Excel for Banner Users

Upon completion of this workshop, users will have knowledge of these Excel techniques:

Understanding How Excel Sorts, Filters, and Subtotals

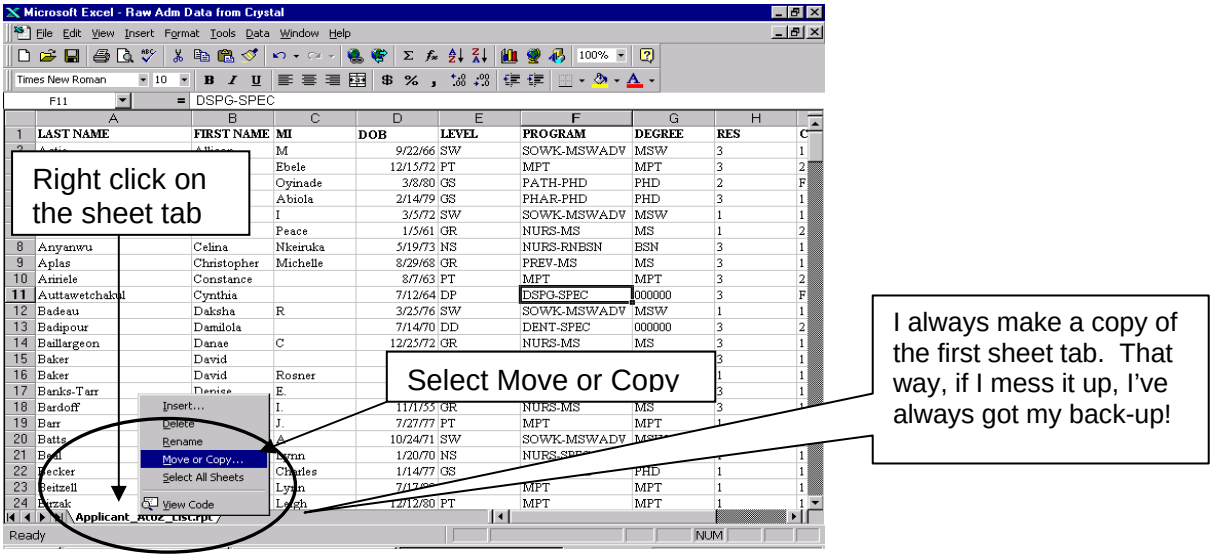
To best utilize these tools, it is important for users to understand how Excel treats information stored in sheet tabs. Excel treats data stored in rows and columns as a database, up to the point that it finds a *completely blank row or column*. I call this the “automated data selection” feature. This Excel feature saves the user from having to *manually* select the range of cells that contain information needing analysis. The user then applies Excel’s powerful database features, (probably borrowed from Access!) to the area ***Excel*** thinks is the database. Because of this, it is vital to have your cursor clicked on any single cell within the data area before using automated data select.

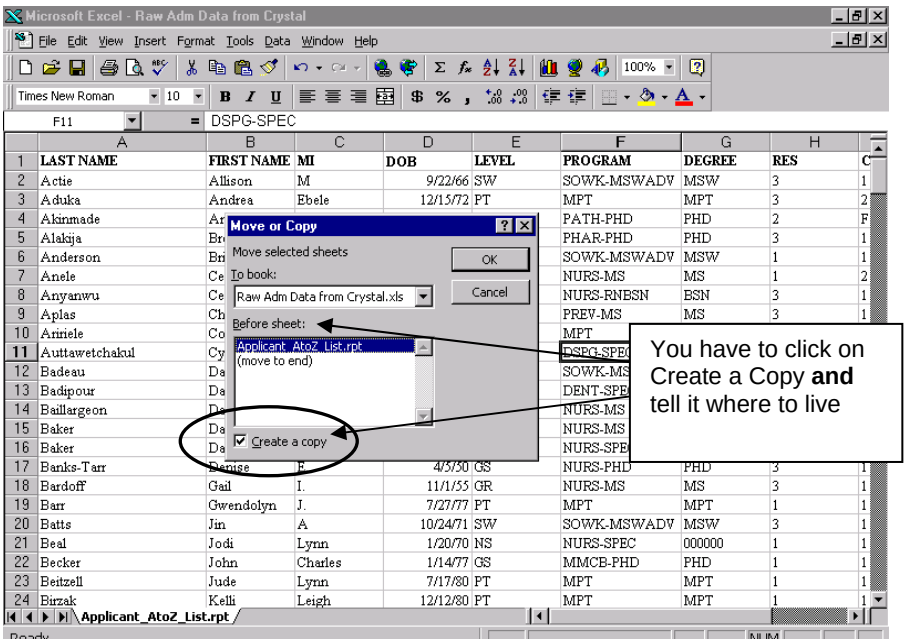
When users apply the Sort feature, for instance, Excel looks for and selects what ***it*** thinks are the boundaries of the database. Get it? The base of the data: the perimeters, the boundaries. Look closely, you will see your data highlighted in black during the sort process. It goes by very quickly. If your data is one *contiguous* set of uninterrupted rows and columns, Excel will use that as your "base" of information and will relocate each row of data appropriate to the sort order you choose. That's a fancy way of saying that everything about Jane Smith (name, date of birth, admission code, etc.) will make the jump to the appropriate line if you sort on last name, for instance, ***if*** there are no blank columns between those fields (column headers). Individual blank cells are OK, just not completely blank rows or columns. If you use blank columns or rows for presentation purposes – get rid of them for data analysis! Making things look pretty is a different workshop!

That is why it is *absolutely imperative* that users first "clean up" the data that is transferred from any canned report. For instance, if your data looks like it extends from column A through M, but column D is actually empty, Excel's automated data selecting feature will only select the data from columns A through C. If you were to then use the Sort tool, only columns A-C would be sorted, leaving the information from columns E-M unchanged! The information in those columns would not be representative of the information in columns A-C. Basically what you would have is two sets of completely unrelated data. Be very careful of this! This “automated data selection” feature is the basis for Sorts, Filters, Subtotals and Pivot Tables. If you "get" this, you are well on your way to Excel bliss!

Copying Sheets

After checking for and deleting any completely blank columns and/or rows, copy the sheet that contains the data. That way you will always have the original to fall back on or copy again. There are a couple of ways to do this. One is to Right Click the sheet tab, as shown below (to open the Quick Menu), and select **Move or Copy**. Select **Create a Copy** checkbox from the dialogue box. Then click to tell Excel where in your workbook to put it. You can also use this technique to copy a sheet to a new document or to a workbook (document) you have open!

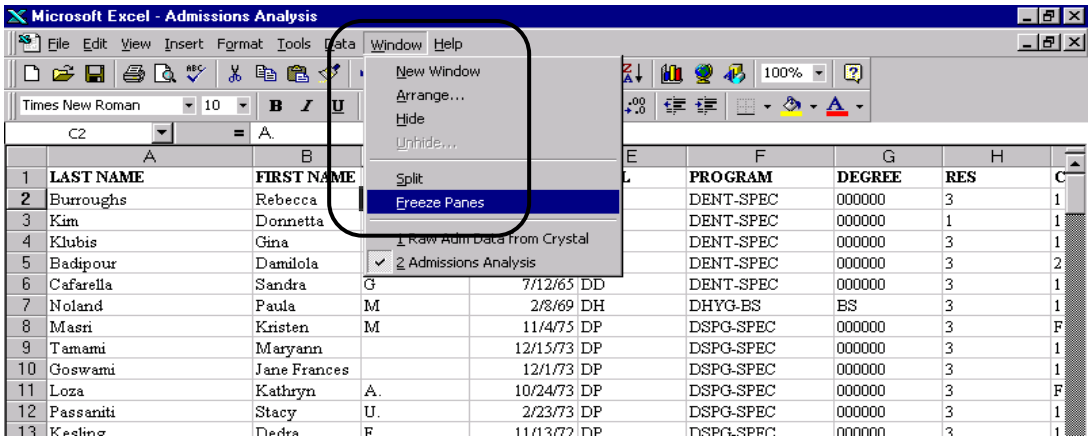




Another way is to hold the **Control** key down while dragging a sheet tab. You will see a plus sign (+) and what looks like a piece of paper. Let go of the mouse ***before*** you let go of the **Control** key! What you lose with this technique is the ability to choose from the list of options the Quick Menu (Right Click) provides. This same technique can be used for copying individual cells, groups of cells, or drawing objects (circles, text boxes, etc.). It is the same technique used in PowerPoint to copy drawing objects (circles, squares, etc.).

Freeze Panes

Sometimes, not all the data you want to look at can be viewed at the same time. Freezing Panes is a technique that allows users to "freeze" certain columns and rows to allow one to scroll to other areas of the sheet without losing site of the columns or rows desired.



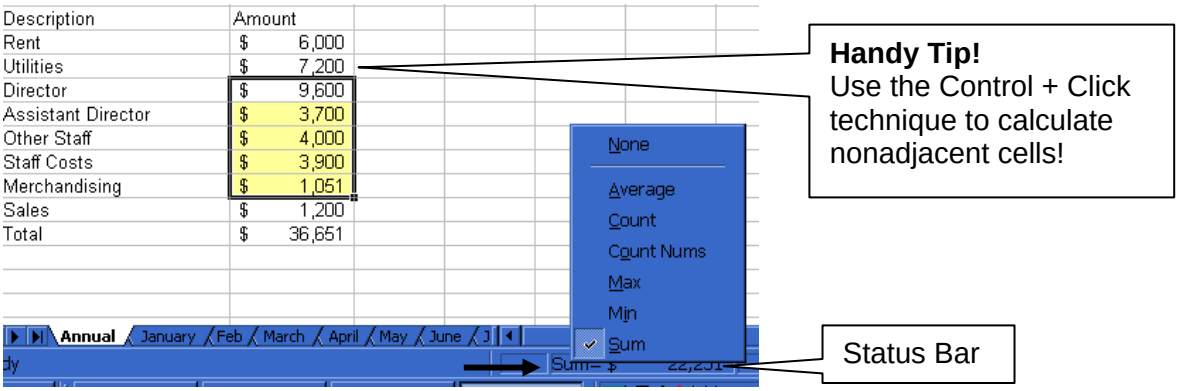
To Freeze Panes, click in the cell **below and to the right** of the columns and rows you wish to keep in view (cell C2 in the example above). Then click on **Window**, **Freeze Panes** and Excel will keep the rows above and columns to the left in view. To Unfreeze Panes, simply click on **Window** in the Menu Bar and select **Unfreeze Panes** from the list.

