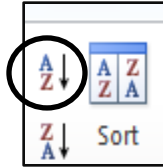


Excel Intermediate

Custom Sorting and Subtotaling

Excel allows us to sort data whether it is alphabetic or numeric. Simply clicking within a column or row of data will begin the process.

- Click in the name column of our Range of Data. (Do not highlight the column)
- Click on the Data Tab in the Ribbon



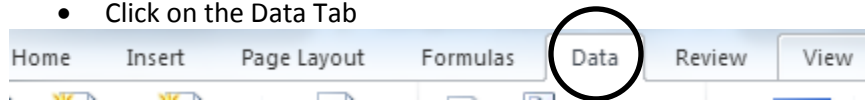
- Click on A – Z in the sort and filter group to see the donor names alphabetically sorted A - Z
- Click on Z – A in the sort and filter group to see the donor names alphabetically sorted Z - A.

A column containing numbers will be sorted smallest to largest and largest to smallest when choosing A – Z and Z – A, respectively.

Custom Sorting by Level

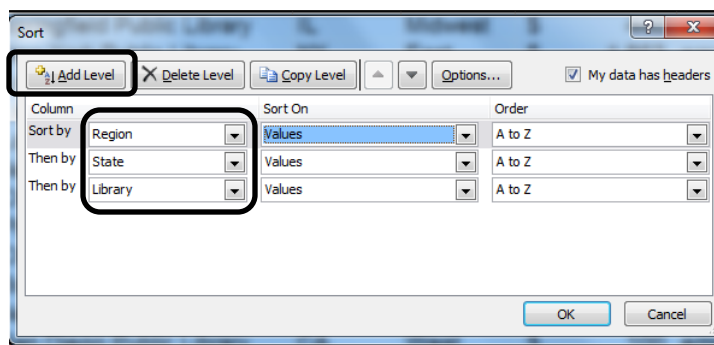
Custom Sorting allows you to select multiple criteria to sort your data.

- Click anywhere inside your range of data
- Click on the Data Tab



Click on the Sort Box. This brings up the Sort dialog box allowing you to sort your data by level. Clicking on the downward arrow in the “Sort by” field will bring up the criteria to choose from.

- Choose **Region** as your first sort level.
- Click on Add Level at the top left of the dialog box and select **State**.
- Click on Add Level again and select **Library**.
- Click on add Level once more and select **Giving Total**.
- Click on ok.



Your resulting spreadsheet should look like this:

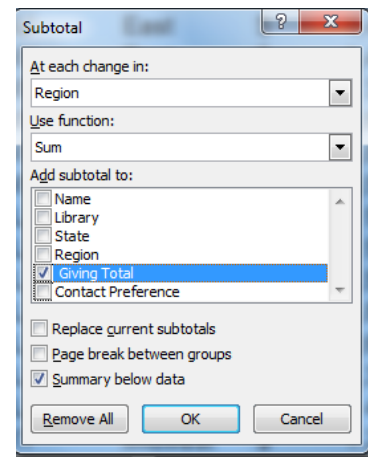
| | A | B | C | D | E | F |
|----|------------------|---------------------------|-------|---------|--------------|--------------------|
| 3 | Name | Library | State | Region | Giving Total | Contact Preference |
| 4 | Streep, Meryl | Boston Public Library | MA | East | \$ 1,119 | email |
| 5 | Trump, Donald | New Jersey Public Library | NJ | East | \$ 1,444 | email |
| 6 | Fallon, Jimmy | Brooklyn Public Library | NY | East | \$ 1,456 | email |
| 7 | Clinton, Hillary | New York Public Library | NY | East | \$ 351 | email |
| 8 | Pitt, Brad | New York Public Library | NY | East | \$ 1,614 | phone |
| 9 | Patterson, James | New York Public Library | NY | East | \$ 1,863 | email |
| 10 | Williams, Brian | New York Public Library | NY | East | \$ 3,536 | email |
| 11 | Jordan, Michael | Chicago Public Library | IL | Midwest | \$ 517 | phone |
| 12 | Winfrey, Oprah | Chicago Public Library | IL | Midwest | \$ 556 | phone |
| 13 | Obama, Barack | Chicago Public Library | IL | Midwest | \$ 1,504 | phone |

The data should be sorted first alphabetically by Region. Within each region it should be sorted alphabetically by State. Within each state it should be sorted alphabetically by Library and within each Library, The Giving Totals should be listed smallest to largest.

Subtotaling

After sorting your data you may want to add subtotals. This option is available within the Data Tab as well.

- Select any cell inside your range of data
- Click on subtotal in the Outline Group (way over to the right), to bring up the Subtotal dialog box. Clicking on the downward arrows next to each field, select:
- At each change in: **Region**
- Use the function: **Sum**
- Add subtotal to: **Giving Total**
- Check the box that says Summary below data
- Click on ok



The resulting spreadsheet should look like this:

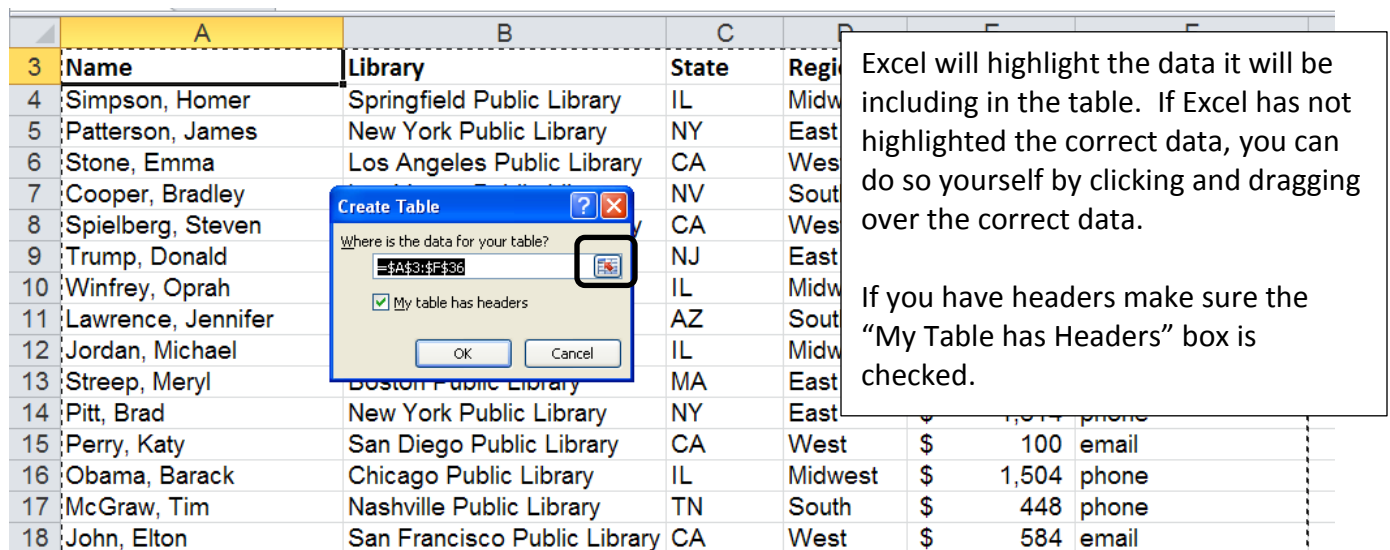
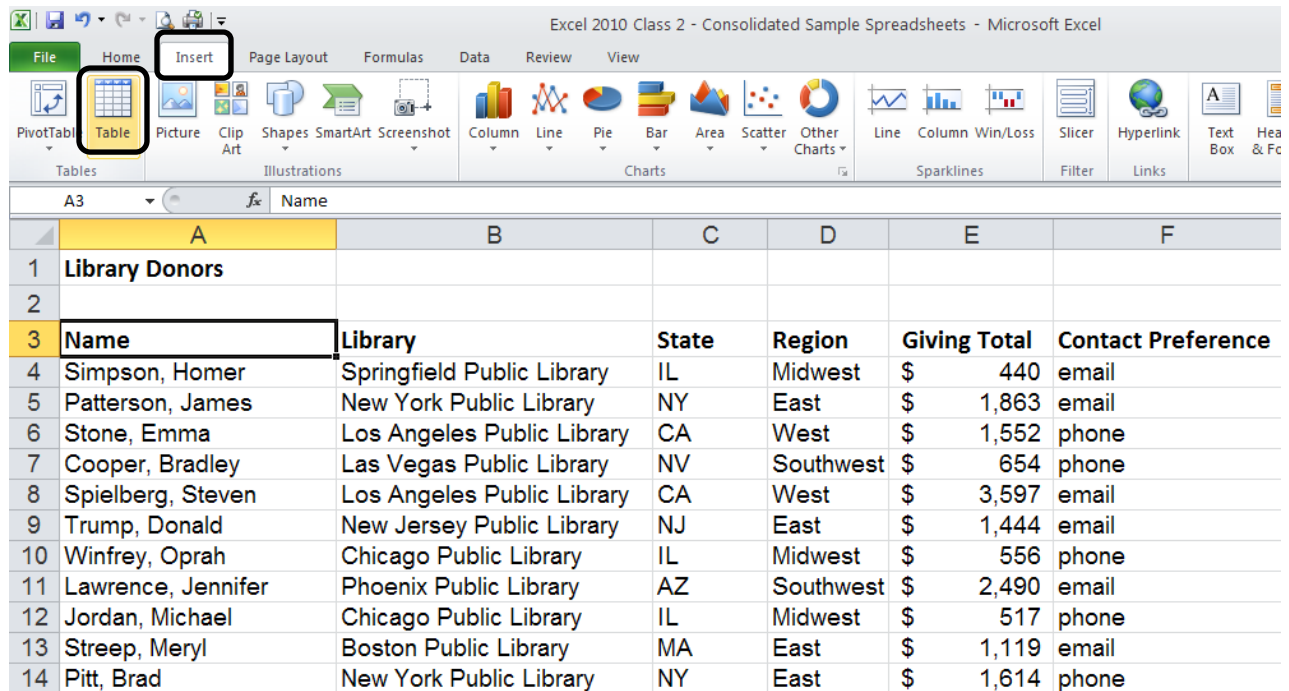
| | A | B | C | D | E | F |
|--|------------------|----------------------------|----|-------------------|-----------|-------|
| | Streep, Meryl | Boston Public Library | MA | East | \$ 1,119 | email |
| | Trump, Donald | New Jersey Public Library | NJ | East | \$ 1,444 | email |
| | Fallon, Jimmy | Brooklyn Public Library | NY | East | \$ 1,456 | email |
| | Clinton, Hillary | New York Public Library | NY | East | \$ 351 | email |
| | Pitt, Brad | New York Public Library | NY | East | \$ 1,614 | phone |
| | Patterson, James | New York Public Library | NY | East | \$ 1,863 | email |
| | Williams, Brian | New York Public Library | NY | East | \$ 3,536 | email |
| | | | | East Total | \$ 11,383 | |
| | Jordan, Michael | Chicago Public Library | IL | Midwest | \$ 517 | phone |
| | Winfrey, Oprah | Chicago Public Library | IL | Midwest | \$ 556 | phone |
| | Obama, Barack | Chicago Public Library | IL | Midwest | \$ 1,504 | phone |
| | Ditka, Mike | Chicago Public Library | IL | Midwest | \$ 1,873 | email |
| | Murray, Bill | Chicago Public Library | IL | Midwest | \$ 2,640 | email |
| | Potter, Harry | Palatine Public Library | IL | Midwest | \$ 1,376 | owl |
| | Simpson, Homer | Springfield Public Library | IL | Midwest | \$ 440 | email |
| | Clooney, George | Lexington Public Library | KY | Midwest | \$ 1,200 | phone |

We can add more subtotals by simply clicking on the Subtotal icon again, and changing region to state for instance. Just make sure the box next to: "Replace current subtotals" is not checked.

Creating a Table

Tables are a great way to organize your data and make it easier to sort and filter information.

Select any cell within your data set, select the Insert Ribbon, then click on "Table."



You now have a new Ribbon titled "Table Tools - Design." This Ribbon allows you to change the color coding of your table. By selecting "Banded Rows" the table will color every other row a

different color for easier viewing. You can also select “Banded Columns” to do the same to your columns.

Table Name: Table1

Table Tools: Design

Table Style Options: Banded Columns

| Name | Library | State | Region | Giving Total | Contact Preference |
|--------------------|----------------------------|-------|-----------|--------------|--------------------|
| Simpson, Homer | Springfield Public Library | IL | Midwest | \$ 440 | email |
| Patterson, James | New York Public Library | NY | East | \$ 1,863 | email |
| Stone, Emma | Los Angeles Public Library | CA | West | \$ 1,552 | phone |
| Cooper, Bradley | Las Vegas Public Library | NV | Southwest | \$ 654 | phone |
| Spielberg, Steven | Los Angeles Public Library | CA | West | \$ 3,597 | email |
| Trump, Donald | New Jersey Public Library | NJ | East | \$ 1,444 | email |
| Winfrey, Oprah | Chicago Public Library | IL | Midwest | \$ 556 | phone |
| Lawrence, Jennifer | Phoenix Public Library | AZ | Southwest | \$ 2,490 | email |
| Jordan, Michael | Chicago Public Library | IL | Midwest | \$ 517 | phone |
| Streep, Meryl | Boston Public Library | MA | East | \$ 1,119 | email |
| Pitt, Brad | New York Public Library | NY | East | \$ 1,614 | phone |
| Perry, Katy | San Diego Public Library | CA | West | \$ 100 | email |
| Obama, Barack | Chicago Public Library | IL | Midwest | \$ 1,504 | phone |

You will now see some drop-down arrows at the end of each of your column headings. Select the drop down arrow next to the “Name” Heading. You will see the options for sorting the column. You can choose to sort from A-Z or from Z-A.

