

## CHAPTER 3



# Simplifying and Sorting Your Data

Chapter 2 introduced us to Tableau Desktop architecture, Tableau environment, connecting to different data sources, joins, custom SQL, data blending and data extracts. This chapter will help us to understand how to simplify, sort and slice data using:

- Filtering
- Sorting
- Discrete and continuous date
- Groups
- Hierarchies
- Sets
- Difference between groups and sets
- Creating parameters

## 3.1 Filtering

Let us explore how to use filtering to simplify our data.

### 3.1.1 Why filtering?

Filtering allows one to display records from the data source that meet certain criteria. By applying a filter, you are able to limit the data in a view without altering the design of the underlying object.

#### 3.1.1.1 Picture this...

You work for “XYZ Co.,” a leading corporation. You are in charge of maintaining a dashboard for all employees. The dashboard displays the same information to all employees, such as the number of employees working in the unit, the projects that belongs to the unit, the location that their business unit operates from, etc. However, the dashboard has a report that displays an annual performance rating for the employee. This piece of information is unique to the employee. Since this is confidential information, you have the responsibility to restrict the visibility of the annual performance rating to only the employee to which it belongs. This scenario requires you to use a filter to display relevant data to each employee.

## 3.1.2 What is filtering?

Filtering allows the exclusion or inclusion of certain values for a field. You can use filters to display specific records in a form, report, query, or datasheet, or to print only certain records from a report, table, or query.

## 3.1.3 How to apply “Filter”?

Tableau provides the following filtering options:

1. Filtering for dimensions
2. Filtering for measures
3. Quick filter
4. Context filter
5. Cascading filter
6. Calculation filter
7. Data Source filter

### 3.1.3.1 Filtering for dimensions

Dimensions are categorical values. A filter on this type of field allows you to select the values to include or exclude. A filter for dimensions includes:

- Basic categorical filter
- Wildcard match filter
- Conditions for filtering
- Limits to filtering

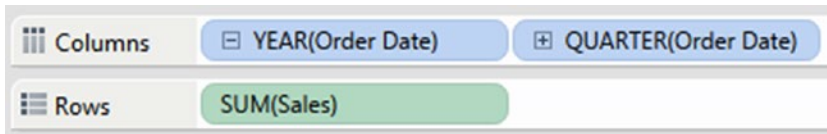
Let’s go through a few demos that will provide step-by-step instructions showing how to filter for dimensions.

### 3.1.3.2 Basic categorical filter

You can use the “General” tab to include or exclude value for a field.

### 3.1.3.2.1 Step 1

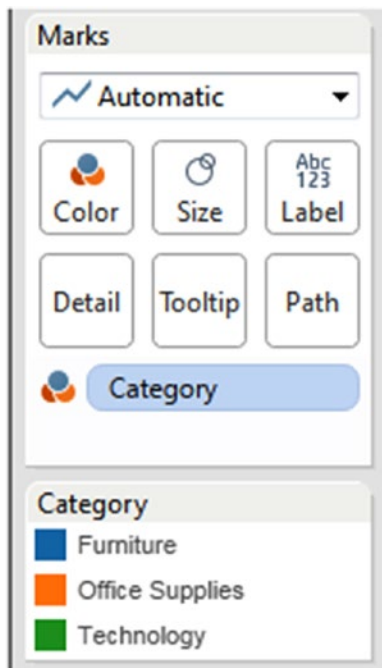
Connect to the Sample-Superstore data source, drag the dimension “Order Date” from the dimensions area under the data pane to the columns shelf. Set the hierarchy to “Quarter”. Drag the measure, “Sales” from the measures area under the data pane to the rows shelf. By default the aggregation is SUM. Refer to Fig. 3-1.



**Figure 3-1.** Dimension “Order Date” placed on columns shelf and the measure “Sales” placed on rows shelf

### 3.1.3.2.2 Step 2

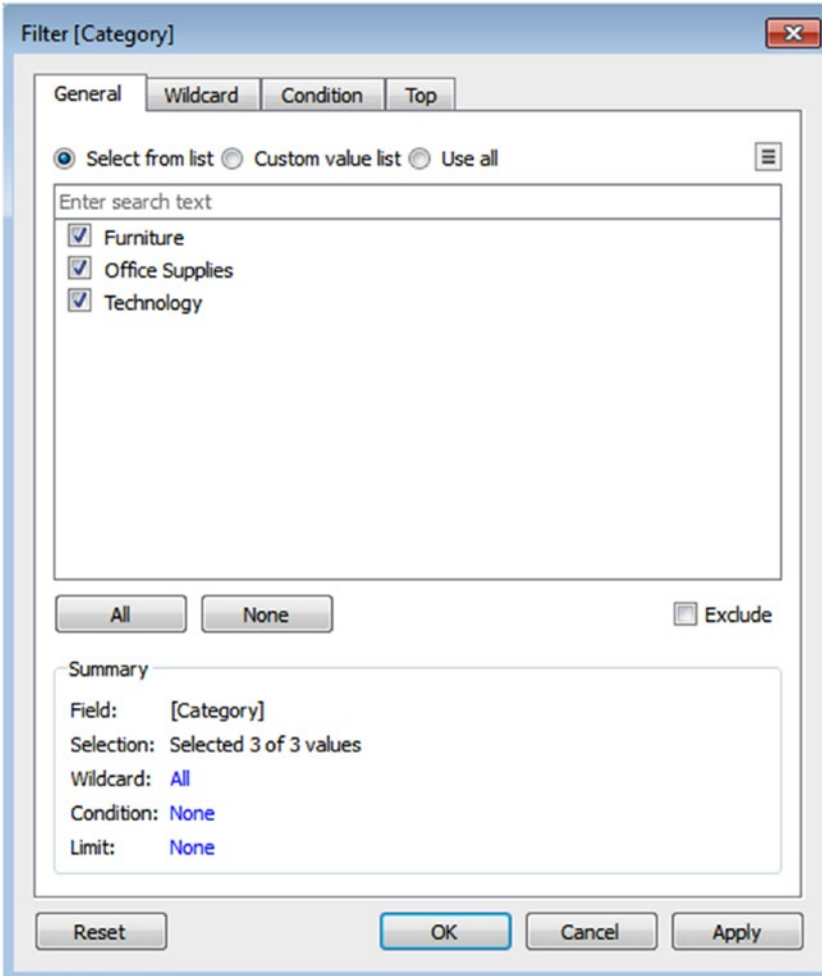
Drag the dimension “Category” from the dimensions area under the data pane to “Color” on the marks card (Shown in Fig. 3-2).



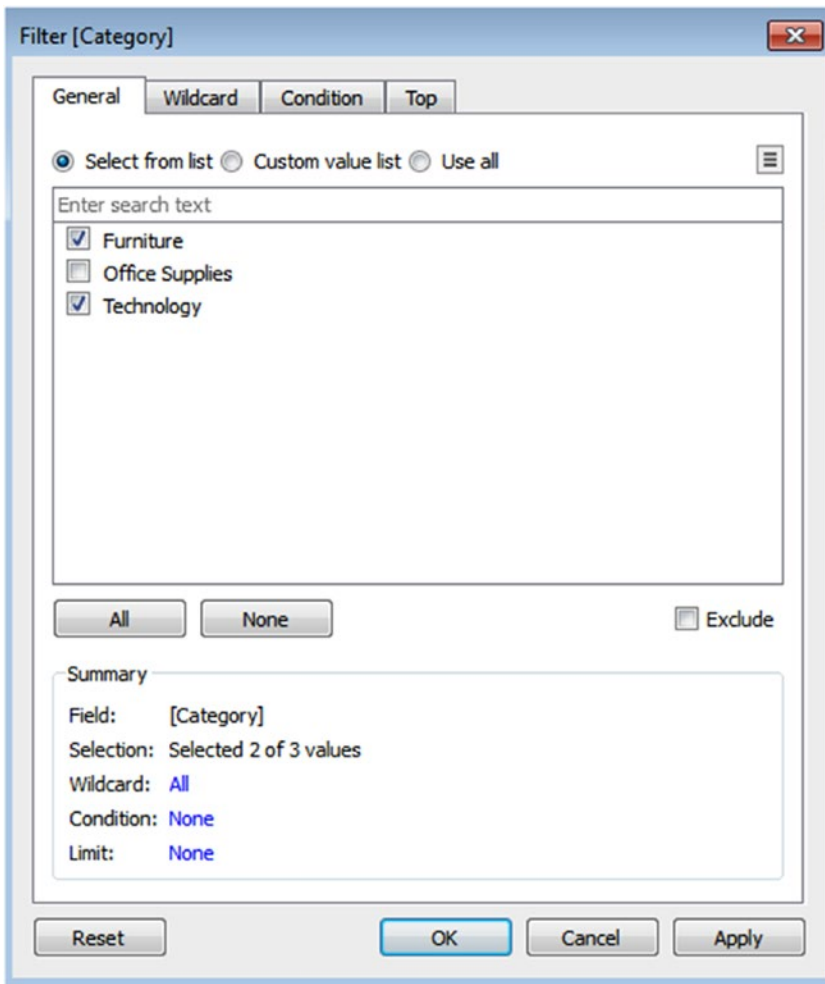
**Figure 3-2.** Dimension, “Category” placed on “Color” on the marks card

### 3.1.3.2.3 Step 3

Drag the dimension “Category” from the dimensions area under the data pane to “Filters” Shelf. As you drag and drop, you will be prompted by a filter window. By default, “Select from list” is enabled as shown in Fig. 3-3. From the list select the “Furniture” and “Technology” categories and then click “OK” to include the filter in the view as shown in Fig. 3-4.



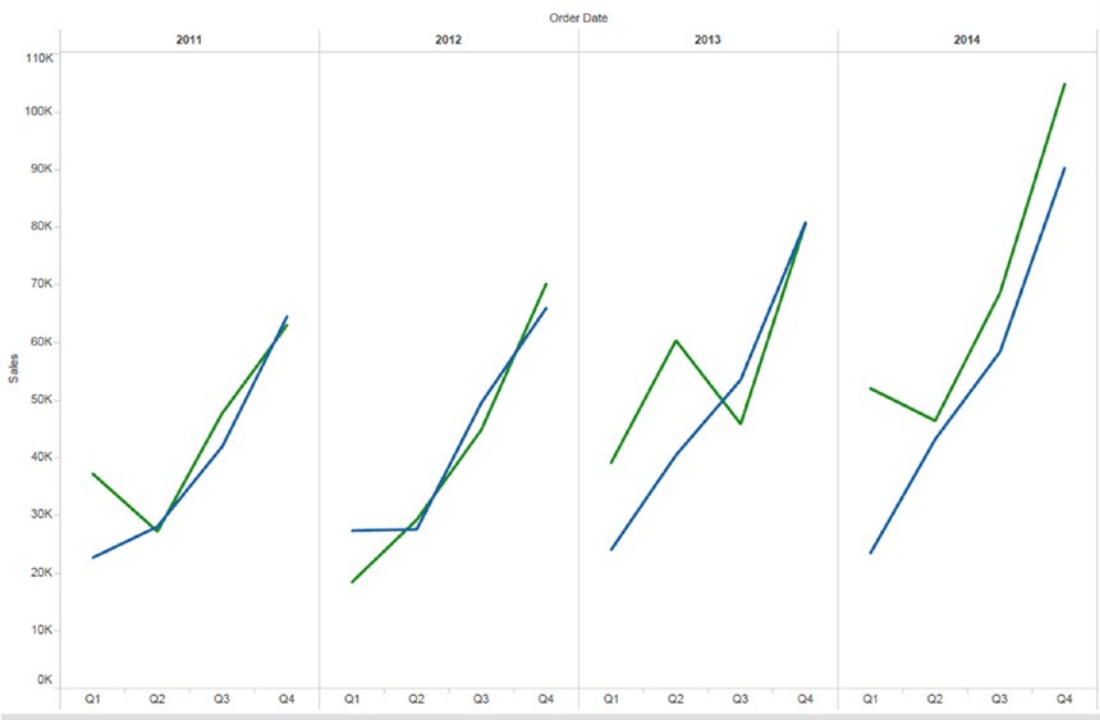
**Figure 3-3.** Filter window showing values for the “Category” dimension



**Figure 3-4.** Filter window showing selected categories "Furniture" & "Technology"

### 3.1.3.2.4 Step 4

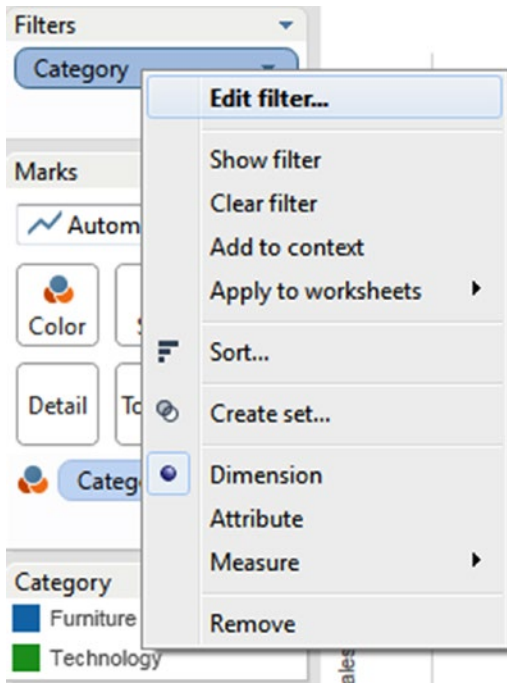
Note that “Sales” are displayed only for the “Furniture” and “Technology” categories by quarter (Shown in Fig. 3-5).



**Figure 3-5.** View showing “Sales” for “Furniture” and “Technology” by “Quarter”

### 3.1.3.2.5 Step 5

You can also edit the filter to exclude certain values. To edit the filter, right click on the “Category” field and select “Edit filter...” option as shown in Fig. 3-6.



**Figure 3-6.** “Edit filter...” option

## 3.1.3.3 Wildcard match to the filter

You can use the “Wildcard” Tab present in the “Filter” dialog box to define pattern for use in the filter.

### 3.1.3.3.1 Step 1

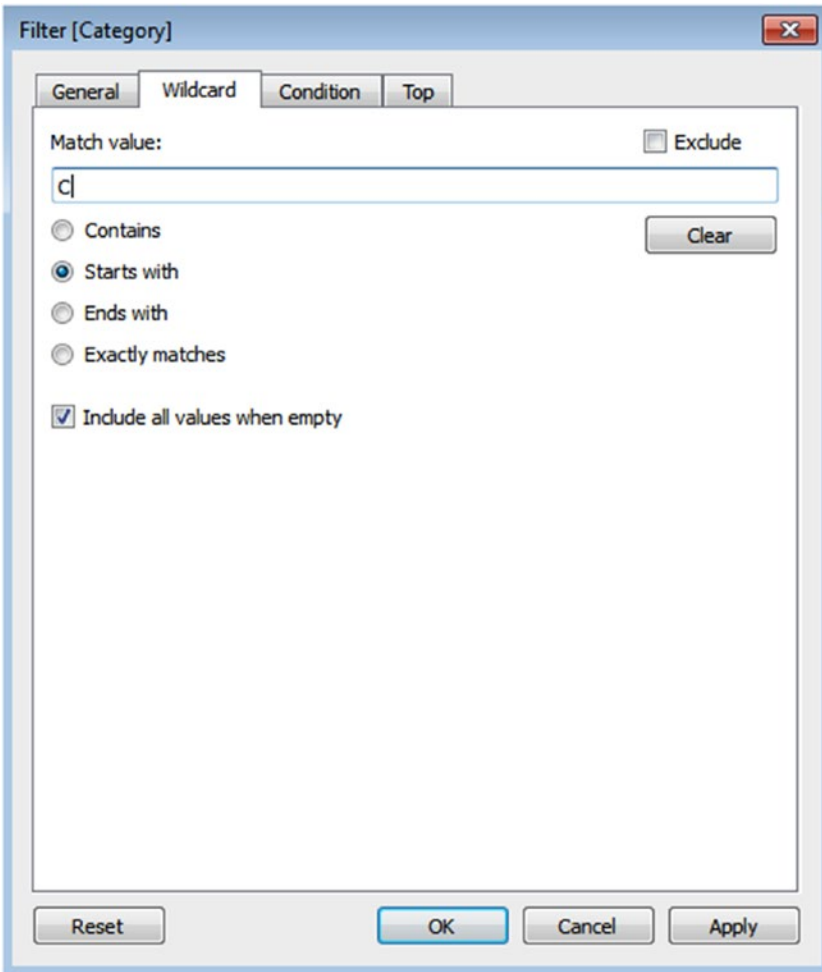
Drag the dimension “Sub-Category” from the dimensions area under the data pane to the rows shelf, order date to the columns shelf and set the hierarchy to the “Quarter”. Drag the measure “Sales” from the measures area under the data pane to the rows shelf (Shown in Fig. 3-7).



**Figure 3-7.** Dimension “Order Date” placed on the columns shelf, dimension “Sub-Category” and the measure “Sales” placed on the rows shelf

### 3.1.3.3.2 Step 2

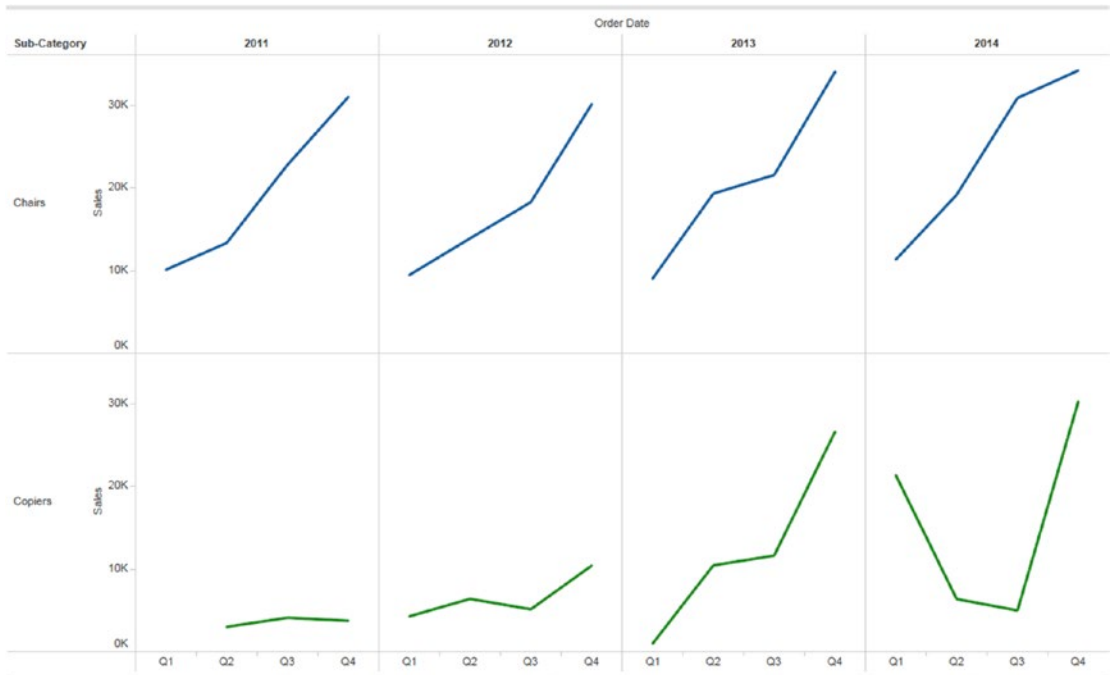
Drag the dimension “Sub-Category” from the dimensions area under the data pane to the “Filters” Shelf. Select the “wildcard” tab and select “Starts with” option. In the match value dialog box type C to include sub-category value that starts with C (Shown in Fig. 3-8).



**Figure 3-8.** Wildcard tab showing “Match value” as “Starts with C”

### 3.1.3.3 Step 3

When you click the “OK” button, the view shows only those sub-category values that start with “C”.



**Figure 3-9.** View after applying wildcard option “Starts with C” to the “Sub-Category” field

### 3.1.3.4 Conditions to Filter

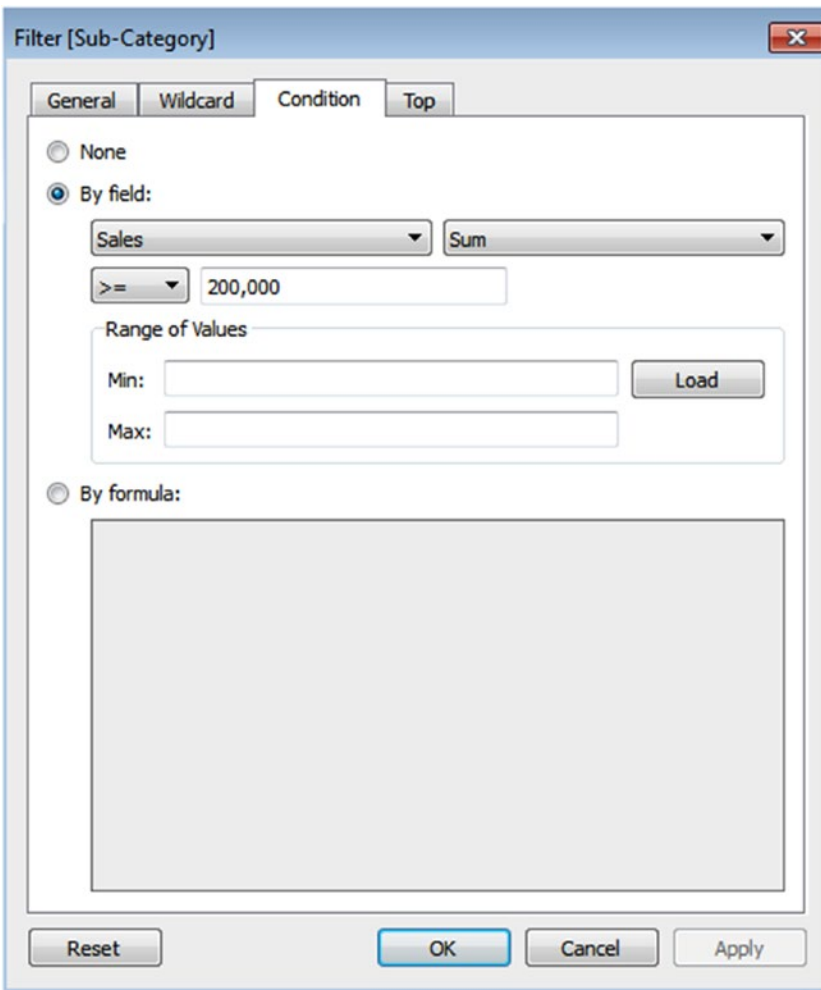
You can use the condition tab to specify filtering rules.

#### 3.1.3.4.1 Steps to use conditions with filter:

##### 3.1.3.4.2 Step 1

Consider the Wildcard filter demo.

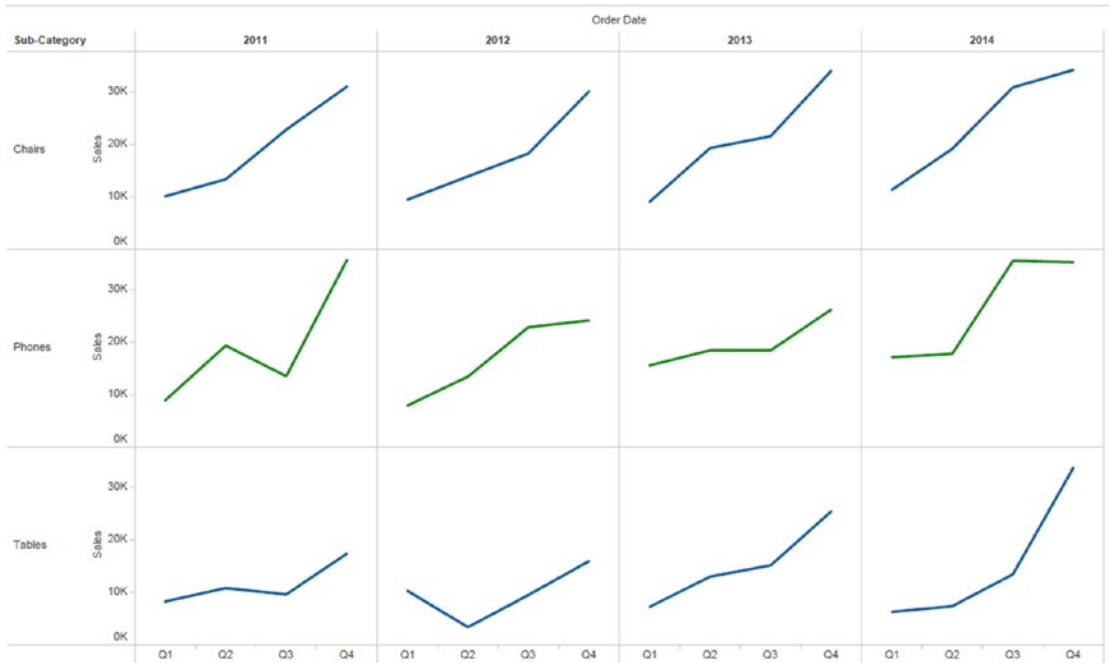
In the “Filters” shelf, right click on the “Sub-Category” field to edit the filter. Remove the wildcard filter described in the wildcard match filter condition and select the condition tab to specify the condition filter. For example, you are interested only in displaying those sub-categories that have sales that are greater than or equal to 200,000 as shown in Fig. 3-10. You can use “By field” to use built-in controls or you can use “By formula” to write a custom formula.



**Figure 3-10.** Filter window showing the condition criteria for the “Sales” field

### 3.1.3.4.3 Step 2

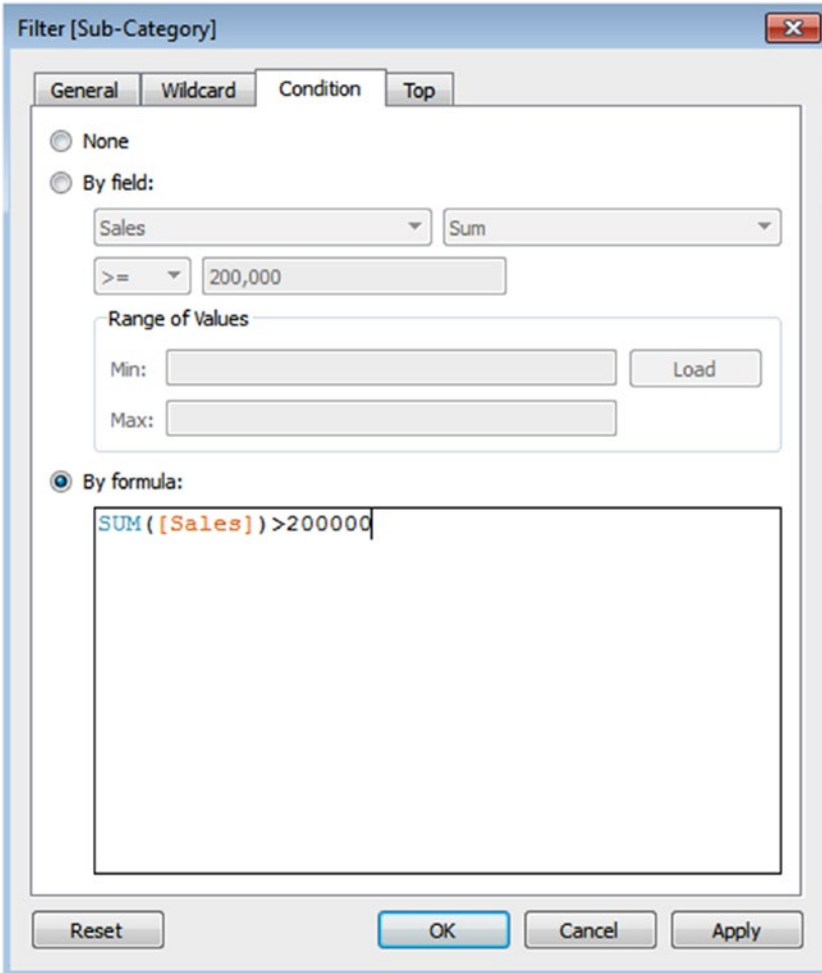
When you click on “OK,” you can see the updated view as shown in Fig. 3-11.



**Figure 3-11.** Updated view after applying condition criteria to “Sales” field

### 3.1.3.4.4 Step 3

You can also use a custom formula to specify a filter condition. Click on “By formula” and mention the custom formula as shown in Fig. 3-12.



**Figure 3-12.** Filter window showing condition criteria for “Sales” field

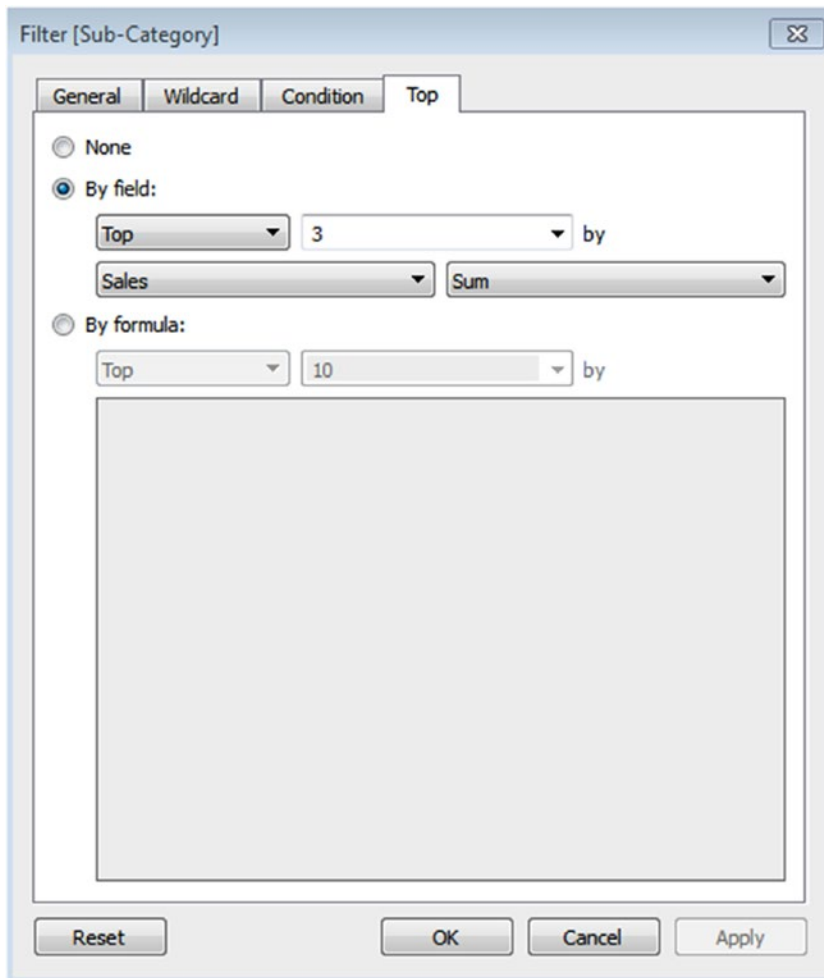
### 3.1.3.5 Limits to filter

You can use “Top” tab to define a formula which computes the data in the view.

#### 3.1.3.5.1 Steps to use limits with filter

#### 3.1.3.5.2 Step 1

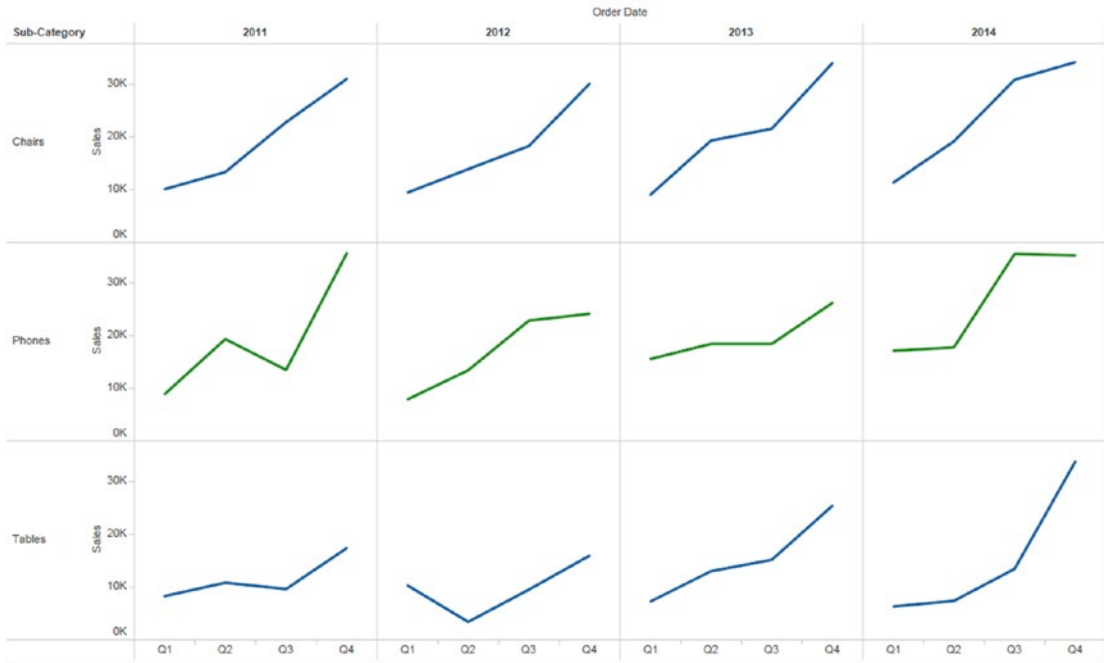
Remove the condition filter described in the “Condition” filter section and select “Top” tab in the filter dialog box to define the formula as shown in Fig. 3-13. For example, you want to show Top 3 sub-category by sales.



