheduled intervals. For example, you could schedule the Detailed Aged Receivables report to be delivered each Tuesday and Friday at 10:00 am to the president, CFO, AR Clerk, and Sales Manager. As examples, both Microsoft Management Reporter and Crystal Reports (with the **Navarre Report Scheduler** Add-on) provide the ability to schedule the delivery of each and every report.

14. Timely Delivery

Financial statements must be delivered timely. By the 10th day of the following month, before information grows stale. Many companies receive accurate financial statements once a year, well after the end of the year – too late to be used in the decision making process.

Financial reports should be delivered daily, weekly or month depending upon the company and various factors. For example, I would recommend that inventory re-order reports be delivered twice a week or even once a day in an effort to best manage inventory.

The trademark of a well-run company is a continuous effort to produce and deliver deep rich financial statements and reports on a continuing basis.

15. Customizing The Financial Statements and Reports

Virtually every accounting system on the planet provides tools which allow you to customize your financial statements and reports to your specific needs. Financial statements and reports should be customized to include all of the pertinent information. Recipients should be asked to help review the financial statements and reports for missing info.

In particular, statistical information such as units of sales can be added to enhance the reports. Many accounting systems allow the users to create new data fields which can

also flow to the financial statements and reports for enhanced reporting. In QuickBooks, these added data fields can be used to filter reports as well.

The key point is that the seasoned CPA should do more than simply rely on the canned reports to meet the needs of the company. They should fully utilize the tools to ensure that the reporting is the best it can be.

16. Training Users to Read and Understand Financial Statements

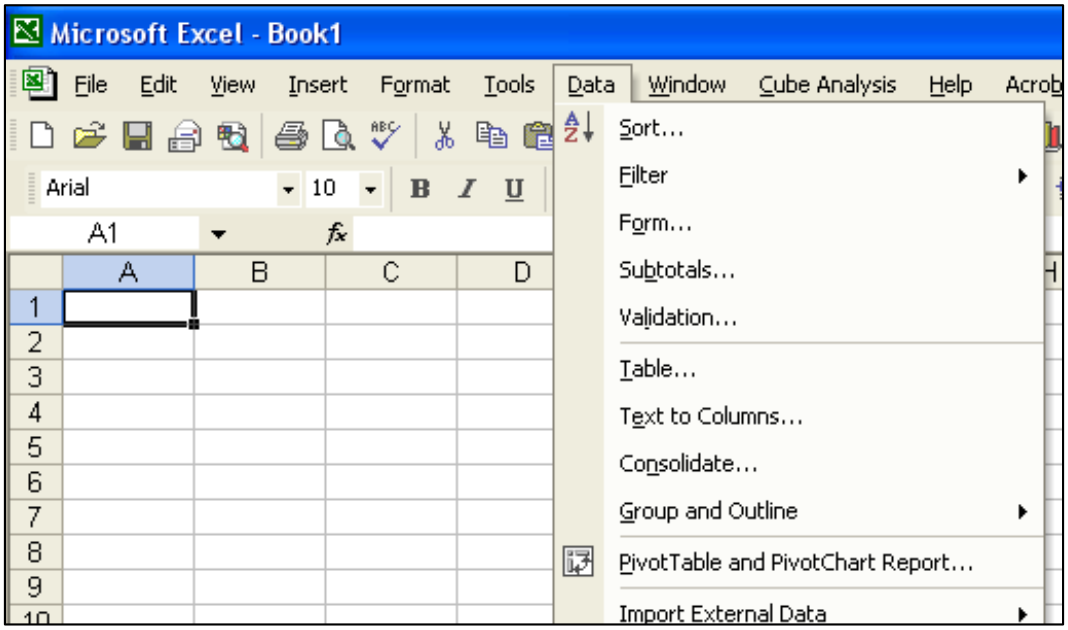
It is not enough to merely produce and deliver the financial statements and reports. The recipients of those financial statements and reports should know how to read and understand them. This is a delicate matter, for you don't want to insult the recipient by questioning their ability to read the report. Nonetheless, you should sit down with recipients and point out key numbers and indicators to look for when examine each report.

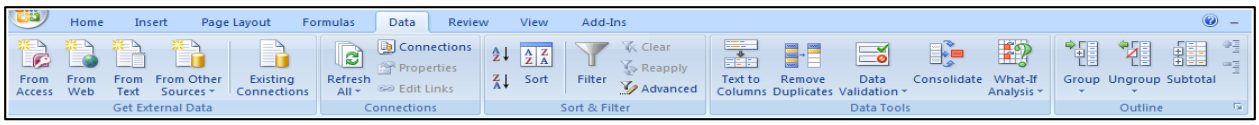
17. Other

In addition, there are several small tips that you should keep in mind when producing financial reports as follows:

a. Well labeled report titles should appear on each page.
b. Each page should be numbered using the "Page # of ##" format.
c. The Calibri and Aerial fonts make numbers easier to read.
d. Financial reports containing numerous zeros should suppress those zeros.
e. In Excel, use the "Accounting Format" with the "Single" and "Double" Accounting underlines to achieve the look and feel that CPAs prefer.
f. In Excel use the new "Spark Line" feature to help depict trends.
g. In Excel use the "outlining" exploding and condensing.
h. In Excel use "Superscripting" partially in your cell to referencing footnotes.

18. **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.



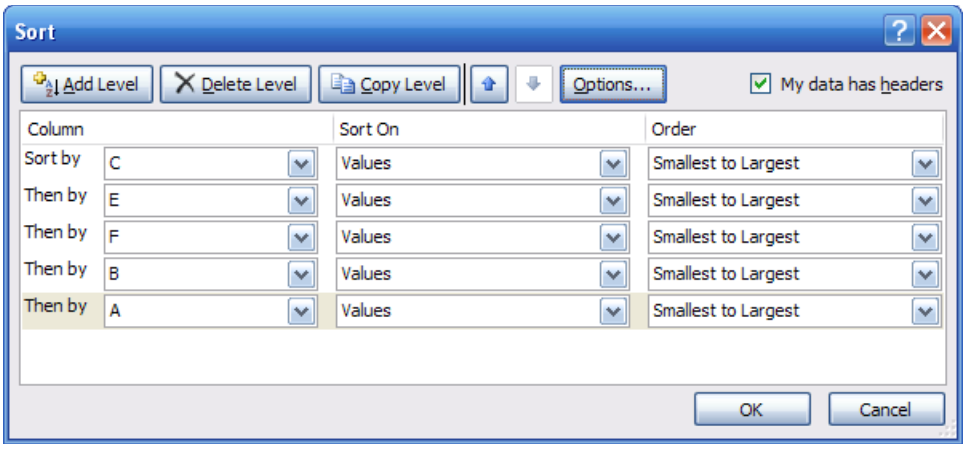


19. **Data Sorting -** The Sort tool does exactly what it implies – it sorts and data. Key sorting points are as follows:

    1. **Contiguous Data** - The "A to Z" sorting tool can sort large matrix of data automatically as long as the data is contiguous. In other words, your data should contain no blank columns, no blank rows, and the columns must all be labeled. Only then will Excel always correctly select the entire matrix for sorting.

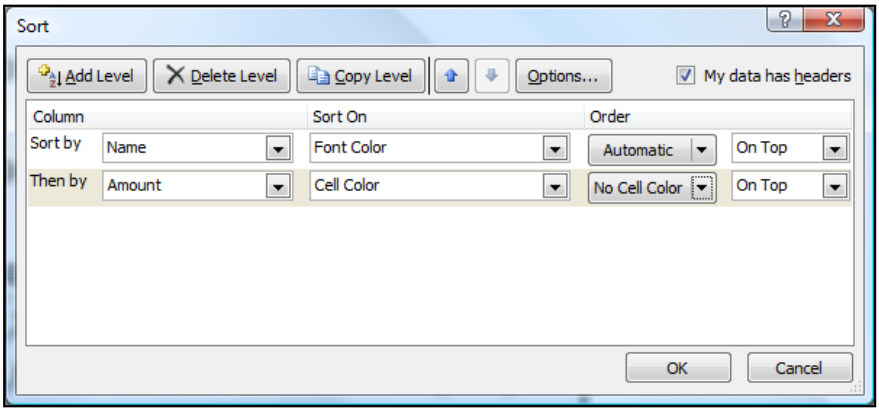
    2. **A to Z Button** - Simply place the cursor in the desired column for sorted, and press the A to Z or Z to A button as the case may be. Excel will automatically sort all continuous columns that have headings and all contiguous rows from the top row under the heading labels down to the last row in the selected column that contains data. *(Note - If you accidently select 2 cells instead of just one, your results will not be correct.)*

    3. **Sort by 64 Columns -** 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. Presented below is a dialog box which shows this expanded functionality.



4. **Sort Left to Right** – Excel has always provided the ability to sort left to right. To do so, select the options box in the Sort Dialog box and click the check box labeled "Sort left to Right" as shown below.

5. **Sort by Color** – Excel 2007 now provides the ability to sort by font color or by cell color, or both. This is handy in many ways. Sometimes CPAs use color to tag or mark certain cells - and later find it useful to be able to sort by those markings. In other situations CPAs use conditional formatting to apply color to cells using a wide variety of rules. Thereafter Excel can sort the data based on the resulting colors. The sort-by-color options are shown below.

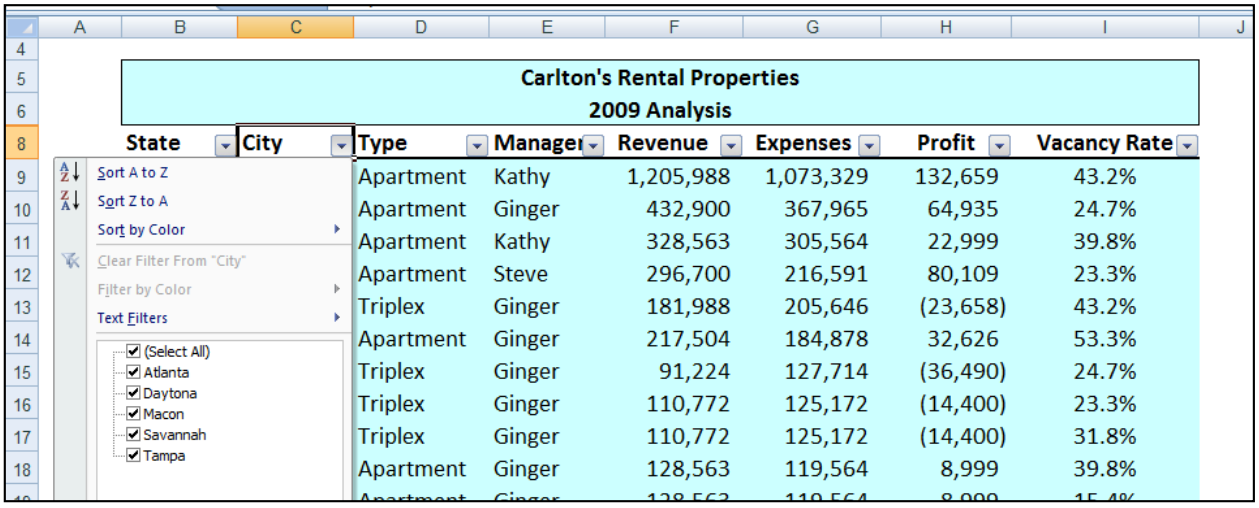


To be accurate, it was possible to sort by color in Excel 2003. To accomplish this task, you needed to use the =CELL function in order to identify information about a given cell such as the cell color or font color. Thereafter, the results of that function could be used to sort rows – which effectively means that you can sort by color in Excel 2003 – but it takes a bit more effort.

6. **Sort By Custom List** – Another sorting capability in Excel is the ability to sort by Custom List. For example, assume a CPA firm has ten partners, and the Managing partner prefers to be shown at the top of the list, and the remaining Partners based on seniority. In this case, you could create a Custom List in the excel Options dialog box listing the partners in the desired order, and then sort future reports based on that order.

   Perhaps a better example use of this feature would be to create a non-alphabetic custom list of your chart of accounts, and then sort transactions to produce a general ledger in chart of account order – even if your preferred chart of accounts is not alphabetical. the partner seniority does not match the alphabetic names, nor any

20. **Filtering Data** - Using AutoFilter to filter data allows you to view a subset of your data in a range of cells or table. Once you have filtered the data, you can apply additional filters to further refine your data view. When you are done, you can clear a filter to once again redisplay all of the data. To use this tool, start with any list of data and turn on the AutoFilter tool. Then position your cursor in the column you want to filter and use the drop down arrows to apply your filters as shown in the screen below.



State	City	Type	Manager	Revenue	Expenses	Profit	Vacancy Rate
		Apartment	Kathy	1,205,988	1,073,329	132,659	43.2%
		Apartment	Ginger	432,900	367,965	64,935	24.7%
		Apartment	Kathy	328,563	305,564	22,999	39.8%
		Apartment	Steve	296,700	216,591	80,109	23.3%
		Triplex	Ginger	181,988	205,646	(23,658)	43.2%
		Apartment	Ginger	217,504	184,878	32,626	53.3%
		Triplex	Ginger	91,224	127,714	(36,490)	24.7%
		Triplex	Ginger	110,772	125,172	(14,400)	23.3%
		Triplex	Ginger	110,772	125,172	(14,400)	31.8%
		Apartment	Ginger	128,563	119,564	8,999	39.8%

Once the filters are applied, you will see a subset your data. For example, the screen presented below shows filtered data for only Macon and Savannah properties.

	A	B	C	D	E	F	G	H	I
4									
5		Carlton's Rental Properties							
6		2009 Analysis							
8		State	City	Type	Manager	Revenue	Expenses	Profit	Vacancy Rate
12		Georgia	Macon	Apartment	Steve	296,700	216,591	80,109	23.3%
19		Georgia	Macon	Apartment	Ginger	128,563	119,564	8,999	15.4%
20		Georgia	Macon	Apartment	Ginger	128,563	119,564	8,999	13.4%
26		Georgia	Savannah	Apartment	Ginger	76,032	75,272	760	65.0%
36		Georgia	Macon	Duplex	Steve	76,219	60,213	16,006	26.5%
39		Georgia	Macon	Duplex	Steve	75,254	58,698	16,556	35.6%
43		Georgia	Macon	Townhome	Steve	52,800	46,992	5,808	18.7%

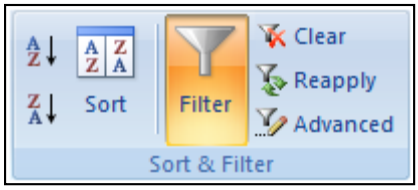
As filters are applied, a small funnel appears in the drop down arrow button to indicate that a filter has been applied. You can apply filters for multiple columns simultaneously.

Key Points Concerning The AutoFilter Command:

a. **Contiguous Data** – The AutoFilter tools works best when you are working with data that is contiguous. In other words, your data should contain no blank columns, no blank rows, and the columns must all be labeled.

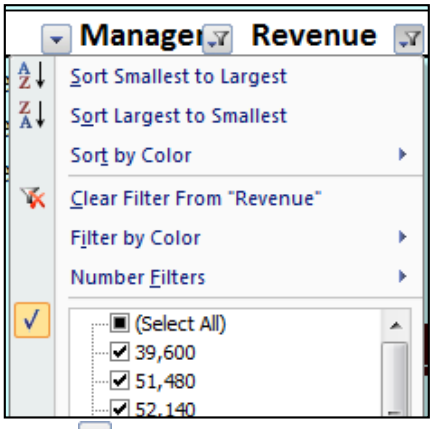
b. **Filter by Multiple Columns** - You can filter by more than one column.

c. **Removing Filters** – In Excel 2003 and earlier, a faster way to remove multiple filters is to turn off filtering and then turn filtering back on. In Excel 2007 you can simple click the Clear button in the Sort and Filter Group as shown below.

a. 

d. **Filters are Additive** - Each additional filter is based on the current filter and further reduces the subset of data.

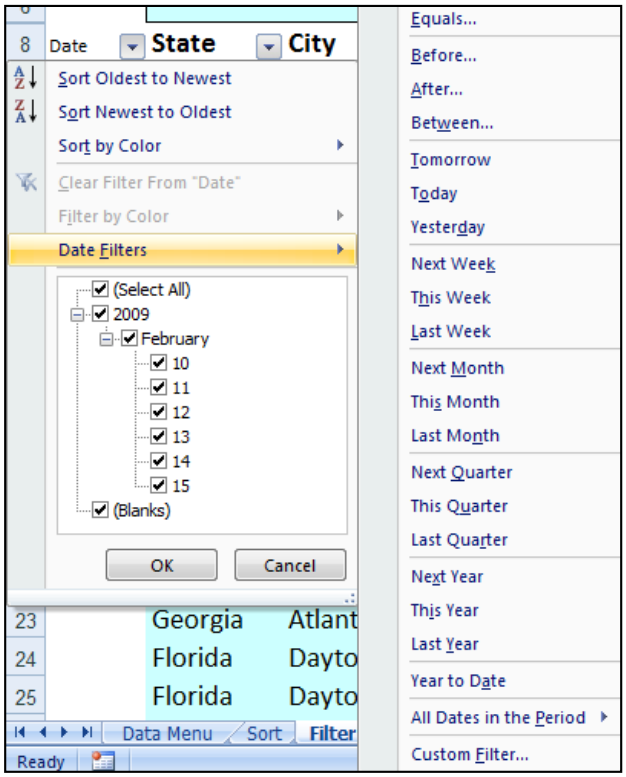
e. **Three Types of Filters** – You can filter based on list values, by formats, or by criteria. Each of these filter types is mutually exclusive for each range of cells or column table. For example, you can filter by cell color or by a list of numbers, but not by both; you can filter by icon or by a custom filter, but not by both.

a. 

f. **Filters Enabled -** A drop-down arrow means that filtering is enabled but not applied.

g. **Filter Applied -** A Filter button means that a filter is applied.

h. **Filter Spanning** - The commands under the All Dates in the Period menu, such as January or Quarter 2, filter by the period no matter what the year. This can be useful, for example, to compare sales by a period across several years.

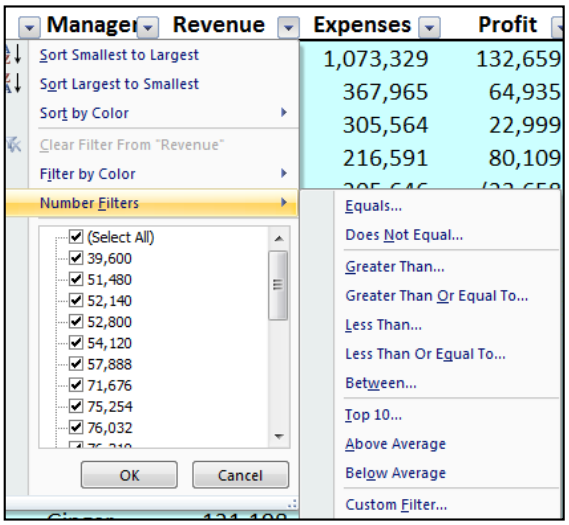


i. **This Year vs. Year-to-Date** Filtering - This Year and Year-to-Date are different in the way that future dates are handled. This Year can return dates in the future for the current year, whereas Year to Date only returns dates up to and including the current date.

j. **Filtering Dates** - All date filters are based on the Gregorian calendar as decreed by Pope Gregory XIII, after whom the calendar was named, on 24 February 1582. The Gregorian calendar modifies the Julian calendar's regular four-year cycle of leap years as follows: Every year that is exactly divisible by four is a leap year, except for years that are exactly divisible by 100; the centurial years that are exactly divisible by 400 are still leap years. For example, the year 1900 is not a leap year; the year 2000 is a leap year.

k. **Filtering By Days of Week -** If you want to filter by days of the week, simply format the cells to show the day of the week.

l. **Top & Bottom Filtering** - On the Data tab, in the Sort & Filter group, click Filter. Point to Number Filters and then select Top 10. To filter by number, click Items. To filter by percentage, click Percent. Note - Top and bottom values are based on the original range of cells or table column and not the filtered subset of data.



m. **Above & Below Average Filtering** - On the Data tab, in the Sort & Filter group, click Filter. Point to Filter by Numbers that are Above/Below Average. Note – These values are based on the original range of cells or table column and not the filtered subset of data.

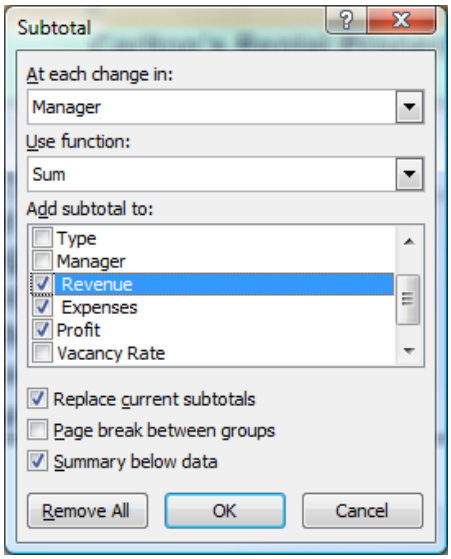
n. **Filtering Out Blanks** - To filter for blanks, in the AutoFilter menu at the top of the list of values, clear (Select All), and then at the bottom of the list of values, select (Blanks).

o. **Filtering By Color** - Select Filter by Color, and then depending on the type of format, select Filter by Cell Color, Filter by Font Color, or Filter by Cell Icon.

p. **Filter by Selection** - To filter by text, number, or date or time, click Filter by Selected Cell's Value and then: To filter by cell color, click Filter by Selected Cell's Color. To filter by font color, click Filter by Selected Cell's Font Color. To filter by icon, click Filter by Selected Cell's Icon.

q. **Refreshing Filters -** To reapply a filter after the data changes, click a cell in the range or table, and then on the Data tab, in the Sort & Filter group, click Reapply.

21. **Data Subtotals –** Excel provides an automatic subtotaling, which will automatically calculate and insert subtotals and grand totals in your list or table. 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. Examples of a the Subtotal dialog box and a resulting subtotaled table are shown below.



