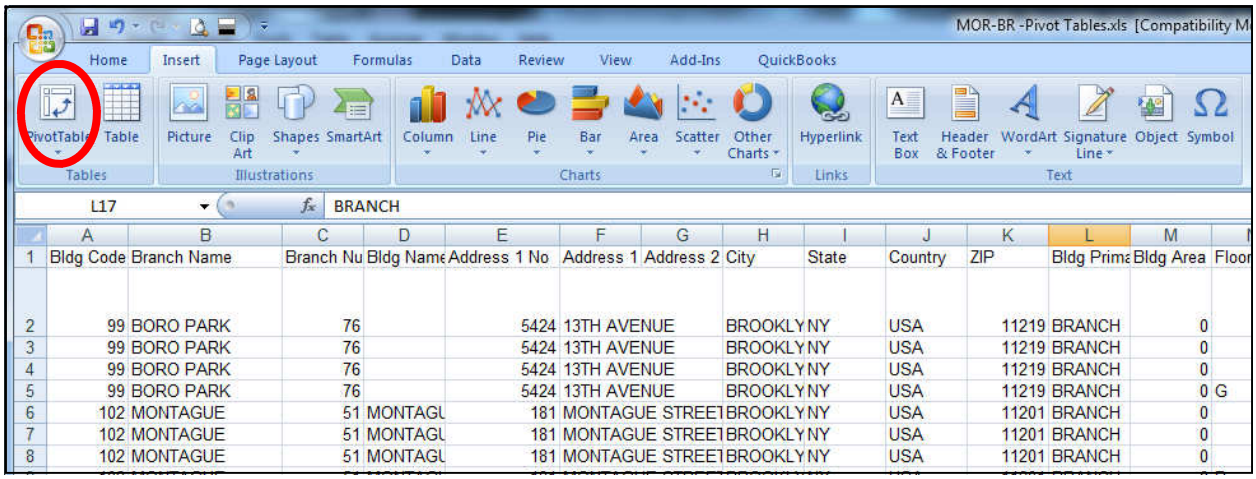
Microsoft Excel – PivotTables & PivotCharts

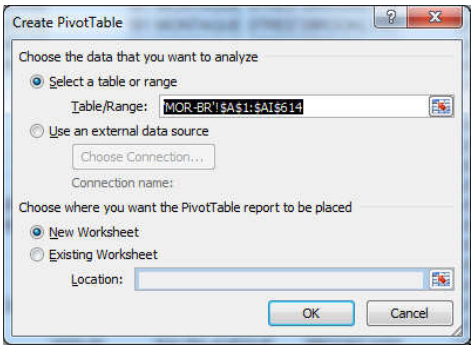
PivotTables

PivotTables can be a powerful way to analyze data in Excel. As with all data functions in Excel, it is key that you have your data set up properly. Don't skip rows (just to make it look nice) and try not to skip columns. The first row (and only the first row) should have your column headings in it.



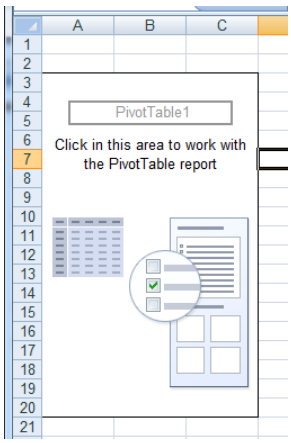
	A	B	C	D	E	F	G	H	I	J	K	L	M	
1	Bldg Code	Branch Name	Branch Nu	Bldg Name	Address 1 No	Address 1	Address 2	City	State	Country	ZIP	Bldg Prima	Bldg Area	Floor
2	99	BORO PARK	76		5424	13TH AVENUE		BROOKLY	NY	USA	11219	BRANCH	0	
3	99	BORO PARK	76		5424	13TH AVENUE		BROOKLY	NY	USA	11219	BRANCH	0	
4	99	BORO PARK	76		5424	13TH AVENUE		BROOKLY	NY	USA	11219	BRANCH	0	
5	99	BORO PARK	76		5424	13TH AVENUE		BROOKLY	NY	USA	11219	BRANCH	0	G
6	102	MONTAGUE	51	MONTAGU	181	MONTAGUE	STREET	BROOKLY	NY	USA	11201	BRANCH	0	
7	102	MONTAGUE	51	MONTAGU	181	MONTAGUE	STREET	BROOKLY	NY	USA	11201	BRANCH	0	
8	102	MONTAGUE	51	MONTAGU	181	MONTAGUE	STREET	BROOKLY	NY	USA	11201	BRANCH	0	

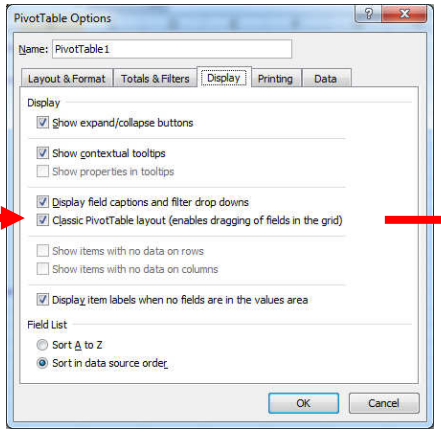
Before you get started, simply click on any cell inside the data range that you want to use. Then, on the Insert tab of the ribbon, click the top of the PivotTable button to start the process inserting a PivotTable (if you want a PivotChart, the bottom half of that button in choosing from the short menu that appears). The window to the right should appear with the range predetermined based on Excel's artificial intelligence in the cell that you clicked on in the data range. At the bottom you can choose to insert the PivotTable into a new worksheet or into the existing one and you have the data on.

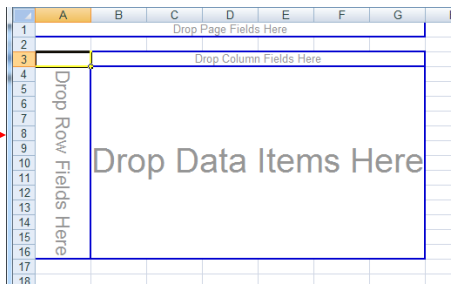


Turning on the Drag-And-Drop Version of the PivotTable Tool

If the PivotTable tool does not look like the illustration on the right, below, then you must set it for PivotTable table input from the PivotTable options. To access the PivotTable options, point to the toolbox on the left, below, and right-click. Then choose PivotTable options for the menu. On the window that appears, click on the display tab and check off the box pointed to below.



