



# LEIAG-Excel Workshop

## Random Sample

Excel has a simple formula we can utilize to obtain a random sample (cases, citations, city, etc.)

At the Sheriff's Department, we are able to run a case management report that generates the following information: case #, report date, Assigned Investigator, Crime Category, City and Case Status)

If we want to obtain a random sample of cases, we will do the following:

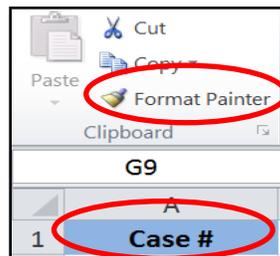
Left click on column A and either select Copy, or press Ctrl + C (shortcut for copy option).

	A	B	C	D	E
	Case #	Assigned Date	Assigned Investigator	Crime Category	City
1	18100001	2/2/2018	YOUNG, MICHAEL	Aggravated Assault	San Mar
2	18100002	2/2/2018	JONES, JESSICA	Burglary/Breaking & Entering	Vista
3	18100003	2/2/2018	HERNANDEZ, REYNALDO	Counterfeiting/Forgery	Vista
4	18100004	2/2/2018	SMITH, KIRSTIN	Credit Card/Automatic Teller Fraud	Imperial B
5	18100005	2/2/2018	YOUNG, MICHAEL	Destruction/Damage/Vandalism of Property	Vista
6	18100006	2/2/2018	JONES, JESSICA	Disorderly Conduct	San Mar
7	18100007	2/2/2018	HERNANDEZ, REYNALDO	Drug/narcotic Violations	Imperial B
8	18100008	2/3/2018	SMITH, KIRSTIN	False Pretenses/Swindle/Confidence Game	San Mar
9	18100009	2/3/2018	YOUNG, MICHAEL	Forcible Rape	Vista
10	18100010	2/3/2018	JONES, JESSICA	Motor Vehicle Theft	San Mar
11	18100011	2/3/2018	HERNANDEZ, REYNALDO	Robbery	Vista
12	18100012	2/3/2018	SMITH, KIRSTIN	Shoplifting	Imperial B
13	18100013	2/3/2018	YOUNG, MICHAEL	Simple Assault	San Mar
14	18100014	2/3/2018	JONES, JESSICA	Trespass of Real Property	San Mar

Left Click on Random Sample Tab (located on the bottom of the screen) and paste the data by Clicking on the paste option or by pressing Ctrl+V (shortcut to paste data).

Type the word Random (or any title you like) on column B1.

If you want the same cell color and type of text, you can click on cell A1 and select Format Painter. Then Left Click on cell B1. (this action copies the format from cell A1 to cell B1)

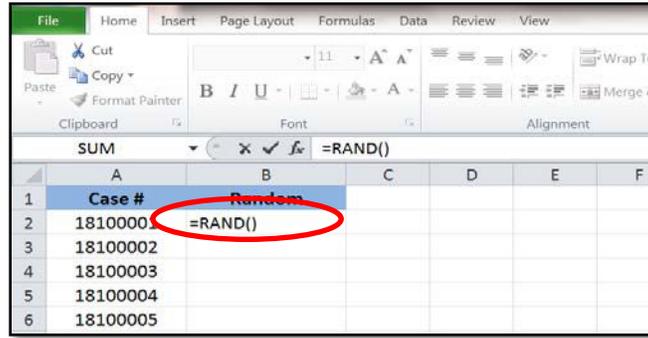




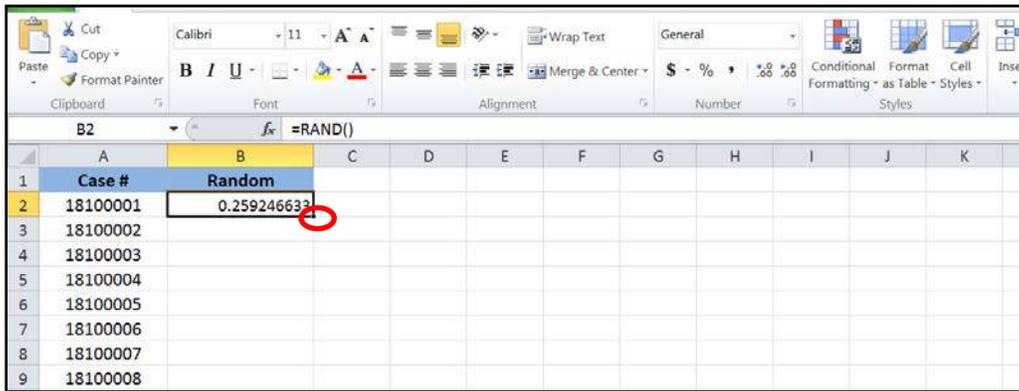
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The function to create a Random sample is **=RAND()**

