

TABLEAU

A Business Intelligence tool



Tableau

Tableau is a visual analytical tool to present the large complex data into the readable & understandable format.

These days it is widely used by most of the business sectors as it provide great quality with ease.

Tableau can connect to 50+ data sources and gives us 24 types of charts.



Why Tableau?

- Speed
- User Friendly
- Eye-catching and Interactive Dashboards
- Direct Connection
- Easy Publishing and Sharing
- Growing Market



Tableau Products

- Tableau Desktop - to create the visualizations
- Tableau Public – a free version to create interactive visualizations.
- Tableau Online - cloud platform to share the visualizations.
- Tableau Server – to share the visualizations with the people in the organization
- Tableau Reader – to view visualizations created in Tableau can not edit.
- Tableau Prep – Used for cleaning the data



Installing Tableau

(14 Days Free Trial)

- Go to Tableau.com
- Click on Try Now
- Enter your Email id
- Click on Download free trail
- Double click the downloaded file to install it.
- Fill the registration form and get started.
- <https://public.tableau.com/en-us/s/download>





Connect

To a File

- Excel
- Text file
- Access
- JSON file
- PDF file
- Spatial file
- Statistical file
- More...

To a Server

- Tableau Server
- Microsoft SQL Server
- MySQL
- Oracle
- Amazon Redshift
- More...



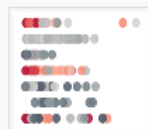
Saved Data Sources

- Sample - Superstore
- World Indicators

Open

[Open a Workbook](#)

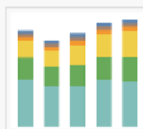
Sample Workbooks



Superstore



Regional



World Indicators

[More Samples](#)

Discover

Training

- Getting Started
- Connecting to Data
- Visual Analytics
- Understanding Tableau
- [More training videos...](#)

Viz of the Week

Pedigree Of The Teams Qualified
For World Cup 2018

Resources

- [Blog - Singapore's next generation
of data talent](#)
- [Tableau Conference - Register Now](#)
- [Forums](#)



Tableau

There are three basic steps involved in creating any Tableau report.

- **Connect to a data source** – It involves locating the data and using an appropriate type of connection to read the data.
- **Choose dimensions and measures** – This involves selecting the required columns from the source data for analysis.
- **Apply visualization technique** – This involves applying required visualization methods, such as a specific chart or graph type to the data being analyzed.



Tableau

The Sample Data: Tableau trial version comes with a sample data base 'Sample – Superstore.xls'. We can access this database at the below location:

`\Documents\ Documents\My Tableau
Repository\Datasources\10.4\en_US-US\ Sample – Superstore.xls`



Tableau & Excel a Comparison

In excel we summarise the data using pivot table. The similar functionality is provided in tableau in more comfortable manner. For Example let try to retrieve the category wise product sales from Sample – Superstore database.

- Using Excel
- Using Tableau



Live and Extract Connection

Tableau provides two types of connections:

1. Live Connection

Data

Analytics

 Sheet1 (AgentData)

2. Extract

(A saved subset of a data source)

Data

Analytics

 Sheet1 (AgentData)



Tableau Data Types

There are 6 data types in Tableau:

1. Number (#)
2. String / Text (ABC)
3. Date (📅)
4. Geographic (🌐)
5. Boolean (True / False)
6. DATE & TIME



View Data

To view the data source data we need to click on view data button. Alternatively we can drag and drop the sheet in Sheet Area

Tableau - Book1 - Tableau license expires in 4 days

File Data Server Window Help

Connections [Add](#)

Sample - Superstore
Excel

Sheets

- Orders
- People
- Returns
- New Union

Sample - Superstore

View Data: Orders

10 rows

Category	City	Country	Customer ID	Customer Name	Order Date	Order ID	Product ID	Product Name
Furniture	Henderson	United States	CG-12520	Claire Gute	11/8/2016	CA-2016-152156	FUR-BO-10001798	Bush Some
Furniture	Henderson	United States	CG-12520	Claire Gute	11/8/2016	CA-2016-152156	FUR-CH-10000454	Hon Deluxe
Office Supplies	Los Angeles	United States	DV-13045	Darrin Van Huff	6/12/2016	CA-2016-138688	OFF-LA-10000240	Self-Adhes
Furniture	Fort Lauderdale	United States	SO-20335	Sean O'Donnell	10/11/2015	US-2015-108966	FUR-TA-10000577	Bretford CF
Office Supplies	Fort Lauderdale	United States	SO-20335	Sean O'Donnell	10/11/2015	US-2015-108966	OFF-ST-10000760	Eldon Fold
Furniture	Los Angeles	United States	BH-11710	Brosina Hoffman	6/9/2014	CA-2014-115812	FUR-FU-10001487	Eldon Expre
Office Supplies	Los Angeles	United States	BH-11710	Brosina Hoffman	6/9/2014	CA-2014-115812	OFF-AR-10002833	Newell 322
Technology	Los Angeles	United States	BH-11710	Brosina Hoffman	6/9/2014	CA-2014-115812	TEC-PH-10002275	Mitel 5320
Office Supplies	Los Angeles	United States	BH-11710	Brosina Hoffman	6/9/2014	CA-2014-115812	OFF-BI-10003910	DXL Angle-
Office Supplies	Los Angeles	United States	BH-11710	Brosina Hoffman	6/9/2014	CA-2014-115812	OFF-AP-10002892	Belkin FSC

☐ Show hidden fields

Source Sheet 1

View Data

To view the specific number of records we can specify the number in row count box.

Tableau - Book1 - Tableau license expires in 4 days

File Data Server Window Help

Connections [Add](#)

Sample - Superstore
Excel

Sheets

- Orders
- People
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- New Union

Sample - Superstore

View Data: Orders

10 rows

Category	City	Country	Customer ID	Customer Name	Order Date	Order ID	Product ID	Product Name
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Furniture	Henderson	United States	CG-12520	Claire Gute	11/8/2016	CA-2016-152156	FUR-CH-10000454	Hon Deluxe
Office Supplies	Los Angeles	United States	DV-13045	Darrin Van Huff	6/12/2016	CA-2016-138688	OFF-LA-10000240	Self-Adhes
Furniture	Fort Lauderdale	United States	SO-20335	Sean O'Donnell	10/11/2015	US-2015-108966	FUR-TA-10000577	Bretford CF
Office Supplies	Fort Lauderdale	United States	SO-20335	Sean O'Donnell	10/11/2015	US-2015-108966	OFF-ST-10000760	Eldon Fold
Furniture	Los Angeles	United States	BH-11710	Brosina Hoffman	6/9/2014	CA-2014-115812	FUR-FU-10001487	Eldon Expre
Office Supplies	Los Angeles	United States	BH-11710	Brosina Hoffman	6/9/2014	CA-2014-115812	OFF-AR-10002833	Newell 322
Technology	Los Angeles	United States	BH-11710	Brosina Hoffman	6/9/2014	CA-2014-115812	TEC-PH-10002275	Mitel 5320
Office Supplies	Los Angeles	United States	BH-11710	Brosina Hoffman	6/9/2014	CA-2014-115812	OFF-BI-10003910	DXL Angle-
Office Supplies	Los Angeles	United States	BH-11710	Brosina Hoffman	6/9/2014	CA-2014-115812	OFF-AP-10002892	Belkin FSC

☐ Show hidden fields

Data Source Sheet 1



View Data

To hide a particular column we need to click on the column and select hide.

Tableau - Book1 - Tableau license expires in 4 days

File Data Server Window Help

Connections [Add](#)

Sample - Superstore
Excel

Sheets

- Orders
- People
- Returns
- New Union

Orders (Sample - Superstore)

Connection ☒ Live ☐ Extract

Filters 0 [Add](#)


Sort fields Data source order

☐ Show aliases ☒ Show hidden fields 1,000 rows

# Orders Row ID	Abc Orders Ship Date	Abc Orders Ship Mode	Abc Orders Customer ID	Abc Orders Customer Name	Abc Orders Segment	Abc Orders Country		
	11/11/2016	Second Class	CG-12520	Claire Gute	Consumer	United States		
	11/11/2016	Second Class	CG-12520	Claire Gute	Consumer	United States		
	6/16/2016	Second Class	DV-13045	Darrin Van Huff	Corporate	United States		
	10/18/2015	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States		
	10/18/2015	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States		
	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer	United States		
7	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer	United States
8	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer	United States

Go to Worksheet

Data Source Sheet1



Column Formatting

Rename – Double Click on the column and edit the name.

Copy – Select the column / Row copy and paste it in Excel

Split – Split the Column as per spaces.

File Data Server Window Help

Connections Add

Sample - Superstore Excel

Sheets

Orders

People

Returns

New Union

Orders (Sample - Superstore)

Connection ☒ Live ☐ Extract Filters 0 | Add

Orders

Sort fields Data source order

☐ Show aliases ☐ Show hidden fields 1,000 rows

#	Orders	Orders	Orders	Orders	Orders	Orders	Orders
Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer ID	Customer Name	
1	CA-2016-152156	11/8/2016	11/11/2016	Second Class	CG-12520	Claire Gute	
2	CA-2016-152156	11/8/2016	11/11/2016	Second Class	CG-12520	Claire Gute	
3	CA-2016-138688	6/12/2016	6/16/2016	Second Class	DV-13045	Darrin Van Huff	
4	US-2015-108966	10/11/2015	10/18/2015	Standard Class	SO-20335	Sean O'Donnell	
5	US-2015-108966	10/11/2015	10/18/2015	Standard Class	SO-20335	Sean O'Donnell	
6	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	
7	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	
8	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	

