TABLEAU

Introduction to Tableau?

- Tableau is a Business Intelligence tool for visually analyzing the data. Users can create and distribute an interactive and shareable dashboard, which depict the trends, variations, and density of the data in the form of graphs and charts.
- Tableau can connect to files, relational and Big Data sources to acquire and process data. The software allows data blending and real-time collaboration, which makes it very unique.
- It is used by businesses, academic researchers, and many government organizations for visual data analysis. It is also positioned as a leader Business Intelligence and Analytics Platform.

Advantages of Tableau

Traditional Method	Tableau
Requires specific programming skills	No programming skills required
Focused on only one type of database	Combines different types of database spreadsheets, databases, cloud data, and even big data such as Hadoop
Time consuming	Time saving
Decision makers have to ask the IT people to retrieve any information from the database	Decision makers can directly use the dashboard to retrieve any information from the database
Largely depends on Query languages	Query is done behind the scene
Combining different types of database is difficult	Different types of databases can be combined easily
Not every business intelligence tool offers interactive dashboard	Interactive dashboard is easy to build and it makes data visualization quick and efficient
Comparatively expensive	Comparatively affordable
Mostly designed for large businesses	Perfect BI solution for small, medium, and large businesses, and even for non-profits

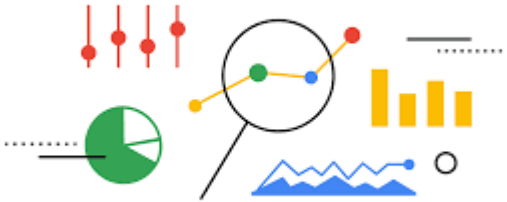
Speed to N

Easy to Use

Tableau does BigData

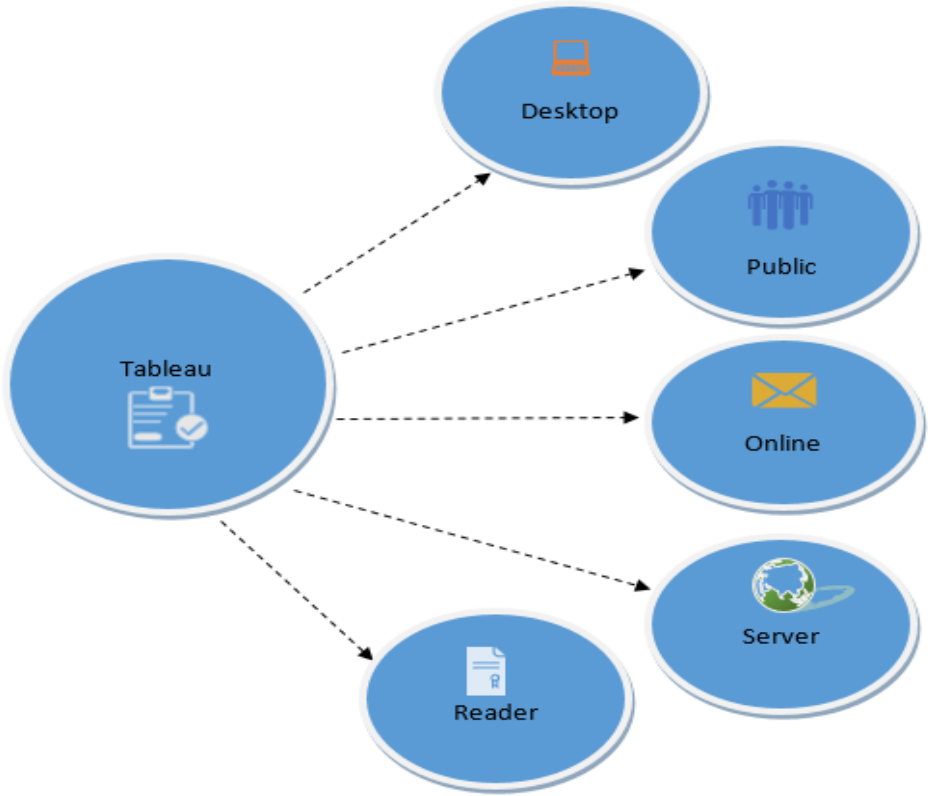
Tableau does any data

Different types of Plots



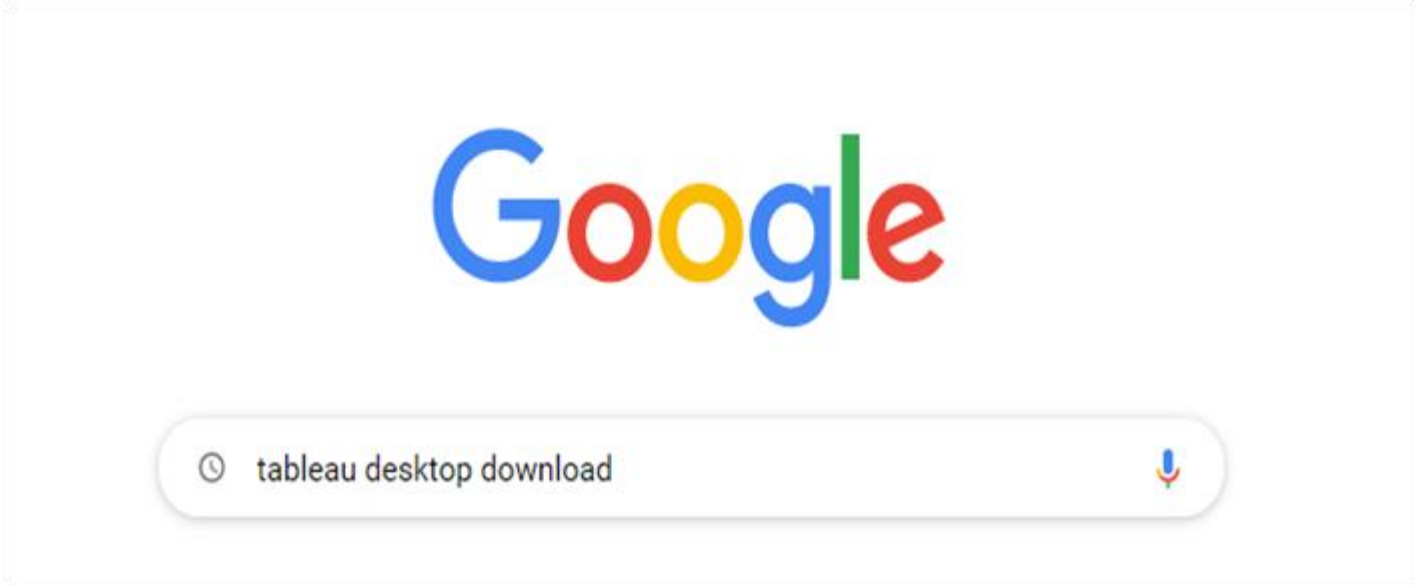
Types of Tableau

- Tableau Desktop
- Tableau Public
- Tableau Online
- Tableau Server
- Tableau Reader



HOW TO INSTALL TABLEAU DESKTOP?

Step 1:



Step 2:

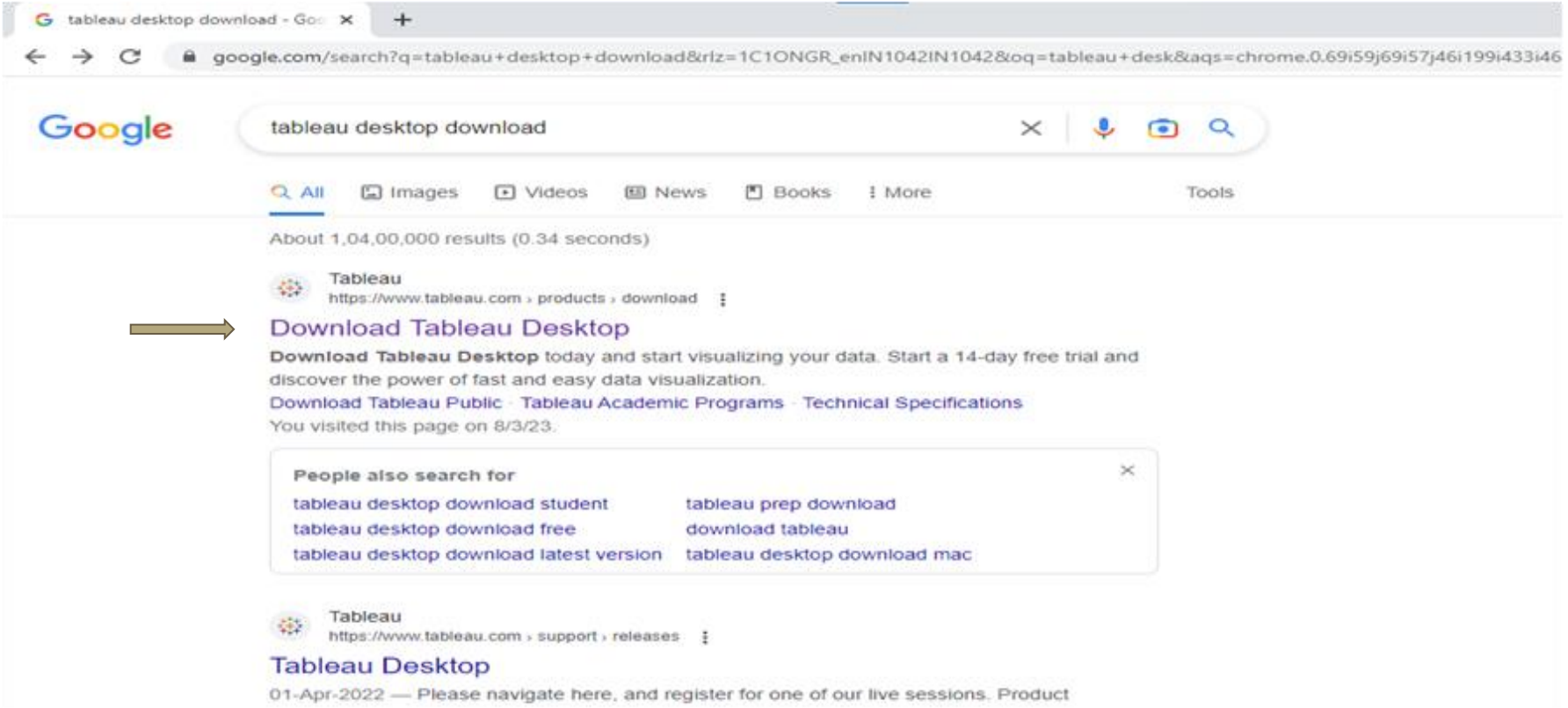

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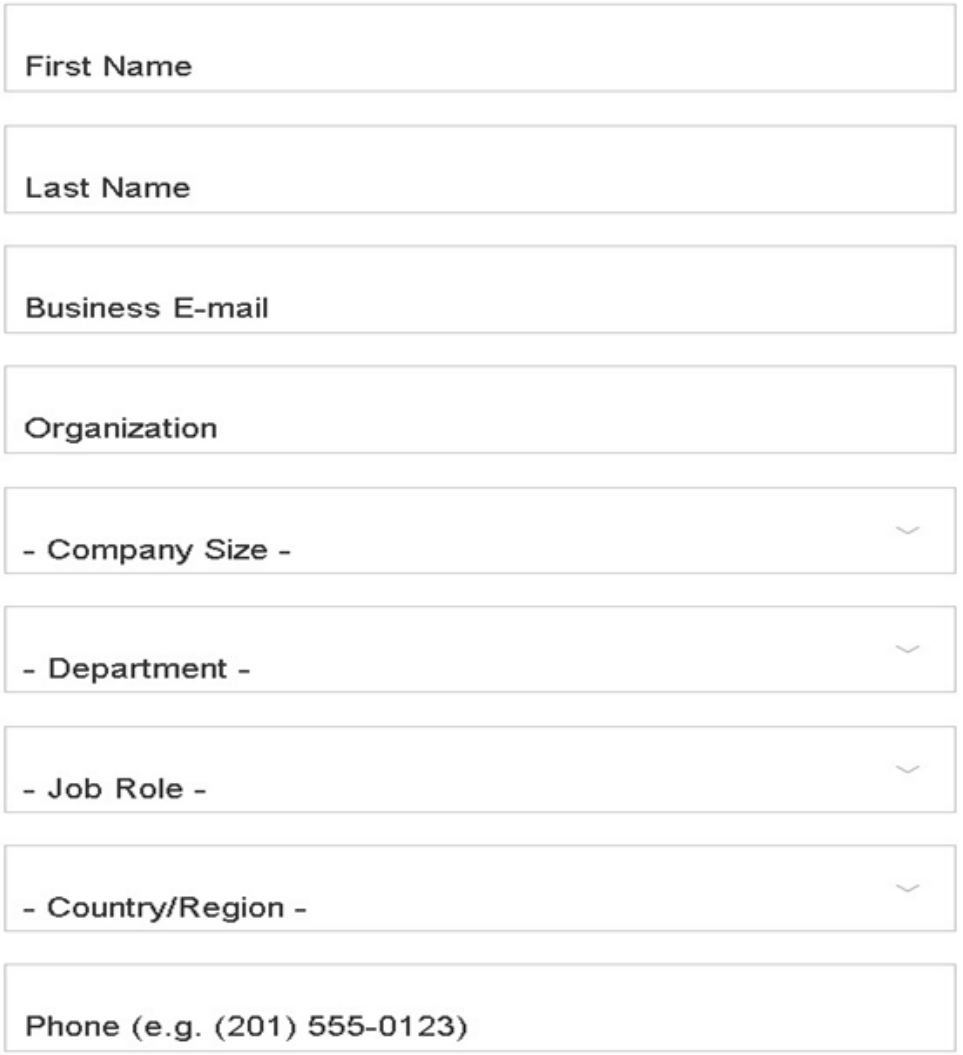
Tableau Desktop
01-Apr-2022 — Please navigate here, and register for one of our live sessions. Product

Step 3:


First Name
Last Name
Business E-mail
Organization
- Company Size -
- Department -
- Job Role -
- Country/Region -
Phone (e.g. (201) 555-0123)

Step 4:


Tableau 2021.4 (20214.22.0213.1102) Setup
Tableau Desktop
Welcome to Tableau
Before you install the product, you must read and accept the license agreement.
Tableau 2021.4.4 license terms.
I have read and accept the terms of the license agreement.
To help improve our product, Tableau collects information about your feature usage. All usage data is handled according to our Privacy Policy.
Select the check box to opt out. Learn more
Don't send product usage data.
Customize
Install

Step 5:

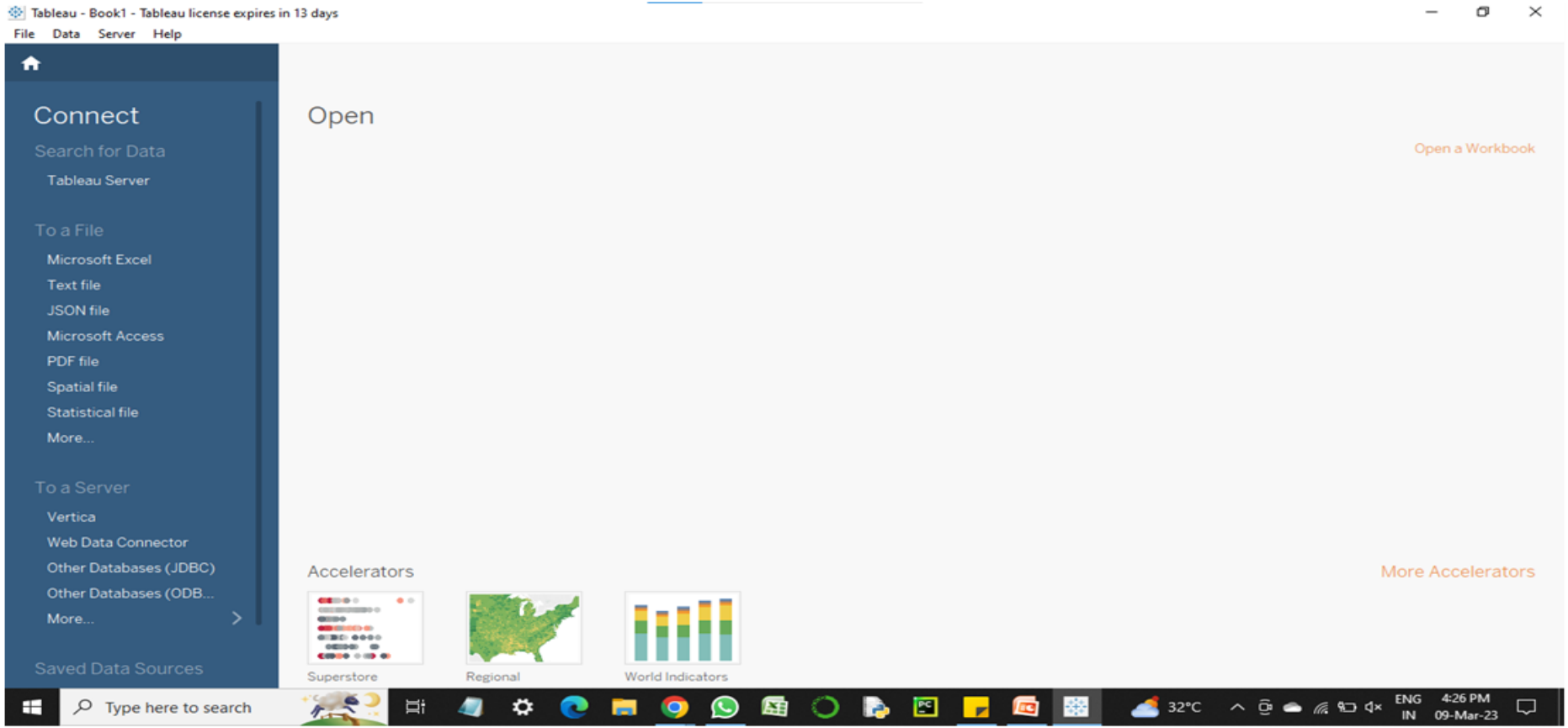


Tableau - Book1 - Tableau license expires in 13 days
File Data Server Help
Connect
Search for Data
Tableau Server
To a File
Microsoft Excel
Text file
JSON file
Microsoft Access
PDF file
Spatial file
Statistical file
More...
To a Server
Vertica
Web Data Connector
Other Databases (JDBC)
Other Databases (ODB...
More...
Saved Data Sources
Open
Open a Workbook
Accelerators
More Accelerators
Superstore
Regional
World Indicators
Type here to search
32°C
ENG
IN
4:26 PM
09-Mar-23


LETS GET STARTED

Dimensions and measures?

- ***Dimensions*** contain qualitative values (such as names, dates, or geographical data). You can use dimensions to categorize, segment, and reveal the details in your data. Dimensions affect the level of detail in the view.
- ***Measures*** contain numeric, quantitative values that you can measure. Measures can be aggregated. When you drag a measure into the view, Tableau applies an aggregation to that measure (by default).

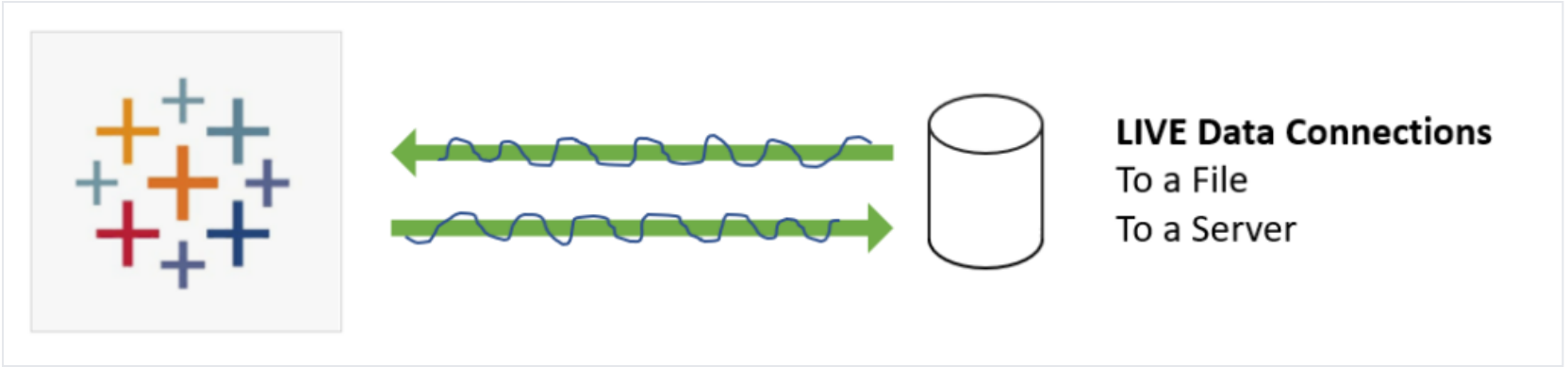
For Example,

- Green measures SUM(Profit) and d YEAR(Order Date) are continuous. Continuous field values are treated as an infinite range. Generally, continuous fields add axes to the view.
- Blue measures SUM(Profit) ar Product Name ons are discrete. Discrete values are treated as finite. Generally, discrete fields add headers to the view.

Live Data & Extract Data?

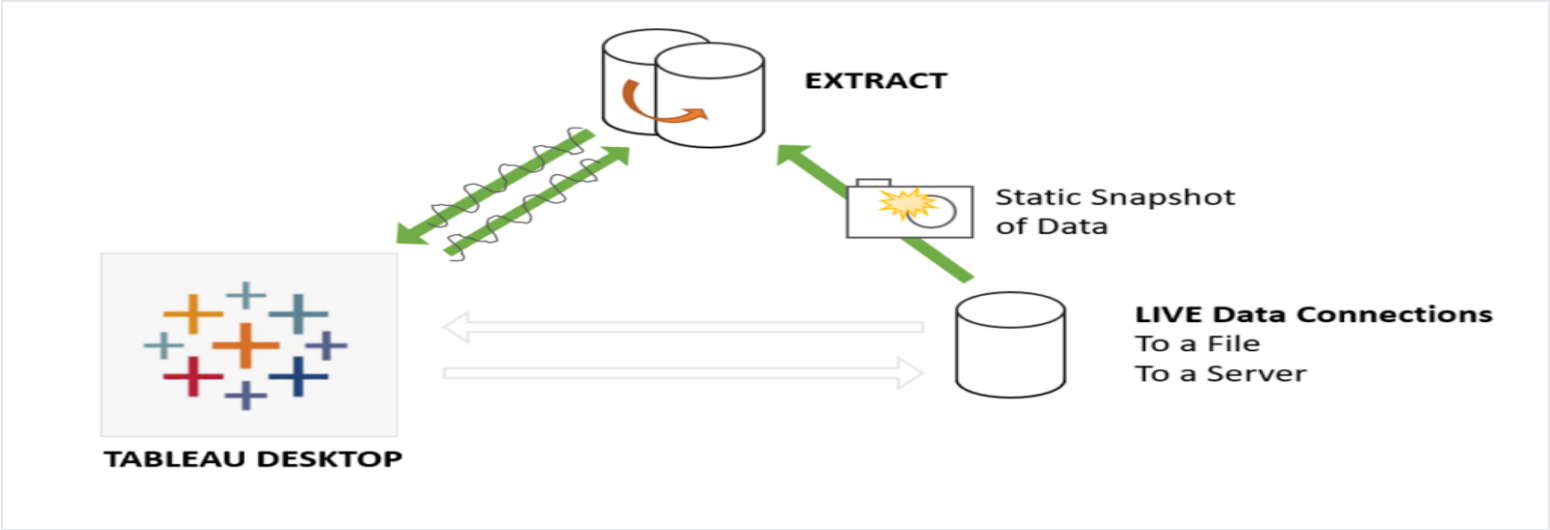
Live Data Source:

- By default, when you connect to data in Tableau, whether it's a file stored locally on your computer or in a cloud database, a live data connection is created, This means that every change you make in Tableau Desktop will cause a new query to be sent to the data source.