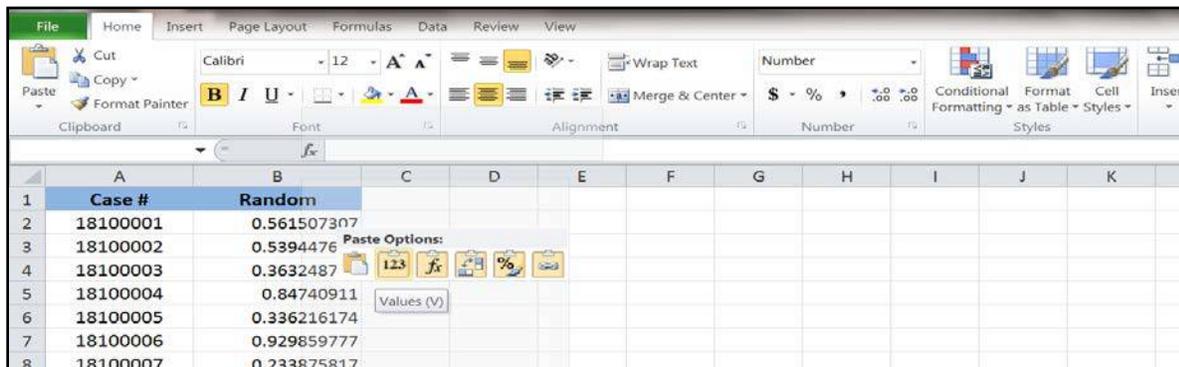
Type **=Rand()** on cell B2 and press enter (this action will generate a random number).



Left Click twice on the right hand side of cell B2. (this action will copy the RAND formula to the rest of the column).



One of the problems with random sample is that every time we refresh the screen or type anything, the computer will generate a new random value. Since we want to store the initial random value, we select the random value column and copy and paste values.





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Now, highlight the entire data set.

Click on the Data Tab

Click **Sort**

Sort your data according to the random sample.

The screenshot shows the Excel interface with the Data tab selected. The data range A2:B15 is highlighted in blue. The Sort dialog box is open, showing 'Sort by Random' and 'Sort On Values'. The 'My data has headers' checkbox is checked.

Now that your case numbers are randomly selected, you can pick the cases according to the percentage of cases you want to review. If your data set has 100 cases and you want to review 10%, then you will pick the first 10 cases on your data set:

	A	B
1	Case #	Random
2	18100021	0.000593306
3	18100298	0.001698196
4	18100426	0.003148474
5	18100331	0.005750771
6	18100439	0.009865847
7	18100133	0.009988418
8	18100432	0.01170124
9	18100317	0.013594619
10	18100117	0.019383069
11	18100154	0.022973595



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## Stratified Random Sample

So now you want to do something more complicated and include more than one category, this is where you can utilize an Excel **Stratified Random Sample**.

The difference between a random sample and a stratified random sample is that with a stratified random sample we want to select a certain number or records from more than one category (example: type of case, Assigned Investigator, findings, etc.)

For this exercise, I am going to select 3 different categories (Case #, Assigned Investigator and City) from the main data set and paste them into the Stratified Random Sample Tab.

	A	B	C	D	E
1	<b>Case #</b>	<b>Assigned Investigator</b>	<b>City</b>		
2	18100001	YOUNG, MICHAEL	San Marcos		
3	18100002	JONES, JESSICA	Vista		
4	18100003	HERNANDEZ, REYNALDO	Vista		
5	18100004	SMITH, KIRSTIN	Imperial Beach		
6	18100005	YOUNG, MICHAEL	Vista		
7	18100006	JONES, JESSICA	San Marcos		
8	18100007	HERNANDEZ, REYNALDO	Imperial Beach		
9	18100008	SMITH, KIRSTIN	San Marcos		
10	18100009	YOUNG, MICHAEL	Vista		

Type **=Rand()** on cell D2 and press enter (this action will generate a random number).

