



Intermediate Excel 2007

Data Management Topics

Technical Support Services

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Managing Workbooks

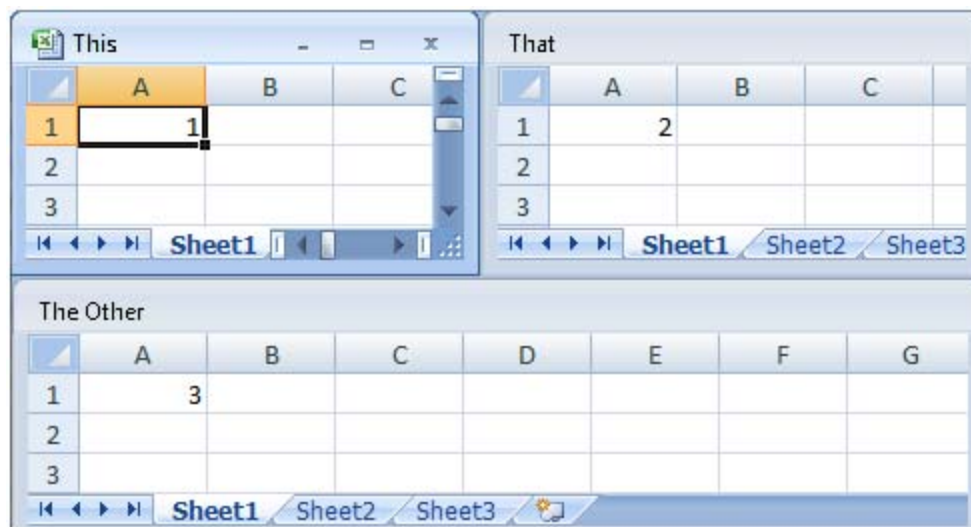
Excel uses the term *workbook* for a file. The term *worksheet* refers to an individual spreadsheet within a workbook. A workbook can contain multiple worksheets, each have their own tab. It is possible to have multiple workbooks (xlsx files) open concurrently.

Switch Between Open Workbooks

1. Open Excel and create 2 additional new workbooks
2. Select the **View** ribbon > **Window** group > **Switch Windows**
3. In the menu that appears, you will see a listing of the workbooks that are open
4. Click the file that you want to bring to the foreground. The file that was in the foreground remains open, but is now in the background

View Multiple Open Workbooks

1. Select **View** ribbon > **Window** group > **Arrange All**
2. Select **Tiled** and click **OK**



Managing Multiple Worksheets

An Excel workbook can contain many worksheets. This allows you to organize related worksheets into one file.

Adding Worksheets

There are numerous methods to add additional worksheets to workbook. To add a single sheet:

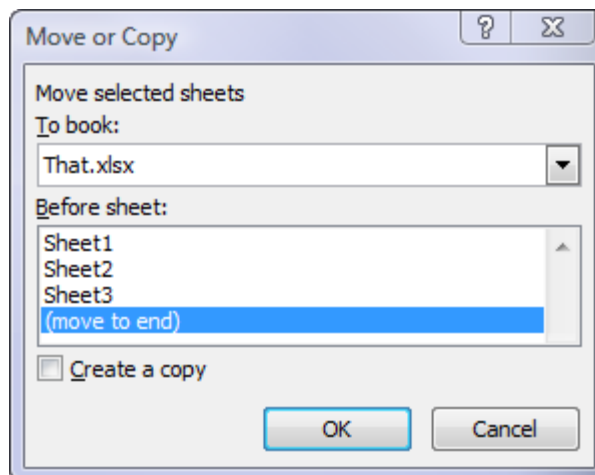
Click the **Insert Worksheet** button to the right of the last existing sheet, or press the combination of **Shift + F11** on your keyboard.



To add multiple sheets: Hold down the **Shift** key and click on a number of existing worksheet tabs equal to the number you wish to add, then press **Shift + F11**.

Move or Copy Worksheets between Workbooks

1. Open the workbook you want to add a worksheet to
2. Open the workbook containing the worksheet you want to insert into the other workbook
3. Right-click on the tab of the worksheet you wish to copy
4. Choose **Move or Copy** from the menu
5. The "Move or Copy" window appears.
6. In the "To book:" drop down list, select the workbook into which you want to insert the worksheet.
7. Select a location in the "Before sheet:" box.
The copied sheet will appear to the left of the item you select.
8. Click **OK**



You can also use this to copy sheets within a single workbook (be sure to check "Create a copy" or the sheet will move to the new location, deleting the original.)