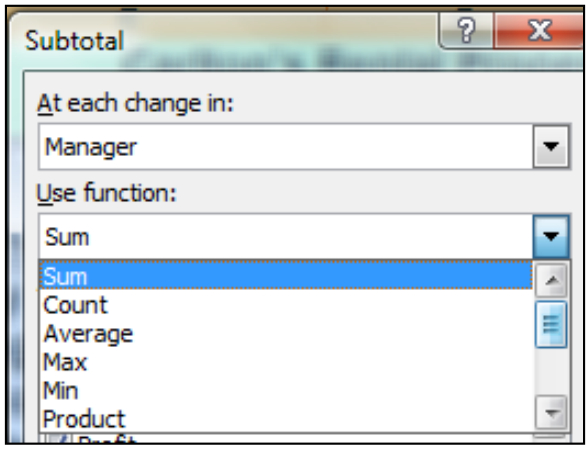
5	Carlton's Rental Properties						
6	2009 Analysis						
8	Type	Manager	Revenue	Expenses	Profit	Vacancy Rate	Police Visits
22		Billy Total	1,938,977	1,640,126	298,851		75
40		Ginger Total	2,340,914	2,211,002	129,912		78
54		Jacob Total	3,128,030	2,763,405	364,625		79
57		Kathy Total	1,534,551	1,378,893	155,658		13
81		Steve Total	1,679,088	1,439,202	239,886		117
82		Grand Total	10,621,561	9,432,628	1,188,932		362

Key points to Consider When Using Subtotaling are as follows:

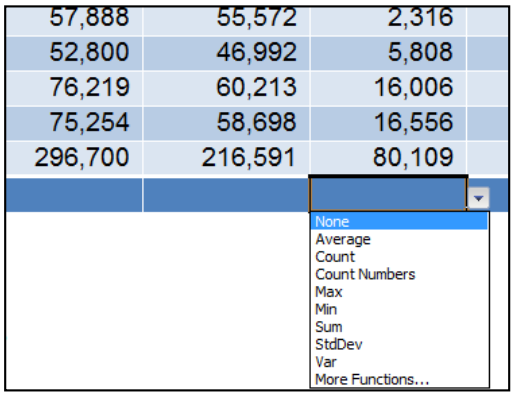
a. **Contiguous Data** – The Subtotal tools works best when you are working with data that is contiguous. In other words, your data should contain no blank columns, no blank rows, and the columns must all be labeled.

b. **Sort Before Your Subtotal** - You must sort the data by the column you wish to Subtotal by, else you will receive erroneous results.

c. **Other Mathematical Applications -** The Subtotal tool not only calculates subtotals, but it can also calculate minimums, maximums, averages, standard deviations, and other functions.



d. **Subtotals in 2007 Tables** – Excel 2007 deploys Subtotaling a little differently in that the Subtotal tool appears at the bottom of each column in each table, as shown in the screen below.



e. **Automatic Outlining** - Subtotaling automatically inserts Outlines, which is really cool. You can then condense and expand the data in total and by subtotal. Some CPAs also like to copy and paste the condensed subtotal information to another location but find that this process copies and pastes all of the data. There are two ways to achieve a clean copy and paste without grabbing all the hidden data as follows:

   i. **CTRL key** – Hold the Control Key down while you individually click on each subtotal row. This will enable you to copy and paste just the subtotal data. This approach can be problematic because if you mis-click, you have to start over.

   ii. **Select Visible Cells** – A better approach is to use the Select Visible Cells tool. This tool will select on the data you can see, after which the copy and paste routine will yield the desired results. This option is better because it is faster and less error prone.

22. **PivotTables**

The PivotTable report tool provides an interactive way to summarize large amounts of data. Use should use the PivotTable tools to crunch and analyze numerical data PivotTable reports are particularly useful in the following situations:

a. Rearranging rows to columns or columns to rows (or "pivoting") to see different summaries of the source data.
b. Filtering, sorting, grouping, and conditionally formatting your data.
c. Preparing concise, attractive, and annotated online or printed reports
d. Querying large amounts of data.
e. Subtotaling and aggregating numeric data.
f. Summarizing data by categories and subcategories

g. Creating custom calculations and formulas.
h. Expanding and collapsing levels of data.
i. Drilling down to details from the summary data

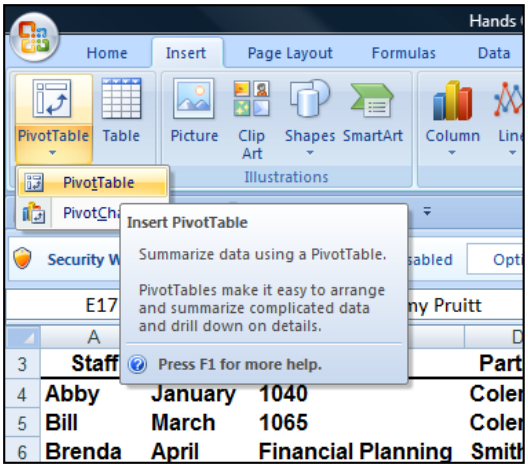
In essence, PivotTables present multidimensional data views to the user – this process is often referred to as "modeling", "data-cube analysis", or "OLAP data cubes". To re-arrange the PivotTable data, just drag and drop column and row headings to move data around. PivotTables are a great data analysis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

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.

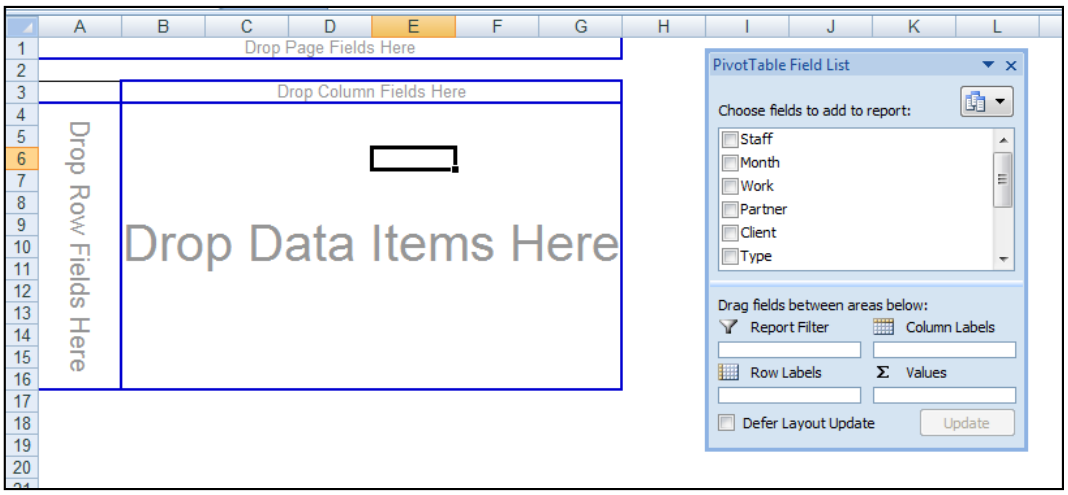
Let's create a simple PivotTable. Start with an Excel worksheet data that contains several columns of data – the data must include column and row headings and it helps if the data is contiguous. Place your cursor anywhere in the data and select PivotTable from the Data menu in Excel 2003 and click Finish; 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 tax season as all of the time sheet entries have been entered onto a single worksheet as shown below.

	A	B	C	D	E	F	G	H	I	J
3	Staff	Month	Work	Partner	Client	Type	Hours	Billings	Budget	Under/Over
4	Abby	January	1040	Coleman	Lisa Sullivan	Individual	19.0	1,425	1,311	114
5	Bill	March	1065	Coleman	Sam's Services	Corporate	22.0	1,650	1,848	(198)
6	Brenda	April	Financial Planning	Smith	Betty Harrington	Individual	10.2	1,020	1,377	(357)
7	Jennifer	March	1065	Coleman	Lisa Sullivan	Individual	18.4	630	706	(76)
8	Jennifer	January	1120	Coleman	Sam's Services	Corporate	32.0	2,400	2,208	192
9	Jennifer	March	1040	Coleman	Tony Davis	Individual	2.6	195	218	(23)
10	Jesseca	March	1040	Coleman	Betty Harrington	Individual	19.0	1,900	2,128	(228)
11	Jesseca	March	1120	Coleman	Course Concrete	Corporate	17.0	1,700	1,904	(204)
12	John	March	1040	Coleman	Mindy Simmon	Individual	16.0	1,600	1,792	(192)
13	Jesseca	January	1040	Coleman	Molly Francis	Individual	3.5	350	322	28
14	Jesseca	January	1040	Coleman	Robert Kennedy	Individual	3.7	370	340	30
15	Jesseca	March	1040	Coleman	Robert Kennedy	Individual	8.4	840	941	(101)
16	Jesseca	March	1040	Coleman	Tommy Pruitt	Individual	8.0	800	896	(96)
17	Jesseca	January	1040	Coleman	Tommy Pruitt	Individual	6.0	600	552	48
18	John	March	1120	Coleman	Camera Shot	Corporate	2.0	150	168	(18)
19	Kathleen	April	1040	Coleman	Robert Kennedy	Individual	2.0	200	270	(70)
20	Keith	February	1040	Coleman	Mindy Simmon	Individual	32.0	3,200	3,168	32
21	Martha	February	1120	Coleman	Course Concrete	Corporate	8.0	800	792	8
22	Martha	April	Fidiciary	Coleman	Molly Francis	Individual	6.0	600	810	(210)
23	Martin	April	Fidiciary	Coleman	Boris Tellman	Individual	6.0	750	1,013	(263)
24	Martin	February	1040	Coleman	Boris Tellman	Individual	3.5	438	433	4
25	Martin	February	1040	Coleman	Charlie Sullivan	Individual	2.0	250	248	3

Place your cursor anywhere in the data and select PivotTable from the Insert Ribbon as shown below:

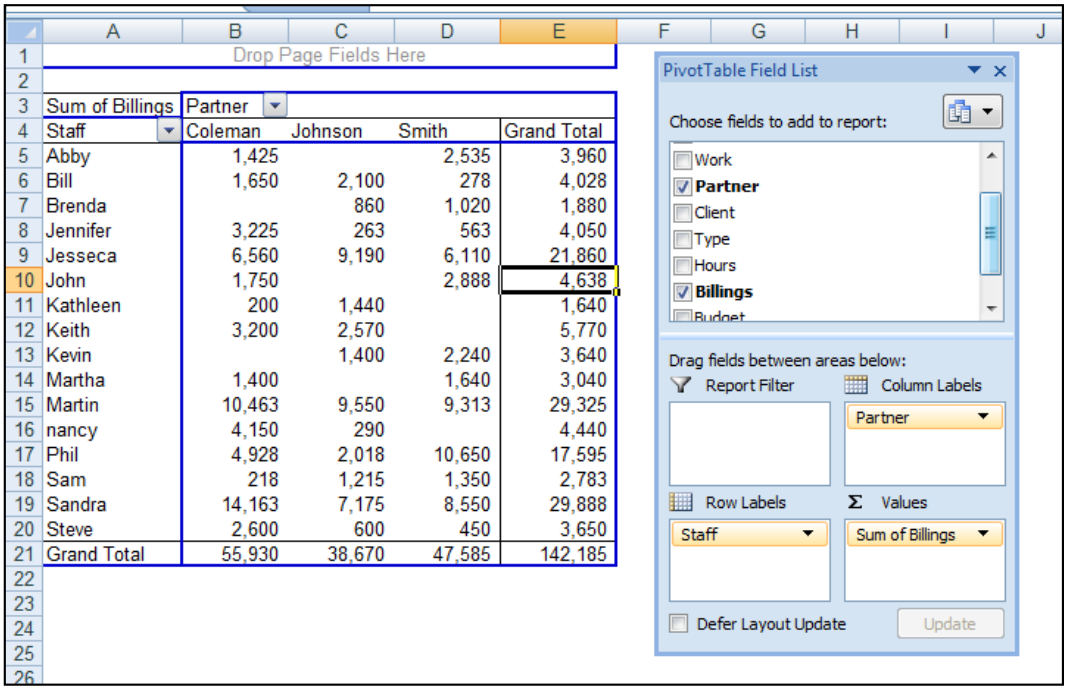


For learning purposes let's right mouse click on the pivot table and select PivotTable Options, Display, Classic PivotTable Layout. Your screen will now appear as follows:



I like for CPAs to learn how to use Pivot Tables in this view because it visually helps them understand the all important relationship better the blank pivot palette and the PivotTable field List, both elements of which are shown in the screen above.

To proceed, simply drag and drop field names shown on the right onto the blank Pivot palette shown on the left. With each drop, your report grows larger. As an alternative you could use the check boxes next to field names – this functionality is new in Excel 2007. After added some data to your blank Pivot Palette, your data will look something like this:



Sum of Billings	Partner			
Staff	Coleman	Johnson	Smith	Grand Total
Abby	1,425		2,535	3,960
Bill	1,650	2,100	278	4,028
Brenda		860	1,020	1,880
Jennifer	3,225	263	563	4,050
Jesseca	6,560	9,190	6,110	21,860
John	1,750		2,888	4,638
Kathleen	200	1,440		1,640
Keith	3,200	2,570		5,770
Kevin		1,400	2,240	3,640
Martha	1,400		1,640	3,040
Martin	10,463	9,550	9,313	29,325
nancy	4,150	290		4,440
Phil	4,928	2,018	10,650	17,595
Sam	218	1,215	1,350	2,783
Sandra	14,163	7,175	8,550	29,888
Steve	2,600	600	450	3,650
Grand Total	55,930	38,670	47,585	142,185

Next format and filter the Pivot Report. Very quickly your report comes together as shown below. Notice the filter button has been applied and a Pivot table style has also been applied for appearance.

Sum of Billings	Partner			
Staff	Coleman	Johnson	Smith	Grand Total
Brenda		860	1,020	1,880
Jennifer	3,225	263	563	4,050
Jesseca	6,560	9,190	6,110	21,860
John	1,750		2,888	4,638
Grand Total	**11,535**	**10,313**	**10,580**	**32,428**

Double clicking on any number in a pivot report will automatically produce a new worksheet complete with all supporting detail that comprises the summary number.

There are a multitude of PivotTable options that can be applied to alter the appearance or behavior of your Pivot table.

Key Points Concerning Pivot Tables are as Follows:

a. You can create as many Pivot Reports as you want from your initial raw data page. Your raw data remains unchanged as new Pivot tables are created.

b. As your raw data changes, your pivot tables are updated each time you press the refresh button. Or if you prefer you can set your PivotTables to update themselves at regularly scheduled intervals – say every ten minutes.

c. A key to understanding PivotTables is understanding the relationship between the Blank Pivot palette and the PivotTable Field list. As data is selected in the list, it appears on the Pivot table Report.

d. You can alter the PivotTable simple by dragging and dropping the field names in different locations on the Pivot palette, or in different locations in the PivotTable Field list Box.

e. PivotTables can be pivoted.

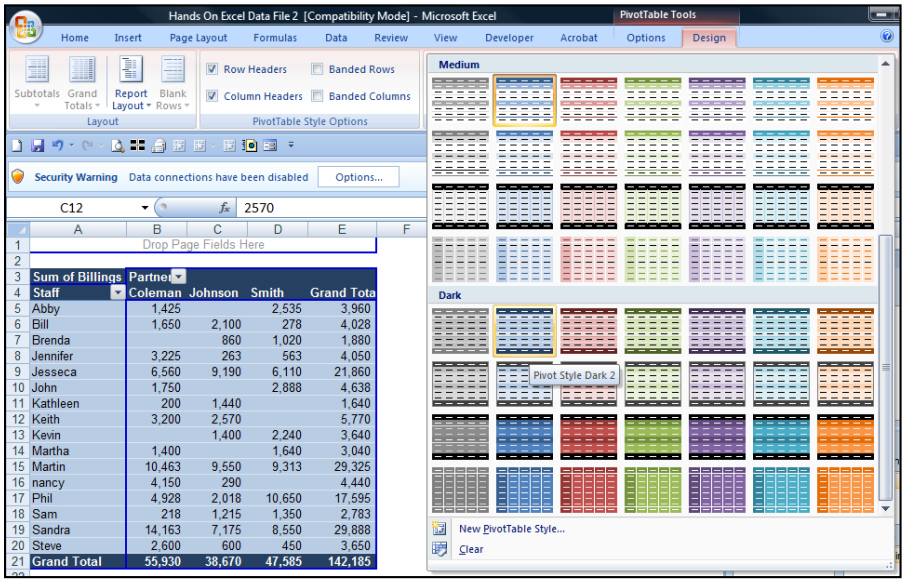
f. PivotTables can be sorted by any Column. (Or by any row when sorting left to right)

g. PivotTables can be Filtered.

h. PivotTables can be Drilled.

i. PivotTables can be copied and pasted.

j. PivotTables can be formatted using PivotTable Styles, as shown below.



k. Subtotals and grand totals can be displayed or suppressed at the users desire.

l. PivotTable Data can be shown as numbers or percentages at the users desire.

m. PivotTable can not only be summed, it can be averaged, minimized, maximized, counted, etc.

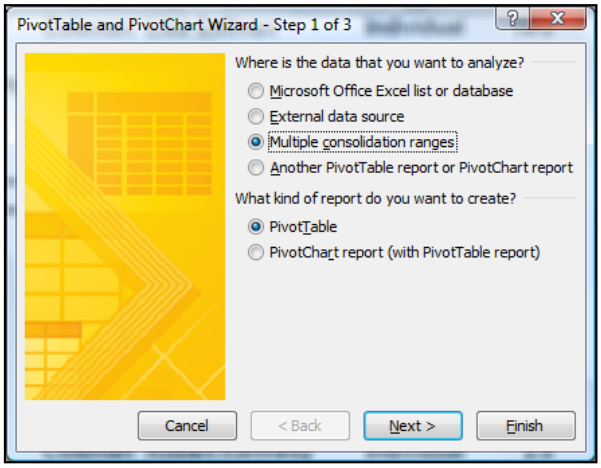
n. Blank rows can be displayed or suppressed at the users desire.

o. A new feature called “Compact Form” organized multiple column labels into a neatly organized outline which is easier to read.

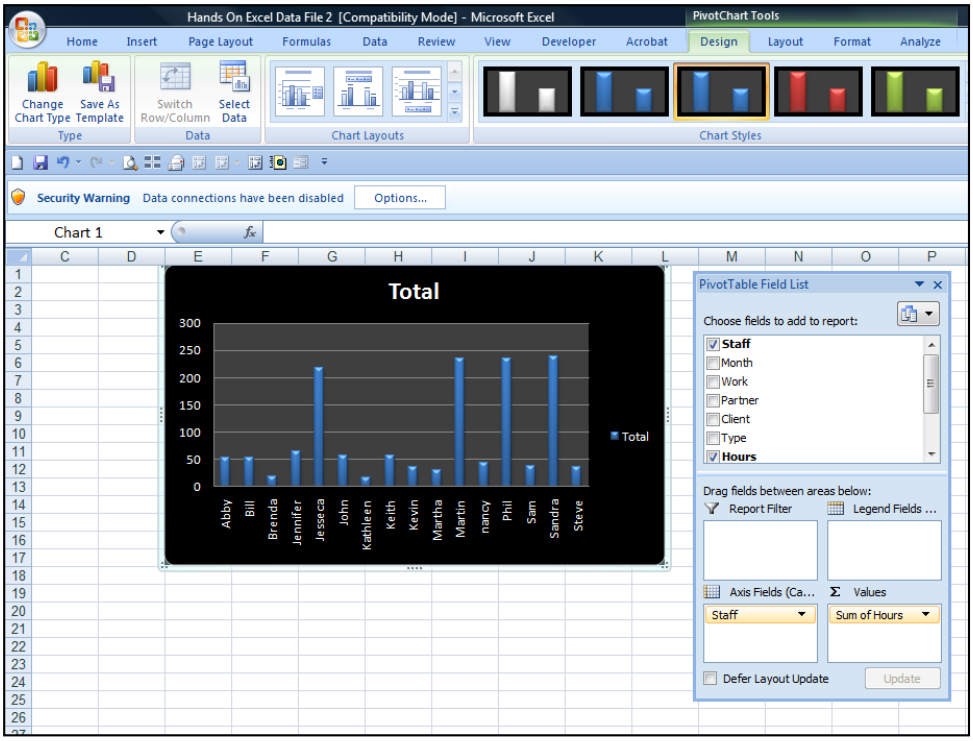
p. PivotTables can query data directly from any ODBC compliant database. The PivotTable tool for accomplishing this task is not included in the ribbon – you will find it by Customizing the Quick Access Tool Bar and searching the “Commands Not Shown in the Ribbon” tab to find the PivotTable and PivotChart Wizard Option.

q. Many accounting systems can push data out of the accounting system into an Excel PivotTable format – this is commonly referred to as an OLAP Data Cube. OLAP data Cube is just a fancy word for PivotTable – and there is no difference.

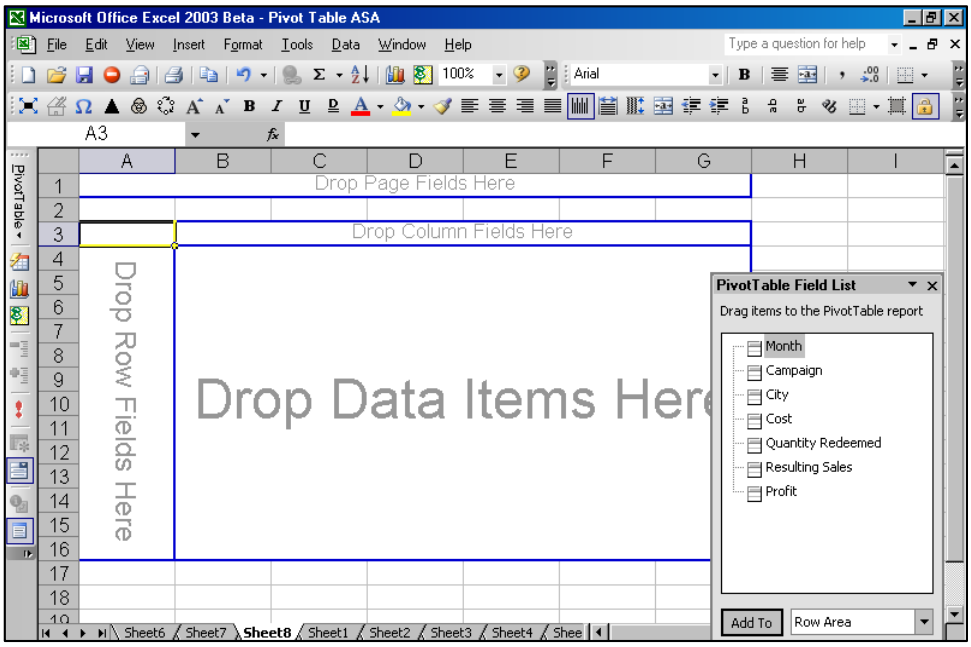
r. PivotTables can automatically combine data from multiple data sources. The PivotTable tool for accomplishing this task is not included in the ribbon – you will find it by Customizing the Quick Access Tool Bar and searching the “*Commands Not Shown in the Ribbon*” tab to find the PivotTable and PivotChart Wizard Option.



s. Excel also provides a PivotChart function which works similarly to PivotTables. Presented below is an example PivotChart.

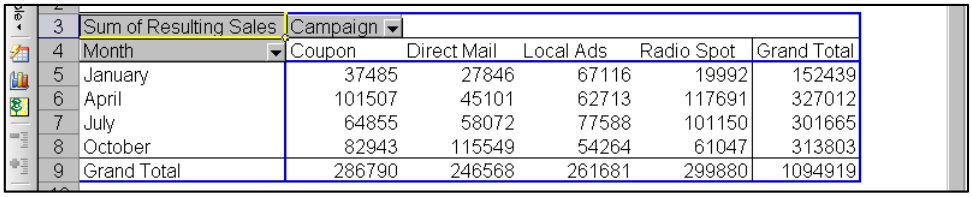


Excel 2003 PivotTables work very similarly as shown below. Excel creates a blank PivotTable, and the user must drag and drop the various fields from the PivotTable Field List onto the appropriate column, row, or data section. As you drag and drop these items, the resulting report is displayed on the fly. Here is the blank Pivot Palette view.



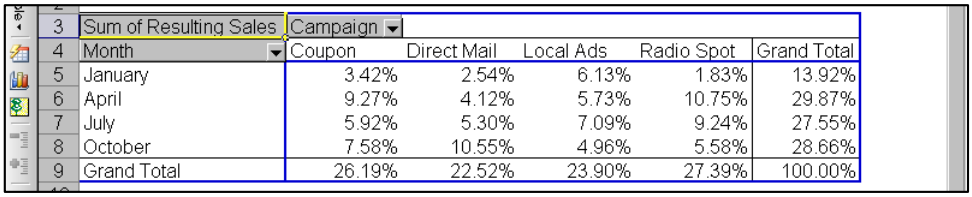
Now drag and drop field names from the Pivot Table field list onto the Pivot pallet. This action will automatically create Pivot Table reports – and they will change each time you

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.



