## **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

٠	Click on th	ne Data Tab		$\frown$		
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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	В	С	D	E	F 🔺
3	Name	Library	State	Region	<b>Giving Total</b>	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.

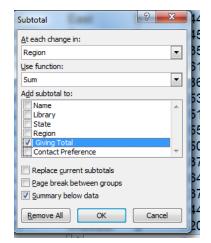
#### Subtotaling

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:

А	В	С	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."

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1	Library Donors										
2											
3	Name	Library	State	Region	<b>Giving Total</b>	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	New York Public Library	NY	East	\$ 1,614	phone					

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6	Stone, Emma	Los Angeles Public Library	CA	Wee		•						
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15	Perry, Katy	San Diego Public Library	CA	West	\$ 100	email						
16	Obama, Barack	Chicago Public Library	IL	Midwes	st \$ 1,504	phone						
17	McGraw, Tim	Nashville Public Library	TN	South	\$ 448	phone						
18	John, Elton	San Francisco Public Library	CA	West	\$ 584	email						

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.

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4	Simpson, Homer	Springfield Public Libra	ary	IL	Midwes	t	\$	440	email	
5	Patterson, James	New York Public Libra	ry	NY	East		\$	1,863	email	
6	Stone, Emma	Los Angeles Public Lib	-	CA	West		\$	1 552	nhone	
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16	Obama, Barack	Chicago Public Library		IL	Midwes	t	\$	1,504	phone	
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1	Library Donors								
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X X	Sort 2 to A		New York Public Library	NY		East	\$	1,863	email
	Sor <u>t</u> by Color		Los Angeles Public Library	CA		West	\$	1,552	phone
K	<u>C</u> lear Filter From "Name" Filter by Color		Las Vegas Public Library	NV		Southwest	\$	654	phone
	Text Filters		Los Angeles Public Library	CA		West	\$	3,597	email
	-	ρ	New Jersey Public Library	NJ		East	\$	1,444	email
	·····⊋ (Select All)	~	Chicago Public Library	IL		Midwest	\$	556	phone
	Carell, Steve		Phoenix Public Library	AZ		Southwest	\$	2,490	email
	Clooney, George		Chicago Public Library	IL		Midwest	\$	517	phone
	Cooper, Bradley		Boston Public Library	MA		East	\$	1,119	email
	Ditka, Mike		New York Public Library	NY		East	\$	1,614	phone
	✓ Fallon, Jimmy ✓ Gaga, Lady		San Diego Public Library	CA		West	\$	100	email
	Gates, Bill	~	Chicago Public Library	IL		Midwest	\$	1,504	phone
	OK Cancel		Nashville Public Library	TN		South	\$	448	phone
	Cunter	.:	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

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1	Library Donors							
2								
3	Name 💷	_ibrary	<b>T</b>	State 📮	Region 🖵	Giving	Total 📮	Contact
4	Carell, Steve	San Erancisco Public Lil	brary	CA	West	\$	538	phone
5	Clinton, Hillary	New York Public Library		NY	East	\$	351	email
6	Clooney, George	Lexington Public Libr			dwest	\$	1,200	phone
7	Cooper, Bradley	Las vegas Public Lib		ll notice a	uthwest	\$	654	phone
8	Degeneres, Ellen	Los Angeles Public L	ttle ar	row	est	\$	2,037	phone
9	Ditka, Mike	Chicago Public Librar ir	ndicat	ing that	dwest	\$	1,873	email
10	Fallon, Jimmy	Brooklyn Public Libra th	his col	lumn has	ist	\$	1,456	email
11	Gaga, Lady	Los Angeles Public L b	een s	orted.	est	\$	1,101	phone
12	Gates, Bill	Seattle Public Library			rthwest	\$	1,488	email
13	Gosling, Ryan	Los Angeles Public Libra	ary	CA	West	\$	1,176	email
14	John, Elton	San Francisco Public Lil	brary	CA	West	\$	584	email
15	Jordan, Michael	Chicago Public Library		IL	Midwest	\$	517	phone
16	Keith, Toby	Houston Public Library		ТΧ	Southwest	\$	346	email
17	King, Stephen	Augusta Public Library		ME	Northeast	\$	291	email

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:

	А		В	С	D	E		
1	Library Donors							
2								
3	Name	-	Library	State 🕞	Region 🖵	Giving	Total 星	Contact
4	Simpson, Homer	₽↓	Sort A to Z	ΪL	Midwest	\$	440	email
5	Patterson, James	Z A↓	S <u>o</u> rt Z to A	NY	East	\$	1,863	email
6	Stone, Emma		Sor <u>t</u> by Color	CA	West	\$	1,552	phone
7	Cooper, Bradley	K	<u>Clear Filter From "Library"</u>	NV	Southwest	\$	654	phone
8	Spielberg, Steven		Filter by Color		14/	· .	0.507	email
9	Trump, Donald			•	cking the dr	•		email
10	Winfrey, Oprah			arrow in th	ne "Library"	column		phone
11	Lawrence, Jennifer		Celect All					email
12	Jordan, Michael		Augusta Public Library	Uncheck "	(Select All)"	to clear	out	phone
13	Streep, Meryl		Boston Public Library	all checkm	arks.			email
14	Pitt, Brad		Chicago Public Library					phone
15	Perry, Katy		Houston Public Library     Las Vegas Public Library	Check "Chi	icago Public	Library'	' and 📘	email
16	Obama, Barack		Lexington Public Library	click OK.	-	-		phone
17	McGraw, Tim		Los Angeles Public Library					phone
18	John, Elton		OK Cancel	CA	vvest	<b>þ</b>	584	email
19	Spielberg, Steven		Canter .	CA	West	\$	3,597	email
20	Ditka, Mike		Chicago Public Library	ΊL	Midwest	\$	1,873	email

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.

	А	В	С	D	E	F
1	Library Donors					
2						
3	Name 🔽	Library	📕 S:ate	🗸 Region 📮	Giving Total 🖵	Contact Preference
10	Winfrey, Oprah	Chicago Public Library	<u>ب</u> و	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						
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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.

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10	Winfrey, Oprah	₽↓	Sort A to Z			Midwest		phone
12	Jordan, Michael	Z↓	Sort Z to A		IL	Midwest	\$ 517	phone
16	Obama, Barack	_	Sor <u>t</u> by Color	•	IL	Midwest	\$ 1,504	phone
20	Ditka, Mike	¥	Clear Filter From "Library"		IL	Midwest	\$ 1,873	email
27	Murray, Bill		F <u>i</u> lter by Color	Þ	IL	Midwest	\$ 2,640	email
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# **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.

