

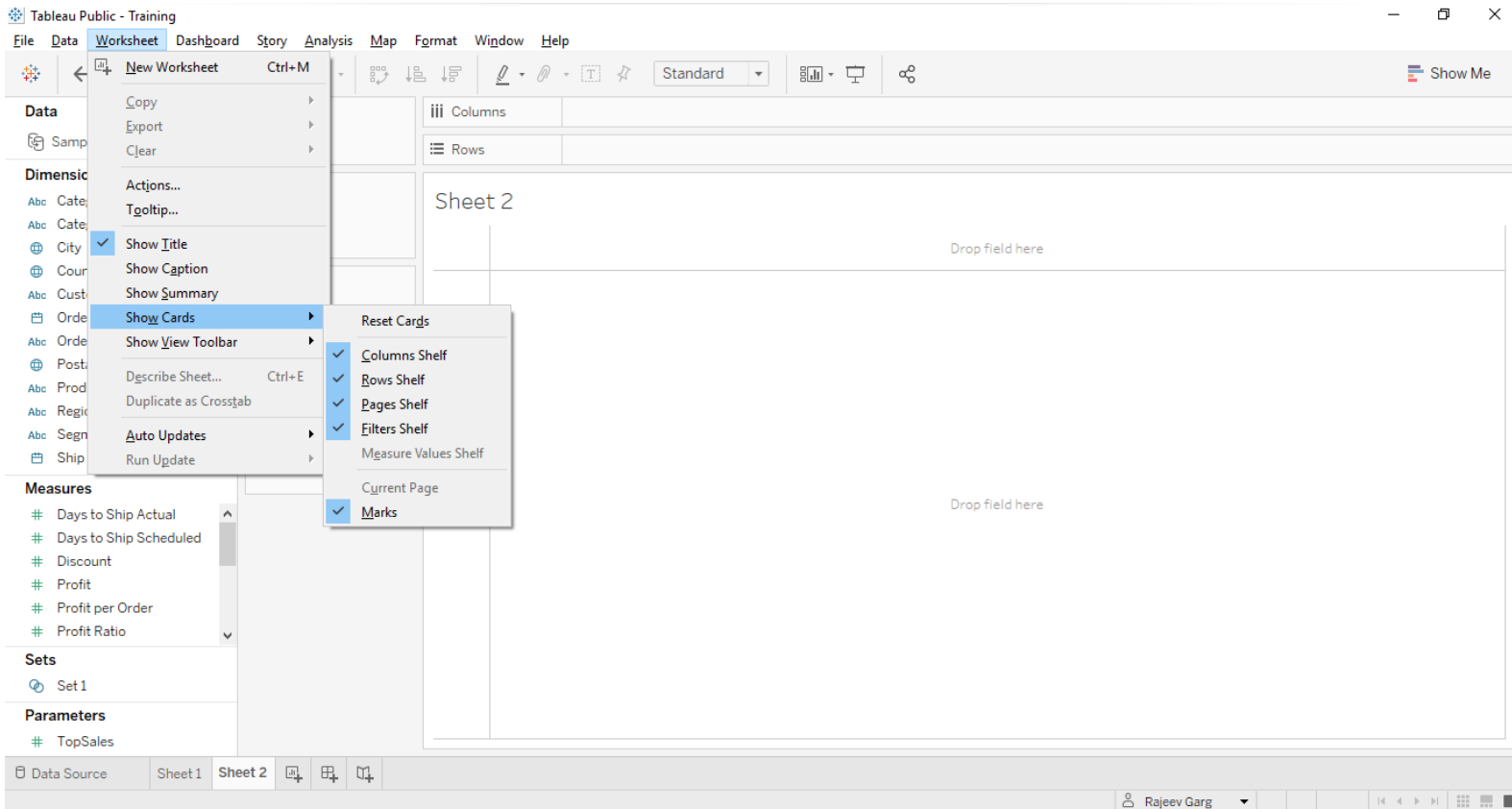
# Cards & Shelf

The various sections of Tableau worksheet are known as cards.

Marks Card, Page Card, Filter Card, Row Card, Column Card.

The place in front of column & row card is known as Shelf.

These cards can be manipulated through Worksheet menu.



# Managing Metadata

Managing metadata means :

1. Hiding a Field
2. Renaming a Field
3. Creating Hierarchies / Auto Hierarchies
4. Create folder – easier navigation through fields.
5. Creating a Calculated field



# ASSIGNMENT



Display Sales on the Basis of Region, Category, Subcategory.  
Should be Interactive on Region with Dynamic Title & Caption.

All the fields related to customer should be in the Customer folder & product related fields in Products folder

Segment wise monthly cost on the basis of shipping date

Display sales value using a combined field for Region, Segment Category



# Joins

Joins allows us to analyze the data from more than one source.

Types of joins:

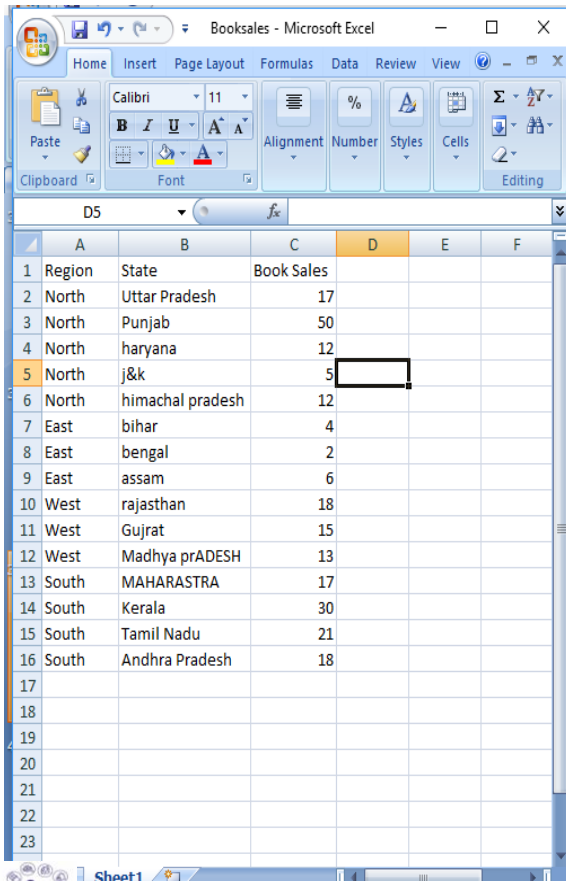
1. Inner Join
2. Left Join
3. Right Join
4. Full Join

Cross Database Join: Getting the data from different data sources.



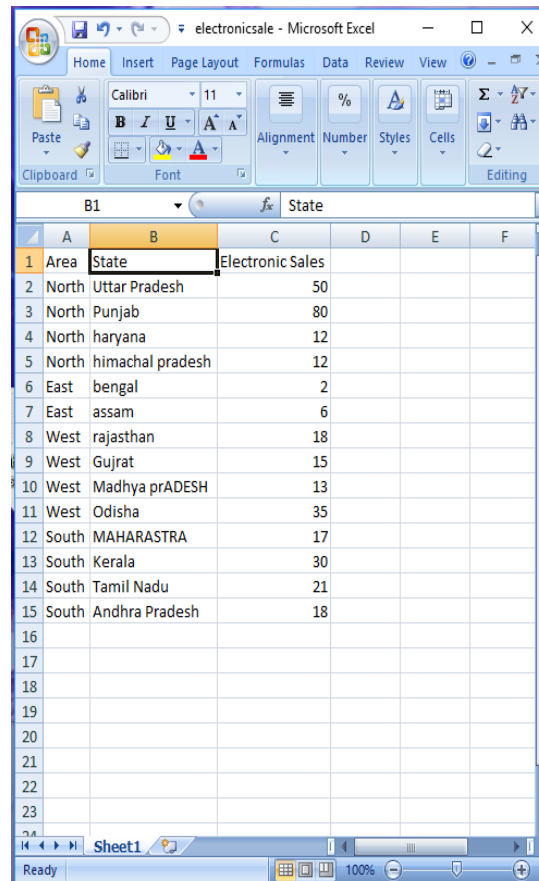
# Data Blending

Like Joins data blending, allows us to analyze the data from more than one source and it gives more advanced options.



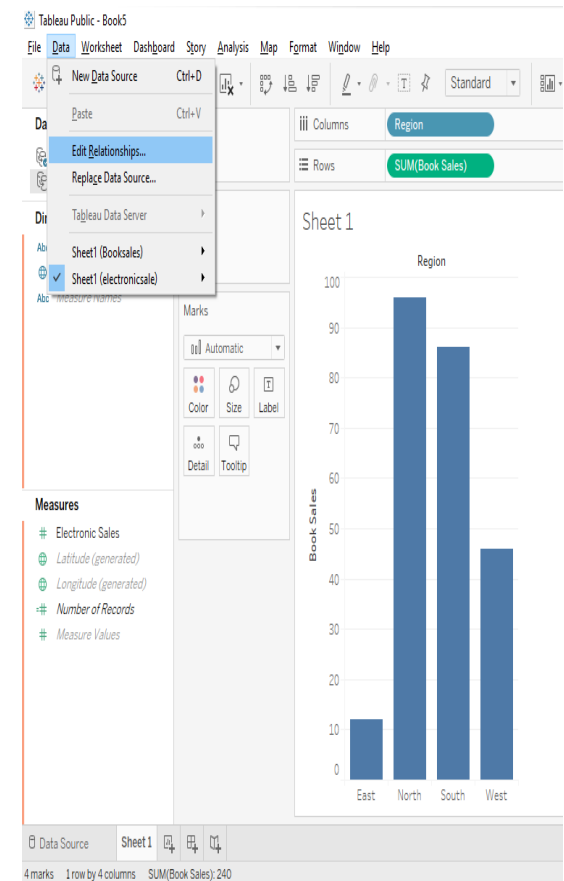
Booksales - Microsoft Excel

	A	B	C	D	E	F
1	Region	State	Book Sales			
2	North	Uttar Pradesh	17			
3	North	Punjab	50			
4	North	haryana	12			
5	North	j&k	5			
6	North	himachal pradesh	12			
7	East	bihar	4			
8	East	bengal	2			
9	East	assam	6			
10	West	rajasthan	18			
11	West	Gujrat	15			
12	West	Madhya prADESH	13			
13	South	MAHARASTRA	17			
14	South	Kerala	30			
15	South	Tamil Nadu	21			
16	South	Andhra Pradesh	18			



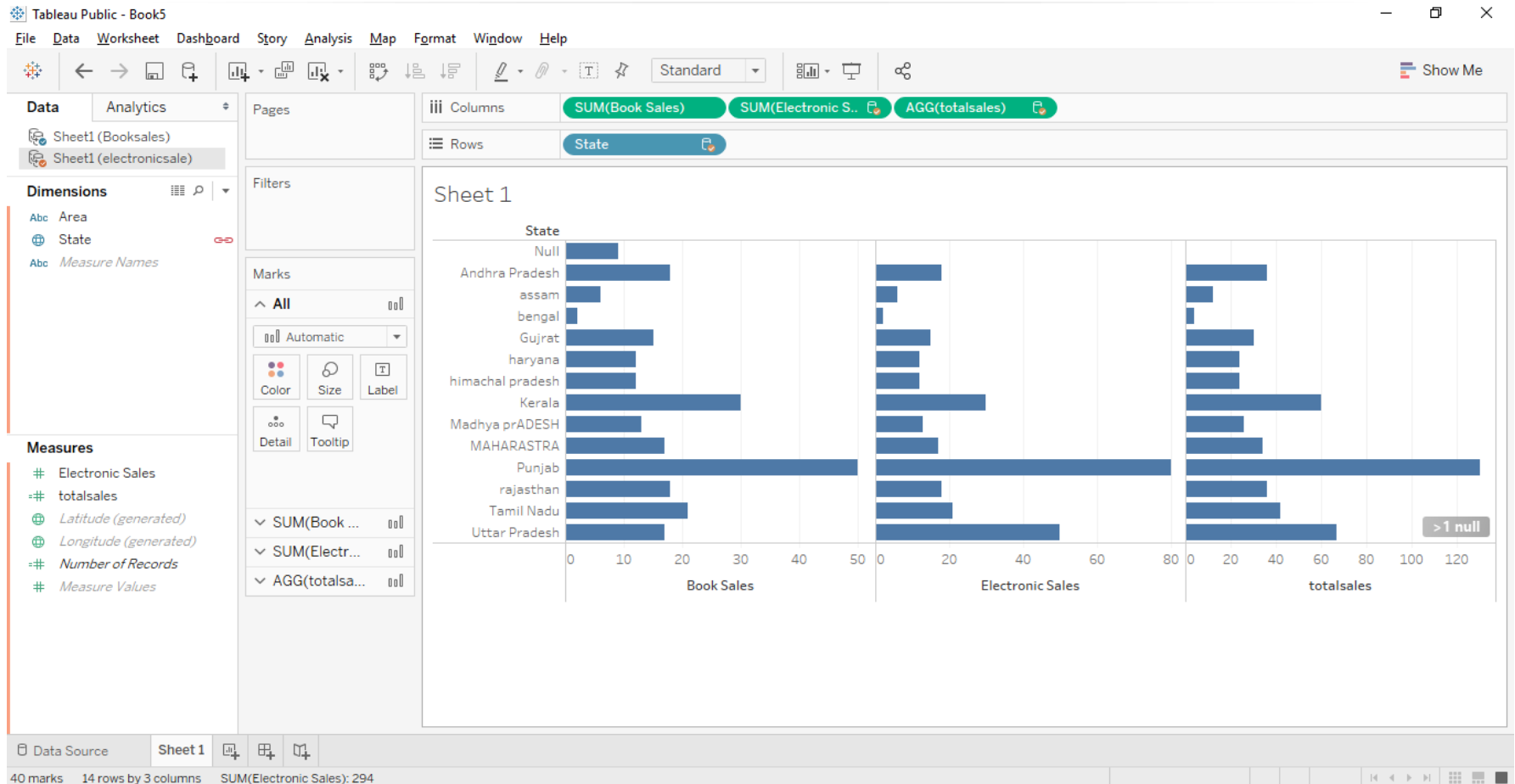
electronicsale - Microsoft Excel

	A	B	C	D	E	F
1	Area	State	Electronic Sales			
2	North	Uttar Pradesh	50			
3	North	Punjab	80			
4	North	haryana	12			
5	North	himachal pradesh	12			
6	East	bengal	2			
7	East	assam	6			
8	West	rajasthan	18			
9	West	Gujrat	15			
10	West	Madhya prADESH	13			
11	West	Odisha	35			
12	South	MAHARASTRA	17			
13	South	Kerala	30			
14	South	Tamil Nadu	21			
15	South	Andhra Pradesh	18			



# Data Blending Calculations

We can also create calculated fields using data blending.