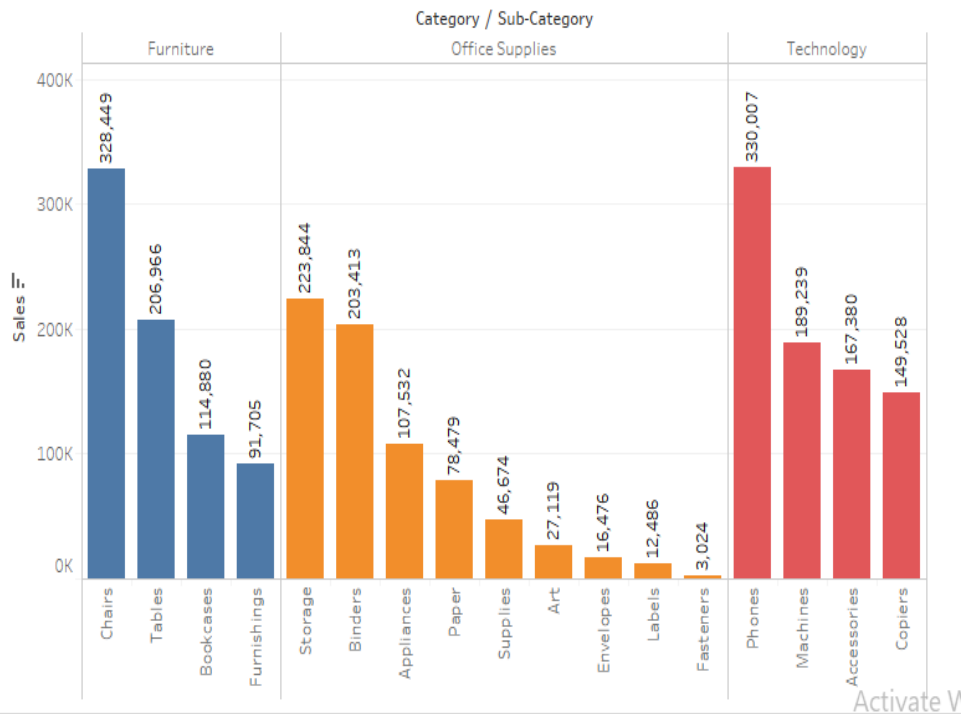
Data Source Sheet 1

ASSIGNMENT



A-1 create a Graph display category & subcategory wise sales

A-2 Category, Region & Sub-Category wise Profit



Category	Sub-Catego..	Region			
		Central	East	South	West
Furniture	Bookcases	-1,998	-1,168	1,339	-1,647
	Chairs	6,593	9,358	6,612	4,028
	Furnishings	-3,906	5,881	3,443	7,641
	Tables	-3,560	-11,025	-4,623	1,483
Office Supplies	Appliances	-2,639	8,391	4,124	8,261
	Art	1,195	1,900	1,059	2,374
	Binders	-1,044	11,268	3,901	16,097
	Envelopes	1,778	1,812	1,465	1,909
	Fasteners	237	264	174	275
	Labels	1,073	1,129	1,041	2,303
	Paper	6,972	9,015	5,947	12,119
	Storage	1,970	8,389	2,274	8,645
	Supplies	-662	-1,155	2	626
Technology	Accessories	7,252	11,196	7,005	16,485
	Copiers	15,609	17,023	3,659	19,327
	Machines	-1,486	6,929	-1,439	-619
	Phones	12,323	12,315	10,767	9,111



Sorting Columns

By default the order of the fields we get in Tableau is same as it is in the data source. These fields can be sorted using the sort filed option.

The screenshot shows the Tableau interface with the 'Orders' table selected. The 'Sort fields' dropdown menu is open, showing options for sorting the data. The table displays columns: Row ID, Order ID, Ship Date, Ship Mode, Customer ID, Customer Name, Segment, and Country. The data is sorted by Row ID in ascending order.

# Orders Row ID	Abc Orders Order ID	Abc Orders Ship Date	Abc Orders Ship Mode	Abc Orders Customer ID	Abc Orders Customer Name	Abc Orders Segment	Abc Orders Country	
1	CA-2016-152156	11/8/2016	11/11/2016	Second Class	CG-12520	Claire Gute	Consumer	United States
2	CA-2016-152156	11/8/2016	11/11/2016	Second Class	CG-12520	Claire Gute	Consumer	United States
3	CA-2016-138688	6/12/2016	6/16/2016	Second Class	DV-13045	Darrin Van Huff	Corporate	United States
4	US-2015-108966	10/11/2015	10/18/2015	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States
5	US-2015-108966	10/11/2015	10/18/2015	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States
6	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer	United States
7	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer	United States
8	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer	United States

Sorting Rows/Data

To arrange the data in ascending or descending order we need to click on small icon with the field name

Tableau - Book1 - Tableau license expires today

File Data Server Window Help

Connections [Add](#)

Sample - Superstore
Excel

Sheets

- Orders
- People
- Returns
- New Union

Orders (Sample - Superstore)

Connection ☒ Live ☐ Extract

Orders

Sort fields Data source order

☐ Show aliases ☐ Show hidden

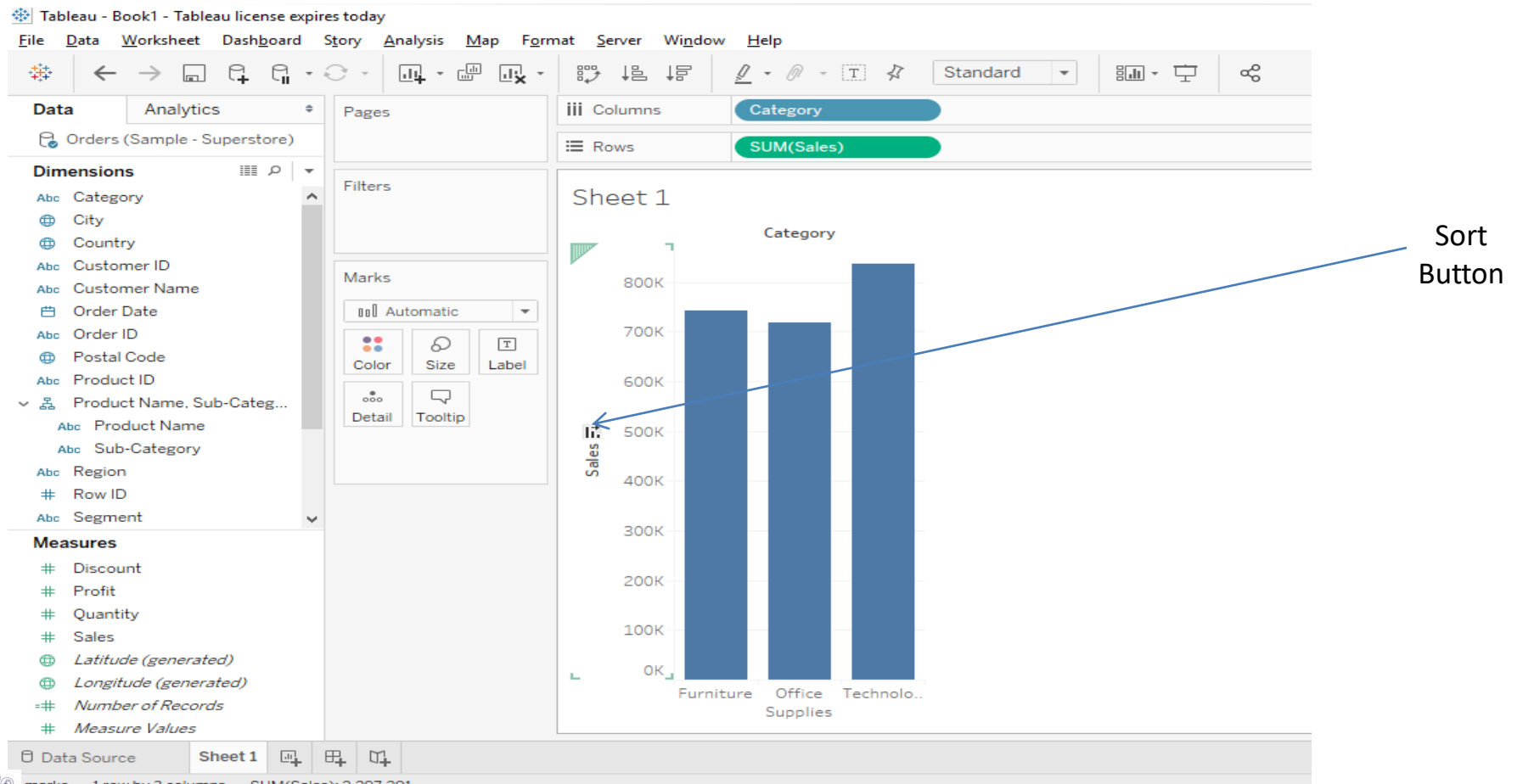
# Orders Row ID	Abc Orders Order ID	Orders Order Date	Orders Ship Date	Abc Orders Ship Mode	Abc Orders Customer ID	Abc Orders Customer Name	Abc Orders Segment
1	CA-2016-152156	11/8/2016	11/11/2016	Second Class	CG-12520	Claire Gute	Consumer
2	CA-2016-152156	11/8/2016	11/11/2016	Second Class	CG-12520	Claire Gute	Consumer
3	CA-2016-138688	6/12/2016	6/16/2016	Second Class	DV-13045	Darrin Van Huff	Corporate
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6	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer
7	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer
8	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer