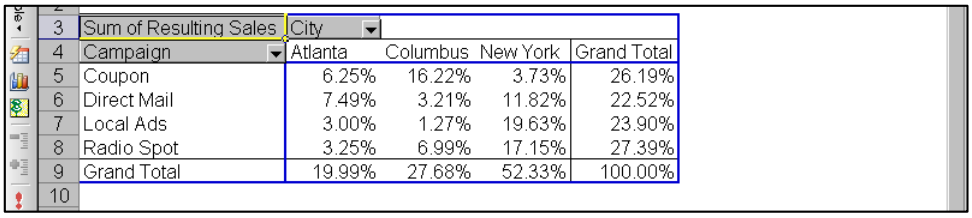
3	Sum of Resulting Sales	Campaign				
4	Month	Coupon	Direct Mail	Local Ads	Radio Spot	Grand Total
5	January	37485	27846	67116	19992	152439
6	April	101507	45101	62713	117691	327012
7	July	64855	58072	77588	101150	301665
8	October	82943	115549	54264	61047	313803
9	Grand Total	286790	246568	261681	299880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

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



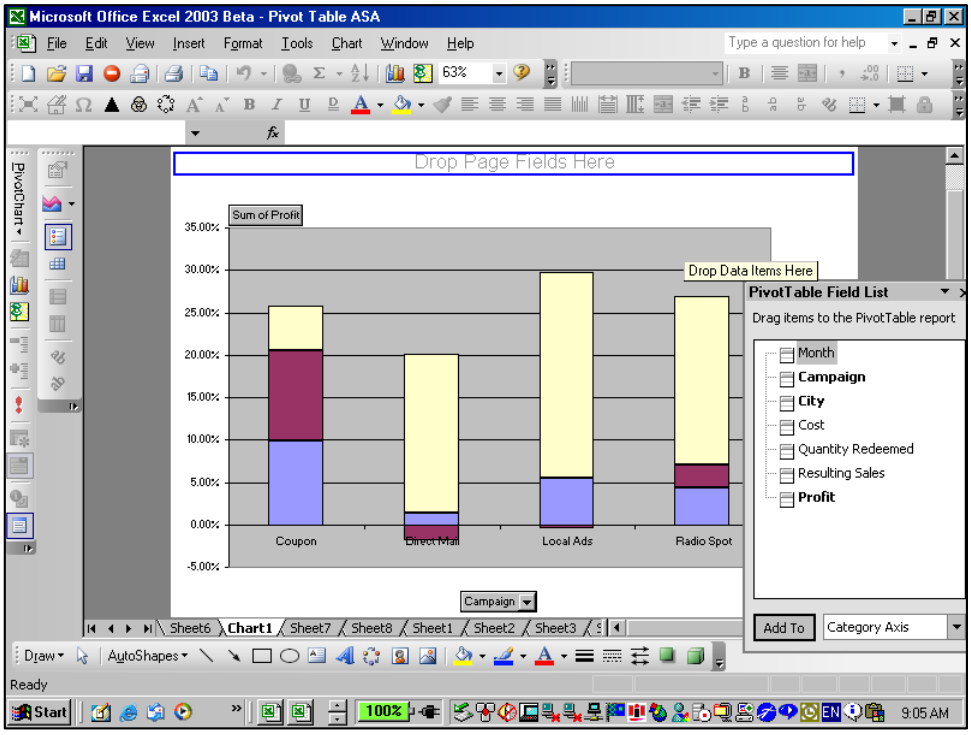
3	Sum of Resulting Sales	Campaign				
4	Month	Coupon	Direct Mail	Local Ads	Radio Spot	Grand Total
5	January	3.42%	2.54%	6.13%	1.83%	13.92%
6	April	9.27%	4.12%	5.73%	10.75%	29.87%
7	July	5.92%	5.30%	7.09%	9.24%	27.55%
8	October	7.58%	10.55%	4.96%	5.58%	28.66%
9	Grand Total	26.19%	22.52%	23.90%	27.39%	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.

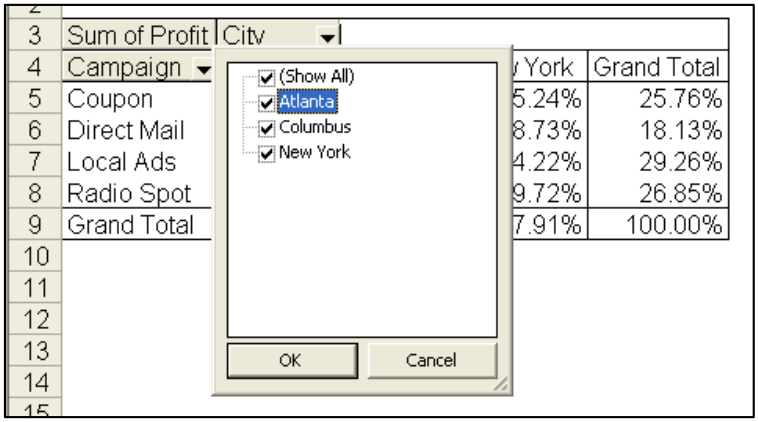


3	Sum of Resulting Sales	City			
4	Campaign	Atlanta	Columbus	New York	Grand Total
5	Coupon	6.25%	16.22%	3.73%	26.19%
6	Direct Mail	7.49%	3.21%	11.82%	22.52%
7	Local Ads	3.00%	1.27%	19.63%	23.90%
8	Radio Spot	3.25%	6.99%	17.15%	27.39%
9	Grand Total	19.99%	27.68%	52.33%	100.00%
10					

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.

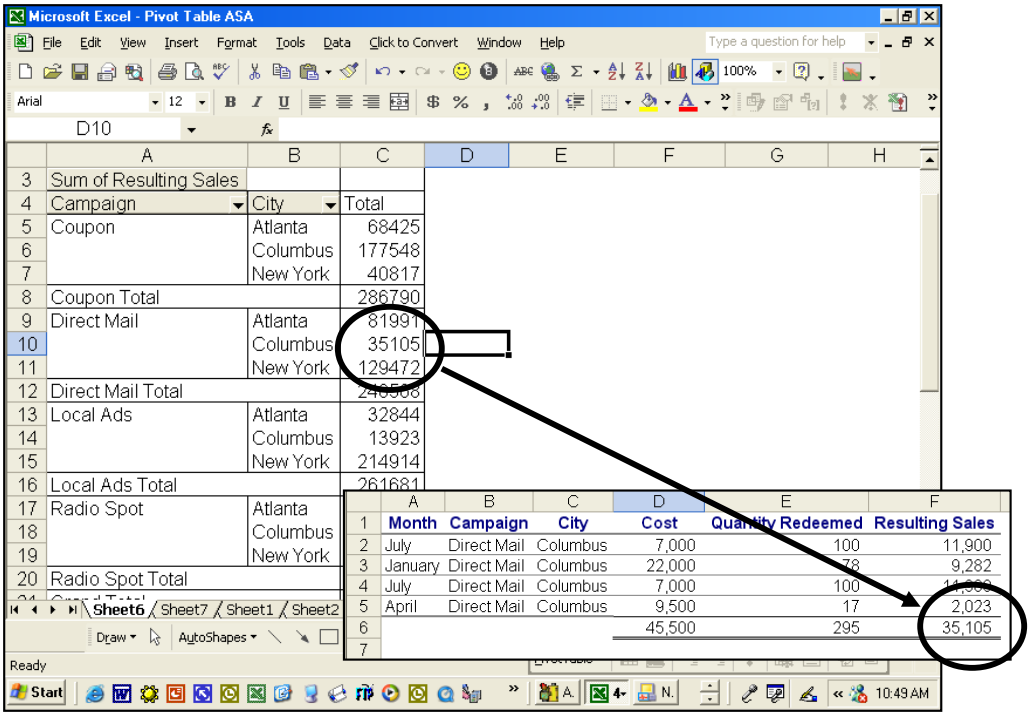


23. **Filtering Pivot Tables -** If you take a close look at your resulting pivot tables, you will notice that Excel automatically inserts a filter button on each field list as shown by the drop down arrows in the screen below:

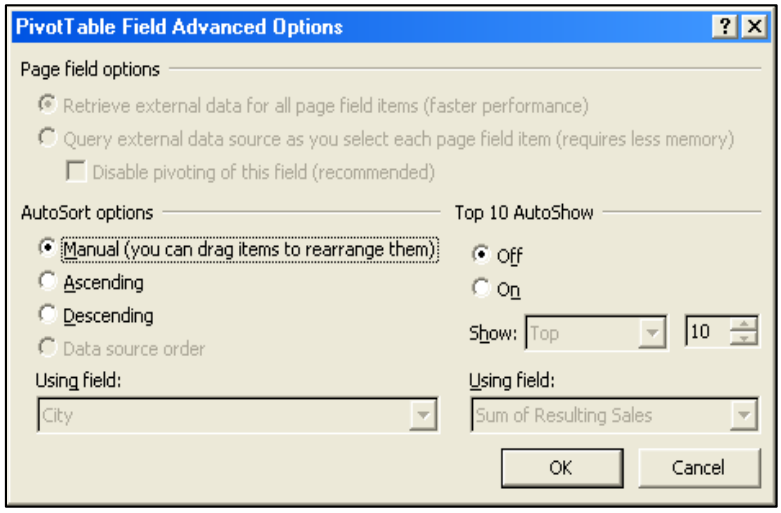


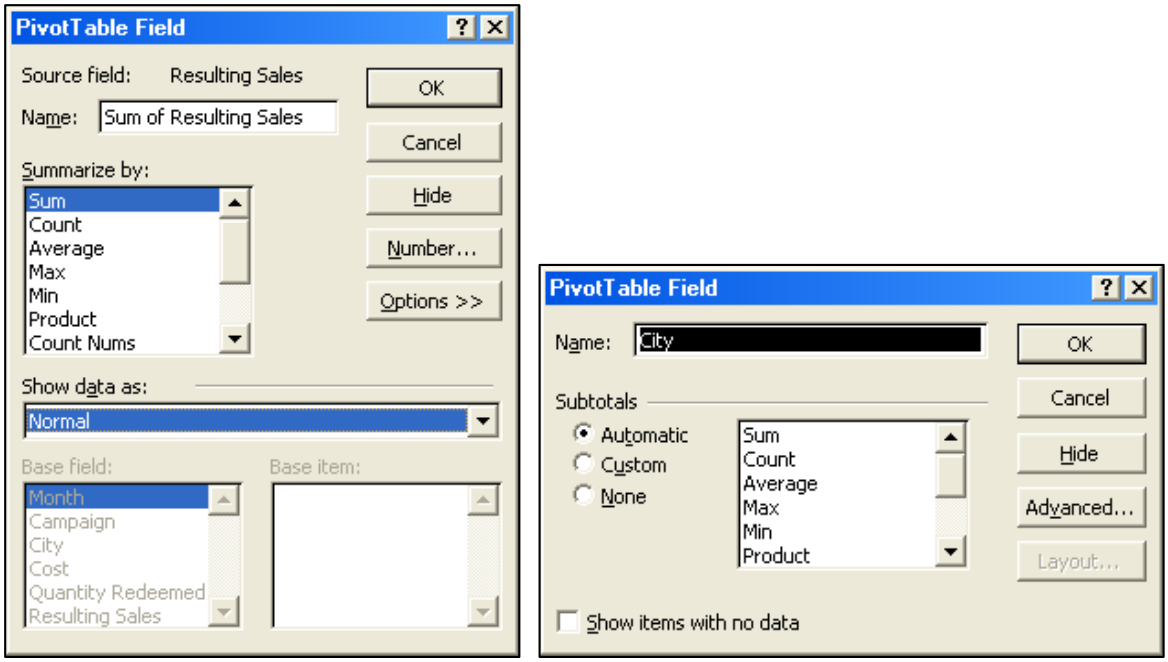
This drop down filter list makes it easy to refine your report to include just the data you want.

24. **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:



25. **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.





26. 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.

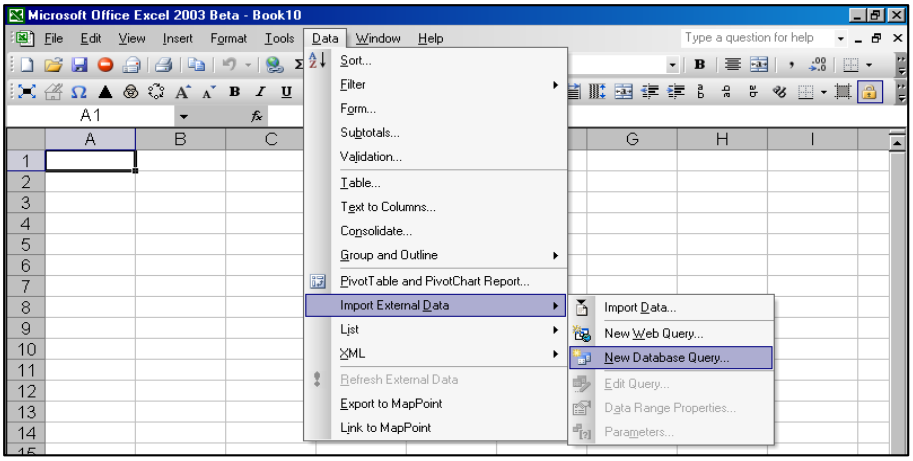
To use Microsoft Query to retrieve external data, you must:

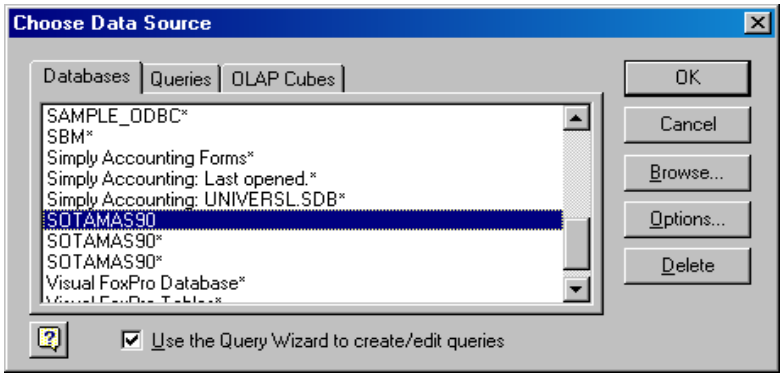
1. **Have access to an external data source -** If the data is not on your local computer, you may need to see the administrator of the external database for a password, user permission, or other information about how to connect to the database.

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

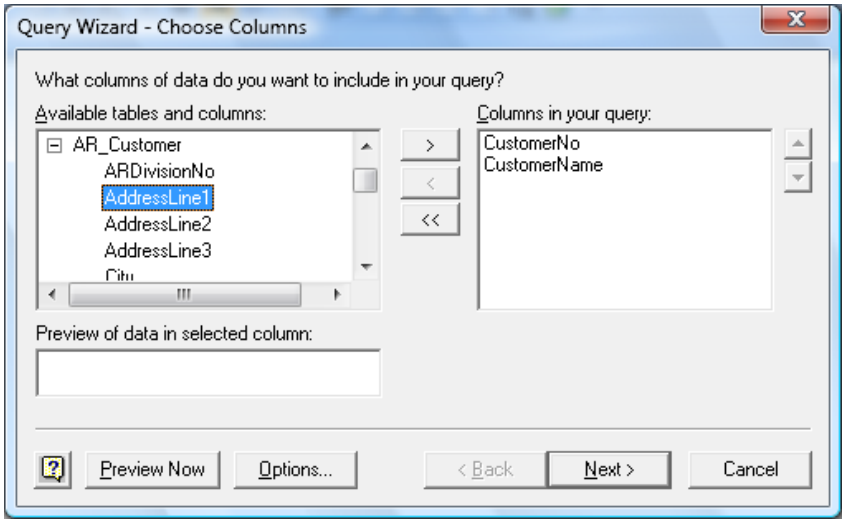
3. **Specify a source to retrieve data from, and then start using Microsoft Query** - For example, if you want to insert database information, display the Database toolbar, click Insert Database, click Get Data, and then click MS Query.

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.



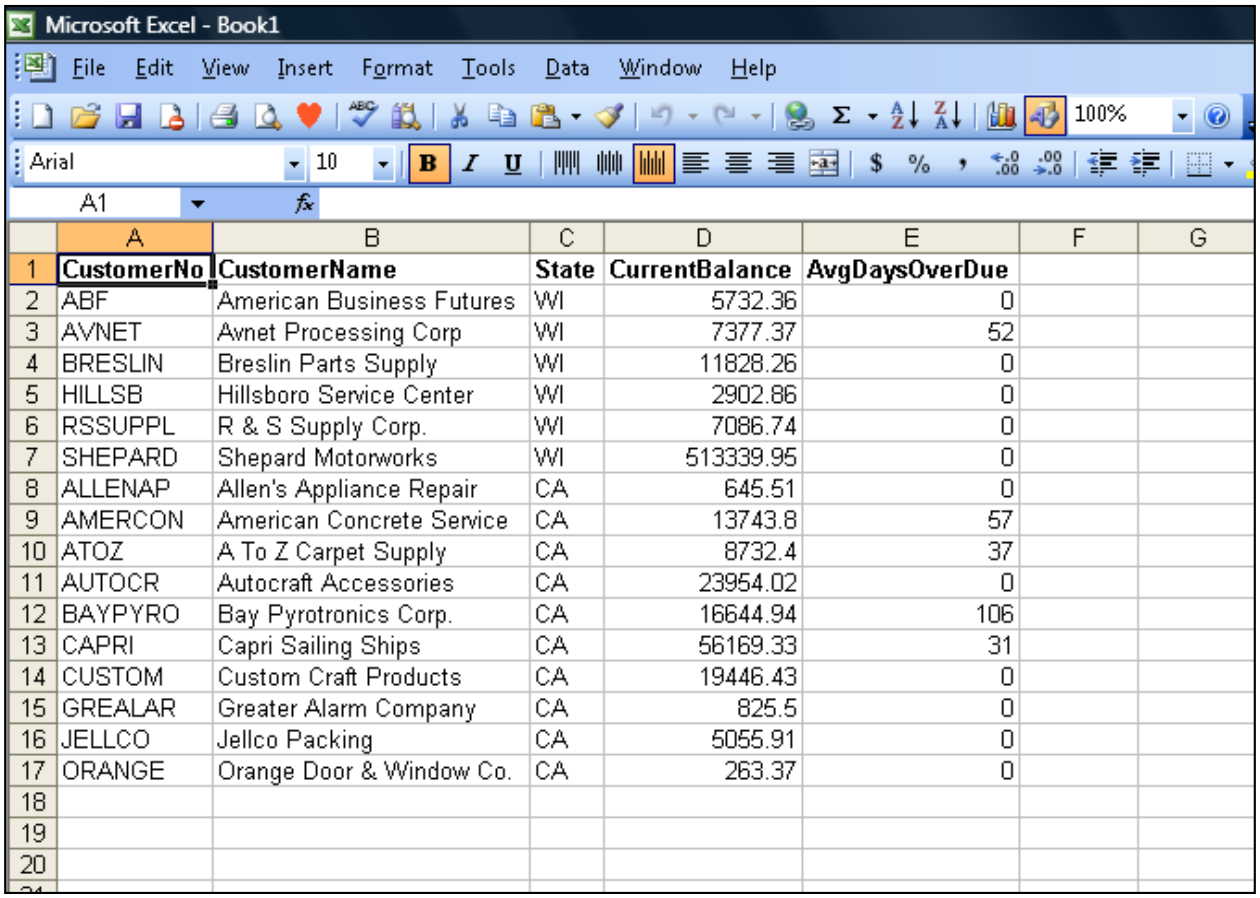


The first step is to select the type of database you want to query and to select the specific database.



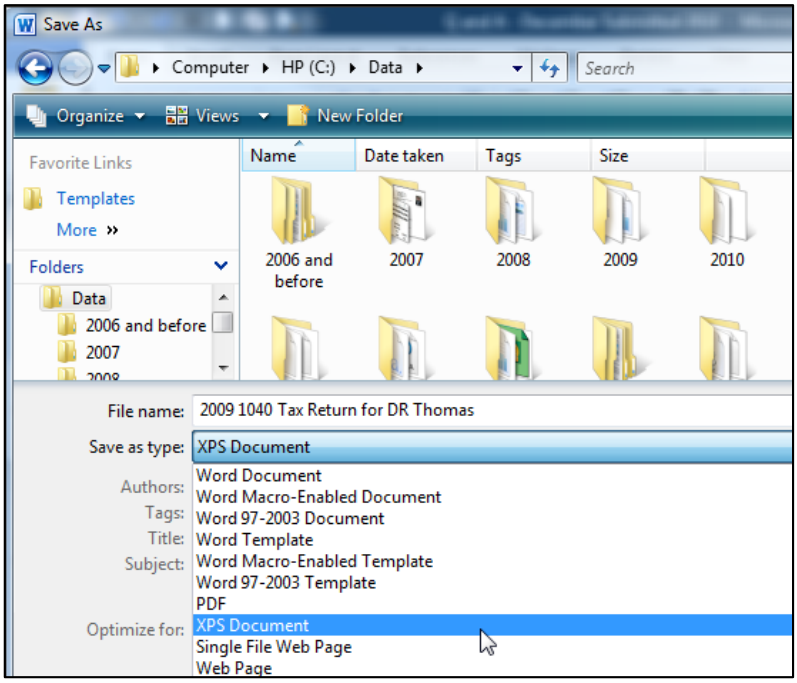
Upon the selection of the desired database a list of tables will be presented. Choose the desired tables, and select the desired data fields to be imported. You will then have the option to filter and sort the data before it is imported. Finally you will be given the option to save

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.



	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							

27. XPS versus PDF - XPS (XML Paper Specification) is a new format developed by Microsoft that offers an alternative to Adobe System's PDF (Personal Document Format) format. A key advantage of both XPS and PDF formats is that the fonts used in the document are embedded in the file so that the document will display and print properly on other computers and printers. For Word 2007 and 2010 users, an advantage of the XPS format is that no additional software is required to view the XPS based documents because Microsoft Word automatically views documents with the XPS format. However, PDF documents require the user to download a PDF reader, such as the Acrobat Reader in order to view the document. To create an XPS document in Word 2007 or 2010, from the **Office Start** button **or File** tab, select **Save As**, and select the **XPS Document** option form the **Save as type:** drop down box shown below, provide a file name in the **File name**: box, and click **OK**.



Be aware that once you have saved a Word document as a PDF or XPS file, it cannot be easily edited or converted back to a Microsoft Office file format without specialized software or a third-party add-in. Both PDF and XPS file formats are frequently used to produce finalized documents to be shared. For example, financial reports, tax returns, legal documents, contracts, newsletters, and resumes are examples of documents that are commonly converted to PDF or XPS formats prior to sharing.

28. **XML in Excel** - Microsoft Office Excel makes it easy to import Extensible Markup Language (XML) (Extensible Markup Language (XML): A condensed form of Standard Generalized Markup Language (SGML) that enables developers to create customized tags that offer flexibility in organizing and presenting information.) data that is created from other databases and applications, to map XML elements from an XML schema (XML Schema: A formal specification, written in XML, that defines the structure of an XML document, including element names and rich data types, which elements can appear in combination, and which attributes are available for each element.) to worksheet cells, and to export revised XML data for interaction with other databases and applications. Think of these XML features as turning Office Excel into an XML data file generator with a familiar user interface.

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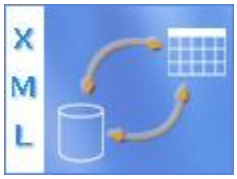
1. Why use XML in Excel?
    a. XML data and schema files
    b. Key XML and Excel scenarios
2. The basic process of using XML data in Excel
    a. Working with XML maps
    b. Using the XML Source task pane
    c. Element types and their icons
    d. Working with single-mapped cells



e. Working with repeating cells in XML tables
f. XML map security considerations
g. Importing XML data
h. Working with an inferred schema
i. Exporting XML data

3. Using the Excel macro-enabled Office XML Format file

Why use XML in Excel?