# ASSIGNMENT



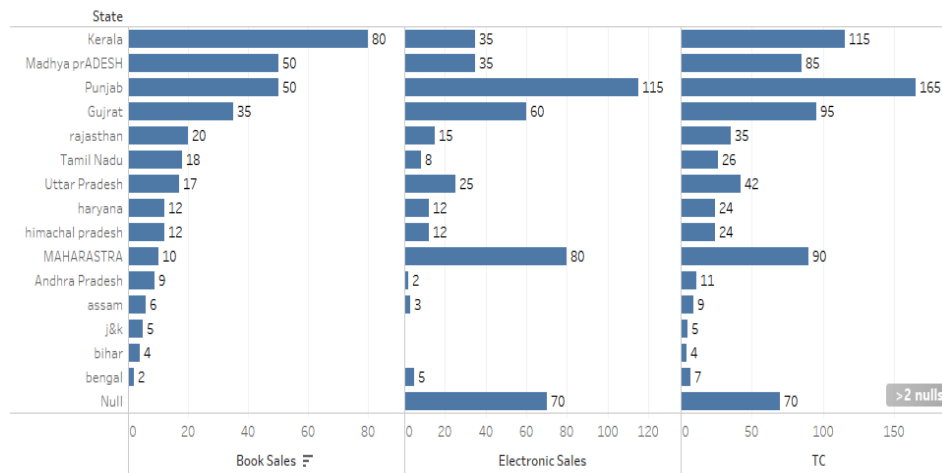
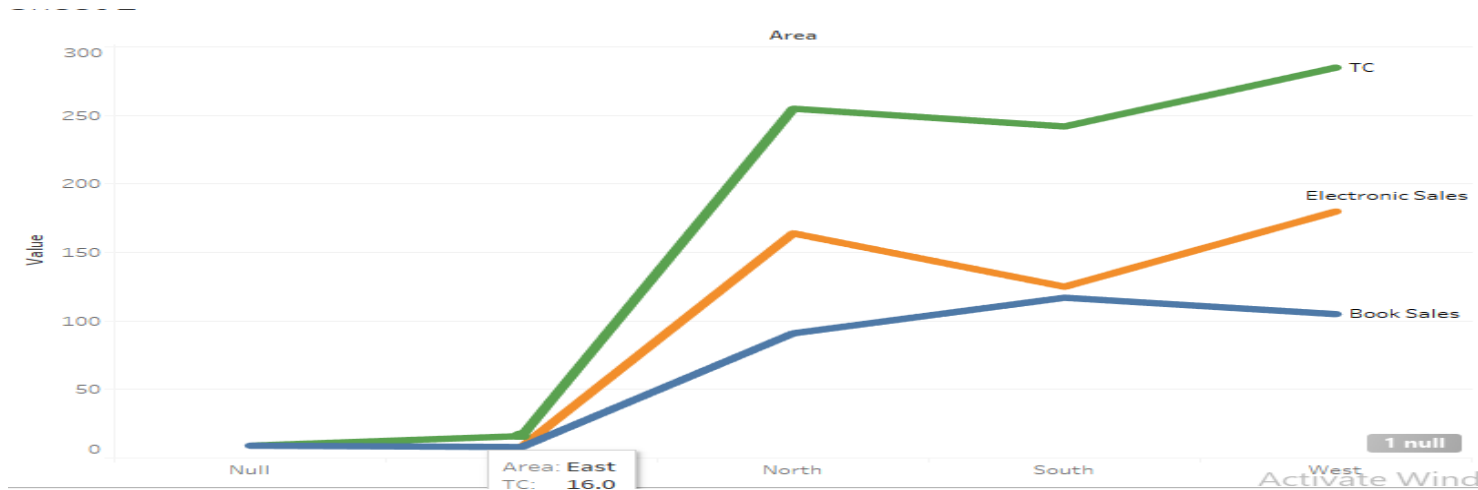
Use Inner Join to join electronic & books data source and in the Tabular format display electric, book & total sales on the basis of Region & State.

Use Full Join to join electronic & books sheets and create a line graph to display Area wise Electronic ,Book & Total sales in same plot area.

Blend the data from electronic & books data source and display Electronic ,Book & Total sales on the basis of state.



# ASSIGNMENT



Region	State	Book Sales	Electronic Sales	TC
East	assam	6.0	3.0	9.0
	bengal	2.0	5.0	7.0
North	haryana	12.0	12.0	24.0
	himachal pradesh	12.0	12.0	24.0
	Punjab	50.0	115.0	165.0
	Uttar Pradesh	17.0	25.0	42.0
South	Andhra Pradesh	9.0	2.0	11.0
	Kerala	80.0	35.0	115.0
	MAHARASTRA	10.0	80.0	90.0
	Tamil Nadu	18.0	8.0	26.0
	Gujrat	35.0	60.0	95.0
West	Madhya prADESH	50.0	35.0	85.0
	rajasthan	20.0	15.0	35.0

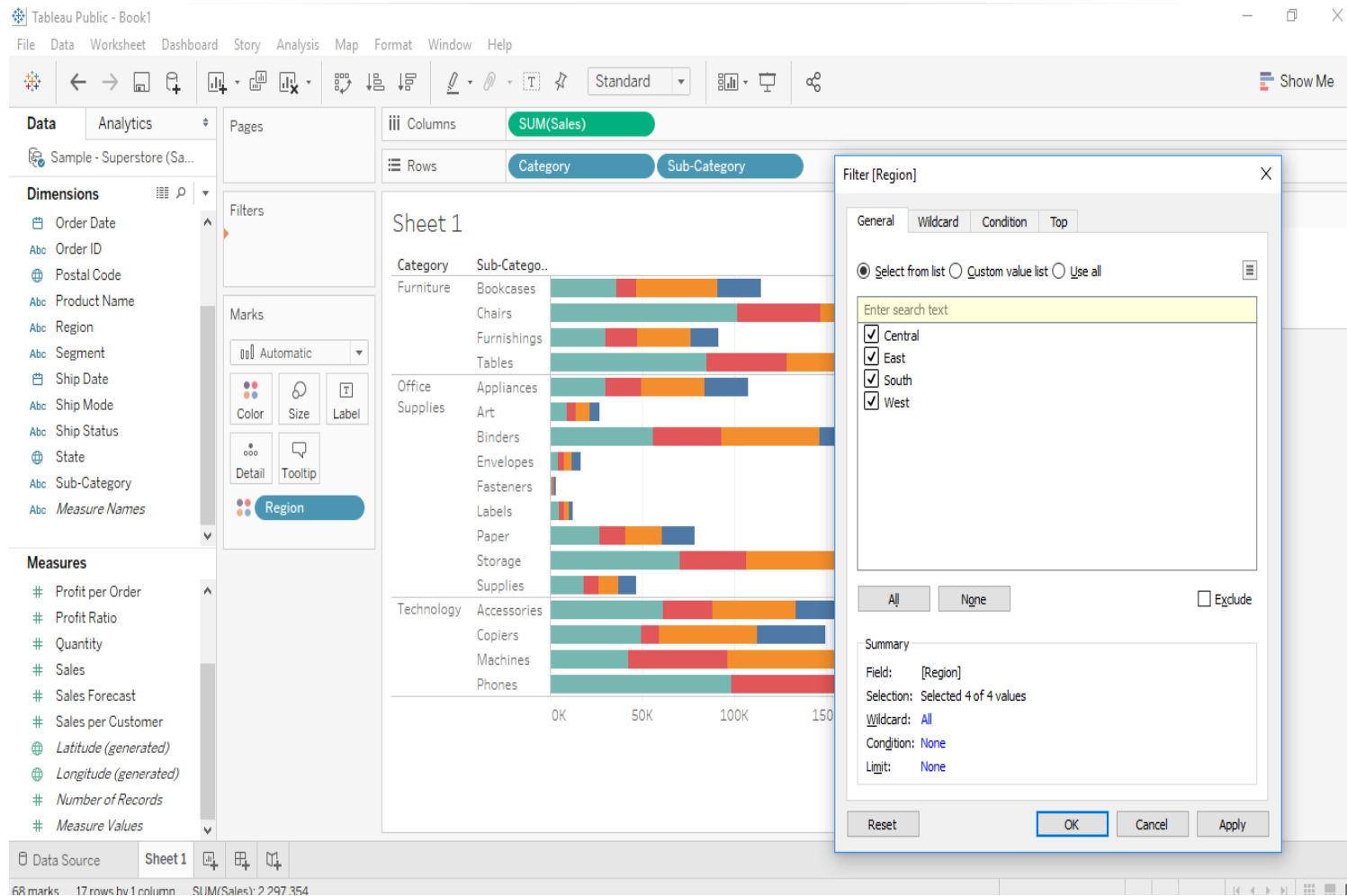




# Filtering Charts

Filters are used to filter the graphical view by four options:

- General
- Wildcard
- Condition
- Top



# Filtering Charts

Filtering using condition tab.

Eg: Total sales of the products where quantity sold is greater than 10.

The screenshot shows the Tableau Public interface with a bar chart titled 'Sheet 2'. The chart displays 'SUM(Sales)' on the y-axis and 'Category' on the x-axis. The categories are Furniture, Office Supplies, and Technology. The Furniture category has a value of 7,592, Office Supplies has 21,716, and Technology has 6,223. A dialog box titled 'Filter [Product Name]' is open, showing the 'Condition' tab. The dialog box has four tabs: General, Wildcard, Condition, and Top. The 'Condition' tab is selected, and the 'By field:' option is chosen. The field is 'Quantity' and the aggregation is 'Sum'. The condition is set to '>' and the value is '10'. The 'Range of Values' section has 'Min:' and 'Max:' fields, with a 'Load' button. The 'By formula:' option is also available. The 'OK' button is highlighted.

Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Window Help

Standard

Analytics

Sample - Superstore (Sa...)

Dimensions

- Category
- City
- Country
- Customer Name
- Order Date
- Order ID
- Postal Code
- Product Name
- Region
- Segment
- Ship Date
- Ship Mode
- Ship Status

Measures

- Profit per Order
- Profit Ratio
- Quantity
- Sales
- Sales Forecast
- Sales per Customer
- Latitude (generated)
- Longitude (generated)
- Number of Records
- Measure Values

Columns: SUM(Sales)

Rows: Category

Filters: Product Name

Marks: Automatic

Color Size Label

Detail Tooltip

SUM(Quantity)

Sheet 2

Category

Furniture 7,592

Office Supplies 21,716

Technology 6,223

0K 50K 100K 150K

Filter [Product Name]

General Wildcard Condition Top

☐ None

☒ By field:

Quantity Sum

> 10

Range of Values

Min: Load

Max:

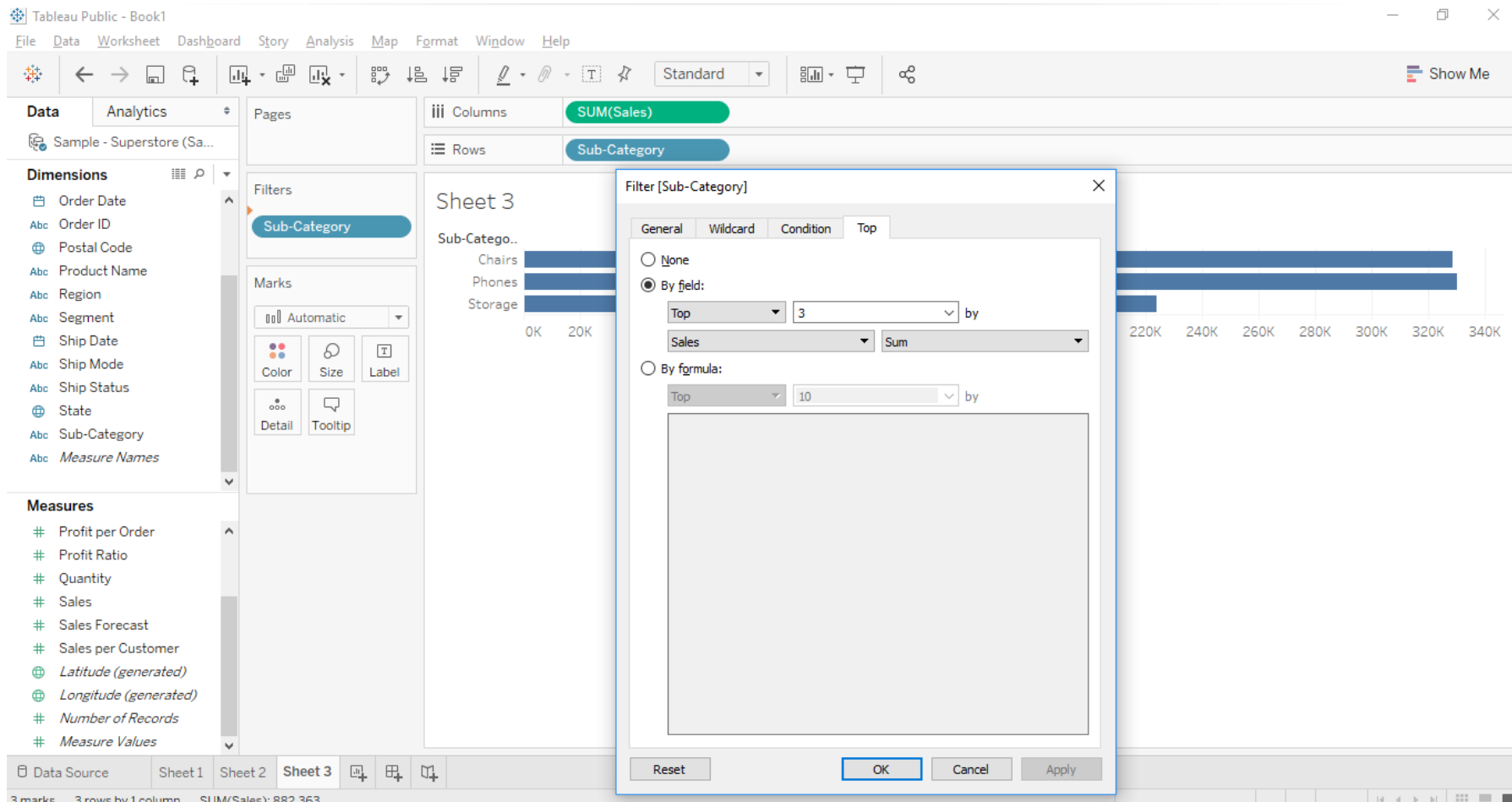
☐ By formula:

Reset OK Cancel Apply

# Filtering Charts

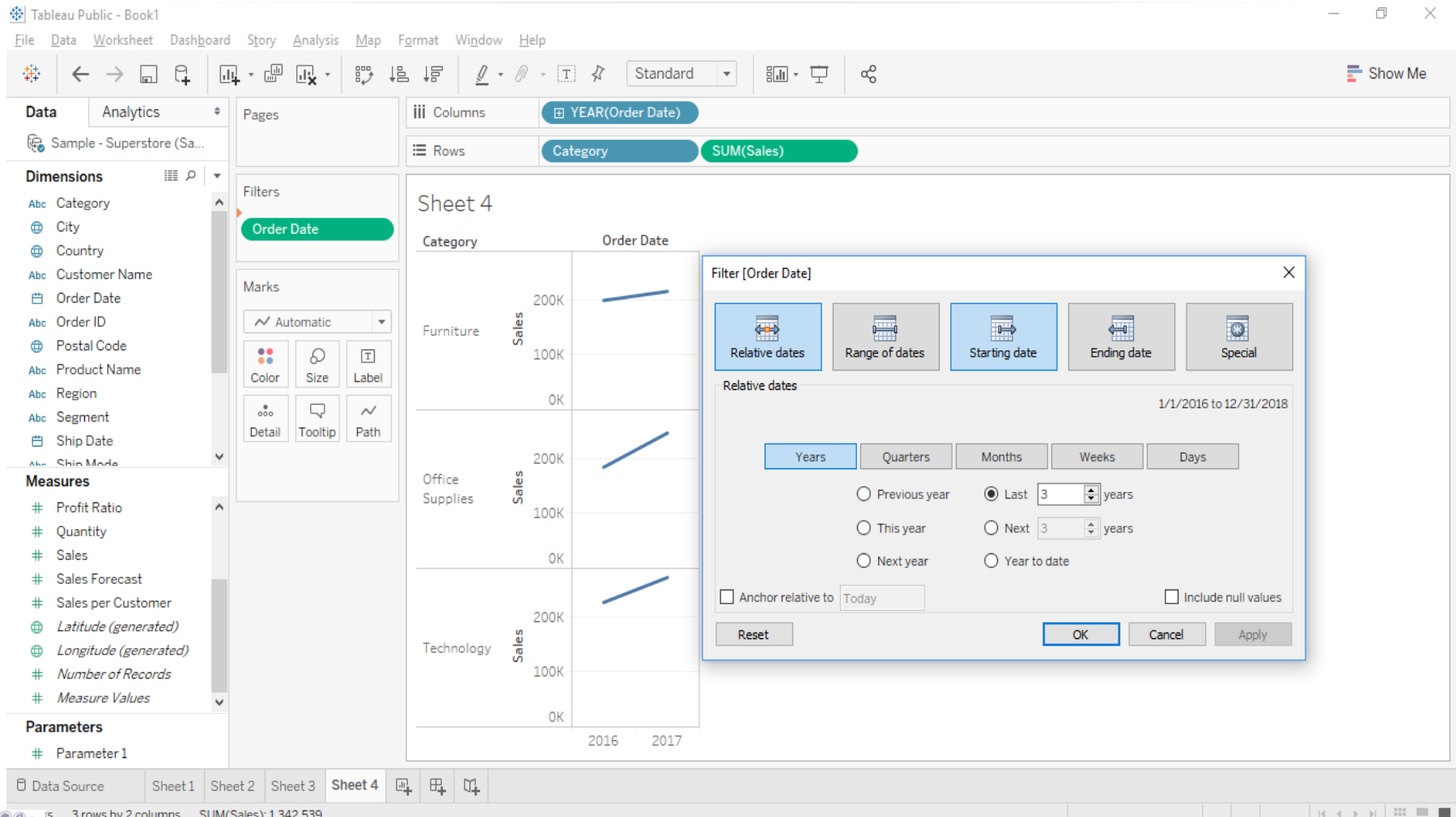
Filtering using Top tab.

Eg: Category wise Top / Bottom sales.



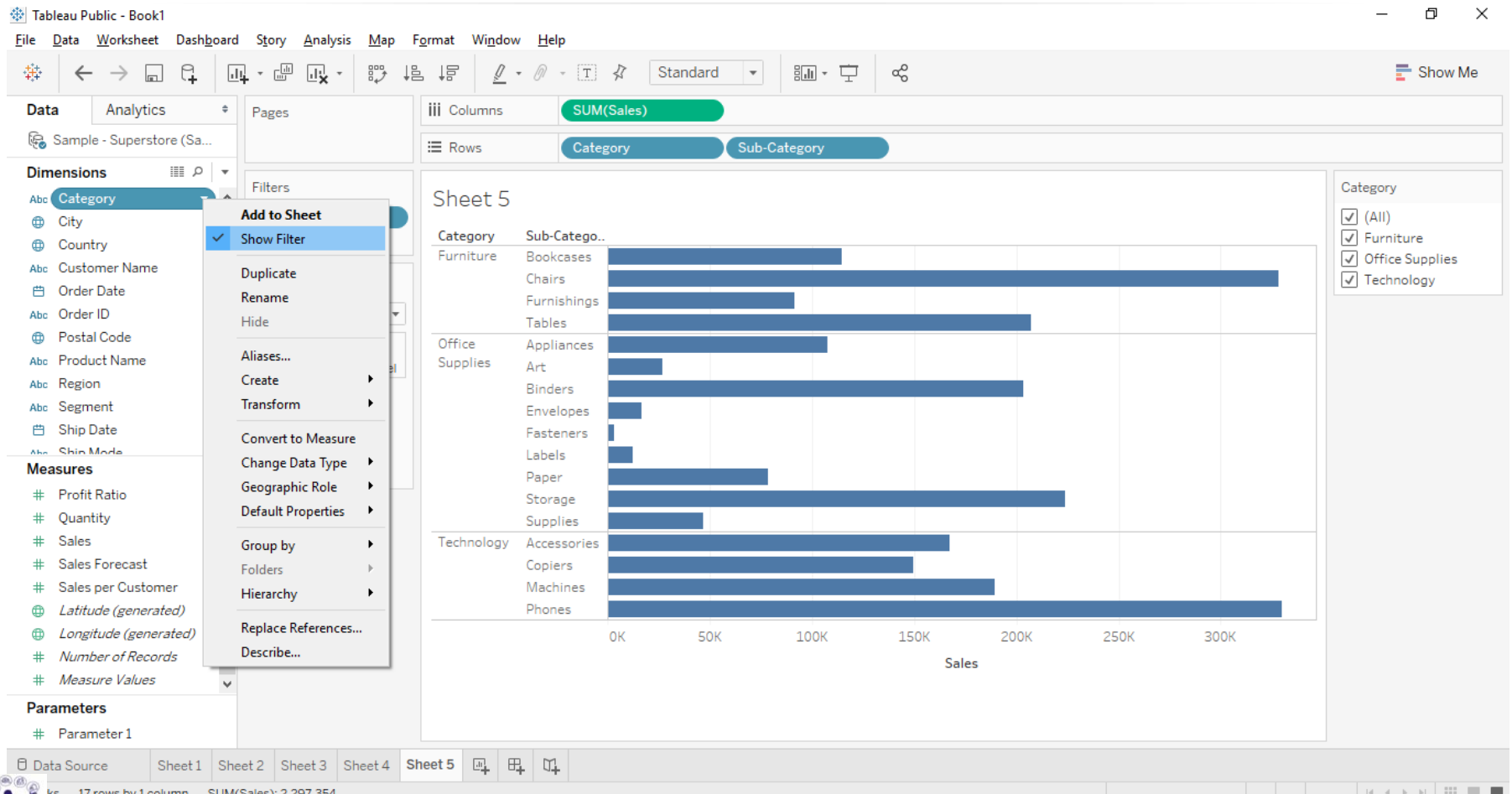
# Filtering Dates

Tableau allows us to filter the data based on dates, moth, quarters , years..



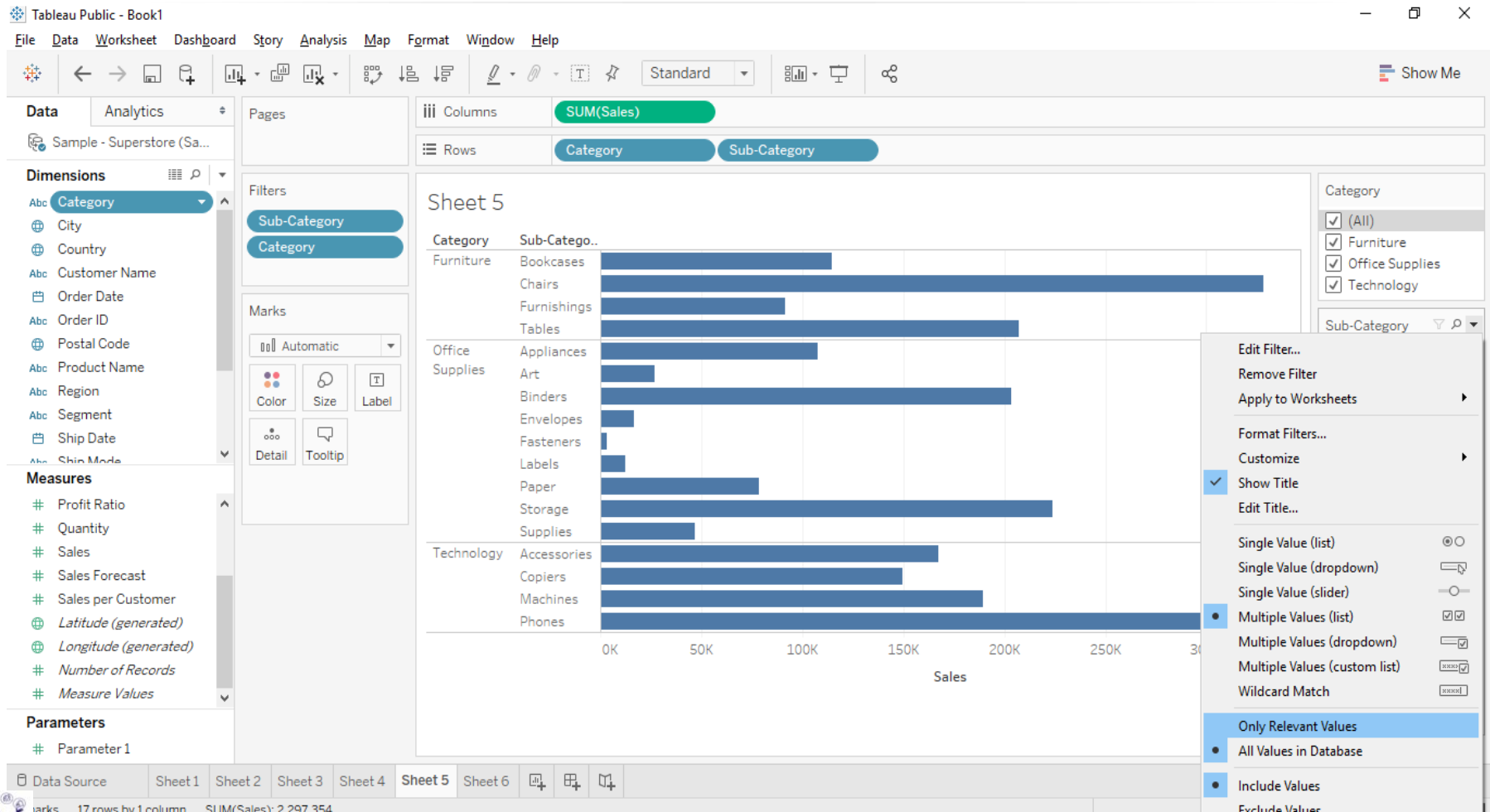
# Interactive Filters

Interactive filters allows us to update the graph at runtime.