Go to Worksheet

Data Source Sheet1

Sorting Rows/Data

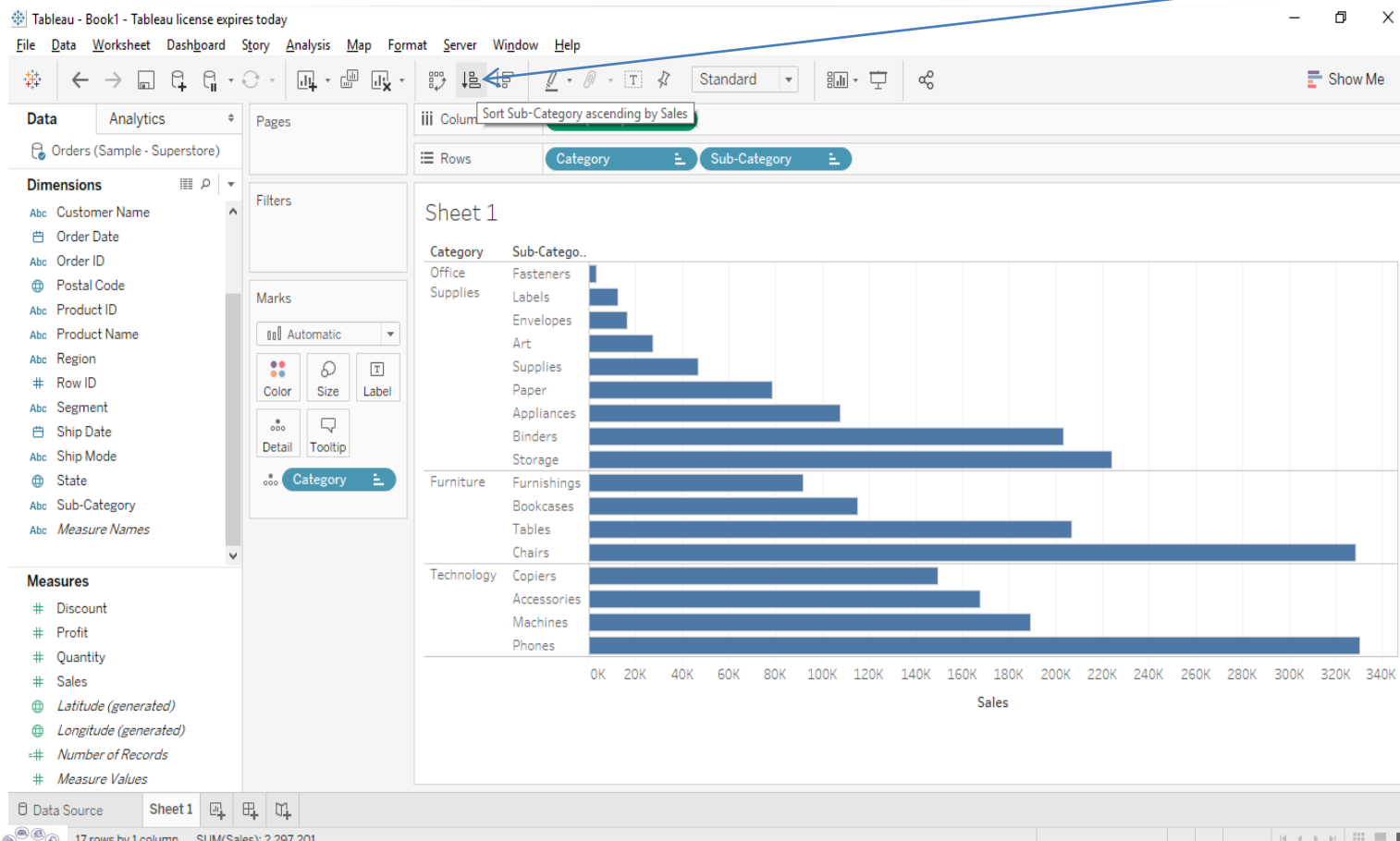
Quick Sort : The quick sort button enables us to sort the graph in ascending or descending order.



Sorting Rows/Data

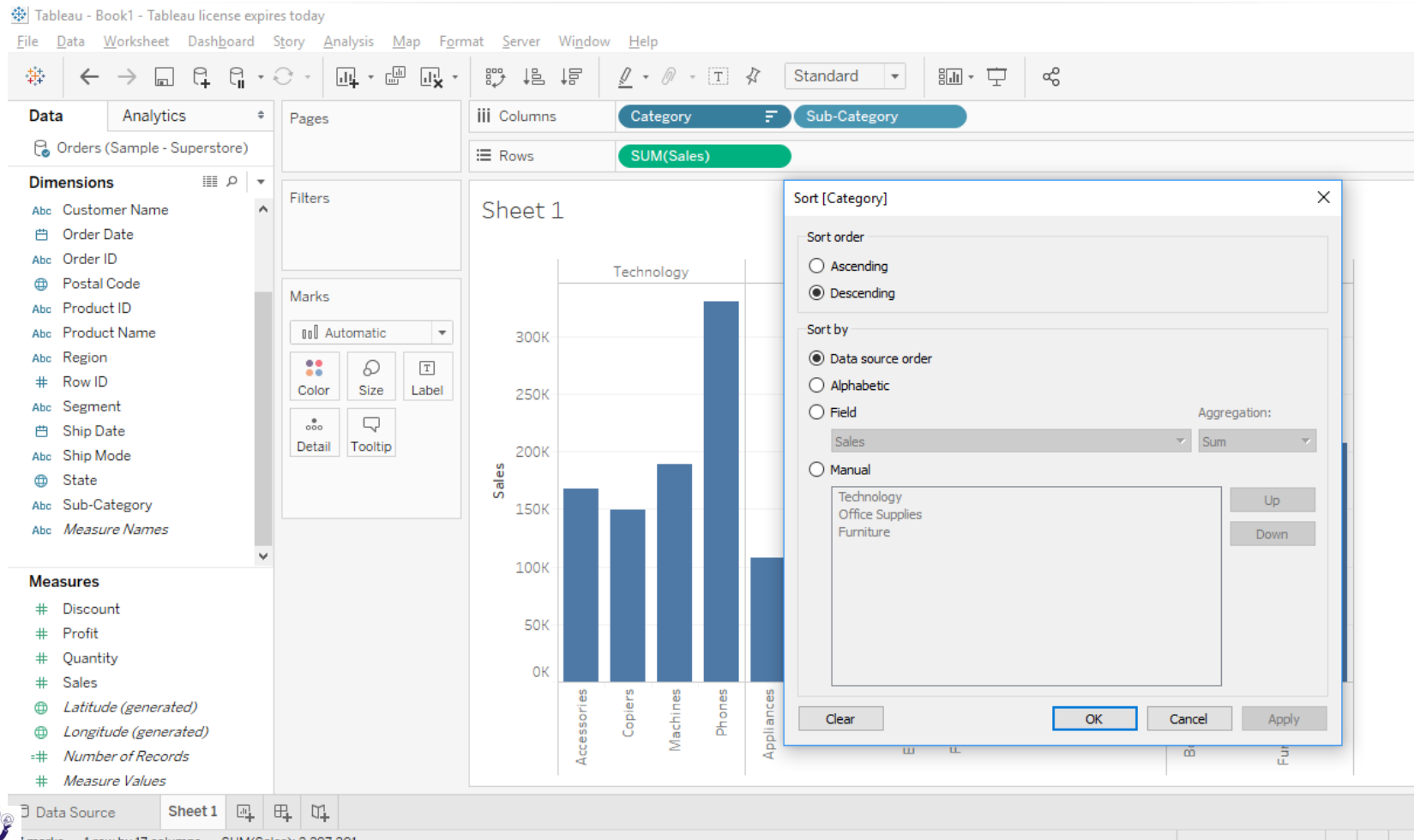
Toolbar Sort : To sort through toolbar we need to select the respective pill and click on the sort button.

Sort
Buttons



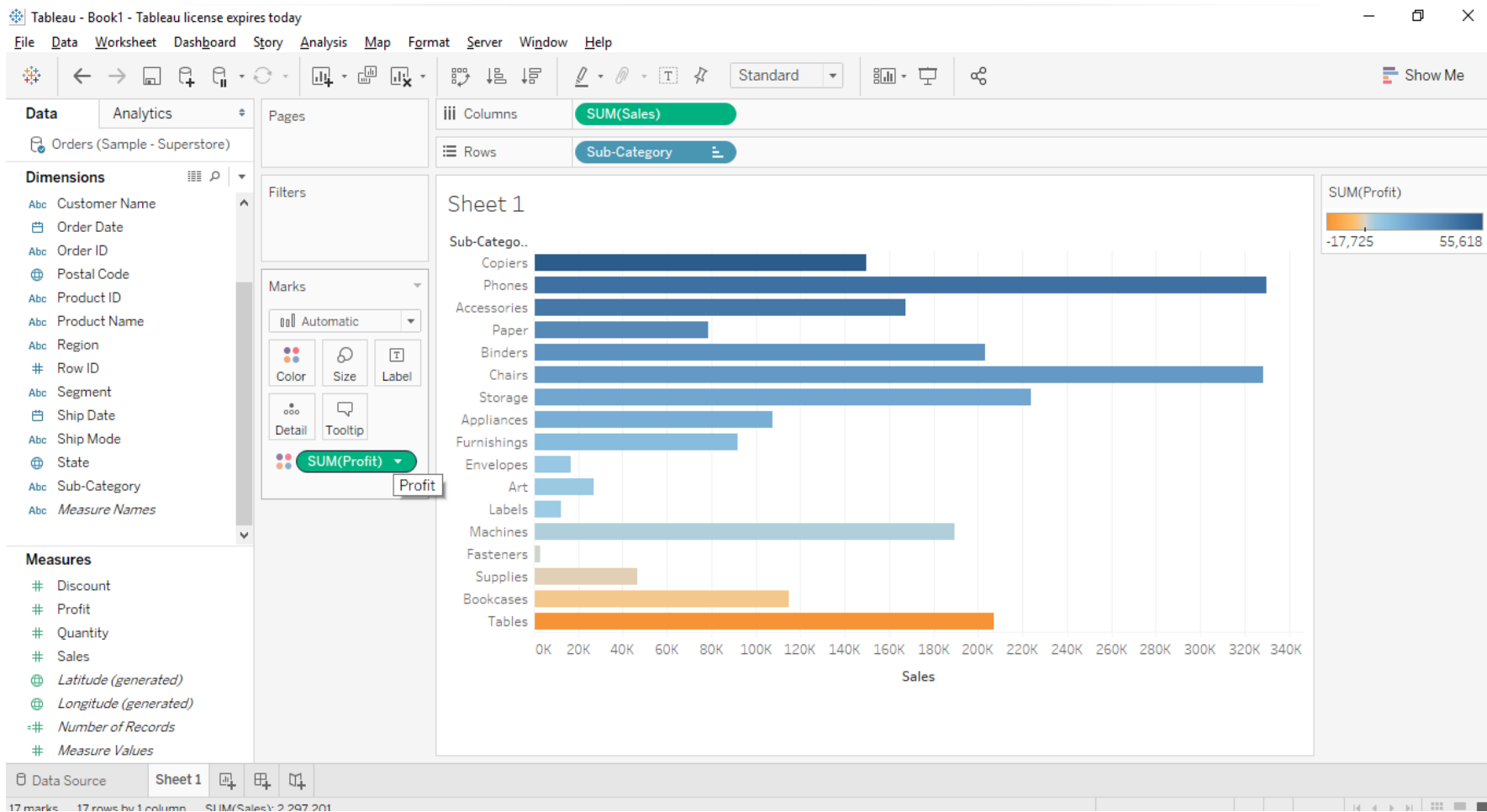
Sorting Rows/Data

Sorting By Pills : This gives us few advance options.