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	5	Patterson, James	New York Public Library	NY	East	\$		Dettern 10 %
(	6	Stone, Emma	Los Angeles Public Library	CA	West	\$	Icon Sets	Bottom 10 %
	7	Cooper, Bradley	Las Vegas Public Library	NV	Southwest	\$	📑 New Rule	Above Average
1	8	Spielberg, Steven	Los Angeles Public Library	CA	West	\$	: 🕑 <u>C</u> lear Rules →	<u> </u>
1	9	Trump, Donald	New Jersey Public Library	NJ	East	\$	Manage <u>R</u> ules	Below Average
1	10	Winfrey, Oprah	Chicago Public Library	IL I	Midwest	\$	556 phone	
1	11	Lawrence, Jennifer	Phoenix Public Library	AZ S	Southwest	\$	2,490 email	More Rules
1	12	Jordan, Michael	Chicago Public Library	IL I	Midwest	\$	517 phone	
1	13	Streep, Meryl	Boston Public Library	MA	East	\$	1,119 email	
1	14	Pitt, Brad	New York Public Library	NY	East	\$	1,614 phone	
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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."

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1	Library Donors								
2									
3	Name	🖵 Library		Stat	e 🔽	Region 🖵	Givir	ng Total 🖵	Contact P
4	Simpson, Homer	Springfie	ld Public Library	IL		Midwest	\$	440	email
5	Patterson, James	New York	Public Library	NY		East	\$	1,863	email
6	Stone, Emma	Above Average		2 🗙		West	\$	1,552	phone
7	Cooper, Bradley	Format cells that are AB	OVE AVERAGE:			Southwest	\$	654	phone
8	Spielberg, Stever	for the selected range with	selected range with Green Fill with Dark Green Text			West	\$	3,597	email
9	Trump, Donald	for the selected range with	Light Red Fill with Dark Red Text			East	\$	1,444	email
10	Winfrey, Oprah		Yellow Fill with Dark Yellow Text Green Fill with Dark Green Text			Midwest	\$	556	phone
11	Lawrence, Jennife	er Phoenix i	Liste Ded Cill	2		Southwest	\$	2,490	email
12	Jordan, Michael	Chicago				Midwest	\$	517	phone
13	Streep, Meryl	Boston P	ublic Library	MA		East	\$	1,119	email
14	Pitt, Brad	New York	Public Library	NY		East	\$	1,614	phone

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.

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10	Winfrey, Oprah	Chicago Public Library	IL	Midwest	\$	556	phone	<u>M</u> ore F	Rules
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		Midwest		1,504	phone		
17	McGraw, Tim	Nashville Public Library		South	\$	448	phone		
18	John, Elton	,		West	\$	584	email		
19	Spielberg, Steven	Los Angeles Public Library		West		3,597			
20	Ditka, Mike	Chicago Public Library		Midwest		1,873			
21		Sacramento Public Library		West	\$	695	phone		
22	Gosling, Ryan	Los Angeles Public Library		West		1,176	1		
23	Keith, Toby	Houston Public Library		Southwest	_	346	email		
24	Williams, Brian	New York Public Library		East		3,536			
25	Gaga, Lady	Los Angeles Public Library		West		1,101	phone		
26	Potter, Harry	Palatine Public Library		Midwest		1,376	owl		
27	Murray, Bill	Chicago Public Library		Midwest		2,640	email		
28	Fallon, Jimmy	Brooklyn Public Library		East		1,456			
29 30	Degeneres, Ellen	Los Angeles Public Library		West		2,037	phone		
	Carell, Steve	San Francisco Public Library		West	\$ \$	538 291	phone		
31	King, Stephen	Augusta Public Library		Northeast	φ	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."

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4	Simpson, Homer	Springfield Public Library	IL	Midwest	\$		<u>B</u> etween
5	Patterson, James	New York Public Library	NY	East	\$		
6	Stone, Emma	Los Angeles Public Library	CA	West	\$	Color <u>S</u> cales →	Equal To
7	Cooper, Bradley	Las Vegas Public Library	NV	Southwest	\$		
8	Spielberg, Steven	Los Angeles Public Library	CA	West	\$	Icon Sets	ab <u>T</u> ext that Contains
9	Trump, Donald	New Jersey Public Library	NJ	East	\$	New Rule	
10	Winfrey, Oprah	Chicago Public Library	IL	Midwest	\$	Clear Rules	A Date Occurring
11	Lawrence, Jennifer	Phoenix Public Library	AZ	Southwest	\$	Manage <u>R</u> ules	Duplicate Values
12	Jordan, Michael	Chicago Public Library	IL	Midwest	\$	517 phone	
13	Streep, Meryl	Boston Public Library	MA	East	\$	1,119 email	More Rules
14	Pitt, Brad	New York Public Library	NY	East	\$	1,614 phone	
	Las 1.4 1	In			*		

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

	А	В	С	D	E	F
1	Library Donors					
2						
3	Name 🗸 🗸	Library 🔽	State 🕞	Region 星	Giving Total 星	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 Duplicate Values		2 🛛 .	\$ 1,552	phone
7	Cooper, Bradley	Las		west	\$ 654	phone
8	Spielberg, Steven	Los			\$ 3,597	email
9	Trump, Donald	New Duplicate Values with Light Red	Fill with Dark Red T	ext 💌	\$ 1,444	email
10	Winfrey, Oprah	Chic	ок Са	ancel est	\$ 556	phone
11	Lawrence, Jennifer	Pho		west	\$ 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.

	I ♥ ▼ (≧ ▼ 🗋 🖨   <del>↓</del> Home Insert Page Lavout	Formulas Data Review Vi		Excel Intermediat	te - Sample Spreadshe	eets - Microsoft Excel	
File Table N	Name: 🖼 Summarize with PivotTabl	e 🕎 🚰 Properties	Header Row	] First Column			
Table2	size Table	Export Refresh	Total Row Banded Rows	] Last Column ] Banded Columns			
Pro	perties Tools	External Table Data	Table Style	Options	-	Table Styles	
	A4 ▼ ( <i>f</i> <sub>x</sub> Simpso	on, Homer					
	A	В	С	D	E	F	
1	Library Donors						
2							
3	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 Ar Remove Duplicates			? 🔀 1,552	phone	
7	Cooper, Bradley		as Ve To delete duplicate values, select one or more columns that contain duplicates. 654 phone				
8	Spielberg, Steven		lect All	🗹 My data hi		email	
9 10	Trump, Donald	New Je			1,444	email	
11	Winfrey, Oprah Lawrence, Jennifer	Chicag estamo Phoen Name			▲ 556 2,490	phone email	
12	Jordan, Michael	Chicac Chica			517	phone	
	Streep, Meryl	Bostor Region			1.119	email	
	Pitt, Brad	New Ye Giving Total				phone	
	Perry, Katy	San Di			100	email	
16	Obama, Barack	Chicag		ОК	Cancel 1,504	phone	
17	McGraw, Tim	Nashville Public Library	1 IN	South	<del>ک</del> 448	, phone	
18	John, Elton	San Francisco Public Libra	ary CA	West	\$ 584	email	
	Spielberg, Steven	Los Angeles Public Librar	<b>,</b>	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.

