Advanced Excel
Charts : Tables : Pivots

Protecting Your Tables/Cells

Protecting your cells/tables is a good idea if multiple people have access to your computer or if you want others to be able to look at your worksheets. Choose the Review Ribbon and you will then see the Protection options. You will notice that in the Review tab on the Ribbon, you have three options to protect your worksheet or workbook. If you select:

Protect Sheet: Protect entire sheet
Protect Workbook: Protect an entire Excel workbook
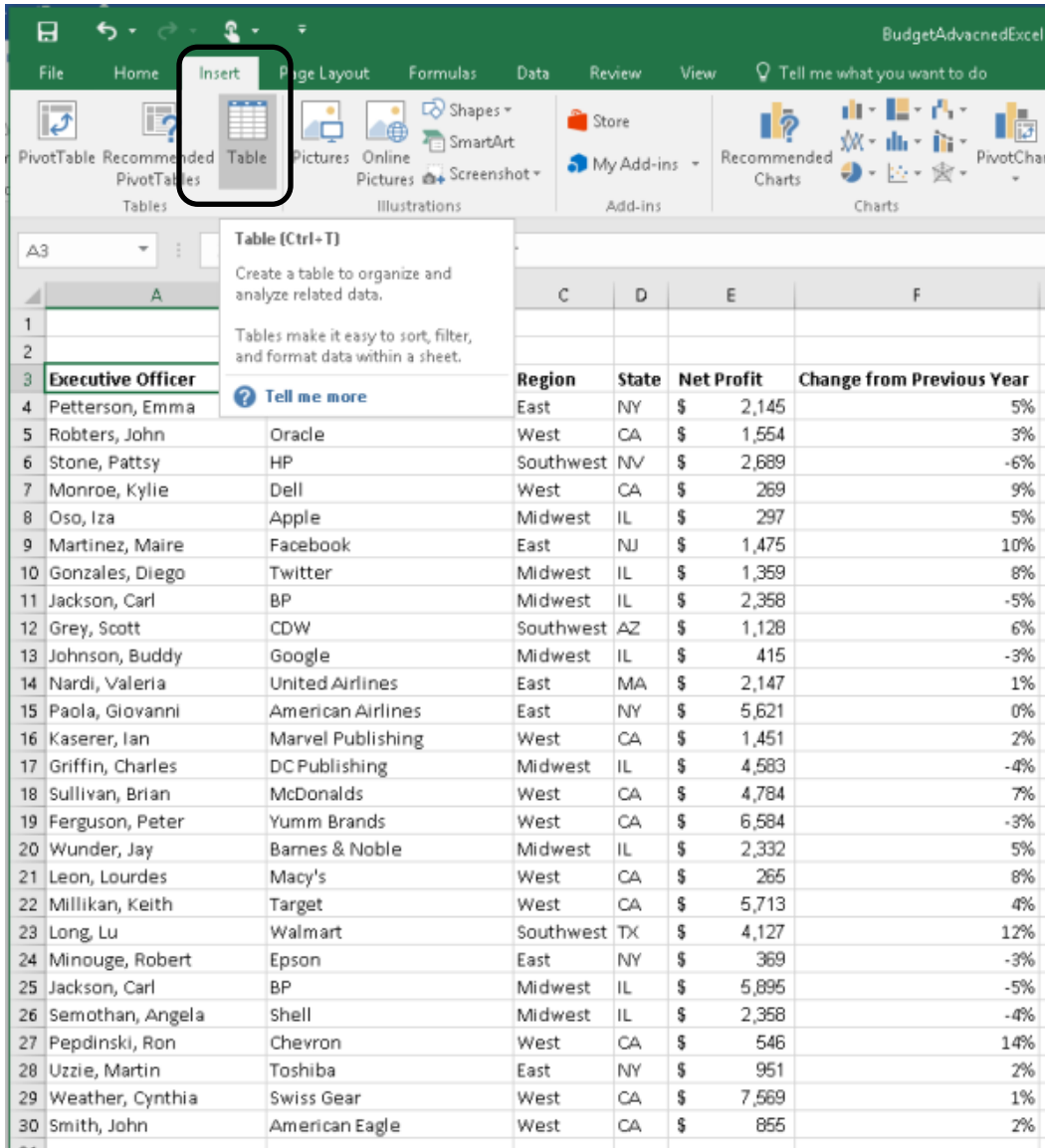**Allow Users to Edit Ranges**: Protects certain cells

The protect feature in effect changes your Excel worksheet(s) or cells into a read-only format. When protecting your data, you will need to create a password to unprotect your information.
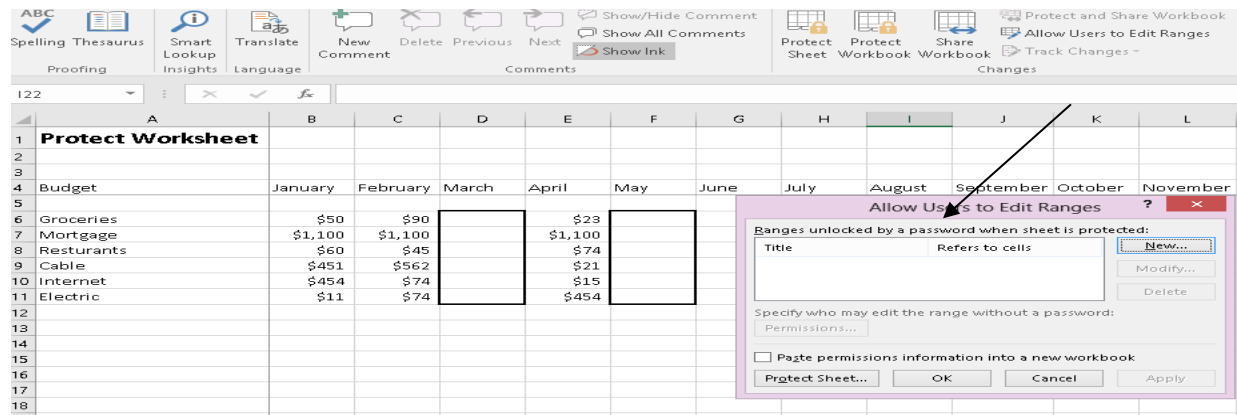
Creating a Table

Transforming information from simple data into a table in Excel is a nice way to organize, sort, and filter large quantities of data. You can always create a table from scratch, but what if you inherit data from someone else? Open the **Table** worksheet and click on cell **A3**. Select **Insert -> Table**. Excel will automatically select the table data.