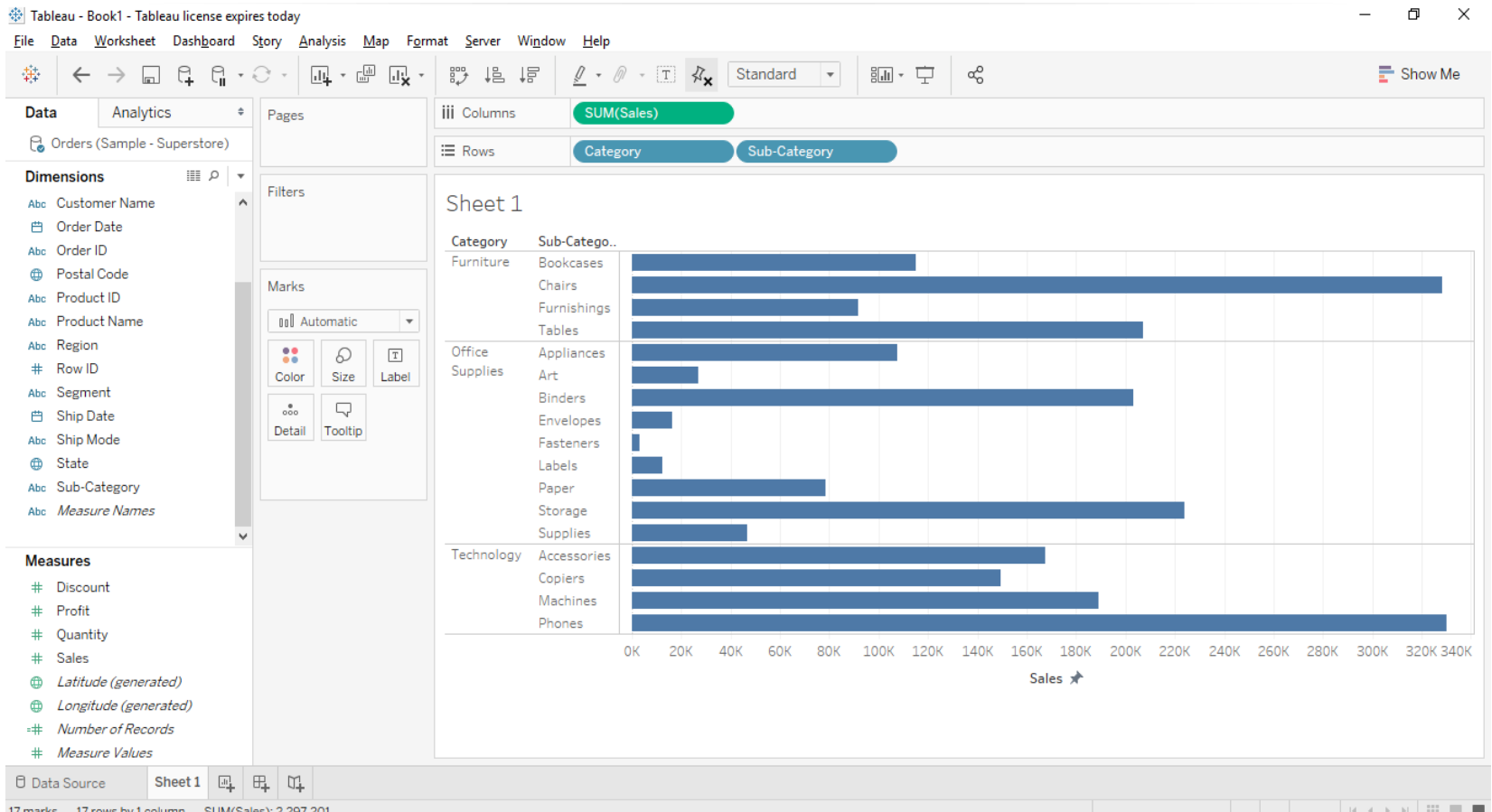
Sorting Rows/Data

Sorting By Marks Card



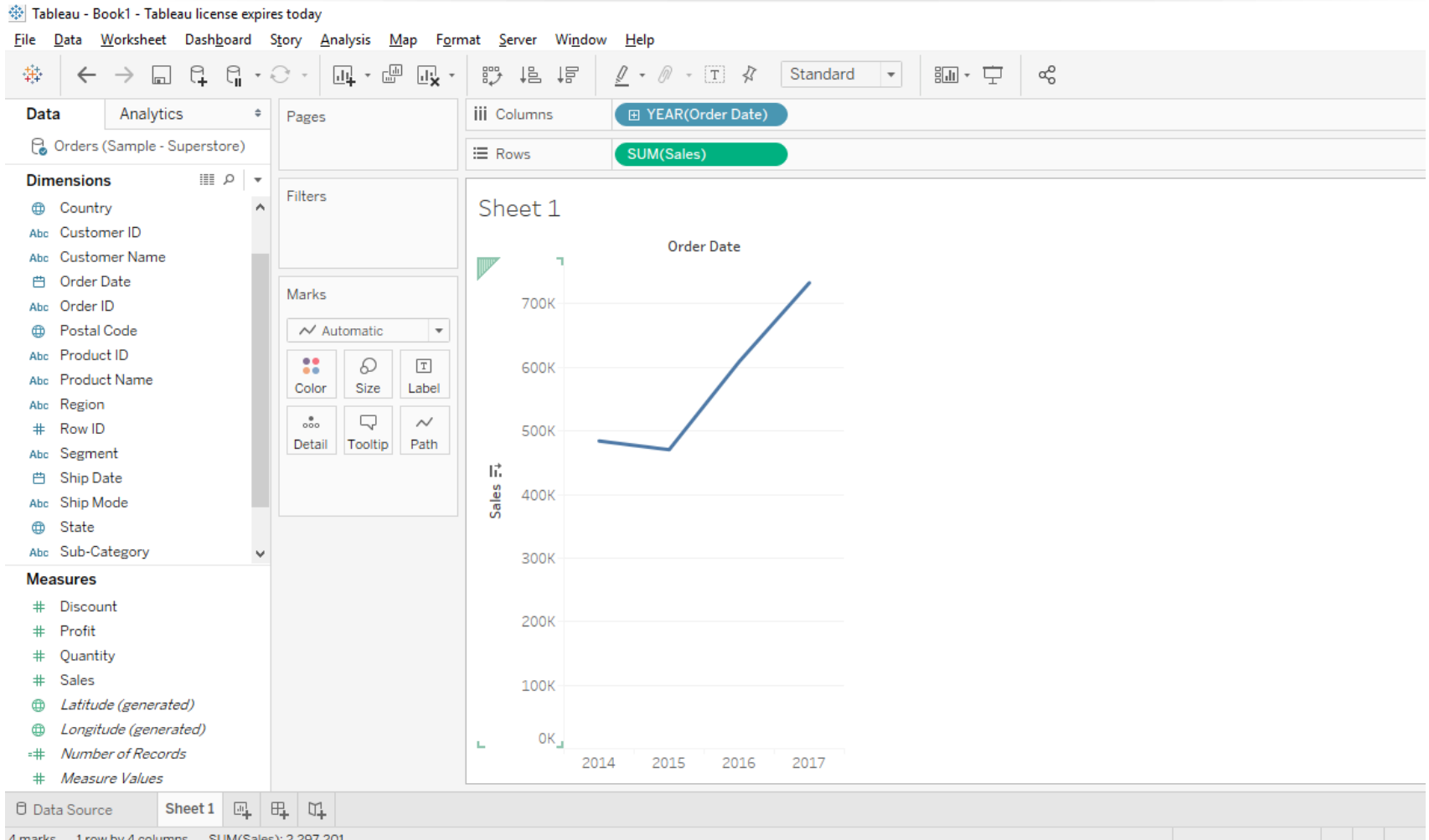
Creating Hierarchy

We can create the hierarchy of fields by dropping one field into another.



Auto Hierarchy

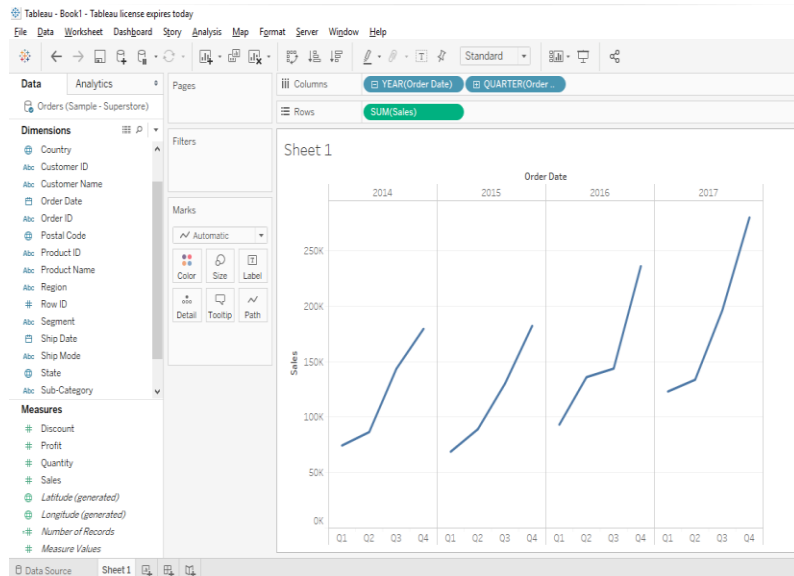
Tableau create the auto hierarchy for date fields