	A	B	C	D	E	F	G	H	I
1	<b>Case #</b>	<b>Assigned Investigator</b>	<b>City</b>	<b>Stratified</b>					
2	18100001	YOUNG, MICHAEL	San Marcos	=RAND()					
3	18100002	JONES, JESSICA	Vista						
4	18100003	HERNANDEZ, REYNALDO	Vista						
5	18100004	SMITH, KIRSTIN	Imperial Beach						
6	18100005	YOUNG, MICHAEL	Vista						
7	18100006	JONES, JESSICA	San Marcos						
8	18100007	HERNANDEZ, REYNALDO	Imperial Beach						
9	18100008	SMITH, KIRSTIN	San Marcos						
10	18100009	YOUNG, MICHAEL	Vista						



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	A	B	C	D
1	<b>Case #</b>	<b>Assigned Investigator</b>	<b>City</b>	<b>Stratified</b>
2	18100001	YOUNG, MICHAEL	San Marcos	0.142050059
3	18100002	JONES, JESSICA	Vista	0.158977648
4	18100003	HERNANDEZ, REYNALDO	Vista	0.729329976
5	18100004	SMITH, KIRSTIN	Imperial Beach	0.985911163
6	18100005	YOUNG, MICHAEL	Vista	0.039939994
7	18100006	JONES, JESSICA	San Marcos	0.0388633
8	18100007	HERNANDEZ, REYNALDO	Imperial Beach	0.298094361
9	18100008	SMITH, KIRSTIN	San Marcos	0.785751442
10	18100009	YOUNG, MICHAEL	Vista	0.583413954

Now, highlight the entire data set.

	A	B	C	D	E	F	G
1	<b>Case #</b>	<b>Assigned Investigator</b>	<b>City</b>	<b>Stratified</b>			
2	18100001	YOUNG, MICHAEL	San Marcos	0.142050059			
3	18100002	JONES, JESSICA	Vista	0.158977648			
4	18100003	HERNANDEZ, REYNALDO	Vista	0.729329976			
5	18100004	SMITH, KIRSTIN	Imperial Beach	0.985911163			
6	18100005	YOUNG, MICHAEL	Vista	0.039939994			
7	18100006	JONES, JESSICA	San Marcos	0.0388633			
8	18100007	HERNANDEZ, REYNALDO	Imperial Beach	0.298094361			
9	18100008	SMITH, KIRSTIN	San Marcos	0.785751442			
10	18100009	YOUNG, MICHAEL	Vista	0.583413954			

Click on the Data Tab

Click **Sort**

**Sort** your data according to the random sample.



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Case #	Assigned Investigator	City	Stratified
18100001	YOUNG, MICHAEL	San Marcos	0.142050059
18100002	JONES, JESSICA	Vista	0.158977648
18100003	HERNANDEZ, REYNALDO	Vista	0.729329976
18100004	SMITH, KIRSTIN	Imperial Beach	0.985911163
18100005	YOUNG, MICHAEL	Vista	0.039939994
18100006	JONES, JESSICA	San Marcos	0.0388633

Just remember to always have Random or Stratified as your last column!

Note that you don't have to include the case number; your stratified random sample will automatically provide you with random case numbers.

You now use the stratified random sample to pick a certain amount of cases per Investigator and City:

Case #	Assigned Investigator	City
18100404	HERNANDEZ, REYNALDO	Imperial Beach
18100167	HERNANDEZ, REYNALDO	Imperial Beach
18100207	HERNANDEZ, REYNALDO	North Coastal
18100363	HERNANDEZ, REYNALDO	North Coastal
18100054	JONES, JESSICA	Imperial Beach
18100090	JONES, JESSICA	Imperial Beach
18100198	JONES, JESSICA	North Coastal
18100138	JONES, JESSICA	North Coastal