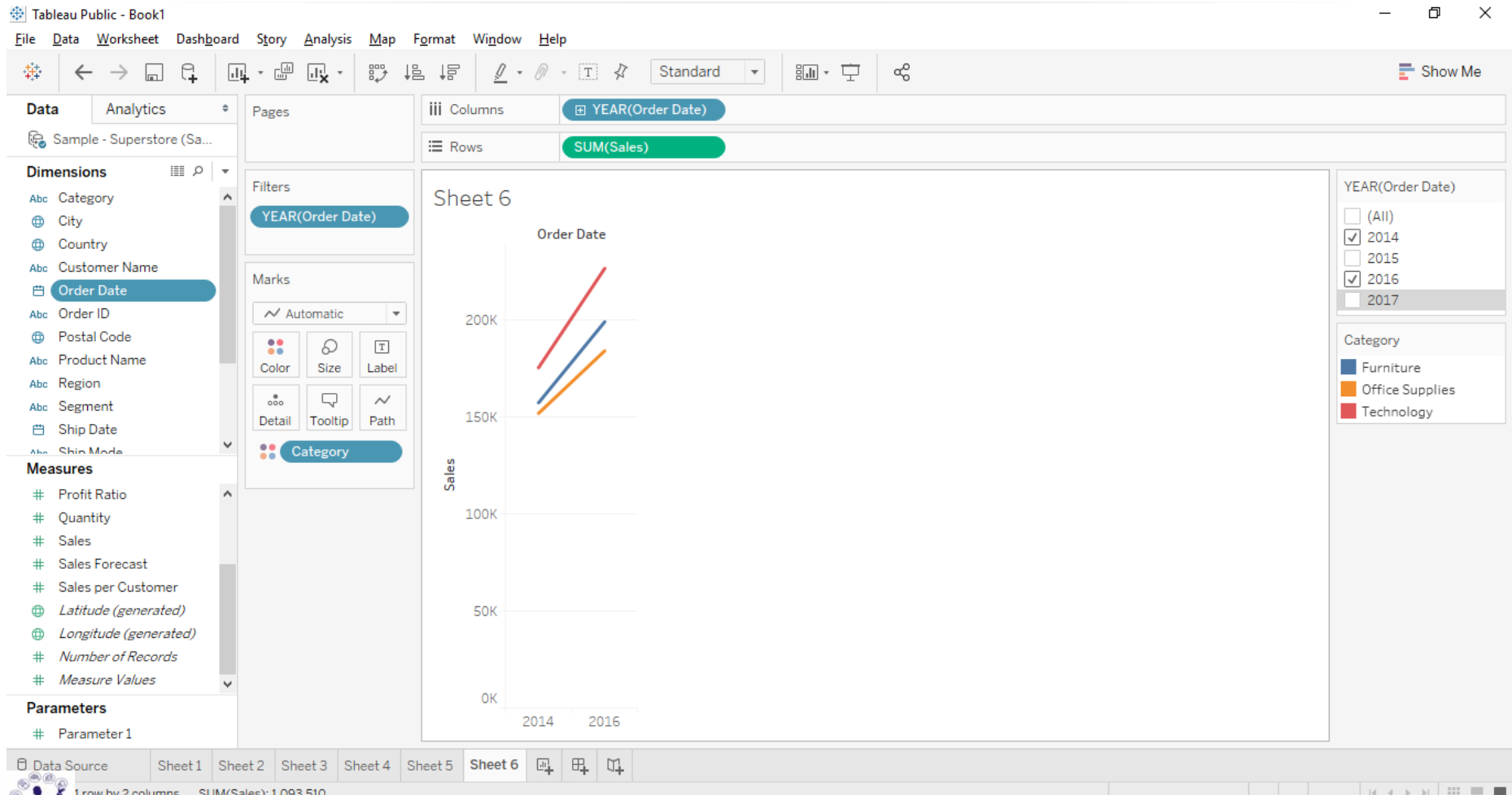
# Advance Interactive Filters

Advance Interactive filters also referred to as dependent filters.



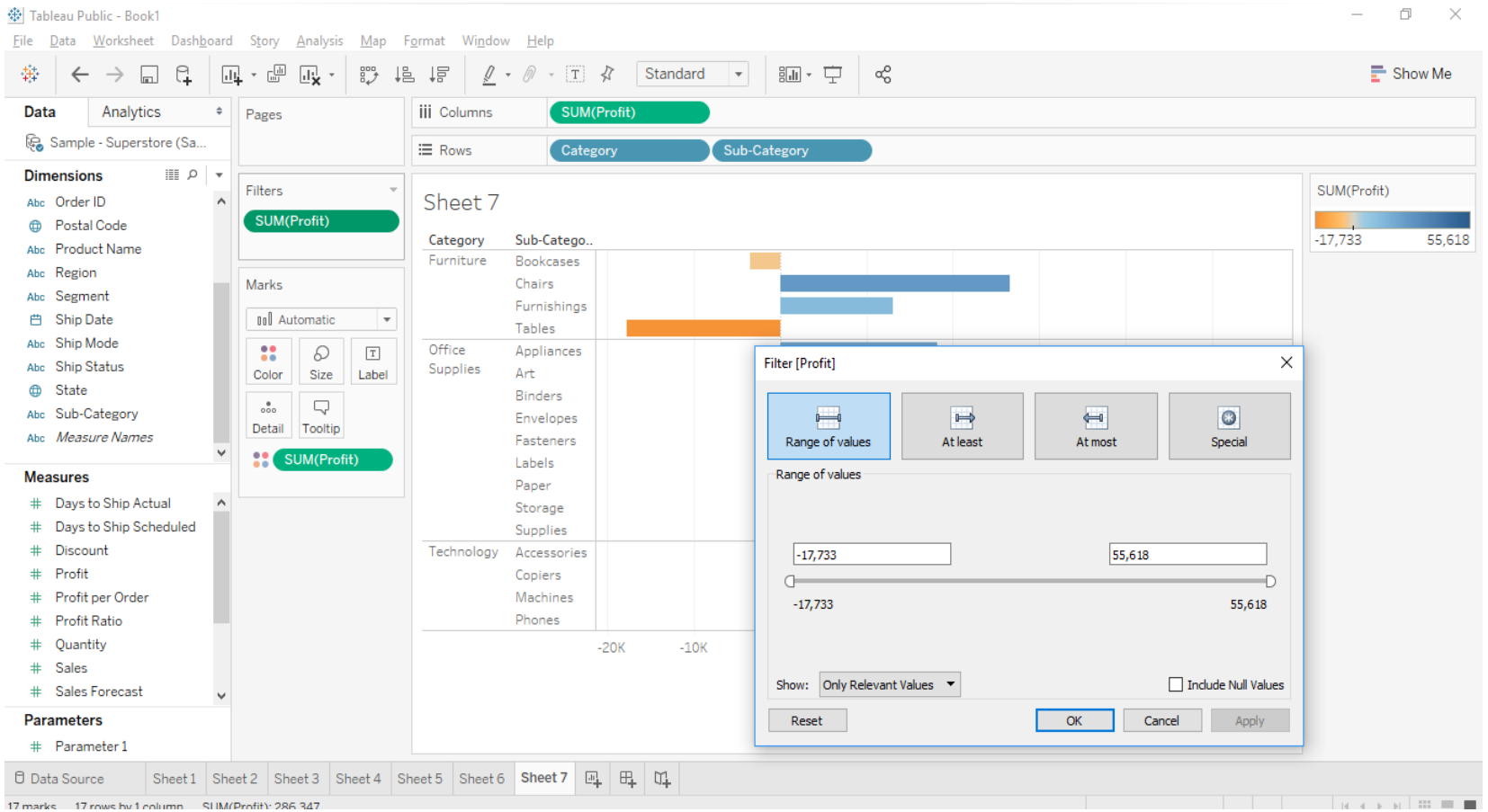
# Interactive Date Filters

We can also use interactive filters with date fields.



# Where Filters

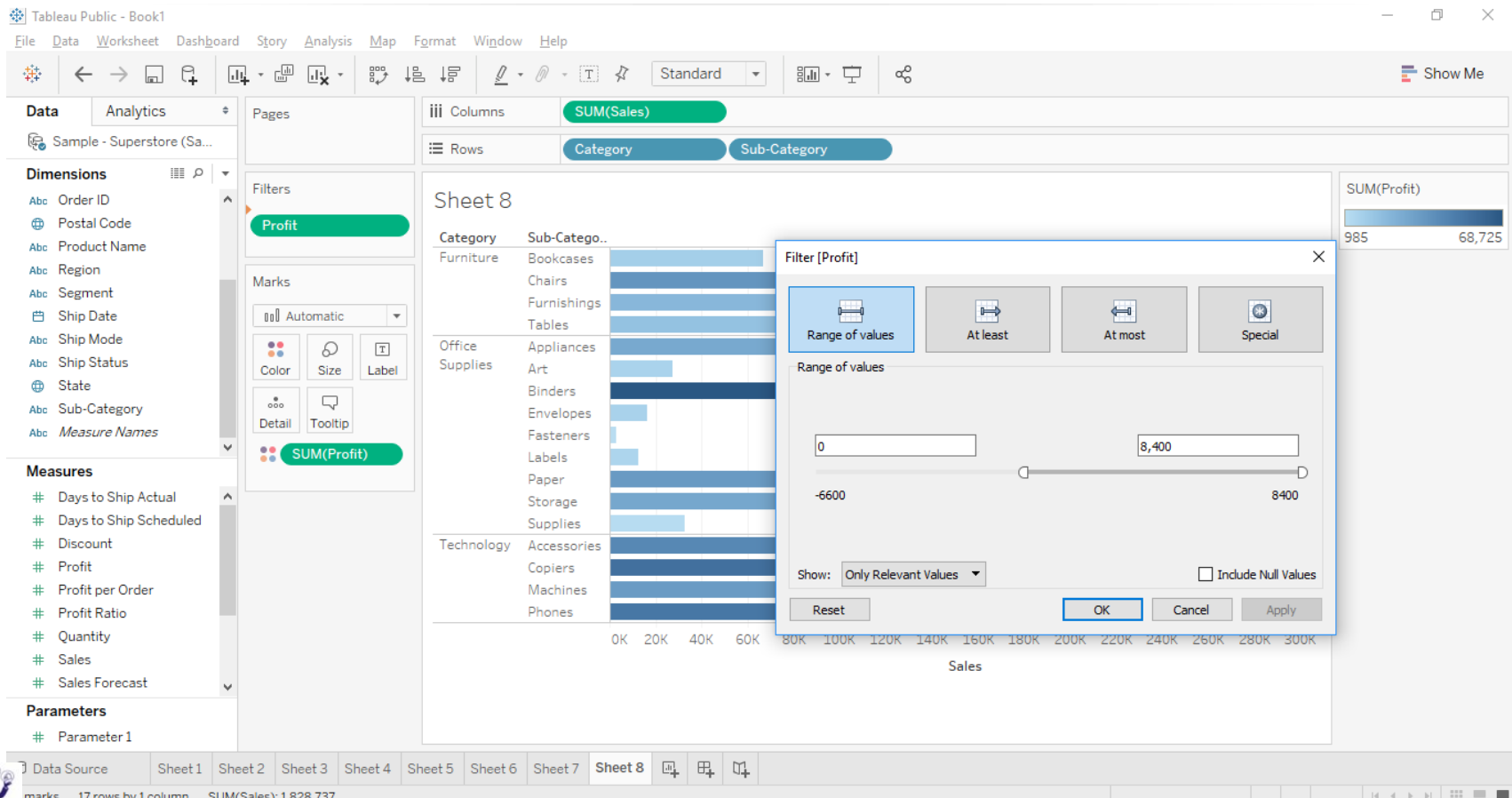
Summary Level Filters Eg: Analyzing the sales on the basis of profit i.e. showing only those categories where **the total profit** is positive.





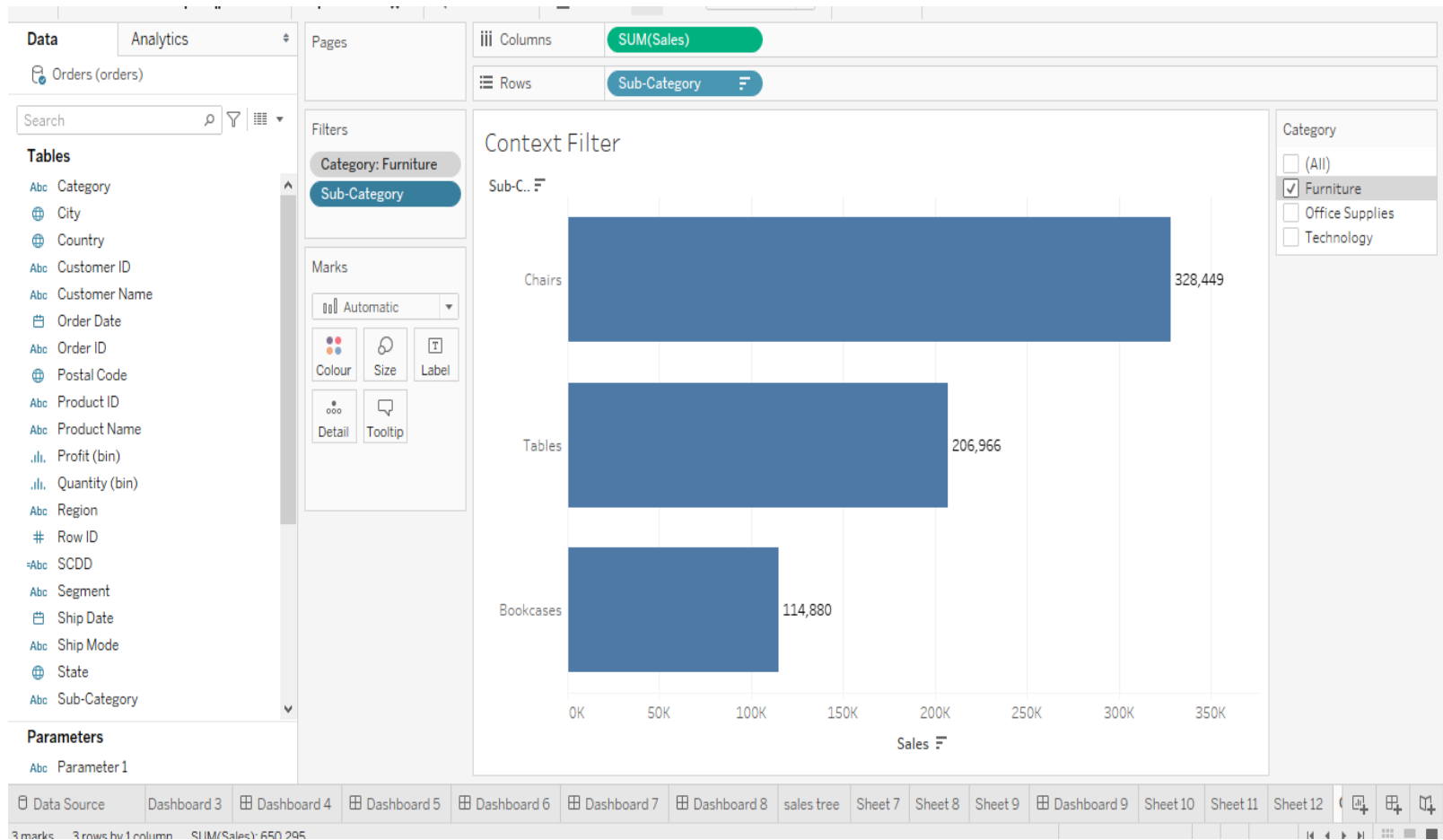
# Where Filters

Record Level Filters Eg: Analyzing the sales on the basis of profit i.e. showing only those categories where **the profit** is positive.