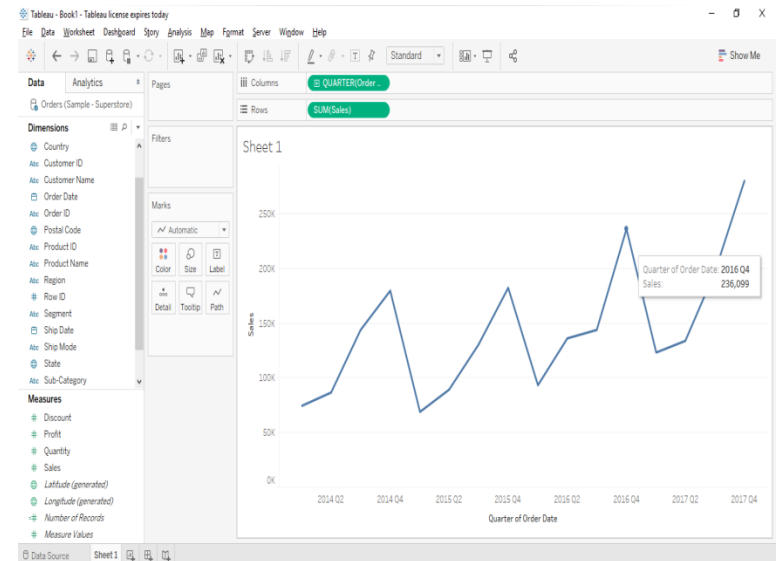
Auto Hierarchy

Auto hierarchy can be displayed using

1. Discrete
2. Continuous Graphs



Discrete Graph



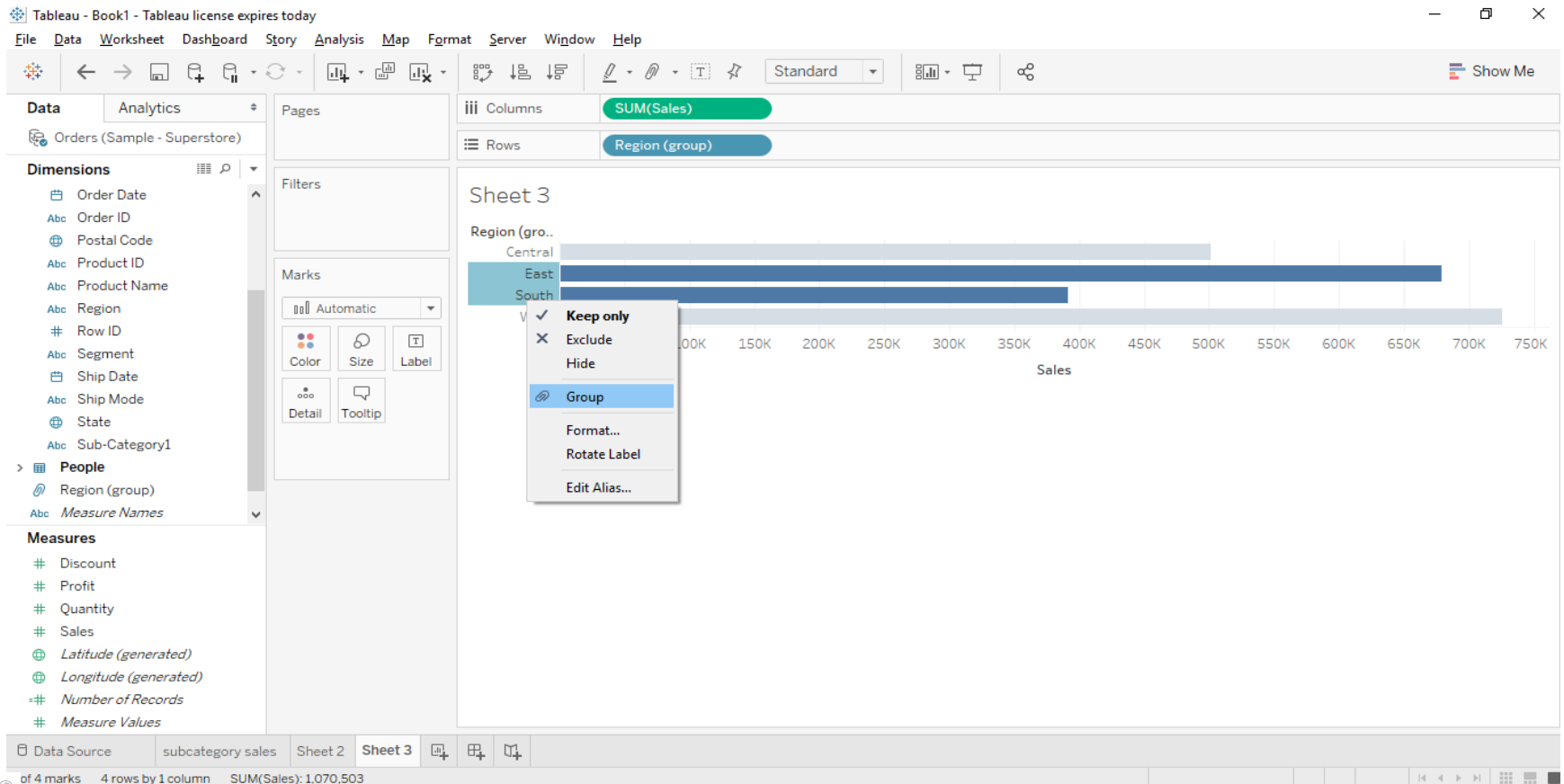
Continuous Graph

To remove the hierarchy Right click on the hierarchy and select Remove hierarchy



Grouping

Tableau also allows us to compare the one particular segment with rest of the segments by grouping the other segments as one.



Grouping Through Data Pane

In the data pane right click on the dimension on which we need to create a group and select create group.

The screenshot shows the Tableau Desktop interface with a horizontal bar chart titled 'Sheet 3'. The chart displays sales data grouped by 'Sub-Category1'. A 'Create Group' dialog box is open, allowing the user to create a new group for the selected dimension.

Tableau Interface Details:

- Data Pane:** Dimensions include Order Date, Order ID, Postal Code, Product ID, Product Name, Region, Row ID, Segment, Ship Date, Ship Mode, State, and Sub-Category1 (selected). Measures include Discount, Profit, Quantity, Sales, Latitude (generated), Longitude (generated), Number of Records, and Measure Values.
- Columns Shelf:** SUM(Sales)
- Rows Shelf:** Sub-Category1
- Marks Card:** Set to 'Automatic'.
- Chart:** A horizontal bar chart showing sales for various sub-categories. The x-axis is labeled 'Sales' and ranges from 0K to 340K.

Create Group [Sub-Category1] Dialog Box:

- Field Name:** Sub-Category1 (group)
- Groups:** A list of sub-categories is shown, with 'Accessories' selected.
- Buttons:** Group, Rename, Ungroup, Show Add Location (checked), Include 'Other' (unchecked), Find >>, Reset, OK, Cancel, Apply.

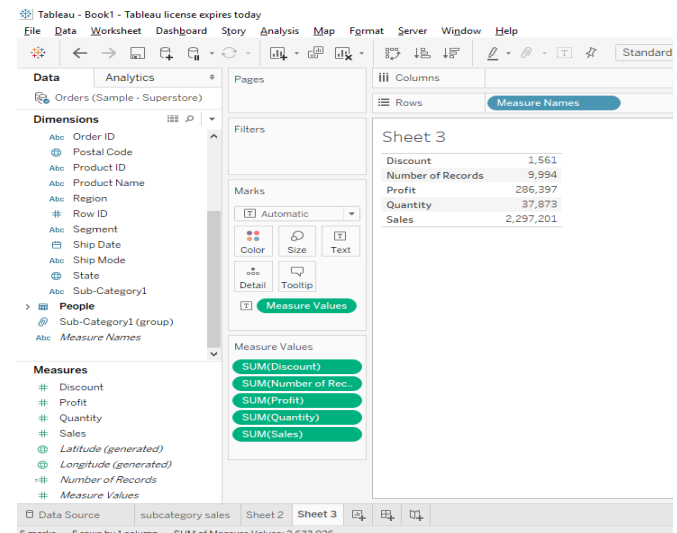
Sub-Category Sales Data (Approximate):

Sub-Category	Sales (Approximate)
Accessories	320K
Appliances	20K
Art	20K
Binders	20K
Bookcases	20K
Chairs	20K
Copiers	20K
Envelopes	20K
Fasteners	20K
Furnishings	20K
Labels	20K
Machines	20K
Paper	20K
Phones	20K
Storage	20K
Supplies	20K
Tables	20K