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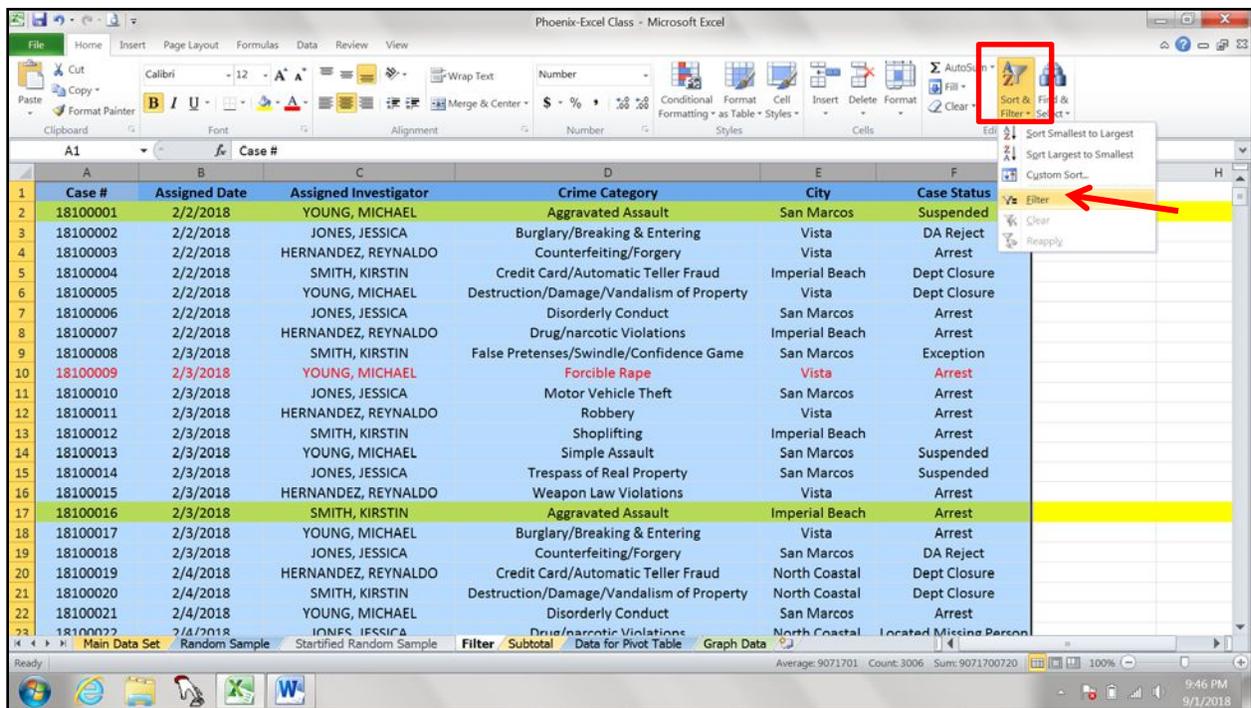
## Filtering Data

Another useful Excel option is the Filter option. With this option you select data according to specific text, text color or highlighted data.

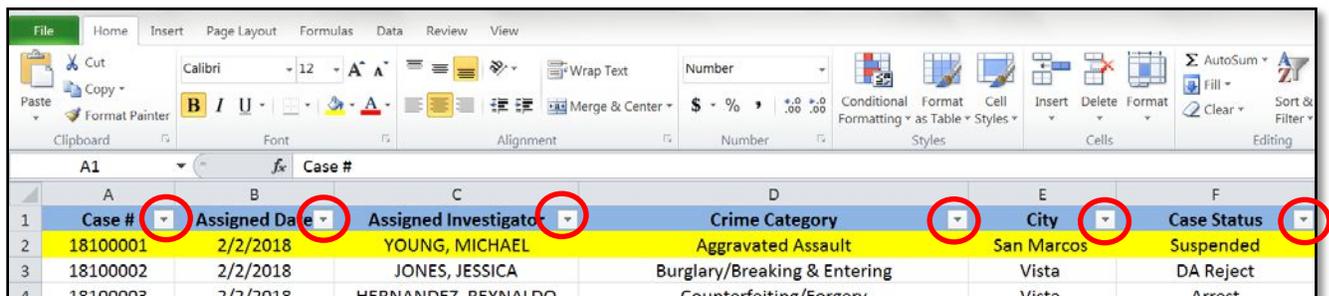
In the sample provided, most of the text is black. However, all the **Aggravated Assault** cases are highlighted in yellow, and the **Forcible Rape** cases are in red text. (we do this to mark or easily identify specific data that we may want to easily find it a later time)