3	Name	Library 🚽	State	🖵 Region 🖵	Givin	g Total 星	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 Microsoft Excel			X	556	phone
11	Lawrence, Jennifer	Phoenix I				2,490	email
12	Jordan, Michael	Chicago 1 duplicate values for	ound and remove	ed; 32 unique values rem	nain.	517	phone
13	Streep, Meryl	Boston P	ОК			1,119	email
14	Pitt, Brad	New York				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.

🔇 🛃 🍠 • (° • 🞑 🎒 I =		Table Tools	cel 2010 Class 2	- Consolidated	Sample Sprea	dsheets - Micros	oft Excel
File Home Insert Page Layout	Formulas Data Review View	w Design					
Table Name:     Image: Summarize with PivotTable       Table1     Image: Summarize with PivotTable       Image: Resize Table     Image: Summarize with PivotTable	Export Refresh	Total Row     Danueu Rows	First Column Last Column Banded Columns				
Properties Tools	External Table Data	Table Style O	ptions			Table Styl	25
Name	↓ Library		- Region	Givin	n Total 🗔	Contact P	eference
30 Carell, Steve	San Francisco Public Lib		West	\$	_	phone	choronice [
31 King, Stephen	Augusta Public Library	ME	Northea	ast \$	291	email	
32 Tatum, Channing	Atlanta Public Library	GA	South	\$	420	phone	
33 Clooney, George	Lexington Public Library	KY	Midwes	st \$	1,200	phone	
34 Gates, Bill	Seattle Public Library	WA	Northwe	est \$	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						v	3
38			No				
39				erage unt			
40				unt Number:	3		
41			Ma				
42			Mir				
12			Su	m			

Once the Total row is in place, click in the cell where you want a total to appear and a dropdown 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	1 \$	2,037.28	phone	
31	Steve Carell	San Francisco Public Library	CA	West	2	2 \$	538.60	phone	
32	Stephen King	Augusta Public Library	ME	Northeast	1	L \$	291.84	email	
33	Stephenie Meyer	Forks Public Library	WA	Northwest	4	I \$	420.00	phone	
34	George Clooney	San Francisco Public Library	CA	West	3	8 \$	1,200.80	phone	
35	Bill Gates	Medina Public Library	WA	Northwest	2	2 \$	1,488.80	email	
36	Hillary Clinton	New York Public Library	NY	East	1	L \$	351.00	email	
37	Tim Burton	San Francisco Public Library	CA	West	5	5 \$	613.20	phone	
38	Tiger Woods	Sacramento Public Library	FL	South	3	8 \$	86.50	email	
39	Total					\$	1,181.94		35 👻
							· · · · ·		
40							,	None	
40 41							,		
								None Average Count Count Numbers	
41								None Average Count	
41 42								None Average Count Count Numbers Max Min Sum	
41 42 43								None Average Count Count Numbers Max Min	
41 42 43 44								None Average Count Count Numbers Max Min Sum StdDev	
41 42 43 44 45								None Average Count Numbers Max Min Sum StdDev Var	

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.

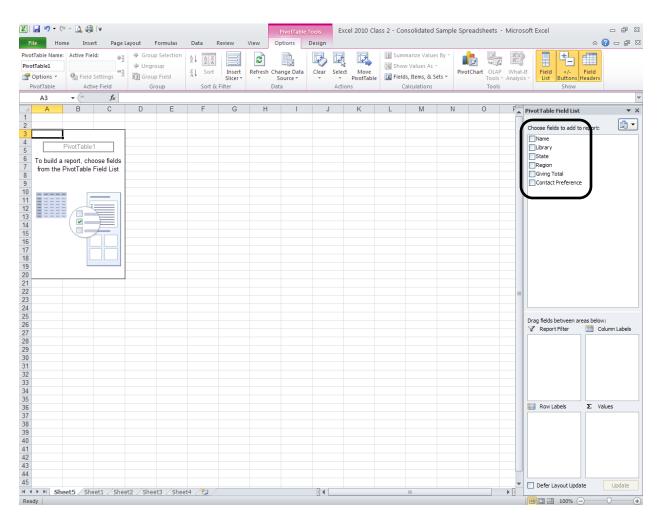
To convert your table to a Pivot Table, select the Insert ribbon, then click the "Pivot Table" button.

🗶   🕞	insert Page	Layout Formulas	Data Review		le Tools Excel 2 esign	010 Class 2 - Con	solidated San	nple Sprea	dsheets - Micro
PivotTa	able Fable Picture Clip Sha	apes SmartArt Screenshot	Column Line	De 📑 I		her Line Colum	mn Win/Loss	Slicer H	yperlink Text Box
1		ustrations		Charts	• • Cha	G Spark	dines	Filter	Links
Insert	Insert PivotTable Name								
Sum	marize data using a PivotTable.		В		С	D	E		
	tTables make it easy to arrange summarize complicated data								
	drill down on details.								
P	ress F1 for more help.	Library			State 📮	Region 🖵	Giving	Total 🖵	Contact P
4	Simpson, Homer	Springfie	ld Public Lib		IL	Midwest	\$	440	email
5	Patterson, James		k Public Lib	-	NY	East	\$	1,863	email
6	Stone, Emma	Los Ang	eles Public L	ibrary	CA	West	\$	1,552	phone
7	Cooper, Bradley	Las Veg	as Public Lik	orary	NV	Southwest	\$	654	phone
8	Spielberg, Steven	Los Ang	eles Public L	ibrary	CA	West	\$	3,597	email
9	Trump, Donald	New Jer	sey Public L	ibrary	NJ	East	\$	1,444	email
10	Winfrey, Oprah	Chicago	Public Libra	ry	IL	Midwest	\$	556	phone
11	Lawrence, Jennifer	Phoenix	Public Librai	ry	AZ	Southwest	\$	2,490	email
12	Jordan, Michael	Chicago	Public Libra	ry	IL	Midwest	\$	517	phone
13	Streep, Meryl	Boston F	Public Library	y	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.

