Lesson 4

Organizing & Simplifying Data

Capgemini

Day 2 Agenda

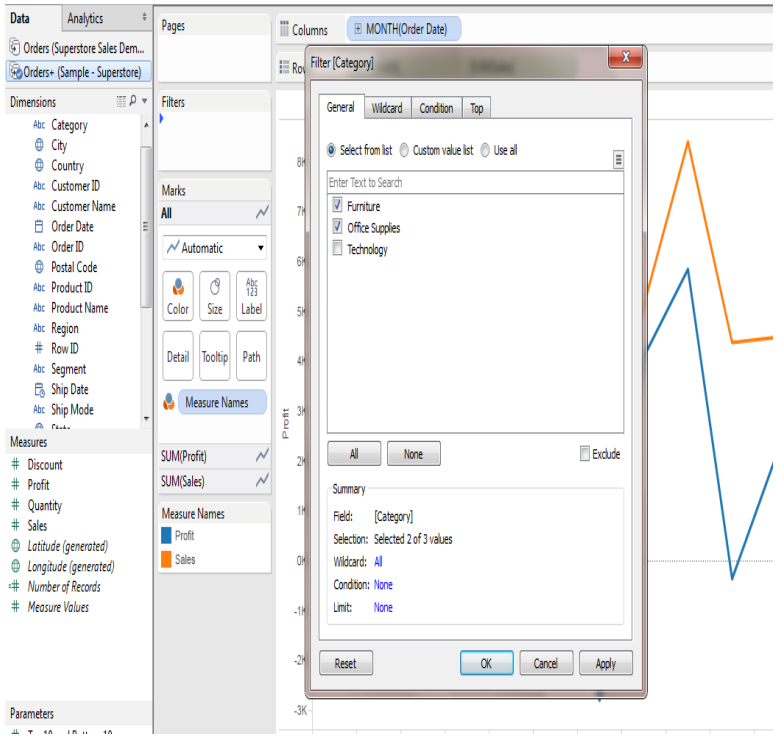
- Filtering
- Sorting
- Grouping
- Sets
- Bins
- Dates and Times
- Formatting
- Data Blending
- Joins

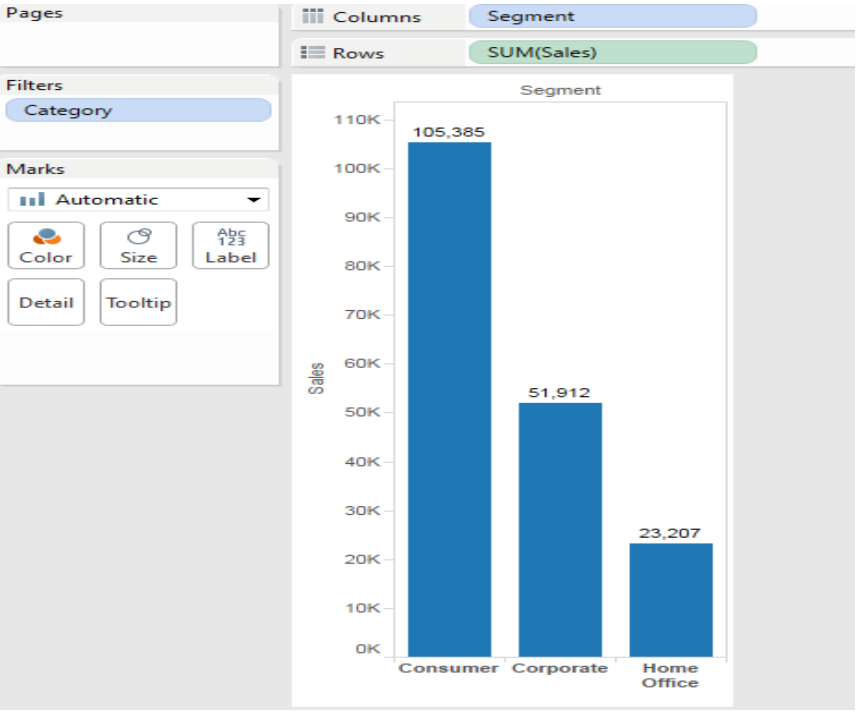
Day 2 Agenda

- Data Extract
- Data Views Overview
- Manage Queries
- Data Fields
- Data Window
- Multiple Measures
- Build Charts with Dual Axis

Filtering

- **Filters Shelf:** The Filters shelf allows you to specify which data to include and exclude.
- Please refer the below screenshots for applying a filter in tableau. There are different types of filter in Tableau which is discussed in detail in the desktop manual.





Filtering

Basic Filters

Filtering is the process of removing certain values or range of values from a result set. Tableau filtering feature allows both simple scenarios using field values as well as advanced calculation or context based filters. In this tutorial we will consider the basic filters available in Tableau.

There are three types of basic filters available in Tableau.They are as follows:

- **Filter Dimensions** are the filters applied on the dimension fields.
- **Filter Measures** are the filters applied on the measure fields.
- **Filter Dates** are the filters applied on the date fields.

- Many filter types in Tableau are quickly available using right-click option on the dimension or measure. These filters known as Quick filters have enough functionality solve most of the common filtering needs.

- **Quick Filters**
- **Context Filters**
- **Condition Filters**
- **Top Filters**
- **Filter Operations**

Filtering

➢ Quick Filters

A list of various quick filters and their use is given below.

- **Single Value(List) -** Select one value at a time in a list.
- **Single Value(Dropdown) -** Select a single value in a drop-down list.
- **Multiple Values(List) -** Select one or more values in a list.
- **Multiple Values(Dropdown) -** Select one or more values in a drop-down list.
- **Multiple Values(Custom List) -** Search and select one or more values.
- **Single Value (Slider) -** Drag a horizontal slider to select a single value.
- **Wildcard Match -** Select values containing the specified characters.

Conti..

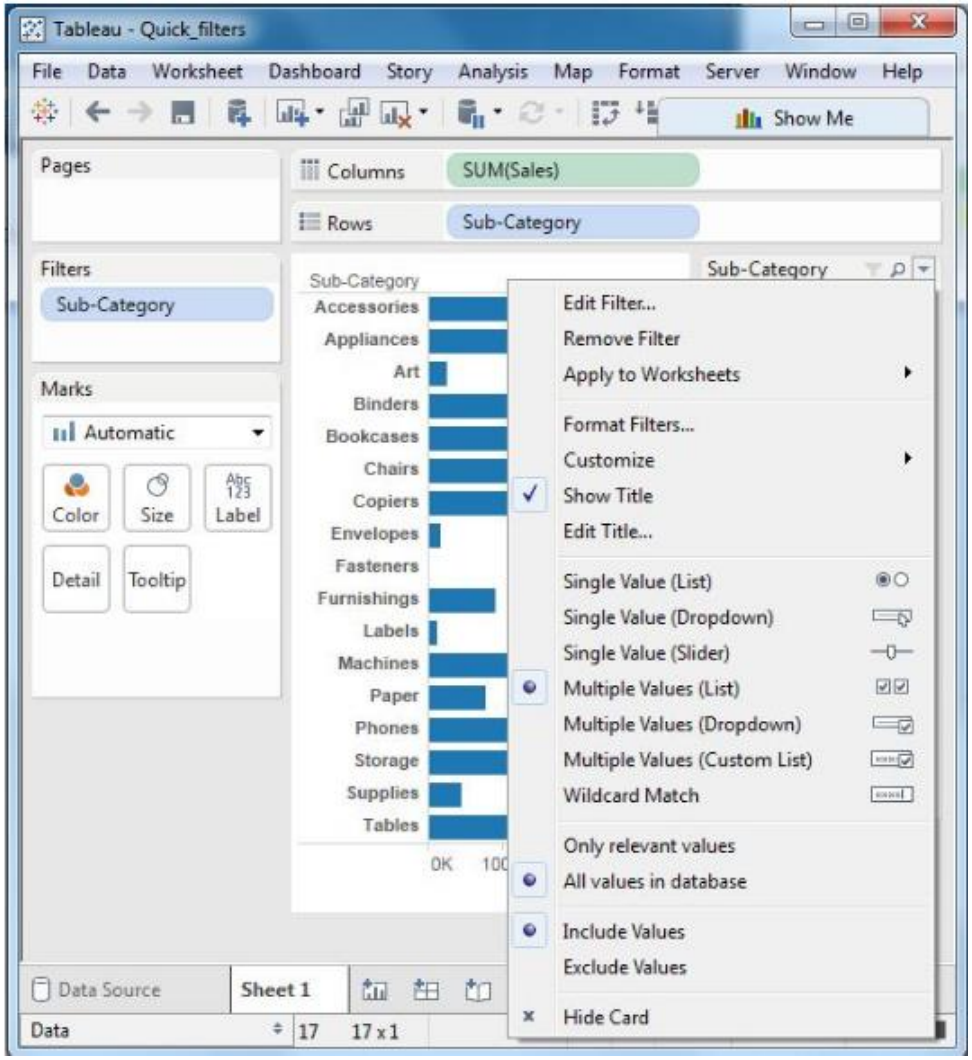
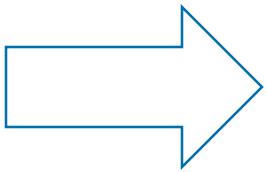
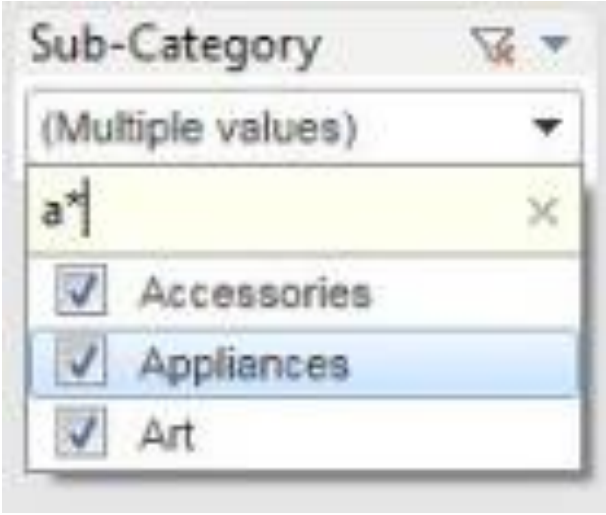