To filter data:

Highlight your data set and click the Sort and Filter option, then select Filter



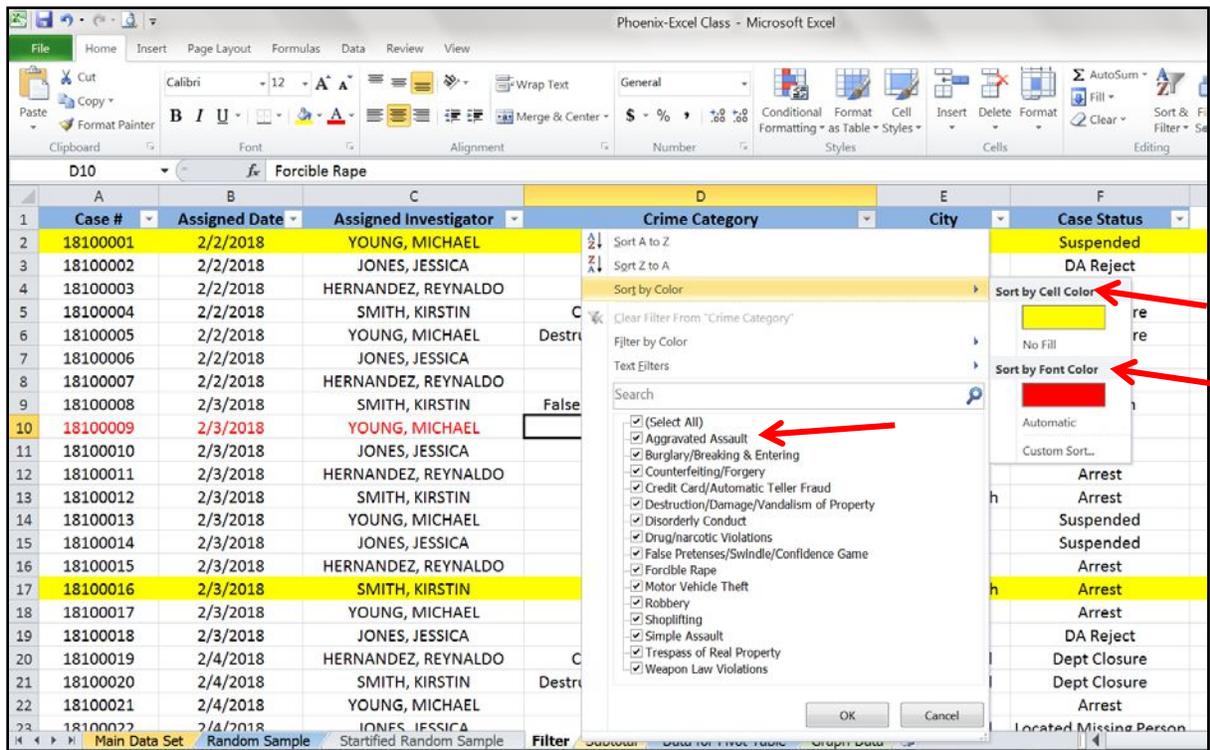
After you activate the Filter, you will see the following drop down option appear on your column titles. Click on the desired filter.





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This is what you see when you click on the filter.



You can now filter by specific text, cell color and/or font color.

## Excel Subtotal Option

The Excel Subtotal option can be used to total specific rows of data. Let's say that we want to know how many cases per City we have on our data set, we can do that by using the Subtotal function.