Extract Data:

- When you swap your Data Connection from ‘Live’ to ‘Extract, a static snapshot of the data is taken. The extract is embedded in the workbook and becomes available offline. This means any queries sent to the data source can happen much faster.

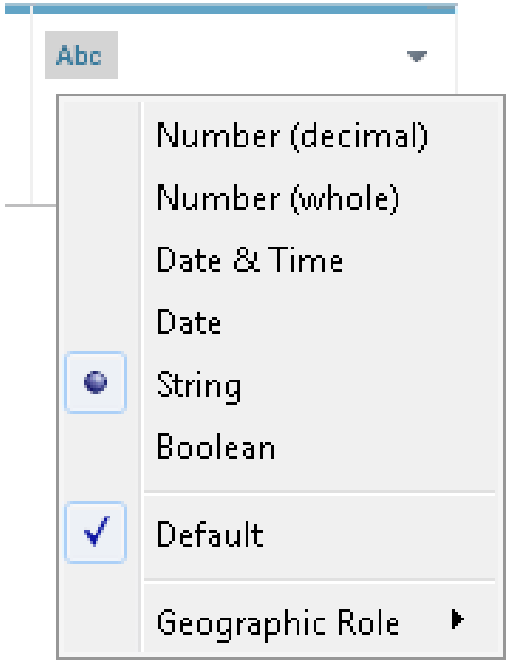


Uses of Different Charts?

- You can use them to quickly compare data across categories, highlight differences, show trends and outliers, and reveal historical highs and lows at a glance. Bar charts are especially effective when you have data that can be split into multiple categories.

Tableau Data Types?

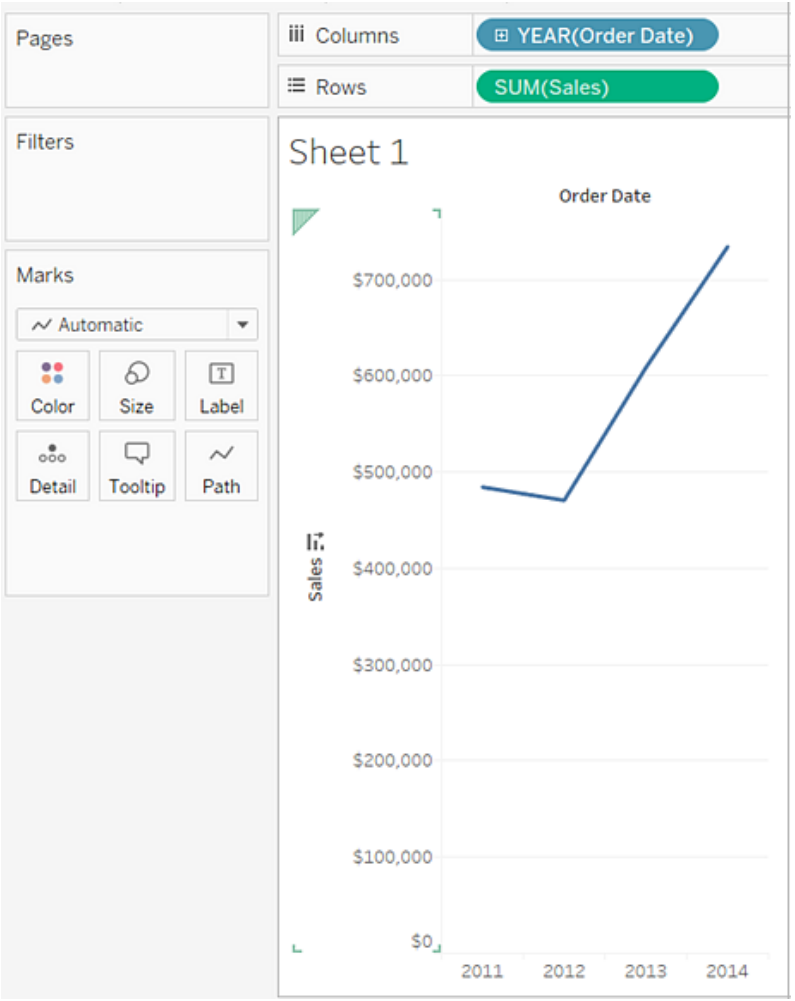
Icon	Data type
Abc	Text (string) values
	Date values
	Date & Time values
#	Numerical values
T|F	Boolean values (relational only)
	Geographic values (used with maps)
	Cluster Group (used with Find Clusters in Data)

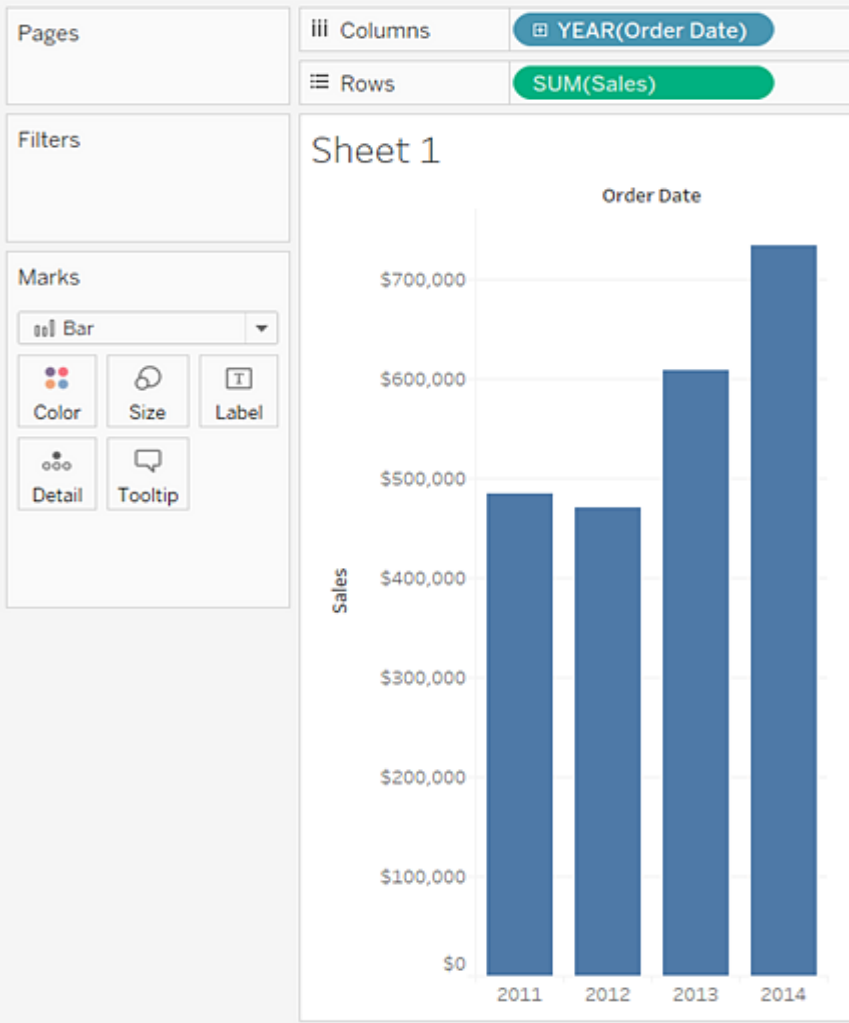


How to prepare bar,Line,Pie,Donut charts and other charts using tableau?

Bar Chart:

- A bar chart represents data in rectangular bars with the length of the bar proportional to the value of the variable. Tableau automatically produces a bar chart when you drag a dimension to the Row shelf and measure to the Column shelf. We can also use the bar chart option present in the Show Me button.

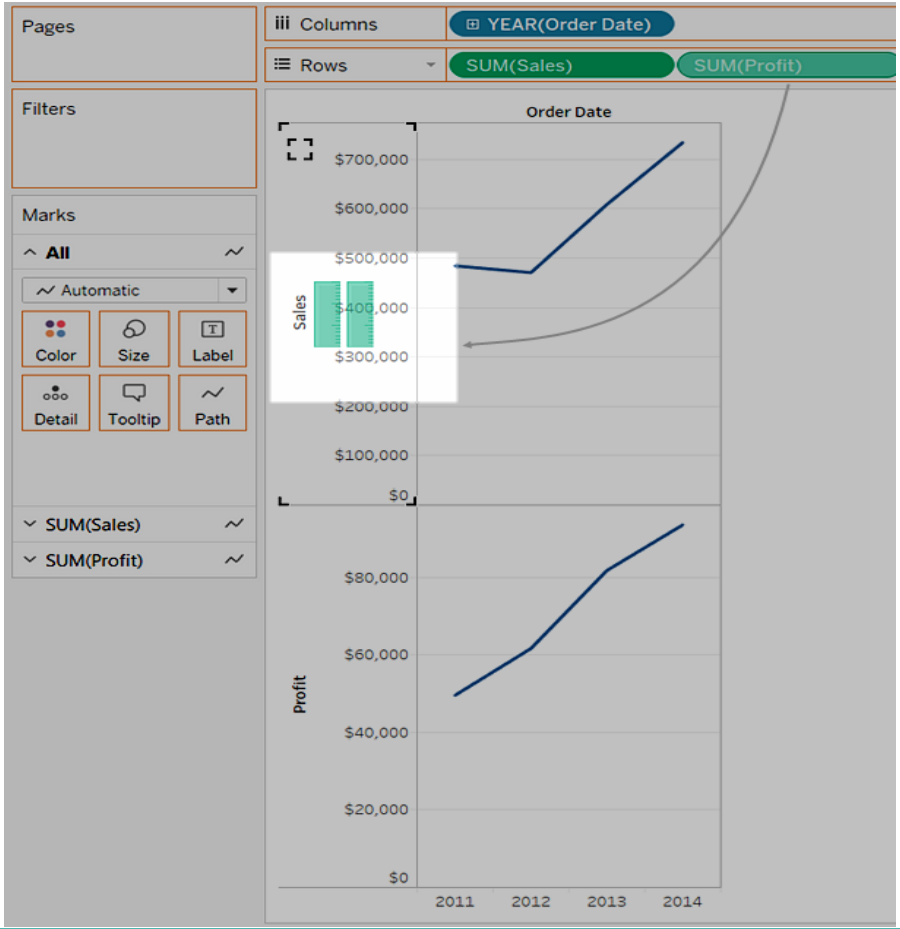

Pages
Columns
YEAR(Order Date)
Rows
SUM(Sales)
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Path
Sheet 1
Order Date
$700,000
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
$0
Sales
2011
2012
2013
2014


Pages
Columns
YEAR(Order Date)
Rows
SUM(Sales)
Filters
Marks
Bar
Color
Size
Label
Detail
Tooltip
Sheet 1
Order Date
$700,000
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
$0
Sales
2011
2012
2013
2014