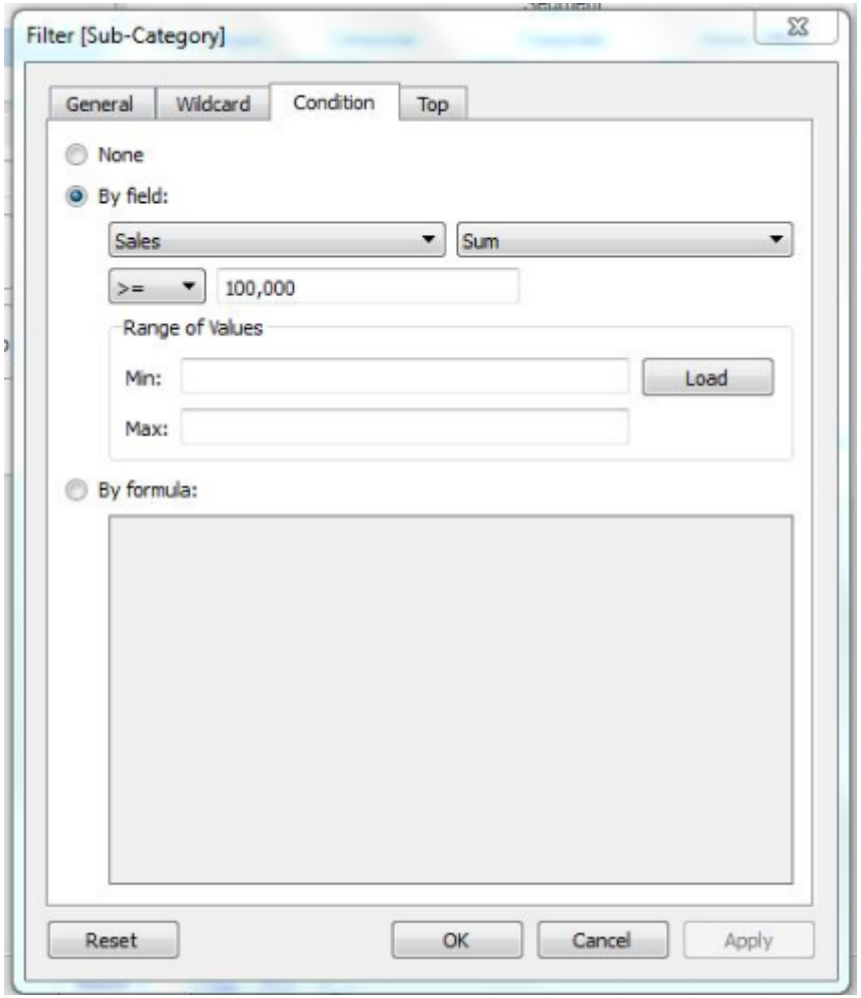
Tableau - Quick_filters
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Show Me
Pages
Columns SUM(Sales)
Rows Sub-Category
Filters
Sub-Category
Marks
Automatic
Color Size Label
Detail Tooltip
Sub-Category
Accessories
Appliances
Art
Binders
Bookcases
Chairs
Copiers
Envelopes
Fasteners
Furnishings
Labels
Machines
Paper
Phones
Storage
Supplies
Tables
0K 100
Edit Filter...
Remove Filter
Apply to Worksheets
Format Filters...
Customize
Show Title
Edit Title...
Single Value (List)
Single Value (Dropdown)
Single Value (Slider)
Multiple Values (List)
Multiple Values (Dropdown)
Multiple Values (Custom List)
Wildcard Match
Only relevant values
All values in database
Include Values
Exclude Values
Hide Card
Data Source
Sheet 1
Data
17
17 x 1




Sub-Category
(Multiple values)
a*
Accessories
Appliances
Art

➢ Condition Filters

One of the important filtering options in Tableau is to apply some conditions to already existing filters. These conditions can be very simple like finding only those sales which are higher than certain amount or it can be a complex one based on certain formula. The conditions can also be applied to create a range filter.



Filtering

➢ Context Filters

The normal filters in Tableau are independent of each other.It means each of the filter reads all the rows from the source data and creates its own result. But there may be scenarios where we want the second filter to process only the records returned by the first filter. So in this case the second filter is known as dependent filters because they process only the data that passes through the context filter. Context Filters serve two main purposes.

- **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.

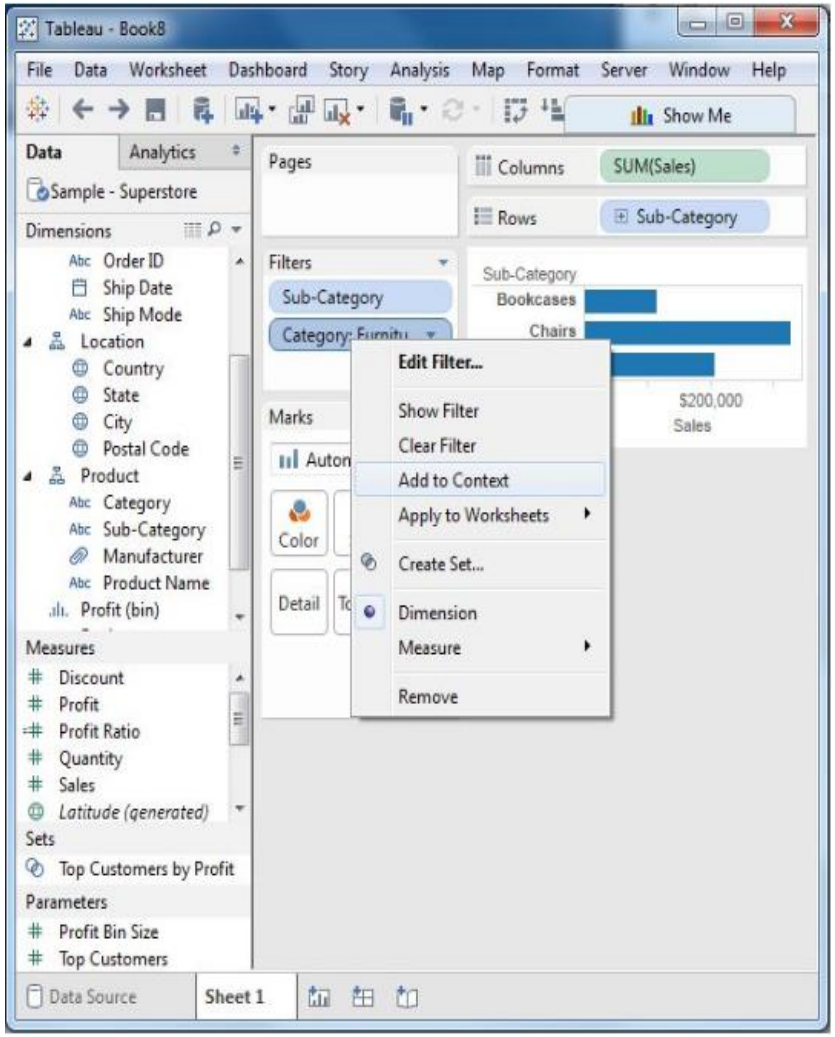
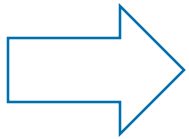


Tableau - Book8
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Show Me
Data
Analytics
Sample - Superstore
Dimensions
Abc Order ID
Ship Date
Abc Ship Mode
Location
Country
State
City
Postal Code
Product
Abc Category
Abc Sub-Category
Manufacturer
Abc Product Name
Profit (bin)
Measures
Discount
Profit
Profit Ratio
Quantity
Sales
Latitude (generated)
Sets
Top Customers by Profit
Parameters
Profit Bin Size
Top Customers
Pages
Columns
SUM(Sales)
Rows
Sub-Category
Filters
Sub-Category
Category: Furniture
Sub-Category
Bookcases
Chairs
$200,000
Sales
Marks
Auton
Color
Detail
Edit Filter...
Show Filter
Clear Filter
Add to Context
Apply to Worksheets
Create Set...
Dimension
Measure
Remove
Data Source
Sheet 1



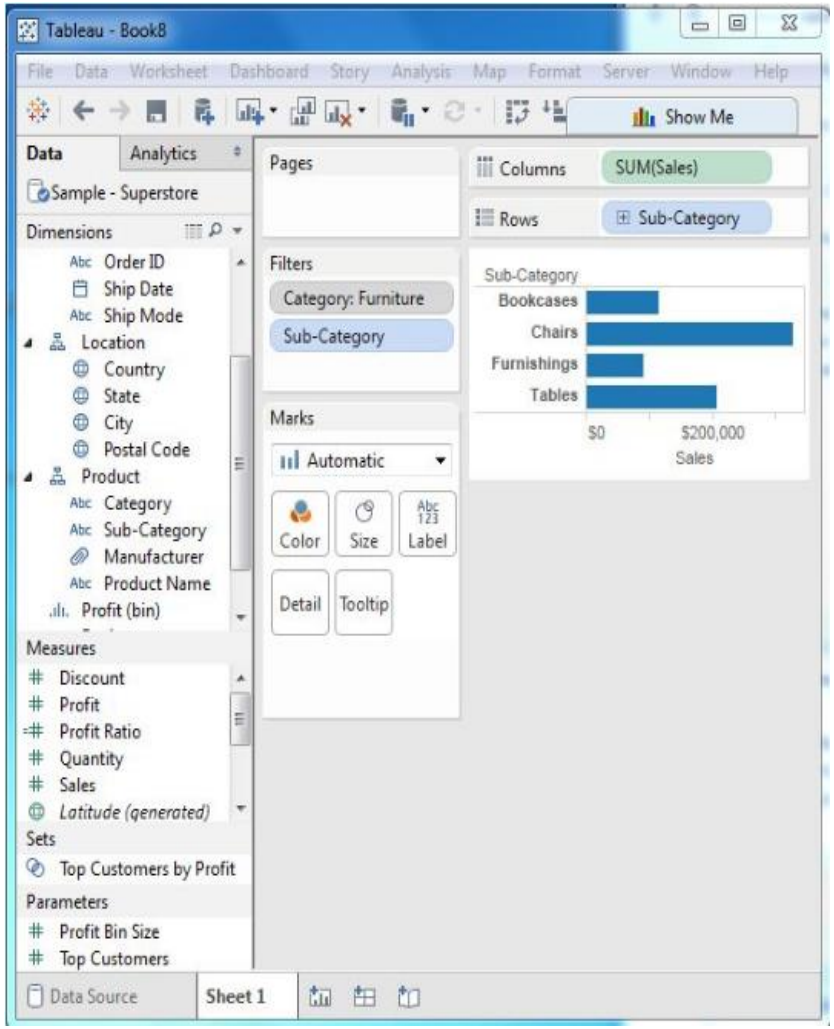
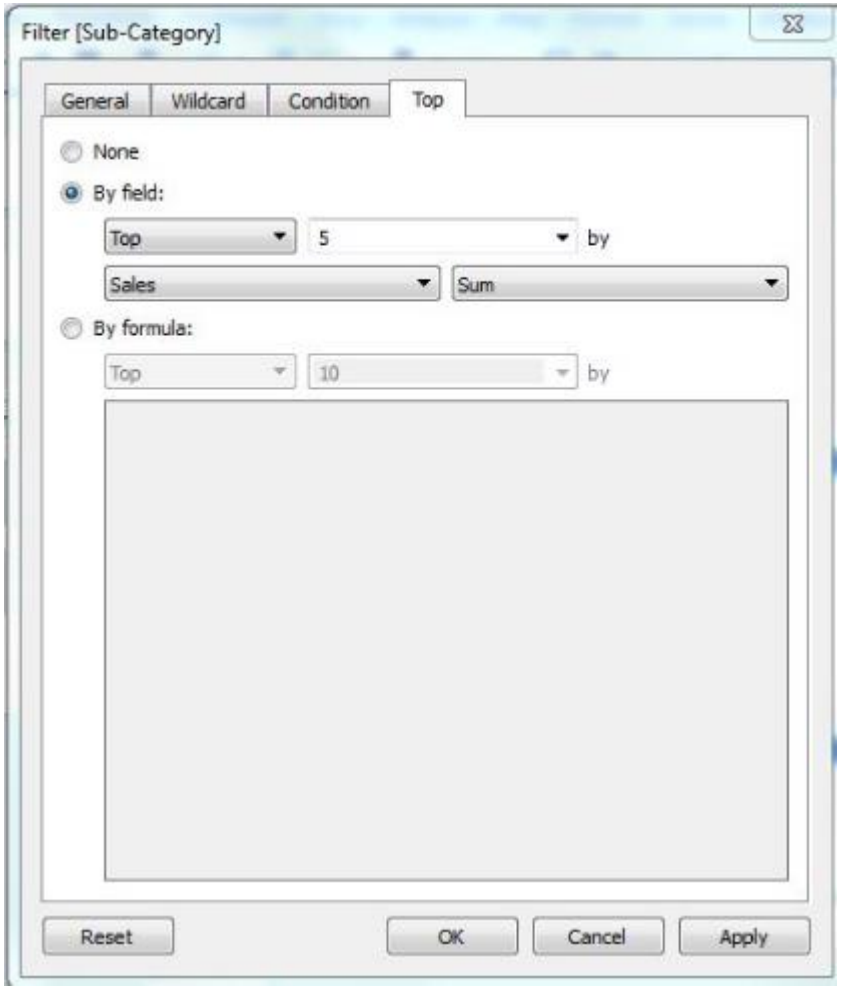