Renaming Sheets

I recommend that users rename the copy by double clicking the sheet tab, then type the new name and Press the **Enter** key to have the new name appear. Use this copy to perform any of the techniques described in this workshop. Then, if you want to use another of the tools, copy the original again, rename it, and use that tool. This way, each tool used has a dedicated working copy of the information. This will be especially helpful when you wish to chart subtotals. Another way to copy a sheet tab is to Right Click the sheet tab (opens the Quick Menu) and select Rename from the list. Type the new name and hit **Enter**.

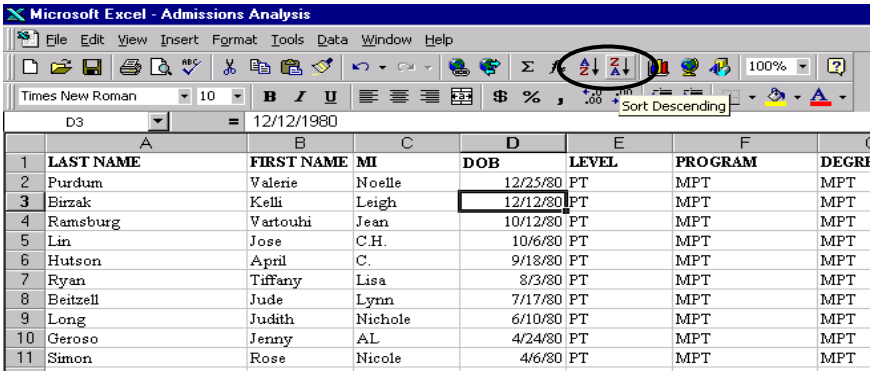
Auto Calculate

The Auto Calculate tool is really neat. Try highlighting a few cells that contain numbers. Now, observe the lower right side of the status bar. Right Click on blank area (or the number displayed and choose Average, Count, SUM, etc. The operator you select will stay in the Auto Calculate area. Highlight other cells to see the calculation change in the Auto Calculate area.



Sorting Data Using Toolbar Buttons

Sorting data is very simple. Click on a single cell in the column you want the information sorted by, then click one of the two Sort toolbar buttons as shown below (ascending or descending). In the example, a descending sort was applied to date of birth (DOB).

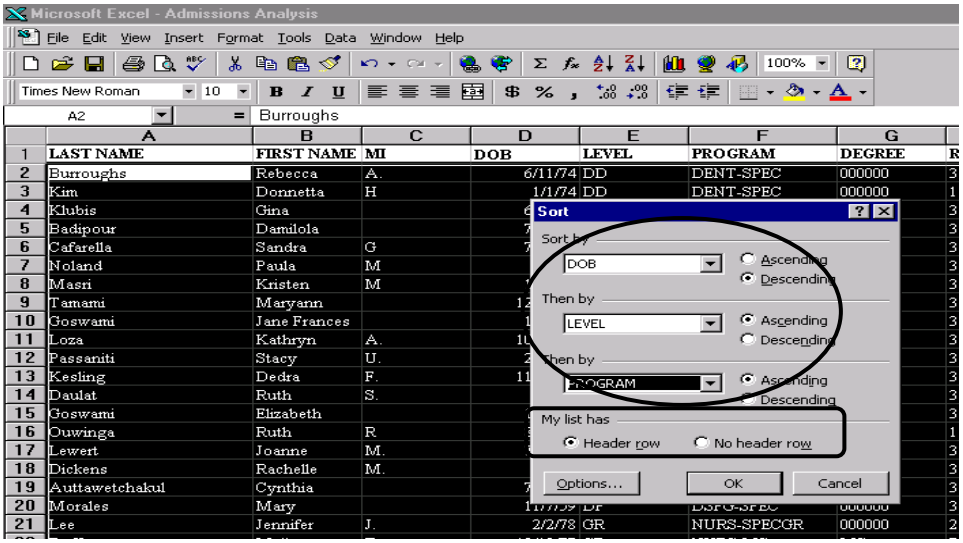


	A	B	C	D	E	F	G
1	LAST NAME	FIRST NAME	MI	DOB	LEVEL	PROGRAM	DEGRE
2	Purdum	Valerie	Noelle	12/25/80	PT	MPT	MPT
3	Birzak	Kelli	Leigh	12/12/80	PT	MPT	MPT
4	Ramsburg	Vartouhi	Jean	10/12/80	PT	MPT	MPT
5	Lin	Jose	C.H.	10/6/80	PT	MPT	MPT
6	Hutson	April	C.	9/18/80	PT	MPT	MPT
7	Ryan	Tiffany	Lisa	8/3/80	PT	MPT	MPT
8	Beitzell	Jude	Lynn	7/17/80	PT	MPT	MPT
9	Long	Judith	Nichole	6/10/80	PT	MPT	MPT
10	Geroso	Jenny	AL	4/24/80	PT	MPT	MPT
11	Simon	Rose	Nicole	4/6/80	PT	MPT	MPT

Sorting Data Using the Menu Bar

The Sort Menu Bar allows you to apply more than one sort at the same time, up to three (3) levels. It also assumes that the first row of your data is a "header row", namely, the names of the fields or columns of your data.

To use the Sort Menu Bar, simply click in a single cell in your data area, then click on **Data**, **Sort** from the Menu Bar. When the Sort dialogue box appears, choose the column name for each column (header) desired and whether it should be sorted in ascending or descending order. Note that Excel defaults to your data having a header row and you have the option to change it.



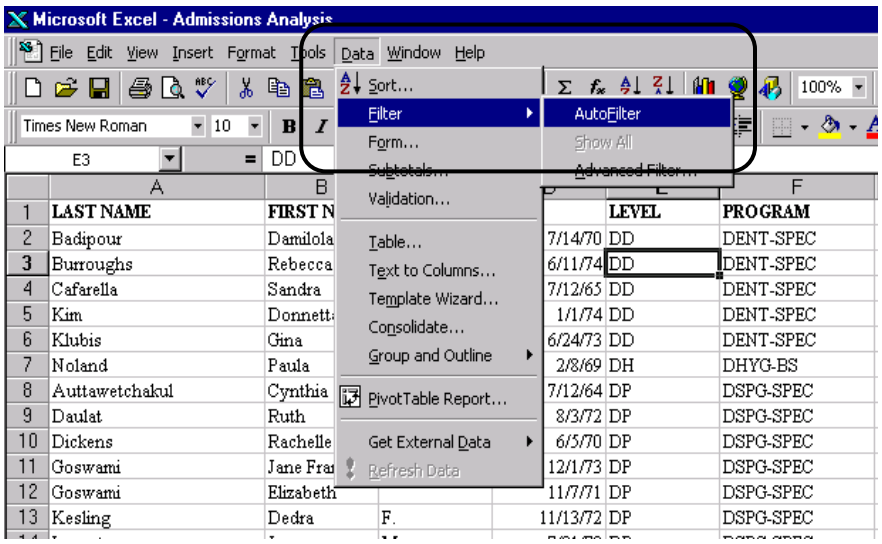
	A	B	C	D	E	F	G
1	LAST NAME	FIRST NAME	MI	DOB	LEVEL	PROGRAM	DEGREE
2	Burroughs	Rebecca	A.	6/11/74	DD	DENT-SPEC	000000
3	Kim	Donnetta	H	1/1/74	DD	DENT-SPEC	000000
4	Klubis	Gina					
5	Badipour	Damilola					
6	Cafarella	Sandra	G				
7	Noland	Paula	M				
8	Masri	Kristen	M				
9	Tamami	Maryann					
10	Goswami	Jane Frances					
11	Loza	Kathryn	A.				
12	Passaniti	Stacy	U.				
13	Kesling	Dedra	F.				
14	Daulat	Ruth	S.				
15	Goswami	Elizabeth					
16	Ouwinga	Ruth	R				
17	Lewert	Joanne	M.				
18	Dickens	Rachelle	M.				
19	Auttawetchakul	Cynthia					
20	Morales	Mary					
21	Lee	Jennifer	J.	2/2/78	GR	NURS-SPECGR	000000

This screenshot above is a good example of how Excel selects the data area for you. Notice that the first row is not selected - that's because it is considered a header row and will not be sorted with the rest of the rows.

If you want to sort more than three, here's a tip: write out the columns you wish to sort – left to right (on a sheet of paper). Then sort the fields, 3 at a time, right to left!

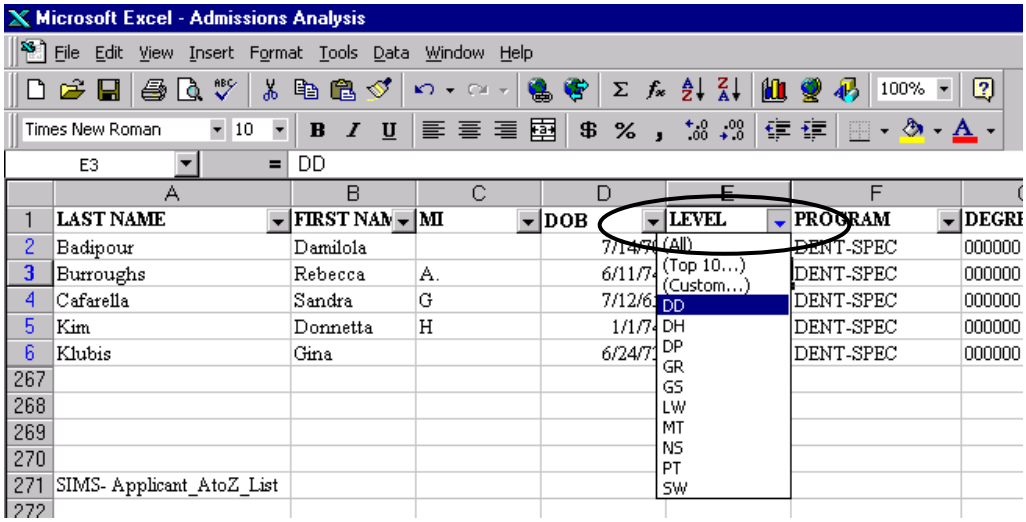
Using AutoFilter

AutoFilter is by far the coolest, easiest to learn and use tool in Excel's toolbox! It works just like the Sort tool. Excel "searches" your database for the perimeters or boundaries of your data and assumes that the first row refers to the names of your data elements, fields, or columns. Simply click on a single cell in your data area, and then click on **Data**, **Filter**, **AutoFilter**. Use this same command to turn off AutoFilter.