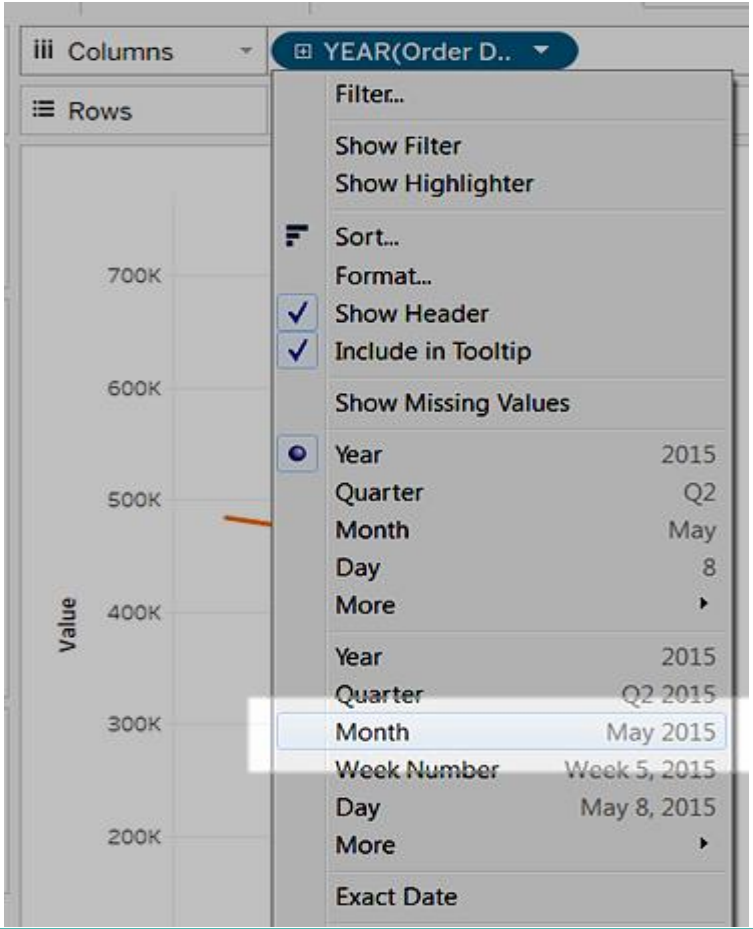
Line Chart:

- A line chart is a type of chart used to show information that changes over time. Line charts are created by plotting a series of several points and connecting them with a straight line. Line charts are used to track changes over short and long periods.
- The line chart is **a simple, two-dimensional chart with an X and Y axis, each point representing a single value.** The data points are joined by a line to depict a trend, usually over time.

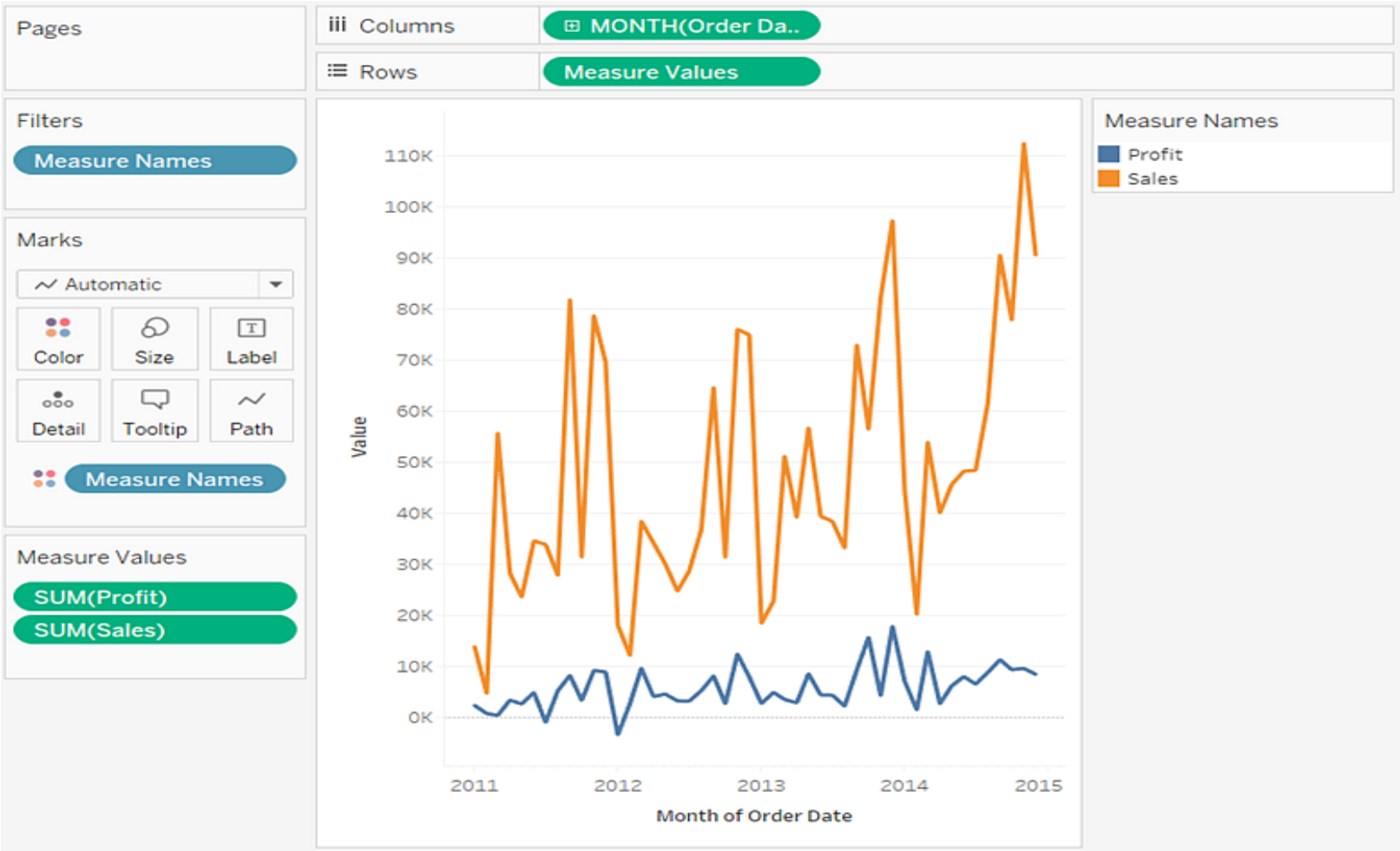
Step 1:


Pages
Filters
Marks
All
Automatic
Color
Size
Label
Detail
Tooltip
Path
SUM(Sales)
SUM(Profit)
Columns
YEAR(Order Date)
Rows
SUM(Sales)
SUM(Profit)
Order Date
$700,000
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
$0
Sales
$80,000
$60,000
$40,000
$20,000
$0
Profit
2011
2012
2013
2014

Step 2:


Columns
YEAR(Order D..
Rows
Filter...
Show Filter
Show Highlighter
Sort...
Format...
Show Header
Include in Tooltip
Show Missing Values
Year 2015
Quarter Q2
Month May
Day 8
More
Year 2015
Quarter Q2 2015
Month May 2015
Week Number Week 5, 2015
Day May 8, 2015
More
Exact Date
700K
600K
500K
400K
300K
200K
Value

Step 3:


Pages
Columns
MONTH(Order Da..
Rows
Measure Values
Filters
Measure Names
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Path
Measure Names
Measure Values
SUM(Profit)
SUM(Sales)
110K
100K
90K
80K
70K
60K
50K
40K
30K
20K
10K
0K
Value
2011
2012
2013
2014
2015
Month of Order Date
Measure Names
Profit
Sales

Pie Chart?

- A pie chart helps organize and show data as a percentage of a whole. True to the name, this kind of visualization uses a circle to represent the whole, and slices of that circle, or “pie”, to represent the specific categories that compose the whole.
- By default, Tableau displays a bar chart. Click Show Me on the toolbar, then select the pie chart type.

Step 1:

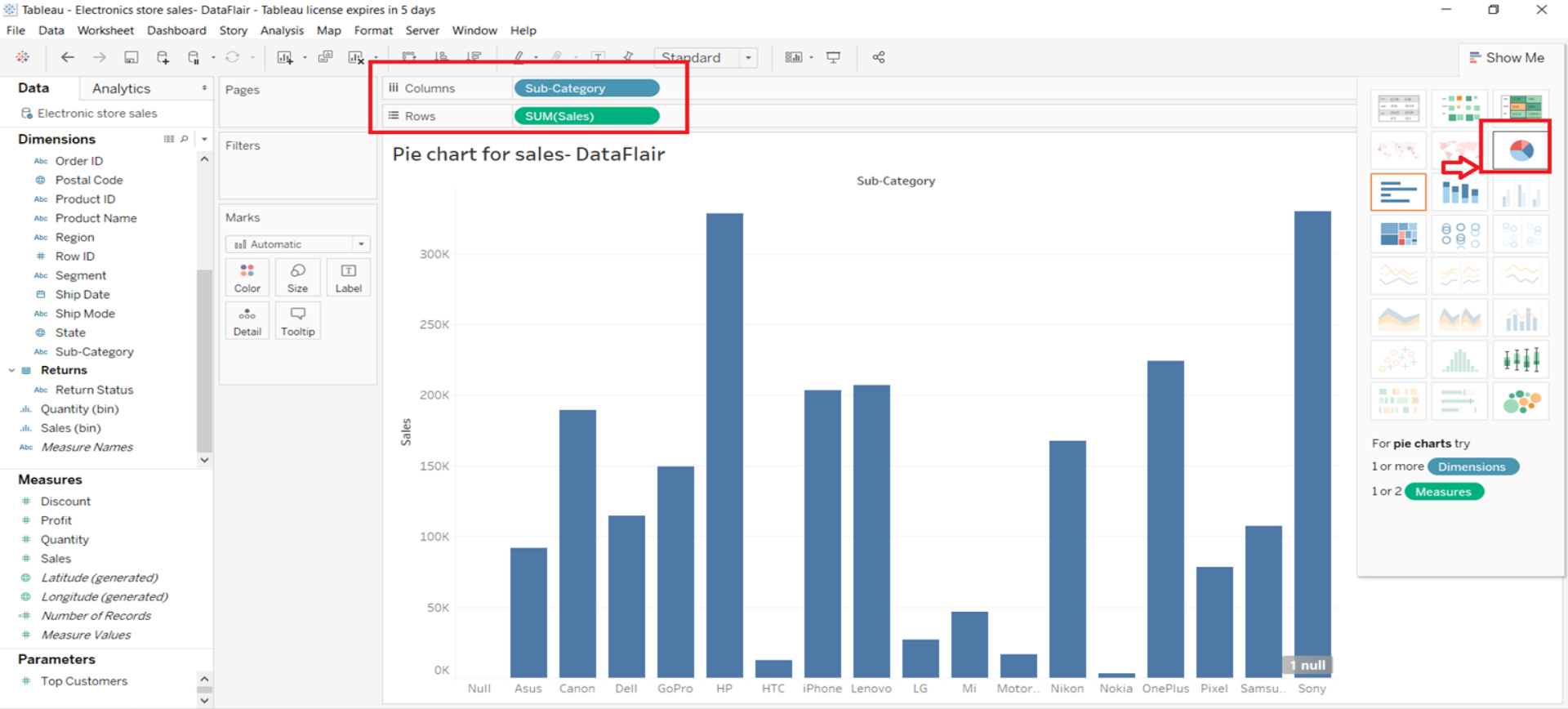


Tableau - Electronics store sales- DataFlair - Tableau license expires in 5 days
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Show Me
Data
Analytics
Electronic store sales
Dimensions
Order ID
Postal Code
Product ID
Product Name
Region
Row ID
Segment
Ship Date
Ship Mode
State
Sub-Category
Returns
Return Status
Quantity (bin)
Sales (bin)
Measure Names
Measures
Discount
Profit
Quantity
Sales
Latitude (generated)
Longitude (generated)
Number of Records
Measure Values
Parameters
Top Customers
Pages
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Columns
Sub-Category
Rows
SUM(Sales)
Pie chart for sales- DataFlair
Sub-Category
Sales
300K
250K
200K
150K
100K
50K
0K
Null
Asus
Canon
Dell
GoPro
HP
HTC
iPhone
Lenovo
LG
Mi
Motor..
Nikon
Nokia
OnePlus
Pixel
Samsu..
Sony
1 null
For pie charts try
1 or more Dimensions
1 or 2 Measures
Data Source
Total sales
Gantt chart
Area chart
Bar chart
Density heatmap
Histogram1
Histogram 2
Bubble chart
Sheet 9
17 marks
1 row by 18 columns
SUM(Sales): 2,297,201

