Moving you from Meek to Geek in a Nanosecond (or two)©!

Excelling @ Excel

Prepared especially for You!

Presented and Written by:

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Techedutainment Services Inc.

Technology ✯ Education ✯ Entertainment

Hey! It's Chic 2B Geek© Series!

Excel for Excellent Business Management

Excel versions 2010/2013/2016

Intermediate Excel

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Oops! and Legal Stuff

While I have made every effort to ensure the accuracy of this document, including grammar and instructions, I make mistakes. (*Surprise!)* If you find an error or want to provide constructive feedback, please contact me. Thank you! *Enjoy Excelling at Excel and this document*.

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Excel ® is a most excellent product from *Microsoft* ® *Corporation* and is part of the *Office* ® *Suite* of products and services.

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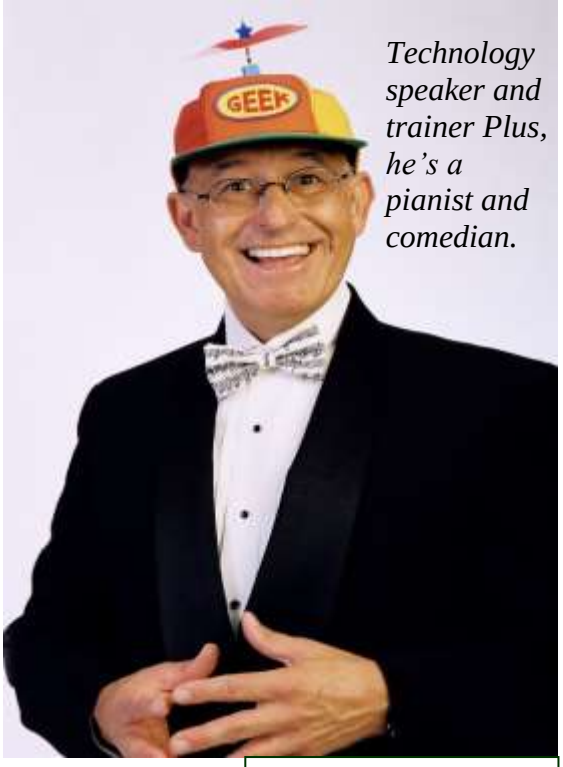
Introducing Greg Creech

Shop Talk from The Atlanta Journal-Constitution
Sunday, Oct. 29, 2000 **R3 - JOBS**

Why I Love my Job – Greg Creech

What I Do: I teach technology courses and make presentations to beginner and expert computer users and professionals. I use humor and the piano. I train all levels from first-time computer users to systems technicians acquiring A+ certification. As an A+ certified trainer, MOUS expert, and technical trainer, my certifications and knowledge give me a career in the technology. My humor, the piano, and people keep me in the technology training field. I sing to my students sometimes and perform stand-up comedy about computers.



Technology speaker and trainer Plus, he's a pianist and comedian.

How I got started: I won Best Actor in a Supporting Role at Southside Theatre Guild for *"A Funny Thing Happened on the Way to the Forum"* and studied comedy under Jerry Farber. I have played the piano since 8 years of age and had the first personal computer with a 1 MB of memory. In order to learn the PC, I associated the PC with the piano -- both use a language to translate, both have keyboards, and now - both provide music and information. I must admit I miss the days when I only played the piano and programmed the PC. Now, I play the PC and have to program my piano. In 1998 after seventeen years of technology business experience in the corporate market, I decided to take a leap of faith on my own. I call my presentations "Showminars," a combination of a show and a seminar.

The Best Part: Hearing the laughter and the comments: "You have saved me so much time," and "I remember complicated macros because of the way you taught them." I have a passion for teaching creative people to be more technical and technical people to be more creative – Mozart would be proud!

Greg Creech sings to his students, and often he performs stand-up comedy about computers.

The Challenging Part: Explaining why I want my piano in a PC classroom. "Mainframers" who refuse to acknowledge the existence of the PC and the Web. People who attend training classes because they have to, not because they want to. Technical people who are not client- focused.

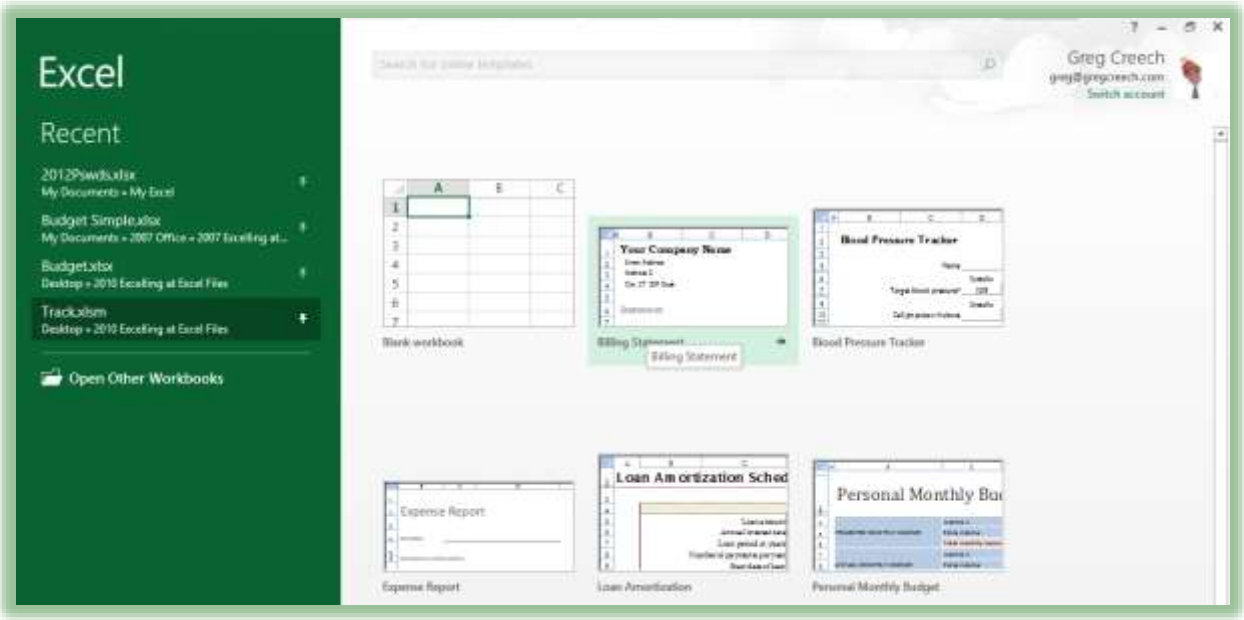
My Favorite Quotes: "To err is human, to really mess things up you need a computer." "Forty-two percent of all households have a computer; only eight percent of those know how to use it."

What Keeps me Going: I enjoy combining my love of people, the piano, processors, and humor into a unique speaking and learning experience.

Welcome! To Excel

Let's look at Excel's main window and components of the interface.

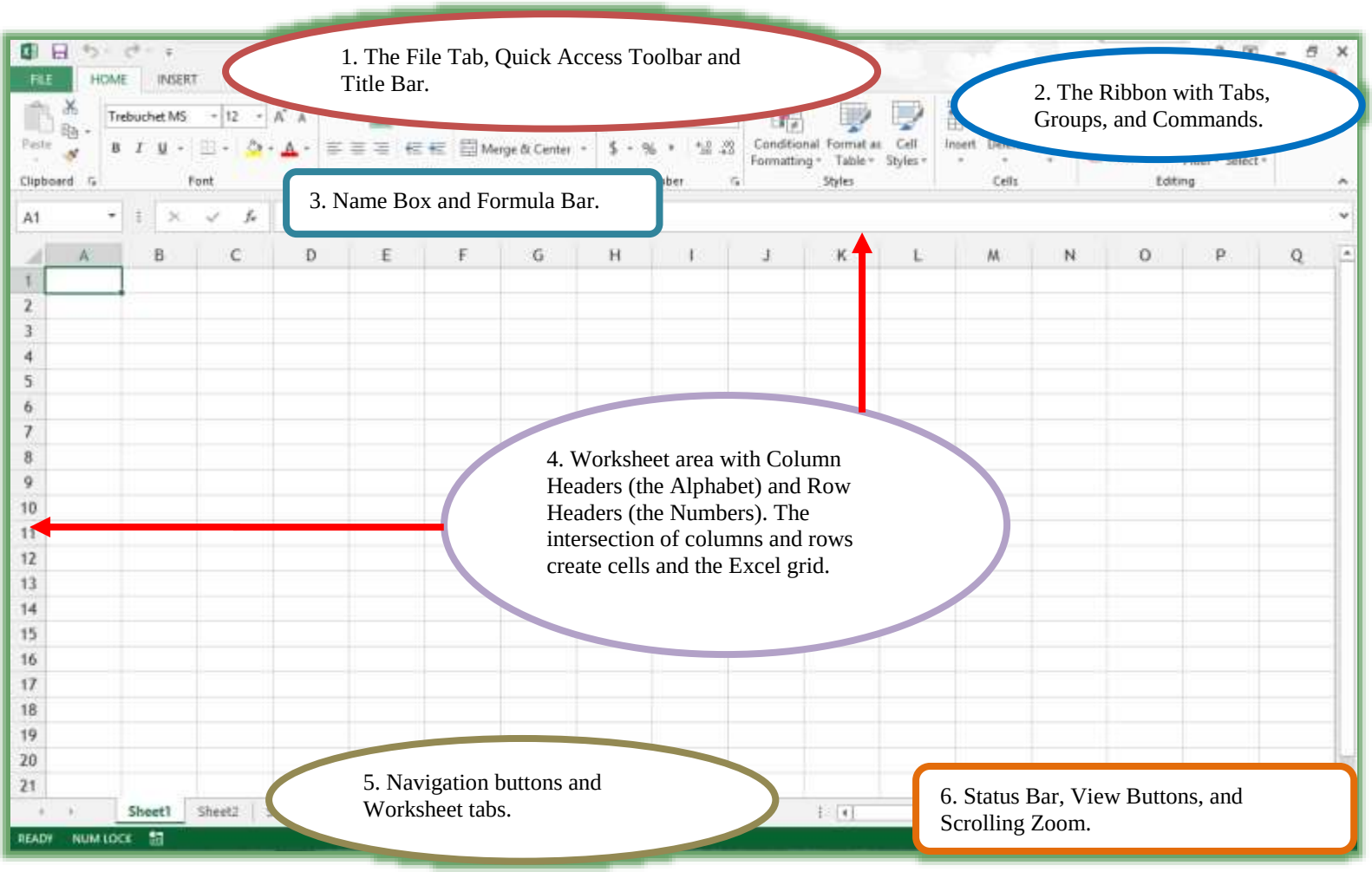
1. **Open Excel. Excel will present a blank Worksheet ready for you to begin or Excel may provide a screen for you to use templates or open other files, as displayed below for you. In any event, create a new blank workbook by clicking the Blank workbook item.**



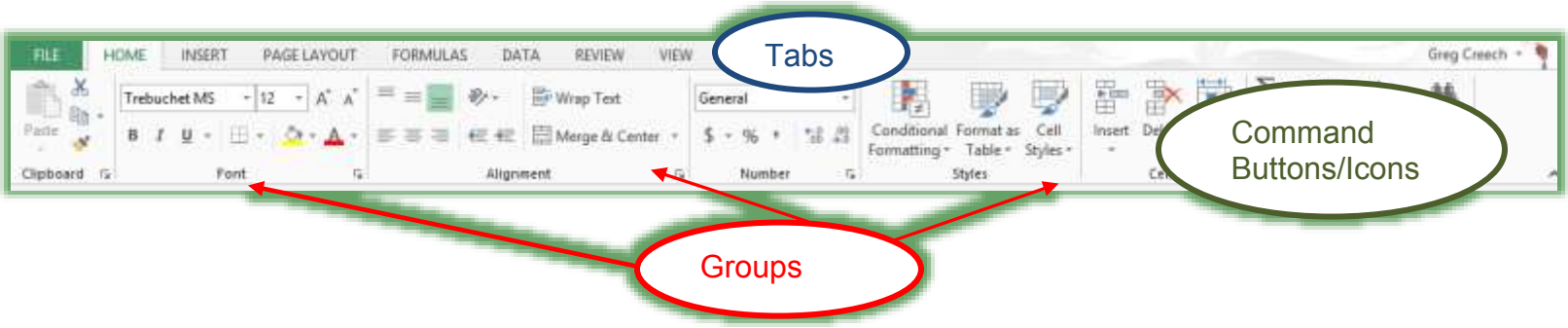
2. **Pictured below is the Worksheet Window for Excel 2013.**
3. **Let's take a tour of your Worksheet Window.**

Worksheet Window

The top area of your screen is the ***Quick Access Toolbar with the Title Bar***. The ***File Tab*** which is the first tab in the Office 2013 Ribbon allows you to print, save, and perform other file

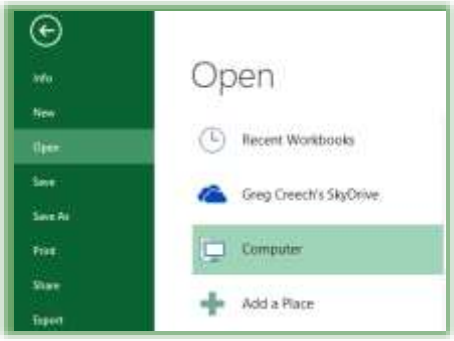


functions; we'll learn much more about this including using the ***Excel Options*** button. Next in this area of your worksheet is the ***Quick Access Toolbar*** which allows you to quickly access your favorite commands and you may add and delete commands from this toolbar. We'll learn how to customize the toolbar and other options for using this productive tool in Excel. The ***Title Bar*** displays your Excel File or Workbook Name and contains the ***Help, Ribbon Display Options, Minimize, Restore/Maximize, and Close commands.***



The next area as pictured above is ***The Ribbon***. ***The Ribbon*** contains three areas – ***The Tabs, The Commands, and The Groups with the Dialogue Box launcher***. We will use the Ribbon extensively in all aspects of Excel from formatting to creating formulas and functions.

1. **Let's open a sample workbook to use in our demonstration.**
2. **Click the File Tab.**
3. **From the Cascading Menu, Click Open.**
4. **Navigate to where your files are stored for this course.**
5. **With the Budget.xlsx file selected, Click Open *OR* Double Click the Budget.xlsx icon to open the file in Excel.**



6. **If you are prompted to Enable Macros, please click Enable Macros.**

Our workbook opens. We should have two workbooks open a blank workbook and the Budget.xlsx workbook.

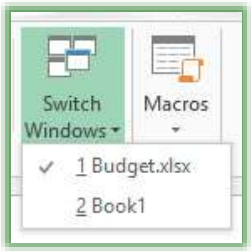
If you don't have two workbooks open then follow these steps.

1. **Click the File Tab and Click New or use the Keyboard Shortcut CTRL + N (Pressing the Control key and the "N" keys simultaneously) for a new Workbook.**
2. **From the New Workbook screen click the Blank Workbook item and then click the Create button at the lower right of your screen.**

We can "toggle" or move between the two files using ***our View Tab on the Ribbon and Clicking the Switch Windows command button. Let's try this.***

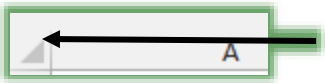
1. **Click the View Tab and click the Switch Window,**

2. **Click the File that is not active, for example my Book1 as displayed here and the file activates.**
3. **If your View tab is still active (or if not then click it to activate it again), and then click your Budget workbook to activate it.**



Below ***the Ribbon*** and ***Groups*** are the ***Name Box*** and ***Formula Bar***. The ***Name box*** indicates your position and selected cell in the worksheet and allows you to give selected cells an English name or code which we learn later in our course. This allows you to quickly move to this area of your worksheet and to calculate formulas using names.

The ***Formula Bar*** illustrates the contents of your cell whether numeric or alpha text. You edit your functions and formulas in this box. ***Formula and functions begin with an equal sign (=), we'll learn a lot more about this in the Formula and Functions part of our course***. Cell A1 in this worksheet uses the ***=TODAY()*** function.



A Hot Tip! Select All Button: There is a magic box in the upper left part of your worksheet (bounded by the Column header A and Row header 1). This magic box selects the entire worksheet with one click of this button; this is the Select All Button. If you are not clicked in the table of data, you may select the entire worksheet by pressing the CTRL + A keys together; if your cursor and selection is in the table of budget and expense figures CTRL + A keys selects the data table not the worksheet. This is a terrific way of selecting a table or database in Excel using CTRL + A key rather than selecting a big area of the worksheet through Click and Drag or other methods of selection that we will learn.

Column Headers are the Alpha characters beginning the column. You may click on a ***Column Header*** and the entire column selects or highlights. You may click on a column header and drag

to the desired column to select multiple continuous columns. You may select columns that are not continuous by left clicking, pressing the CTRL keyboard button, and then left clicking the desired columns; when complete release you CTRL key and mouse button and Viola your columns are selected. You may use this method to select various cells and rows, as well, that are NOT continuous.

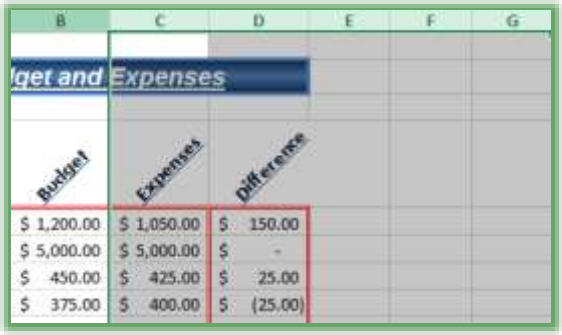
A Hot Tip! In this document when we want to select cells and areas that are not contiguous I will use the term Ctrl + Click to indicate using the Ctrl key and click method of selection. When we want to select areas that are contiguous I will use the term Shift + Click or we may also use Click and Drag to select continuous areas of our worksheets.

Row Headers are the Numeric characters or numbers at the beginning of the row and operate in the same fashion as ***Column Headers***.

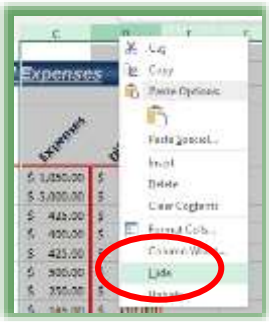
A ***Cell*** is the intersection of a column and row. Cells are signified by the column letter and row number position, such as Cell C4 is the intersection of Column C and Row 4 or G10 is column G, Row 10 (BINGO! Ha, ha!) You may select multiple cells by left clicking on a cell and dragging to the area that you desire and release your left click button.

Let's practice selecting continuous and non-continuous columns and hiding and unhiding them.

1. **With your Budget Workbook open and your January tab active, click column header C.**
2. **Press your Shift Key and Click the column header G. Columns C through G highlight for you.**

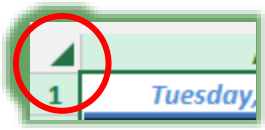


A Hot Tip: You may get the small dark arrow to select your column header and click and drag to select your continuous columns, too.



3. **With these columns selected, right click on one of the letters and from the shortcut menu click Hide and the columns disappear.**

Let's unhide them and the hide columns that are not continuous.



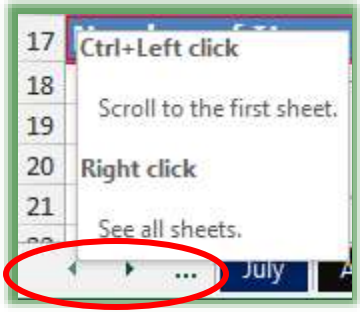
4. **Click the Select All button at the top of your workspace area to select the entire workbook.**
5. **Right click on a column header and from the menu click unhide.**
6. **Now, Click column header C and press the CTRL (or Control) Key and keep it pressed as you click other columns.**
7. **With your CTRL key pressed, click column header F and column header H. These columns select for you as you click them with the CTRL key pressed.**
8. **Now, right click one of your selected column headers and from the short cut menu choose hide.**
9. **These non-continuous columns hide for you.**
10. **Let's unhide them. Click the Select All button at the top of your workspace area to select the entire workbook. Right click on a column headers and from the menu click unhide.**

Notes:

♬ If you want to unhide a specific column but keep the others hidden for example if I want to unhide Column C but keep the other columns hidden, I can select Columns B through D with Column C hidden and right click on the two selected column headers and from the shortcut menu choose unhide and only Column C is unhidden.

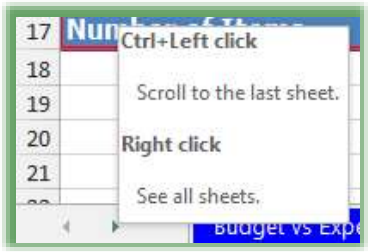
♬ If you click inside of the Budget and Expenses and press CTRL + A only the table of data selects not the entire worksheet. You may use the Select All button to select the entire worksheet or CTRL + A to only select a table or database in Excel.

Worksheet area is the area surrounded by the column and row headers and is your primary work space in a worksheet.



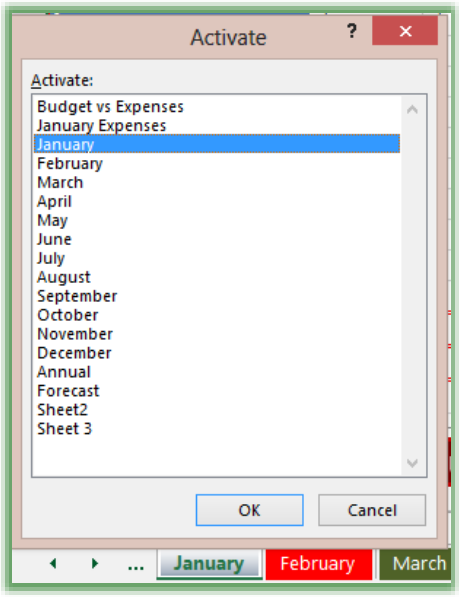
Worksheet Navigation Buttons and Worksheet Tabs: The Navigation Buttons at the lower left of your workspace area scroll to various worksheets within your workbook in order for you to select the worksheet in which you desire to work. A description from left to right by clicking the appropriate button is:

Button 1: The small left arrow scrolls through the worksheets to the left. Notice the shortcut menu if you hover on the left arrow as displayed here. CTRL + Left clicking this arrow will display the first worksheet. Right clicking this area displays all sheets as described in the Hot Tip below.



Button 2: The small right arrow scrolls through the worksheets to the right and CTRL + Left clicking this arrow will display the last worksheet for you.

A Hot Tip! If you have multiple worksheets as the Budget file does, you can quickly go to a specific sheet by right clicking on the navigation buttons to get a shortcut menu and then left clicking the sheet you desire. In the picture at right my January sheet is active and all of the sheets are displayed. If I wanted to go to the October sheet, I could click it and that sheet would activate. Worksheet tabs names your worksheet and become active upon clicking on the tab. If you have a lot of worksheets Excel displays "More Sheets. . . " at the bottom of this dialogue box for you to open another box allowing you to vertically scroll through and activate your desired worksheet.



The Status Bar displays information about your worksheet and cells, displays whether your Number Lock and Caps Locks are activated, whether you are recording a macro, and has a nifty ***Calculation box that we will use later***.

You can navigate in your worksheets and through your worksheets through several keyboard shortcuts, too, and select data in a column or row quickly.

Keyboard Shortcut	What it Does
CTRL + Home	Takes you to the top of your worksheet, usually cell A1.
CTRL + End	Take you to the end of your worksheet.
PgUp (Page Up) and PgDn (Page Down)	Takes you down or up several rows (screen pages) at each press of the key.
CTRL + PgUp (Page Up) and CTRL+PgDn (Page Down)	Scrolls through your worksheets or tabs. CTRL+PgUp Scrolls to the Left for you and CTRL+PgDn scrolls to the Right.
CTRL + Shift + Down/Up Arrow	Selects an entire column of data/information based on the cell that is selected.
CTL + Shift + Left/Right Arrow	Selects an entire row of data/information based on the cell that is selected.
CTL + Shift + Home	Selects from your active/selected cell to the top of your worksheet.
CTL + Shift + End	Selects from your active/selected cell to the bottom of your worksheet.

With your Budget file open, use these navigation techniques to navigate around your worksheets and open the Track workbook and select a column and row data using the CTRL + Shift and arrow keys. You may use the Shift key and arrow keys to select individual row or columns and with the Shift key pressed, press the Page Up (PgUp) or Page Down (PgDn) to select a larger area of your worksheet.

♬ *Write your notes here:*_____

_____

Important Tips to make your Excel Experience Easier

Resizing columns and rows

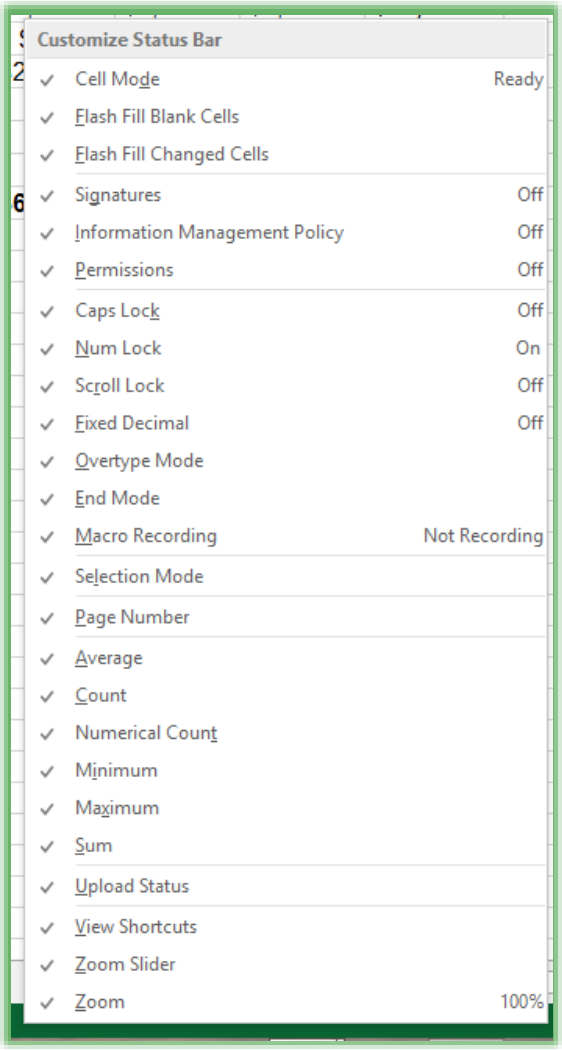
If you position your cursor between a column and row header, a double-headed arrow will appear as your cursor. Click and drag to resize your column or row. You should place your cursor to the right of the column you want expanded and below the row you want increased. For example, to change the width of column C move your cursor between column headers C and D to get the double headed arrow to resize your width. To change the height of row 7 you would move your cursor between row 7 and 8 to get the double headed arrow to change the height of row 7. You may right click on a column or row header and from the Shortcut menu choose Column Width or Row Height and the screen at right appears for you to type in a number for the width/height of your column/row.

A Hot Tip! If you double click your double headed arrow cursor, the row or column will automatically adjust to fit the information in the column or row. Pound symbols or hash marks (######) will appear in column cells that are not large enough for you to view the data. The pound symbols or hash marks in a cell have "freaked out" many a new user to Excel, including me. I felt like I had done something terribly wrong. Simply resize your column width so the data in the column will fit.

Rename a Worksheet

To rename a worksheet, double click the worksheet tab at the bottom of the screen. For example, to rename Sheet 1 double click the Sheet 1 tab, the tab is highlighted, and type a new name and press enter. ***Also, you may right click on the Sheet Tab for a short cut menu to Rename the worksheet. As well as Renaming your worksheet, Right clicking on the tab allows you to insert, delete, or move/copy your worksheet.*** This is a great tool and short cut that we will be using throughout this course.

♬ Notes: Worksheet names should not contain special characters, such as /, ?, or [] and you may not use the same name twice in a workbook. You are limited to 31 characters for a name.



A Hot Tip! Status Bar and Calculations

The ***Status Bar*** in Excel has many options from which to choose. I like having ***the Sum, Count, Average,*** and other functions on my Status bar. You may right click on your status bar and receive the ***Customize Status Bar Pane*** as pictured at right. I have activated all of my options as I learn Excel.

This doesn't affect your worksheet, but does provide the result of the functions based upon your selected range of cells. This is another excellent and quick tool for summarizing, averaging, etc. cells and information that are continuous or not. ***Let's try it out***

1. **In the January Tab of your Budget worksheet, Click and Drag cells B5 through B14 to select them.**
2. **The Sum, Average, Count and other functions of the cells should appear based on your selection in the Customize Status Bar pane.**

A Hot Tip! Another neat trick is to use the CTRL + Click method to select cells that are not continuous, such as B5, B7, B9, the Calculations will provide the SUM (or other selected function) for the cells selected. This provides quick calculations for cells that are not continuous and prevents you from creating a formula or pulling out the good-old calculator.

1. **Let's select non-contiguous cells and see the results.**
2. **Click Cell B5.**
3. **Press your CTRL key and keep it pressed as you click the following cells: C7, C8, C10, C11, and B16.**
4. **Notice that as you click your cells your calculations change.**
5. **You can click away from the area to deselect your changes.**

☹ An Important Gotcha! If you accidentally click the wrong cell or do not want a previously selected cell in the calculation, you cannot CTRL + Click the cell again to deselect it as you can in other applications and areas of Excel. You'll have to start from the beginning of selecting your cells using the CTRL + Click method again. ☹

There are important items at the end of your Status bar. The ***View command buttons*** for ***Normal, Page Layout, and Page Break Preview*** are here for you and the ***Scrolling Zoom***.

We'll look at these views later.

Click the Zoom selector arrow and click and drag in out to see how Excel changes your view of your worksheet. A keyboard shortcut is to press your Control (CTRL) key and use your mouse's wheel (if you have one) to zoom in or out depending on the direction you are rolling your mouse wheel.

A Hot Tip! The ESC (Escape) key: Another handy key on your keyboard is the Esc (or the Escape) key. ♫ When doubt, press this a couple of times to clear your formula, selected cells, and other times when you feel you are making a mess or Excel won't let you move or navigate because you have not completed a function. The Escape key will help alleviate trouble, but may not prevent bad formulas and formatting.

Customizing Excel for Productivity

Quick Access Toolbar Options and Customization

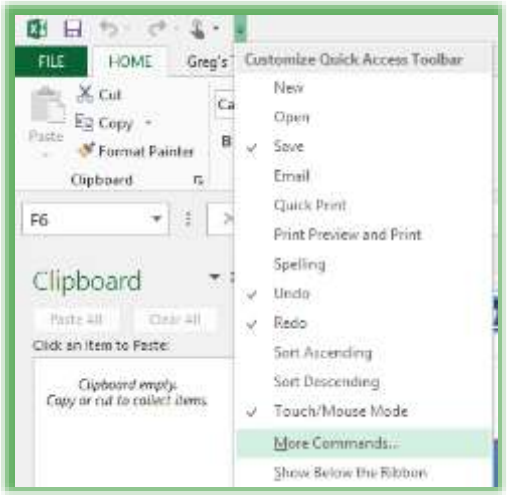
As we begin using ***Excel,*** we need to learn the ***Quick Access Toolbar*** and how to add command buttons to it. We'll examine ***the Ribbon*** and other new interface techniques as well as using old (even ancient) ***keyboard commands*** that have been around since DOS and new keyboard commands called ***Key Tips*** that were new to Office 2007/2010. Adding your own ***command buttons*** to the ***Quick Access Toolbar*** ensures the command button is always available for you since your command buttons change based on which Tab you have active.

New with Office 2010 and continues with Office 2013 is the ability to customize the Ribbon and create your tab as well as to enable and disable tabs. We will accomplish this in your next section.

☹ Important Gotcha! When your Excel Options menu is open and active nothing in Excel is operable and all tabs and groups are disabled. ☹

Let's look at the Customize Options for our Quick Access Toolbar.

1. **The Quick Access Toolbar is the only toolbar in Office 2013 and is located at the top area of your screen in the Title Bar area.**
2. **In a blank Worksheet or the Budget workbook, click the Arrow at the end of your Quick Access Toolbar to list the Customize Quick Access Toolbar command buttons and options.**
3. **You may quickly add command buttons to your toolbar by clicking them in this window to add them to your toolbar – the check mark represents a command button already on your toolbar.**



4. **The cascading menu closes after you check an item to add, such as New, Open. I wish the menu could remain open as you check these command buttons. Check all of the buttons to add these to your Quick Access Toolbar.**

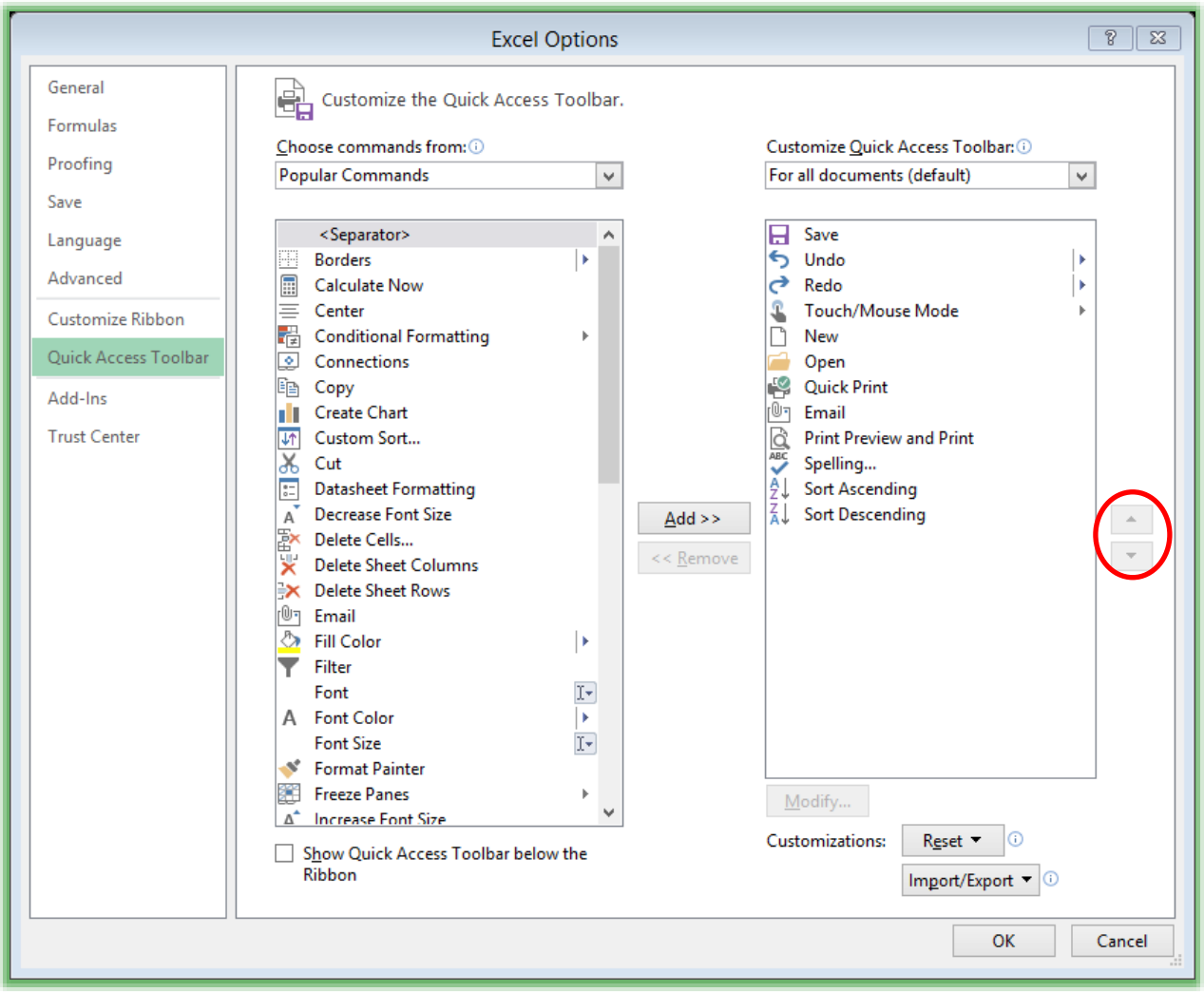
After adding these buttons, we will further customize the ***Quick Access Toolbar*** with some of my favorite and popular commands in Excel. We will use the ***More Commands*** from your ***Customize Quick Access Toolbar Pane***.

We are using the More Commands button and Excel option screen for three reasons:

1. ***You may rearrange and move your buttons as you like,***
2. ***You may add more than one button at a time,***
3. ***You may add buttons that do not exist in the Ribbon or Tabs.***

Let's add rearrange our buttons and add some neat and helpful commands so we may quickly use some of Excel best commands.

1. **At the end of your Quick Access Toolbar click the arrow and then click the More Commands. . . item in this menu.**
2. **The Excel Options Pane opens at the Customize screen ready for you to select commands and add them to your toolbar. First let's move some of the commands we have already added.**



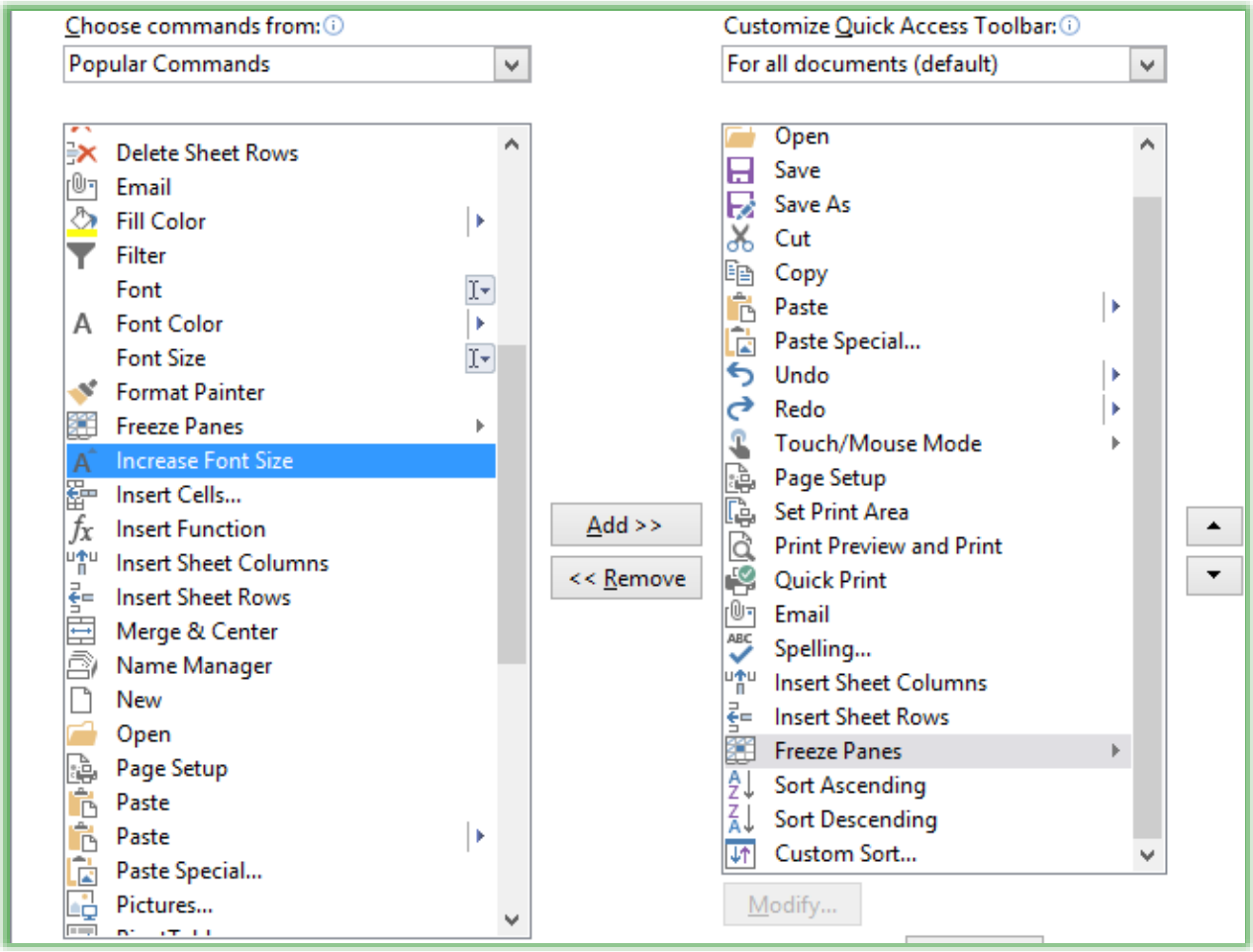
3. **Click the New command button and using the Up arrow click to move the command button to the top as displayed above. Next move the Open and the Open Recent File… below the New button. Rearrange your buttons to fit your needs.**

Now, let's add buttons to our Quick Access Toolbar. You may add buttons by selecting the command you want on the left part of the pane and double clicking the button or clicking the Add button in the Center of the Pane.

Hot Tip! You may add your button to your Quick Access toolbar in the position you want by selecting the Quick Access Command, such as Sort Descending and the double clicking

or clicking the Add button and the Custom Sort button is beneath your Sort Ascending and Descending buttons. Excel places the new command button below where your selection is on the right part of your pane.

1. **I have added some of my favorite command buttons from the Popular Commands section. As you use Excel you will find command buttons that you will want always available for you. Using the Popular Commands item in the *Choose commands from:* box. Here are some of my favorite commands to add to and rearrange on my Quick Access Toolbar using the Popular commands item:**

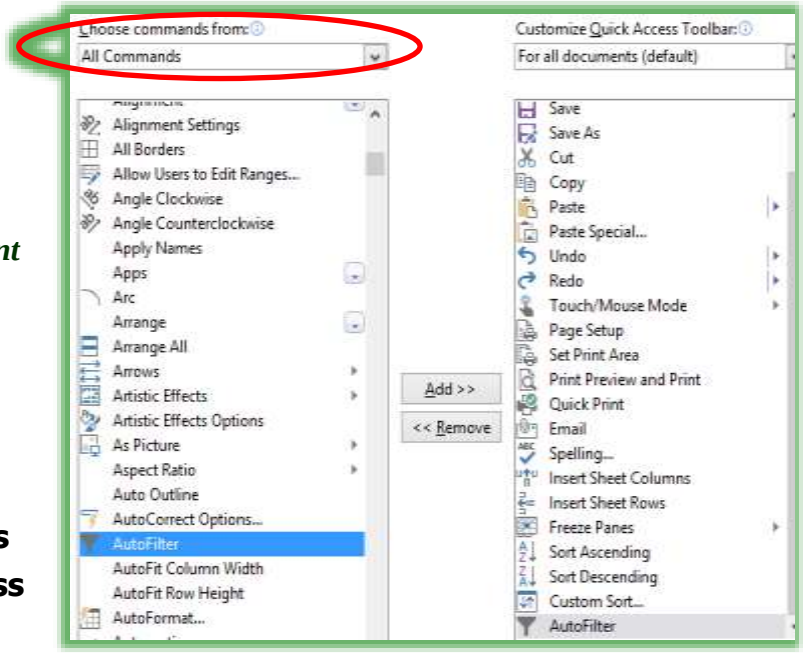


✓ **Save as**

- ✓ **Custom Sort**
- ✓ **Cut,**
- ✓ **Copy,**
- ✓ **Paste**
- ✓ **Paste Special**
- ✓ **Insert Sheet Rows**
- ✓ **Insert Sheet Columns**
- ✓ **Set Print Area**
- ✓ **Freeze Panes**
- ✓ **Page Setup**
- ✓ **Paste Special**
- ✓ **Insert PivotTable**
- ✓ **AutoFilter**
- ✓ **Speak**

  Add your popular commands and rearrange them on the Quick Access toolbar by selecting a command and using the Up and Down arrows to move your buttons.