Deleting a Worksheet

1. Right-click on the worksheet(s) that you want to delete
2. Choose **Delete**

If the selected sheet has data on it, you will be asked to confirm to avoid accidentally deleting data.

Changing Worksheet Names

By default, worksheets are named Sheet1, Sheet2, etc. Worksheet names can be changed to accurately reflect their content.

1. Double click on the worksheet tab for which you want to change the name and it will highlight
2. Type in a new name for the worksheet
3. Press the **Enter** key

Changing Tab Color

By default, all worksheet tabs are white. You can change the tab color – the active worksheet's tab will still appear white with a thin colored underline; the inactive worksheets will display the selected tab colors.

1. Right-click on a worksheet tab you want to change the color of
2. Choose **Tab Color** from the shortcut menu
3. Select the desired color and click **OK**



Changing Worksheet Order

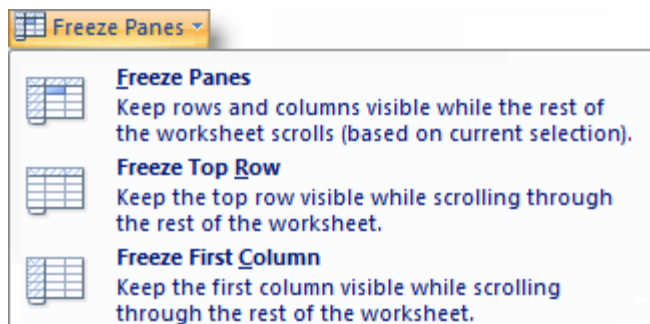
1. Click and hold down on the tab of the worksheet you want to move
2. Drag this worksheet tab to the right or left
You will notice a down arrow indicating the position of the worksheet
3. When the down arrow reaches the place you where you want the worksheet to be located, release the mouse button

Freezing Worksheets

When working with large or complex worksheets, scrolling can sometimes become a problem. Freezing panes allows you to keep row and column labels visible as you scroll.

To enable this option:

- Select **View** ribbon > **Windows** group > **Freeze Panes**



To turn off this option:

- Select **View** ribbon > **Windows** group > **Freeze Panes** > **Unfreeze Panes**

Linking Data

Linking allows data stored on a worksheet to be referenced by another worksheet. This can be within the same workbook, or in separate workbooks.

Linking worksheets in the same workbook

1. Open the file containing worksheets that you want to link together
2. On the destination sheet, click where you want the linked information to appear and type an equal sign (=) followed by any needed function or formula components
3. Switch to the source worksheet (one that contains the data or calculation result) and select the desired cell range
4. Press **Enter**

Excel returns you to the destination worksheet and the information from the source worksheet appears within the destination file.

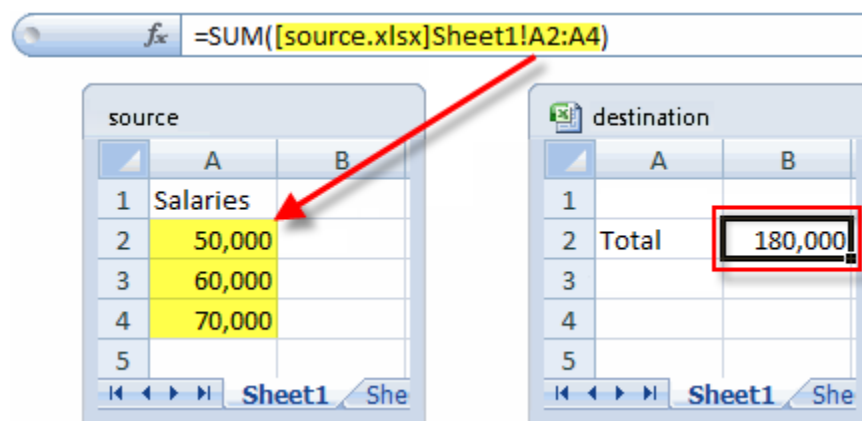
Linking between workbooks

1. Open the files containing worksheets that you want to link together
2. In the destination file, click where you want the linked information to appear and type an equal sign (=)
3. Switch to the source file (one that contains the data) and select the desired cell or range to plug in
4. Press **Enter**

Excel returns you to the destination file and the information from the source file appears within the destination file