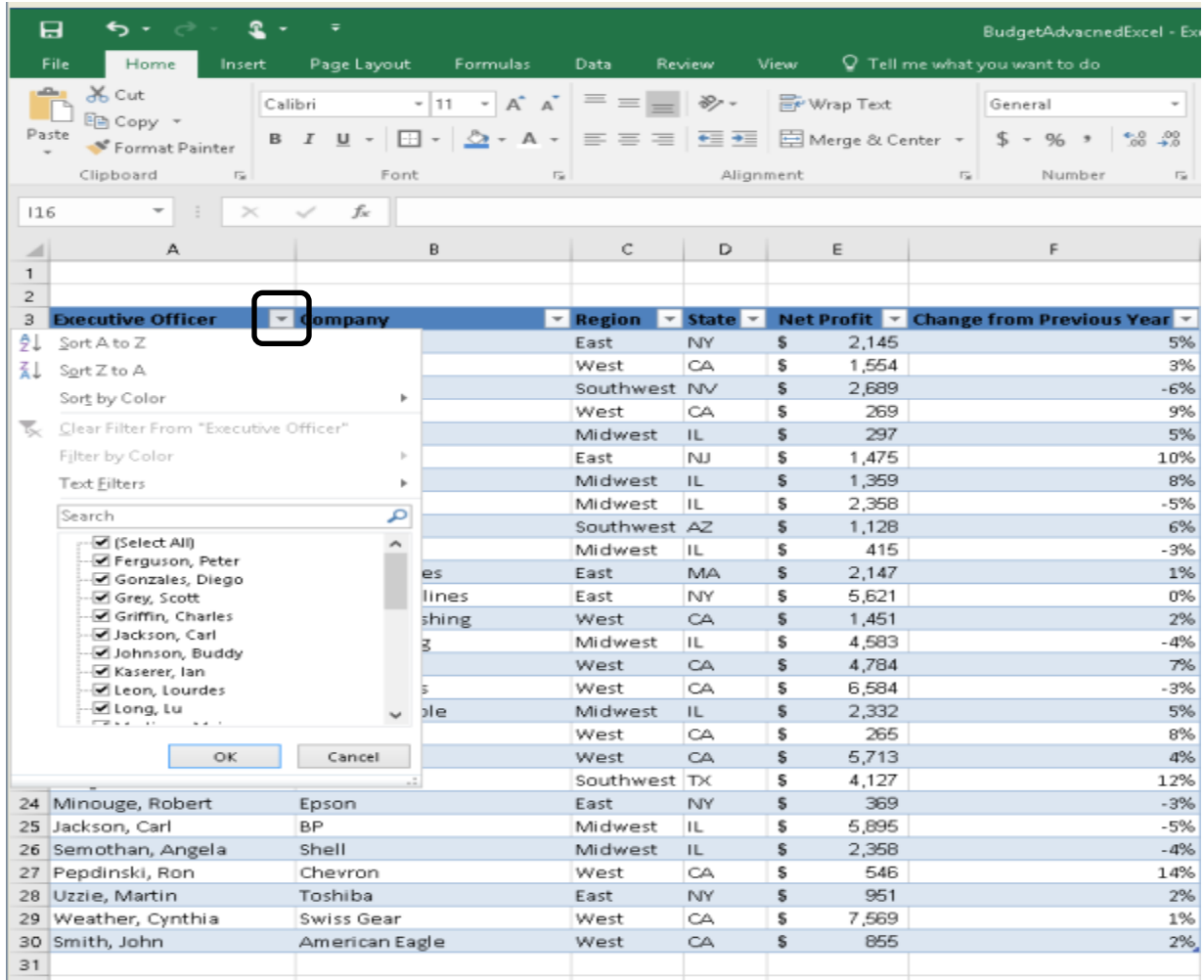| Executive Officer		C	D	E	F
		Region	State	Net Profit	Change from Previous Year
Petterson, Emma		East	NY	$ 2,145	5%
Robters, John	Oracle	West	CA	$ 1,554	3%
Stone, Pattsy	HP	Southwest	NV	$ 2,689	-6%
Monroe, Kylie	Dell	West	CA	$ 269	9%
Oso, Iza	Apple	Midwest	IL	$ 297	5%
Martinez, Maire	Facebook	East	NJ	$ 1,475	10%
Gonzales, Diego	Twitter	Midwest	IL	$ 1,359	8%
Jackson, Carl	BP	Midwest	IL	$ 2,358	-5%
Grey, Scott	CDW	Southwest	AZ	$ 1,128	6%
Johnson, Buddy	Google	Midwest	IL	$ 415	-3%
Nardi, Valeria	United Airlines	East	MA	$ 2,147	1%
Paola, Giovanni	American Airlines	East	NY	$ 5,621	0%
Kaserer, Ian	Marvel Publishing	West	CA	$ 1,451	2%
Griffin, Charles	DC Publishing	Midwest	IL	$ 4,583	-4%
Sullivan, Brian	McDonalds	West	CA	$ 4,784	7%
Ferguson, Peter	Yumm Brands	West	CA	$ 6,584	-3%
Wunder, Jay	Barnes & Noble	Midwest	IL	$ 2,332	5%
Leon, Lourdes	Macy's	West	CA	$ 265	8%
Millikan, Keith	Target	West	CA	$ 5,713	4%
Long, Lu	Walmart	Southwest	TX	$ 4,127	12%
Minouge, Robert	Epson	East	NY	$ 369	-3%
Jackson, Carl	BP	Midwest	IL	$ 5,895	-5%
Semothan, Angela	Shell	Midwest	IL	$ 2,358	-4%
Pepdinski, Ron	Chevron	West	CA	$ 546	14%
Uzzie, Martin	Toshiba	East	NY	$ 951	2%
Weather, Cynthia	Swiss Gear	West	CA	$ 7,569	1%
Smith, John	American Eagle	West	CA	$ 855	2%