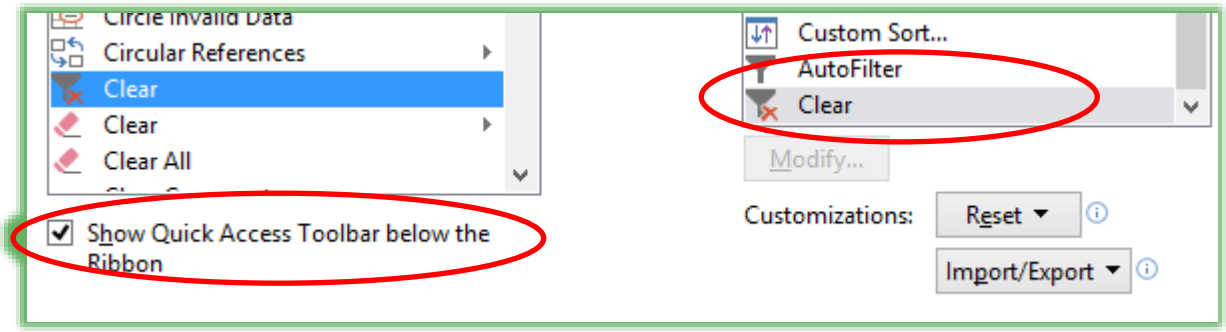
The Drop Down box (circled below) at the top of the customize screen allows you to choose other Tabs or All Commands in order to add other command buttons to your toolbar; this is the Choose commands from box. The second box at the right allows you to use the custom Quick Access Toolbar in all workbooks or only the current workbook. We want this for all of our workbooks.



1. **Next change your Choose commands from box to All Commands as circled above. Click in your list of commands to select a command and press the letter A and scroll to AutoFilter. Pressing the letter**

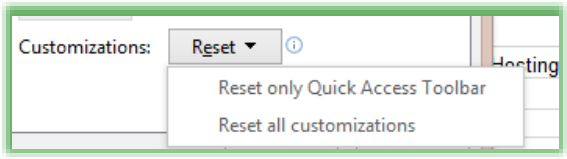
on the keyboard and keeping the letter pressed, Excel will scroll through all of the commands associated with the first letter. Add AutoFilter to your Quick Access Toolbar this command button doesn't appear on the Ribbon and is very helpful. This one button accomplished two tasks – first it will filter for whatever you have selected and it will turn on your filtering for you. I also add the Clear Filter button. Notice ALL of the Commands in Excel and add your buttons as you wish.

2. Next, click back in the All Commands list and press the letter C on your keyboard. Excel jumps to the C for you to scroll down or continue pressing the letter C on your keyboard to find the Clear button. You want the Clear button with the Funnel or Filter.
3. Next, decide if you want to show the Quick Access Toolbar above or below the Ribbon. Since I use so many commands on my Quick Access Toolbar which crowds my Title bar, I like having my Quick Access Toolbar below the Ribbon so I have checked the box.

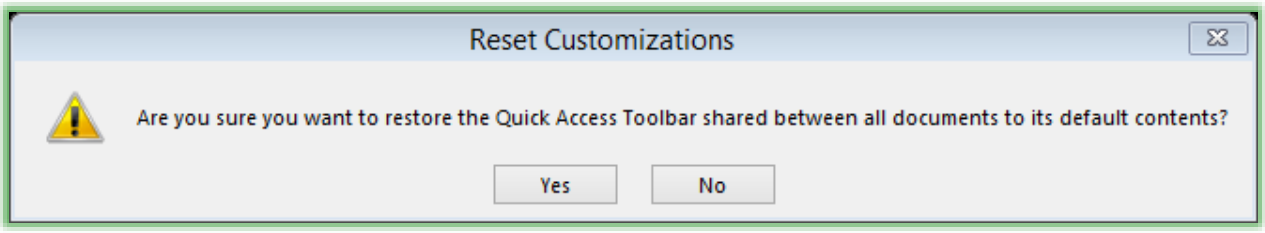


4. Click OK.

A Hot Tip! The Reset button will restore your Quick Access Toolbar back to the Factory Standard with no customization. Pressing the Reset buttons offers you to Reset only the Quick Acces Toolbar or All Customizations. The Dialogue box below appears when you click the Reset

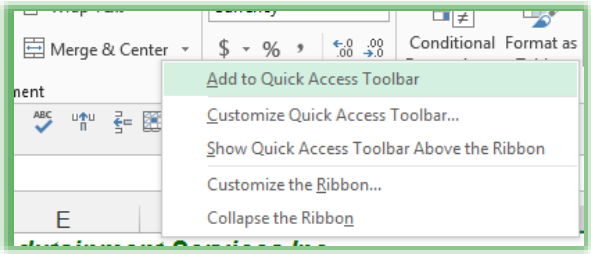


button. I sure do not want to click yes, since we will use our Quick Access Toolbar throughout the course.



There is a quicker and easier way to add buttons to your Quick Access Toolbar and here's the HOT TIP for you.

A Hot Tip: You may add any command button to the Quick Access Toolbar by right clicking the command button and from the menu choose add to Quick Access Toolbar. I have right clicked my Merge & Center command button on my Home Tab and the menu at right displays for me to click the Add to Quick Access Toolbar item and Excel places the command button on the toolbar for me. Using this method places the button at the end of your toolbar, unfortunately you must use the Customize Quick Access Toolbar pane in Excel Options to rearrange the commands position as we accomplished earlier.

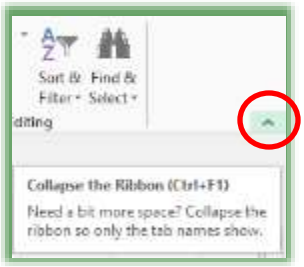


Write your notes here:_____

Tabs and The Ribbon Shortcuts

As we begin our study of the tabs and groups, here are a couple of important and time saving Hot Tips for you in using the Ribbon and Tabs!

Hot Tip 1: Minimize the Ribbon! Four ways to minimize the Ribbon – First, the Ribbon takes up a lot of space on your screen. You may minimize the Ribbon and use it only when you click on a Tab.



1. Office 2013 has the Minimize Ribbon arrow at the top of your window next to the Help button. The Minimize the Ribbon button appears at right. With the Ribbon minimized the button becomes the Expand the Ribbon button.

2. To minimize the ribbon double click the *active* Tab's Name. Double clicking a tab expands/minimizes the ribbon, too, or as the short cut menu suggests use the Keyboard shortcut of F1 described next.

3. Keyboard shortcut of CTRL + F1 – when you press your CTRL (Control) and the F1 keys simultaneously on your keyboard the Office application minimizes and expands your Ribbon, too.

4. Right click on any tab or command button on the Ribbon and from the short cut menu choose Collapse the Ribbon at the bottom of the menu.

Why minimize The Ribbon? The Ribbon takes a lot of space. With the Ribbon minimized you have more room in which to work on your file. With the Ribbon minimized, to use a tab, you click the tab and the Ribbon's tab expands for you to use the Command Buttons. After clicking the button you want and you click back into the body of your document, worksheet, or presentation the Ribbon minimizes again. This is similar to using the old Menu bar. The difference is the Menu bar was vertical and text oriented and the Ribbon is horizontal and more graphically oriented.

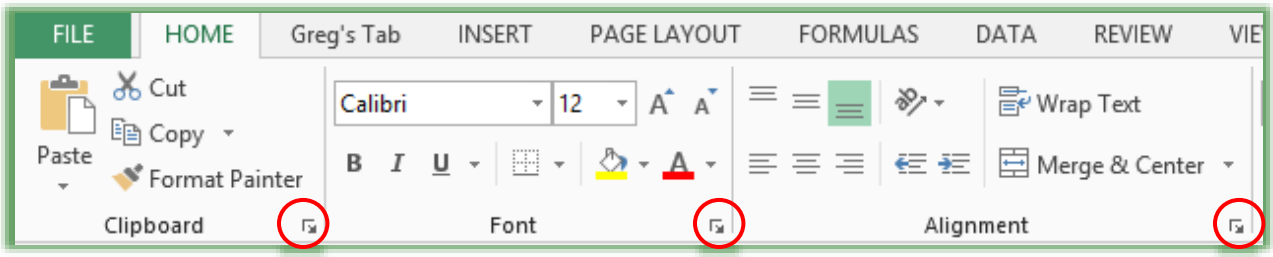
Hot Tip 2: Second, if you have a scroll wheel/button on your mouse and the Ribbon is NOT minimized, you may scroll through the different tabs

rather than clicking the tab. Moving your cursor to the Ribbon and rolling your scrolling button/wheel up or down changes the tabs for you! You must first click on a tab for this to work; otherwise, the application will scroll through your file – not the Ribbon.

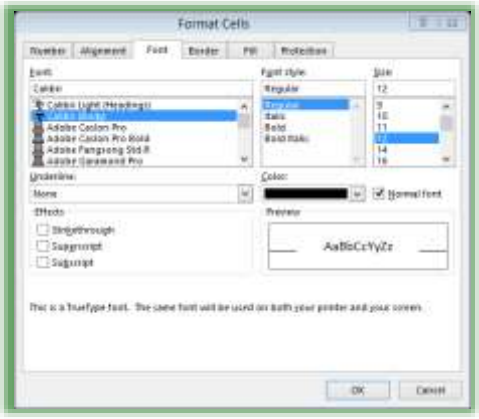
☹ An Important Gotcha! With the Ribbon minimized you cannot scroll through the Tabs as described above. You'll have to maximize the ribbon in order to scroll through your tabs and command items. ☹

Try these two shortcuts, I think you'll like using these two features in Office 2013.

Excel's interface includes ***the Ribbon*** which contains tabs as we have studied and within the tabs there are ***groups*** such as the ***Clipboard group, Font Group, and Alignment Group*** as displayed

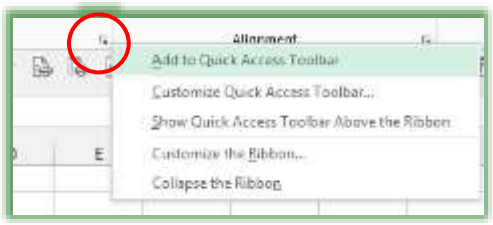


at right. At the bottom of some groups you will notice an arrow, as circled above, this arrow is the ***Dialogue Box Launcher*** which offers more options for you. Activating a ***Dialogue box*** from this group opens the ***Dialogue box*** tab for that group. When I clicked the ***Font Dialogue box launcher***, the ***Format Cells Dialogue*** box opens at the ***Font Tab***.



We will use many of these tabs, groups, panes, and dialogue boxes throughout this book. We'll start with the ***Home Tab*** and Formatting options, including the ***Mini Toolbar***, after we look at some of the ***Keyboard shortcuts*** and ***Key Tips***.

Hot Tip! You may add a Dialogue box to your Quick Access Toolbar by right clicking the Dialogue Launcher Arrow and from the menu choosing Add to Quick Access toolbar just as we accomplished with the Merge and Center button. As displayed here I am adding my Font format cells dialogue box to my Quick Access Toolbar.



Keyboard Shortcuts and Key Tips

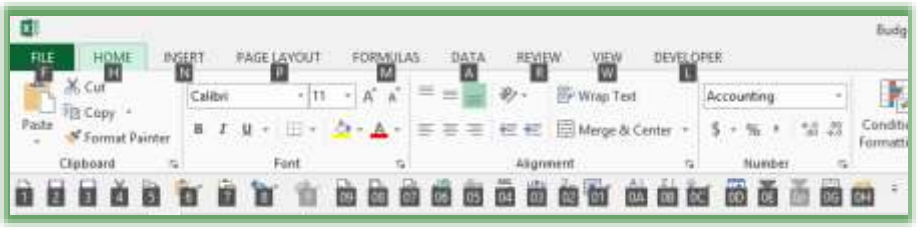
Here's a nifty table of my favorite Office, including Excel, shortcut keys.

My Favorite Keyboard Shortcuts			
Keyboard shortcut	Command	Keyboard shortcut	Command
CTRL + A	Select All	CTRL + T	Excel Create Table
CTRL + B	Bold	CTRL + U	Underline
CTRL + C	Copy	CTRL + V	Paste
CTRL + D	Excel – Fill Down – Duplicate PowerPoint – Duplicate Word – Font Dialogue Box Outlook - Delete	CTRL + W	Close – Closes the Workbook in Excel,
CTRL + E	Word and PowerPoint Center Alignment – Paragraph Excel – Unassigned /Doesn't work	CTRL + X	Cut
CTRL + F	Find	CTRL + Y	Repeat Last Action
CTRL + G	Go To	CTRL + Z	Undo
CTRL + H	Replace	ESC	This key cancels the current command or operation.
CTRL + I	Italic	CTRL + Home	Top
CTRL + J	Word and PowerPoint Justify Alignment – Paragraph Excel- Unassigned/Doesn't work	CTRL + End	End/Bottom
CTRL + K	Insert Hyperlink	F1	Help
CTRL + L	Word and PowerPoint Left Alignment – Paragraph Excel-Unassigned/Doesn't work	F5	Go To
CTRL + N	New	F7	Spell Check
CTRL + O	Open	F10	Key Tips (Office 2007 only)
CTRL + P	Print	F12	Save As
CTRL + R	Right Align		Using a scrolling wheel on your mouse, you may press your CTRL (Control Key) and with it pressed, roll your scrolling wheel up to increase
CTRL + S	Save		

CTRL + S	Save	CTRL + Mouse Wheel	the size of your document, worksheet, etc. and roll the wheel down to decrease the size. This is the keyboard shortcut for the zoom feature.

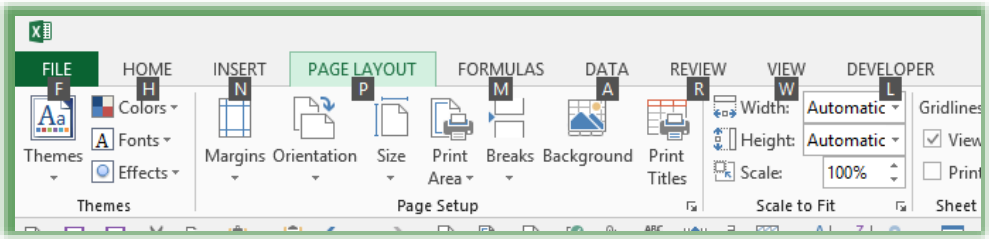
There are other keyboard shortcuts, too. You can use the help system in Excel for a list of all keyboard shortcuts that perform a variety of operations for you, just type ***Keyboard Shortcuts*** in the ***Help Search Box.***

Now, in the Office Suite are keyboard shortcuts called ***Key Tips***. To activate your ***Key Tips***, press the ***ALT*** or ***F10*** key on your keyboard. Excel displays screen tips or Microsoft calls these badges pictured here. To activate a Tab press the corresponding badge key, for example press ***H*** to activate the ***Home*** Tab and the badges for this tab's commands.



Let's try this in Excel 2013.

1. **Open Budget workbook.**
2. **Press your Alt key to activate your Key Tips or you may press the Function 10 (F10) key on your keyboard to display the Key Tips.**
3. **Press your P key on your keyboard. Notice that Excel places you are the Page Layout tab and Key Tips on all of your commands on the Page Layout Tab appear.**



4. **Press the O key to activate your Portrait or Landscape Orientation.**
5. **Press the Down Arrow key on your keyboard to Select Landscape and press enter to activate the selection. Your worksheet is now Landscape.**

6. **Let's return this to Portrait by pressing your ALT or F10 key, Pressing P for Page Layout, Press O for Orientation, and since Portrait is selected, press enter and the worksheet returns to Portrait Orientation for you.**

Why Key Tips? Many people still do not like using the mouse (YET) and prefer only using the keyboard; using key tips you never have to use the mouse for commands in the Ribbon or Quick Access Toolbar. Also, this aids people with Carpal Tunnel Syndrome.

The ***Functions Keys*** and combination keys such ***as Shift and a Function key*** are still around, too. Here are some of the ***Function Keys from Excel.***

Function Key	Command
F1	**Excel Help.**
F2	**Edits the active cell and positions the cursor/insertion point at the end of the cell's contents.**
F3	**Paste Name Dialogue box appears**
F4	**Repeats the last command or action. Also, if you click in your formula bar at a cell, the F4 key will toggle through your various references that we will learn, such as relative or absolute.**
F5	**Go To Dialogue box activates.**
F6	**Switches between the worksheet, ribbon, panes, and other areas of your worksheet.**
F7	**Activates Spell Check.**
F8	**Extend your selection (or increases your highlighted areas.) Press the F8 key and then use your arrow keys or other keys to select cells, rows, and/or columns for you.**
F9	**Calculates all open worksheets.**
F10	**Show Key Tips.**
F11	**Creates a chart from the selected range.**
F12	**Activates Save As Dialogue box.**

Activate the Help box by pressing the F1 key on your keyboard. Type in ***Function keys*** or ***keyboard shortcuts*** and Excel will list a lot of shortcuts for you. I encourage you to review these

and find your favorite shortcuts as you use Excel. We will use many of these shortcuts and items throughout our course.

Format Painter

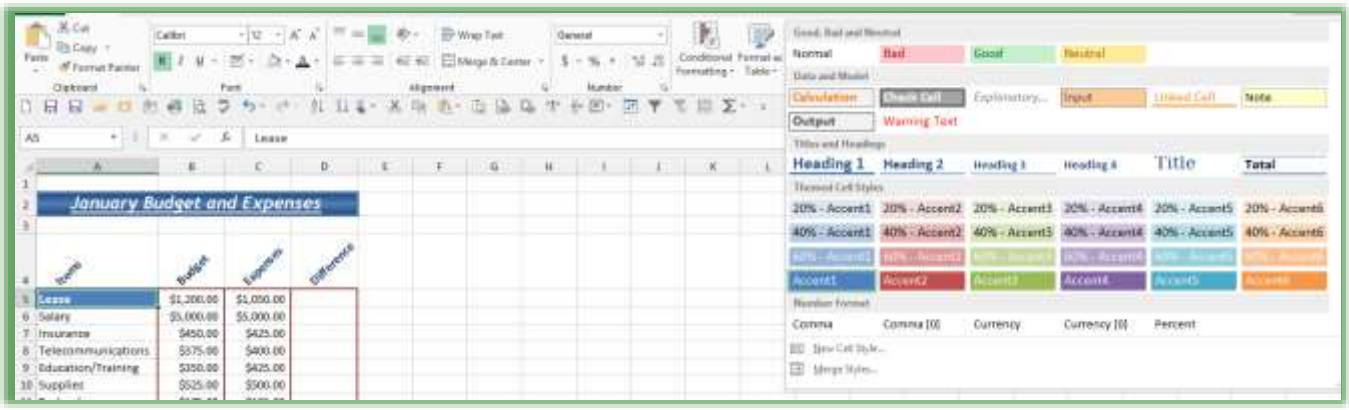
We will use the ***Format Painter*** throughout this course. Let's format Cell A5 and then use the ***Format Painter*** to copy this formatting to the other cells.

The ***Format Painter*** icon: This time saving button is ***in the Home Tab's Clipboard group or in the Mini Toolbar. Format Painter*** button allows you to apply formats from selected cells to other cells. ***Select the formatted cells, click the Format Painter icon, and select the cells that you want to apply the formats.***

> **One click on the command button allows you to "paint" or copy over once on the cells.**
> **Double clicking the Format Painter keeps the Format Painter active and allows you to "paint" or copy your formatting over multiple cells or areas; you must re-click the Format Painter icon or press the Esc key to deactivate the painting function.**

This only copies the formats nothing else, BUT you formats can be quite extensive.

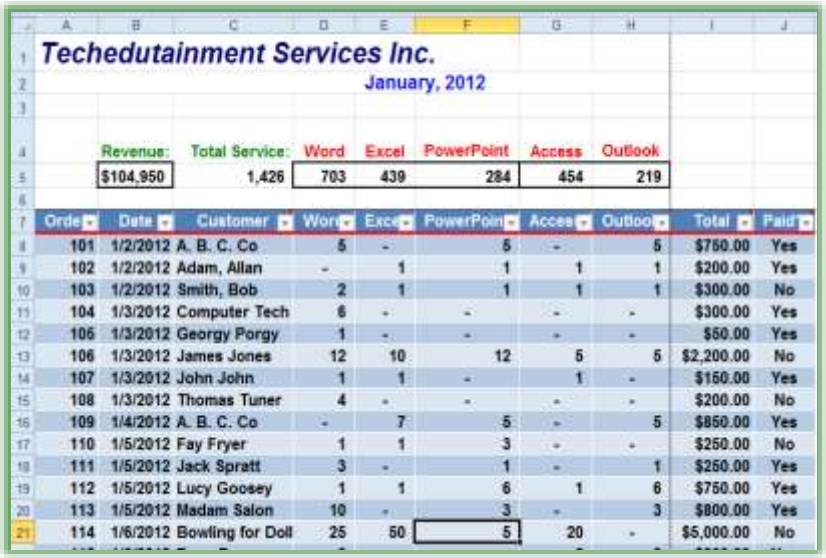
1. **In your Budget workbook, Click Cell A5 which should have the word Lease in it.**
2. **Click the Cell Styles Icon and from your Style Pane choose a style from the Themed Cell Styles area. I'm choosing Accent1.**



Format as A Table

Excel has a terrific way of formatting your database as a table with built in color schemes and functionality for you. However, there are gotcha's which I will share with you, that is why we will make a copy of your database sheet first and then use the *Format as Table* **command button and** *Design tab***.**

1. **Open the Track.xlsm workbook,**
2. **Make a copy of the Jan worksheet,**
3. **Click in the database area, such as cell C10 in the Customer column.**
4. **On the Home Tab click the Format as Table button and from the gallery choose a style for your table. You can always choose another style.**
5. **After you choose a style Excel will ask you the data range as displayed here. In this case Excel guessed correctly and My table does have headers, ie Date, Order, Customer fields.**
6. **Click OK.**



Techedutainment Services Inc.
January, 2012

Revenue:	Total Service:	Word	Excel	PowerPoint	Access	Outlook
$104,950	1,426	703	439	284	454	219

Orde	Date	Customer	Word	Excel	PowerPoint	Access	Outlook	Total	Paid
101	1/2/2012	A. B. C. Co	5	-	5	-	5	$750.00	Yes
102	1/2/2012	Adam, Allan	-	1	1	1	1	$200.00	Yes
103	1/2/2012	Smith, Bob	2	1	1	1	1	$300.00	No
104	1/3/2012	Computer Tech	6	-	-	-	-	$300.00	Yes
105	1/3/2012	Georgy Porgy	1	-	-	-	-	$50.00	Yes
106	1/3/2012	James Jones	12	10	12	5	5	$2,200.00	No
107	1/3/2012	John John	1	1	-	1	-	$150.00	Yes
108	1/3/2012	Thomas Tuner	4	-	-	-	-	$200.00	No
109	1/4/2012	A. B. C. Co	-	7	5	-	5	$850.00	Yes
110	1/5/2012	Fay Fryer	1	1	3	-	-	$250.00	No
111	1/5/2012	Jack Spratt	3	-	1	-	1	$250.00	Yes
112	1/5/2012	Lucy Goosey	1	1	6	1	6	$750.00	Yes
113	1/5/2012	Madam Salon	10	-	3	-	3	$800.00	Yes
114	1/6/2012	Bowling for Doll	25	50	5	20	-	$5,000.00	No

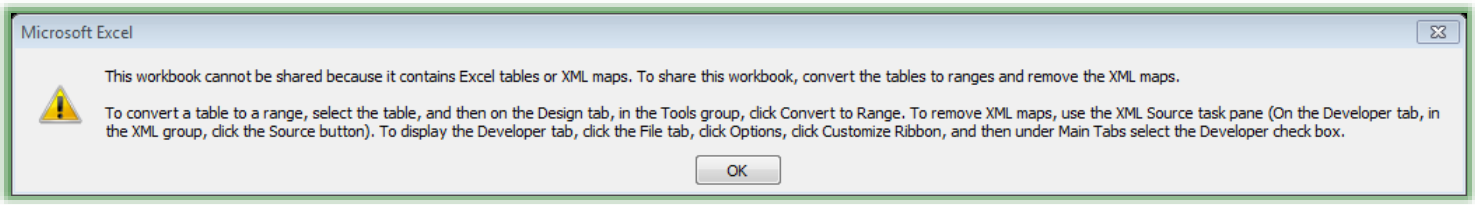
The Format as Table command button and gallery accomplish more than colors and shading, notice that your filter arrows are on and ready to use and Excel activates the Design tab for you.

A Hot Tip! With your database formatted as a table scroll down in your database table and notice that Excel changes the column headers from A, B, C, to your field names, as pictured below. So you don't need freeze panes in this example.

	Order	Date	Customer	Word	Excel	PowerPoint	Access	Outlook	Total	Paid?
10	103	1/2/2012	Smith, Bob	2	1	1	1	1	$300.00	No
11	104	1/3/2012	Computer Tech	6	-	-	-	-	$300.00	Yes
12	105	1/3/2012	Georgy Porgy	1	-	-	-	-	$50.00	Yes
13	106	1/3/2012	James Jones	12	10	12	5	5	$2,200.00	No
14	107	1/3/2012	John John	1	1	-	1	-	$150.00	Yes
15	108	1/3/2012	Thomas Tuner	4	-	-	-	-	$200.00	No
16	109	1/4/2012	A. B. C. Co	-	7	5	-	5	$850.00	Yes
17	110	1/5/2012	Fay Fryer	1	1	3	-	-	$250.00	No
18	111	1/5/2012	Jack Spratt	3	-	1	-	1	$250.00	Yes
19	112	1/5/2012	Lucy Goosey	1	1	6	1	6	$750.00	Yes
20	113	1/5/2012	Madam Salon	10	-	3	-	3	$800.00	Yes
21	114	1/6/2012	Bowling for Doll	25	50	5	20	-	$5,000.00	No
22	115	1/6/2012	Dean Don	2	-	-	6	8	$800.00	Yes

Now the gotcha's.

☹ Very Important Gotcha's with Format as Table: With your database formatted as a table, you cannot use SubTotals or Custom Views. You cannot share your workbook if you use Format as a Table, too. Click your Data tab and your View tab and you will notice these items and others grayed out. You may remove format as a table by clicking the Convert to Range button on the Design Tab of your table tools. The Error Message below appears when you try to share a workbook using the Review Tab and the workbook contains Format as Table. I'm not a programmer so I'm not sure why Excel disables these features for such terrific functionality. ☹



Data Manipulation: Filters and Sorts

Our ***final F is Filters and Sorts***. We will learn ***Filters and Sorts*** using our ***Track.xlsm*** workbook file. This workbook has an extension of xlsm in order for us to accomplish ***Macros*** in this workbook. The m in in xlsm is for a macro enabled workbook which we will learn later.

Quickly here are what filters and sorts are:

- ✓ ***Filters provide a quick way of viewing certain information and can include criteria for displaying your information.***
- ✓ ***Sorts allow you to order your data in various ways.***

Filter is a great way to view information or data based upon criteria and selecting items from a ***drop down list or pick list***. We will use several different types of ***Filters*** such as ***Text, Top 10*** and ***Custom*** as well as using the powerful and easy drop down list items.

Here are the ways to access Filter and Sort:

- ✓ ***The Home Tab the Editing Group contain Filter and Sort Commands,***
- ✓ ***The Data Tab includes a Sort & Filter Group,***
- ✓ ***Use Command Buttons on your Quick Access Toolbar or your Custom Tab on the Ribbon,***
- ✓ ***Right clicking and the Filter and Sort items are included in the Short Cut Menu.***

We'll use all these ways to Filter and to Sort.

1. **First, let's open the Track.xlsm workbook,**
2. **Click the Jan tab.**

Excel Database

This workbook and worksheets contain a ***database*** or ***data table*** of information that begins with the ***Header Row*** (or ***Field Names***) of Order, Date, Customer, etc. The top area of the worksheet is for summary information and titles. Excel works very differently when used as a ***database or table*** like this list of customers. This is ***a tracking system*** or ***database*** of information about our customer sales and orders. With your information organized in this fashion Excel works great with items such as ***sorting, filtering, sub-totals, Pivot Tables***, and other items we will examine. An Excel database contains a row called ***Column Headings***, I like to think of this as our ***field names*** for our "simple" database, all rows beneath this row contain only data or a calculation, but not sub-totals or blank rows.

☹ An Important Gotcha Your Excel table or database should not contain blank rows or columns; you may have blank cells but not blank rows or columns. Excel considers a blank row or column to be the end of your database or table. ☹

1. **Click the Income Tab in the Track.xlsm file.**

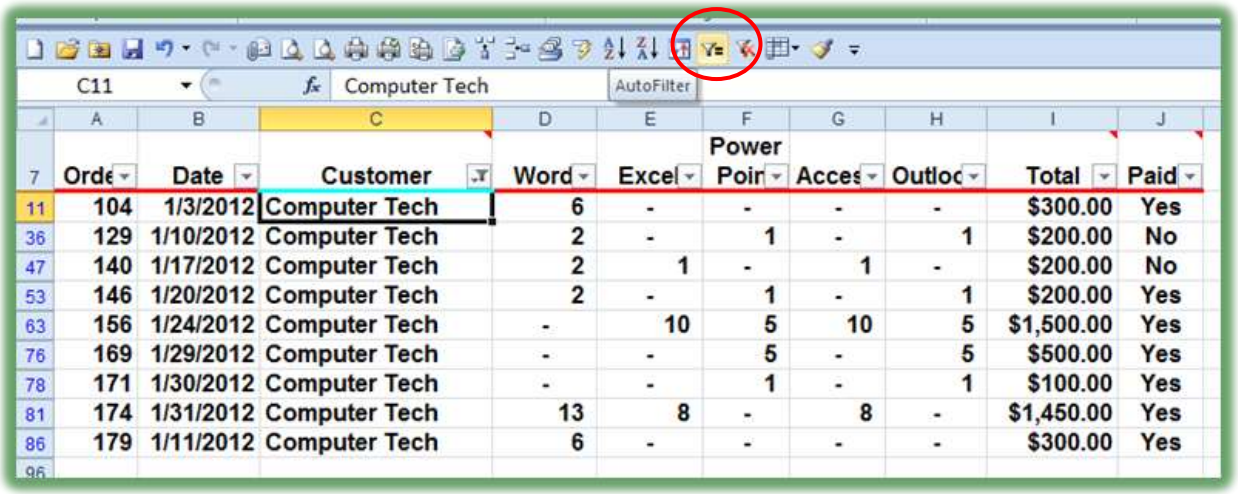
This worksheet is not a database and is not good with filtering and sorting. This worksheet is a typical type of Excel worksheet with items being totaled and sub-totaled in rows and columns. You could Sort a specific area, such as A7 – G11, but not a column or other area. Filtering would not be useful in this type of worksheet, either.

Filter through A List

♬ You should be in your data or table area and near your header row in order for Excel to know how to and what to filter. Otherwise, Excel will give you an error that it could not find a list; therefore, be in your list area. ♬

Let's get ready to Filter our database or table in many neat ways.

1. **In your Track workbook,**
2. **Click the JAN worksheet**
3. **Click cell C8. – the first cell under your Customer Field name or column heading.**
4. **Scroll to find Computer Tech and select a cell with Computer Tech.**
5. **Click the AutoFilter button that we added to our Quick Access Toolbar. Quickly AND easily Excel displays only the orders for Computer Tech. The AutoFilter will filter for whatever you have selected and turn on**



	A	B	C	D	E	F	G	H	I	J
7	Orde	Date	Customer	Word	Excel	Power Poir	Acces	Outloc	Total	Paid
11	104	1/3/2012	Computer Tech	6	-	-	-	-	$300.00	Yes
36	129	1/10/2012	Computer Tech	2	-	1	-	1	$200.00	No
47	140	1/17/2012	Computer Tech	2	1	-	1	-	$200.00	No
53	146	1/20/2012	Computer Tech	2	-	1	-	1	$200.00	Yes
63	156	1/24/2012	Computer Tech	-	10	5	10	5	$1,500.00	Yes
76	169	1/29/2012	Computer Tech	-	-	5	-	5	$500.00	Yes
78	171	1/30/2012	Computer Tech	-	-	1	-	1	$100.00	Yes
81	174	1/31/2012	Computer Tech	13	8	-	8	-	$1,450.00	Yes
86	179	1/11/2012	Computer Tech	6	-	-	-	-	$300.00	Yes

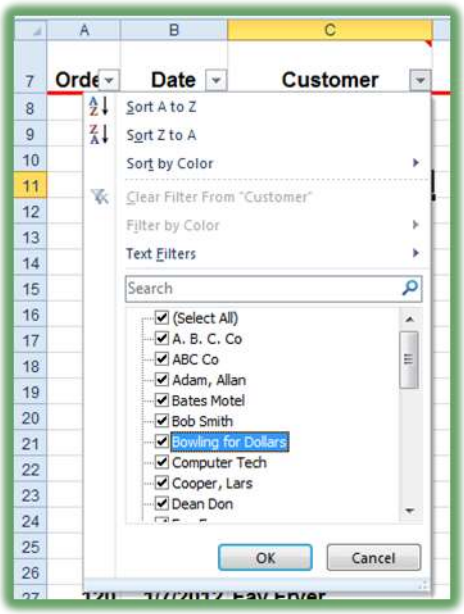
your Filter (the arrows next to your field names or column headings) as displayed above.

Without using the AutoFilter button here is how to Filter for Computer Tech (or any other client).

1. **On Home Tab,**
2. **Click the Sort & Filter command button,**
3. **Trace to Filter and Click it.**

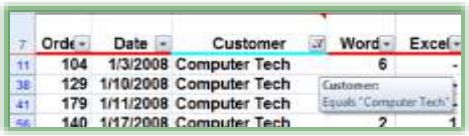
As pictured, small drop down arrows appear in your column headers or fields.

1. **In the Customer header,**
2. **Click the Drop Down arrow,**
3. **A Menu of your Customer Names appears.**
4. **Click the Select All check mark item to deselect all of your items, next Click the Computer Tech box ,**
5. **Click OK,**
6. **Excel Displays only Computer Tech..**



Filters will display only certain information for you. The data is not deleted and when we remove the filter all rows will display again.

1. **Notice the Drop Down arrow has turned to a Filter icon this indicates that a filter is on for this field and when a screen tip appears alerting you to the criteria for this filter.**
2. **Click the Drop Down arrow,**
3. **To view all of your data again without turning off the Filter, Click the Select All box – You may need to scroll up to see the All selection.**
4. **Click OK and All of your customers and their data appear again.**
5. **Click the Sort & Filter button and from the menu click the Filter item to turn off your filter.**

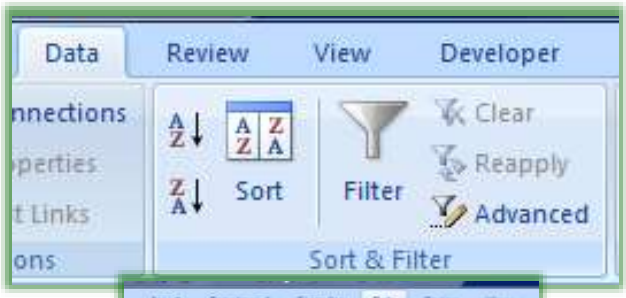


6. **Notice that when you have your data filtered, the Sort & Filter button on the Home Tab activates Clear and Reapply for you. You may remove your filter by clicking the Clear button and then you are ready for additional filters. You may use the Clear button we added to your Quick Access Toolbar, too.**

♬ *Write your notes here:*_____

_____

If you prefer, you could use the Data Tab to Filter, too.



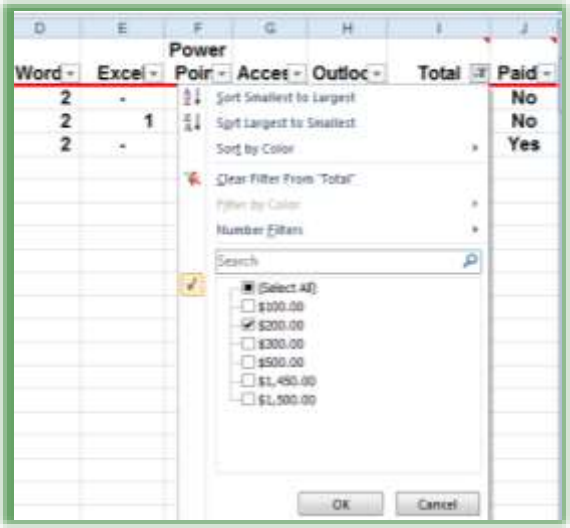
1. **Click in your Customer list on the Jan tab,**
2. **Click Data Tab and Click the Filter Button in the Sort & Filter Group,**
3. **Excel activates the Drop Down arrows for your Column headers or Field Names.**
4. **Click the Customer Arrow and Click the Select All box to deactivate your selections.**
5. **Click a few customers whose data you would like to view.**
6. **Click OK.**
7. **To view all of your data again, click the Clear button in the Sort & Filter Group of the Data tab. The Clear button becomes active when you have a filter on.**

8. **Try several different selections for specific dates, amounts, and other filters based on your selections.**

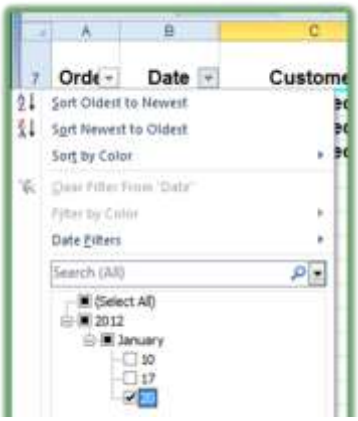
☹ An Important Gotcha! Notice that you have two entries for ABC Co. Databases and data tables are very literal and must have consistency. Databases and Data tables/list won't make assumptions and spaces and periods count in names of items. Excel has a terrific feature entitled AutoComplete. (This item is found under your Office Button and Excel Options and the Advanced section and the Editing Options has the AutoComplete enabled checked for you. We'll look at these options later.) If you begin typing a name that Excel can recognize from your list, Excel will display that for you to press enter to accept the entry automatically for you. For example, if you go to Cell C83 and type Com - Excel will display Computer Tech for you to accept or to continue typing your own name. Please use AutoComplete or be very consistent in your names and other items. ☹

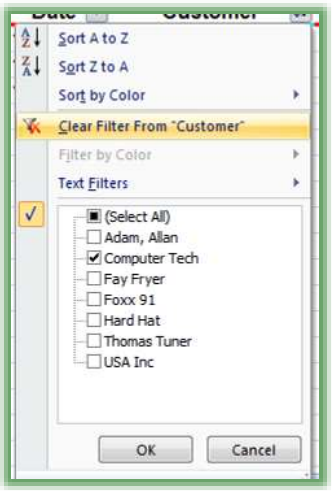
Multiple Filters

Let's filter the filter and then filter our filtered list!



1. **Have *Track.xlsm* open and the *Jan* Worksheet is active.**
2. **Have your *Filter* on.**
3. **Click the Drop Down Arrow and from the cascading menu Click the Select All box to deselect everything. Next, click the Computer Tech box to display on Computer Tech's information,**
4. **Next, Click the Drop Down arrow for Total and deselect all of the items and Click $200.**
5. **Only Computer Tech totals for $200 appear. We have two criteria, now, for our filter.**
6. **Click the Drop Down arrow for Date and from the list choose January 20.**
7. **You now only see one row that meets the criteria of Computer Tech, $200, and January 20, 2012. With the date notice the ways you may filter by year, month, and date.**

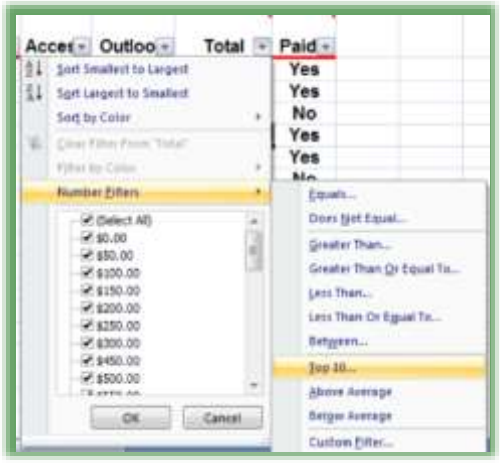




When you have multiple filters on you can remove specific filters easily through the drop down arrow on a field that is filtered. The short cut menu at right appears – notice the Clear Filter From "Customer" – Excel would remove this filter but keep the other filters for you.

Top 10

Excel's ***Filter*** can make ***Top*** and ***Bottom*** number lists easy. You can specify whether you want ***items*** or ***percentages***. While the name says 10, you can specify the number you wish. For example, if wanted the top 12 revenue producing clients you could specify a total column to show only the top 12 items. If multiple numbers meet the criteria or a tie, Excel will not stop at the number you specified. For Example, if your top 12 list include 3 clients with the same billing in the 12th spot – Excel would display your top 14 instead of 12. Excel won't make the assumption about which client you would prefer to see given a tie.

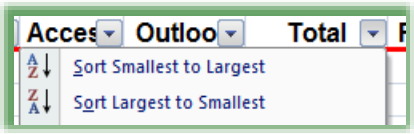


Let's filter for our top 6 billing days for our orders.

1. **With Filter active on your Jan tab of the Track.xlsm workbook,**
2. **Click the Drop down arrow for Total,**
3. **Trace to the Number Filters item,**
4. **Click the Top 10 item from the list,**
5. **The Dialogue box at right appears,**
6. **Ensure Top is displaying – you may also look at the Bottom or lowest items – in our case here we could look at the 6 lowest billing accounts (losers!)**
7. **Next from the number area change the 10 to a 6 using the spinner control or typing in 6,**
8. **Next keep the Items displayed as pictured above you may also Show by Percent,**
9. **Click OK.**

Great! Now let's sort the list From Largest to Smallest.

1. **Using the Filter Drop Down arrow for Total and clicking Sort Largest to Smallest – Excel sorts this for us from the greatest amount to the least amount.**



Orde	Date	Customer	Word	Excel	Power Poir	Acces	Outloc	Total	Paid
132	1/12/2012	Lucy Goosey	30	50	-	50	-	$6,500.00	Yes
126	1/9/2012	Bates Motel	48	30	39	2	-	$5,950.00	No
172	1/30/2012	Foxx 91	-	5	-	100	-	$5,250.00	Yes
114	1/6/2012	Bowling for Dollars	25	50	5	20	-	$5,000.00	No
128	1/9/2012	Jones James	100	-	-	-	-	$5,000.00	Yes
130	1/10/2012	Fay Fryer	-	25	25	25	25	$5,000.00	Yes
147	1/20/2012	Moma Mia	100	-	-	-	-	$5,000.00	Yes

Jan Feb Mar Income Costs Sheet1

Ready 7 of 88 records found Average: $5,385.71 Count: 7 Numerical Count: 7 Min: $5,000.00 Max: $6,500.00 Sum: $37,700.00

2. **Notice that your list has more than 6 – there are multiple $5,000 dollars at the 6th mark so the list is expanded.**

Hot Tip! Filter information and AutoCalculate - Remember the Calculations in your status bar? Select your list in the Total column and notice your Sum, Average, and Count functions in the status bar, if you have these items activated. Also, with a Filter active you should notice the information at the left of the status bar displaying 7 of 88 records illustrating the number of items that meet your filter criteria and are displayed. These items will aid in further analyzing your filter information.