Tableau - Book8
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Show Me
Data
Analytics
Sample - Superstore
Dimensions
Abc Order ID
Ship Date
Abc Ship Mode
Location
Country
State
City
Postal Code
Product
Abc Category
Abc Sub-Category
Manufacturer
Abc Product Name
Profit (bin)
Measures
Discount
Profit
Profit Ratio
Quantity
Sales
Latitude (generated)
Sets
Top Customers by Profit
Parameters
Profit Bin Size
Top Customers
Pages
Columns
SUM(Sales)
Rows
Sub-Category
Filters
Category: Furniture
Sub-Category
Sub-Category
Bookcases
Chairs
Furnishings
Tables
$0
$200,000
Sales
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Data Source
Sheet 1

➢ Top Filters

The Top option in Tableau filter is used to limit the result set from a filter. For example, from a large set of records on sales we want only the top 10 values. We can apply this filter using the inbuilt options for limiting the records in many ways or by creating a formula. In this chapter we will explore the inbuilt options.



Filter Operations

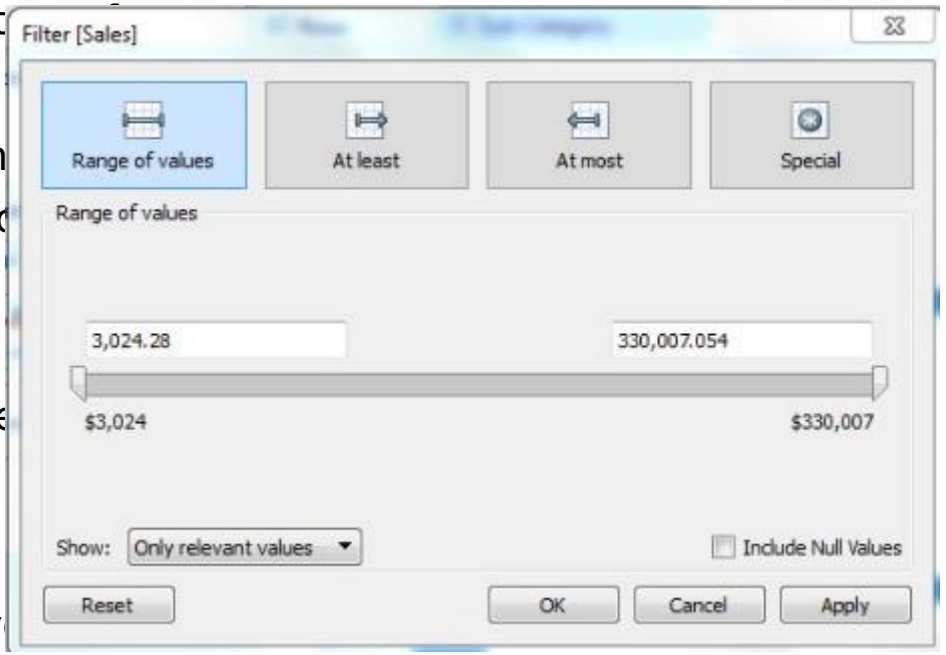
Any data analysis and visualization work involves use of extensive Filtering of data. Tableau has a very wide variety of filtering options to address these needs. There are many inbuilt functions for applying filters on the records using both dimensions and measures. The filter option for measures offers numeric calculations and comparison. The filter option for dimension offers choosing string values from a list or use a custom list of values.

- **Creating Filters for Measures**
- **Creating Filters for Dimensions**

Creating Filters for Measures

Measures are numeric fields. So the filter options for such fields involve choosing values. Tableau offers the following types of filt measures.

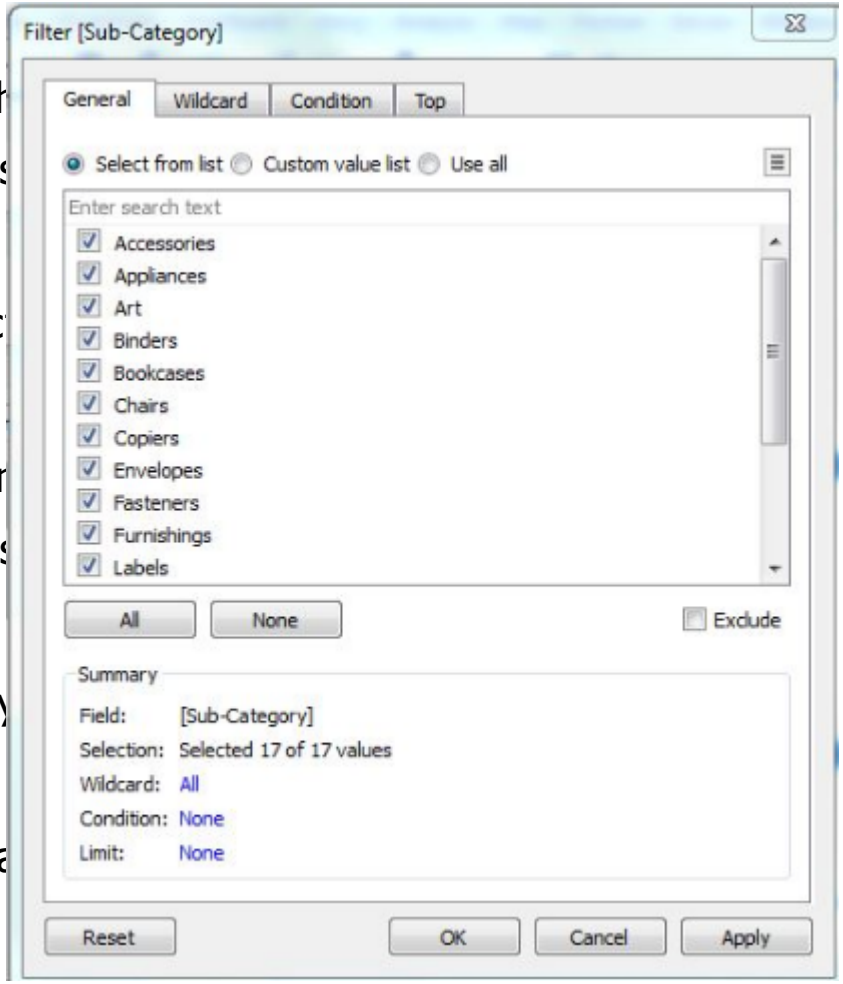
- **Range of Values** which Specify the m and maximum values of the range to inc the view.
- **At Least** - Include all values that are than or equal to a specified minimum value
- **At Most** - Include all values that are less equal to a specified maximum value.
- **Special** - This special type of filter helps y on Null values. Include only Null values, Non-null values, or All Values.



Creating Filters for Dimensions

Dimensions are descriptive fields which have values which are strings. Tableau offers the following types of filters for dimensions.

- **General Filter** which allows to select specific values form a list.
- **Wildcard filter** which allows to mention wildcards like cha* to filter all string values starting with cha.
- **Condition filter** which i used to apply conditions like sum of sales.
- **Top filters** to choose records representing a range of Top values.



Basic Filtering

Filtering is the process of removing certain values or range of values from a result set. Tableau filtering feature allows both simple scenarios using field values as well as advanced calculation or context-based filters. There are three types of basic filters available in Tableau.

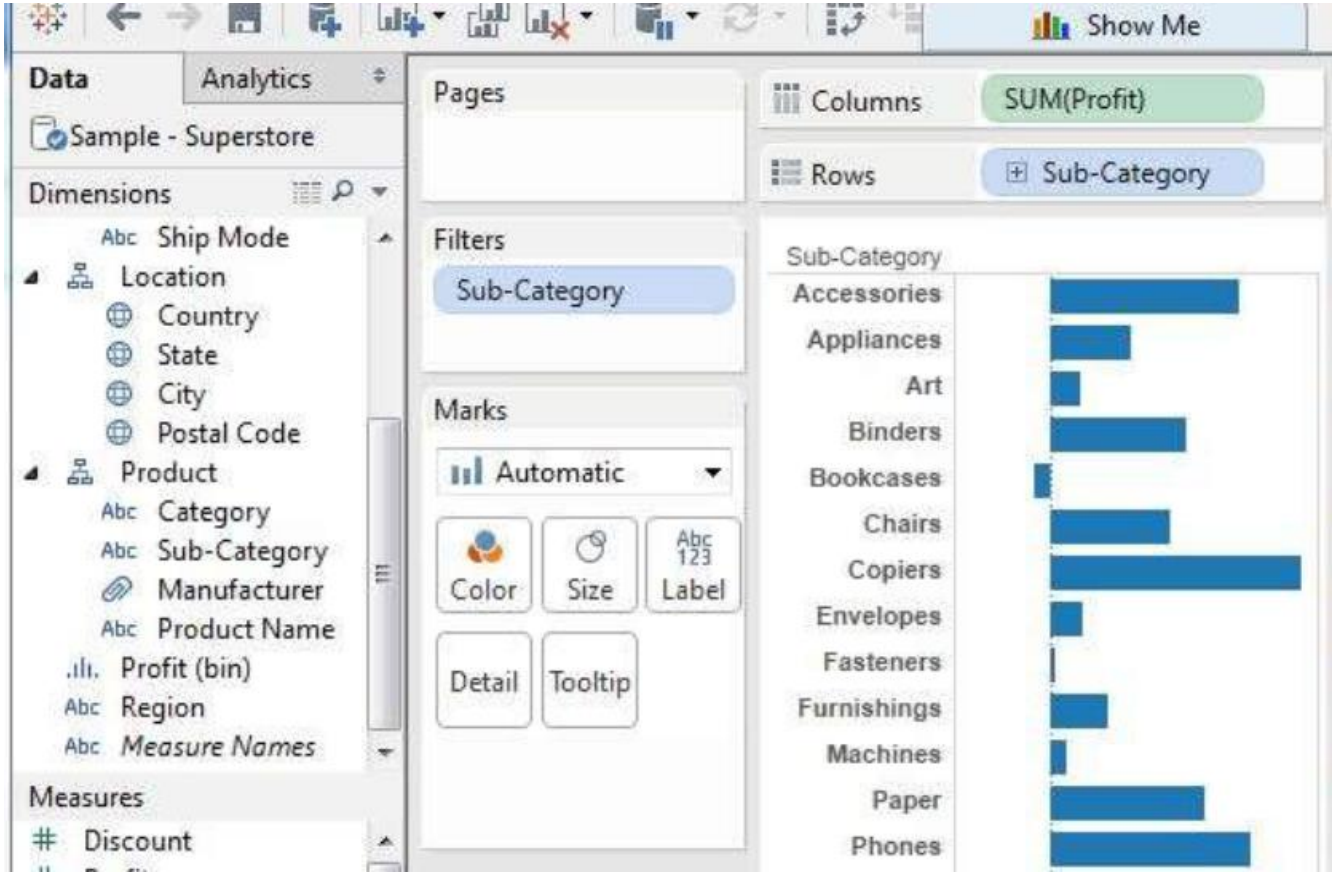
Filter Dimensions are the filters applied on the dimension fields.