Sort A to Z

Sort by Color

Clear Filter From “Name”

Filter by Color

Text Filters

Search

(Select All)

Carell, Steve

Clinton, Hillary

Clooney, George

Cooper, Bradley

Degeneres, Ellen

Ditka, Mike

Fallon, Jimmy

Gaga, Lady

Gates, Bill

OK

Cancel

| Name | Library | State | Region | Giving Total | Contact |
|-------------------|------------------------------|-------|-----------|--------------|---------|
| Carell, Steve | Springfield Public Library | IL | Midwest | \$ 440 | email |
| Clinton, Hillary | New York Public Library | NY | East | \$ 1,863 | email |
| Clooney, George | Los Angeles Public Library | CA | West | \$ 1,552 | phone |
| Cooper, Bradley | Las Vegas Public Library | NV | Southwest | \$ 654 | phone |
| Degeneres, Ellen | Los Angeles Public Library | CA | West | \$ 3,597 | email |
| Ditka, Mike | New Jersey Public Library | NJ | East | \$ 1,444 | email |
| Fallon, Jimmy | Chicago Public Library | IL | Midwest | \$ 556 | phone |
| Gaga, Lady | Phoenix Public Library | AZ | Southwest | \$ 2,490 | email |
| Gates, Bill | Chicago Public Library | IL | Midwest | \$ 517 | phone |
| | Boston Public Library | MA | East | \$ 1,119 | email |
| | New York Public Library | NY | East | \$ 1,614 | phone |
| | San Diego Public Library | CA | West | \$ 100 | email |
| | Chicago Public Library | IL | Midwest | \$ 1,504 | phone |
| | Nashville Public Library | TN | South | \$ 448 | phone |
| | San Francisco Public Library | CA | West | \$ 584 | email |
| Spielberg, Steven | Los Angeles Public Library | CA | West | \$ 3,597 | email |
| Ditka, Mike | Chicago Public Library | IL | Midwest | \$ 1,873 | email |

| | A | B | C | D | E | |
|----|-----------------------|------------------------------|--------------|---------------|---------------------|----------------|
| 1 | Library Donors | | | | | |
| 2 | | | | | | |
| 3 | Name | Library | State | Region | Giving Total | Contact |
| 4 | Carell, Steve | San Francisco Public Library | CA | West | \$ 538 | phone |
| 5 | Clinton, Hillary | New York Public Library | NY | East | \$ 351 | email |
| 6 | Clooney, George | Lexington Public Lib | | Midwest | \$ 1,200 | phone |
| 7 | Cooper, Bradley | Las Vegas Public Lib | | Southwest | \$ 654 | phone |
| 8 | Degeneres, Ellen | Los Angeles Public L | | West | \$ 2,037 | phone |
| 9 | Ditka, Mike | Chicago Public Libra | | Midwest | \$ 1,873 | email |
| 10 | Fallon, Jimmy | Brooklyn Public Libra | | East | \$ 1,456 | email |
| 11 | Gaga, Lady | Los Angeles Public L | | West | \$ 1,101 | phone |
| 12 | Gates, Bill | Seattle Public Library | | Northwest | \$ 1,488 | email |
| 13 | Gosling, Ryan | Los Angeles Public Library | CA | West | \$ 1,176 | email |
| 14 | John, Elton | San Francisco Public Library | CA | West | \$ 584 | email |
| 15 | Jordan, Michael | Chicago Public Library | IL | Midwest | \$ 517 | phone |
| 16 | Keith, Toby | Houston Public Library | TX | Southwest | \$ 346 | email |
| 17 | King, Stephen | Augusta Public Library | ME | Northeast | \$ 291 | email |

You will notice a little arrow indicating that this column has been sorted.

In addition to sorting, you can use Excel 2010 to filter out data from your table in order to leave just the data you need. For instance, in this example, you can filter out all library donors except those who donated to the Chicago Public Library:

| | A | B | C | D | E | |
|----|-----------------------|----------------|--------------|---------------|---------------------|----------------|
| 1 | Library Donors | | | | | |
| 2 | | | | | | |
| 3 | Name | Library | State | Region | Giving Total | Contact |
| 4 | Simpson, Homer | | IL | Midwest | \$ 440 | email |
| 5 | Patterson, James | | NY | East | \$ 1,863 | email |
| 6 | Stone, Emma | | CA | West | \$ 1,552 | phone |
| 7 | Cooper, Bradley | | NV | Southwest | \$ 654 | phone |
| 8 | Spielberg, Steven | | CA | West | \$ 3,597 | email |
| 9 | Trump, Donald | | | | | email |
| 10 | Winfrey, Oprah | | | | | phone |
| 11 | Lawrence, Jennifer | | | | | email |
| 12 | Jordan, Michael | | | | | phone |
| 13 | Streep, Meryl | | | | | email |
| 14 | Pitt, Brad | | | | | phone |
| 15 | Perry, Katy | | | | | email |
| 16 | Obama, Barack | | | | | phone |
| 17 | McGraw, Tim | | | | | phone |
| 18 | John, Elton | | CA | West | \$ 584 | email |
| 19 | Spielberg, Steven | | CA | West | \$ 3,597 | email |
| 20 | Ditka, Mike | | IL | Midwest | \$ 1,873 | email |

Start by clicking the drop-down arrow in the "Library" column.

Uncheck "(Select All)" to clear out all checkmarks.

Check "Chicago Public Library" and click OK.

Only the donors for the Chicago Public Library remain – the others have been filtered out. You will notice a filter icon now appears next to the drop-down arrow by the column heading.

| | A | B | C | D | E | F |
|----|-----------------------|------------------------|--------------|---------------|---------------------|---------------------------|
| 1 | Library Donors | | | | | |
| 2 | | | | | | |
| 3 | Name | Library | State | Region | Giving Total | Contact Preference |
| 10 | Winfrey, Oprah | Chicago Public Library | IL | Midwest | \$ 556 | phone |
| 12 | Jordan, Michael | Chicago Public Library | IL | Midwest | \$ 517 | phone |
| 16 | Obama, Barack | Chicago Public Library | IL | Midwest | \$ 1,504 | phone |
| 20 | Ditka, Mike | Chicago Public Library | IL | Midwest | \$ 1,873 | email |
| 27 | Murray, Bill | Chicago Public Library | IL | Midwest | \$ 2,640 | email |
| 37 | | | | | | |
| 38 | | | | | | |
| 39 | | | | | | |

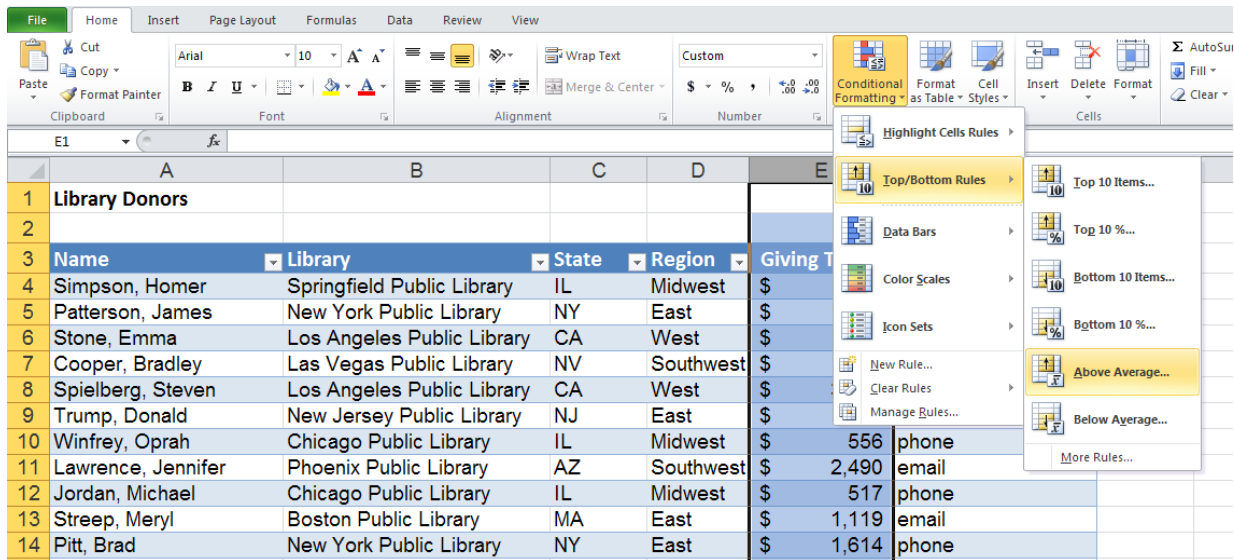
You can clear a filter by selecting the column heading, then “Clear” from the Sort & Filter section of the Data ribbon; or, you can click the column heading drop-down arrow and select the option to clear the filter.

The screenshot shows the Excel interface with the 'Data' ribbon active. In the 'Sort & Filter' group, the 'Clear' button is highlighted. Below the ribbon, the 'Library Donors' table is visible. The 'Library' column header is selected, and its dropdown menu is open. The 'Clear Filter From "Library"' option is highlighted. A list of libraries is shown below, with 'Chicago Public Library' selected.

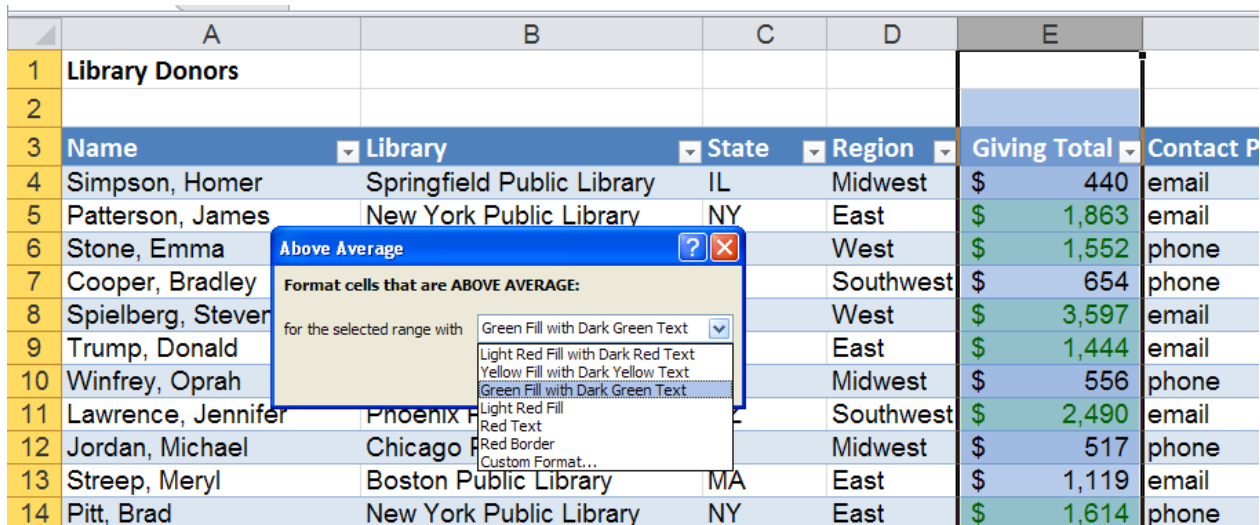
| Name | Library | State | Region | Giving Total | Contact Preference |
|-----------------|------------------------|-------|---------|--------------|--------------------|
| Winfrey, Oprah | Chicago Public Library | IL | Midwest | \$ 556 | phone |
| Jordan, Michael | Chicago Public Library | IL | Midwest | \$ 517 | phone |
| Obama, Barack | Chicago Public Library | IL | Midwest | \$ 1,504 | phone |
| Ditka, Mike | Chicago Public Library | IL | Midwest | \$ 1,873 | email |
| Murray, Bill | Chicago Public Library | IL | Midwest | \$ 2,640 | email |

Conditional Formatting – Top/Bottom Rules

Excel 2010 offers conditional formatting options that highlight data that meet criteria that you have set. For example, it might be helpful to have Excel highlight library donors that give more than average.



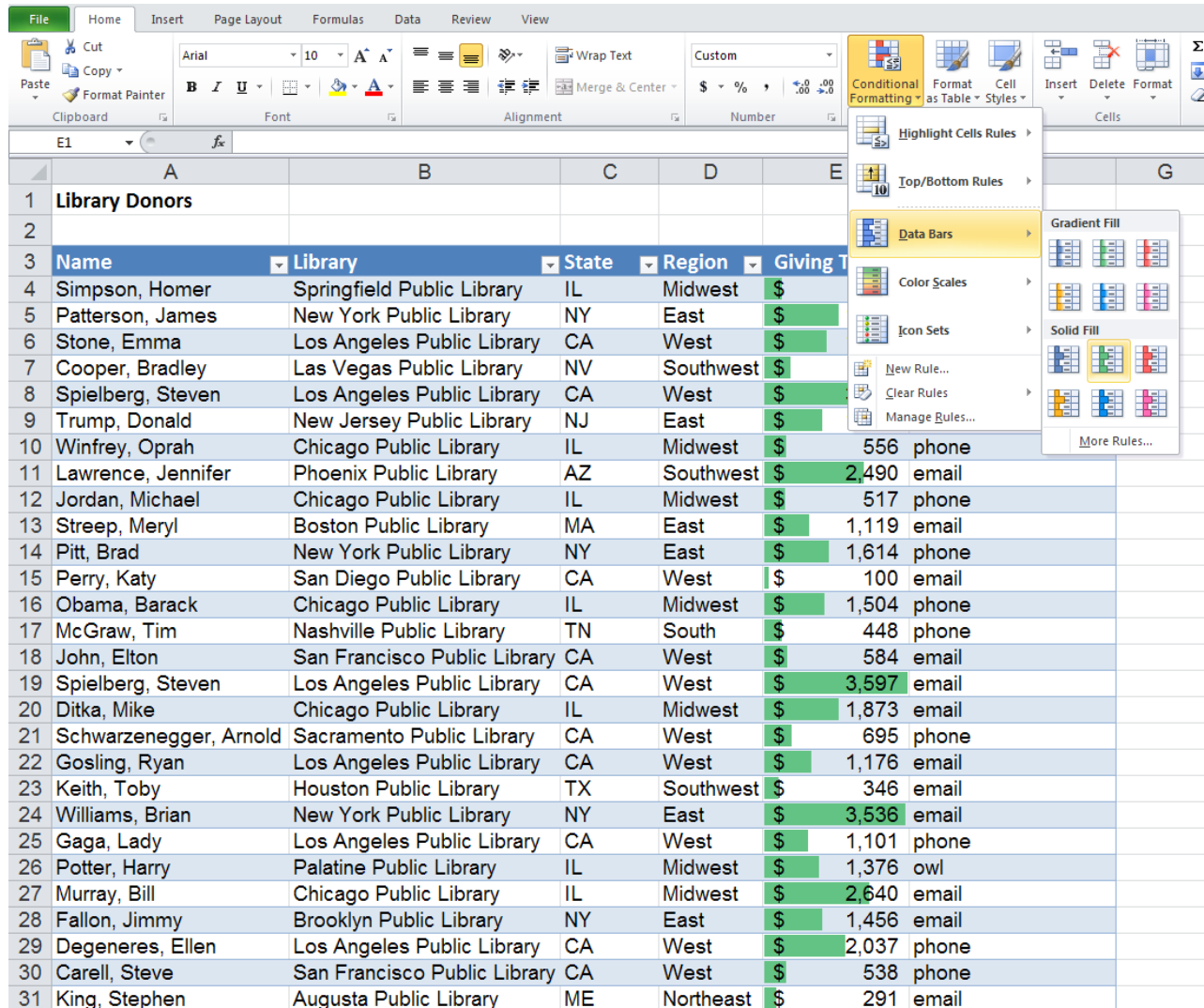
Start by highlighting the column to which you wish to apply conditional formatting. Then, on the Home ribbon, select “Conditional Formatting,” “Top/Bottom Rules,” and finally, “Above Average.”