3. **Remove your filter by clicking the Clear button on your Data Tab or Quick Access Toolbar.**

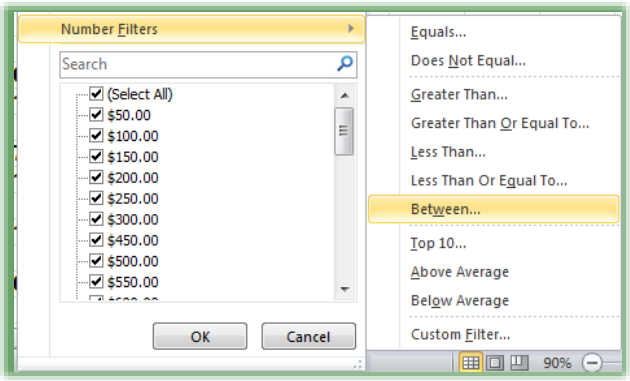
Write your notes

*here:*_____

Custom Filters

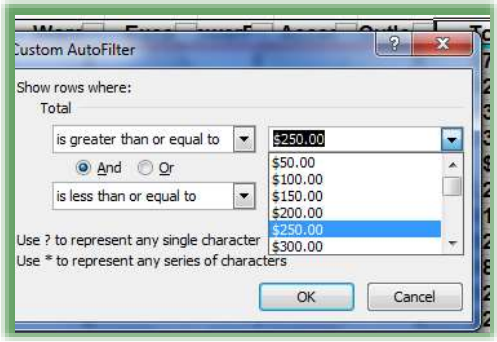
You can specify a range of items for the filter to apply. You can have dates, numbers, and other items filtered with a range. We will create a filter that will display our mid-range billing clients. Depending upon the type of data that exists in a column Excel provides different type of filters. We'll look at different filters for different types of data such as Text, Numbers, and Dates.

Number Custom Filters

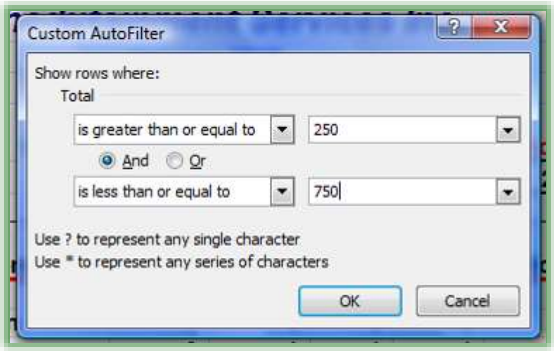


Let's filter for a range using the Total column.

1. **The *Track.xlsm* file is open and *Filter* is Active,**
2. **Click on the Drop Down Arrow for *Total* notice all of the number filters such as Great than and so on.**
3. **Click Between. . . ,**
4. **The *Custom AutoFilter* dialogue box at right appears.**

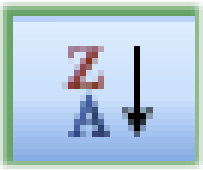


5. **Using the pictured dialogue box as a guide, ensure Excel provides is greater than or equal to**
6. **then press *Tab* Key or *Click* the second box,**
7. **Enter *250* or use the Pick list from the arrow to select 250*.***
8. **Ensure the *And* radio button is on.**
9. **Press the *Tab key* or *Click* in the next box.**
10. **Ensure "*is less than or equal to*" appears and *Tab* to or *click* the next box,**
11. **Enter *750* or use your Pick list by clicking the arrow,**
12. **Click *OK*.**

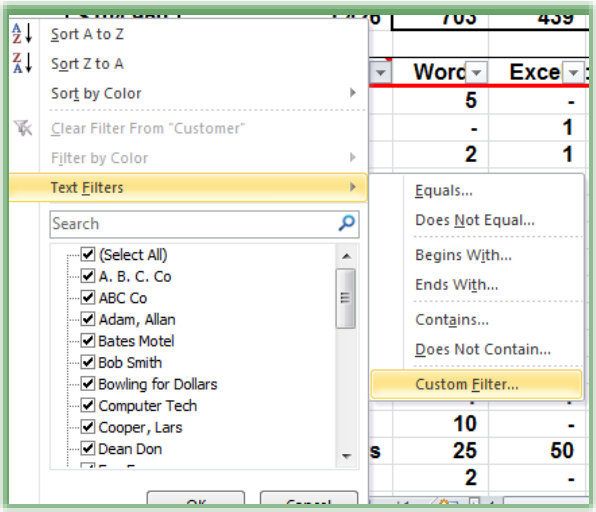


Your range of customers appears.

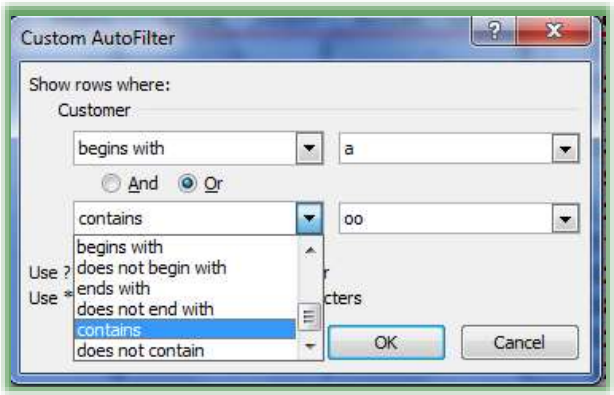
Sort Descend this column using the *sort descend icon* on the Data Tab or the Filter Drop Down arrow for the Total Column.



Text Custom Filter



1. **Let's use Filter for Text characters.**
2. **If there are any filters on your Jan tab, click the Clear button in the Data Tab or your on your Quick Access Toolbar to remove all filtered data.**
3. **Click the Filter Drop Down Arrow for Customer.**
4. **Trace to Text Filters and from the cascading menu, notice the different type of text criteria you may provide.**
5. **Click the Custom Filter. . . item.**



6. **The Custom AutoFilter Dialogue box opens.**
7. **We want to view to different letters for our customer names. We want all customer's whose name begins with an A or contains oo.**
8. **Using the picture at right as a guide make your choices and make sure you change the And selection to Or – the Or allows two different criteria for the same filter.**
9. **Click OK.**
10. **Only customer's whose name begins with an A or have "oo" somewhere in the name appears. So, we have A.B.C. Co, Adam, Allen and Lucy Goosey, Shoot Pool, and so on. Contains is a terrific filter**

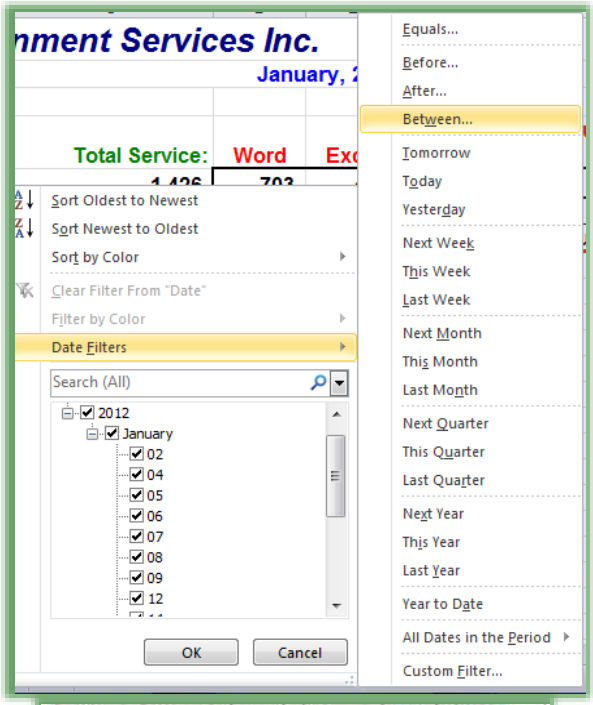
because no matter where the character resides in the name Excel displays the name.

11. Click the Sort Ascending button on the Data Tab or using the Filter icon by Customer and from the menu selecting Sort A to Z as pictured at right.

12. You may clear your filter from here or Click the Clear button on the Data Tab. Clear your filter.

Date Custom Filters

Excel has great built in Date Filters for you.



1. With your Track.xlsm workbook open and at the Jan tab ensure you have no filters on your data but do have filter active.
2. Click the Filter arrow for date and tract to Date Filters. Notice ALL of the ways to filter your date lists.
3. Click the Between. . . item and the Custom AutoFilter Dialogue Box opens.
4. Ensure that the Show rows where: Date item is set to *is after or equal to* and type or use the calendar pick list to enter *01/12/2012* or use your Date Picker calendar.
5. Keep the *And* button selected.
6. In the second set of boxes ensure Date item is set to *is before or equal to* and type or use the calendar icon to enter *01/20/2012*.
7. Click OK.

8. **Your data is filtered for that range of dates.**
9. **Click your Filter arrow for Date and from the Menu Sort Oldest to Newest.**
10. **Click your Clear icon on your Data Tab to remove all filters.**

Yes/No Filter

I like to have a yes/no column for many of my worksheets that I use for tracking items. One way I use yes/no is if a customer has paid me or not. This is a very quick and easy way to follow-up on payments. I filter for Yes to send a thank you note and I filter for No to place a follow-up e-mail or phone call.

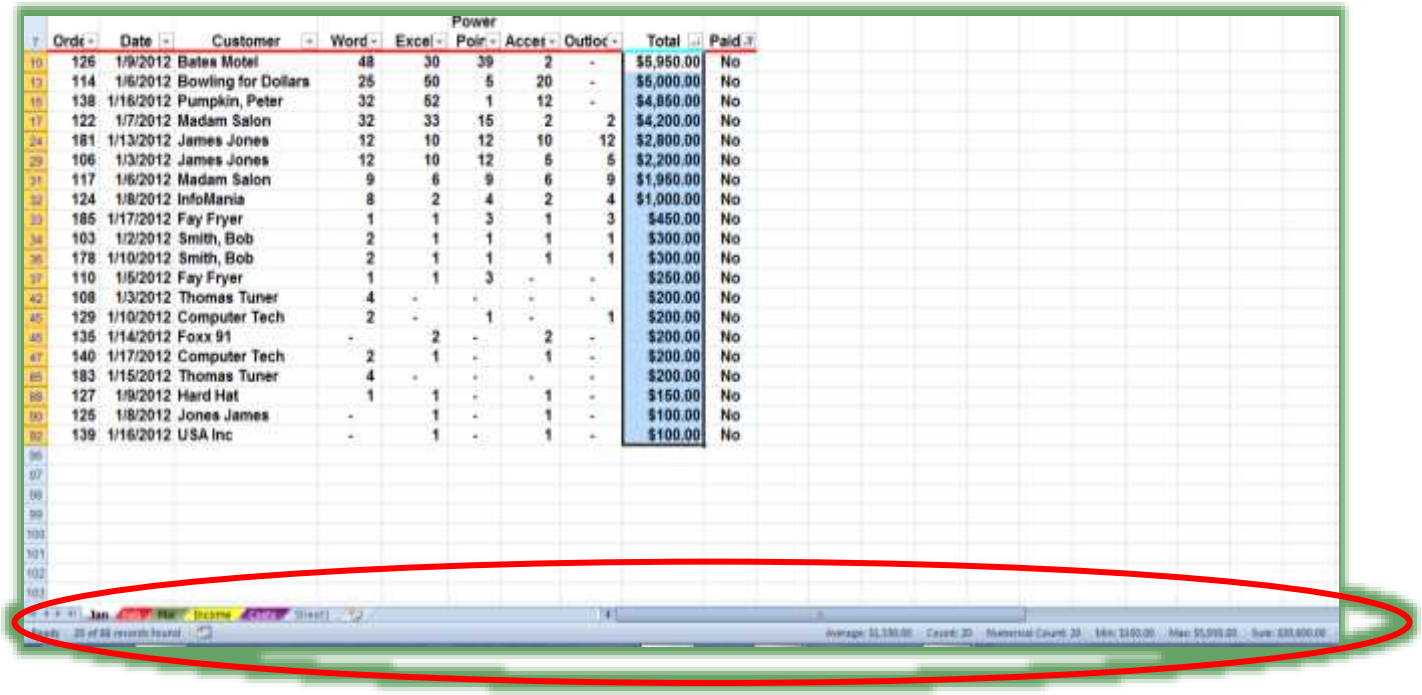
Let's filter our list for who has not paid us, yet.

1. **Click inside our data table in the *Jan* Tab of the *Track.xlsm* file,**
2. **With all of your records showing, *click* the Drop Down arrow on the *Yes/No Column* and uncheck the Select All item or select a cell with *No* in it and click your AutoFilter button.**
3. **Click the box to check *No*,**
4. **Click OK.**

Now, we know who to phone or e-mail a follow-up to.

Let's determine our outstanding collections.

1. **Sort your Filtered List from Largest to Smallest.**
2. **Click and Drag the Items in the filtered Total Column to select them,**
3. **Notice your Calculation area in the status bar,**
4. **I have all of my functions on.**



Ordr	Date	Customer	Word	Excel	Power Poir	Accer	Outloc	Total	Paid
126	1/9/2012	Bates Motel	48	30	39	2	-	$5,950.00	No
114	1/6/2012	Bowling for Dollars	25	50	5	20	-	$5,000.00	No
138	1/16/2012	Pumpkin, Peter	32	52	1	12	-	$4,850.00	No
122	1/7/2012	Madam Salon	32	33	15	2	2	$4,200.00	No
181	1/13/2012	James Jones	12	10	12	10	12	$2,800.00	No
106	1/3/2012	James Jones	12	10	12	6	6	$2,200.00	No
117	1/6/2012	Madam Salon	9	6	9	6	9	$1,950.00	No
124	1/8/2012	InfoMania	8	2	4	2	4	$1,000.00	No
185	1/17/2012	Fay Fryer	1	1	3	1	3	$450.00	No
103	1/2/2012	Smith, Bob	2	1	1	1	1	$300.00	No
178	1/10/2012	Smith, Bob	2	1	1	1	1	$300.00	No
110	1/5/2012	Fay Fryer	1	1	3	-	-	$250.00	No
108	1/3/2012	Thomas Tuner	4	-	-	-	-	$200.00	No
129	1/10/2012	Computer Tech	2	-	1	-	1	$200.00	No
135	1/14/2012	Foxx 91	-	2	-	2	-	$200.00	No
140	1/17/2012	Computer Tech	2	1	-	1	-	$200.00	No
183	1/15/2012	Thomas Tuner	4	-	-	-	-	$200.00	No
127	1/9/2012	Hard Hat	1	1	-	1	-	$150.00	No
125	1/8/2012	Jones James	-	1	-	1	-	$100.00	No
139	1/16/2012	USA Inc	-	1	-	1	-	$100.00	No

5. **I think I would get busy calling some clients asking: "Show me the Money!", especially Bates Motel. I need to send my collections agent to visit Norman!**

Filtering displays only the information you select. ***Sorting*** displays all of your data arranged in a particularly order. ***Time to "sort" things out.***

Sorting

☹ An Important Gotcha! Always have a backup copy of your Excel file before performing sorting! You can use the Save As feature from your File Tab or pressing the F12 key activates the Save As dialogue box for you, too. While sorting is powerful and easy in Excel, many a new user and us old-timers are frustrated because sometimes you may need to select your entire area of data to be sorted; otherwise Excel will sort only your selected information, such as a single column, and the information will be misplaced in your original data worksheet! Excel 2010 handles this better than previous versions of Excel. If your worksheet is a database or table then you will not have to select the entire area in order to sort– simply be in the column of the field you want sorted. If your worksheet is not in a database or table format, such as a balance sheet or income statement with multiple subtotals, you will need to select an area to be sorted prior to sorting the data area. For example, you may not want a total or sub-total row included in a sort because your information will be distorted. In our worksheet, the Customer data listing is in a continuous list without sub-totals and totals and all rows and columns are together and have data in most cells, so our sorting will be easy. ☹

Our first step is to ensure that we have a backup file. You could sort your worksheet incorrectly and click the save icon and you will never be able to return to your original sort unless there is a column that you can sort on and retain. For example, I had a customer that used Excel for tracking invoices, the customer wanted to keep the order of the spreadsheet in order of input – there was no column or field that kept track of the order of input. The client performed a sort on client name, the client accidentally saved the workbook and the customer could not get back to the original order of input. OOPS! Now, the client uses a number field to keep the order of input and to allow a sort on this field.

Unless your worksheet contains a table with no totals or subtotals or other calculated row and no blank rows or columns, you will need to select or highlight the entire area of data on your worksheet leaving no columns or rows unselected or highlighted in our data area. We will sort two ways: First, we will use the ***Sorting icons on the Home Tab and Data Tab*** as we accomplished with our filtering exercises. Then we will use the ***Custom Sort*** method in order to sort by more than one field or row header. We will sort a database/table that we will not need to select the area for sorting and then we will sort an income sheet that we will need to select an area in order to sort.

Sorting Command Buttons: A Single Sort

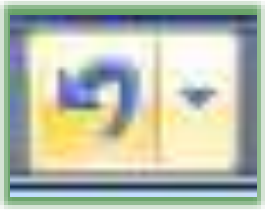
Here are the steps for sorting using the Command buttons on the Home Tab and Data Tab. You may use your sorting buttons that we added to our Quick Access Toolbar and you may use the Shortcut menu by right clicking, too.

1. **First in our *Track.xlsm* file and *Jan* Tab,**
2. ***Click* cell C8 or any cell with name under the Customer heading,**
3. ***Click* the Sort & Filter button as Pictured at right and Click the Sort A to Z item.**
4. **You may use the Data Tab and the Sort Ascending button in the Sort & Filter Group.**
5. **Your information is sorted by Customer name in alphabetical order.**

A Hot Tip! Notice that Excel changes your sort to A to Z and Z to A for Text data, Newest to Oldest and Oldest to Newest for Date data, and Largest to Smallest and Smallest to Largest for Numerical data! So this is Sorting for "Dummies" and Liberal Arts people like me.

This worked well because the area we are using is a tracking system type of worksheet. As I related earlier, there will be times when you will need to select the area you want sorted and we will accomplish this in our next section.

Click the Undo button on your Quick Access Toolbar to remove the sort.



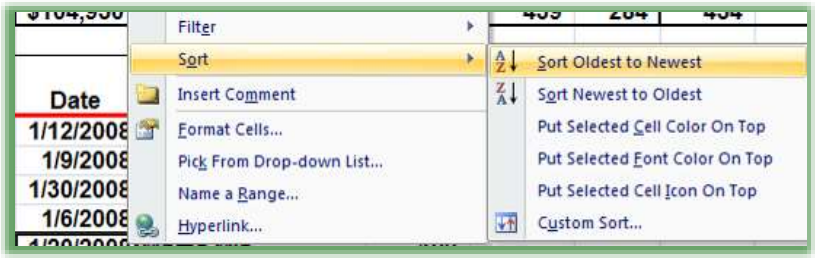
Here's one of my favorite icons in the Office suite the ***Undo*** icon. It should be called the Greg Creech key because I make so many mistakes and say Oops! a lot. Clicking this key can get you out of a mess. Since we clicked it, our sort is removed.

Let's sort in Descending order or from Greatest to Least as we have previously accomplished.

1. **Click in Cell G8 we want to view our Totals from Largest to Smallest.**
2. **Click the Z-A button on the Data Tab or the Largest to Smallest button. Excel Sorted our information.**

Let's sort in Date order or from Oldest to Newest using the right click method.

1. **Right click in the Date Column.**
2. **From the Short cut menu trace to Sort and from the Cascading menu choose Oldest to Newest as pictured here.**



As I related earlier and repeat here, if you include a total row or cells you may not want in your sort, Excel will "mess up" your worksheet – be sure not to save it in this condition. **As I related earlier, I always save a copy of my Excel file before I do any sorting activity. I have learned that if I mess up my spreadsheet through sorting and accidentally save my spreadsheet I have lost my good spreadsheet forever and must recreate the original sort and order of my data!** This is only important if you must keep your original worksheet in order of input and there is not a field or column that can be sorted to retrieve the original sort. A couple of messes like this and you will learn as I and my clients have that we should save backup copies of our original Excel files.

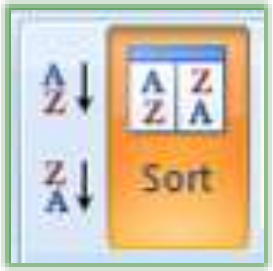
♬ ***Write your notes here:***_____

_____

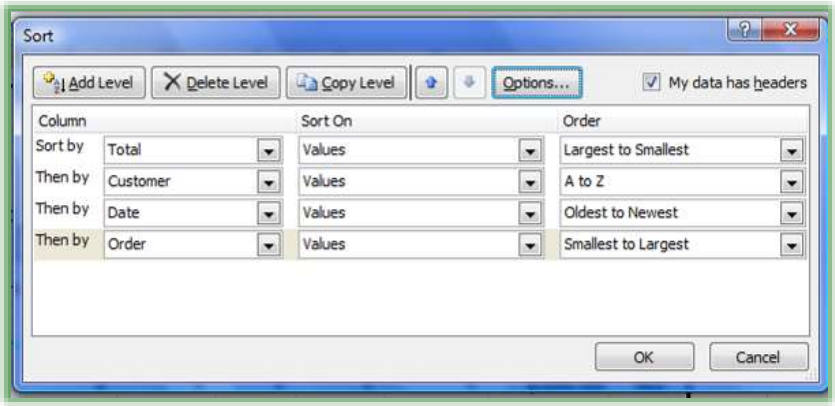
Custom Sort: Sorting by Multiple Items

Let's use the Custom Sort method of sorting. Although the Sorting Command buttons are quicker, they are designed for sorting by only one item. The ***Custom Sort*** method of sorting allows you to have a primary sort and other sorts.

Here are the steps to sort using the Custom Sorting:



1. **First be in our *Track.xlsm* file and *Jan* Tab,**
2. **Click inside your data table.**
3. **Click on your Data Tab and Click the Sort button and your Sort Pane opens. You may use the Custom Sort button on your Quick Access Toolbar that we added earlier, too.**
4. **Click the Drop down arrow for our first sort. Notice you can select different areas to sort by such as Order, Date, etc. Also, in the "My data has headers" is checked. The Header row is important in the ease of sorting; if there were no header row Excel would have Column A, Column B, etc for you choose – Descriptive names are easier for me to relate rather than Column A, Column B. I think of these column headers as field names of my database.**

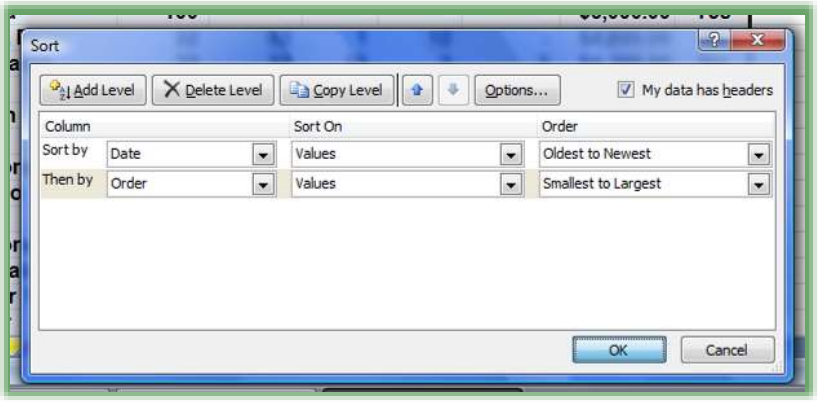


5. **Click Total.**
6. **Ensure Sort On has values in it. Notice that you may sort by color and icons, too.**
7. **Order should be Largest to Smallest.**
8. **Click the Add Level Button**

9. **In the Then by box select Customer, keep sort on Values, and Order should be A to Z.**
10. **Use the screen above to add sorts for Date and Order.**
11. **When complete, Click Ok.**

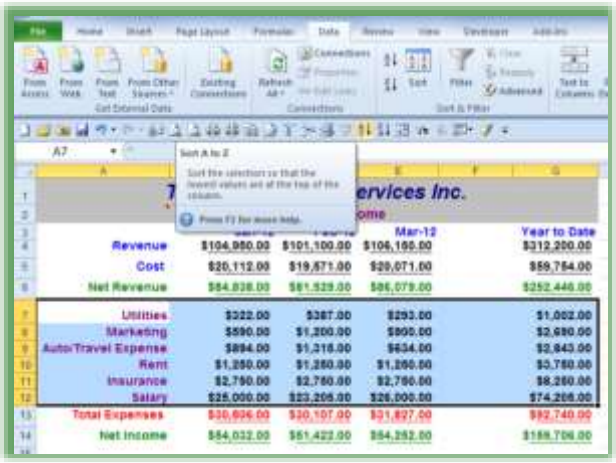
Scroll through and notice how your sort works when you see duplicates in the total field. There are records or rows that meet all of the criteria. Let's Sort the worksheet by Order and then by Date.

1. **Activate your Sort Dialogue box by clicking the Sort Command button on the Data Tab.**
2. **Sort by Date first in Oldest to Newest order.**
3. **Then sort by Order in Smallest to Largest Order.**
4. **Delete the other two levels by clicking in the level and then clicking the Delete Level button.**
5. **Click OK.**



Now, let's select an area to sort.

1. **In the Track.xlsm workbook click the Income Tab,**



2. **This worksheet would not be good to sort without selecting the correct area first. There are no headers or field names and there are breaks in the data for calculations – so this is not a database and we must select areas to sort.**
3. **Select the Expenses area A7 through G12.**
4. **Click the Sort Ascending button and Excel sorts your information by the Expense name, since our focus or cursor was in this column. Excel will sort based on the "white" cell as pictured above. You may press tab and the focus leaves this cell and then you can sort by the next column using the icons, but having the area A7 through G12 is the important part of this.**

5. **Tab to Column G.**
6. **Click the Custom Sort button and from the Sort Pane Sort by Column G on Values and Order from Largest to Smallest.**

Excel sorts your Year-to-Date expenses in descending order or Largest to Smallestfor you.

Congratulations! You have survived and thrived through the Five F's of Excel: Formatting, Fills, Formulas, Functions, and Filters/Sorts. We will continue using these Five F's throughout our course. Now, let's turn our attention to some Excel efficiencies and to creating a multiple worksheet file.

♬ ***Write your notes here:***_____

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Custom Views

Another nice feature of ***Excel*** is the ability to give a name to view that includes ***hidden columns or rows and filtered items***. You can use a ***Custom View*** for an entire worksheet or for an area of your worksheet. ***Custom Views*** are saved within the ***Workbook*** but affects a ***worksheet***. This works similar to using names in your ***Name Box***, which we will later.

Here are the steps we will use to create our custom views.

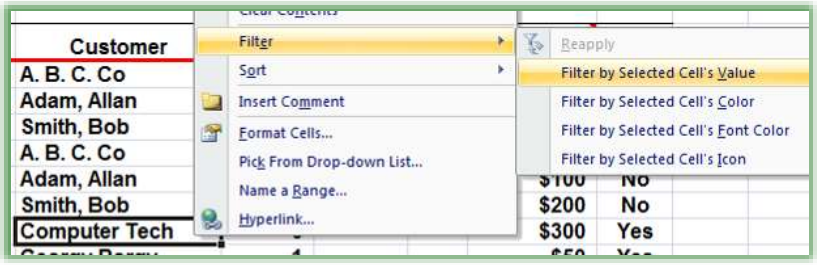
1. **First you select the area or have your worksheet organized with a filter or hidden column as you like and that you view a lot,**
2. **Then on the View Tab, Click the Custom Views button,**
3. **Click the Add button,**
4. **Name your View.**
5. **Once you name your views, you can retrieve them by choosing Custom Views and from the pane select the View you want, Click Show.**

As related earlier, this is very helpful for viewing AutoFilter items, hidden columns or rows quickly or collapsed items in subtotals etc. We will use our ***Track.xlsm*** workbook and the *Jan* tab to create views.

1. **With your Track.xlsm workbook open,**
2. **Ensure the Jan tab is active.**
3. **Click View Tab and Click the Custom Views button.**
4. **From the Custom Views pane, select Bates Motel and Click Show.**
5. **Excel displays only Bates Motel.**
6. **Click your Custom Views button, again, and this time choose the Lucy View and Show it.**

7. **Finally, Click the Custom Views button and $1,000 + Orders View.**

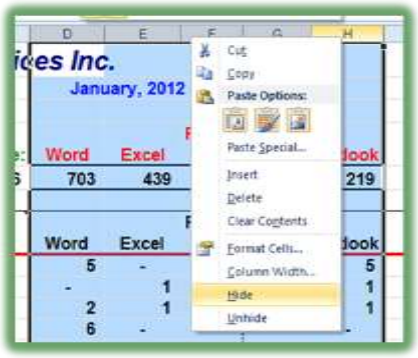
We'll create our own view, now.



1. **Click in a cell containing the customer Computer Tech.**
2. **Right Click on this cell and from the shortcut menu trace to Filter and from the Cascading menu choose *Filter by Select Cell's Value* Add.**

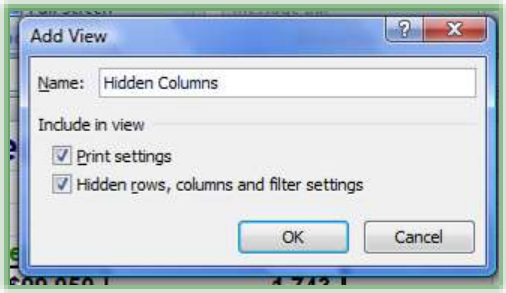
3. **Excel displays only Computer Tech information.**
4. **Click your View Tab and then click the Custom Views button.**
5. **Click the Add button.**
6. **In the Add View dialogue box, type *Computer Tech* in the Name: section.**
7. **Click OK. You return to your worksheet with no changes in your view.**
8. **Click Custom Views on the View Tab,**
9. **From the Selections click Lucy.**
10. **Click Show.**
11. **You return to your worksheet with only Lucy Goosey items displayed and your AutoFilter is active.**
12. **Finally, click the Custom Views button and from the Custom Views window,**
13. **Click Full View.**
14. **You return to your worksheet with all of your items displayed.**

Let's hide some columns and save this as a view



1. **In your Track.xlsm Select Columns D through H,**
2. **Right Click and from the shortcut menu click Hide as pictured here,**

3. **Your Columns are hidden.**
4. **Click the Custom Views button.**
5. **Click Add,**
6. **Name the View Hidden Columns,**
7. **Click OK.**
8. **Activate your Custom Views and view the Full View and then View Hidden Columns.. Finally, return to your Full View.**



On your own create some views with filters and hidden rows and/or columns.

☹ An Important Gotcha! You may want to Sort your data and save this as a view; I know I have, but alas Sorting cannot be saved as a view, YET.

♬ ***Write your notes here:***_____

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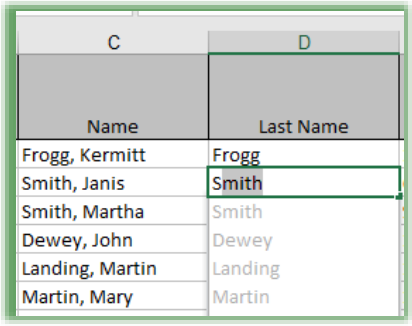
Flash Fill

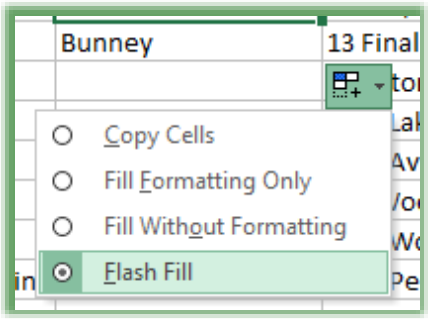
Excel 2013/2016 – New Flash Fill.

A cool feature in Excel 2013 and 2016 is ***Flash Fill***. This separates a series in a column for you; this is similar to using the ***Text to Columns*** feature of Excel, only easier. We will learn ***Text to Columns*** later, and ***Flash Fill*** is a terrific way to separate a series.

Here's how to use Flash Fill.

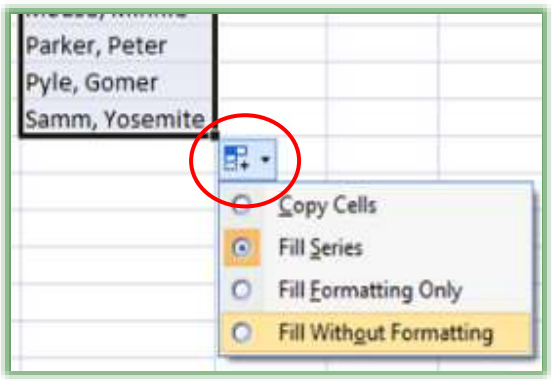


1. **In my Flash Fill workbook, I insert a column and type the person's Last Name (in this case Frogg).**
2. **I press enter to go to the cell below and when I begin typing the next person's last name, Excel gives a list of the remaining names in gray.**
3. **When I press enter, Excel magically inserts all of the last names for me.**
4. **Next, I insert another column and type a person's first name (in this case Kermitt). After pressing enter, I go to the next cell below and beginning typing the next person's first name, Excel offers all first names in gray. I press enter and the first names populate the column.**



Sometimes Flash Fill may not work for you. You may use your Fill options menu to use Flash Fill, too.

As we learned with the date fill, Excel has a ***Fill Options button*** that is pictured here. When you use Fill, this button will appear and provide shortcuts to select your formatting options and other options. The top item is ***Copy Cells*** – I use my Fill handle a lot to copy formulas and functions in Excel.



Select a cell with your formula and click and drag the area to copy your formula too – this works when the areas you

are copying are continuous. Using Fill in this manner is like using Copy and Paste but in one, visual step.

♪ ***Write your notes here:***_____

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Forming our Formulas

Formulas and Functions Excel are the heart and soul of Excel. Excel is Excel because of the powerful Formulas and ***Functions*** that the application uses or that you may produce. Excel is "Excel-lent" at providing very complex and very simple built-in functions for you to use or you may create your own formulas. We will build simple formulas first and then use some of the functions in our ***Fourth F*** of Excel. Now, we need to learn how to "form" our own formulas.

In the beginning is the ***cell***. As introduced at the start of this course, a ***cell*** is the intersection of a column and row, for example cell A1 is the intersection of Column A and Row 1. Generally, A1 is your "home" cell. If you are in another section of Excel and wish to return to the beginning of the worksheet press ***the CTRL key and the Home key*** simultaneously. We have entered text and number in cells and have formatted them. Now, we will insert formulas in cells and use the cells in calculations.

Formulas and ***functions*** in ***cell*** begin with the ***equal (=) sign***. A formula in a cell maybe =2+2 or =(8*2)+10. ***However, in Excel rarely will you use a specific number in a formula. You will use various cell references for your formula to get the numeric value.***

Formulas in Excel follow the order of algebraic standards:

- ✓ ***Items in parentheses are calculated first and work left to right,***
- ✓ ***Exponents are calculated next,***
- ✓ ***Multiplication and Division numbers/cells are then calculated,***
- ✓ ***Finally, Addition and subtraction items are calculated.***

Excel uses common Mathematical operators. The mathematical operators are:

Mathematical Operators

Addition	+
Subtraction	-
Multiplication	*
Division	/
Exponents	^

Symbols in Formulas and Functions

Below is a table of symbols and what they mean in formulas and functions. This will help explain and use the syntax that Excel needs in order to work properly for your formulas and functions.

Symbol	What it means
: (A Colon, such as A5:G5) =Sum(A5:G5)	Think the word "Through" or A range of contiguous cells, so the sample at left would be "A5 Through G5".
, (A Comma, such as A5, C10, D12) =Average(A5, C10, D12)	Think the word "And" or specific cells that are not contiguous, so the same at left would be "A5 and C10 and D12".
() Parenthesis – Cells used in the function or you may see a function without cells but have the () which is needed for the function to work, such as =TODAY() – which will put the date on the computer in your work sheet and update the date automatically for you.	Specifies the cells or range of cells needed for the Function or to separate items that need to be calculated in a specific order for your formula. All functions must have parentheses, even with no cell reference.
! (An Exclamation Point, =SUM(January:December!B5) This is a 3D reference.	Think the word Join, The Exclamation points joins or connects different workbooks, worksheets, and cells in Functions and Formulas.
= Equal Sign, =A5 + A6+B10 =Count(A5:G5)	Think "Excel I'm, giving you a formula or function." All Formulas and Functions must begin with an equal sign =.
$ (A Dollar Sign, such as $B$5) Absolute and Mixed referencing. =$B5*$I$5.	Think the word "Only". Only use this cell in a calculation even if the cell's formula is copied to other cells the cell reference will not change. This is the Absolute Reference symbol.

Hot Tip! My accountant and number crunching friends would be disappointed if I did not let you know that you may begin your Formulas and Functions by pressing the + sign. Folks that use the numeric key pad rarely like for their hand to move from the key pad, so they will begin their formulas and functions by pressing the plus (+) sign on the key pad rather than moving their hand and fingers ALL the way to the equal sign. Also, the only time I use a number in a formula and function is for days of the year,

months of the year, or a number that WILL NOT change which is rare in Excel analysis and forecasting.

Cell Referencing and Addressing

Aside from entering numbers for calculations, the primary power of Excel is Cell addressing and references: ***Cells*** have various types of ***addresses and references***. I explain them below and demonstrate them in the coming pages. We will be using these types of addressing throughout the course. Please use this information as a reference in the future. As we build various types of formulas we will refer back to this section.

Relative Address

Relative Address: A relative address changes the address of the cell relative to its location. If you enter a formula calculating cell B3 as follows **=B1+B2** then copy the cell to C3 the formula changes based upon the relative address **to =C1+C2.** You may quickly and easily copy formulas; we discussed this in our previous section ***Excel F2 – Fills and will use this in the upcoming exercises.***

Absolute Address

Absolute Address: An absolute address of a cell does not change. The absolute address symbol is the dollar sign **($**). If you enter a formula in B3 as **=$B$1+B2** and then copy the formula to C3 the formula becomes **=$B$1+C2**. The absolute address allows you to specify your calculation using a specific cell for all calculations. As an example, if you want your expense items to increase by 3%, you would place 3% in a cell and reference this cell in your expense calculations using the **$** symbol. When you see a $ in a formula, function, or cell reference think the word "only", such as if you see ***$A$1*** think ***"only use Cell A1 – do not change this reference even if I copy it." We will use this for our forecast, VLOOKUP, and other functions/formulas later***

Mixed Address

Mixed Address: This uses both relative and absolute addresses. If you want the reference in a particular column or row ***not to change*** and another reference in a particular column or row ***to***

change, you would use **=$A1+B1** in cell C1 (Column A would be used however the row would change). If you copy this cell to C2, the formula becomes **=$A2+B2**.

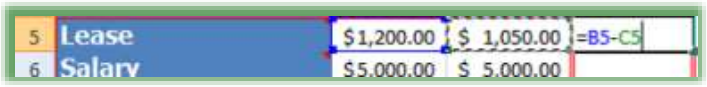
3-D References

3-D References: This uses cells in other worksheets. The ***exclamation point (!)*** separates the worksheet name and actual cell. If you want to add January rent and February rent for a total in March, you would enter a formula in the March worksheet as follows**:**
=January!B5+February!B5 (Note that your formula bar will guide you through the calculation and illustrate your position in accomplishing the formula or function.) We will use this for our summary worksheet later.

Confused? Dazed? Join the club! Plan your formulas, play around, and at the final straw (usually when you get the #VALUE, #REF, or another error for the 100th time) rely on **Help** by searching on Cell Reference by pressing the F1 key or pressing the Help button.

Since we have had an overview of formulas and cell referencing, we will begin "forming" our formulas in our ***Budget.***

1. **With *your Budget workbook* Open, we will input a formula in Cell D5.**
2. **Click in Cell D5 and *Type (or you may click your cell reference) =B5-C5.* This will calculate the difference between our budget and our expense. Notice the information is in your formula bar and cell**



3. **Press the enter key.**
4. **Our calculation appears!**

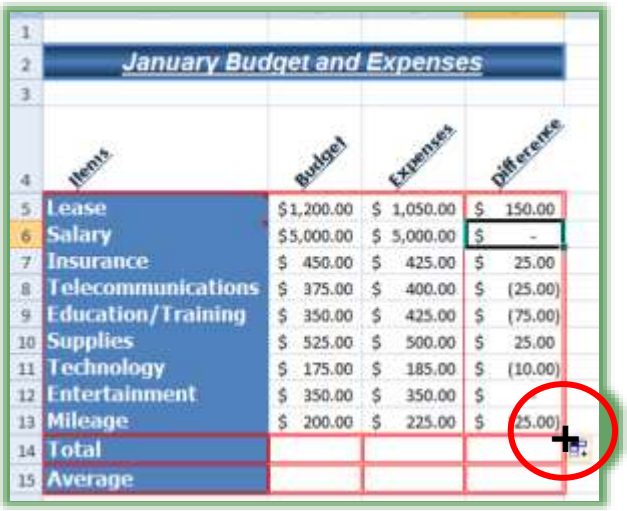
As you construct your formula, you can type your cell references instead of clicking them if you like. We could use our Fill Handle to copy this formula down through the column, but let's get practice manually inputting formulas. This time instead of typing the formula we will use the click method.

1. **Click in Cell D6 and Type *=*,**
2. **Click Cell B6, Notice the Cell Reference of B6 appears in your D6 Cell and Formula bar,**

3. **Type a – dash or minus sign for subtraction,**
4. **Click Cell C6,**
5. **Press the Enter key,**
6. **Our calculation appears.**

A Hot Tip! ***Now, let's use the Fill Handle to copy the remaining cells.***

1. **Click cell D6,**
2. **Position your cursor over the right, bottom corner of Cell D6 when you see the plus (+) sign Click and Drag down to row 15 or if you double click Dr. Fill in cell D6 our formula will fill to Cell D13 and then we would need to fill through D15 for our Total and Average functions that are upcoming.**



	January Budget and Expenses			
4	Items	Budget	Expenses	Difference
5	Lease	$1,200.00	$ 1,050.00	$ 150.00
6	Salary	$5,000.00	$ 5,000.00	$ -
7	Insurance	$ 450.00	$ 425.00	$ 25.00
8	Telecommunications	$ 375.00	$ 400.00	$ (25.00)
9	Education/Training	$ 350.00	$ 425.00	$ (75.00)
10	Supplies	$ 525.00	$ 500.00	$ 25.00
11	Technology	$ 175.00	$ 185.00	$ (10.00)
12	Entertainment	$ 350.00	$ 350.00	$
13	Mileage	$ 200.00	$ 225.00	$ (25.00)
14	Total			
15	Average			

A Hot Tip! Simply double click the (+) fill sign in Cell D6 and the formula will fill down automatically to the bottom of the worksheet area. Fill will go down as far as the adjacent column goes. We'll use this in some productive ways in the advanced part of your education.

Fantastic! Excel and Dr. Fill has copied your formula and included the formatting, too.

