



# **MICROSOFT EXCEL 2007**

## **Understanding Filters**

# UNDERSTANDING FILTERS

## Understanding a list

Before proceeding to the topic on filters, it is best to understand what a list is. A list is basically an organized collection of information. It is just like a record with many different fields where in Excel this can be translated to a row of headers with many rows of data beneath the headers. In other words, it is a database table.

## Filtering a list

When you have many rows of data with headers, you may come to a stage where you want to see only certain categories of the data. In other words, you need to perform a filtering process to view only what is required. For example, if you have four categories of region i.e. **Northern**, **Southern**, **Western**, and **Eastern**, how do you then view the details of the **Northern** region only from a huge list? This is where filters come in handy.

To understand how filters are used, try the following example.

1. Assume you have the following list of data.

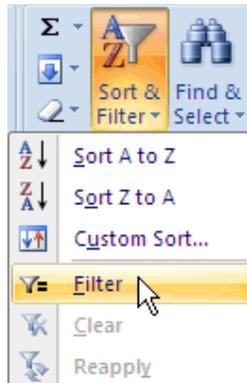
	A	B	C	
1	Monthly Sales Report			
2				
3	Region	Salesmen	Amount (\$)	
4	Northern	Chong	5,000	
5	Northern	Ali	4,500	
6	Northern	Kamal	1,500	
7	Northern	James	2,800	
8	Southern	Raju	3,500	
9	Southern	Surya	6,500	
10	Southern	Nicky	4,100	
11	Southern	Ida	4,500	
12	Central	Shauna	9,600	
13	Central	Sheila	10,500	
14	Central	Wilson	7,700	
15				

2. How do you apply a filter to the above list? To apply a filter, click to select any of the header cells (assuming all the header cells are adjacent to each other). In the example below, the header **Salesmen** is selected.

	A	B	C	
1	Monthly Sales Report			
2				
3	Region	Salesmen	Amount (\$)	
4	Northern	Chong	5,000	
5	Northern	Ali	4,500	

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- To apply the filters to the header, click on the **Sort & Filter** drop down list and select **Filter** as pointed to below.



- Excel has just analyzed your data and added filters to the row headers i.e. it adds drop down lists to the field names for the header rows.

	A	B	C
1	Monthly Sales Report		
2			
3	Region	Salesme	Amount
4	Northern	Chong	5,000
5	Northern	Ali	4,500
6	Northern	Kamal	1,500
7	Northern	James	2,800
8	Southern	Raju	3,500
9	Southern	Surya	6,500
10	Southern	Nicky	4,100
11	Southern	Ida	4,500
12	Central	Shauna	9,600
13	Central	Sheila	10,500
14	Central	Wilson	7,700
15			

- For example, if you click on the **Region** drop down list, the list expands to display the unique items in that column. In the illustration below, the unique items are the three different regions i.e. **Central**, **Northern**, and **Southern** (in ascending order).

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	A	B	C
1	<b>Monthly Sales Report</b>		
2			
3	Region	Salesme	Amount (
	Sort A to Z		5,000
	Sort Z to A		4,500
	Sort by Color		1,500
	Clear Filter From "Region"		2,800
	Filter by Color		3,500
	Text Filters		5,500
	<input checked="" type="checkbox"/> (Select All)		4,500
	<input checked="" type="checkbox"/> Central		9,600
	<input checked="" type="checkbox"/> Northern		10,500
	<input checked="" type="checkbox"/> Southern		7,700
	OK	Cancel	

6. Select the **Central** item from the **Region** list as below. You may need to click to deselect the other **Regions**.