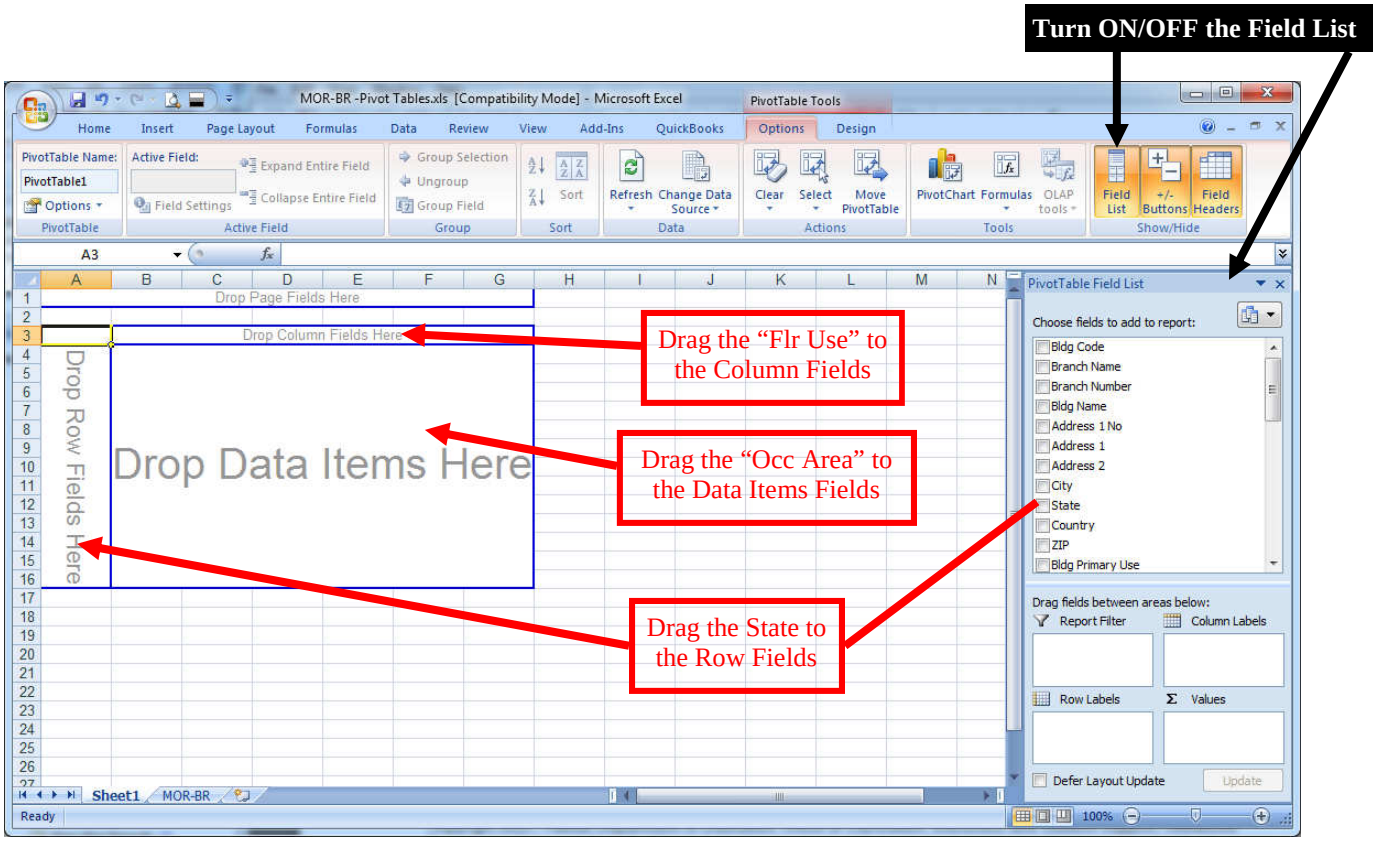


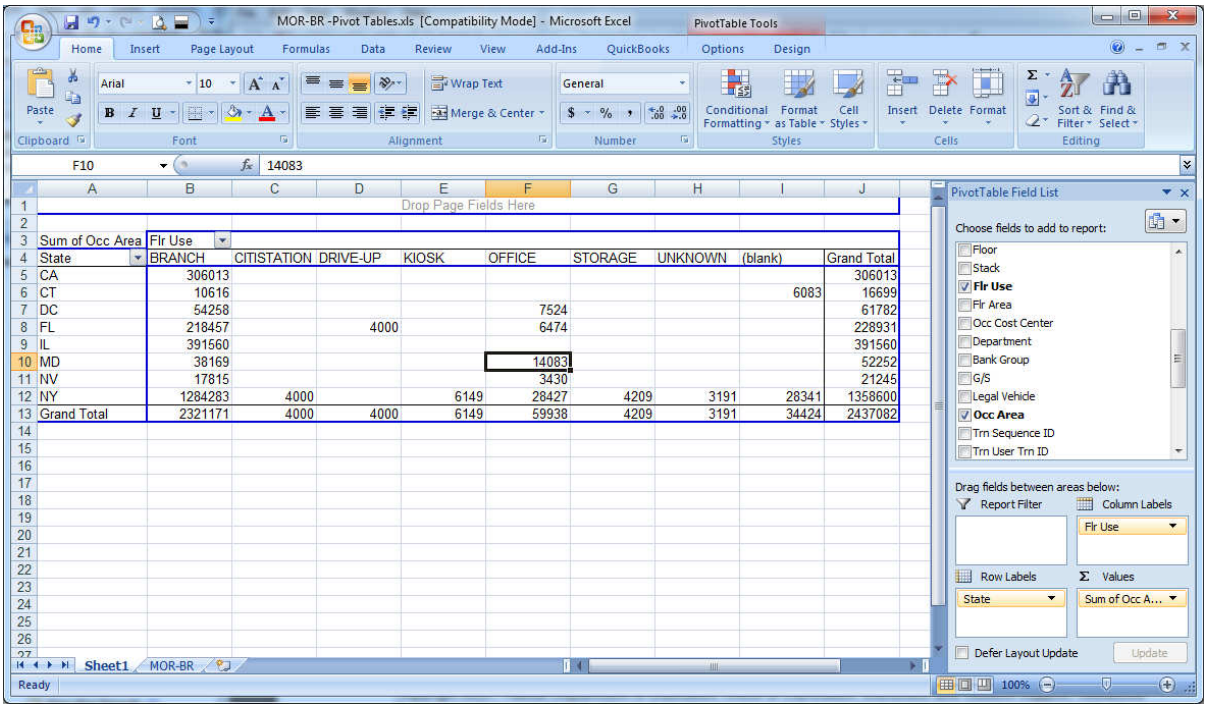


Microsoft Excel – PivotTables & PivotCharts

Let us discuss the data that we will be using in this document. Is a list of branches for a major banking corporation. The data spans multiple cities in multiple states and shows occupied square footage as well as rental cost.

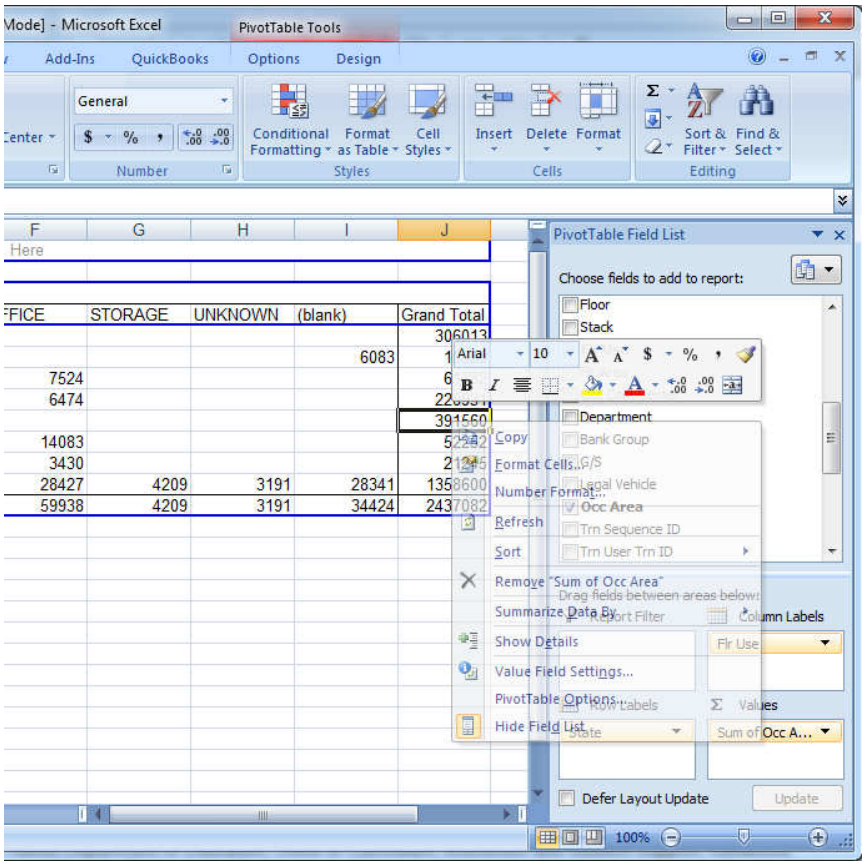
We will start with a simple example. Let's summarize the occupied square footage by State and break it down by "Flr Use."





Sum of Occ Area	Flr Use							
State	BRANCH	CITISTATION	DRIVE-UP	KIOSK	OFFICE	STORAGE	UNKNOWN	(blank)	Grand Total
CA	306013								306013
CT	10616							6083	16699
DC	54258				7524				61782
FL	218457		4000		6474				228931
IL	391560								391560
MD	38169				14083				52252
NV	17815				3430				21245
NY	1284283	4000		6149	28427	4209	3191	28341	1358600
Grand Total	2321171	4000	4000	6149	59938	4209	3191	34424	2437082