We have calculated our differences between the budget and the expense items. We will be developing other formulas throughout the course. But we have our foundation for formulating our formulas. ***Now, to put the Fun back into Functions!***

Write your notes here:_____

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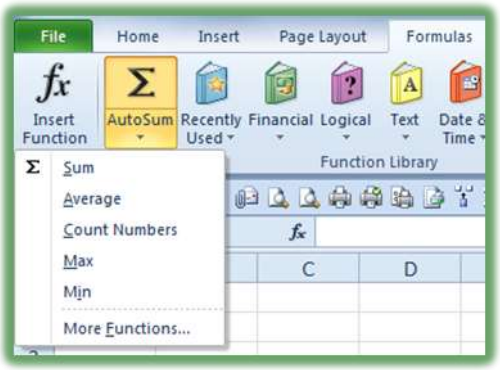
Putting the Fun into "Fun"ctions

AutoSum

Now, that we can calculate cells based upon data in other cells - let's make life easy and powerful with built in functions. We will be using some of the most popular and easiest to use functions here and some of the more complex functions later in our course.

On your ***Home Tab*** you will see the ***AutoSum*** and a ***Drop Down Arrow*** next to it on your ***Editing Group*** and is pictured to the right. You may use the ***Formulas Tab***, too picture here as well. Use the ***AutoSum*** key to summarize a cell range. Use the Drop Down arrow to select a common ***function*** and this offers you other functions that will provide assistance in creating other ***functions .*** If you are a Liberal Arts Major, don't freak out by all of the functions! If you hate algebra, trigonometry, or other mathematical equations just the names of some of these functions will scare you. If you are an accountant, scientist, engineer, or numbers crunching financial analyst you will love these scientific, financial, and other mathematical wonders, you have found numbers heaven. For the numerical challenged or brave heart take a peek at the Statistical Function category and Function names. This intimidates me, but may thrill you! We will use several of the functions. First, let's use the easy and powerful ***AutoSum key***.

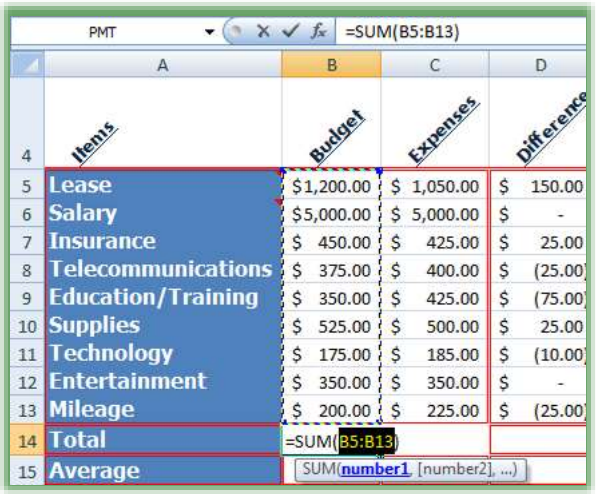


♬ ♬ Ranges of cells may be selected by typing or selecting the first cell, typing *a colon (:)*, and typing or selecting the final cell to include in your function. For example, notice on the January worksheet that cell B20 Sums cells B5 through B19. We can also select a cell and click and drag for Excel to select the range for us. ♬ ♬

Sum: You may type **Sum** after entering an equal (=) sign or select the cell in which you want to **Sum** and press the **AutoSum** icon. Like mathematical magic, Excel enters the **=SUM** formula and will provide the range in which you want to sum! If the cell range is not correct, use your mouse to click and drag the correct range to Sum and press the enter/return key. The result is displayed.

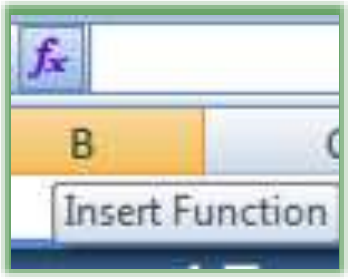
Let's use the Sum function by clicking the AutoSum icon. Here are the steps:

1. **Click in Cell B14.**
2. **Click the AutoSum icon.**
3. **The formula: *=SUM(B5:B13)* should be displayed. If not, you may type the range here or click and drag to select the correct range.**
4. **Press Enter.**
5. **Your total appears for this range of cells.**



Wow! Even a "Math Challenged" person like me can use this quick and easy icon to perform totals and subtotals in columns or rows.

♬ You may also use the fx - Insert Function button by the Formula bar to activate the Insert Function dialogue box we will use in a moment. The buton is pictured at right. ♬



♬ Write your notes here:_____

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Time to recall our friend the ***Calculations in the status bar.*** As described earlier, the status bar will quickly provide you results of **functions**, including **Average** and **Sum**.

1. **With your Budget.xlsx open,**
2. **Click Cell B5 and Drag to Cell B13;**
3. **The Calculations should show on your status bar based upon our selections earlier in the course.**

The syntax for our functions is very important. If proper syntax is not used, Excel will give you error messages or calculate incorrectly. Here are the important notes ♬ ♬ to remember:

- ✓ ***All formulas and functions begin with an equal sign =.***
- ✓ ***Paretheses are used in functions to separate the function name from the range of cells or the specific cell(s) that is to be used in the calculation.***
- ✓ ***The colon is used to specify a range.***
- ✓ ***Other separators such as commas may be needed for a function which we will use later with the PMT function.***

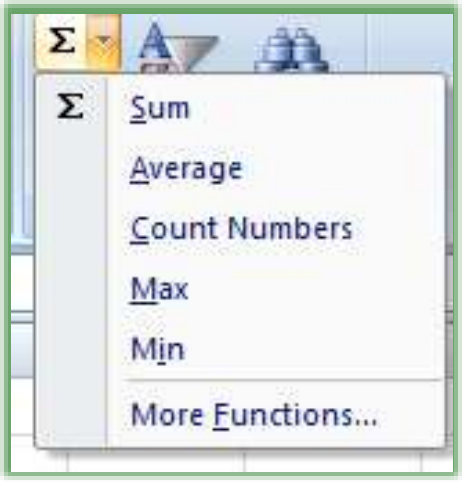
Let's enter the SUM function manually in Cell C20. Here are the steps.

1. **Click in Cell C14.**
2. **Type: =sum(c5:c13) (Notice I used lower case letters, Excel will convert the text properly for you.)**
3. **Press Enter.**
4. **Your result appears.**
5. **Click and Drag Cell C5 through C13 and verify the accuracy of the SUM function with the calculation box.**

Let's practice by creating a Sum in cell D20 for the range D5 through D19 either typing in the function or using the AutoSum icon. Note ♬ We had better hope to see a positive number in

this cell or else we have blown our budget! Now, that we have mastered the AutoSum icon and the SUM function, let's use the Average function. ♬ ♬

Other Functions



Using the ***Drop Down arrow*** next to your ***AutoSum*** icon will provide a list of popular functions as well as the ability to activate more complex functions using the ***More Functions… item*** on this menu. We will use ***the More Functions. ..*** later. Below are some of the other functions we will use. The ***Average*** and other functions use the same syntax, instead of ***SUM*** being in the formula other text is substituted – the rest of the syntax is the same.

☹ While I like for Excel to assume certain ranges, care must be given in examining Excel's assumption of ranges to ensure that the range is correct. Don't assume that Excel will be correct. Excel is smart, but not that smart. ☹

Average: Provides the average of selected cells. Formatted as*: =Average(B5:B13) or =AVG(B5:B13).*

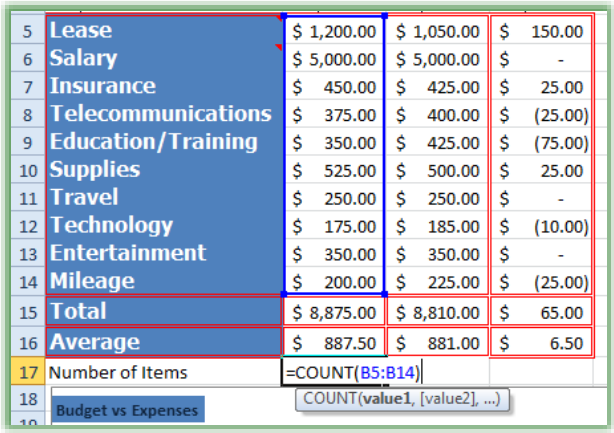
Max and Min: Provides the largest (maximum) number in a selected range of cells and the smallest (minimum) number in a selected range of cells. (Duh!)

Count: Will do just that: Count the numbers in your selected list of cells, for example, Cell B5 through B19 is 15 numbers. The function displays ***as =Count(A5:A19)***

Let's use the Average Function is Cell B15 and C15. Here's how:

1. **Click Cell B15,**
2. **Click Drop Down arrow next to the AutoSum icon,**
3. **Click Average,**
4. **Excel will "guess" B5:B14 – this is wrong!**
5. **Edit the function in the Formula Bar as pictured at right or in the Cell B15.**
6. **Change the Cell reference from 14 to 13 – Select your number 14 and type over it with 13.**
7. **Excel will provide a Blue Border around your range for you to see the range you have entered. ☺ If you are under 50 years of age and have good eyesight you may use the blue boxes at the edges of the blue selected area to click and drag the cell range reference, too. I'm too old and too spastic with a mouse to use this method, but try it! ☺**
8. **Press enter.**
9. **Your Function is correct.**
10. **Using your fill handle in Cell B15 fill this Function over to Cell C15 and notice that Excel and Dr. Fill will change the reference from B5:B13 to C5:C13 – this is using Relative Cell Addressing or Referencing.**

Now, create your own Count function by typing Number of Items in the cell below your Average Cell and then enter the functions in as displayed at right. I have added a row for Travel which we will accomplish later so your cell range reference will be different.



♬ ***Excel will guess your range of numbers for a Function in the following manner:***

- ✓ ***If there are numbers to the Left of the function Excel will assume all of the cells with numbers in them to the left.***
- ✓ ***If there are no numbers to the left, Excel will assume numbers above it. Excel will us all of the cells with numbers above the cell containing the function – much like the Average function included the wrong Cell in its assumption.***
- ✓ ***Excel doesn't usually assume or guess a range if it doesn't "see" numbers to the left or above the function cell.***

So we have begun really ***Excelling at Excel.*** We will look at several great functions throughout our course, such as the PMT, CONCATENATE, VLOOKUP, IF THEN ELSE and many more.

Great! We have our January budget and expenses completed! We will build February through December after we look at our final F - ***Filters and Sorts.***

♬ ***Write your notes here:***_____

_____

Loan Workbook

I promised you that we would build a couple of workbooks and that this is the best way to learn Excel or any application. Time for us to create our own ***Loan Calculation Workbook*** and then our own template. While there are templates for these types of workbooks in Excel, the template won't help you learn how to customize and build your own. In this section we will build a Loan Workbook that will contain a Loan calculation worksheet for payments. Then we will build an amortization schedule to accompany our repayment plan. Throughout we will use knowledge we gained from our previous exercises such as formatting our worksheet and using formulas and functions. We will learn new features of the Excel, like ***Name Manager*** and defining Names, too.

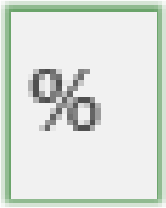
Setting up the Loan Worksheet

As I have related earlier, Excel has many excellent and advanced functions. I know scientists that use these advanced functions. I have taught (or I tried to teach) research doctors, engineers, and other mathematical wizards advanced functions (*actually they taught me!*). There are entire books and volumes to document these great areas of Excel. I'm sticking to that which I know best – great personal and general business applications. The ***PMT Function*** is an excellent way to calculate a loan's payment and develop an amortization schedule. I use this all the time to track my mortgage or to play "what if" games when I'm researching a car loan or other type of loan. I have included a sample of the workbook we will build entitled ***Loan.xlsx***.

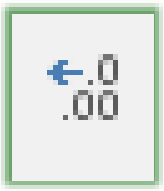
We will create our loan calculator using the PMT Function and we will build a tracking system of our payments. Let's go!

1. **Let's open a blank Worksheet, in cell A1, type *Our Loan Workbook,***
2. **Select cells A1 through H1,**
3. **Click the Merge and Center button,**
4. **Format this merged and centered cell (A1) as follows or use your own creativity:**
5. **Change the Font,**
6. **Increase the Font Size,**
7. **Change Font Color,**
8. **Apply Shading and a Border,**

9. **In cell B2 type *Rate*,**
10. **In cell B3 type *Months*,**
11. **In cell B4 type *Loan Amount*,**
12. **In cell C2 Type .0775 and click away from this cell,**
13. **Click cell C2 with your .0775 displayed to select the cell,**
14. **Click the Percent Sign command on the Number Group in the Home Tab.**

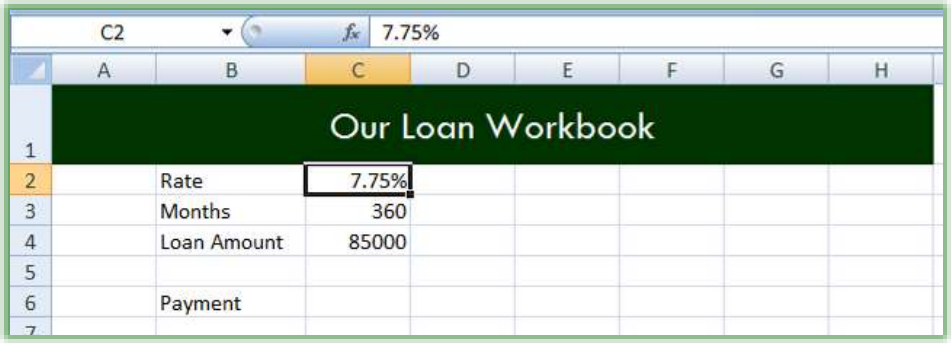


☹ An Important Gotcha! The Percent (%) button on the numbers group doesn't provide decimals, but the Percent sign in the Numbers Gallery provides two decimal places. Excel will round most numbers so if you need to view the actual number, you'll need to use the increase decimal command button, as we will do, next. ☹

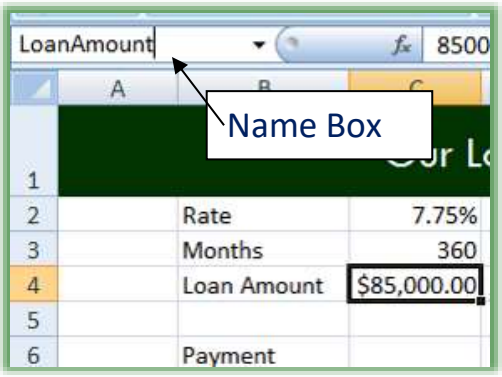


15. **Click the Increase Decimal button twice to change 8% to 7.75%,**
16. **In cell C3 type 360 (Number of months of our loan),**
17. **In cell C4 type -85000 (Type a negative 85000 since this is a loan or debit),**
18. **Format cell C4 as Accounting,**
19. **Change your worksheet Name to Loan Calculator and change your Tab Color,**
20. **Save your file as Loan.**

This is mortgage information for an $85,000 loan over a 30-year period at 7.75% APR interest rate. My lovely Loan Workbook displays here.

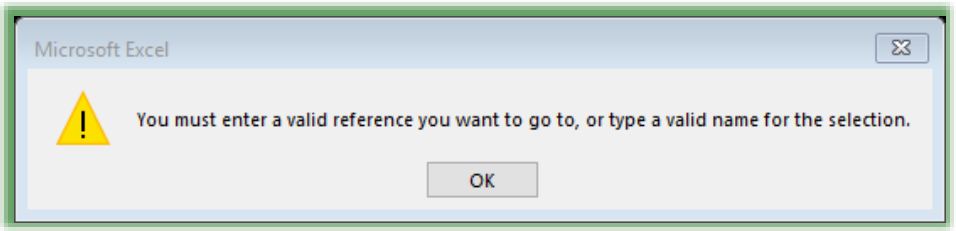


Name Box



The ***Name Box***, located to the Left of the ***Formula Bar***, is a way to give a cell or a range of cells an English name. This will allow you to use the English Name in calculations or to quickly go to this cell using the ***Name Box's drop-down*** arrow. We will use the ***Name Box*** to name cells, an area of our worksheet, and to use in calculations.

☹ An Important Gotcha! You cannot use spaces in Names you enter in the Name Box; Excel gives you an error message, if you put a space in a Name. Also, press the Enter Key after you type in a name; otherwise, the Name Box will not save your text. So, no spaces in Names and press the Enter Key after you type a Name. You may use an Underscore character for a space if you like. ☹



A Hot Tip! Here five reasons we will learn to love the Name Box and Name Manager:
1. Makes a cell reference absolute (you can use a name rather than the dollar signs - $A$1),
2. Navigation,
3. Selection,
4. Used in formulas and functions,
5. Store Values.

Let's use the Name box to "name" our 7.75%, 360, and $-85,000

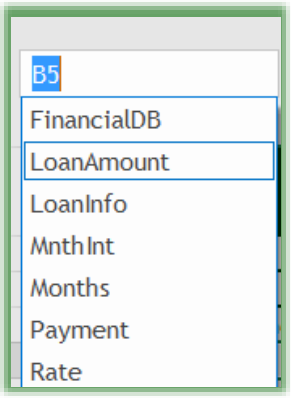
Here are the steps for adding a Name to a Cell.

1. **Click cell C2 with our Percentage,**
2. **Click in the Name Box, and type *Rate* and press enter,**
3. **Click cell C3 with our figure of 360,**

4. **Click in the Name Box, and type *Months* and press enter,**
5. **Click cell C4 with our figure $(85,000.00),**
6. **Click in the Name Box, and type *LoanAmount* and press enter,**
7. **Click cell C6 which will contain our Payment Function,**
8. **Click in the Name Box, and type *Payment* and press enter,**
9. **Click and drag to select cells B2 through C6,**
10. **Click in the Name Box, and type *LoanInfo*, and press enter.**

Now, let's use the Name box for navigation and selection.

Go to another worksheet, and click the down arrow on the Name Box and click a name to quickly go to that worksheet and cell.



Hot Tip! The Name box helps in maneuvering and in navigating to different areas of your workbook quick and easy. I once had all of the total of a worksheet on row 57,569 I named that row *TheBottomLine* and any time I needed to quickly go there I could using the Name Box no matter what other worksheet I was.

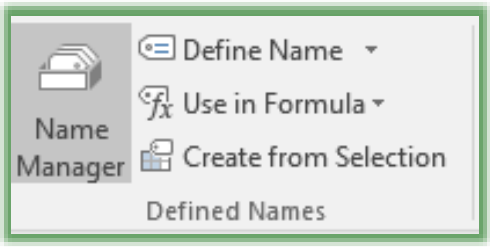
1. **In an empty cell type =LoanAmountt+5000.**
2. **The result will be –80000 (Remember our loan is a negative number!)**
3. **Clear the cell.**

The Names take on the value of the cells and update as you change the figures in the cells.

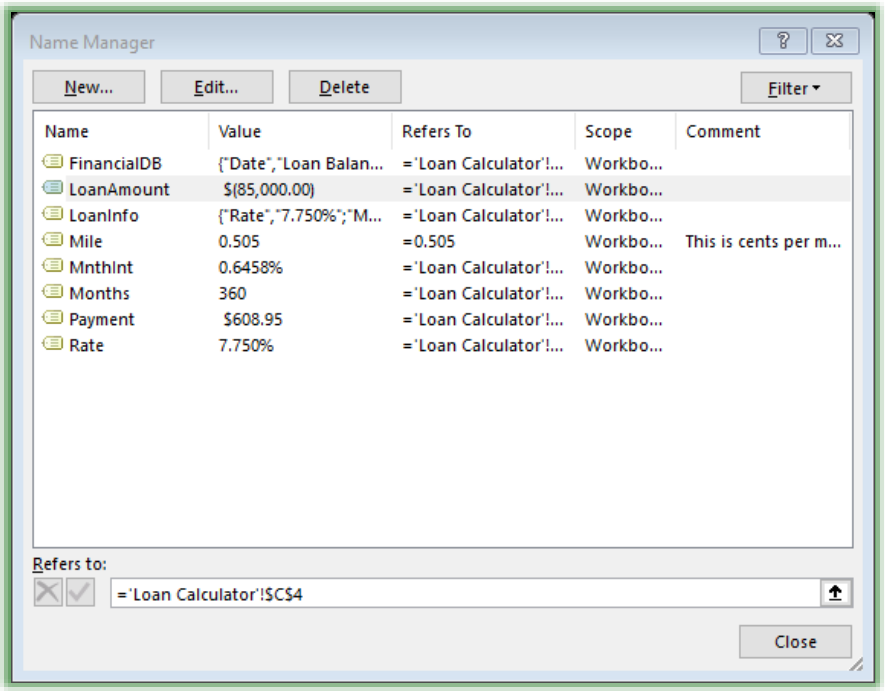
*Write your notes here:*_____

_____

Name Manager

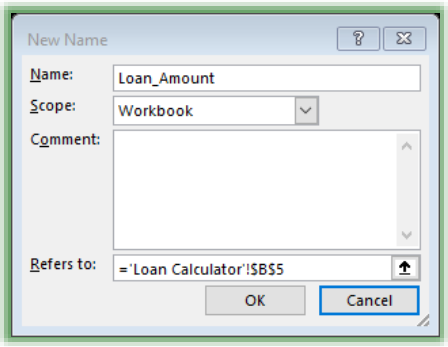


Excel has a great feature to help you with ***Names*** – The ***Name Manager***. This will allow you to edit your names, create new names, delete names, and change the cell reference or value. ***The Name Manager*** is pictured here and is part of ***the Formulas Tab*** and the ***Defined Names Group***.



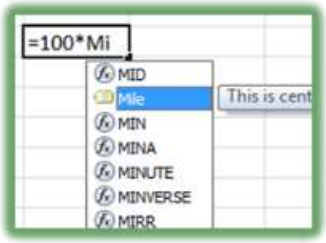
Notice I have LoanAmount selected, so my buttons at top are all active. You can ***Edit and Delete Names*** and ***Cell References*** here and create new names for specific cell(s). You can used the ***Refers to:*** section to type your cell references or you can use the ***Collapse*** button to click your cell references. As I related earlier ***Names*** by nature are ***Absolute Reference*** and the ***Refers to Section*** with the ***='Loan Calculator'!$C$4*** pictured at right demonstrates.

Let's add a new name to represent a constant value. We'll use .54 as if this were a percent or maybe mileage at cents per mile.



1. **In your Loan Calculator worksheet, click the Formulas Tab and click the Name Manager command button,**
2. **Click the New Button in your Name Manager,**
3. **For the Name enter: *Mile*,**
4. **Keep the Scope at Workbook, although you can store names in specific worksheets,**
5. **Provide an appropriate comment,**

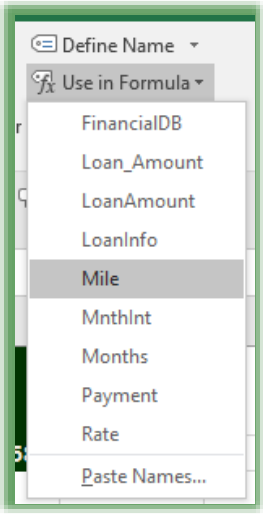
6. **In the Refers to section enter =.542 (our constant value),**
7. **Click OK,**
8. **Click the Close button in the Name Manager window,**
9. **Click in Sheet 2 and click in any cell and enter the formula =100*Mile. Notice as you type Mile that Excel provides the AutoComplete feature for you to double click the Mile label to insert the name into your formula.**



10. **Press enter – Excels provides the calculation.**

In reality, our constant numbers are not so constant and values, like mileage, change. Let's edit our name for a new value.

1. **Click your Name Manager button and select or highlight Mile,**
2. **Click the Edit Button . . .**
3. **Your Edit Name pane appears, in the refers to section change the value to =0.6,**
4. **Click OK,**
5. **Click close at the Name Manager pane.**
6. **Your value for your name changes in the formula's result.**



The Other command buttons on the Defined Names Group are good for creating and using names without the Name Manager. The Define Name button allows you to create new names by opening the New Name page for you and to apply names. The Use in Formula button lists your names for you to use in a formula, if you click a name Excel begins your formula in the formula with an equal sign and your name.

We could have used the Create Names From Selection command button, too. This allows you to select a Range for example B2: C6 in our Loan Calculator worksheet and name the cells base on adjacent cells. For example, this would automatically name cell C2 Rate based on cell B2.

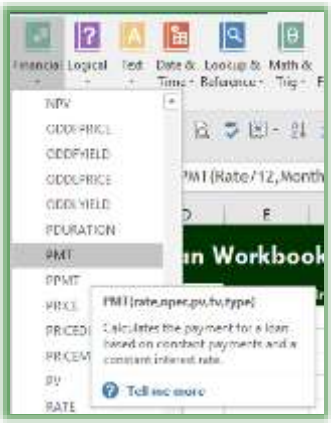
The PMT Function

Let's create our Payment Function.

1. **Click in cell C6; notice that the Name Box displays the word Payment – we named this cell earlier.**

It is important to be in this cell; our payment function will be here.

2. **In the Formula Tab, click the Financial arrow and the pick list will include PMT.**

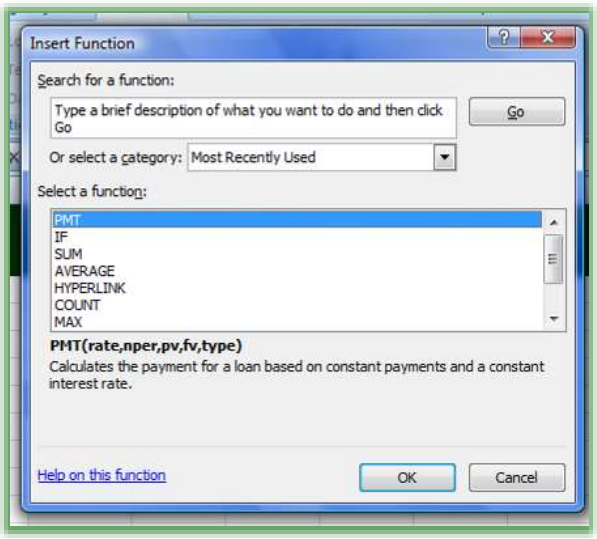


We could have click the Insert Function button by your formula bar or on the Home Tab use the AutoSum Command button's menu and chosen More Functions,

3. **The Insert Function Dialogue box opens.**

The Insert Function Dialogue Box

You can find a function by giving a description of the function or what you want the function to perform using the Search for a function section and Click Go.

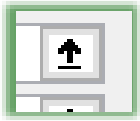


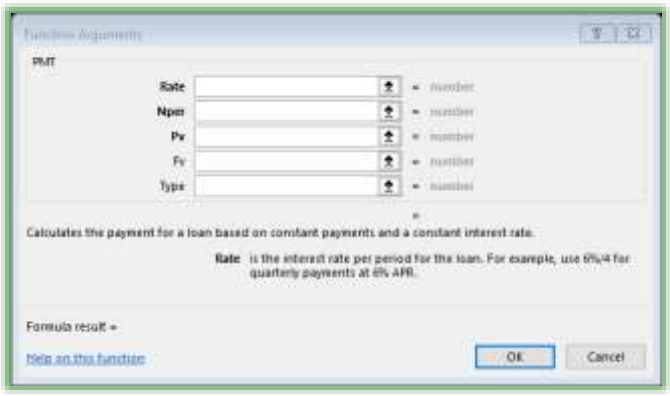
1. **In the *Or Select a Category:* section you can choose Most Recently Used, All, Financial or other Categories.**
2. **If the PMT function is not in your Most Recently Used Category then click the Drop-down arrow and scroll to *Financial Category*.**
3. **In the *Select a function:* area scroll down and notice all of the functions!**
4. **Locate and select PMT and click OK,**
5. **Our PMT Function Dialogue box appears.**

The ***Function Arguments*** dialogue box here. ☺ If there is anything I can do well in Excel, it is to argue with my Functions! ☺

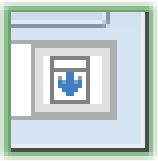
We will use this to construct our PMT function

Notice the button at left which is located at the end of each row for our ***Rate, Nper, and PV,*** etc. This is the ***Collapse Box***. ***Clicking this will take you to your worksheet allowing you to select a cell or a range of cells.***





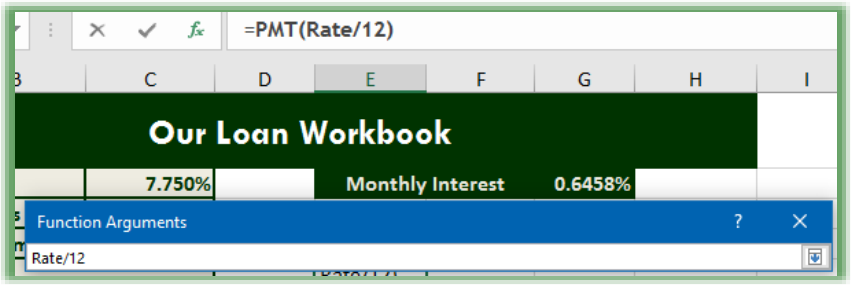
Once you click the ***Expand button,*** a row will appear with the ***Collapse button*** at the end. This is the ***Collapse button***. Once you click and select your cells you click this button to return to the dialogue box in which you are working. You will notice these boxes as you work in functions and other areas of Excel.



These two buttons and functions in Excel take some getting use to and practice. However, you don't have to use them in this case. In the Rate box, simply click cell C2 our Rate cell and Excel will place the cell reference Rate in the box for you.

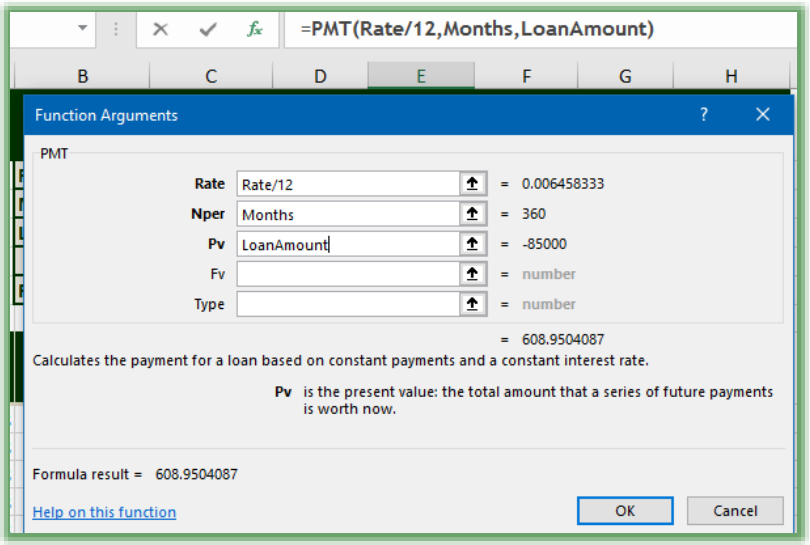
♫ If you used ***Names*** for your cells, the names will appear, such as ***Rate***, not the cell reference. I'm demonstrating how to use the paste function dialogue box using cell reference and Names. ♫

1. **You can type your reference, click Cell C2 or In the Rate Row Click the Collapse button.**
2. **In your worksheet click Cell C2. Notice Rate appears on the Row with the Expand Button and a scrolling marquee around your Rate or Cell.**
3. ***Type /12*. Our row should appear like this *Rate/12*. We must do this since this is an annual percentage rate and we are calculating monthly payments; therefore, we**



are calculating a monthly percentage rate. Click the Expand button. Notice your Formula Bar updates as you work in the Function Arguments box.

4. **Type Months or In the Nper Row, click cell C3 or the Months cell,**



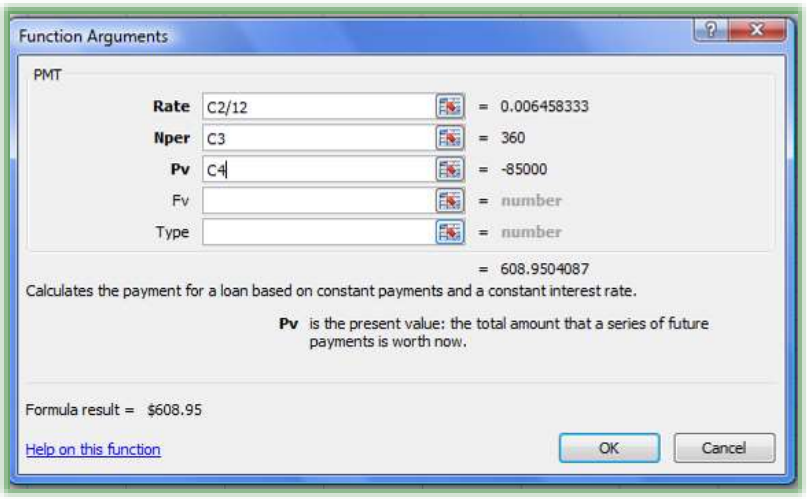
5. **In the Pv Row, type LoanAmount or click C4.**

Your Function Arguments dialogue box should look like the one here. Notice the formula result area which contains 608.9504087; this is our payment.

6. **Click OK.**

Cell C6 Contains our Payment. Look in the formula bar to see the formula we created.

Save your workbook.



As pictured here, you may also use the cell reference rather than Names as we assigned earlier. The figures and results do not change just the cell reference name.

We have a method for calculating our loans and payments. Change the interest rate by typing .07 or .10, etc. Change the number of months and loan amounts to see different principal payment. How much would the payments on a $34,300 loan for a car with a 5 year repayment at 6% interest be? We will change these figures and create several "what if's" and learn the ***Scenario Manager*** later in our course.

♬ Why didn't I just type in my numbers in the PMT Dialogue box? Why use cells? And why use the Collapse and Expand buttons? First, like using absolute reference, it is easier for me to change numbers in the cells to calculate different interest rates, amounts, and time periods. If I used numbers in the PMT dialogue box, I would have to go through this each time I wanted to change a number. Using Cell reference allows me much less pain and suffering when using the PMT dialogue box. I used the Collapse and Expand buttons to accustom you to using these buttons that you will see in other Excel features, such as in the Page Set-up and Set Print Area. You can click your cells to insert a reference or type the cell references and formulas in the PMT dialogue box rows as well as using the Collapse and Expand button. ♬

♬ ***Write your notes here:***_____

_____

Tracking Worksheet and Amortization Schedule

Excel is used, and at times, misused as a tracking system. Relational databases are designed to track large amounts of information and ensure accuracy; however, they tend to be more difficult and time consuming to learn. Excel is easier to use and can track large amounts of information; however, what we give up in accuracy (such as duplicating records) we gain in ease of use. Excel has abilities to recognize and help with duplicates. We will use Excel to track several types of items and to use Excel as a simple database.

	A	B	C	D	E	F	G	H
1	Our Loan Workbook							
2		Rate	7.75%		Monthly Interest		0.6458%	
3		Months	360					
4		Loan Amount	$ (85,000.00)					
5								
6		Payment	$ 608.95					
7								
8	Date	Loan Balance	Interest	Principal	Additional Principal	Total Principal	Total Payment	New Balance
9	4/1/2018	$ 85,000.00	$ 548.96	$ 59.99	$ -	$ 59.99	$ 608.95	$84,940.01
10	5/1/2018	$ 84,940.01	$ 548.57	$ 60.38		$ 60.38	$ 608.95	$84,879.63
11	6/1/2018	$ 84,879.63	$ 548.18	$ 60.77		$ 60.77	$ 608.95	$84,818.86
12	7/1/2018	$ 84,818.86	$ 547.79	$ 61.16		$ 61.16	$ 608.95	$84,757.70
13	8/1/2018	$ 84,757.70	$ 547.39	$ 61.56		$ 61.56	$ 608.95	$84,696.14
14	9/1/2018	$ 84,696.14	$ 547.00	$ 61.95		$ 61.95	$ 608.95	$84,634.19
15	10/1/2018	$ 84,634.19	$ 546.60	$ 62.35		$ 62.35	$ 608.95	$84,571.83
16	11/1/2018	$ 84,571.83	$ 546.19	$ 62.76		$ 62.76	$ 608.95	$84,509.07
17	12/1/2018	$ 84,509.07	$ 545.79	$ 63.16		$ 63.16	$ 608.95	$84,445.91
18	1/1/2019	$ 84,445.91	$ 545.38	$ 63.57		$ 63.57	$ 608.95	$84,382.34
19	2/1/2019	$ 84,382.34	$ 544.97	$ 63.98		$ 63.98	$ 608.95	$84,318.36
20	3/1/2019	$ 84,318.36	$ 544.56	$ 64.39		$ 64.39	$ 608.95	$84,253.96
21	4/1/2019	$ 84,253.96	$ 544.14	$ 64.81		$ 64.81	$ 608.95	$84,189.15
22	5/1/2019	$ 84,189.15	$ 543.72	$ 65.23		$ 65.23	$ 608.95	$84,123.93
23	6/1/2019	$ 84,123.93	$ 543.30	$ 65.65		$ 65.65	$ 608.95	$84,058.28
24	7/1/2019	$ 84,058.28	$ 542.88	$ 66.07		$ 66.07	$ 608.95	$83,992.20
25	8/1/2019	$ 83,992.20	$ 542.45	$ 66.50		$ 66.50	$ 608.95	$83,925.70
26	9/1/2019	$ 83,925.70	$ 542.02	$ 66.93		$ 66.93	$ 608.95	$83,858.77
27	10/1/2019	$ 83,858.77	$ 541.59	$ 67.36		$ 67.36	$ 608.95	$83,791.41
28	11/1/2019	$ 83,791.41	$ 541.15	$ 67.80		$ 67.80	$ 608.95	$83,723.61
29	12/1/2019	$ 83,723.61	$ 540.71	$ 68.24		$ 68.24	$ 608.95	$83,655.38
30	1/1/2020	$ 83,655.38	$ 540.27	$ 68.68		$ 68.68	$ 608.95	$83,586.70

Scenario Summary | Loan Calculator | Sheet2 | Sheet3 | Sheet4 | Sheet5

Let's create an amortization schedule to track our payments on the loan we created. We will learn more about formulas and new formatting techniques, such as Text Wrapping.

In our Loan workbook, we will create a tracking system below the loan information. Pictured here is how our worksheet will look.

Since we want to track monthly payments, we need to calculate monthly interest payments; therefore, our first task is to create the Monthly Interest in cell G2.

1. **In Cell F2 type Monthly Interest.**
2. **Select Cell E2 and F2 use Merge and Center to create one cell for this text.**
3. **Using the Name box, Name cell G2 MnthInt. Don't forget to press enter for the Name box to accept your Name for cell G2.**
4. **In cell G2, create the formula: =Rate/12 and change the format to percentage and increase the decimal places. Your cell G2 should have the Name and formula as displayed here. We will use this cell in our calculations in the next section.**

Now, let's create our Financial Database.

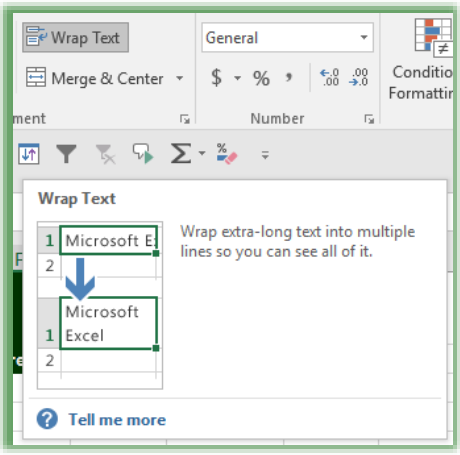
In Row 8 we will put our column header information or I like to think of this as our field names for the database.

♬♬ Very Important Notes: In order for Excel to work properly as a tracking system, a header row must be present. The header row will serve as our field names for our database and the rows underneath the header row will be our records of data. I can never stress enough the importance of maintaining this type of organization. If you were to use Excel with a relational database application or query, this is how we need to organize our data table. Subtotals and categories in another row will wreak havoc when trying to use database elements in Excel. As previously related in this course, your list should not have blank rows or columns; blank cells are ok but not entire blank rows or columns. Also, you data table cannot connect to other cells with data, that's why I start on Row 8 and not Row7. ♬♬

Using the picture below, you should type the Date and other text in the cells in Row 8. Don't worry about the format and having your text truncate within the cells; we will learn text wrapping next that will allow your headers to appear as if on two rows. Once we enter the data, we will format the information; therefore, in cell A8 enter Date, in cell B8 enter Loan Balance, in cell C8 enter Interest, in cell D8 enter Principal, in cell E8 enter Additional Principal, in cell F8 enter Total Principal, in cell G8 enter Total Payment, and finally in cell H8 enter New Balance.

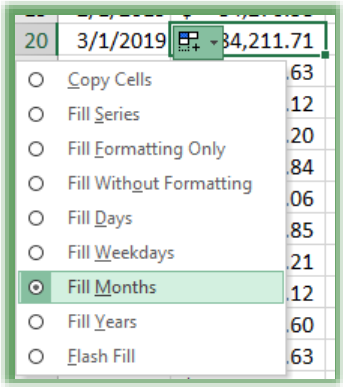
8	Date	Loan Balance	Interest	Principal	Additional Principal	Total Principal	Total Payment	New Balance

After you enter your text, the text is truncated between columns and not very attractive; let's change that using the Text Wrap Feature.



1. **Click and drag to select Cells A8 through H8,**
2. **On the Home Tab, click the Wrap Text button,**
3. **Using the Home Tab and Alignment Group, click the Center alignment buttons for vertical and horizontal alignment.**
4. **While Text Wrapping does a good job, it is not perfect and we may need to make additional width or height changes to the cells, rows, or columns.**

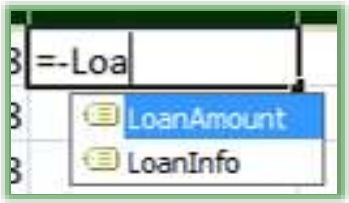
1. **Enter *04/01/*2018 in cell A9,**
2. **With cell A9 Selected, get your Fill Handle,**
3. **With your Fill handle, click and drag down to cell A100,**
4. **Using your Fill Options box, click Fill Months to provide us with the 1st of every month for several years,**
5. **Using the Numbers Group and the Numbers format box choose Short date from the menu,**
6. **Click OK.**



We have accomplished our payment date schedule.

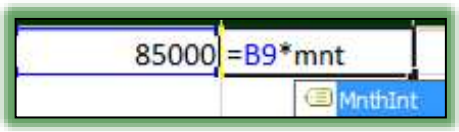
Let's create our formulas to calculate our payments and reduction in the Loan over a period of time. Don't worry about learning to create a schedule like this; concentrate on how we construct the formulas, not necessarily the specific cells or calculation. Learning the syntax of creating these formulas is more important than learning how to construct a payback schedule such as this.

1. **Enter *=-LoanAmount* in cell B9. We must enter a negative sign (-) for Excel to make this a positive number, since our Loan Amount is a negative number. Notice Excel will provide an AutoComplete for your Names. You can click your name in the box and Excel inserts the Name in your cell. This starts our loan and this cell will change based upon our cell C4 which we named *LoanAmount* earlier.**
2. **85000 will appear in this cell. We will format all of our cells later.**



(We put the negative (minus sign) before LoanAmount to serve as a double negative with the $85,000.00 making this number positive.)

1. **In cell C9, we need a calculation for the Interest. The calculation is: *=B9*MnthInt***



(Remember we named cell G2 as MnthInt; we could have used absolute reference of $G$2 in our formula.)

2. **548.9583333 appears in cell C9.**

Next, we need to take our Payment minus the Interest to arrive at our Principal payment. We named cell C6 Payment earlier and input the PMT function, too.