Filter Measures are the filters applied on the measure fields.

Filter Dates are the filters applied on the date fields.

Filter Dimensions

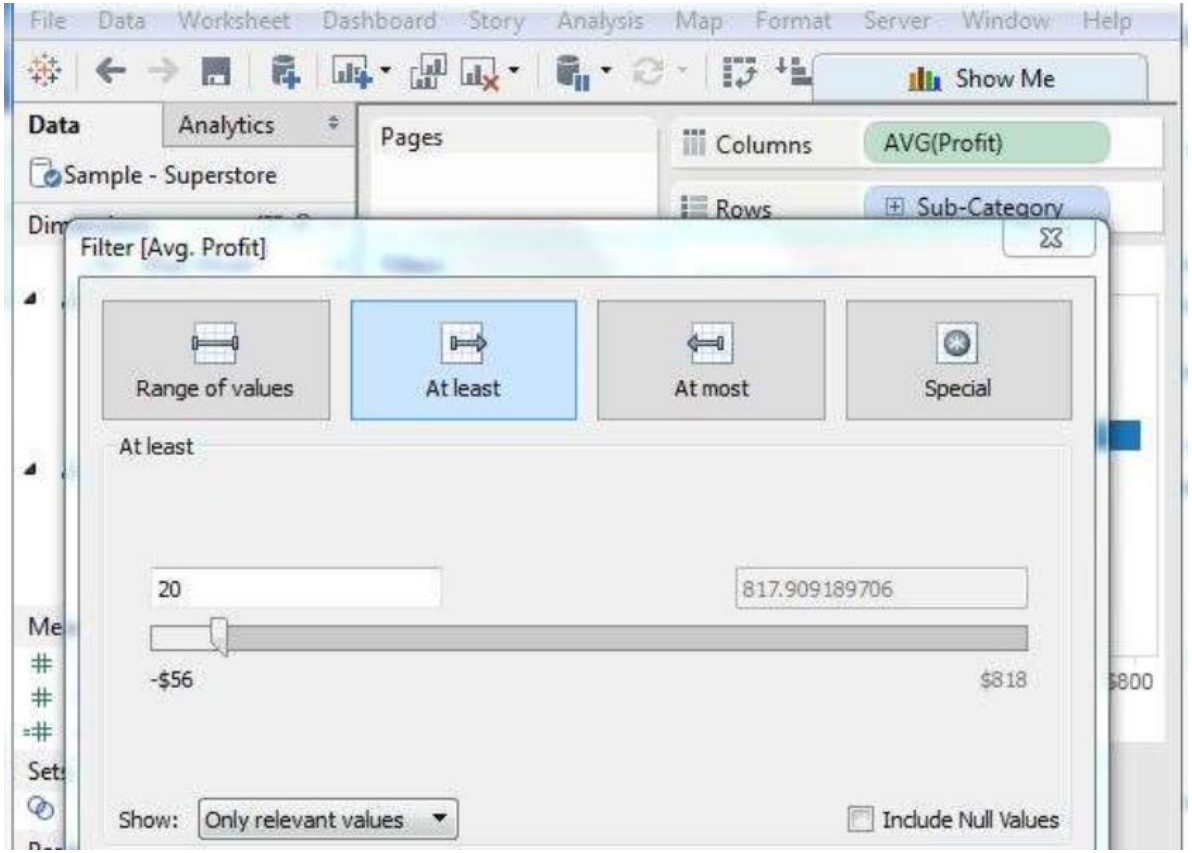
Drag the dimension field to the filter shelf and apply the filter.



Filter Measures

Filtering is based on the calculations applied to the measure fields. These filter use calculations based on fields.

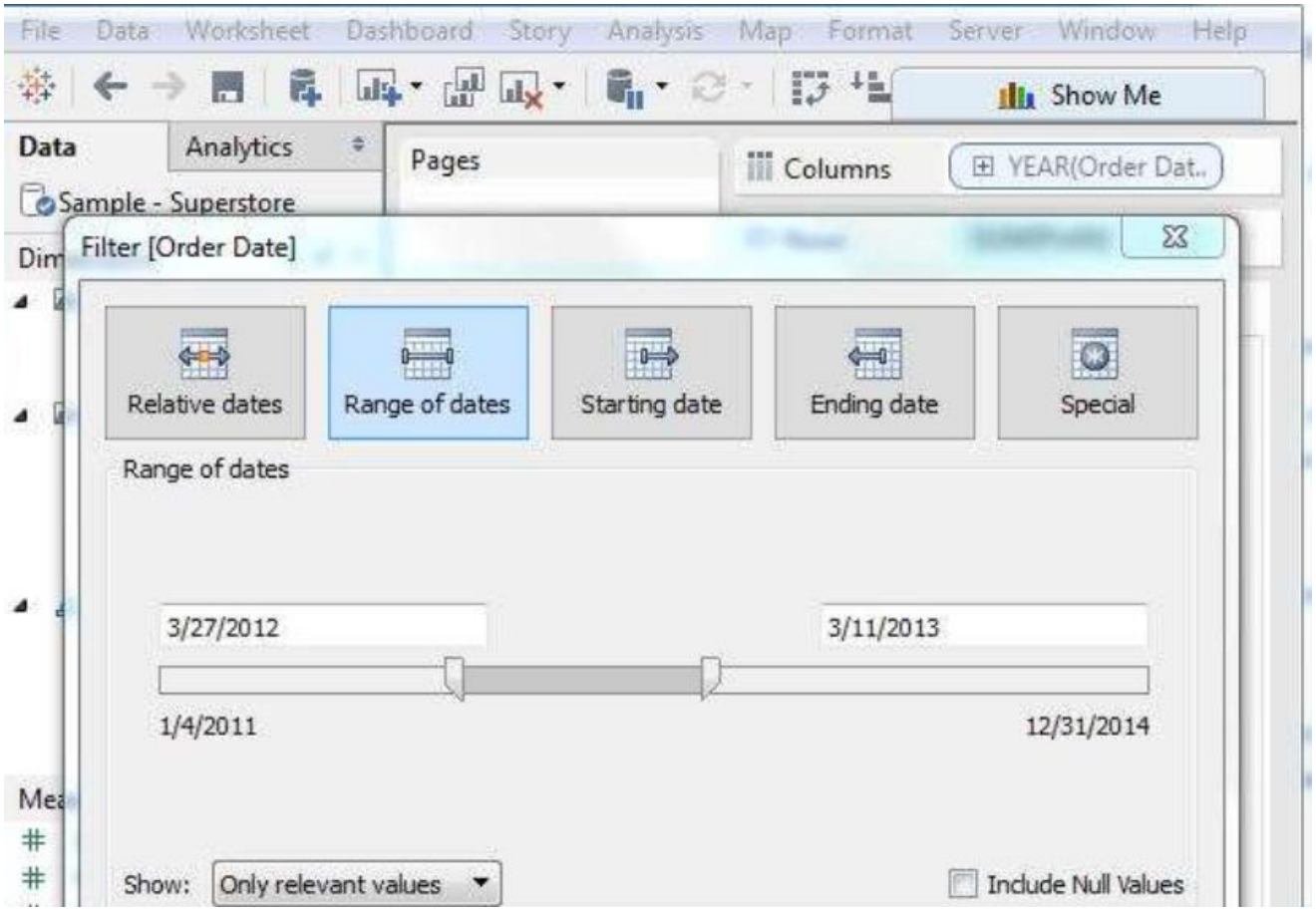
ex: Average profit should be more than20



Filter Dates

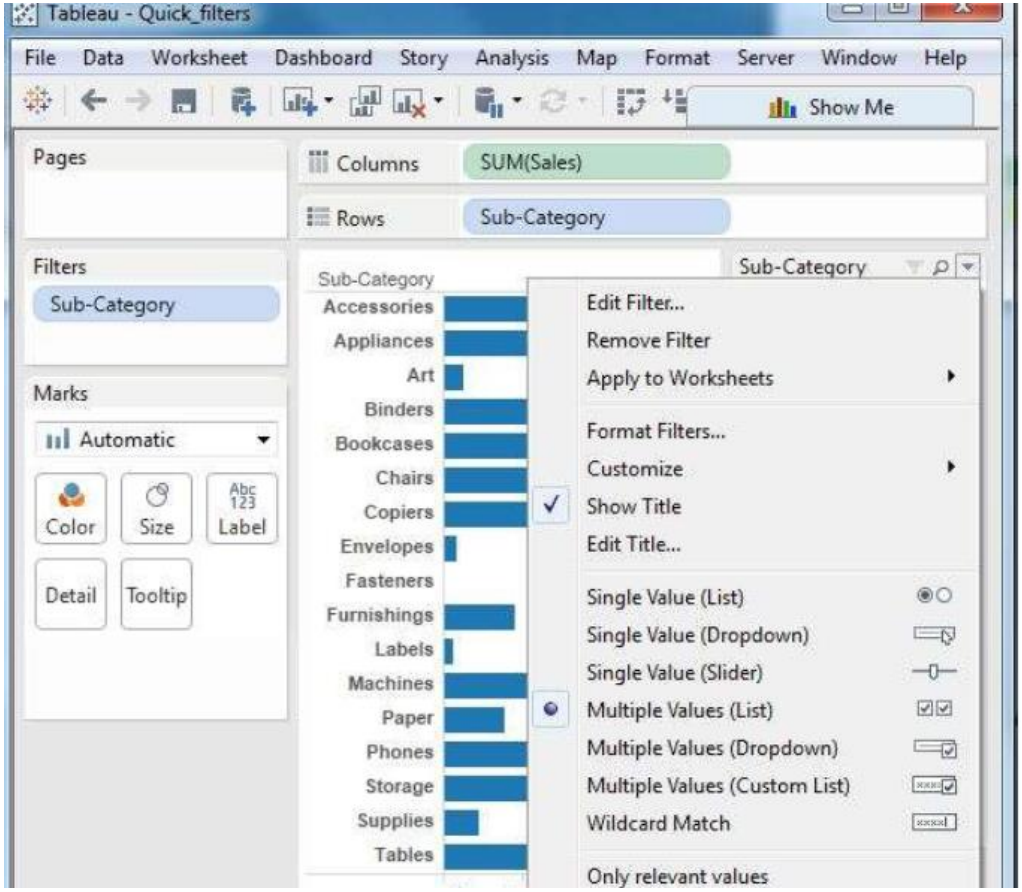
Tableau apply filter on date fields in the following three ways.

- by taking a relative date as compared to today
- an absolute date
- range of dates.



Quick Filter

Many filter types in Tableau are quickly available using the right-click option on the dimension or measure. These filters known as Quick filters have enough functionality to solve most of the common filtering needs.



Context Filter

The normal filters in Tableau are independent of each other. They reads all the rows from the source data and creates its own result. However, there may be scenarios where you might want the second filter to process only the records returned by the first filter. In such a case, the second filter is known as dependent filters because they process only the data that passes through the context filter.

