



# Excel 4

Filters and Pivot Tables

Office XP Version

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CAL People and Computer Training  
University of California, Berkeley

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Use this  
space for notes



## Note

All of the features taught in this course operate using an Excel list format. The list format is not a special feature in Excel, it is the way that data entries are organized on screen. When working with data, a header row should be created along the top row with all of the data elements in the rows below. There should be no empty cells within the list. If data is the same, repeat the entry in the cell below.

## Introduction

**Excel 4** is a course created for CAL PACT participants to learn more about the features of Microsoft Excel. The course covers intermediate/advanced material and applies to the Windows computer platform. This document serves as a future reference for you as you continue to gain experience on your own. Some topics may not be covered in as much detail during class as they are in this document. Documentation is available for previous versions of Excel on the CAL PACT website: <http://calpact.berkeley.edu>

### Skills you need for this course

- How to use the mouse
- Familiarity with the Windows computing environment
- Mastery of the material from the previous CAL PACT Excel sessions

### Skills and concepts you will learn in this course

- Creating spreadsheet filters
- Summarizing data
- Creating and working with Pivot Tables

### Conventions used in this document

Menus and menu commands are separated by a vertical bar ( | ). In the document they will appear as **Menu|Command**. An example of this is: “Select **File|New....**”

## Filtering

Filtering is a useful feature to quickly display a subset of data from a list. Remember, a “list” in Excel is considered a series of rows that contain related data, such as an invoice database or a set of client names and phone numbers. The first row of the list must have labels for the columns. By setting criteria for filtering, Excel automatically hides rows that do not match the criteria. The example below demonstrates the filtering capability created by using the AutoFilter. The criteria “07427” was selected for the “Fund” column. Rows that do not match the criteria are automatically hidden. Excel allows for two methods of filtering — the **AutoFilter** and the **Advanced Filter**. You can only apply filters to one list on a worksheet at a time.

	A	B
1	ACCOUNT	FUND
2	400300	19900
3	400300	35344
4	400302	19900
5	400304	19900
6	400310	19900
7	400310	34922

	A	B
1	ACCOUNT	FUND
2	400300	(All)
3	400300	(Top 10...)
4	400302	(Custom...)
5	400304	00208
6	400310	05397
7	400310	07427
		07431
		09498

	A	B
1	ACCOUNT	FUND
23	400600	07427
190	402810	07427
195	402840	07427
234	403804	07427
236	403806	07427
249	403817	07427

### Reminder



Note that setting a filter only filters the data *below* that row.

### AutoFiltering

The AutoFilter is the easiest method to use in setting up a filter. When an AutoFilter is created, a drop-down list becomes available on the right side of the cells in the row considered labels for the list, as shown in the screenshots above. By clicking on the arrow, the drop-down list displays every unique entry in the column along with a few special options. Selecting one of the items in the drop-down list causes Excel to hide all of the rows that do not match that criteria. Multiple filters can be performed by selecting criteria from different drop-down lists. Excel will continue to filter the data *in the order that the criteria are selected*. Note that unlike sorting, filtering does not rearrange a list. Filtering temporarily hides rows you do not want displayed. When a filter is applied, the arrow appears in blue. The row headers also appear in blue.

### Note



Even though the filter may not be applied to every column in a row, any filtering affects the entire row.

### To create an AutoFilter

1. Select any cell within a list to have Excel automatically create the filter controls in the row it thinks is best. Using the proper list format, Excel will use the header row. Select multiple adjacent cells to have Excel create the filter lists in those columns only. Select a cell and the cell below it to create the filter lists only for that one column.
2. Select **Data|Filter|AutoFilter**.

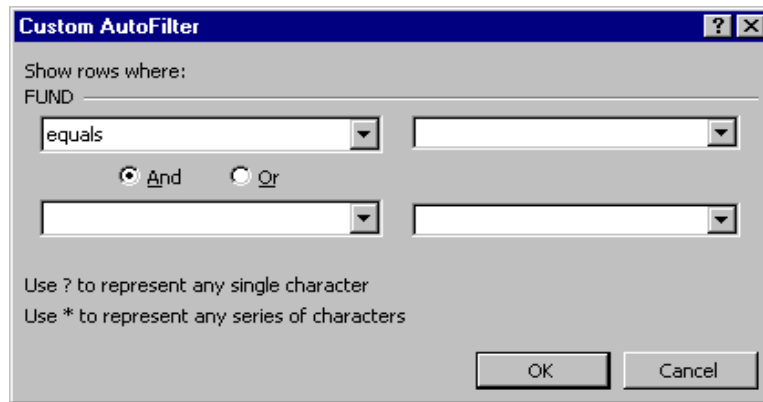
### To remove an AutoFilter

Select **Data|Filter|AutoFilter**. The AutoFilter command is a toggle switch. Select the command to turn it off and on.

## Working with the Criteria

Filtering data is as easy as selecting criteria from the drop-down list. When a criterion is selected, the resulting subset of data can be further filtered by selecting criteria from a different drop-down list. Note that a drop-down list displays only the unique data entries from the rows that are visible. To reverse a filtered list, choose the criterion **(All)** from the list.

It's easy to filter for other things, such as empty cells by selecting **(blank)** in the filter list or searching for the top 10 by selecting **(top 10)**. In special cases, a custom criterion is needed to display rows that match multiple values or a range of values. The normal method of selecting criteria only allows for filtering by one unique item in each column. To set custom criteria, choose **(Custom...)** from the drop-down list. The **Custom AutoFilter** dialog window appears:



### Note



Wildcard characters ( ? and \* ) will **only** work for text. Even if numbers are formatted as text, wildcards will *not* work.