# Context Filter

The filters are independent to each other. If we want that the second filter to process on the records returned by the first filter, the second filter is known as dependent filters because they process only the data that passes through the context filter.



# Data Source Filters

Data source filter will filter the data from the data source i.e. It will impact all the sheets created from the respective data .

The screenshot displays the Tableau Public interface with a bar chart titled 'Sheet 3' showing sales by region. The chart has 'Region' on the x-axis and 'SUM(Sales)' on the y-axis. Two bars are visible: 'Central' with sales around 500K and 'South' with sales around 400K. A context menu is open over the 'Data' pane, with 'Edit Data Source Filters...' selected. An 'Add Filter' dialog box is also open, showing a list of fields to filter by, including Category, City, Country, Customer Name, Days to Ship Actual, Days to Ship Scheduled, Discount, Order Date, Order ID, Postal Code, Product Name, Profit, Profit per Order, Profit Ratio, Quantity, Region, Sales, Sales Forecast, Sales per Customer, Segment, and Ship Date. The 'Filter' tab is active in the 'Edit Data Source Filters' dialog.

Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Window Help

Data Analytics Pages

Sample - Superstore (Sa...

Dimensions

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

Measures

- Days to Ship Actual
- Days to Ship Scheduled
- Discount
- Profit
- Profit per Order
- Profit Ratio
- Quantity
- Sales
- Sales Forecast
- Sales per Customer

Columns: Region

Rows: SUM(Sales)

Sheet 3

Region

Sales

500K

400K

300K

200K

100K

0K

Central South

Edit Data Source Filters

Filter Details

Add... Edit... Remove

Add Filter

Select a field:

Enter search text

- Category
- City
- Country
- Customer Name
- Days to Ship Actual
- Days to Ship Scheduled
- Discount
- Order Date
- Order ID
- Postal Code
- Product Name
- Profit
- Profit per Order
- Profit Ratio
- Quantity
- Region
- Sales
- Sales Forecast
- Sales per Customer
- Segment
- Ship Date

OK Cancel

Data Source Sheet 1 Sheet 2 Sheet 3

2 marks 1 row by 2 columns SUM(Sales): 893,006



# Ways to Filter

Filter by Self – Drag & Drop the desired pill in the filter self and set the options.

Interactive Filters – Click on the desired pill, from the drop down list select Show Filter.

Headers – In the Graph double click on the header, to filter for that header.

Legends – Click on the legend and select the Keep Only option.



# Formatting Filter

In filters click on the drop down arrow and select format filters to get the filter formatting options.

The screenshot shows the Tableau Public interface with a horizontal bar chart titled 'Sheet 4'. The chart displays sales data by 'Sub-Category' (Y-axis) and 'Sales' (X-axis). The 'Columns' shelf contains 'SUM(Sales)' and the 'Rows' shelf contains 'Sub-Category'. The 'Format Filters' panel is open on the left, showing options for Title, Body, and Marks. A context menu is open for the 'Sub-Category' filter, showing options like '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', and 'Hide Card'.

**Tableau Public - Book1**

File Data Worksheet Dashboard Story Analysis Map Format Window Help

Standard

Show Me

**Format Filters**

**Title**

Font: Tableau Me...  
Alignment: Left

**Body**

Font: Tableau Boo...  
Shading: 0%  
Border: None

**Filters**

Sub-Category

**Marks**

Automatic  
Color Size Label  
Detail Tooltip  
Region

Clear

**Columns** SUM(Sales)  
**Rows** Sub-Category

**Sheet 4**

Sub-Catego...

Phones  
Chairs  
Storage  
Tables  
Binders  
Machines  
Accessories  
Copiers  
Bookcases  
Appliances  
Furnishings  
Paper  
Supplies  
Art  
Envelopes  
Labels  
Fasteners

0K 20K 40K 60K 80K 100K 120K 140K 160K 180K 200K 220K 240K 260K 280K 300K

Sales

**Sub-Category**

- 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 Sheet 2 Sheet 3 **Sheet 4**

68 marks 17 rows by 1 column SUM(Sales): 2,297,354



# ASSIGNMENT



Create a Bar chart to display top 10 profit making subcategories along with the categories.

Chart to display only those Sub Categories & categories where the revenue is 200K to 250K.

Display month wise profit of each category . Should be interactive on the basis of year. Use a slider as filter.

Create a bar chart to represent category & subcategory wise sales, where the revenue is more than 200K and profit is more than 20K.

Using the data source filter update all the above charts only for Technology category.



# test



Q1: Use the Superstore data to develop a visualization to show how long it takes, on average, for orders to ship (the time it takes to ship an order after the order is received) on a monthly basis. (Hint - this will require a calculation.). How does the average shipping time vary by state?

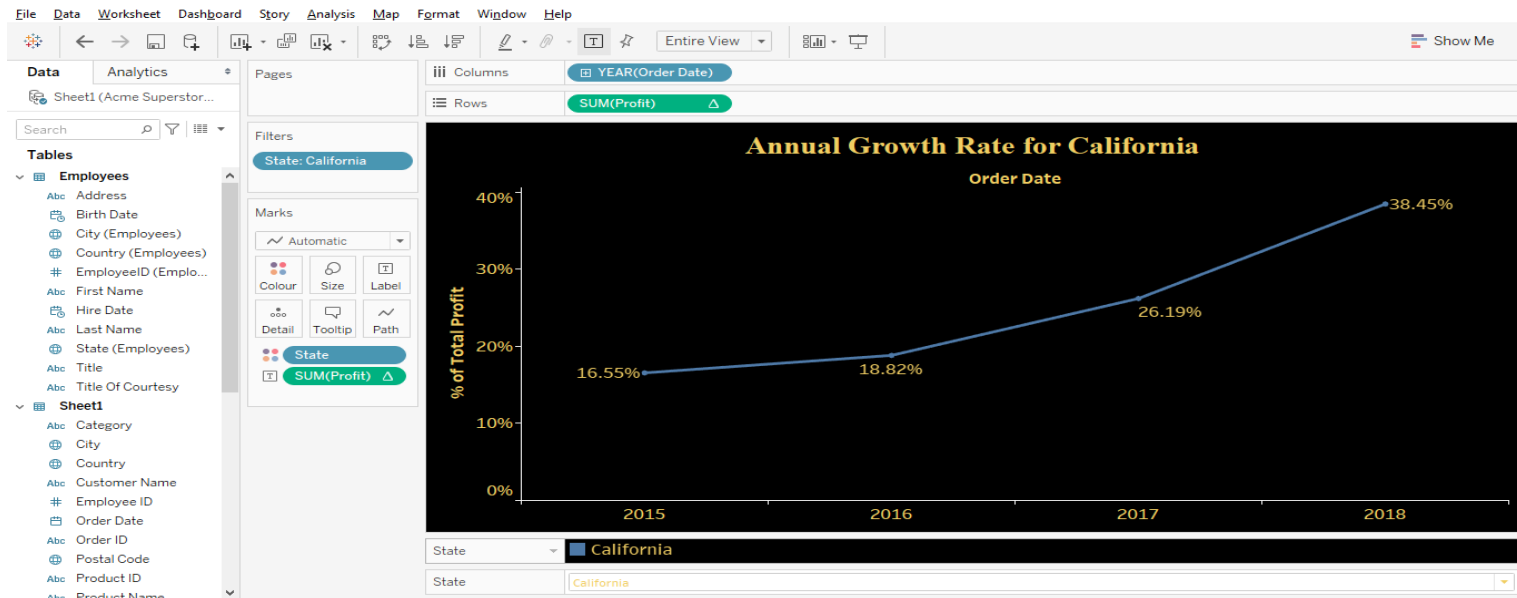
Q2: Use the Superstore data to produce a visualization to help managers understand annual growth (or lack thereof) in profit by state.

Q3: Use the Employees data to create a visualization that shows the number of customers per salesperson. Please display the salesperson's last name, not their ID. (Hint - you will need to join multiple tables so that the orders placed are attached to the employee who helped to place the order)

Q4: Use the Employees data to produce a visualization that shows total Sales by SalesPerson and City to analyze which salesperson is selling how much, and where they are selling.

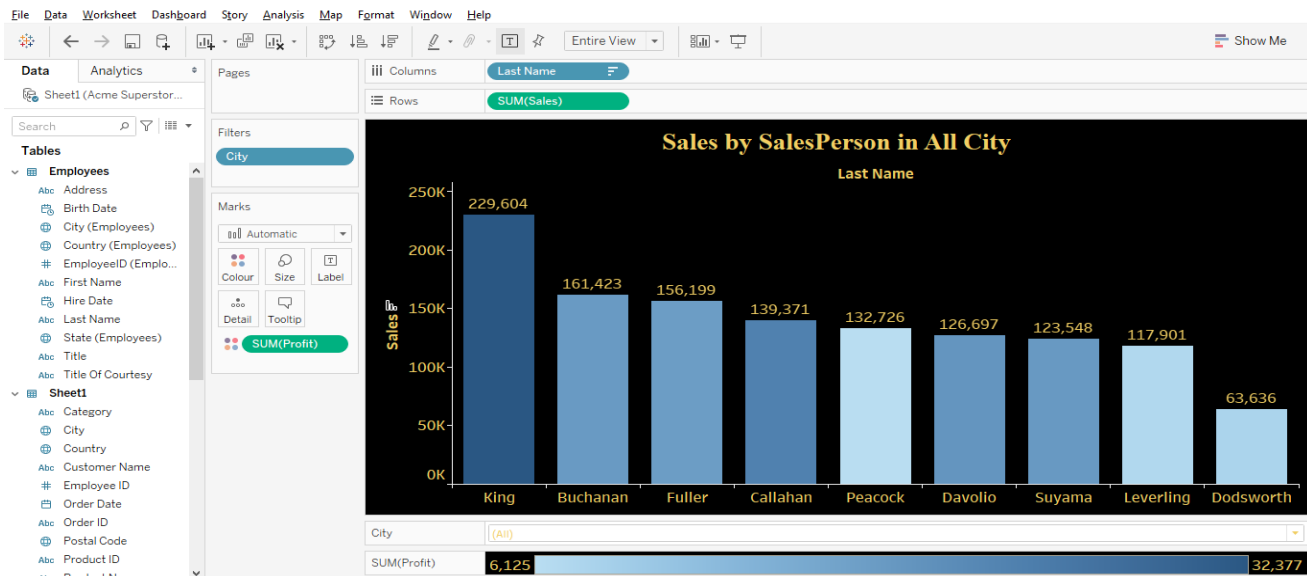
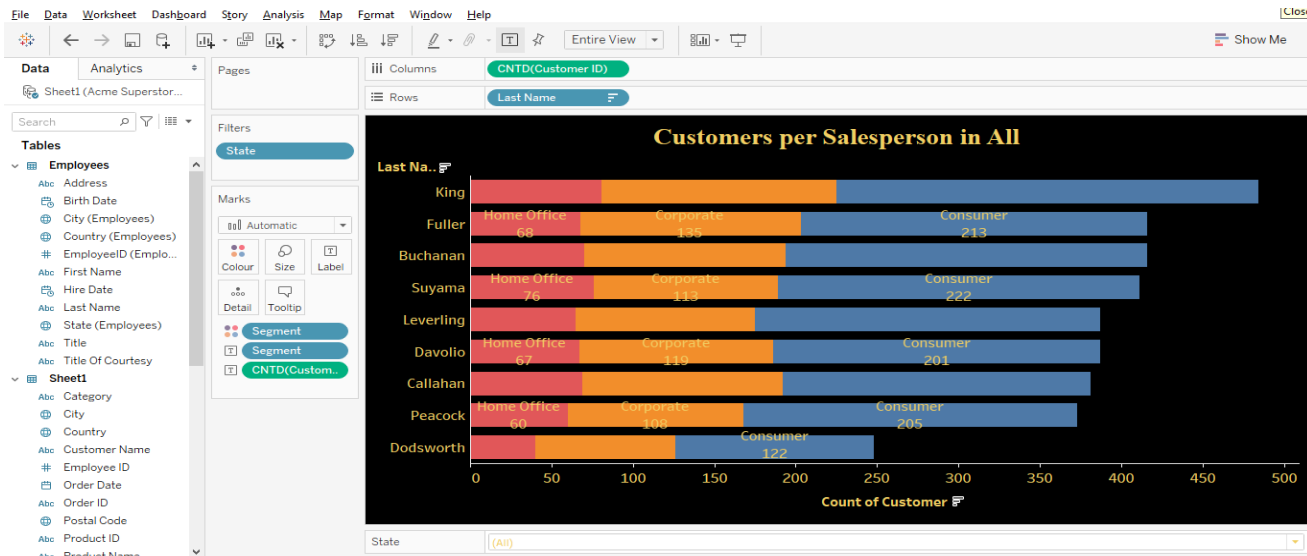