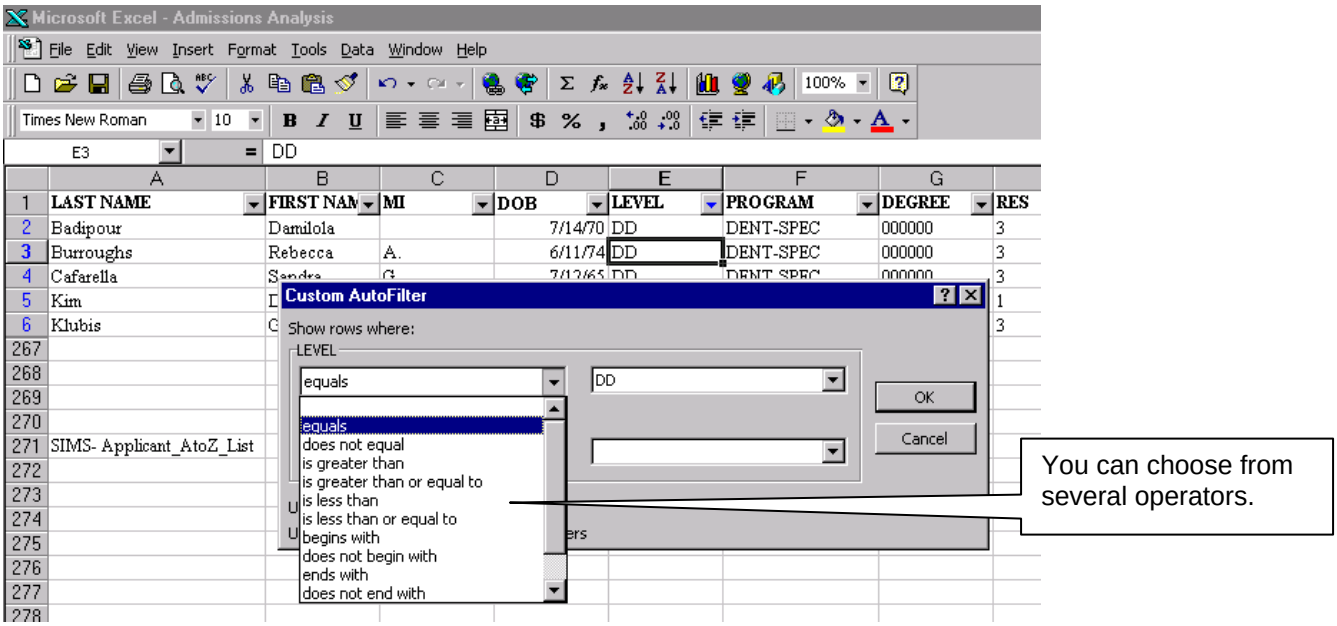
Make sure there is a blank row above your column headings row, if your data doesn't begin on row 1. If you need a title row, insert a completely blank row right above the headings.

Excel will place down-pointing arrows in each of your column headers, allowing you to click the arrow and get a "pick list" of the data found in that column. When you click on one of the values in the list, Excel displays <u>only</u> rows that have that value in that column, "hiding" all other rows from view. The down arrow for a column's pick list will turn blue where the filter has been applied – that way you know which column you've filtered on. You can filter on multiple columns. The **Status Bar** (at the bottom left of the screen, below the sheet tabs) ***<u>will indicate the number of records selected</u>*** (e.g., 12 of 265 records found). This is great if all you need is an answer! And the best part about this is **<u>what you see is what you print</u>**! To get the original data back, click the down arrow and select **All** from the pick list, or choose **Data, Filter, Show All** from the **Menu Bar**. Try it! You're gonna like the way you look…

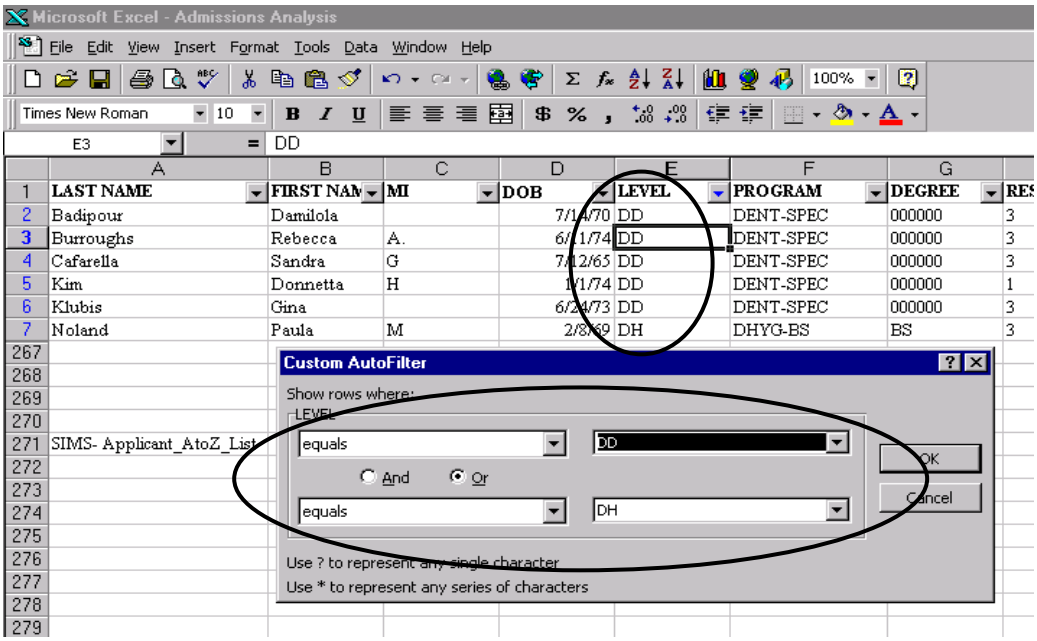


Creating Custom Filters

Custom Filters allow you to do some nifty things! You can get data for two departments, or tell it to display only rows that meet a certain date or numeric range (or criteria). To create a Custom Filter, **apply AutoFilter first**, then simply click the down arrow for the column you want a custom filter for and choose **Custom** from the list. The Custom AutoFilter dialogue box will appear providing you choices for the type of operator you want (equal to, less than, etc.) and the value you wish to filter on (DD, LW, etc.) from the "pick list" for that column. Pick and Click **OK**.



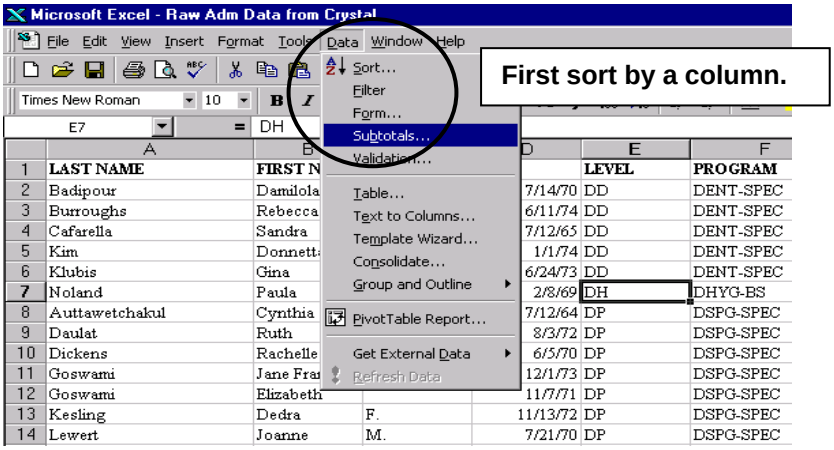
As you can see below you can create an and/or statement by choosing "and" or "or". This will enable you to filter on two different values within the same column. Pick and click **OK**.