In the first drop down menu, select the type of comparison for the first criterion and type or select the value in the field on the right. This sets the first criterion. To set a second criterion, select the comparison and type or select the value for the second row field. Wildcard characters ( ? and \* ) can be set for the value fields on the right to specify any character or phrase. Use “?” to specify any single character and “\*” to specify any series of characters. To search for the actual ? or \* characters, enter a tilde first, like this: ~? or ~\*

Between the two rows are radio buttons for **And** and **Or**. Choose one or the other depending on how you want Excel to filter the data:

If the filter must match **both** criteria, select **And**.

If the filter must match **either** criteria, select **Or**.

## Advanced Filter...

The Advanced Filter option is a tool used to filter lists using complex criteria. Using the AutoFilter, it is only possible to filter one column by (at most) two different criteria through the **(Custom...)** item. In the Advanced Filter, you can set more robust filtering criteria, although a little more work is required. There are no drop-down lists from which to choose the criteria. Instead, a criteria range must be typed in a sheet. For example, in the picture below, a filter has been applied to the data. The criteria range lies in the cell range A1:D3 while the filtered data lies in the cell range A5:C24. The criteria range is typed on the same sheet in this example.

	A	B	C	D
1	<b>ACCOUNT</b>	<b>FUND</b>	<b>AMOUNT</b>	<b>AMOUNT</b>
2	400392		> 10	<=40
3		35344		
4				
5	<b>ACCOUNT</b>	<b>FUND</b>	<b>AMOUNT</b>	
7	400300	35344	3.2	
20	400392	34125	19.1	
22	400392	35832	10.5	
23	400392	36633	36.5	
24	400392	60700	19.4	

### Tip



To avoid mistakes, copy and paste the labels from the header row.

## The Criteria Range

The criteria range is most commonly typed in the same sheet as the filtered list, but it can be located on any sheet or workbook. To begin the criteria, insert several empty rows at the top of your data, making sure to leave one empty row between your criteria and the list. Enter the criteria labels to filter on. In the example above, the labels are Account, Fund, and Amount. The format of the cells is not important, but the text is. Underneath the labels, the criteria are entered.

Criteria entered in the same row finds records that meet *all* the criteria in that row. This is similar to the **And** option for the **(Custom...)** AutoFilter.

Criteria that fall in different rows finds records that meet the criteria of any row. This is similar to the “or” option for the **(Custom...)** AutoFilter.

When a column label is repeated, the returned records must meet more than one criterion for the repeated column label. This is used to match ranges of values.

In the image pictured above, we have filtered for records where Account=400392 **AND** amount is >10 **AND** <=40 **OR** records where Fund=35344. Remember, when criteria are placed in different rows it's like and “or” and when they are placed on the same row, it's like an “and.”

## Comparison Criteria

### Text Criteria

Entering a text criteria will only return records that begin with that criteria exactly. You must use wildcards to filter strings of text. To specify exact text, enter:

=*"text"*

where *text* is the text value.

### Wildcards (? \*)

Wildcards are supported in the advanced filter. Use the ? to specify any single character and the \* to specify any phrase. To specify an actual ? or \* character, precede the character(s) by a tilde, like this: ~? or ~\*

### Quantity Comparisons (=, >, <, <=, >=, <>)

To specify quantity comparisons, use the operators below. Begin the criteria with the operator followed by the value. For example, >1000 specifies all rows where the values are greater than 1000.

=	Equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to
<>	Not equal to

### Tip



Cut, copy, paste, sorting, charting, and printing can be applied to a filtered list. Only the visible data will be affected or used.

## Setting the Advanced Filter

After you have entered your criteria, begin the advanced filter by selecting **Data|Filter|Advanced Filter**. In the fields for list range and criteria range enter the cell range or click once in the field and select the range on the sheet. Excel automatically enters the cell range. The checkbox for **Unique records only** will cause Excel to hide duplicate records.

## Using the Copy To Function

When the Advanced Filter is selected, the option **Copy to another location** is available. Selecting this option will cause Excel to copy and paste the rows that match the criteria range. The list is not filtered in this case. The returned data is merely copied. To use this option select the radio button. In the **Copy to** field select one cell or a range of cells.

If only one cell is selected, Excel copies all of the returned data.

If an empty cell range is selected, Excel copies all of the returned data into the cell range. If the returned data is larger than the cell range, Excel asks whether or not to continue pasting the data.

If the cell range contains the criteria labels, Excel copies only those columns of the returned data. Using the previous example, entering the column label "Account" in the copy to field copies only the account data and ignores the other fields. This is a useful function to isolate a particular column from an Advanced Filter.

### Note



The "Copy to another location" option will only copy to the active worksheet.

## Removing an Advanced Filter

To remove an Advanced Filter select **Data|Filter|Show All**.

## Summarizing Data

Automatically summarizing data is a useful feature in Excel. With this feature, Excel automatically calculates subtotals and grand totals, then outlines the list so that you can display or hide the rows in the list for each subtotal. The example below displays the subtotal command. Notice that the subtotals were created for the item "Account." Each time the account changes, a new subtotal row is created for the "Amount" column.

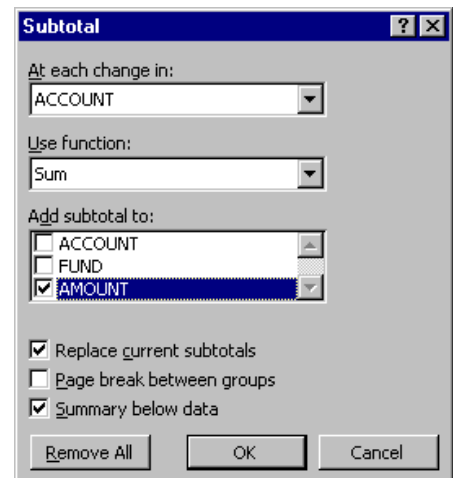
5	ACCOUNT	FUND	AMOUNT
6	400300	19900	18.9
7	400300	35344	3.2
8	400302	19900	13.4
9	400304	19900	0.8