Make sure you put a check mark in the **My Table Has Headers** box. This is referencing the headers in the table: Executive Office, Company, Region, etc.

Click OK
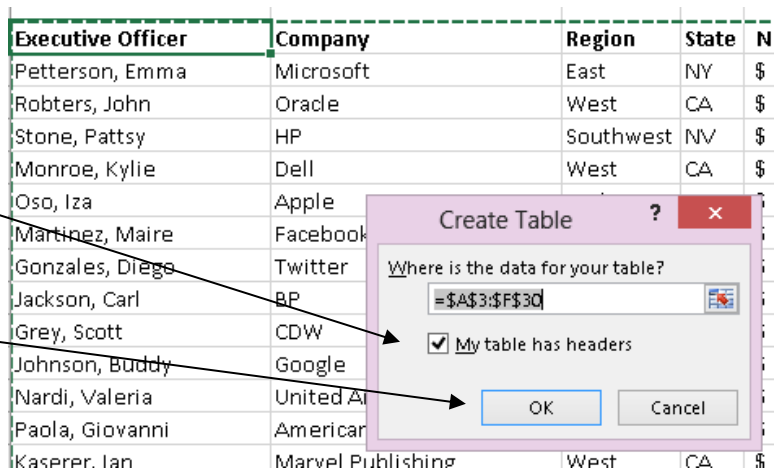
You will now notice that each column has a filter drop down box. Use these filters to sort and filter information by column.

You can filter out information you don't need right away. For this example, let assume you only need profits for the Midwest region: Click the filter next to **Region -> click Select All -> Click Midwest ->OK**

You can clear a filter by selecting the column heading, then "Clear" from the Sort & Filter section of the Data ribbon; or, you can click the column heading drop-down arrow and select the option to clear the filter.

Table Design

You can change the default design of the table. Go to **Design Tab** and choose a design from the **Gallery**

Design Tab in the Ribbon

1. Table Name – Change the name of the table to reference back to when using in a function/formula. You saw how this works back in the Vlookup function.
2. Tools:
   a. Summarize with Pivot Table – transform your table into a pivot table. (more on this later)

b. Remove Duplicate – Remove duplicates by column. **Highlight column A, and click Remove Duplicate.** Notice you will get a list all columns. Remove all checkmarks except "Executive Officer." This will filter duplicates by only the Executive Officer column. Click **OK.** And it will remove the duplicate by that column. *Note: You DO NOT want to remove duplicate from other columns because you will lose data you may need. For example, we may have two Net Profits numbers that are the same but from different companies. We will want to keep that information.
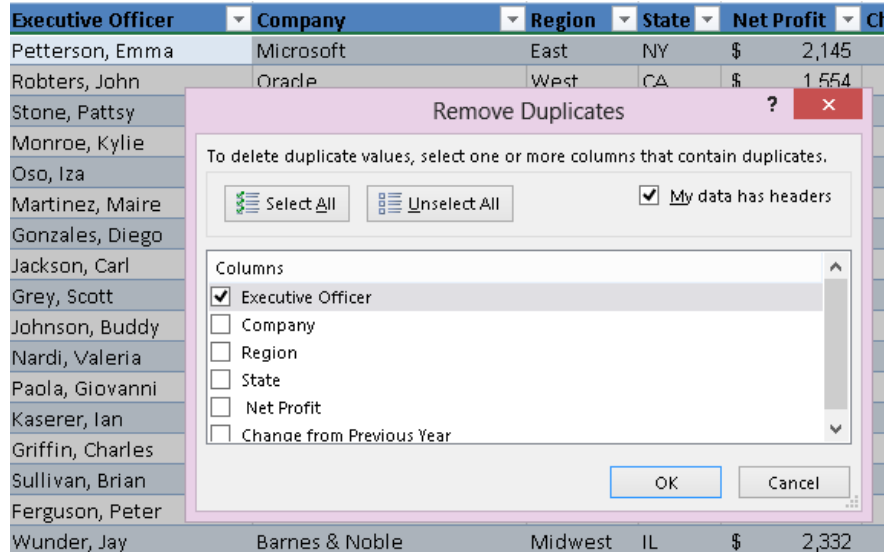
c. Convert to Range- This will covert highlighted sections or the entire table back to a normal range. In other words, it will lose its table features.

d. Insert Slicer-A slicer is a pulled out filter by section. It will allow you to run two or more filters in one.

For this example, click on **Insert Slicer -> Region -> OK.** This will call up the Region slicer. Now you can filter by multiple regions. This is more useful in pivot tables.