5. You must save both files in order for this link to remain in effect

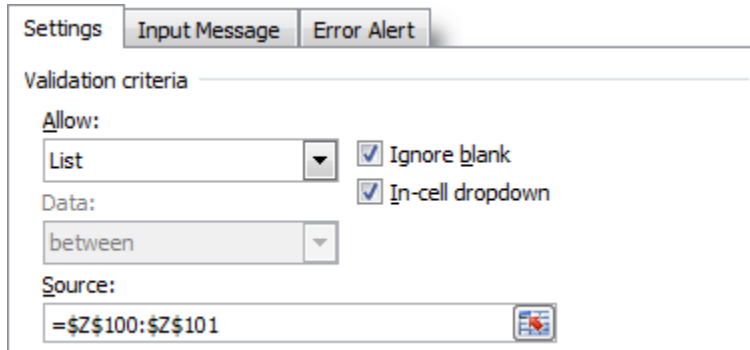
If the data is changed for a source cell, it is automatically updated in the destination cell, provided the changes to the source are saved.



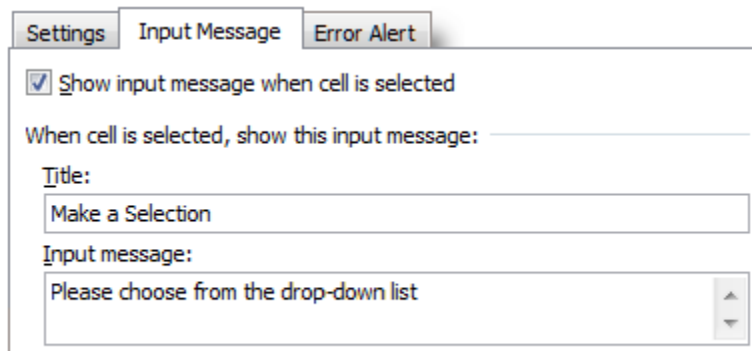
Data Validation

To limit entry to a list of values:

1. Ahead of time, enter the possible values on the same worksheet but far away from anywhere that will contain values or be subjected to possible deletion
2. Click in the cell(s) where you want to control what gets entered
3. Select **Data** ribbon > **Data Tools** group > **Data Validation**



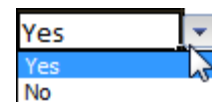
4. On the **Settings** tab, select **List** under **Allow**:
5. Enter or select the source for possible responses
6. Under **Input Message**, you can provide a prompt to assist during data entry:



7. Under **Error Alert**, you can provide remedial support to encourage the correct selection. You can also choose the make the error only a warning instead of refusing to take their value
8. Click on **OK** to finalize your choices

Activity

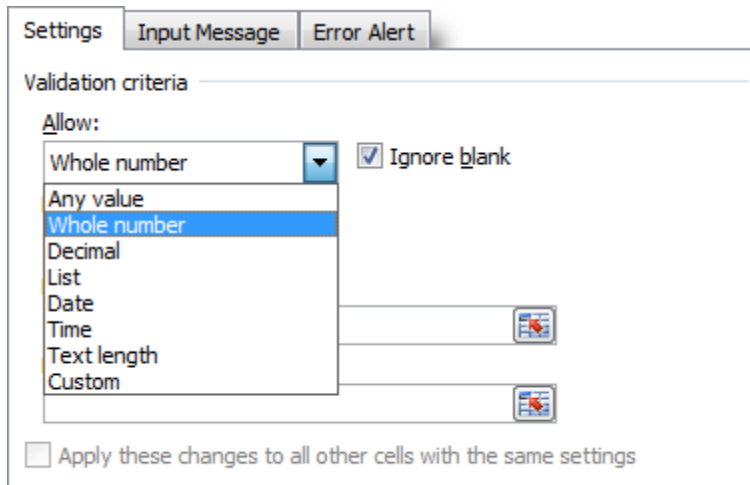
1. Enter "Yes" in cell Z100 and "No" in cell Z101
2. Follow the steps described in the "To limit entries to a list of values" section



To restrict entry to other specific types:

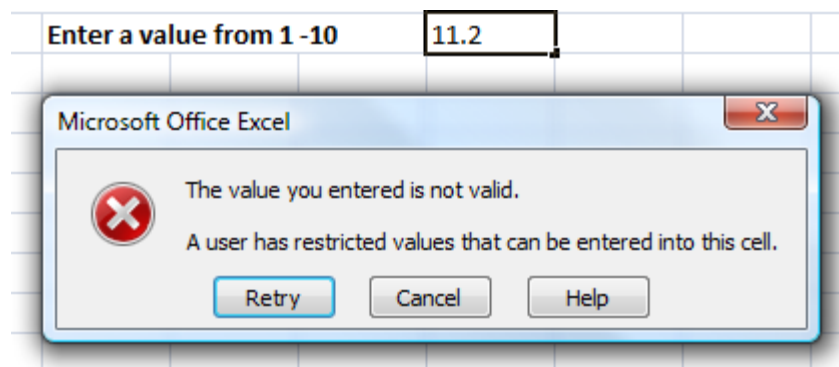
At times it's useful to set cells to only accept certain kinds of information. These are things such as whole numbers, decimals, and dates.

1. Click in the cell(s) where you want to control what gets entered
2. Select **Data** ribbon > **Data Tools** group > **Data Validation**



Activity

1. Select a range of cells and force them to be whole numbers between 1 and 10
2. Attempt to enter a value outside of that range
3. Attempt to enter a decimal



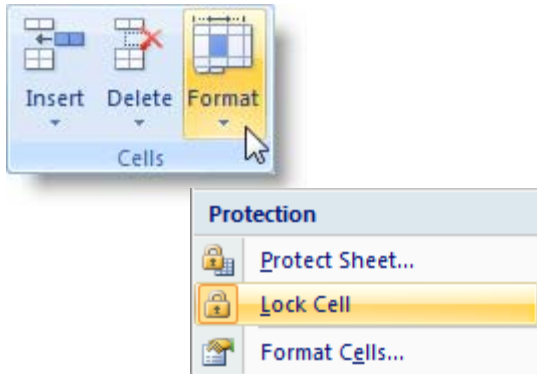
Protecting a portion of a worksheet from modification

It is possible to grant others access to a worksheet and limit their ability to make additions or changes to specified areas. Areas are specified that are available to change and a password is put in place to restrict all other areas.

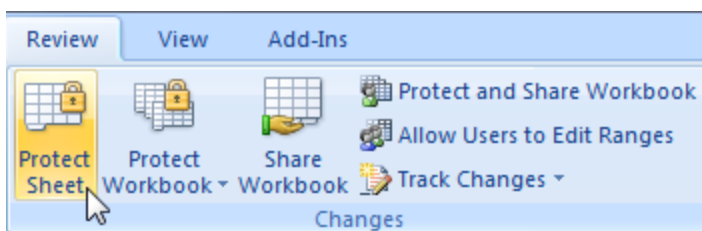
1. Select the range of cells that you wish to give others the ability to edit

	A	B
1	First	
2	Last	
3	Employee #	
4	Phone	
5	E-mail	

2. **Home** ribbon > **Cells** group > **Format** > click to deselect the **Lock Cell** option



3. **Review** ribbon > **Changes** group > Select **Protect Sheet**



4. Enter a password to allow for making changes later
5. Click **OK**, confirm the password, and click **OK** again

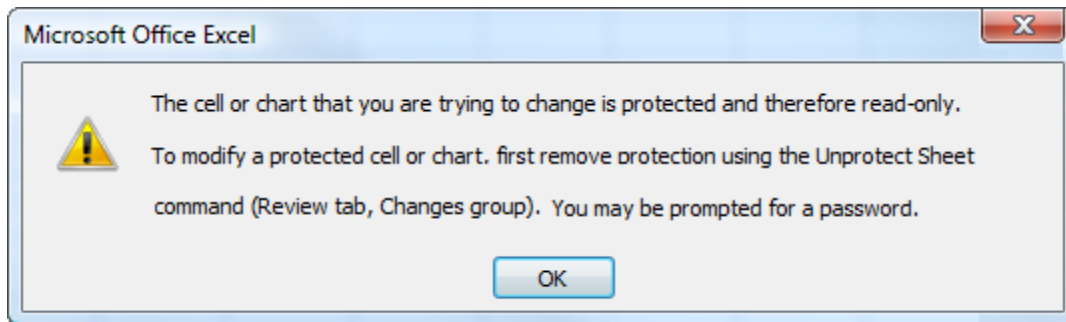
The sheet should now only allow changes to be made where explicitly allowed.