1. **In cell D9 enter following formula*:* =Payment-C9.**
2. **The Figure 59.99208 appears in cell D9.**

For cell E9, we will leave this cell, the Additional Principal, blank for now.

1. **Cell F9, our Total Principal cell, should contain the following formula *=D9+E9*,**
2. **The Figure 59.99208 appears in cell F9.**
3. **Cell G9, our Total Payment cell, should contain the following formula *=C9+F9,***
4. **The Figure of 608.9504 appears in cell G9.**
5. **Cell H9 should contain the following formula for our New Balance =B9-F9. This subtracts the Principal payment from the loan.**
6. **The Figure of 84940.01 should be our New Balance (Whoopee!)**

Our first row of data is complete. Now, our loan has begun and our future payments are based upon New Balance, not the Original Loan Amount as our first row indicates.

1. **In cell B10, enter *=H9* (The Loan Balance),**
2. **The figure of 84940.00792 should appear as our Loan Balance in cell B10.**
3. **Select or highlight cells C9 through H9.**
4. **Using the Fill Handle in cell H9 fill down one row. Your New Balance in Cell H10 should be 84879.63.**
5. **Save your Workbook.**

Now we can use our fill handle for the Cells B10 through H10 and fill down to row 100 to complete our calculations and then we will format this area.

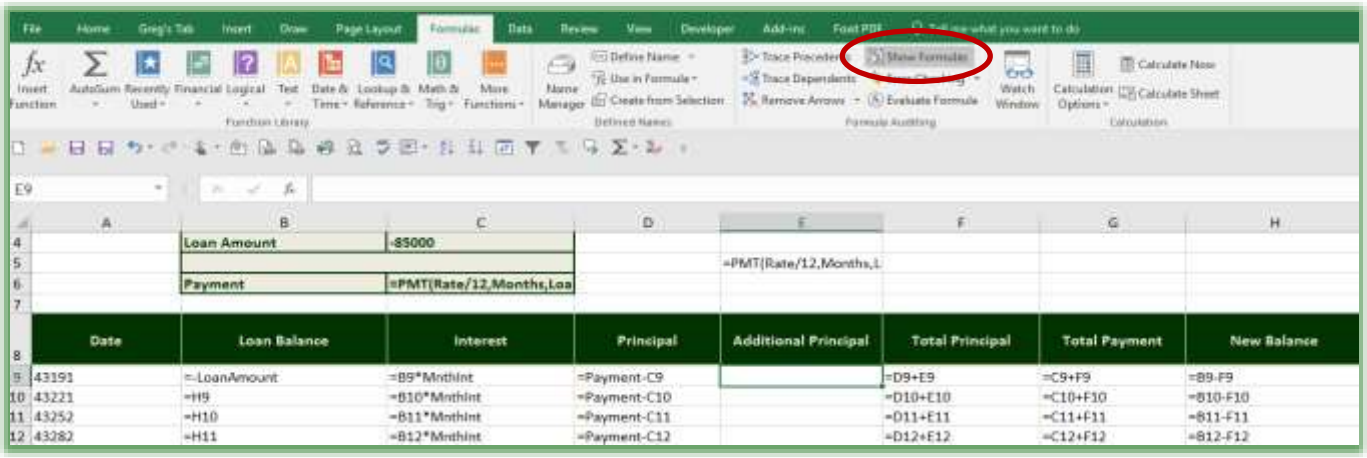
HOT TIP! Remember you can select your row B10 through H10 and get your Fill Handle in cell H10 and double click to fill your formulas and cell formatting all the away to row 100. This is quicker and easier than the click and drag method described below.

1. **Select cells B10 through H10.**
2. **Get your Fill Handle in cell H10 and double click to fill to cell H100 or click and drag through Row 100.**

Loan Balance	Interest	Principal	Additional Principal	Total Principal	Total Payment	New Balance
$ 85,000.00	$ 548.96	$ 59.99		$ 59.99	$ 608.95	$84,940.01
$ 84,940.01	$ 548.57	$ 60.38		$ 60.38	$ 608.95	$84,879.63

Your pay back schedule through many years is complete.

Hot Tip! Show Formulas – The Excel Formula Tab has a terrific button called Show Formulas, which is exactly what it does. I am using this button below to display our formulas for the Loan Workbook.



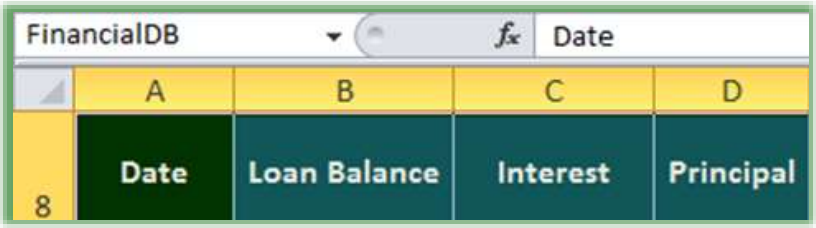
Let's format Cells B9 through H100 as Currency using a new way of selection with the Name Box.

1. **In the Name box, type *B9:H100* and press enter to quickly select the area.**
2. **Click your Numbers Format Box and select Currency or Accounting in the Menu,**
3. **Save your file.**

Our amortization schedule is complete. You can continue using the spreadsheet for years by Filling in the data past Row 100.

Let's name our tracking system FinancialDB.

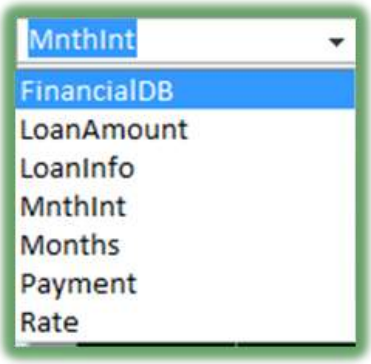
1. **In the Name box, type A8:H100 and press enter, Excel selects this large area for you.**



2. **In the Name Box, type FinancialDB and press enter.**

With our Named database, selecting this area for printing, copying, and other functionality is much easier than trying to click and drag or using other methods to select this area.

Click in another worksheet, and when you want to select your Amortization information, go to your Name box and from the list, click FinancialDB. Excel lists your names in alphabetical order.



Play around. Change the interest Rate, the Months, and the Loan Amount. When these figures change, your pay back schedule automatically changes and recalculates for you. You can calculate early payoff by using the Additional Principal payment field.

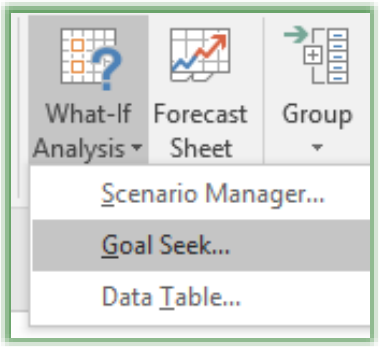
♬ ***Write your notes here:*** _____

_____

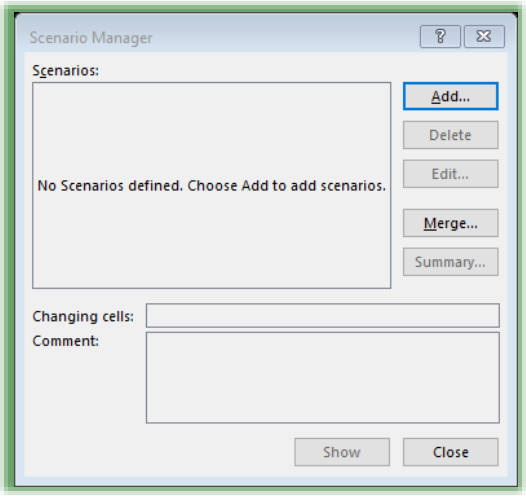
Scenario Manager: A What If Wonder!

As we have learned with our Loan worksheet, we can change the Loan Amount, the Interest Rate, and the Terms to play "what if" games. But, we must continue to input and change the items to see the results. ***Excel*** contains a tool called the ***Scenario Manager,*** which can keep track of our "***what if***" games and display them for us. You can use ***Scenario Manager*** to analyze a lot of "what if" statements and analysis. We will use our ***Loan.xlsx*** workbook to create various scenarios.

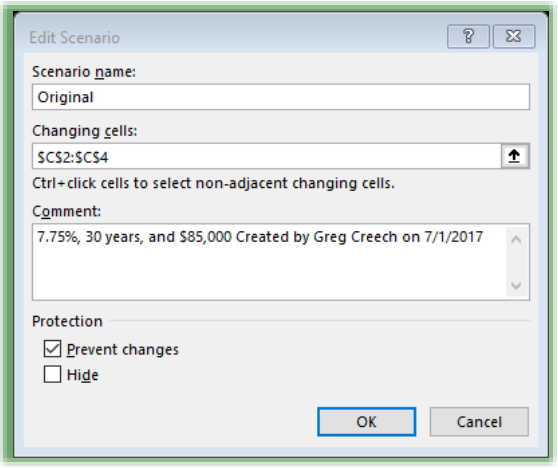
Let's create several scenarios using Excel's Scenario Manager.



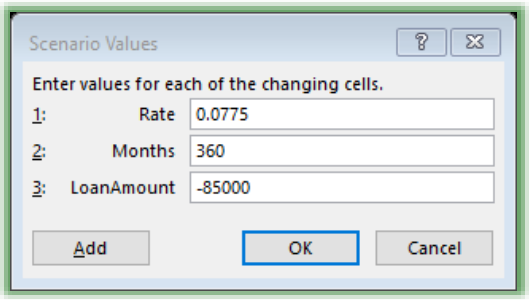
1. **Open the Loan.xlsx workbook and in the Loan Calculator worksheet click in your Loan Information area, such as Rate or Months cells – this helps Scenario Manager better know the area for your scenario.**
2. **On the Data Tab and in the Data Tools group click the What-If Analysis button,**
3. **Click the Scenario Manager. . . from the menu,**
4. **The Scenario Manager pane appears as displayed here. We will add a few scenarios.**
5. **Click the Add… button.**



1. **In The Scenario name box type Original.**



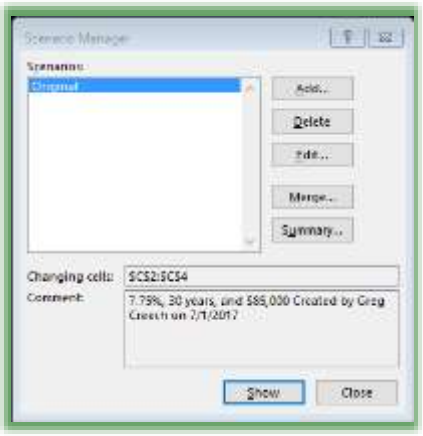
2. **You may click and drag your area on your worksheet and Excel will collapse and expand the box as needed to enter your selection or click the collapse button at the end of the Changing cells row. Your dialogue box reduces and you can see more of your worksheet. The Add Scenario – Changing Cells dialogue box appears.**
3. **Click and drag the cells that we will change - C2 through C4.**
4. **A Scrolling Marquee around these cells indicates that the area is selected.**
5. **The reference of $C$2:$C$4 appears in the changing cells box. This is Absolute Reference, again.**
6. **Click the Expand button; Excel returns to your Edit Scenario Dialogue box,**
7. **Click in the Comments section, notice Excel has put your name and date in this section. Click before this information and type: 7.75%, 30 Years, and $85,000 as pictured above or put in your own comments to help describe the scenario,**
8. **Click OK.**



9. **The Scenario Values box appears with our information. We do not want to change these values as we want to create a scenario of our existing data.**
10. **Notice that the words Rate, Months, and LoanAmount appear; these are the names of our cells C2, C3, and C4. If we had not named these cells, then the cell reference of C2, C3, and C4 would appear here. This is another advantage of using Names as cell references.**

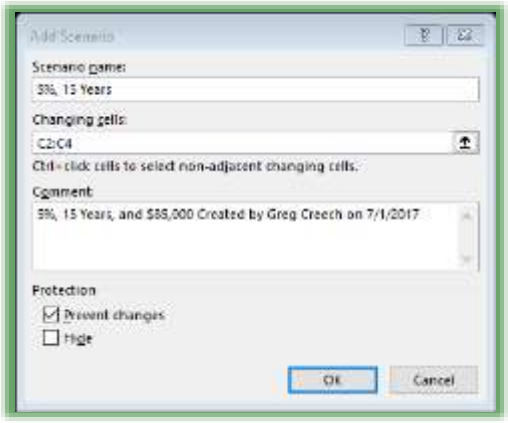
11. Click OK.

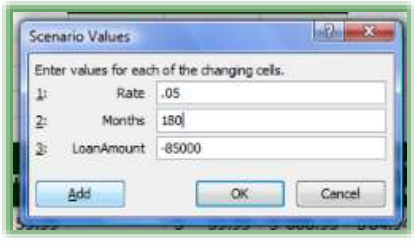
Our ***Scenario Manager*** Screen returns with the Original Scenario selected.



Let's add another scenario with a different interest rate and time period.

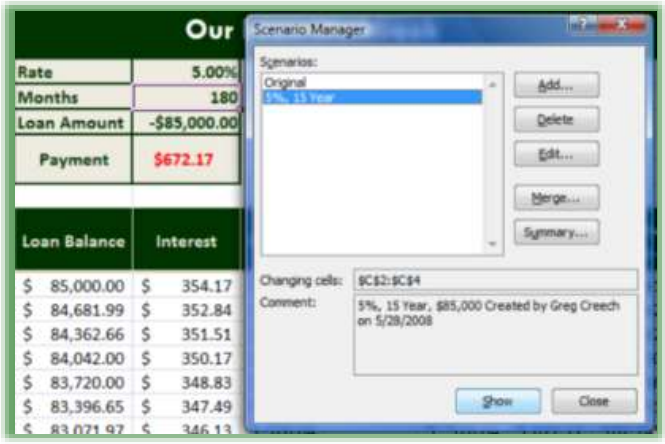
1. **Click Add,**
2. **In the Add Scenario Dialogue box and the Scenario Name section type 5%, 15 Year,**
3. **Ensure the changing cells box displays C2:C4,**
4. **Click in Comments and enter additional comments as pictured at right,**
5. **Click OK to activate the Scenario Values,**
6. **Change the Rate to .05,**
7. **Change the Months to 180,**
8. **Click OK.**





So, nothing changes and your rate and months remain the same. If your Scenario Manger Dialogue box is blocking your Rate, Months, and Loan Amount section of your worksheet, click on the Title Bar of the Dialogue box and move it to the right, so you can see your changes.

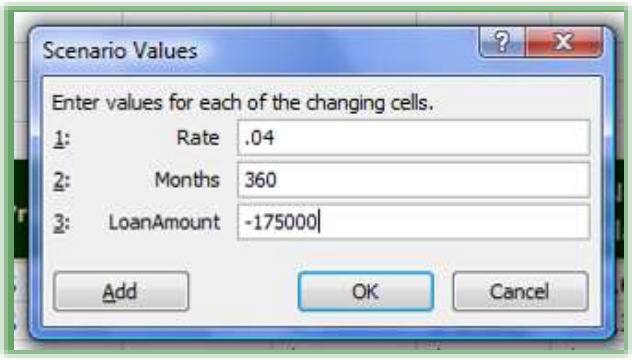
1. **At the Scenario Manager screen, select the Scenario of 5%, 15 Year Loan Scenario,**
2. **Click the Show button at the bottom of the Scenario Manager pane,**
3. **Notice your worksheet data changes.**



4. **Wow! I'm no financial wizard, but what a difference this makes over the life of your loan.**
5. **Notice that your Amortization table changes, too!**
6. **Select the Original scenario and click Show – Notice your original data displays.**

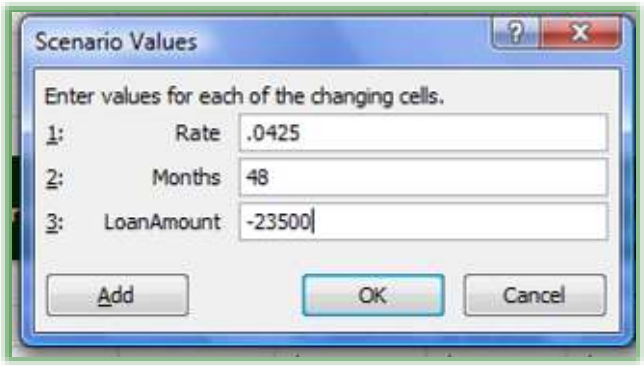
Let's add a few more scenarios; please use the above screens if you need help in reviewing the actual screens that I will mention in the steps below.

1. **Click Add,**
2. **Name the Scenario 4%, 30 Year, $175,000,**
3. **Type appropriate Comments,**
4. **At the Scenario Values box enter the data as displayed at right. Don't forget to put the negative sign in front of the LoanAmount figure,**
5. **Click Add to go directly to the next scenario.**



Excel will save this scenario for you, but clicking Add allows you to create other scenarios without returning to the Scenario Manager screen and clicking add.

1. **At the Add Scenario screen, Name this Auto Loan and enter appropriate comments,**
2. **Click and enter the values as picture at right,**
3. **Click OK.**



Let's look at our scenarios.

1. **At the Scenario Manager screen, click your Auto Loan Scenario and click Show,**
2. **Click 4%, 30 Year, $175,000 and click Show,**
3. **Click Original and click Show,**

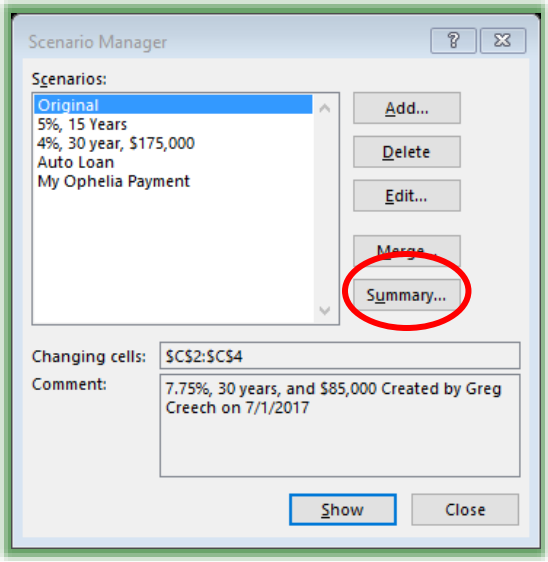
4. **Click close on your Scenario Manager.**

Excel saves your scenarios with this worksheet and workbook. You can return to these scenarios by clicking the What If Analysis button on your Data Tools Group and then clicking Scenario Manager from the cascading menu.

On your own, create various scenarios changing the Loan Amount, Months, Interest Rate.

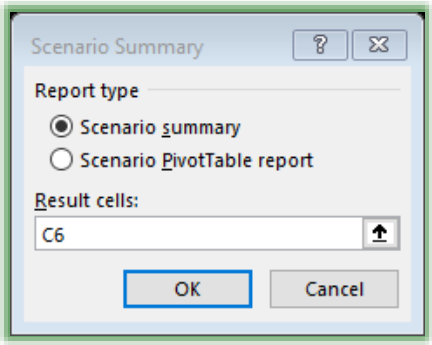
Now, let's generate one worksheet that will display all of our scenarios.

1. **If your Scenario Manager screen is not active, click the What If Analysis button on your Data Tab, and from the Cascading Menu, click Scenario Manager.**

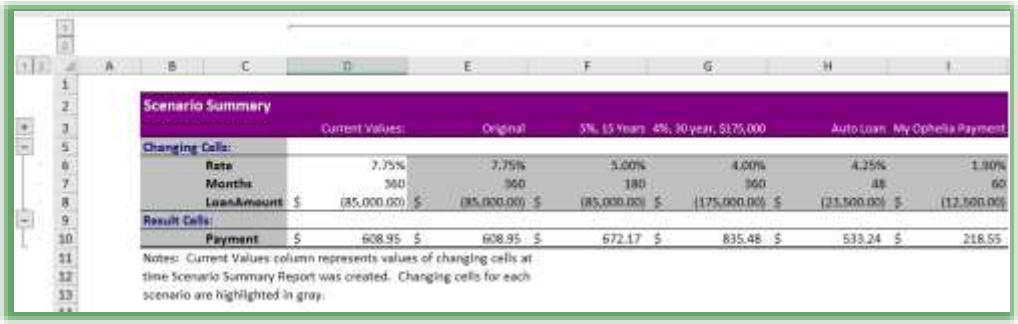


Notice that you can Delete, Edit, and Merge Scenarios. I never use the Merge feature, but I do like to Delete scenarios, I no longer use, and I will edit Scenarios, too.

2. **On your Scenario Manager screen, click the Summary button .**
3. **You may need to change the Result Cell or ensure cell $C$6 is displayed in the Result Cells, since this is the cell with the PMT function and is the calculated scenario cell,**
4. **C6 is the cell that changes based upon our Interest Rate, Months, and Loan Amount and contains the important payment function. This is the cell that guides our decision.**
5. **Click OK.**



Excel creates a Scenario Summary worksheet for us to view our scenarios. Click the Scenario Summary worksheet and view your "what if" games. My Scenario Summary is pictured here.



Scenario Summary	Current Values:	Original	5%, 15 Years	4%, 30 year, $175,000	Auto Loan	My Ophelia Payment
Changing Cells:						
Rate	7.75%	7.75%	5.00%	4.00%	4.25%	1.90%
Months	360	360	180	360	48	60
LoanAmount	$ (85,000.00)	$ (85,000.00)	$ (85,000.00)	$ (175,000.00)	$ (21,500.00)	$ (12,500.00)
Result Cells:						
Payment	$ 608.95	$ 608.95	$ 672.17	$ 835.48	$ 533.24	$ 218.55

Notes: Current Values column represents values of changing cells at time Scenario Summary Report was created. Changing cells for each scenario are highlighted in gray.

On your own, you should return to your Budget and in the Forecast worksheet create scenarios using different Budget Increase and Expense Increase percentages to play your "what if" analysis based on changing these cells.

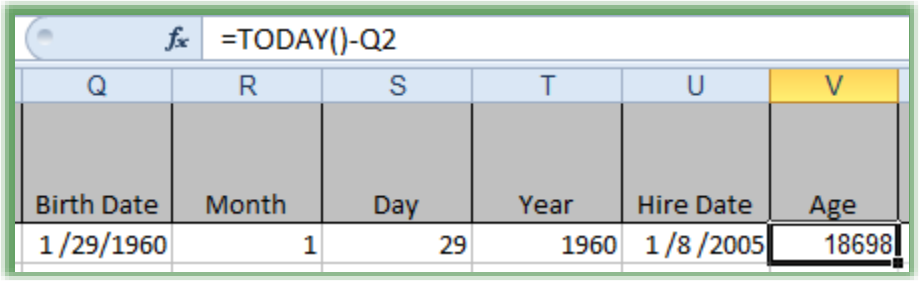
More Functionality with Functions

Let's examine some of the other neat functions and formulas to know in Excel.

Date Calculations

Since Excel is so great with formulas and functions using cell referencing and numbers, it is terrific at ***Date Calculations,*** too such as Age and service anniversaries. You do not want to manually enter an age, unless you want to constantly update your worksheet with the correct age and we grow older by the minute. We will look at several different age calculations. Let's first examine how you can calculate age and service anniversaries that are based on a Date of Birth and Hire Date and using the ***TODAY()*** function.

♬ Please ensure that you format your dates as date, such as Short date, using your format cells dialogue box. Also, Excel stores your dates as numbers. Every day since 01/01/1900 is a serial number for 01/01/1900 is stored as 1 and 01/01/2008 is 39448. That's how Excel can compute time intervals – the date formats are for our benefit not Excel's. ♬



1. **Open the Excel Workbook named Personnel File.**
2. **Click in Cell V2 below the Age header.**
3. **Enter this Formula in Cell V2 =Today()-Q2. Wow, this measures our age in days. This is popular to know for time intervals for shipping, ordering, billing, and other important business information dates. I used this for knowing when an account's Account Receivables went above 30, 60, or 90 days.**

4. **Get your fill handle in Cell P2 and double click the cell to fill down through your database. The Formula and results are displayed at right.**
5. **Now, let's use years – Change your formula to read: =(TODAY()-Q2)/365.25. Your information is expressed in years, but Excel rounds!**

=(TODAY()-Q2)/365.25

Q	R	S	T	U	V
Birth Date	Month	Day	Year	Hire Date	Age
1 /29/1960	1	29	1960	1 /8 /2005	51.19

6. **♬ Notes on the Formula:**

This formula uses the TODAY() function which is the date on your computer and measures your calculation in days. If you do not put in the 365.25 division, this will calculate the number of days that the person has been alive not in years. This is depressing for someone as old as I am so I care not to use the days – the years are bad enough! The .25 in the 365.25 figure is for leap years.

7. **You will need to decrease your number of decimal places and if you decrease to no decimal places, Excel will round up and we don't like that especially my female friends and clients – I don't appreciate this either!**
8. **You may use the YEAR Function as well to calculate in Years. Rounding is not an issue, since this function expresses whole years; however, many organizations like having at least one or two digits for age or service. Your Formula looks like this =YEAR(TODAY())-YEAR(N2). We'll use the YEAR function to calculate the Age at Hire.**
9. **Here's how to use the ROUNDDOWN function.**
10. **Click in Cell V2 and edit the formula to read:**

=ROUNDDOWN(((TODAY()-Q2)/365.25),0)

Q	R	S	T	U	V
Birth Date	Month	Day	Year	Hire Date	Age
1 /29/1960	1	29	1960	1 /8 /2005	51

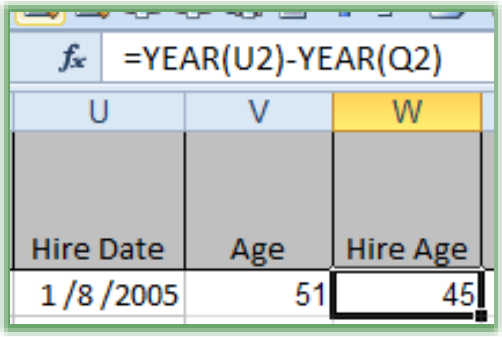
11. =ROUNDDOWN(((TODAY()-Q2)/365.25),0)
12. This will accomplish exactly what you want. The number o fparentheses can be tricky and the 0 is the number of decimal places that you want.
13. If you like this you may use your fill handle to overwrite your existing formulas in the column.

♬ *Write your notes here:* _____

_____

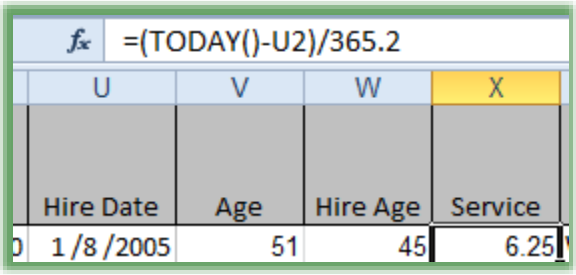
Now, let's calculate the Age at which the associate was hired. With this formula we won't use the TODAY() function but we will compare two dates and use the YEAR Function. For us the dates will be the Birth Date and the Hire date.

1. **With your Personnel File Workbook open, Click in Cell W2.**
2. **Enter this formula =YEAR(U2)-YEAR(Q2)**
3. **Use your Fill Handle to copy the formula down through your column.**
4. **This provides the Age at Hire and the time interval in years.**



Next, with Length of Service, let's have the ability to show partial years. As a Human Resources Manager, I needed to know parts of years rather than whole years.

1. **In Cell X2, Enter the Formula =(TODAY()-OU)/365.25**
2. **You may need to decrease or increase your decimal places as you like.**
3. **Use your Fill Handle to copy this formula in your remaining cells.**



♬ As related previously, if you want to compare an Order date verses a Ship Date or Purchase date verses an Warranty Expiration date you may want to use days or months. ♬

If you like you may use the ROUNDDOWN function has described above. Also, when you change a Birth Date or Hire Date your calculations change too.

There are other functions to check out too. You may use the ***NETWORKDAYS*** to measure Workdays rather than including Weekends. You may want to use the ***MONTH*** function to calculate based on months. Check this out on Excel's help with functions.

Hey Mate! Let's CONCATENATE!

Concatenation is a fancy word for bring together or consolidate. The ***Concatenate*** function in Excel consolidates two or more columns into one column. For example, you may want your First Name and Last Name columns in one column entitled Name or maybe you want your City, State, and Zip Code columns as one.

Hot Tip! Concatenating columns makes mail merge from Word easier and less cumbersome with working with one column rather than 2 or 3.

We'll use the ***concatenation*** function on our ***Database Functionality*** file and ***Concatenate Text 2 Columns*** worksheet to consolidate the Last Name and First Name Columns.

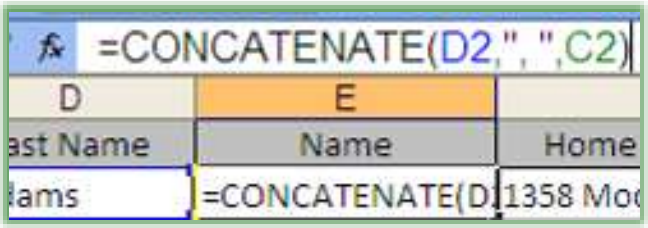
1. **Open the Excel Workbook entitled Database Functionality and select the Concatenation worksheet/tab.**
2. **We'll insert two columns for our concatenated columns. One Column for Name and one column for City, State, and Zip.**
3. **Right Click the Column E Header or the Home Street Line 1 column and from the shortcut list, click Insert. A New, Blank column inserts to the left for you.**
4. **Right Click the Column header K and from the shortcut menu, choose Insert. A New, Blank column inserts to the left for you.**
5. **Click Cell E1 and type Name.**
6. **Click in Cell K1 and type – City, ST, ZIP**
7. **Click the Formulas Tab and the Text Command button and choose Concatenate from the list.**
8. **In the Function Arguments Dialogue box for Concatenate enter C2 (by typing the cell reference C2 or clicking the cell C2) in the Text 1 box.**
9. **In the Text2 box enter D2 (by click the cell D2 or typing D2).**

10. **Excel displays that the function is working for you.**
11. **Click OK.**

This is fine, except we want a space between the First Name and the Last Name, so we will need to edit the function.

1. **Click in your formula bar and edit the formula as displayed at right.**
2. **We accomplish this by typing a quotation mark, pressing our spacebar, typing another quotation mark, and typing a comma.**
3. **The function now reads =CONCATENATE(C2,” “,D2) and the name has a space in it.**
4. **Finally, double click your fill handle in Cell E2 to copy this function through your list.**

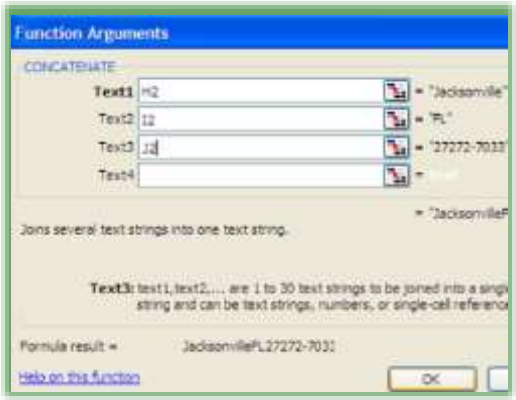
Now, let’s edit the function so our names will be by Last Name and then First Name with a comma separating them.



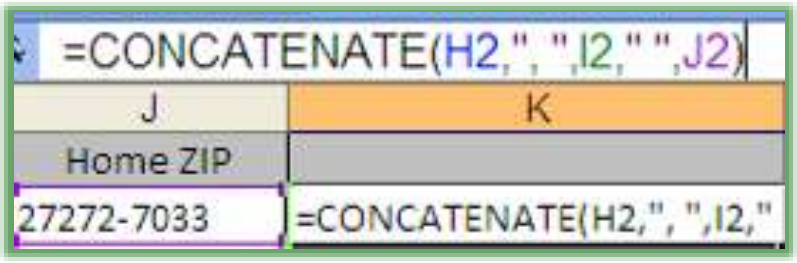
1. **Click in Cell E2 and in the formula bar edit the function as follows:**
2. **Change C to D in the first cell reference (so cell D2 is the first cell reference.)**
3. **Type a comma after the quotation mark and before the space.**
4. **Change D to C in the second cell reference (so cell C2 is the second cell reference.)**
5. **Press enter and double click your fill handle in cell E2 to copy this function through your list.**
6. **Finally, click the Sort Ascending icon to automatically sort your list by Last Name and then by First Name.**

So our Concatenate function aids in formatting, functionality, and in sorting. You may need to widen your columns to view your data.

Now, let's practice concatenation with our City, State, and ZIP code columns in the inserted K2 cell.

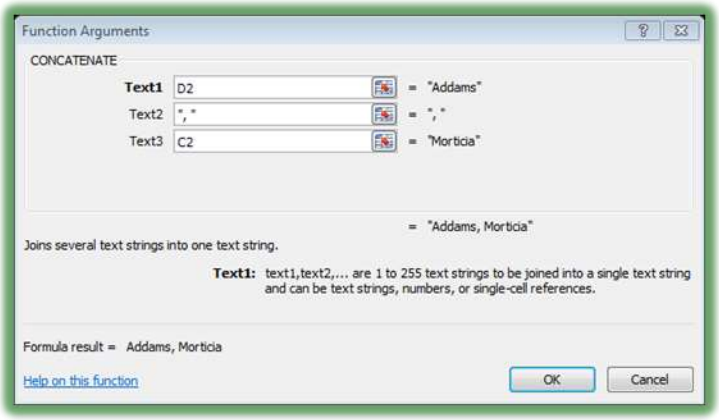


1. **Click in cell K2.**
2. **Activate your Insert Function Dialogue box and from the Categories insure Text appears and select the Concatenate Function from your list.**
3. **The Function Arguments dialogues box appears and in the Text1 box type or click cell H2,**
4. **In the Text2 box type or click cell I2,**
5. **And finally in the Text3 box type or click cell J2, as pictured at right for you.**
6. **Click OK.**
7. **The text runs together and as in our previous exercise we want additional spaces and a comma to separate our text.**
8. **Edit the function as it appears at right by inserting the quotation marks, comma, and spaces. The function should read:**



=CONCATENATE(H2,", ",I2," ",J2).

9. **Finally, double click your fill handle in cell K2 to fill this down through your list. You may need to widen your columns to see your concatenated information.**



Your city, state, and ZIP Code have appropriate spacing now for a mail merge or other use.

If you prefer to use the Function Arguments dialogue box the screen at right displays how you would need to set the function for the First and Last Name columns; I prefer editing the function directly.

Lookout for LookUps

Using Excel as a List or Database tracking system allows the program to populate information from another area of a worksheet or from an entirely different worksheet. This can eliminate duplicate input and can quickly locate specific information for you based upon criteria. While there is a Lookup function that will lookup one row or one column of data the ***VLOOKUP*** and ***HLOOKUP*** functions are more powerful and popular because they can use multiple columns and rows.

If your worksheet is a vertical type of worksheet, that is where the data is in columns use the ***VLOOKUP (Vertical Lookup)*** Function. If your worksheet is a horizontal type of worksheet, that is where the data is in rows use the ***HLOOKUP (Horizontal Lookup)*** function. The Vertical Lookup function will lookup information in columns; the Horizontal Lookup function will lookup information in rows. We will use the Vertical Lookup ***(VLOOKUP Function).***

The ***ExcelVLlookup*** workbook contains a vertical lookup for us to examine.

1. **Open the ExcelVlookup file. Click on the Product Sales sheet, notice the figures in the Date column – these numbers are retrieved from the individual sheets. Navigate to the August 1 tab and change a number for a Product – click back on the Product Sales sheet and notice the number updates automatically. VLookup automatically updates a cell from another worksheet.**
2. **Where you see a blank or #N/A the product code doesn't exist on the other worksheets. Great for comparing worksheets and the missing data – this is popular for audits and reconciliation activities and a host of other needs when comparing the differences between worksheets or to populate and update a worksheet based on another worksheet.**

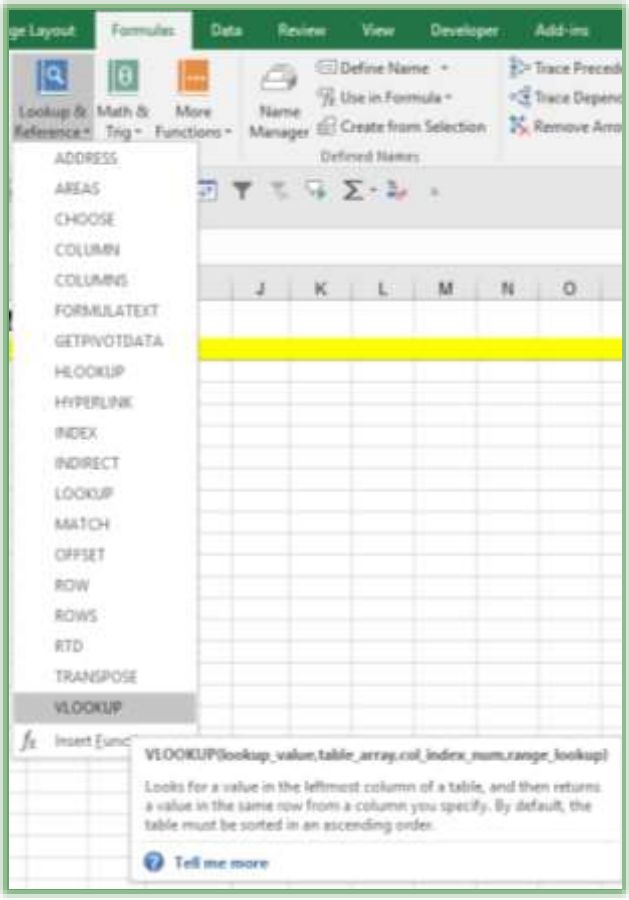
The ***Product Sales worksheet*** retrieves its information from the other worksheets. Each day a worksheet downloads from a server illustrating the Product Code sales for each day. As a day is added as a worksheet, the Product Sales worksheet needs to have a column added and the vertical lookup function modified to reflect the additional daily sales. Of course, in the "real

world" you would copy the VLOOKUP function and edit it; however, for our exercise we will develop a new Vertical Lookup function. The Product Sales worksheet "looks" at the other worksheets and compares the Product Code and based upon the Product Code the value in Column B is returned.

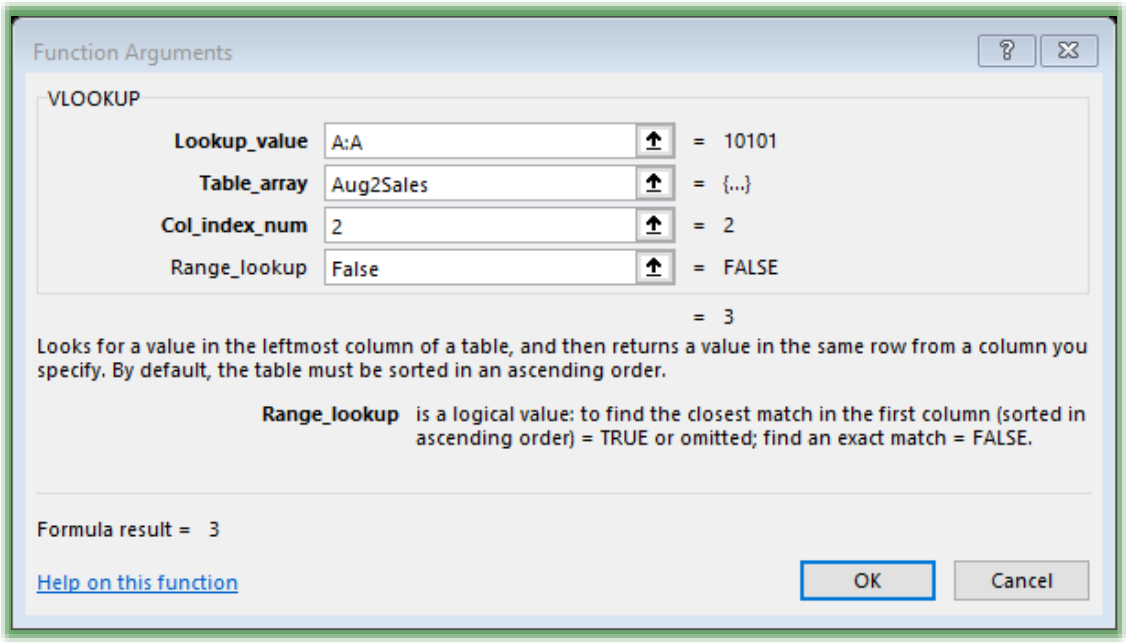
Hot Tip! This is another area in which using a Named data range is very helpful; otherwise, you may need to use Absolute Reference using the $ signs. I encourage you to name your area to reduce frustration and mistakes. I will use the name Aug2Sales for our exercises here.

Here are the steps and our exercise for using Vertical Lookup to retrieve information based upon Product Code from another worksheet (August 2).

1. **Open the ExcelVloopup workbook and Click the August 2 tab and select Columns A & B (this is the area from which we retrieve the data). In the Name box type Aug2Sales and press enter to name this area.**
2. **Click back in the Product Sales worksheet and click in Cell E3 – this is where we will construct our VLOOKUP function.**
3. **Click the Formulas Tab and in the Function Library Group click the Lookup & Reference item and from the menu select VLOOKUP. The VLOOKUP function dialogue box activates.**



4. **If your Function Arguments box covers your data, click at the top of the dialogue box and move it.**



5. **Lookup_value is the column or cell(s) that contain the item you wish to have Excel to compare in order to find the data for that item. In our case, the Product Code information is retrieved and this information is in Column A.**
6. **Click the Column A column header in the Product Sales worksheet,**
7. **The Dialogue box displays A:A,**
8. **Next, Excel needs the area containing the data. This is signified by the Table_array box. The Table_array can be a range of cells, columns, rows, etc. We named our area Aug2Sales.**
9. **Click and drag Column A and B in the August 2 worksheet or type Aug2Sales – Excel places this name in the Table_array box for you.**
10. **Excel needs the column number from our table array or data area. We will use Column B from our area and Column B happens to be the second column in our array. Type 2 for the Col_index_num. Press Tab.**

11. **In our worksheet we need an EXACT or precise match for the data since we have specific product codes; therefore, type FALSE in our last row.**
12. **Click OK.**
13. **Finally, using the ever popular Fill Handle, click the in cell E3 and double click the AutoFill Handle to fill the remaining cells.**
14. **Click on the August 2 tab and at the bottom of the product list add 10102 and in the second column type a number. Click back on your Product Sales worksheet - your information automatically populates.**

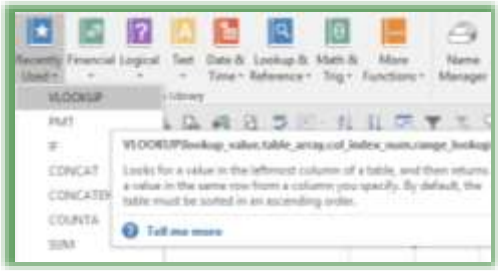
Note: If Excel does not find a match it populates the worksheet with N/A.

Let's practice another Vertical Lookup. This time we will enter a product code in one cell and the sales for that product code will display in another cell.