test



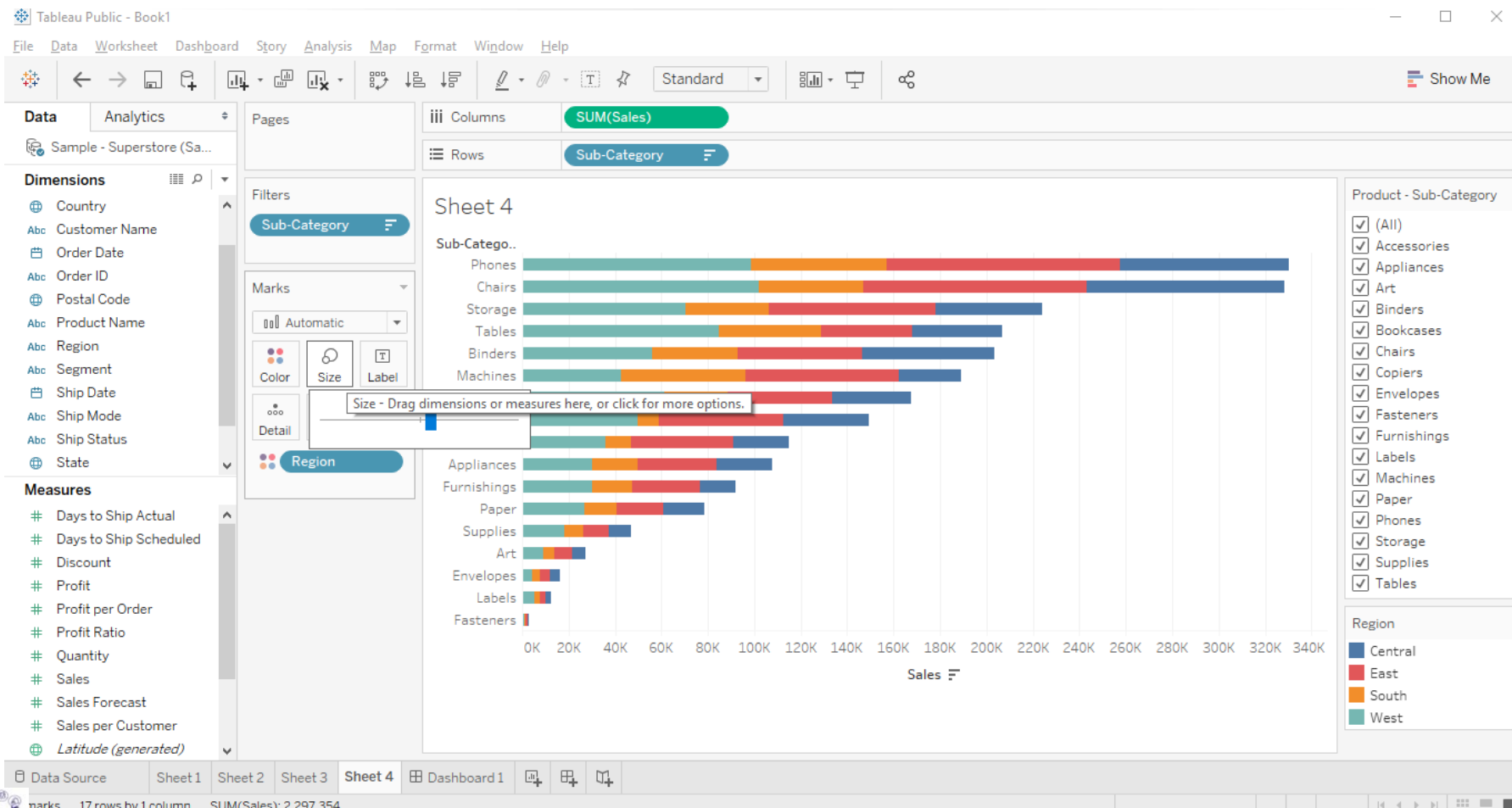


# test



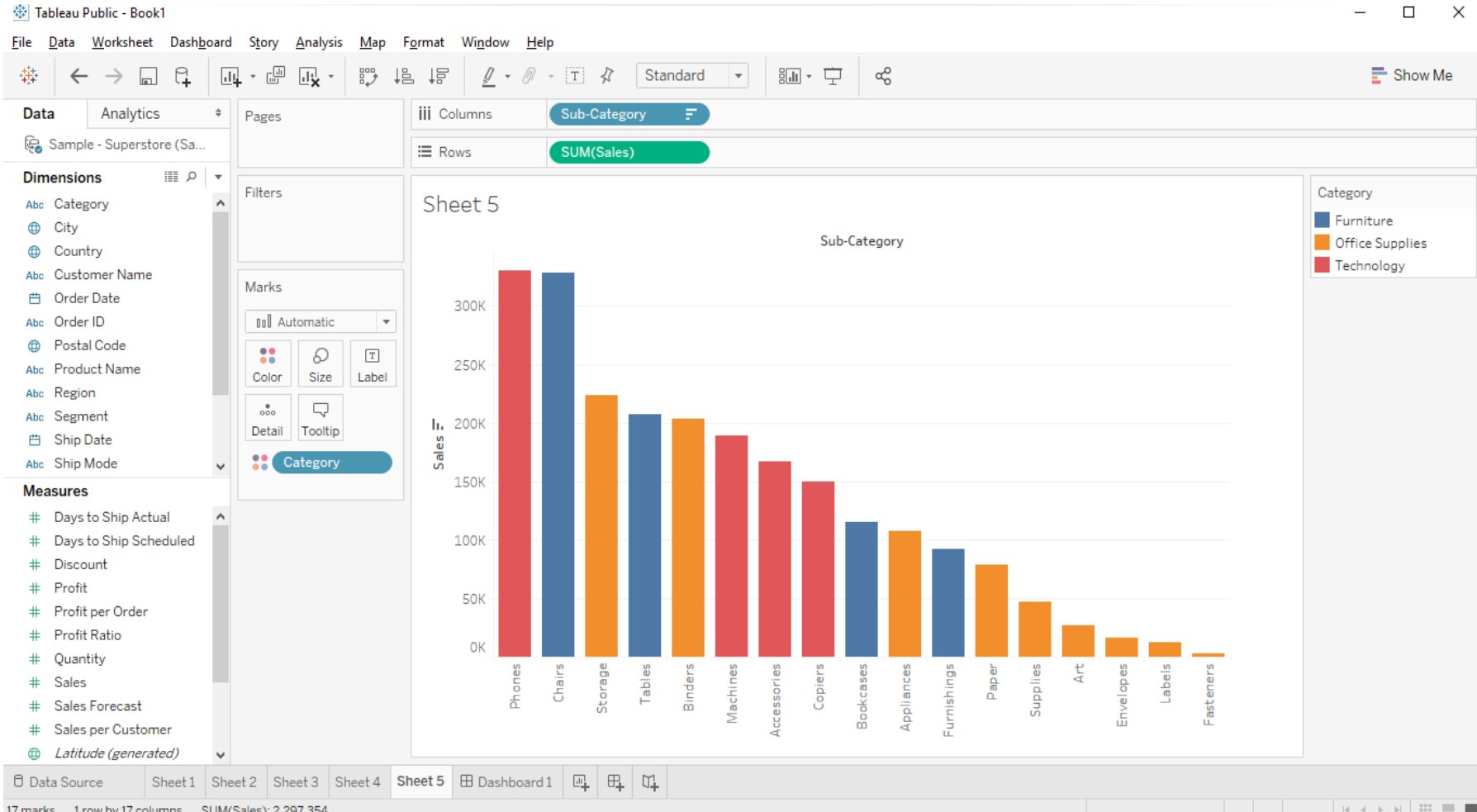
# Manipulating Graph Size

The Size option in the Marks card allow us to alter the size of the graph.



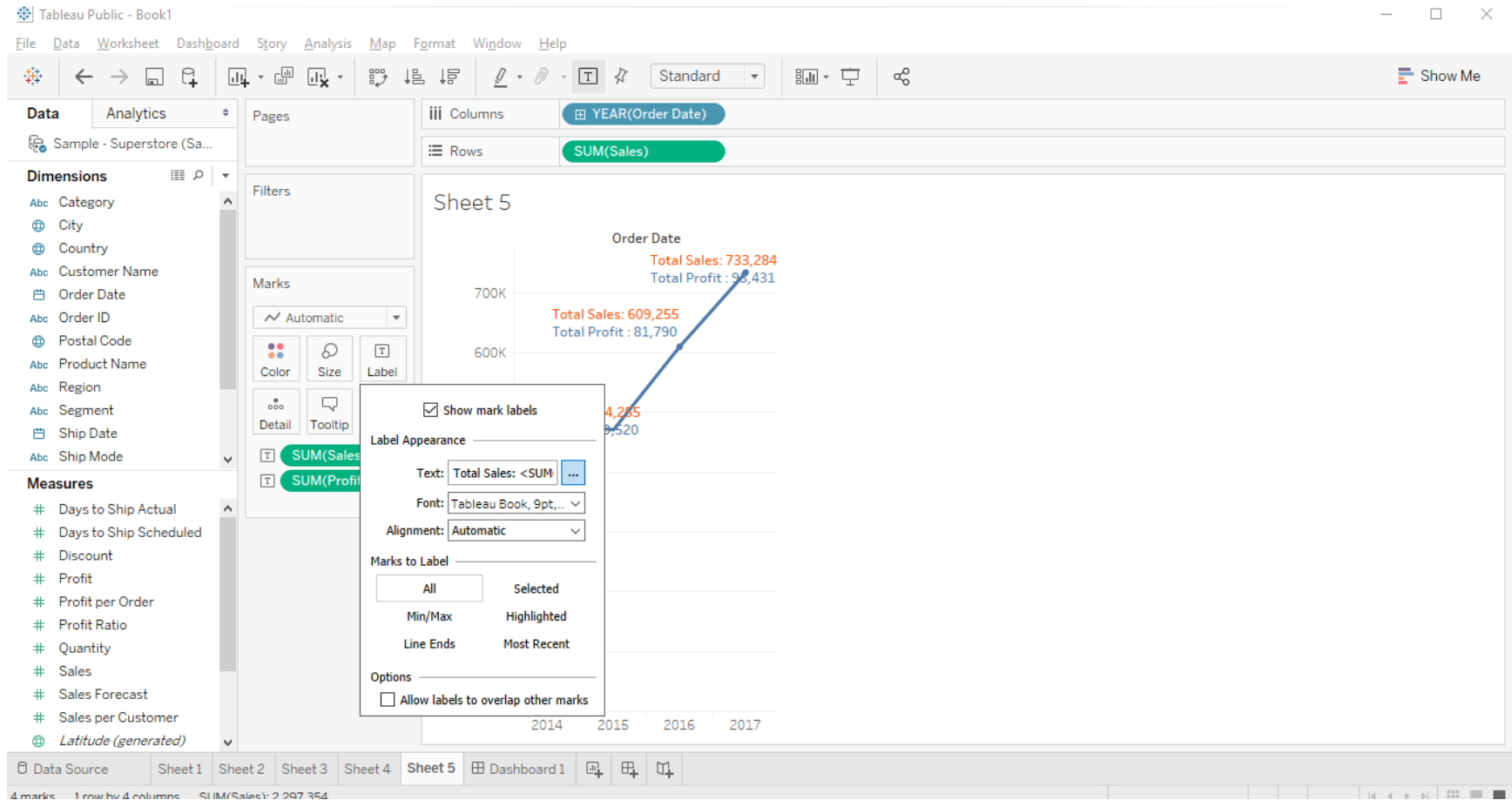
# Manipulating Colors

Colors help us to further classify the data.



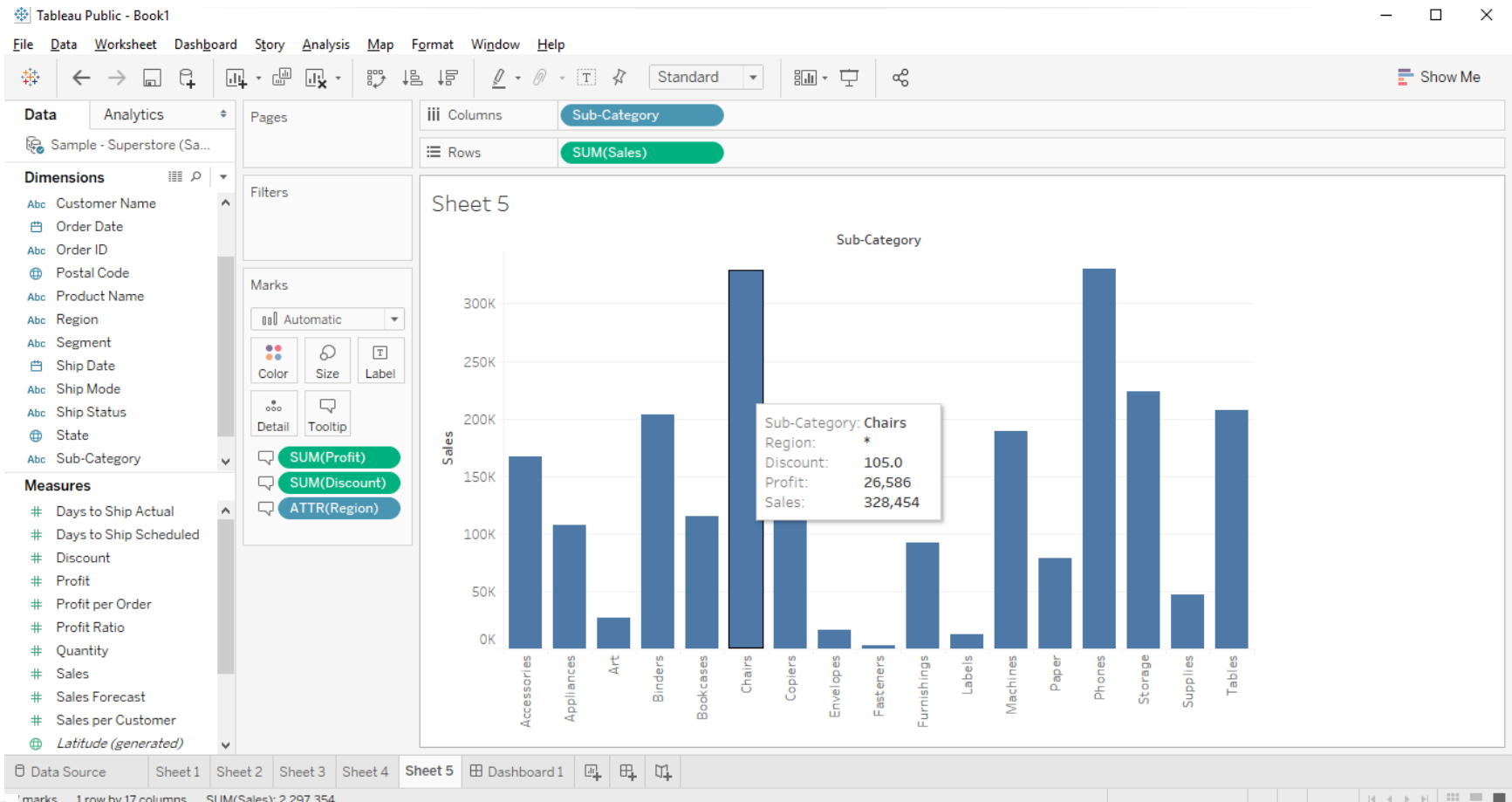
# Displaying Text/Labels

Labels help us to show the exact data value.