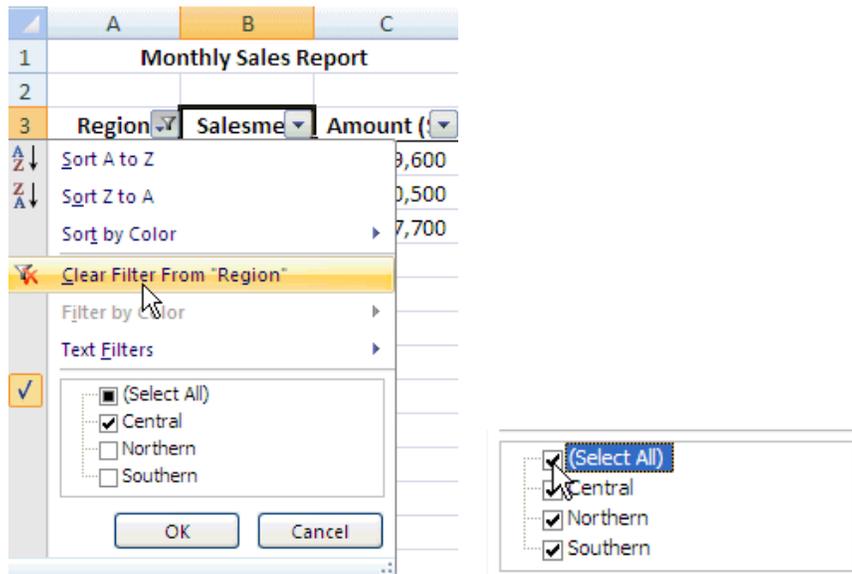
<input checked="" type="checkbox"/> (Select All)
<input checked="" type="checkbox"/> <b>Central</b>
<input type="checkbox"/> Northern
<input type="checkbox"/> Southern

7. Click the **OK** button. Note that only the **Central** region items are displayed. Observe that the other non-**Central** region rows have been hidden.

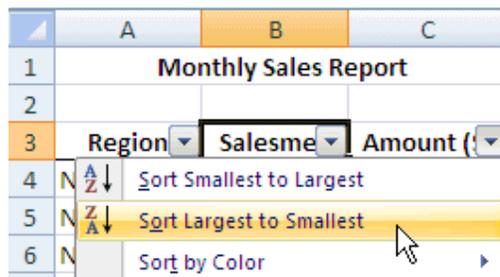
	A	B	C	D
1	<b>Monthly Sales Report</b>			
2				
3	Region	Salesme	Amount (	
12	Central	Shauna	9,600	
13	Central	Sheila	10,500	
14	Central	Wilson	7,700	
15				

8. To re-display the rest of the regions, click on the **Clear Filter from "Region"** option from the drop down list as illustrated. Alternatively, you could click on the **Select All** option too at the bottom.

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9. The entire list is displayed once again. Click on the **Amount** drop down list. You shall now perform a descending sort order (i.e. displaying highest to lowest sales amount). Select the **Sort Largest to Smallest** option as below.