1. **Click the August 1 worksheet.**
2. **Notice cells D1 through E2,**
3. **In cell E1 type 10400,**
4. **Cell E2 displays 12,**
5. **Scroll down your worksheet to the Product code of 10400 and notice that Excel is displaying the correct number. Change the cell from 12 to 15.**
6. **Scroll back to the top of your worksheet, notice E2 displays 15.**

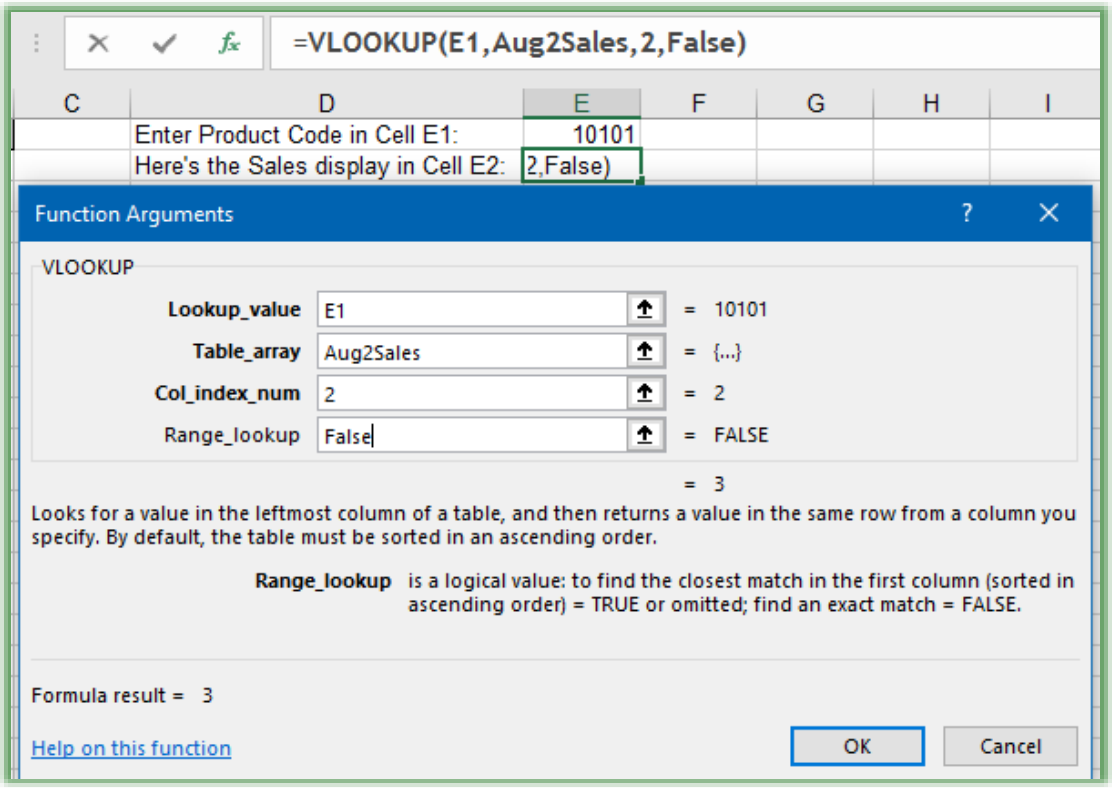
Let's add this "function"ality to our August 2 worksheet.

1. **Click the August 2 worksheet,**
2. **Click cell E1 and enter 10101,**
3. **Click cell E2,**
4. **Click Formulas Tab and click the Recently Used button and from the menu choose VLOOKUP.**



5. **The lookup value is cell E1 – either type E1 or using the collapse icon, click cell E1.**
6. **In the Table_array box type Aug2Sales or click and drag Columns A and B (The name of our range of cells containing our lookup data),**

7. **The Col_index_num is 2,**
8. **The Range_lookup is False,**
9. **Click OK,**
10. **In cell E1 enter another Product Code and notice the changes in Cell E2.**



This is popular in using a huge worksheet to display specific information and is much quicker than using the Find feature and using the Filter items. We will use the VLOOKUP function in the same manner in our next section, but we will have more columns.

♬ ***Write your notes here:*** _____

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IfError Function

Excel will put #N/A if a value is not found in the Lookup. You may not want Excel to display this and display nothing or other text. Excel's new ***IFERROR*** Function allows you to specify the error display.

Here's how to use the ***IFERROR function***.

1. **In your VLookup workbook and the Product Sales worksheet, Click cell E3 with your VLookup Function. Edit the function and add the IFERROR Function like this:**

=IFERROR(VLOOKUP(A:A,Aug2Sales,2,FALSE),"").

```
=IFERROR(VLOOKUP(A:A,Aug2Sales,2,FALSE),"")
```

2. **Fill down your edited function by double clicking your Fill Handle for this cell or clicking and dragging down to the end of your list. Excel replaces the #N/A with a blank because we used double quotation marks in our IFERROR function.**

You can put words or other characters between the quotation marks to further customize your error message as displayed below after editing my VLOOKUP on the August 2 tab.

```
=IFERROR(VLOOKUP(E1,Aug2Sales,2,FALSE),"Sorry, Item not found.")
```

While you may use the Function Arguments box to accomplish the IFERROR function I have found that the Function Arguments become the Function Cursing box for me as I find it easier to edit using the formula bar than the dialogue box.

♬ ***Write your notes here:*** _____

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Conditional Formatting

Excel has a feature that allows you to have cells formatted in a particular manner when a value or range of values is present. This feature is aptly called ***Conditional Formatting***. I have used ***Conditional Formatting*** to color code cells based on a value for several companies. Here are a few example of how I have used ***Conditional Formatting*** to help my clients.

- ✓ Color Code cells based on ZIP codes for an Insurance company that needed to have high accident ZIP codes in one color, medium accident zone ZIP Codes in another color and finally low accident zones ZIP codes in another color.
- ✓ A telecommunications company used color coding for date ranges to alert them when orders were due and overdue.
- ✓ As a Human Resources Manager I used Conditional Formatting for attainment percentages and to color code highly, medium, and lowly ranked associates.

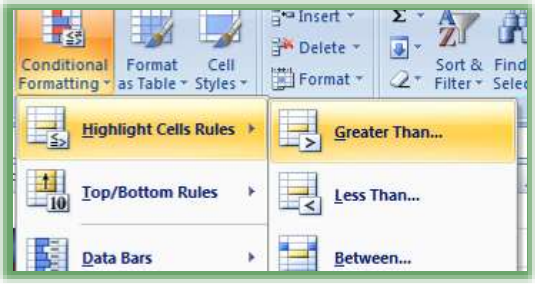
For our example, we will want to color code our difference Columns in order to take money from one category that is under budget and give money to other items that are over budget. We will color code our Difference columns so at a glance we will know which items we can take money from and those that we need to leave as is. Then, we'll use some of ***Conditional Formatting's*** built in functionality for percentages and number values.

Custom Conditional Formatting

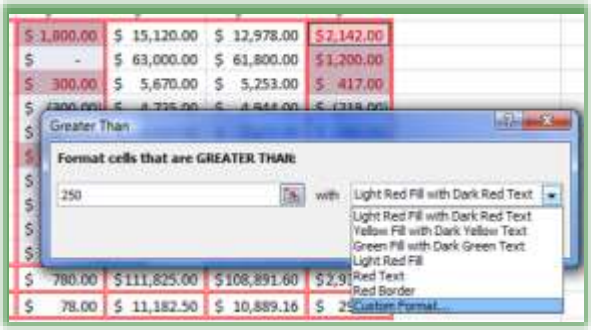
Here are the steps to have our numbers in the Differences columns formatted based upon a value in the cell.

1. **Have your Budget Workbook open,**
2. **Click on the Forecast tab,**
3. **Select Cell D5 through D14 through click and drag.**
4. **Press your CTRL key and Keep it pressed.**
5. **Click and drag Cell G5 through G14.**
6. **Release your mouse button and release the CTRL key.**

7. Our two areas are selected that we want to use Conditional Formatting.
8. On the Home Tab, Click the Conditional Formatting command button,
9. From the Cascading menu, Click the Highlight Cells Rules and Choose the Greater than . . . item.



10. The Greater Than box opens for you to format your cells. Using the drop down arrow in the with box look at some of the effects Excel Provides.
11. Click the Custom Format. . . Item.



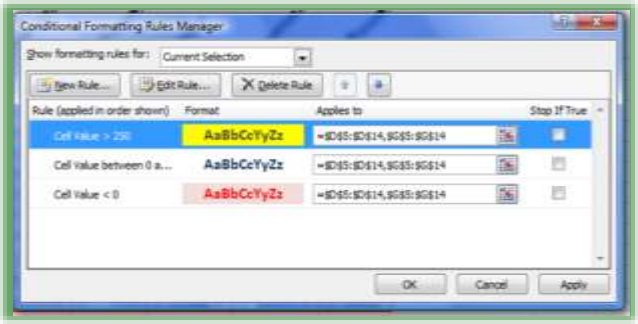
12. The familiar Format Cells dialogue box opens; however, not all items are available but you may change your Font Style and Color as well as provide a border and fill color and pattern.
13. As pictured at right, we will change our dialogue box to reflect the values and range of values with specific colors.

14. Change your font to bold and change the font color for values that are greater than 250.
15. Click the Fill tab and give your cell a fill color – I chose yellow.
16. Click OK. Click OK, again, at the Greater Than box.
17. Your formatting changes for cells greater than 250.

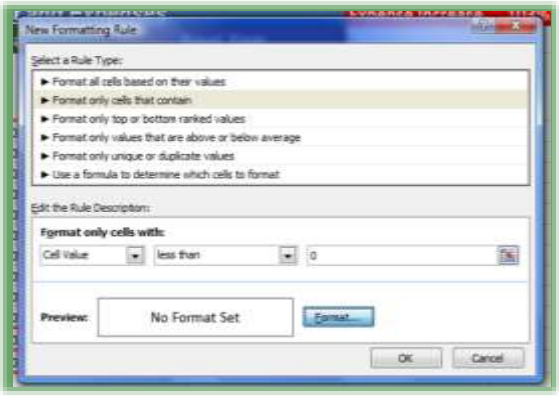
Let's add another rule and learn to edit and add new rules.

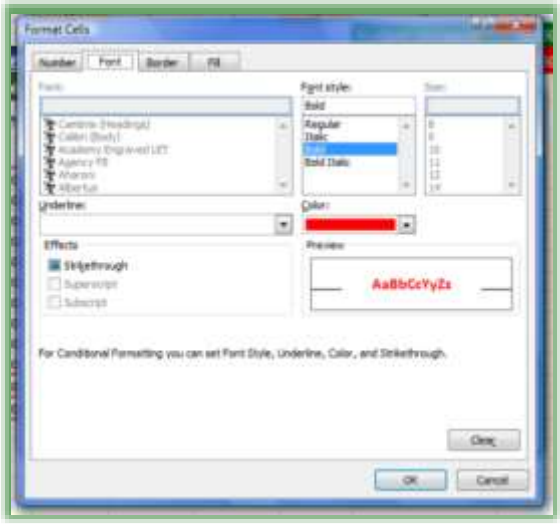
1. With your area D5 through D14 and G5 through G14 still selected in the Budget workbook and Forecast Tab,
2. Click the Conditional Formatting Command Button, Click the Manage Rules item at the bottom of the menu.

My completed rules and formatting appear at right. Your screen will have the rule you previously applied to this area. You can create, edit, and delete rules from this location and also change the area you want to set rules for using the *Show Formatting rules for:* area.



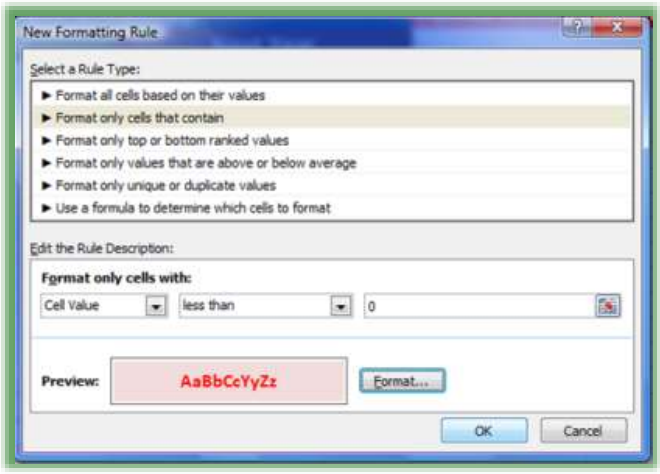
1. **Click the New Rule. . . button.**
2. **At the New Formatting Rule Pane, choose the *Format only cells that contain* item.**
3. **In the *Edit the Rule Description*: area change your Cell Value to be less than and your value to be 0 as pictured at right.**
4. **Click the Format button,**
5. **In the Format Cells dialogue box choose Bold and a color and on the fill tab choose a fill color if you like.**
6. **Click OK.**
7. **At the New Formatting Rule pane, Click OK.**
8. **Your negative values change color and fill.**





Now, using these steps as a guide create your own rule and formatting for values 0 – 250 for cells

	A	B	C	D	E	F	G
1	Friday, May 25, 2007						
2	Forecast Budget and Expenses						
3		Current Year			Next Year		
4	Items	Budget	Expenses	Difference	Budget	Expenses	Difference
5	Lease	$ 14,400.00	$ 12,600.00	$ 1,800.00	$ 15,120.00	$ 12,978.00	$2,142.00
6	Salary	$ 60,000.00	$ 60,000.00	$ -	$ 63,000.00	$ 61,800.00	$1,200.00
7	Insurance	$ 5,400.00	$ 5,100.00	$ 300.00	$ 5,670.00	$ 5,253.00	$ 417.00
8	Telecommunications	$ 4,500.00	$ 4,800.00	$ (300.00)	$ 4,725.00	$ 4,944.00	$ (219.00)
9	Education/Training	$ 4,200.00	$ 5,100.00	$ (900.00)	$ 4,410.00	$ 5,253.00	$ (843.00)
10	Supplies	$ 6,300.00	$ 6,000.00	$ 300.00	$ 6,615.00	$ 6,180.00	$ 435.00
11	Travel	$ 3,000.00	$ 3,000.00	$ -	$ 3,150.00	$ 3,090.00	$ 60.00
12	Technology	$ 2,100.00	$ 2,220.00	$ (120.00)	$ 2,205.00	$ 2,286.60	$ (81.60)
13	Entertainment	$ 4,200.00	$ 4,200.00	$ -	$ 4,410.00	$ 4,326.00	$ 84.00
14	Mileage	$ 2,400.00	$ 2,700.00	$ (300.00)	$ 2,520.00	$ 2,781.00	$ (261.00)
15	Total	$106,500.00	$105,720.00	$ 780.00	$111,825.00	$108,891.60	$2,933.40
16	Average	$ 10,650.00	$ 10,572.00	$ 78.00	$ 11,182.50	$ 10,889.16	$ 293.34



D5 through D14 and G5 through G14.

You have your personal or professional monthly budget and expense tracking system in place! Now, all you have to do is remember to use it.

♬ ***Write your notes here:***_____

_____

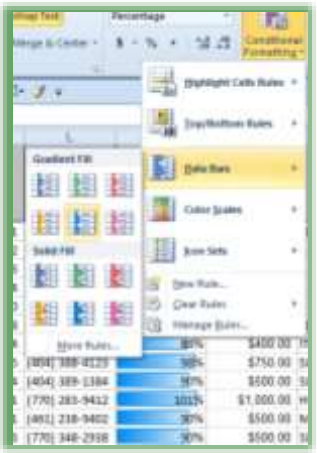
_____

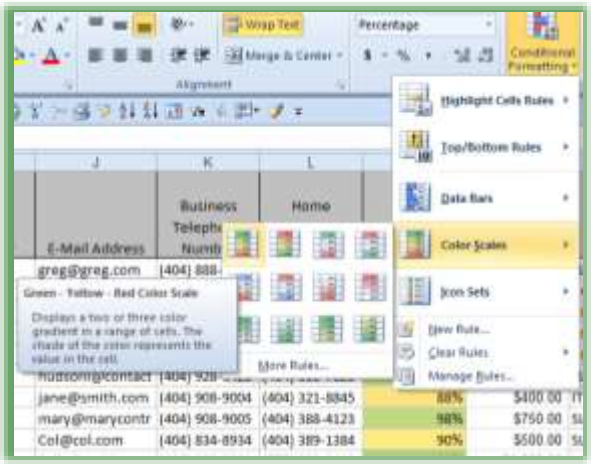
Automatic Conditional Formatting

Excel has many terrific built in Conditional Formats that provides magic for your numbers and percentages. Excel can rank your values in neat and easy ways. We'll look at these ways of using Excel's Automatic Conditional Formatting. ☹ **The 2007/2010 built in Conditional Formatting that we will learn here will not convert to previous versions of Excel. If you save your file as a 97-2003 format the screen at right should appear and when it says Significant loss of functionality – Believe IT. ☹**

1. **First, Open a file entitled Database Functionality.xlsm,**
2. **Click the Conditional Format Personnel tab,**
3. **Select Cells M2 through M48 or select the entire column by clicking the Column Header M,**
4. **Click the Conditional Formatting button and from the menu look at the various styles. I have several of these styles for my percentages displayed below.**

5. **I have the Data Bars in Blue, then the Color Scales, and finally, the Icon sets. The Ratings are cool, too. Select the formatting you would like.**



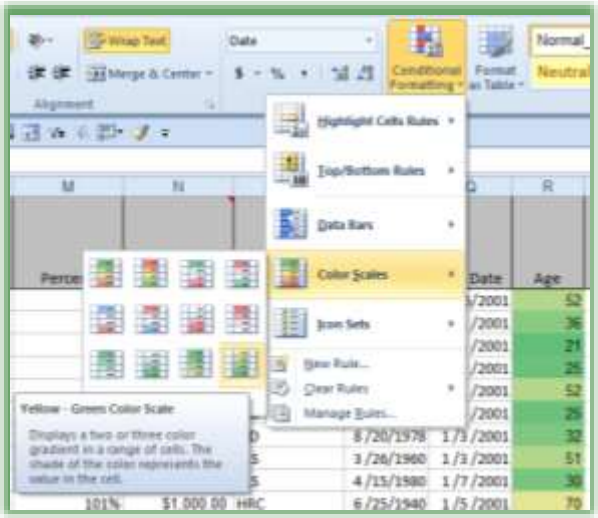


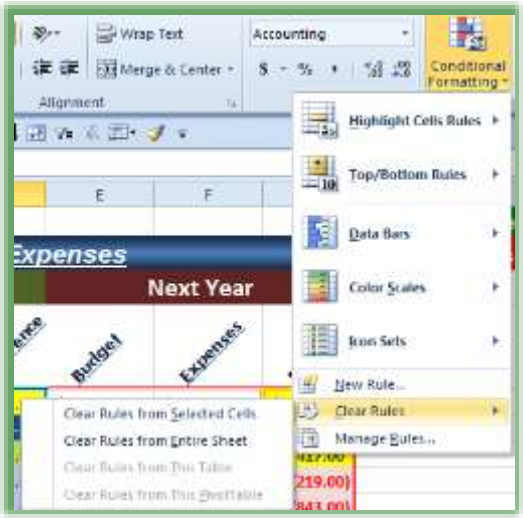
A Hot Tip! You can apply more than one of the built in formatting rules to your cells.

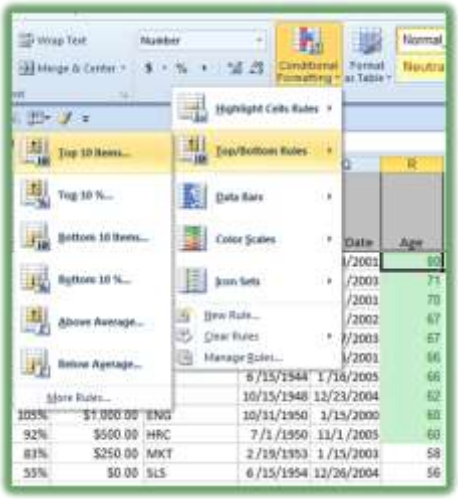
For practice select the Bonus cells of N2 through N48 (or Click column header N to select the entire column) and using the Conditional Formatting button and menu select a format for your bonus ranges.

Save your workbook.

On your own use ***Conditional Formatting*** for the Age column. Also, notice the ***Clear Rules*** that you may use to remove ***Conditional Formatting*** and similar to the Top 10 Filter we used earlier, ***Conditional Formatting*** can format your information based on the top or bottom items and above or below averages and other types of numerical data for you. Practice using difference rules for your numbers and dates. At the bottom of this page, I have used Top 10 for Age and a green fill then I sorted the information from Largest to Smallest.


Wrap Text
Merge & Center
Date
Conditional Formatting
Format as Table
Normal
Neutral
Alignment
Highlight Cells Rules
Top/Bottom Rules
Data Bars
Color Scales
Icon Sets
New Rule...
Clear Rules
Manage Rules...
Yellow - Green Color Scale
Displays a two or three color gradient in a range of cells. The shade of the color represents the value in the cell.


Wrap Text
Merge & Center
Accounting
Conditional Formatting
Alignment
Highlight Cells Rules
Top/Bottom Rules
Data Bars
Color Scales
Icon Sets
New Rule...
Clear Rules
Manage Rules...
Expenses
Next Year
Budget
Expenses
Clear Rules from Selected Cells
Clear Rules from Entire Sheet
Clear Rules from This Table
Clear Rules from This PivotTable


Wrap Text
Merge & Center
Number
Conditional Formatting
Format as Table
Normal
Neutral
Highlight Cells Rules
Top/Bottom Rules
Data Bars
Color Scales
Icon Sets
New Rule...
Clear Rules
Manage Rules...
Top 10 Items...
Top 10 %...
Bottom 10 Items...
Bottom 10 %...
Above Average...
Below Average...
More Rules...

Text to Columns – Backward Concatenation

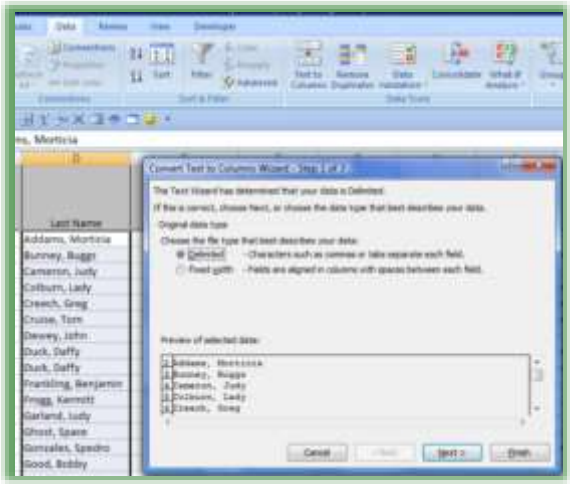
Many Excel databases or data imported into Excel may be in one column with a space, tab, comma, or other character separating the information. You may want to have the items separate columns to help you with filtering, sorting, or performing other Excel functionality. Excel provides the ***Text to Columns*** feature under the ***Data Tab***. We'll split a name column separated by a space into two separate columns.

☹ An Important Gotcha! Please make sure that you have sufficient columns and areas for your Text to Columns to fit. Otherwise, Excel may overwrite existing data in your worksheet that you want to retain. ☹

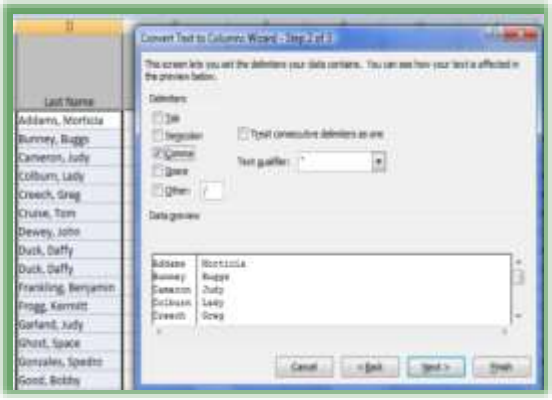
1. **Open the Database Functionality File workbook and Click the Text 2 Columns Tab**
2. **We will split the Name column into two columns for Last Name and First Name. Then we will split a date into three columns**

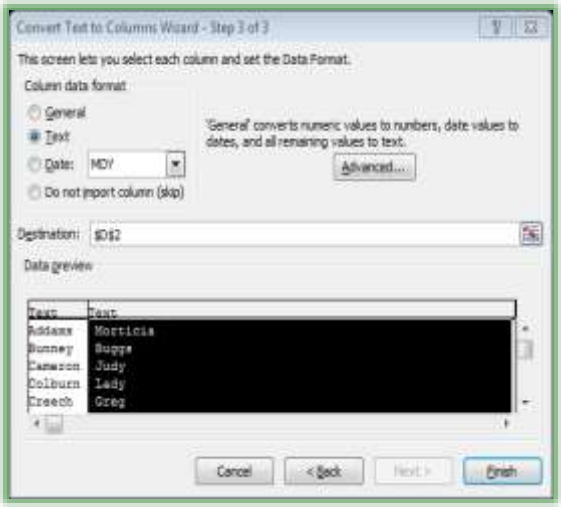
First we will need two columns to put our split data in.

3. **Select Columns D and E.**
4. **Right click on one of the column headers and select insert. Excel inserts two new columns for you.**
5. **Select cells C2 through C47 and copy these cells and paste them in D2 through D47. We accomplish this so we may preserve the current column with the Last and First Name; otherwise, after we split the data, Excel will make this the first name column and overwrite our information.**
6. **Select D2 through D47.**
7. **Click your Data Tab and click the Text to Columns button. Your Convert Text to Columns Wizard activates at Step 1 of 3.**

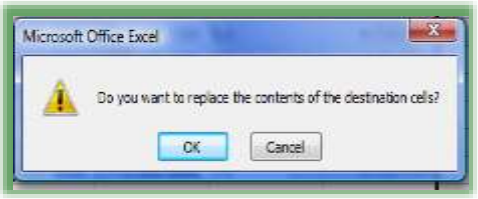


8. **Ensure Delimited is chosen because our data is separated by a Comma.**
9. **Click Next.**
10. **At Step 2, Check Comma and uncheck any other Delimiters boxes that may be checked, such a Tab.**
11. **Click Next.**
12. **At Step 3, Click the Column header that says General in the Data preview screen and then Click Text in the Column data format. Accomplish this for each column.**
13. **After changing your Columns to Text, Click Finish.**





14. **Next Excel will prompt you to replace the contents of the destination cells – this is why we inserted two blank columns at the beginning of the exercise, so we would not overwrite existing data in the columns.**
15. **Click OK.**
16. **Click cell D1 and type Last Name.**
17. **Click cell E1 and type First Name**



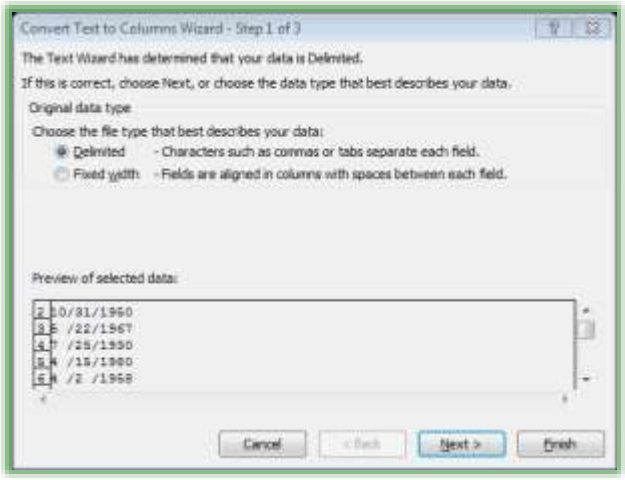
Your data is now in two separate columns and your original column is still intact.

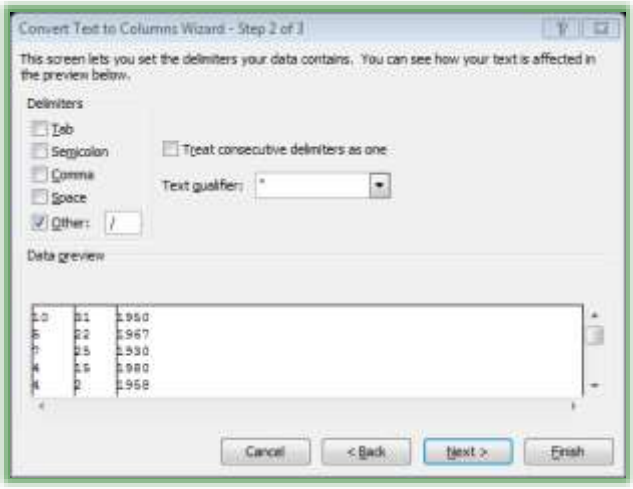
C	D	E
Name	Last Name	First Name
Addams, Morticia	Addams	Morticia
Bunney, Buggs	Bunney	Buggs
Cameron, Judy	Cameron	Judy
Colburn, Lady	Colburn	Lady
Creech, Greg	Creech	Greg
Cruz, Tom	Cruz	Tom

Text to Columns for Dates

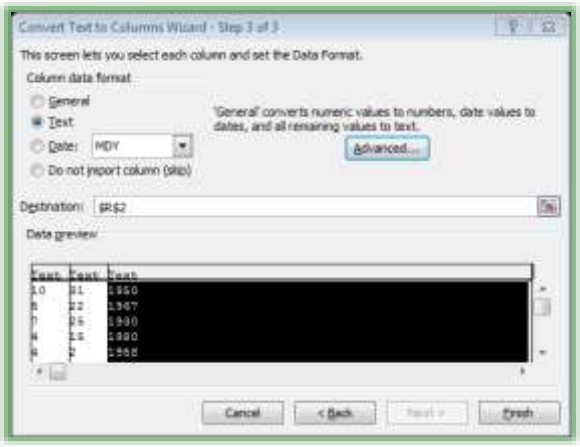
Separating dates, phone numbers, and other types for formats and data is popular in Excel. We will separate the Birth Date into Months, Days, and Years using the Text to Columns button.

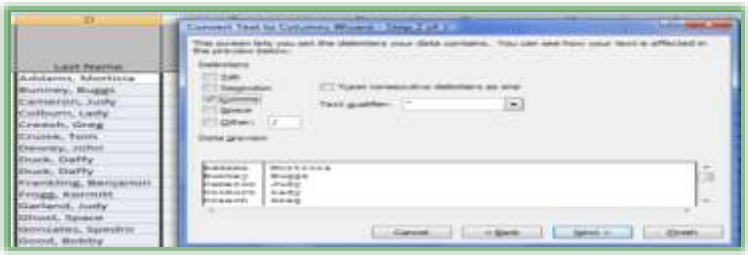
1. **Open the Database Functionality Workbook and Click the Text 2 Columns worksheet.**
2. **Insert three columns after the Birth Date Column.**
3. **Name these columns Month, Day, and Year – these should be columns R, S, and T after we created our Last Name and First Name columns in the previous section.**
4. **Copy and Paste the birth date range from Q2:Q47 to R2:R47 – we want to keep our birth date information in tact.**
5. **Select P2:P47.**
6. **Click the Data tab and the Text to Columns button. The Convert Text to Columns Wizard activates at step 1.**
7. **Ensure that Delimited is selected and Click Next.**
8. **At Step 2, Click other for our Delimiter and enter the /. Our date separates in the Preview box. Uncheck Comma or any other checkmarks.**
9. **Click Next.**



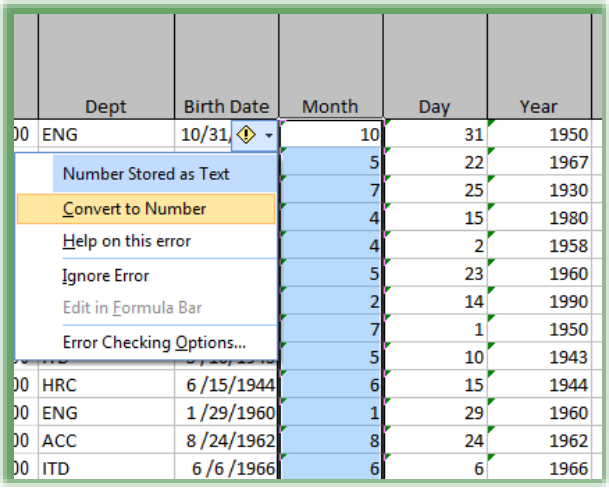


10. **At Step 3, Change the Column data format to Text; otherwise, your number will appear as a short date format.**
11. **Click Finish.**
12. **Since we are replacing empty cells, click OK at the Destination cells dialogue box.**





Your dates are separated into different columns. As displayed at right, you will want to change the format to Number. Select the cells and right click on the Error button and from the menu choose Convert to Number. You should accomplish this for Month, Day, and Year Columns.



♬ *Write your notes here:* _____

_____

Flash Fill – Excel Magic

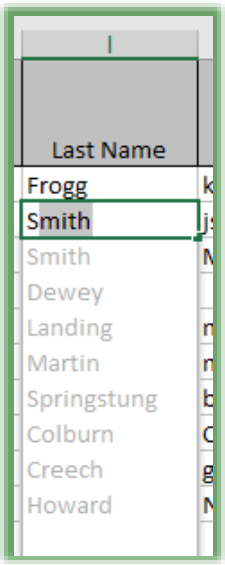
New for 2013/2016

Excel 2013/2016 has a great, new Fill called ***Flash Fill***. Here are some of the reasons for and how-to use ***Flash Fill***:

- ✓ Completes series for you – Combines AutoComplete and Text-to-Columns features for you with the magic of Fill,
- ✓ Reduces the need to use the LEFT and RIGHT Functions,
- ✓ Great for text, text as numbers, dates, and so on,
- ✓ Insert a column, enter a couple of items, and Excel produces a "gray" list of items it believes you want to use – press enter to accept the Flash Fill,
- ✓ Use the Fill Handle to produce the Flash Fill option in the Fill Handle options for your list.

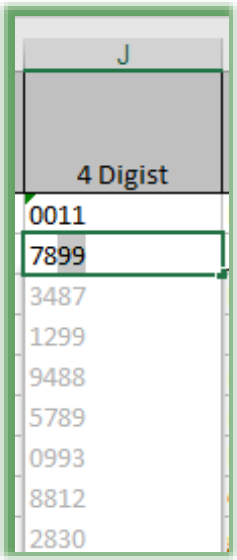
You may need to format the column as text, number, date, etc.

We'll use Flash Fill to separate names, dates, and numbers.



1. **With the Database Functionality file open, navigate to the Flash Fill tab,**
2. **Insert a column after the ZIP code column and give the column a heading of Last Name,**
3. **In the cell beneath, type Frogg, Press Enter,**
4. **In the next cell (I3) begin to type Smith,**
5. **Excel magically "sees" your Name list and provides a list of the other last names appearing in gray,**
6. **Press enter and your last names appear. Pressing enter accepts the Flash fill.**

7. **Next, insert a column after Last Name and give it a heading of First Name,**
8. **In the cell beneath, type Kermitt, Press Enter**
9. **Type Janis and, again, the magic of Flash Fill picks up the First Name,**
10. **Press enter to accept Flash Fill**



Now, let's separate the last four digits of the Social Security Number.

1. **Insert a column wherever you like, give the column heading 4 Digits,**
2. **In the cell beneath, type 0011,**
3. **Notice Excel drops the leading zeros, Change the column format to Text and Excel should bring back the leading zeros,**
4. **In the cell beneath, type 7899,**
5. **Flash fill should display the remaining last four digits of the SSN,**
6. **Press Enter to accept the Flash Fill.**

☹ You may need to adjust your formatting to General, Text, Date, Number, etc. for Fill to work for you. Also, if Flash Fill doesn't recognize your series or list, you may need to use the Fill Options menu and click Flash Fill as displayed here and used in the next exercise. ☹

Now, let separate a date.

1. **Insert three columns after the Birth Date column. Create column headings of Month, Day, and Year.**
2. **In the cell beneath Month, type 1.**
3. **Notice Excel uses a Date format, select your three columns and change the format to a Number and decrease your decimal place to none.**
4. **Next type a 1 in the cells beneath your 1 in the top cell. Excel may not recognize your fill pattern. I typed until a reached 2 and used fill.**
5. **Fill the information any way with an incorrect Fill and with the Fill Options click Flash Fill and viola, Flash fill recognizes your birth month.**
6. **Now, accomplish the same for the day and year columns following the steps above for month.**

Enjoy Flash Fill!

Forget the Twist, Let's Pivot!

PivotTables Overview

When you use ***Excel*** as a tracking system or database, you can have a tremendous amount of data in thousands of rows and hundreds of columns. ***PivotTables*** are increasing in popularity during this data age and information overload. Summarizing the data and reviewing key components of the worksheet can be difficult. ***PivotTables*** in ***Excel*** create summaries for you based upon items that you select; ***PivotTables*** allow you to manipulate a few ***fields*** of information and work best when using 1 or 2 fields as data fields; however, you may use many fields for calculations sub-totals, totals, and other functions. ***PivotTables*** creates totals, averages and other functions for you easily. ***PivotTables*** will automatically sort your data, too. One of the reasons these types of worksheets are called ***PivotTables*** is you can move your field of information around and quickly change your view of your data as we will learn. The trick is to have your spreadsheet in a list format with one row being your fields names and the remaining rows being your data records, as we have discussed before. ***PivotTables*** and ***PivotCharts*** are powerful and not that difficult: however, they can be confusing until you practice them and know the data you are using. We will use the ***Track.xlsx and the Database Funtioanlity.xlsm*** workbooks to create ***PivotTables***.

While we will use Excel as our database for our ***PivotTables***, you can use external databases, such as ***SQL*** and ***Access***. You will need to update your ***PivotTables*** through the ***Refresh*** command when your data changes no matter where your database resides. You may need to change your data area, too, if you add or delete rows/columns of data. Almost in analytical position will require that you know ***PivotTables***.

Briefly here are the reasons to use PivotTables:

- ✓ Summarize fields of information,
- ✓ Creates a worksheet "within" a worksheet,
- ✓ Uses only a few fields for calculations,
- ✓ Automatically sorts your information,
- ✓ Easily applies functions, such as Count, Sum, Average, and Standard Deviation,
- ✓ Allows you to change your view of your data,

- ✓ Simplifies huge worksheets,
- ✓ Automatically creates totals,
- ✓ And the list goes on and on.

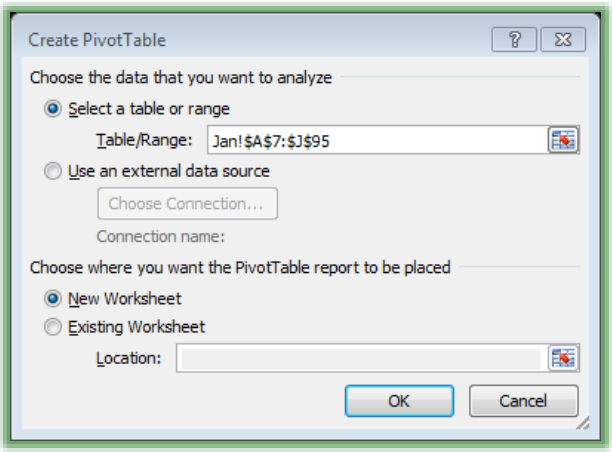
Get ready, Let's Pivot again and again.

PivotTables

PivotTable – Sales/Revenue Tracking Analysis

1. **Open Track.xlsx.**
2. **Click on the Jan Tab.**
3. **Click inside of the list below the Customer heading or anywhere in the list.**
4. **Click the Insert Tab,**
5. **Click the PivotTable Button,**
6. **Trace down and Choose PivotTable.**

7. **At the Create PivotTable Screen, ensure Select a table or range is selected and the Table/Range has Jan!$A$7:$J$95 in it. I named this area JanOrders and could have used the range name instead. You could use External data sources, such as Microsoft's® Access® or other database applications to create PivotTables, by clicking the connection to that database or external source.**

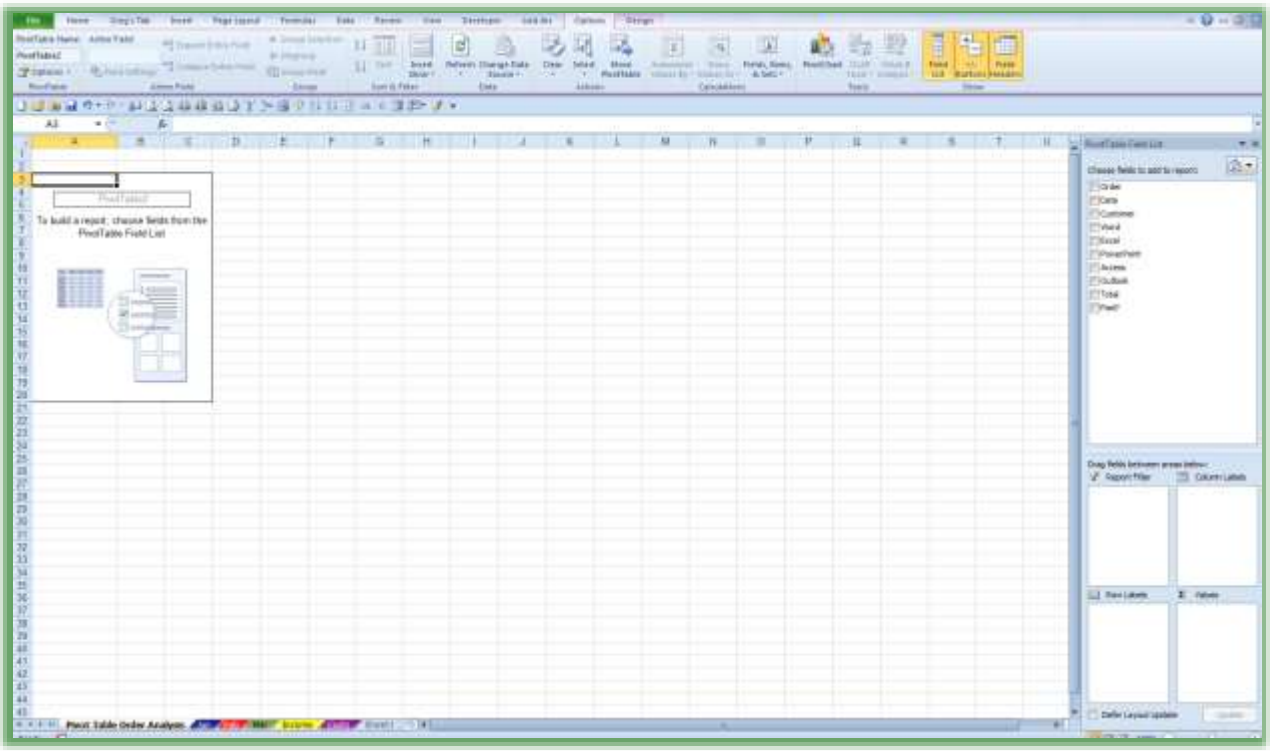


8. **Click New Worksheet for "Choose where you want the PivotTable report to be place".**
9. **I like putting my PivotTables on a separate worksheet to have more room and visibility than with an Existing Worksheet; however, you**

may want your information within the worksheet or list that you are using, especially for small amounts data and fields.

10. Click OK.

Excel should display your PivotTable (ready for us to add fields), and our PivotTable Field List Pane with the Areas for our PivotTable below the Field List.