**Figure 3-13.** “Top” tab showing formula to display “Top 3 Sub-Category” by “Sales”

### 3.1.3.5.3 Step 2

When you click the “OK” button, the view is updated to show top three “Sub-Category” by “Sales” (Shown in Fig. 3-14).



**Figure 3-14.** View showing “Top 3 Sub-Category” by “Sales”

### 3.1.3.6 Filtering by measures

Measures are quantitative data. A filter of this type of data allows you to select a range of values that you want to include in your view. It includes basic quantitative filters.

Let’s look at a few demos. These will provide step-by-step instructions showing how to filter for measures.

#### 3.1.3.6.1 Basic quantitative filters

Quantitative filters allow you to select a range of values that you want to include.

### 3.1.3.6.2 Step 1

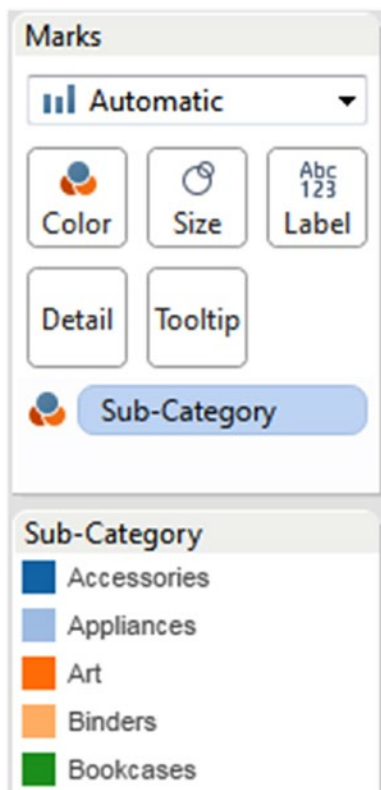
Connect to the Sample-Superstore data source. Drag the dimension “Sub-Category” from the dimensions area under the data pane to columns shelf and drag the measure “Profit” from the measures area under the data pane to the rows shelf (Shown in Fig. 3-15). The default aggregation applied to the “Profit” field is “SUM”.



**Figure 3-15.** Dimension “Sub-Category” placed on columns shelf and measure “Profit” placed on the rows shelf

### 3.1.3.6.3 Step 2

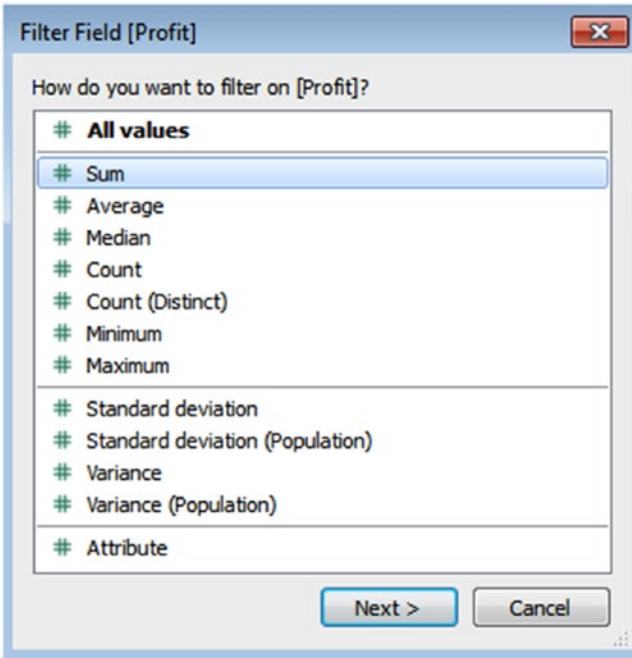
Drag the dimension “Sub-Category” from the dimensions area under the data pane to “Color” on the marks card as shown in Fig. 3-16.



**Figure 3-16.** Dimension, “Sub-Category” placed on “Color” on the marks card

### 3.1.3.6.4 Step 3

Drag the measure “Profit” from the measures area under the data pane to “Filters” shelf. A “Filter field” dialog box opens, select the required aggregation for your filter condition as shown in Fig. 3-17 and click on the “Next” button.

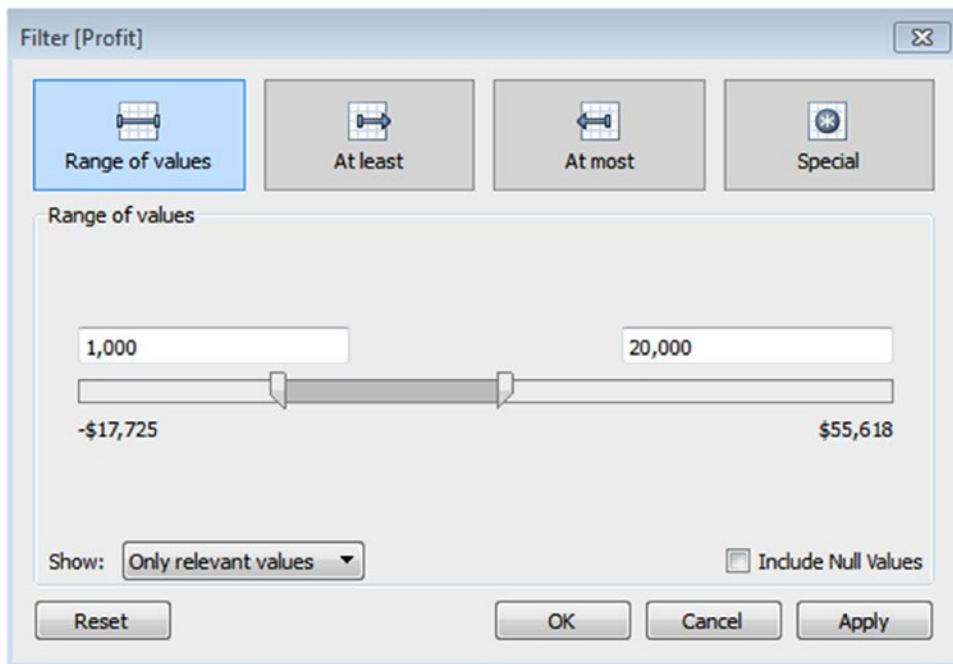


**Figure 3-17.** “Filter Field[Profit]” dialog box showing a list of aggregations

### 3.1.3.6.5 Step 4

For example, you wish to display only those “Sub-Category” whose “Profit” value ranges from 1,000 to 20,000. You can use “Range of values” for this kind of view. Use the range slider to specify the values as shown in Fig. 3-18. There are four types of quantitative filters.

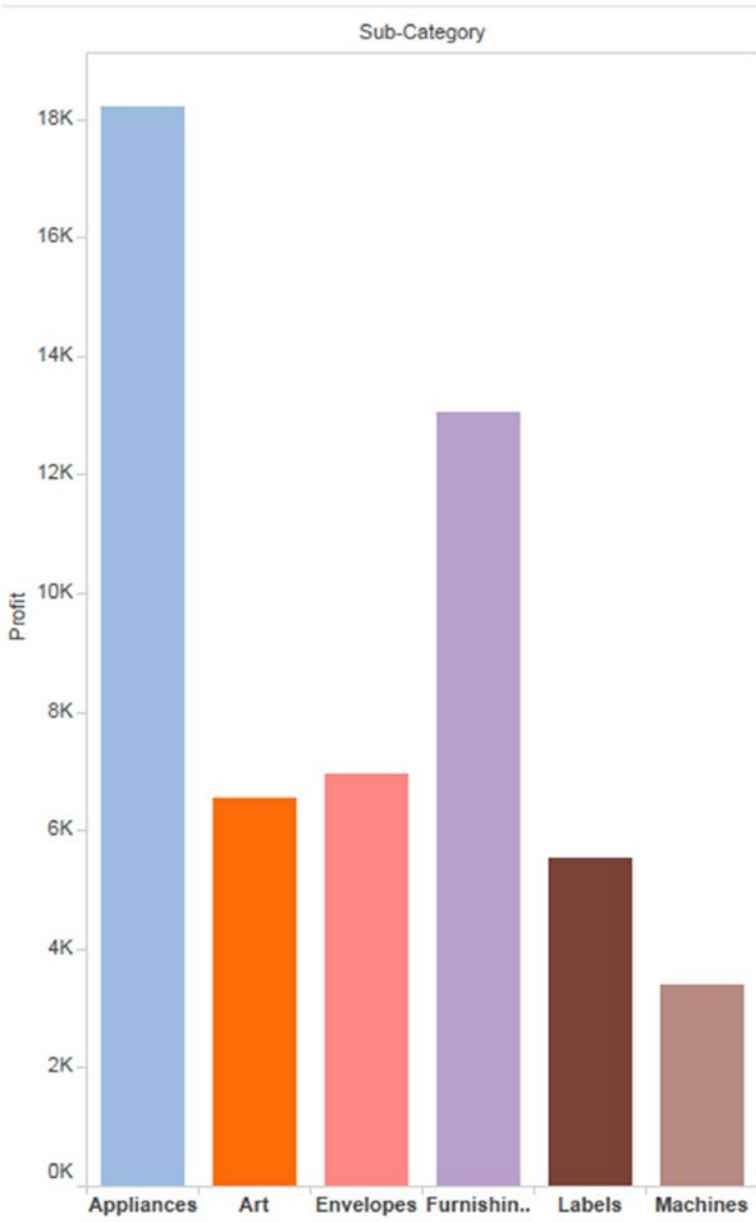
- Range of values: Includes all values that are within the minimum and maximum values of the range.
- At least: Includes all values that are greater than or equal to a specified minimum value.
- At most: Includes all values that are less than or equal to a specified maximum value.
- Special: Helps you to filter on null values. Include only null values, non-null values or all values.



**Figure 3-18.** “Filter[Profit]” dialog box showing “Range of values”

### 3.1.3.6.6 Step 5

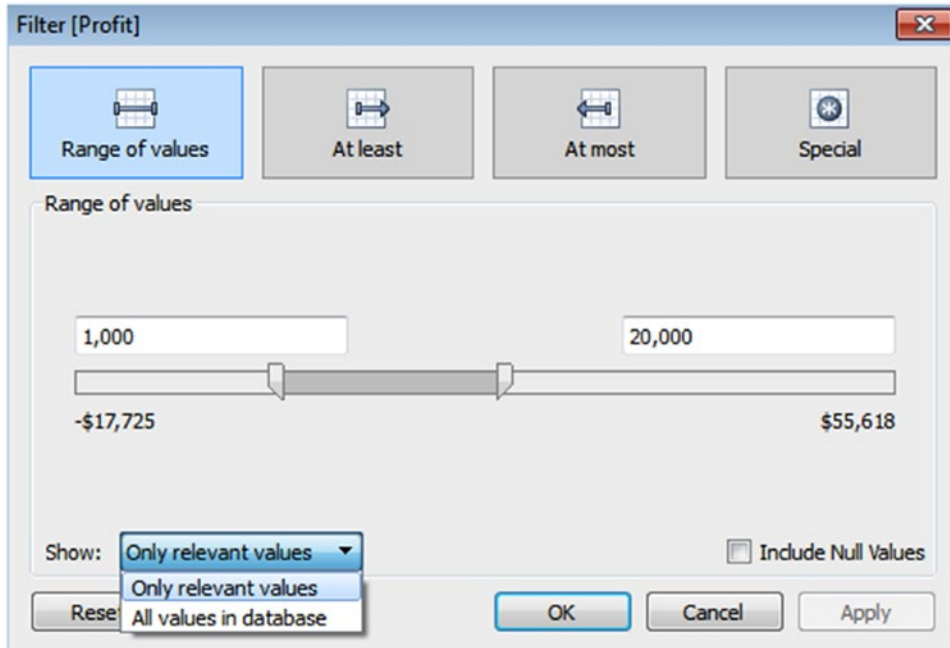
Observe the updated view that shows only the “Sub-Category” whose “Profit” range is from 1,000 to 20,000 (Shown in Fig. 3-19).



**Figure 3-19.** View showing results after applying the range filter(Only “Sub-Category” whose “Profit” range is from 1,000 to 20,000)

### 3.1.3.6.7 Step 6

You can use the “Show” option present in left bottom corner, to switch between “Only relevant values” and “All values in database” as shown in Fig. 3-20.



**Figure 3-20.** “Show” option to select “Only relevant values” and “All values in database”

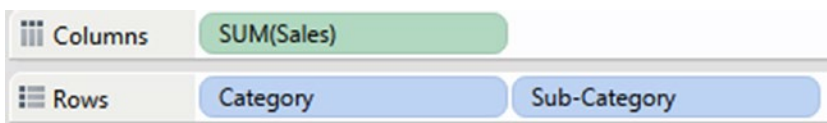
## 3.1.3.7 Quick filters

Quick filters help you to modify the filter selection directly from the view.

### 3.1.3.7.1 Steps

#### 3.1.3.7.2 Step 1

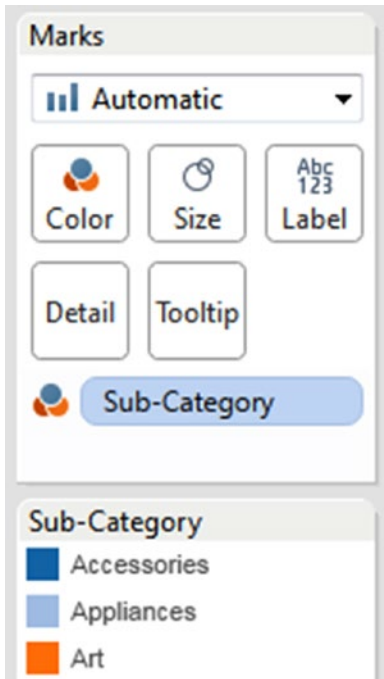
Connect to the Sample-Superstore data source. Drag the dimension “Category,” “Sub-Category” from the dimensions area under data pane to the rows shelf. Drag the measure “Sales” from the measures area under the data pane to the columns shelf (Shown in Fig. 3-21).



**Figure 3-21.** Dimension “Category,” “Sub-Category” placed on the rows shelf and measure “Sales” placed on the columns shelf

### 3.1.3.7.3 Step 2

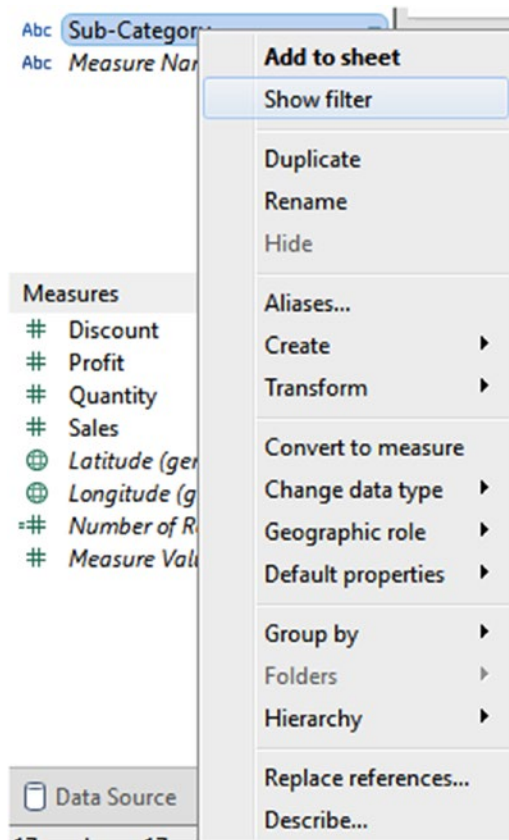
Drag the dimension “Sub-Category” from the dimensions area under the data pane to “Color” on the marks card (Shown in Fig. 3-22).



**Figure 3-22.** Dimension, "Sub-Category" placed on "Color" on the Marks Card

### 3.1.3.7.4 Step 3

Right click on sub-category field anywhere in the view and select the show filter option to display the quick filter as shown in Fig. 3-23.



**Figure 3-23.** "Show filter" option

### 3.1.3.7.5 Step 4

Observe the quick filter for “Sub-Category” on the right-hand side of the sheet and the filter gets automatically added to the filters shelf as shown in Fig. 3-24.

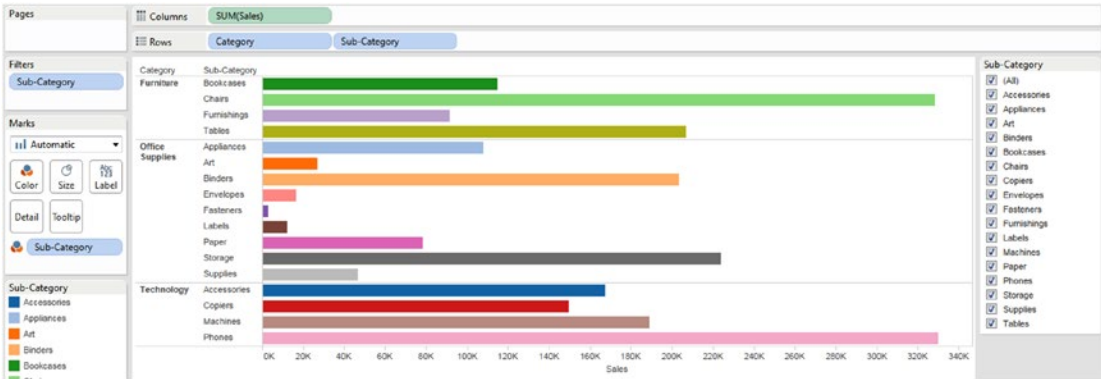


Figure 3-24. View showing “Quick Filter”

### 3.1.3.7.6 Step 5

You can modify the filter selection by selecting the required sub-category as shown in Fig. 3-25.

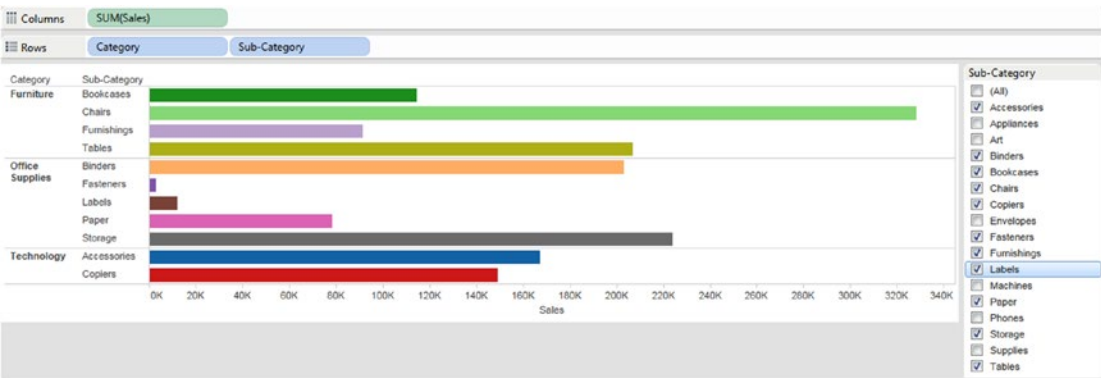
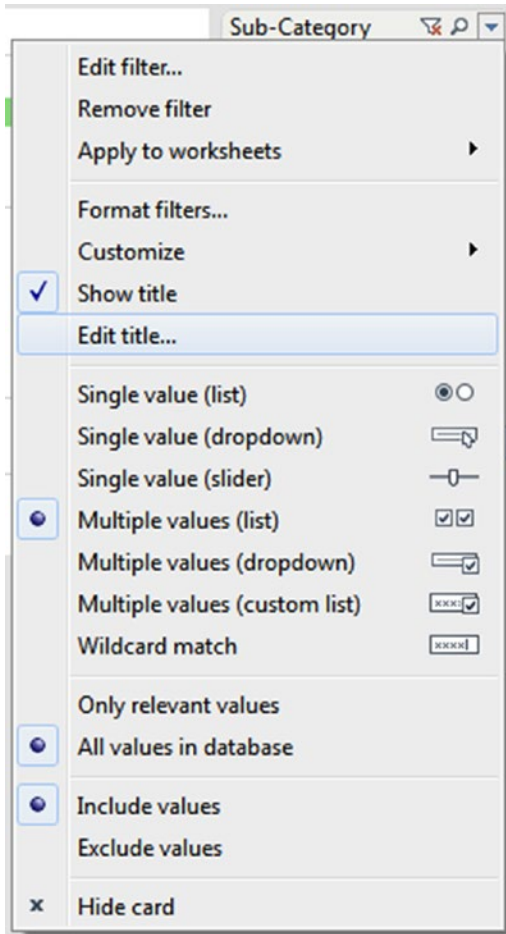


Figure 3-25. Updated view showing SUM(Sales) for selected “Sub-Category”

### 3.1.3.7.7 Step 6

You can also edit the appearance (layout modes) and functions of quick filter by clicking on the caret as shown in Fig. 3-26.



**Figure 3-26.** Options to edit "Quick Filter"

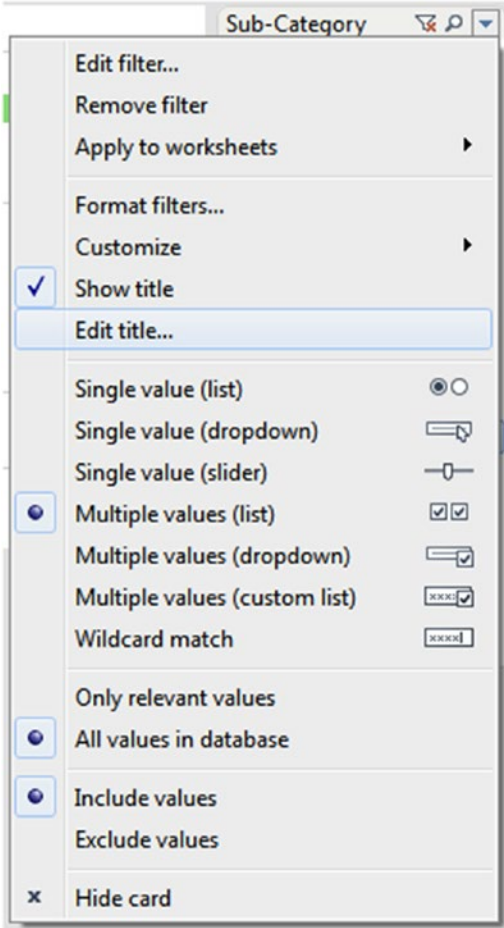
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Layout Modes are single value (list), single value (dropdown), etc.

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### 3.1.3.7.8 Step 7

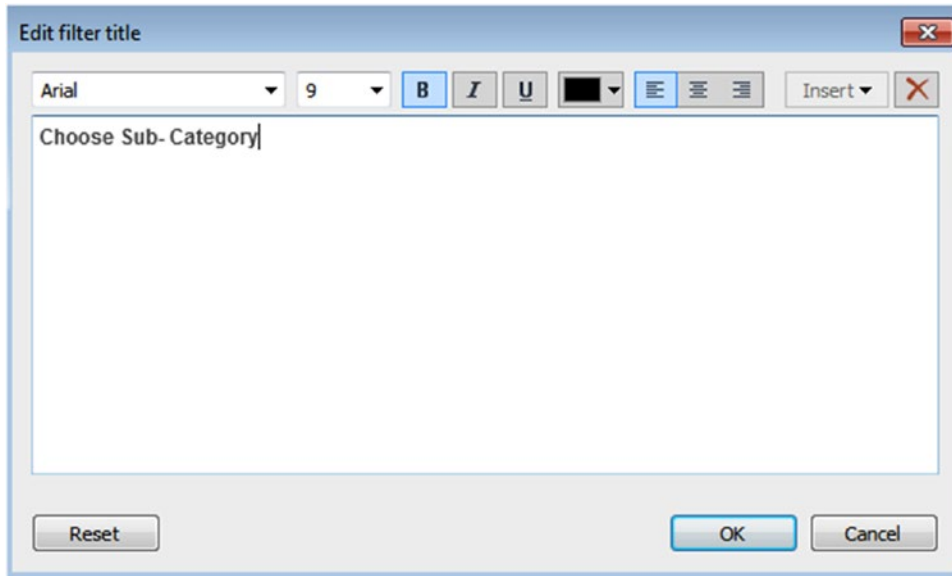
You can edit the title for the sub-category quick filter by clicking on the caret and selecting edit title as shown in Fig. 3-27.



**Figure 3-27.** Drop down menu showing "Edit Title" option

### 3.1.3.7.9 Step 8

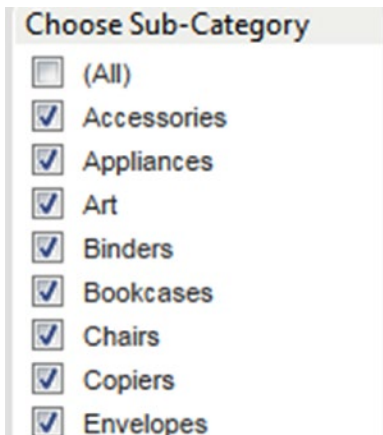
Type the title as shown in Fig. 3-28 and click the “OK” button.



**Figure 3-28.** “Edit filter title” dialog box to edit title for the quick filter “Sub-Category”

### 3.1.3.7.10 Step 9

Observe the new title for the sub-category quick filter as shown in Fig. 3-29.



**Figure 3-29.** View showing quick filter title as “Choose Sub-Category”

### 3.1.3.8 Context filter

The filters that you add to your visualization are each independently calculated, regardless of what the other filters are doing. You can add “context” to your filters by adding a context filter. Once you create a context filter, then all other filters are calculated using this new data set.

Context Filter is an independent filter; all other filters that you set are defined as dependent filters because they only process the data that passes through the context filter.

The context is computed once to generate the view. All other filters are then computed relative to the context.

**Context filters:**

- Appear at the top of the filters shelf.
- Are identified by a gray color on the filters shelf.
- Cannot be rearranged on the shelf.

You may create a context filter to:

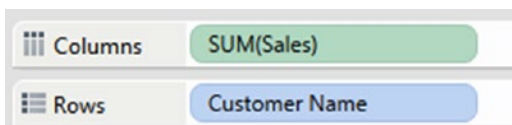
- improve performance – If you set a lot of filters or have a large data source, the queries can be slow. You can set one or more context filters to improve performance.
- create a dependent numerical or top N filter – You can set a context filter to include only the data of interest, and then set a numerical or a top N filter.

#### 3.1.3.8.1 Steps

**Objective:** To display top 10 customers by their sales for each segment.

#### 3.1.3.8.2 Step 1

Connect to the Sample-Superstore data source. Drag the dimension “Customer Name” from the dimensions area under data pane to the rows shelf. Drag the measure “Sales” from the measures area under the data pane to the columns shelf (Shown in Fig. 3-30).



**Figure 3-30.** Dimension “Customer Name” placed on the rows shelf and the measure “Sales” placed on the columns shelf

### 3.1.3.8.3 Step 2

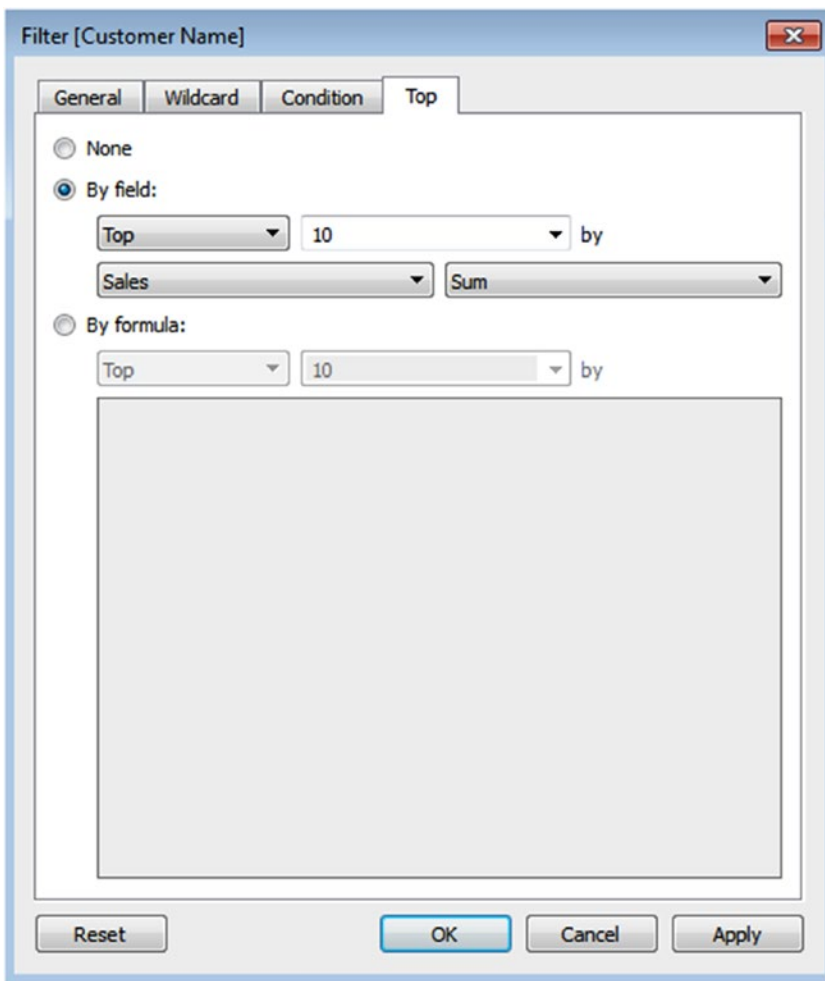
Click on the sales axis to sort the customer name by the sum of their sales (Shown in Fig. 3-31).



**Figure 3-31.** Highlighted sales axis to “Sort”

### 3.1.3.8.4 Step 3

Drag the dimension “Customer Name” from the dimensions area under the data pane to the “Filters” shelf to create the Top N filter. Fill in the details as shown in Fig. 3-32.



**Figure 3-32.** “Filter[Customer Name]” to create “Top 10 Customers” by their “Sales”

### 3.1.3.8.5 Step 4

Observe that top 10 customer names by their sales are shown in Fig. 3-33.

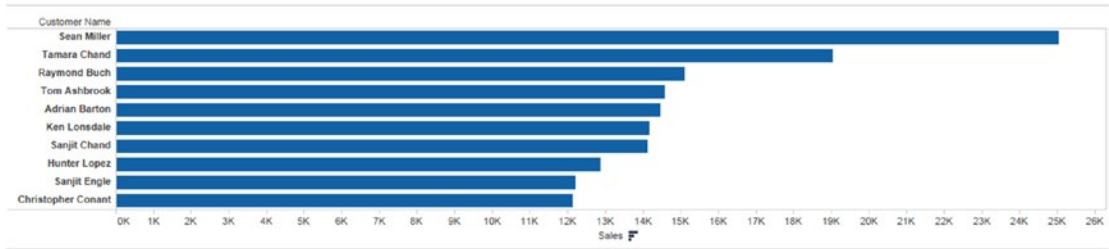


Figure 3-33. View showing “Top 10 Customers” by their “Sales”

### 3.1.3.8.6 Step 5

Create one more filter to display customer by their sales for the corporate segment. Drag the dimension “Segment” from the dimensions area under the data pane to the “Filters” shelf, select corporate as a segment value as shown in Fig. 3-34.