	А	В	С	D	E	F
1	Library Donors					
2						
3	Name	🖵 Library 📮	State	🗸 Region 🛛 🗸	Giving Total 星	Contact Preferen
4	Simpson, Homer	Springfield Public Library	IL	Midwest	\$ 440	email
5	Patterson, James	Create PivotTable	? 🔀	East	\$ 1,863	email
6	Stone, Emma	Choose the data that you want to analyze		West	\$ 1,552	phone
7	Cooper, Bradley	Select a table or range	(arr)	Southwest	\$ 654	phone
8	Spielberg, Steven	Table/Range: Table1 Use an external data source		West	\$ 3,597	email
9	Trump, Donald	Choose Connection		East	\$ 1,444	email
10	Winfrey, Oprah	Connection name:		Midwest	\$ 556	phone
11	Lawrence, Jennifer	Choose where you want the PivotTable report to be placed		Southwest	\$ 2,490	email
12	Jordan, Michael	<u>N</u> ew Worksheet     Existing Worksheet		Midwest	\$ 517	phone
13	Streep, Meryl	Location:		East	\$ 1,119	email
14	Pitt, Brad	ОК	Cancel	East	\$ 1,614	phone
15	Perry, Katy			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.

	А	В	С	D	E	F	G		PivotTable Field List	<b>~</b> )
1								1	Choose fields to add to	eport:
2									Name Library	
3	Row Labels 🗔	Sum of Giving Total							State	
4	East	11383							Giving Total	
5	Midwest	10106						l	Contact Preference	)
6	Northeast	291								
7	Northwest	1488								
8	South	954								
9	Southwest	3490								
10	West	14977								
11	Grand Total	42689								
12										
13										
14									Drag fields between are V Report Filter	as below: Column Labels
15										
16										
17										
18										
19									Row Labels	Σ Values
20									Region	∠ values Sum of Giving ▼
21								L		
22										
23										
24										
	N Sheet5 Sheet1 Shee	et2 / Sheet3 / Sheet4 / 🞾 /						▼ 	Defer Layout Updat	e 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	В	С	D	Е	F	G	PivotTable Field List 🔻 🗙
1								Choose fields to add to report:
2								Name Library
3	Row Labels 🕞	Sum of Giving Total						✓ State
4	■East	11383						Region     Giving Total
5	MA	1119						Contact Preference
6	NJ	1444						
7	NY	8820						
8	■Midwest	10106						
9	IL	8906						
10	KY	1200						
11	■ Northeast	291						
12	ME	291						
13	■ Northwest	1488						

#### **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."

1200					
					Move <u>U</u> p
291		Dra	ig fields b		Move <u>D</u> own
291			Report		Move to Beginning
					Move to <u>E</u> nd
1488				Y	Move to Report Filter
1488					Move to Row Labels
1400					Move to Column Labels
954				Σ	Move to Values
				X	Remove Field
86			Row La	9	Value Field Setti <u>ng</u> s
420			egion		▼ Sum of Giving ▼
		St	tate		
448					
3490					
2490					

You can then change the" Value" setting to "Average."

1700		
954	Value Field Settings	Drag fields between areas below: Report Filter Column Labels
86	Source Name: Giving Total	
420	Custom Name: Average of Giving Total	
448	Summarize Values By Show Values As	
3490	Summarize value field by	
2490	Choose the type of calculation that you want to use to summarize data from the selected field	
654	Count	Row Labels <b>Σ</b> Values
346	Average	Region     State
14977	Product	
14977		
42689	Mumber Format OK Cancel	
		Defer Layout Update     Update
2		

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.

Giving Total		Library State Region
11383	Format Cells	Giving Total
1119		Contact Preference
1444	Number	
8820	Category:	
10106	Sum of Giving Total	
8906	Accounting Date	
1200	Time Symbol: \$	
291	Scientific	
291	Special (\$1,234.10) Custom (\$1,234.10)	
1488		
1488		
954		Drag fields between area
86	Currency formats are used for general monetary values. Use Accounting formats to align decimal	
420	points in a column.	
448		
3490	OK Cancel	
2490		
654	Sum Count	Row Labels
346	Average Average	Region
14977	Min Product	
14977		
42689	Mumber Format OK Cancel	

	age of Giving Total		Library State Region
<b>⊟ East</b>	\$1,626.14		Giving Total
MA	<b>\$1,119.00</b>		Contact Preference
NJ	\$1,444.00		
NY	\$1,764.00		

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

	Region	Σ Values
	State •	Average of GI *
		State •

### **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.

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File	-	e Layout Formulas	Data Review	View Option						
		Group Selection	Az↓ AzzA					rize Values By *		
PivotTal		Ungroup	Z Sort Inser			Select Mo		alues As * items, & Sets *	PivotChart OLAP	What-If Field
	Table Active Field	Group Field	Sort & Filter	<ul> <li>Sou</li> <li>Data</li> </ul>	ce • •	<ul> <li>PivotT</li> <li>Actions</li> </ul>	dore and	ulations	Tools * /	Analysis - List Bu
	-	Average of Giving To								
	А		В	C	;	D	E	F	G	PivotTable Fie
1					Insert Slice	rs	? 🔀			Choose fields t
2					Name					Name
3	Row Labels	Average of	Giving To	otal	Library					Library State
4	<b>⊟East</b>		\$1,626	5.14	Region					Region     Giving To
5	MA		\$1,119	9.00	Giving	Total				Contact Pre
6	NJ		\$1,444	1.00	Contac	t Preference				
7	NY		\$1,764	1.00						
8	⊟Midwest		\$1,263	3.25						
9	IL		\$1,272	2.29						
10	KY		\$1,200	0.00						
11	■Northeast		\$291	.00						
12	ME		\$291	.00						
13	■ Northwest		\$1,488	3.00						
14	WA		\$1,488	3.00						
15	<b>⊜South</b>		\$318	3.00		ОК	Cancel			Drag fields bet
16	FL		\$86	6.00			Cancer			

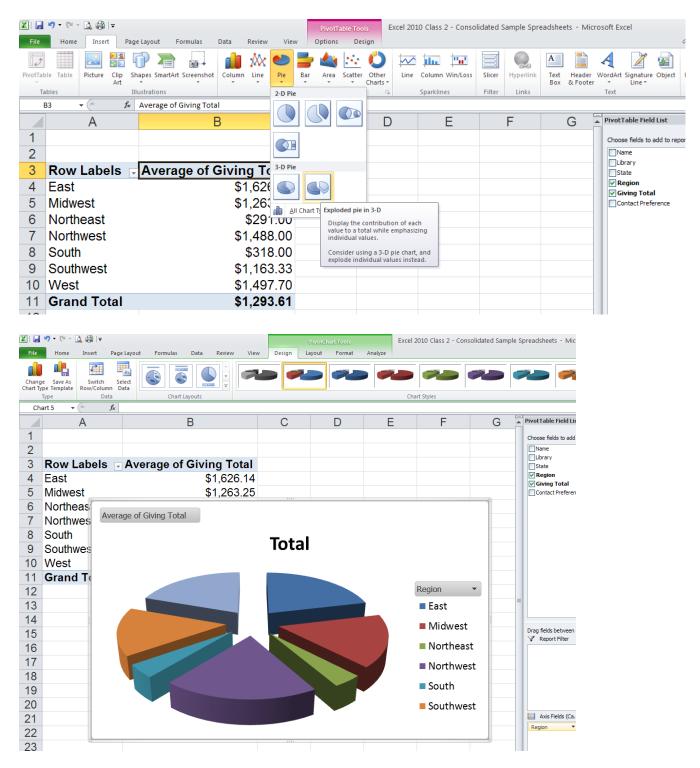
Holding the Ctrl button allows you to make multiple selections. In this case, the California libraries have been selected in the Slicer tool. Notice that the Pivot Table now only shows average donations to libraries in the Western region that are located in the state of California.