XML is a technology that is designed for managing and sharing structured data in a human-readable text file. XML follows industry-standard guidelines and can be processed by a variety of databases and applications. Using XML, application designers can create their own customized tags, data structures, and schemas. In short, XML greatly eases the definition, transmission, validation, and interpretation of data between databases, applications, and organizations.

XML data and schema files

Excel works primarily with two types of XML files: XML data files (.xml), which contain the custom tags and structured data. Schema files (.xsd), which contain schema tags that enforce rules, such as data type and validation. **Note** The XML standard also defines Extensible Stylesheet Language Transformation (XSLT) (XSL Transformation (XSLT): A file that is used to transform XML documents into other types of documents, such as HTML or XML. It is designed for use as part of XSL.) (.xslt) files, which are used to apply styles and transform XML data into different presentation formats. You can apply these transforms before you import XML files into Excel and after you export XML files from Excel. If XSLT files are linked to XML data files that you import into Excel, you do have the option to apply or not apply the formatting before the data is added to the worksheet, but only when you open an XML file by using the **Open** command on the **Microsoft Office Button** .

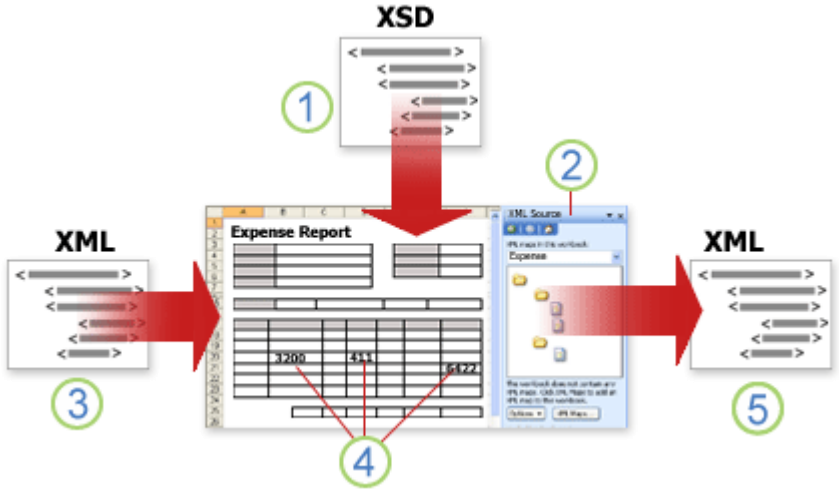
Key XML and Excel scenarios

By using XML and Excel, you can manage workbooks and data in ways that were previously impossible or very difficult. By using XML maps, you can easily add, identify, and extract specific pieces of business data from Excel documents. For example, an invoice that contains the name and address of a customer or a report that contains last quarter's financial results are no longer just static reports. You can easily import this information from databases and applications, revise it, and export it to the same or other databases and applications. The following are key scenarios that the XML features are designed to address:

1. Extend the functionality of existing Excel templates by mapping XML elements onto existing cells. This makes it easier to get XML data into and out of your templates without having to redesign them.
2. Use XML data as input to your existing calculation models by mapping XML elements onto existing worksheets.
3. Import XML data files into a new workbook.
4. Import XML data from a Web service into your Excel worksheet.
5. Export data in mapped cells to XML data files independent from other data in the workbook.

The Basic Process of using XML data in Excel

The following diagram shows how the different files and operations work together when you use XML with Excel. Essentially, there are five phases to the process:



1. Adding an XML schema file (.xsd) to a workbook
2. Mapping XML schema elements to individual cells or XML tables
3. Importing an XML data file (.xml) and binding the XML elements to mapped cells
4. Entering data, moving mapped cells, and leveraging Excel functionality, while preserving XML structure and definitions
5. Exporting revised data from mapped cells to an XML data file

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.

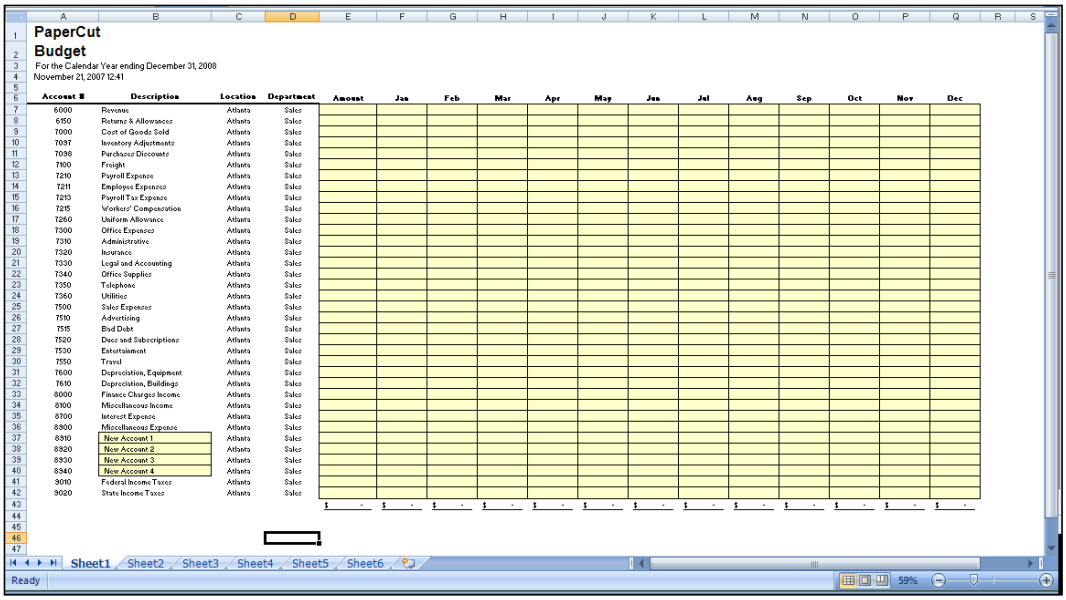
7. Produce a second worksheet summarizing the budget worksheets into a single worksheet of Raw Data.

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.

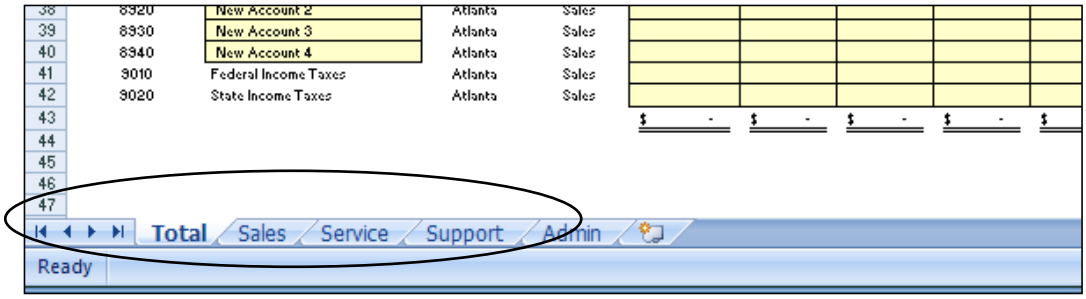
- A yellow background and grid border have been included everywhere that data is intended to be entered into the worksheet. This helps prevent others from inadvertently overwriting formulas amounts elsewhere in the worksheet.

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:

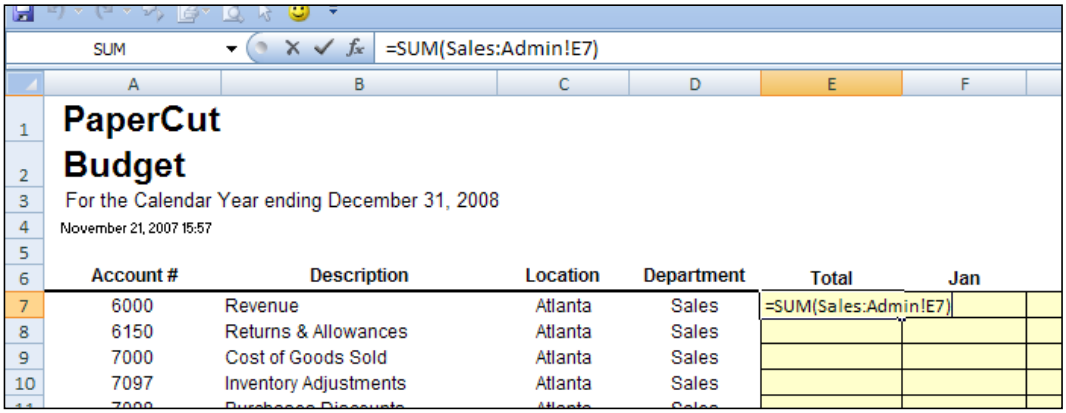
   a. Select the entirety of Sheet1;
   b. Press “Ctrl+C” to copy;

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.

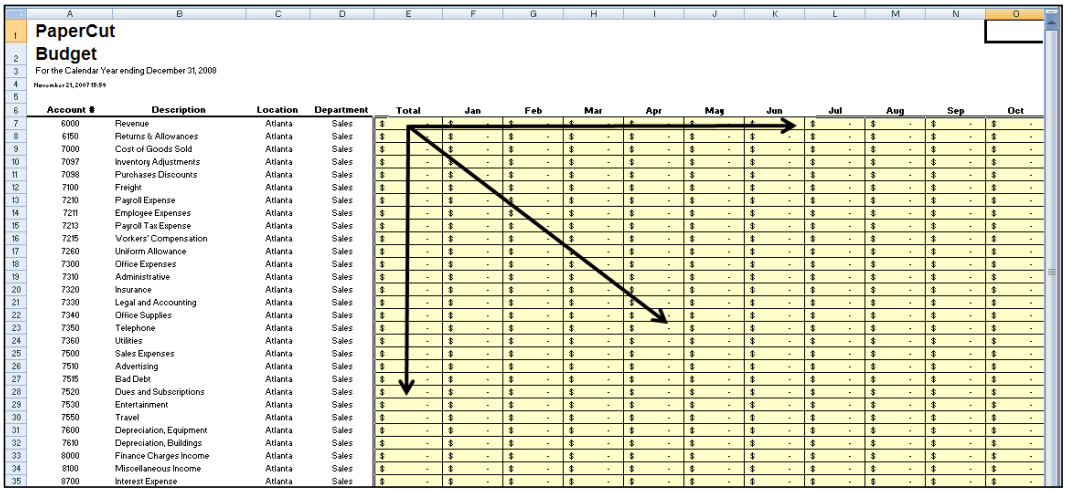
The results should appear as follows:



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
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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	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

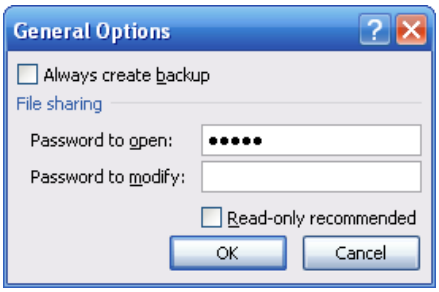
Since these cells on the Total worksheet now contain formulas, remove the yellow background so that other users do not confuse this worksheet as a data input worksheet. Also, change the department column to read "All Departments".

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).

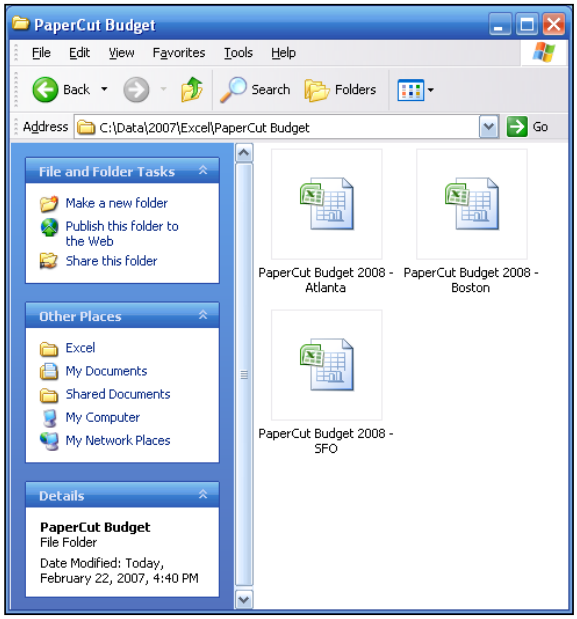
6. Unprotect the cells with a yellow background, and turn on worksheet protection. (discussed in depth in the Expense Report Case Study).

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.



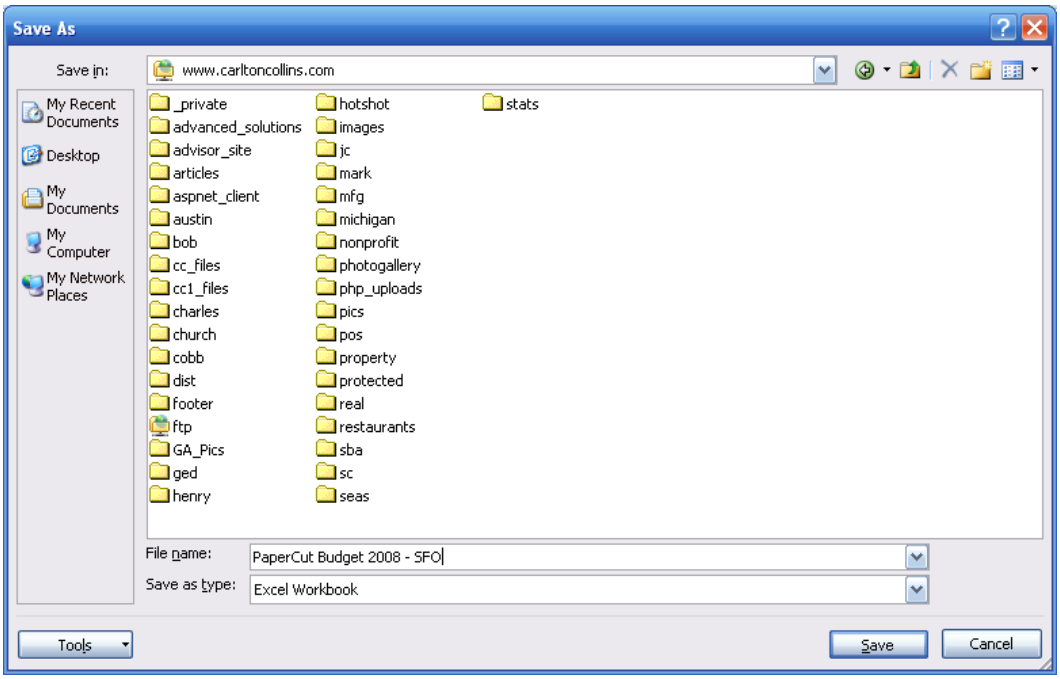
8. Next, edit the San Francisco and Boston files so that they reflect the proper location on all five worksheets in the location column. Once again, make this change to all five

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.



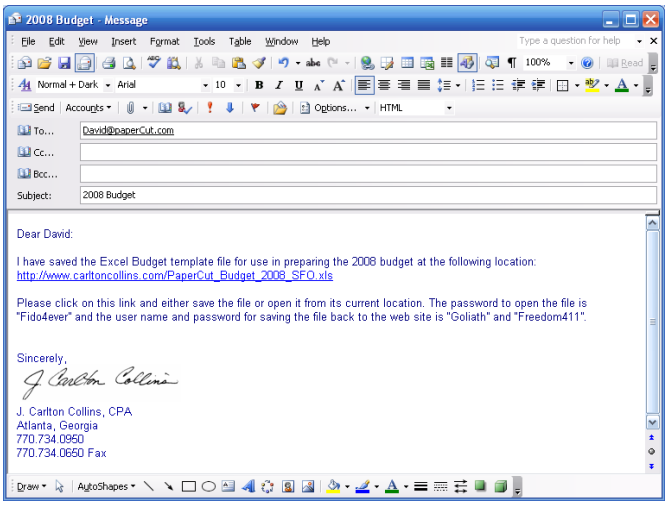
9. Next save these file to your Internet Web Site or Sharepoint web site. If you have never saved a file to your Internet web site before, it is virtually the same procedure as you are already used to, except you browse to your web site instead of your computer or file server. Further, you will need 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”

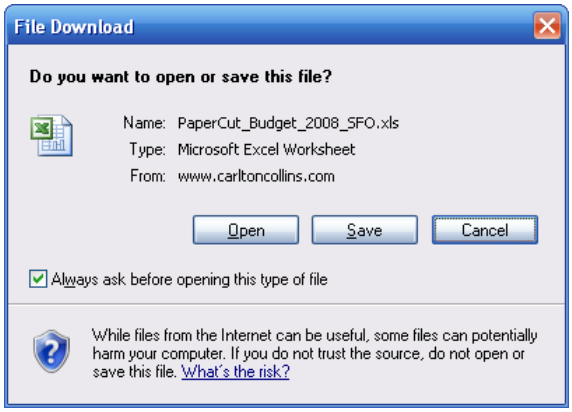


You will be prompted to provide your user name and password, and then this procedure will save your file to the Internet. Repeat this process for the Boston file.

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.

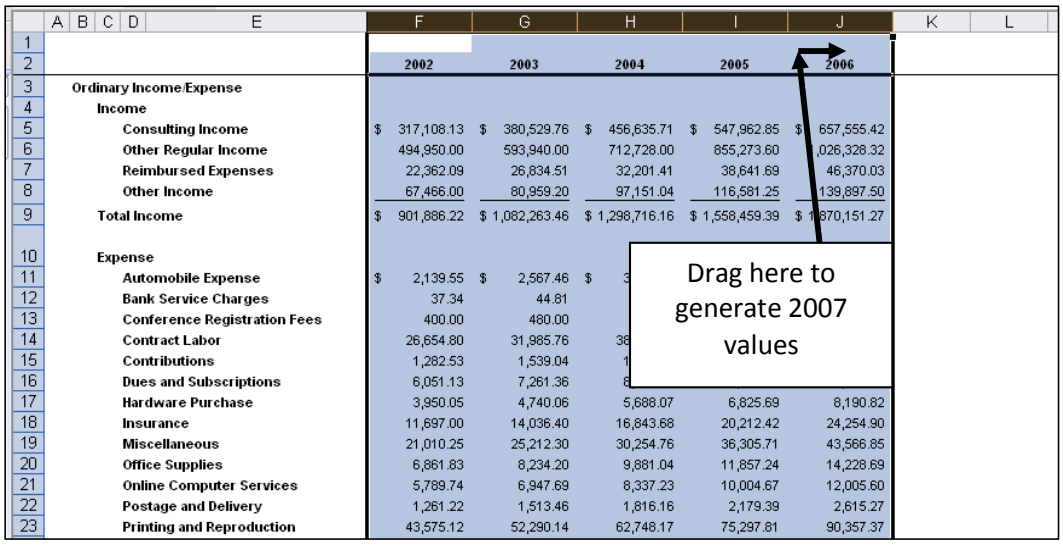


11. Clicking on the resulting link will launch the following dialog box enabling David and Lynn to either save the file to their computer, or launch it from it's current location on the web site.



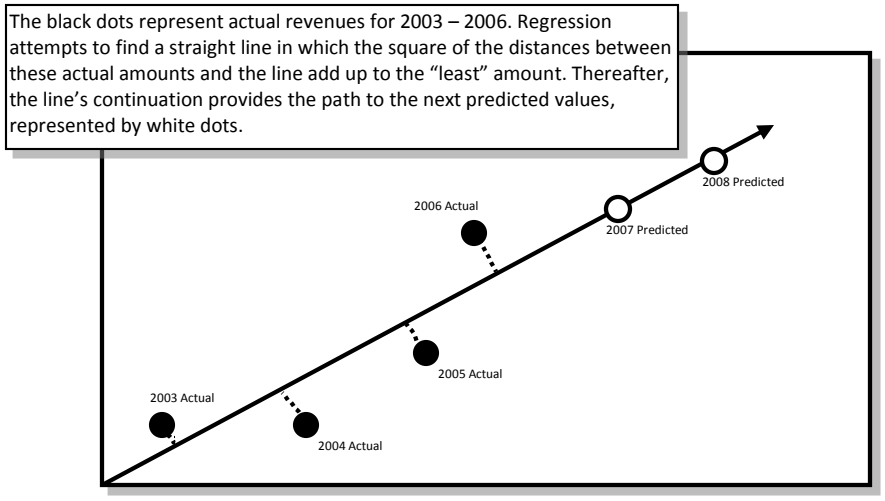
12. The next step is for you, David, and Lynn to input the budget data into the respective budget templates. There are a variety of approaches to accomplishing this next step, and an interesting approach is to use linear regression analysis applied against the actual revenue and expense data for the 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	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	$ 870,151.27
Expense					
Automobile Expense	$ 2,139.55	$ 2,567.46	$ 3		
Bank Service Charges	37.34	44.81			
Conference Registration Fees	400.00	480.00			
Contract Labor	26,654.80	31,985.76	38		
Contributions	1,282.53	1,539.04	1		
Dues and Subscriptions	6,051.13	7,261.36	8		
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.

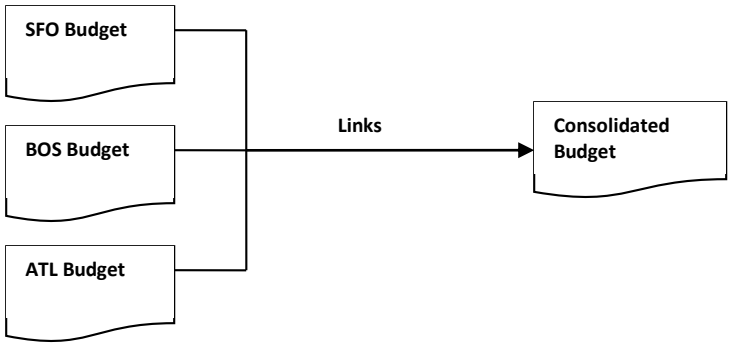
    In this case study the budget workbook we designed is designed to accommodate a more straightforward approach in which the budget line item amounts are entered into the total column (for each of the four department worksheets), and formulas then spread the amounts evenly across twelve months.

    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.



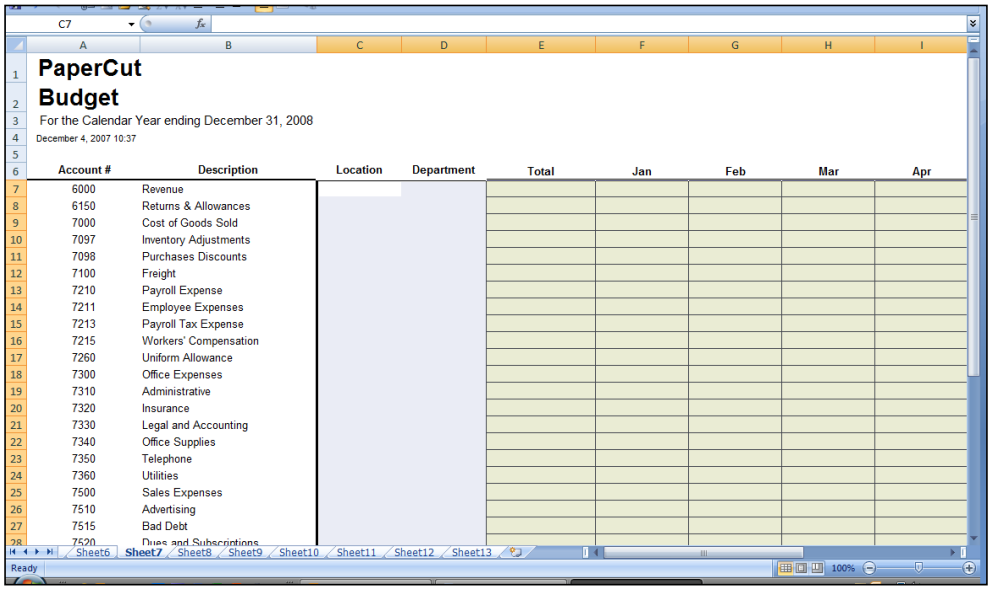
Consolidation Approach #1

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.