5	ACCOUNT	FUND	AMOUNT
6	400300	19900	18.9
7	400300	35344	3.2
8	<b>400300 Total</b>		<b>22.0</b>
9	400302	19900	13.4
10	<b>400302 Total</b>		<b>13.4</b>
11	400304	19900	0.8
12	<b>400304 Total</b>		<b>0.8</b>

## Using the Subtotals Command

In order to use the Subtotals command, the sheet must be properly formatted. Sort the rows in the order that the items you are subtotalling are grouped together. The data must have column labels or the **Subtotals** command will not function properly. In the example above notice that the account numbers were sorted together. After the sheet has been organized, use the following steps:

1. Select a cell within the list where the subtotals command will be applied. An alternate method is to select the entire cell range including the data labels. Remember, Excel will automatically determine the cell range if the data list is properly organized. Skipping one line between separate data lists is an easy way to help Excel correctly determine the range.
2. Select **Data|Subtotals...** and the **Subtotal** dialog window appears.
3. In the first field labeled **At each change in:** select the desired item to create subtotals for. Remember that the list should be properly sorted for this item.
4. In the field titled **Use function:** select the proper function to use. Even though this is a "subtotal" feature, the **Sum** function is not the only choice. Excel provides a variety of functions. When the row labels are inserted in the sheet, Excel displays the function name as a reminder. Some of the common functions include Sum, Average, Count, Max, and Min, among others.



5. In the field titled **Add subtotals to:** click on the box to toggle on the check sign for each column that Excel should calculate.
6. The check boxes at the bottom set some minor options for the command. Checking off the box titled **Replace Current Subtotals** allows Excel to apply multiple subtotals to the same data list when multiple functions are used. To use this feature, use the **Subtotal** command with the first function then apply the subtotal command again. Checking off the box titled **Page break between groups** causes Excel to insert a page break after each grouping. Checking off the box titled **Summary below data** causes Excel to place the subtotal and grand total row below each grouping. Although this may be easy, it is often better to see the grand total on a large list when it is at the top. Scrolling to the bottom of the list may be inconvenient.

### Subtotaling a Filtered List

A filtered list can be subtotaled using the same steps outlined above. However, there is one important difference when the **Subtotals** command is applied to the filtered list. Applying the **Subtotals** command will only incorporate the data that is visible on the screen.

### Removing Subtotals

To remove subtotals use one of the following three methods:

1. Use the **Undo** command to remove a subtotal that was just inserted.
2. Create another Subtotal to replace the existing subtotals in a list. Remember to check off the option titled **Replace subtotals**.
3. Select **Data|Subtotals...** and click on the **Remove All** button to remove all subtotals in a list.

### Reminder

Using a filtered list to calculate subtotals is not the same as hiding a row using the **Format|Row|Hide** command. Excel still uses the hidden data when creating the subtotals.

### Advanced Summarizing

Advanced summarizing is used to calculate totals based on data which meet certain criteria. These totals are created using Excel formulas so they are not bound to display in any specified location. The formulas can be entered in any worksheet location.

### Summing Values for a Single Criteria

To sum values which match a single criteria, enter the following function in the cell where the result will appear:

`=SUMIF(range,criteria,sum_range)`


*range* is the cell range to evaluate against the criteria

*criteria* is the criteria to use for evaluation (enclose in "quotes")

*sum\_range* is the cell range to use for summing

## Shortcut



You can use the Insert Function  to enter the SUMIF values.

Look at the example in the screenshot below to get a better understanding of the proper use. In the example, the data is shown in columns A and B. In cell C2, the function “=SUMIF(A2:A7,”<400310”,B2:B7)” is entered. The function is set with the following values:

A2:A7 is the *range*

“<400310” is the *criteria*

B2:B7 is the *sum\_range*

1	ACCOUNT	AMOUNT	Adv. Total
2	400300	18.9	=SUMIF(A2:A7,"<400310",B2:B7)
3	400300	3.2	
4	400302	13.4	
5	400304	0.8	
6	400310	38.7	
7	400310	21.1	

Excel looks at the cells from A2:A7 to find the rows that have an “ACCOUNT” equal to 400310. If the row meets the criteria, the associated cells in the range B2:B7 (the “AMOUNT” column) will be summed.

## Counting Values for a Single Criteria

If, instead of summing, you want to count the number of cells that meet a criteria, enter the following function in the cell where the results will appear:

=COUNTIF(*range,criteria*)

*range* is the cell range to evaluate against the criteria

*criteria* is the criteria to use for evaluation

There are many, many functions that can make your life easier as you try to manipulate, manage, and understand the data you have stored in Excel. Take a look through the Function wizard and try out some new ones!

## PivotTables

PivotTables are interactive worksheet tables that quickly summarize and compare large amounts of data using chosen formats and calculation methods. They serve as quick methods to display and analyze the summary data. The rows and column headers in the table can be rotated around the data to provide different views of the source data. As source data changes, the pivot table updates to reflect the new data. PivotTables are helpful to analyze related totals, especially when you have lots of data and several different parts of your data are to be analyzed.

The power of the pivot table arises from its versatility. Subtotals and grand totals are automatically added to the table, the level and type of detail can be quickly and easily changed, and report data and charts can be created directly from the pivot table.

## Setting Up a Worksheet for Pivot Tables

In order for Excel to create a pivot table, the worksheet must be properly formatted in a list format. This list format consists of data organized in columns with column labels at the top of the list. Excel will not create pivot tables unless the sheet is organized in this format.