Step 2:

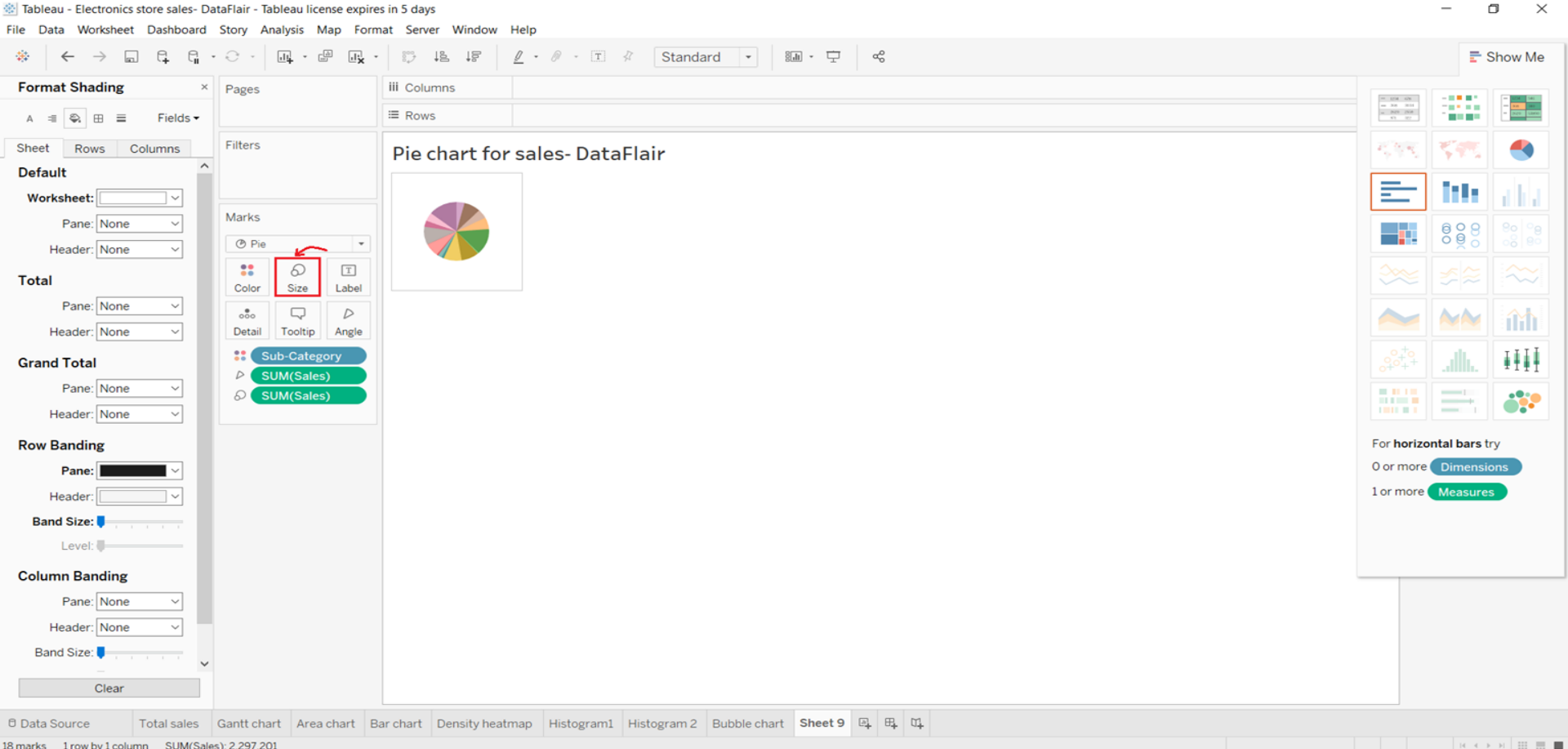
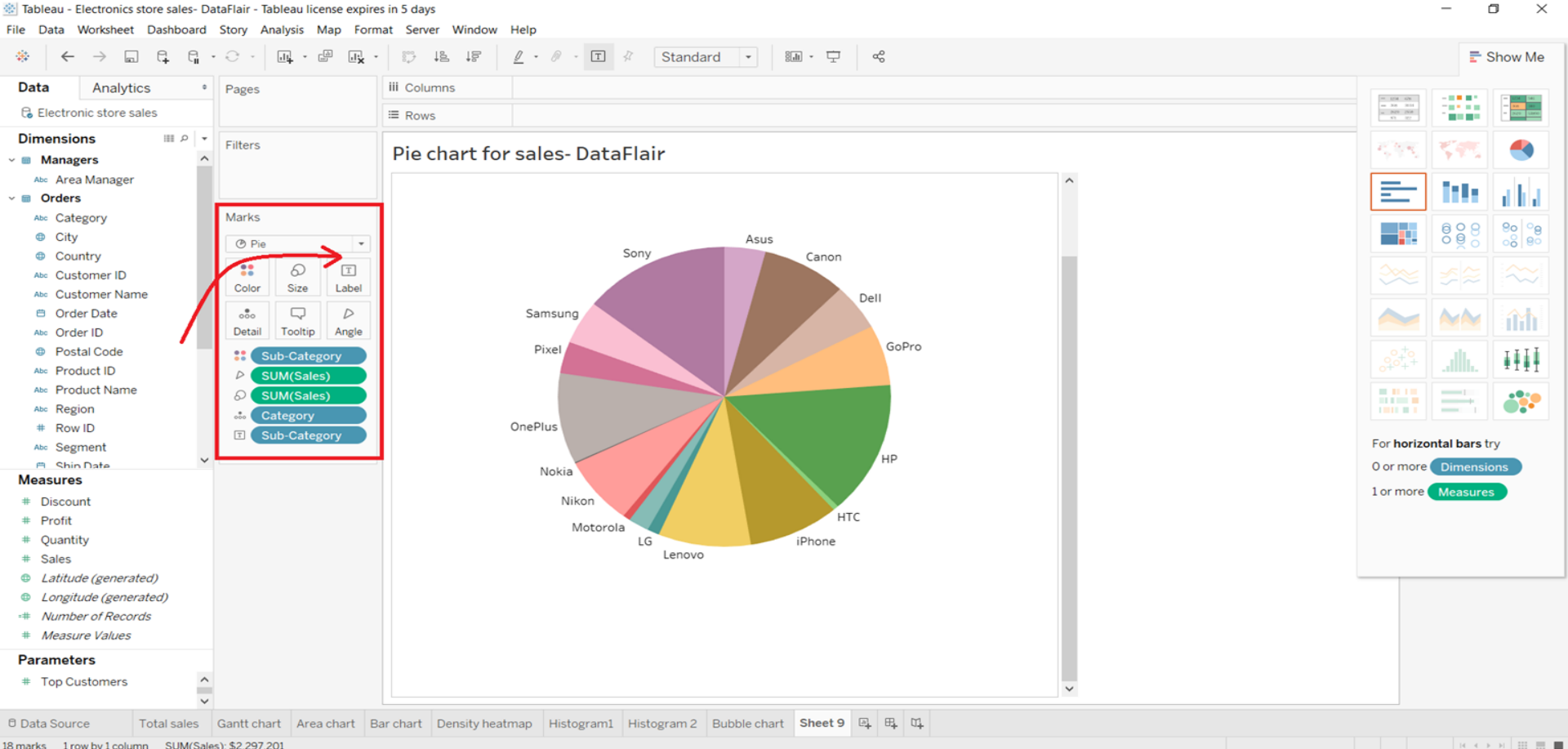


Tableau - Electronics store sales- DataFlair - Tableau license expires in 5 days
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Show Me
Format Shading
Fields
Sheet Rows Columns
Default
Worksheet:
Pane: None
Header: None
Total
Pane: None
Header: None
Grand Total
Pane: None
Header: None
Row Banding
Pane:
Header:
Band Size:
Level:
Column Banding
Pane: None
Header: None
Band Size:
Clear
Pages
Filters
Marks
Pie
Color
Size
Label
Detail
Tooltip
Angle
Sub-Category
SUM(Sales)
SUM(Sales)
Columns
Rows
Pie chart for sales- DataFlair
For horizontal bars try
0 or more Dimensions
1 or more Measures
Data Source
Total sales
Gantt chart
Area chart
Bar chart
Density heatmap
Histogram1
Histogram 2
Bubble chart
Sheet 9
18 marks
1 row by 1 column
SUM(Sales): 2,297,201

Step 3: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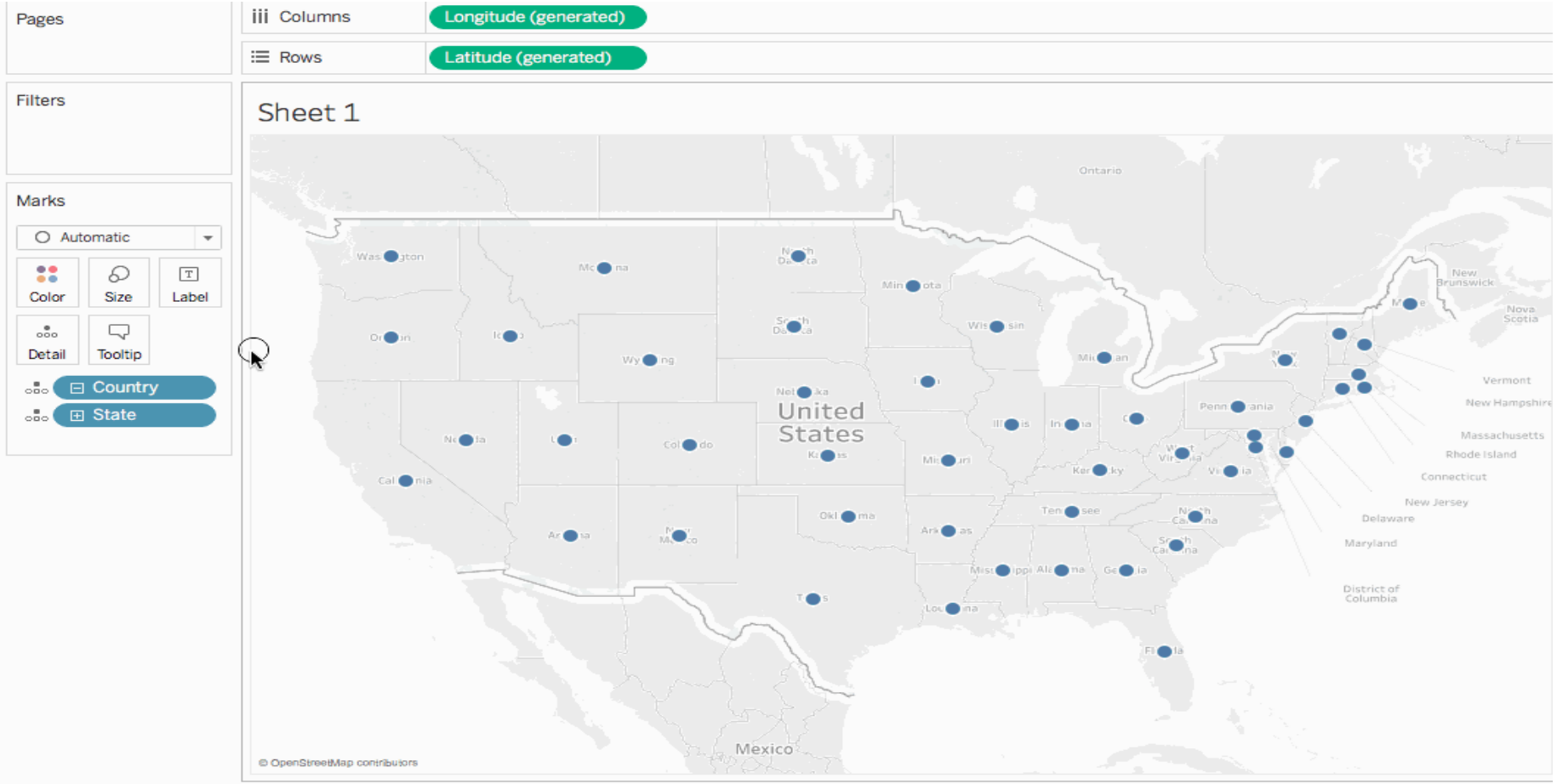
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Show Me
Data
Analytics
Electronic store sales
Dimensions
Managers
Area Manager
Orders
Category
City
Country
Customer ID
Customer Name
Order Date
Order ID
Postal Code
Product ID
Product Name
Region
Row ID
Segment
Measures
Discount
Profit
Quantity
Sales
Latitude (generated)
Longitude (generated)
Number of Records
Measure Values
Parameters
Top Customers
Pages
Filters
Marks
Pie
Color
Size
Label
Detail
Tooltip
Angle
Sub-Category
SUM(Sales)
SUM(Sales)
Category
Sub-Category
Columns
Rows
Pie chart for sales- DataFlair
Asus
Canon
Dell
GoPro
HP
HTC
iPhone
Lenovo
LG
Motorola
Nikon
Nokia
OnePlus
Pixel
Samsung
Sony
For horizontal bars try
0 or more Dimensions
1 or more Measures
Data Source
Total sales
Gantt chart
Area chart
Bar chart
Density heatmap
Histogram1
Histogram 2
Bubble chart
Sheet 9
18 marks
1 row by 1 column
SUM(Sales): $2,297,201