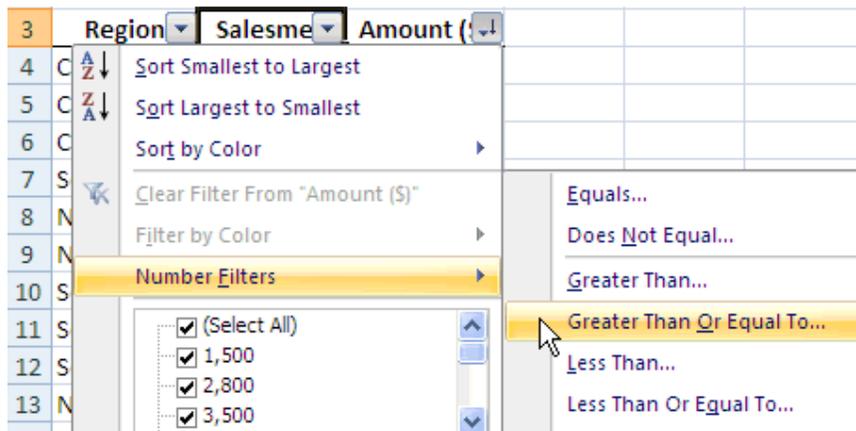


10. The **Sales Report** is sorted by **Amount** in descending order as illustrated.

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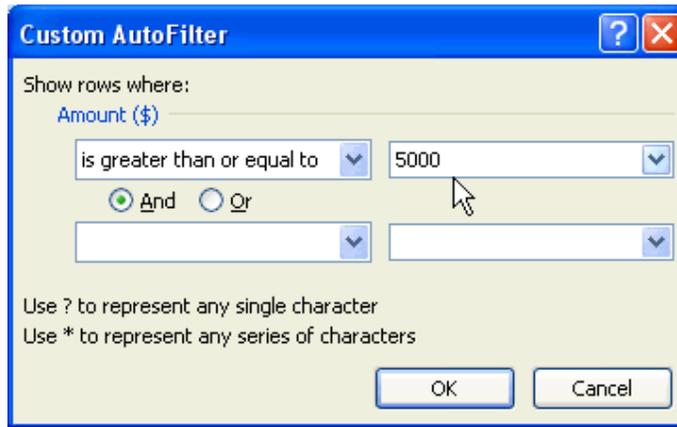
	A	B	C
1	Monthly Sales Report		
2			
3	Region	Salesme	Amount (:
4	Central	Sheila	10,500
5	Central	Shauna	9,600
6	Central	Wilson	7,700
7	Southern	Surya	6,500
8	Northern	Chong	5,000
9	Northern	Ali	4,500
10	Southern	Ida	4,500
11	Southern	Nicky	4,100
12	Southern	Raju	3,500
13	Northern	James	2,800
14	Northern	Kamal	1,500
15			

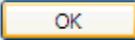
11. In the event you have a long sales report and want to find out only the amounts above a certain figure, you can do so. For example, instead of displaying all the amounts in descending order, you may just want to view sales amount greater or equal to **\$5000**. To do this, click on the **Amount** drop down list and select **Number Filters** followed by **Greater Than Or Equal To** as outlined below.



12. The **Custom AutoFilter** dialog box is displayed. The selected “**greater than or equal to**” option is listed in the **Amount** text box. Type **5000** inside the text box on the right as illustrated.

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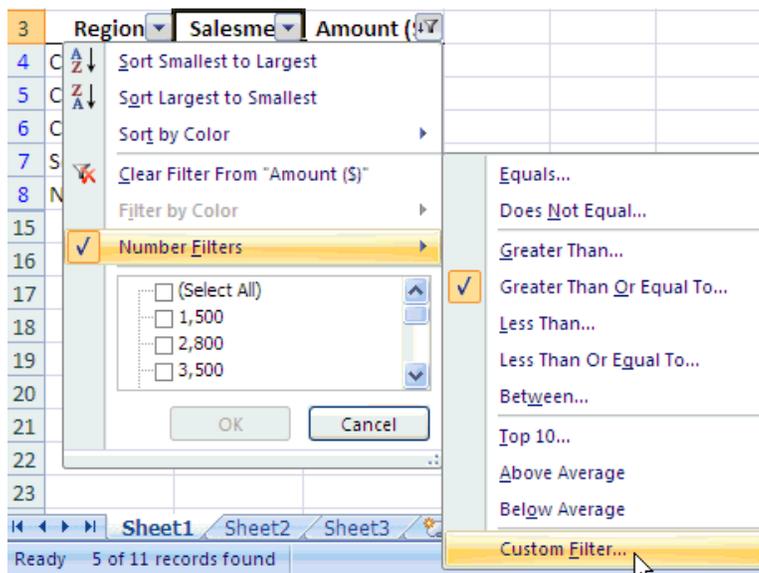


13. Click the  button to close the above **Custom AutoFilter** dialog box.
14. Observe the results of the above custom selection. Only the **Amounts** that are **greater or equal to \$5000** is displayed.

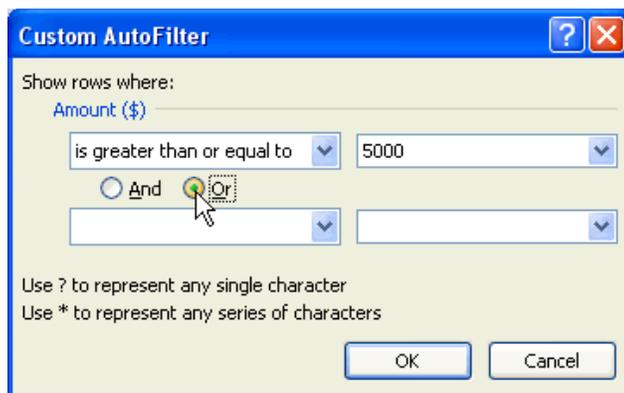
	A	B	C
1	Monthly Sales Report		
2			
3	Region	Salesme	Amount (\$)
4	Central	Sheila	10,500
5	Central	Shauna	9,600
6	Central	Wilson	7,700
7	Southern	Surya	6,500
8	Northern	Chong	5,000
15			

15. Let us go a step further. Assume you want a list of **Amount** greater than **\$5000** or less than **\$3000**. There are two conditions to be satisfied here. To do this, click on the **Amount** drop down list. Select **Number Filters** followed by **Custom Filter** as below.