	A	B	C	D	E	F
1	<b>From Schedules 1-B</b>					
2	<b>Dollars in Millions</b>					
3	<b>Expenditures by Fund Type</b>					
4						
5						
6	<b>Category</b>	<b>Fund</b>	<b>1988-89</b>	<b>1989-90</b>	<b>1990-91</b>	<b>1991-92</b>
7	Instruction	General	188.7	199.2	214.9	195.7
8	Instruction	Designat	18.9	21.5	19.4	28.7
9	Instruction	Restrict	15.4	16.5	13.6	15.7
10	Research	General	35.4	36.5	38.6	38.1
11	Research	Designat	3.2	5.2	3.9	3.9
12	Research	Restrict	119.4	132.6	146.1	157.0
13	Public Service	General	2.6	2.9	3.6	2.3
14	Public Service	Designat	13.4	13.3	12.5	14.2

## The Pivot Table Wizard

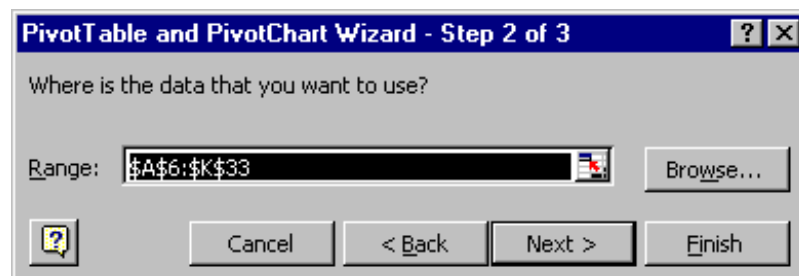
The easiest way to create a pivot table is with the Pivot Table Wizard. Begin by selecting the cell range or an individual cell within the list of data.

### Step 1

Select **Data|PivotTable and PivotChart Report....** This screen specifies the data source to analyze. Pick the data source and click **Next >** to continue to Step 2 of the Pivot Table Wizard.

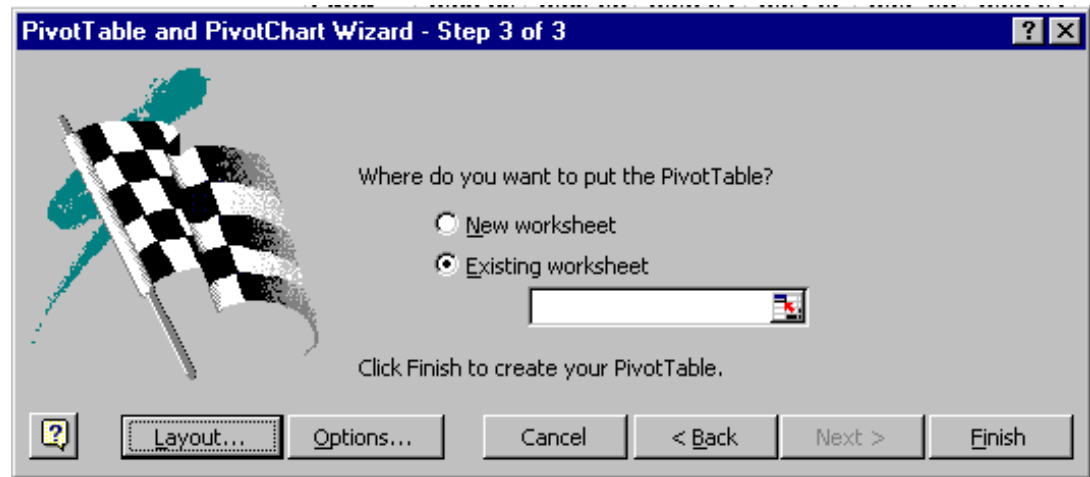
### Step 2

This step is used to specify the location of the data. The dialog window that appears is dependent on the data type chosen in Step 1. In the fields that appear, enter the proper cell references or select the cell references on the sheet in the **Range:** field. If a cell range was selected before the wizard was started, Excel may already have the correct cell range entered. If not, you can click on the red arrow and go directly to your worksheet to select data.

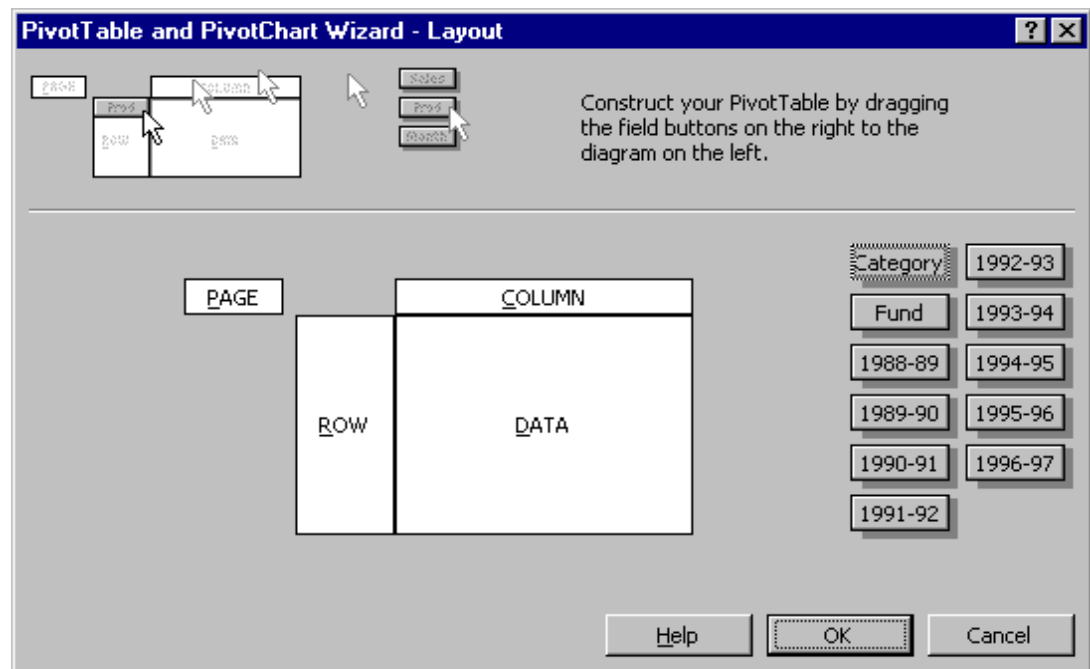


### Step 3

After specifying the type and location of the data, you must choose where you would like to put the Pivot Table.