You will then be prompted choose how Excel will highlight the cells that meet the “above average” criterion. In this case, a green fill with dark green text marks the big library donors. Note that that these changes can be easily undone using the “Clear Rules” option on the “Conditional Formatting” menu.

Conditional Formatting – Data Bars

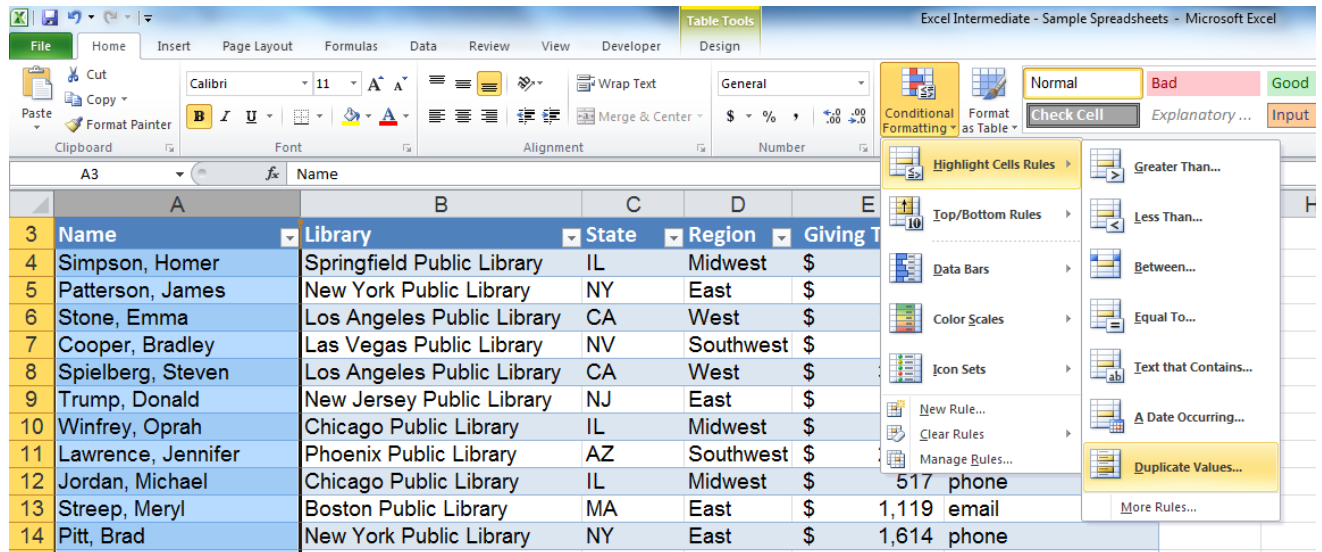
Excel 2010 allows you to display graphical representations of numerical data. Adding colored data bars in this example makes it easy to see who is donating the most and least. Select the column you wish to format, select “Conditional Formatting,” then “Data Bars,” and finally the style and color of fill you want to use on your data bars.



| | A | B | C | D | E | |
|----|------------------------|------------------------------|--------------|---------------|---------------|-------------|
| 1 | Library Donors | | | | | |
| 2 | | | | | | |
| 3 | Name | Library | State | Region | Giving | T |
| 4 | Simpson, Homer | Springfield Public Library | IL | Midwest | \$ | |
| 5 | Patterson, James | New York Public Library | NY | East | \$ | |
| 6 | Stone, Emma | Los Angeles Public Library | CA | West | \$ | |
| 7 | Cooper, Bradley | Las Vegas Public Library | NV | Southwest | \$ | |
| 8 | Spielberg, Steven | Los Angeles Public Library | CA | West | \$ | |
| 9 | Trump, Donald | New Jersey Public Library | NJ | East | \$ | |
| 10 | Winfrey, Oprah | Chicago Public Library | IL | Midwest | \$ | 556 phone |
| 11 | Lawrence, Jennifer | Phoenix Public Library | AZ | Southwest | \$ | 2,490 email |
| 12 | Jordan, Michael | Chicago Public Library | IL | Midwest | \$ | 517 phone |
| 13 | Streep, Meryl | Boston Public Library | MA | East | \$ | 1,119 email |
| 14 | Pitt, Brad | New York Public Library | NY | East | \$ | 1,614 phone |
| 15 | Perry, Katy | San Diego Public Library | CA | West | \$ | 100 email |
| 16 | Obama, Barack | Chicago Public Library | IL | Midwest | \$ | 1,504 phone |
| 17 | McGraw, Tim | Nashville Public Library | TN | South | \$ | 448 phone |
| 18 | John, Elton | San Francisco Public Library | CA | West | \$ | 584 email |
| 19 | Spielberg, Steven | Los Angeles Public Library | CA | West | \$ | 3,597 email |
| 20 | Ditka, Mike | Chicago Public Library | IL | Midwest | \$ | 1,873 email |
| 21 | Schwarzenegger, Arnold | Sacramento Public Library | CA | West | \$ | 695 phone |
| 22 | Gosling, Ryan | Los Angeles Public Library | CA | West | \$ | 1,176 email |
| 23 | Keith, Toby | Houston Public Library | TX | Southwest | \$ | 346 email |
| 24 | Williams, Brian | New York Public Library | NY | East | \$ | 3,536 email |
| 25 | Gaga, Lady | Los Angeles Public Library | CA | West | \$ | 1,101 phone |
| 26 | Potter, Harry | Palatine Public Library | IL | Midwest | \$ | 1,376 owl |
| 27 | Murray, Bill | Chicago Public Library | IL | Midwest | \$ | 2,640 email |
| 28 | Fallon, Jimmy | Brooklyn Public Library | NY | East | \$ | 1,456 email |
| 29 | Degeneres, Ellen | Los Angeles Public Library | CA | West | \$ | 2,037 phone |
| 30 | Carell, Steve | San Francisco Public Library | CA | West | \$ | 538 phone |
| 31 | King, Stephen | Augusta Public Library | ME | Northeast | \$ | 291 email |

Conditional Formatting - Highlight Cells Rules

Another helpful feature of Conditional Formatting is the option to search for duplicate values. If you wanted to search through the list of donors to make sure you haven't accidentally listed somebody twice, you can select the "Name" column, then "Conditional Formatting," "Highlight Cell Rules," and finally "Duplicate Values."



You can then select how you want Excel to mark the duplicates.

| | A | B | C | D | E | F |
|----|--------------------|------------------------------|-------|-----------|--------------|-------------|
| 1 | Library Donors | | | | | |
| 2 | | | | | | |
| 3 | Name | Library | State | Region | Giving Total | Contact Pre |
| 4 | Simpson, Homer | Springfield Public Library | IL | Midwest | \$ 440 | email |
| 5 | Patterson, James | New York Public Library | NY | East | \$ 1,863 | email |
| 6 | Stone, Emma | Los Angeles Public Library | CA | West | \$ 1,552 | phone |
| 7 | Cooper, Bradley | Las Vegas Public Library | NV | Southwest | \$ 654 | phone |
| 8 | Spielberg, Steven | Los Angeles Public Library | CA | West | \$ 3,597 | email |
| 9 | Trump, Donald | New Jersey Public Library | NJ | East | \$ 1,444 | email |
| 10 | Winfrey, Oprah | Chicago Public Library | IL | Midwest | \$ 556 | phone |
| 11 | Lawrence, Jennifer | Phoenix Public Library | AZ | Southwest | \$ 2,490 | email |
| 12 | Jordan, Michael | Chicago Public Library | IL | Midwest | \$ 517 | phone |
| 13 | Streep, Meryl | Boston Public Library | MA | East | \$ 1,119 | email |
| 14 | Pitt, Brad | New York Public Library | NY | East | \$ 1,614 | phone |
| 15 | Perry, Katy | San Diego Public Library | CA | West | \$ 100 | email |
| 16 | Obama, Barack | Chicago Public Library | IL | Midwest | \$ 1,504 | phone |
| 17 | McGraw, Tim | Nashville Public Library | TN | South | \$ 448 | phone |
| 18 | John, Elton | San Francisco Public Library | CA | West | \$ 584 | email |
| 19 | Spielberg, Steven | Los Angeles Public Library | CA | West | \$ 3,597 | email |
| 20 | Ditka, Mike | Chicago Public Library | IL | Midwest | \$ 1,873 | email |

You can manually remove duplicates or use Excel's automated feature for removing duplicates. To use Excel's automated Remove Duplicates feature, make sure your table is selected, then click the "Design" contextual ribbon, "Remove Duplicates," and "Unselect All." **Selecting "Unselect All" is important so that Excel does not remove duplicates from any column other than the one you select** – in this case, the "Name" column. Click OK.

The screenshot shows the Excel interface with the 'Table Tools - Design' ribbon active. The 'Remove Duplicates' button is highlighted in the 'Tools' group. A dialog box titled 'Remove Duplicates' is open, displaying the instruction: 'To delete duplicate values, select one or more columns that contain duplicates.' The 'Columns' list includes Name, Library, State, Region, Giving Total, and Contact Preference. The 'Name' column is selected with a checkmark. The 'Unselect All' button is circled. The 'My data has headers' checkbox is checked. The background table contains the following data:

| | Name | Library | State | Region | Giving Total | Contact Preference |
|----|------------------------|------------------------------|-------|-----------|--------------|--------------------|
| 4 | Simpson, Homer | Springfield Public Library | IL | Midwest | \$ 440 | email |
| 5 | Patterson, James | New York Public Library | NY | East | \$ 1,863 | email |
| 6 | Stone, Emma | Los Angeles Public Library | CA | West | \$ 1,552 | phone |
| 7 | Cooper, Bradley | Las Vegas Public Library | NV | Southwest | \$ 654 | phone |
| 8 | Spielberg, Steven | Los Angeles Public Library | CA | West | \$ 3,597 | email |
| 9 | Trump, Donald | New Jersey Public Library | NJ | East | \$ 1,444 | email |
| 10 | Winfrey, Oprah | Chicago Public Library | IL | Midwest | \$ 556 | phone |
| 11 | Lawrence, Jennifer | Phoenix Public Library | AZ | South | \$ 2,490 | email |
| 12 | Jordan, Michael | Chicago Public Library | IL | Midwest | \$ 517 | phone |
| 13 | Streep, Meryl | Boston Public Library | MA | Northeast | \$ 1,119 | email |
| 14 | Pitt, Brad | New York Public Library | NY | East | \$ 1,614 | phone |
| 15 | Perry, Katy | San Diego Public Library | CA | West | \$ 100 | email |
| 16 | Obama, Barack | Chicago Public Library | IL | Midwest | \$ 1,504 | phone |
| 17 | McGraw, Tim | Nashville Public Library | TN | South | \$ 448 | phone |
| 18 | John, Elton | San Francisco Public Library | CA | West | \$ 584 | email |
| 19 | Spielberg, Steven | Los Angeles Public Library | CA | West | \$ 3,597 | email |
| 20 | Ditka, Mike | Chicago Public Library | IL | Midwest | \$ 1,873 | email |
| 21 | Schwarzenegger, Arnold | Sacramento Public Library | CA | West | \$ 695 | phone |

The duplicate donor has been removed.

The screenshot shows the result after removing duplicates. A message box from Microsoft Excel states: '1 duplicate values found and removed; 32 unique values remain.' The background table now contains 17 unique donors:

| | Name | Library | State | Region | Giving Total | Contact Preference |
|----|--------------------|----------------------------|-------|-----------|--------------|--------------------|
| 4 | Simpson, Homer | Springfield Public Library | IL | Midwest | \$ 440 | email |
| 5 | Patterson, James | New York Public Library | NY | East | \$ 1,863 | email |
| 6 | Stone, Emma | Los Angeles Public Library | CA | West | \$ 1,552 | phone |
| 7 | Cooper, Bradley | Las Vegas Public Library | NV | Southwest | \$ 654 | phone |
| 8 | Spielberg, Steven | Los Angeles Public Library | CA | West | \$ 3,597 | email |
| 9 | Trump, Donald | New Jersey Public Library | NJ | East | \$ 1,444 | email |
| 10 | Winfrey, Oprah | Chicago Public Library | IL | Midwest | \$ 556 | phone |
| 11 | Lawrence, Jennifer | Phoenix Public Library | AZ | South | \$ 2,490 | email |
| 12 | Jordan, Michael | Chicago Public Library | IL | Midwest | \$ 517 | phone |
| 13 | Streep, Meryl | Boston Public Library | MA | Northeast | \$ 1,119 | email |
| 14 | Pitt, Brad | New York Public Library | NY | East | \$ 1,614 | phone |
| 15 | Perry, Katy | San Diego Public Library | CA | West | \$ 100 | email |
| 16 | Obama, Barack | Chicago Public Library | IL | Midwest | \$ 1,504 | phone |
| 17 | McGraw, Tim | Nashville Public Library | TN | South | \$ 448 | phone |

Adding a Total Row

You can easily add a Total row to your table by checking the “Total Row” option on the Table Tools-Design contextual ribbon.

The screenshot shows the Excel 2010 interface with the Table Tools-Design ribbon active. The 'Total Row' checkbox is checked. Below the ribbon, a table is displayed with columns: Name, Library, State, Region, Giving Total, and Contact Preference. The table data is as follows:

| | Name | Library | State | Region | Giving Total | Contact Preference |
|----|------------------|------------------------------|-------|-----------|--------------|--------------------|
| 30 | Carell, Steve | San Francisco Public Library | CA | West | \$ 538 | phone |
| 31 | King, Stephen | Augusta Public Library | ME | Northeast | \$ 291 | email |
| 32 | Tatum, Channing | Atlanta Public Library | GA | South | \$ 420 | phone |
| 33 | Clooney, George | Lexington Public Library | KY | Midwest | \$ 1,200 | phone |
| 34 | Gates, Bill | Seattle Public Library | WA | Northwest | \$ 1,488 | email |
| 35 | Clinton, Hillary | New York Public Library | NY | East | \$ 351 | email |
| 36 | Woods, Tiger | Miami Public Library | FL | South | \$ 86 | email |
| 37 | Total | | | | | 33 |

A dropdown menu is open for the 'Giving Total' column, showing the following options: None, Average, Count, Count Numbers, Max, Min, Sum.

Once the Total row is in place, click in the cell where you want a total to appear and a drop-down arrow will appear. Select whether you want Excel to calculate a sum, an average, minimum, maximum, etc.