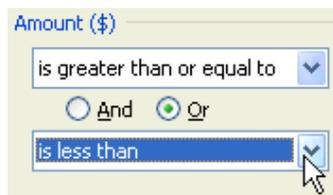
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16. The **Custom AutoFilter** dialog box is displayed. Click on the **Or** option.



17. To add the second condition, click on the second **Amount** drop down list and select the **is less than** option as indicated below.



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18. Type the **Amount** of **3000** in the text box on the right as pointed to below.

Show rows where:

Amount (\$)

is greater than or equal to 5000

And  Or

is less than 3000

19. Click the **OK** button.

20. Observe the results now. The list display all **Amount** greater or equal to **\$5000** and **Amount** less than **\$3000**.

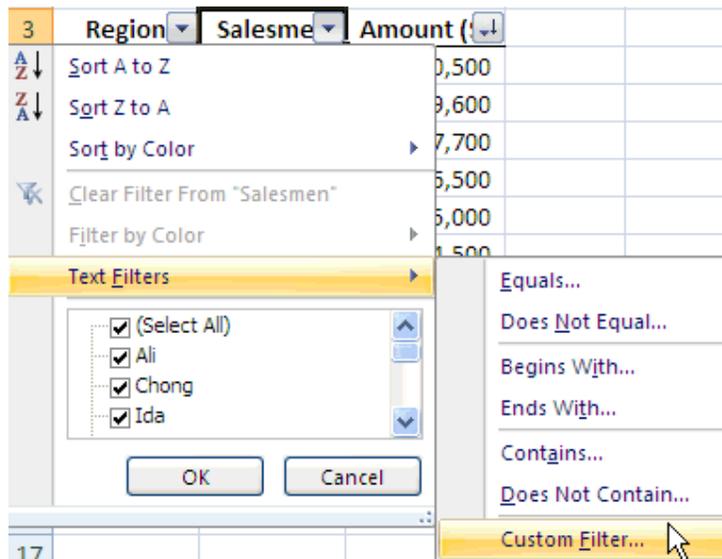
	A	B	C
1	Monthly Sales Report		
2			
3	Region	Salesme	Amount (\$)
4	Central	Sheila	10,500
5	Central	Shauna	9,600
6	Central	Wilson	7,700
7	Southern	Surya	6,500
8	Northern	Chong	5,000
13	Northern	James	2,800
14	Northern	Kamal	1,500
15			

21. To display all the rows again, click on the **Amount** drop down list and select the **Clear Filter From "Amount (\$)"** option.

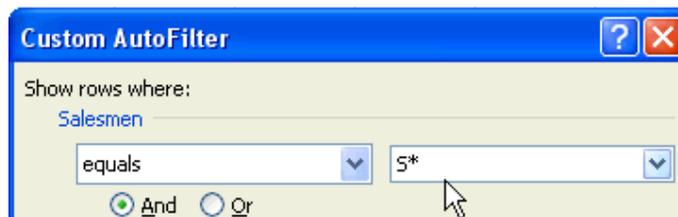
	A	B	C
1	Monthly Sales Report		
2			
3	Region	Salesme	Amount (\$)
4	C	Sort Smallest to Largest	
5	C	Sort Largest to Smallest	
6	C	Sort by Color	
7	S	Clear Filter From "Amount (\$)"	
8	N	Filter by Color	
13	N	Number Filters	
14	N		

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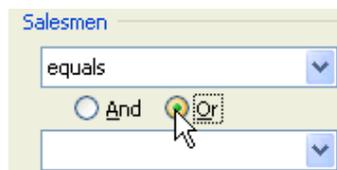
22. Assume you want to display only the **Salesmen** names beginning with the letters **S** or **R**. To do this, click on the **Salesmen** drop down list. Select **Text Filters** followed by **Custom Filter** as below.