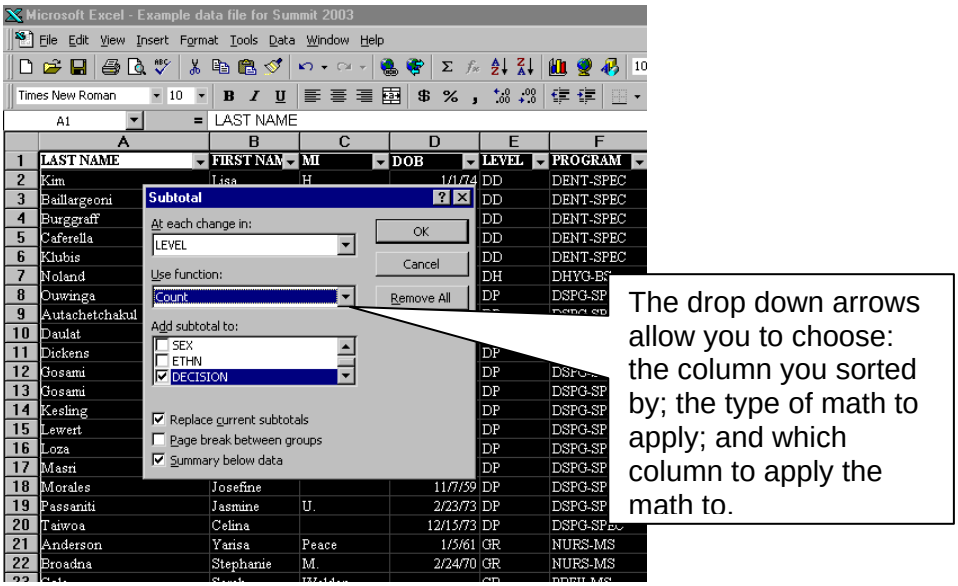


Creating Subtotals

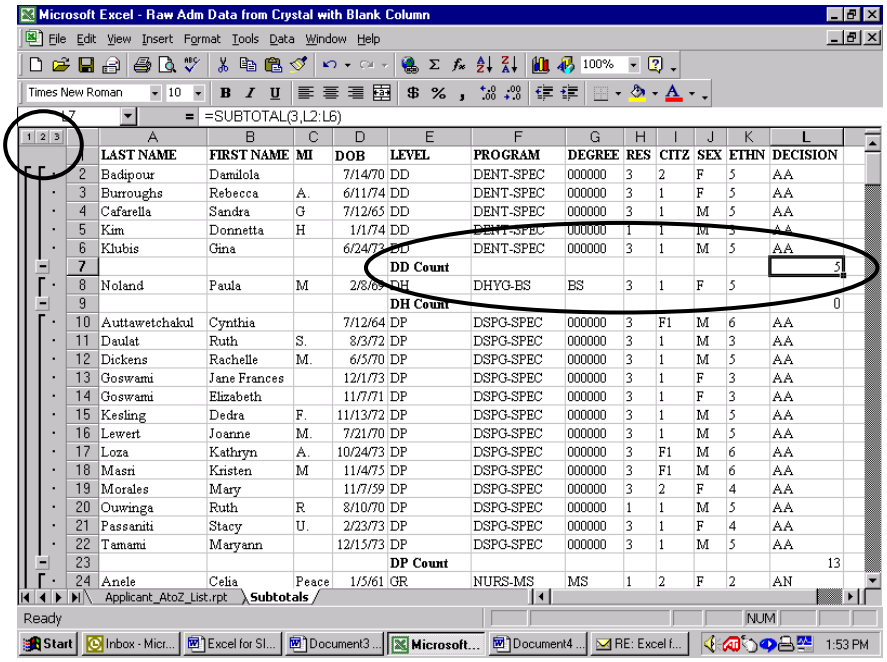
Subtotals is a feature that allows users to get subtotals for columns, based on a sort order. For instance, you may want to know the number of application decisions your school has for a certain term for a given Level (school). Once you sort the data by Level, Excel can "count" the number of decisions for each Level. Data outlining tools are automatically displayed which allow you to view all the data, a summary of the subtotals, or the grand total (page 8). Subtotals can also be used to create charts. **Please be aware that subtotals do not count blank cells.**

To create subtotals, **first sort** your data and then click on **Data, Subtotals**. A dialogue box will appear that will allow you to choose the field you sorted on, the mathematical formula you desire (count, add, etc.), and the column to apply the math to. Make your selections and click **OK**. Your datasheet will have an extra row automatically inserted at each sort change with a subtotal under the column you applied the math to. In addition, data outlining tools will automatically appear on the top left of the screen allowing you to view: all the data, the subtotal summary, or the grand total. You can also perform another subtotal on, let's say, decisions, to get a subtotal of a subtotal. Please see page 8 for an illustration of a list with subtotals.





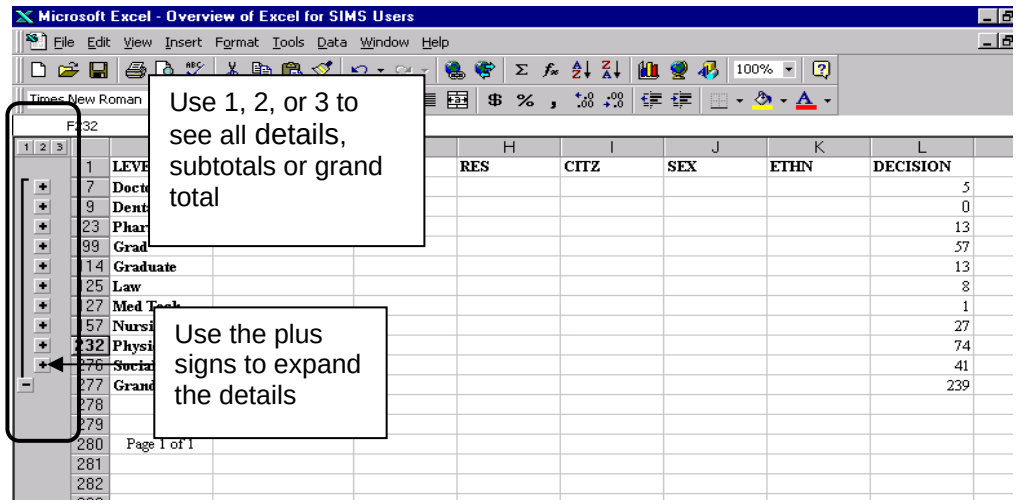
This is what it looks like after subtotals has been applied:



	A	B	C	D	E	F	G	H	I	J	K	L
	LAST NAME	FIRST NAME	MI	DOB	LEVEL	PROGRAM	DEGREE	RES	CITZ	SEX	ETHN	DECISION
2	Badipour	Damilola		7/14/70	DD	DENT-SPEC	000000	3	2	F	5	AA
3	Burroughs	Rebecca	A.	6/11/74	DD	DENT-SPEC	000000	3	1	F	5	AA
4	Cafarella	Sandra	G	7/12/65	DD	DENT-SPEC	000000	3	1	M	5	AA
5	Kim	Donnetta	H	1/1/74	DD	DENT-SPEC	000000	1	1	M	5	AA
6	Klubis	Gina		6/24/72	DD	DENT-SPEC	000000	3	1	M	5	AA
7					DD Count							5
8	Noland	Paula	M	2/8/69	DH	DHYG-BS	BS	3	1	F	5	
9					DH Count							0
10	Auttawetchakul	Cynthia		7/12/64	DP	DSPG-SPEC	000000	3	F1	M	6	AA
11	Daulat	Ruth	S.	8/3/72	DP	DSPG-SPEC	000000	3	1	M	3	AA
12	Dickens	Rachelle	M.	6/5/70	DP	DSPG-SPEC	000000	3	1	M	5	AA
13	Goswami	Jane Frances		12/1/73	DP	DSPG-SPEC	000000	3	1	F	3	AA
14	Goswami	Elizabeth		11/7/71	DP	DSPG-SPEC	000000	3	1	F	3	AA
15	Kesling	Dedra	F.	11/13/72	DP	DSPG-SPEC	000000	3	1	M	5	AA
16	Lewert	Joanne	M.	7/21/70	DP	DSPG-SPEC	000000	3	1	M	5	AA
17	Loza	Kathryn	A.	10/24/73	DP	DSPG-SPEC	000000	3	F1	M	6	AA
18	Masri	Kristen	M	11/4/75	DP	DSPG-SPEC	000000	3	F1	M	6	AA
19	Morales	Mary		11/7/59	DP	DSPG-SPEC	000000	3	2	F	4	AA
20	Ouwinga	Ruth	R	8/10/70	DP	DSPG-SPEC	000000	1	1	M	5	AA
21	Passaniti	Stacy	U.	2/23/73	DP	DSPG-SPEC	000000	3	1	F	4	AA
22	Tamami	Maryann		12/15/73	DP	DSPG-SPEC	000000	3	1	M	5	AA
23					DP Count							13
24	Anele	Celia	Peace	1/5/61	GR	NURS-MS	MS	1	2	F	2	AN

Outlining Tools

When subtotals are applied, a data outlining toolbar appears on the left side of the screen allowing you to view all the data, the subtotals, and the grand total (the 1, 2, and 3 at the top of the outlining toolbar). In addition, plus signs (+) are located next to each subtotaled category to allow you to view the details of each category by clicking the plus sign next to it. When expanded, the plus sign for that category is replaced by a minus sign (-), allowing you to collapse the details. You can also select the subtotals to use in a chart!



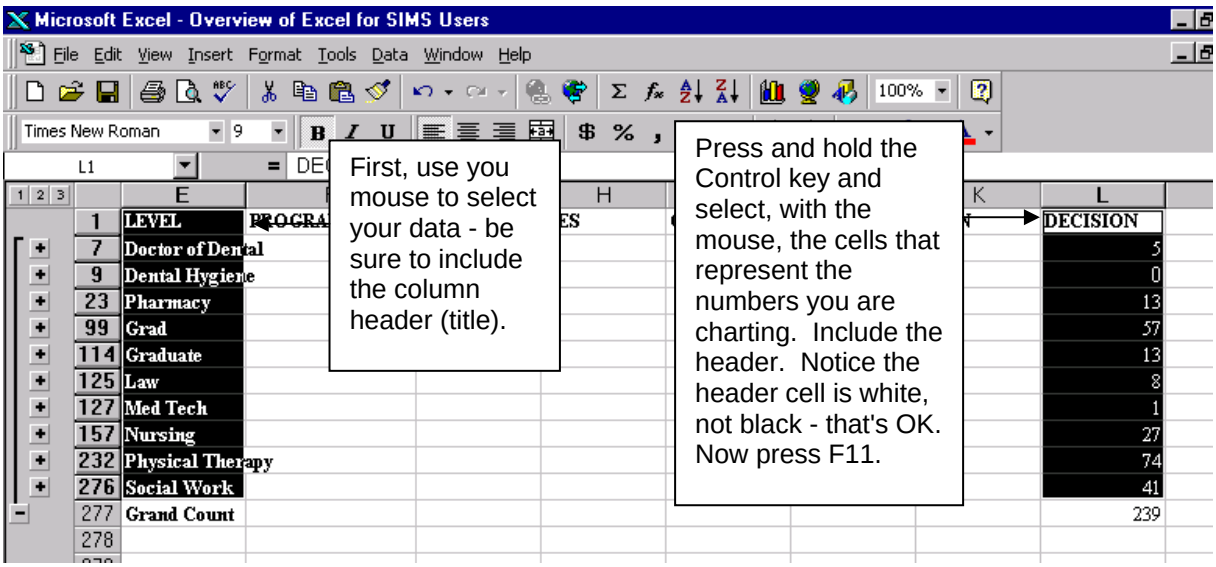
Creating and Working with Chart Sheets

Like the other advanced features of Excel (sort, filter, etc.), *we* rely on "selecting" in order to perform charting. Unlike the other features though, charting requires the **user** to select the data to be charted. Excel needs to know what information you wish to graphically represent. The bottom line is, if you do not select a group of cells, or have a blank cell selected when you execute the chart command, Excel will give you exactly asked for - nothing! Usually in the form of one big column or a chart with nothing in it!