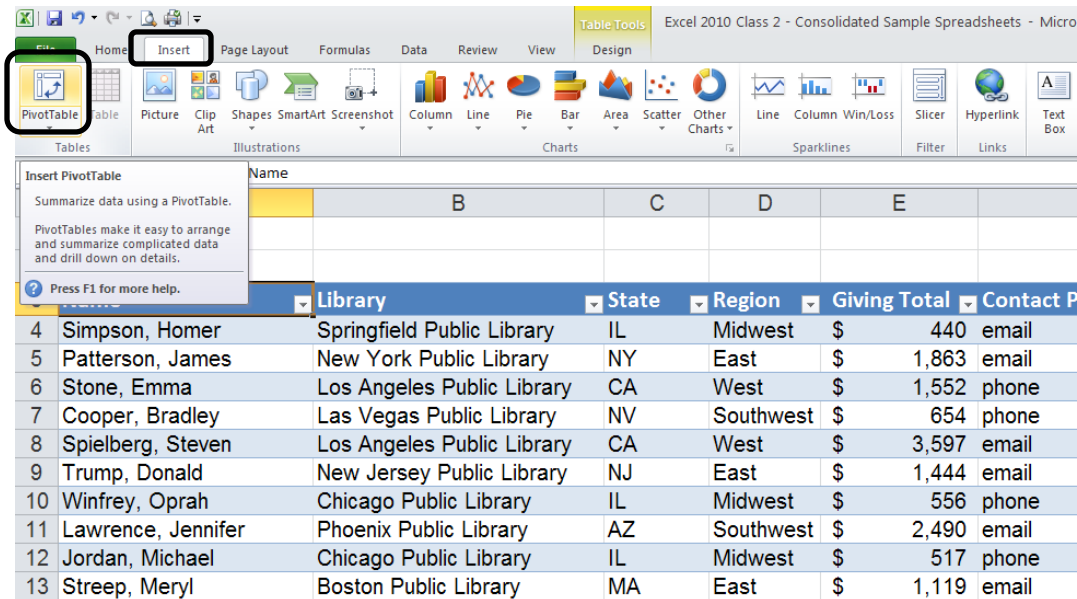
| | | | | | | | | |
|----|-----------------|------------------------------|----|-----------|---|----|----------|-------|
| 30 | Ellen Degeneres | Los Angeles Public Library | CA | West | 4 | \$ | 2,037.28 | phone |
| 31 | Steve Carell | San Francisco Public Library | CA | West | 2 | \$ | 538.60 | phone |
| 32 | Stephen King | Augusta Public Library | ME | Northeast | 1 | \$ | 291.84 | email |
| 33 | Stephenie Meyer | Forks Public Library | WA | Northwest | 4 | \$ | 420.00 | phone |
| 34 | George Clooney | San Francisco Public Library | CA | West | 3 | \$ | 1,200.80 | phone |
| 35 | Bill Gates | Medina Public Library | WA | Northwest | 2 | \$ | 1,488.80 | email |
| 36 | Hillary Clinton | New York Public Library | NY | East | 1 | \$ | 351.00 | email |
| 37 | Tim Burton | San Francisco Public Library | CA | West | 5 | \$ | 613.20 | phone |
| 38 | Tiger Woods | Sacramento Public Library | FL | South | 3 | \$ | 86.50 | email |
| 39 | Total | | | | | \$ | 1,181.94 | 35 |
| 40 | | | | | | | | |
| 41 | | | | | | | | |
| 42 | | | | | | | | |
| 43 | | | | | | | | |
| 44 | | | | | | | | |
| 45 | | | | | | | | |
| 46 | | | | | | | | |
| 47 | | | | | | | | |

If Excel assigns a total to a column that doesn't require a total, click the cell with the total and select “None” from the drop-down menu. This will delete the unnecessary total.

Pivot Tables

Once you have created a table in Excel 2010, it is easy to convert your table to a Pivot Table. The “Pivot Tables” feature is a flexible tool that allows you to easily analyze your data in different ways.

To convert your table to a Pivot Table, select the Insert ribbon, then click the “Pivot Table” button.



Excel 2010 Class 2 - Consolidated Sample Spreadsheets - Micro

Insert PivotTable

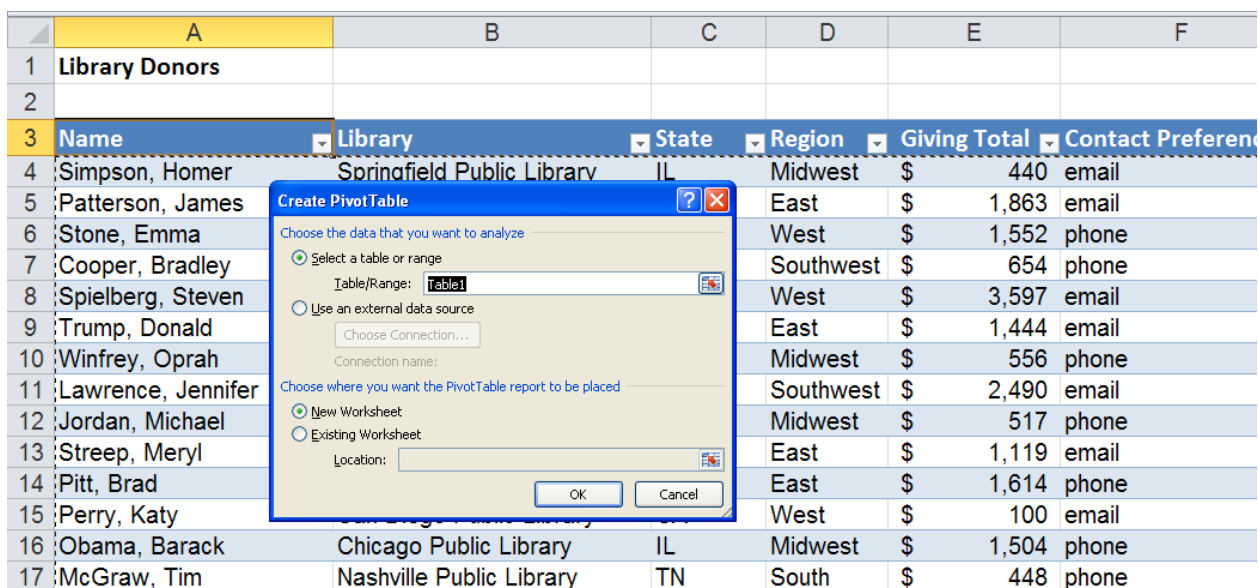
Summarize data using a PivotTable.

PivotTables make it easy to arrange and summarize complicated data and drill down on details.

Press F1 for more help.

| | Name | Library | State | Region | Giving Total | Contact P |
|----|--------------------|----------------------------|-------|-----------|--------------|-----------|
| 4 | Simpson, Homer | Springfield Public Library | IL | Midwest | \$ 440 | email |
| 5 | Patterson, James | New York Public Library | NY | East | \$ 1,863 | email |
| 6 | Stone, Emma | Los Angeles Public Library | CA | West | \$ 1,552 | phone |
| 7 | Cooper, Bradley | Las Vegas Public Library | NV | Southwest | \$ 654 | phone |
| 8 | Spielberg, Steven | Los Angeles Public Library | CA | West | \$ 3,597 | email |
| 9 | Trump, Donald | New Jersey Public Library | NJ | East | \$ 1,444 | email |
| 10 | Winfrey, Oprah | Chicago Public Library | IL | Midwest | \$ 556 | phone |
| 11 | Lawrence, Jennifer | Phoenix Public Library | AZ | Southwest | \$ 2,490 | email |
| 12 | Jordan, Michael | Chicago Public Library | IL | Midwest | \$ 517 | phone |
| 13 | Streep, Meryl | Boston Public Library | MA | East | \$ 1,119 | email |

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.



Create PivotTable

Choose the data that you want to analyze

☒ Select a table or range

Table/Range: Table1

☐ Use an external data source

Choose Connection...

Connection name:

Choose where you want the PivotTable report to be placed

☒ New Worksheet

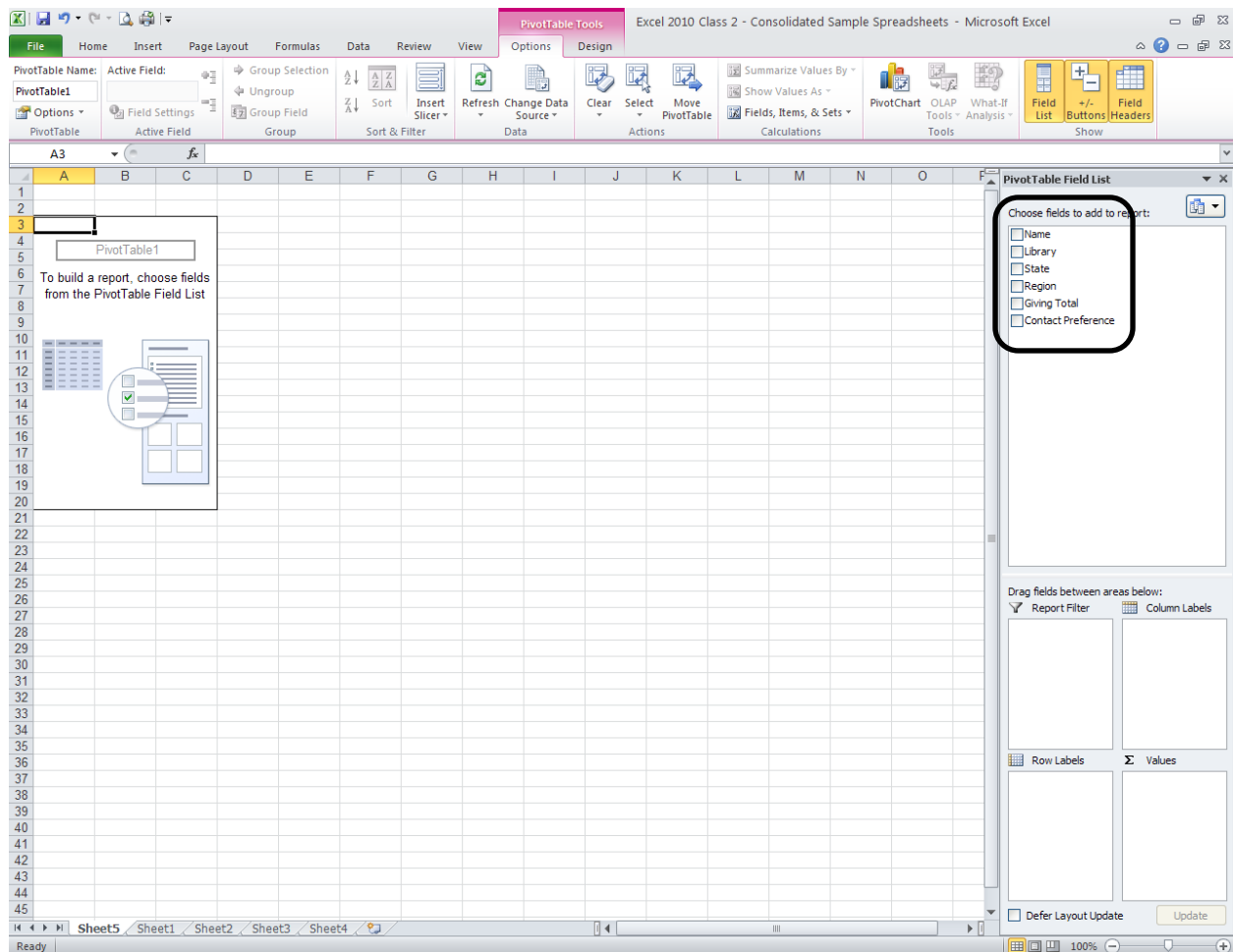
☐ Existing Worksheet

Location:

OK Cancel

| | Name | Library | State | Region | Giving Total | Contact Preference |
|----|--------------------|----------------------------|-------|-----------|--------------|--------------------|
| 4 | Simpson, Homer | Springfield Public Library | IL | Midwest | \$ 440 | email |
| 5 | Patterson, James | New York Public Library | NY | East | \$ 1,863 | email |
| 6 | Stone, Emma | Los Angeles Public Library | CA | West | \$ 1,552 | phone |
| 7 | Cooper, Bradley | Las Vegas Public Library | NV | Southwest | \$ 654 | phone |
| 8 | Spielberg, Steven | Los Angeles Public Library | CA | West | \$ 3,597 | email |
| 9 | Trump, Donald | New Jersey Public Library | NJ | East | \$ 1,444 | email |
| 10 | Winfrey, Oprah | Chicago Public Library | IL | Midwest | \$ 556 | phone |
| 11 | Lawrence, Jennifer | Phoenix Public Library | AZ | Southwest | \$ 2,490 | email |
| 12 | Jordan, Michael | Chicago Public Library | IL | Midwest | \$ 517 | phone |
| 13 | Streep, Meryl | Boston Public Library | MA | East | \$ 1,119 | email |
| 14 | Pitt, Brad | Los Angeles Public Library | CA | East | \$ 1,614 | phone |
| 15 | Perry, Katy | Los Angeles Public Library | CA | West | \$ 100 | email |
| 16 | Obama, Barack | Chicago Public Library | IL | Midwest | \$ 1,504 | phone |
| 17 | McGraw, Tim | Nashville Public Library | TN | South | \$ 448 | phone |

You're newly created Pivot Table should look something like this, with a list of fields taken from the original 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.

In this example, “Region” and “Giving Total” have been selected so that Excel will create a Pivot Table showing how donations in the different regions compare.

| | A | B | C | D | E | F | G |
|----|--------------------|----------------------------|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | Row Labels | Sum of Giving Total | | | | | |
| 4 | East | 11383 | | | | | |
| 5 | Midwest | 10106 | | | | | |
| 6 | Northeast | 291 | | | | | |
| 7 | Northwest | 1488 | | | | | |
| 8 | South | 954 | | | | | |
| 9 | Southwest | 3490 | | | | | |
| 10 | West | 14977 | | | | | |
| 11 | Grand Total | 42689 | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |
| 21 | | | | | | | |
| 22 | | | | | | | |
| 23 | | | | | | | |
| 24 | | | | | | | |

PivotTable Field List

Choose fields to add to report:

- ☐ Name
- ☐ Library
- ☐ State
- ☒ Region
- ☒ Giving Total
- ☐ Contact Preference

Drag fields between areas below:

Report Filter

Column Labels

Row Labels

Σ Values

Region

Sum of Giving...