World Map?

- You can build several different types of maps for your geographic analysis in Tableau. If you're new to maps, or simply want to take advantage of the built in mapping capabilities that Tableau provides, you can create a simple point or filled (polygon) map similar to the examples below.

Step 1:


Pages
Columns
Longitude (generated)
Rows
Latitude (generated)
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Country
State
Sheet 1
United States
Mexico
Ontario
Vermont
New Hampshire
Massachusetts
Rhode Island
Connecticut
New Jersey
Delaware
Maryland
District of Columbia
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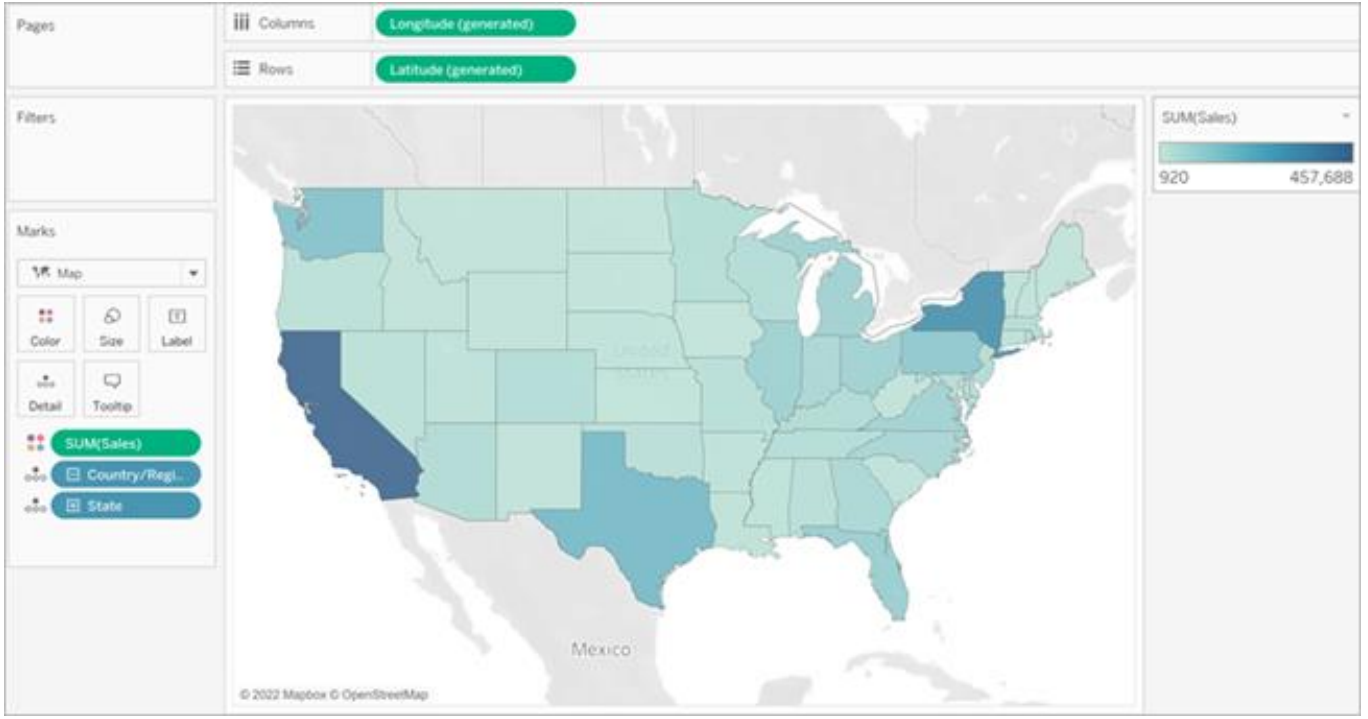
Step 2:


Marks
Map
Automatic
Bar
Line
Area
Square
Circle
Shape
Text
Map
Pie
Gantt Bar
Polygon
Density

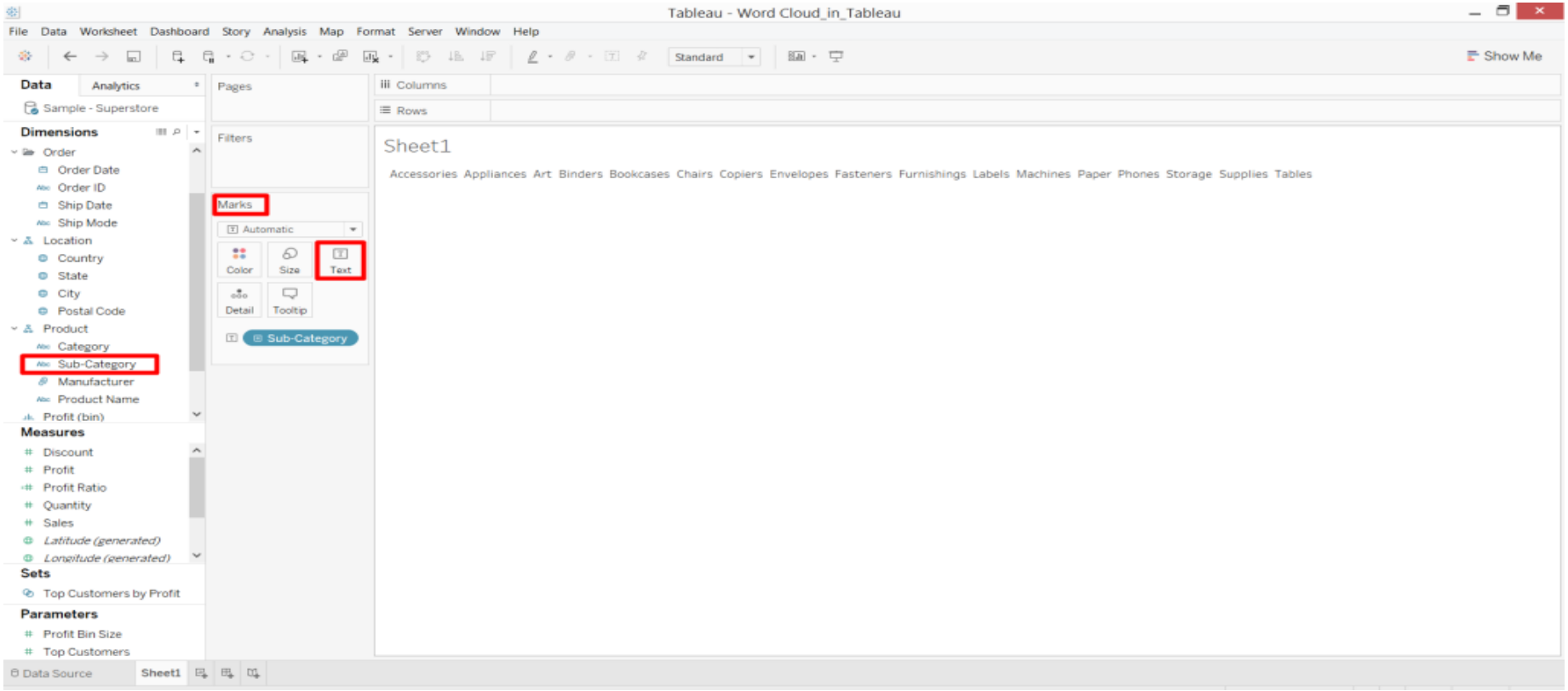
Step 3:


Pages
Columns
Longitude (generated)
Rows
Latitude (generated)
Filters
Marks
Map
Color
Size
Label
Detail
Tooltip
SUM(Sales)
Country/Regi..
State
SUM(Sales)
920
457,688
Mexico
© 2022 Mapbox © OpenStreetMap