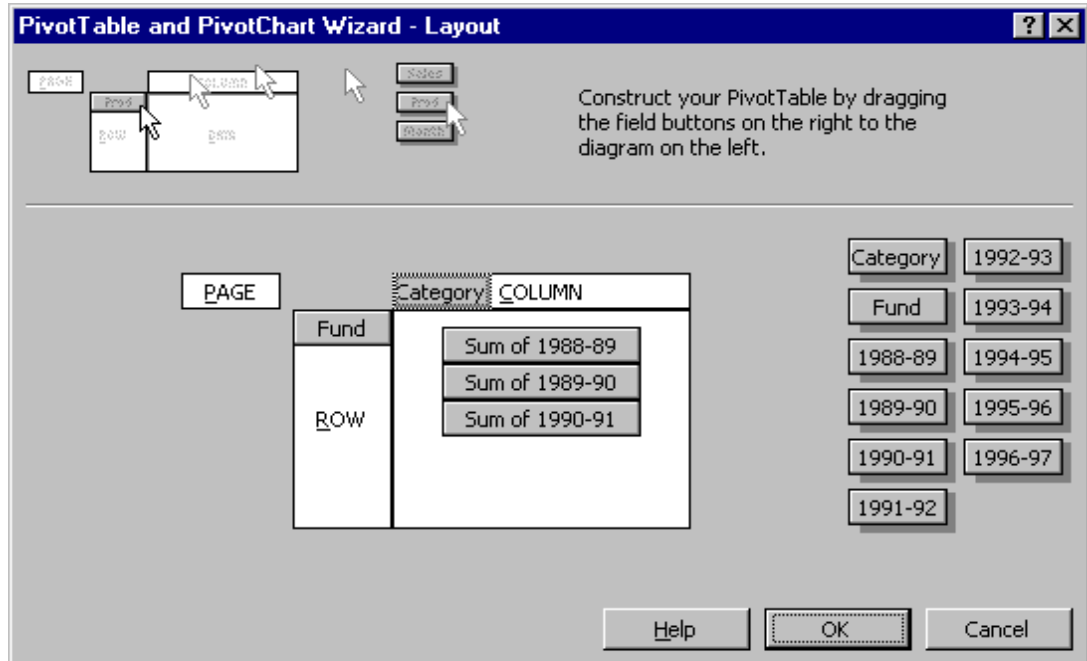


Excel processes the column labels in the data lists and prepares to construct the pivot table. Click on **Layout...** and a screen similar to the following will appear.

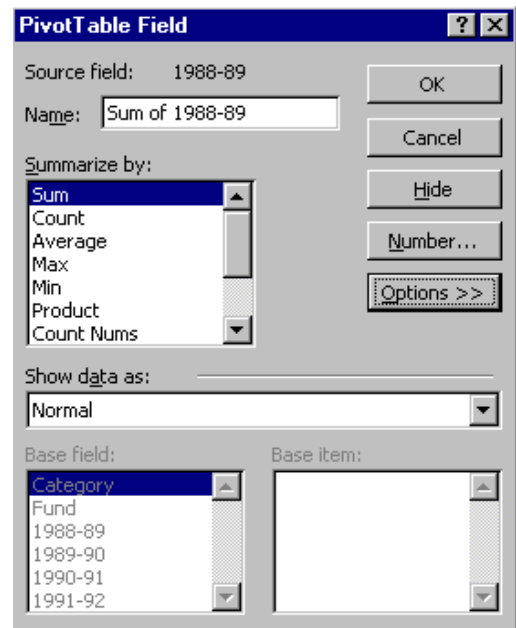


Along the right side of the window are the column labels identified in the data source. Depending on the data, the labels will differ. The center of the window contains the set up area for the pivot table. This area is divided into four regions: **page**, **column**, **row**, and **data**. Click and drag a label to the desired region to specify the details shown in the pivot table. More details can be shown by dragging

multiple labels to an area. If there is a large amount of data, labels dragged onto the page area will allow only certain data to be viewed in the table, similar to filtering lists. To remove a field from the pivot table area, click and drag the label outside of the pivot table area. Shown below is an example.



This setup specifies the **Fund** in the *row* area, the **Category** in the *column* area, and the **fiscal years** in the *data* area. The items in the data area of the pivot table are summarized using one of Excel's functions. By default, the sum function is chosen. To change the function used, double click the label in the data area and the window to the right will appear. In the screenshot, the **Options >>** button has also been selected. In addition to the summarizing function, this window also controls the display for the label. The **Normal** option is the default. Make the desired changes from the available list.



Click **Finish** to create the table.

**Note**



Any part of the set up used in this step can be easily changed after the table is created.

## Changing Pivot Table Layouts

When a pivot table is created, the row and column labels specify how the data is displayed. The easiest way to alter the data display is through clicking and dragging the labels. This is used to adjust the field order and location. Each time a change is performed, Excel will automatically reorganize or recalculate the data.

### Changing Field Order Within a Column or Row

Click and drag the label into the desired heading area. As the mouse is moved, notice that the mouse pointer changes. As the pointer is dragged to different areas, a grey bar displays on the sheet to indicate the location that the pointer has moved to. In the example below, the column items are being reorganized by moving the “Fund” label after the “Data” label.

3		
4	Fund	Data
5	Designated	Sum of 1988-89
6		Sum of 1989-90
7		Sum of 1990-91
8	General	Sum of 1988-89

### Moving Fields Between Rows and Columns

Change the fields using the same principle as changing the order within a column/row. Click and drag the label to change from the row to the column or from the column to the row. In the example below, the “Fund” is being changed to a row label.