☐ Defer Layout Update
Update

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.

| | A | B | C | D | E | F | G |
|----|-------------------|----------------------------|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | Row Labels | Sum of Giving Total | | | | | |
| 4 | East | 11383 | | | | | |
| 5 | MA | 1119 | | | | | |
| 6 | NJ | 1444 | | | | | |
| 7 | NY | 8820 | | | | | |
| 8 | Midwest | 10106 | | | | | |
| 9 | IL | 8906 | | | | | |
| 10 | KY | 1200 | | | | | |
| 11 | Northeast | 291 | | | | | |
| 12 | ME | 291 | | | | | |
| 13 | Northwest | 1488 | | | | | |

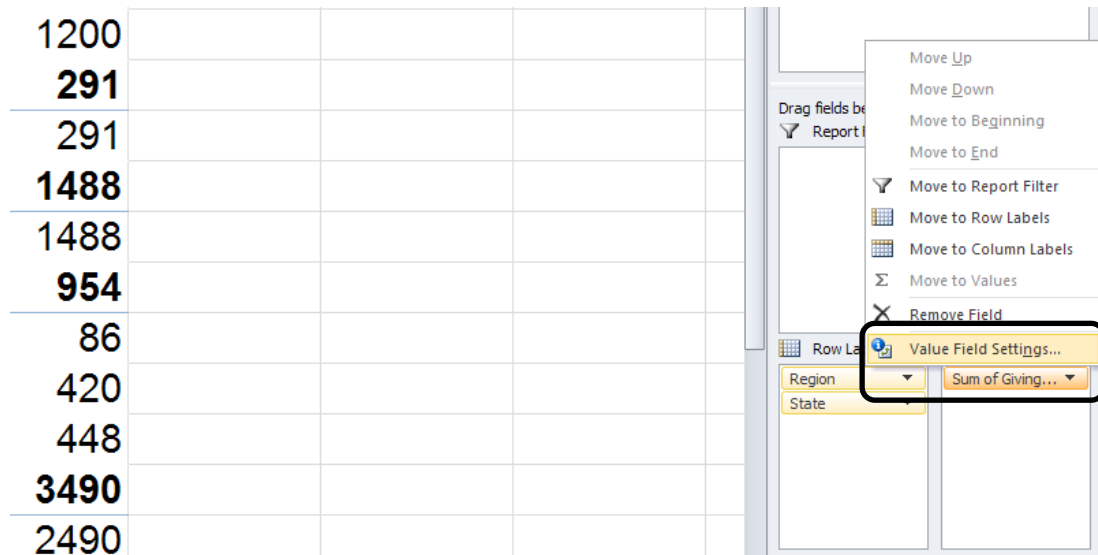
PivotTable Field List

Choose fields to add to report:

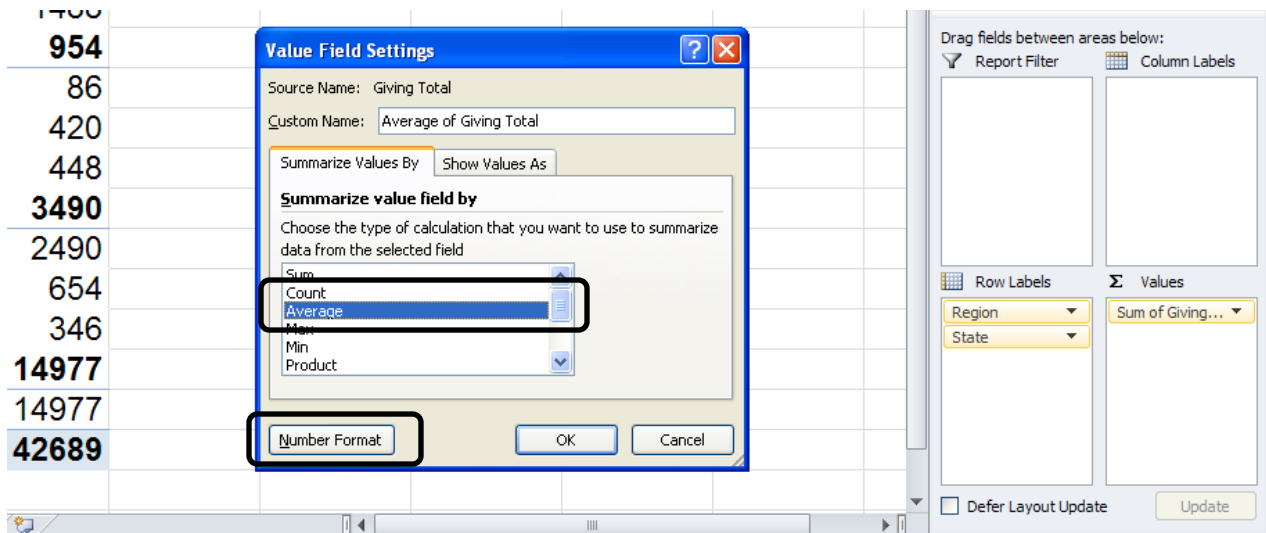
- ☐ Name
- ☐ Library
- ☒ State
- ☒ Region
- ☒ Giving Total
- ☐ Contact Preference

Changing Value Field Settings

If you would like the Pivot Table to show average donations instead of summing the donations, you can click on “Sum of Giving Totals” under the “Value” area, then select “Value Field Settings.”



You can then change the “Value” setting to “Average.”



Before clicking OK, you may wish to change the “Number Format” to “Currency” so that numeric values will appear as dollar amounts.

After selecting “Number Format”, select “Currency” and make sure the “Decimal Places” are set to 2. Click OK on both menus.

Format Cells

Number

Category:

General
Number
Currency
Accounting
Date
Time
Percentage
Fraction
Scientific
Text
Special
Custom

Sample

Sum of Giving Total

Decimal places: 2

Symbol: \$

Negative numbers:

-\$1,234.10
\$1,234.10
(\$1,234.10)
(\$1,234.10)

OK Cancel

Drag fields between areas

Report Filter

Row Labels

Region
State

| Row Labels | Average of Giving Total |
|------------|-------------------------|
| East | \$1,626.14 |
| MA | \$1,119.00 |
| NJ | \$1,444.00 |
| NY | \$1,764.00 |

You will notice that donations are now displayed as averages and in currency format.

| | |
|-------------|------------|
| Southwest | \$1,163.33 |
| AZ | \$2,490.00 |
| NV | \$654.00 |
| TX | \$346.00 |
| West | \$1,497.70 |
| CA | \$1,497.70 |
| Grand Total | \$1,293.61 |

Pivot Tables - Slicers

Excel 2010 allows you to use the Slicer tool to filter your data. On the Pivot Table Tools contextual ribbon, select “Insert Slicer.” In this example, we will check “Library” and click OK.

The screenshot shows the Excel 2010 interface. The PivotTable Tools ribbon is active, and the 'Insert Slicer' button is highlighted. A PivotTable is displayed with the following data:

| Row Labels | Average of Giving Total |
|------------|-------------------------|
| East | \$1,626.14 |
| MA | \$1,119.00 |
| NJ | \$1,444.00 |
| NY | \$1,764.00 |
| Midwest | \$1,263.25 |
| IL | \$1,272.29 |
| KY | \$1,200.00 |
| Northeast | \$291.00 |
| ME | \$291.00 |
| Northwest | \$1,488.00 |
| WA | \$1,488.00 |
| South | \$318.00 |
| FL | \$86.00 |

The 'Insert Slicers' dialog box is open, showing the following options:

- ☐ Name
- ☒ Library
- ☐ State
- ☐ Region
- ☒ Giving Total
- ☐ Contact Preference

Holding the Ctrl button allows you to make multiple selections. In this case, the California libraries have been selected in the Slicer tool. Notice that the Pivot Table now only shows average donations to libraries in the Western region that are located in the state of California.

The screenshot shows the filtered PivotTable and the 'Library' slicer box. The PivotTable is as follows:

| Row Labels | Average of Giving Total |
|-------------|-------------------------|
| West | \$1,497.70 |
| CA | \$1,497.70 |
| Grand Total | \$1,497.70 |

The 'Library' slicer box is open, showing a list of libraries:

- New York Public Libr...
- Palatine Public Library
- Phoenix Public Library
- Sacramento Public L...
- San Diego Public Lib...
- San Francisco Publi...
- Seattle Public Library
- Springfield Public Lib...

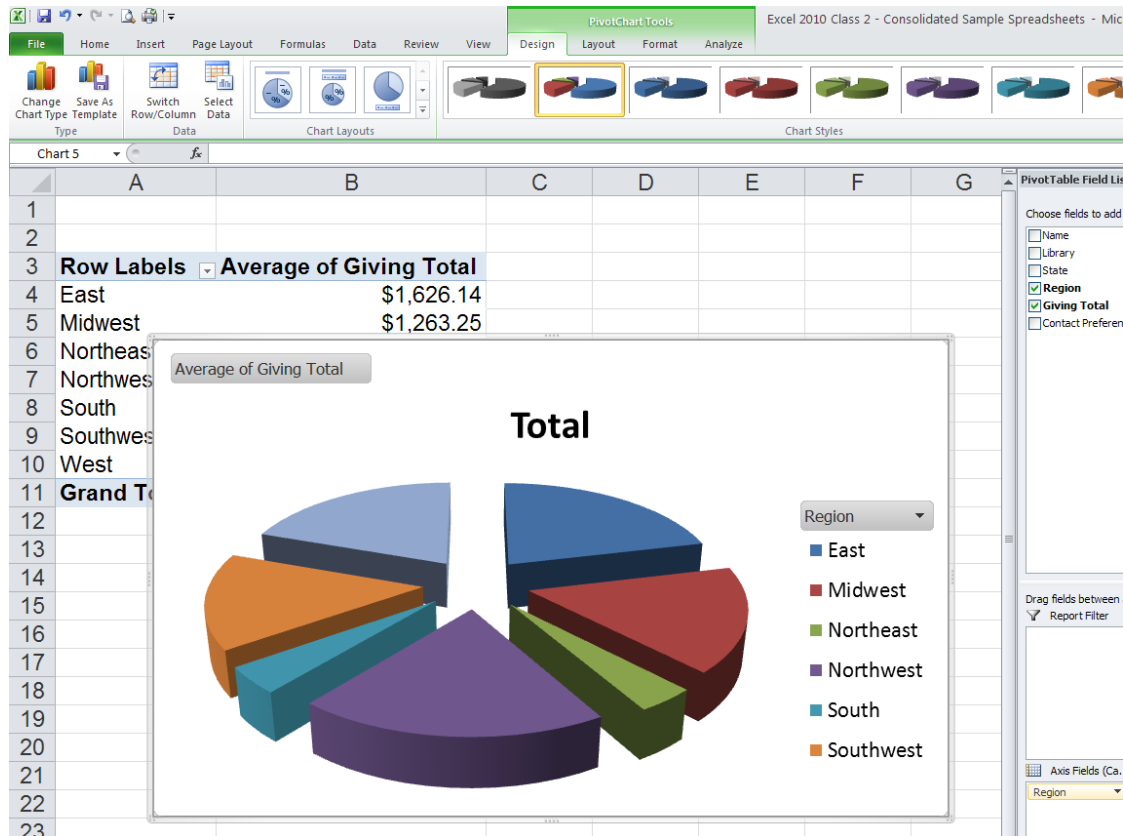
You can easily clear the filter by selecting the button in the upper right of the Slicer box.

Pivot Tables – Charts

Like other tables, Excel 2010 can easily convert a Pivot Table to a chart to display information in a more visually interesting way. Simply click on the Insert ribbon, then select the kind of chart you want.

The screenshot shows the Excel 2010 interface with the 'PivotTable Tools' ribbon selected. The 'Options' tab is active, and the 'PivotChart' group is expanded, showing various chart types. A PivotTable is visible in the background, and a tooltip for 'Exploded pie in 3-D' is displayed over the 3-D Pie chart options.

| Row Labels | Average of Giving Total |
|--------------------|-------------------------|
| East | \$1,626.14 |
| Midwest | \$1,263.25 |
| Northeast | \$291.00 |
| Northwest | \$1,488.00 |
| South | \$318.00 |
| Southwest | \$1,163.33 |
| West | \$1,497.70 |
| Grand Total | \$1,293.61 |



Sparklines

Sparklines are a new feature in Excel 2010 that allow you to create a mini chart within a single cell in order to show a visual representation of data trends.

The screenshot shows the Excel 2010 ribbon with the 'Insert' tab selected. The 'Sparklines' group is visible, and the 'Line' icon is highlighted. A tooltip for 'Insert Line Sparkline' is displayed, indicating that it inserts a line chart within a single cell.

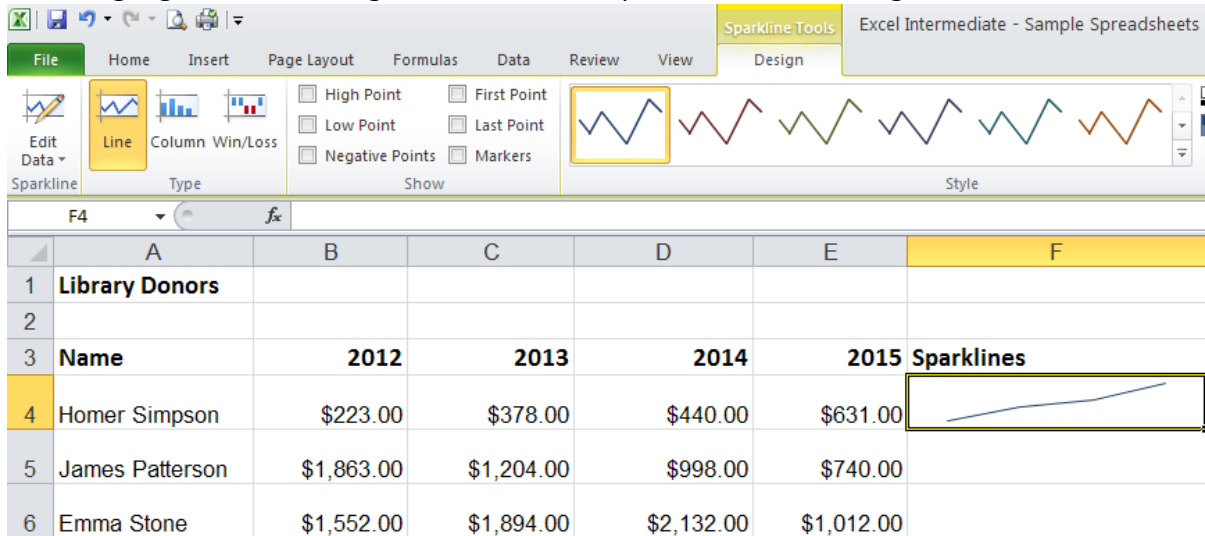
| | A | B | C | D | E | F |
|----|-----------------------|-------------|-------------|-------------|-------------|-------------------|
| 1 | Library Donors | | | | | |
| 2 | | | | | | |
| 3 | Name | 2012 | 2013 | 2014 | 2015 | Sparklines |
| 4 | Homer Simpson | \$223.00 | \$378.00 | \$440.00 | \$631.00 | |
| 5 | James Patterson | \$1,863.00 | \$1,204.00 | \$998.00 | \$740.00 | |
| 6 | Emma Stone | \$1,552.00 | \$1,894.00 | \$2,132.00 | \$1,012.00 | |
| 7 | Bradley Cooper | \$654.00 | \$865.00 | \$986.00 | \$1,014.00 | |
| 8 | Steven Spielberg | \$3,597.00 | \$3,174.00 | \$2,875.00 | \$2,456.00 | |
| 9 | Donald Trump | \$956.00 | \$714.00 | \$678.00 | \$515.00 | |
| 10 | Oprah Winfrey | \$1,444.00 | \$1,749.00 | \$2,240.00 | \$2,998.00 | |
| 11 | Jennifer Lawrence | \$2,490.00 | \$1,978.00 | \$1,621.00 | \$1,345.00 | |

Select the cell where you want your first Sparkline to appear, then select the Insert ribbon, then “Line” under the “Sparklines” menu.