Microsoft Excel – PivotTables & PivotCharts

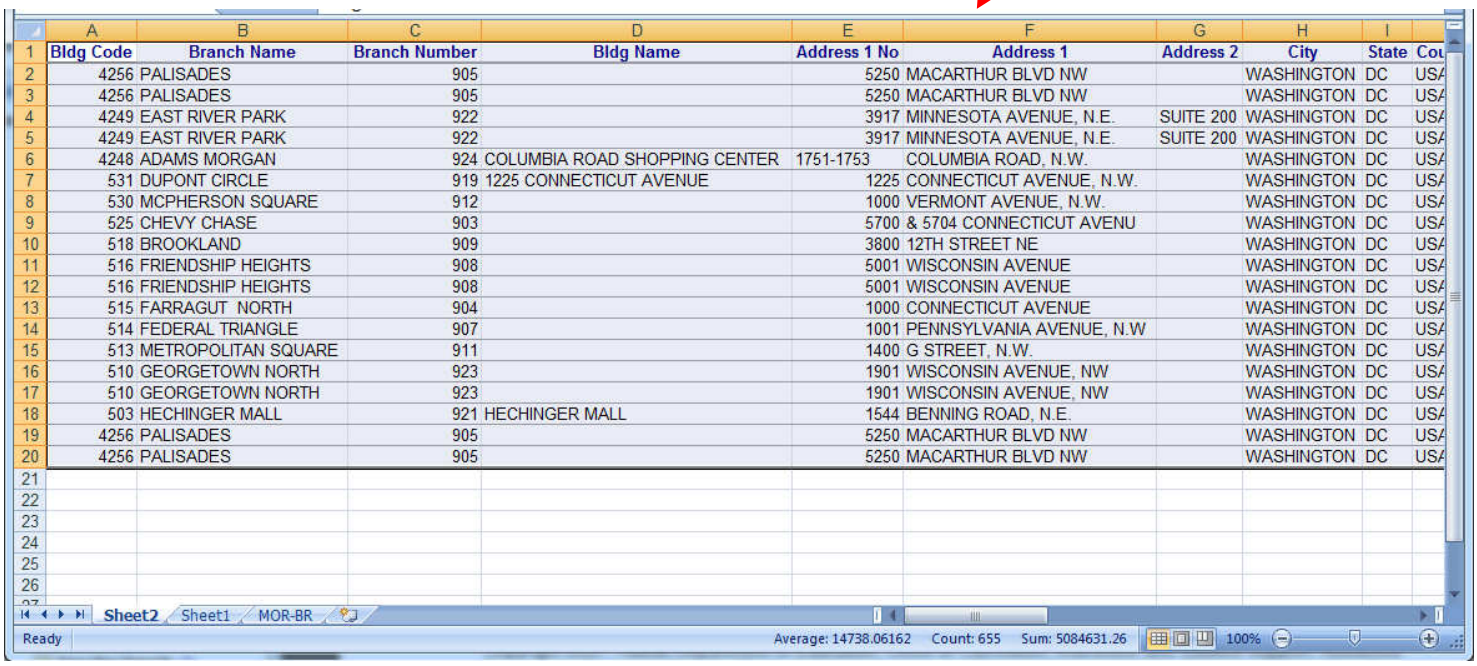


Formatting the Numbers in the PivotTable

To format the numbers on the page for commas at the thousand separators, it is best to click on any number inside the data and right-click, then choose number format from the menu. Using this method will format all of the numbers in the data section. If you used the buttons on the ribbon, it would only format the one cell that you had selected.

"Drilling Down" on the Data

Another interesting feature on this right-click menu is that if you click on a number (for example the total of 61,782 for DC) and choose show details, a new sheet will be added showing the data that makes up that number.



Bldg Code	Branch Name	Branch Number	Bldg Name	Address 1 No	Address 1	Address 2	City	State	Cou
4256	PALISADES	905		5250	MACARTHUR BLVD NW		WASHINGTON	DC	USA
4256	PALISADES	905		5250	MACARTHUR BLVD NW		WASHINGTON	DC	USA
4249	EAST RIVER PARK	922		3917	MINNESOTA AVENUE, N.E.	SUITE 200	WASHINGTON	DC	USA
4249	EAST RIVER PARK	922		3917	MINNESOTA AVENUE, N.E.	SUITE 200	WASHINGTON	DC	USA
4248	ADAMS MORGAN	924	COLUMBIA ROAD SHOPPING CENTER	1751-1753	COLUMBIA ROAD, N.W.		WASHINGTON	DC	USA
531	DUPONT CIRCLE	919	1225 CONNECTICUT AVENUE	1225	CONNECTICUT AVENUE, N.W.		WASHINGTON	DC	USA
530	MCPHERSON SQUARE	912		1000	VERMONT AVENUE, N.W.		WASHINGTON	DC	USA
525	CHEVY CHASE	903		5700	& 5704 CONNECTICUT AVENU		WASHINGTON	DC	USA
518	BROOKLAND	909		3800	12TH STREET NE		WASHINGTON	DC	USA
516	FRIENDSHIP HEIGHTS	908		5001	WISCONSIN AVENUE		WASHINGTON	DC	USA
516	FRIENDSHIP HEIGHTS	908		5001	WISCONSIN AVENUE		WASHINGTON	DC	USA
515	FARRAGUT NORTH	904		1000	CONNECTICUT AVENUE		WASHINGTON	DC	USA
514	FEDERAL TRIANGLE	907		1001	PENNSYLVANIA AVENUE, N.W		WASHINGTON	DC	USA
513	METROPOLITAN SQUARE	911		1400	G STREET, N.W.		WASHINGTON	DC	USA
510	GEORGETOWN NORTH	923		1901	WISCONSIN AVENUE, NW		WASHINGTON	DC	USA
510	GEORGETOWN NORTH	923		1901	WISCONSIN AVENUE, NW		WASHINGTON	DC	USA
503	HECHINGER MALL	921	HECHINGER MALL	1544	BENNING ROAD, N.E.		WASHINGTON	DC	USA
4256	PALISADES	905		5250	MACARTHUR BLVD NW		WASHINGTON	DC	USA
4256	PALISADES	905		5250	MACARTHUR BLVD NW		WASHINGTON	DC	USA

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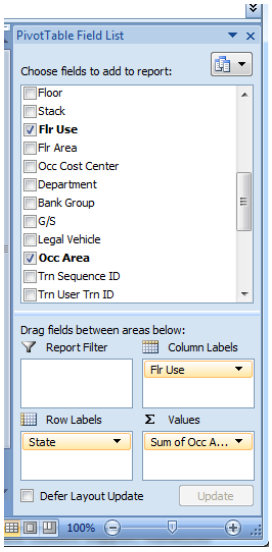
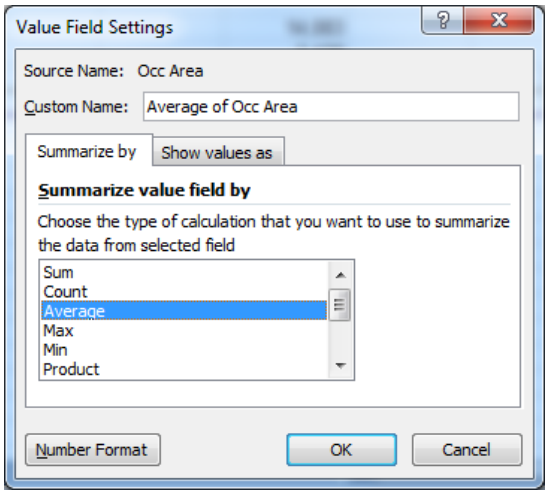