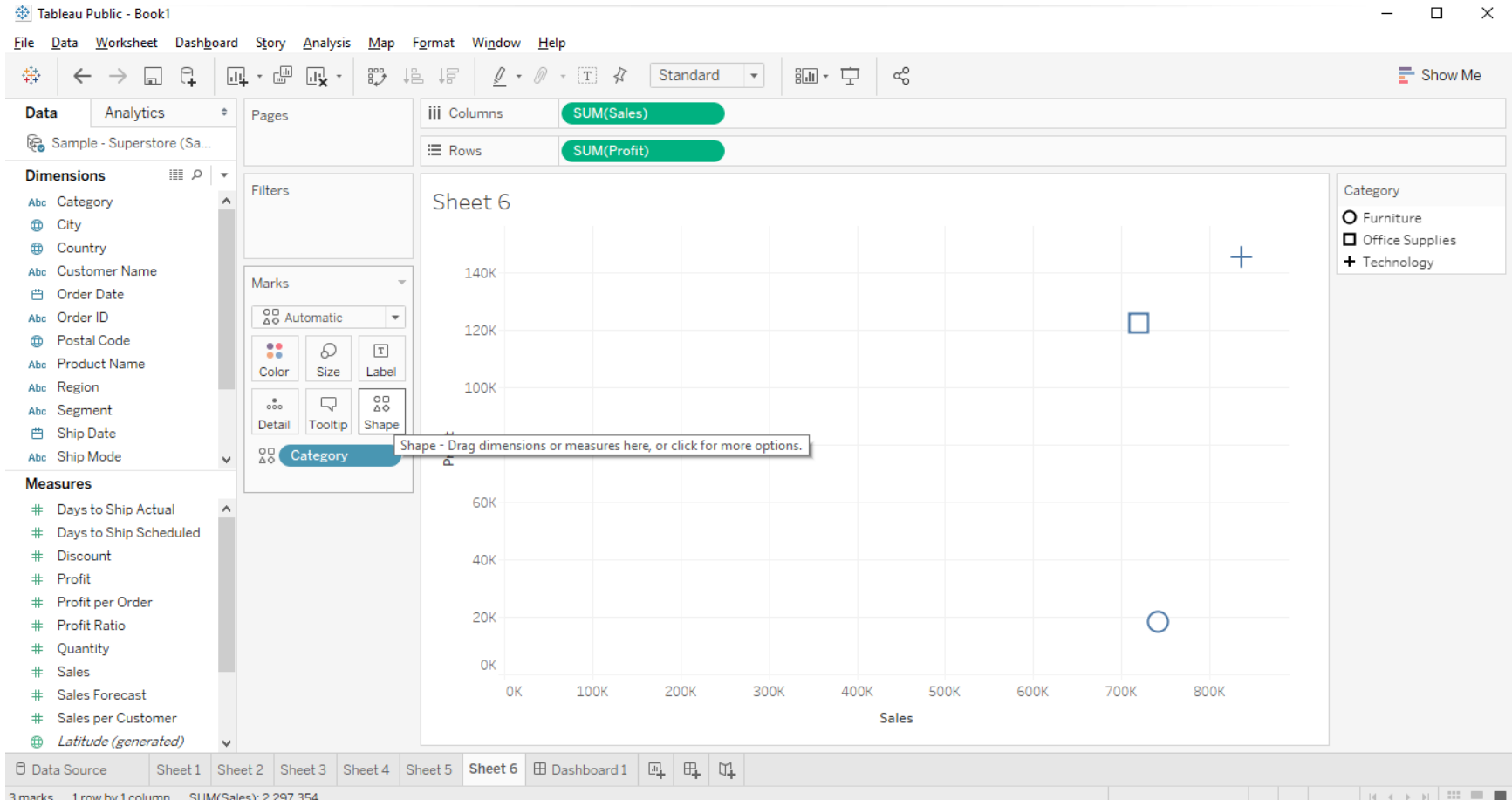
# Getting Tooltip

When we click on any data point we get a small box known as tooltip. We can add any measure or dimension in the tooltip.



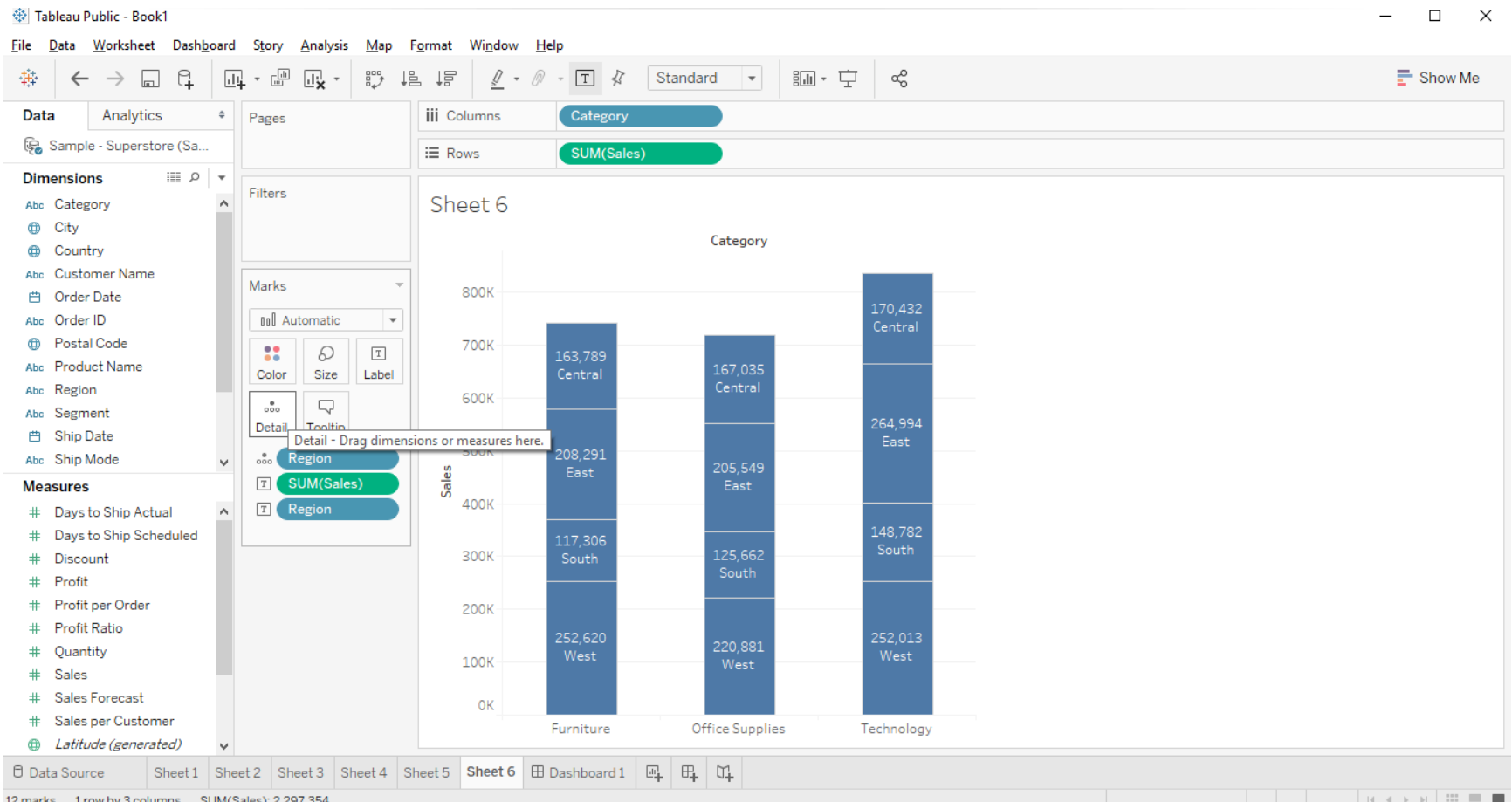
# Assigning Shapes

Tableau also allows us to use default or customized shapes in charts.



# Displaying Details

The Detail mark is similar to the colors mark. Colors creates the section in various colors, however, detail creates the section in same color.



# ASSIGNMENT



Create a bar chart to represent region wise profit. The Bars should also display category, sales & profit value.  
Display sub category wise quantity sold & average profit using bar chart.





# Formatting Data

Tableau also allows us to format the data in various ways. We can change Font, Alignment, Sheet Colors & Borders

The screenshot shows the Tableau Public interface with the 'Format' menu open. The menu options include: Dashboard..., Story..., Workbook..., Font... (selected), Alignment..., Shading..., Borders..., Lines..., Reference Lines..., Drop Lines..., Annotations..., Title and Caption..., Field Labels..., Legends..., Filters..., Highlighters..., Parameters..., Cell Size, Copy Formatting, Paste Formatting, and Clear Worksheet Formatting.

The 'Format Font' pane on the left shows settings for the selected field, with 'Font' selected under 'Fields'. The 'Default' section shows 'Worksheet: Tableau Boo..', 'Pane: Tableau Boo..', 'Header: Tableau Boo..', 'Tooltip: Tableau Boo..', and 'Title: Tableau Ligh..'. The 'Total' section shows 'Pane: Tableau Me..' and 'Header: Tableau Boo..'. The 'Grand Total' section shows 'Pane: Tableau Me..' and 'Header: Tableau Boo..'. A 'Clear' button is at the bottom.

The data table displayed is a summary of sales by region. The columns are 'Region' (with sub-columns 'East', 'South', 'West'), and 'Grand Tot..'. The rows represent different categories, with the last row being 'Grand Total'.

	East	South	West	Grand Tot..
	45,038	27,281	61,120	167,401
	34,191	19,525	30,240	107,538
	7,498	4,662	9,214	27,137
	53,501	37,033	55,967	203,428
	43,819	10,900	36,007	114,879
	96,263	45,177	101,786	328,454
	53,220	9,300	49,750	149,530
	4,375	3,344	4,120	16,477
	821	504	923	3,024
	29,067	17,310	30,072	91,705
	2,608	2,358	5,087	12,507
	66,108	53,890	42,445	189,243
	20,174	14,146	26,664	78,475
	100,628	58,311	98,698	330,047
	71,618	35,770	70,540	223,862
	10,763	8,320	18,126	46,679
Tables	39,152	39,142	43,919	206,968
Grand Total	501,256	678,834	391,750	2,297,354

The status bar at the bottom shows '90 marks', '18 rows by 5 columns', and 'SUM(Sales) 2,297,354'.

# Calculations

We can create calculated fields in Tableau. As in Excel it also provides us various function like sum, max, min, ceiling, floor etc...

The screenshot shows the Tableau Public interface with the 'Create' menu open. The 'Calculated Field...' option is selected, leading to a dialog box for creating a new calculated field. The dialog box shows the name 'Calculation1' and the formula `MIN([Sales])`. The 'The calculation is valid.' message is displayed at the bottom of the dialog box.

**Tableau Public - Book1**

File Data Worksheet Dashboard Story Analysis Map Format Window Help

Standard

Columns: Measure Names

Rows: Sub-Category

Sheet 11

Min Sales	Sales
1	167,401.00
0	107,538.00

Calculation1

`MIN([Sales])`

The calculation is valid.

Apply OK

Data Source Sheet 1 Sheet 2 Sheet 3 Sheet 4 Sheet 5 Sheet 6 SALES BY REGION SALE BY STATE SALES BY CATEGORY Formatting Sheet 11

34 marks 17 rows by 2 columns SUM of Measure Values: 2,297,774

# Calculations

**String Functions:** Most of the string functions we use in Excel are available in Tableau. Left, Right, Upper, Lower, Len, etc...

The screenshot displays the Tableau Public interface with the 'Order ID' field selected in the Dimensions pane. A right-click context menu is open over the 'Order ID' field, showing options like 'Duplicate', 'Rename', 'Hide', 'Aliases...', 'Create', 'Transform', 'Convert to Measure', 'Change Data Type', 'Geographic Role', 'Default Properties', 'Group by', 'Folders', 'Hierarchy', 'Replace References...', and 'Describe...'. The 'Transform' option is highlighted, and a sub-menu is visible with 'Split' and 'Custom Split...'. The 'Custom Split' dialog box is open, asking 'How should this data be split?'. It shows 'Use the separator' as '-' and 'Split off' as 'First' with a value of '1' and the unit 'columns'. The 'OK' button is highlighted.

Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Window Help

Standard

Columns

Rows

Sheet 11

Drop field here

Dimensions

- Calculation1
- Category
- City
- Country
- Customer Name
- Order Date
- Order ID
- Postal Code
- Product Name
- Region
- Segment
- Ship Date

Measures

- Days to Ship Actual
- Days to Ship Scheduled
- Discount
- Min Sales
- Profit
- Profit per Order
- Profit Ratio
- Quantity
- Sales
- Sales Forecast
- Sales per Customer

Custom Split

How should this data be split?

Use the separator -

Split off First 1 columns

OK Cancel

# Calculations

**Table Calculations (Percentage of Total ):** These are the calculations we do on the output received.

Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Window Help

Standard

Show Me

Data Analytics

Sample - Superstore (Sa...

Dimensions

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

Measures

- Days to Ship Actual
- Days to Ship Scheduled
- Discount
- Min Sales
- Profit
- Profit per Order
- Profit Ratio
- Quantity
- Sales
- Sales Forecast
- Sales per Customer

Pages

Filters

Marks

Automatic

Color Size Text

Filter...