For the purpose of this presentation, we will use the results from subtotaling to create a chart, apply formatting, and then *save* that **format** so we can apply it to other charts - saving us valuable time formatting in the future and creating consistency in the presentation of our charts.

Charts typically represent summary data. Instead of charting every student's admission decision, we tend to chart admissions decisions by program, school, etc. So somewhere along the line we need to summarize data in order for a chart to be visually useful.

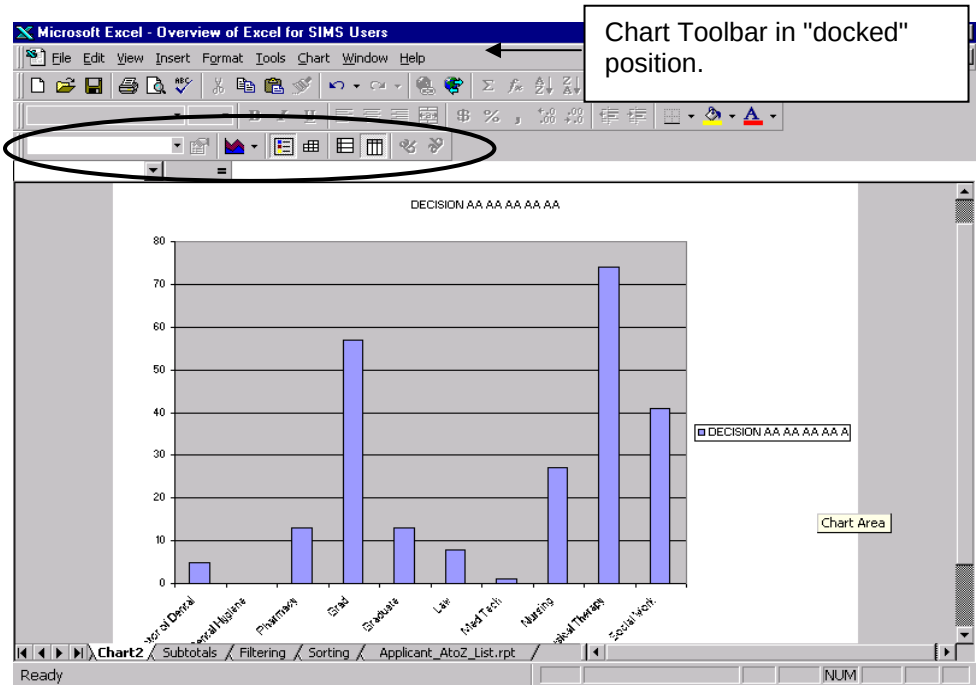
To chart the results of a subtotaled datasheet, simply select the first set of cells you want to chart. Then, hold the Control key down with one hand **and** select, with the mouse, the cells that represent the corresponding data. It is vital that you select the same number of rows from each column, *and* you do not select the grand total! Otherwise you will get yuck!

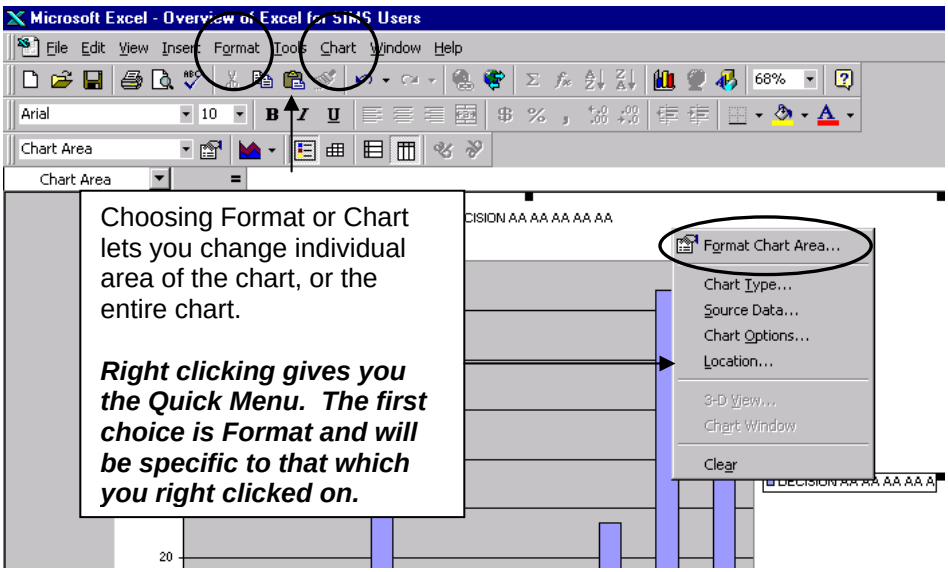


Now press the **F11 Function Key** and Excel will create a new, separate sheet tab called a "chart sheet." The chart sheet is nothing more than the graphical representation of the selected data, on a separate sheet tab, and is tied directly to the data in the sheet you selected the data from. **Changes made to the data will automatically update the chart!** You can also use the Chart Wizard toolbar button to create chart sheets or charts within the data sheet.

As a default, Excel creates a standard two-dimensional **Chart Type** (from its list of available chart styles). You can modify the chart type, add or modify titles, formatting and style of the chart. Use the Chart Toolbar to access the most common tools for formatting a chart. Please note that this toolbar initially may appear in the chart area and can be relocated by dragging it to the toolbar area. Once "docked" in the toolbar area, the chart toolbar will always come up in the same location. Use the line at the end of a toolbar to relocate it when docked.

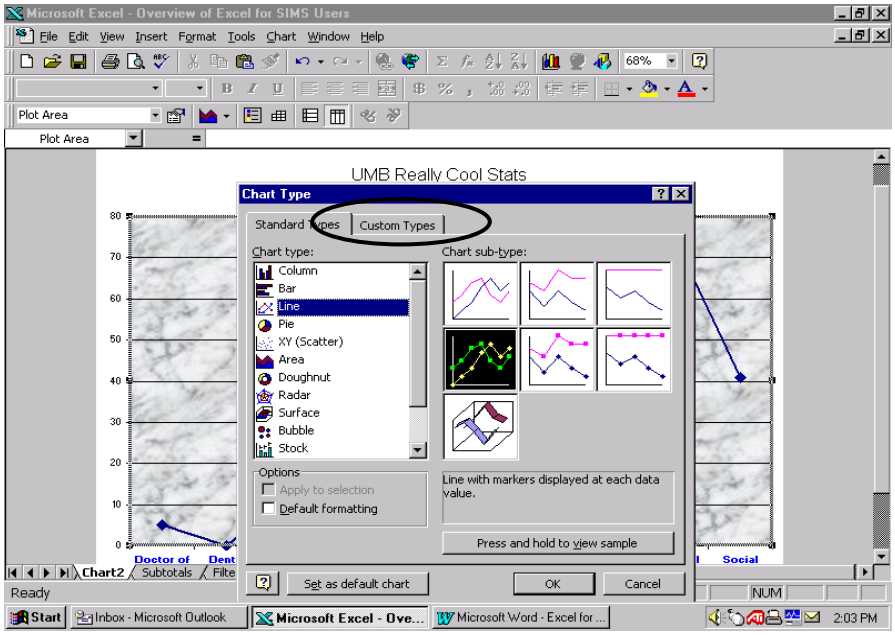
You can change the chart to three-dimensional, pie or any of the standard styles of charts. You can do this via the Chart Toolbar or by clicking on Chart in the **Menu Bar** and selecting Chart Type or Chart Options. Make sure you have clicked on a part of the chart before using the Menu Bar. The **easiest** way to format a chart is to Right Click on ***any*** part of the chart and select Format from the Quick Menu. This menu will verify what part is to be formatted (i.e., **Format Chart Area** as shown below).



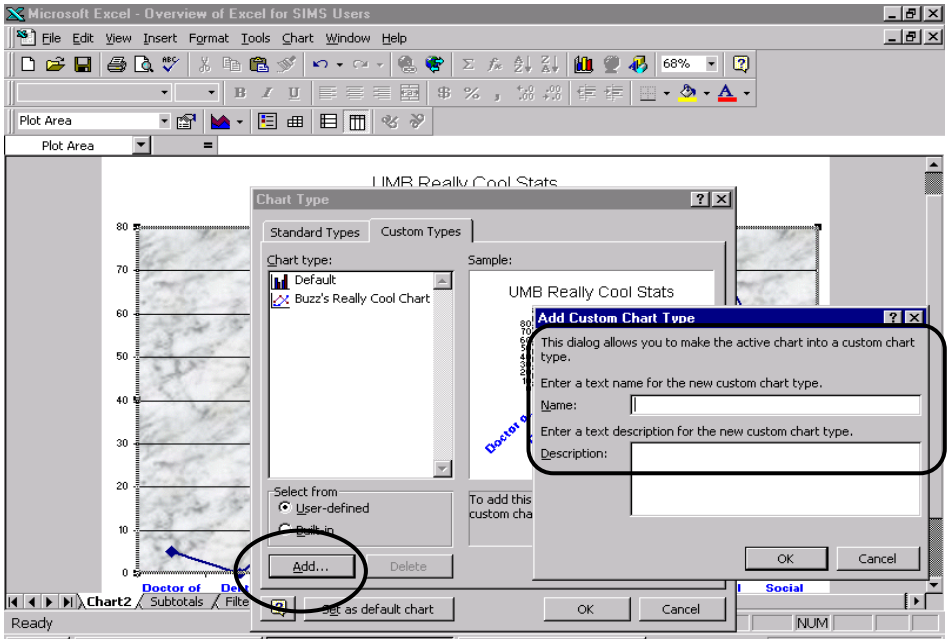


Creating a Chart Template

Once you've created and modified your chart, you may want to save the way it looks to apply to other charts for this document, or **any other** Excel (or Microsoft) document (Word, Access, PowerPoint). This is called a chart template and Excel has room for as many "user defined" chart templates as you want to create. To add a template design of your own, simply format your chart the way you like it and then select **Chart Type** from the **Chart Menu Bar**. This will open the Chart Type dialogue box as shown below.