	А	В	С	D	E	F	
1			1	103	7	<b>.</b>	
2			Lib	rary		*	
3	Row Labels 🔉	Average of Giving Total	N	ew York Pub	lic Libr	~	
4	⊜West	\$1,497.70					
5	CA	\$1,497.70	Pa	alatine Public	c Library		
6	Grand Total	\$1,497.70	Pł	noenix Publi	e Library		
7							
8			Sa	acramento F	-		
9			S	an Diego Pu	blic Lib		
10				in Diego i u			
11			Sa	an Francisco	o Publi		
12				eattle Public	Library		
13					Library		
14			Sp	oringfield Pu	blic Lib	~	
15							
16							

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.



## **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.

Fil	e Home	Insert	F	Page Layo	out F	ormulas	Data	Review	Vie	w								
l	•	<u></u>		P		<b>01</b> +	1	X	0	=		$\mathcal{O}_{\mathcal{O}}$	Ö			llu.	<b>11</b>	
Pivot	Table Table	Picture	Clip Art	Shapes	SmartArt	Screenshot	Column	Line	Pie	Bar	Area	Scatter	Other Charts		ine (i	olumn	Win/Loss	Slicer
	Tables			Illustrat	tions				(	harts			charcs		J.	arkline	25	Filter
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	A	-		В	<b>1</b>	C	)		D			E			ínsert a cell.	line ch	art within	a single
1	Library D	onors																
2																		
3	Name				2012		2013			2014	ŀ	2	2015	Spai	rkline	es		
4	Homer Si	mpson		\$2	223.00	\$	\$378.00	)	\$	440.00	)	\$63	1.00					
5	James Pa	itterson		\$1,8	863.00	\$1	,204.00	)	\$	998.00	)	\$74	0.00					
6	Emma Sto	one		\$1,	552.00	\$1	,894.00	)	\$2,	132.00	)	\$1,01	2.00					
7	Bradley C	ooper		\$6	654.00	\$	\$865.00	)	\$	986.00	)	\$1,01	4.00					
8	Steven Sp	bielberg		\$3,	597.00	\$3	,174.00	)	\$2,	875.00	)	\$2,45	6.00					
9	Donald Tr	ump		\$9	956.00	\$	\$714.00	)	\$	678.00	)	\$51	5.00					
10	Oprah Wi	nfrey		<b>\$1</b> ,4	444.00	\$1	,749.00	)	\$2,	240.00	)	\$2,99	98.00					
11	Jennifer L	awrend	ce	\$2,4	490.00	\$1	,978.00	)	\$1,	621.00	)	\$1,34	5.00					

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

		-	0	-	_	_					
	A	В	С	D	E	F					
1	Library Donors										
2											
3	Name	2012	2013	2014	2015	Sparklines					
4	Homer Simpson	<mark>\$223.00</mark>	\$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	Create Sparklin		<mark>?</mark> 🛛 <sub>00</sub>						
7	Bradley Cooper	\$654.00	Choose the data th Data Range: B4	at you want	.00						
8	Steven Spielberg	\$3,597.00	Choose where you	want the sparklines to be p	laced00						
9	Donald Trump	\$956.00	Location Range:	\$F\$4	.00						
10	Oprah Winfrey	\$1,444.00		OK Cancel 00							
11	Jennifer Lawrence	\$2,490.00	\$1,978.00	\$1,621.00	\$1,345.00						

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Fil	e Home	Insert	Page Layout Fo	rmulas Data	Review View	Design								
Edi	t Line Co	olumn Win/Lo	Low Point	First Point Last Point Markers	Last Point Markers									
Spark	line	Туре	2	ihow	Style									
	F4 🔻	. (	fx											
	A		В	С	D	E	F							
1	Library Do	onors												
2														
3	Name		2012	2013	2014	2015	Sparklines							
4	Homer Sin	npson	\$223.00	\$378.00	\$440.00	\$631.00								
5	James Pat	tterson	\$1,863.00	\$1,204.00	\$998.00	\$740.00								
6	Emma Sto	ne	\$1,552.00	\$1,894.00	\$2,132.00	\$1,012.00								

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

 Image: Image:

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

<b>X</b>	🔟 🛃 🤊 🗸 🖓 🖙 🔀 Sparkline Tools Excel Intermediate - Sample Spreadsheets -												
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	F4 👻 🕤	$f_{x}$											
	A	В	С	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								
12	Michael Jordan	\$517.00	\$994.00	\$1,023.00	\$1,256.00								
13	Brad Pitt	\$1,119.00	\$3,583.00	\$2,997.00	\$989.00								
14	Meryl Streep	\$1,614.00	\$1,087.00	\$1,879.00	\$2,042.00								
15	Katy Perry	\$100.00	\$207.00	\$368.00	\$401.00								
16	Barack Obama	\$1,504.00	\$1,718.00	\$1,865.00	\$1,987.00								

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.

X	a 🤊 • (° • 🛕 🖓 I •			Spa	rkline Tools Excel	Intermediate - Sample Spreadsheets -
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~		High Point	First Point			
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Data		Negative Point				<b>T</b>
Sparkline Type Shov			W			Style
	F4 ▼ (***	B	С	D	E	F
1	Library Donors	_				
2	-					
3	Name	2012	2013	2014	2015	Sparklines
		1000.00	4070.00		<b>1</b> 00 / 00	
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	
12	Michael Jordan	\$517.00	\$994.00			
12	Michael Soluan	φ317.00	ψ554.00	ψ1,025.00	ψ1,230.00	
13	Brad Pitt	\$1,119.00	\$3,583.00	\$2,997.00	\$989.00	
14	Meryl Streep	\$1,614.00	\$1,087.00	\$1,879.00	\$2,042.00	
15	Katy Perry	\$100.00	\$207.00	<b>\$</b> 368.00	\$401.00	
16	Barack Obama	\$1,504.00	\$1,718.00	\$1,865.00	\$1,987.00	

## **Logical Functions**

Excel offers functions that compare data using logical operators such < (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.