Auto Generated Fields

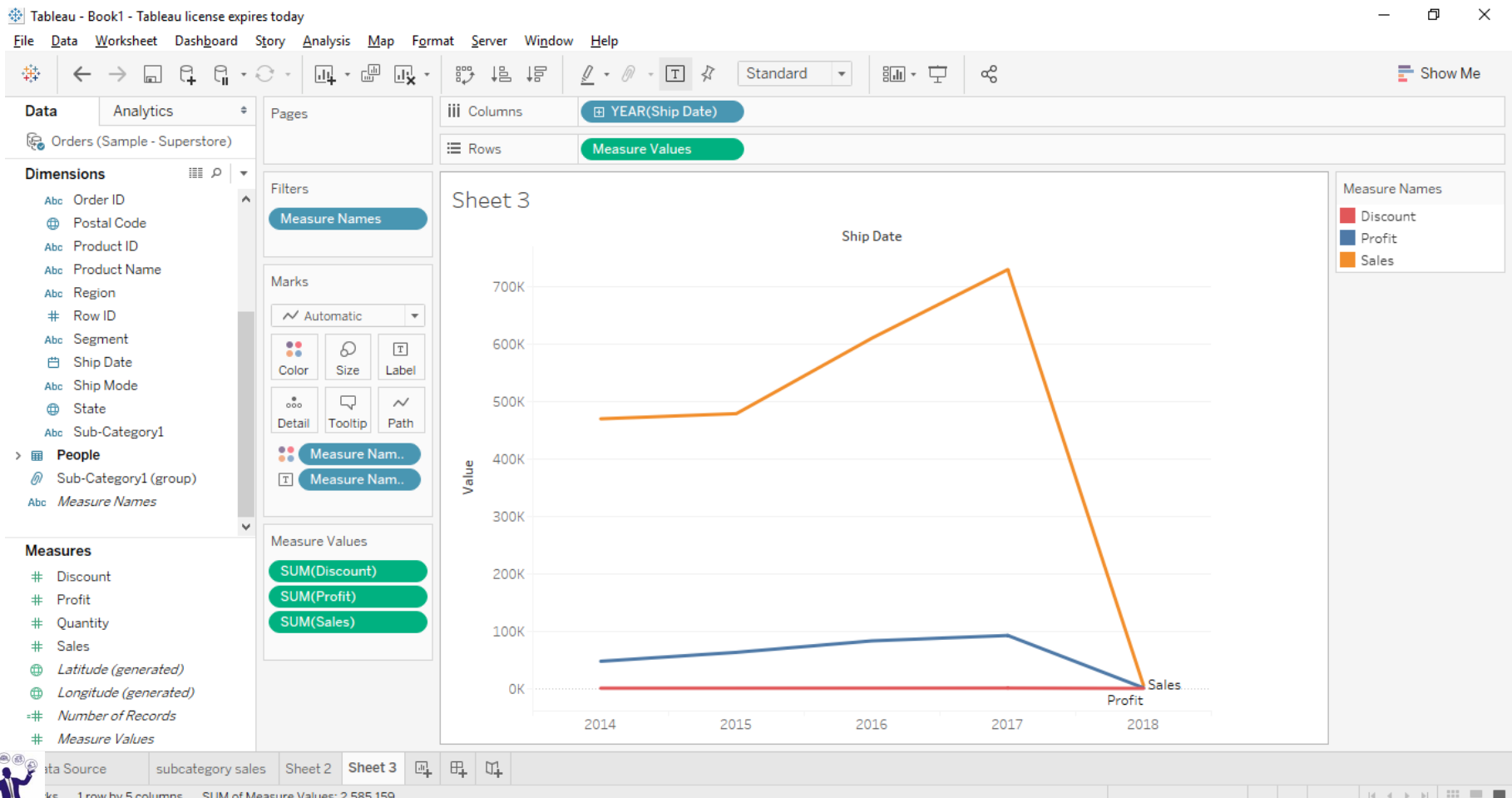
When connecting to the data source Tableau generates five fields:

1. *Number of Records* – Total no of records in data source.
2. *Longitude* – In maps
3. *Latitude* – In Maps
4. *Measure Value*
5. *Measure Name* – Summary of all numbers



Utilizing Measure Name

Measure name can be utilized to display multiple measure value on the single graph.



Discrete & Continuous Values

Discrete are the fields from the data source which have different values and Continuous are the fields which are aggregated.

Discrete- Highlighted in Blue

Continuous - Highlighted in Green

Discrete field gives separate colors

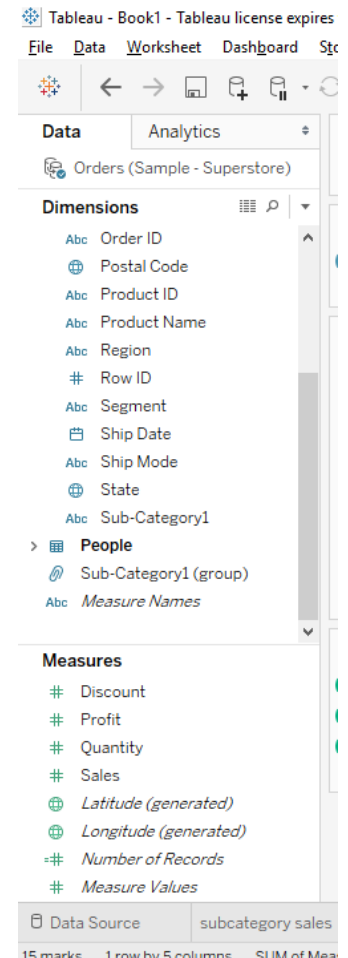
Continuous field gives gradient color.

Filtering on the Discrete field gives the exact values to filter.

Filtering on the Continuous field gives the range to filter.

Discrete field in maps gives colored dots (symbol graph)

Continuous field in maps gives filled maps (gradient color).



ASSIGNMENT



A-1 Display year wise Sales, Discount, Profit & Quantity using Measures Names

A-2 Display Sales using Hierarchy for Region, Segment, Category, Subcategory

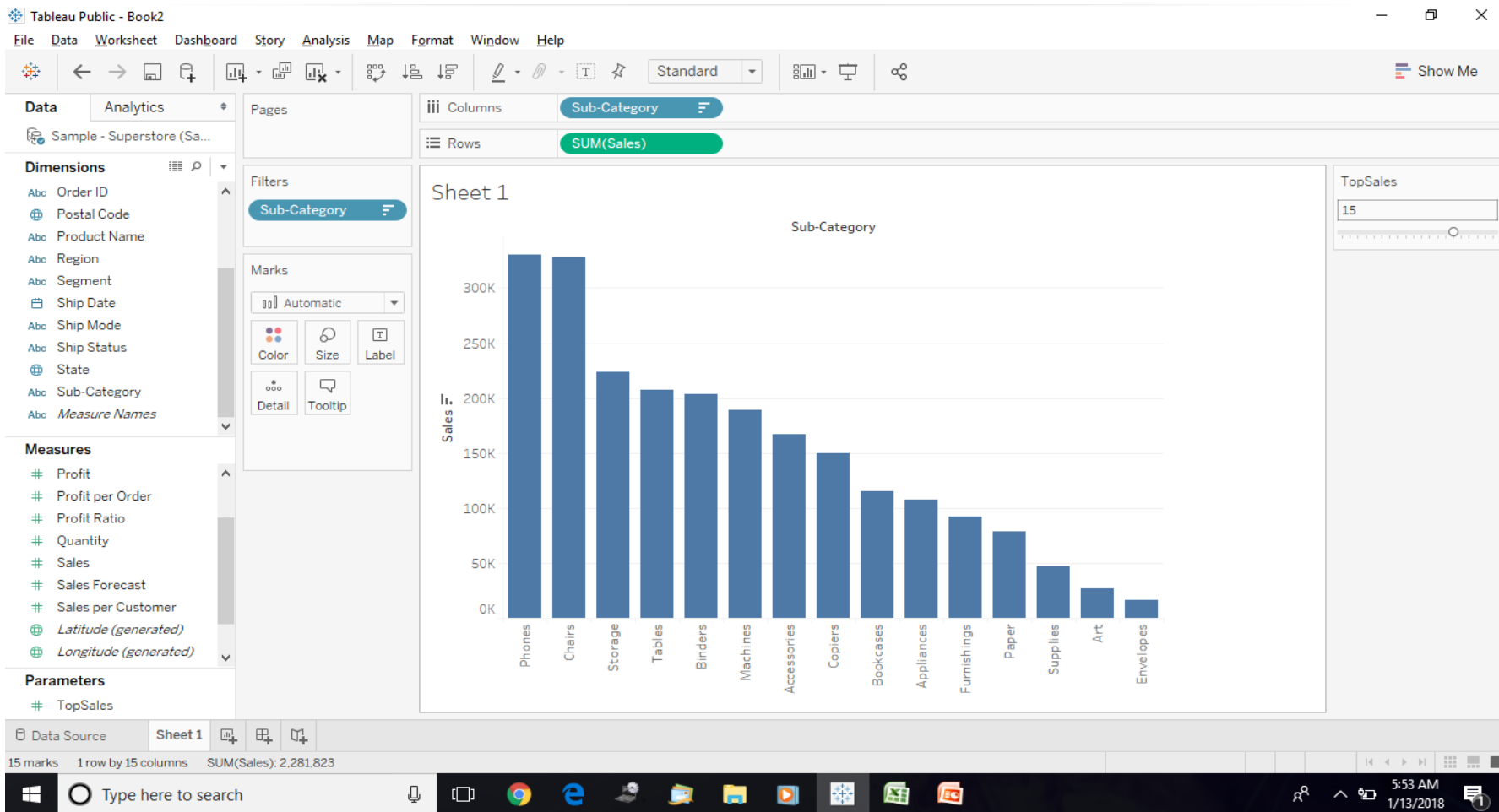
A-3 Create a horizontal Bar chart to represent subcategory sales, all stationary related subcategories like paper, label etc should be grouped as Stationary.

A-4 Represent Subcategory wise profit in graphical manner, arranged in the descending order of profit.