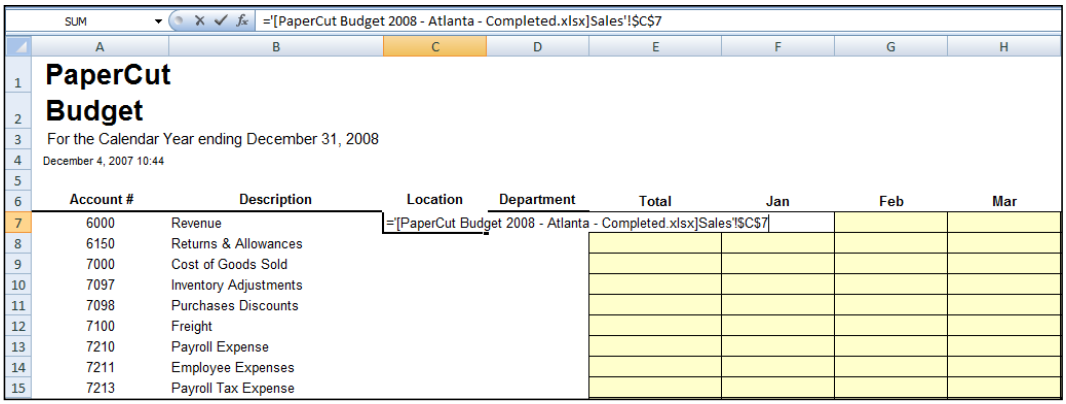
16. To start, begin with a blank worksheet, and insert new worksheets until you have a total of 13 blank worksheets. Save the file to a name called “Budget Consolidation”. Naming the file now will make it easier to navigate the files back and forth as links are built in the new worksheet.

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:

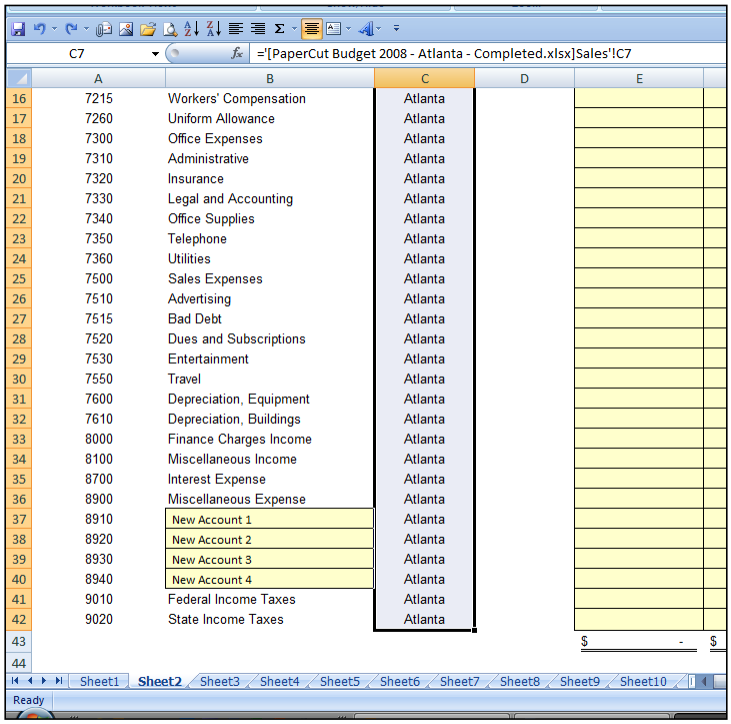


19. Next, select Sheet2 in the consolidating budget file, and place your cursor in cell C7, or the first data cell under the Location column. Enter an equals sign ("="), and then toggle to the completed Atlanta Budget file and point to cell C7 on the "Sales" Sheet, and press Enter. This action will create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



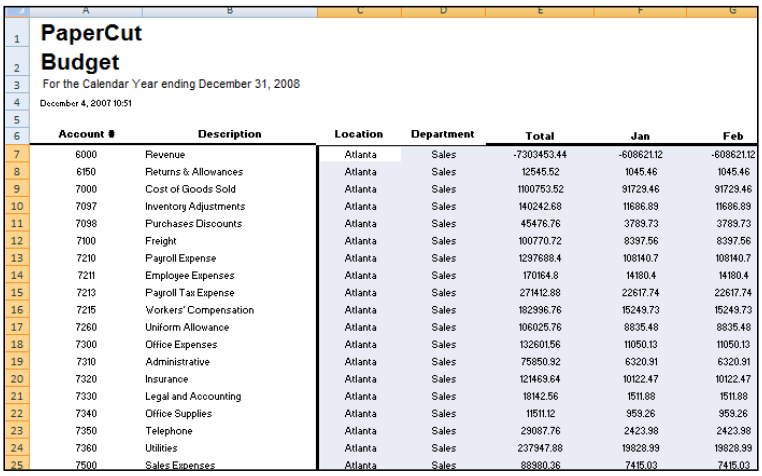
20. Edit the formula in cell C7 to remove the absolute references. Use the F4 key in edit mode to toggle the absolute references off.

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.



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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

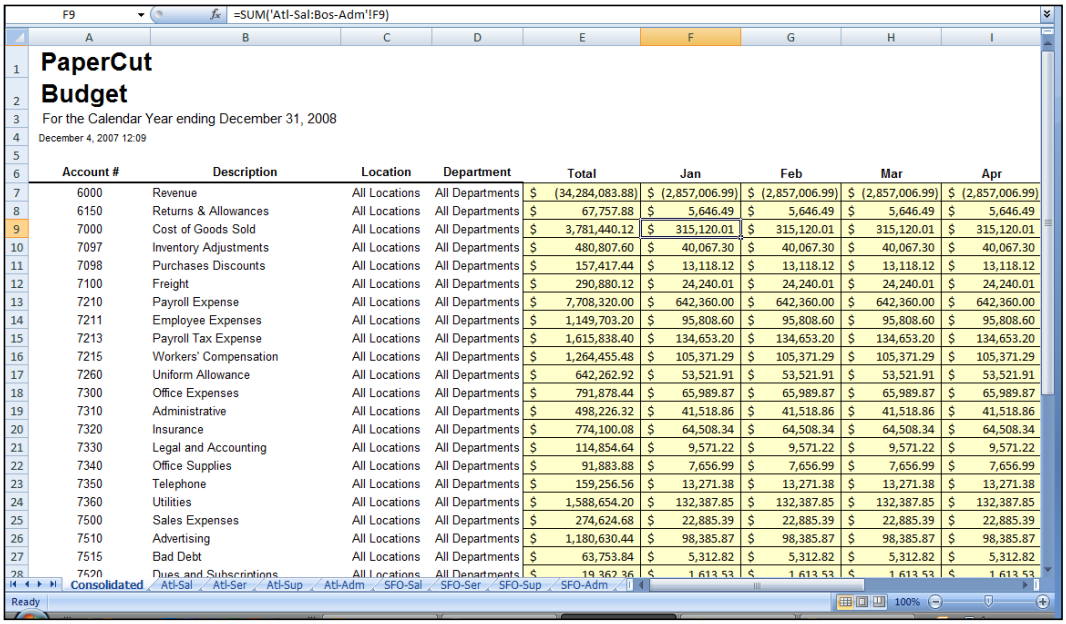
23. Repeat this process for the remaining eleven 11 worksheets (3 through 13), linking the consolidating budget file to all three of the budget files for Atlanta, Boston and San Francisco.

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”.



F9 =SUM('Atl-Sal:Bos-Adm'!F9)

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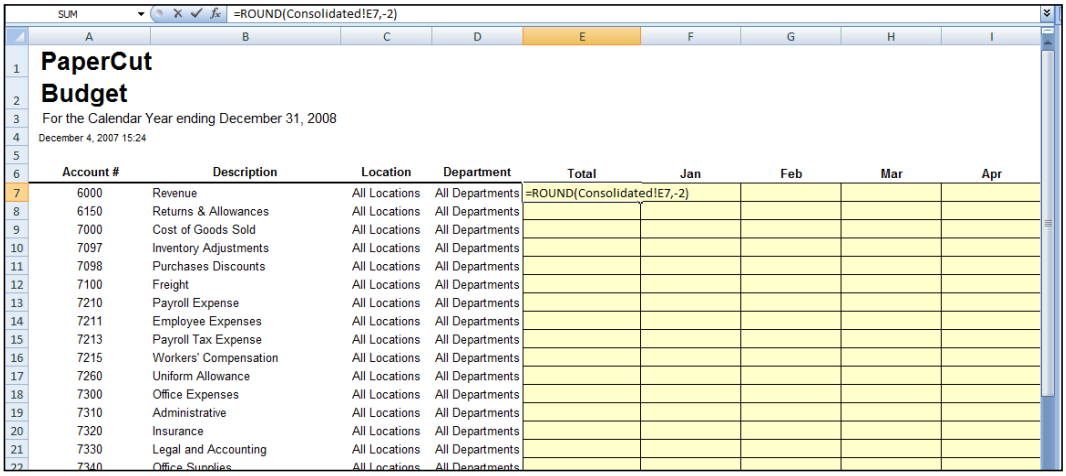
Account #	Description	Location	Department	Total	Jan	Feb	Mar	Apr
6000	Revenue	All Locations	All Departments	$ (34,284,083.88)	$ (2,857,006.99)	$ (2,857,006.99)	$ (2,857,006.99)	$ (2,857,006.99)
6150	Returns & Allowances	All Locations	All Departments	$ 67,757.88	$ 5,646.49	$ 5,646.49	$ 5,646.49	$ 5,646.49
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

Consolidated | Atl-Sal | Atl-Ser | Atl-Sup | Atl-Adm | SFO-Sal | SFO-Ser | SFO-Sup | SFO-Adm

Ready 100%

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:



SUM =ROUND(Consolidated!E7,-2)

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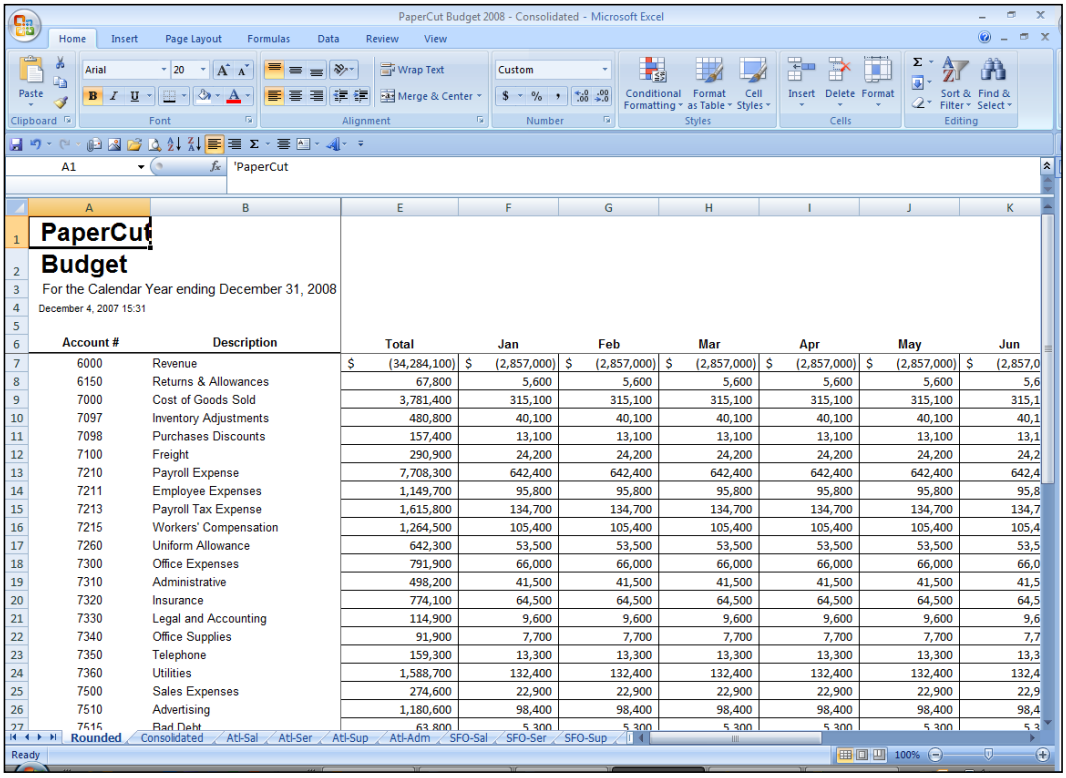
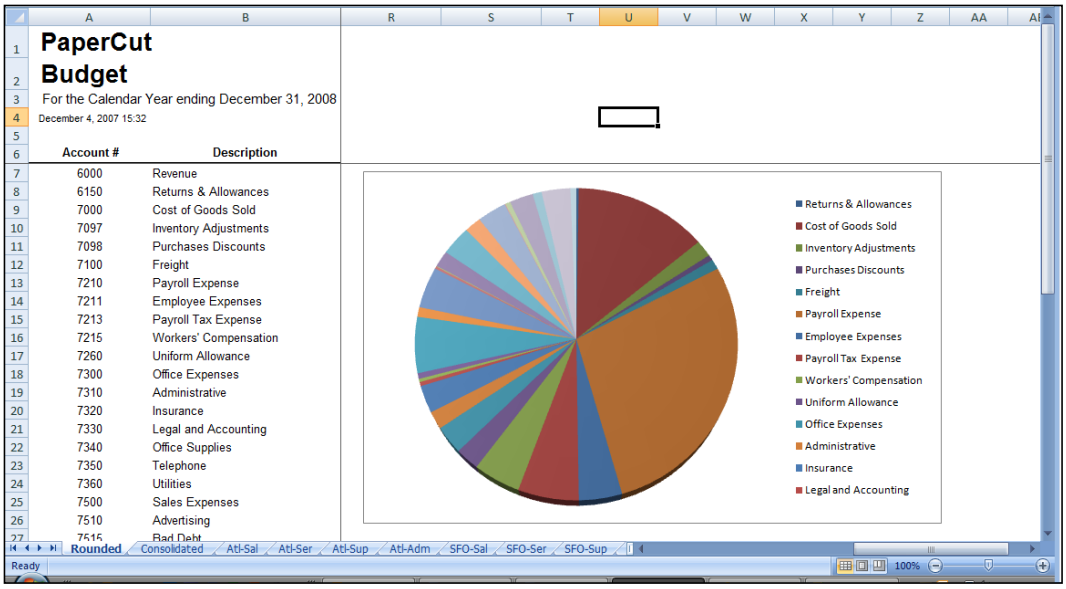
Account #	Description	Location	Department	Total	Jan	Feb	Mar	Apr
6000	Revenue	All Locations	All Departments	=ROUND(Consolidated!E7,-2)				
6150	Returns & Allowances	All Locations	All Departments					
7000	Cost of Goods Sold	All Locations	All Departments					
7097	Inventory Adjustments	All Locations	All 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.

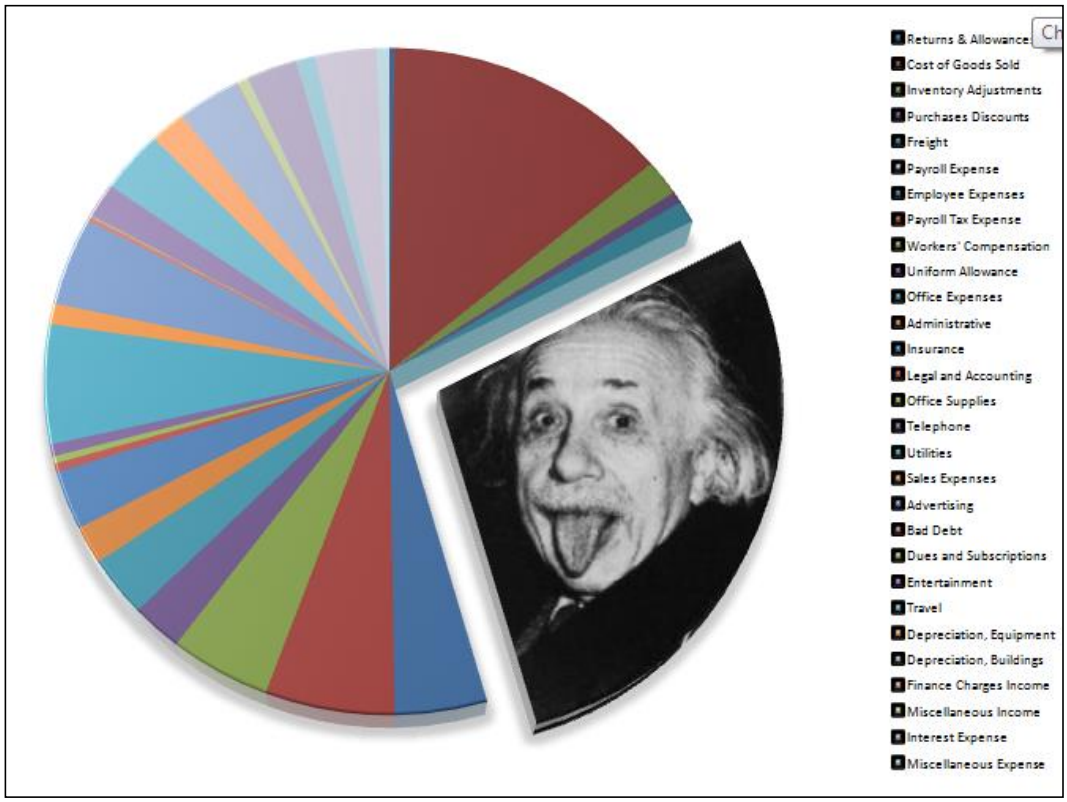


Account #	Description	Total	Jan	Feb	Mar	Apr	May	Jun
6000	Revenue	$ (34,284,100)	$ (2,857,000)	$ (2,857,000)	$ (2,857,000)	$ (2,857,000)	$ (2,857,000)	$ (2,857,0
6150	Returns & Allowances	67,800	5,600	5,600	5,600	5,600	5,600	5,6
7000	Cost of Goods Sold	3,781,400	315,100	315,100	315,100	315,100	315,100	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:

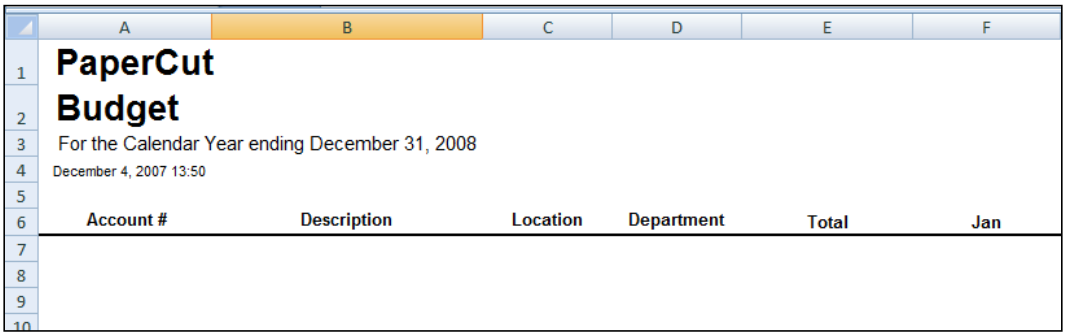


30. Edit the Pie Chart by inserting solid line borders and increase the width of the borders. Change the fill effect, and drag one of the pie slice away from the pie slightly. Select the pie slice and insert a picture to "Fill" the slice. Your results might appear as follows:

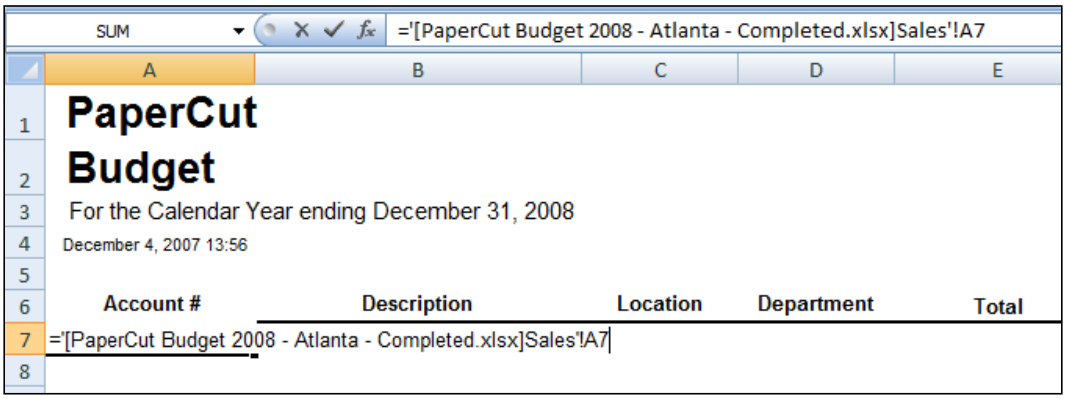


Consolidation Approach #2

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.

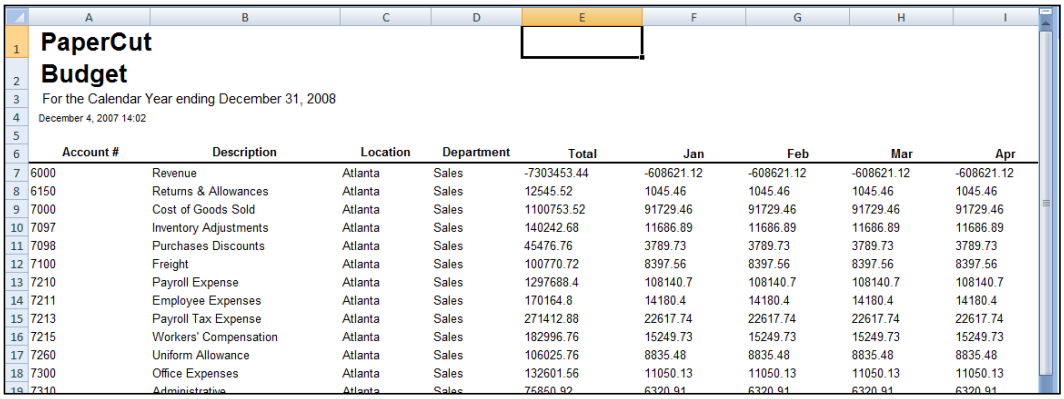


32. Starting in the first data cell (A7) in column 1 (Account #), type an equals sign (("=") and toggle to the completed Atlanta Budget file and point to cell A7 on the "Sales" Sheet, and press Enter. This action will create the first link in your consolidating budget file as shown below.