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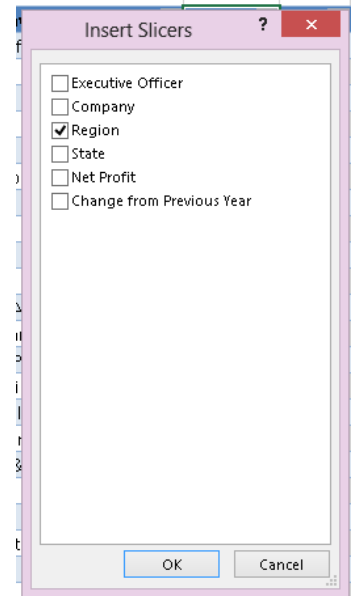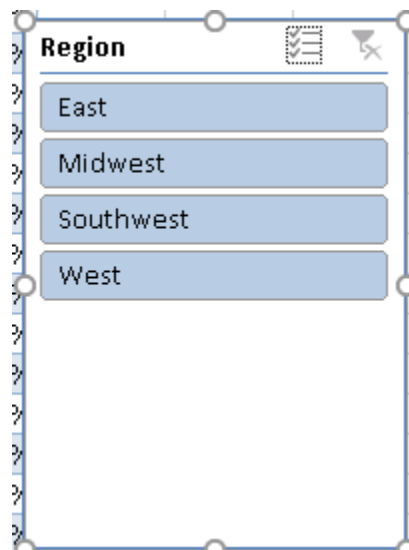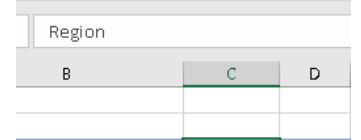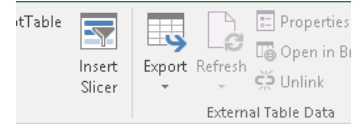
3. External Table Data – exports your table to other applications.
4. Table Style Options – gives you a few table design and data options:
   a. Header Row – will keep or remove your header information
   b. Total Row – will insert a SUM total row at the bottom of each column
   c. Banded Row and Banded Columns – will band the rows or column with a different color to make the table more readable
   d. First/Last Column – will "Bold" the data in the first or last column
   e. Filter Button – will keep or remove the filter button on each column header

Conditional Formatting

Excel allows you to visualize your data with different colors and visual conditions with **Conditional Formatting** button in the Home Tab. First, highlight the column you want to change with conditional formatting. For this example, select the **Change from Previous Year** column.
1. Click the **Conditional Formatting** button on the Ribbon.
2. Data Bars -> Select any option here:

Now let's try another conditional format.
1. Highlight column E
2. Go to **Conditional Formatting**
3. Go to **Icon Sets -> 3 Arrows.** Now you will get arrows determining whose profits are above, at, or below average.

Try using different conditional formats! You will not hurt anything by using different conditional formats!

Pivot Tables

What are Pivot Tables? Pivot Tables are tables in Excel that you can ask multiple questions and analyze data from a particular table. Once you have created a table in Excel, it is easy to convert your table to a Pivot Table.