3		Category	
4	Data	Fund	Academic Support
5	Sum of 1988-89	Designated	0.833177
6		General	53.604423
7		Restricted	8.407802

### Moving Fields Between Page and Columns/Rows

Moving the first column label is the easiest way to change a field to a page label. Although it is possible to directly move the other column labels and any row labels, the easiest method is to change a field to column orientation before moving to a page label. To create a page label, click and drag the column label upward. In the example below, the “Fund” is being moved to a page label. Notice that a different mouse cursor appears.

Click and drag the page label to change it back to a row or column label.

	A	B	
1			
2			
3		Fund	Category
4		Designated	
5	Data	Academic Support	Auxiliary Er
6	Sum of 1988-89		0.833177
7	Sum of 1989-90		6.46
8	Sum of 1990-91		5.812

### Changing the Item Order

The item order can be altered to change how the items appear next to each other. Begin by single clicking the item to move. Notice that the entire column of data is selected. Move the mouse pointer to the border of the selected area. The mouse pointer will change from the white plus sign to an arrow. Click and drag the field to the desired location. In the example below, the “Sum of 1988-89” is being moved so that it appears after the “Sum of 1989-90.”

	A	B	C	D
1				
2				
3		Fund	Data	
4		Designated		
5	Category	Sum of 1988-89	Sum of 1989-90	Sum of 19
6	Academic Support	0.833177	6.46	
7	Auxiliary Enterprises	32.438306	36.526	
8	Institutional Support	21.092945	19.103	
9	Instruction	18.875659	21.49	
10	Operation and Maintenance of Plant	3.8835	5.816	C5:C15
11	Public Service	13.430901	13.267	
12	Research	3.157395	5.234	
13	Student Financial Aid	9.071576	10.531	
14	Student Services	38.691586	41.526	

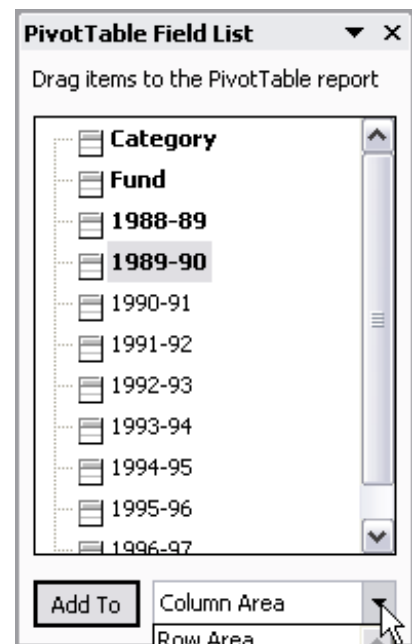
### Adding and Removing Fields

Adding and removing fields is easily accomplished by a variety of different methods. These include using the menu bar and the PivotTable tool bar.

The first method to add or remove fields is through the PivotTable Wizard. Select any area within the pivot table, go to the PivotTable toolbar and select

**PivotTable|Wizard**. You can also select **Data|PivotTable and PivotChart Report...**, or right click on one of the labels and select **Wizard....** This will open a window to **Step 3** of the wizard. Choose the desired format and click **Finish** to recreate the pivot table in the same location.

Using the PivotTable Field List, shown to the right, will allow you to add fields easily. You can click and drag the field from the list in to the table, or, you can select the field and then click on the **Add to** button to add the field to the selected area: Column, Row, Page or Data.



## Changing GrandTotals and SubTotals

Excel calculates grand totals and subtotals by default. Grand totals provide total values for the rows, columns, and table. Subtotals are provided whenever there are multiple column fields or row fields. When the totals are calculated, the source data for the pivot table is used. Grand totals use the same summary function that is chosen for the data area of the pivot table. Subtotals are defaulted to use the SUM function, but a different function can be chosen.

## Hiding and Showing the Grand Total

To hide or show the grand totals, use the option screen for the pivot table. When using the Pivot Table wizard, click on the **Options >>** button in Step 3. If the pivot table has already been created, right click anywhere inside the pivot table and select **Table Options** from the context menu. From the window that appears, use the checkboxes to show or hide the grand totals for the rows and columns. If the check box is clear, the grand total will not display.

**PivotTable Options**

Name:

**Format options**

- Grand totals for columns
- Grand totals for rows
- AutoFormat table
- Subtotal hidden page items
- Merge labels
- Preserve formatting
- Repeat item labels on each printed page
- Mark Totals with \*

Page layout:

Fields per column:

For error values, show:

For empty cells, show:

Set print titles

**Data options**


**Data source options:**

- Save data with table layout
- Enable drilldown
- Refresh on open
- Refresh every  minutes

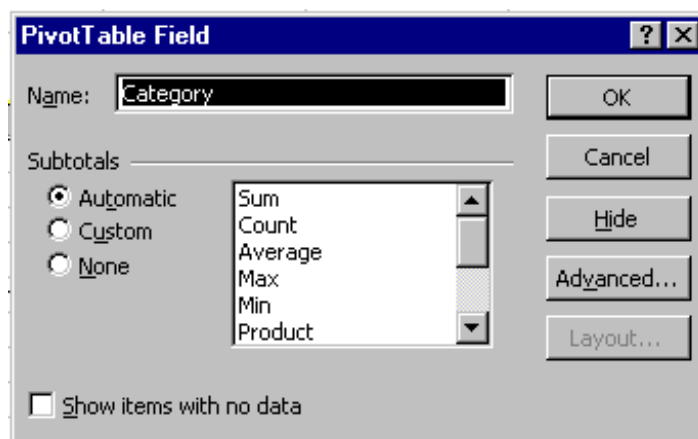
**External data options:**

- Save password
- Background query
- Optimize memory

## Hiding, Showing, and Changing the Subtotals

To change the options for the subtotals, double click the desired label field and a window similar to the following will appear. You can also open the **Pivot Table Field** window by right clicking on the cell and choosing **Field Settings...** or by selecting the toolbar button . Remember that Excel defaults to calculating subtotals for each field label. If there are multiple fields, each field must be individually changed.