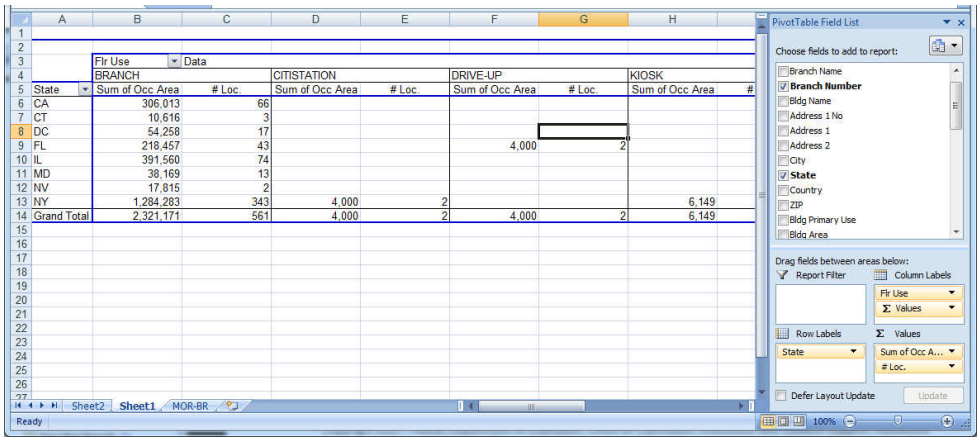
Changing the Formula

Maybe we don't want the total (Sum) of the square footage shown in the PivotTable. There are four boxes at the bottom of the PivotTable field list. This allows us to customize what information is shown. To change the number calculation, click on the "Sum of Occ Area" in the Values box. In the pulldown menu that appears, click on “Value Field Settings” and choose “Average” in the lower half of that window. Note that you can also click the “Number Format” button and format the numbers from this window.

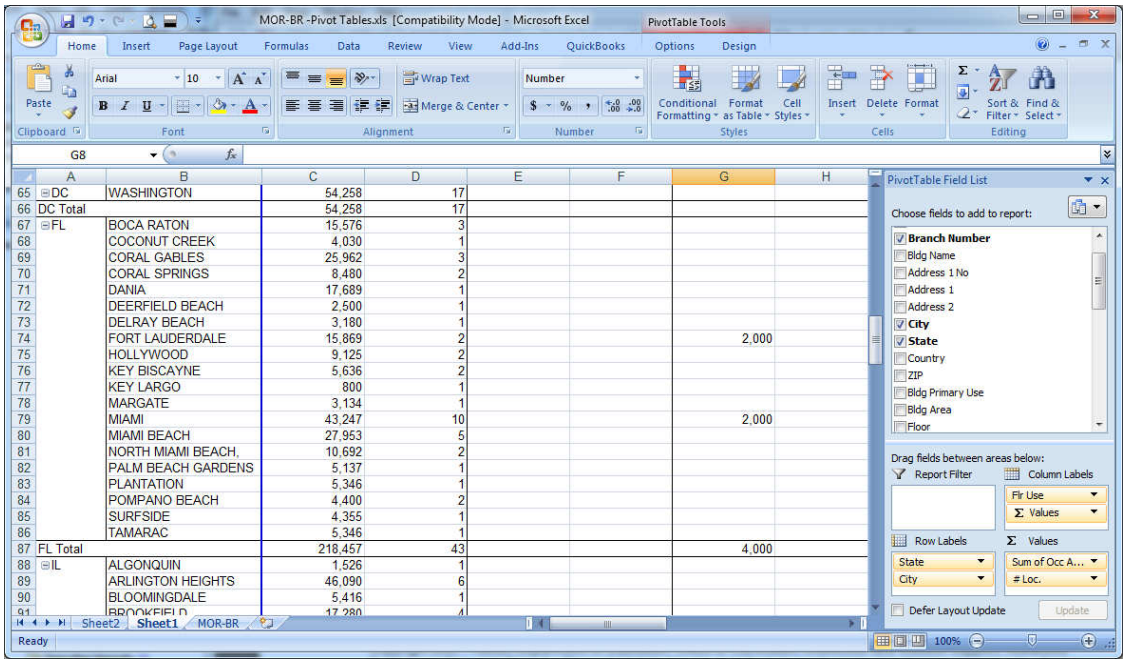


Multi-Level Analysis

We can show more than one data value. Let's drag the “Branch Number” field down to the values (below the one it's their already: “Occupied Area”). You will see that Excel automatically assumes that you want to do a count of these branches - which is what we want. But the heading of the column, "Count of Branch Number" is a bit large for our liking. So, let's click the pulldown in this newly added field and choose “Value Field Settings” again. In the field labeled, "Custom Name," change the text to simply read, "# Loc." This will make the column widths narrower.



Now let's further breakdown each state to show all the cities within the State. Simply drag the City field down to the “Row Labels” box, below the State field, which is already there. Instantly the added level of breakdown is displayed.



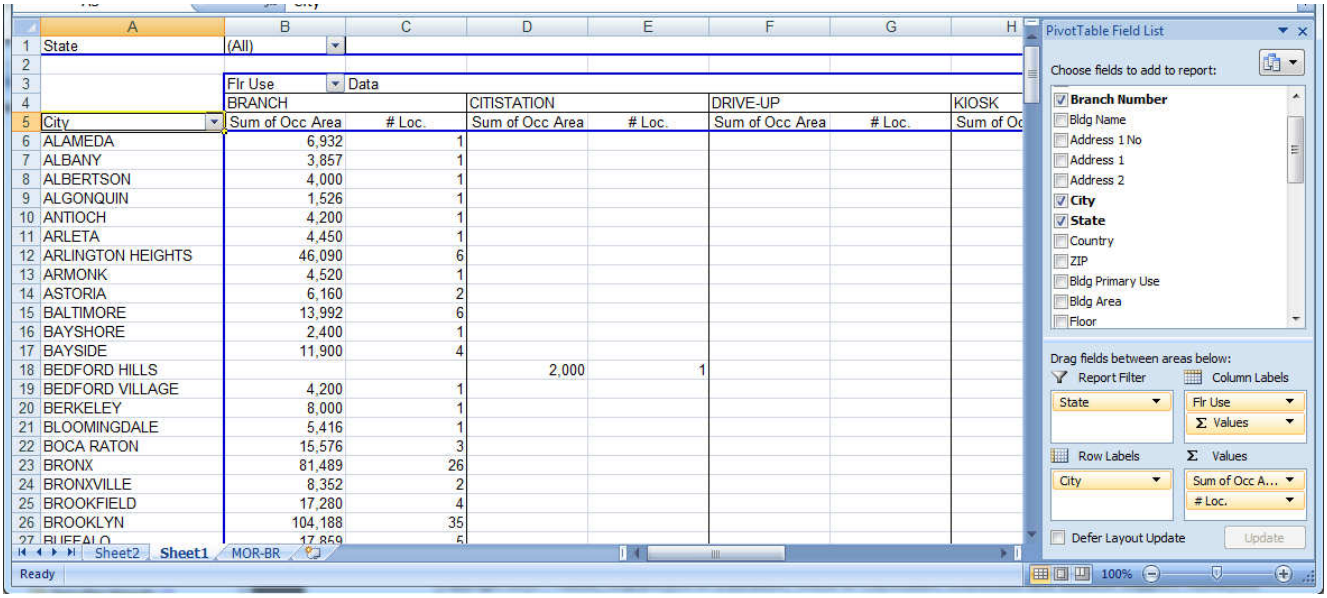
Microsoft Excel – PivotTables & PivotCharts