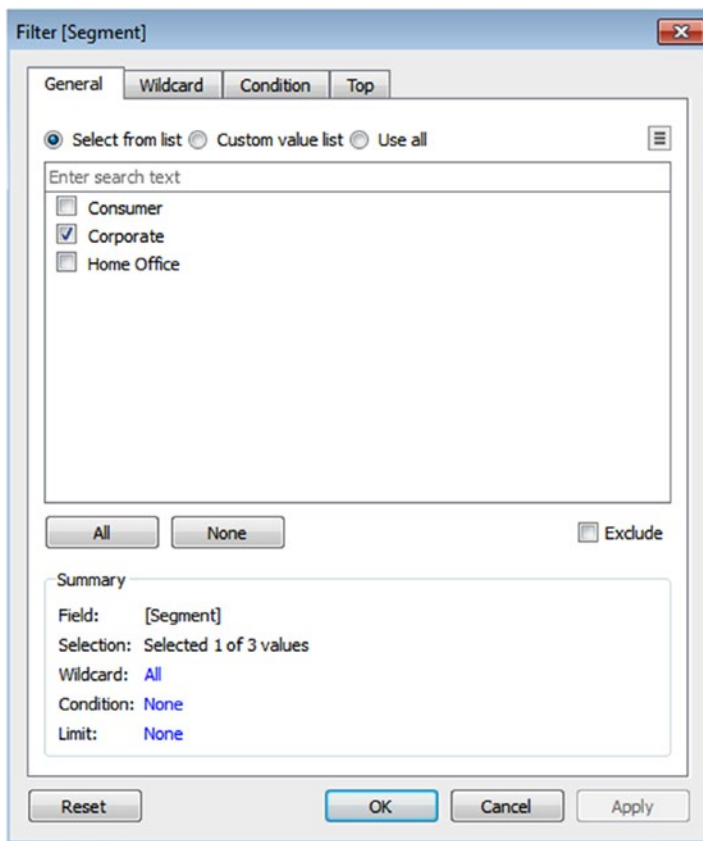
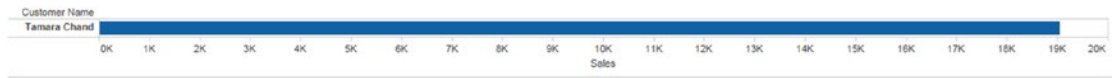


Figure 3-34. “Filter[Segment]” dialog box to include only the “Corporate” segment

### 3.1.3.8.7 Step 6

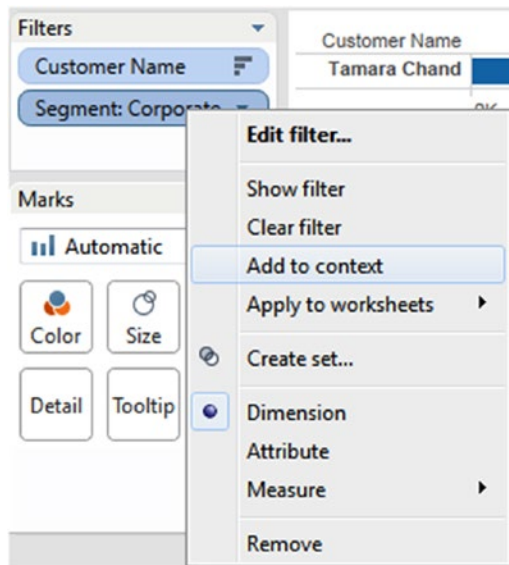
The filtered view displays only one customer instead of the top 10 customers. (Shown in Fig. 3-35). This is not the result that we want. This is because all filters are evaluated separately and the view is an intersection of results.



**Figure 3-35.** View shows only one customer for the selected “Corporate” segment

### 3.1.3.8.8 Step 7

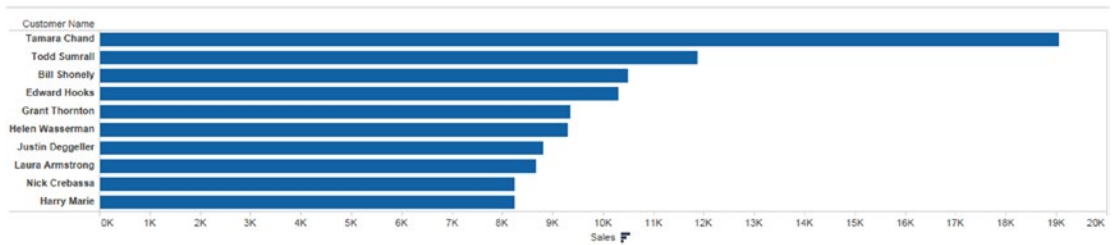
To display the Top 10 Customers by their “Sales” for each “Segment,” right click on “Segment” and select “Add to Context” to make “Segment” as Context Filter (Shown in Fig. 3-36).



**Figure 3-36.** “Add to context” option

### 3.1.3.8.9 Step 8

The updated view shows the “Top 10 customers” by their “Sales” for “Corporate Segment” (Shown in Fig. 3-37).



**Figure 3-37.** Updated view after applying context filter

## 3.1.3.9 Cascading filter

Cascading filters are a set of filters. Cascading (or hierarchical) filters are those where the selection on the first filter causes the second to be limited to only those values that are now relevant.

### 3.1.3.9.1 Steps

#### 3.1.3.9.2 Step 1

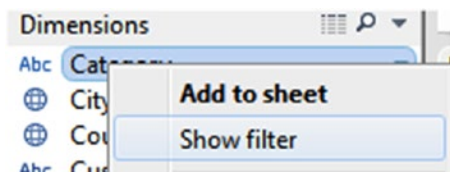
Connect to the Sample-Superstore data source. Drag the dimension “Segment” from the dimensions area under the data pane to the rows shelf. Drag the measure “Sales” from the measures area under the data pane to the columns shelf (Shown in Fig. 3-38).



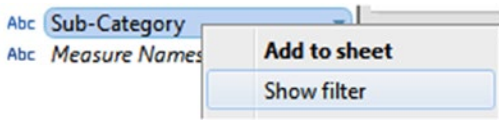
**Figure 3-38.** Dimension “Segment” placed on the rows shelf and the measure “Sales” placed on the columns shelf

#### 3.1.3.9.3 Step 2

Create Quick Filter for category and sub-category (Shown in Fig. 3-39 and Fig. 3-40).



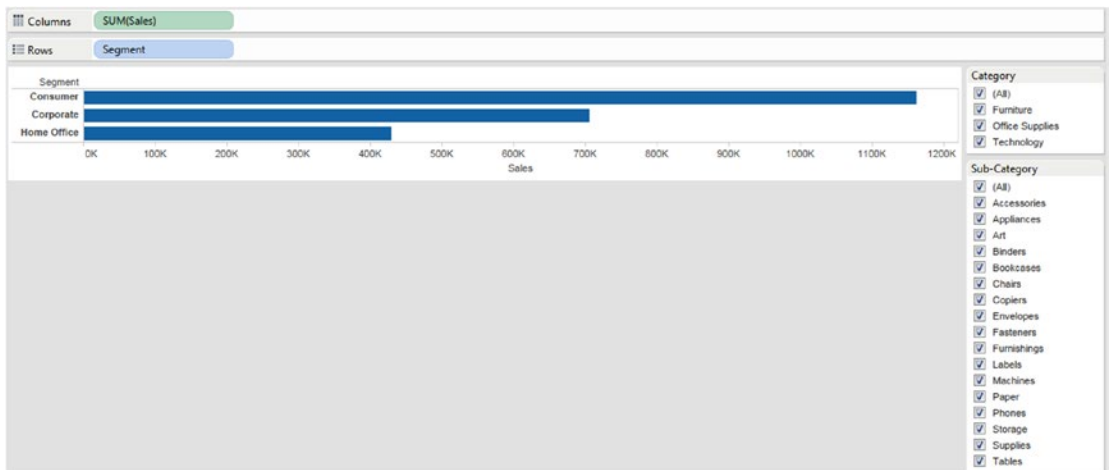
**Figure 3-39.** Adding “Quick Filter” for “Category”



**Figure 3-40.** Adding “Quick Filter” for “Sub-Category”.

### 3.1.3.9.4 Step 3

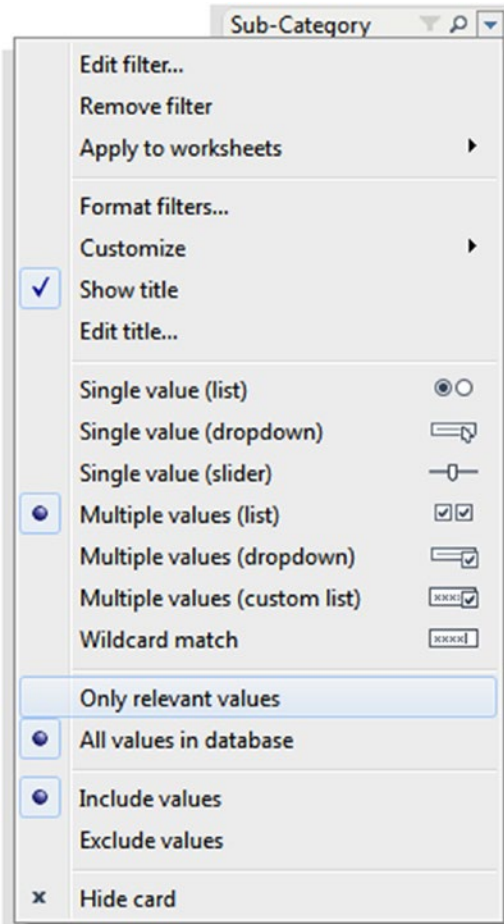
Quick filter for category and sub-category are displayed (Shown in Fig. 3-41).



**Figure 3-41.** View showing “Quick Filter” for “Category” and “Sub-Category”

### 3.1.3.9.5 Step 4

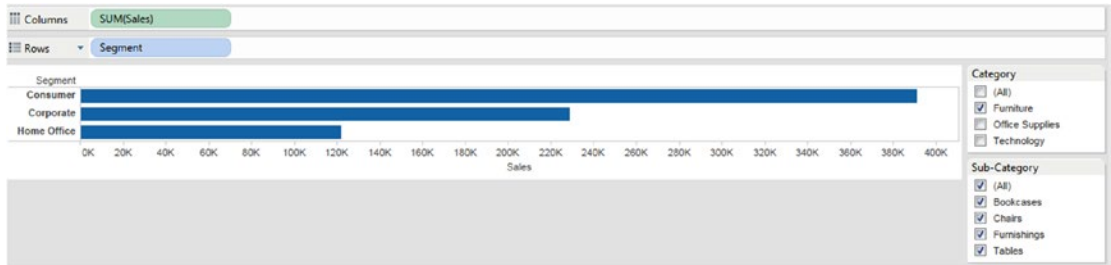
From the “Category” filter select only “Furniture”. Click on “Sub-Category” caret and check “Only relevant values” option (Shown in Fig. 3-42).



**Figure 3-42.** Selection of “Only relevant values”

### 3.1.3.9.6 Step 5

“Sub-Category” filter shows all products that are relevant to “Furniture” Category (Shown in Fig. 3-43).



**Figure 3-43.** “Sub-Category” shows all products that are relevant to the “Furniture” Category

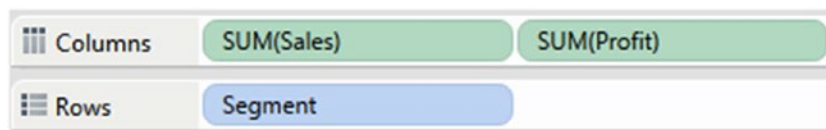
## 3.1.3.10 Calculation filter

Calculation filter allows you to perform calculations on the selected dimension members. The calculation filter is also known as the “Slicing” filter.

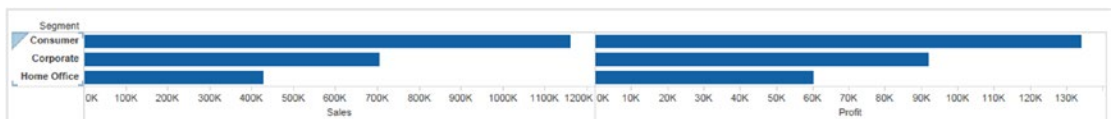
### 3.1.3.10.1 Steps

#### 3.1.3.10.2 Step 1

Connect to the Sample-Superstore data source. Drag the dimension “Segment” from the dimensions area under the data pane to the rows shelf. Drag the measure “Sales” and “Profit” from the measures area under data pane to the columns shelf (Shown in Fig. 3-44). The view shows various segments by sum of sales and sum of profit (Shown in Fig. 3-45).



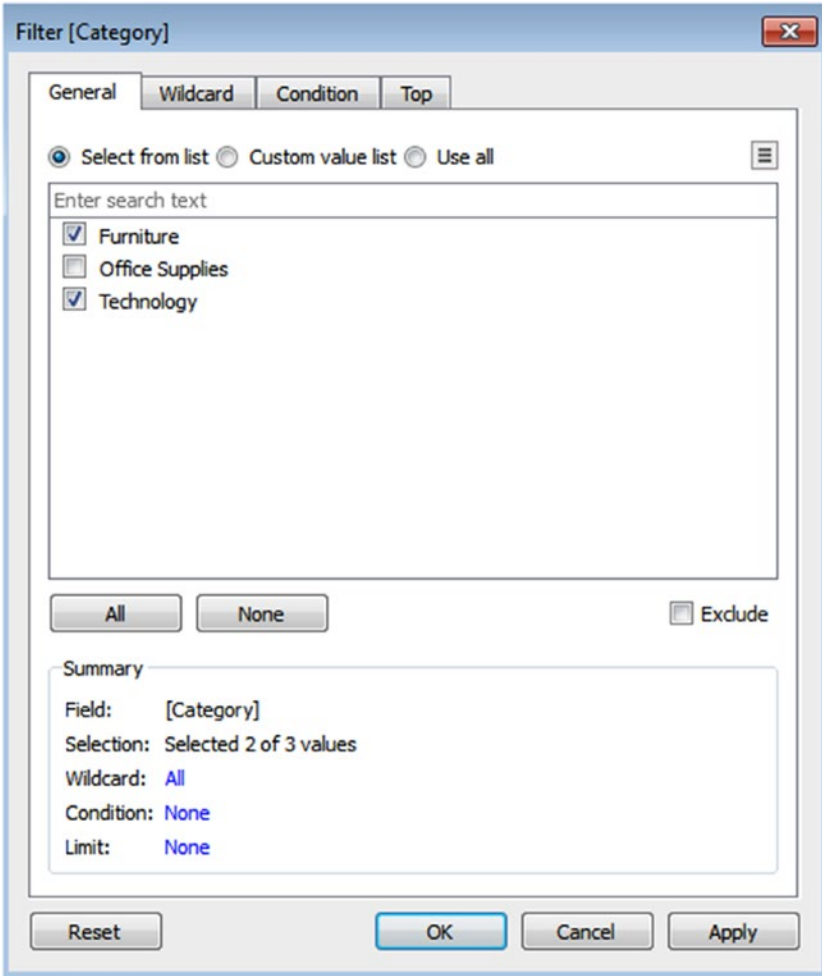
**Figure 3-44.** Dimension “Segment” placed on the rows shelf and measure “Sales,” “Profit” placed on the columns shelf



**Figure 3-45.** View shows “Segment” by “Sales” and “Profit”

### 3.1.3.10.3 Step 2

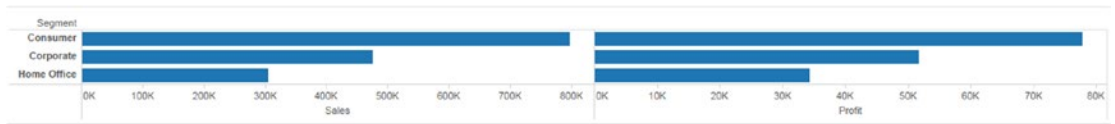
Drag the dimension “Category” from the dimensions area under data pane to “Filters” Shelf, select the categories, “Furniture” and “Technology” as shown in Fig. 3-46.



**Figure 3-46.** “Filter[Category]” to include “Furniture” and “Technology” category

### 3.1.3.10.4 Step 3

When you click on “OK” button, Tableau automatically applies the appropriate calculation to the members of the filter based on the aggregation of each measure shown in Fig. 3-47.



**Figure 3-47.** View after applying the calculation filter

## 3.1.3.11 Data source filter

The data source filter helps you to reduce the amount of data in the data source.

### 3.1.3.11.1 Steps

#### 3.1.3.11.2 Step 1

Connect to the Sample-Superstore data source.

#### 3.1.3.11.3 Step 2

To create data source filter click on “Add...” in the upper right corner of the data source page as shown in Fig. 3-48.



**Figure 3-48.** Data source page showing “Add...” option

### 3.1.3.11.4 Step 3

“Edit Data Source Filters” dialog box appears as shown in Fig. 3-49.

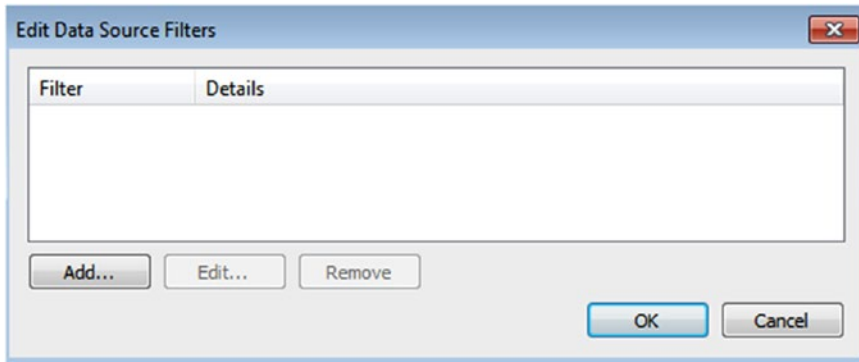


Figure 3-49. “Edit Data Source Filters” dialog box

### 3.1.3.11.5 Step 4

Click on the “Add” button to add the filter and select category field as shown in Fig. 3-50.

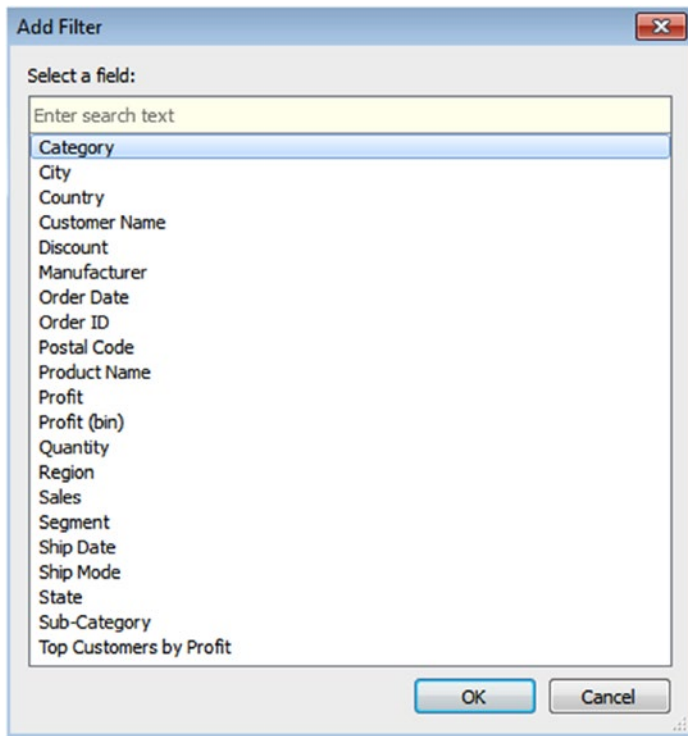
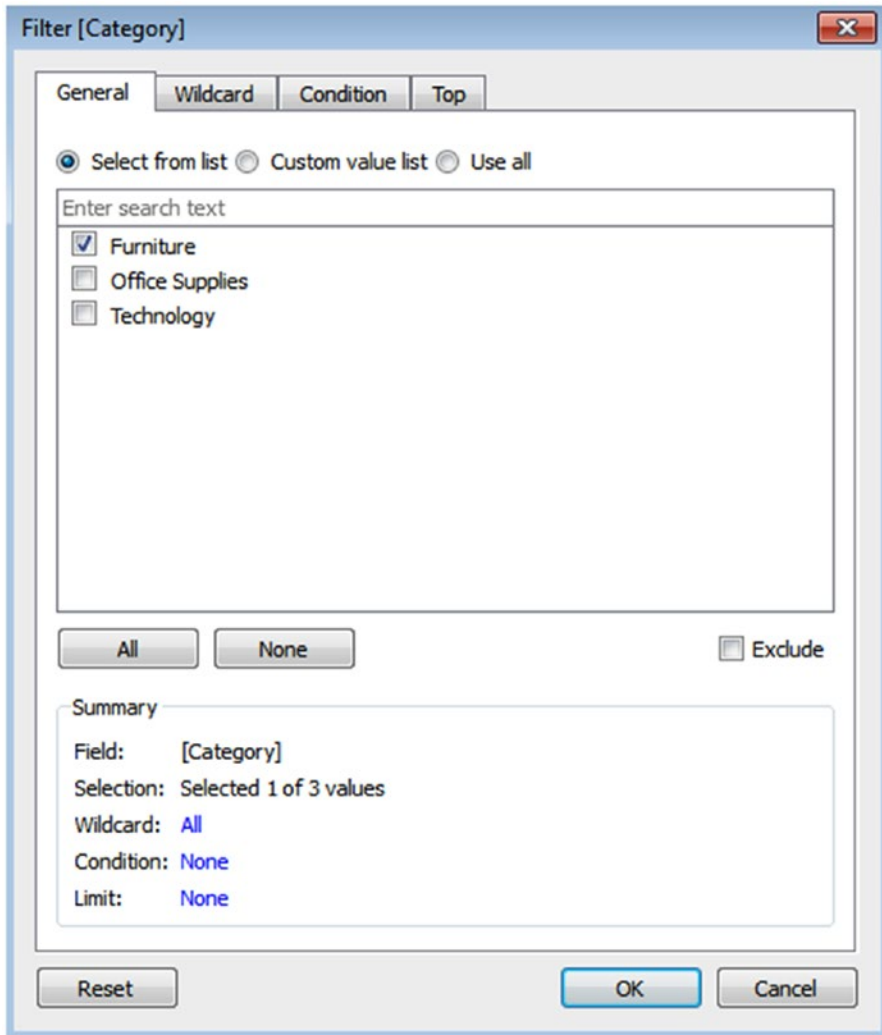


Figure 3-50. “Add Filter” dialog box showing “Category” field as selected member

### 3.1.3.11.6 Step 5

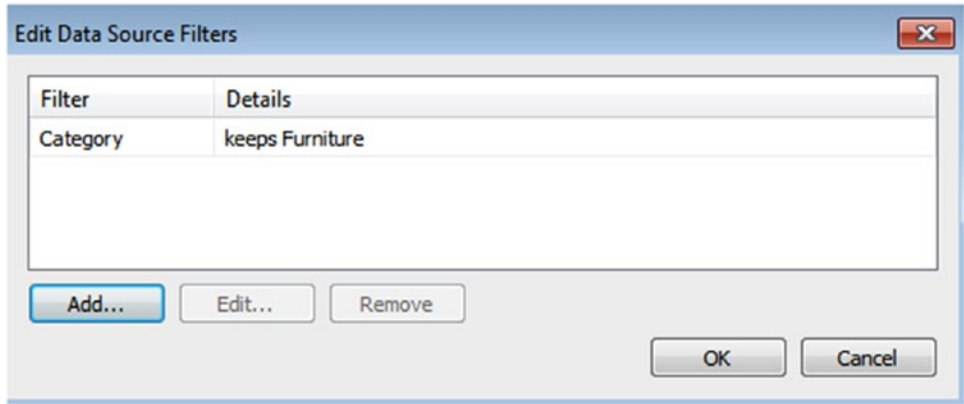
When you click “OK,” you can see the filter field dialog box. Select “Furniture” Category as shown in Fig. 3-51 and click “OK”.



**Figure 3-51.** “Filter[Category]” to select “Furniture” category

### 3.1.3.11.7 Step 6

Next, you can see the “Category” filter in the “Edit Data Source Filters” as shown in Fig. 3-52.



**Figure 3-52.** The “Edit Data Source Filters” dialog box that keeps only “Furniture” Category for filter criteria

### 3.1.3.11.8 Step 7

Observe the updated data on the data grid which shows only data that is relevant to “Furniture” as shown in Fig. 3-53.

Orders Segment	Orders Country	Orders City	Orders State	Orders Postal Code	Orders Region	Orders Category	Orders Sub-Category	Orders Product Name	Orders Sales	Orders Quantity	Orders Discount
Consumer	United States	Henderson	Kentucky	42420	South	Furniture	Bookcases	Bush Somerset Collect...	\$262	2	
Consumer	United States	Henderson	Kentucky	42420	South	Furniture	Chairs	Hon Deluxe Fabric Uph...	\$732	3	
Consumer	United States	Fort Lauder...	Florida	33311	South	Furniture	Tables	Bretford CR4500 Series ...	\$958	5	
Consumer	United States	Los Angeles	California	90032	West	Furniture	Furnishings	Eldon Expressions Woo...	\$49	7	
Consumer	United States	Los Angeles	California	90032	West	Furniture	Tables	Chromcraft Rectangula...	\$1,706	9	
Consumer	United States	Philadelphia	Pennsylvania	19140	East	Furniture	Chairs	Global Deluxe Stacking ...	\$71	2	
Consumer	United States	Orem	Utah	84057	West	Furniture	Tables	Bretford CR4500 Series ...	\$1,045	3	
Consumer	United States	Philadelphia	Pennsylvania	19140	East	Furniture	Bookcases	Riverside Palais Royal L...	\$3,083	7	
Consumer	United States	Philadelphia	Pennsylvania	19140	East	Furniture	Furnishings	Howard Miller 13-3/4" ...	\$124	3	
Corporate	United States	Richardson	Texas	75080	Central	Furniture	Furnishings	Electrix Architect's Cla...	\$191	5	

**Figure 3-53.** Data Grid after applying data source filter

Refer to the link below to understand the order of filter execution in Tableau

[https://onlinehelp.tableau.com/current/pro/desktop/en-us/order\\_of\\_operations.html](https://onlinehelp.tableau.com/current/pro/desktop/en-us/order_of_operations.html)

## 3.2 Sorting

You can arrange dimension members in a specified order with the help of sorting.

### 3.2.1 Why sorting?

To display data in an order such as alphabetic order or numeric order.

#### 3.2.1.1 Picture this...

You work for “XYZ” retail store. The company wants to provide some percentage of offers to its TOP 10 customers based on their purchases. The Vice President of “XYZ,” asks you to generate a report to show the “TOP 10 customers” by “Sales”. In this situation, you can apply sorting to display the names of the TOP 10 customers by their “Sales”.

### 3.2.2 What is sorting?

Sorting allows you to arrange dimensions in a specific order. There are two types of sorting:

- Computed sorting
- Manual sorting

### 3.2.3 How to apply sorting?

You can apply sorting in different ways:

- Computed sorting
- Manual sorting
- Nested sorting

#### 3.2.3.1 Computed sorting

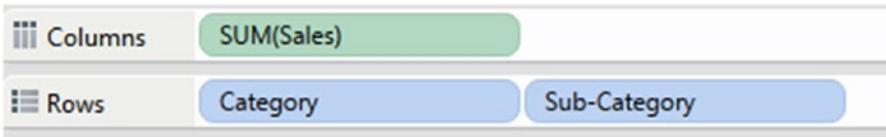
When you apply some programmatic rules for sorting, it is known as computed sorting. For example: Sorting product names by their alphabetic order. Computed sorting includes sorting on axis and sorting specific fields.

#### 3.2.3.2 Sorting on axis

Use sort buttons on an axis for a quick computed sort.

### 3.2.3.2.1 Step 1

Connect to the Sample-Superstore data source. Drag the dimension “Category” “Sub-Category” from the dimensions area under the data pane to the rows shelf. Drag the measure “Sales” from the measures area under the data pane to the columns shelf (Shown in Fig. 3-54).



**Figure 3-54.** Dimension “Category,” “Sub-Category” placed on the rows shelf and the measure “Sales” placed on the columns shelf

### 3.2.3.2.2 Step 2

Go to the sub-category field on the view and hover the mouse cursor over the axis. A sort icon is displayed as shown in Fig. 3-55.

Category	Sub-Category 
Furniture	Bookcases
	Chairs
	Furnishings
	Tables

**Figure 3-55.** Sort axis for “Sub-Category” field

### 3.2.3.2.3 Step 3

Click it once to sort in ascending order, click on the axis again to sort the sub-category field in descending order as shown in Fig. 3-56.

Category	Sub-Categ. 
Furniture	Tables
	Furnishings
	Chairs
	Bookcases

**Figure 3-56.** “Sub-Category” field sorted in descending order

---

Click a third time on the “Sub-Category” axis to clear the sort.


---

## 3.2.3.3 Sorting specific fields

Let's discuss steps to sort specific fields.

### 3.2.3.3.1 Step 1

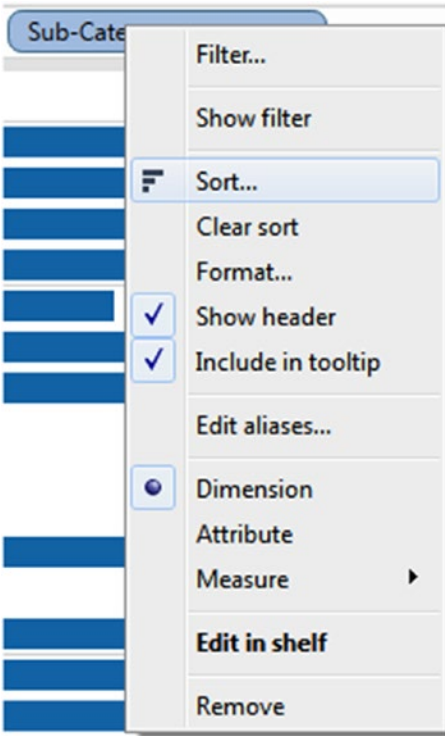
Connect to the Sample-Superstore data source. Drag the dimension “Category” “Sub-Category” from the dimensions area under the data pane to the rows shelf. Drag the measure “Sales” from measures area under the data pane to the columns shelf (Shown in Fig. 3-57).

Columns	SUM(Sales)	
Rows	Category	Sub-Category 

**Figure 3-57.** Dimension “Category,” “Sub-Category” placed on the rows shelf and the measure “Sales” placed on the columns shelf

### 3.2.3.3.2 Step 2

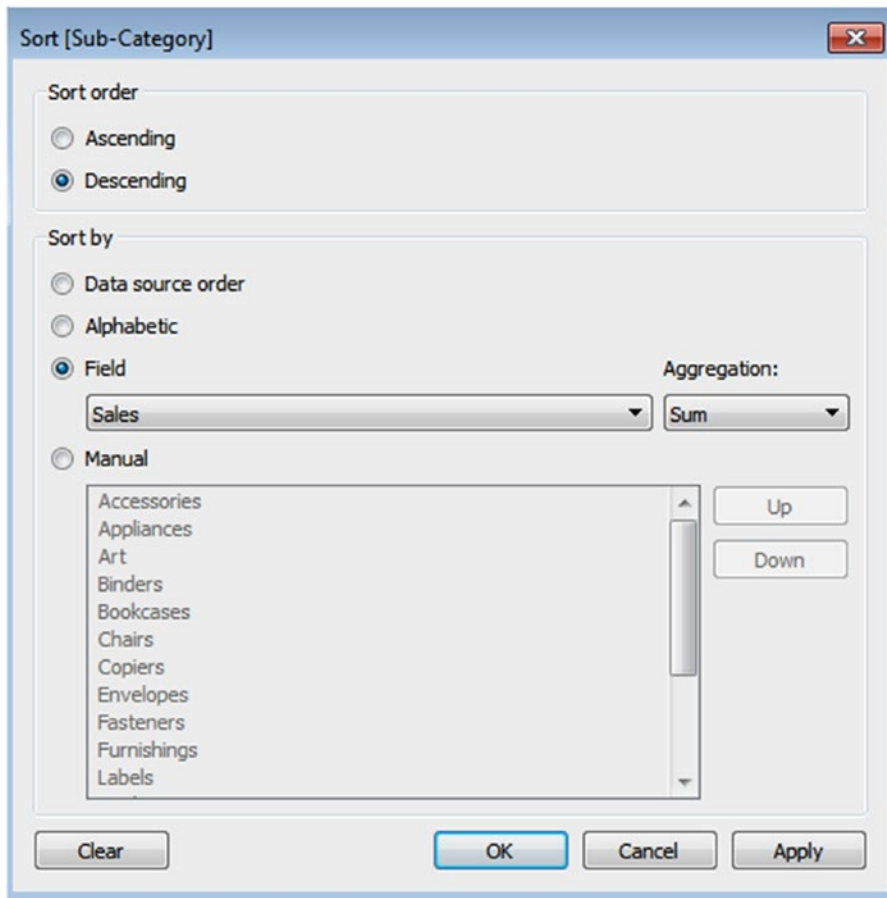
Right click on “Sub-Category” field and select “Sort” option as shown in Fig. 3-58.



**Figure 3-58.** “Sub-Category” field with “Sort” option

### 3.2.3.3.3 Step 3

The sort dialog box opens. Specify the sort order as “Descending” and “Sort by” as the field, as shown in Fig. 3-59. You can select “Data source order,” which orders the data by data source order. The default data source order is alphabetic order. “Field” orders the data based on the associated values of another field.