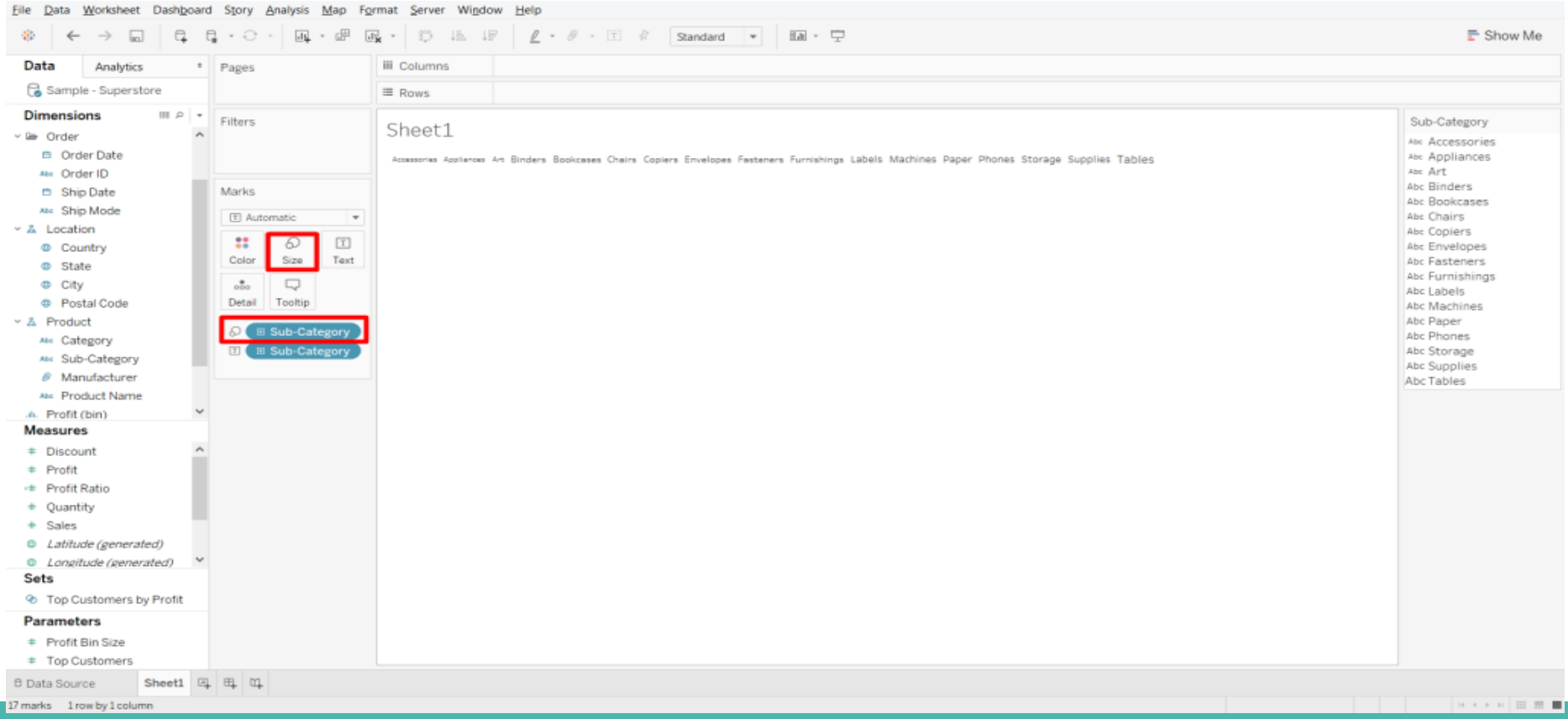
Word Map?

- The word cloud is a a great visual to represent the frequency of words in set amount of text . In a word cloud, the most important or unique words within the data are arranged together in a form of groups.
- Also, in word cloud, the size of each of the word can be determined either by the importance(frequency) of that word or by the number of occurrences within data. The main objective of creating a word cloud is to give the viewer a quick understanding of the important and unique words from the data.

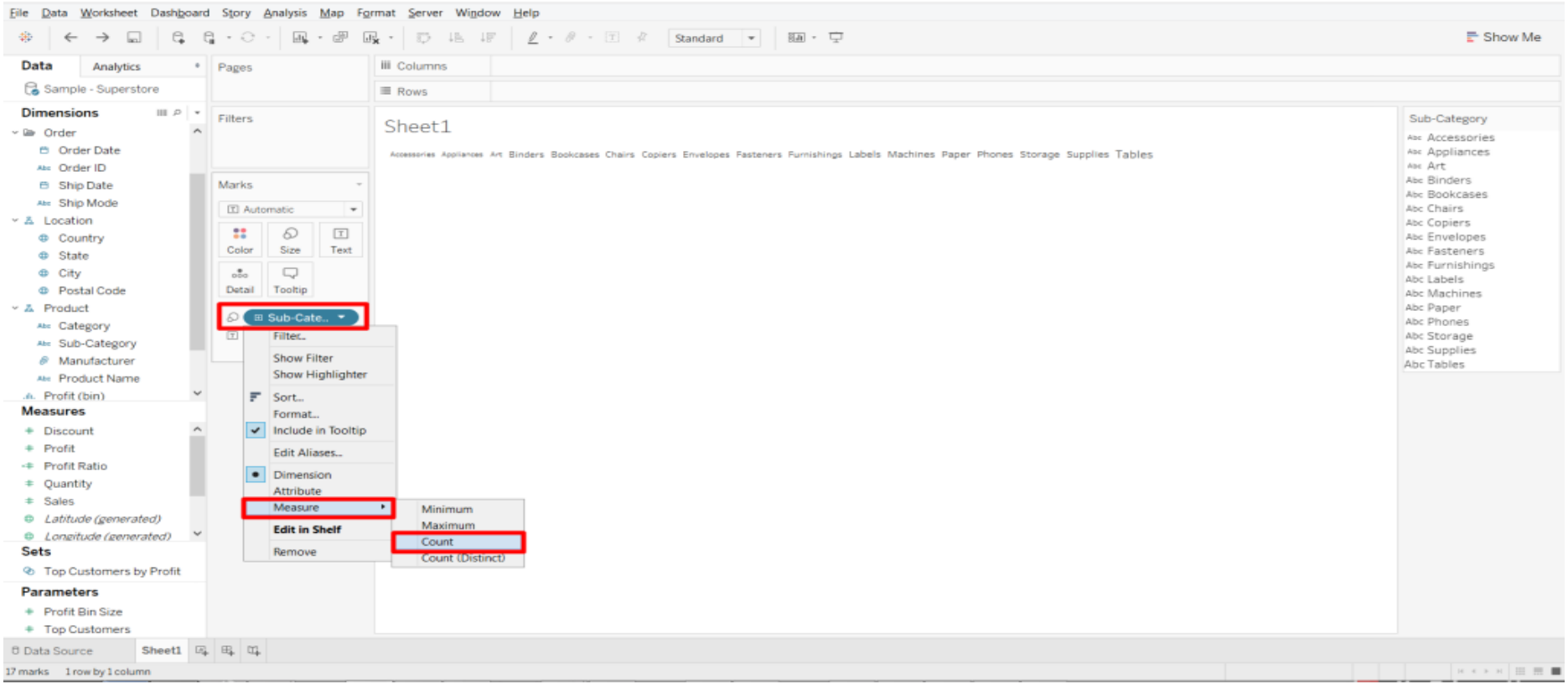
Step 1: Put "Sub-Category" field to "Text" marks card:



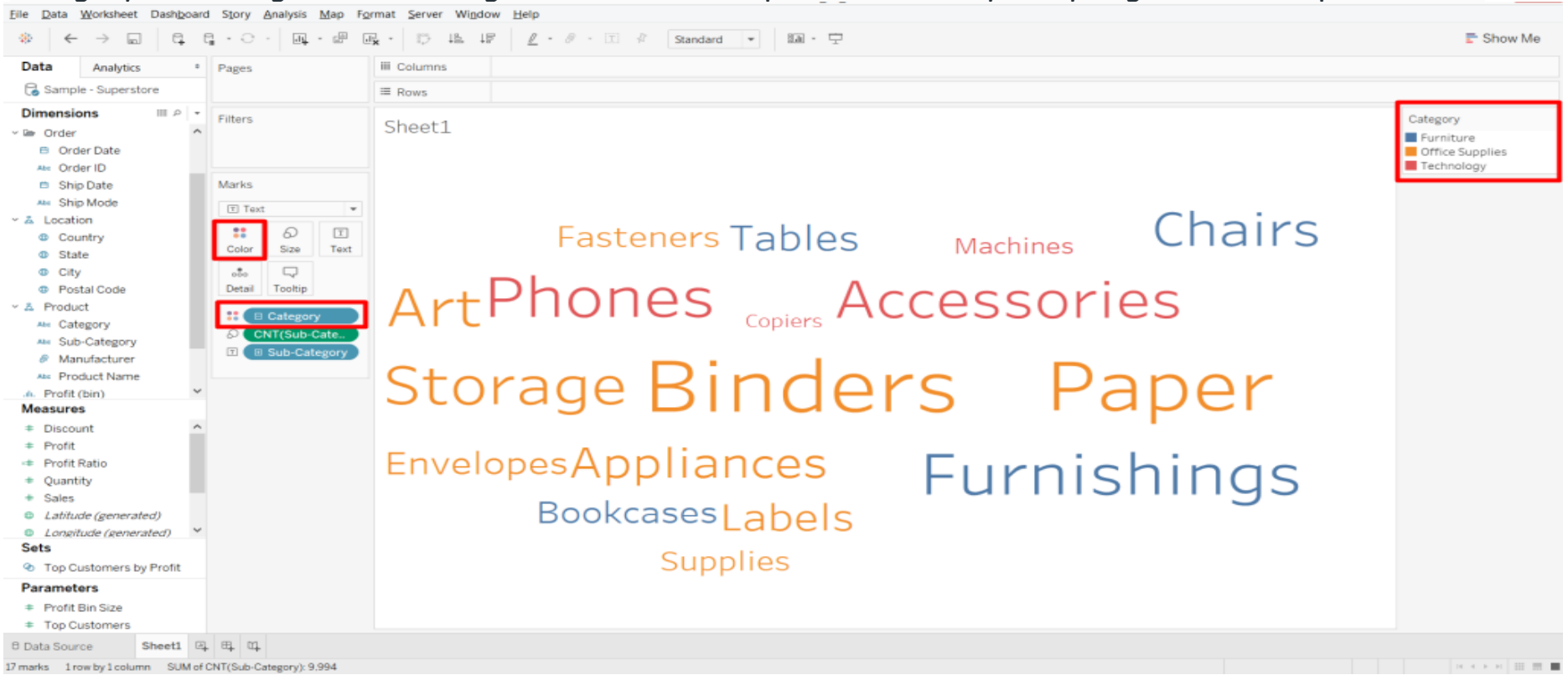
Step 2: Put "Sub-Category" field to "**Size**" marks card and convert it to measure as "Count of Sub-Category": After this step, the size of the each sub-category will get change according to their occurrence in the dataset.



Step 3: Under marks card, change the type of chart from "**Automatic**" to "**Text**", then change the subcategory to count by right clicking the measure:



Step 4: The final step, put "**Category**' field to "**Color**" marks card: This is done to group the sub-category according to their categories. This will help user in visually analyzing of word Map in better



Tree Maps?