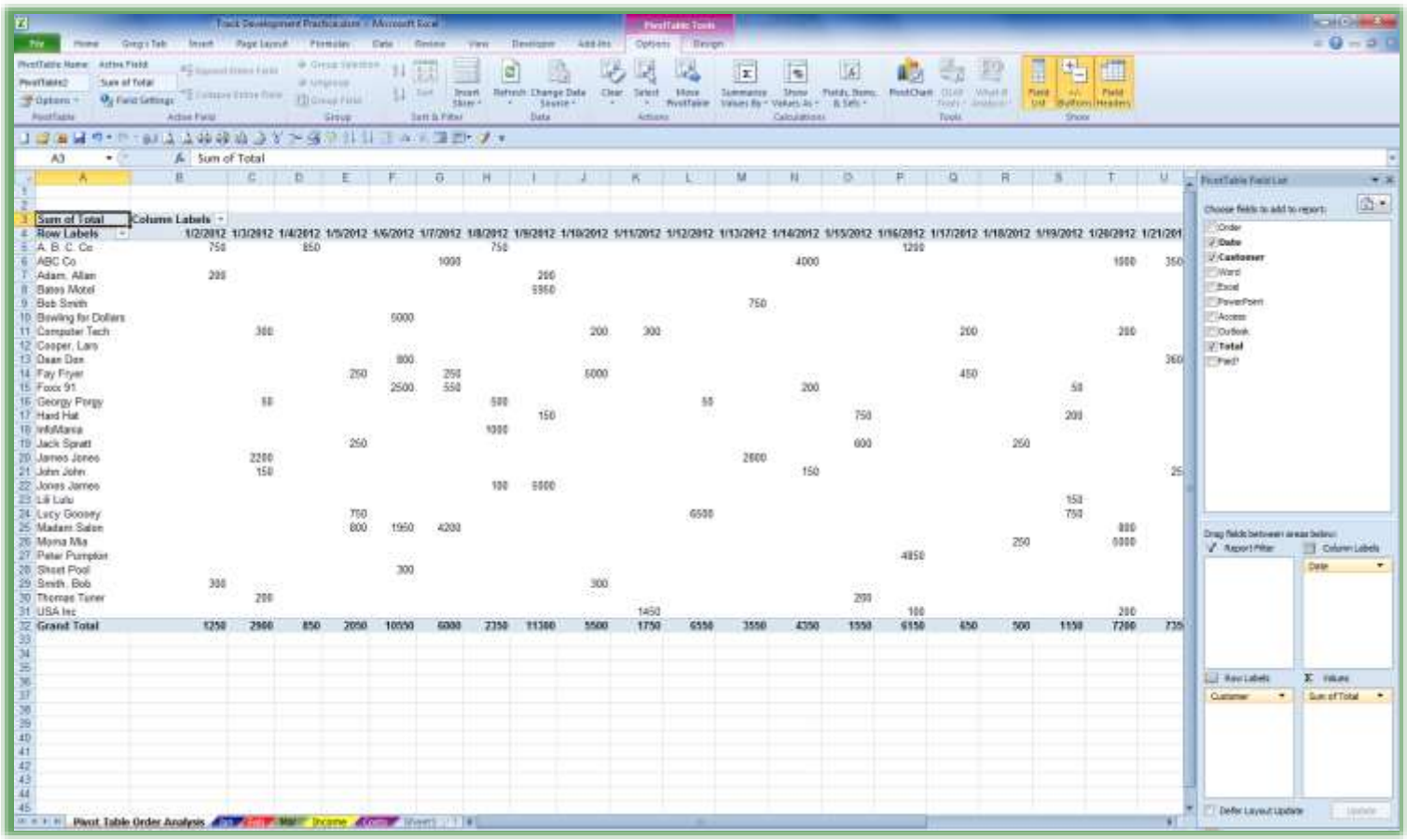


Let's add items to use on our PivotTable.

1. **Click the Customer field check box and your customer's appear as rows and sorted alphabetically for you..**
2. **Click the Date Field and Drag and Drop the field in the area that says Column Labels.**
3. **Click the Totals button and Drag and Drop it on the Value Items area.**

My PivotTable appears here. Sometimes if you do not click and drag your field, but simply click the field, Excel may not place the field in the row, column, or value setting where you wish. Also, Excel may use the wrong function such as Count when you want Sum, but PivotTables make changing functions quick and easy (I promise). Notice Excel has quickly created a two dimensional worksheet adding my information in rows (Customers) and columns (Dates) and created Grand Totals for each of these fields. If you want to hide your field list to see more of your PivotTable click the Field List button in the Show Group to turn off your Field List Pane. But, remember to turn it back on to add functions and to Pivot your information.

Now, is a great time for Freeze Panes.



Let's use a feature that we learned and Freeze our sheet so we can see our customers as we scroll to the right and our dates as we scroll downward.

1. **Click cell B5 or the first data cell in your PivotTable,**
2. **On the View Tab, Click Freeze Panes button and freeze your sheet at Cell B5. You may use your Freeze Pane button on your Quick Access Toolbar, too.**
3. **Scroll over the end of your PivotTable to view the Grand Total by Customer.**
4. **Scroll down to the end of your PivotTable to view the Grand Total by Date.**
5. **Isn't this nice? We didn't' have to put in functions for these calculations and the items are sorted for us by date and alphabetically by customer.**

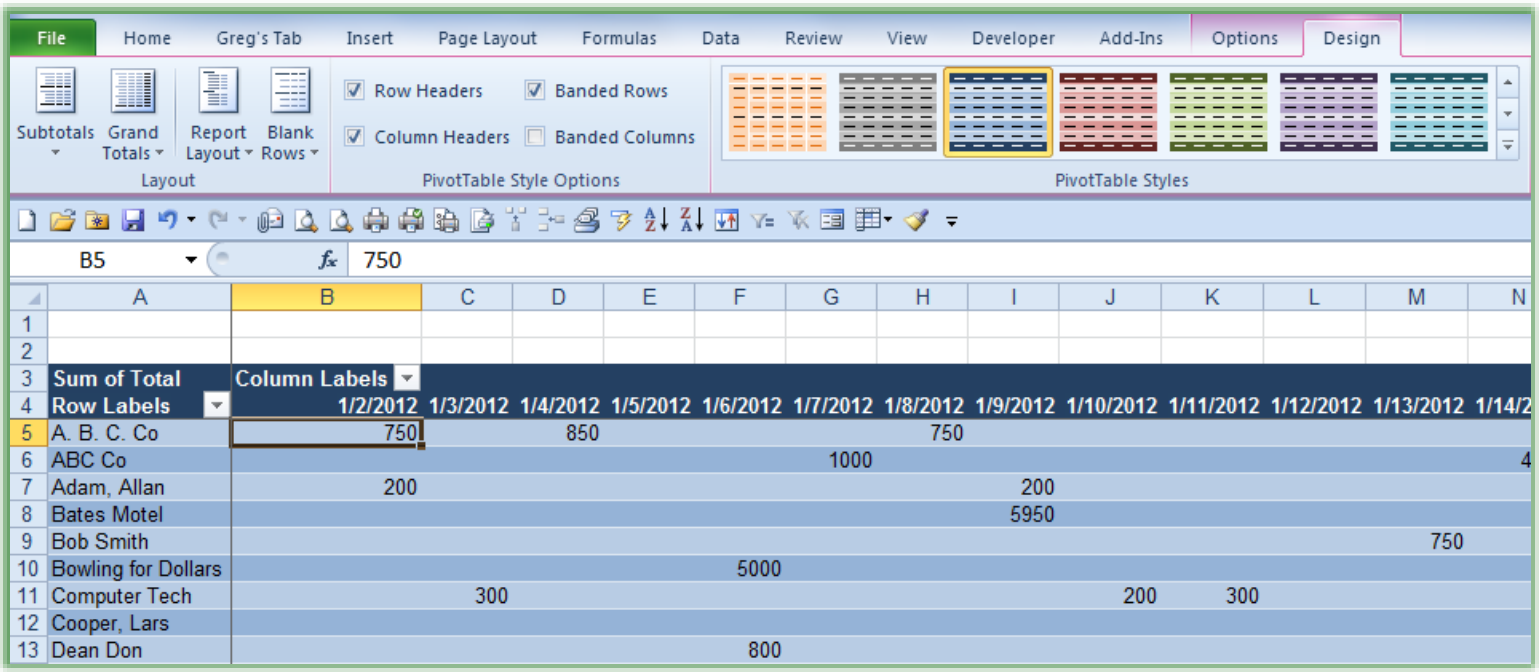
	A	AF
1		
2		
3	**Sum of Total**	
4	**Row Labels**	**Grand Total**
5	A. B. C. Co	6300
6	ABC Co	9500
7	Adam, Allan	400
8	Bates Motel	6500
9	Bob Smith	1250
10	Bowling for Dollars	5000
11	Computer Tech	4750
12	Cooper, Lars	1250
13	Dean Don	5600
14	Fay Fryer	7650
15	Foxx 91	8550
16	Georgy Porgy	1700
17	Hard Hat	1100
18	InfoMania	1000
19	Jack Spratt	2300
20	James Jones	5000
21	John John	550
22	Jones James	5100
23	Lili Lulu	150
24	Lucy Goosey	9350
25	Madam Salon	7750
26	Moma Mia	5400
27	Peter Pumpkin	4850
28	Shoot Pool	300
29	Smith, Bob	600
30	Thomas Tuner	400
31	USA Inc	2650
32	**Grand Total**	**104950**

There we have created our first PivotTable. Basically, all we had to do was click and then click and drag our fields and Excel did the analytical magic and summations for us.

☺ I have pivoted since the early 1990's. I pivoted before Pivot was cool. Microsoft's Excel has "come a long way baby" in the ability to quickly and easily analyze huge amounts of data. Trust me, Pivot Table, have not always been this easy but Microsoft has done a fantastic job of making sense out of tons of data. One of the great improvements with Office 2007/2010 are the beautiful designs you can use for your data. So, we can use our analytical part of our brain and we can use the creative part of our brain; all in one with PivotTables. ☺

Let's Format our PivotTable using the Design tab under the PivotTables Tools.

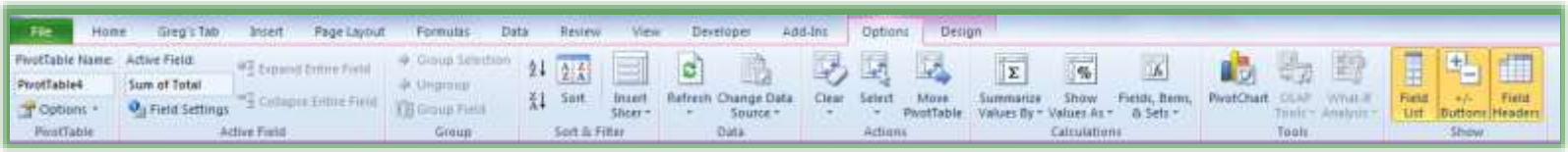
1. **Click inside of your PivotTable and Click the Design Tab.**
2. **Using the PivotTable Styles choose a style from the Gallery. There are many lovely PivotTable Styles you may choose from your Gallery. Your Office Theme determines the PivotTable Styles you will view and use. I am using the Office Theme as we examined earlier.**
3. **Next Band your Rows and your Columns using the check boxes on the PivotTable Style Options Group. Next, decide if you like Rows or Columns or both.**



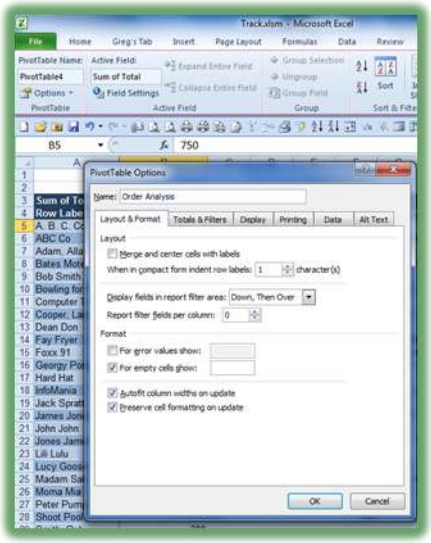
Sum of Total	Column Labels												
Row Labels	1/2/2012	1/3/2012	1/4/2012	1/5/2012	1/6/2012	1/7/2012	1/8/2012	1/9/2012	1/10/2012	1/11/2012	1/12/2012	1/13/2012	1/14/2
A. B. C. Co	750		850				750						
ABC Co						1000							4
Adam, Allan	200							200					
Bates Motel								5950					
Bob Smith												750	
Bowling for Dollars					5000								
Computer Tech		300							200	300			
Cooper, Lars													
Dean Don					800								

♬ Remember you must be in a PivotTable to Receive the Tabs for PivotTable Tools. When you click away from your PivotTable the tabs disappear. Also, if you Hide your Field List pane, remember to click the Field List button on your Show group. ♬

PivotTables Options Tab is another important tab for PivotTables.



We will use *Options tab* in the *PivotTable Tools* a lot as we work with our *PivotTables* some, but not all, of the important commands and groups that we will work with are described here.



PivotTable – This Group provides the ability to quickly name your PivotTable and to look at the Options for your PivotTable. The PivotTable Options' first Tab of Layout & Format appears at right. I have changed my PivotTable Name to Order Analysis.

Active Field - This helps you know in which area of the PivotTable you are working for formatting and other actions.

Sort and Filter – We will use the Sort and Filter settings much like our previous work on Sorting and Filter. Office 2010 contains the new Slicer option for Filter which we will use.

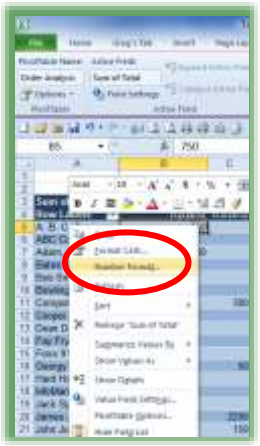
Data – If you make a change to your worksheet, the PivotTable does not automatically update! You will need to click the Refresh Button to update your PivotTable with new or changed data from the worksheet that the PivotTable is based. Also, if the area of your database/table changes, such as adding and deleting rows and columns, you may need to change your Change Data Source button. We will use both of these buttons in future exercises.

PivotChart – This will create a quick PivotChart based upon your PivotTable – This too saves a lot of time and frustration.

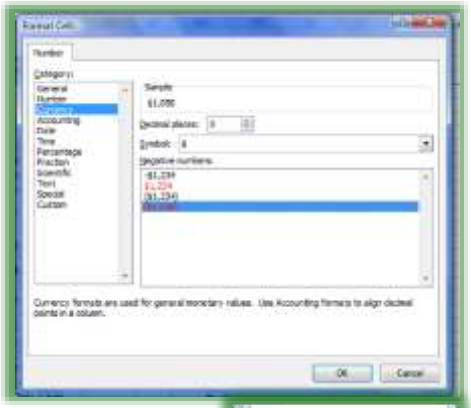
Show – You can quickly Show or Hide your PivotTable Field Last pane by clicking the Field List Button. If you have more than 2 or 3 items that you are calculating you can hide the entire field but continue to have the field calculated for you using this button. You can hide or show your Expand and Collapse buttons (+ and -) for your data and hide your Field Headers using this important group.

Calculations – We will add calculations for percentages and change our functions from Sum to Average using this new Group.

Now, that we are familiar with our PivotTable Options tab, let's put it to use and learn more about PivotTables. First, let's format our numbers as currency.

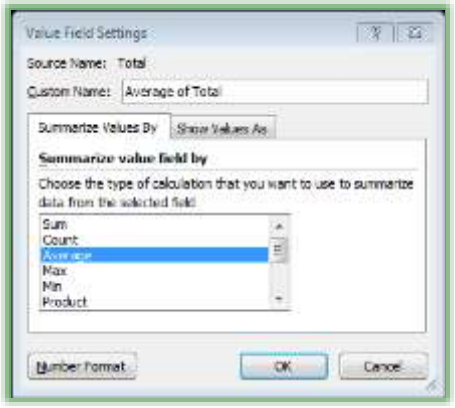


1. **Click in your PivotTable in the Data area,**
2. **Right Click a cell and notice all of the neat shortcuts plus the Mini Toolbar appears for you to use formatting. Choose Number Format as displayed at right.**
3. **Our familiar Format Cells dialogue box opens.**
4. **Then select Currency, 0 decimal places, and the $ sign.**
5. **Click OK to close the Format Cells Dialogue box.**
6. **Our numbers are formatted correctly. Using the Number format changes the entire field not a select cell or group of cells.**



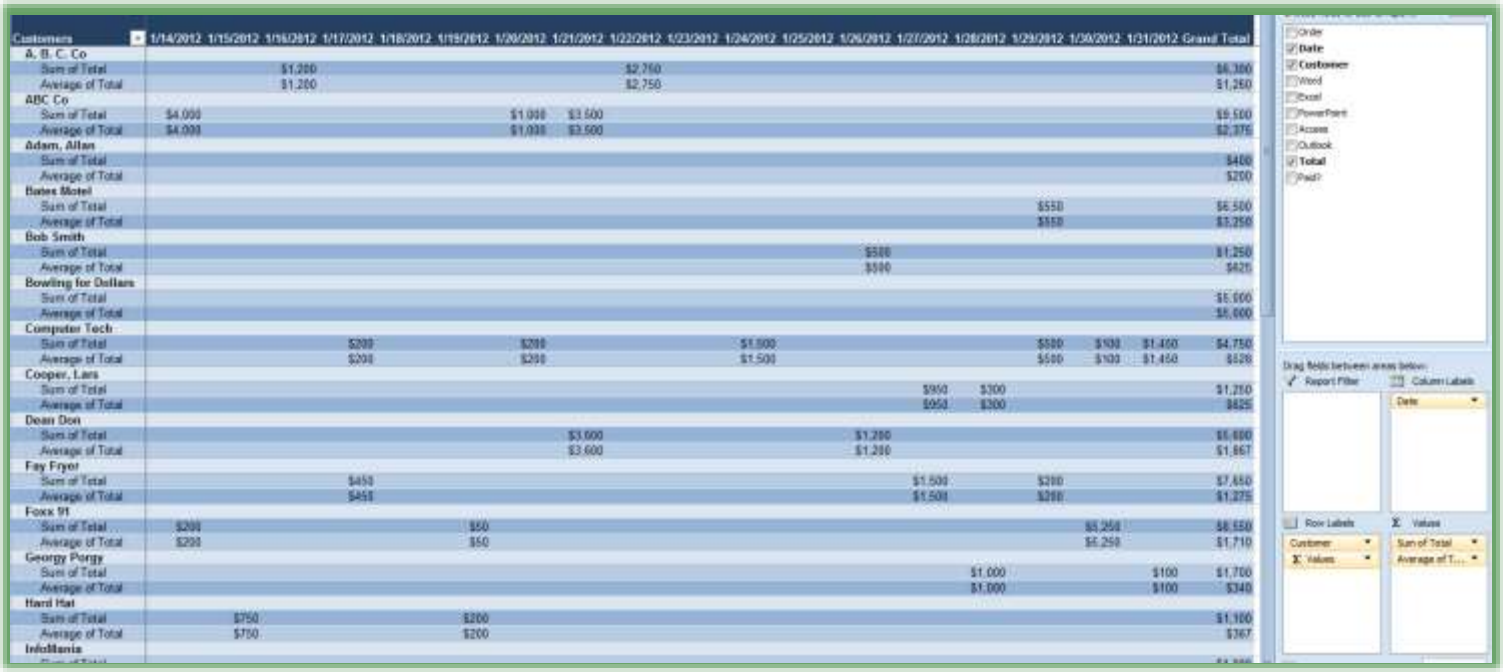
Let's add another function to our PivotTable and learn how to Pivot our data.

1. **With your Field List pane active, Click and Drag Total to your Value Area, again.**
2. **You will have two Sum of Total.**
3. **Click the Sum of Total2 Field and click Arrow to display your Value Field Settings from the, shortcut menu as displayed at right.**
4. **Change the Summarize value field by: to Average, and change the name to Average of Total,**
5. **Click the Number Format. . . button,**
6. **Format the Number as Currency, with 0 decimal places.**
7. **Click OK.**
8. **Click OK again.**
9. **Excel adds the Average function to my Dates column.**



10. You can click and drag the Values button from the Column Labels area into the Row Labels area as displayed below. This will provide averages for each customer and date in rows rather than columns. This is a Pivot! You rearrange your view and information by moving the items around that is where PivotTables get their name.

11. Scroll down to the Grand Total area to see your Sum and Average by Date and by Customer.



Customers	1/14/2012	1/15/2012	1/16/2012	1/17/2012	1/18/2012	1/19/2012	1/20/2012	1/21/2012	1/22/2012	1/23/2012	1/24/2012	1/25/2012	1/26/2012	1/27/2012	1/28/2012	1/29/2012	1/30/2012	1/31/2012	Grand Total
A. B. C. Co																			
Sum of Total			$1,200						$2,750										$6,300
Average of Total			$1,200						$2,750										$1,260
ABC Co																			
Sum of Total	$4,000						$1,000	$3,500											$9,500
Average of Total	$4,000						$1,000	$3,500											$2,375
Adam, Allan																			
Sum of Total																			$400
Average of Total																			$200
Bates Motel																			
Sum of Total															$550				$6,500
Average of Total															$550				$3,250
Bob Smith																			
Sum of Total													$500						$1,250
Average of Total													$500						$625
Bowling for Dollars																			
Sum of Total																			$5,000
Average of Total																			$5,000
Computer Tech																			
Sum of Total				$200			$200				$1,500				$500	$100	$1,450		$4,750
Average of Total				$200			$200				$1,500				$500	$100	$1,450		$628
Cooper, Lars																			
Sum of Total														$950	$300				$1,250
Average of Total														$950	$300				$625
Dean Don																			
Sum of Total								$3,600					$1,200						$5,600
Average of Total								$3,600					$1,200						$1,867
Fay Fryer																			
Sum of Total				$450										$1,500		$200			$7,650
Average of Total				$450										$1,500		$200			$1,275
Foxx 91																			
Sum of Total	$200					$50											$5,250		$8,550
Average of Total	$200					$50											$5,250		$1,710
Georgy Porgy																			
Sum of Total															$1,000			$100	$1,700
Average of Total															$1,000			$100	$340
Hard Hat																			
Sum of Total		$750				$200													$1,100
Average of Total		$750				$200													$367
InfoMania																			

12. I changed my Row Labels cell to Customer by typing over the text and I change my Column Labels cell to Order date by typing over the text.

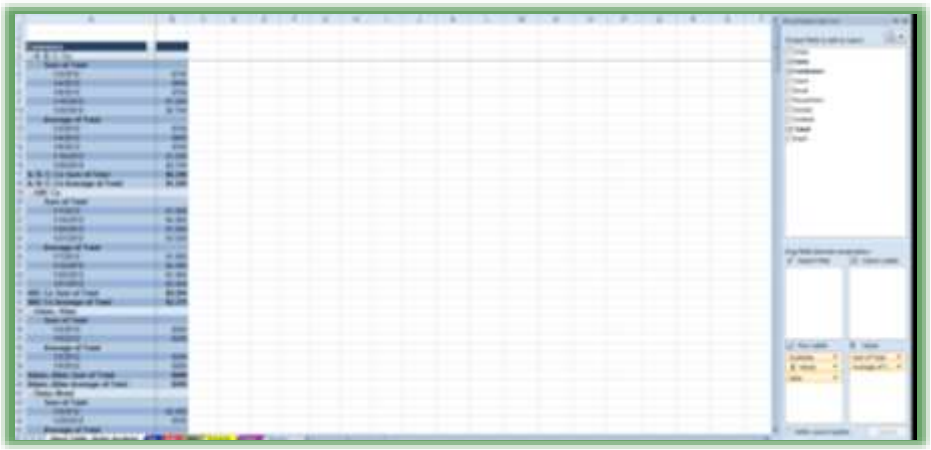
Wow! Sure beats manually putting calculations and functions in these areas doesn't it!

Let's remove the Date field to view only the customer's totals and averages. Then we will add the Date field back to our PivotTable.

1. **Click your Date check box on your field list and the date field deletes from your table.**
2. **Also, You may click the Date button and drag it out of your Column value area a big X will denote that you are removing the field OR you may right click on the Date button in the value list and from the shortcut menu choose Remove field as pictured at right.**

Customers	
ABC Co	
Sum of Total	$9,500
Average of Total	$2,375
Lucy Goosey	
Sum of Total	$9,350
Average of Total	$1,558
Foxx 91	
Sum of Total	$8,550
Average of Total	$1,710
Madam Salon	
Sum of Total	$7,750
Average of Total	$1,938
Fay Fryer	
Sum of Total	$7,650
Average of Total	$1,275
Bates Motel	
Sum of Total	$6,500
Average of Total	$3,250
A. B. C. Co	
Sum of Total	$6,300
Average of Total	$1,260
Dean Don	
Sum of Total	$5,600
Average of Total	$1,867

3. **Now, your PivotTable has grouped all of your Customers together with one grand total for Sum and Average with a portion of my PivotTable displayed at right.**
4. **Click in a Sum of Total cell and Click your Sort Largest to Smallest Sort button on the Options tab. Excel performs your magic sort for you.**
5. **Click in a Customer name cell and Click sort A to Z to alphabetize your customers again.**
6. **Click the Date check box on your field list to add the Date field back,**
7. **Notice how Excel has the Dates below the Customer now and added the Date field to the Row Labels area. That's why they are called PivotTables to have the ability to change your view and calculations by switching your rows and columns.**



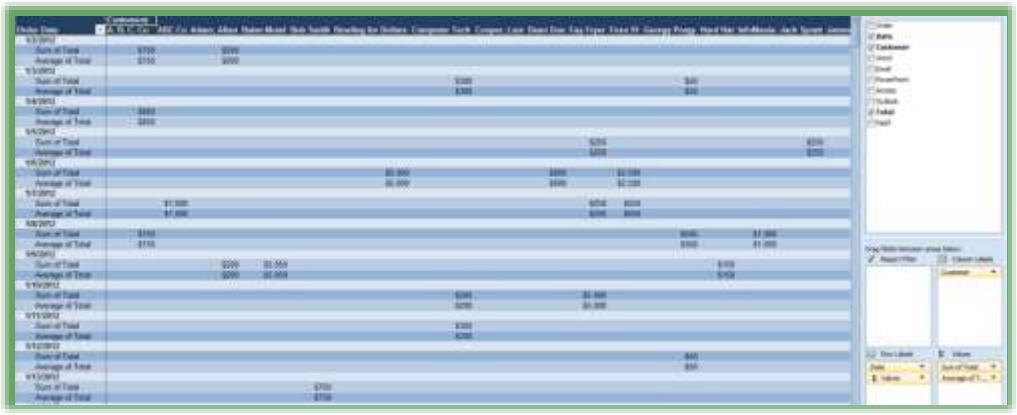
Notice how Excel has a small minus sign before each customer – this is the collapse button – click this for one of the customers and the date information hides from you. Excel now places a plus (+) in front of the customer this is an Expand button. Click and your Date information returns.

8. **Right Click on a Customer and from the shortcut menu trace to Expand/Collapse and from the cascading menu select Collapse Entire Field.**
9. **Excel again only displays your Customer's total and average.**
10. **Right Click on a Customer and from the shortcut menu trace to Expand/Collapse and from the cascading menu select Expand Entire field and your detail returns. Using these buttons and Expand/Collapse options are terrific with lots of complex PivotTable that summarizes massive amounts of data.**

Time to Pivot, again!

1. **As displayed here, Click your Customer Field and drag it to the Column Labels area.**
2. **Click the Date buttons and drag this field to your row labels.**
3. **Change your row and column label cells – i.e. Customer and Order Date they won't match your Pivoted data.**

There we have pivoted; we should charge extra for table dancing!



Practice pivoting your data in other ways and adding fields, etc.

A Hot Tip! Any cell with a number or other data that you want to view the details simply double click in cell and Excel creates a separate worksheet for that data! This is a terrific feature of any PivotTable. Try it - double click a Grand Total cell and quickly Excel displays a new worksheet with the data that the calculation or number is based.

A Refreshing Experience

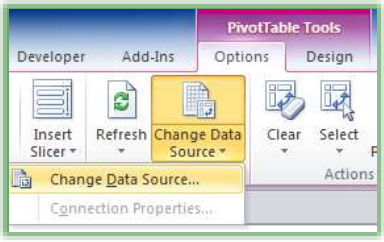
☹ An Important Gotcha! As I related in our PivotTable Toolbar overview, unlike Charts and other features of Excel, if you change your worksheet data or if your external database information changes you will need to refresh your PivotTable by the Refresh command button or using the PivotTable Drop down menu. The Command button menu and PivotTable shortcut are displayed below. Trust me, don't make the mistake I did for Vice-President of company when she changed figures on a worksheet and I assumed the PivotTable changed too! Bad assumption and poor job performance – that's a horrible mix. Aside from that PivotTables are excellent! ☹

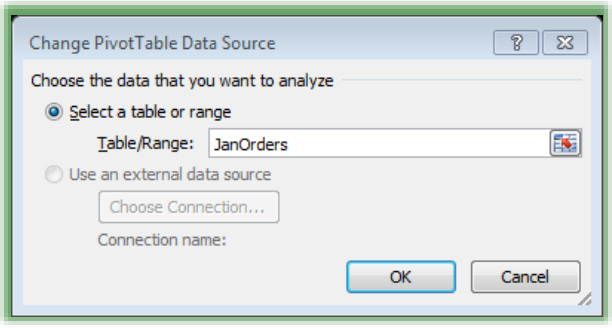
Let's change our worksheet and Refresh our data.

1. **Click in your Jan worksheet.**
2. **For Order 101, Jan 2, and A. B. C. Co. change Word to be 100 your total changes to $5,000.**
3. **Click your PivotTable Sheet (Mine is Sheet1)**
4. **Notice that the Total for A. B. C. Co. doesn't change for Jan and still displays $500.**
5. **Click your Refresh icon on the PivotTable Options tab.**
6. **From your cascading menu choose Refresh All.**
7. **Your data is updated with the new amount.**
8. **Rename your Sheet to Pivot Table Order Analysis.**
9. **Save your Workbook.**

Changing your Data Source

Remembering to update your PivotTables when the data changes is important and if you add or delete rows or columns from your data source you will need to change your data source to reflect the new area. Sometime the ***Refresh button*** will work great, sometimes not – better safe than sorry. Also, if you use an external data source or database, you will need to change the data source as well and refresh your data. If you use the ***Name Manager*** to reference a data source, you will need to change the area for your ***Name Manager o***n the original workbook and then update your PivotTable through refresh. Therefore, when you use the ***Name Manager*** and a name range, you only need to ***refresh*** your data in the PivotTable. If you use an existing worksheet and add or delete rows or columns AND ***Refresh button*** doesn't work, the you will need to change the data source to reflect your additions and/or deletions.





I am changing my data source to reflect the Range name of my database rather than the area of the data source.

♬ ***Write your notes here:***_____

_____

_____

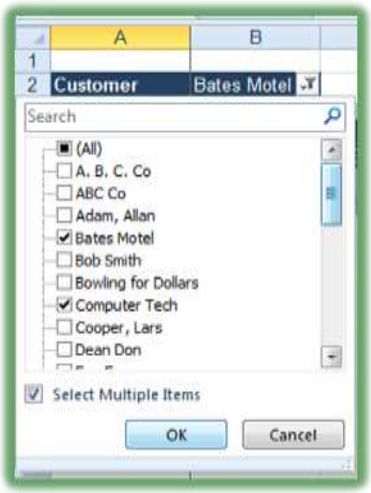
Report Filter Pages

You can create a different page or worksheet for each Customer by moving the customer button to the Page Area of the PivotTable. You will get a drop down box and have the ability to view individual customers and the Dates and dollar amounts rather than viewing all customers. I have used this feature for my clients to generate invoices for their clients, I have created compensation worksheets for sales people using the Report Filter, and there are many uses for this neat feature in PivotTables. This acts the same as using our AutoFilter feature. Let's look at the Report Filter Pages feature of a PivotTable.

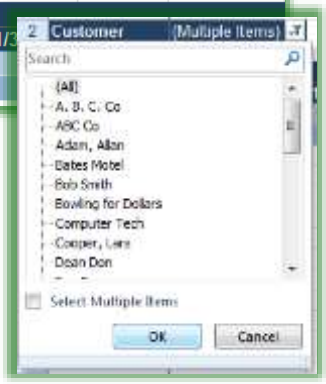
1. **Click the Customer button and drag it to your Report Filter area of your pivot selection. I have my Values as Rows and my Date field as Columns. In Cell B1 our (All) cell for Report Filter, click the Drop Down Arrow and a Pick List will appear for you to choose a customer to view in your Report Filter.**
2. **Click a customer and Click OK.**

3. **Only that specific customer's information will display.**
4. **Display A.B.C. and other customer using this feature. Don't forget to click OK after selecting your customer.**

5. **Notice the Select Multiple Items in your Filter list. I have checked this box and then checked the boxes for several customers. Bates Motel, Computer Tech, and Georgy Porgy are merging into a corporate empire and I am choosing those clients and clicking OK to view how I need to reallocate my resources and determine the revenue and other important business analysis when a merger of this magnitude occurs.**
6. **Excel displays the results for these accounts and the words (Multiple Items) appear in your Filter box.**

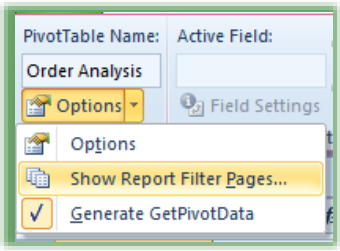


Customer	(Multiple Items)											
	Customers											
Values	1/3/2012	1/8/2012	1/9/2012	1/10/2012	1/11/2012	1/12/2012	1/17/2012	1/20/2012	1/24/2012	1/28/2012	1/29/2012	1/
Sum of Total	$350	$500	$5,950	$200	$300	$50	$200	$200	$1,500	$1,000	$1,050	
Average of Total	$175	$500	$5,950	$200	$300	$50	$200	$200	$1,500	$1,000	$525	



Excel allows you to create a worksheet for each of these pages very efficiently. I have used this to track compensation by salesperson, unit sales by divisions, and salary and bonus information by employee as well as many other uses.

1. **Return to your Report Filter list and uncheck the Select Multiple Items to view the bottom line results of All of your customers.**
2. **Click OK. Excel displays your Totals and Averages for all of the customers, again.**
3. **In the Options Tab and PivotTable Group, click the PivotTable Options menu and from the Cascading menu, Click Show Report Filter Pages at the menu as pictured at right.**



4. **The show pages dialogues box appears with Customer selected in the Show all pages of: section.**
5. **Click OK.**

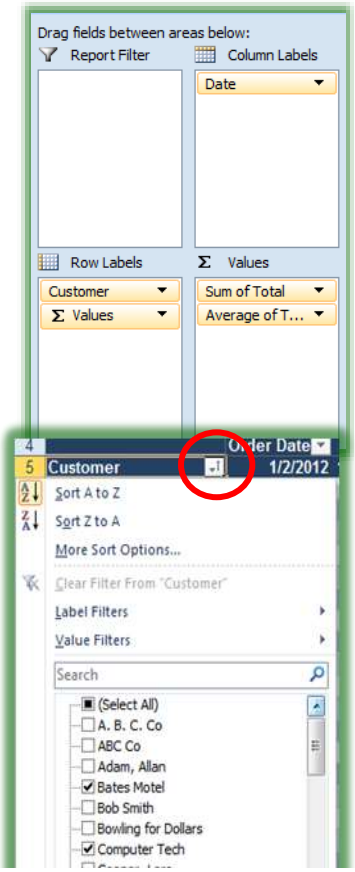
Wow! Excel super-fast creates a worksheet for each customer and names each tab the customer's name. I wish Excel and I worked so fast in other areas of the application.

This workbook's file size increases greatly, too!

1. **Click on some of these tabs to view the customer's information.**
2. **As I related I use this all of the time and group these sheets so I can print them all at once for my personnel and division's important and confidential information.**

If you had only certain customers displayed, Excel would create worksheets only for those customers displayed in your Filter.

Filter within a PivotTable



1. **Change your PivotTable field so the Customer is Rows, the values are in Rows, and the Date is in columns.**
2. **Using the Arrow next to your Row Labels circled at right (Customer – which I had to rename), Uncheck Select All and check the customers you wish to view, I am selected Bates Motel, Computer Tech, and Georgy Porgy.**
3. **Click OK.**
4. **The detail results of these clients and Grand Totals appear here.**

	Order Date													
Customer	1/3/2012	1/8/2012	1/9/2012	1/10/2012	1/11/2012	1/12/2012	1/17/2012	1/20/2012	1/24/2012	1/28/2012	1/29/2012	1/30/2012	1/31/2012	Grand Total
Bates Motel														
Sum of Total			$5,950								$550			$6,500
Average of Total			$5,950								$550			$3,250
Computer Tech														
Sum of Total	$300			$200	$300		$200	$200	$1,500		$500	$100	$1,450	$4,750
Average of Total	$300			$200	$300		$200	$200	$1,500		$500	$100	$1,450	$528
Georgy Porgy														
Sum of Total	$50	$500				$50				$1,000			$100	$1,700
Average of Total	$50	$500				$50				$1,000			$100	$340
Total Sum of Total	$350	$500	$5,950	$200	$300	$50	$200	$200	$1,500	$1,000	$1,050	$100	$1,550	$12,950
Total Average of Total	$175	$500	$5,950	$200	$300	$50	$200	$200	$1,500	$1,000	$525	$100	$775	$809

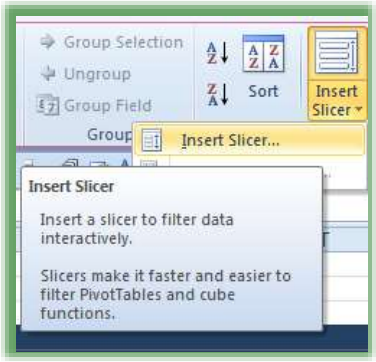
1. **Return to your January Pivot and practice additional pivots, such as displayed at right. I have added Customer to my Values area.**
2. **Next, I sorted my information by Sum of Total and now I can make decisions about who are my top accounts that I may want to honor with a discount or tickets to the Bruce Springsteen concert or World Cup/Final Four tickets. I cannot make these business decisions looking at the raw data. I examine the Total billing, Average billing per order, and number of orders generating.**

As an Operations Manager, I also reviewed their collections and 30, 60, 90 day results which this table/database did not contain to determine the best clients to honor.

♬ **When you add a text field, Excel correctly assumes (in this case) that I want to use the COUNT function.** ♬

3. **Save your workbook and thanks for Pivoting.**

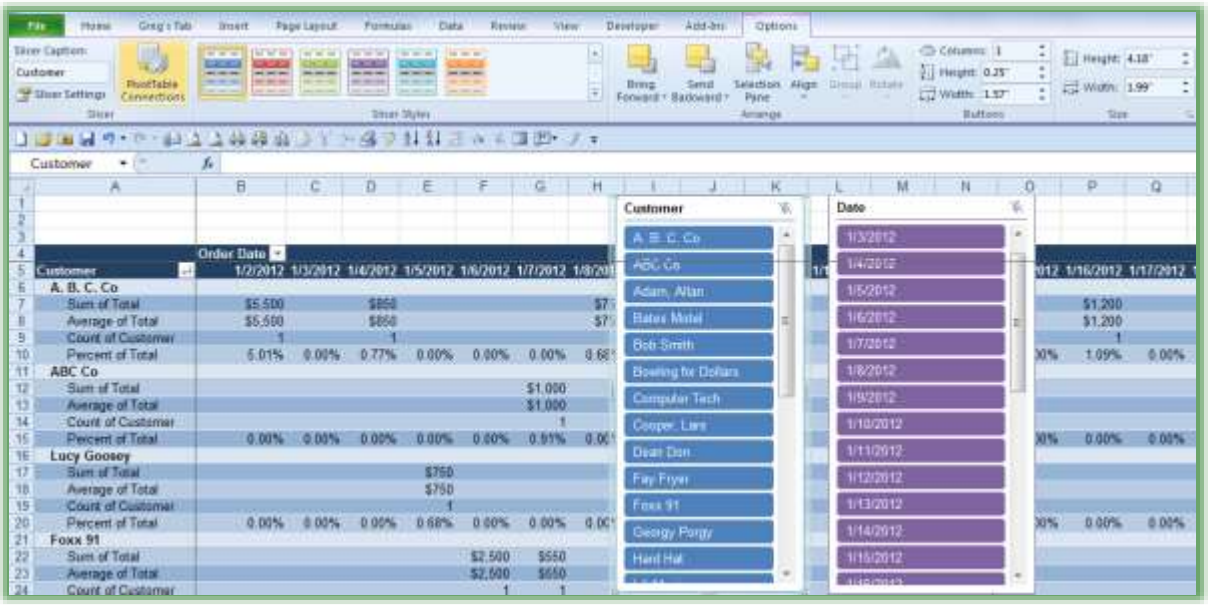
Slice and Dice your Data Information



Excel 2010 has a terrific new tool to slice your data. Slicer is a fancy word for Interactive Filter. A problem with PivotTables was the ability to quickly and easily filter your data with multiple criteria. For Example, if I wanted Atlanta, GA data but not Atlanta, TX or Atlanta, ID and the information was in separate fields this was difficult to accomplish in PivotTables. Now with the Insert Slicer button we can have multiple filters based on different criteria.

Let's slice and dice our data.

1. **Click in your Track file's, PivotTable to activate the PivotTable and tabs.**
2. **On the Options tab and Sort & Filter Group, click the Insert Slicer command button.**
3. **At the next pane click Customer and Date to select those fields with a check mark.**
4. **Click OK.**
5. **Your Slicer fields for Customer and Date appear with an Option Tab for Slicer Tools. I made my panes larger by clicking a dragging corner and I used the Slicer Styles to change the color of the Slicers' fields.**



6. **Now, click a customer and notice how Excel displays only that customer's information (which we have accomplished with other filters). Next Notice how your Date Slicer only have the dates that is associated with the Customer's data – this we have not accomplished. Choose an active date and now you are slicing and dicing your data or as I call it Digging for Dollars. Excel calls this an interactive filter.**

A Hot Tip! You may press your CTRL (Control) key to select data in a field that is not continuous. You may click and drag to select contiguous data that you want to view. I am using the CTRL + Click method to select non-contiguous customers below.

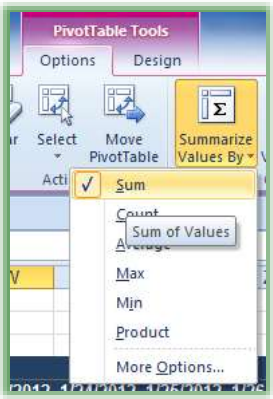
7. **You may clear your Filter by pressing the Clear Filter button circled below for you.**
8. **Next select multiple customers by pressing your CTRL (Control) key and clicking the customers you wish to view – I have selected Bates Motel, Computer Tech, and Georgy Porgy below. Next you may select only certain date(s) to view if you like.**

Enjoy Slicing your information.