To remove the protection from a sheet:

1. Go to **Review** ribbon > **Changes** group > Select **UnProtect Sheet**
2. Enter the password that was previously established
3. Click **OK**

Tips and Reminders

- Be sure the chosen password can be remembered and not easily guessed
- Protect each worksheet separately
- If a person tries to enter or change information in a protected area of the sheet, they will get a warning message:



Importing Data

Importing files

You can bring data into Excel that was saved in various file formats from other applications. As Excel is great at crunching numbers and creating graphical representations, importing data can allow for extending capabilities beyond what the source program had. Common file formats include .csv (comma separated values) and .xml (eXtensible markup language).

Importing a .csv file

1. Select **Data** ribbon > **Get External Data** group > **From Other Sources**
2. Select **From Text**, browse for the desired file, and click **Import**
3. Verify Delimited is selected and click **Next >**
4. Set Delimiters to Comma and click **Next >**
5. Click **Finish** and **OK**

Import an .xml file

1. Select **Data** ribbon > **Get External Data** group > **From Other Sources**
2. Select **From XML Data Import**
3. Browse for the desired file and click **Open**
4. Allow creation of a schema if prompted
5. Select initial cell in range to populate and click **OK**

Text to Columns

If you have entered or copied some text into a single column, you can use the Text to Columns command to portion it out into adjacent columns (make sure they are blank before proceeding).

In this example, we need to take information from a web page, copy and paste it into Excel, remove unneeded information, and rearrange it into a form that suits our purposes. We wish to have columns for last name, first name, city, and state shown in that order. All other information will be discarded.

1. Copy and paste the data from a source web page into Excel

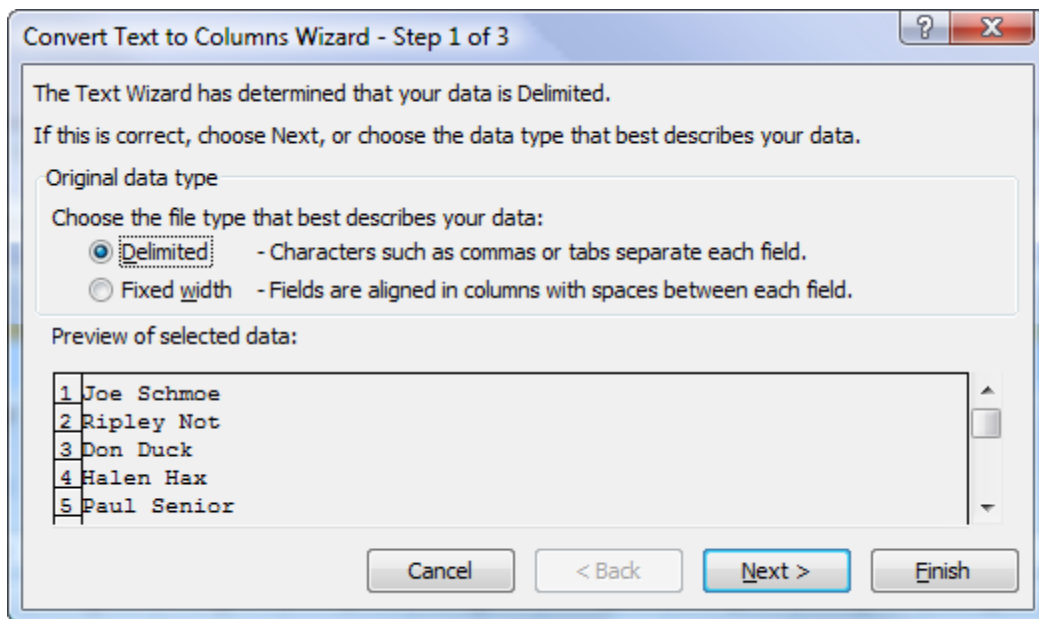
No.	Name	Pos.	Ht.	Wt.	Class	Hometown
12	Joe Schmoe	DB	6-2	195	So.	Jacksonville, Fla.
27	Ripley Not	RB	6-1	240	So.	Morgantown, W.Va.
19	Don Duck	DB	6-0	210	So.	Opa Locka, Fla.
47	Halen Hax	TE	6-4	235	Jr.	Granville, Ohio
7	Paul Senior	WR	6-2	195	Jr.	Belle Glade, Fla.
62	Eric Johnson	OL	6-4	285	Fr.	Cranberry, Pa.
39	Grover Palms	QB	6-2	225	Sr.	Bethlehem, Pa.