FILTERING THE PIVOTTABLE

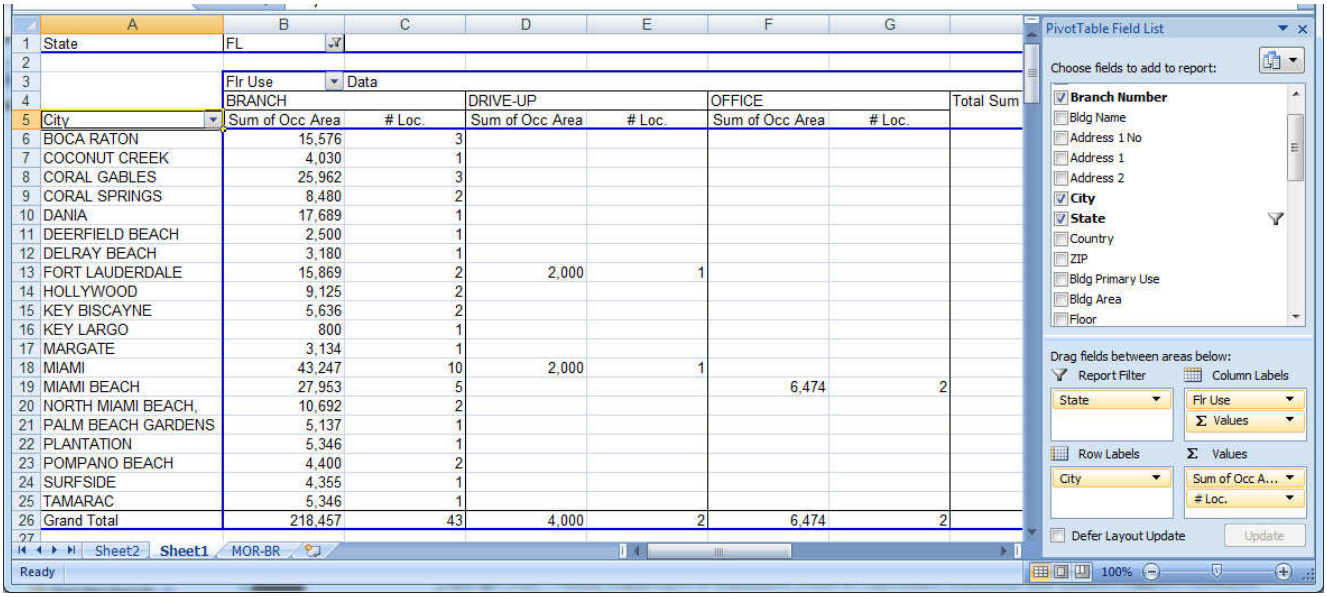
There are two ways we can filter a PivotTable.

First- you may have noticed the report filter box on the bottom of the field list. Let's drag the State field from the row labels to the report filter. This results in the State field now being shown on the left above the actual PivotTable. You can click the pulldown arrow on the second column and choose which State you want to show the data for.

Second– in the City heading, you could click the pulldown in the column on the left and check off exactly which cities you want to show in your table.



	A	B	C	D	E	F	G	H
1	State	(All)						
2								
3		Flr Use	Data					
4		BRANCH		CITISTATION		DRIVE-UP		KIOSK
5	City	Sum of Occ Area	# Loc.	Sum of Occ Area	# Loc.	Sum of Occ Area	# Loc.	Sum of Oc
6	ALAMEDA	6,932	1					
7	ALBANY	3,857	1					
8	ALBERTSON	4,000	1					
9	ALGONQUIN	1,526	1					
10	ANTIOCH	4,200	1					
11	ARLETA	4,450	1					
12	ARLINGTON HEIGHTS	46,090	6					
13	ARMONK	4,520	1					
14	ASTORIA	6,160	2					
15	BALTIMORE	13,992	6					
16	BAYSHORE	2,400	1					
17	BAYSIDE	11,900	4					
18	BEDFORD HILLS			2,000	1			
19	BEDFORD VILLAGE	4,200	1					
20	BERKELEY	8,000	1					
21	BLOOMINGDALE	5,416	1					
22	BOCA RATON	15,576	3					
23	BRONX	81,489	26					
24	BRONXVILLE	8,352	2					
25	BROOKFIELD	17,280	4					
26	BROOKLYN	104,188	35					
27	BUFFALO	17,859	5					