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:



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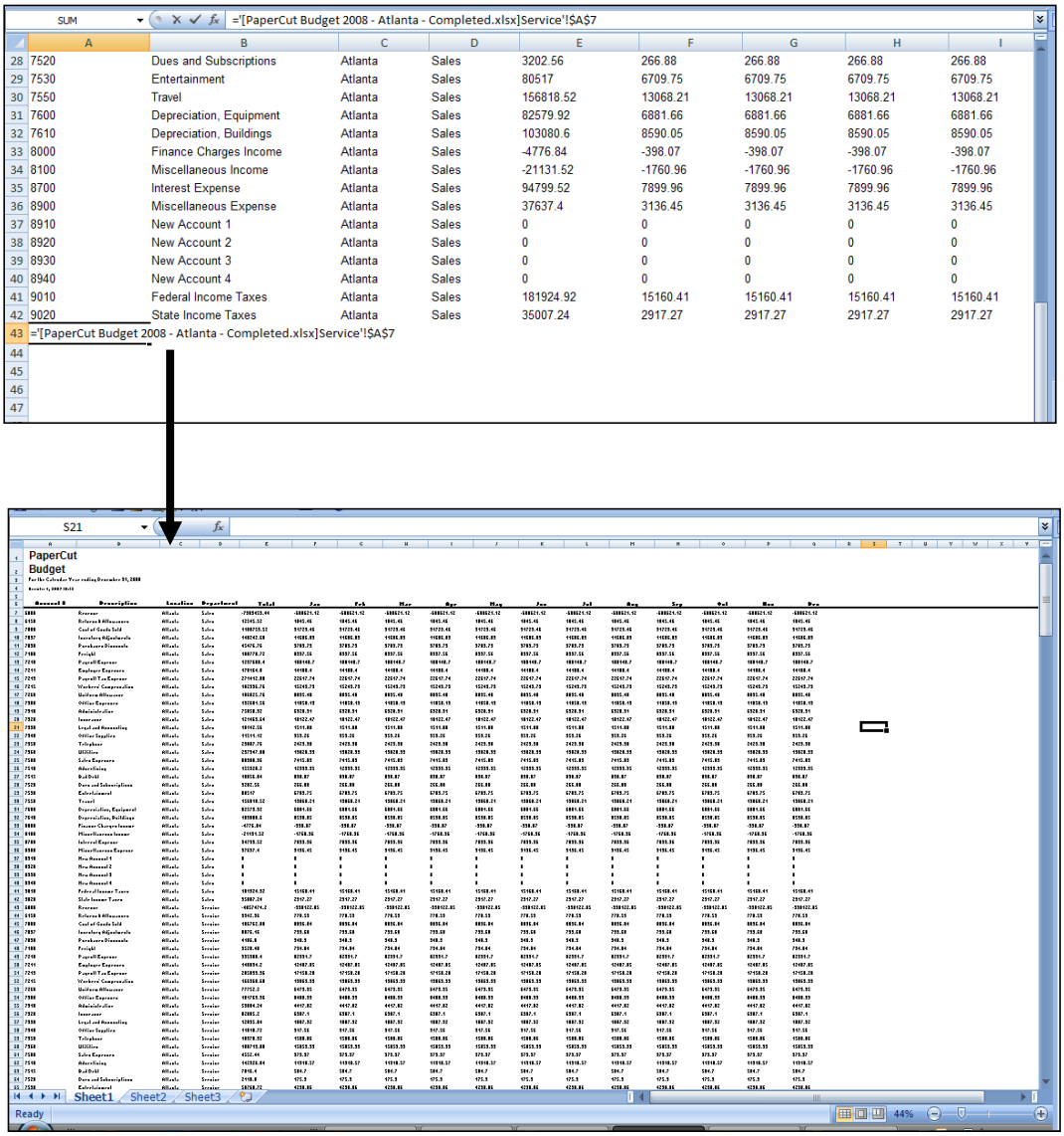
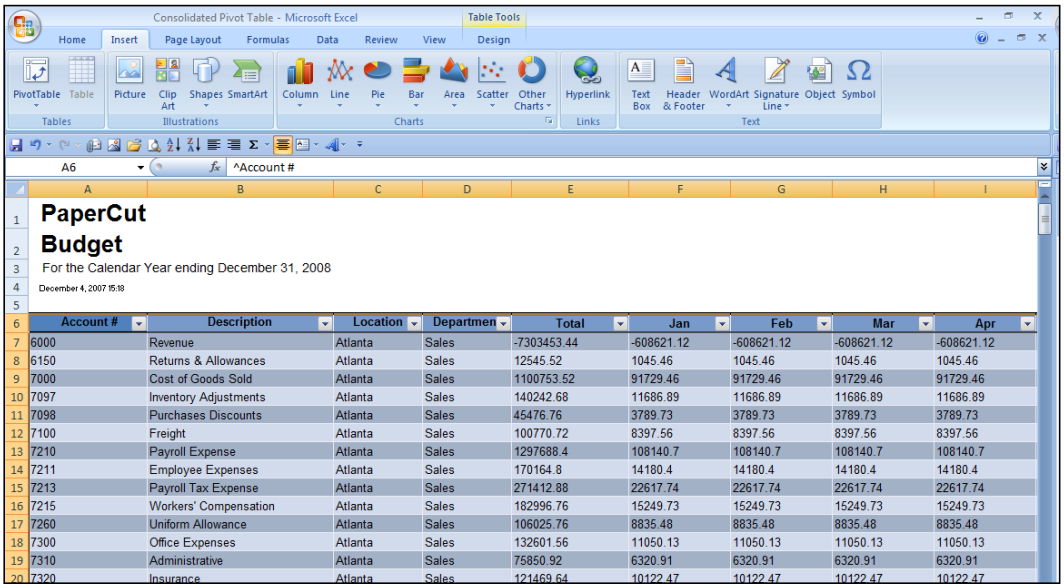
Account #	Description	Location	Department	Total	Jan	Feb	Mar	Apr
6000	Revenue	Atlanta	Sales	-7303453.44	-608621.12	-608621.12	-608621.12	-608621.12
6150	Returns & Allowances	Atlanta	Sales	12545.52	1045.46	1045.46	1045.46	1045.46
7000	Cost of Goods Sold	Atlanta	Sales	1100753.52	91729.46	91729.46	91729.46	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

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

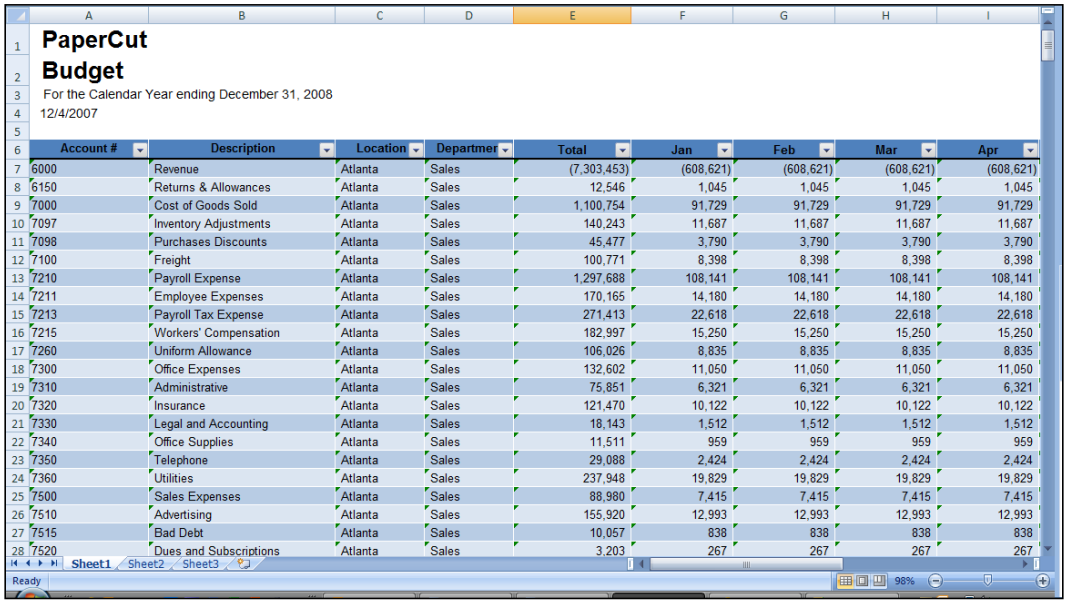


36. Now that the data is consolidated into a single worksheet, you can now use the various data tools to analyze the resulting budget data. To start with, filter the data by placing your cursor in any cell in the data area, and select Table from the insert menu. This action will automatically convert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

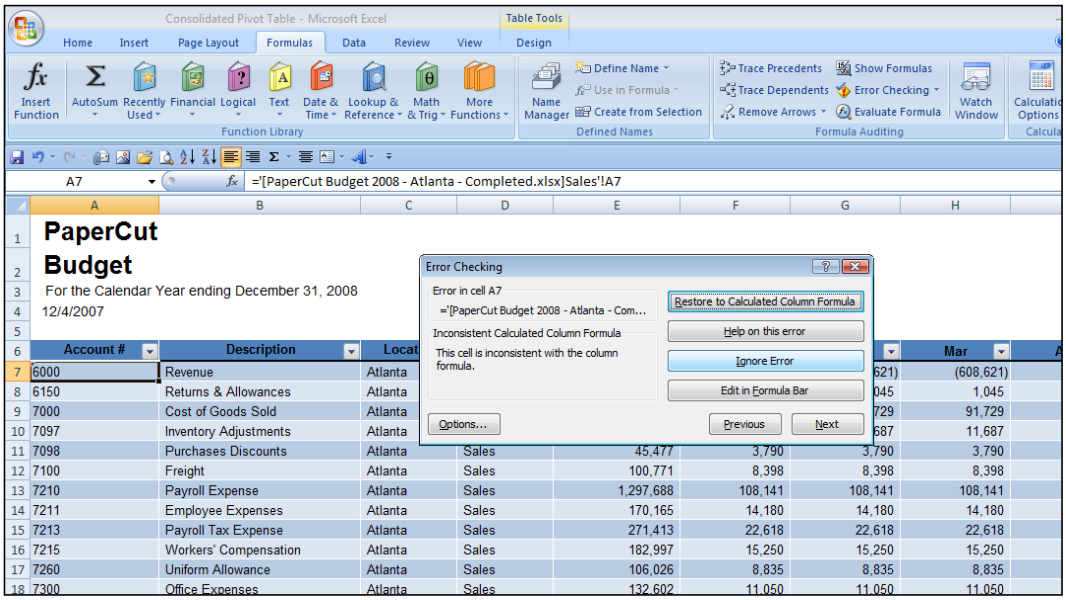
37. Highlight the columns after Column A and apply a comma formatting with no decimal places.



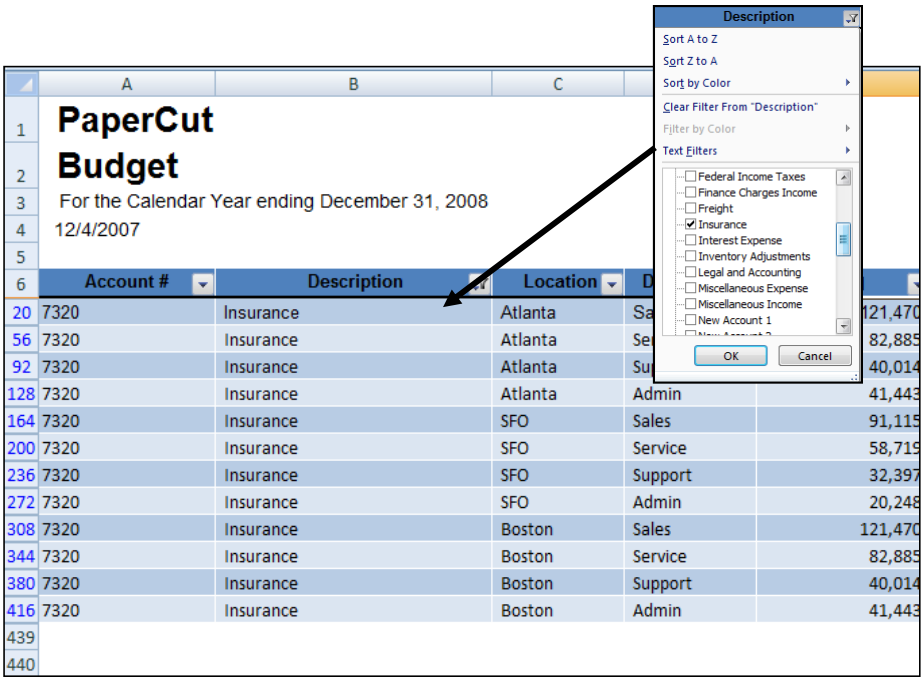
Account #	Description	Location	Departmer	Total	Jan	Feb	Mar	Apr
6000	Revenue	Atlanta	Sales	(7,303,453)	(608,621)	(608,621)	(608,621)	(608,621)
6150	Returns & Allowances	Atlanta	Sales	12,546	1,045	1,045	1,045	1,045
7000	Cost of Goods Sold	Atlanta	Sales	1,100,754	91,729	91,729	91,729	91,729
7097	Inventory 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

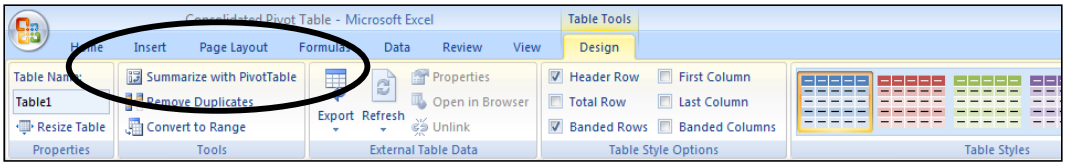
Excel helps identify potential errors, but in this case the inconsistent formulas are intended. In this situation, you have two options. You can either turn off error checking for inconsistent formulas (Under Excel Options, Formulas, Error Checking Rules), or you can select each cell and instruct Excel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



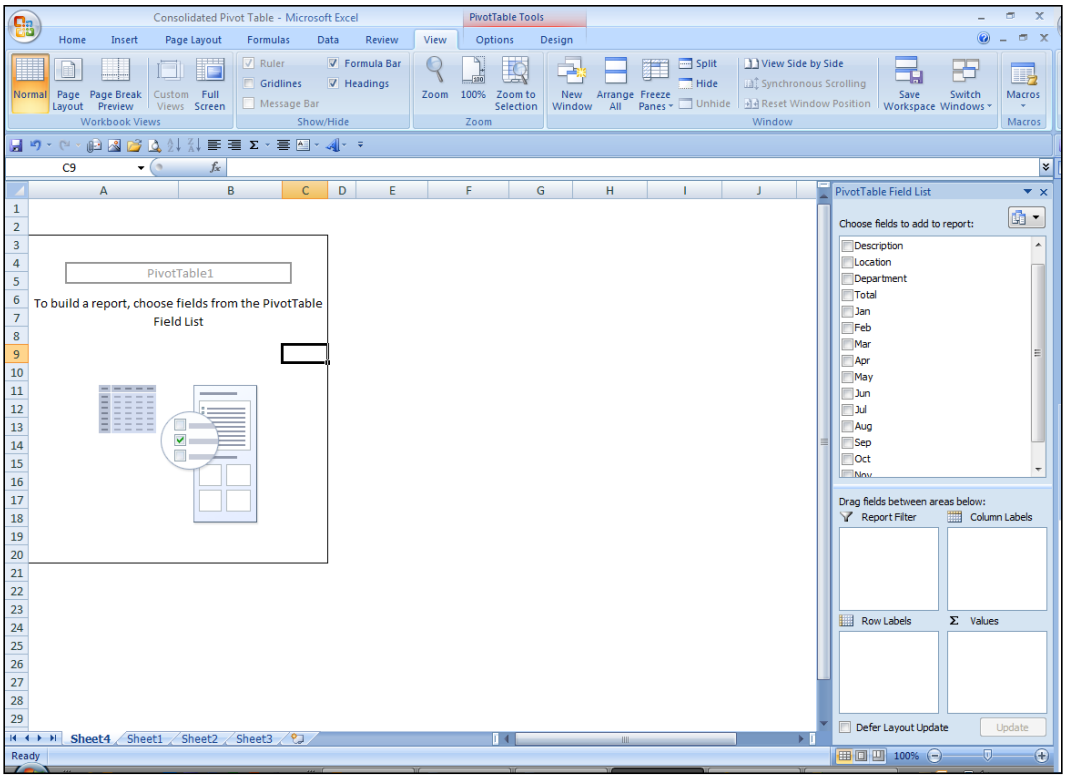
39. Use the filter to display only the Insurance expense items as shown below.



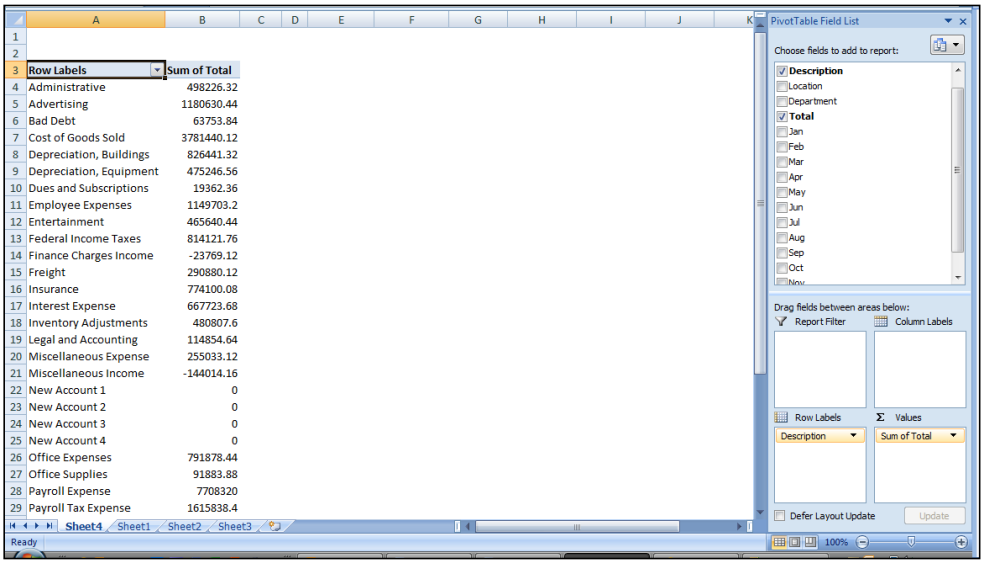
40. Remove the filter to display all data, and place your cursor in the Description column. Sort the data from high to low. With your cursor in the Table range, select “Summarize with PivotTable” from the “Design” Ribbon’s “Tools” chunk.



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

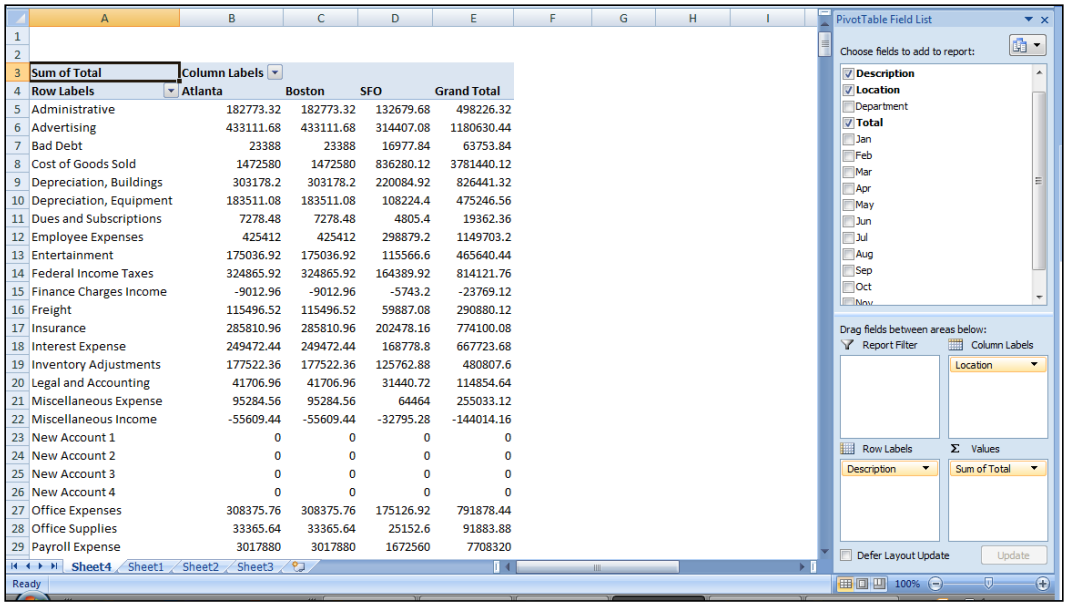


42. In the PivotTable Field List Box (to the right), check the Description and Total Check Boxes.



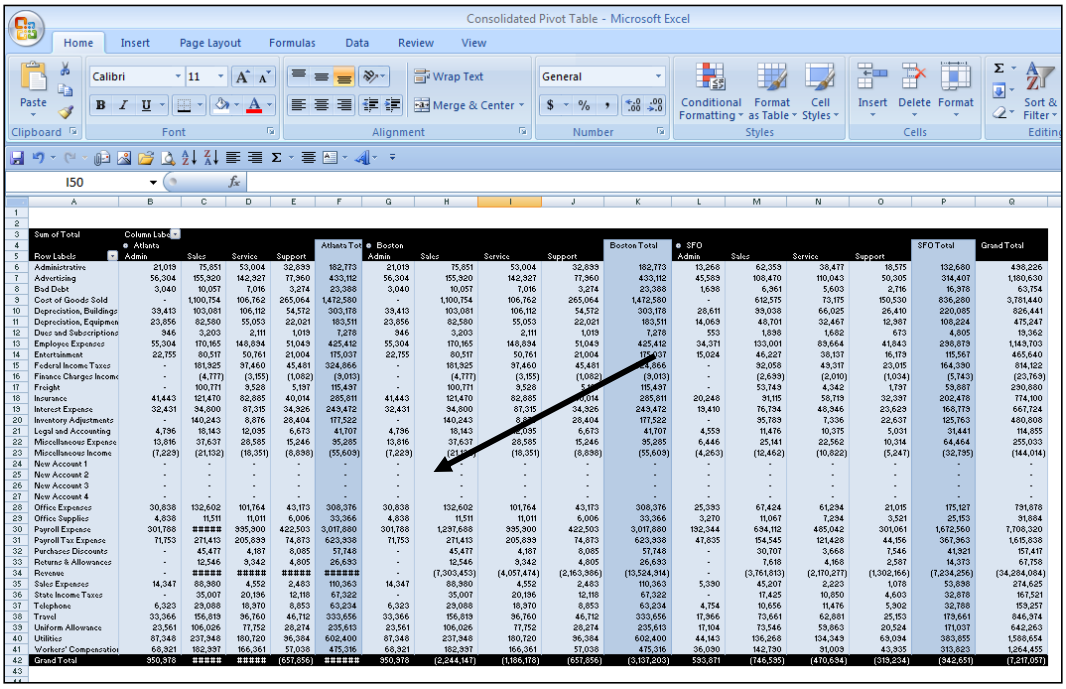
Row Labels	Sum of Total
Administrative	498226.32
Advertising	1180630.44
Bad Debt	63753.84
Cost of Goods Sold	3781440.12
Depreciation, Buildings	826441.32
Depreciation, Equipment	475246.56
Dues and Subscriptions	19362.36
Employee Expenses	1149703.2
Entertainment	465640.44
Federal Income Taxes	814121.76
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.