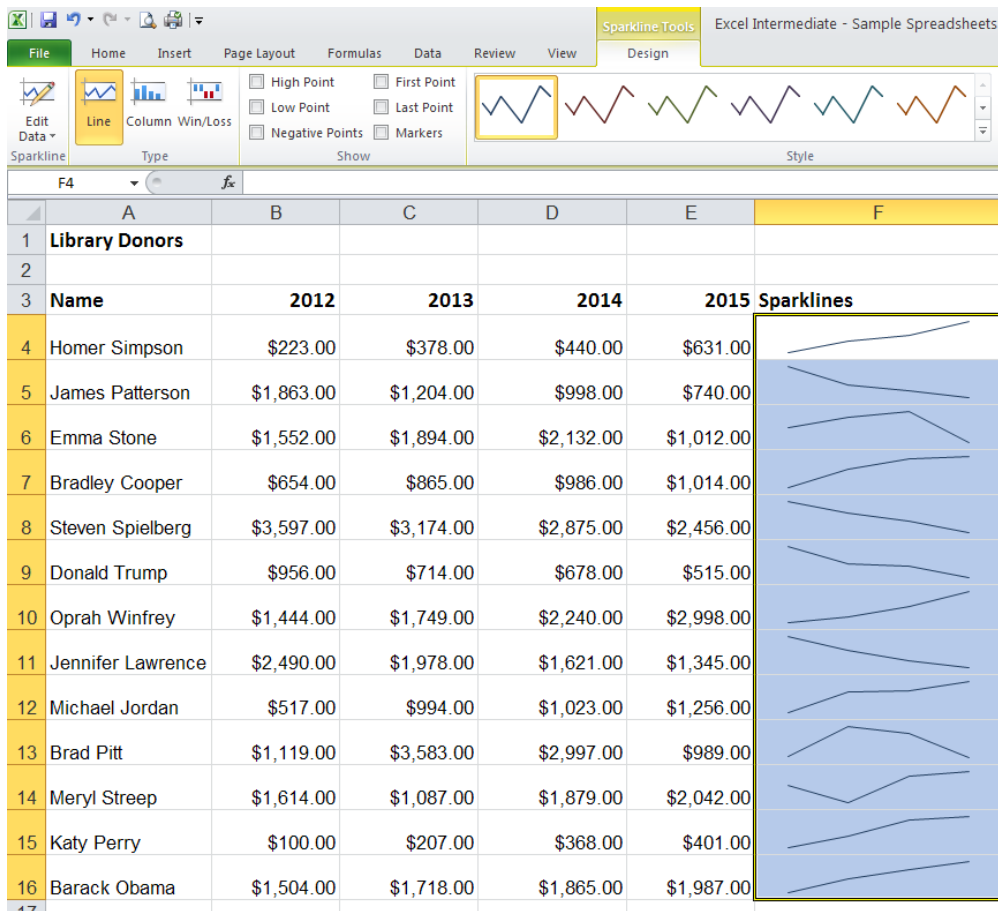
The screenshot shows the 'Create Sparklines' dialog box in Excel. The 'Data Range' is set to 'B4:E4' and the 'Location Range' is set to '\$F\$4'. The 'OK' button is highlighted.

| | A | B | C | D | E | F |
|----|-----------------------|-------------|-------------|-------------|-------------|-------------------|
| 1 | Library Donors | | | | | |
| 2 | | | | | | |
| 3 | Name | 2012 | 2013 | 2014 | 2015 | Sparklines |
| 4 | Homer Simpson | \$223.00 | \$378.00 | \$440.00 | \$631.00 | |
| 5 | James Patterson | \$1,863.00 | \$1,204.00 | \$998.00 | \$740.00 | |
| 6 | Emma Stone | \$1,552.00 | | | | |
| 7 | Bradley Cooper | \$654.00 | | | | |
| 8 | Steven Spielberg | \$3,597.00 | | | | |
| 9 | Donald Trump | \$956.00 | | | | |
| 10 | Oprah Winfrey | \$1,444.00 | | | | |
| 11 | Jennifer Lawrence | \$2,490.00 | \$1,978.00 | \$1,621.00 | \$1,345.00 | |

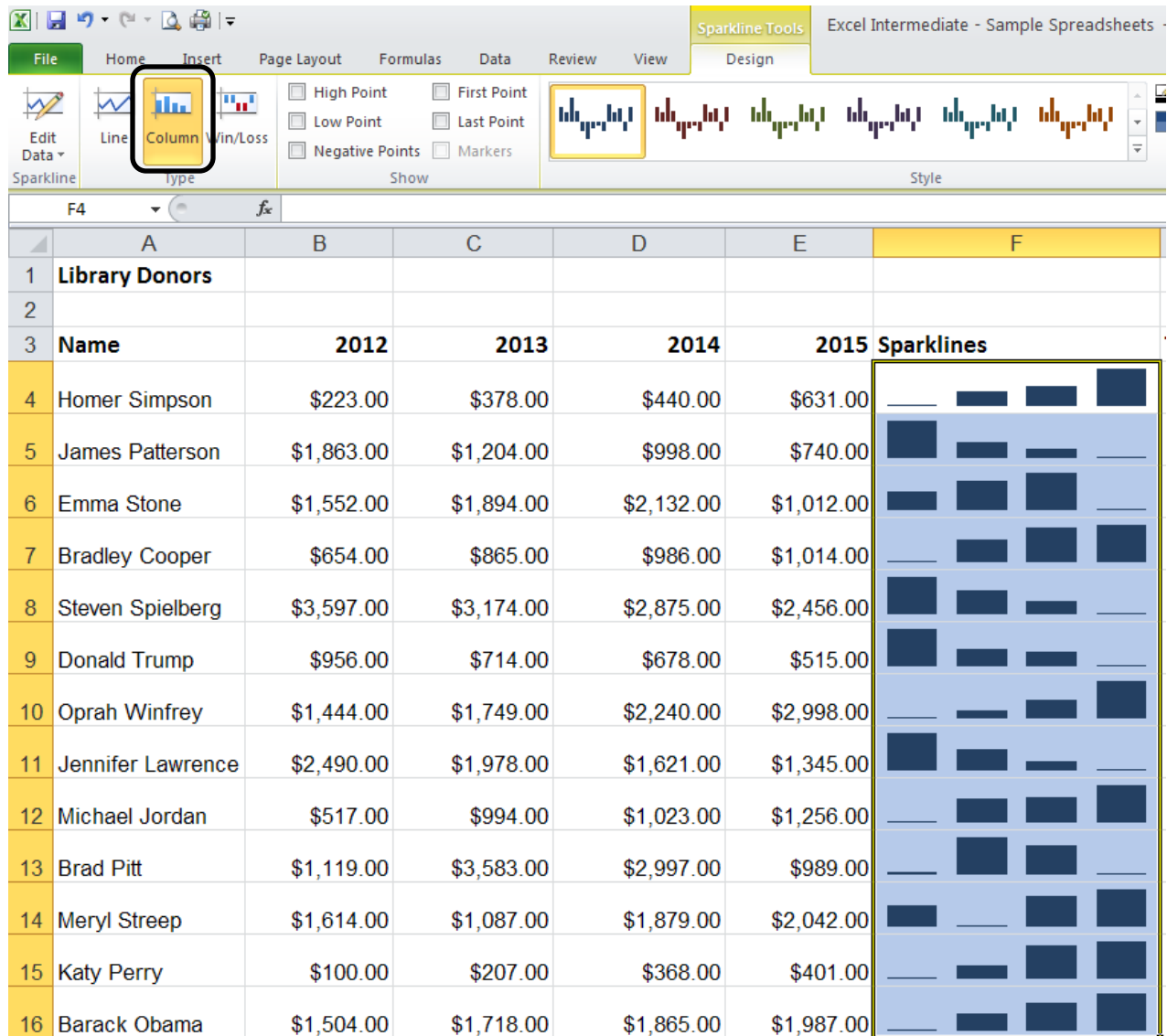
Then, highlight the data range, make sure the Sparkline location range is correct, then click OK.



A Sparkline chart appears showing a visual representation of that row's data. You can then AutoFill the rest of the rows.



You can easily change the look of your Sparklines or convert your line graphs to bar graphs using the menu options on the Sparkline Tools Design contextual ribbon.



Logical Functions

Excel offers functions that compare data using logical operators such as < (less than), > (greater than), = (equal to), etc. In the example below, the logical function “IF” allows Excel to compare donors’ 2014 donations amounts to their 2012 amounts and then indicate if that donor should receive a thank you letter for increasing their donation or a phone call requesting additional funding.

The screenshot shows the Microsoft Excel interface with the 'Formulas' ribbon selected. The 'Insert Function' button is highlighted in the 'Formulas' group. The 'Insert Function' dialog box is open, showing the 'Logical' category selected. The 'IF' function is highlighted in the list of functions. The spreadsheet data shows donor names and donation amounts for 2012, 2013, 2014, and 2015, with a column for 'Thank You Letter or Phone Call?'.

| | A | B | C | D | E | F | G |
|----|-------------------|------------|----------|----------|----------|------------|---------------------------------|
| 1 | Library Donors | | | | | | |
| 2 | | | | | | | |
| 3 | Name | 2012 | 2013 | 2014 | 2015 | Sparklines | Thank You Letter or Phone Call? |
| 4 | Homer Simpson | \$223.00 | \$378.00 | \$440.00 | \$631.00 | | = |
| 5 | James Patterson | \$1,863.00 | | | | | |
| 6 | Emma Stone | \$1,552.00 | | | | | |
| 7 | Bradley Cooper | \$654.00 | | | | | |
| 8 | Steven Spielberg | \$3,597.00 | | | | | |
| 9 | Donald Trump | \$956.00 | | | | | |
| 10 | Oprah Winfrey | \$1,444.00 | | | | | |
| 11 | Jennifer Lawrence | \$2,490.00 | | | | | |
| 12 | Michael Jordan | \$517.00 | | | | | |
| 13 | Brad Pitt | \$1,119.00 | | | | | |
| 14 | Meryl Streep | \$1,614.00 | | | | | |

Select the Formulas ribbon, then “Insert Function.” Select the category “Logical” and then select the “IF” function. Click OK.

Formula bar: `=IF(E4>B4,"Thank You Letter","Phone Call")`

| | B | C | D | E | F | G |
|--|------------|------------|------------|----------|------------|---------------------------------|
| | | | | | | |
| | 2012 | 2013 | 2014 | 2015 | Sparklines | Thank You Letter or Phone Call? |
| | \$223.00 | \$378.00 | \$440.00 | \$631.00 | | Thank You Letter, "Phone Call") |
| | \$1,863.00 | \$1,204.00 | \$898.00 | \$710.00 | | |
| | \$1,343.00 | | | | | |
| | \$6,400.00 | | | | | |
| | \$3,400.00 | | | | | |
| | \$9,000.00 | | | | | |
| | \$1,400.00 | | | | | |
| | \$2,400.00 | | | | | |
| | \$9,000.00 | | | | | |
| | \$1,119.00 | \$3,583.00 | \$2,997.00 | \$989.00 | | |

Function Arguments

IF

Logical_test E4>B4 = TRUE

Value_if_true "Thank You Letter" = "Thank You Letter"

Value_if_false "Phone Call" = "Phone Call"

Checks whether a condition is met, and returns one value if TRUE, and another value if FALSE.

Value_if_false is the value that is returned if Logical_test is FALSE. If omitted, FALSE is returned.

Formula result = Thank You Letter

[Help on this function](#)

OK Cancel

In the “Logical_test” field, click on the cell with the 2014 donation amount, enter the > (greater than) operator, click on the cell with the 2012 donation amount.

In the “Value_if_true” field, enter in quotations “Thank You Letter”.

In the “Value_if_false” field, enter in quotations “Phone Call”

Observe in the formula bar at the top how Excel constructs the function.

Click OK.