**Figure 3-59.** “Sort [Sub-Category]” dialog box showing “Sort order” as descending and “Sort by” as a field

### 3.2.3.3.4 Step 4

When you click on “OK,” “Sub-Category” field is sorted based on their sum of “Sales” as shown in Fig. 3-60.

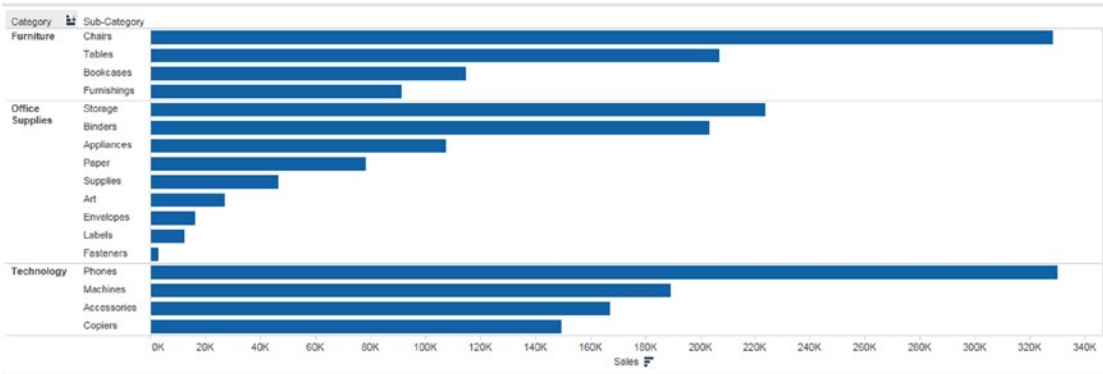


Figure 3-60. “Sub-Category” field sorted based on their sum of “Sales”

### 3.2.3.4 Manual sorting

Another way to rearrange the dimensions in the table is dragging them in an ad-hoc fashion. This is known as manual sorting.

There are two ways to perform manual sorting:

- Sort using the tool bar and tool tips
- Sort by drag and drop

### 3.2.3.5 Sort using the tool bar

#### 3.2.3.5.1 Step 1

Connect to the Sample-Superstore data source. Drag the dimension “Category” from the dimensions area under the data pane to the rows shelf. Drag the measure “Sales” from the measures area under the data pane to the columns shelf (Shown in Fig. 3-61).



Figure 3-61. Dimension “Category” placed on the rows shelf and the measure “Sales” placed on the columns shelf

### 3.2.3.5.2 Step 2

Use the sort button on the tool bar to sort a field either in ascending or descending order as shown in Fig. 3-62.



**Figure 3-62.** Sort button on the tool bar

## 3.2.3.6 Sort by drag and drop

Let's discuss the steps for performing “sort by drag and drop”.

### 3.2.3.6.1 Step 1

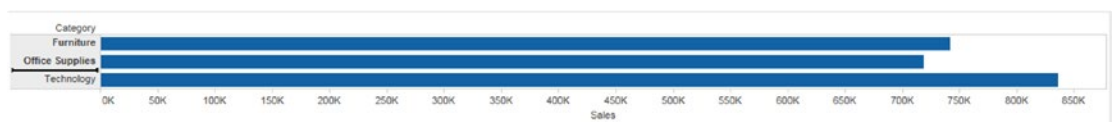
Connect to the Sample-Superstore data source. Drag the dimension “Category” from the dimensions area under the data pane to the rows shelf. Drag the measure “Sales” from the measures area under the data pane to the columns shelf (Shown in Fig. 3-63).



**Figure 3-63.** Dimension “Category” placed on the rows shelf and the measure “Sales” placed on the columns shelf

### 3.2.3.6.2 Step 2

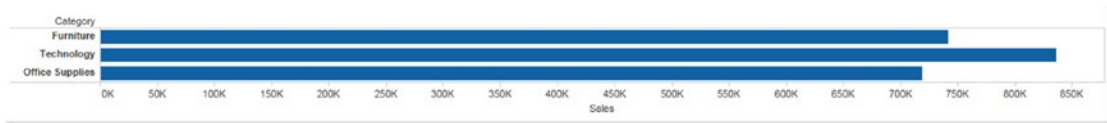
Select the dimension member that you want to move, for example the technology category as shown in Fig. 3-64.



**Figure 3-64.** View showing selected category member, “Technology”

### 3.2.3.6.3 Step 3

Drag the dimension member “Technology,” and drop it in the desired location as shown in Fig. 3-65.



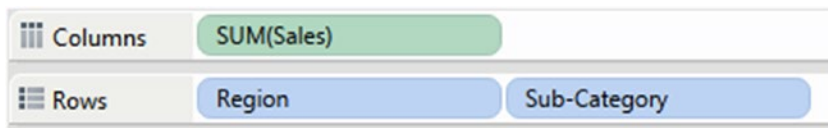
**Figure 3-65.** View after dropping the “Technology” field to the desired location

## 3.2.3.7 Nested sorting

Let's discuss steps for performing “Nested Sort”.

### 3.2.3.7.1 Step 1

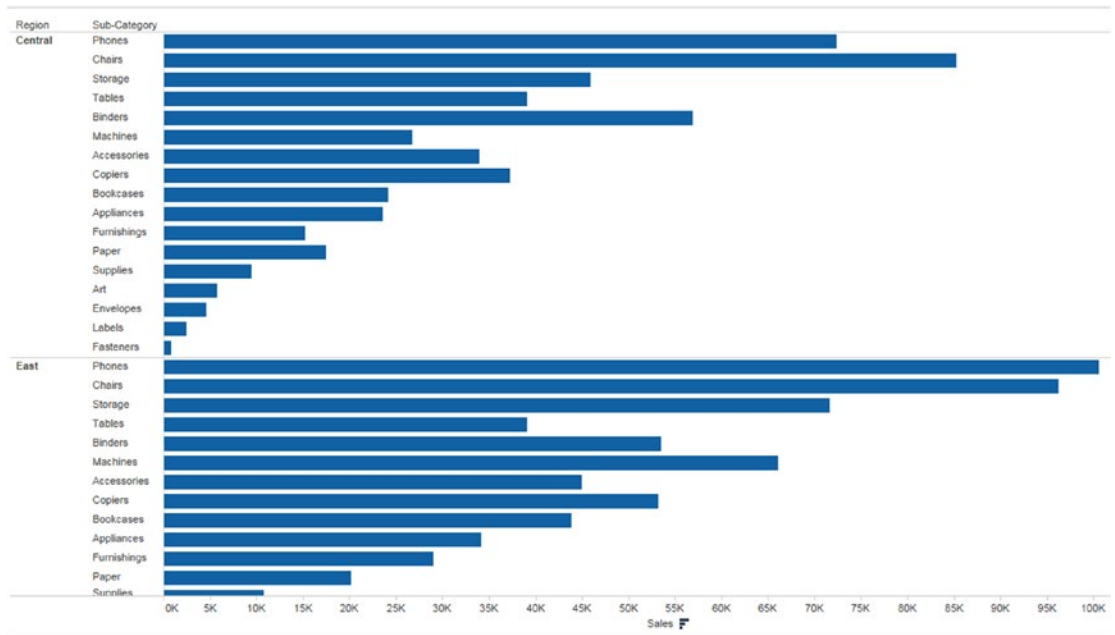
Connect to the Sample-Superstore data source. Drag the dimension “Region,” “Sub-Category” from the dimensions area under the data pane to the rows shelf. Drag the measure “Sales” from the measures area under the data pane to the columns shelf (Shown in Fig. 3-66).



**Figure 3-66.** Dimension “Region,” “Sub-Category” placed on the rows shelf and the measure “Sales” placed on the columns shelf

### 3.2.3.7.2 Step 2

Sort the sub-category in descending order by clicking on the sort icon on the tool bar, as shown in Fig. 3-67.



**Figure 3-67.** “Sub-Category” sorted in descending order

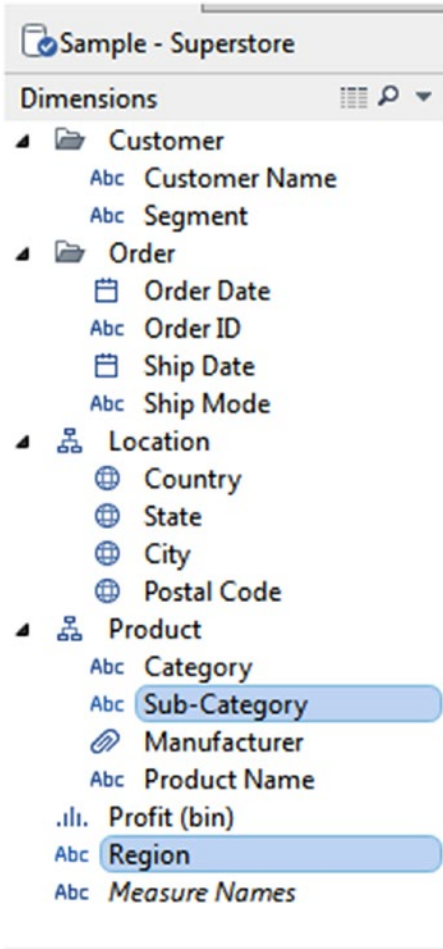
### 3.2.3.7.3 Step 3

The need was to sort each “Sub-Category” within each “Region”. However that did not happen. The sort occurred at the “Sub-Category” level.

You can achieve this with the help of nested sorting.

### 3.2.3.7.4 Step 4a

In the data pane under dimensions, press ctrl key, select the region and the sub-category as shown in Fig. 3-68.



**Figure 3-68.** Selection of “Sub-Category” and “Region”

## 3.2.3.7.5 Step 4b

Right click on selected field, select create and then select combined field as shown in Fig. 3-69.

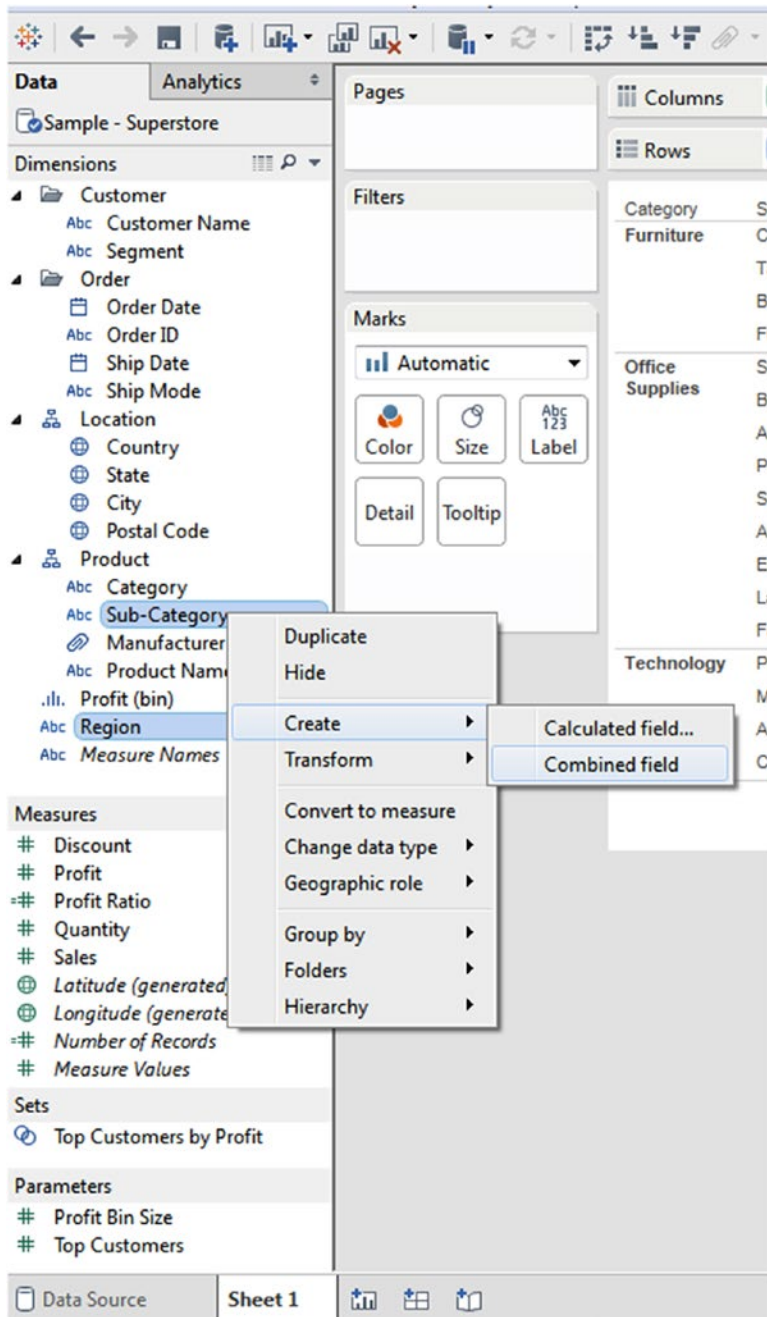
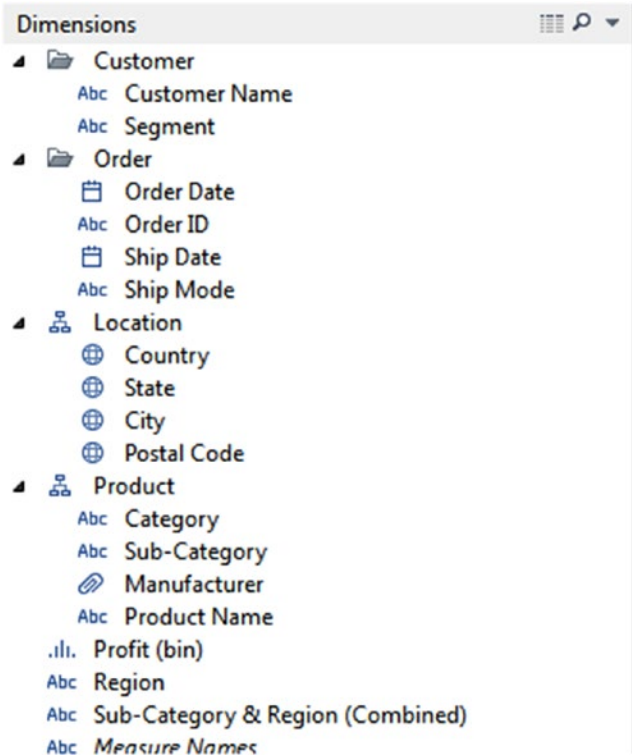


Figure 3-69. Selection of the “Combined field”

### 3.2.3.7.6 Step 5

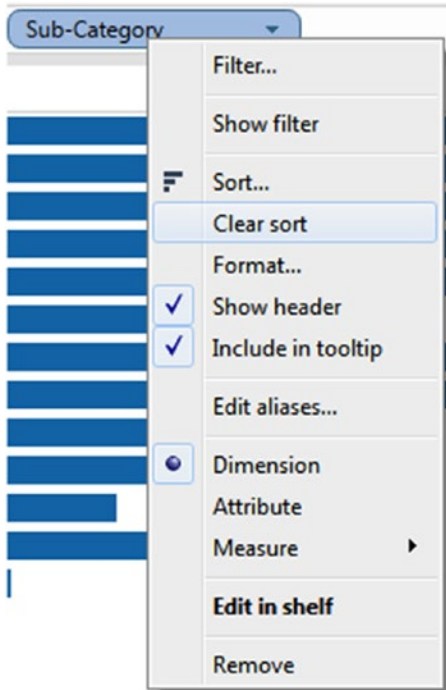
You can see the “Combined field” on the data pane as shown in Fig. 3-70.



**Figure 3-70.** Data pane showing “Sub-Category & Region (Combined)” field

### 3.2.3.7.7 Step 6

Right click on “Sub-Category” and select “Clear sort” to clear the sort as shown in Fig. 3-71. You can see the updated view as shown in Fig. 3-72.



*Figure 3-71. Showing “Clear sort” option for “Sub-Category” field*

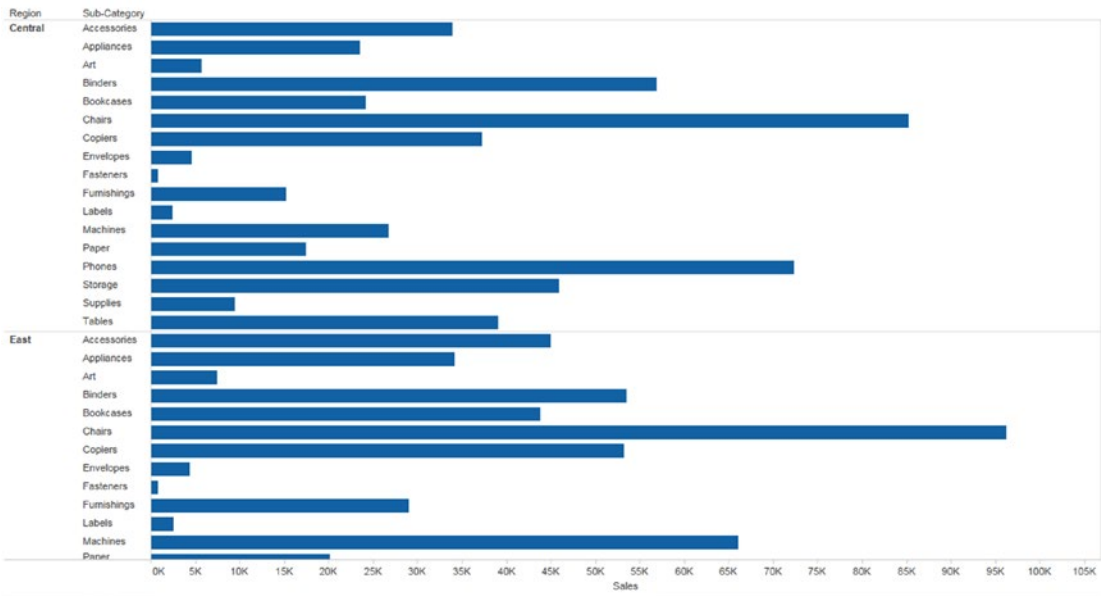


Figure 3-72. View after applying “Clear sort” option to the “Sub-Category” field

### 3.2.3.7.8 Step 7

Drag the “Sub-Category & Region (Combined)” field from the dimensions area under data pane to the rows shelf (Shown in Fig. 3-73).

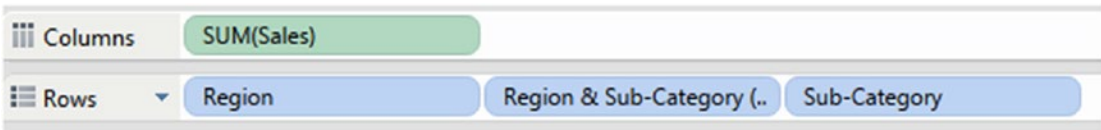
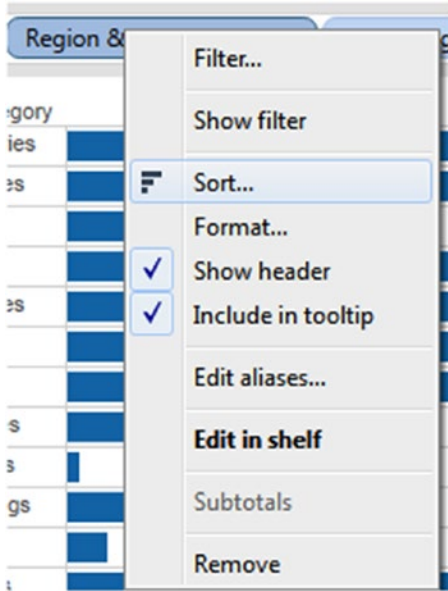


Figure 3-73. “Sub-Category & Region (combined field)” placed on the rows shelf

### 3.2.3.7.9 Step 8

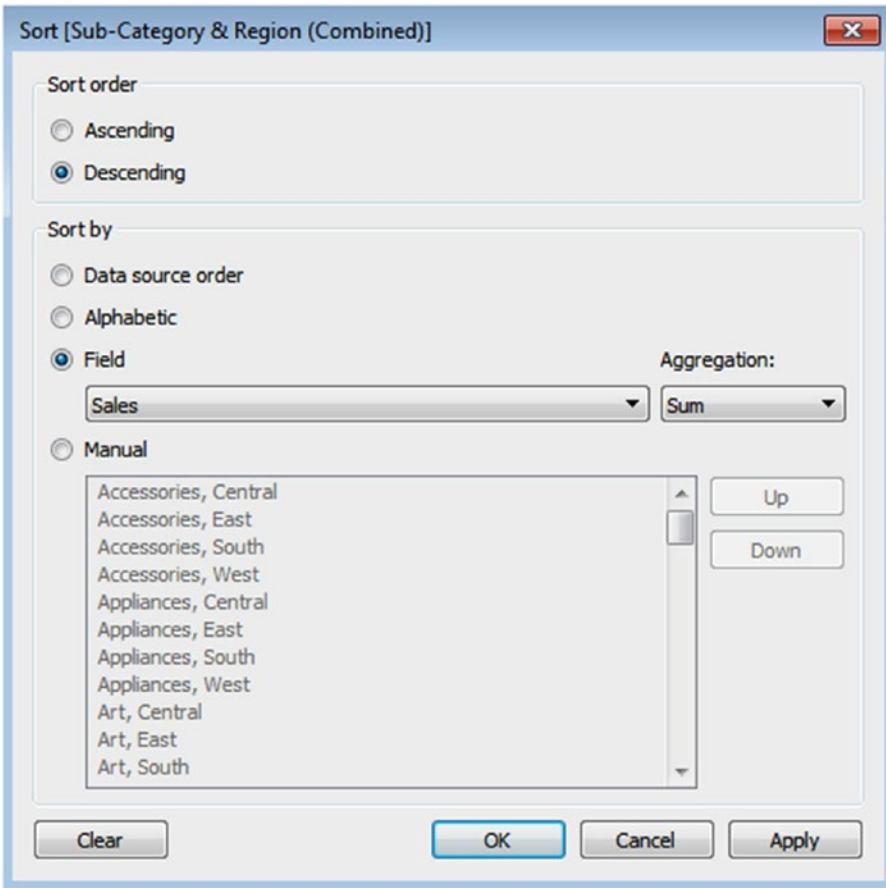
Right click on combined field, select sort option as shown in Fig. 3-74.



**Figure 3-74.** Drop down menu that shows option to sort the “Sub-Category & Region (Combined)” field

### 3.2.3.7.10 Step 9

The sort field dialog box opens. Select “Sort order” as “Descending,” “Sort by” as “Field,” specify field as “Sales” and aggregation as “Sum” as shown in Fig. 3-75.



**Figure 3-75.** “Sort[Sub-Category]” field dialog box with specified “Sort order” and “Sort by” option

### 3.2.3.7.11 Step 10

Observe the “nested sort” that is “Sub-Category” is sorted within each region by their “Sales” as shown in Fig. 3-76.

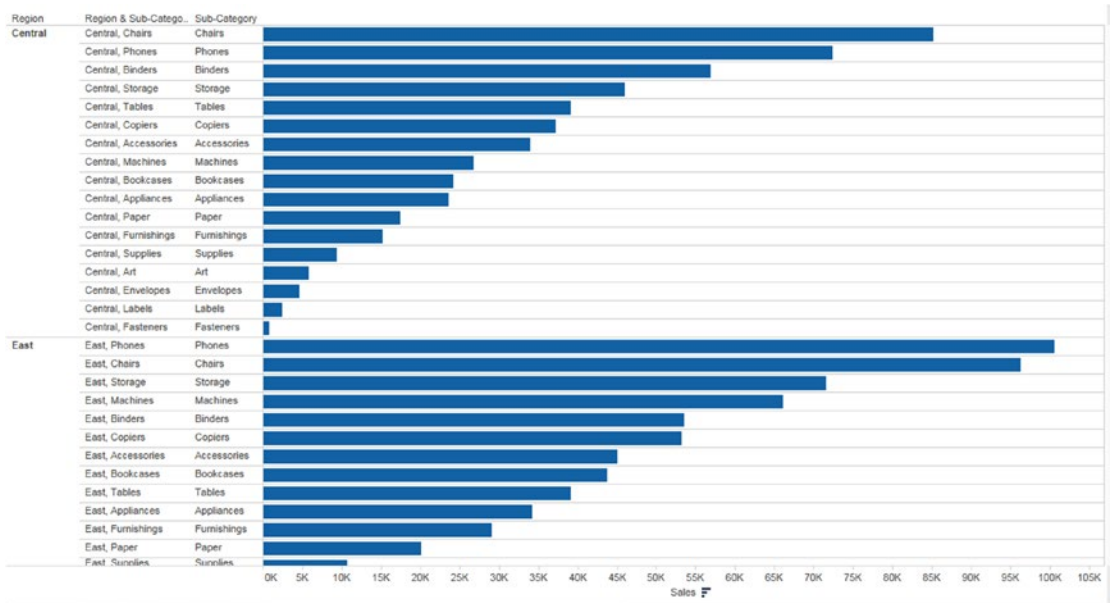
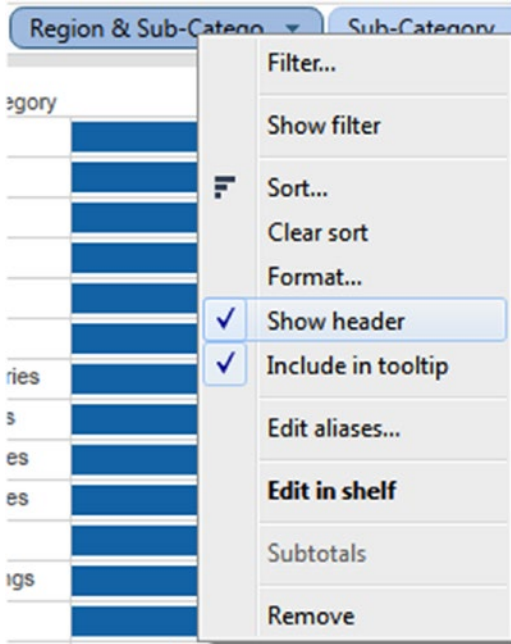


Figure 3-76. View showing sorting of “Sub-Category” within each “Region” by their “Sales”

### 3.2.3.7.12 Step 11

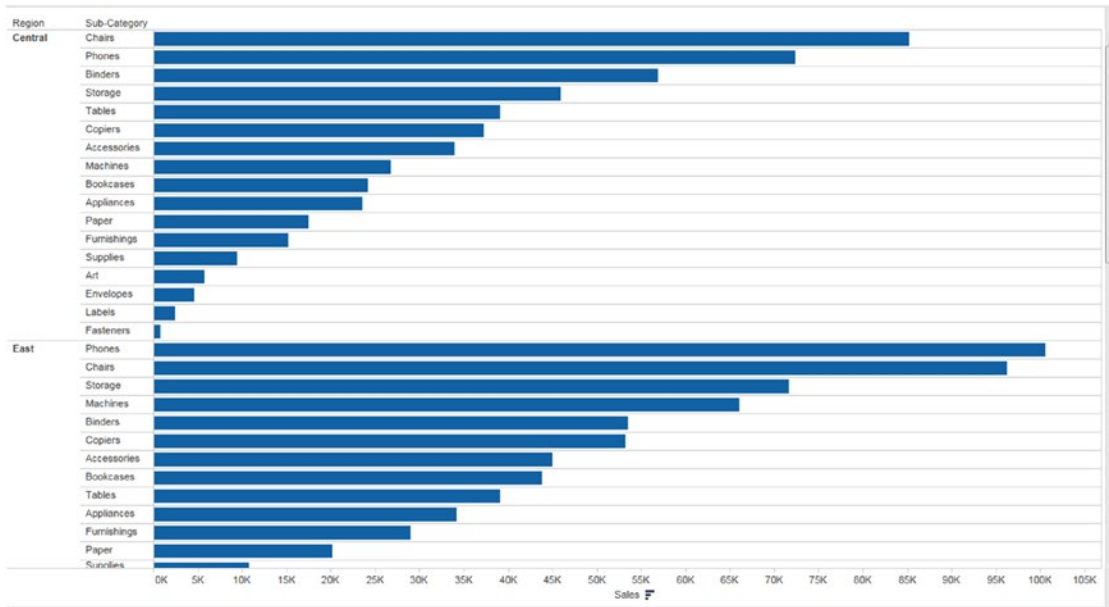
Right click on “Sub-Category & Region (Combined)” field and uncheck “Show header” option as shown in Fig. 3-77.



**Figure 3-77.** Option to uncheck “Show header”

### 3.2.3.7.13 Step 12

The view is improved by showing each “Sub-Category” sorted within each “Region” (Shown in Fig. 3-78).



**Figure 3-78.** View showing “Sub-Category” sorted within each “Region” by their “Sales”

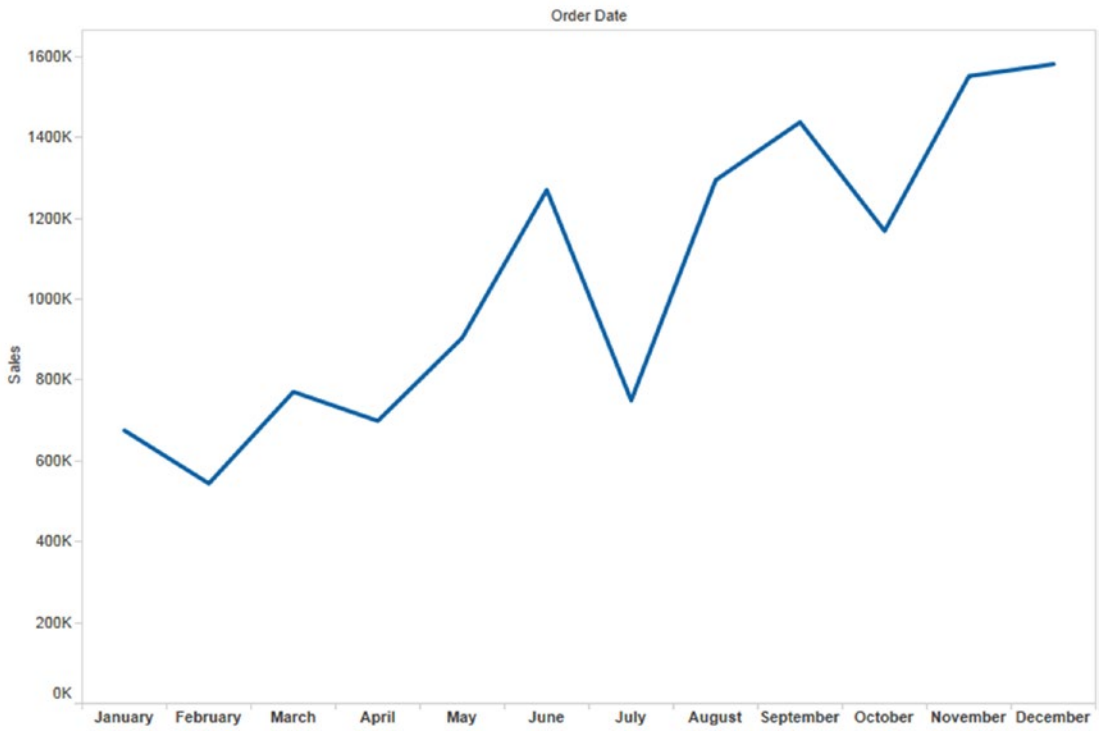
### 3.2.4 Discrete and Continuous Dates

Let's discuss discrete and continuous dates in Tableau.

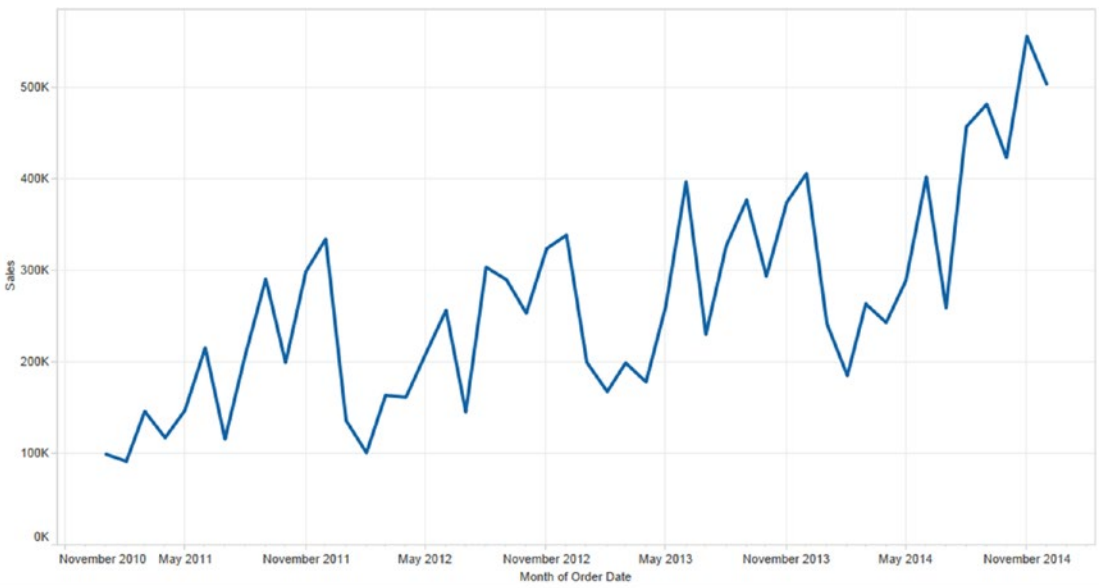
### 3.2.5 Why and what?