First, select the column with the data you want to subtotal. Next, click on the Data Tab and click Subtotal. In the subtotal box, you need to make sure the function is set to **Count** and that **Replace current subtotals** and **Summary below data** are selected. Click **Ok**



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Case #	Assigned Date	Assigned Investigator	Crime Category	City
18100004	2/2/2018	SMITH, KIRSTIN	Credit Card/Automatic Teller Fraud	Imperial Beach
18100007	2/2/2018	HERNANDEZ, REYNALDO	Drug/narcotic Violations	Imperial Beach
18100012	2/3/2018	SMITH, KIRSTIN	Shoplifting	Imperial Beach
18100016	2/3/2018	SMITH, KIRSTIN	Aggravated Assault	Imperial Beach
18100026	2/4/2018	JONES, JESSICA	Robbery	Imperial Beach
18100033	2/5/2018	YOUNG, MICHAEL	Counterfeiting/Forgery	Imperial Beach
18100034	2/5/2018	JONES, JESSICA	Credit Card/Automatic Teller Fraud	Imperial Beach
18100052	2/6/2018	SMITH, KIRSTIN	Drug/narcotic Violations	Imperial Beach
18100053	2/6/2018	YOUNG, MICHAEL	False Pretenses/Swindle/Confidence Game	Imperial Beach
18100054	2/6/2018	JONES, JESSICA	Forcible Rape	Imperial Beach
18100063	2/6/2018	HERNANDEZ, REYNALDO	Counterfeiting/Forgery	Imperial Beach
18100066	2/7/2018	JONES, JESSICA	Disorderly Conduct	Imperial Beach
18100070	2/7/2018	JONES, JESSICA	Motor Vehicle Theft	Imperial Beach
18100071	2/7/2018	HERNANDEZ, REYNALDO	Robbery	Imperial Beach
18100075	2/7/2018	HERNANDEZ, REYNALDO	Weapon Law Violations	Imperial Beach
18100082	2/8/2018	JONES, JESSICA	Drug/narcotic Violations	Imperial Beach
18100088	2/8/2018	SMITH, KIRSTIN	Simple Assault	Imperial Beach
18100090	2/8/2018	JONES, JESSICA	Weapon Law Violations	Imperial Beach
18100093	2/8/2018	YOUNG, MICHAEL	Counterfeiting/Forgery	Imperial Beach
18100094	2/8/2018	JONES, JESSICA	Credit Card/Automatic Teller Fraud	Imperial Beach
18100095	2/9/2018	HERNANDEZ, REYNALDO	Destruction/Damage/Vandalism of Property	Imperial Beach
18100100	2/9/2018	SMITH, KIRSTIN	Motor Vehicle Theft	Imperial Beach

The following options will appear on your screen, click on number 22

Case #	Assigned Date
18100004	2/2/2018
18100007	2/2/2018
18100012	2/3/2018
18100016	2/3/2018
18100026	2/4/2018



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Case #	Assigned Date	Assigned Investigator	Crime Category	City
128				
247				
385				
505				
506				
507				
508				
509				
510				
511				
512				
<b>Grand Count</b>				<b>500</b>

Please note: 1 gives you the grand count, and 3 will give you all the data including the subtotal.

## Pivot Tables

If you want to arrange, summarize data, and drill down on details; you can do so by using **Excel Pivot Tables**.

By using the previous data sample we can create a **Pivot Table** that will give us a total amount of cases per investigator, as well as the case status.

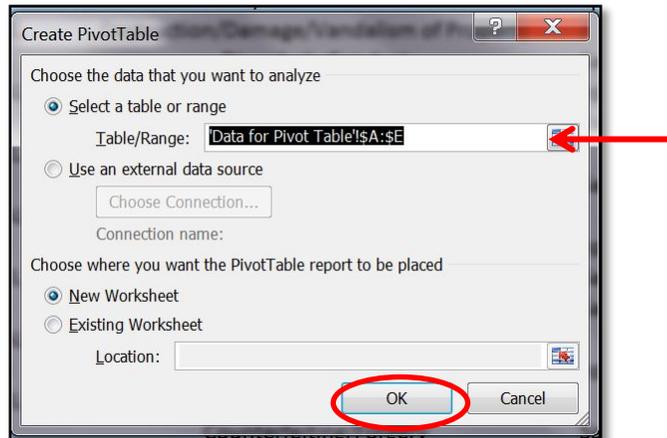
Start by selecting all your data. Next, click on the Insert Tab and select Pivot Table.