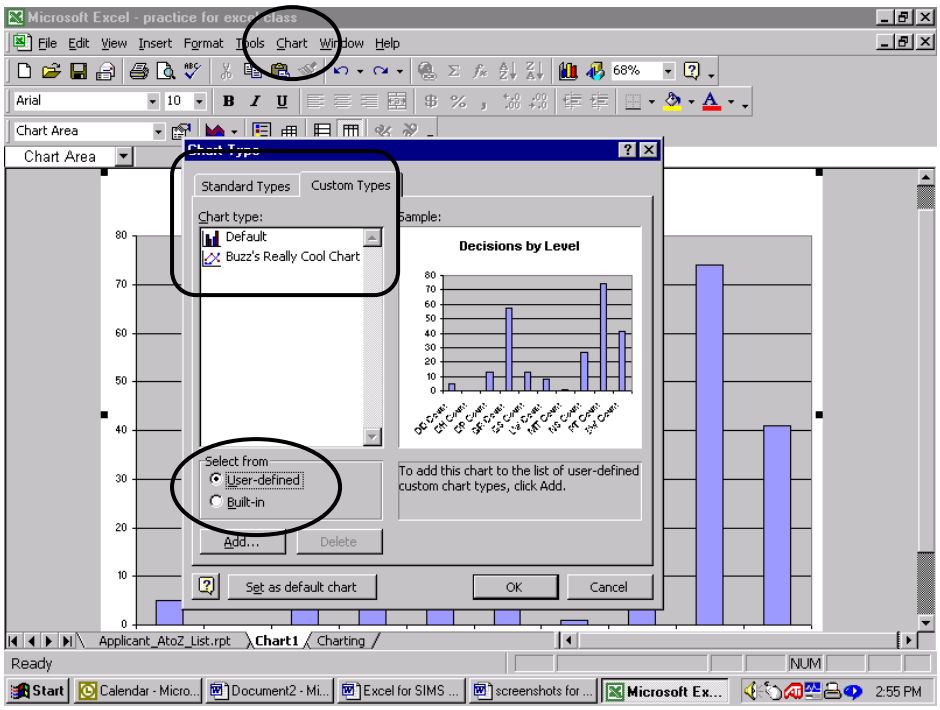
Next, click on Custom Types as shown above. Then select **Add** and Excel will allow you to name the template and include a description for future reference as shown below. Click **OK**.



Applying a Chart Template

Once you've added your chart template, it is available to be applied like any other type of chart Excel has - only you will be choosing the type from the Custom Type tab, User Defined area.

Once you've created a standard chart, simply click on **Chart** from the **Menu Bar** and select **Chart Type**. Click on the **Custom tab** and choose **User-defined** at the bottom left of the dialogue box. Excel will list your charts. Click on the chart type you desire and click **OK**.

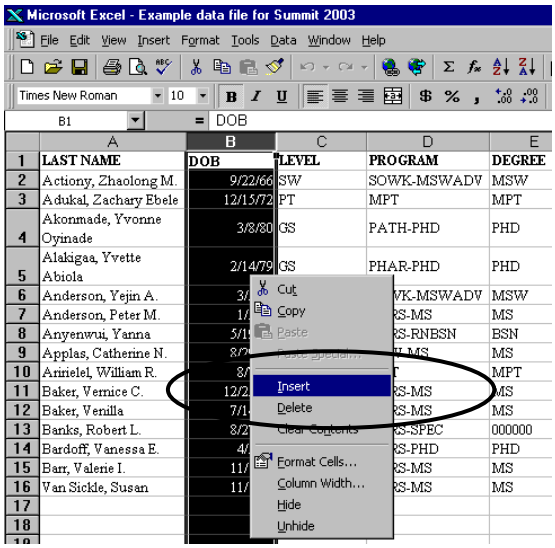


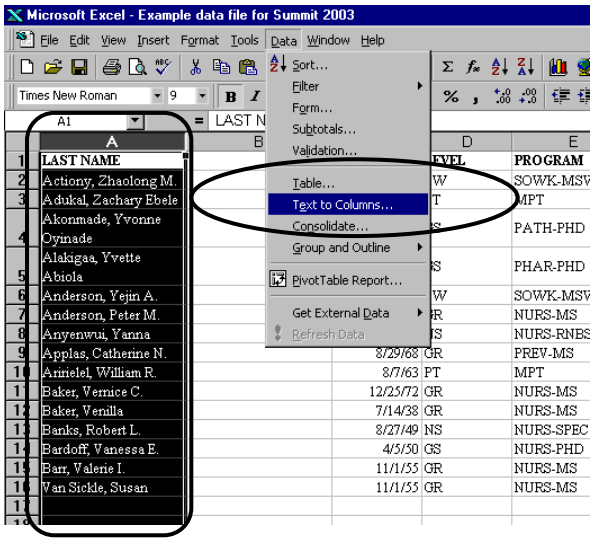
Splitting a Column into Multiple Columns

There may be times when you want to split the contents of one column into more than one. For instance, if a column contains students' last, first and middle names, you may want to split that into two cells so you can perform a sort on last name. In the past, this was a difficult and time-consuming procedure. Now it's as easy as selecting the column and answering a couple of questions posed by a Wizard. When finished, your data will be separated into multiple cells.

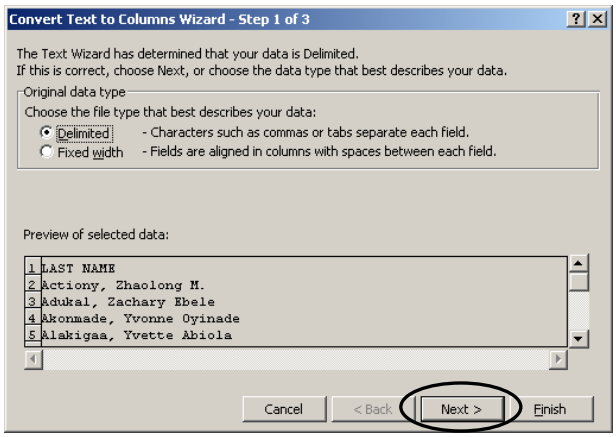
To use this tool:

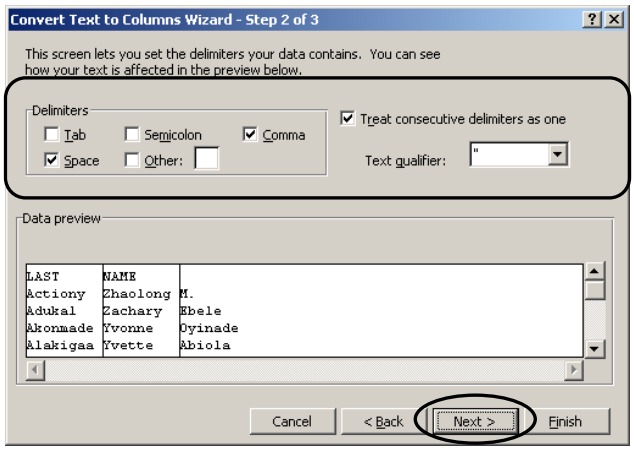
1. Insert the number of columns needed to display the separated information. Use **Insert**, **Columns** from the Menu Bar, ***OR*** select the column heading(s) (A, B, C, etc.) with your mouse, Right Click in the selected area (to open the Quick Menu) and choose **Insert**.
2. Click on the column Header (A, or B, etc.) that contains the information to be separated and select **Data, Columns to Text** from the Menu Bar to invoke the Wizard.





3. Choose **Delimited** in the first Wizard dialogue box, then click on **Next**.
4. Choose the delimiter (usually comma, tab, space, or any combination) and click **Next**.





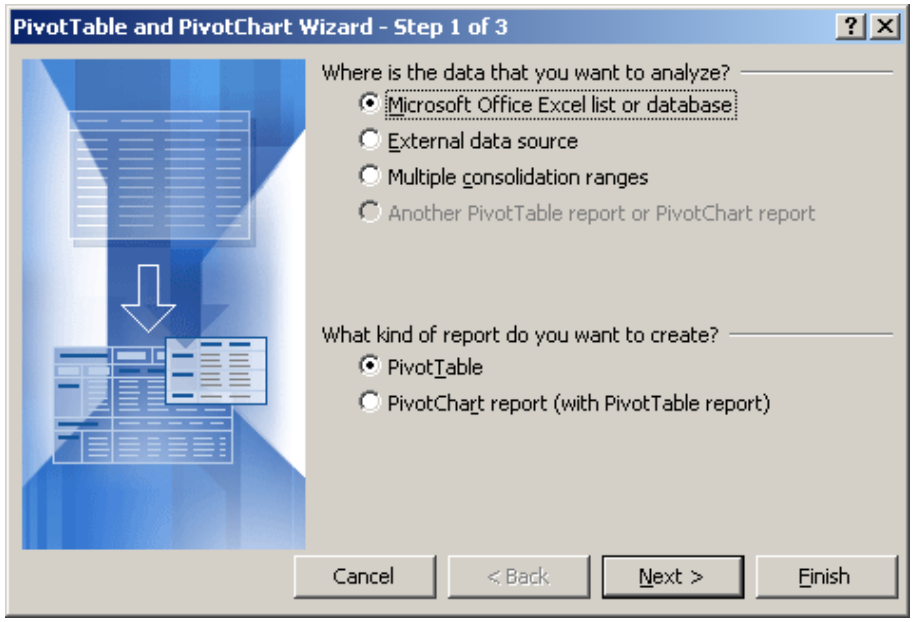
5. Choose the data type format if necessary (it usually isn't, especially for names).
6. Click on **Finish.** Your data will appear in the number of columns desired.