In the **Subtotals** region, the function list displays all of the available functions. Select a function in the list to change how the subtotals are calculated. Select the radio button **None** to hide the subtotals for the field.



## Hiding and Showing Field Items

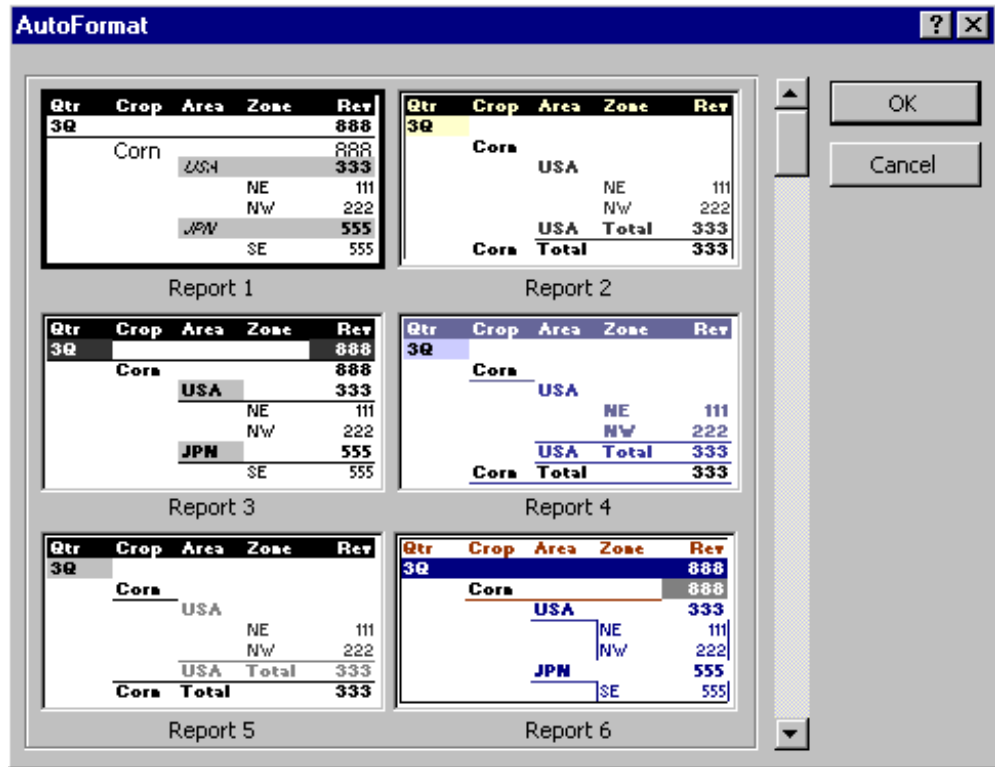
To hide and show field items, double click the desired field label to open the window shown above in the previous section. In the **Hide Items:** box, click on each field to hide. When an item is hidden, the item name will be highlighted. Select the field again to show the field.

## Renaming a Field Label or Item

To rename a field label, double click the field label to open the Pivot Table Field window shown below by double-clickin on the field name. Type in the desired name in the **Name:** box. To rename an Item, select the item and type the new name. Any changes only affect the pivot table display; the source data is not changed.

## Formatting a Pivot Table

Data in a PivotTable is treated with a special format because it is constantly recalculated and reformatted each time the layout changes. Because of this the pivot table should **not** be manually formatted. Each time the layout changes, the formatting may disappear. The best way to format the pivot table is to use an AutoFormat. Select any cell within the pivot table and select **Format|AutoFormat**. From the AutoFormat dialog window that appears, select the desired format. The dialog box on the next page shows this feature.

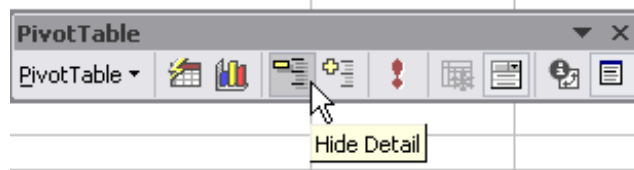


## Changing the Number Format

To change the number format in the pivot table, select the desired cells. Right click within the selected region and choose **Format Cells...** from the context menu or choose **Format|Cells...** in the menu bar.

## Showing and Hiding Details

When a pivot table contains more than one row or column field, the item details can be hidden to show only the summary data.



**Note**



This is an additional method for changing the name of the field.

**Hiding Detail Rows or Columns**

To hide the details, double click the item in an outer row or column. Another method is to select the item in the outer row or column and use the toolbar button to hide details.

In the example below, double clicking on “Academic Support” hides the Fund Type details.

4	Category	1988-89	Data
5	Academic Support	0.8	Sum of 1989-90
6			Sum of 1988-89
7			Sum of 1990-91
8		8.4	Sum of 1989-90
9			Sum of 1988-89
10			Sum of 1990-91
11		53.6	Sum of 1989-90
12			Sum of 1988-89
13			Sum of 1990-91

4	Category	1988-89
5	Academic Support	
6		
7		

**Showing Detail Rows or Columns**

To show the details, double click the summary item or select the item and use the toolbar button to show details.

**Hiding and Showing Details for All Rows and Columns**

To hide or show all details click on the outer row or column label to select all of the items. Then use the toolbar buttons to show or hide the details. This is a time saving feature to avoid repeating the command for each individual item.

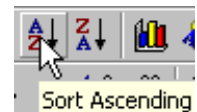
**Displaying the Source Data**

To quickly display the source data for a cell in the data area, double click the cell. All of the original data values used to calculate the cell will be displayed in a new worksheet.