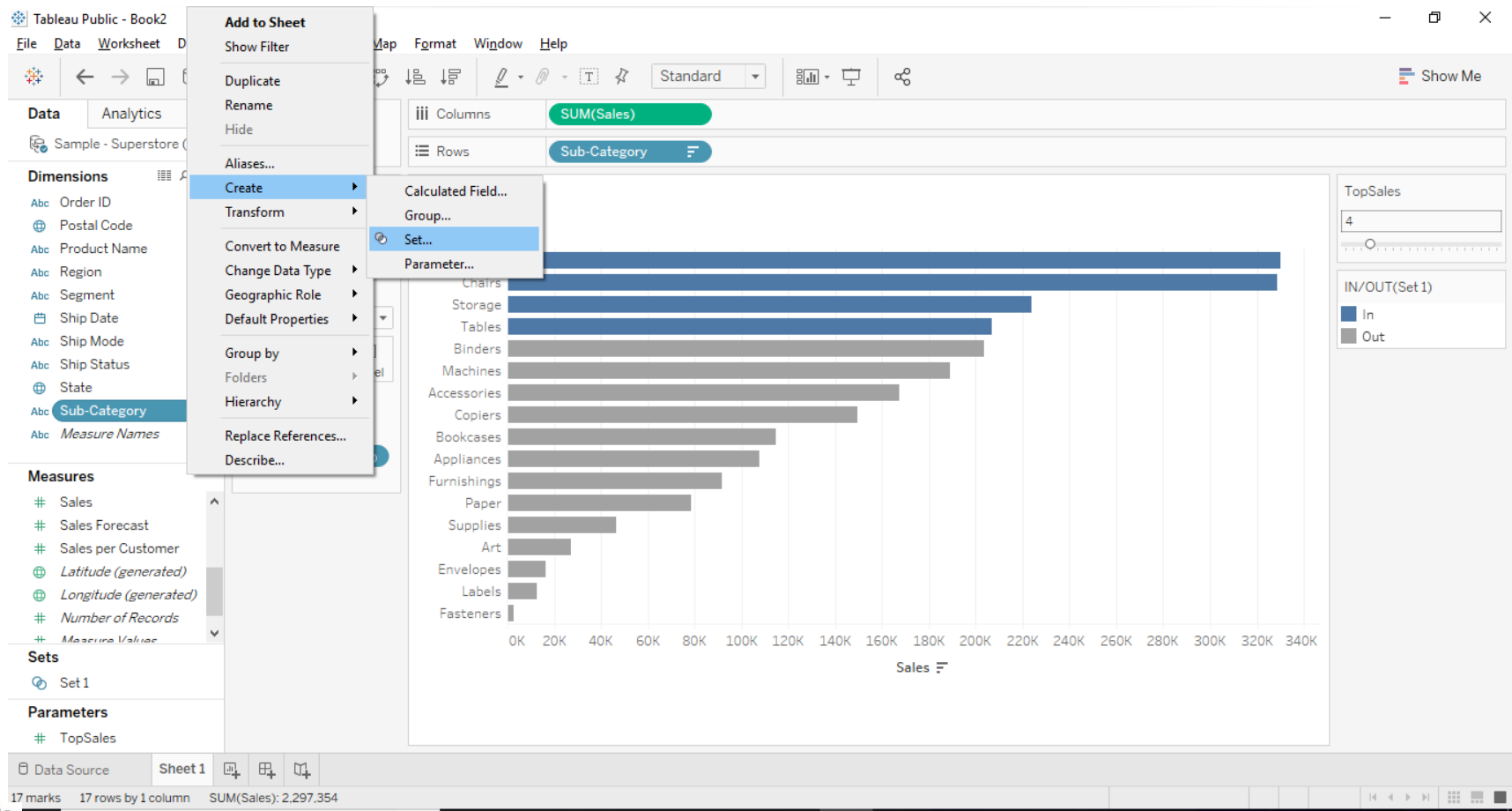
Adding Parameters

Parameters are the dynamic values that can replace the constant values in calculations or filters. We can make our chart dynamic by adding parameter to it. This will allow the user to manipulate the chart at runtime.



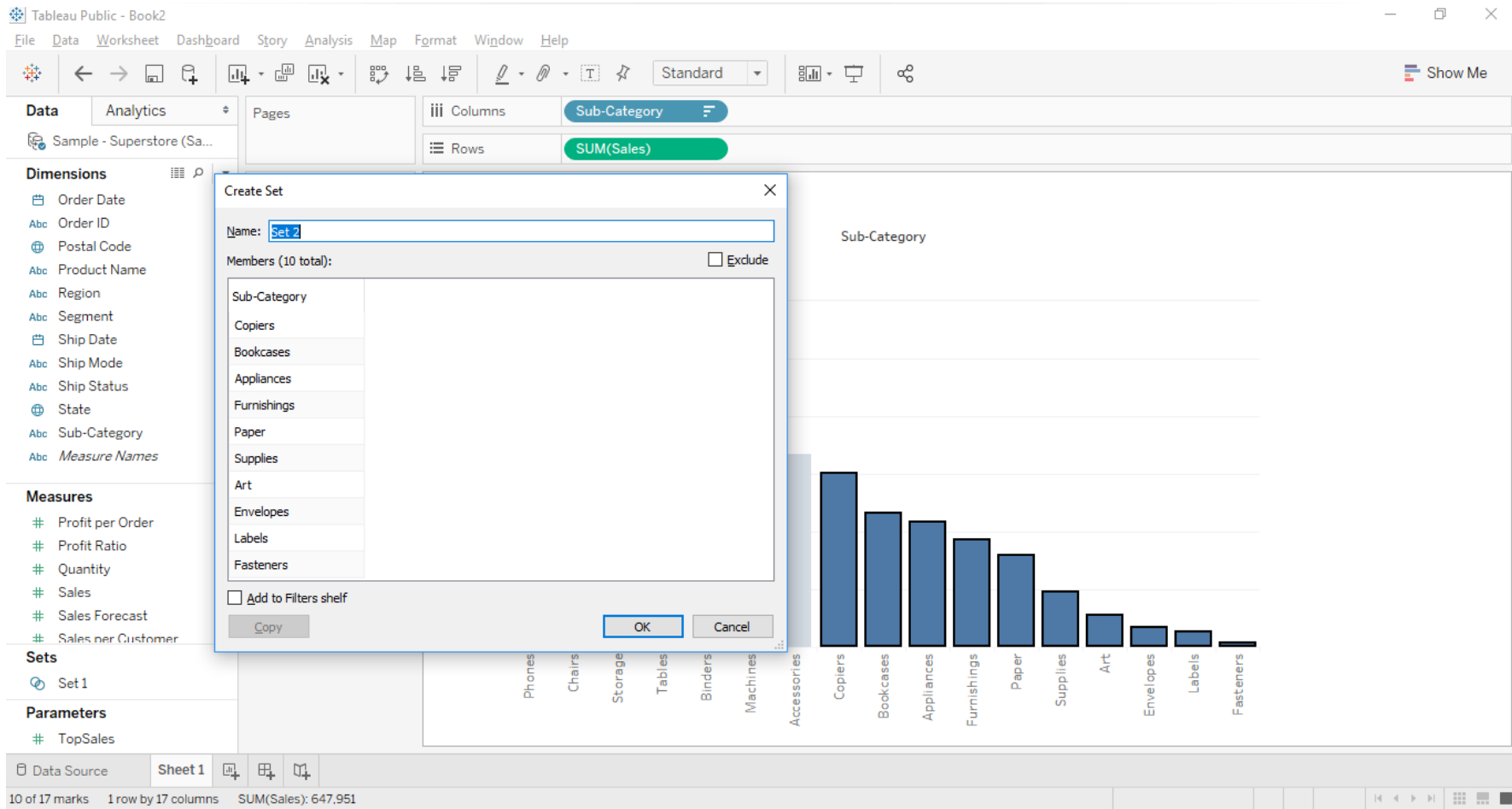
Creating Sets

Set can be used to highlight the specific number of values in the chart.



Creating Sets

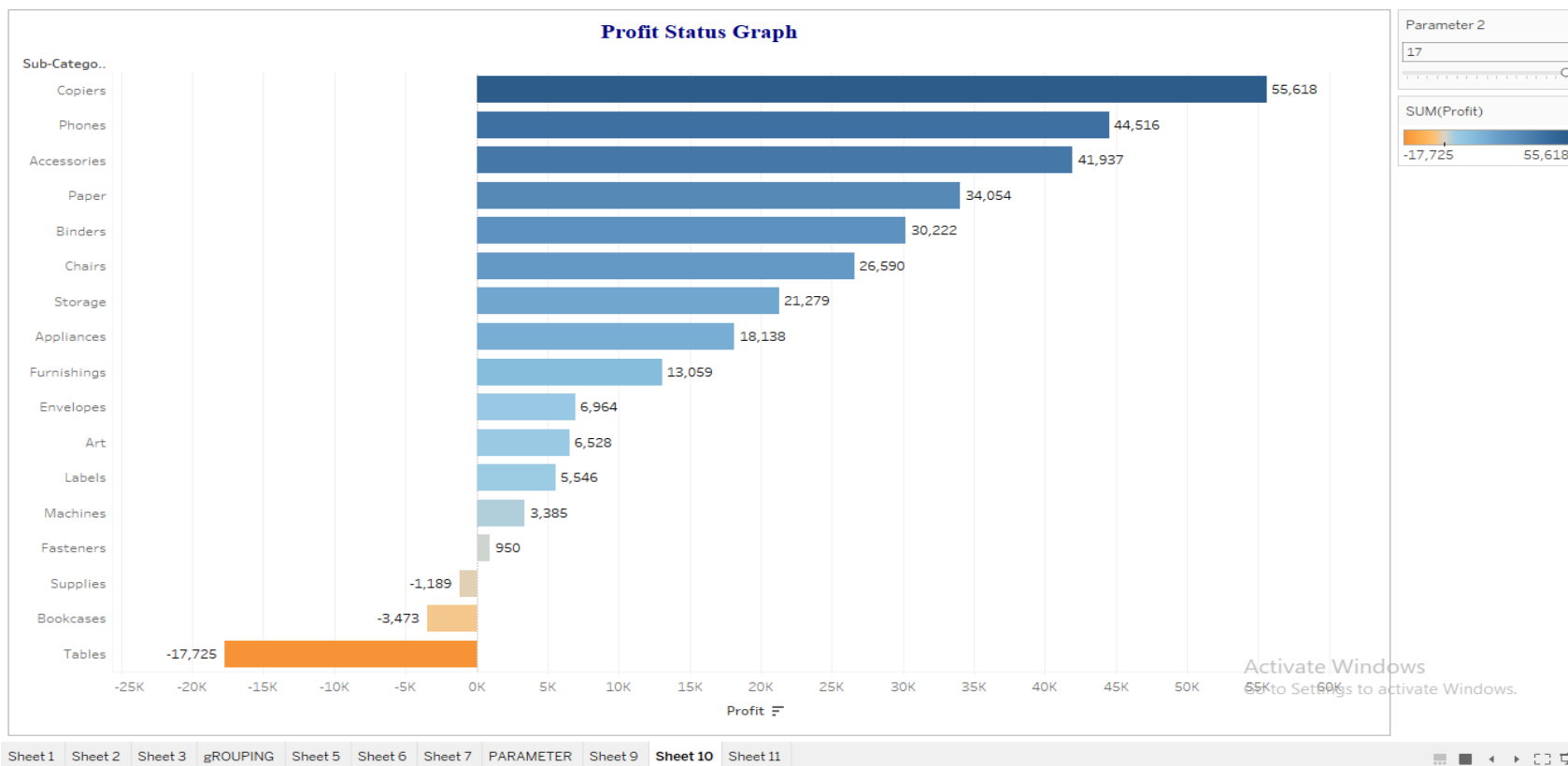
The short cut method.