To convert your table to a Pivot Table, click on cell **A3** and select the Insert ribbon, then click the **Pivot Table** button.
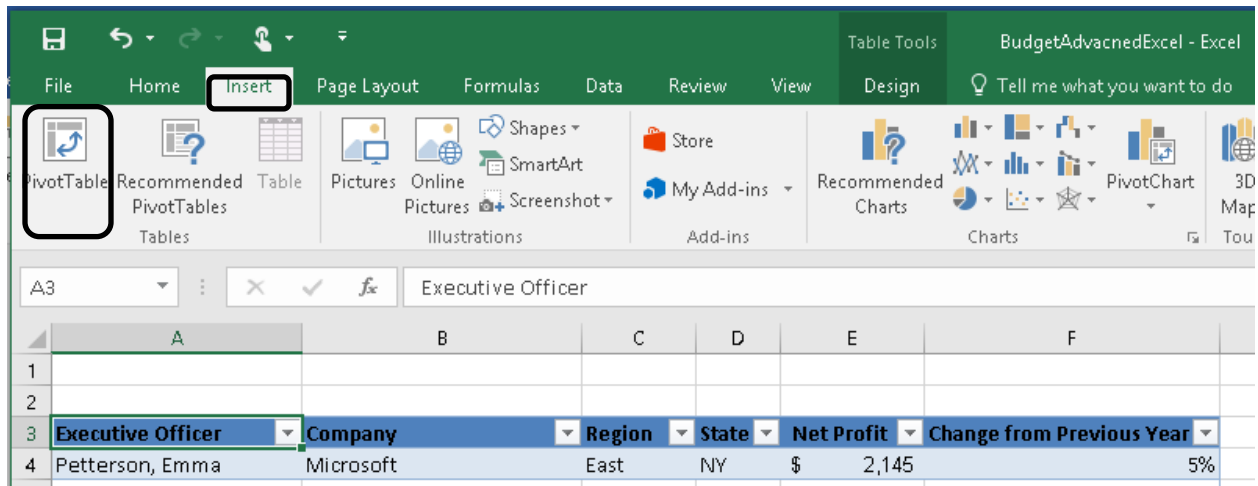
Make sure Excel has selected the correct data, choose "New Worksheet" or "Existing Worksheet," depending on where you want the new pivot table to go, then select **OK**. Remember the name of the table. This is how Excel will recognize the table it needs to covert.
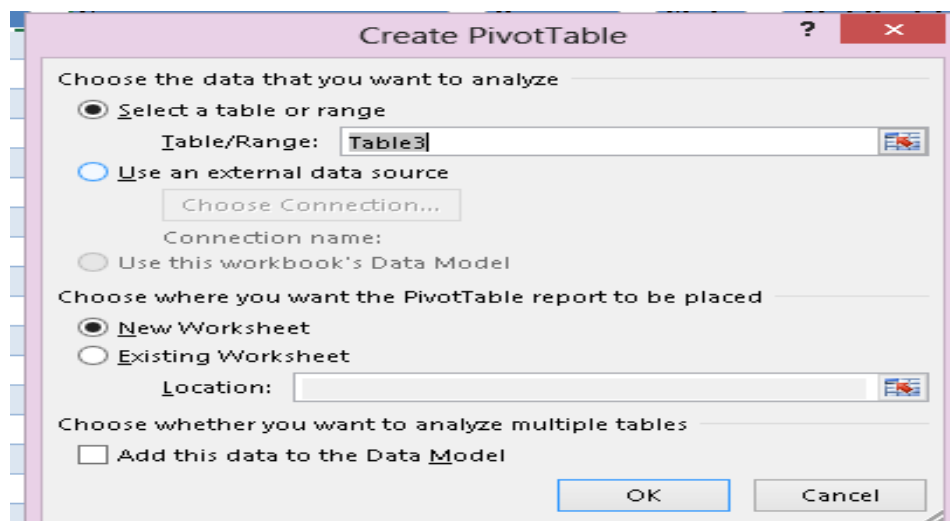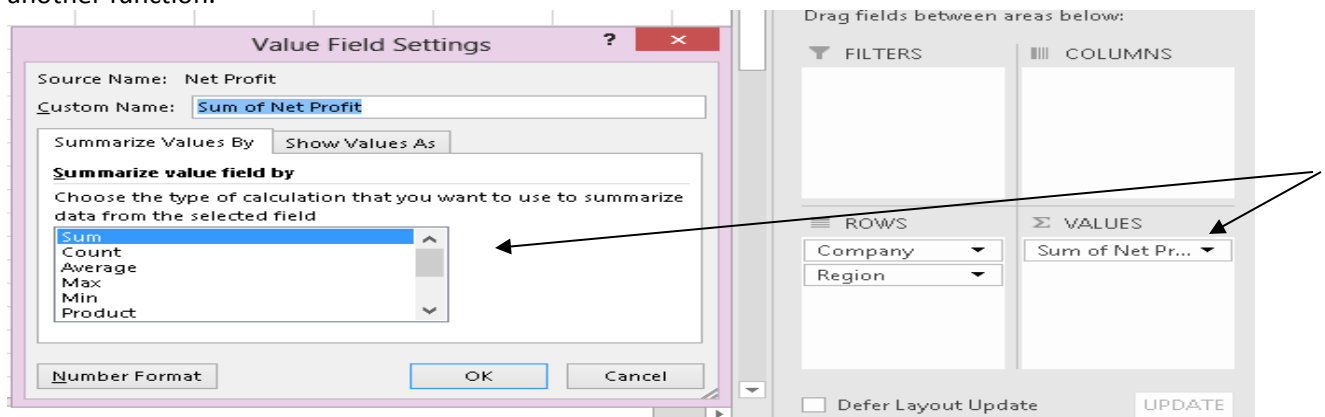
Once you click Ok, you will be taken to a new worksheet. Now the pivot needs to know which fields you want on the table.
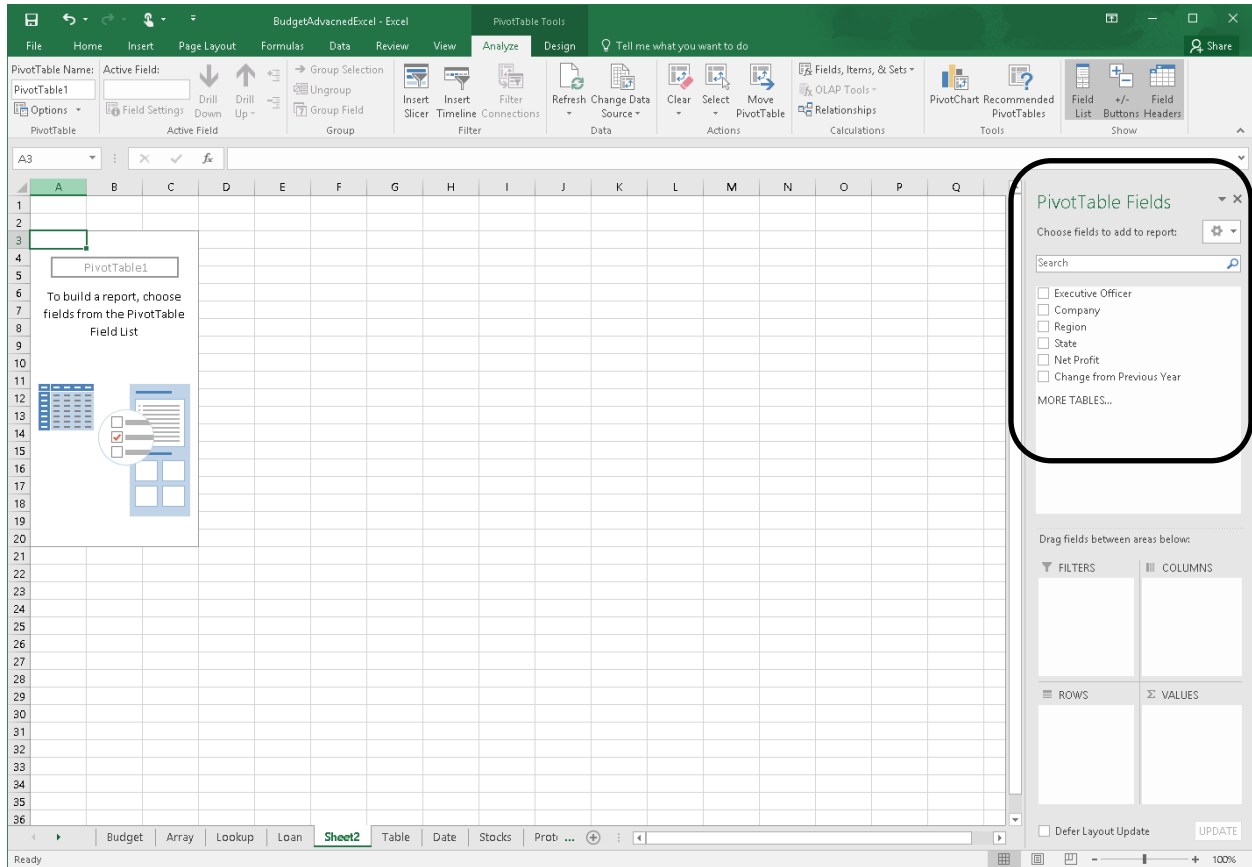
You can choose which data you would like your Pivot Table to focus on by checking the data fields from the list. Excel will then try to guess if the field belongs as a filter, column label, row label, or value. Or, if you prefer, you can drag the field name to the area of your choice.