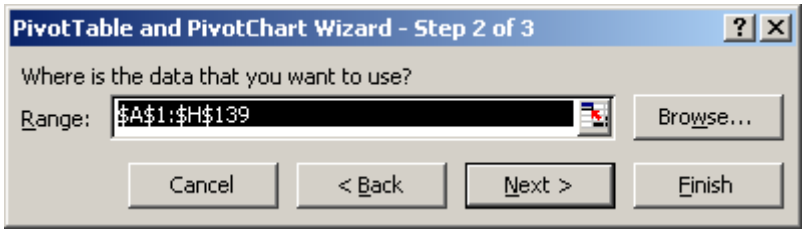
Pivot Tables

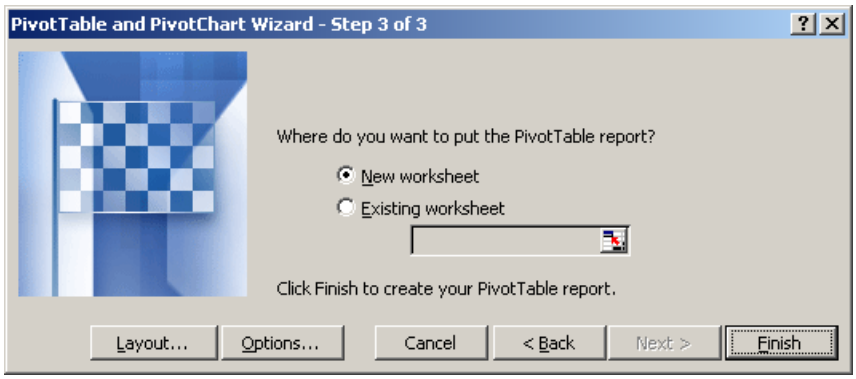
Pivot Tables in Excel are used to provide users with a “cross-tab” result – effectively summarizing data while allowing users to expand or collapse detail easily. Like charts, there is an “umbilical cord” between the data and the table, so any changes made to the data will affect the table – only NOT simultaneously! Users must refresh the data in the Pivot Table anytime there are changes. However, if you are using your data as a snapshot you will not be changing the data in Excel, but in the database the data was extracted from.

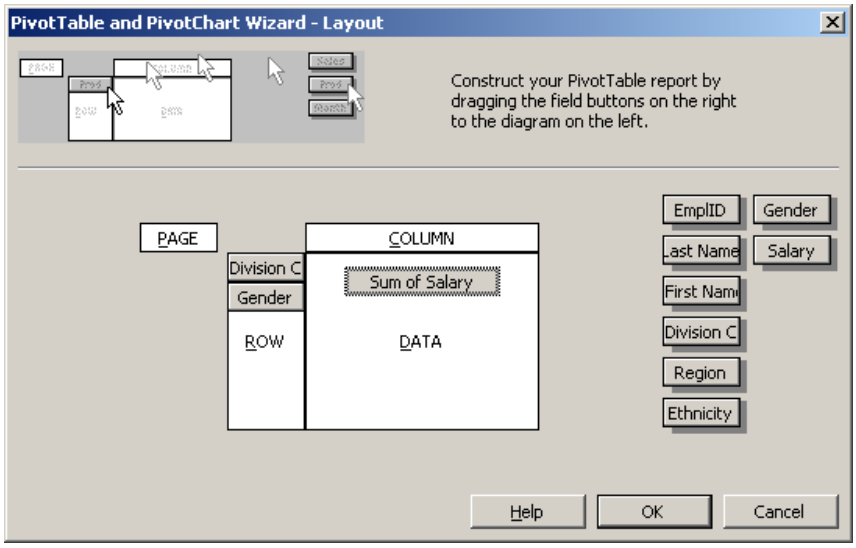
To create a Pivot Table:

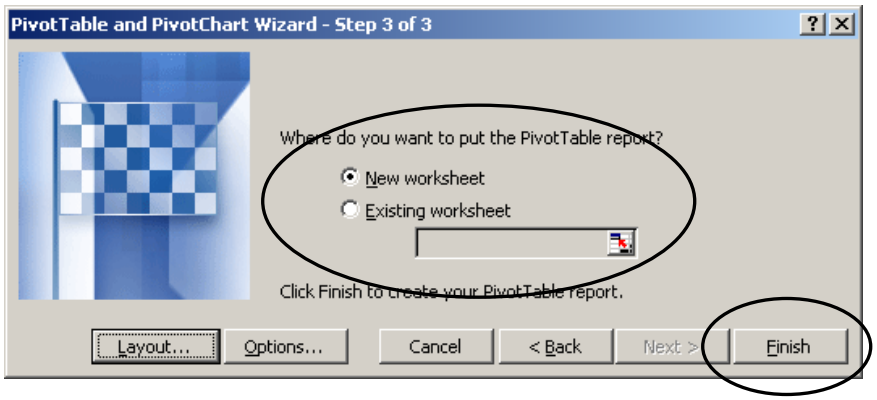
1. Make a **copy** of the datasheet (recommended, not required). **Name** it “Pivot Data”, so you’ll know this was the sheet used for the Pivot Table.
2. Click on **Data**, **Pivot Table Report** from the **Menu Bar** (this will open the Pivot Wizard).
3. **Indicate** that the data comes from Excel and click **Next** (Step 1).
4. **Verify** the range of data used for the table and click **Next** (Step 2).
5. Click on the **Layout** button (Step 3) to construct your Pivot Table by dragging and dropping fields to the appropriate area of the wizard diagram and click **Next**.
6. **Choose** whether to locate the Pivot Table in a **new worksheet** or as a **new workbook** (document) and click **Finish** (Step).



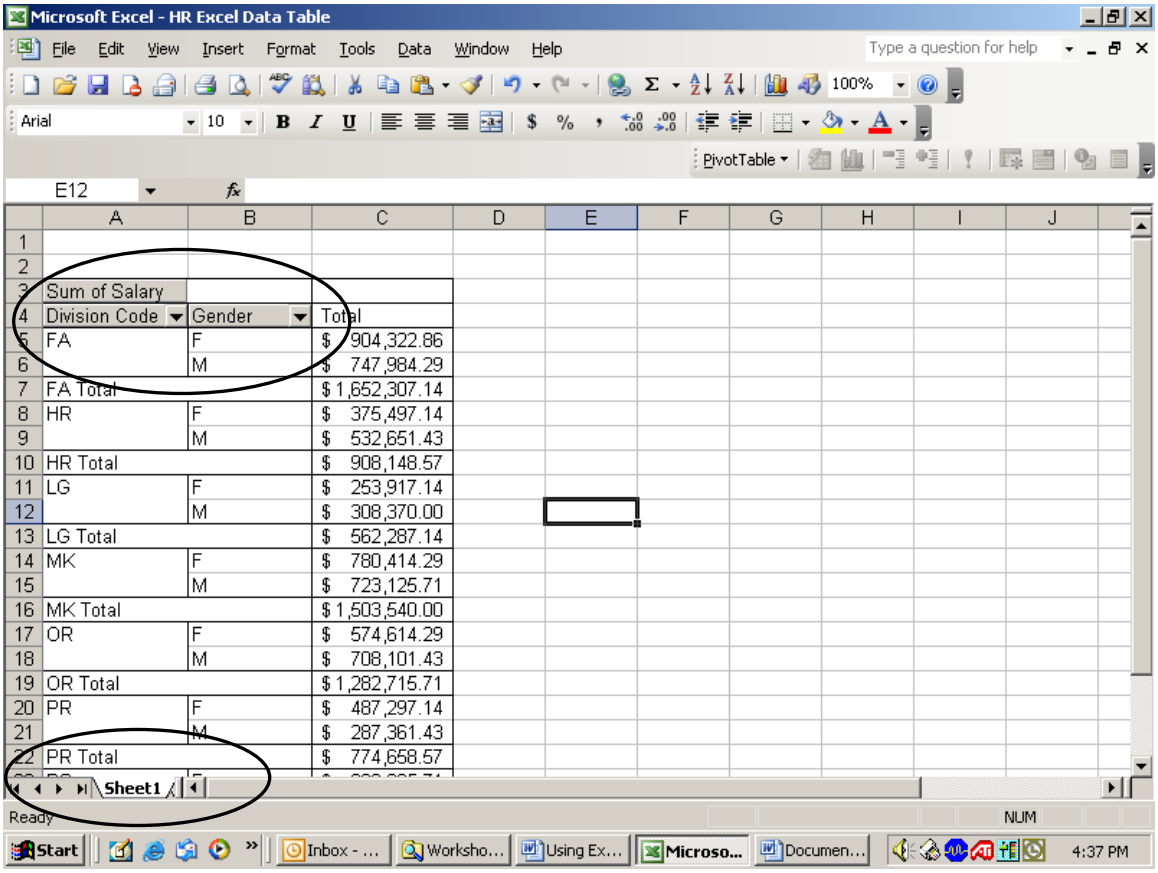



PivotTable and PivotChart Wizard - Step 3 of 3
Where do you want to put the PivotTable report?
New worksheet
Existing worksheet
Click Finish to create your PivotTable report.
Layout...
Options...
Cancel
< Back
Next >
Finish


PivotTable and PivotChart Wizard - Layout
Construct your PivotTable report by dragging the field buttons on the right to the diagram on the left.
PAGE
COLUMN
Division C
Gender
Sum of Salary
ROW
DATA
EmplID
Gender
Last Name
Salary
First Nam
Division C
Region
Ethnicity
Help
OK
Cancel


PivotTable and PivotChart Wizard - Step 3 of 3
Where do you want to put the PivotTable report?
New worksheet
Existing worksheet
Click Finish to create your PivotTable report.
Layout...
Options...
Cancel
< Back
Next >
Finish

The Result



Sum of Salary		
Division Code	Gender	Total
FA	F	$ 904,322.86
	M	$ 747,984.29
FA Total		$ 1,652,307.14
HR	F	$ 375,497.14
	M	$ 532,651.43
HR Total		$ 908,148.57
LG	F	$ 253,917.14
	M	$ 308,370.00
LG Total		$ 562,287.14
MK	F	$ 780,414.29
	M	$ 723,125.71
MK Total		$ 1,503,540.00
OR	F	$ 574,614.29
	M	$ 708,101.43
OR Total		$ 1,282,715.71
PR	F	$ 487,297.14
	M	$ 287,361.43
PR Total		$ 774,658.57

A new sheet tab is created with the pivot table in it. The data in the pivot table has an “umbilical cord” to the data sheet you started with. If you change the data in the original, you can “refresh” the pivot table, using the ! (exclamation mark) tool in the Pivot Table toolbar.