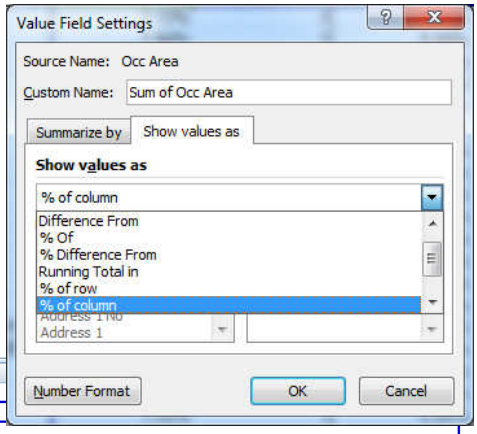


	A	B	C	D	E	F	G
1	State	FL					
2							
3		Flr Use	Data				
4		BRANCH		DRIVE-UP		OFFICE		Total Sum
5	City	Sum of Occ Area	# Loc.	Sum of Occ Area	# Loc.	Sum of Occ Area	# Loc.	
6	BOCA RATON	15,576	3					
7	COCONUT CREEK	4,030	1					
8	CORAL GABLES	25,962	3					
9	CORAL SPRINGS	8,480	2					
10	DANIA	17,689	1					
11	DEERFIELD BEACH	2,500	1					
12	DELRAY BEACH	3,180	1					
13	FORT LAUDERDALE	15,869	2	2,000	1			
14	HOLLYWOOD	9,125	2					
15	KEY BISCAYNE	5,636	2					
16	KEY LARGO	800	1					
17	MARGATE	3,134	1					
18	MIAMI	43,247	10	2,000	1			
19	MIAMI BEACH	27,953	5			6,474	2	
20	NORTH MIAMI BEACH,	10,692	2					
21	PALM BEACH GARDENS	5,137	1					
22	PLANTATION	5,346	1					
23	POMPANO BEACH	4,400	2					
24	SURFSIDE	4,355	1					
25	TAMARAC	5,346	1					
26	Grand Total	218,457	43	4,000	2	6,474	2	
27								

Microsoft Excel – PivotTables & PivotCharts

Changing the Type of Values Displayed

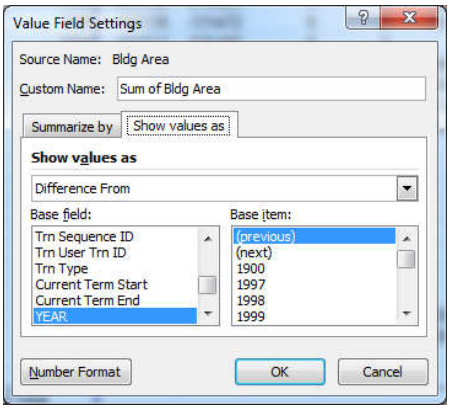
Suppose we want to change the values of the "Sum of Occ Area" to be percentages of the total? Right-click on the column heading, "Sum of Occ Area," and click the tab labeled "Show values as." Then click the pulldown under "Show values as" and select choose "% of column." All the sums are now shown as percentages.

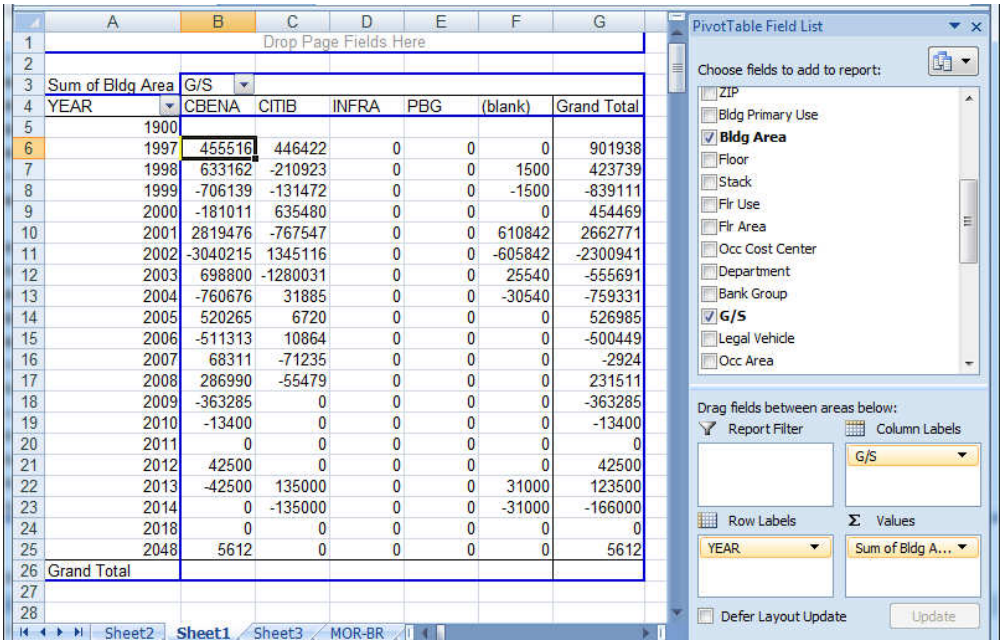


	A	B	C	D	E	F	G
1	State	FL					
2							
3		Flr Use	Data				
4		BRANCH		DRIVE-UP		OFFICE		Total Sum of Occ Area	Total # Loc.
5	City	Sum of Occ Area	# Loc.	Sum of Occ Area	# Loc.	Sum of Occ Area	# Loc.		
6	BOCA RATON	7.13%	3	0.00%		0.00%		6.80%	3
7	COCONUT CREEK	1.84%	1	0.00%		0.00%		1.76%	1
8	CORAL GABLES	11.88%	3	0.00%		0.00%		11.34%	3
9	CORAL SPRINGS	3.88%	2	0.00%		0.00%		3.70%	2
10	DANIA	8.10%	1	0.00%		0.00%		7.73%	1
11	DEERFIELD BEACH	1.14%	1	0.00%		0.00%		1.09%	1
12	DELRAY BEACH	1.46%	1	0.00%		0.00%		1.39%	1
13	FORT LAUDERDALE	7.26%	2	50.00%	1	0.00%		7.81%	3
14	HOLLYWOOD	4.18%	2	0.00%		0.00%		3.99%	2
15	KEY BISCAYNE	2.58%	2	0.00%		0.00%		2.46%	2
16	KEY LARGO	0.37%	1	0.00%		0.00%		0.35%	1
17	MARGATE	1.43%	1	0.00%		0.00%		1.37%	1
18	MIAMI	19.80%	10	50.00%	1	0.00%		19.76%	11
19	MIAMI BEACH	12.80%	5	0.00%		100.00%	2	15.04%	7
20	NORTH MIAMI BEACH,	4.89%	2	0.00%		0.00%		4.67%	2
21	PALM BEACH GARDENS	2.35%	1	0.00%		0.00%		2.24%	1
22	PLANTATION	2.45%	1	0.00%		0.00%		2.34%	1
23	POMPANO BEACH	2.01%	2	0.00%		0.00%		1.92%	2
24	SURFSIDE	1.99%	1	0.00%		0.00%		1.90%	1
25	TAMARAC	2.45%	1	0.00%		0.00%		2.34%	1
26	Grand Total	100.00%	43	100.00%	2	100.00%	2	100.00%	47
27									

Special Value Calculations

Before you setup the next PivotTable, you must add a column to the data sheet to pull out the Year of the "Current Term End." Be sure to refresh the PivotTable. Once you setup the PivotTable below, click the pulldown on the "Sum of Bldg Area" and choose "Value Field Settings." Set the parameters as shown (on the left) on the "Show values as" tab. This shows the difference in the building area from the previous year—in essence how much the area has changed as each year passes.