Refer to Table 3-1 to understand discrete dates and continuous dates.

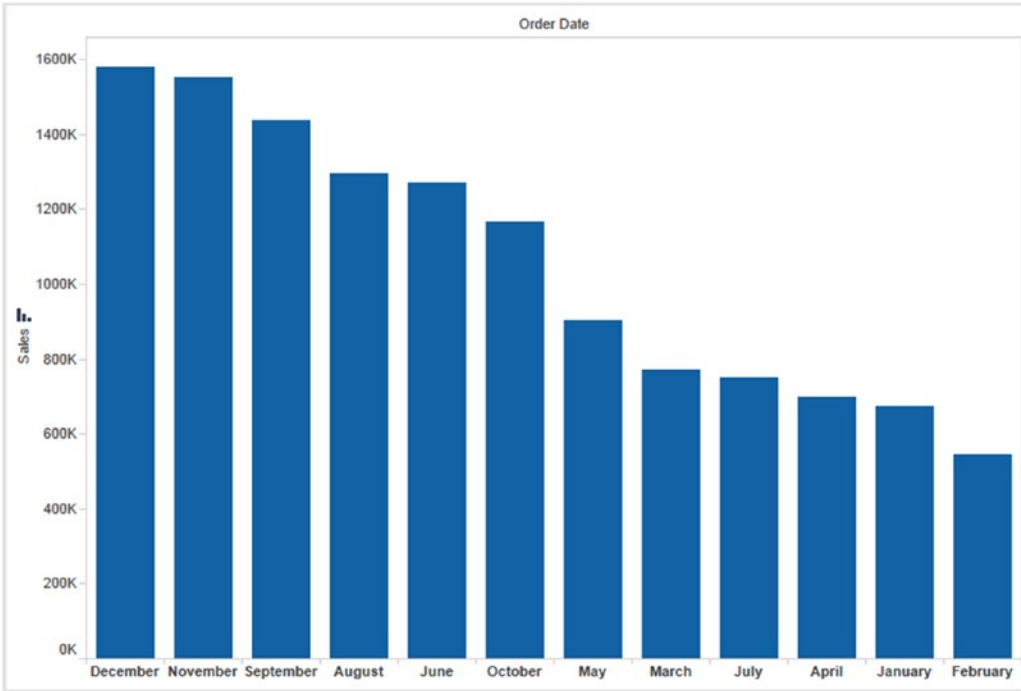
	Discrete dates	Continuous dates
Definition: Webster's Dictionary	Individually distinct; constituting a separate entity	Marked by uninterrupted extension in time, space or sequence
Example	You are a senior executive at a leading retail firm. You have the sales data for four years (2010, 2011, 2012, and 2013) in your data set. You are interested in determining which month regardless of year has the maximum sales. In other words, it implies that the sales data across the years (2010, 2011, 2012 and 2013) have been rolled up by month. Refer to Fig. 3-79.	You are a senior executive at a retail firm. You have the sales data for four years (2010, 2011, 2012, and 2013) in your data set. You are interested in determining which month had the maximum sales over a span of four years (2010 - 2014) Refer to Fig. 3-80.
What is the default for a field?	When a field is dragged from the dimensions area of the data pane to either the rows shelf or columns shelf, it is "Discrete" by default. Example: Customer ID, Customer Name	When a field is dragged from the measures area of the data pane to either the rows shelf or columns shelf, it is "Continuous" by default. Example: Unit Price, Order Quantity
Tableau creates	Axis headers	Axis
Visual Cue	Blue pill	Green pill
History	Discrete variables can take on only a finite set of values. Example: If you count from 0 to 10, there are 11 distinct values. When dealing with discrete values, you will not consider 2.6 or 9.3, etc.	Continuous variables can take on an infinite set of values. Example: if you count from 0 to 10, there are an infinite number of values between 0 and 10.
Sort Order	E.g. Discrete dates can be sorted in ascending or descending order by sales. Refer to Figure 3-81.	Since the continuous dates form a continuous axis, they are arranged in chronological order by default with the oldest date at the leftmost end and the most recent date at the rightmost end. One is not allowed to change the sequence.
Preferred chart form	Bar Chart	Line Graph



**Figure 3-79.** Discrete dates



**Figure 3-80.** Continuous dates



**Figure 3-81.** Discrete fields can be sorted: Here December had the highest sales and February the least

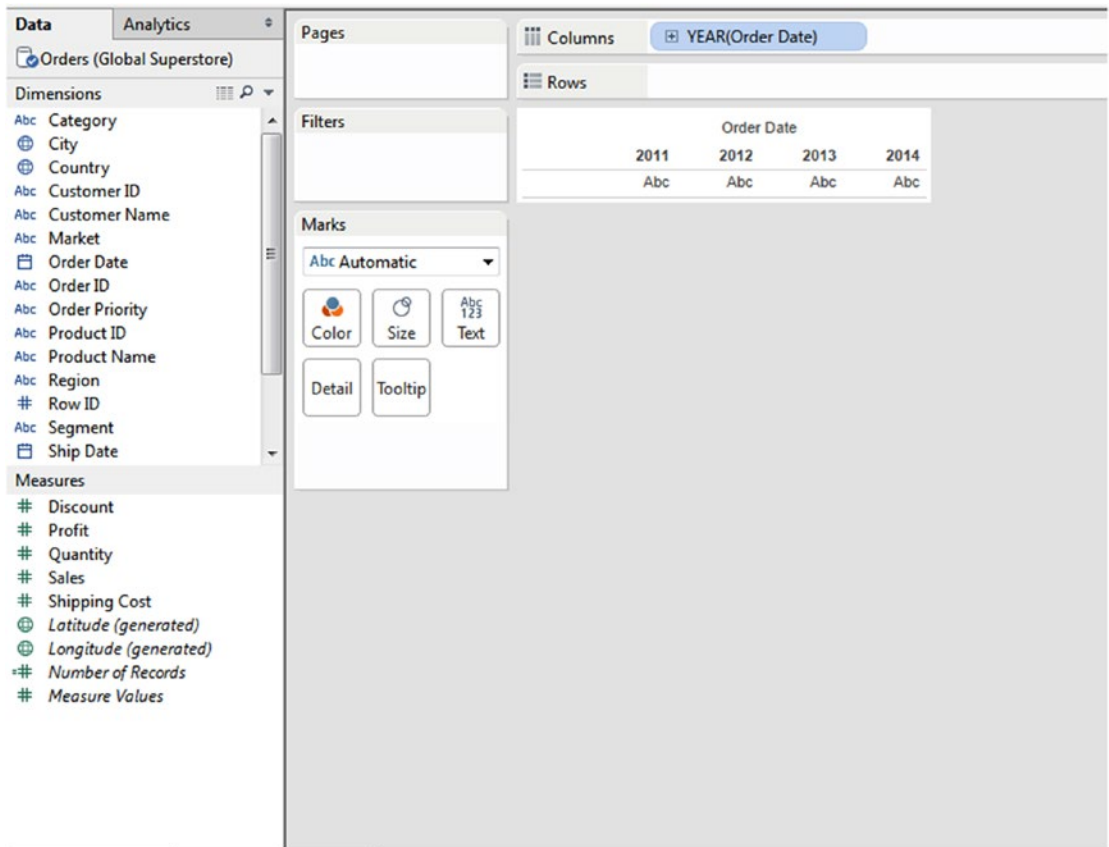
### 3.2.5.1 How to use a discrete date in Tableau?

Let's discuss steps to create discrete dates.

#### 3.2.5.1.1 Steps

#### 3.2.5.1.2 Step 1

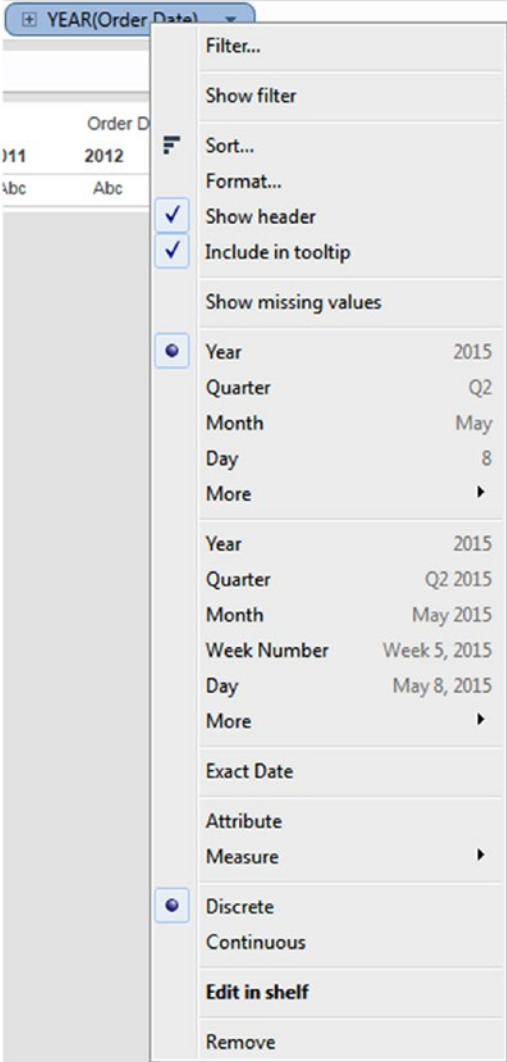
Drag “Order Date” from the dimensions area of the data pane to the Columns Shelf as shown in Fig. 3-82. Tableau by default creates a hierarchy on the date type field. The fields dragged from the dimensions area of the data pane are “Discrete” by default.



**Figure 3-82.** Order Date placed on the columns shelf

### 3.2.5.1.3 Step 2

Click on the drop down to select the appropriate date part (Year / Quarter / Month / Day) as shown in Fig. 3-83. The first set of values constitutes the discrete bucket. The next set of values constitutes the continuous bucket.



**Figure 3-83.** Drop down menu to select appropriate date part

The discrete bucket is shown in Fig. 3-84.

<input checked="" type="radio"/>	Year	2015
<input type="radio"/>	Quarter	Q2
<input type="radio"/>	Month	May
<input type="radio"/>	Day	8
<input type="radio"/>	More	▶

**Figure 3-84.** Discrete bucket

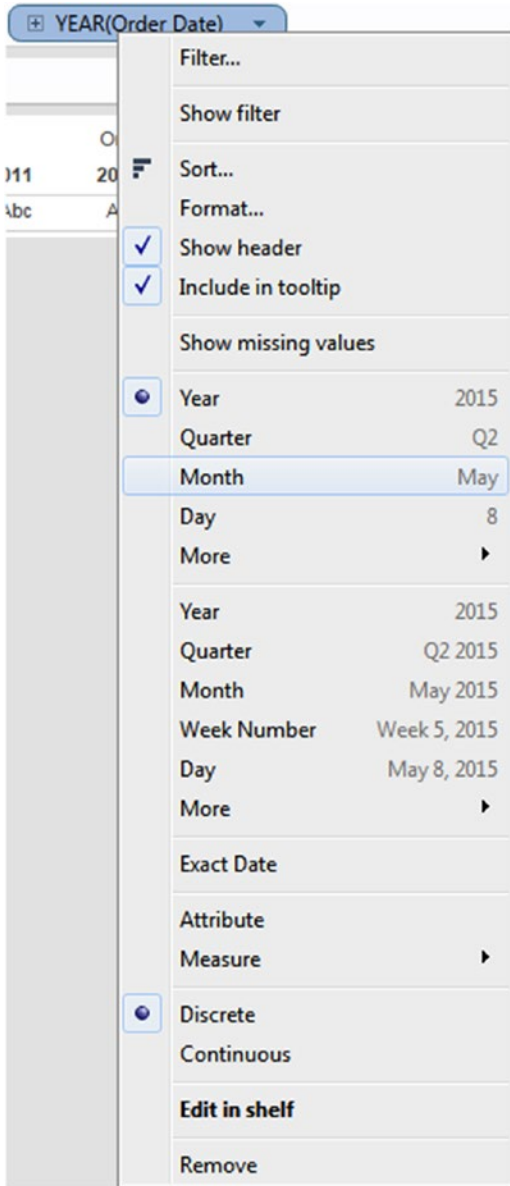
The continuous bucket is shown in Fig. 3-85.

<input type="radio"/>	Year	2015
<input type="radio"/>	Quarter	Q2 2015
<input type="radio"/>	Month	May 2015
<input type="radio"/>	Week Number	Week 5, 2015
<input type="radio"/>	Day	May 8, 2015
<input type="radio"/>	More	▶

**Figure 3-85.** Continuous bucket

### 3.2.5.1.4 Step 3

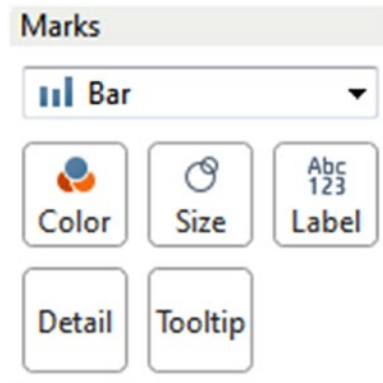
Let us plot “Sales” by discrete “Month”. Select discrete option from the drop down menu as shown in Fig. 3-86.



**Figure 3-86.** Drop down menu showing “Discrete” option

### 3.2.5.1.5 Step 4

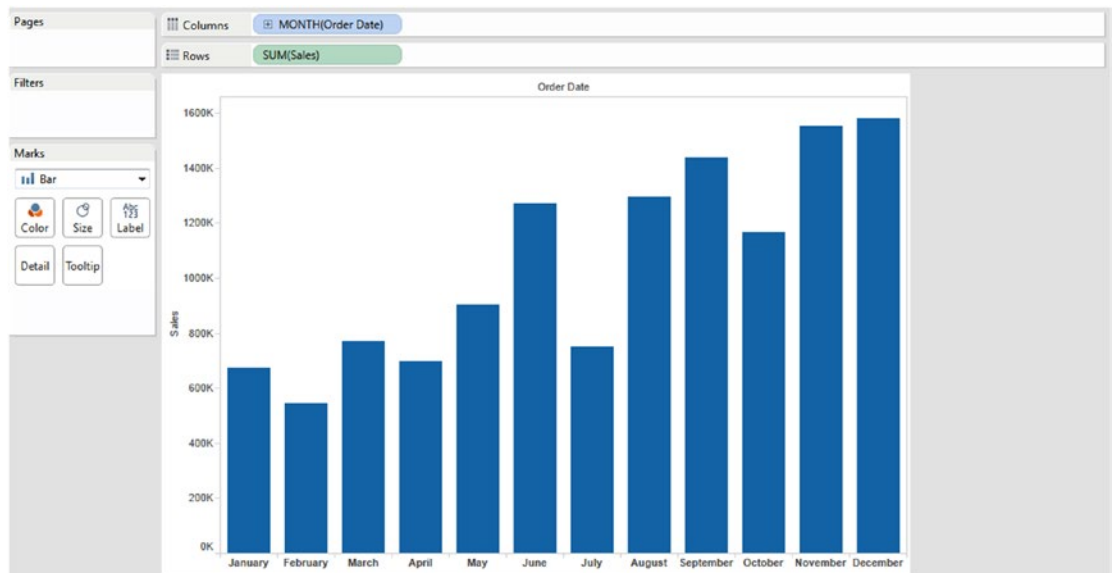
Select “Bar” on the marks card, as shown in Fig. 3-87.



**Figure 3-87.** Marks card with “Bar” option

### 3.2.5.1.6 Step 5

Drag the measure, “Sales” from the measures area of the data pane on the rows shelf as shown in Fig. 3-88.



**Figure 3-88.** Measure “Sales” on the rows shelf

### 3.2.5.1.7 Step 6

Sort the bars representing the “Sales” data in descending order as shown in Fig. 3-89 and Fig. 3-90.

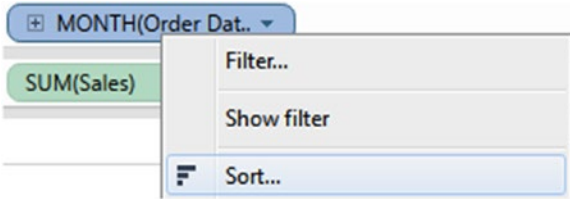


Figure 3-89. Drop down showing “Sort” option

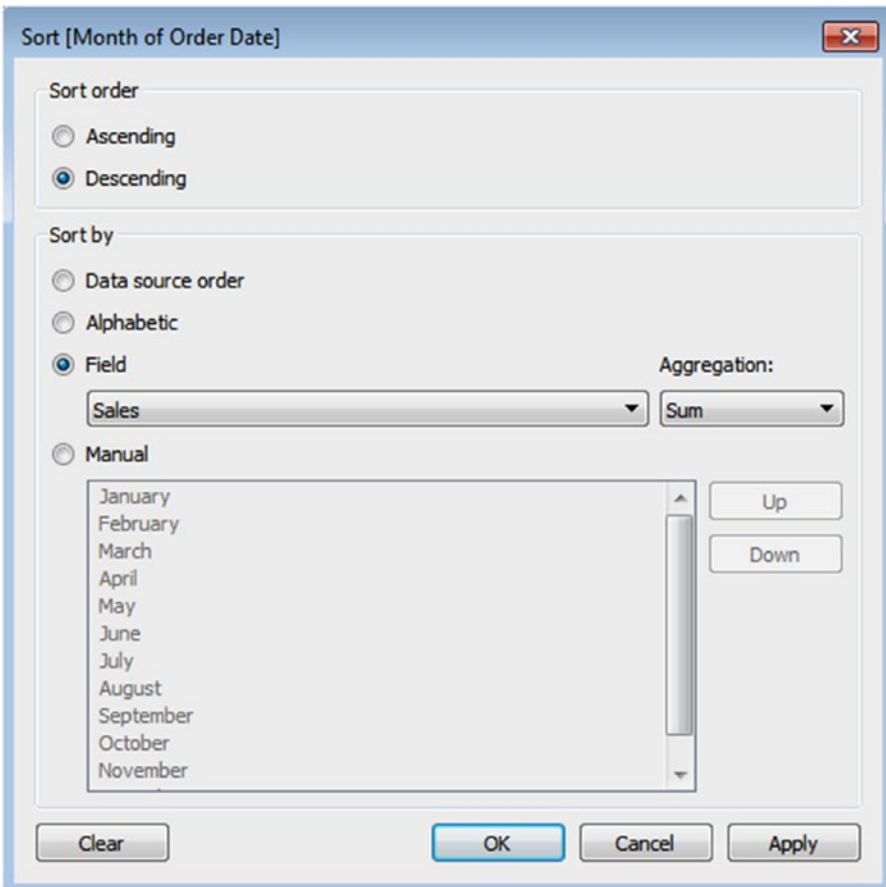
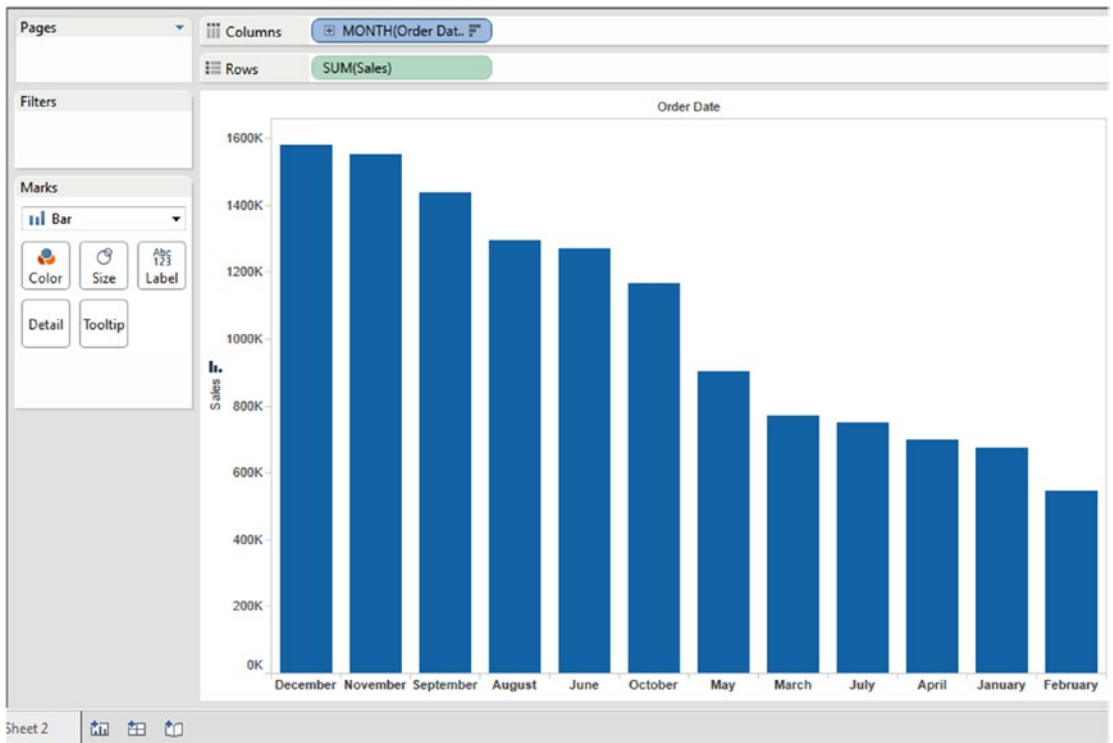


Figure 3-90. “Sort[Month of Order Date]” dialog box showing “Sort order” and “Sort by” option

### 3.2.5.1.8 Step 7

The final output is shown in Fig. 3-91.

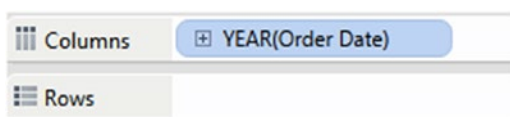


**Figure 3-91.** “Sales” sorted in descending order

### 3.2.5.1.9 How to use continuous dates in Tableau?

#### 3.2.5.1.10 Step 1

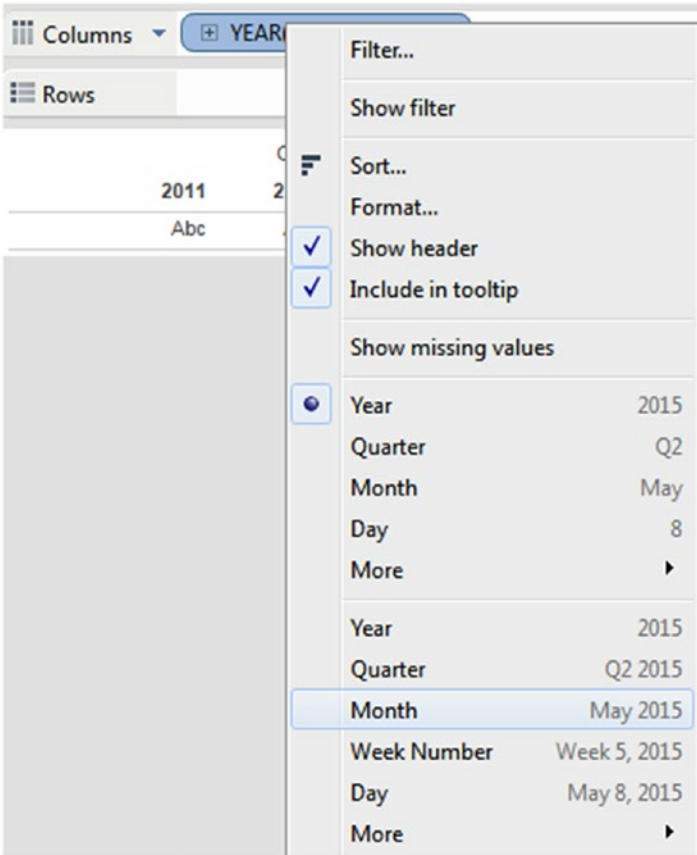
Drag “Order Date” from the dimensions area of the data pane to the columns shelf as shown in Fig. 3-92. Tableau by default creates a hierarchy on the date type field. The fields dragged from the dimensions area of the data pane are “Discrete” by default.



**Figure 3-92.** Dimension “Order Date” placed on the columns shelf

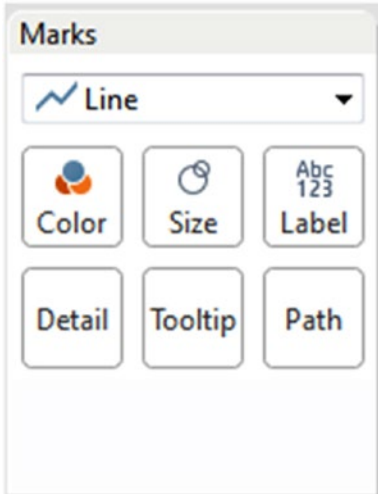
### 3.2.5.1.11 Step 2

Let us convert the “Discrete” date to “Continuous” date as shown in Fig. 3-93.



**Figure 3-93.** Drop down menu showing “Month” from the “Continuous” bucket

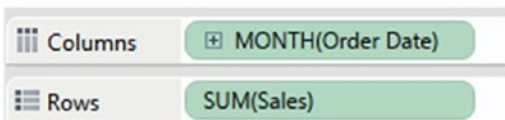
Select “Line” on the marks card as shown in Fig. 3-94.



**Figure 3-94.** Marks card with “Line” option

### 3.2.5.1.12 Step 3

Drag the measure, “Sales” from the measures area and drop it on the rows shelf as shown in Fig. 3-95.



**Figure 3-95.** View showing continuous month

### 3.2.5.2 How to create custom dates in Tableau?

Let's discuss steps to create custom dates.

#### 3.2.5.2.1 Step 1

Select the dimension, "Order Date" from the dimensions area of the data pane. Click on the drop down menu as shown in Fig. 3-96. Select Transform ► Create Custom Date.

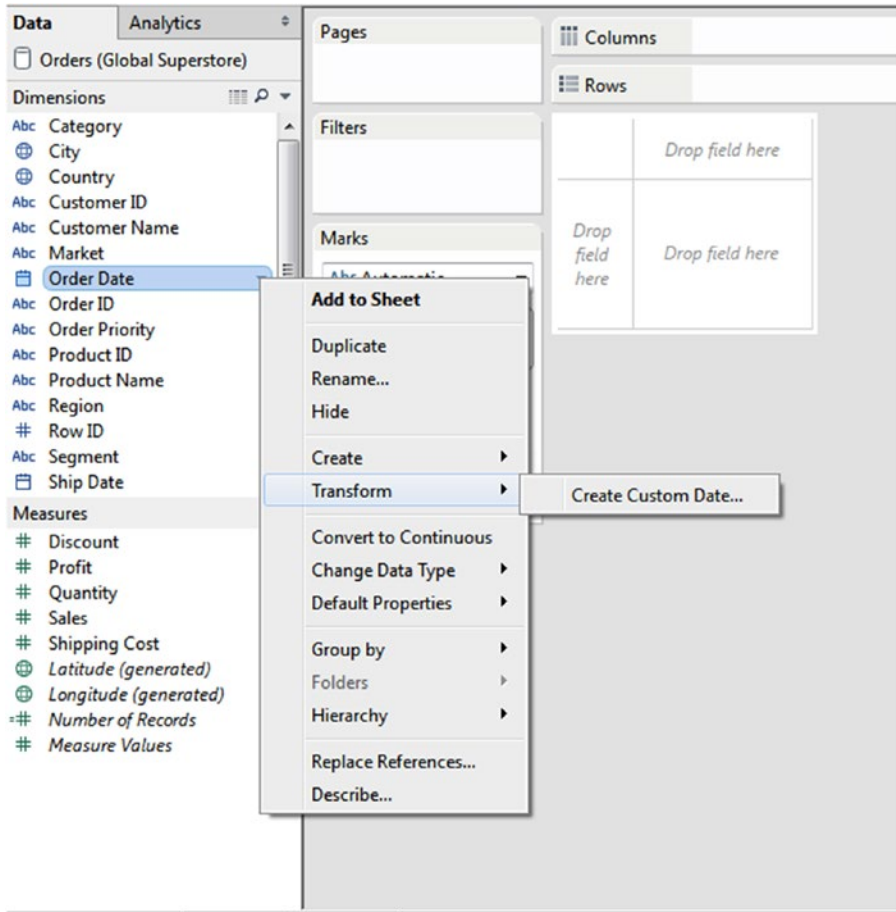
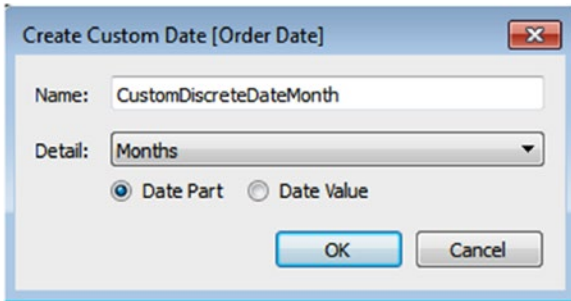


Figure 3-96. "Create Custom Date" option

### 3.2.5.2.2 Step 2

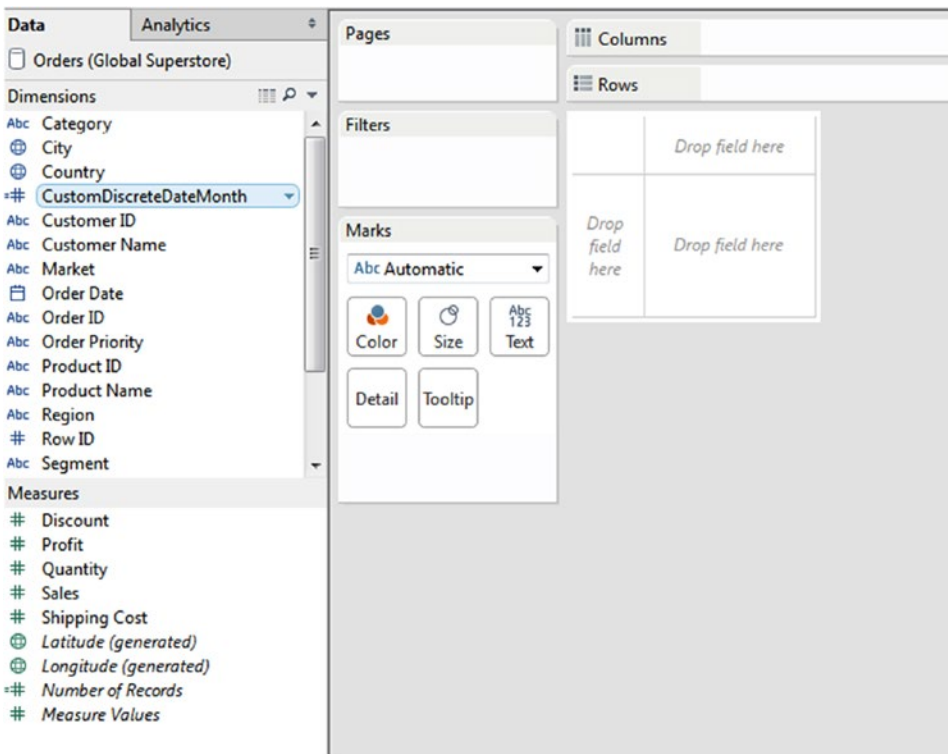
Make the selection as shown in Fig. 3-97 in the “Create Custom Date [Order Date]” dialog box:



**Figure 3-97.** Custom Date “CustomDiscreteDateMonth”

Select “Date Part” to create discrete date and “Date Value” to create continuous date.

The new custom date gets added as a dimension in the dimensions area of the data pane as shown in Fig. 3-98.



**Figure 3-98.** Data pane after adding custom date “CustomDiscreteDateMonth”

This new dimension can be used as a regular dimension on the rows or columns shelf as shown in Fig. 3-99.