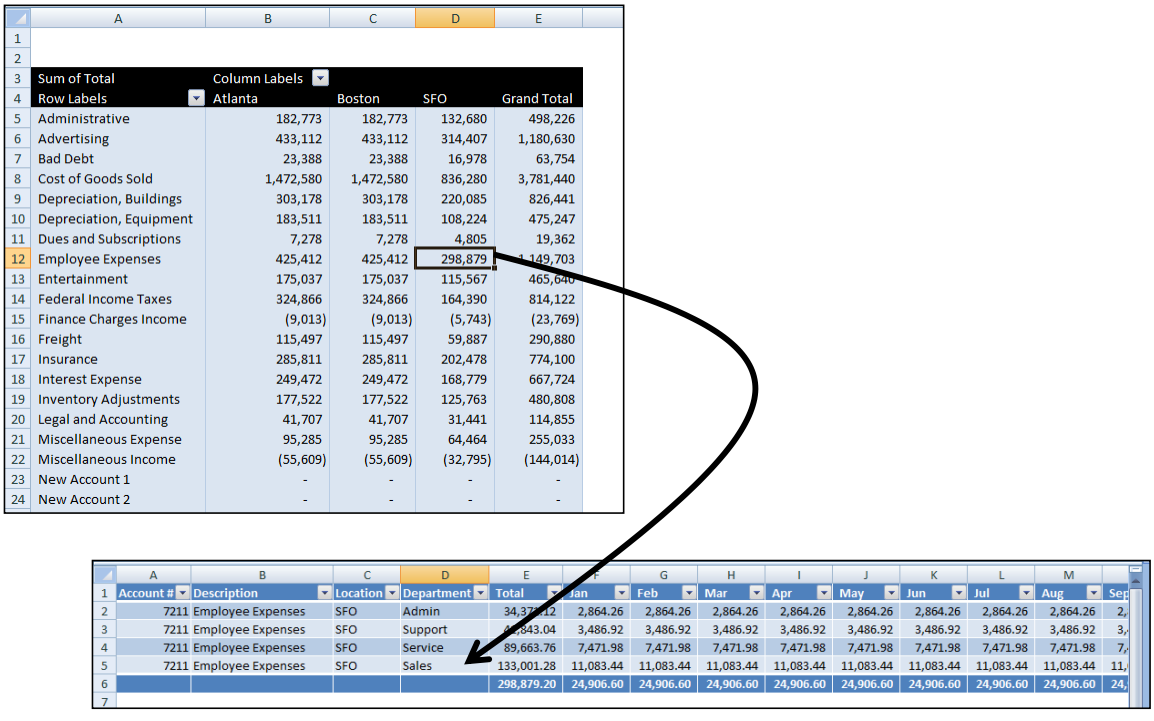


Sum of Total	Column Labels			
Row Labels	Atlanta	Boston	SFO	Grand Total
Administrative	182773.32	182773.32	132679.68	498226.32
Advertising	433111.68	433111.68	314407.08	1180630.44
Bad Debt	23388	23388	16977.84	63753.84
Cost of Goods Sold	1472580	1472580	836280.12	3781440.12
Depreciation, Buildings	303178.2	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	34,37[illegible]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	[illegible]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	89,663.76	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	271,413	205,899	74,873	623,938
Purchases Discounts	-	45,477	4,187	8,085	57,748
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	14,347	88,980	4,552	2,483	110,363
State Income Taxes	-	35,007	20,196	12,119	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.

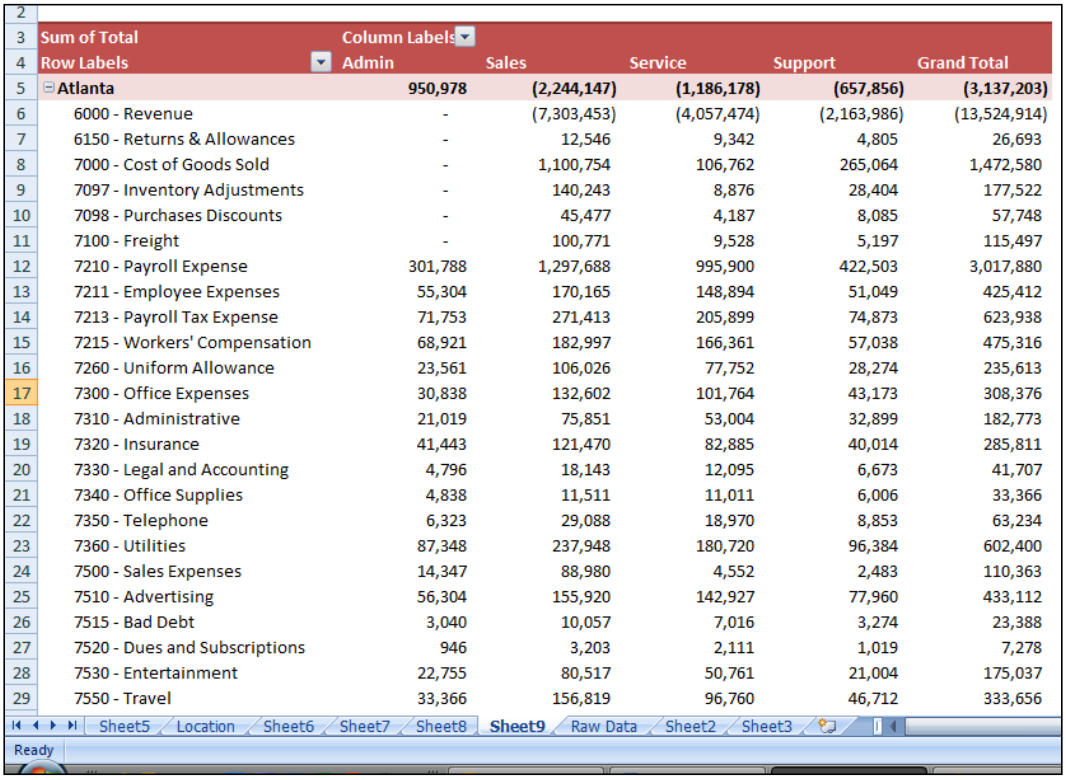
=Table1[[#This Row],[Account #]]&" - "&Table1[[#This Row],[Description]]

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

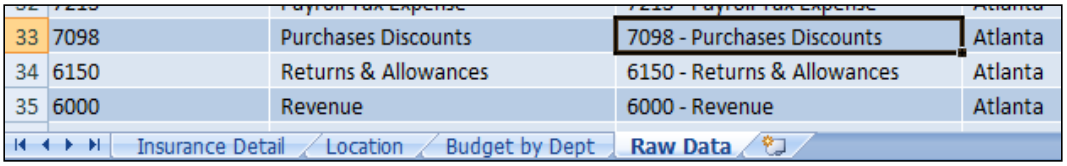
the "Summarize with PivotTable" command, but not if they were created with the "Insert PivotTable" command. Now, create a new PivotTable by selecting Summarize with PivotTable from the Design Ribbon's Tools chunk, and use the newly created column "Acct & Desc" to produce the next PivotTable as shown 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

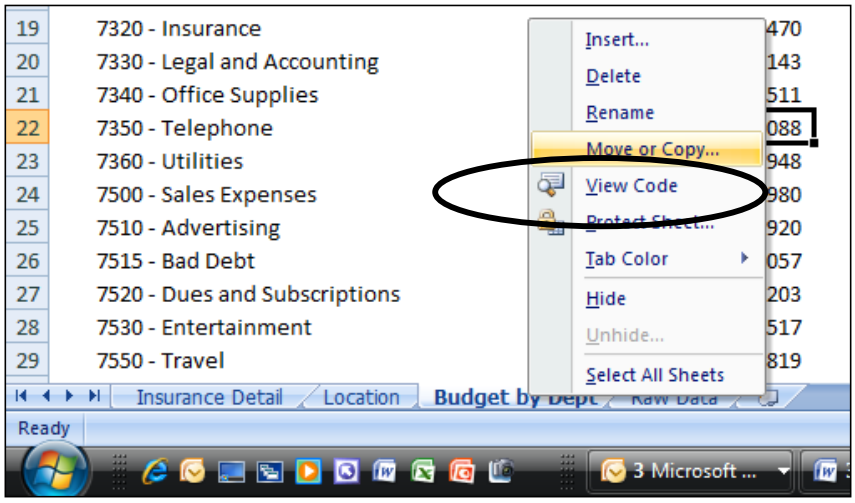
Notice that Revenue now appears at the top of each "Location" budget report section, as it should. Too often CPAs bog themselves down in PivotTables attempting to debug their results by manipulating the PivotTable settings and sorting when the true solution is found by adding columns and formulas to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

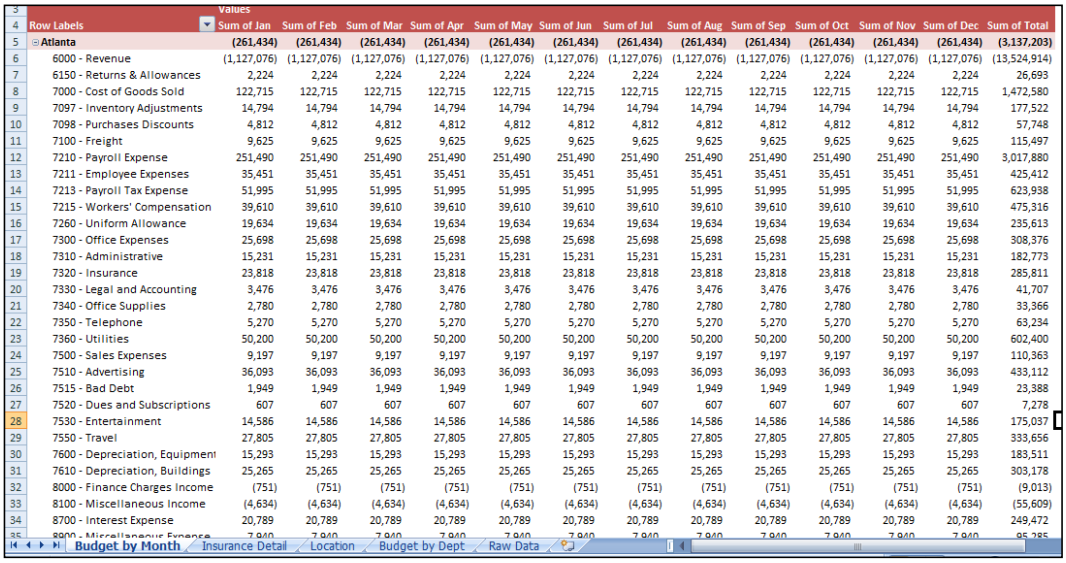


33	7098	Purchases Discounts	7098 - Purchases Discounts	Atlanta
34	6150	Returns & Allowances	6150 - Returns & Allowances	Atlanta
35	6000	Revenue	6000 - Revenue	Atlanta

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:

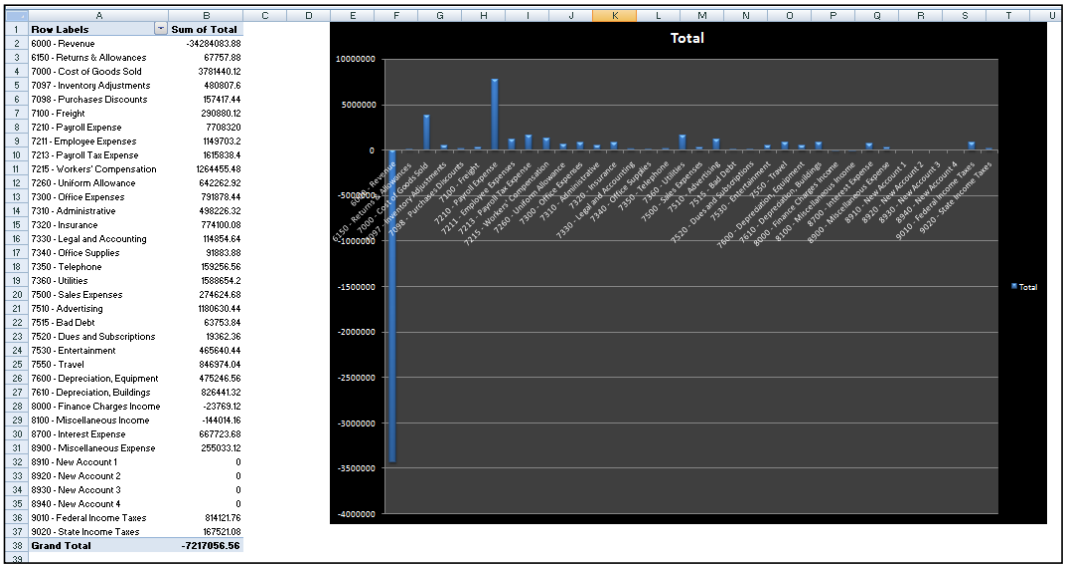


Values													
Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Total
Atlanta	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(261,434)	(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

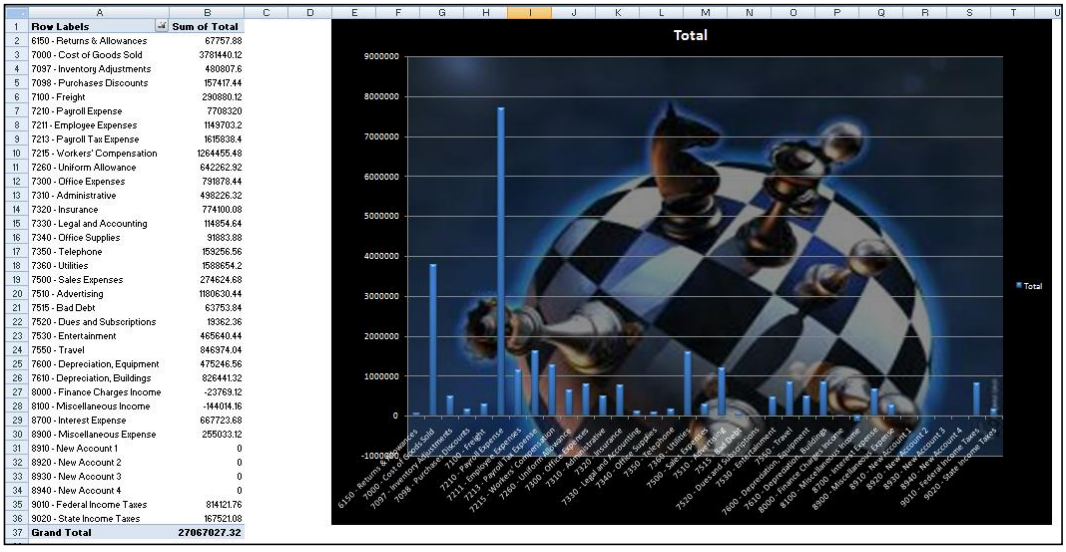
50. As a grand finale, go back to one of the competed budgets, say for Boston, and change one of the budget amounts. Watch as the change instantly flow to and appear in both of your consolidated budget files, including all subsequent Tables, Reports, Charts, and PivotTables. Now if you, David or Lynn 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**

What's New in Microsoft Office 2013?

This course covers 8 hours of the very best and most essential Excel 2013 functionality that CPAs should be using in the performance of their jobs. This course is best suited for moderate level Excel users who know how to use the basic functionality of Excel, but have seldom explored the more powerful features and capabilities that Excel has to offer, including the following new features found in Excel 2013.

1. **Quick Analysis** - helps you analyze data more quickly by offering data layouts.
2. **Flash Fill** - watches you work and applies logic to help you complete your tasks.
3. **PowerView** - enables you to create new report types, such as the interactive map charts.
4. **Timeline Slicer** - helps you slice and dice Pivot data containing dates.
5. **Create Relationships tool** – enables you to build PivotTables from multiple data sources.
6. **Drill Up and Cross Drill** - Drill upward and cross drill to related tables.
7. **Improved Edit Mode** - edit mode, Excel no longer displays an apostrophe.
8. **Excel Instances** - Excel now opens each workbook in a separate instance.
9. **New PivotTable Tools** - decouple PivotCharts so they stand alone.
10. **Fifty New Functions** – Bring the total number of functions to 450. [(1)]
11. **Recommended Pivot Tables & Charts** – To help you work quicker and easier.
12. **New Chart Controls** - Excel pops up new chart controls.
13. **Get A Link** – Send Excel workbooks links instead of workbooks via email.
14. **Publish Excel Data to Social Media** – Embed Workbooks directly in Facebook.
15. **Review Tools** - new inquire Add-in reviews design, function and data dependencies.
16. **Excel Compare tool** - similar to Word's Compare tool.
17. **Touch-Screen Enabled** – Makes excel accessible on touch-screen mobile devices.
18. **Windows 8 Style Tiles** – For easy launching and navigation.
19. **Cloud-Enabled** – Save Excel workbooks directly to your free cloud data storage SkyDrive.
20. **Office 2013 Web Apps** – a free version of Excel 2013 is available via the cloud.
21. **Subscription Pricing** – enables you to install Excel on five devices, and run Excel from the cloud.

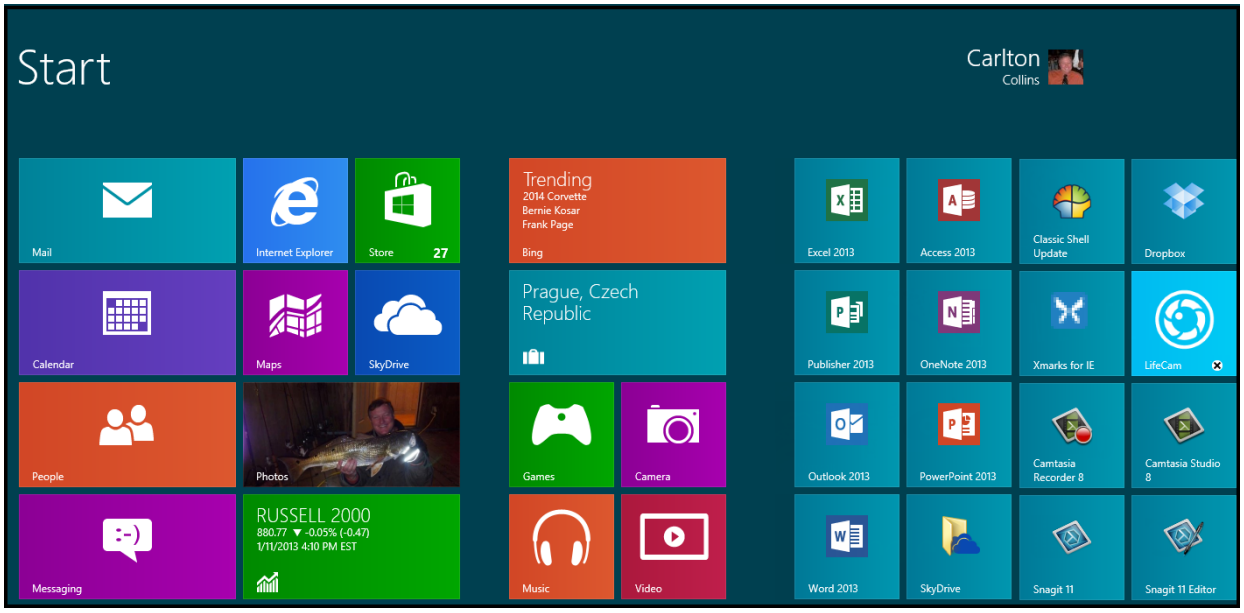
These concepts are described in greater depth below.

New Global Features in Office 2013

Many CPAs worry that Office's new touch-screen functionality means the product's new ribbons that will be time-consuming to learn, but this is not the case. Office 2013's ribbons work and look almost exactly like Office 2010's ribbons, and transitioning to the new product involves only a minor learning curve. While the new touch-screen controls provide new ways to launch and use the applications on touch-screen devices, the 2010-style ribbon along with a standard keyboard and mouse remains to be the primary means for operating the product. On mobile devices, the ribbons offer the same menu options, but they are redesigned to better fit smaller hand-held devices. Most of Office's new touch controls work similar to mouse-clicks, but new gestures have been added. For example, you can navigate Excel workbooks or multiple pages in Word by swiping your finger across the screen. You can also pinch and spread to shrink or enlarge

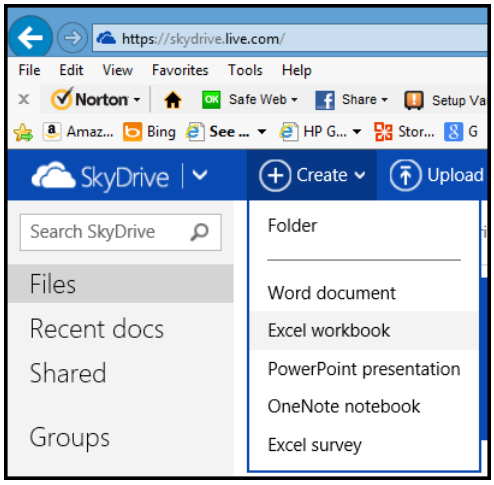
your spreadsheets, documents or presentations. A new **Touch Mode** button inserts more space around the Ribbon's icons so operating the touch controls on smaller devices is a little easier.

Office's new square, color-coded tiles *(see figure)* are used to launch applications on your tablet, smartphone, or computers equipped with touch-screen monitors. The tiles can be resized and rearranged to your preference, and the color-coded schemes make it easier to identify and select the correct application. Office's tiles match the Windows 8 tiles which have been praised by some for their simplicity and utility.



Examples of Office 2013 Quick Launch Tiles in Windows 8

Office binds you to the cloud in many ways. For example, Office automatically connects to your free cloud-based SkyDrive which includes 20 GBs of data storage space, email account, contact management, calendar management, and the following free web apps: 2013 editions of Word, Excel, PowerPoint, and OneNote. These web apps are cloud-based versions of the popular applications (with limited commands and features), accessible from any web browser on a desktop, laptop, tablet or smartphone device.



Office 2013's Free Web Apps

Since everyone has access to these free web apps, troublesome file-sharing barriers and file compatibility issues are removed; therefore, CPAs can use Office 2013 with the confidence of knowing that documents and workbooks they produce can be easily viewed and edited by others. *(These web apps are available for free by signing up for a SkyDrive account as described in the October, 2011 JofA article titled A Sky-High Solution - page 78).*

Microsoft offers Office via a subscription plan and many CPAs are finding the rental plan to be a better option than purchasing the product. Pricing options and functionality for selected Office 2013 editions are summarized in the *table* below.

Office Edition	Users/PCs	Price	Included
Purchase Options:			
Office Home & Business	1 user/3 PCs	$279.99	Word, Excel, PowerPoint, OneNote, Outlook
Office Professional	1 user/2 PCs	$499.99	Word, Excel, PowerPoint, OneNote, Outlook, Access, Publisher
Subscription Options:			
Office 365 Professional Plus	1 user/5 PCs	$15/Month	Word, Excel, PowerPoint, OneNote, Outlook, Access, Publisher
Office 365 E3 Plan	1 user/5 PCs	$20/Month	Word, Excel, PowerPoint, OneNote, Outlook, Access, Publisher, Cloud-based email, Web conferencing, Shared calendars, Cloud-based team sites, Office Web Apps

Pricing Options for Selected Editions of Office 2013

Seven advantages for renting rather than purchasing are as follows:

1. **Installs on more PCs** - The subscription plan allows you to install Office professional on five computers or devices, compared to just two or three installations with the purchased product.

2. **Never upgrade again** – Renters will never face an upgrade decision again as future product enhancements are included automatically.

3. **Superior iMap email** - The subscription plan includes a cloud-based email solution using iMap (Internet Message Access Protocol), which is stronger than the traditional Pop3 (Post Office Protocol) email solution. This is because iMap maintains email messages, replies, contacts, tasks and calendars in a central location so you can access them from any of your computers, the web, or mobile devices. In contrast, Pop3 maintains this information on the individual computers, thus accessing this information from multiple computers or devices is more problematic.

4. **Better security** - In the cloud, data is securely encrypted from your computer to the cloud, and your data remains encrypted in the cloud. Your data is also backed up automatically on a continuous basis and is protected by world-class firewalls, anti-virus software, and intrusion monitoring solutions. A significant amount of technology, cost and effort is needed to duplicate this level of security on a local computer or file server.