Case #	Assigned Investigator	Crime Category	City	Case Status
18100003	HERNANDEZ, REYNALDO	Counterfeiting/Forgery	Vista	Arrest
18100004	SMITH, KIRSTIN	Credit Card/Automatic Teller Fraud	Imperial Beach	Dept Closure
18100005	YOUNG, MICHAEL	Destruction/Damage/Vandalism of Property	Vista	Dept Closure
18100006	JONES, JESSICA	Disorderly Conduct	San Marcos	Arrest
18100007	HERNANDEZ, REYNALDO	Drug/narcotic Violations	Imperial Beach	Arrest
18100008	SMITH, KIRSTIN	False Pretenses/Swindle/Confidence Game	San Marcos	Exception
18100009	YOUNG, MICHAEL	Forcible Rape	Vista	Arrest
18100010	JONES, JESSICA	Motor Vehicle Theft	San Marcos	Arrest
18100011	HERNANDEZ, REYNALDO	Robbery	Vista	Arrest



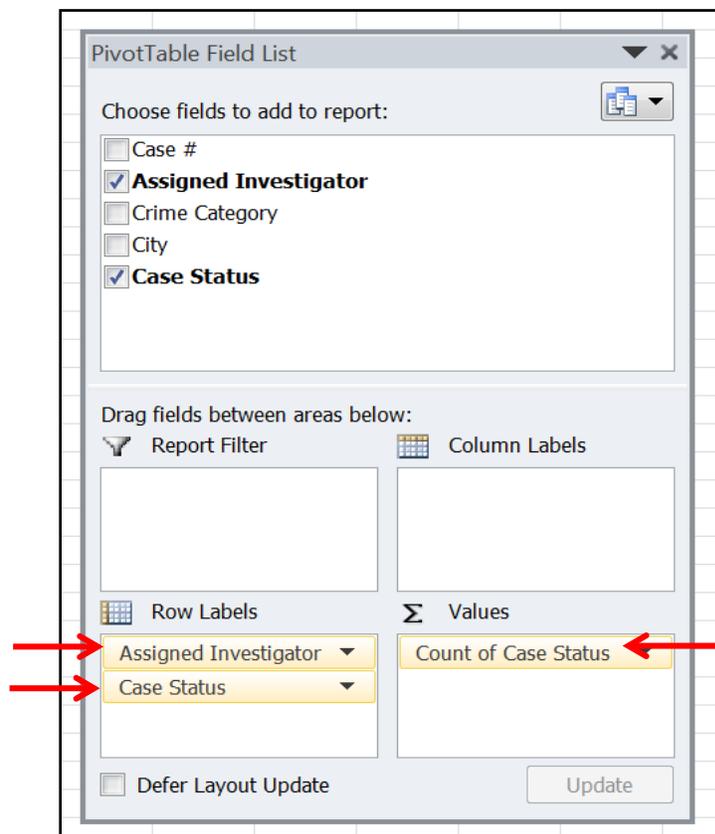
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After you select Pivot Table, the following window will appear. Since you already selected the data, all you have to do is click OK.



Drag the Assigned Investigator and Case Status to the Row Labels Option.

Drag the Case Status to the column Labels Option.





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The pivot table will give you more than a simple subtotal (as to how many cases per Investigator), but it will also provide details according to case findings.

Row Labels	Count of Case Status
<b>HERNANDEZ, REYNALDO</b>	<b>169</b>
Arrest	56
DA Reject	6
Dept Closure	21
Exception	4
Located Missing Person	24
No Pros	12
Open	1
Submitted DA	4
Suspended	41
<b>JONES, JESSICA</b>	<b>101</b>
Arrest	30
DA Reject	4
Dept Closure	18
Exception	1
Located Missing Person	14
No Pros	5
Open	1
Submitted DA	1
Suspended	25
Unfounded	2
<b>SMITH, KIRSTIN</b>	<b>93</b>
Arrest	31
DA Reject	4
Dept Closure	9
Exception	4
Located Missing Person	13
No Pros	2
Submitted DA	2
Suspended	28
<b>YOUNG, MICHAEL</b>	<b>137</b>
Arrest	62
DA Reject	1
Dept Closure	16
Exception	1
Located Missing Person	12
No Pros	1
Submitted DA	3
Suspended	41
<b>(blank)</b>	
(blank)	
<b>Grand Total</b>	<b>500</b>