<b>X</b>	a 🔊 • (° - 🛕 🏭   =			Excel Interme	ediate - Sample Spr	eadsheets - Microsoft E	ixcel		
Fil	Home Insert	Page Layout For	nulas Data R	eview View					
f Inse Fund	ert AutoSum Recently Fin	ancial Logical Text	Time * Reference * 8	Math More N		mula × = = = = = = = = = = = = = = = = = =	edents 📓 Show Formulas endents 🔶 Error Checking + rrows + 🍳 Evaluate Formula Formula Auditing	Calcula Calculation	
	$ \mathbf{F}  = \langle \mathbf{x} \vee f_{\mathbf{x}}   =$								
	Α	В	С	D	E	F	G		
1	Library Donors								
	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	Insert Function			<u> </u>	<b>_</b>		
6	Emma Stone	\$1,552.00	Search for a functio	n: ription of what you want I	to do and then click				
7	Bradley Cooper	\$654.00	Or select a catego	ry: Logical	~				
8	Steven Spielberg	\$3,597.00	Select a function:				•		
9	Donald Trump	\$956.00	FALSE IF IFERROR	]			•		
10	Oprah Winfrey	\$1,444.00	OR TRUE			<b>V</b>			
11	Jennifer Lawrence	\$2,490.00		value_if_true,value_if condition is met, and retu		and another	•		
12	Michael Jordan	\$517.00	Value IF FALSE.						
13	Brad Pitt	\$1,119.00	Help on this function	1	ОК	Cancel			
14	Meryl Streep	\$1,614.00	\$1,087.00	\$1,879.00	\$2,042.00				

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

	E4>B4,"T	hank You Lett	er","Phon	e Call")				
В		С		D	E	F		G
	2012	2	013	2014	2015	Sparklines		Thank You Letter or Phone Call?
\$2	223.00	\$37	8.00	\$440.00	\$631.00	== ==		ık You Letter","Phone Call")
\$1.8	002.00	¢1 00	4.00	<u> </u>	\$740.00			
	Functio	on Arguments				? 🛛		
\$1,	IF							
\$6		Logical_test			💽 = TRUE			
¥		Value_if_true	"Thank You		[ = "Thank You			
\$3,5		Value_if_false	"Phone Call"		[ = "Phone Call"			
\$9	Checks w	vhether a conditio	n is met, and	returns one value if '	= "Thank You TRUE, and another valu			
\$1,4		v	alue_if_fals	e is the value that i is returned.	s returned if Logical_te:	st is FALSE. If omitted, FALSE		
\$2,4	Formula	result = Thank Y	ou Letter					
\$	<u>Help on t</u>	his function				OK Cancel		
\$1,1	19.00	\$3,58	3.00	\$2,997.00	\$989.00		I	

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 <b>▼</b> (	<i>f</i> <sub>x</sub> =IF(E4>B4,"Th	hank You Letter","Pł	hone Call")			
	А	В	С	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.

<u> </u>	🚽 🍠 🕶 🖄 👘 🖙			Excel Interm	iediate - Sample Spi	eadsheets - Microsoft E	Excel	
Fil	e Home Insert	Page Layout Form	nulas Data Rev	riew View				
f. Inse	ert AutoSum Recently Fin	hancial Logical Text	Date & Lookup & M Time * Reference * & T	ath More	Name lanager Defined Name Defined Name	mula → = = = = = = = = = = = = = = = = = =		tch dow Calculation Calculat Options Calculation
	G4 🔹 🤄	<i>f</i> <sub>x</sub> =IF(E4>B4,"Th	ank You Letter","Pho	one Call")				
	А	В	С	D	E	F		G
1	Library Donors							
2								
3	Name	2012	2013	2014	2015	Sparklines	Thank You Lett	er or Phone Call?
4	Homer Simpson	\$223.00	\$378.00	\$440.00	\$631.00		Thank You Lette	er
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 Lette	er
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 Lette	)r
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 Lette	er
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 Lette	er
15	Katy Perry	\$100.00	\$207.00	\$368.00	\$401.00		Thank You Lette	PL
<mark>16</mark> 17	Barack Obama	\$1,504.00	\$1,718.00	\$1,865.00	\$1,987.00		Thank You Lette	er

### **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.

File	Home Insert Page Lay	out Formulas Data Review	View						
fx Inser Functi	t AutoSum Recently Financial Log on v Used v v Fur	gical Text Date & Lookup & Math M * Time * Reference * & Trig * Fun httion Library	Mara	Name Manager	befine Name ▾ ഈ Use in Formula ഈ Create from Sel Defined Names	- =\$∄ Tra	ace Dependents 💐 move Arrows 👻 🤅	∰ Show Formulas ∲ Error Checking ▾ ∭ Evaluate Formula uula Auditing	Wate Winde
	$PMT  \bullet  (\circ  X  \checkmark  f_{X} \mid =$	_			_	_		-	
	A	В		С	D	E	F	G	ŀ
1	Payment Function			Insert	Function			2	1
2					for a function:				1
3	Car Price	\$23,0	000	paym				Go	
4	Interest Rate	4.9	9%						·
5	Number of Payments		60		ect a <u>c</u> ategory: Re	ecommended		<b>*</b>	
6				PMT	mancao <u>n</u> :			A	1
7	Monthly Payment	=		PPMT FV					
8				XNPV XIRR					
9				IPMT CUMI				~	
10					rate,nper,pv,fv,t ates the payment f		on constant paymer	nts and a constant	
11					st rate.				
12									
13				Help on	this function		ОК	Cancel	1
14									'
15									

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.

	$PMT  \mathbf{v} \left( \begin{array}{c} \mathbf{X} \\ \mathbf{V} \end{array} \right) \mathbf{f_x} = PMT(B4)$								
	Α	В	С	D	E	F	G		
1	Payment Function								
2			Function	n Arguments					
3	Car Price	\$23,000	PMT	n-	e ad				
4	Interest Rate	4.9%		ка Np	te B4		= 0.049		
5	Number of Payments	60			Pv		🔣 = numb		
6					Fv		🔝 = numt	per	
7	Monthly Payment	=PMT(B4)		Ту	ре		📧 = numt	ber	
8			Calculates	the payment for a	loan based on con	stant payments an	= id a constant intere	est rate.	

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

PMT 🔹 💿 🗙 🖌 🏂 =PI	MT(B4/12)						
А	В	С	D	E	F	G	ŀ
Payment Function							
		Func	ion Arguments				
Car Price	\$23,000	PMT	n	ate B4/12		<b>(10</b> ) = 0.004	000000
Interest Rate	4.9%			per		💽 = 0.004	
Number of Payments	60		-	Pv		🔣 = numl	
				Fv		🔣 = numl	ber
Monthly Payment	=PMT(B4/12)		T	/pe		📧 = numl	ber
		Calcula	tes the payment for a	a loan based on cor	stant payments an	= id a constant intere	est 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.