Excel then uses the logical function to determine that the first donor has given more in 2014 than in 2012 and indicates that this donor needs to receive a thank you letter.

| G4 $\text{=IF}(E4>B4,"Thank You Letter","Phone Call")$ | | | | | | | |
|--|-----------------------|-------------|-------------|-------------|-------------|-------------------|--|
| | A | B | C | D | E | F | G |
| 1 | Library Donors | | | | | | |
| 2 | | | | | | | |
| 3 | Name | 2012 | 2013 | 2014 | 2015 | Sparklines | Thank You Letter or Phone Call? |
| 4 | Homer Simpson | \$223.00 | \$378.00 | \$440.00 | \$631.00 | | Thank You Letter |
| 5 | James Patterson | \$1,863.00 | \$1,204.00 | \$998.00 | \$740.00 | | |
| 6 | Emma Stone | \$1,552.00 | \$1,894.00 | \$2,132.00 | \$1,012.00 | | |
| 7 | Bradley Cooper | \$654.00 | \$865.00 | \$986.00 | \$1,014.00 | | |

Simply AutoFill the rest of the column and Excel applies the logical function to each donor.

| G4 $\text{=IF}(E4>B4,"Thank You Letter","Phone Call")$ | | | | | | | |
|--|-----------------------|-------------|-------------|-------------|-------------|-------------------|--|
| | A | B | C | D | E | F | G |
| 1 | Library Donors | | | | | | |
| 2 | | | | | | | |
| 3 | Name | 2012 | 2013 | 2014 | 2015 | Sparklines | Thank You Letter or Phone Call? |
| 4 | Homer Simpson | \$223.00 | \$378.00 | \$440.00 | \$631.00 | | Thank You Letter |
| 5 | James Patterson | \$1,863.00 | \$1,204.00 | \$998.00 | \$740.00 | | Phone Call |
| 6 | Emma Stone | \$1,552.00 | \$1,894.00 | \$2,132.00 | \$1,012.00 | | Phone Call |
| 7 | Bradley Cooper | \$654.00 | \$865.00 | \$986.00 | \$1,014.00 | | Thank You Letter |
| 8 | Steven Spielberg | \$3,597.00 | \$3,174.00 | \$2,875.00 | \$2,456.00 | | Phone Call |
| 9 | Donald Trump | \$956.00 | \$714.00 | \$678.00 | \$515.00 | | Phone Call |
| 10 | Oprah Winfrey | \$1,444.00 | \$1,749.00 | \$2,240.00 | \$2,998.00 | | Thank You Letter |
| 11 | Jennifer Lawrence | \$2,490.00 | \$1,978.00 | \$1,621.00 | \$1,345.00 | | Phone Call |
| 12 | Michael Jordan | \$517.00 | \$994.00 | \$1,023.00 | \$1,256.00 | | Thank You Letter |
| 13 | Brad Pitt | \$1,119.00 | \$3,583.00 | \$2,997.00 | \$989.00 | | Phone Call |
| 14 | Meryl Streep | \$1,614.00 | \$1,087.00 | \$1,879.00 | \$2,042.00 | | Thank You Letter |
| 15 | Katy Perry | \$100.00 | \$207.00 | \$368.00 | \$401.00 | | Thank You Letter |
| 16 | Barack Obama | \$1,504.00 | \$1,718.00 | \$1,865.00 | \$1,987.00 | | Thank You Letter |
| 17 | | | | | | | |
| 18 | | | | | | | |

Payment Function

Excel provides a simple way to calculate monthly loan payments using the Payment Function. First, enter into a simple spreadsheet the price, interest rate, number of payments, and a blank monthly payment line, like the example below.

| | A | B | C | D | E | F | G | H |
|----|--------------------|----------|---|---|---|---|---|---|
| 1 | Payment Function | | | | | | | |
| 2 | | | | | | | | |
| 3 | Car Price | \$23,000 | | | | | | |
| 4 | Interest Rate | 4.9% | | | | | | |
| 5 | Number of Payments | 60 | | | | | | |
| 6 | | | | | | | | |
| 7 | Monthly Payment | = | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |
| 11 | | | | | | | | |
| 12 | | | | | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |

Insert Function

Search for a function:
payment

Or select a category: Recommended

Select a function:

- PMT
- PPMT
- FV
- XNPV
- XIRR
- IPMT
- CUMIPMT

PMT(rate,nper,pv,fv,type)
Calculates the payment for a loan based on constant payments and a constant interest rate.

[Help on this function](#)

Select the cell where you want the monthly payment calculation to go, select the Formulas ribbon, and then the “Insert Function” option on the far left. An “Insert Function” dialog box will appear. Search for the “Payment” function (abbreviated PMT) and click OK.

The “Function Argument”’s box will appear. Click on the “Rate” field, then select the cell with the interest rate amount.

| | A | B | C | D | E | F | G |
|---|-------------------------|----------|---|---|---|---|---|
| 1 | Payment Function | | | | | | |
| 2 | | | | | | | |
| 3 | Car Price | \$23,000 | | | | | |
| 4 | Interest Rate | 4.9% | | | | | |
| 5 | Number of Payments | 60 | | | | | |
| 6 | | | | | | | |
| 7 | Monthly Payment | =PMT(B4) | | | | | |
| 8 | | | | | | | |

Function Arguments

PMT

Rate: B4 = 0.049

Nper: = number

Pv: = number

Fv: = number

Type: = number

=

Calculates the payment for a loan based on constant payments and a constant interest rate.

In order to have Excel calculate the interest rate on a per-month basis, add a “/12” next to the cell address.

| | A | B | C | D | E | F | G |
|--|-------------------------|-------------|---|---|---|---|---|
| | Payment Function | | | | | | |
| | | | | | | | |
| | Car Price | \$23,000 | | | | | |
| | Interest Rate | 4.9% | | | | | |
| | Number of Payments | 60 | | | | | |
| | Monthly Payment | =PMT(B4/12) | | | | | |

Function Arguments

PMT

Rate: B4/12 = 0.004083333

Nper: = number

Pv: = number

Fv: = number

Type: = number

=

Calculates the payment for a loan based on constant payments and a constant interest rate.

For the “Nper” (number of payments) field, select the cell with the number of payments and for the “Pv” (present value) field, select the cell with the item’s price. Lastly, click OK.

| | A | B | C | D | E | F | G | H | I |
|----|-------------------------|-------------------|---|---|---|---|---|---|---|
| 1 | Payment Function | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | Car Price | \$23,000 | | | | | | | |
| 4 | Interest Rate | 4.9% | | | | | | | |
| 5 | Number of Payments | 60 | | | | | | | |
| 6 | | | | | | | | | |
| 7 | Monthly Payment | =PMT(B4/12,B5,B3) | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |

Function Arguments

PMT

Rate: B4/12 = 0.004083333

Nper: B5 = 60

Pv: B3 = 23000

Fv: = number

Type: = number

= -432.9854312

Calculates the payment for a loan based on constant payments and a constant interest rate.

Pv is the present value: the total amount that a series of future payments is worth now.

Formula result = (\$432.99)

[Help on this function](#)

OK Cancel

| | | | |
|----|--------------------|------------|-------------------|
| B7 | | f_x | =PMT(B4/12,B5,B3) |
| | A | B | |
| 1 | Payment Function | | |
| 2 | | | |
| 3 | Car Price | \$23,000 | |
| 4 | Interest Rate | 4.9% | |
| 5 | Number of Payments | 60 | |
| 6 | | | |
| 7 | Monthly Payment | (\$432.99) | |
| 8 | | | |
| 9 | | | |

| | | | |
|----|--------------------|------------|-------------------|
| B7 | | f_x | =PMT(B4/12,B5,B3) |
| | A | B | |
| 1 | Payment Function | | |
| 2 | | | |
| 3 | Car Price | \$19,000 | |
| 4 | Interest Rate | 4.2% | |
| 5 | Number of Payments | 72 | |
| 6 | | | |
| 7 | Monthly Payment | (\$298.99) | |
| 8 | | | |
| 9 | | | |

VLOOKUP

The VLOOKUP function in Excel is a useful tool when you need to perform calculations that reference a table with a range of values. This feature is frequently used when cross referencing incomes with income tax ranges or, as in the example below, cross referencing sales revenues with commission ranges.

Excel 2010 Class 2 - Consolidated Sample Spre

File Home Insert Page Layout Formulas Data Review View

Insert Function AutoSum Recently Used Financial Logical Text Date & Time Lookup & Reference Math More Functions Name Manager Define Name Use in Formula Create from Selection Defined Names

Function Library

C11

| | A | B | C | D | E |
|----|-------------------------------------|-----------------|-----------------|-----------------|---|
| 1 | | | | | |
| 2 | Revenue is Greater than or Equal to | But Less Than | Then Commission | | |
| 3 | \$ - | \$ 10,000.00 | 3% | | |
| 4 | \$ 10,001.00 | \$ 25,000.00 | 4% | | |
| 5 | \$ 25,001.00 | \$ 100,000.00 | 5% | | |
| 6 | \$ 100,001.00 | \$ 500,000.00 | 6% | | |
| 7 | \$ 500,001.00 | | 7% | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | Salesperson | Revenue | Commission Rate | Commission Paid | |
| 11 | Brad Pitt | \$ 1,000,000.00 | = | | |
| 12 | Meryl Streep | \$ 8,000.00 | | | |
| 13 | Bradley Cooper | \$ 26,000.00 | | | |
| 14 | Jennifer Lawrence | \$ 150,000.00 | | | |
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Insert Function

Search for a function:

vlookup

Go

Or select a category: Recommended

Select a function:

VLOOKUP

VLOOKUP

HLOOKUP

IF

VLOOKUP(lookup_value,table_array,col_index_num,range_lookup)

Looks for a value in the leftmost column of a table, and then returns a value in the same row from a column you specify. By default, the table must be sorted in an ascending order.

Help on this function

OK Cancel

Select the cell of the first commission rate, select the Formulas ribbon and then "Insert Function." In the search field, type "VLOOKUP" and select it from the search results. Click OK.

In the "Lookup_value" field, select the cell with revenue amount.

VLOOKUP X ✓ fx =VLOOKUP()

| | A | B | C | D |
|----|--|----------------------|------------------------|------------------------|
| 1 | | | | |
| 2 | Revenue is Greater than or Equal to | But Less Than | Then Commission | |
| 3 | \$ - | \$ 10,000.00 | 3% | |
| 4 | \$ 10,001.00 | \$ 25,000.00 | 4% | |
| 5 | \$ 25,001.00 | \$ 100,000.00 | 5% | |
| 6 | \$ 100,001.00 | \$ 500,000.00 | 6% | |
| 7 | \$ 500,001.00 | | 7% | |
| 8 | | | | |
| 9 | | | | |
| 10 | Salesperson | Revenue | Commission Rate | Commission Paid |
| 11 | Brad Pitt | \$ 1,000,000.00 | =VLOOKUP() | |
| 12 | Meryl Streep | \$ 8,000.00 | | |
| 13 | Bradley Cooper | \$ 26,000.00 | | |
| 14 | Jennifer Lawrence | \$ 150,000.00 | | |
| 15 | | | | |
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| 37 | | | | |

Function Arguments

VLOOKUP

Lookup_value B11 = any

Table_array = number

Col_index_num = number

Range_lookup = logical

=

Looks for a value in the leftmost column of a table, and then returns a value in the same row from a column you specify. By default, the table must be sorted in an ascending order.

Lookup_value is the value to be found in the first column of the table, and can be a value, a reference, or a text string.

Formula result =

[Help on this function](#)

OK Cancel

In the "Table_array" field, highlight the data in the revenue/commission table, excluding the column headings.

| | Revenue is Greater than or Equal to | But Less Than | Then Commission |
|---|-------------------------------------|---------------|-----------------|
| 3 | \$ - | \$ 10,000.00 | 3% |
| 4 | \$ 10,001.00 | \$ 25,000.00 | 4% |
| 5 | \$ 25,001.00 | \$ 100,000.00 | 5% |
| 6 | \$ 100,001.00 | \$ 500,000.00 | 6% |
| 7 | \$ 500,001.00 | | 7% |

| Salesperson | Revenue | Commission Rate | Commission Paid |
|-------------------|-----------------|-----------------|-----------------|
| Brad Pitt | \$ 1,000,000.00 | KUP(B11,A3:C7) | |
| Meryl Streep | \$ 8,000.00 | | |
| Bradley Cooper | \$ 26,000.00 | | |
| Jennifer Lawrence | \$ 150,000.00 | | |

Function Arguments

VLOOKUP

Lookup_value

B11

= 1000000

Table_array

A3:C7

= {0,10000,0.03;10001,25000,0.04;2...

Col_index_num

= number

Range_lookup

= logical

=

Important: The "Table_array" range must then be converted to absolute values by entering a \$ before each column letter and each row number.

Function Arguments

VLOOKUP

Lookup_value

B11

= 10000

Table_array

\$A\$3:\$C\$7

= {0,10

Col_index_num

= num

Range_lookup

= logic

=

In the "Col_index_num" field, enter the relative column number of the Commission data. This table has three columns and the Commission data is in the third column, so enter 3.

VLOOKUP =VLOOKUP(B11,\$A\$3:\$C\$7,3)

| | A | B | C | D |
|----|-------------------------------------|-----------------|-------------------------------|-----------------|
| 1 | | | | |
| 2 | Revenue is Greater than or Equal to | But Less Than | Then Commission | |
| 3 | \$ - | \$ 10,000.00 | 3% | |
| 4 | \$ 10,001.00 | \$ 25,000.00 | 4% | |
| 5 | \$ 25,001.00 | \$ 100,000.00 | 5% | |
| 6 | \$ 100,001.00 | \$ 500,000.00 | 6% | |
| 7 | \$ 500,001.00 | | 7% | |
| 8 | | | | |
| 9 | | | | |
| 10 | Salesperson | Revenue | Commission Rate | Commission Paid |
| 11 | Brad Pitt | \$ 1,000,000.00 | =VLOOKUP(B11,\$A\$3:\$C\$7,3) | |
| 12 | Meryl Streep | \$ 8,000.00 | | |
| 13 | Bradley Cooper | \$ 26,000.00 | | |
| 14 | Jennifer Lawrence | \$ 150,000.00 | | |
| 15 | | | | |
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| 36 | | | | |

Function Arguments

VLOOKUP

Lookup_value: B11 = 1000000

Table_array: \$A\$3:\$C\$7 = {0,10000,0.03;10001,25000,0.04;25001,100000,0.05;100001,500000,0.06;500001,7,0.07}

Col_index_num: 3 = 3

Range_lookup: = logical

= 0.07

Looks for a value in the leftmost column of a table, and then returns a value in the same row from a column you specify. By default, the table must be sorted in an ascending order.

Col_index_num is the column number in table_array from which the matching value should be returned. The first column of values in the table is column 1.