*Write your notes here:*_____

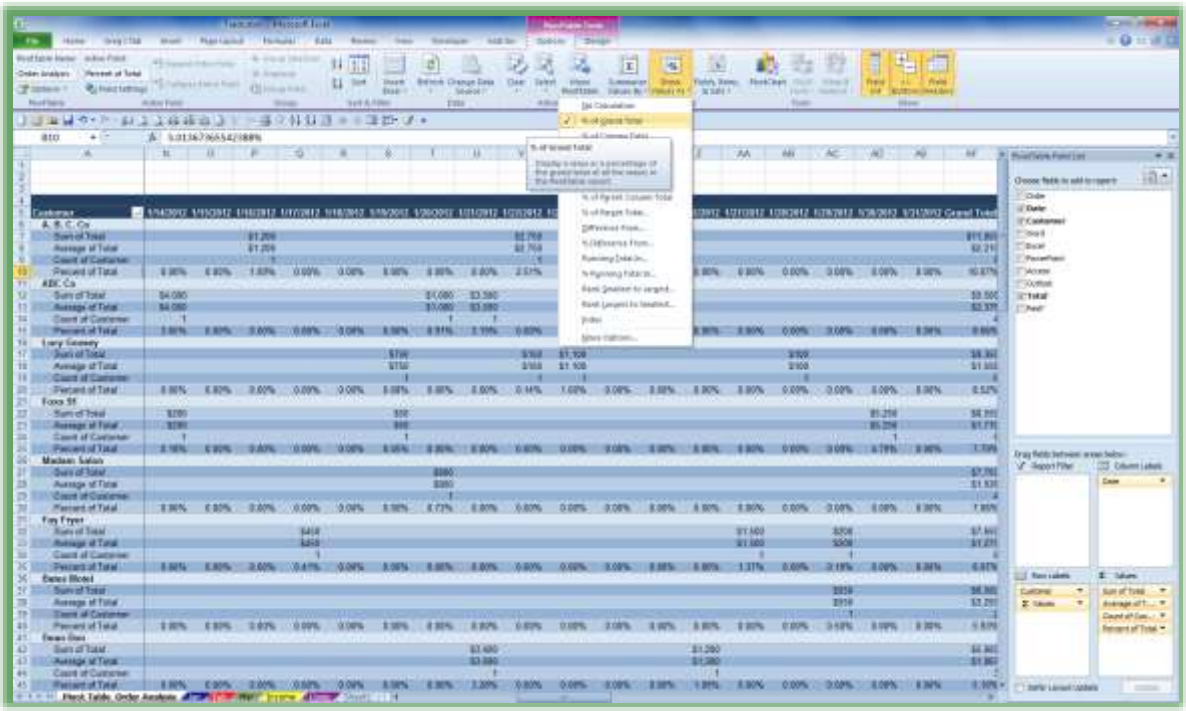
_____

Calculations and Percentages



A nice, new feature of Excel 2010 is the ***Summarize Views By*** and ***Show Values*** as commands. We used ***the Field Settings Dialogue box*** and pane to change our function, such as from Sum to Average. You could use the ***Summarize Views By Command button*** as well which displays at right. Let's use the ***Show Values As*** command button to show the percentages of our Grand Totals.

1. **Click in your PivotTable,**
2. **Add another Sum function for Total – I clicked and drug the Total field from the Field List to below the Count of Customer Value in the Values pane.**
3. **Click one of the totals in the Sum of Total (2) calculations to select one of these calculations.**
4. **Click the Show Value as button and from the list click % of Grand Total and Excel expresses your calculations quickly as a percentage. My PivotTable with the Percent of Total field which I renamed appears below.**

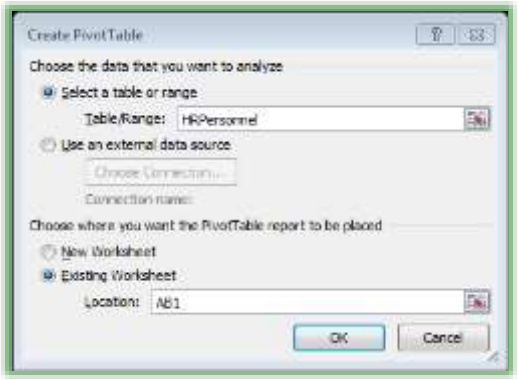


We have used PivotTables for client analysis of Revenue and counting the number of sales we made to a customer. Now, let's use PivotTables for some Human Resources and Marketing analysis.

PivotTable – Human Resources and Marketing/Demographic Analysis

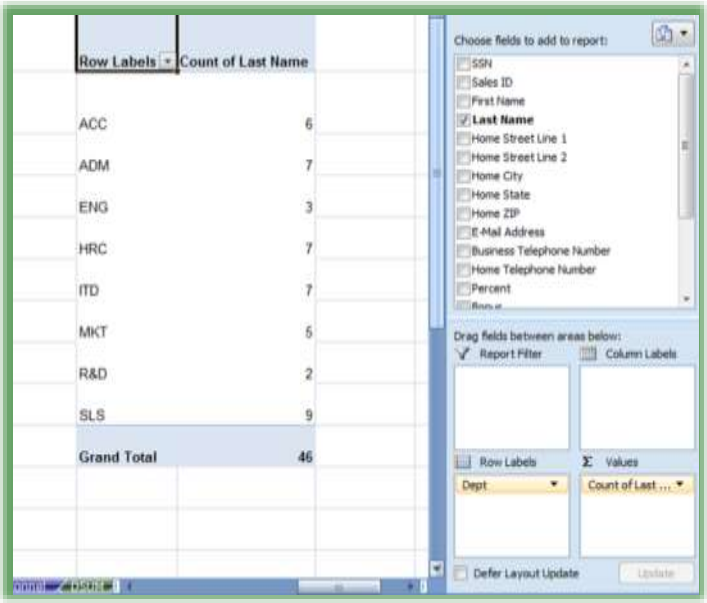
As a Human Resources Manager and Marketing Analysis in Corporate America, I used ***PivotTables*** a lot to analyze information that I downloaded from sales/marketing, personnel or HR databases into Excel. I help my clients with ***PivotTables*** and analyzing their marketing, sales, operations, and HR data. One of the world's largest company's Human Resources department downloaded information into Excel for all new hires, they asked me how they could quickly see the number of new hires by department. Using ***PivotTables***, we answered the question within two minutes. We'll look at other analysis for departments and a look at ***PivotCharts***, too.

1. **Open the workbook Database Functionality.xlsm.**
2. **Click the first worksheet, Personnel.**
3. **Click in the data area. I have named the database HRPersonnel which refers to the area of =Personnel!$A$1:$Z$46. You may go to the Formula Tab and look at all of the names I have for this workbook using the Name Manager that we learned earlier. I use the name a lot for functions like VLookup and If . . . Then, and for PivotTables.**



4. **Click the Insert Tab and the PivotTable button and select PivotTable.**
5. **Using the picture at Right change your Create PivotTable items to reflect HRPersonnel as your Table/Range and place the PivotTable in this worksheet and the location at cell AB1.**
6. **Click OK.**

Now, we will learn how I helped my client to display number of associates for each department.



1. **Using the picture at right, Scroll to your AB1 cell or in that area and click your Options tab for the PivotTables Tool.**
2. **In your PivotTable Field List and Drag the Dept field to the Row Labels area**
3. **Click and drag the Last Name field to the Values section.**
4. **Name your PivotTable Dept Analysis using the Name box at the top of the Options tab.**

Viola, there we had the number of associates by department with a grand total included.

Now, let's create a PivotChart to accompany our PivotTable.

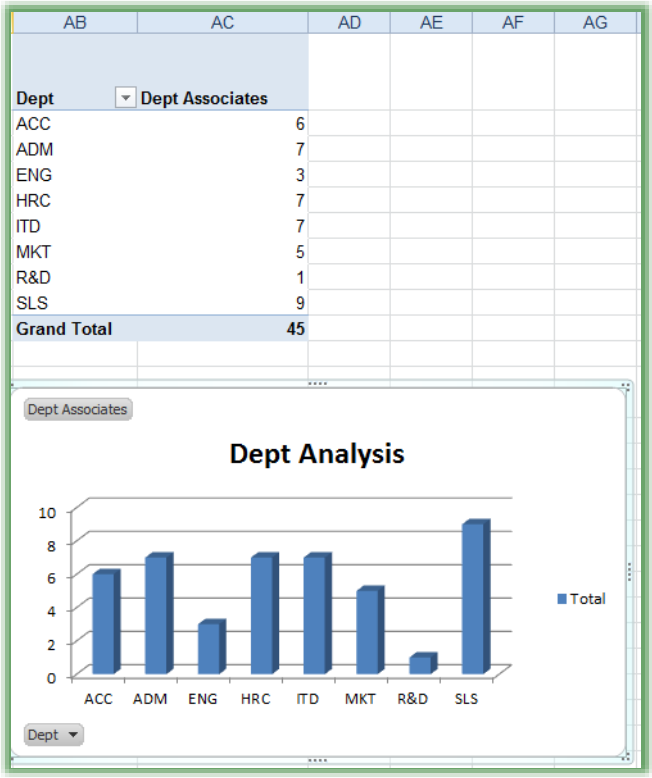
PivotChart

Here's how to create PivotChart based on your PivotTable.

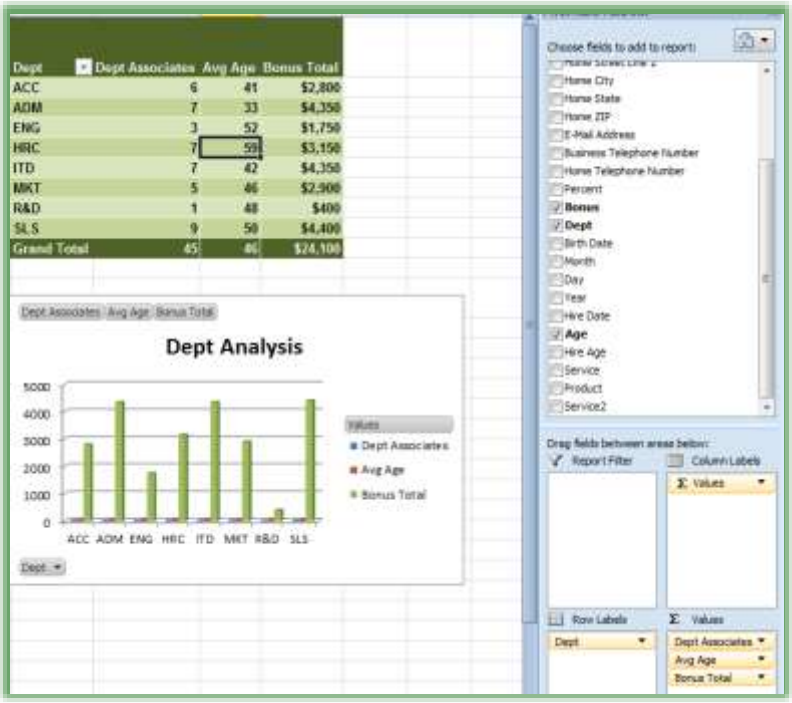
1. **Click the PivotChart button on the Options Tab of the PivotTables Tools.**
2. **Choose a column chart, I am choosing a Clustered 3-D column chart.**

Excel places a chart on your worksheet.

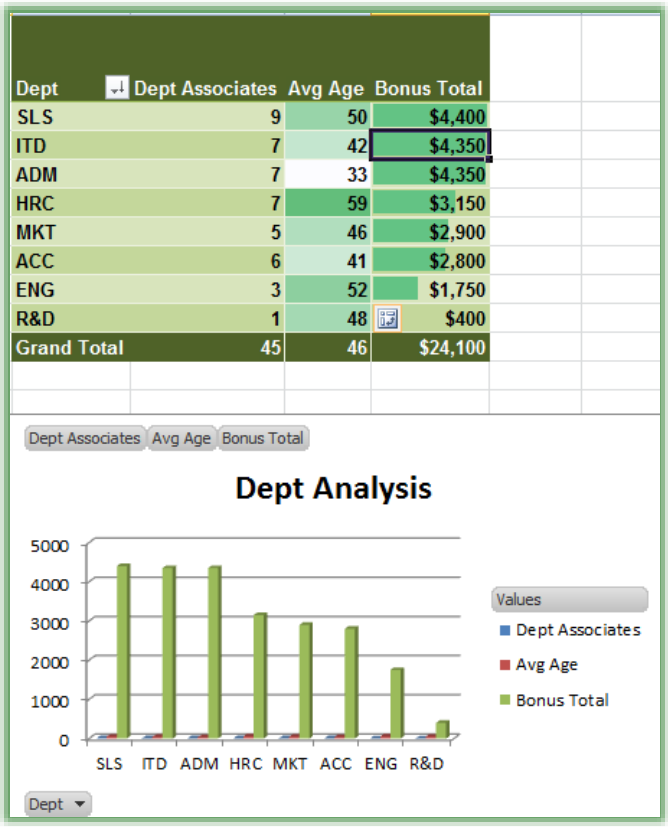
1. **Click and drag the chart away from your PivotTable; I moved mine directly below the PivotTable.**
2. **Your Tabs change and the Design, Layout, and Format tabs plus a new tab Analyze appear for your PivotChart. These are the same as we previously learned in Charts.**
3. **Modify your Row Label and Column Label Names and format your Chart and other items as we have previously learned.**



Now, let's look at more analysis.



1. **Click back in your Dept Analysis PivotTable**
2. **Using the screen at right, add the Age and the Bonus fields to the Values area.**
3. **You'll need to change your Age calculation to Average and change the number format to Number with no decimal places. You may click a number in the PivotTable for Sum of Age and use your Summarize Values By button or use your Field Settings to change the Sum function for Age to Average.**
4. **Next, you'll want to format your Bonus to currency or accounting with no decimal places using your Field Settings and the Number Format Button.**
5. **If you need help with this, review the previous PivotTables we constructed.**
6. **Also, your PivotChart changes which is good for Bonus information but not much good for anything else. Your PivotCharts are based on your PivotTables.**



You should practice using PivotTables for others areas and calculations.

Also, change your formatting using your Design Tab of PivotTable Tools and use conditional formatting. I have included a screen of my completed Dept Analysis PivotTable. I typed over the labels that PivotTable gave and used conditional formatting for the Bonus Total and Average Age. Notice I sort from Greatest to Least for my Bonus Total.

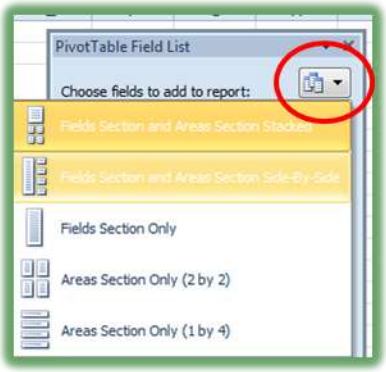
Now, notice the Average Age for HR is 59. What makes up this number? Double click 59 for the HR Avg Age and Excel creates a separate new worksheet of the people that make up this number. A partial view of my folks appear here.

	A	B	C	D	E
1	SSN	Sales ID	First Name	Last Name	Name
2	981-47-38	42	Jonathan	Livingston	Livingston,
3	999-99-99	63	Daffy	Duck	Duck, Daff
4	382-93-847	12	Sally	Smith	Smith, Sal
5	728-39-104	46	Bobby	Good	Good, Bob
6	135-71-294	58	Benjamin	Frankling	Frankling,
7	353-28-940	5	Newman	Howard	Howard, N
8	072-34-09	38	Bruce	Springstung	Springstun

Now, let's analyze bonus, age, and number of people by state, city, and zip code. Next we'll look at products and services for marketing and demographic information.

1. **With your Database Functionality.xlsm workbook and open and in the Personnel tab, click in the data table and from the Insert tab click Pivot Table.**
2. **The Name range to use is HRPersonnel and place the PivotTable in a new worksheet. I want to change the position of my Field List Pane and the sections to view.**

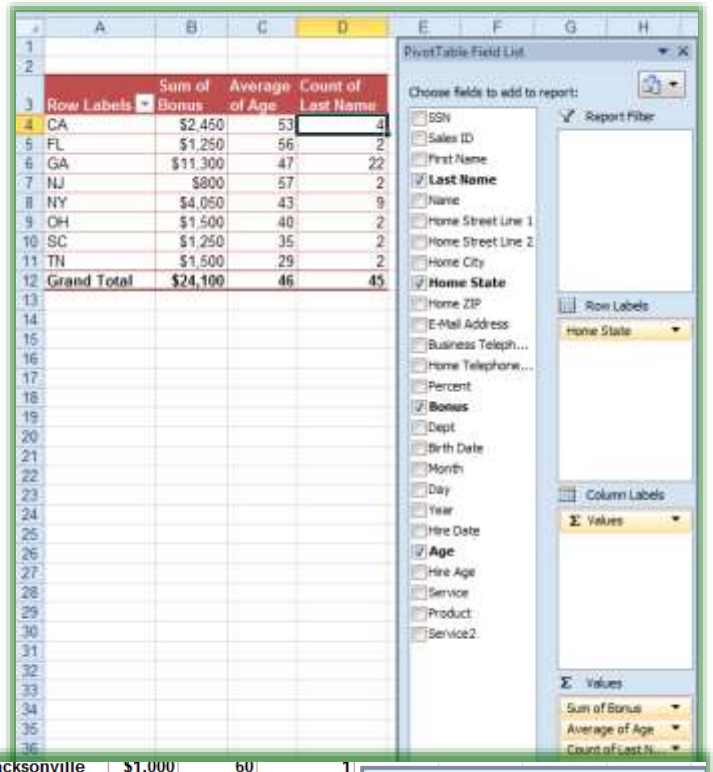
A Hot Tip! Moving your Field List Pane and changing the view of your sections. You may click on your PivotTable's Field List Pane's Title bar and move it into your worksheet. Often the Field List Pane docks on the right side of your screen, which generally I like, but now I want my field list closer to my data and I want to change the position of the sections. The Pivot Table Field List Section Pane and Menu are displayed at right.



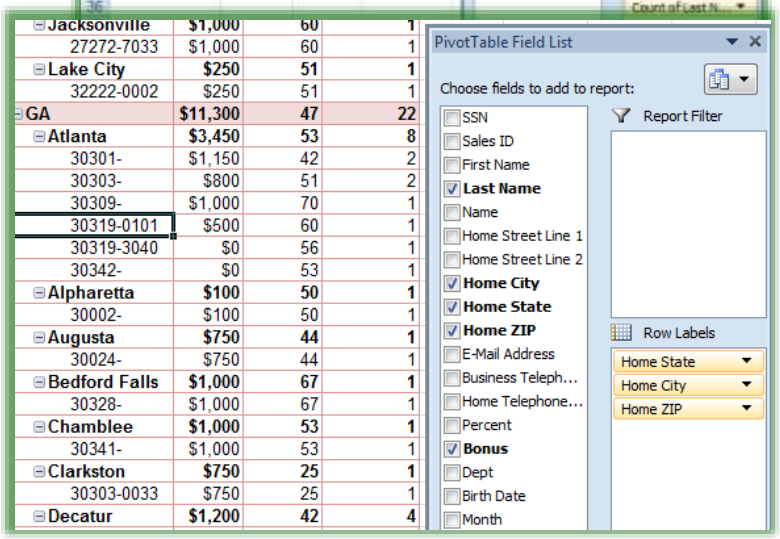
3. **Using your field list and the screenshot at right build your PivotTable with the State as rows and the functions of:**

- ✓ **Sum of Bonus,**
- ✓ **Average of Age,**
- ✓ **Count of Last Name.**

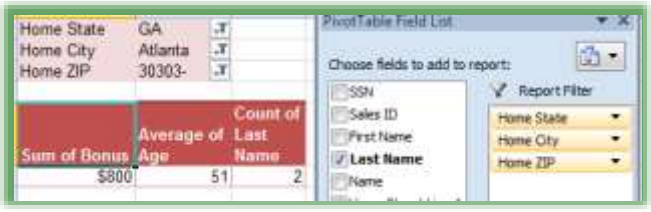
4. **Choose a lovely design for your PivotTable and using the Value Field Settings pane format your numbers as we have accomplished in previous sections.**
5. **Now, add the Home City field to your Row Labels beneath Home state.**
6. **Finally, add Home Zip below your Home City in the Row Labels. See how easy demographic and marketing data is to analyze using a PivotTable.**
7. **Move the Row Labels of Home State, Home City, and Home Zip to the Report Filter. Filter for states, cities, and codes.**
8. **As pictured here, I am viewing the information for Atlanta, GA in ZIP 30303- and if I wanted the details of these 2 people I can double click a number and Excel creates a worksheet with the details for me.**



Row Labels	Sum of Bonus	Average of Age	Count of Last Name
CA	$2,450	53	4
FL	$1,250	56	2
GA	$11,300	47	22
NJ	$800	57	2
NY	$4,050	43	9
OH	$1,500	40	2
SC	$1,250	35	2
TN	$1,500	29	2
Grand Total	$24,100	46	45



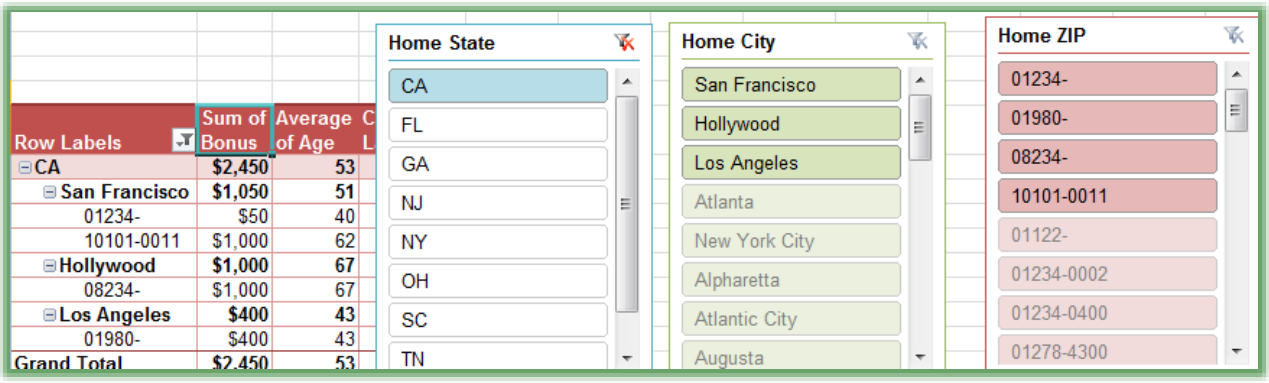
Jacksonville	$1,000	60	1
27272-7033	$1,000	60	1
Lake City	$250	51	1
32222-0002	$250	51	1
GA	$11,300	47	22
Atlanta	$3,450	53	8
30301-	$1,150	42	2
30303-	$800	51	2
30309-	$1,000	70	1
30319-0101	$500	60	1
30319-3040	$0	56	1
30342-	$0	53	1
Alpharetta	$100	50	1
30002-	$100	50	1
Augusta	$750	44	1
30024-	$750	44	1
Bedford Falls	$1,000	67	1
30328-	$1,000	67	1
Chamblee	$1,000	53	1
30341-	$1,000	53	1
Clarkston	$750	25	1
30303-0033	$750	25	1
Decatur	$1,200	42	4



Sum of Bonus	Average of Age	Count of Last Name
$800	51	2

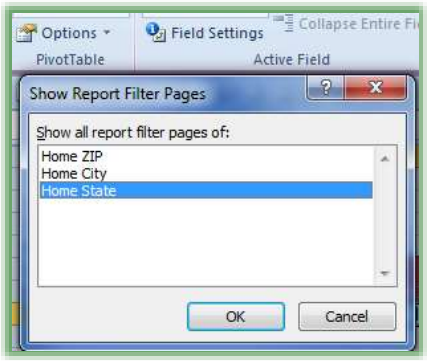
Slice and Dice, again.

1. **Using your PivotTable Options Tab Click the Insert Slicer button and from the list choose Home City, Home State, and Home ZIP. Click OK.**
2. **Since I had my Report filter on my Slicer reflects those items in the Report Filter Pane. Using your Slicer Tools and Options menu, change your color of the slices and practice choosing different States, Cities, and Zip Codes. For example, I am viewing California's information and I have moved my Report**



Filters back as Row Labels to view the details.

3. **Finally, move your Report Filter Labels back to the Report Filter and create a worksheet for each state using the Pivot Table Options and the Show Report Filter Pages Item.**
4. **Choose State from the menu and click OK. Excel creates a worksheet for each state.**

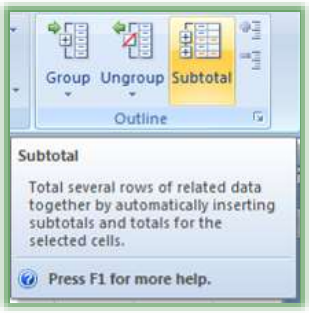


Subtotals Overview

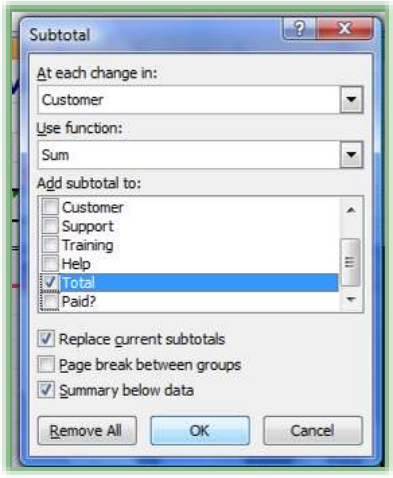
Just as with ***PivotTables, Subtotals*** can calculate data automatically using your database list in ***Excel***. Your data must first be sorted correctly and include your header rows and data row records. We will add ***Subtotals*** to our ***Total*** amounts in the ***JAN*** worksheet.

1. **Have Track.xlsm open.**
2. **Click in the Jan worksheet.**
3. **Click in a cell under the Customer Cell (although all you need to do is to click within the list.)**
4. **Click the Sort Ascending Icon**

☹ An Important Gotcha! If your worksheet is not sorted correctly Subtotals won't calculate correctly either. ☹



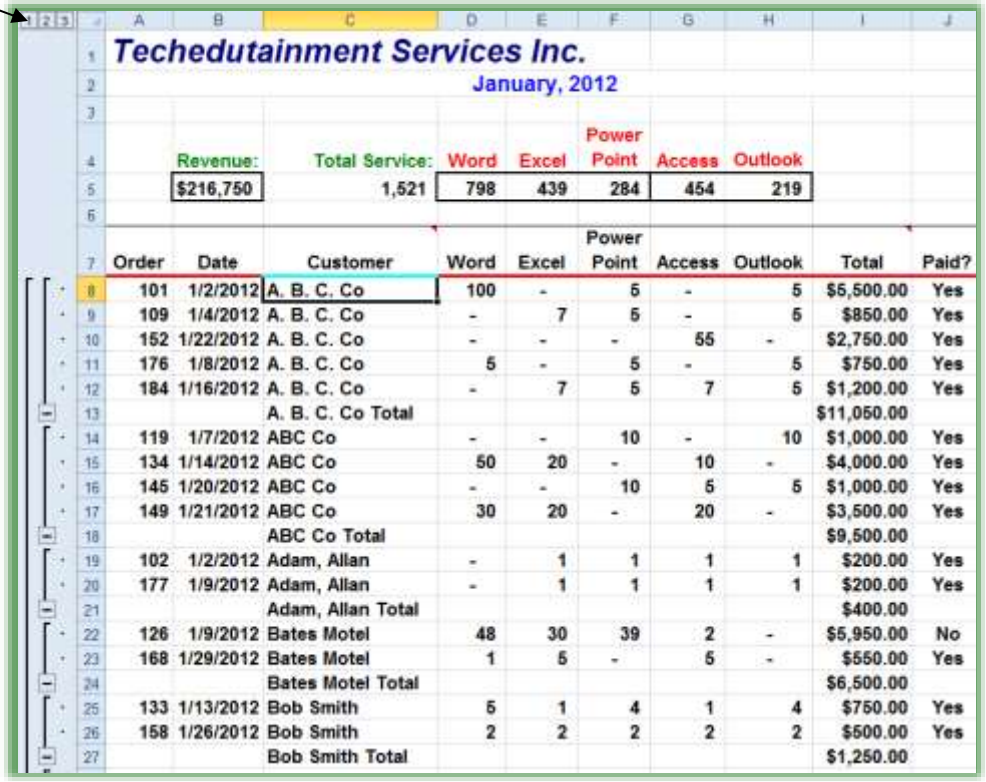
1. **On the Ribbon, Click the Data Tab,**
2. **Click the Subtotal button in the Outline Group at the end of the tab.**
3. **The Subtotals Dialogue box appears, as Pictured at right.**
4. **Using the picture at right as a guide, At each change in: Choose customer from the drop down box.**
5. **Ensure Sum Function is chosen in the Use function.**
6. **In the *"Add Subtotal to:"* section have Total Checked.**
7. **Click OK.**



Excel creates Subtotals for each customer! Imagine using a calculator to retrieve this information – Like I did once upon a time.

Notice the 1, 2, 3 buttons. Click 2 and only the Subtotals for your customer will display as shown at right.

This is a feature of Group and Outline that we will study. The Plus (+) sign will expand your view and display details. The Minus (-) sign will collapse your detail view. Clicking the 3 button expands everything for you. Clicking the 1 should display your grand total.



Techedutainment Services Inc.
January, 2012

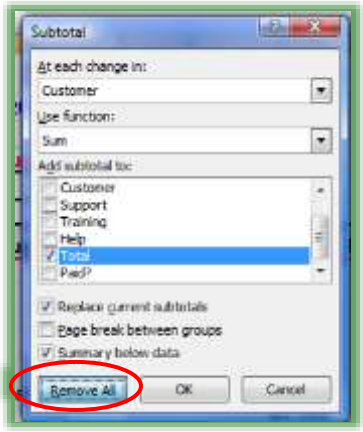
Revenue:	Total Service:	Word	Excel	Power Point	Access	Outlook
$216,750	1,521	798	439	284	454	219

Order	Date	Customer	Word	Excel	Power Point	Access	Outlook	Total	Paid?
101	1/2/2012	A. B. C. Co	100	-	5	-	5	$5,500.00	Yes
109	1/4/2012	A. B. C. Co	-	7	5	-	5	$850.00	Yes
152	1/22/2012	A. B. C. Co	-	-	-	55	-	$2,750.00	Yes
176	1/8/2012	A. B. C. Co	5	-	5	-	5	$750.00	Yes
184	1/16/2012	A. B. C. Co	-	7	5	7	5	$1,200.00	Yes
		A. B. C. Co Total						$11,050.00	
119	1/7/2012	ABC Co	-	-	10	-	10	$1,000.00	Yes
134	1/14/2012	ABC Co	50	20	-	10	-	$4,000.00	Yes
145	1/20/2012	ABC Co	-	-	10	5	5	$1,000.00	Yes
149	1/21/2012	ABC Co	30	20	-	20	-	$3,500.00	Yes
		ABC Co Total						$9,500.00	
102	1/2/2012	Adam, Allan	-	1	1	1	1	$200.00	Yes
177	1/9/2012	Adam, Allan	-	1	1	1	1	$200.00	Yes
		Adam, Allan Total						$400.00	
126	1/9/2012	Bates Motel	48	30	39	2	-	$5,950.00	No
168	1/29/2012	Bates Motel	1	5	-	5	-	$550.00	Yes
		Bates Motel Total						$6,500.00	
133	1/13/2012	Bob Smith	5	1	4	1	4	$750.00	Yes
158	1/26/2012	Bob Smith	2	2	2	2	2	$500.00	Yes
		Bob Smith Total						$1,250.00	

1. **Click the Plus sign (+) by Computer Tech and you will see the details for Computer Tech.**
2. **Click the Minus sign (-) to collapse the information.**

☹ Important Gotcha! Notice the Revenue and Support, Training, and Help figures are doubled! The functions include your new subtotals so your figures are not correct and are inflated! ☹

Let's Remove our Subtotals.

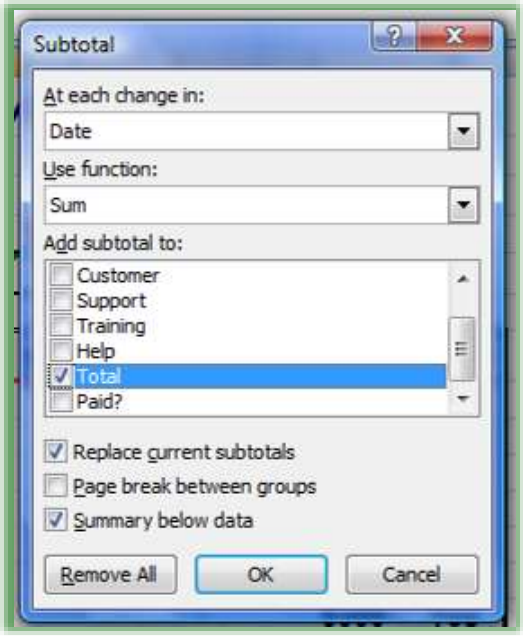


1. **In the Data tab, Click Subtotals,**
2. **From the Dialogue box for Subtotals Click the Remove All button.**
3. **The subtotals are removed.**

I have a client that uses this feature for subtotals by date for her accounts and billing. The process is the same except her worksheet sorts by date and "At each change in" is Date. ***Let's accomplish this.***

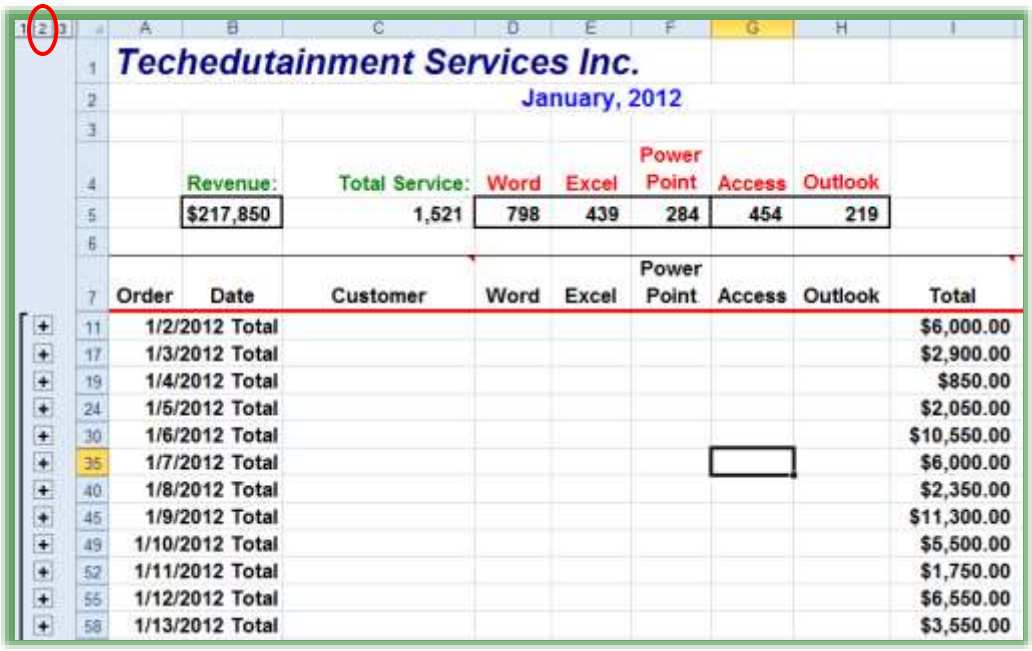
With your subtotals removed, we will add subtotals to provide subtotals by date.

1. **First sort your Jan Worksheet by date – Click in the Date column and Click the Sort Ascending Icon.**
2. **On the Data Tab, Click the Subtotals button.**
3. **The Subtotals Dialogue box appears, as Pictured at right.**
4. **Using the picture at right as a guide, At each change in: Choose Date from the drop down box.**
5. **Ensure Sum Function is chosen in the Use function.**
6. **In the *"Add Subtotal to:"* section have Total Checked.**
7. **Click OK.**



Excel creates Subtotals for each Date!

8. **Click the 2 button circled here to display the Totals for each date.**
9. **Clicking the 1 button displays your Grand Total.**



Techedutainment Services Inc.
January, 2012

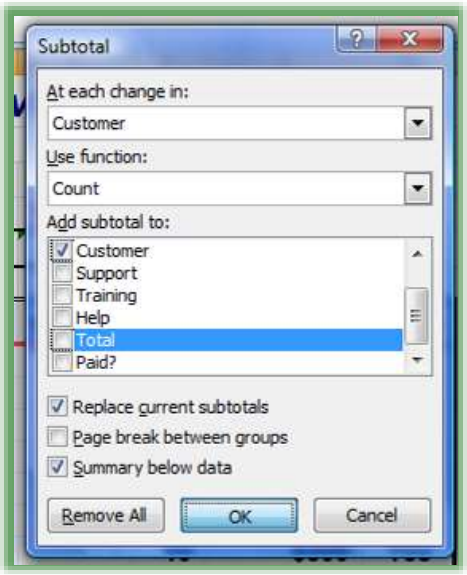
Revenue:	Total Service:	Word	Excel	Power Point	Access	Outlook
$217,850	1,521	798	439	284	454	219

Order	Date	Customer	Word	Excel	Power Point	Access	Outlook	Total
11	1/2/2012 Total							$6,000.00
17	1/3/2012 Total							$2,900.00
19	1/4/2012 Total							$850.00
24	1/5/2012 Total							$2,050.00
30	1/6/2012 Total							$10,550.00
35	1/7/2012 Total							$6,000.00
40	1/8/2012 Total							$2,350.00
45	1/9/2012 Total							$11,300.00
49	1/10/2012 Total							$5,500.00
52	1/11/2012 Total							$1,750.00
55	1/12/2012 Total							$6,550.00
58	1/13/2012 Total							$3,550.00

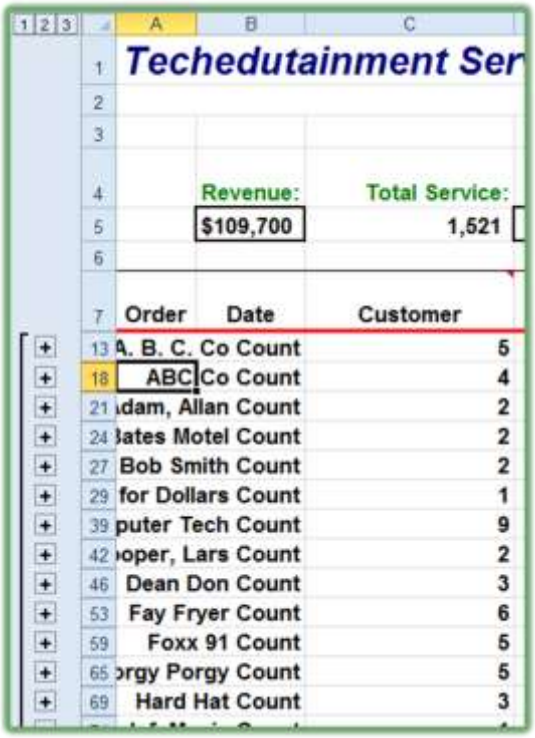
Let's Remove our Subtotals.

1. **Click the Subtotals button,**
2. **From the Menu for Subtotals Click the Remove All button.**
3. **The subtotals are removed.**

Now, let's see how often or how many times a customer ordered from us.



1. **First sort your Jan Worksheet by Customer – Click in the Customer column and Click the Sort Ascending (Sort A to Z) button on the Data Tab.**
2. **After your data is sorted by customer, Click the Subtotal button in the Outline Group at the end of the tab.**
3. **The Subtotals Dialogue box appears, as Pictured at right.**
4. **Using the picture at right as a guide, At each change in: Choose customer from the drop down box.**
5. **Ensure Count Function is chosen in the Use function.**
6. **In the *"Add Subtotal to:"* section have Customer Checked.**
7. **Click OK.**
8. **Click the 2 button on the expand and collapse section of the worksheet.**



Excel creates subtotals for each time the customer appears in the list and this is the number of orders we received from the customer.

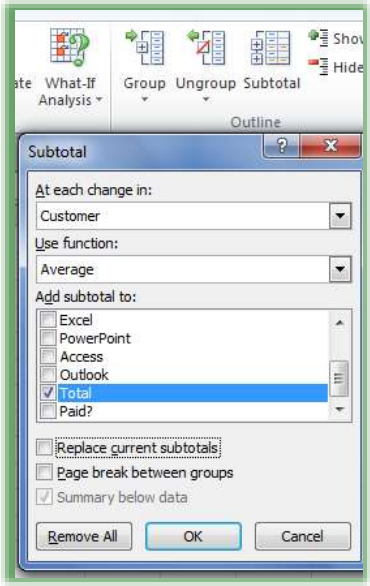
Remove your subtotals and save your workbook.

Multiple Subtotals

You may have more than one Subtotal displayed in your data table. We'll look at having our Sum, Average, and Count Functions on our previous table.

Here's how to have multiple Subtotals:

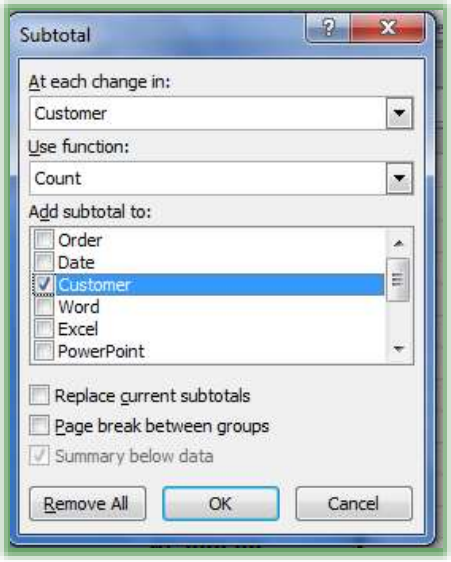
1. **Open your Track workbook and the Jan tab click in your data area. Ensure you have no subtotals displayed.**
2. **Next, sort your data table alphabetically by customer, Click Subtotals at each change in Customer and Add a Sum Subtotal to Total as we accomplished in the previous section. Excel Click Ok at the subtotal screen and Excel has your subtotals for each account summing the orders for you.**
3. **As displayed at right, activate your Subtotal pane again and keep the At each change in: Customer, change the function to Average, and keep the Add subtotal to Total.**
4. **UNCHECK the Replace current Subtotals and when you click OK, Excel add the Average Subtotal to your Sum Subtotal.**



5. **Notice another level displays as circled below. Click on the level 3 and notice how you can view your subtotals by account with the Sum and Average functions. Next, click on the level 1 to view your Grand Totals.**

Order	Date	Customer	Word	Excel	PowerPoi	Access	Outlook	Total	Paid?
101	1/2/2012	A. B. C. Co	5	-	5	-	5	$750.00	Yes
109	1/4/2012	A. B. C. Co	-	7	5	-	5	$850.00	Yes
152	1/22/2012	A. B. C. Co	-	-	-	55	-	$2,750.00	Yes
176	1/8/2012	A. B. C. Co	5	-	5	-	5	$750.00	Yes
184	1/16/2012	A. B. C. Co	-	7	5	7	5	$1,200.00	Yes
		A. B. C. Co Average						$1,260.00	
		A. B. C. Co Total						$6,300.00	

6. **Now, return to your Subtotal Pane and keep the At change in to Customer add the Count Function to Customer.**
7. **Click OK and now Excel displays yet another Subtotal and level.**



I displaying level 4 below. Return to Subtotals and Remove All.

	A	B	C	D	E	F	G	H	I
7	Order	Date	Customer	Word	Excel	owerPoi	Access	Outlook	Total
13	A. B. C. Co Count		5						
14			A. B. C. Co Average						$1,260.00
15			A. B. C. Co Total						$6,300.00
20	ABC Co Count		4						
21			ABC Co Average						$2,375.00
22			ABC Co Total						$9,500.00
25	dam, Allan Count		2						
26			Adam, Allan Average						$200.00
27			Adam, Allan Total						$400.00
30	Bates Motel Count		2						
31			Bates Motel Average						$3,250.00
32			Bates Motel Total						$6,500.00

♬ *Write your notes here:*_____

An Excellent Excel Index

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