Show Filter

Format...

Include in Tooltip

Dimension

Attribute

Measure (Sum)

Discrete

Continuous

Edit in Shelf

Compute Using

Edit Table Calculation...

Clear Table Calculation

Quick Table Calculation

Running Total

Difference

Percent Difference

Percent of Total

Rank

Percentile

Moving Average

YTD Total

Compound Growth Rate

Sheet 11

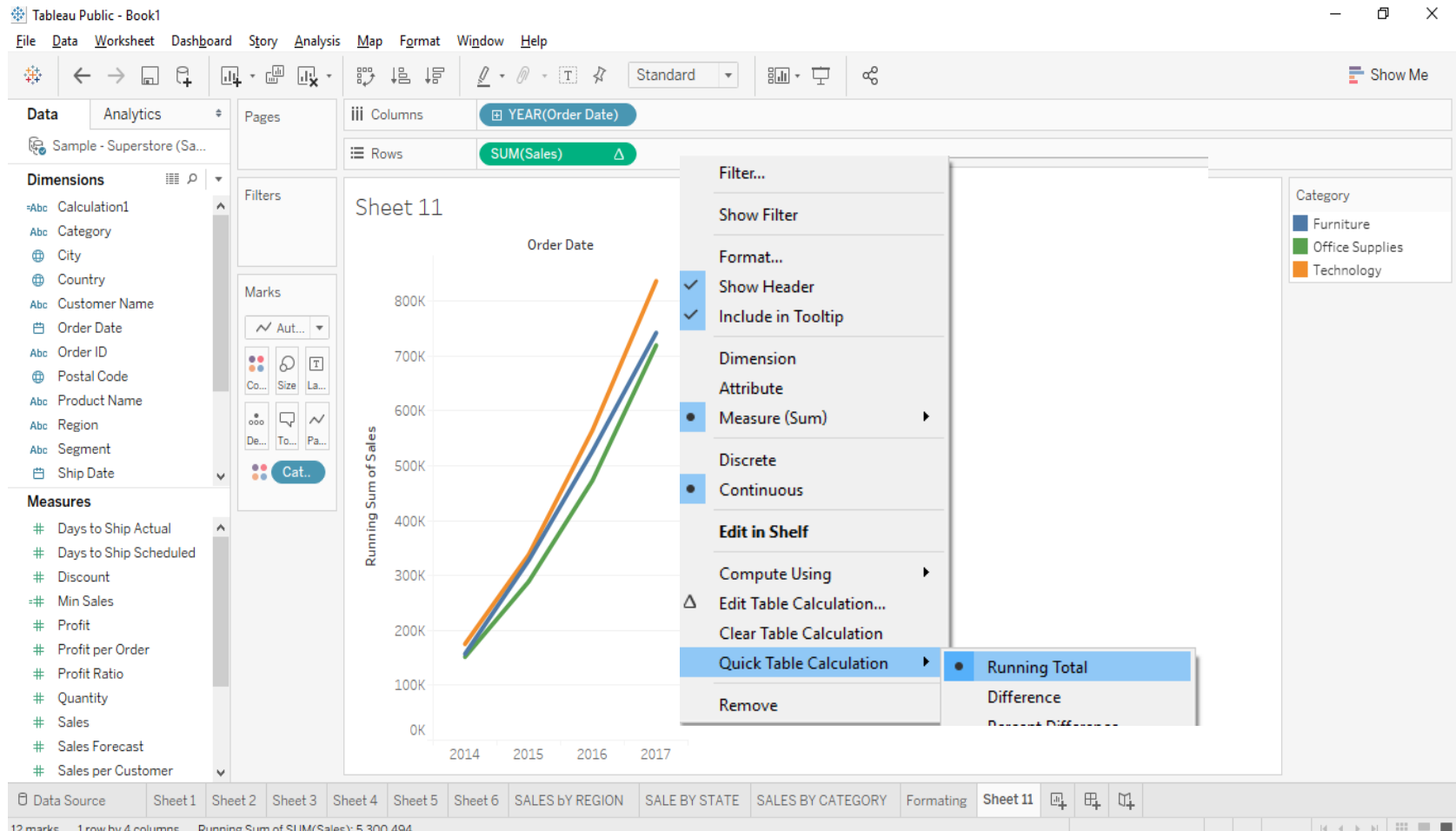
Sub-Catego..	
Accessories	7.29%
Appliances	4.68%
Art	1.18%
Binders	8.85%
Bookcases	5.00%
Chairs	14.30%
Copiers	6.51%
Envelopes	0.72%
Fasteners	0.13%
Furnishings	3.99%
Labels	0.54%
Machines	8.24%
Paper	3.42%
Phones	14.37%
Storage	9.74%
	2.03%
	9.01%
	100.00%

Data Source Sheet 1 Sheet 2

marks 18 rows by 1 column % of Total S

# Calculations

**Table Calculations (Running Total):** These are the calculations we do on the output received.



# Calculations

**Table Calculations** (Percentage Difference ) : Gives the percentage difference between previous & current value

**Data** | **Analytics**

Orders (orders)

Search

**Tables**

- AvgSal
- BOT5
- COST
- Discount
- IND
- KPI
- LAS
- OrdCount
- PERDIFF
- POSIS
- POSITION
- Profit
- Quantity
- Sales

**Parameters**

- P1

**Columns**

Measure Names

**Rows**

YEAR(Order Date) MONTH(Order Date)

**Filters**

YEAR(Order Date): 2.. Measure Names

**Marks**

Automatic

Colour Size Text

Detail Tooltip

Measure Values

SUM(Sales) SUM(Sales)

**PER DIFF**

Year of Order Date	Month of Order Date	% Difference Sales in Sales fro..
2014	January	14,237
	February	4,520 -68.25%
	March	55,691 1,132.13%
	April	28,295 -49.19%
	May	23,648 -16.42%
	June	34,595 46.29%
	July	33,946 -1.88%
	August	27,909 -17.78%
	September	81,777 193.01%
	October	31,453 -61.54%
	November	78,629 149.98%
	December	69,546 -11.55%

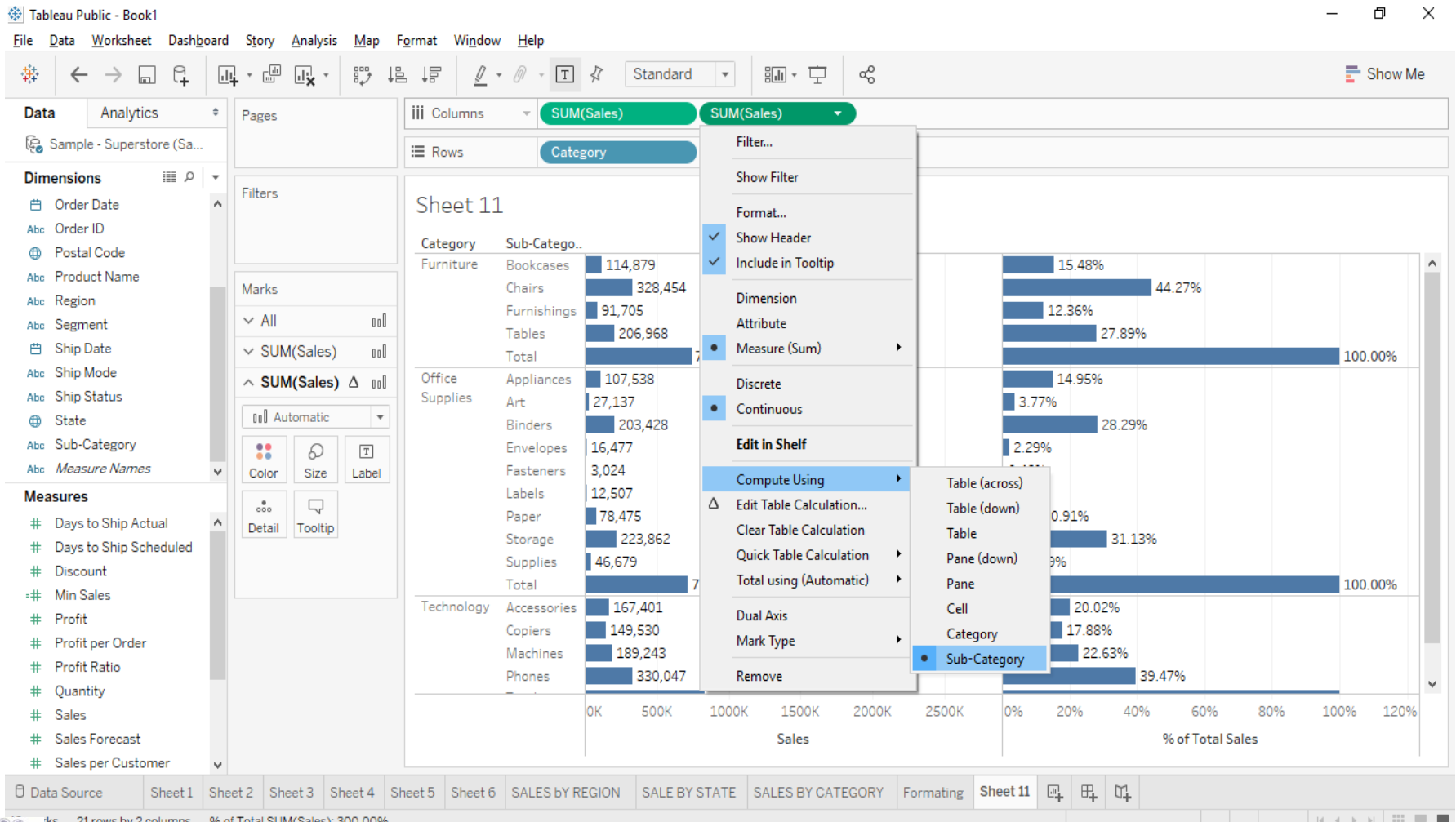
**YEAR(Order Date)**

- (All)
- ☒ 2014
- ☐ 2015
- ☐ 2016
- ☐ 2017



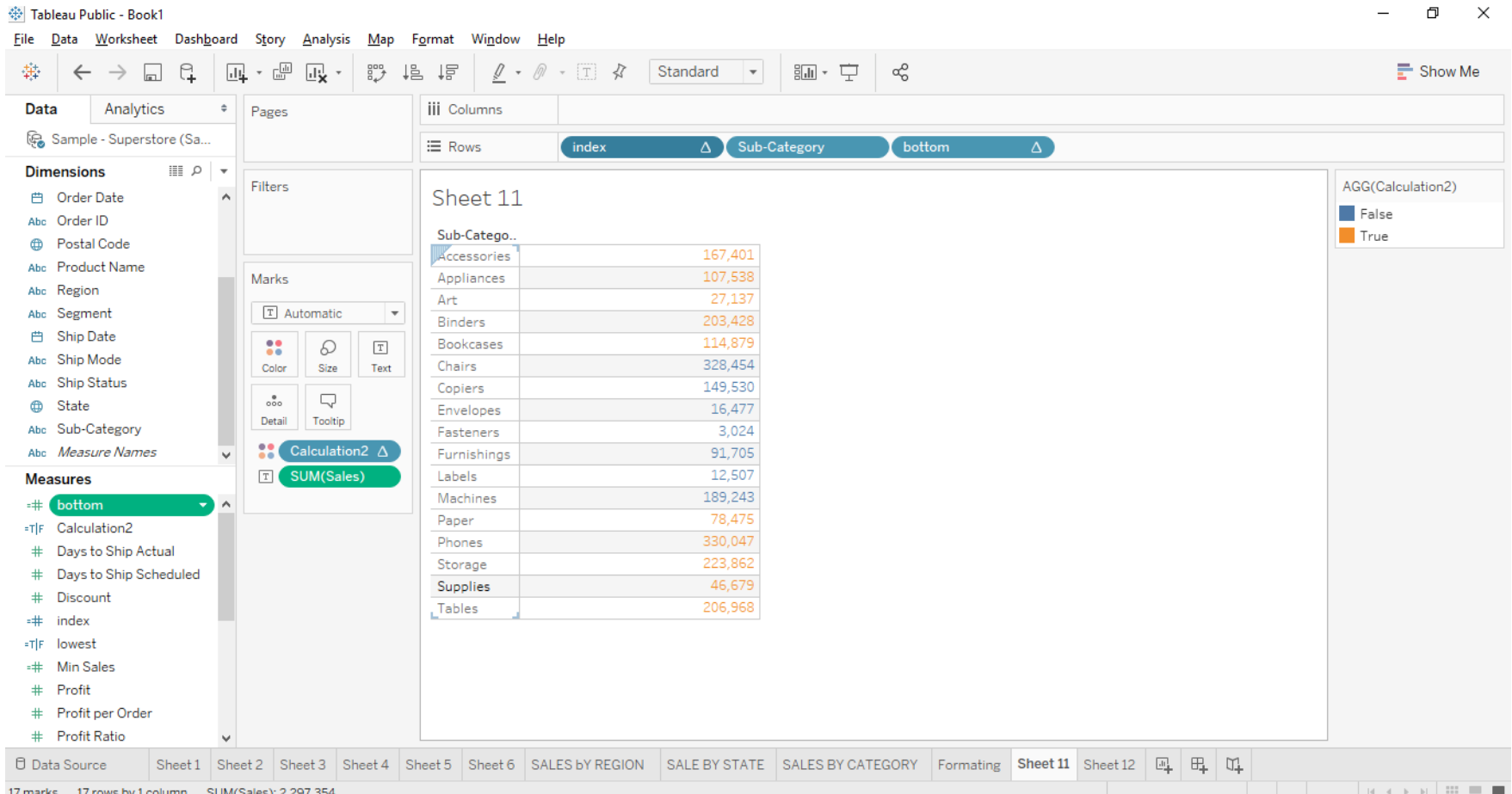
# Calculations

**Compute Using:** It is the advance feature of quick table calculations.



# Calculations

**Conditional Formatting :** Formatting the data as per some condition.  
For Eg: Highlighting the top 5 or bottom 5 sales.



**NOTE:** We need index & last function to implement conditional formatting.