Formula result = 0.07

[Help on this function](#)

Excel then cross references the salesperson's revenue with the revenue/commission table and determines the appropriate commission rate.

| | | | | | |
|-----|-------------------------------------|-----------------|-----------------|-------------------------------|--|
| C11 | | fx | | =VLOOKUP(B11,\$A\$3:\$C\$7,3) | |
| | A | B | C | D | |
| 1 | | | | | |
| 2 | Revenue is Greater than or Equal to | But Less Than | Then Commission | | |
| 3 | \$ - | \$ 10,000.00 | 3% | | |
| 4 | \$ 10,001.00 | \$ 25,000.00 | 4% | | |
| 5 | \$ 25,001.00 | \$ 100,000.00 | 5% | | |
| 6 | \$ 100,001.00 | \$ 500,000.00 | 6% | | |
| 7 | \$ 500,001.00 | | 7% | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | Salesperson | Revenue | Commission Rate | Commission Paid | |
| 11 | Brad Pitt | \$ 1,000,000.00 | 7% | | |
| 12 | Meryl Streep | \$ 8,000.00 | | | |
| 13 | Bradley Cooper | \$ 26,000.00 | | | |
| 14 | Jennifer Lawrence | \$ 150,000.00 | | | |
| 15 | | | | | |
| 16 | | | | | |

Use AutoFill to determine the commission rates of the other salespersons.

| | | | | | |
|----|-------------------------------------|-----------------|-----------------|-----------------|--|
| | A | B | C | D | |
| 1 | | | | | |
| 2 | Revenue is Greater than or Equal to | But Less Than | Then Commission | | |
| 3 | \$ - | \$ 10,000.00 | 3% | | |
| 4 | \$ 10,001.00 | \$ 25,000.00 | 4% | | |
| 5 | \$ 25,001.00 | \$ 100,000.00 | 5% | | |
| 6 | \$ 100,001.00 | \$ 500,000.00 | 6% | | |
| 7 | \$ 500,001.00 | | 7% | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | Salesperson | Revenue | Commission Rate | Commission Paid | |
| 11 | Brad Pitt | \$ 1,000,000.00 | 7% | | |
| 12 | Meryl Streep | \$ 8,000.00 | 3% | | |
| 13 | Bradley Cooper | \$ 26,000.00 | 5% | | |
| 14 | Jennifer Lawrence | \$ 150,000.00 | 6% | | |
| 15 | | | | | |
| 16 | | | | | |

Calculating the commission paid to each sales person is a simple multiplication formula, multiplying the Revenue cell with the Commission Rate cell.

| | | | | |
|----|-------------------------------------|-----------------|-----------------|-----------------|
| 1 | | | | |
| 2 | Revenue is Greater than or Equal to | But Less Than | Then Commission | |
| 3 | \$ - | \$ 10,000.00 | 3% | |
| 4 | \$ 10,001.00 | \$ 25,000.00 | 4% | |
| 5 | \$ 25,001.00 | \$ 100,000.00 | 5% | |
| 6 | \$ 100,001.00 | \$ 500,000.00 | 6% | |
| 7 | \$ 500,001.00 | | 7% | |
| 8 | | | | |
| 9 | | | | |
| 10 | Salesperson | Revenue | Commission Rate | Commission Paid |
| 11 | Brad Pitt | \$ 1,000,000.00 | 7% | =B11*C11 |
| 12 | Meryl Streep | \$ 8,000.00 | 3% | |
| 13 | Bradley Cooper | \$ 26,000.00 | 5% | |
| 14 | Jennifer Lawrence | \$ 150,000.00 | 6% | |
| 15 | | | | |

| | | | | |
|----|-------------------------------------|-----------------|-----------------|-----------------|
| 1 | | | | |
| 2 | Revenue is Greater than or Equal to | But Less Than | Then Commission | |
| 3 | \$ - | \$ 10,000.00 | 3% | |
| 4 | \$ 10,001.00 | \$ 25,000.00 | 4% | |
| 5 | \$ 25,001.00 | \$ 100,000.00 | 5% | |
| 6 | \$ 100,001.00 | \$ 500,000.00 | 6% | |
| 7 | \$ 500,001.00 | | 7% | |
| 8 | | | | |
| 9 | | | | |
| 10 | Salesperson | Revenue | Commission Rate | Commission Paid |
| 11 | Brad Pitt | \$ 1,000,000.00 | 7% | \$ 70,000.00 |
| 12 | Meryl Streep | \$ 8,000.00 | 3% | |
| 13 | Bradley Cooper | \$ 26,000.00 | 5% | |
| 14 | Jennifer Lawrence | \$ 150,000.00 | 6% | |
| 15 | | | | |

AutoFill the remaining commissions.

| | | | | |
|----|-------------------------------------|-----------------|-----------------|-----------------|
| 1 | | | | |
| 2 | Revenue is Greater than or Equal to | But Less Than | Then Commission | |
| 3 | \$ - | \$ 10,000.00 | 3% | |
| 4 | \$ 10,001.00 | \$ 25,000.00 | 4% | |
| 5 | \$ 25,001.00 | \$ 100,000.00 | 5% | |
| 6 | \$ 100,001.00 | \$ 500,000.00 | 6% | |
| 7 | \$ 500,001.00 | | 7% | |
| 8 | | | | |
| 9 | | | | |
| 10 | Salesperson | Revenue | Commission Rate | Commission Paid |
| 11 | Brad Pitt | \$ 1,000,000.00 | 7% | \$ 70,000.00 |
| 12 | Meryl Streep | \$ 8,000.00 | 3% | \$ 240.00 |
| 13 | Bradley Cooper | \$ 26,000.00 | 5% | \$ 1,300.00 |
| 14 | Jennifer Lawrence | \$ 150,000.00 | 6% | \$ 9,000.00 |
| 15 | | | | |
| 16 | | | | |

External Cell Reference

It might be necessary to reference a cell from another worksheet within the workbook. An example would be collecting quarterly totals into an annual report on a separate worksheet. Say the quarterly budget totals are one worksheet and we want to add them together on a separate worksheet.

| | A | B | C | D | E | F | G | H |
|----|---|----------|----------|-----------|------------|-----------|---|---|
| 1 | External Cell Reference | | | | | | | |
| 2 | | | | | | | | |
| 3 | Smith Family Budget 1st Quarter 2014 | | | | | | | |
| 4 | | | | | | | | |
| 5 | | Income | Mortgage | Utilities | Cell Phone | Groceries | | |
| 6 | 1/1/14 | \$7,000 | \$2,000 | \$500 | \$125 | \$700 | | |
| 7 | 2/1/14 | \$7,000 | \$2,000 | \$500 | \$125 | \$700 | | |
| 8 | 3/1/14 | \$7,000 | \$2,000 | \$500 | \$125 | \$700 | | |
| 9 | Quarterly Total | \$21,000 | \$6,000 | \$1,500 | \$375 | \$2,100 | | |
| 10 | | | | | | | | |
| 11 | Smith Family Budget 2nd Quarter 2014 | | | | | | | |
| 12 | | | | | | | | |
| 13 | | Income | Mortgage | Utilities | Cell Phone | Groceries | | |
| 14 | 4/1/14 | \$7,000 | \$2,000 | \$500 | \$125 | \$700 | | |
| 15 | 5/1/14 | \$7,000 | \$2,000 | \$500 | \$125 | \$700 | | |
| 16 | 6/1/14 | \$7,000 | \$2,000 | \$500 | \$125 | \$700 | | |
| 17 | Quarterly Total | \$21,000 | \$6,000 | \$1,500 | \$375 | \$2,100 | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |

Add the quarterly totals for all four quarters (3rd and 4th quarters not shown) and display the results in these cells

| | A | B | C | D | E | F | G | H | I |
|---|----------------------------|--------|----------|-----------|------------|-----------|---|---|---|
| 1 | External Cell Reference | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | Smith Family Budget Annual | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | Year | Income | Mortgage | Utilities | Cell Phone | Groceries | | | |
| 6 | 2014 | ↓ | ↓ | ↓ | ↓ | ↓ | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |

The formula looks like this:

| | | | | | | | | | | |
|---|-----------------------------------|--|----------|-----------|------------|-----------|---|---|---|---|
| PMT X ✓ fx =SUM('quarterly totals'!B9,'quarterly totals'!B18,'quarterly totals'!B27,'quarterly totals'!B36) | | | | | | | | | | |
| | A | B | C | D | E | F | G | H | I | J |
| 1 | External Cell Reference | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | Smith Family Budget Annual | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | Year | Income | Mortgage | Utilities | Cell Phone | Groceries | | | | |
| 6 | 2014 | =SUM('quarterly totals'!B9,'quarterly totals'!B18,'quarterly totals'!B27,'quarterly totals'!B36) | | | | | | | | |
| 7 | | SUM(number1, [number2], [number3], [number4], [number5], ...) | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |

Note that the source worksheet name has single quotes. This is because the worksheet name contains a space.

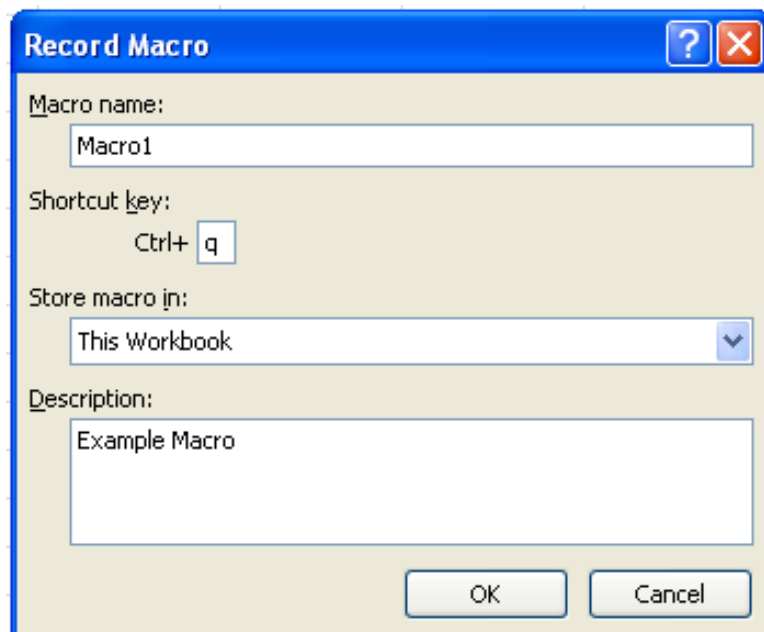
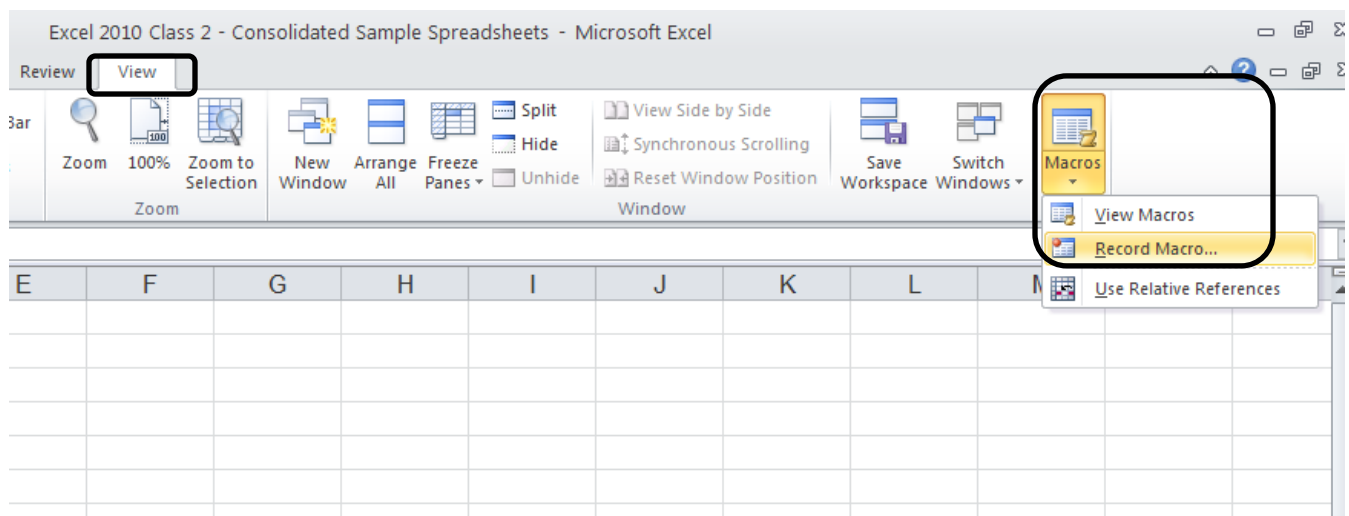
| | | | | | | | |
|----|-----------------------------------|----------|----------|-----------|------------|-----------|---|
| | A | B | C | D | E | F | G |
| 1 | External Cell Reference | | | | | | |
| 2 | | | | | | | |
| 3 | Smith Family Budget Annual | | | | | | |
| 4 | | | | | | | |
| 5 | Year | Income | Mortgage | Utilities | Cell Phone | Groceries | |
| 6 | 2014 | \$84,000 | \$24,000 | \$6,000 | \$1,500 | \$8,400 | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |

Macros

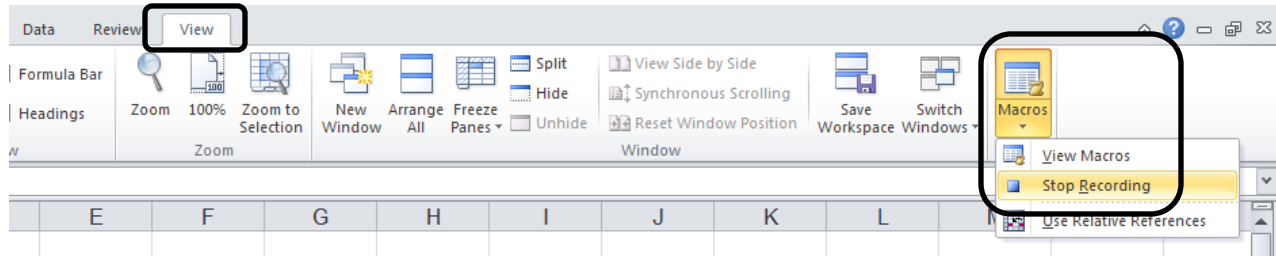
A Macro is a simple and powerful tool that can save you time. Macros allow you to record a series of steps that you can have Excel repeat whenever you wish. This is especially helpful when using the same formatting and functions for multiple spreadsheets. A Macro is a customized function that is created and saved on your own computer.

Record a Macro

Start with a blank spreadsheet, or a spreadsheet containing data you want Excel to work with. Select the “View” ribbon, then “Macros,” and “Record Macro.” Select your options from the dialogue box. You can name your Macro, assign it a shortcut (optional), decide where it will be stored, and enter a description (optional).



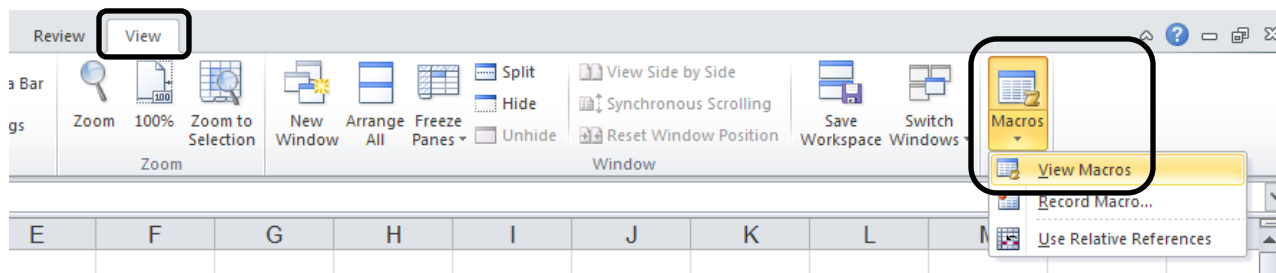
Once you click OK, Excel returns you to your workbook and will be recording every step of what you do next. Be sure to set up your spreadsheet *exactly* how you want it look (formatting, cell sizes, etc). Make any corrections to your spreadsheet while recording as Excel will only save your finished product (after you've turned off the recording).



Once you have finished, go back to the View ribbon, click on “Macro” and chose “Stop Recording.”

Run a Macro

Once you have recorded a Macro you can run it again and again within your worksheet, workbook, or anywhere in Excel.



Select the View ribbon. Click on “Macro”. Click on “View Macros”. Choose the Macro you wish to use, then click “Run”.