Select Company, Region, and Net Profit. This should put these categories into range. Also notice, Excel put in the column, "Sum of Net Profits." At the bottom right of the screen you will notice a button that states, "Sum of Net Profit." You can click it -> Value Field Settings -> and change the sum to average or another function.

You can easily add fields to your Pivot Table by checking another field from the list. In this example, the "State" field has been added by checking it in the list.
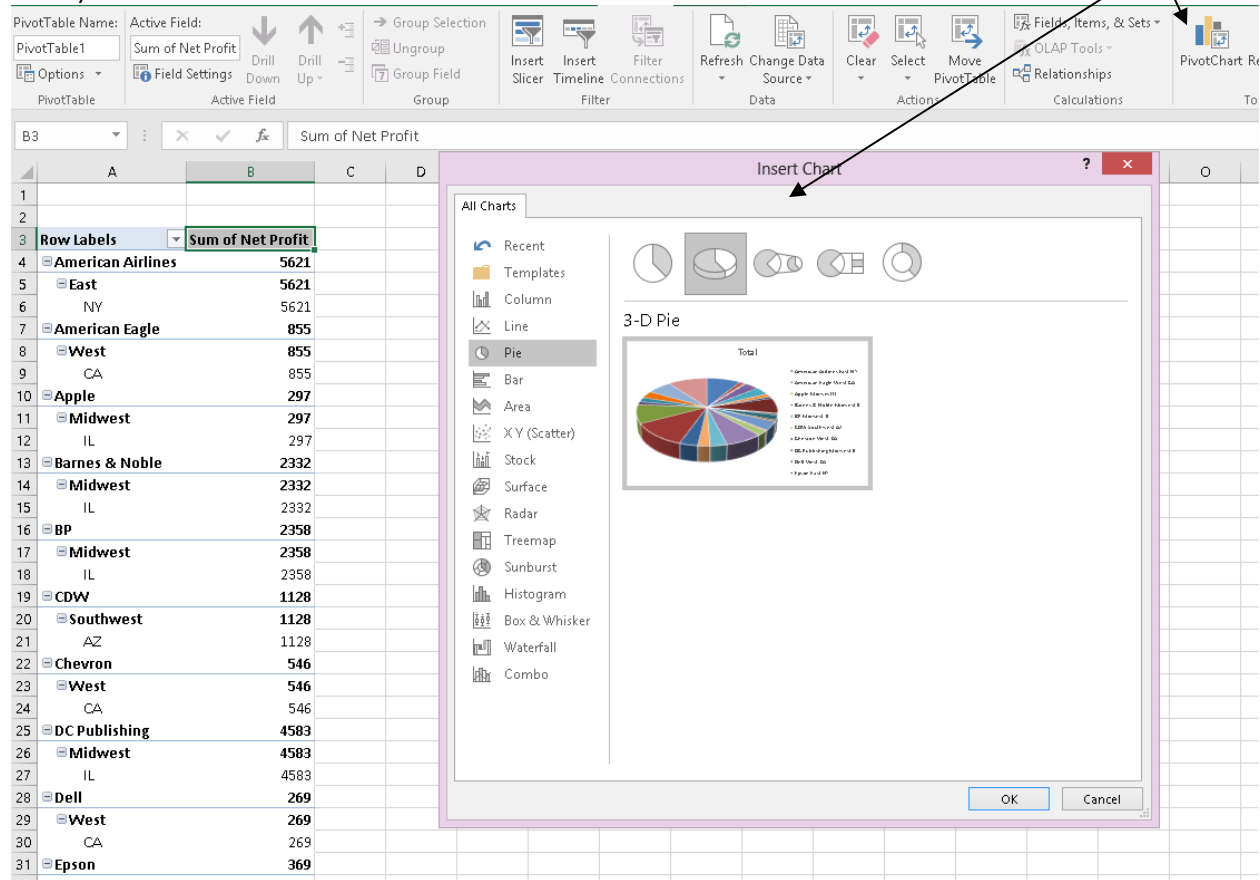
Charts

In Excel, charts are a great way to visualize your data. However, it is always good to remember some charts are not meant to display particular types of data. For example, the best charts to display percentages are pie charts. In this exercise, we will be working with stocks. When working with stocks, you more than likely will want to use the most updated information available. Open the stock spreadsheet.