	PMT ▼ (° X ✓ <b>f</b> x = <b>PN</b>	AT(B4/12,B5,B3)								
	А	В	C		D	E	F	G	Н	I
1	Payment Function									
2			Fu	nction	Arguments					? 🛽
3	Car Price	\$23,000		MT						
4	Interest Rate	4.9%			Ra Np	te B4/12 er B5		<b>5</b> = 0.004	083333	
5	Number of Payments	60				<b>v</b> B3		<b>1</b> = 00	1	
6	-					Fv		🔣 = numl	per	
7	Monthly Payment	=PMT(B4/12,B5,B3)			Ту	ре		🔝 = numl	ber	
8			• <b>•</b>	lculates i	the navment for a	loan based o	stant payments an	= -432.º		
9				icalacos.	and payment for a				t a series of future	payments is
10							h now.			
11			-							
12					sult = (\$432.99)					Court
13			Hel	lp on thi:	s function				ОК	Cancel

		· · · · · · · · · · · · · · · · · · ·	
	B7 ▼ ( <i>f</i> <sub>x</sub> =PN	/T(B4/12,B5,B3)	
	А	В	(
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			

Once Excel completes the Payment Function, you can change the price, interest rate, and number of payment values to see how it impacts the monthly payment amount.

	B7 ▼ ( <i>f<sub>x</sub></i> =PN	/T(B4/12,B5,B3)	
	А	В	(
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			
0			

### 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.

X	🚽 🤊	- (°I -	🔔 🎲   <del>-</del>					Exce	el 2010 Cla	ss 2 ·	- Consolidated Samp	le Spre
F	ile	Home	Insert	Page Lay	out Fo	rmula	as Data	Review	View			
1	fx	Σ			3	6		θ			🚑 👌 Define Nam	e *
J	A	~				U		U			🍠 🏦 Use in Form	ula 🕆
		utoSum		inancial Log	gical Text		te & Lookup &		More	N	Name anager 🗃 Create from	Calactio
Fun	nction	*	Used *	*	* *		ne * Reference *	r & Trig ∗	Functions	Ma		Selectio
				Fu	nction Libra	ry					Defined Names	
	C1	11		🗉 X 🗸 🕇	* =							
	1					1						
			A				В		С		D	E
1												
2	Reve	enue is	Greater	than or Eo	qual to	Βι	ıt Less Than	Then	Commiss	ion		
3	\$				-	\$	10,000.00			3%		
4	\$				0,001.00	\$	25,000.00			4%		
5	\$				25,001.00		100,000.00			5%		
6	\$				0,001.00	\$	500,000.00			6%		
7	\$			50	0,001.00					7%		
8												
9						_						
	Salesp						enue		ission Rat	е	Commission Paid	
	Brad Pi					\$	1,000,000.00	=				
	Meryl S		_			\$	8,000.00					
	Bradley Jennifer					\$ \$	26,000.00					
14 15	Jennifer	Lawrer	ice			Э	150,000.00					
16												
17								1				
18		Insert	Function	)					? 🔀 –			
19		<u>S</u> earch	for a functi	on:								
20		Vlool										
21		U viooi	Νάρ					G				
22		Or se	lect a cated	ory: Recom	mended		~	i				
23		01 30	loce a <u>c</u> acog	iory: Rocom	nonaca			J				
24		Select a	a functio <u>n</u> :									
25			OKUP									
26		LOO	KUP OKUP									
27		IF	OKOF									
28												
29 30									~			
30		VLOC	KUP(look	un valuet:	able array	.col	index_num,ran	nae look	սո)			
31			-				ble, and then retu					
33		same	row from a	column you s			, the table must l					
34		ascer	nding order.									
35												
36												
37		<u>Help on</u>	this functio	<u>n</u>			ОК	Car	ncel			
38												
39												

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.

	VIO		✓ <u>f</u> ∡ =VLOO	סוואר	p/)	I	
	VLO		• <u>J</u> * -•LOC	JKUP	0		
	1	A			В	С	D
1		A			D	U	U
	Dav			D.	el ese Them	Then Commission	
2		enue is Greater than	or Equal to		t Less Than		
3	\$		-	\$	10,000.00	3%	
4	\$ \$		10,001.00	\$ \$	25,000.00	4%	
5	5 5		25,001.00 100,001.00	ծ Տ	100,000.00 500,000.00	5% 6%	
7	5 5		500,001.00	Ф.	500,000.00	7%	
8	ų		500,001.00			170	
9							
10	Salesp	person		Rev	enue	Commission Rate	Commission Paid
11	Brad P			\$	1,000,000.00		]
12	Meryl S	Streep		\$	8,000.00		
13		/ Cooper		\$	26,000.00		
14	Jennife	r Lawrence		\$	150,000.00		
15							
16							
17		Function Arguments					? 🗙
18 19							
20		VLOOKUP					
21		Lookup_value	B11		<b>1</b>	= any	
22		Table_array			<b>I</b>	= number	
23		Col_index_num				= number	
24							
25		Range_lookup			<b>1</b>	= logical	
26						=	
27						a value in the same row fro	m a column you
28		specify. By default, the tab	ble must be sorted	l in an	ascending order.		
29		La				in the first column of the tab	le, and can be a
30			V.	alue, a	a reference, or a l	text string.	
31 32							
33		Formula result =					
34		r ormula result =					
35		Help on this function				ОК	Cancel
36							
37							

In the "Lookup\_value" field, select the cell with revenue amount.

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

2	Revenue is Greater than or Equal to	But Less Than	Then Commission	
3	\$ -	\$ 10,000.00	3%	1
4	\$ 10,001.00	\$ 25,000.00	4%	
5	\$ 25,001.00		5%	
6	\$ 100,001.00	\$ 500,000.00	6%	
7	\$ 500,001.00			
8				
9				
10	Salesperson	Revenue	Commission Rate	Commission Paid
11	Brad Pitt	\$ 1,000,000.00	KUP(B11,A3:C7)	
12	Meryl Streep	\$ 8,000.00		
13	Bradley Cooper	\$ 26,000.00		
14	Jennifer Lawrence	\$ 150,000.00		
15				
16				
17	Function Arguments			2 🔀
18				
19		(am)		
20	Lookup_value B11	=	1000000	
21	Table_array A3:C7	<b>E</b> =	{0,10000,0.03;10001,2500	0,0.04;2
22	Col_index_num	=	number	
23				
24	Range_lookup	=	logical	
25		=		

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		=	numl
Range_lookup		=	logic
<u></u>		=	

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.