**Sorting**

**Simple Sorting by Label**

To sort the pivot table by the label, select the label and use the toolbar buttons for sorting ascending or descending.



### Simple Sorting by Values in the Data Area

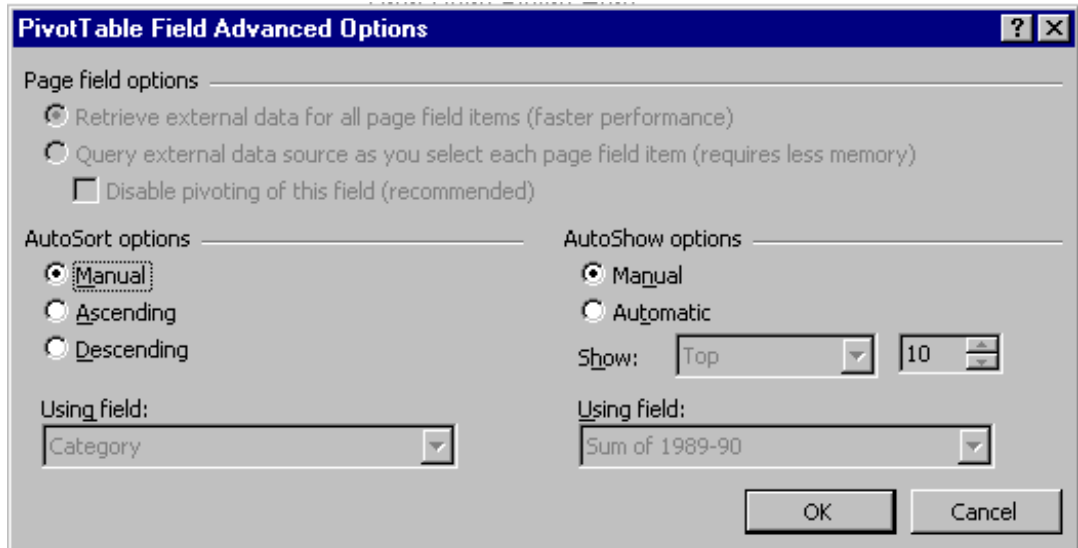
To sort by the data area, select the desired cell column in the data area and use the toolbar buttons. Notice that the entire data area has been sorted, not just the individual column. This is because the data in each of the rows are linked. Excel must move the entire row. In the example below, notice that sorting the year 1988-1989 for Academic Support reorganizes all of the Fund Types in each Fund.

3			Data
4	Category	Fund	Sum of 1989-90
5	Academic Support	Designated	6.46
6		General	55.324
7		Restricted	10.649
8	Academic Support Total		72.433
9	Auxiliary Enterprises	Designated	36.526
10		General	0
11		Restricted	1.119
12	Auxiliary Enterprises Total		37.645

3			Data
4	Category	Fund	Sum of 1989-90
5	Academic Support	Designated	6.46
6		Restricted	10.649
7		General	55.324
8	Academic Support Total		72.433
9	Auxiliary Enterprises	Designated	36.526
10		Restricted	1.119
11		General	0
12	Auxiliary Enterprises Total		37.645

### Changing the Autosort

In the previous example, sorting by the values automatically reordered the fund type within each Fund. If the pivot table needed to be sorted by the 1988-1989 column for each fund, the Autosort must be changed. Autosort allows for one field to be sorted by a different field. To do this, right click on the field label which needs to be sorted and select **Field...** from the context menu. In the example, the Fund Type will be sorted by the 1988-1989 field. From the **Pivot Table Field** window, select the **Advanced...** button to open the PivotTable field Advanced Options window.



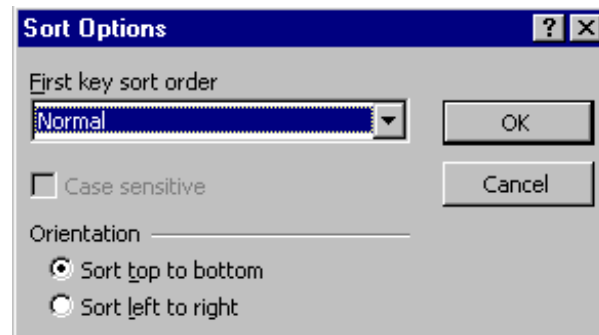
In the **AutoSort options box** select the order for sorting. When a sort order is selected, the **Using field:** region will display a drop down list of the available fields. Select the desired field by which to sort. In the example, the Fund Type will be sorted ascending using the 1988-1989 field. The before and after screen shots are shown below. (Notice that the fund type within each fund is sorted by Column C.)

			Data
3			
4	Category	Fund	Sum of 1989-90
5	Academic Support	Designated	6.46
6		Restricted	10.649
7		General	55.324
8	Academic Support Total		72.433
9	Auxiliary Enterprises	Designated	36.526
10		Restricted	1.119
11		General	0
12	Auxiliary Enterprises Total		37.645

			Data
3			
4	Category	Fund	Sum of 1989-90
5	Public Service	General	2.937
6		Restricted	11.179
7		Designated	13.267
8	Public Service Total		27.383
9	Auxiliary Enterprises	General	0
10		Restricted	1.119
11		Designated	36.526
12	Auxiliary Enterprises Total		37.645

## Sorting by a Custom List

In certain situations, a list contains items (like months) which are sorted chronologically rather than alphabetically. Instead of using a simple sort, a custom sort must be performed. Begin by selecting the cells or field label to sort. Instead of using the toolbar sorting buttons, choose **Data|Sort...** and select the **Options...** button. In the window, click the down arrow and select the custom list.



## The End!

We hope this series of Excel classes have expanded your knowledge and offered you some fun tricks to maneuver your way through Microsoft Excel. Just remember -- practice makes perfect! Review the concepts and skills we've covered in class and you'll be on your way to being the local "Excel Expert" in no time!