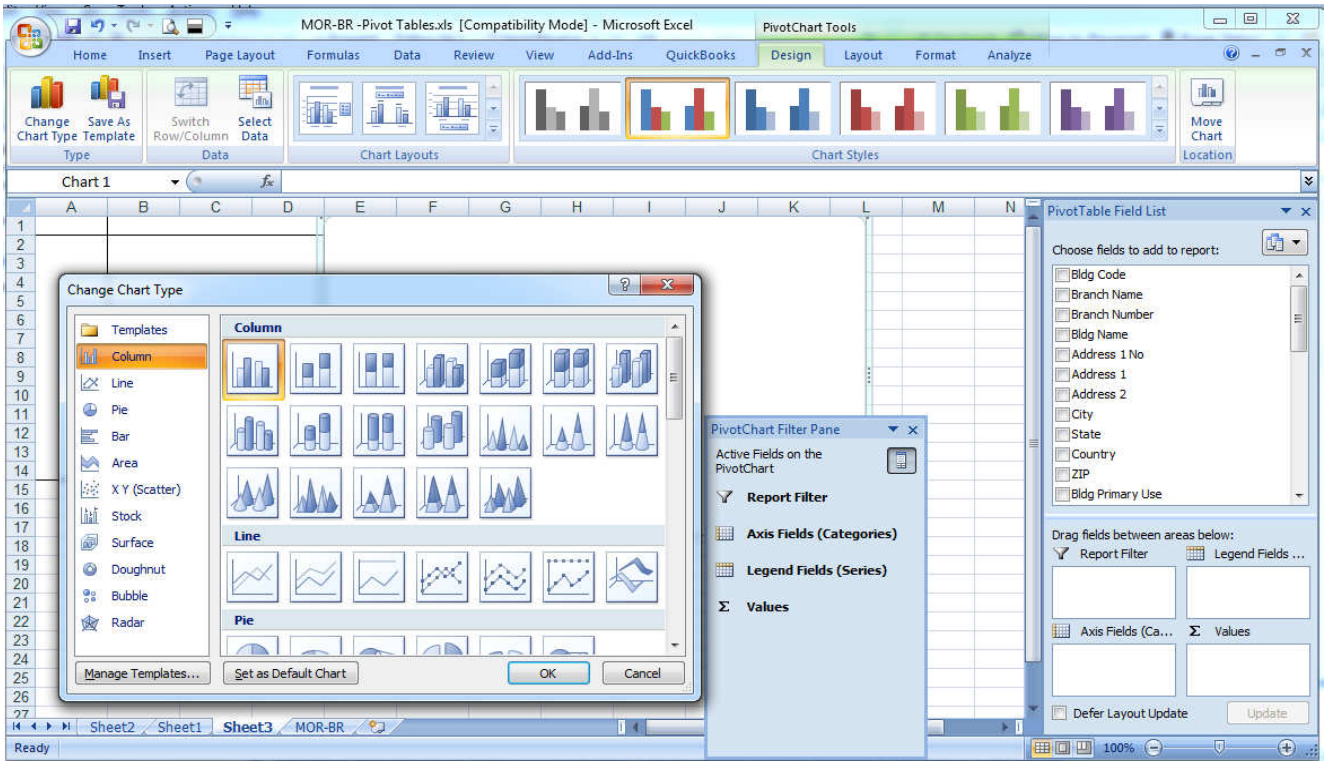


	A	B	C	D	E	F	G
1		Drop Page Fields Here					
2							
3	Sum of Bldg Area	G/S					
4	YEAR	CBENA	CITIB	INFRA	PBG	(blank)	Grand Total
5	1900						
6	1997	455516	446422	0	0	0	901938
7	1998	633162	-210923	0	0	1500	423739
8	1999	-706139	-131472	0	0	-1500	-839111
9	2000	-181011	635480	0	0	0	454469
10	2001	2819476	-767547	0	0	610842	2662771
11	2002	-3040215	1345116	0	0	-605842	-2300941
12	2003	698800	-1280031	0	0	25540	-555691
13	2004	-760676	31885	0	0	-30540	-759331
14	2005	520265	6720	0	0	0	526985
15	2006	-511313	10864	0	0	0	-500449
16	2007	68311	-71235	0	0	0	-2924
17	2008	286990	-55479	0	0	0	231511
18	2009	-363285	0	0	0	0	-363285
19	2010	-13400	0	0	0	0	-13400
20	2011	0	0	0	0	0	0
21	2012	42500	0	0	0	0	42500
22	2013	-42500	135000	0	0	31000	123500
23	2014	0	-135000	0	0	-31000	-166000
24	2018	0	0	0	0	0	0
25	2048	5612	0	0	0	0	5612
26	Grand Total						
27							
28							

Microsoft Excel – PivotTables & PivotCharts

PivotCharts

Go back to our original data and click the bottom half of the PivotTable button on the Insert tab of the ribbon, but this time let's choose PivotChart. A new sheet will be created with the controls and it to build our chart. If we don't want column chart (the default) we can click "Change Chart Type" on the left of the ribbon. Screen below shows what you should have.



Let's drag the same three fields into the chart area: State, Flr Use and Occ Area. If they don't produce the chart that you have below, drag the fields into the right boxes at the bottom of the field list. The numbers for "Branch" may be too big to allow the other numbers to show well enough on our chart. So let's change the value format of the number to compute the averages. When you're done your chart should look like the one on the right.