Pivot Tables – Charts

You can quickly turn a pivot table into a pivot chart.
Click the **Analyze Tab -> Pivot Chart -> Select a Chart Type.** For this example, select Cell B3 (Sum of Net Profit) and select the Pie Chart.
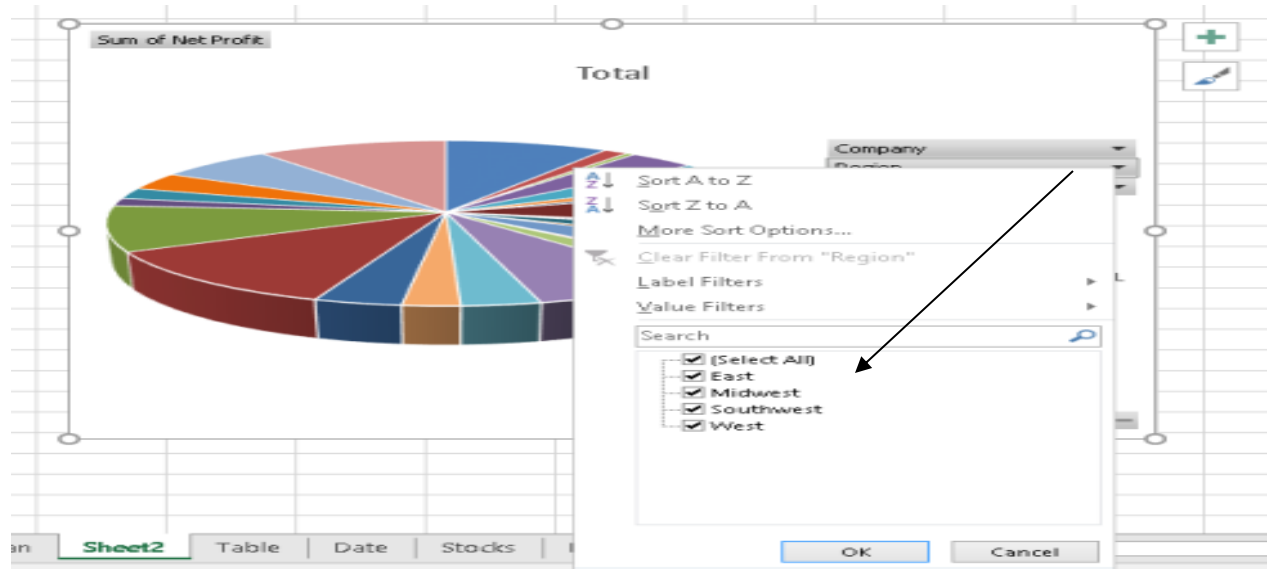

Now you can filter your data by Region or another field from the table.

To analyze your data even further, don't forget the Slicers. Go to **Analyze** tab and choose **Insert Slicer.** Choose Region, Net Profit, and Change from Previous Year. Click **OK.**
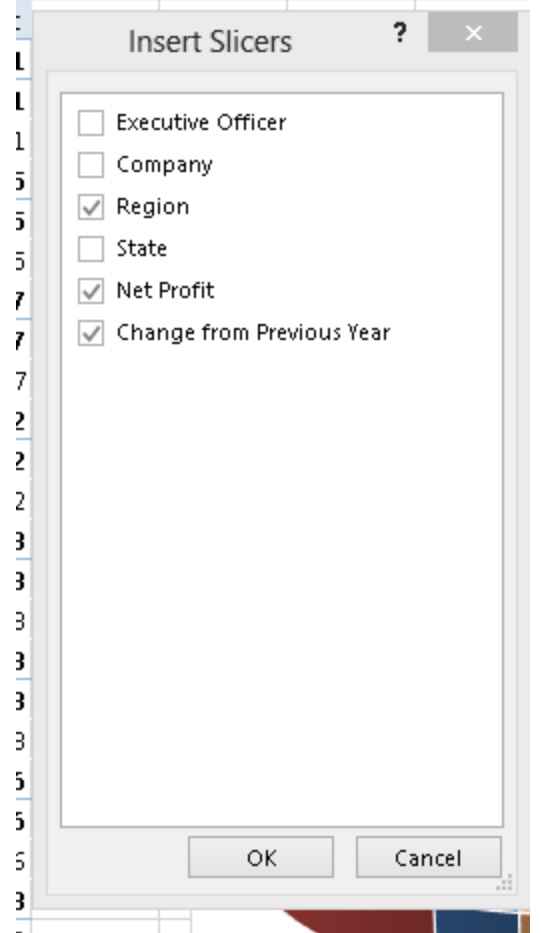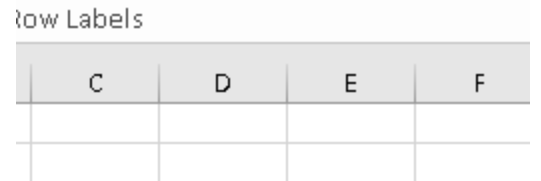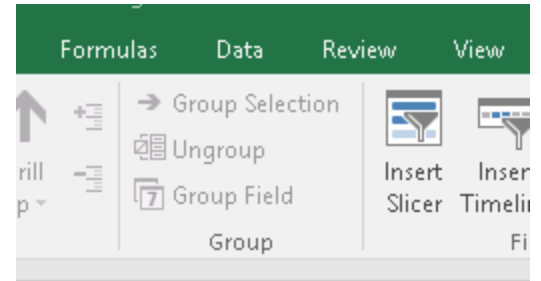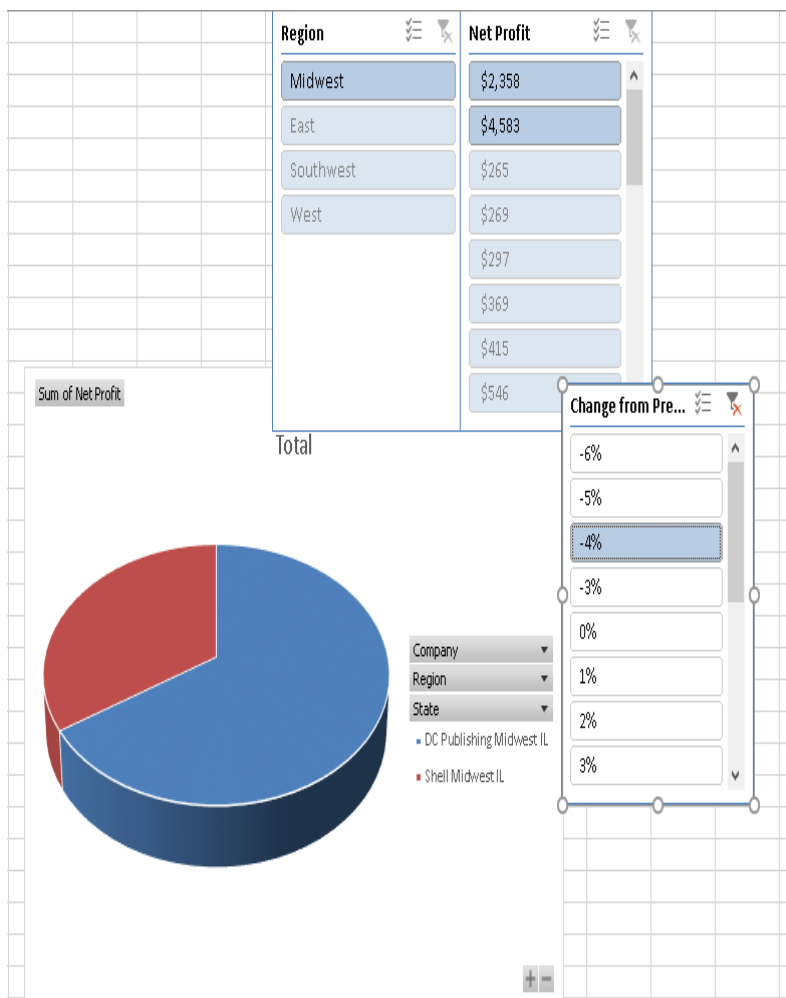
The three slicers will appear. Now you can filter by any of the slicers.
Click:
Region-> Midwest
Change from Previous Year -> -4%