2. Delete text that is not needed
3. Place blank columns to the right of where the information will be split. This will create space for it and prevent the overwriting of existing information.
4. Select a column containing items to be separated

	A	B	C	D
1	Joe Schmoe		Jacksonville, Fla.	
2	Ripley Not		Morgantown, W.Va.	
3	Don Duck		Opa Locka, Fla.	
4	Halen Hax		Granville, Ohio	
5	Paul Senior		Belle Glade, Fla.	
6	Eric Johnson		Cranberry, Pa.	
7	Grover Palms		Bethlehem, Pa.	

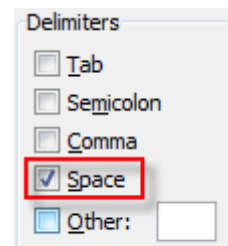
5. Select **Data** ribbon > **Data Tools** group > **Text to Columns**

This screen will display:



6. Verify **Delimited** is selected and click **Next >**

7. Choose the type of delimiter that is needed. This tells Excel what to look for between items that are to be separated. As there is a space between names in this example, choose **Space**



8. Click **Next** and **Finish**.

9. Repeat the process using the comma delimiter to split the city and state

10. Add a row at the top, enter heading labels, and manipulate the first two columns so that last names will display first.

	A	B	C	D
1	Last	First	City	State
2	Schmoe	Joe	Jacksonville	Fla.
3	Not	Ripley	Morgantown	W.Va.
4	Duck	Don	Opa Locka	Fla.
5	Hax	Halen	Granville	Ohio
6	Senior	Paul	Belle Glade	Fla.
7	Johnson	Eric	Cranberry	Pa.
8	Palms	Grover	Bethlehem	Pa.

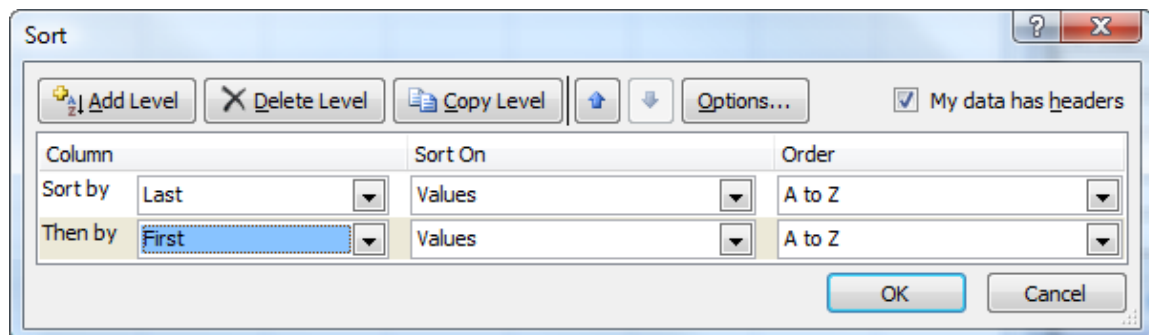
Sorting

Information can be sorted into alphabetical or numerical order, ascending or descending. Excel can change the row numbers that related information appears in while still keeping items together. A common type of sort is alphabetically by last name, and secondarily by first name:

1. Select a cell within the range to be sorted
2. Select **Data** ribbon > **Sort & Filter** group > **Sort**

	A	B	C	D
1	Last	First	City	State
2	Schmoe	Joe	Jacksonville	Fla.
3	Not	Ripley	Morgantown	W.Va.
4	Duck	Don	Opa Locka	Fla.
5	Hax	Halen	Granville	Ohio
6	Senior	Paul	Belle Glade	Fla.
7	Johnson	Eric	Cranberry	Pa.
8	Palms	Grover	Bethlehem	Pa.