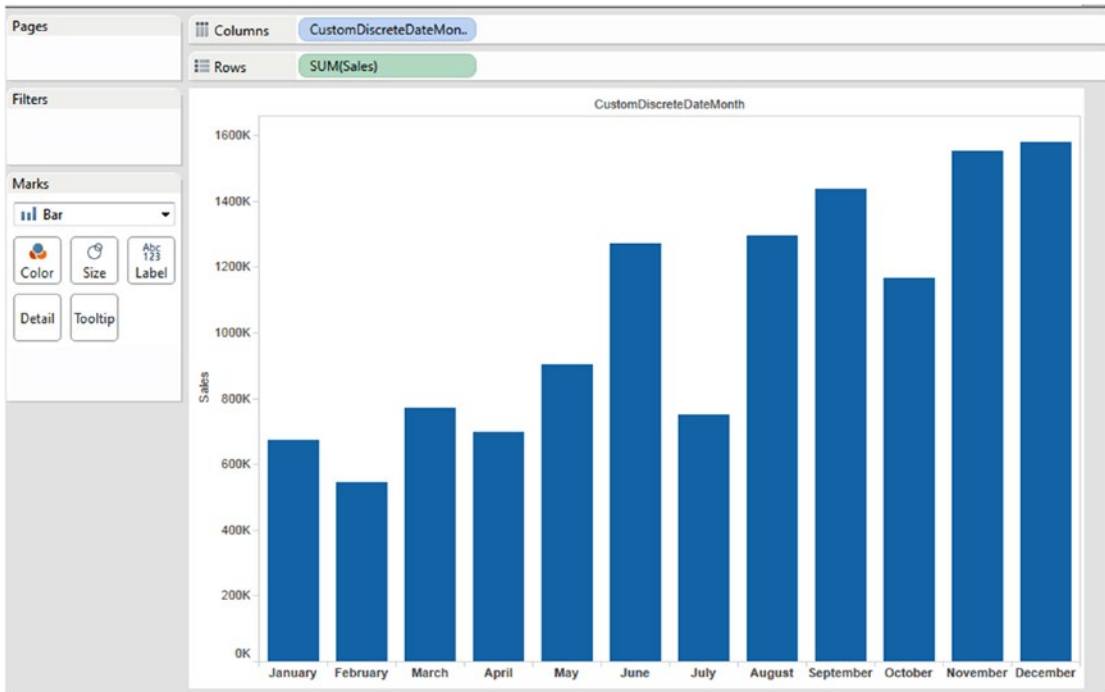


Figure 3-99. Custom date "CustomDiscreteDateMonth" placed on the columns shelf

## 3.3 Groups

A group is a combination of dimension members that will constitute higher level categories.

### 3.3.1 Why groups?

Use groups to refine views and identify the exact information you want to draw attention to.

### 3.3.2 What is a group?

A "group" allows you to combine members of different dimensions to constitute higher level categories. Groups are useful for correcting data errors.

### 3.3.3 How to create a group?

Let's discuss steps for creating groups.

### 3.3.3.1 Creating groups

Create “Groups” to correct data errors.

#### 3.3.3.1.1 Step 1

Connect to the Sample-Superstore data source.

#### 3.3.3.1.2 Step 2

Consider the view shown in Fig. 3-100.

State	Category		
	Furniture	Office S..	Technol..
Alabama	6,332	4,209	8,969
Arizona	13,525	10,006	11,751
Arkansas	3,188	4,565	3,925
CA		30	
California	156,065	142,352	159,271
Colorado	13,243	7,899	10,966
Connecticut	5,175	5,418	2,791
Delaware	4,759	8,130	14,562
District of Columbia	1,347	139	1,380
Florida	22,987	19,519	46,968
Georgia	8,321	26,716	14,059
Idaho	2,595	950	837
Illinois	28,275	19,908	31,984
Indiana	11,497	15,735	26,323
Iowa	2,642	783	1,154
Kansas	111	1,954	849
Kentucky	12,127	11,894	12,571
Louisiana	2,963	3,423	2,831

**Figure 3-100.** View showing how “Category” is performing in various states

In this view, CA denotes California. But it appears as separate entry. You can correct this by grouping CA and California.

### 3.3.3.1.3 Step 3

Press and hold the CTRL key, select CA and California as shown in Fig. 3-101.

The screenshot shows the Tableau interface with the following configuration:

- Columns:** Category
- Rows:** State
- Marks:** SUM(Sales)
- Table:** A pivot table showing sales by state and category. The 'CA' and 'California' rows are highlighted in blue.

State	Category		
	Furniture	Office Supplies	Technology
Alabama	6,332	4,209	8,969
Arizona	13,525	10,006	11,751
Arkansas	3,188	4,565	3,925
<b>CA</b>		<b>243</b>	
<b>California</b>	<b>156,065</b>	<b>142,352</b>	<b>159,271</b>
Colorado	13,243	7,899	10,966
Connecticut	5,175	5,418	2,791
Delaware	4,759	8,130	14,562
District of Columbia	1,347	139	1,380
Florida	22,987	19,519	46,968
Georgia	8,321	26,716	14,059
Idaho	2,595	950	837
Illinois	28,275	19,908	31,984
Indiana	11,497	15,735	26,323
Iowa	2,642	783	1,154
Kansas	111	1,954	849
Kentucky	12,127	11,894	12,571
Louisiana	2,963	3,423	2,831
Maine	109	400	761
Maryland	9,149	10,390	4,166
Massachusetts	10,919	11,989	5,727
Michigan	22,321	37,724	16,225
Minnesota	7,611	19,407	2,845
Mississippi	4,318	3,631	2,822
Missouri	2,936	12,182	7,087
Montana	64	1,862	3,663
Nebraska	1,945	2,234	3,286
Nevada	4,635	6,957	5,137
New Hampshire	1,886	1,769	3,637
New Jersey	6,307	14,956	14,501
New Mexico	4,704	4,384	4,000






Figure 3-101. Selection of states, “CA” and “California”

### 3.3.3.1.4 Step 4

One way to group the dimension members is to move the mouse over the selected area to get the pop-up menu and select the paper clip icon to group the selected state. (Shown in Fig. 3-102).

State	Category		
	Furniture	Office Supplies	Technology
Alabama	6,332	4,209	8,969
Arizona	13,525	10,006	11,751
Arkansas	3,188	4,565	3,925
CA		243	
California	156,065	142,352	159,271
Colorado			
Connecticut			
Delaware			
District of Colur			

<input checked="" type="checkbox"/> Keep only <input type="checkbox"/> Exclude     
4 items selected · SUM(Sales): 457,931
California

**Figure 3-102.** Pop-up menu showing the group members icon

### 3.3.3.1.5 Step 5

Another way to group the dimension members is to right click on the dimension members, select “Group” as shown in Fig. 3-103.

State	Category		
	Furniture	Office Supplies	Technology
Alabama	6,332	4,209	8,969
Arizona	13,525	10,006	11,751
Arkansas	3,188	4,565	3,925
CA		243	
California		142,352	159,271
Colorado		7,899	10,966
Connecticut		5,418	2,791
Delaware		8,130	14,562
District of Co		139	1,380
Florida		19,519	46,968
Georgia		26,716	14,059
Idaho		950	837
Illinois		19,908	31,984
Indiana	11,497	15,735	26,323
Iowa	2,642	783	1,154
Kansas	111	1,954	849
Kentucky	12,127	11,894	12,571
Louisiana	2,963	3,423	2,831
Maine	109	400	761

Figure 3-103. “Group” option

### 3.3.3.1.6 Step 6

Selected members are grouped together as shown in Fig. 3-104. This way you can correct the data errors.

The screenshot shows a data table interface. At the top, there are two tabs: 'Columns' and 'Rows'. The 'Columns' tab is selected and shows 'Category'. The 'Rows' tab is selected and shows 'State (group)'. Below the tabs is a table with the following data:

State (group)	Category		
	Furniture	Office Supplies	Technology
Alabama	6,332	4,209	8,969
Arizona	13,525	10,006	11,751
Arkansas	3,188	4,565	3,925
<b>CA &amp; California</b>	<b>156,065</b>	<b>142,595</b>	<b>159,271</b>
Colorado	13,243	7,899	10,966
Connecticut	5,175	5,418	2,791

**Figure 3-104.** Group members "CA & California"

### 3.3.3.1.7 Step 7

You can see the newly created group in the dimensions area under the data pane (Shown in Fig. 3-105). The rows shelf is replaced with the newly created group field as shown in Fig. 3-106.

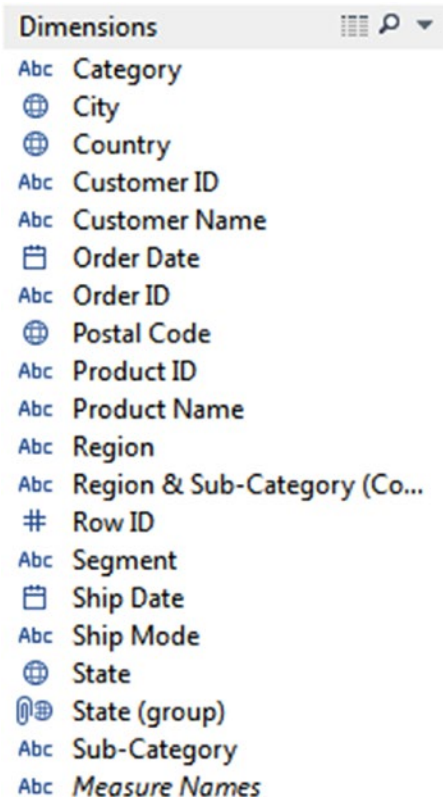


Figure 3-105. Data pane showing “State (group)”

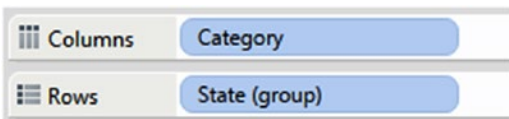


Figure 3-106. “State(group)” on the rows shelf

## 3.3.3.2 Create groups from dimensions in the data pane

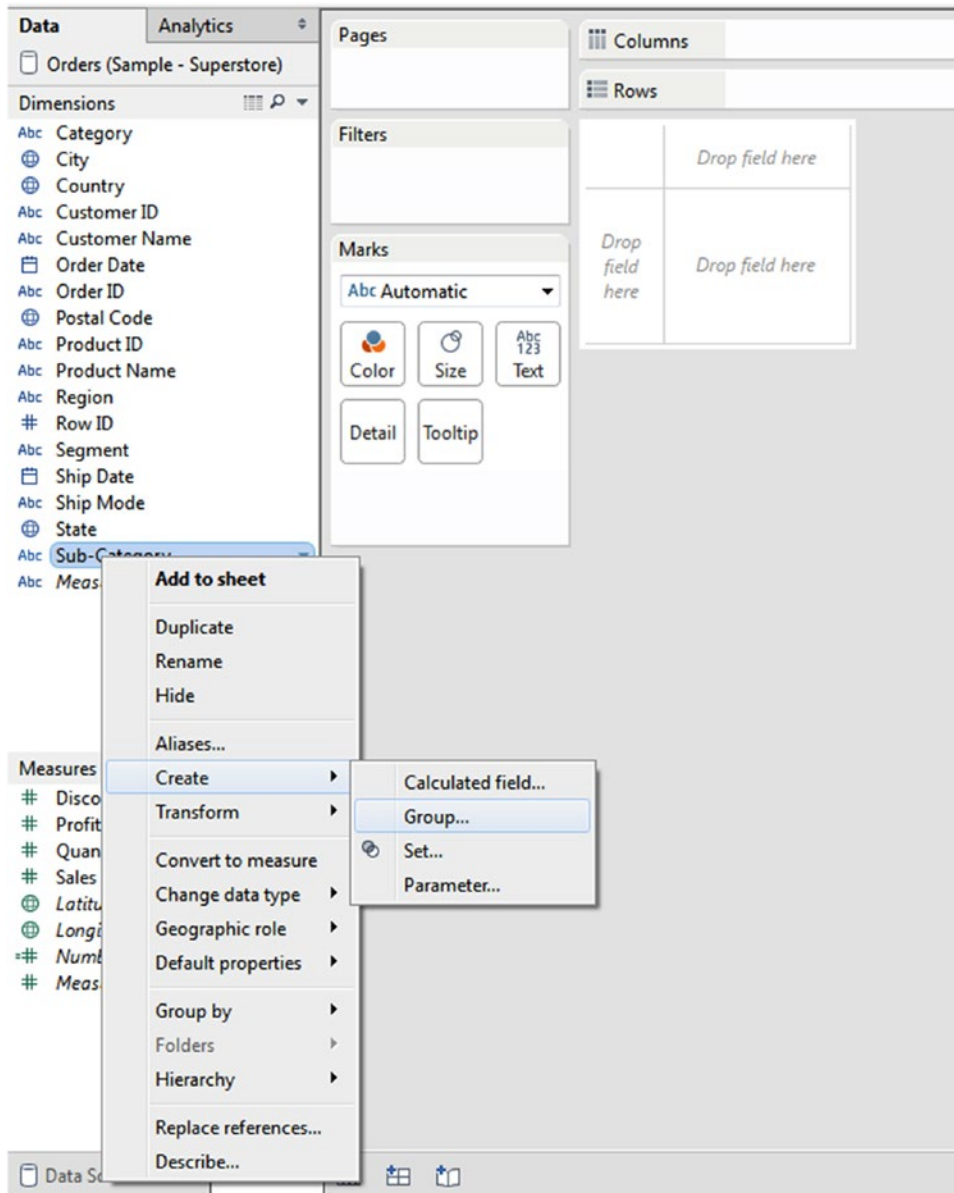
Let's discuss how to create groups from dimensions in the data pane.

### 3.3.3.2.1 Step 1

Connect to the Sample-Superstore data source and go to sheet.

### 3.3.3.2.2 Step 2

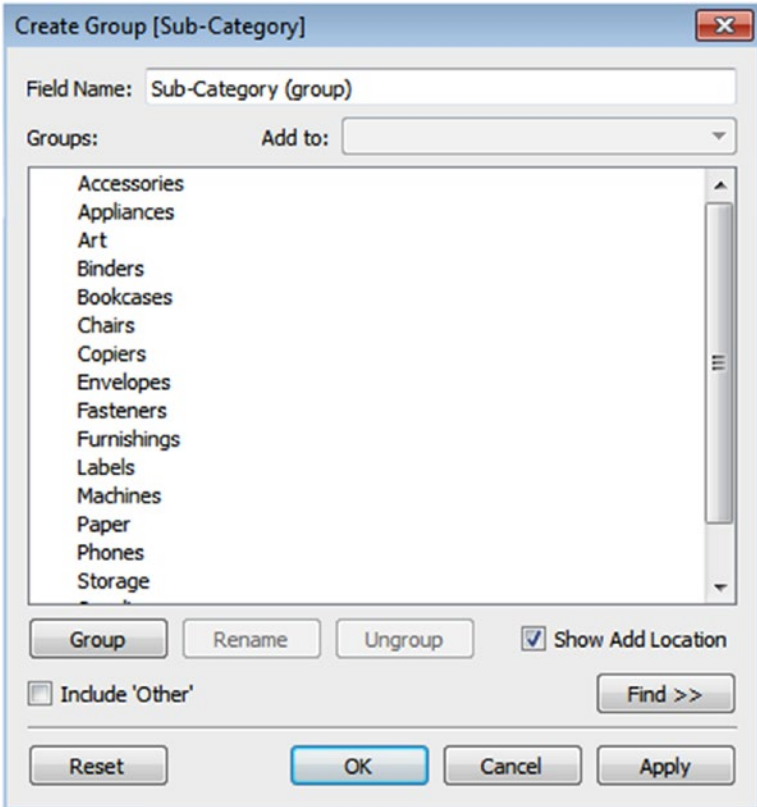
Select “Sub-Category” dimension from the data pane, right click on it and select Create ► Group (Shown in Fig. 3-107).



**Figure 3-107.** Drop down menu showing “Group” option

### 3.3.3.2.3 Step 3

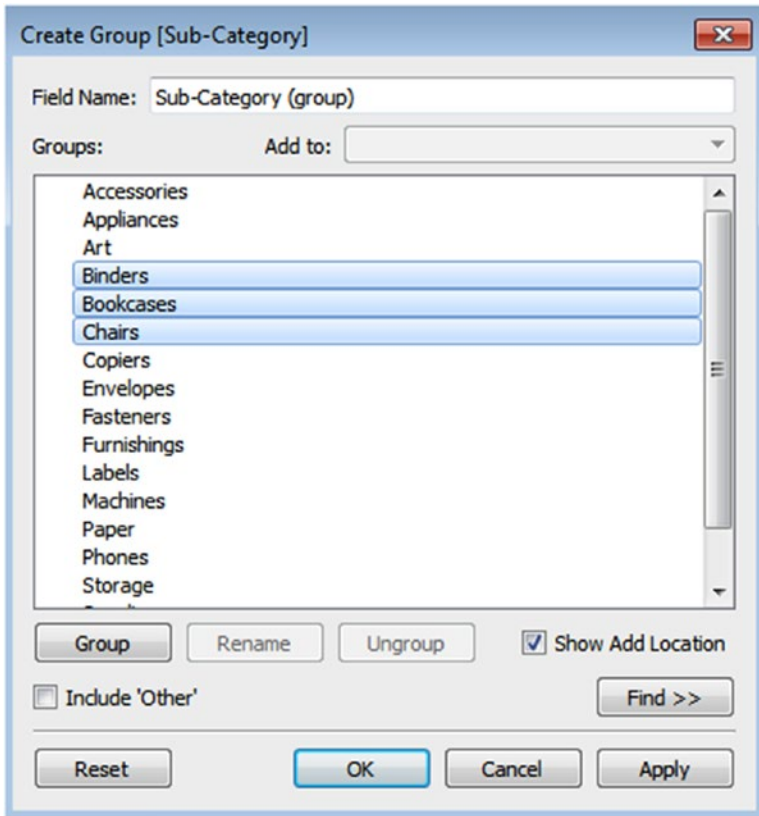
“Create Group [Sub-Category]” dialog box appears (Shown in Fig. 3-108).



**Figure 3-108.** “Create Group [Sub-Category]” dialog box

### 3.3.3.2.4 Step 4

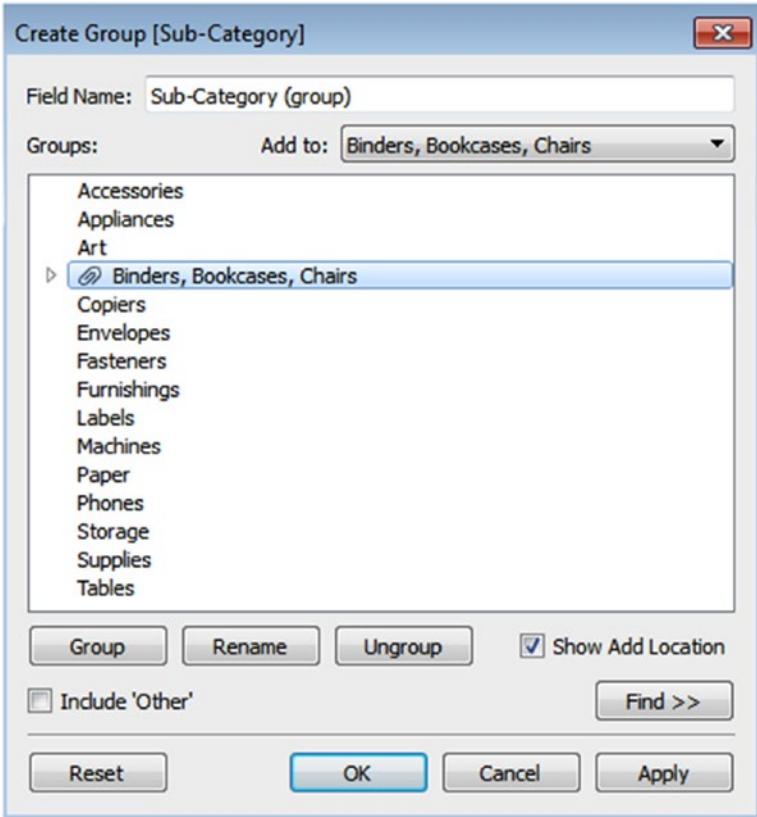
Select the dimension members and click on the “Group” button (Shown in Fig. 3-109).



**Figure 3-109.** Members selected for “Sub-Category (group)”

### 3.3.3.2.5 Step 5

Selected members are grouped together to constitute a single member. The default name for the group is defined automatically by combining all of the members names (Shown in Fig. 3-110). You can rename it by clicking on the “Rename” button.



**Figure 3-110.** Group "Binders, Bookcases, Chairs"

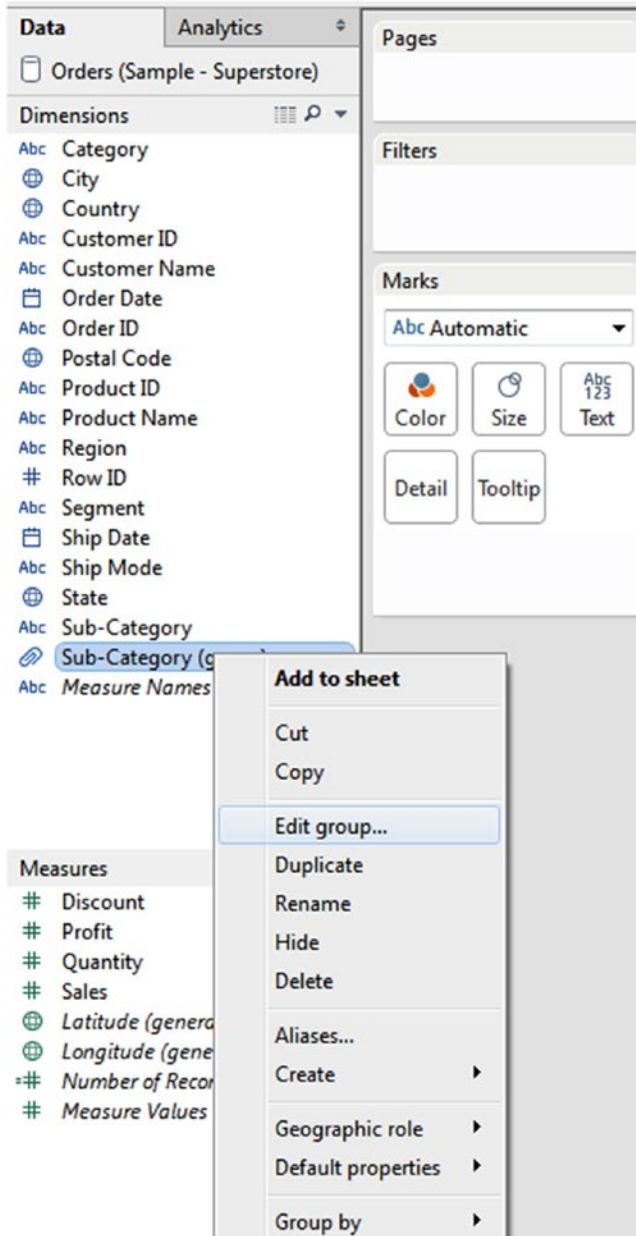
### 3.3.4 Editing an existing group

Let's discuss steps to edit an existing group.

### 3.3.4.1 Steps

#### 3.3.4.1.1 Step 1

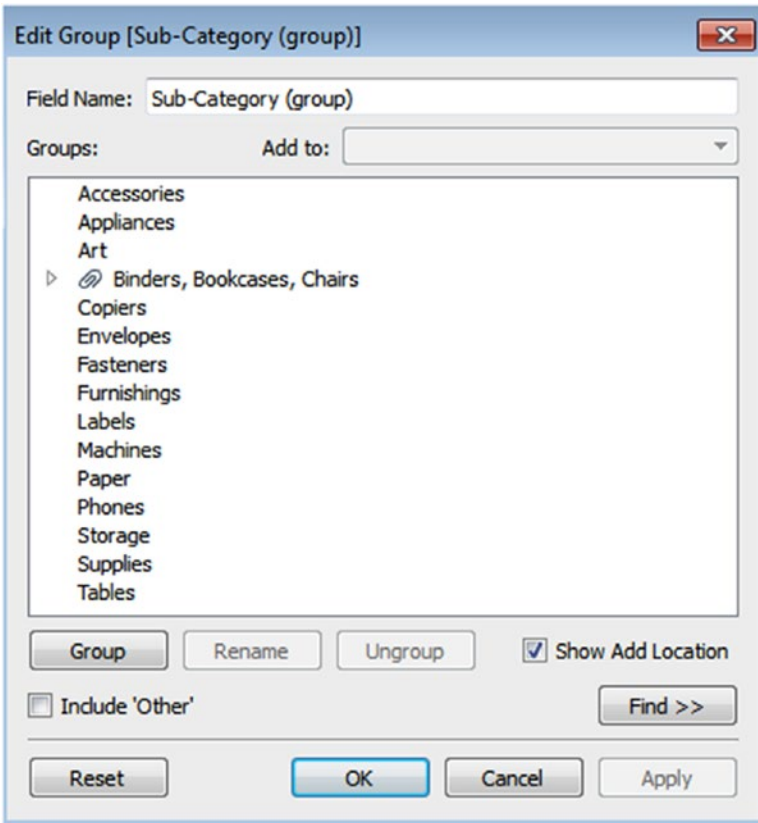
Select “Sub-Category (group)” on the data pane, right click on it and select “Edit group...” (Shown in Fig. 3-111).



**Figure 3-111.** “Edit group...” option

### 3.3.4.1.2 Step 2

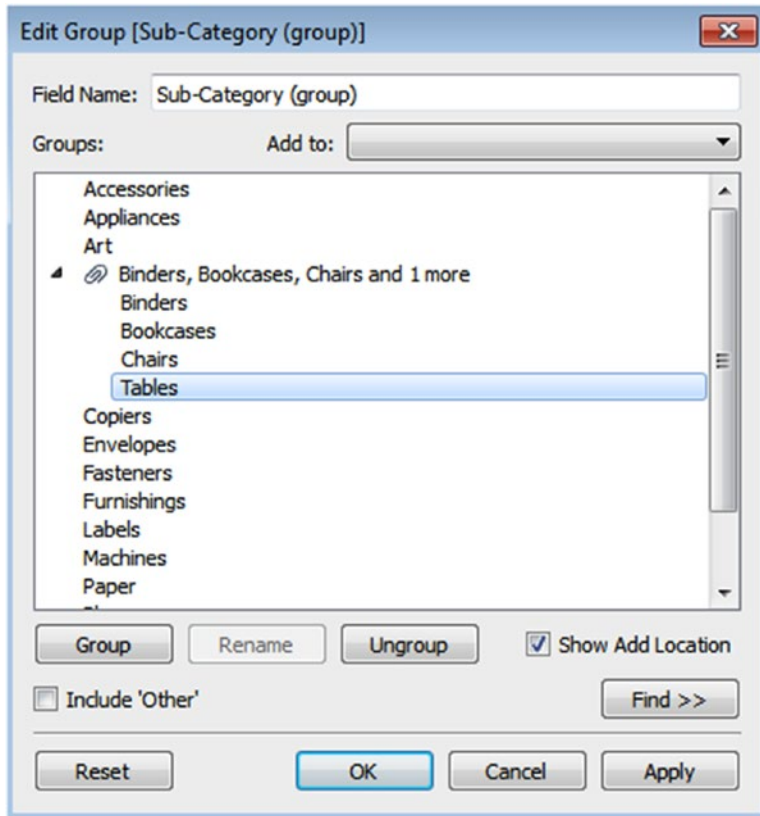
The “Edit Group [Sub-Category (group)]” field dialog box appears (Shown in Fig. 3-112).



**Figure 3-112.** “Edit Group [Sub-Category(group)]” dialog box

### 3.3.4.1.3 Step 3

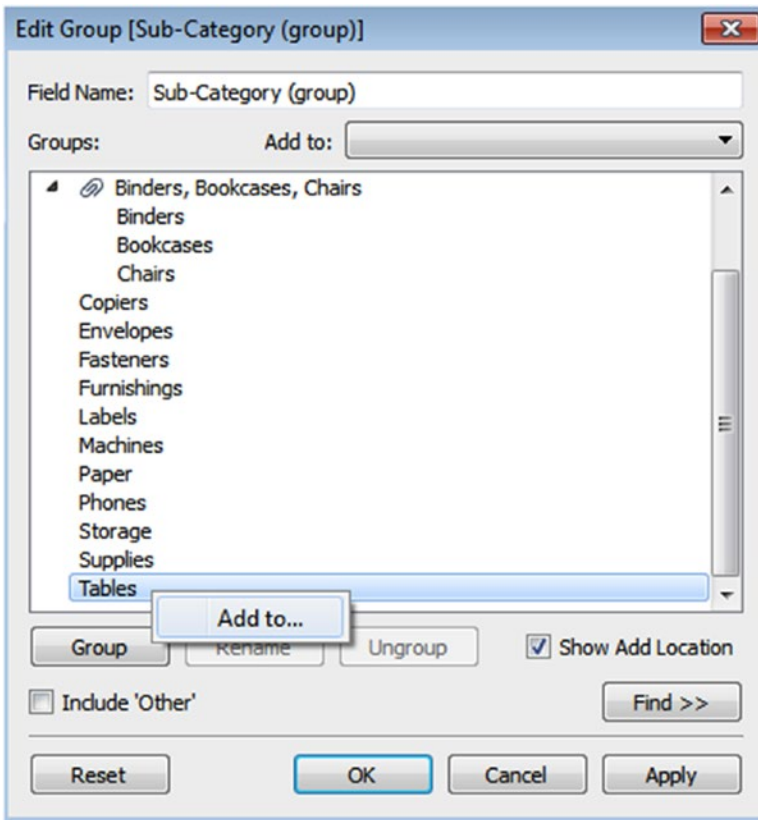
Select the required dimension members and drag and drop them to the existing group (Shown in Fig. 3-113).



**Figure 3-113.** “Edit Group [Sub-Category (group)]” dialog box after adding “Tables” to group “Binders, Bookcases, Chairs and 1 more”

Or

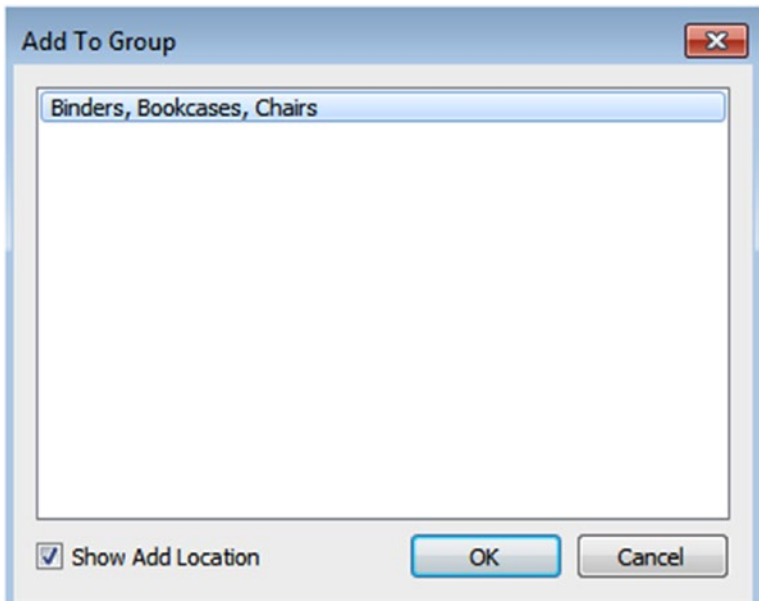
Select the required dimension, right click on it, select “Add to...” option (Shown in Fig. 3-114).



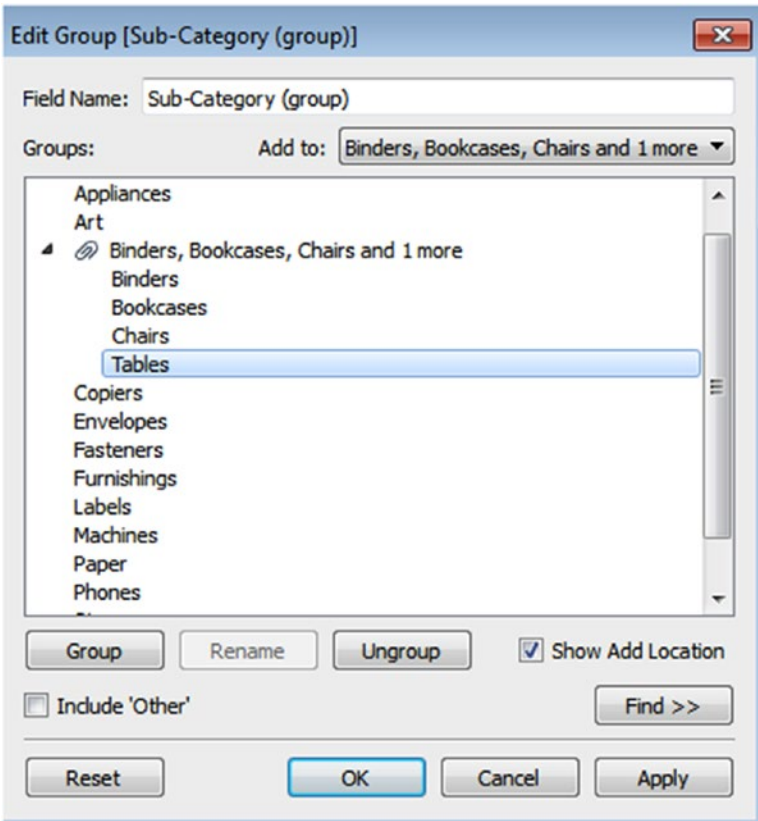
**Figure 3-114.** “Add to...” option to add members to an existing group

#### 3.3.4.1.4 Step 4

“Add to Group” dialog box appears. Select the group (Shown in Fig. 3-115), click “OK” button to add members to the group (Shown in Fig. 3-116).