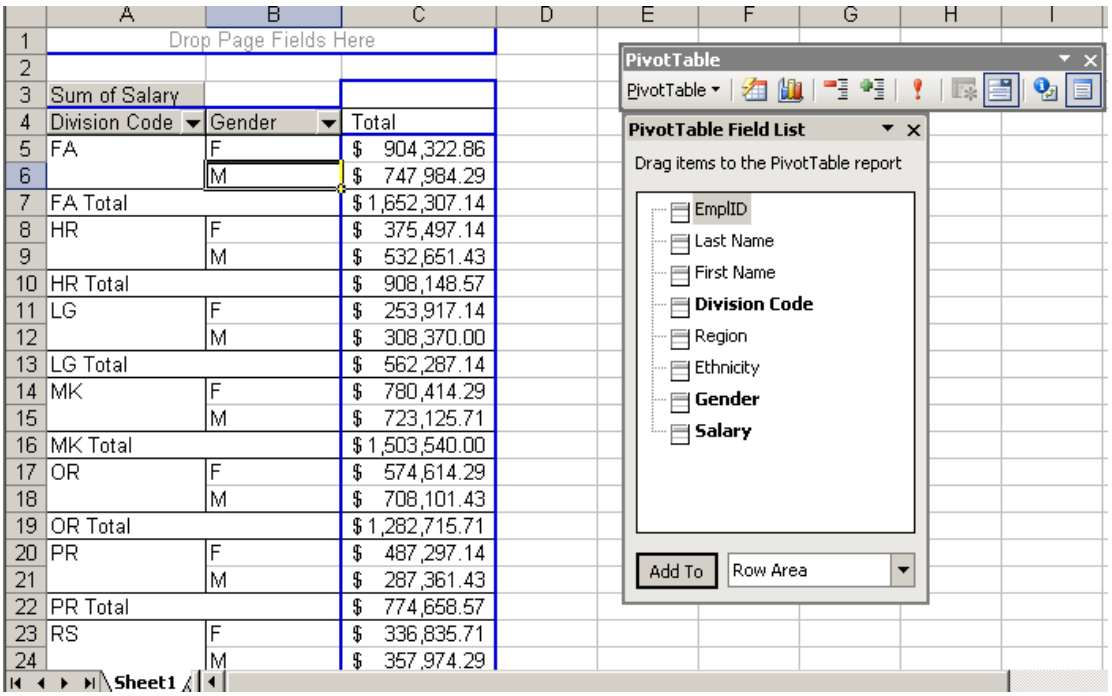
Drop down arrows in the pivot table allow you to view or hide groups of data. Sorting is from left to right (columns A-Z). You can also sot within columns (for instance salary), descending or ascending.

Edit Pivot Tables

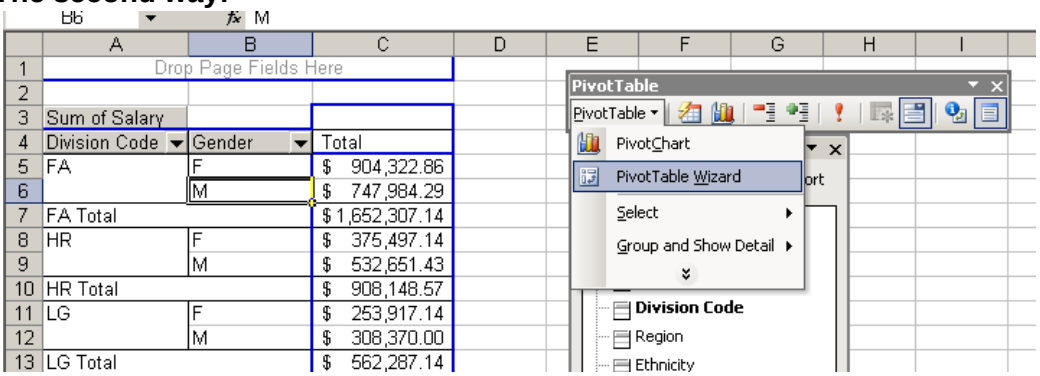
There are two ways to modify a Pivot Tables. The simplest way is to click in the table to activate the Pivot Table Toolbar and display a field list. Then, just drag fields from the toolbar to the table. Be careful, you must visually confirm where you are going to drop the fields - look for a fuzzy line with brackets as your guide.

The second way is to click somewhere in the Pivot table, then access the Layout feature from the Pivot Table Toolbar button.

The first way:



The second way:

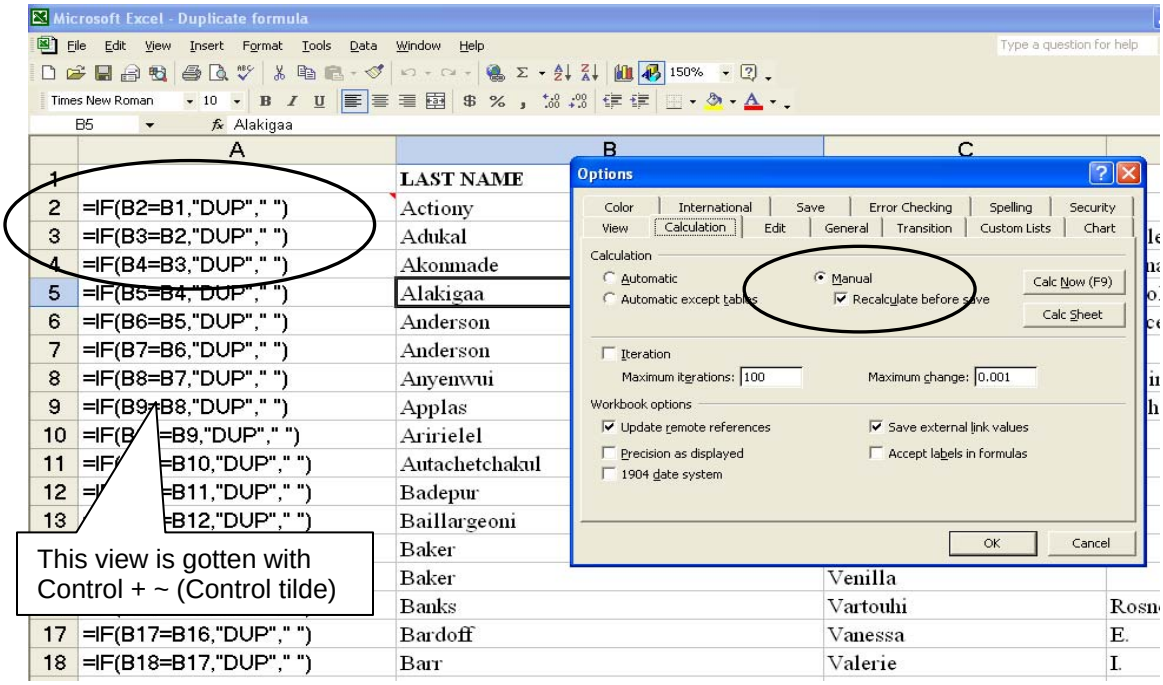


Using the Power of Excel: Identifying Duplicates

Finding duplicates in Excel a two step process: inserting a new column with a formula, and then (here's the key), turn Manual Calculation ON for the column that has the duplicates indicator on it, so that when you Sort on that column, the formula does not get recalculated automatically.

Here's what to do:

- **Sort the datasheet by the field that has possible duplicates** (EmplID, SSN, for example) and then **Insert a column** to the left of the field that has the possible duplicates
- In the 1st cell in the new column **type a heading** (Duplicates) adjacent to the duplicated field (SSN) field header. Then **type the following formula**: =IF(B2=B1,"DUP","") in the cell adjacent to the 1st possible duplicate, substituting your column name (A, B, C) in the formula. **Note**: the last part of the formula after the coma is quote quote ("").
- **Copy the formula** down to the appropriate cells – **Here's a *cool* Excel *Trick*:** place your mouse on the fill handle (the black square at the bottom right corner of the cell with the formula in it), and when you see the thin cross-hair, double click the mouse. Excel will "auto-copy" the formula all the way down until it finds a blank space in the column to the right of the formula column. This will save you from having to manually copying the formula!
- **Select the column** that you had inserted. (Click on the column header - A, B, C)
- **Select Tools, Options** from the **Menu Bar**
- **Select** the **Calculation Tab** (as shown below)
- Click to **enter a checkmark in the "Manual"** choice for the Calculation Tab of that dialogue box ***and*** uncheck the **Recalculate before save** option
- Click **OK**
- If desired, you can now scroll through your list to view all the dups before sorting
- Click on any cell in the column with the formula in it (Duplicates) and **Sort** by that field
- All the duplicates will be on the top – Delete if desired.



Note: Once you have completed this and deleted your duplicates, it's a good idea to go back to Tools, Options and *change* the calculation back to Automatic!

You can also use the auto filter after executing the formula to select and delete the duplicates!

Windows Tips and Tricks

- As a general rule: type it first, spell check it, save it and *then* make it look pretty!
- Windows *loves* selections: When you select something in Windows, you tell the computer to ignore everything *except* that which is selected. You select something and *then* do something **to** *that which is selected*. This works in Word, Excel, PowerPoint, Outlook. Excel's auto select feature enables filters, sorts, pivot tables, etc.!
- So, *select* the information and then apply the trick/technique (copy, format, etc.)
- In Word, use the formatting toolbar, the ruler and the show/hide toolbar button as a ***substitute*** for Reveal Codes (for those suffering from Reveal Codes Withdrawal).

Alternative Keyboard techniques

Control + C, X, or V	Copy, Cut, Paste a selection
F4	Repeat last action
Control + A	Select All (in a document)
Click + Shift/Click	To select a range (Excel, Word & Outlook)
Shift + Arrow keys	To increase or decrease a selected area (range)
Control + Click	To select *non-adjacent* cells in Excel & messages in Outlook In Word, this selects a sentence
Alt + Enter	Insert a line within a cell
Control + P	To open the print dialogue box
Control + F	To open the Find dialogue box – this works on the Internet
Control + S	Save a document (Quick Save)
Control + " (quote)	Copies the data from the cell above (Excel and Access)
Control + Arrow Keys	Move a drawing object (nudge)
Control + Delete	To delete the word in front of the cursor
Control + Backspace	To delete the word in back of the cursor
Control + F4	To close a document
Control + F6	Toggle between open documents
Control + Home	Go to the top of the document
Control + End	Go to the bottom of the document
F7	Starts Spellchecker
Shift + F7	Open the Thesaurus
Double click gray area of ruler in Word	Opens Page Setup Dialog box
Alt + Tab	Toggle between open applications
Tab or Shift + Tab	Move to the right or left between cells in Excel
Alt + Enter	To insert a row *within* a cell in Excel