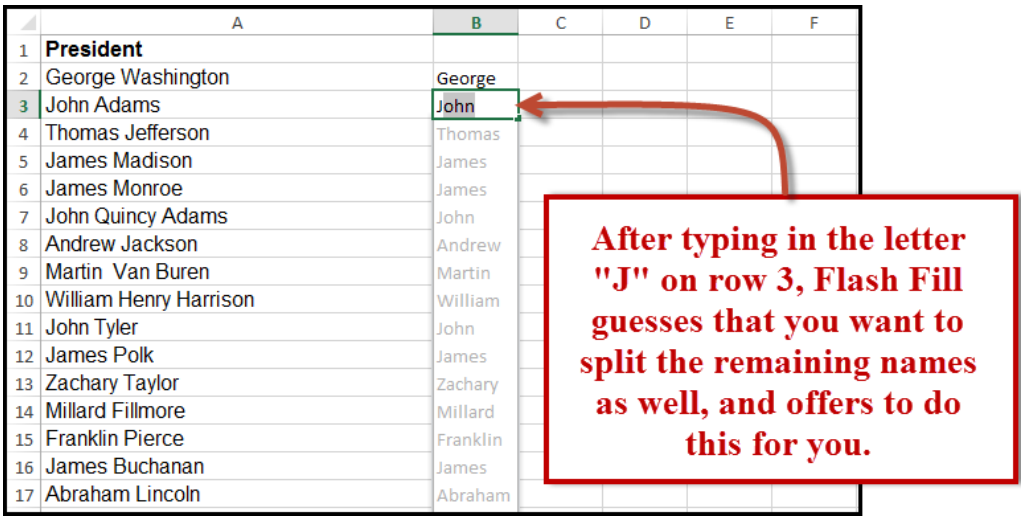
5. **File Sharing** – The subscription plan includes a cloud-based SkyDrive (starting at 20 GBs), team management tools, and file syncing options to help groups work in collaboration. You can grant permission to others to access your SkyDrive files or folders, even if they don't use Office. In the cloud environment, email attachments are unnecessary because you can send recipients a link instead of attachments; as a result, emails travel faster, deliveries are no longer hung up due to attached file size restrictions, and attachments no longer contribute to oversized inbox data files.

6. **Eliminate upfront capital costs** – For larger companies, the subscription plan eliminates their need to borrow money to purchase product. By opting for the "pay as go" subscription plan, companies can expense the costs as a monthly operating expense;

7. **Eliminate balance sheet liabilities –** For larger companies, FASB 47 requires disclosure of long term obligations, but because Office's subscription plan requires no long-term commitment, these rental obligations need not be included on the balance sheet.

New Features in Excel 2013

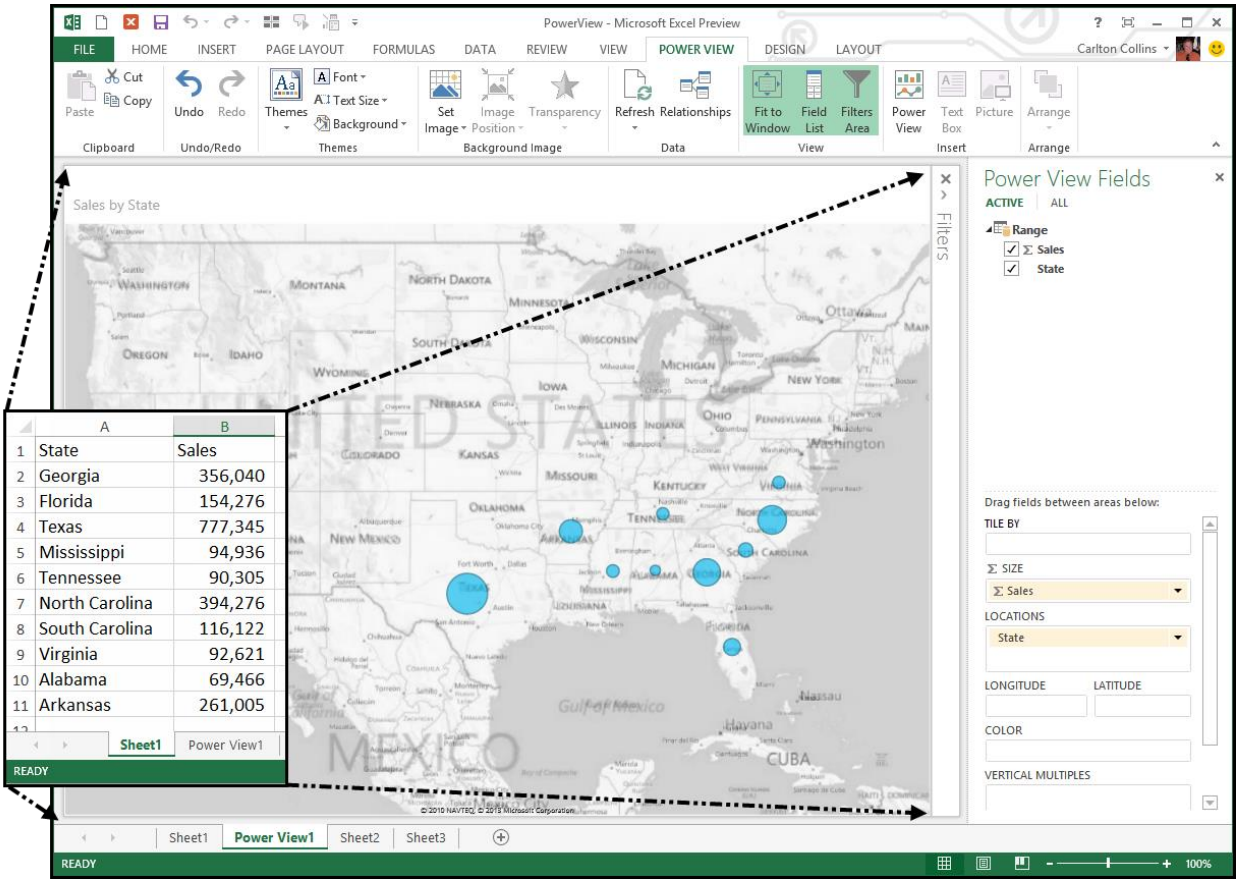
Of all the Office 2013 applications, Excel is the beneficiary of the most impressive enhancements. Excel's new **Flash Fill** watches you work and applies logic to help you complete your tasks. The example pictured below *(see figure below)* contains a list of 44 first and last names in Column A, which I want to separate into Columns B and C. As I start typing the first name of the second record in Column B; Excel's **Flash Fill** guesses what I'm trying to do and offers to fill in the remaining 42 first names *(as shown in grey text)*.



	A	B
1	**President**	
2	George Washington	George
3	John Adams	John
4	Thomas Jefferson	Thomas
5	James Madison	James
6	James Monroe	James
7	John Quincy Adams	John
8	Andrew Jackson	Andrew
9	Martin Van Buren	Martin
10	William Henry Harrison	William
11	John Tyler	John
12	James Polk	James
13	Zachary Taylor	Zachary
14	Millard Fillmore	Millard
15	Franklin Pierce	Franklin
16	James Buchanan	James
17	Abraham Lincoln	Abraham

Excel's New Flash Fill Tool

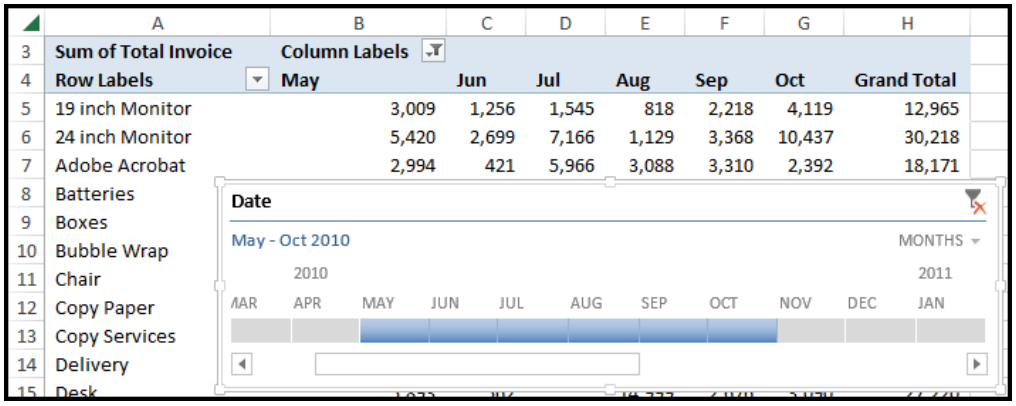
Excel's new **PowerView** inserts new worksheets connected to your data, and then enables you to create new report types, such as the interactive map chart presented in *figure 4*. The resulting PowerView Map report is zoomable, and filters can be applied to display partial data.



	A	B
1	State	Sales
2	Georgia	356,040
3	Florida	154,276
4	Texas	777,345
5	Mississippi	94,936
6	Tennessee	90,305
7	North Carolina	394,276
8	South Carolina	116,122
9	Virginia	92,621
10	Alabama	69,466
11	Arkansas	261,005

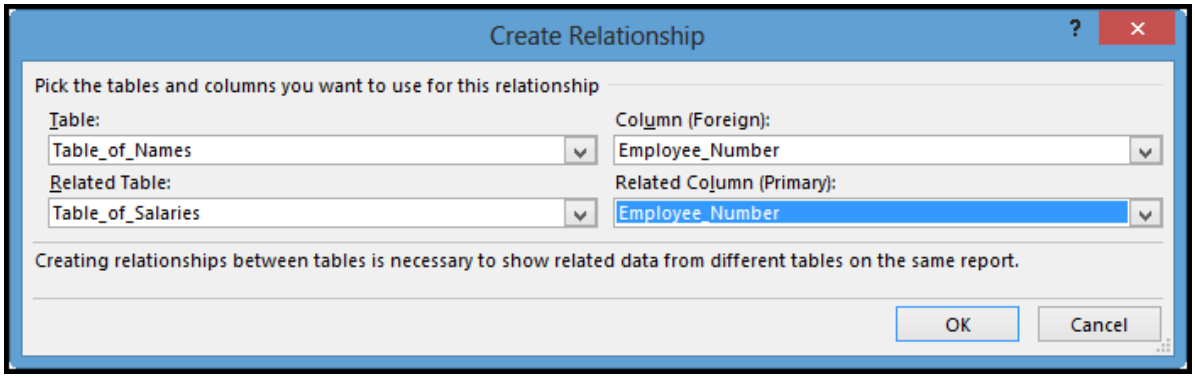
PowerView Tool Depicting a New Zoomable Map View

PowerView worksheets can be published as standalone, interactive reports to Microsoft SharePoint's PowerPivot Gallery or other reporting service destinations. Some of the tools provided by PowerView include the ability to create a dashboard containing multiple PowerViews, apply themes and backgrounds, insert pictures and text boxes, insert collapsible and expandable tiles, and add data slicers. CPAs who work with PivotTables will likely appreciate Excel's new **Timeline Slicer** which helps users *slice and dice* Pivot data that contain dates. As an example, selecting the dates May through October on the Timeline slicer (pictured) adjusts the PivotTable to display May thru October data.



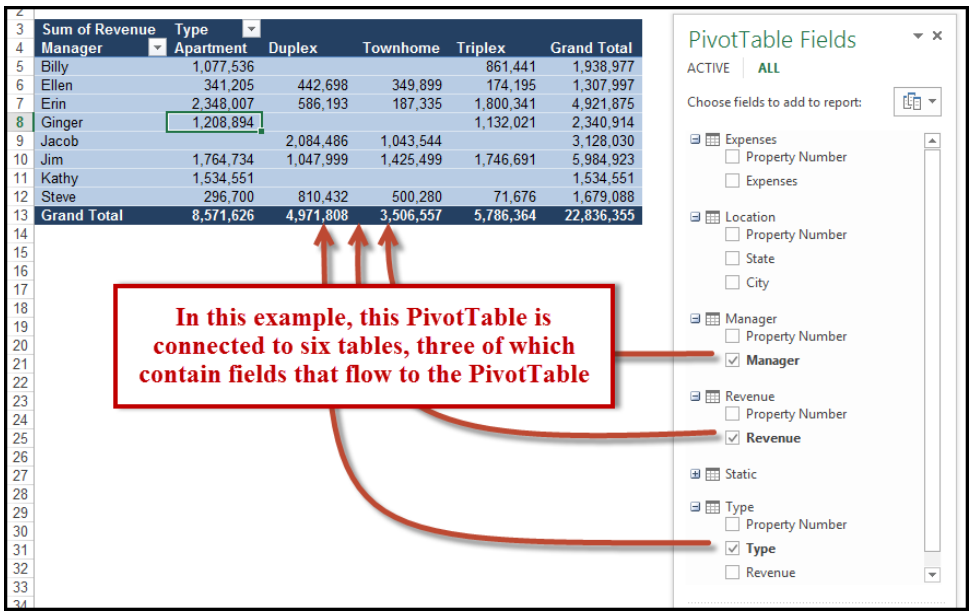
Excel's New Timeline Slicer provides a
Visual Method of Filtering a PivotTable by Date

As an advanced enhancement, Excel provides the new **Create Relationships** tool for building table relationships in workbooks that contain at least two tables sharing at least one common field name.



Excel's New Relationship Tool for Pivoting Multiple Sources of Data

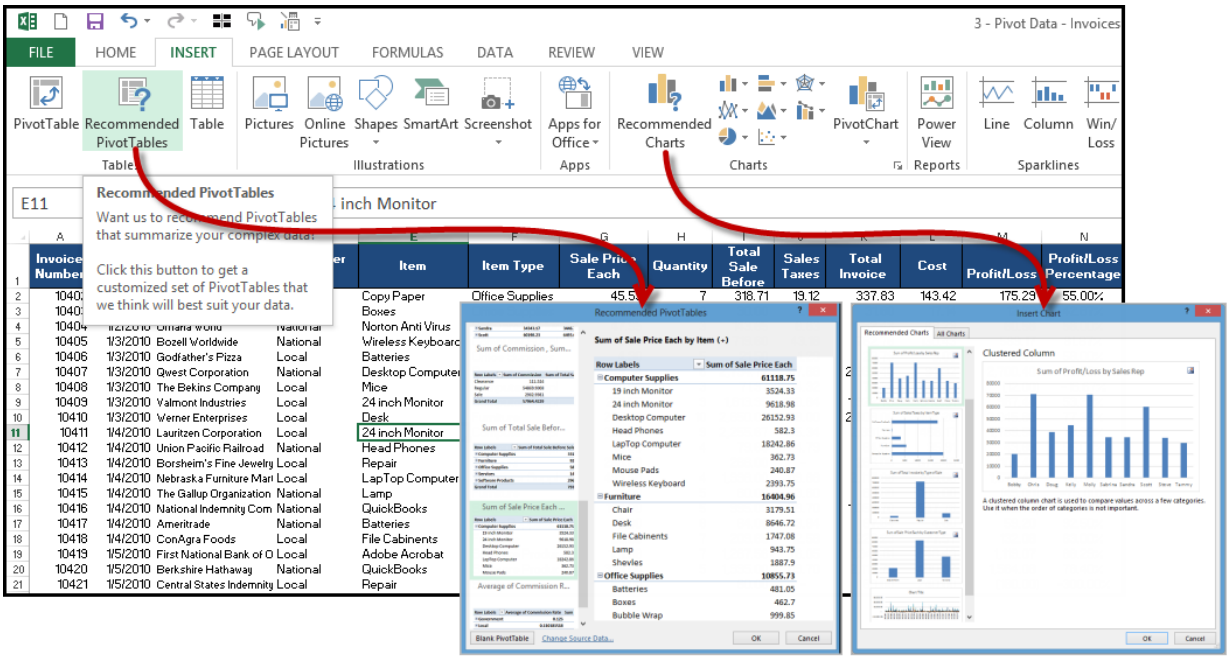
Once relationships are established, the **More Tables** option can be used to display additional tables allowing you to add data fields from mutiple tables to PivotTables, as pictured.



Connecting Multiple Sources of Data to a PivotTable

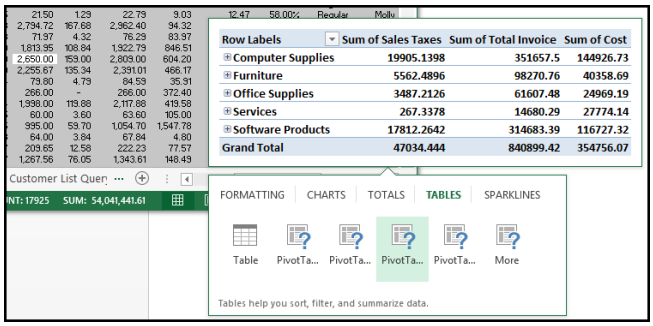
Another PivotTable enhancement involves drillability. Previously, users could only drill down on PivotTable data, but now you can also **Drill Up** and **Cross Drill** to related tables.

Excel offers new tools which can analyze your data and recommend a variety of PivotTable and Chart layouts to best illustrate the data. This new functionality is especially useful to novice users who are less familiar with Excel's functionality, but can also help avid Excel users save time too. Simply place the cursor anywhere in your data area and select **Recommended PivotTables** (or **Recommended Charts**) and in return, Excel offers various PivotTable and Chart options and as pictured in the *figure*.



Excel's New Recommend PivotTables and Recommend Charts Tools

Excel's **Quick Analysis** tool also helps you analyze data by offering a variety of formatting, charts, totals, tables and sparkline layouts to instantly summarize large volumes of data *(see figure)*. When using Quick Analysis to scrutinize text-only data, text specific options for highlighting duplicate or unique text items appear.

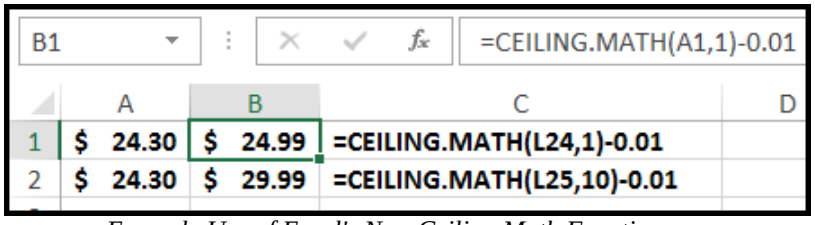


Example of Excel's New Quick Analysis Tool

Microsoft has added 50 new functions to Excel (increasing the total number of functions to 450), and the following 12 new functions in particular will appeal to many CPAs.

1. **ARABIC** – Converts roman numerals to regular numbers, for example V, IX, and XX are converted to 5, 9, and 20.

2. **CEILING.MATH** – This function can be used to round a number up to a specific interval, such as the nearest 99 cents, as demonstrated in *figure 10*.



Example Use of Excel's New Ceiling.Math Function

3. **DAYS** – Calculates the number of days between two dates.

4. **FLOOR.MATH** - Rounds numbers down to a specific interval, and also can be used to round negative numbers towards zero, instead of towards a smaller number. For example, -8.5 can be rounded to -8.0 (instead of the -9.0 results delivered by the older **Round** function).

5. **FORMULATEXT** – Displays referenced formulas as text, and can be used to improve formula reading, reviewing and printing.

6. **ISFORMULA** – Returns the value TRUE if the referenced cell contains a formula.

7. **ISOWEEKNUM** – Calculates the week during the year in which a given date falls. As an example, I used this formula to determine that I was born in the 53rd week of 1959.

8. **PDURATION** - Returns the number of periods required by an investment to reach a specified value. For example, you could calculate that $1,000 invested at 6% APR would take 26.89 years to reach a value of $5,000. (This function approach is faster than constructing a 322 row table to figure this out.)

9. **RRI** – This function returns an equivalent interest rate for the growth of an investment. For example, you could calculate that a $1,200 mutual investment that grew to $5,600 in 18 years earned an average return of 8.93%.

10. **SHEET** – Calculates the sheet number of the referenced sheet. For example, you might use this function to determine that your interest rate assumptions are entered on the 46th sheet in your workbook.

11. **SHEETS** – Calculates the total number of sheets in a referenced range.

12. **SKEW.P** – Like the Skew function, SKEW.P calculates the standard deviation of a string of data, but bases its calculation on the entire population instead of a sample of the population. This function could be used to determine whether each line item of a company's historical financial statement data is consistent enough to use as a basis for projecting the following year's budget.

For a complete listing of the 50 new functions in Excel 2013, visit **www.carltoncollins.com/newfun.htm** or scan the tag.

Bio for 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 books, articles, and web pages and is the author of the monthly technology Q&A column for the **Journal of Accountancy**. As a public speaker, Mr. Collins has delivered more than 2,000 lectures in 44 states and 5 countries addressing more than 500,000 CPAs and business professionals. As a consultant, Mr. Collins has assisted 275+ large and small companies with the selection and implementation of accounting systems. Mr. Collins has a Bachelor's degree in Accounting from the University of Georgia, is a 25+ year member of the American Institute of CPAs and the Georgia Society of CPAs, and is also a licensed realtor.

Summary of Selected Positions, Awards & Accomplishments:

1. Honored as one of the CPA Industries Top 25 Thought Leaders by **CPA Technology Advisor Magazine**
2. Author of the monthly Technology Q&A column for the Journal of Accountancy.
3. Recipient of the 2012 AICPA Lawler Award for Excellence in professional writing.
4. Recipient of the AICPA's Lifetime Technical Contribution to the CPA Profession Award.
5. Chairman of the Southeast Accounting Show - the South's largest CPA event.
6. Recipient of the Tom Radcliff Outstanding Discussion Leader Award.
7. Named "Top Ten CPA Technologists" by Accounting Technologies Magazine (multiple years).
8. Named "Top 100 Most Influential CPAs " by Accounting Technologies Magazine (multiple years).
9. Has personally delivered over 2,000 technology lectures around the world.
10. Recipient of the Outstanding Discussion Leader Award from the Georgia Society of CPAs.
11. Lead author for PPC's Guide to Installing Microcomputer Accounting Systems.
12. Has installed accounting systems for more than 200 companies.
13. Chairperson of the AICPA Technology Conference.
14. Recipient of the ACCPAC Partner of the Year Award.
15. Determined by SAP to be one of the country's "Top Ten Most Influential ERP Systems Consultants".
16. Has delivered keynote and session lectures at dozens of accounting software conferences.
17. Sworn in as a Certified Public Accountant on September 18, 1985.
18. Member of the American Institute of CPAs since 1985.
19. Member of the Georgia Society of CPAs since 1982.

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 (or assisted in preparing) feasibility studies and financial forecasts for nearly 300 projects seeking more than $3 billion in startup capital. Mr. Collins is familiar with bond issues, Medicare and Medicaid reimbursement, and conventional financing matters. In 1992, Mr. Collins contributed and demonstrated more than 500 pages of suggested design improvements to the Microsoft Excel development team of programmers - and many of those improvements are found in Excel today.

At the University of Georgia, Mr. Collins was elected President of the Phi Eta Sigma Honor Society, was initiated into the BIFTAD Honor Society, served three years in the Judicial Defender/Advocate program, and was a member of Alpha Tau Omega fraternity. At Glynn Academy High School, Mr. Collins was Senior Class President, Class Valedictorian (1 of 6), and received a principle nomination to Annapolis Naval Academy. Mr. Collins has been married for 27 years and has two children. He devotes his leisure time to family, travel, tennis, fishing, snow skiing, and riding motorcycles (both dirt and street). Mr. Collins is president of his homeowners association, participates in the Gwinnett Clean and Beautiful program, and volunteers for Cooperative Ministries food drive.