**Figure 3-115.** “Add To Group” dialog box showing group “Binders, Bookcases, Chairs”



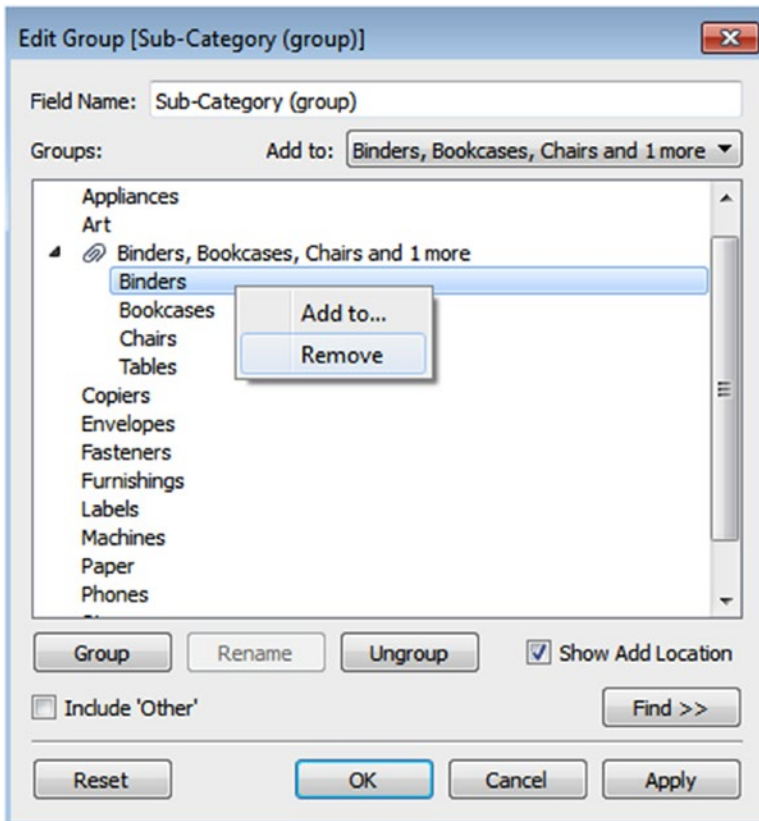
*Figure 3-116. After adding “Tables” to existing group “Binders, Bookcases, Chairs and 1 more”*

### 3.3.4.2 Removing a member from the group

Let's discuss the steps to remove a group.

### 3.3.4.2.1 Step 1

To remove a member from the group go to “Edit Group” dialog box, select the member, right click on it and select “Remove” (Shown in Fig. 3-117).



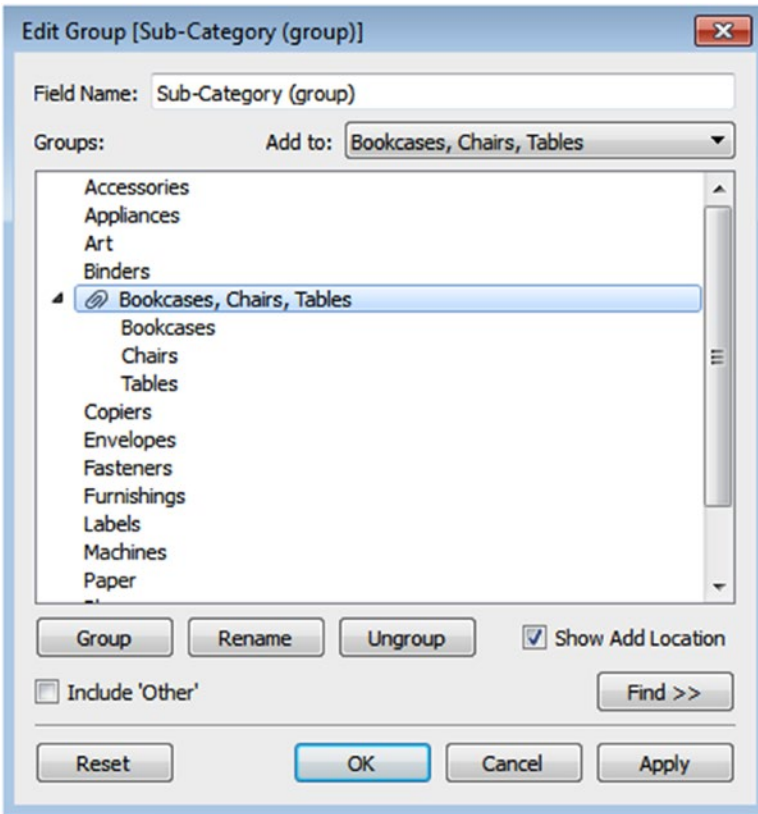
**Figure 3-117.** “Remove” option to remove “Binders” from the group “Binders, Bookcases, Chairs and 1 more”

### 3.3.4.3 Renaming a group

Let's discuss how to rename a group.

#### 3.3.4.3.1 Step 1

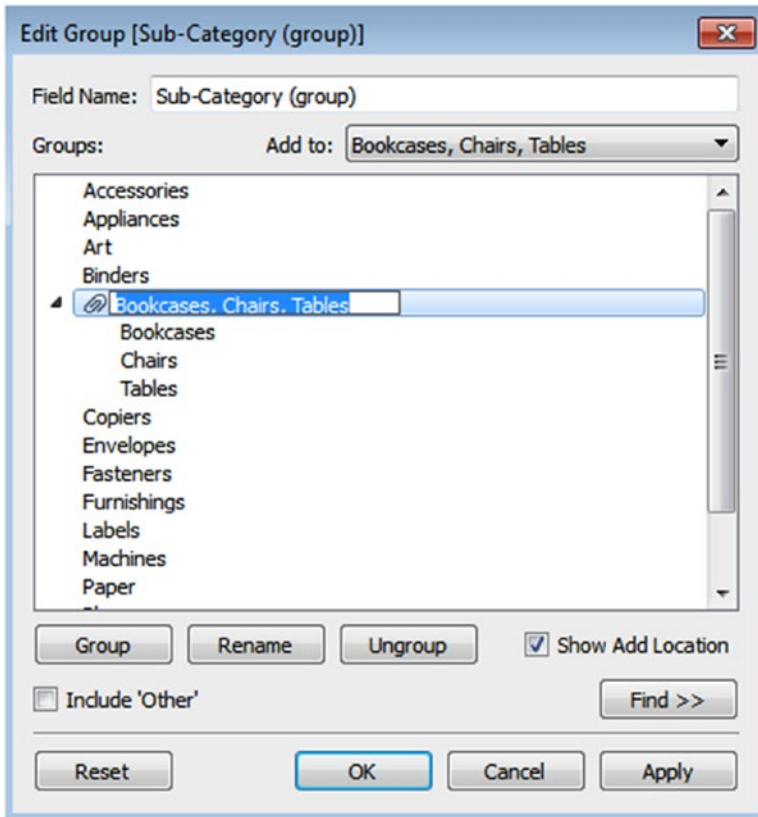
Open “Edit Group” field dialog box, select the group name, and click on “Rename” button (Shown in Fig. 3-118).



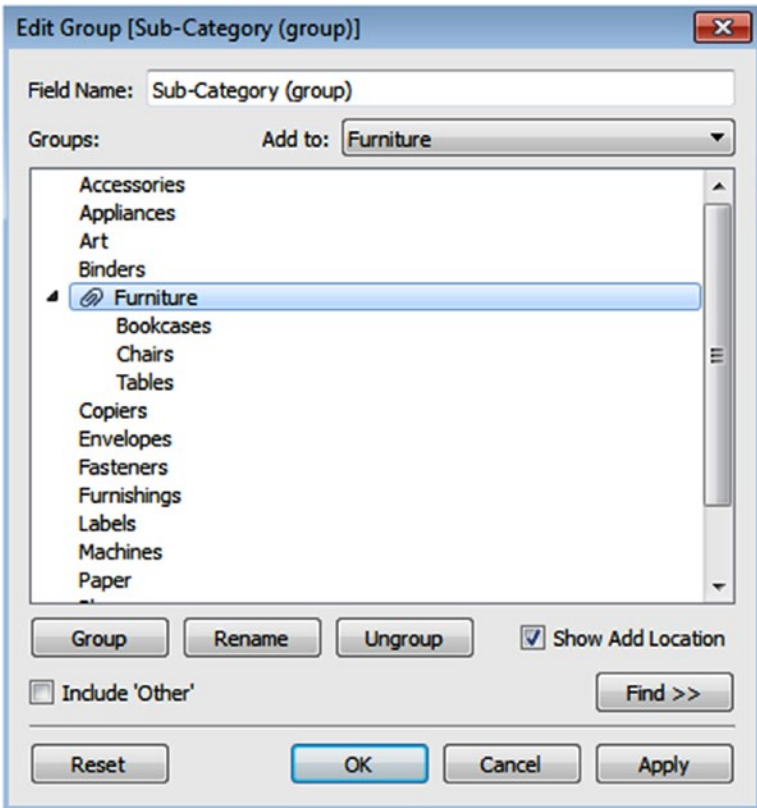
*Figure 3-118.* After selecting "Bookcases, Chairs, Tables" group

### 3.3.4.3.2 Step 2

Edit dialog box appears for the group name as shown in Fig. 3-119. Type the new name for the group to rename the group (Shown in Fig. 3-120).



**Figure 3-119.** Edit the group dialog box to edit the name of the group



*Figure 3-120. The group "Furniture" after renaming the group*

### 3.3.5 Creating Hierarchies

Hierarchies in Tableau provide drill down capabilities to the Tableau report. Tableau allows you to create a hierarchy quite easily.

#### 3.3.5.1 Demo 1

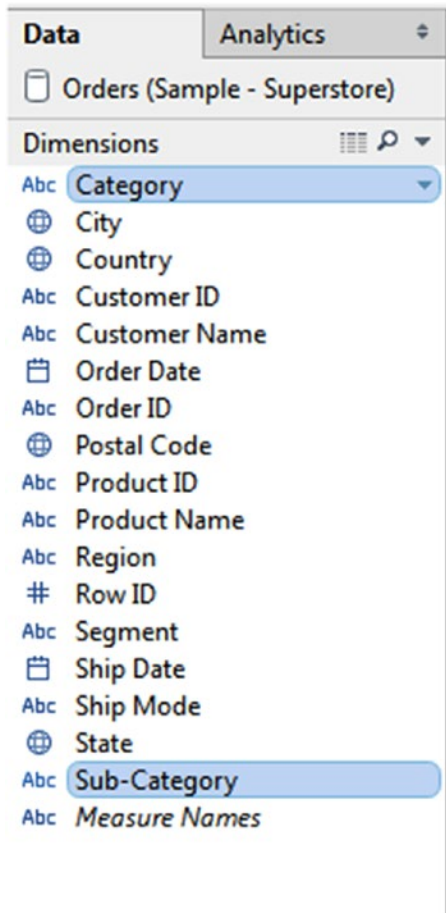
Let's discuss how to create hierarchies.

##### 3.3.5.1.1 Step 1

Connect to the Sample-Superstore Excel data source.

### 3.3.5.1.2 Step 2

To create hierarchy for “Products,” press and hold the CTRL key, select “Category” and “Sub-Category” field as shown in Fig. 3-121.



**Figure 3-121.** Selection of “Category, Sub-Category”

### 3.3.5.1.3 Step 3

Right click on the “Sub-Category,” select Hierarchy ► Create Hierarchy (Shown in Fig. 3-122).

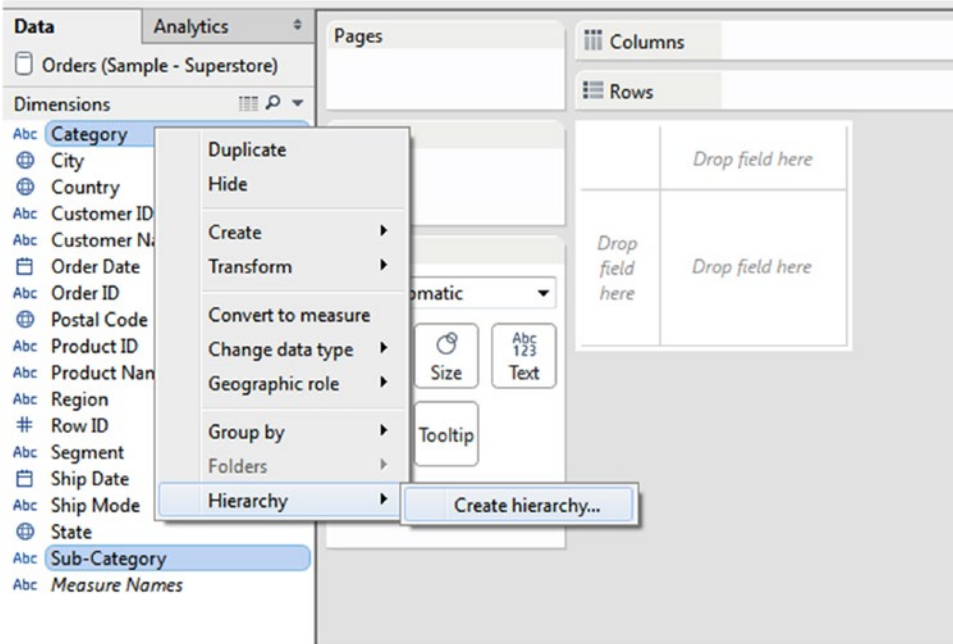


Figure 3-122. “Create hierarchy...” option

### 3.3.5.1.4 Step 4

“Create Hierarchy” dialog box appears. Specify the name for hierarchy as “Products” as shown in Fig. 3-123.

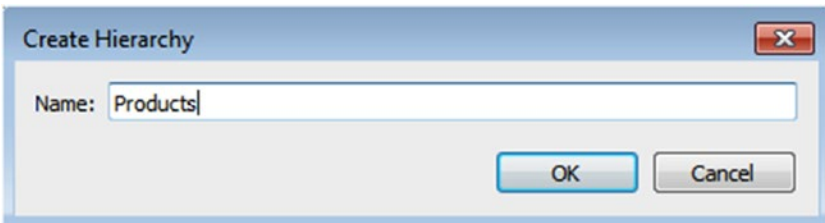
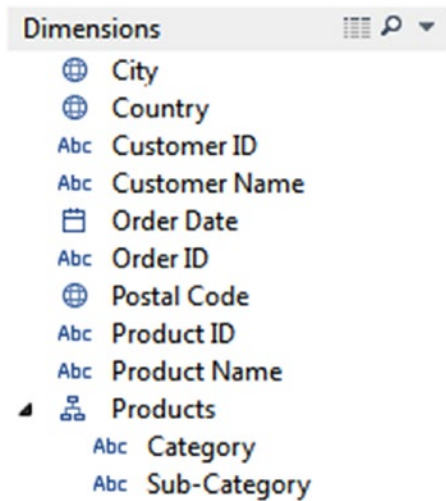


Figure 3-123. “Create Hierarchy” dialog box, specify “Name” as products

### 3.3.5.1.5 Step 5

Observe the “Products” hierarchy in the dimensions area under the data pane (Shown in Fig. 3-124).



**Figure 3-124.** “Products” hierarchy

## 3.3.6 Sets

A “Set” is a subset of your data that meets certain conditions based on the existing dimensions. A set allows you to create a subset of data based on some conditions. A set can be a computed set or a constant set.

### 3.3.6.1 Constant set

In a constant set, members are fixed and they do not change.

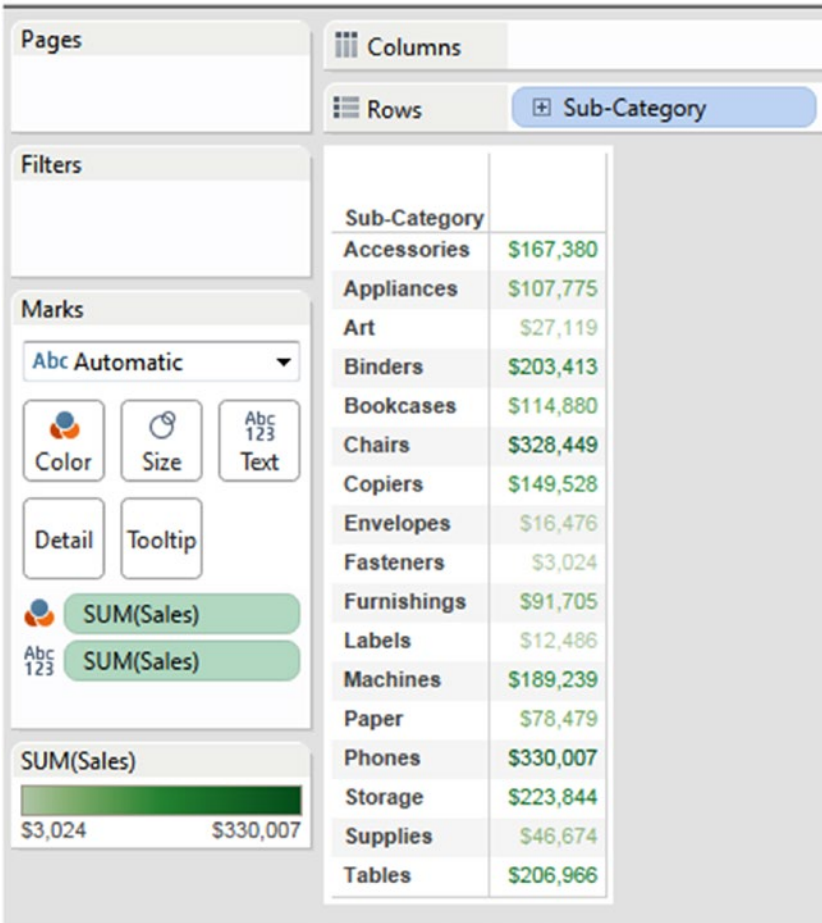
Let's discuss the steps.

#### 3.3.6.1.1 Step 1

Connect to the Sample-Superstore Excel data source.

### 3.3.6.1.2 Step 2

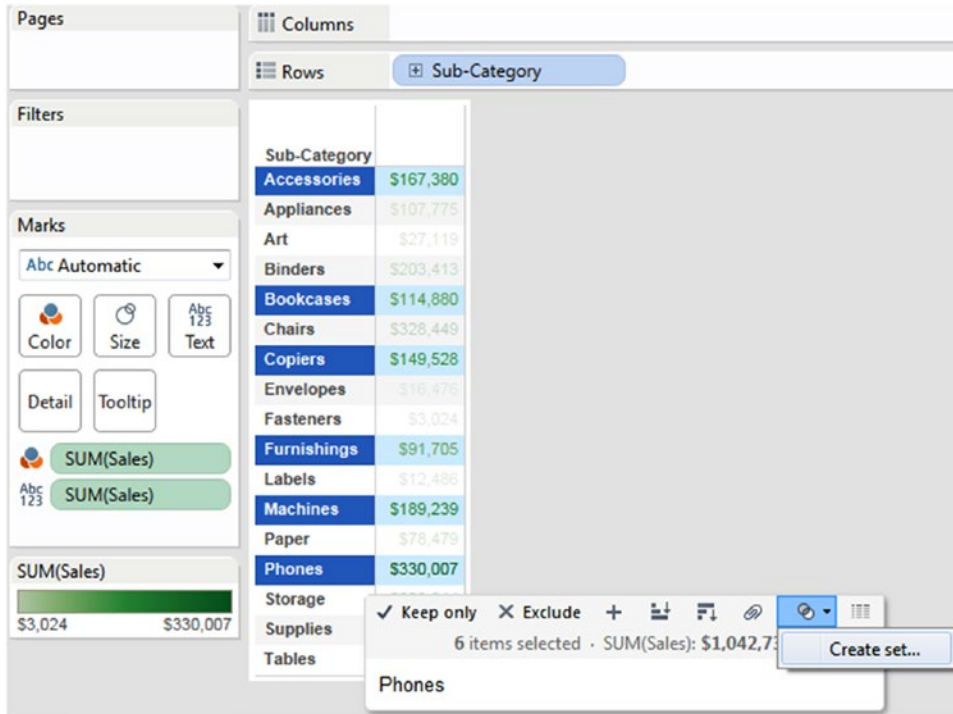
Create the view as shown in Fig 3-125.



**Figure 3-125.** View showing the “Sales” displayed as per sub-categories

### 3.3.6.1.3 Step 3

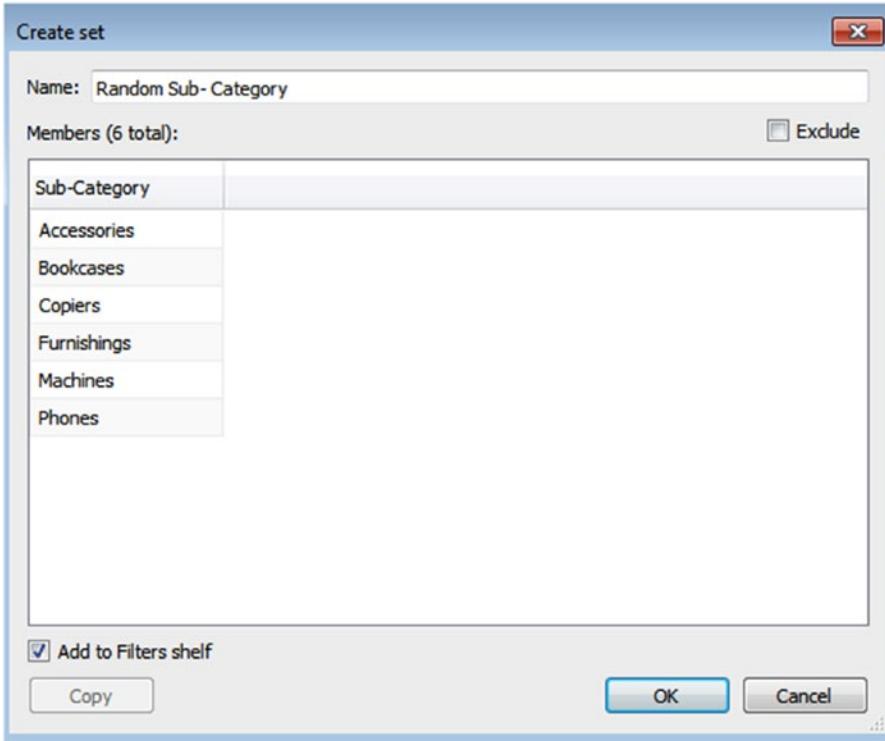
Press and hold the CTRL key, select six random sub-categories. Move the mouse over the selected area to get the tool tip. Select create set from the tool tip (Shown in Fig. 3-126).



**Figure 3-126.** “Create set...” option

### 3.3.6.1.4 Step 4

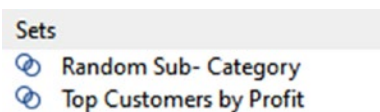
“Create set” dialog box appears. Specify set name as “Random Sub-Category” and check the “Add to filters shelf” option as shown in Fig. 3-127. Then click “OK”.



**Figure 3-127.** Members of the “Random Sub-Category” set

### 3.3.6.1.5 Step 5

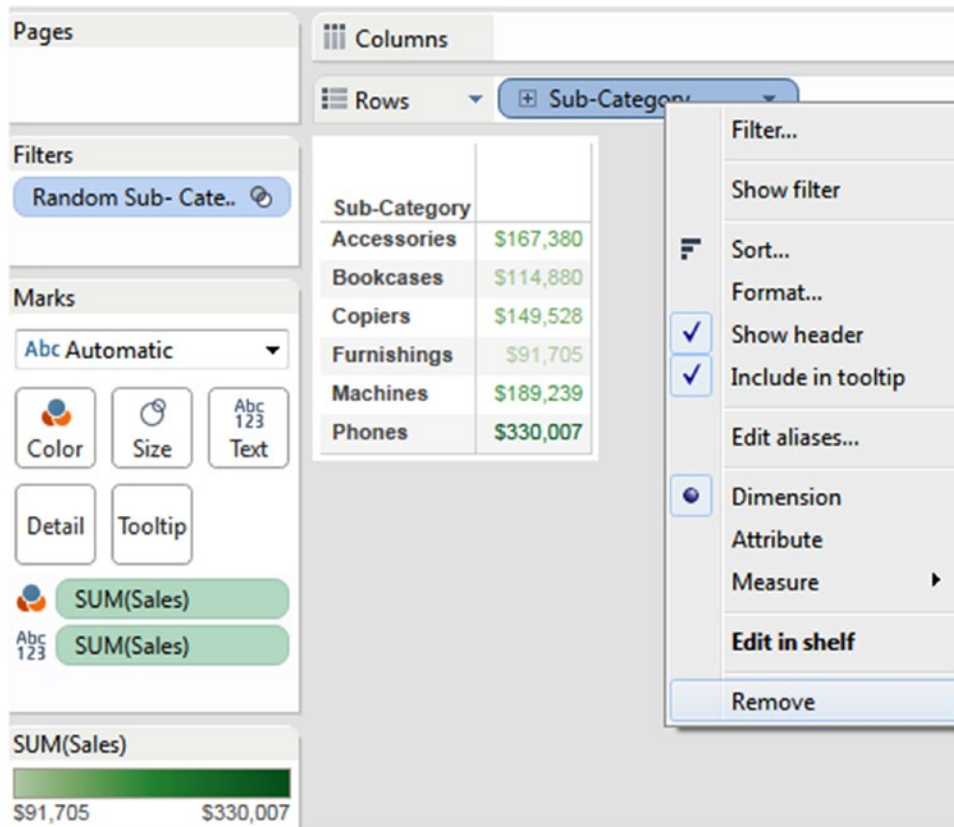
Observe the newly created set, “Random Sub-Category” under the data pane as shown in Fig. 3-128.



**Figure 3-128.** “Random Sub-Category” set

### 3.3.6.1.6 Step 6

Remove the dimension, “Sub-Category” from the rows shelf, drag and drop the set, “Random Sub-Category” to the rows shelf as shown in Fig. 3-129.

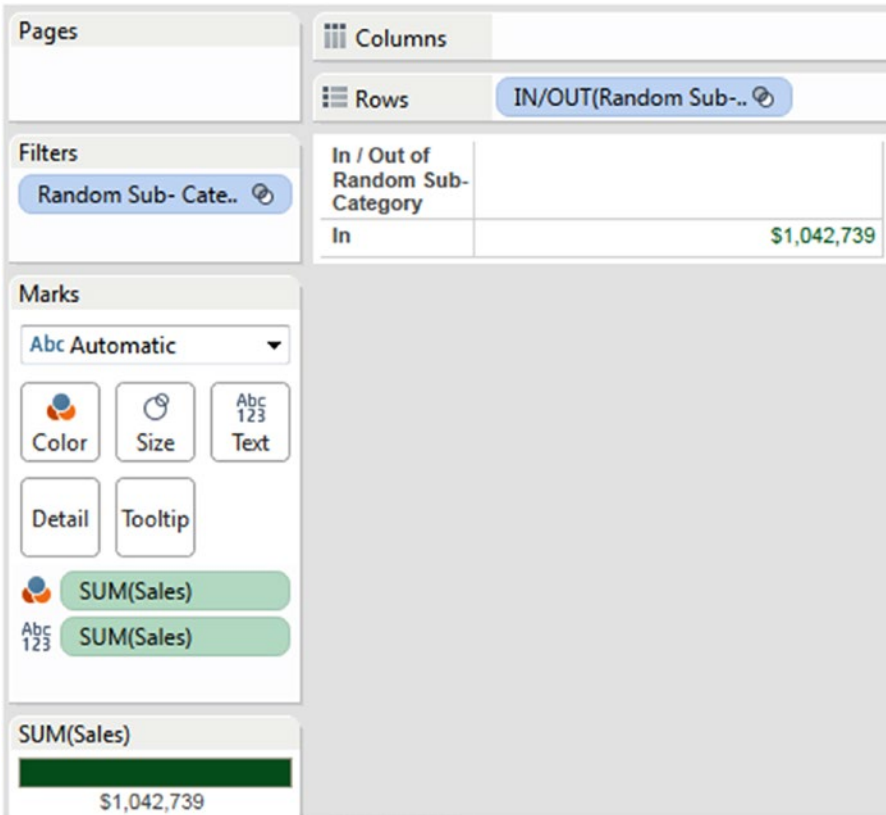


**Figure 3-129.** “Remove” option to remove the dimension, “Sub-Category” from the rows shelf

### 3.3.6.1.7 Step 7

When you drag and drop the set, “Random Sub-Category” on the rows shelf, you can observe the “IN/OUT (Random Sub-Category)” placed on the rows shelf (Shown in Fig. 3-130). This is because, by default, Tableau creates the IN/OUT mode for sets.

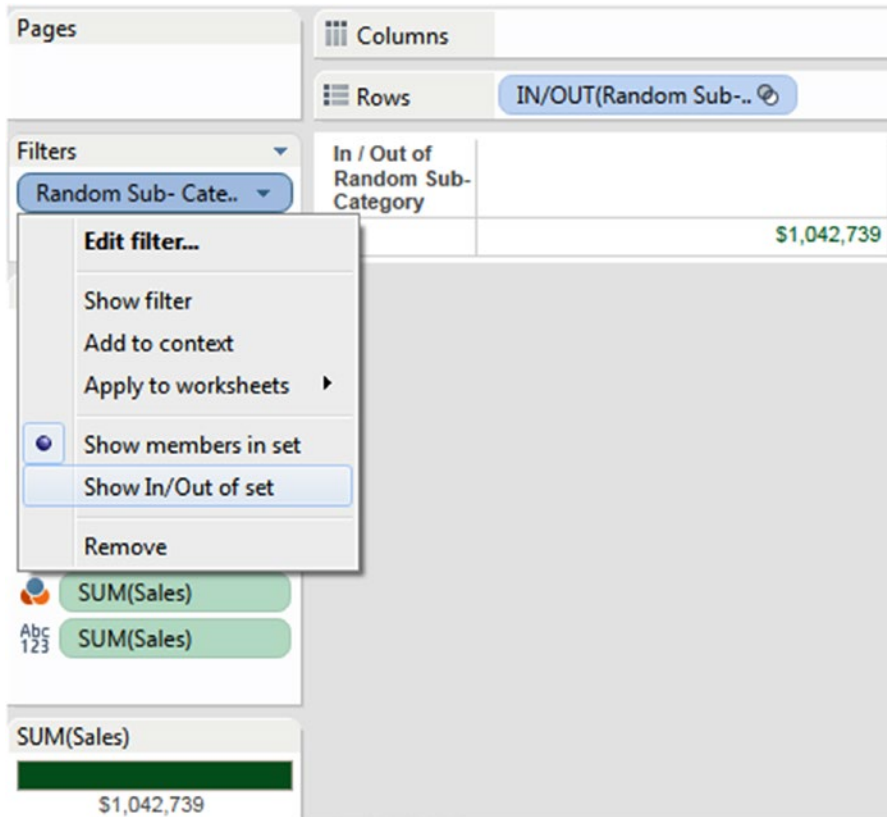
IN is to display the members that are in the set. OUT includes members that are NOT in the set. Here it shows total “Sales” for all the selected members.