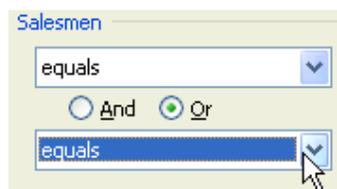
23. The **Custom AutoFilter** dialog box is opened. In the **Salesmen** drop down list, select equals. Type **S\*** in the opposite text box. The **S\*** indicates to display all names commencing with the letter **S** and followed by any other letter(s).



24. Next, ensure that you click to select the **Or** option and not the default **And**.

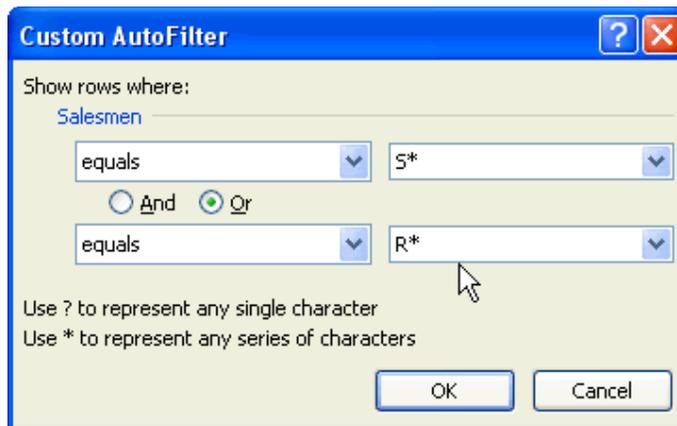


25. Again, select the **equals** option beneath it from the left drop down list.



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26. Type **R\*** in the opposite text box as illustrated.



27. Finally, click the  button.

28. Observe the results now. It should only display all **Salesmen** names beginning with the letters **S** and **R**.

	A	B	C
1	Monthly Sales Report		
2			
3	Region	Salesmen	Amount
4	Central	Sheila	10,500
5	Central	Shauna	9,600
7	Southern	Surya	6,500
12	Southern	Raju	3,500
15			

29. The next step you may want to know is how do you remove the filters? Just click on any of the header rows. Click the **Sort & Filter** drop down list. Select **Filter**.

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30. The data is displayed without any filter to it in its original form.

	A	B	C
1	Monthly Sales Report		
2			
3	Region	Salesmen	Amount (\$)
4	Central	Sheila	10,500
5	Central	Shauna	9,600
6	Central	Wilson	7,700
7	Southern	Surya	6,500
8	Northern	Chong	5,000
9	Northern	Ali	4,500
10	Southern	Ida	4,500
11	Southern	Nicky	4,100
12	Southern	Raju	3,500
13	Northern	James	2,800
14	Northern	Kamal	1,500
15			

## Using the Advanced Filter

Using the filter can be quite useful. However, it can have its limitations. For example, in the above data set, if you wanted to perform a listing of **Salesmen** in the **Central** region with **Amounts** greater or equal to **\$10000** and **Salesmen** in the **Northern** region with **Amounts** less than **\$3000**, the normal filter may not be the right approach to use. In this case it may be better off using the **Advanced Filter**.

When using the **Advanced Filter**, you need to know your criteria range and this must be set up within your worksheet. The **criteria range** must have a minimum of two rows i.e. one for the header and one for the data field.

The following example illustrates how you can use the **Advanced Filter**.

1. Assume you are still using the above data set in the previous example. However, for the purpose of using **Advanced Filter**, insert four extra rows between the **Sales Report** title and row headers as below.