If there are may filters applied in a view or you have a large data source, the queries can be slow. You can set one or more context filters to improve the performance.

ex: find the top 10 Sub-Category of products for the category called Furniture.

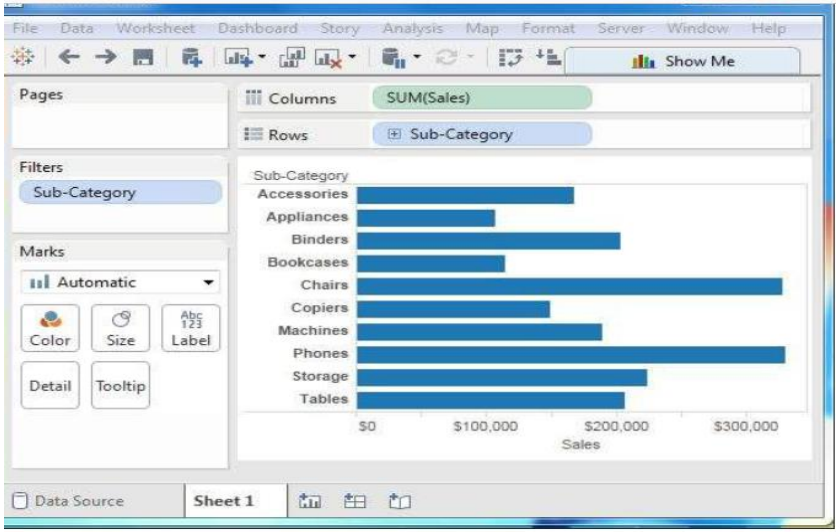
Step1: Create the view

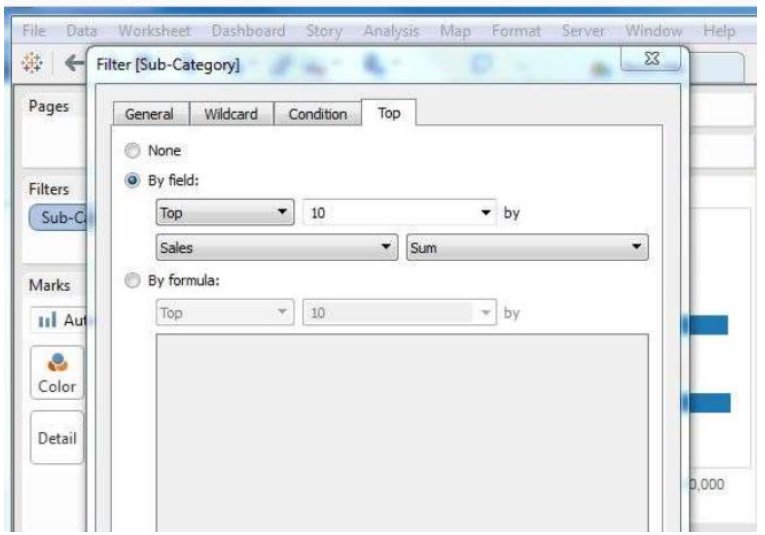
Step 2: Apply the top 10 sub category filter

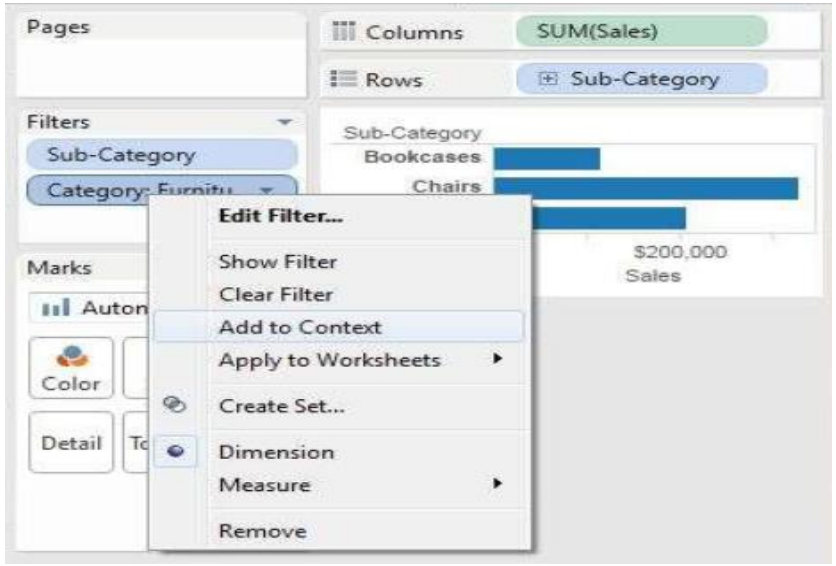
Step3 : Apply the Furniture Category filter

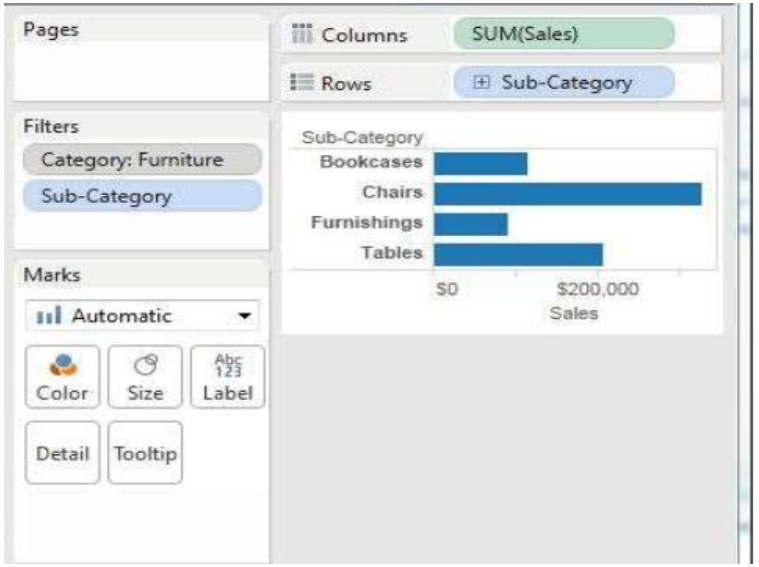
Step 4: Make category Context Filter

Context Filter (Cont…)



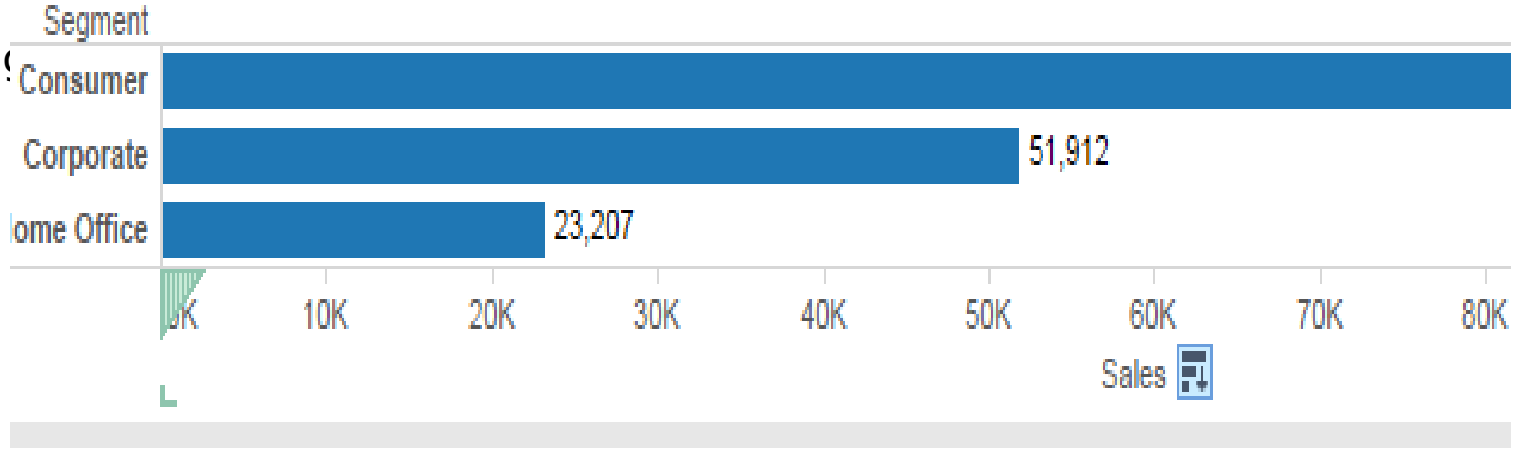




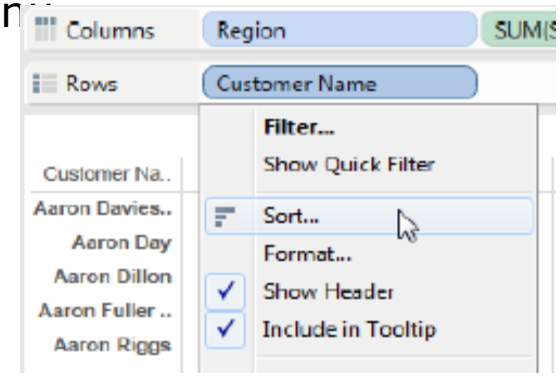


Sorting, Grouping and Sets

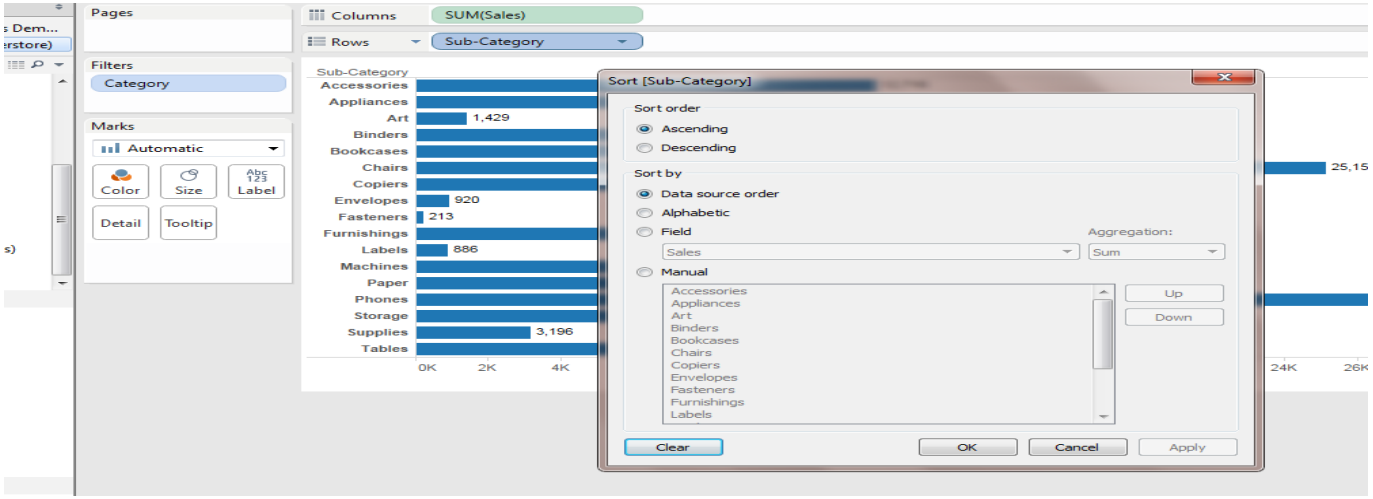
- Sorting, Grouping and Sets
  - **Sorting:** In Tableau, sorting a data view means arranging dimension members in a specified order. Tableau supports computed sorting and manual sorting.
  - **Computed Sorting:** User might want to sort customers by alphabetical order, or sort a product line from lowest sales to highest sales. Both of these sorts are "computed sorts" because they use programmatic rules that you define to sort the field.
  - Sortin