**Figure 3-130.** “IN/OUT (Random Sub-Category)” placed on the rows shelf

### 3.3.6.1.8 Step 8

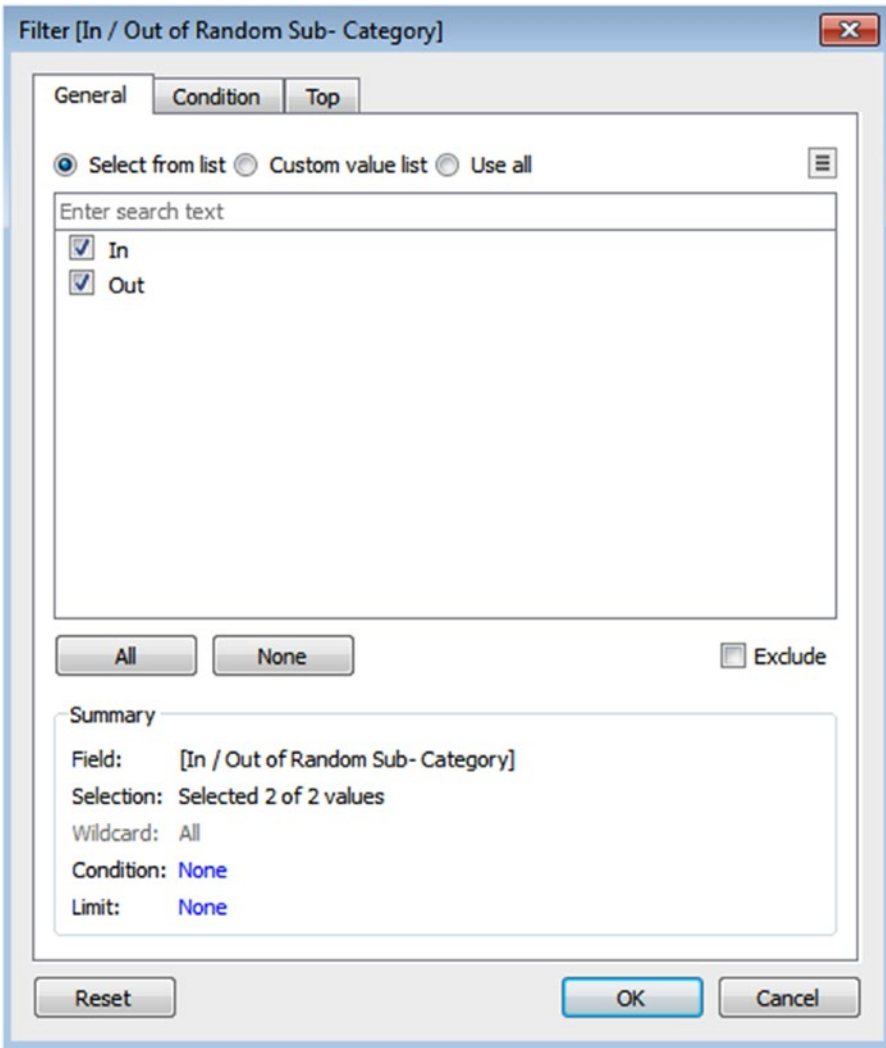
To display the “OUT” members, place “Random Sub-Category” on the filters shelf, right click on it and select “Show IN/OUT of set” as shown in Fig. 3-131.



**Figure 3-131.** “Show In/Out of set” option

### 3.3.6.1.9 Step 9

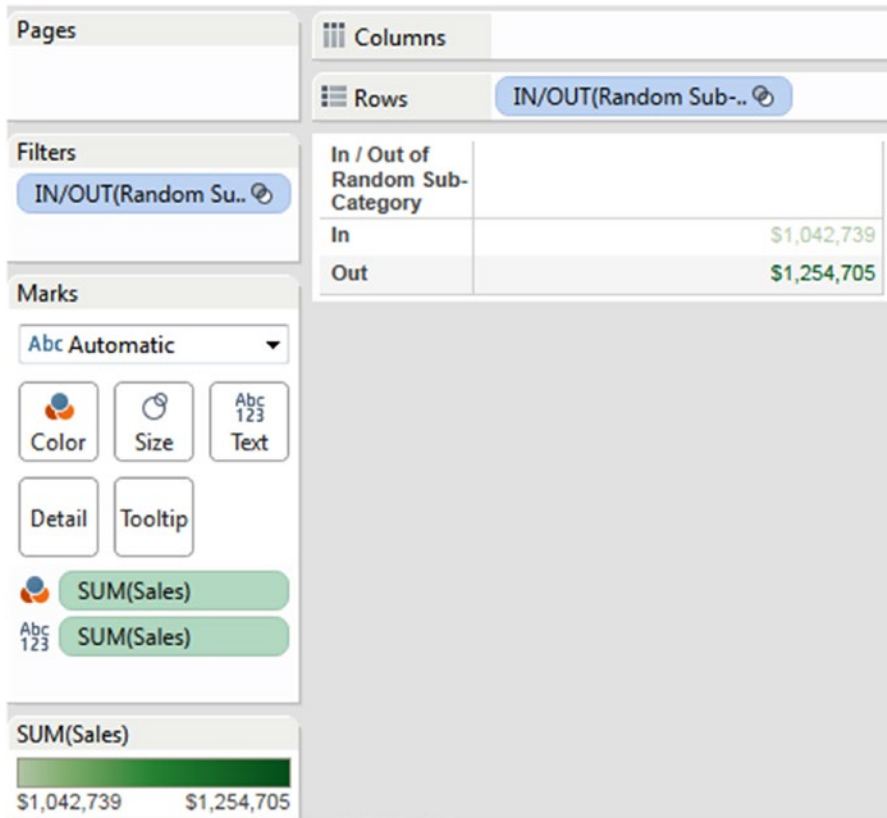
The “Filter [In / Out of Random Sub-Category]” dialog box appears as shown in Fig. 3-132. Select “IN/OUT” option and click “OK”.



**Figure 3-132.** “Filter [In / Out of Random Sub-Category]” dialog box with “In/Out” option

## 3.3.6.1.10 Step 10

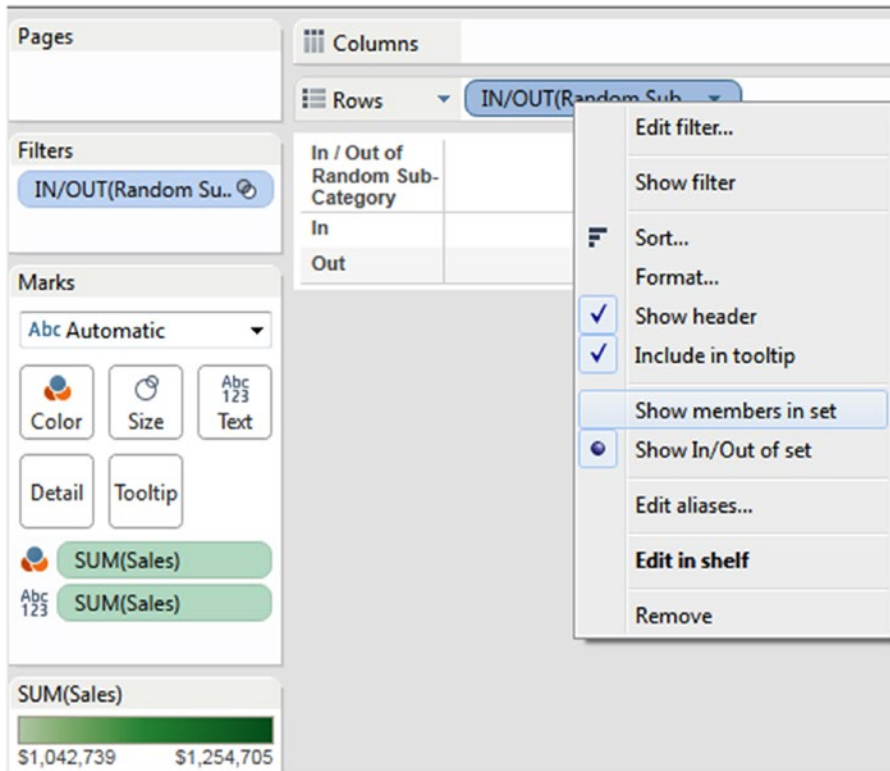
Observe the total sales of “IN/OUT” members as shown in Fig. 3-133.



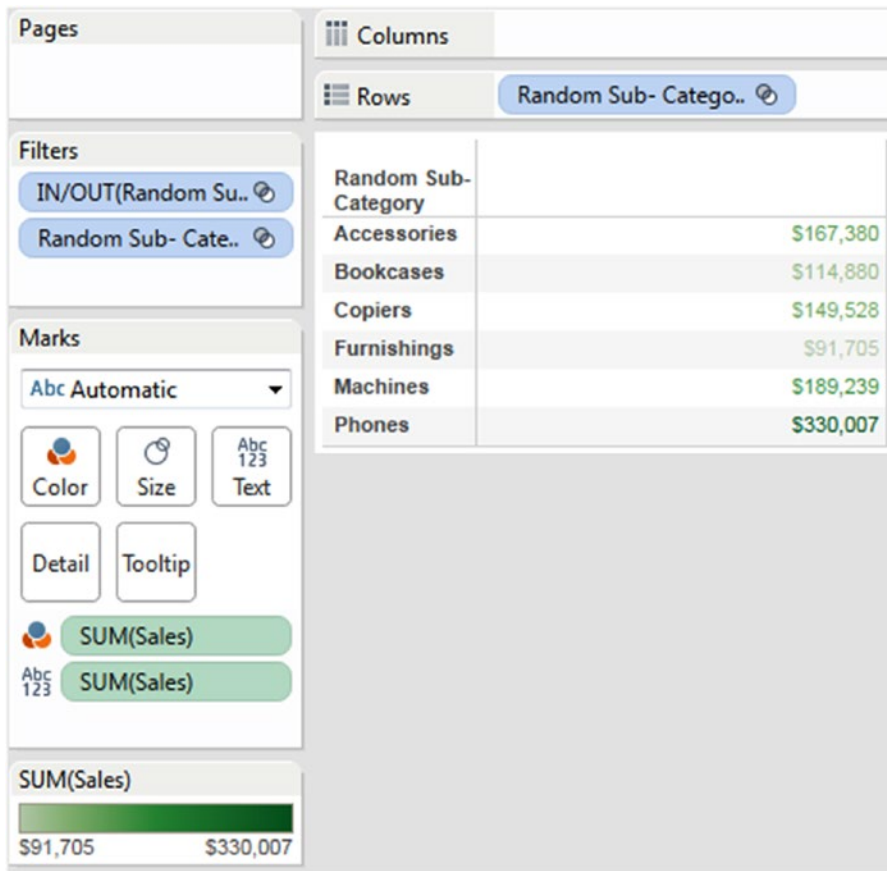
**Figure 3-133.** View showing total “Sales” of “IN/OUT” members

### 3.3.6.1.11 Step 11

To display members of “IN,” right click on “IN/OUT” on the rows shelf and select “Show members in set” as shown in Fig. 3-134 to display members of set (Shown in Fig. 3-135).



**Figure 3-134.** “Show members in set” option



**Figure 3-135.** Details about members of “Random Sub-Category” set

### 3.3.6.2 Computed sets

In a “Computed Set,” members are dynamic and they change when underlying data is changed.

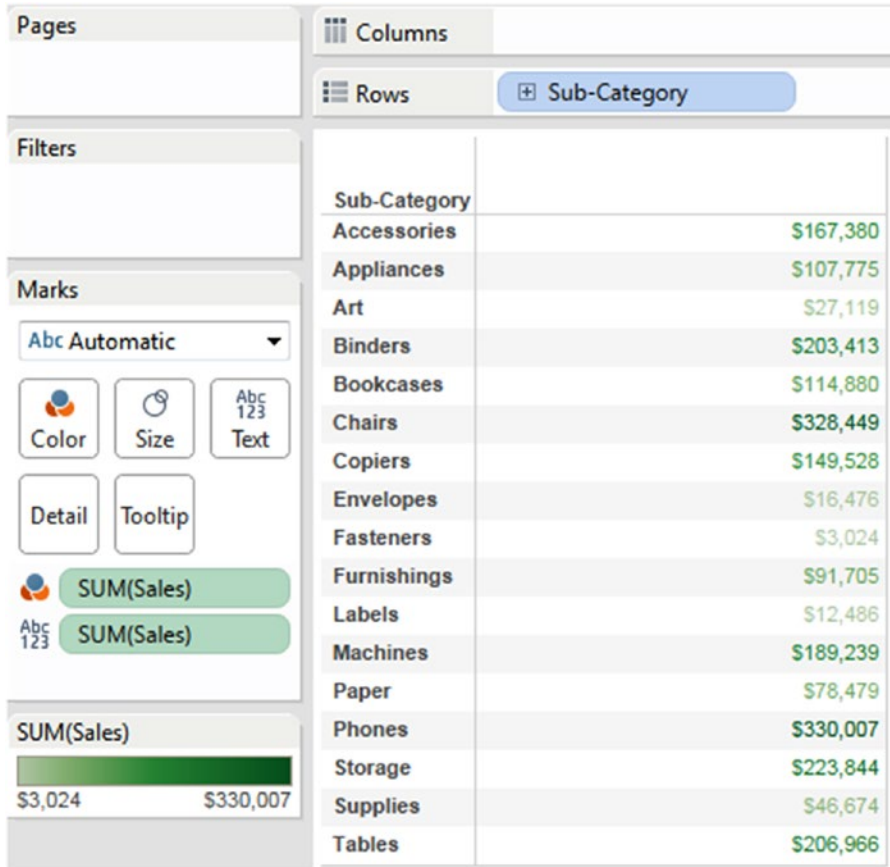
#### 3.3.6.2.1 Steps

##### 3.3.6.2.2 Step 1

Connect to the Sample-Superstore Excel data source.

### 3.3.6.2.3 Step 2

Create a view as shown in Fig. 3-136.



**Figure 3-136.** View that displays the “Sales” as per “Sub-Category”

### 3.3.6.2.4 Step 3

In the dimensions area under the data pane, select the dimension, “Sub-Category,” right click on it and select Create ► Set (Shown in Fig. 3-137).

The screenshot shows the Tableau Desktop interface. In the Dimensions pane on the left, the 'Sub-Category' dimension is selected. A context menu is open over 'Sub-Category', with the 'Create' option selected. A sub-menu is open over 'Create', showing the 'Set...' option. The main view displays a table of sales data by sub-category.

Sub-Category	Sales
Accessories	\$167,380
Appliances	\$107,775
Art	\$27,119
Binders	\$203,413
Bookcases	\$114,880
Chairs	\$328,449
Copiers	\$149,528
Envelopes	\$16,476
Fasteners	\$3,024
Furnishings	\$91,705
Labels	\$12,486
Machines	\$189,239
Paper	\$78,479
Phones	\$330,007
Storage	\$223,844
Supplies	\$46,674
Tables	\$206,966

Figure 3-137. Create "Set..." option

### 3.3.6.2.5 Step 4

“Create Set” dialog box appears. Select all members from the list and specify the set name as “Products with sales greater than 30,000” as shown in Fig. 3-138.

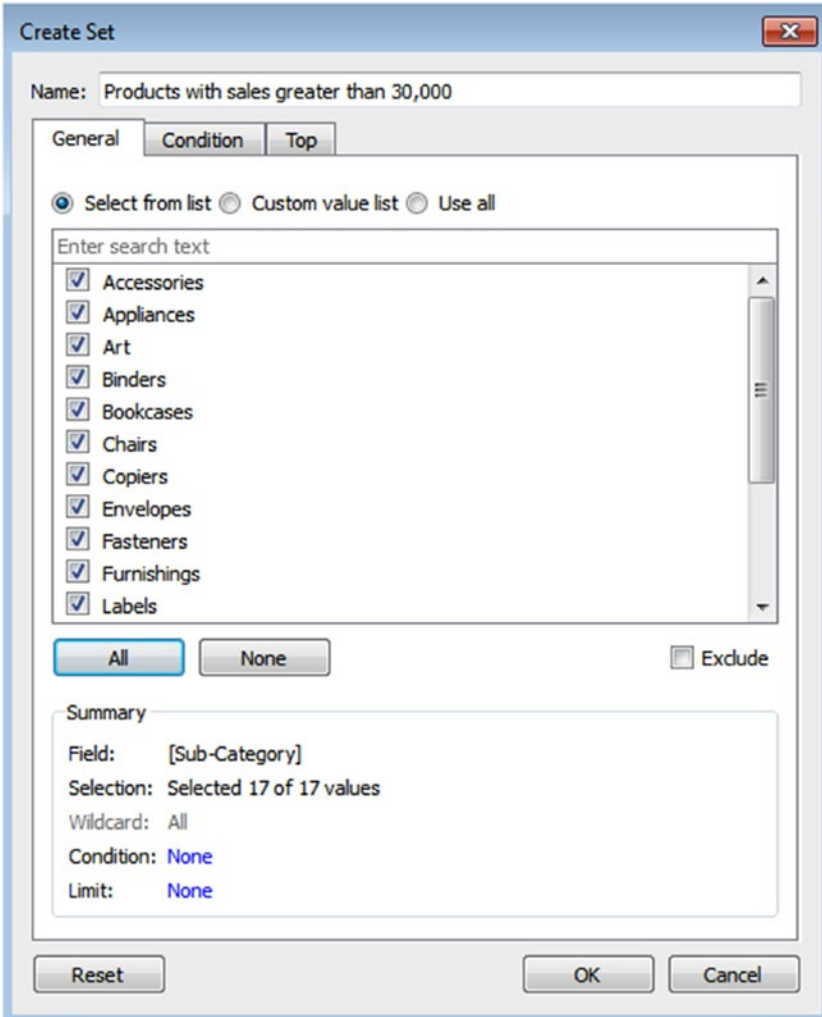
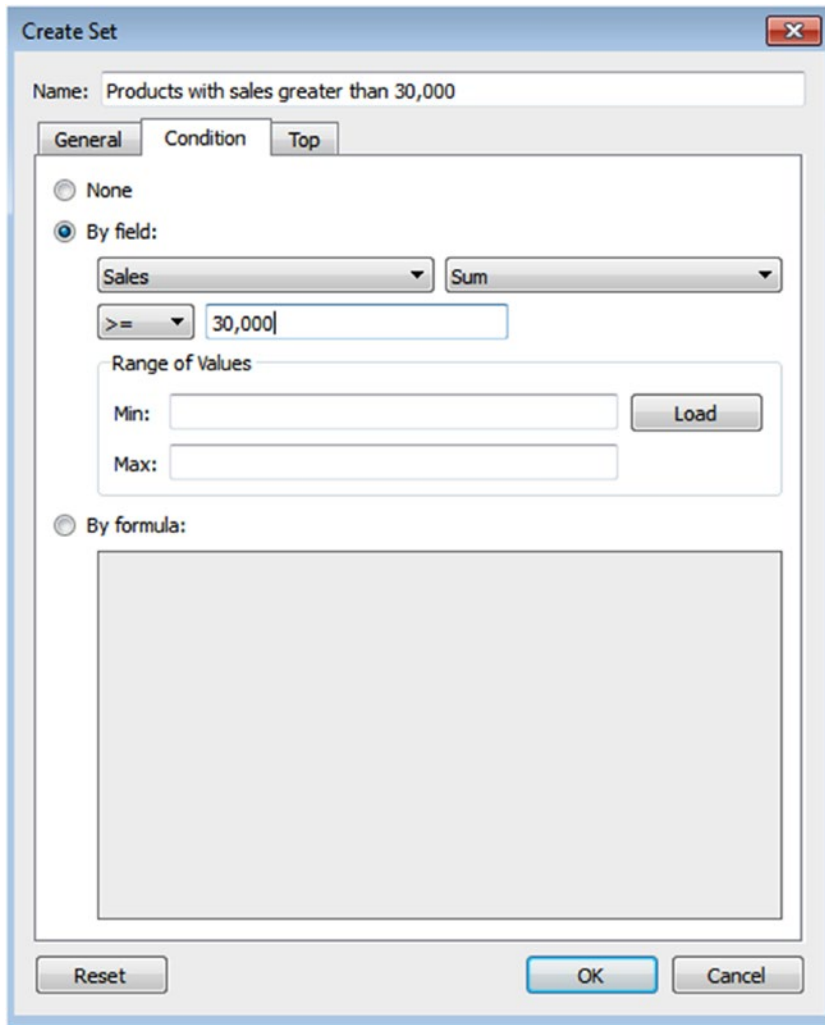


Figure 3-138. “Create Set” dialog box

### 3.3.6.2.6 Step 5

Add a condition to select members based on the outcome of the computation. Go to the Condition tab and specify the condition as shown in Fig. 3-139 and click “OK”.



**Figure 3-139.** Condition for “Products with sales greater than 30,000” set

### 3.3.6.2.7 Step 6

The newly created set, "Products with sales greater than 30,000" is available under the data pane as shown in Fig. 3-140.

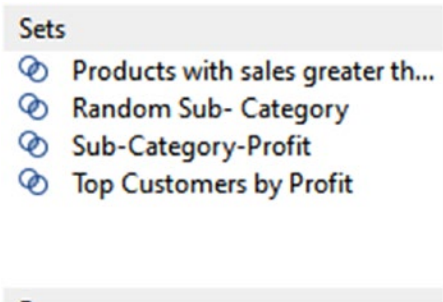


Figure 3-140. "Products with sales greater than 30,000" set

### 3.3.6.2.8 Step 7

Drag and drop the newly created set, "Products with sales greater than 30,000" to the rows shelf to display IN/OUT members based on conditions as shown in Fig. 3-141.

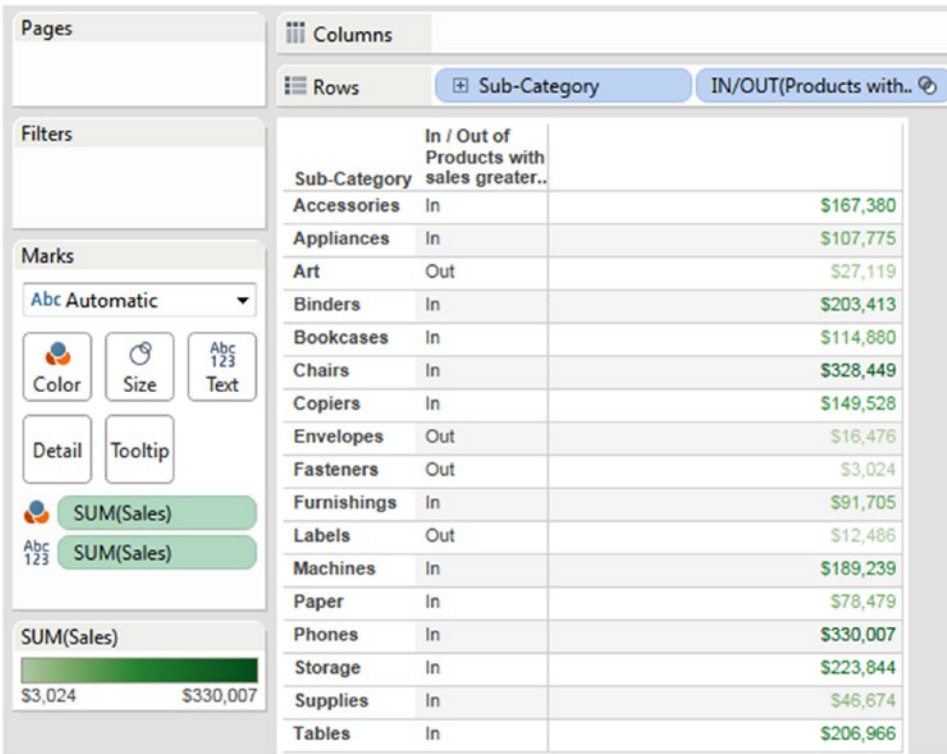


Figure 3-141. View showing IN/OUT members of "Products with sales greater than 30000" set

## 3.4 Difference between a set and group

### 3.4.1 Group

- can be created manually
- cannot be used in calculated fields

### 3.4.2 Set

- can be created either manually or using calculated field
- can be used in calculated field

### 3.4.3 Creating parameters

Parameters are dynamic values that can be used to replace the constant values in filters, calculations, etc.

#### 3.4.3.1 Demo 1

Let's discuss how to create a parameter.

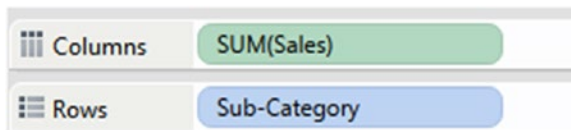
**Objective:** To display TOP N Sub-Category based on their "Sales".

##### 3.4.3.1.1 Step 1

Connect to the Sample-Superstore data source.

##### 3.4.3.1.2 Step 2

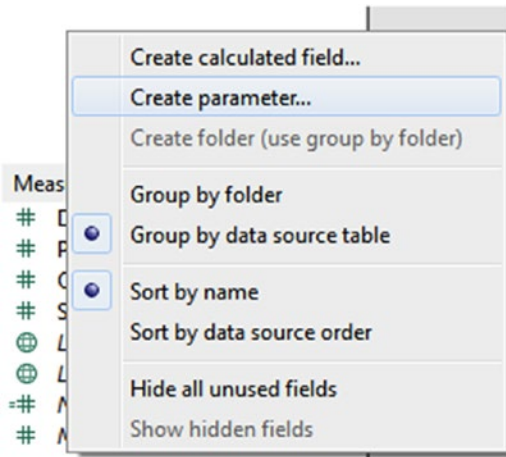
Drag the dimension "Sub-Category" from the dimensions area under the data pane to the rows shelf. Drag the measure "Sales" from the measures area under the data pane to the columns shelf (Shown in Fig. 3-142).



**Figure 3-142.** Dimension "Sub-Category" placed on the rows shelf and the measure "Sales" placed on the columns shelf

### 3.4.3.1.3 Step 3

In the data pane, Right click on and select “Create parameter...” (Shown in Fig. 3-143).



**Figure 3-143.** “Create Parameter...” option

### 3.4.3.1.4 Step 4

“Create Parameter” dialog box opens. Fill in the details as shown in Fig. 3-144.

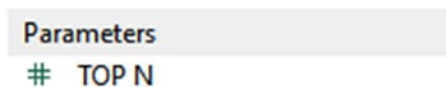
The "Create Parameter" dialog box is shown with the following settings:

- Name:** TOP N
- Comment >>** (button)
- Properties:**
  - Data type:** Integer
  - Current value:** 1
  - Display format:** Automatic
  - Allowable values:**  All  List  Range
- Range of values:**
  - Minimum:** 1 (Set from Parameter button)
  - Maximum:** 10 (Set from Field button)
  - Step size:** 1
- Buttons:** OK, Cancel

**Figure 3-144.** “Create Parameter” dialog box

### 3.4.3.1.5 Step 5

You can see the TOP N parameter in the Parameters area under the data pane (Shown in Fig. 3-145).



**Figure 3-145.** “TOP N” parameter in Data Pane

### 3.4.3.1.6 Step 6

Right click on “TOP N,” select “Show parameter control” to display TOP N parameter in the view (Shown in Fig. 3-146 and Fig. 3-147).

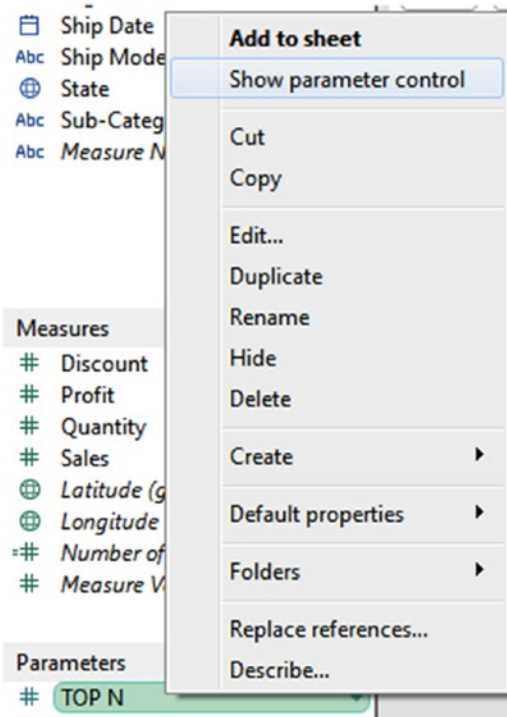


Figure 3-146. “Show parameter control” option

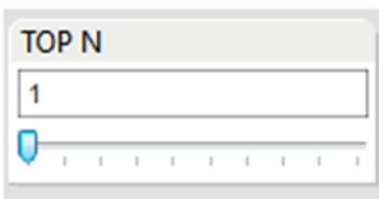
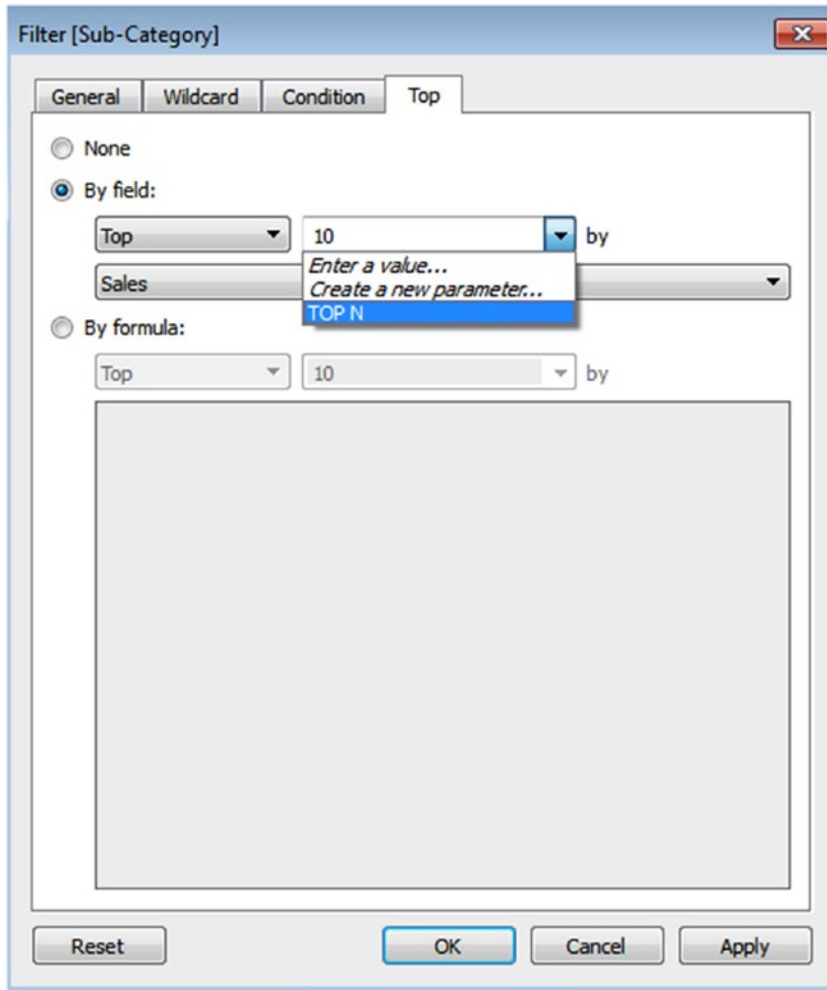


Figure 3-147. Parameter Control

### 3.4.3.1.7 Step 7

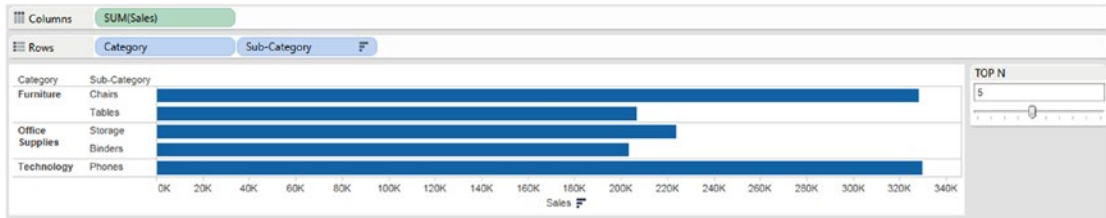
Let's see how to use the parameter in the filter. Drag the dimension "Sub-Category" from the dimensions area under the data pane to the filters shelf, Select "TOP" tab and select TOP value as "TOP N" parameter (Shown in Fig. 3-148).



**Figure 3-148.** Selection of "TOP N" parameter as a value to "TOP"

### 3.4.3.1.8 Step 8

Based on your selection, “TOP N Sub-Category” will be displayed based on their “Sales” (Shown in Fig. 3-149). Click on the sales axis to sort in ascending order.



**Figure 3-149.** “TOP 5 Sub-Category” based on their “Sales”

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Refer below link to learn how to create a calculated field: [https://onlinehelp.tableau.com/current/pro/desktop/en-us/calculations\\_calculatedfields\\_ex1create.html](https://onlinehelp.tableau.com/current/pro/desktop/en-us/calculations_calculatedfields_ex1create.html)

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## 3.5 Points to remember

- “Filter” is an option to exclude or include certain values from a field.
- You can arrange dimension members in a specific order with the help of “Sort”.
- A group is a combination of dimension members that constitutes a higher level category.
- Hierarchies in Tableau provide drill down action to the Tableau report.
- A “Set” is a subset of your data that meets certain conditions based on existing dimensions.

## 3.6 Next step

In the next chapter, we will learn more about measures. We will be introduced to two new fields:

- Measure names
- Measure values