	V		X 🗸 f x	=VLOC	оки	P(B11,\$A\$	3:\$C	\$7,3)		
		А				В		С	D	
1										
2	- 1	Revenue is Greater th	an or Equa	l to	B	ut Less Th	an	Then Commission		
3	\$			-	\$	10,000	.00	3%		
4	\$			01.00	\$	25,000		4%		
5	\$			01.00	\$	100,000		5%		
6	\$			01.00	\$	500,000	.00	6%		
7	\$		500,0	01.00				7%		
8										
9					_					
		esperson				venue		Commission Rate	Commission	n Paid
		d Pitt			\$			I11,\$A\$3:\$C\$7,3)	<u> </u>	
		ryl Streep			\$	8,000				
		dley Cooper			\$	26,000				
14	Jen	nifer Lawrence			\$	150,000	.00			
15										
16		Function Arguments							? 🗙	
17 18		i anetion wigamente								
10										
20		Lookup_value	B11			1	=	1000000		
20		Table_array	\$A\$3:\$C\$7				_	{0,10000,0.03;10001,2500	0.0.04+2500	
22									0,0.04,2000	
23		Col_index_num	3				=	3		
24		Range_lookup				<b></b>	=	logical		
25		·					_	0.07		
26		Looks for a value in the left	tmost colump r	of a table	e, ar	d then return		alue in the same row from a	column you	
27		specify. By default, the tal	ble must be so	rted in a	n as	cending order			coldmin you	
28		cal	index num	ic the	colu	on number in	Fable	_array from which the match	hing value	
29								column of values in the table		
30										
31										
32		Formula result = 0.07								
33										
34		Help on this function						OK	Cancel	
35										
36										

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

	C11 ▼ ( <i>f</i> <sub>x</sub> =VLOC	DKUP(B11,\$A\$3:\$C	\$7,3)	
	A	В	С	D
1	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.

	А		В	С	D
1					
2	Revenue is Greater than or Equal to	В	ut 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	Re	venue	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					<b></b>
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	В	ut 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	Re	venue	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					

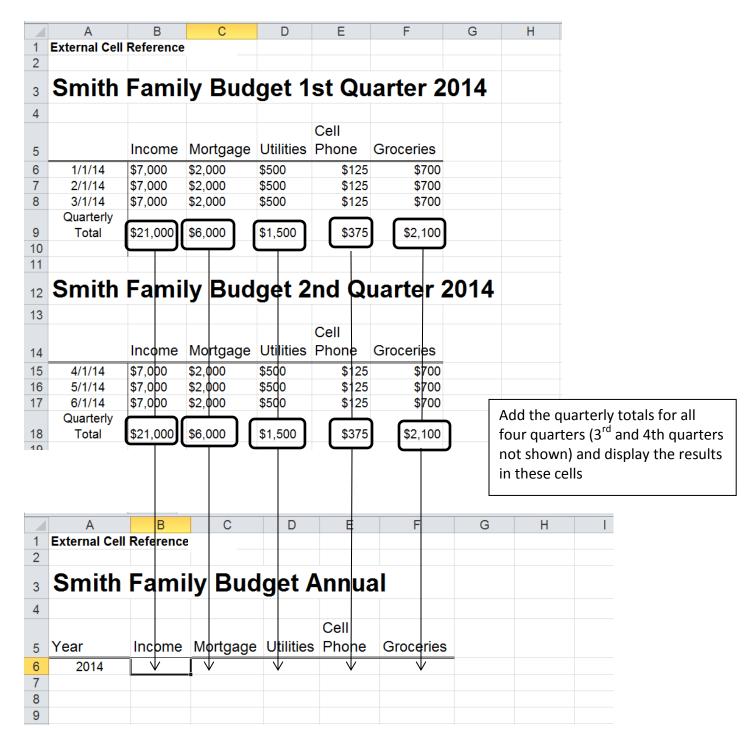
1					
2	Revenue is Greater than or Equal to	В	ut Less Than	Then Commission	
3	\$-	\$	10,000.00	3%	
4	\$ 10,001.00	\$	25,000.00	4%	
5	\$ 25,001.00	\$	100,000.00	5%	
6	\$ 100,001.00	\$	500,000.00	6%	
7	\$ 500,001.00			7%	
8					
9					
10	Salesperson	Re	venue	Commission Rate	Commission Paid
11	Brad Pitt	\$	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	В	ut 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	Rev	venue	Commission Rate	Со	mmission 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							<b></b> +
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.



The formula looks like this:

	ciipoouru u	i viit		~uy	gimen					
	PMT 👻 (		UM('quarterly tota	ls'!B9,'quarterl	ly totals'!B18,'qı	uarterly totals'!B27,	quarterly totals	!B36)		
	А	В	С	D	E	F	G	Н		J
1	External Cell	Reference								
2										
3	Smith	Fami	lv Rud	a tan	nnua					
3	Sinti	i anni	iy Duu	yet r	IIIIua					
4										
					Cell					
5	Year	Income	Mortgage	Utilities	Phone	Groceries				
6	2014	=SUM('qua	arterly totals'!	B9,'quarte	erly totals'!E	318, 'quarterly	totals'!B27,	'quarterly to	otals'!B36)	
7		SUM(number	1, [number2], [numbe	er3], [number4], [I	number5],)					
8										
9										

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

udget	Annu	ual	
udget	Annu	ual	
udget	Annu	ual	
	Cell		
Utilities	Phone	Groceries	
\$6,000	\$1,500	\$8,400	
		Utilities Phone	Utilities Phone Groceries

#### 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).

	Excel 2010 Class 2 - Consolidated Sample Spreadsheets - Microsoft Excel												
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3ar	Zoom 100% Zoom to New Arrange Freeze				<ul> <li>Diew Side b</li> <li>Die Synchronou</li> <li>Die Reset Wind</li> <li>Window</li> </ul>	us Scrolling		witch dows +	Macros				
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Е		F		G	Н	I	J	K	L	N 🛤	Use Relative Reference	s 📕	

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Mac	ro name:							
	Macro1							
Sho	rtcut <u>k</u> ey:							
	Ctrl+ q							
Stor	re macro in:							
	This Workbook 💙							
Description:								
	Example Macro							
	OK Cancel							

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).

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N			Zoom		Window			Window		workspace	WINDOWS		View Macros	
											Stop <u>R</u> ecording	×		
	E		F		G	Н		J	K	L		N BE	Use Relative Reference	ces 📕

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.

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a Bar qs	Zoom	100%	Zoom to	New	Arrange Fr	Eeze Split	View Side H	us Scrolling	Save	Switch	Macr			
		Zoom					Window Position Workspace Windows				View Macros			
												<u>R</u> ecord Macro		~
E		F		G	Н	I	J	K	L		N 🛃	<u>U</u> se Relative Refe	erences	

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