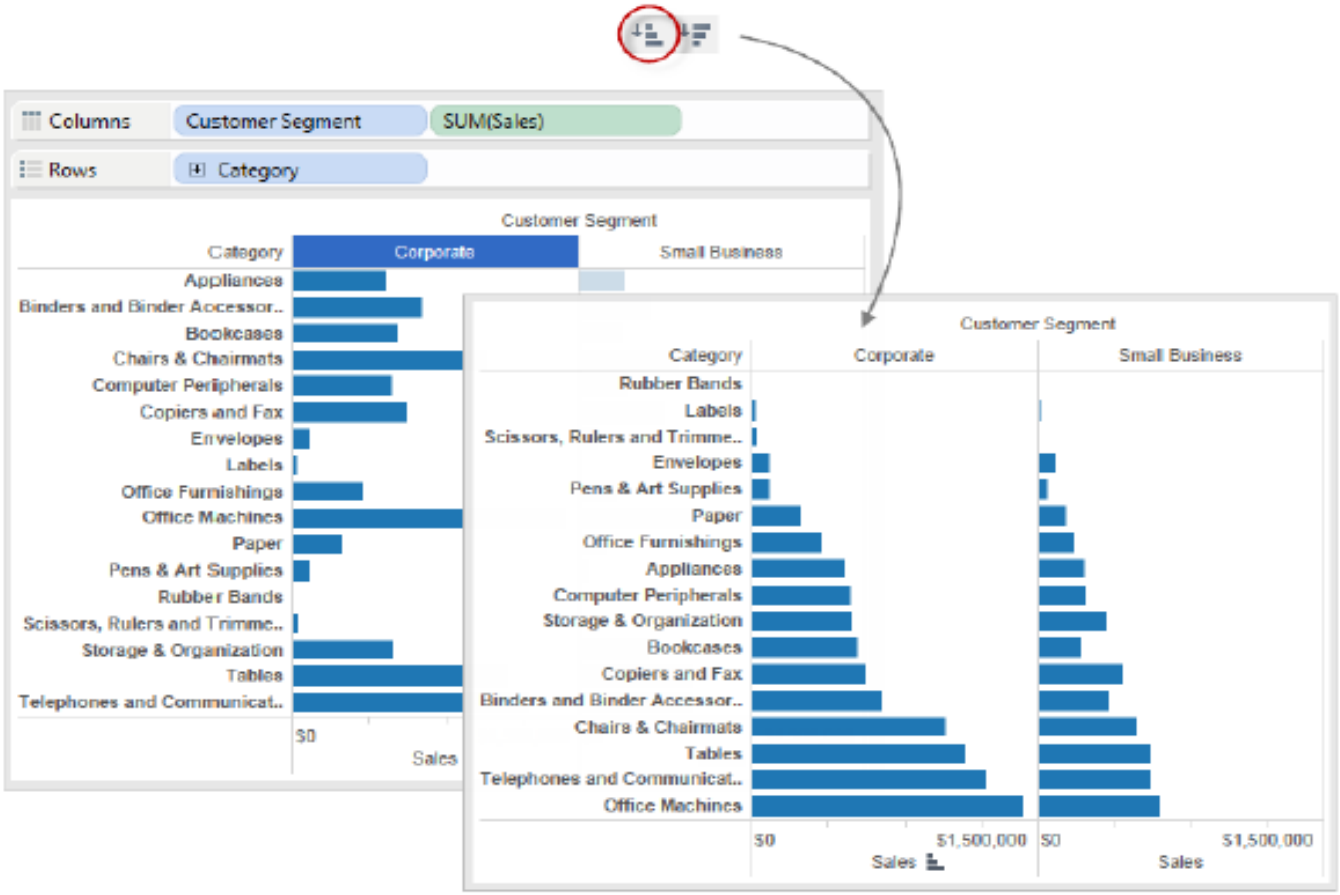
- Sorting Specific Fields: Right-click on the field that you want to sort and select Sort from the its context menu.



- After clicking the "Sort" option another window will open up.



Manual Sorting



Basic Shorting

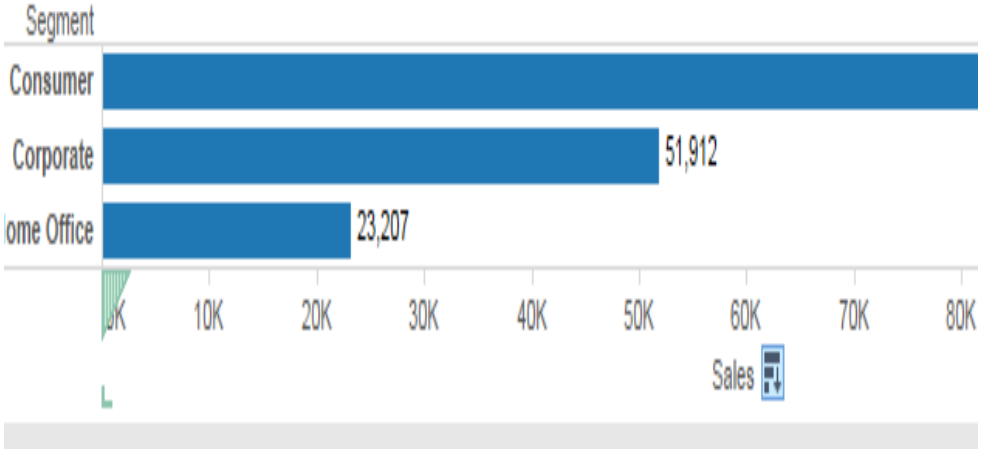
In Tableau, sorting a data view means arranging dimension members in a specified order.

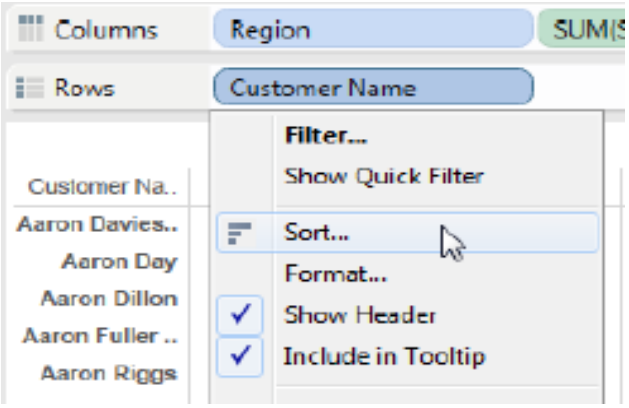
There are two ways in which Tableau carries out the sorting.

- **Computed Sorting:** directly applied on an axis using the sort dialog button. User might want to sort customers by alphabetical order, or sort a product line from lowest sales to highest sales. Both of these sorts are “computed sorts” because they use programmatic rules that you define to sort the field.

    Shorting on Axis

    Shorting on a specific field



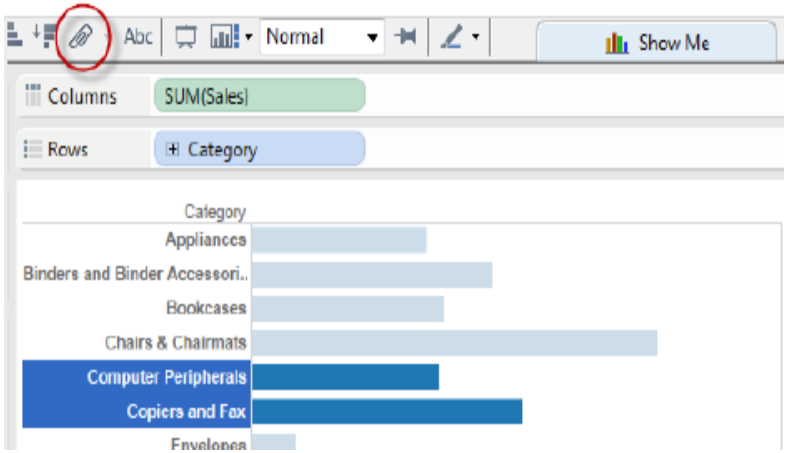


Basic Shorting (Cont…)

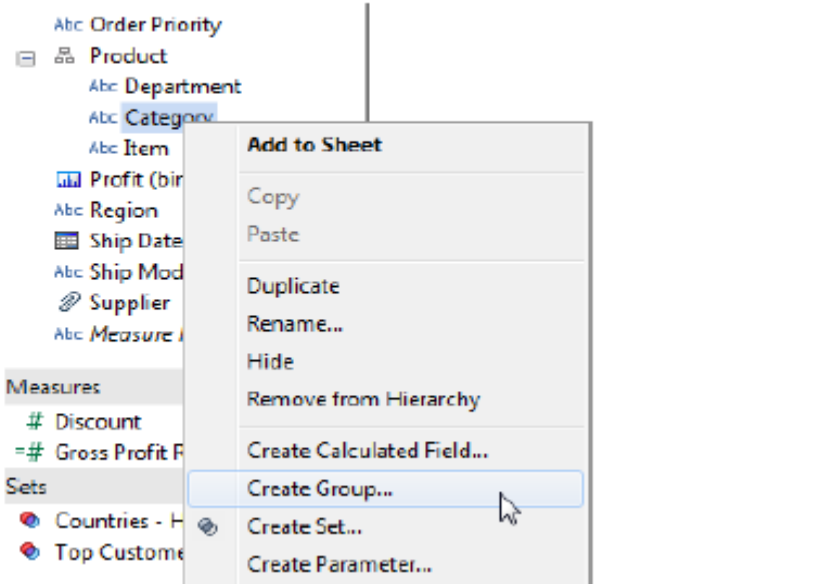
- Manual Shorting: is used to rearrange the order of dimension fields by dragging them next to each other in an ad hoc fashion.

Ex: you want to show the sales volume of different product segment in a descending order, however you have your own choice of order. This sort is not as per the exact values of number or text, rather they represent the user's choice of ordering Hence, they are called as manual sorting.

- Creating Groups:
  - Hold the CTRL or Shift key on the keyboard to multi-select headers in the view.
  - Click the Group button on the toolbar.
  - Refer the 2 steps to create a group in tableau.



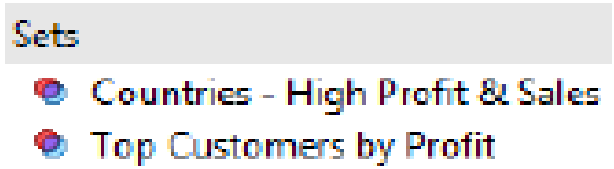
Right-click a dimension in the Data window and select **Create Group**.