ASSIGNMENT



- A-1 Interactive Graph to highlight top 5 Profit generating categories —(Use Parameter)
- A-2 Interactive category & subcategory wise sales - (using sets)
- A-3 YEAR wise segment wise sales



Using Combines

Combine allow us to do the collective analysis on fields.

Eg: Comparing Region wise, Category & Sub Category wise Sales.

Tableau Public - Book2

File Data Worksheet Dashboard Story Analysis Map Format Window Help

Data Analytics

Sample - Superstore (...)

Dimensions

- Order Date
- Order ID
- Postal Code
- Product Name
- Region
- Segment
- Ship Date
- Ship Mode
- Ship Status
- State
- Sub-Category
- Measure Names

Measures

- Sales
- Sales Forecast
- Sales per Customer
- Latitude (generated)
- Longitude (generated)
- Number of Records
- Measure Values

Sets

- Set1

Parameters

- TopSales

Columns

Rows

Category, Sub-Categ...

Sheet 1

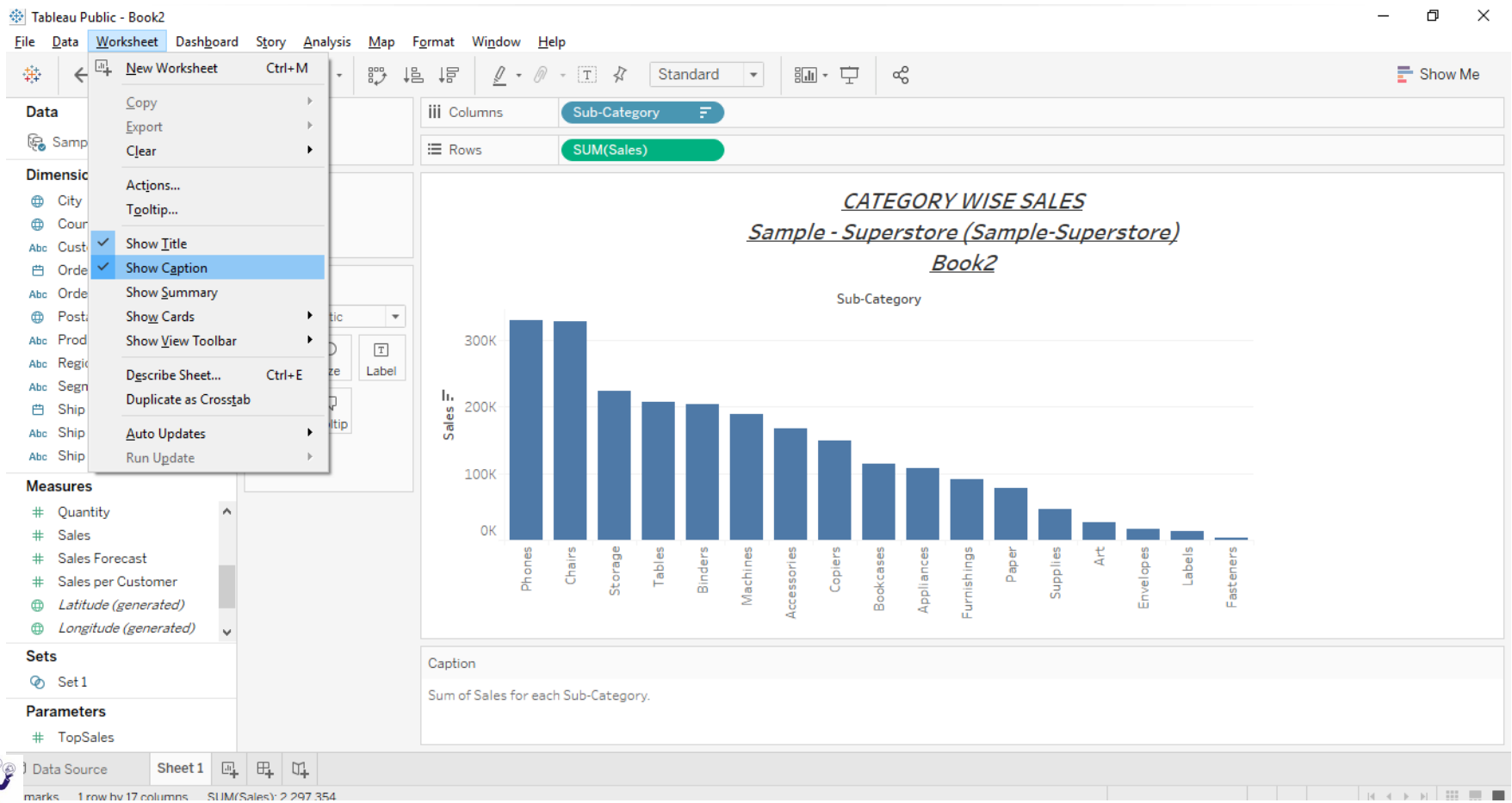
Category, Sub-Category, Region (Combined)

Furniture, Bookcases, Central	24,153
Furniture, Bookcases, East	43,819
Furniture, Bookcases, South	10,900
Furniture, Bookcases, West	36,007
Furniture, Chairs, Central	85,228
Furniture, Chairs, East	96,263
Furniture, Chairs, South	45,177
Furniture, Chairs, West	101,786
Furniture, Furnishings, Central	15,256
Furniture, Furnishings, East	29,067
Furniture, Furnishings, South	17,310
Furniture, Furnishings, West	30,072
Furniture, Tables, Central	39,152
Furniture, Tables, East	39,142
Furniture, Tables, South	43,919
Furniture, Tables, West	84,755
Office Supplies, Appliances, Central	23,582
Office Supplies, Appliances, East	34,191
Office Supplies, Appliances, South	19,525
Office Supplies, Appliances, West	30,240
Office Supplies, Art, Central	5,763
Office Supplies, Art, East	7,498



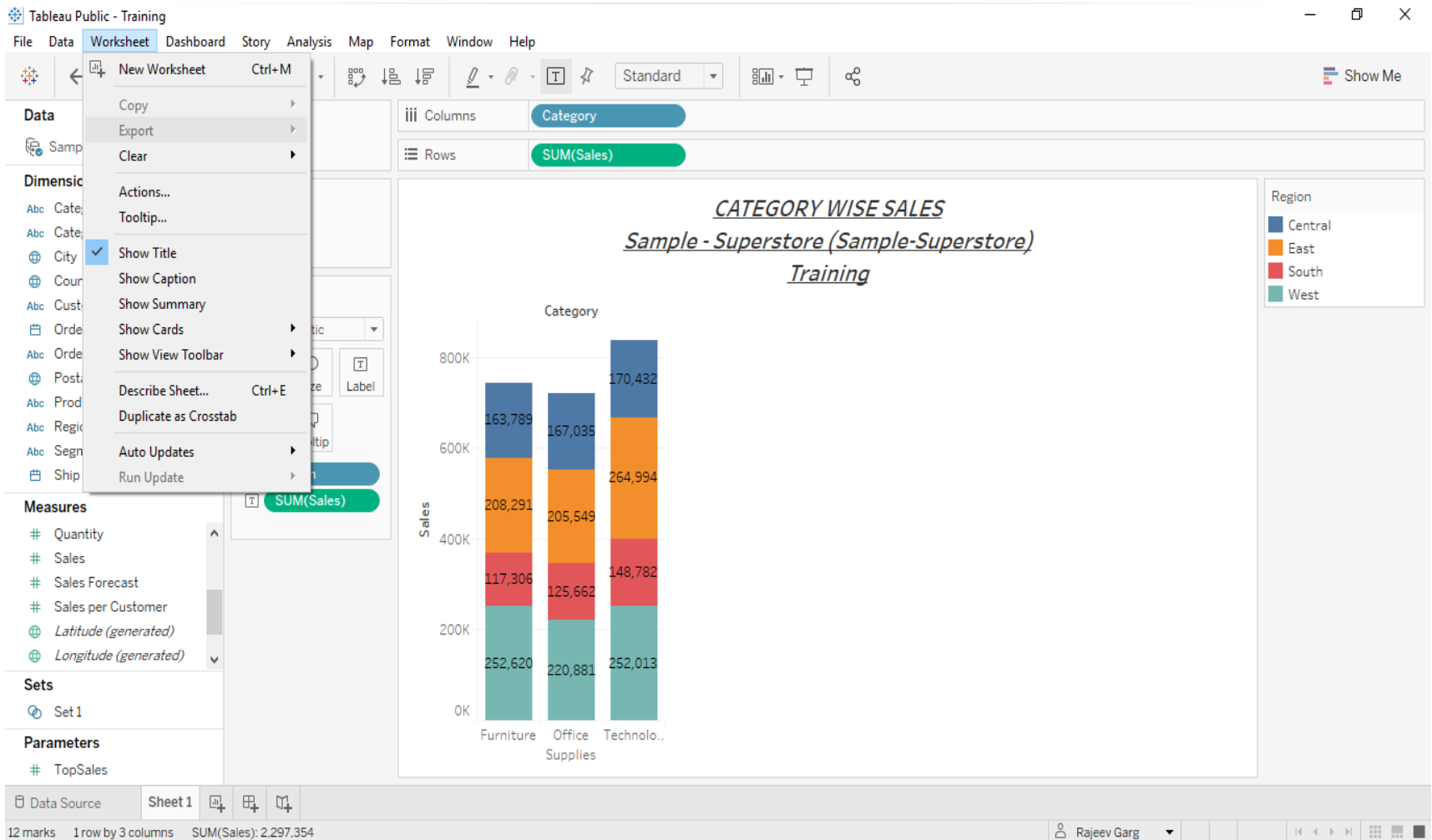
Titles & Captions

By Default Tableau displays the sheet name as the chart title. We can edit this and provide more appropriate title. Also Tableau allows us the format these titles by using simple formatting options.



Exporting Data

Tableau data can be exported to various destinations like PDF, Excel, PowerPoint, Access, word, etc.



Granularity

Granularity means breaking down the data.