Now both the chart and table will change. (To get the full table and chart back, just double click on the table)
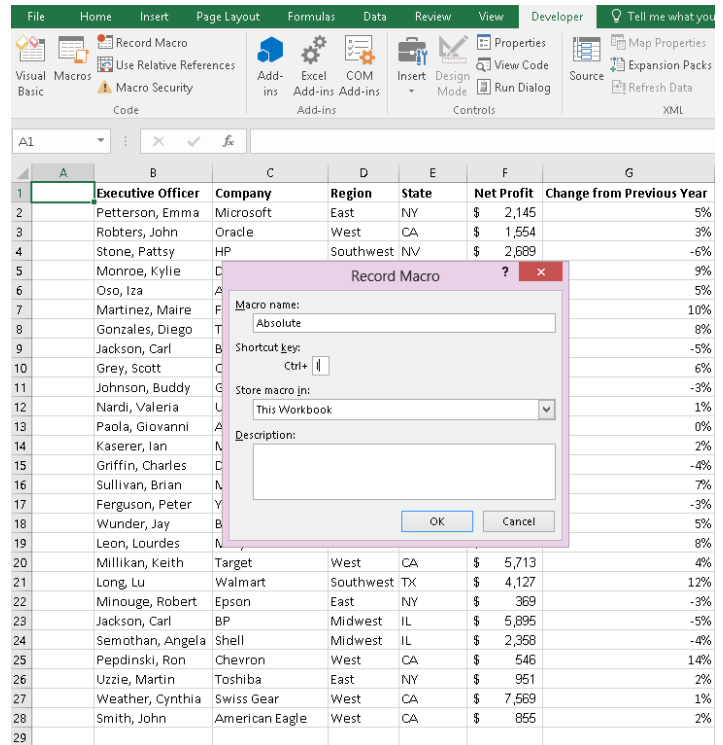
Macros

A macro in Excel, in most cases, is a recording of keystrokes. However, that is the basics of macros in Excel. I like to think of macros as the automation of tasks. There are two types of Macros. (This may sound familiar to the formula vocabulary). Absolute and Relative formulas!

Absolute Macro

Open the Macro spreadsheet.

- Click in Cell A1
- Open the Developer Tab (File Tab->Options->Customize Ribbon->Developer in the right menu)
- Click **Record Macro**
- Macro Name: Absolute
- Shortcut Key: Ctrl+l
- Leave "This Workbook"
- Click **Ok**
- **The Macro will start recording.**
- In cell A29, type "Total"
- In cell F29, type =SUM(F2:F28)
- Run the formula by clicking Enter
- Back on the Ribbon, click "Stop Recording"
- Delete all content in row 29. Click on any blank cell, and click **Macros** in the Ribbon.
- Click **Run** in the Macro dialogue box.
- Now click in any blank cell, and run the Macro again. **(Press Cntl+l)**
- The absolute macro will always return back to the original cell.

Relative Macro

- Click in Cell A1
- Back in the Developer Tab, click **Use Relative References**
- Click **Record Macro**
- Macro Name: Relative -> Shortcut Key: Ctrl+y -> This Workbook
- Click **OK**
- **The Macro will start recording.**
- In cell A30, type "Total"
- In cell F30, type =SUM(F2:F28)
- Run the formula by clicking Enter
- Back on the Ribbon, click "Stop Recording"
- Delete all content in row 30. Click on any blank cell, and click **Macros** in the Ribbon.
- Click **Run** in the Macro dialogue box.
- Now click in any blank cell, and run the Macro again. **(Press Cntl+y)**
- The relative macro will run the macro in any cell and reference the original table!