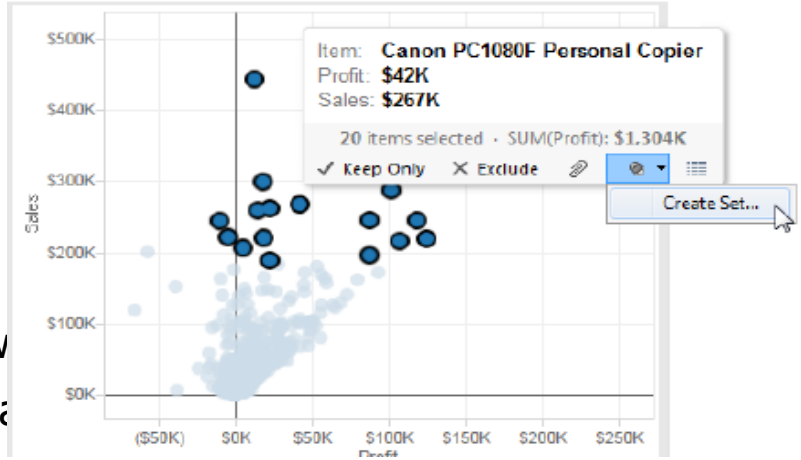
Sets:

Sets are custom fields that define a subset of data based on some conditions. A set can be based on a computed condition, for example, a set may contain customers with sales over a certain threshold. Computed sets update as your data changes. Alternatively, a set can be based on specific data point in your view.

- Tableau displays sets at the bottom of the Data window and labels them with the set icon



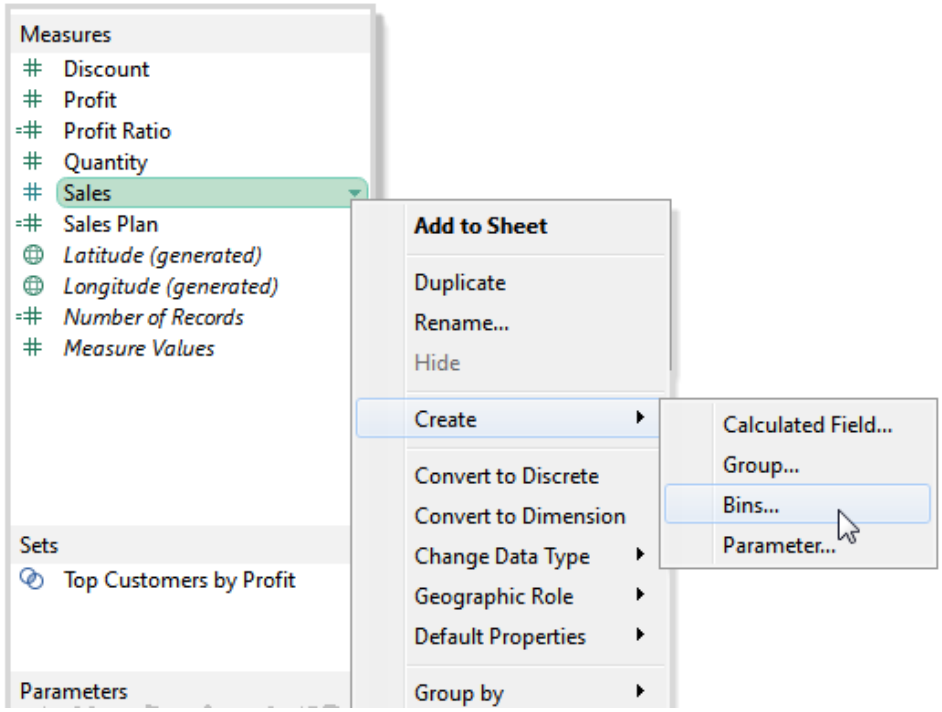
- Constant Sets:
  - Select one or more marks or headers in the view
  - Right-click and select Create Set or click the Crea



Bins

➢ Bins:

- Sometimes it's useful to convert a continuous measure (or a nume dimension) into bins.
- When you bin a measure you create a n dimension. That's because you are creati a field with a limited and discrete set possible values out of a field with unlimited, continuous range of valu However, once the dimension is created y can convert it to a continuous dimension.

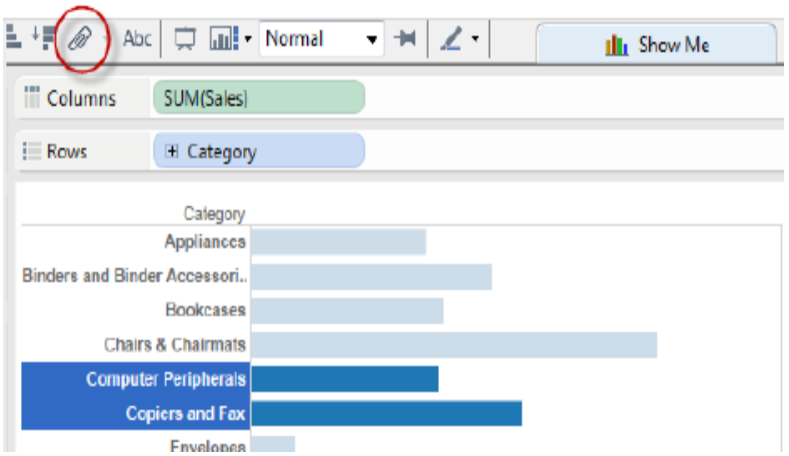


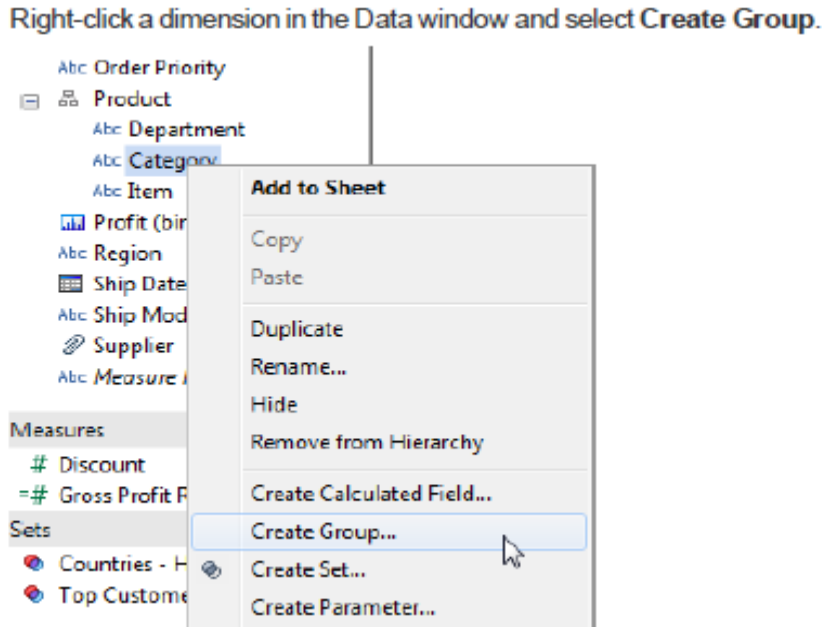
Note: You can bin data only for relatio data sources. This feature is not supported for cube (multidimensional) data sources.

Groups

Groups are a set of dimensional members allows you to simplify dimension levels into higher level sub-categories

- Hold the CTRL or Shift key on the keyboard to multi-select headers in the view.
- Click the Group button on the toolbar.
- Refer the 2 steps to create a group in tableau.

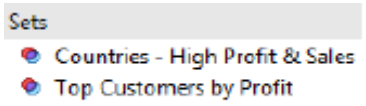


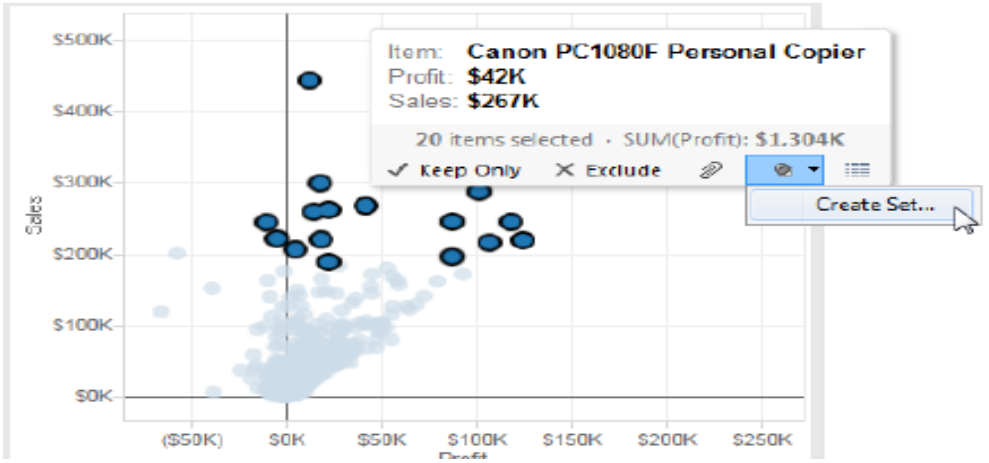


Sets

Sets are custom fields that define a subset of data based on some conditions. A set can be based on a computed condition, for example, a set may contain customers with sales over a certain threshold. Computed sets update as your data changes. Alternatively, a set can be based on specific data point in your view.

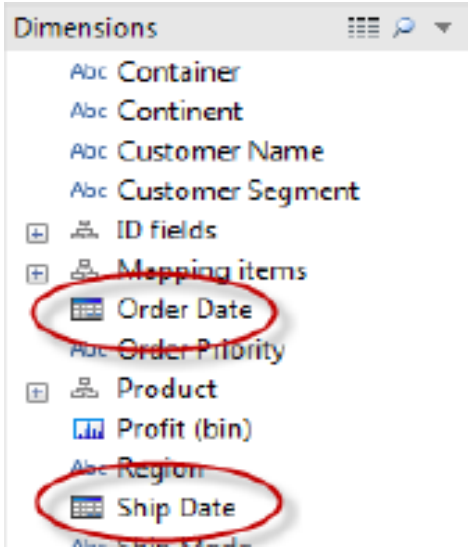
Tableau displays sets at the bottom of the Data window and labels them with the set icon





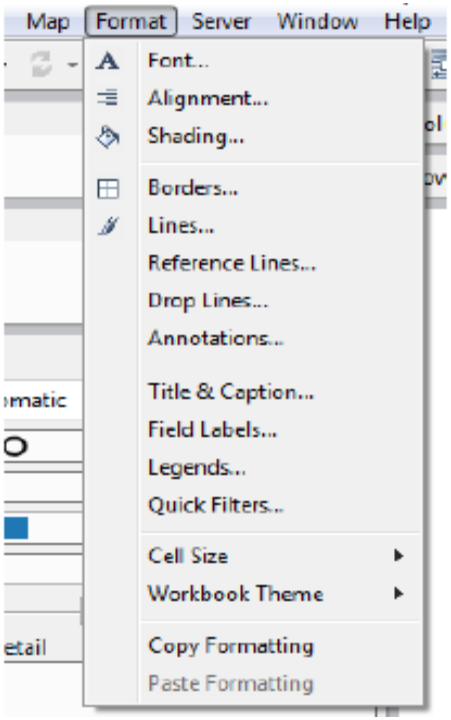
Dates and Times

- Working with dates in Tableau differs depending on whether you are using a Relational or Multidimensional Data Source.



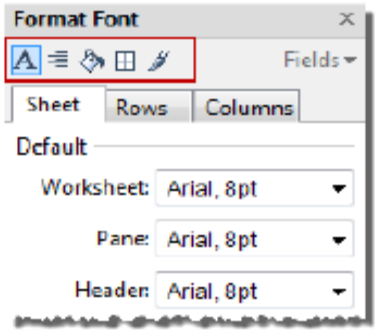
- **Changing Date Levels:** For multidimensional dates, the levels available in the context menu are given by the levels defined in the date hierarchy.