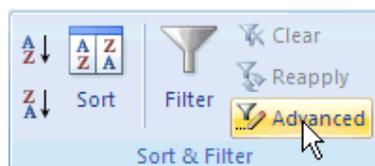
	A	B	C
1	<b>Monthly Sales Report</b>		
2			
3			
4			
5			
6			
7	<b>Region</b>	<b>Salesmen</b>	<b>Amount (\$)</b>
8	Central	Sheila	10,500
9	Central	Shauna	9,600

2. The criteria discussed earlier was for the **Sales Report** to produce a summarized report for **Central** salesmen with **Amount greater or equal to \$10000** and **Northern** salesmen with **Amount less than \$3000**. To perform this action, insert the header rows in row **3** and type the criteria in rows **4** and **5** based on what is required. Leave the **Salesmen** column blank in the criteria range. This is as illustrated.

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	A	B	C
1	Monthly Sales Report		
2			
3	Region	Salesmen	Amount (\$)
4	Central		>=10000
5	Northern		<3000
6			
7	Region	Salesmen	Amount (\$)
8	Central	Sheila	10,500
9	Central	Shauna	9,600

3. Click the **Data** tab. Click to select the **Advanced** option as pointed to below in the **Sort & Filter** group.



4. The **Advanced Filter** dialog box is opened.



5. Accept the default **Action** selection of **Filter the list, in-place**.
6. Observe that Excel has detected the **List range** i.e. the range of cells is from **A7** to **C18** including the header row.
7. Click to position the pointer in the **Criteria range**. Select the range of cells from **A3** to **C5**. This is the criteria range that Excel will perform a search on.

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	A	B	C	D	E	F	G
2							
3	<b>Region</b>	<b>Salesmen</b>	<b>Amount (\$)</b>				
4	Central		>=10000				
5	Northern		<3000				
6							
7	<b>Region</b>	<b>Salesmen</b>	<b>Amount (\$)</b>				
8	Central	Sheila	10,500				
9	Central	Shauna	9,600				
10	Central	Wilson	7,700				
11	Southern	Surya	6,500				
12	Northern	Chong	5,000				
13	Northern	Ali	4,500				

**Advanced Filter**

Action

Filter the list, in-place

Copy to another location

List range:  [icon]

Criteria range:  [icon]

Copy to:  [icon]

Unique records only

8. Click the  button to close the **Advanced Filter** dialog box.
9. Observe the results. Only the data rows that adhere to the criteria specified are displayed.

	A	B	C
1	<b>Monthly Sales Report</b>		
2			
3	<b>Region</b>	<b>Salesmen</b>	<b>Amount (\$)</b>
4	Central		>=10000
5	Northern		<3000
6			
7	<b>Region</b>	<b>Salesmen</b>	<b>Amount (\$)</b>
8	Central	Sheila	10,500
17	Northern	James	2,800
18	Northern	Kamal	1,500
19			

10. Change the value of the second **Northern Region** to **Salesmen James** and **Amount** to **\$2800** as in the row above (i.e. row 17 and 18 are duplicates now).

	A	B	C
1	<b>Monthly Sales Report</b>		
2			
3	<b>Region</b>	<b>Salesmen</b>	<b>Amount (\$)</b>
4	Central		>=10000
5	Northern		<3000
6			
7	<b>Region</b>	<b>Salesmen</b>	<b>Amount (\$)</b>
8	Central	Sheila	10,500
17	Northern	James	2,800
18	Northern	James	2,800
19			

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- Click the **Data** tab. Click to select the **Advanced** icon as pointed to below in the **Sort & Filter** group.



- The **Advanced Filter** dialog box is opened. Click to select the **Unique records only** checkbox as illustrated. This will eliminate all duplicate records from the current list.



- Click the **OK** button.
- Observe that the duplicate record in row **18** is now removed i.e. only two unique records are displayed as outlined.

	A	B	C
1	<b>Monthly Sales Report</b>		
2			
3	<b>Region</b>	<b>Salesmen</b>	<b>Amount (\$)</b>
4	Central		>=10000
5	Northern		<3000
6			
7	<b>Region</b>	<b>Salesmen</b>	<b>Amount (\$)</b>
8	Central	Sheila	10,500
17	Northern	James	2,800
19			

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15. To display all of the data rows again, click on the **Clear** option as pointed to below.



16. The entire data set is displayed once more.

### Questions:

1. Explain the use of Filters, Custom Filter and Advanced Filter.
2. What are the limitations in using Filters? How do you overcome this?
3. How do you eliminate duplicate records from being displayed?