3. Select **Last** in the **Sort by** space
4. Click **Add Level**
5. Select **First** in the **Then by** space



6. Click **OK**.

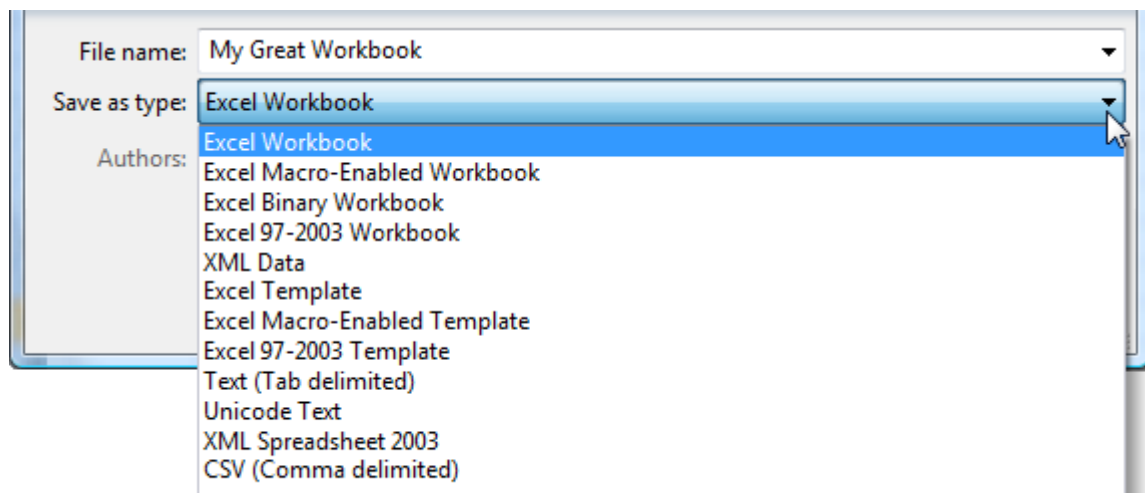
The selected rows are now in ascending alphabetical order:

	A	B	C	D
1	Last	First	City	State
2	Duck	Don	Opa Locka	Fla.
3	Hax	Halen	Granville	Ohio
4	Johnson	Eric	Cranberry	Pa.
5	Not	Ripley	Morgantown	W.Va.
6	Palms	Grover	Bethlehem	Pa.
7	Schmoe	Joe	Jacksonville	Fla.
8	Senior	Paul	Belle Glade	Fla.

Exporting

While the default format to save workbooks in Excel 2007 is .xlsx, you can save in a variety of other formats. This can help to ensure compatibility with other versions and applications such as Microsoft Access, Microsoft Word, SAS, or SPSS. To save to another format:

1. Click the **Office Button**
2. Select **Save as**
3. **Click the Save as type** drop-down to select the desired format and Click **Save**



Filtering

You can filter to select records that match specific criteria. This gives a temporary view of data without physically removing anything. To isolate individuals from Florida, we would do the following:

1. Click in a cell where headings are in row 1
2. Choose **Data** ribbon > **Sort & Filter** group > **Filter**
3. Select **Fla.** In the **State** drop-down

	A	B	C	D
1	Last	First	City	State
2	Duck	Don	Opa Locka	Fla.
7	Schmoe	Joe	Jacksonville	Fla.
8	Senior	Paul	Belle Glade	Fla.

To remove the filter, click the **Filter** Button



PivotTables & PivotCharts

A PivotTable interactively allows for quickly summarizing large amounts of data. You can rotate its rows and columns to see different summaries of the source data, filter the data by displaying different pages, or display the details for areas of interest. PivotCharts are associated with PivotTables and provide graphical representations of the same information.

Use a PivotTable when you want to compare related totals, especially when you have a long list of figures to summarize and you want to compare several facts about each figure. Because a PivotTable is interactive, you can change the view of the data to see more details or calculate different summaries. This gives a customized perspective on the data without having to change anything in the range of cells it is based on.

Creating a PivotTable & PivotChart

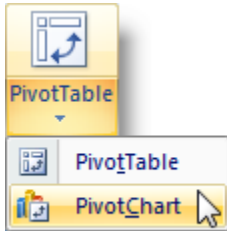
In this example, we will take raw data based on four agents at an insurance company and look at their sales over the course of a year for three different product types. The existing data was entered in such a way that it is somewhat redundant and hard to draw conclusions from readily. By placing it into a PivotTable with an associated chart, we can easily streamline this into useful information and quickly manipulate it into multiple views to help us draw conclusions. We begin with the following sheet:

	A	B	C	D
1	Agent	Quarter	Type	Amount
2	Phil	First	Life	\$2,000
3	Beth	First	Auto	\$1,000
4	Phil	First	Home	\$7,000
5	Phil	First	Auto	\$3,000
6	Kat	First	Auto	\$6,000
7	Doc	First	Auto	\$2,000
8	Beth	Second	Home	\$5,000
9	Beth	Second	Auto	\$3,000
10	Phil	Second	Auto	\$6,000
11	Kat	Second	Home	\$4,000
12	Kat	Second	Life	\$7,000
13	Doc	Second	Life	\$5,000
14	Beth	Third	Auto	\$8,000
15	Phil	Third	Life	\$4,000
16	Kat	Third	Life	\$9,000
17	Doc	Third	Life	\$3,000
18	Doc	Third	Home	\$10,000
19	Beth	Fourth	Life	\$2,000
20	Beth	Fourth	Auto	\$9,000
21	Phil	Fourth	Home	\$1,000
22	Phil	Fourth	Life	\$8,000
23	Phil	Fourth	Auto	\$2,000
24	Kat	Fourth	Life	\$7,000
25	Doc	Fourth	Home	\$3,000
26	Doc	Fourth	Life	\$6,000

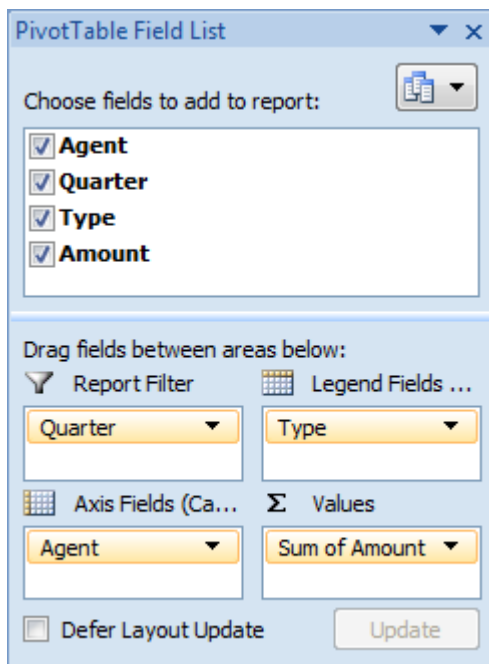
Activity

Follow these steps to create a PivotTable and PivotChart from the provided data:

1. Select the range that encompasses the headings and data (A1:D26)
2. Select **Insert** ribbon > **Tables** > **PivotTable** drop-down > **PivotChart**

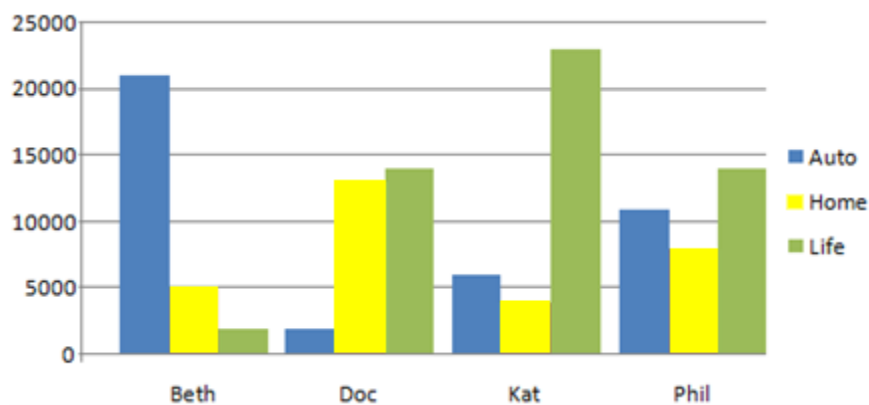


3. Click **OK** to confirm the selected range.
4. Drag the 4 fields in the top portion of the “PivotTable Field List” to the 4 locations in the “Drag fields between areas below” section as shown:



A PivotTable and corresponding PivotChart are shown:

Quarter	(All)			
Sum of Amount	Column Labels			
Row Labels	Auto	Home	Life	Grand Total
Beth	21000	5000	2000	28000
Doc	2000	13000	14000	29000
Kat	6000	4000	23000	33000
Phil	11000	8000	14000	33000
Grand Total	40000	30000	53000	123000



5. Manipulate the drop-down areas of the PivotTable to change what aspects are displayed for the table and the cart

Workshop Evaluation

Your feedback is very important to us. Please share your thoughts on your experience.

1. Go to the following URL: <http://oit.wvu.edu/training/eval.php>
2. Click the “workshop evaluation form” link
3. Enter the date, Chose “Excel” for the topic, and select the appropriate instructor name.