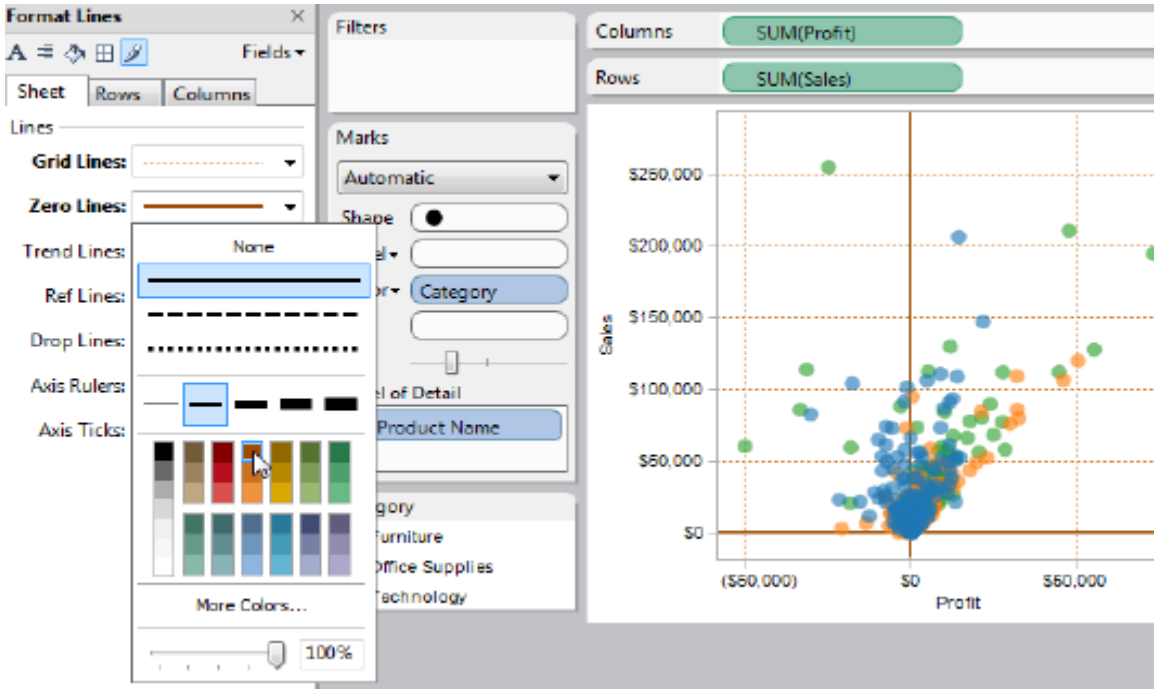
- Formatting
  - Formatting is an important part of both your analysis and presentation. You can format almost everything you see on a worksheet including the fonts, shading, alignment, borders, and graph lines.
- To open the Format window:



➢ Formatting

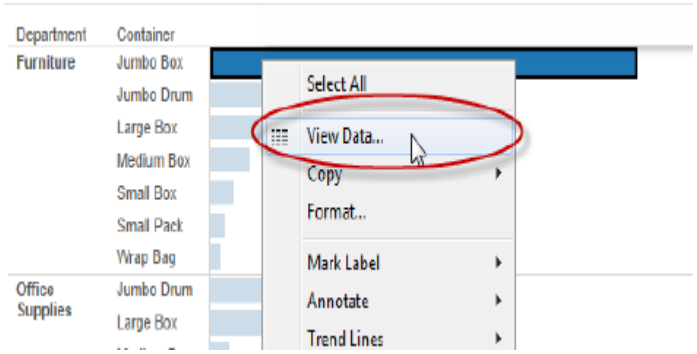
- The Format window opens on the left side of the workbook, replacing the Data window. At the top of the Format window, there is a toolbar where you can quickly switch between each of the types of format settings available.

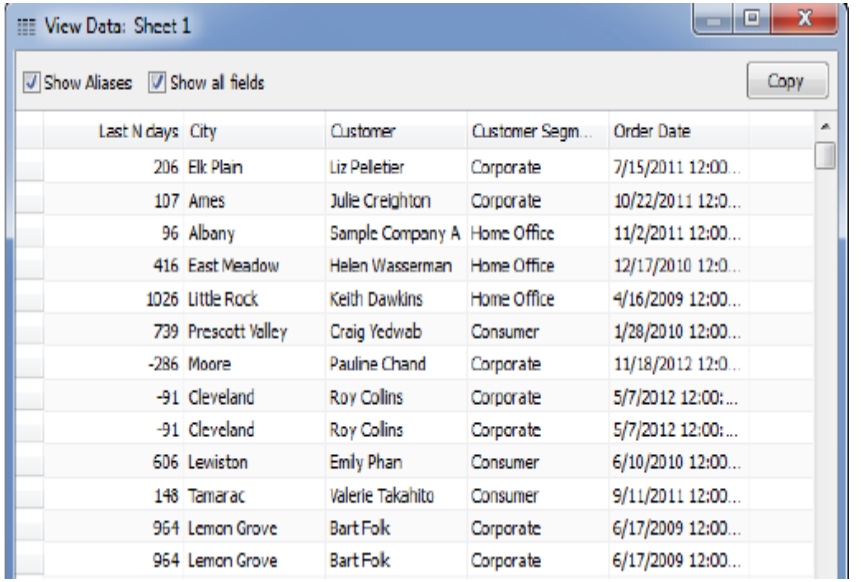




Inspecting Data

Once you have created a view, Tableau offers a selection of dynamic data inspection tools that help you isolate the data of interest and then continue to explore and analyze. For example, if you have a dense data view, you can focus on a particular region, select a group of outliers, view the underlying data source rows for each mark, and then view a summary of the selected marks include the average, minimum, and maximum values.

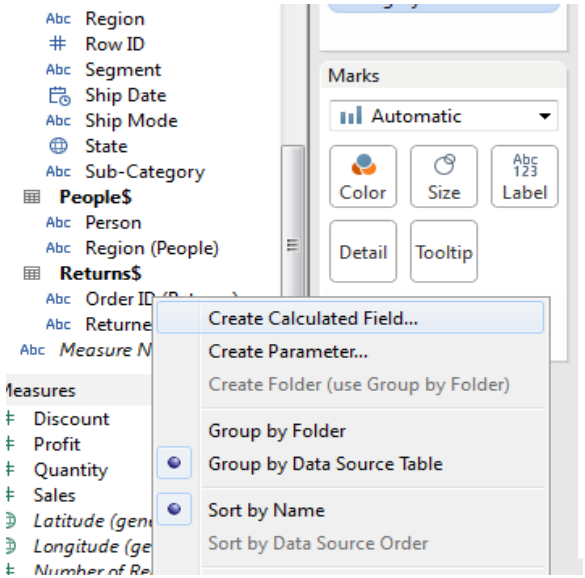


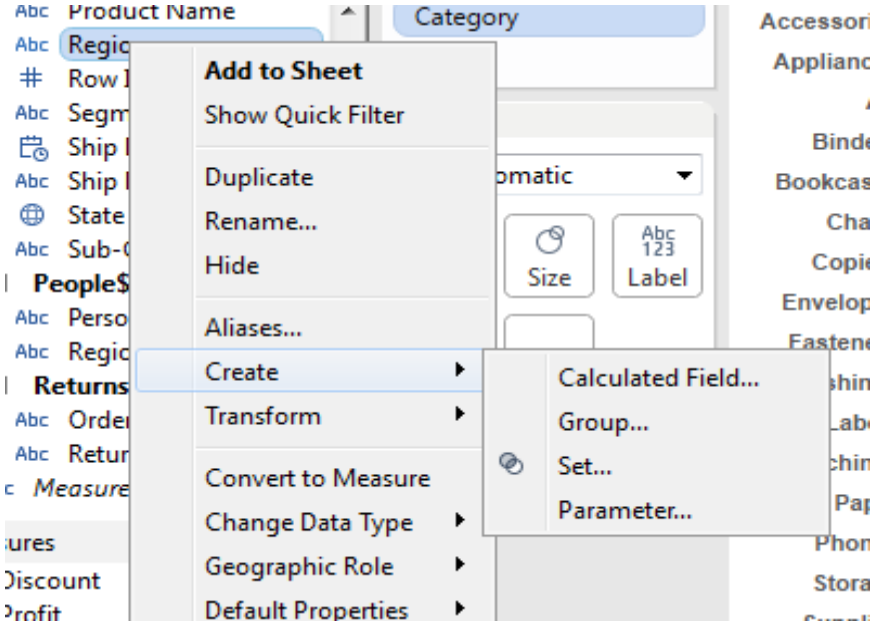


Parameters

Parameters are dynamic values that can replace constant values in calculations, filters, and reference lines.

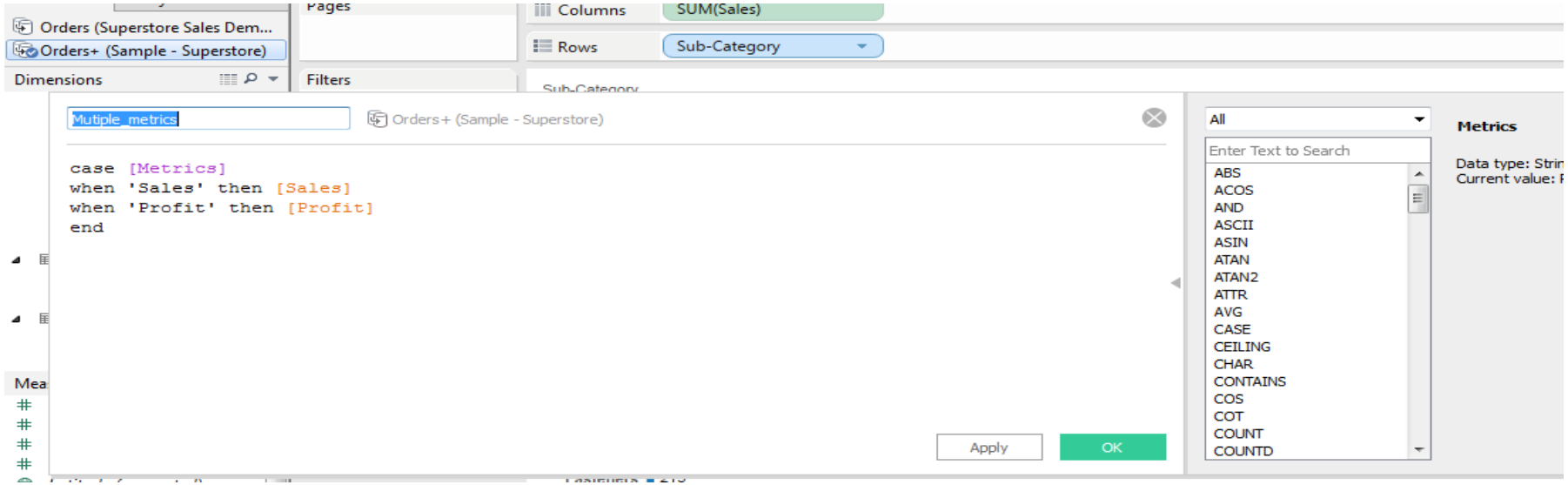
In the Calculated field dialog box, click the **create link at the top of the list of parameters** or right click a field.





Using Parameters in Calculations

- Parameters give you a way to dynamically modify values in a calculation. Rather than manually editing the calculation (and all dependent calculations), you can use a parameter. Then when you want to change the value, you open the parameter control, change the value, and all of the calculations that use that parameter are updated.



Q & A