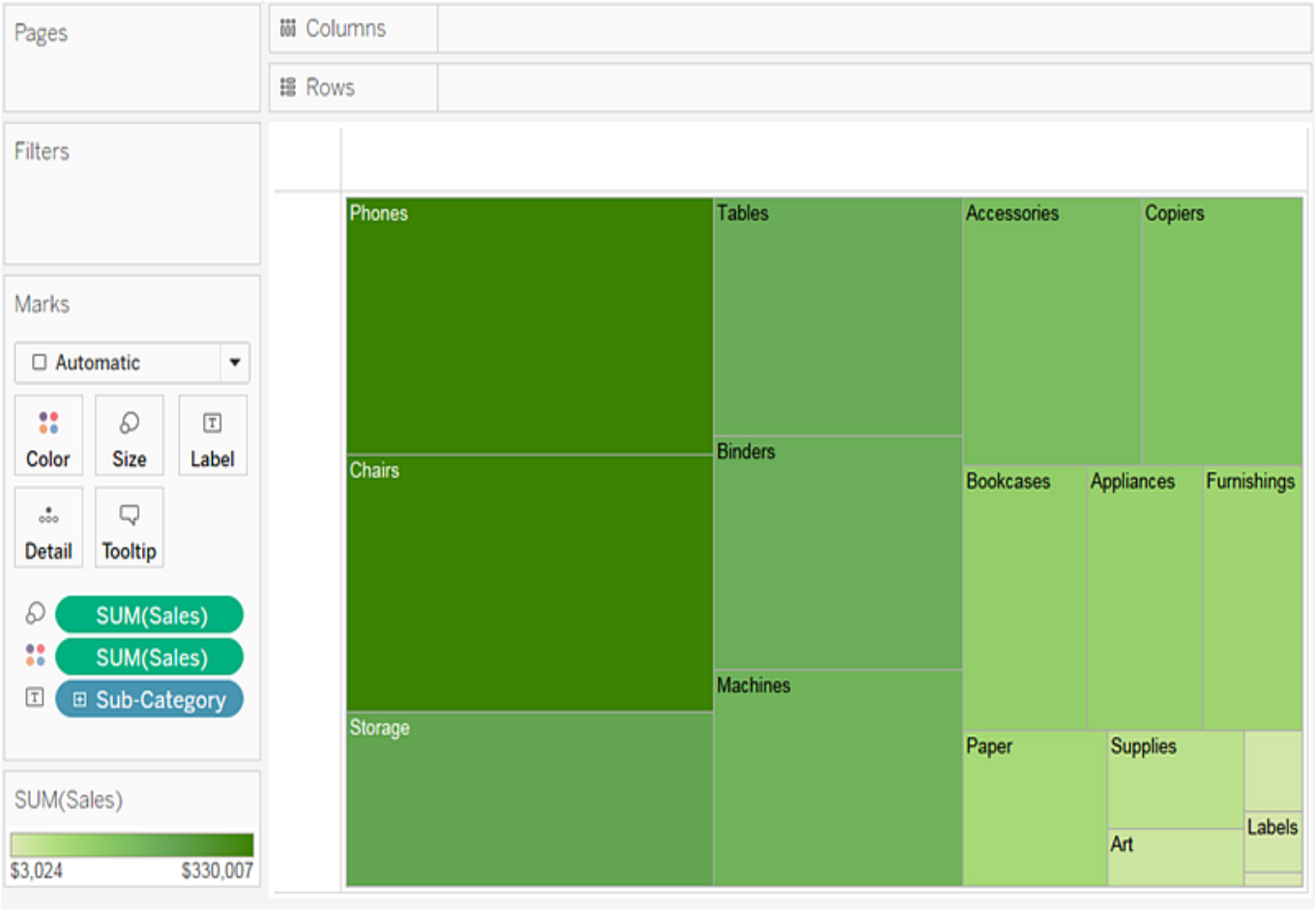
- Use treemaps to display data in nested rectangles. You use dimensions to define the structure of the treemap, and measures to define the size or color of the individual rectangles. Treemaps are a relatively simple data visualization that can provide insight in a visually attractive format.

Steps:

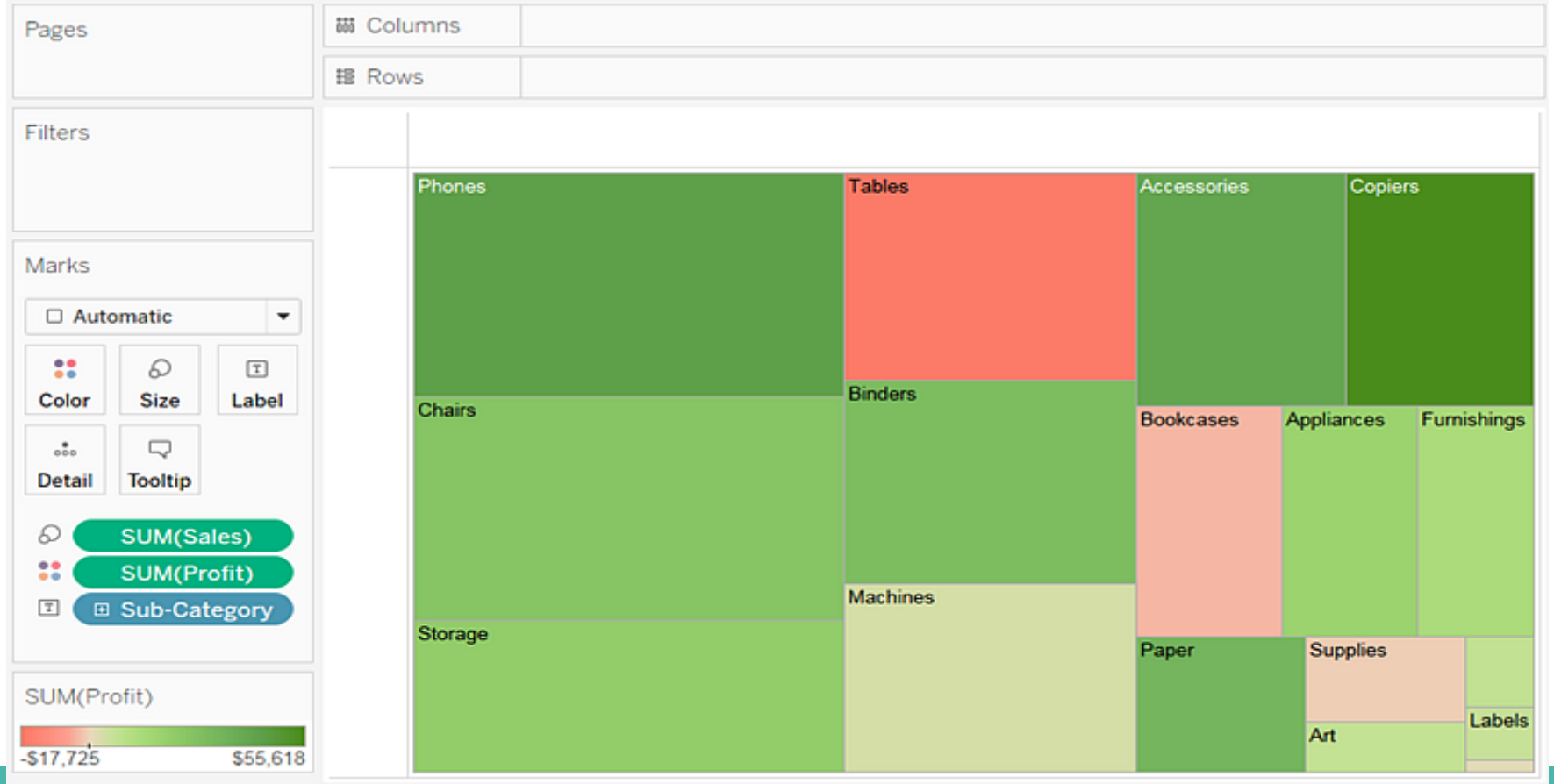
- **Step 1:** Drag the Sub-Category dimension to Columns.
  A horizontal axis appears, which shows product categories.
- **Step 2:** Drag the Sales measure to Rows.
  Tableau aggregates the measure as a sum and creates a vertical axis.
  Tableau displays a bar chart—the default chart type when there is a dimension on the Columns shelf and a measure on the Rows shelf.
- **Step 3:** Click Show Me on the toolbar, then select the treemap chart type.

Step 3:

Result: It displays following Tree



Step 4: Drag the **Profit** measure to **Color** on the **Marks** card. Now **Profit** determines the color of the rectangles, and **Sales** determines their size



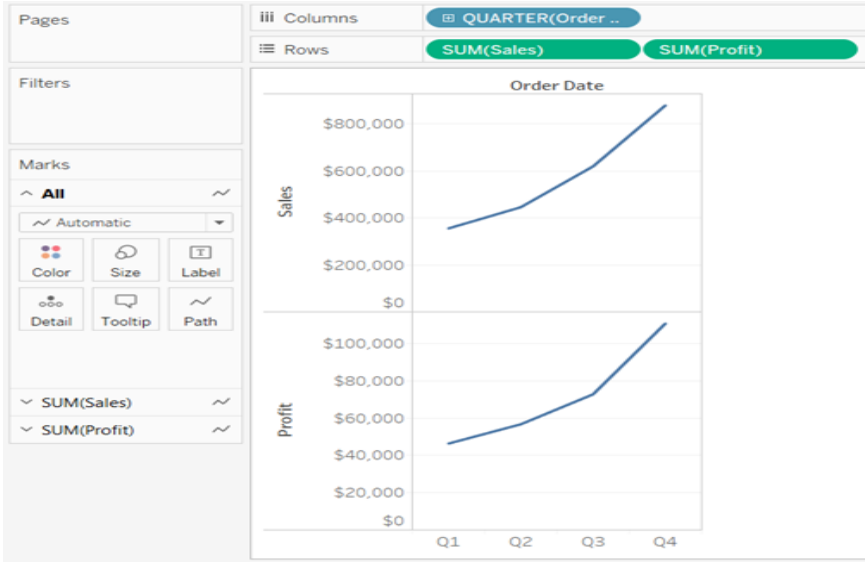
Combined Axis Chart?

- A combination chart **compares data in a few different categories over a period of time.** In general, there are two or three types of charts combined together to show a relationship between data points. Typically, a bar chart and a line chart are used together.

For Example:

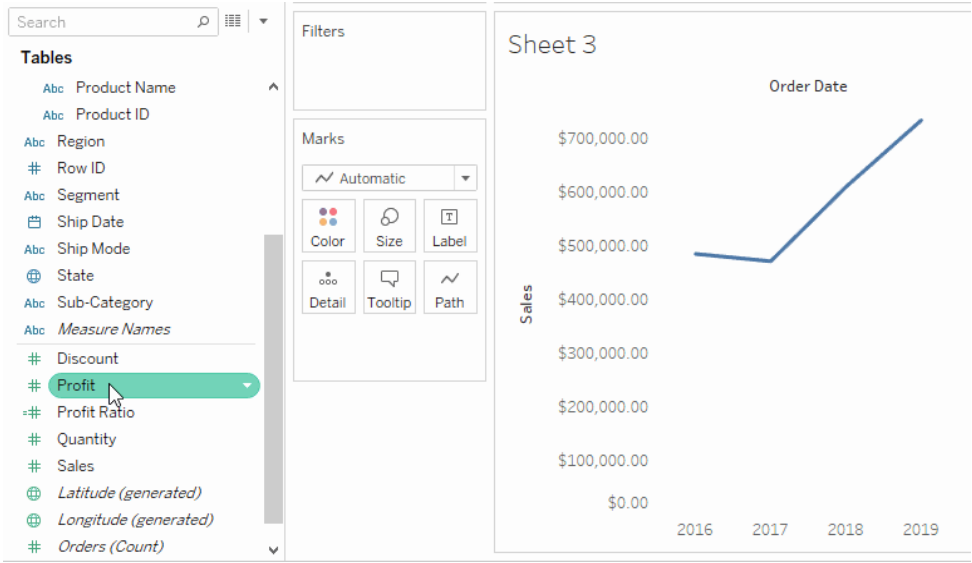
To add individual axes for each measure, drag measures to the Rows and Columns shelves.

- Adding a continuous field on the Rows shelf adds an additional axis to the rows of the table.
- Adding a continuous field on the Columns shelf adds an additional axis to the columns of the table.

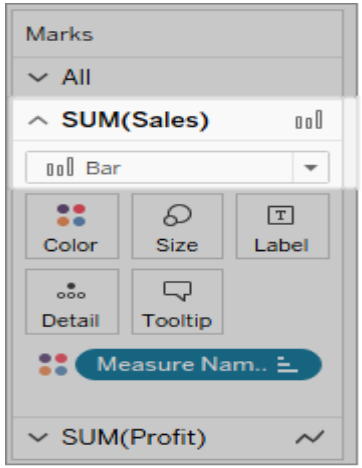


Step 1

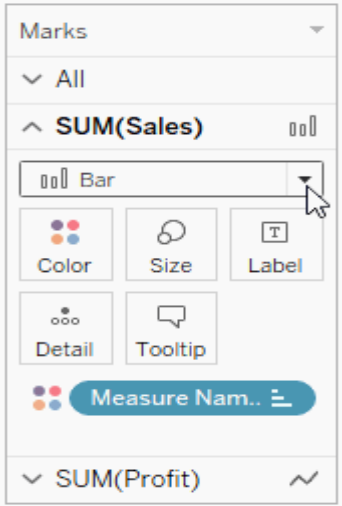
Step 2: To blend multiple measures, drag one measure or axis and drop it onto an existing axis.



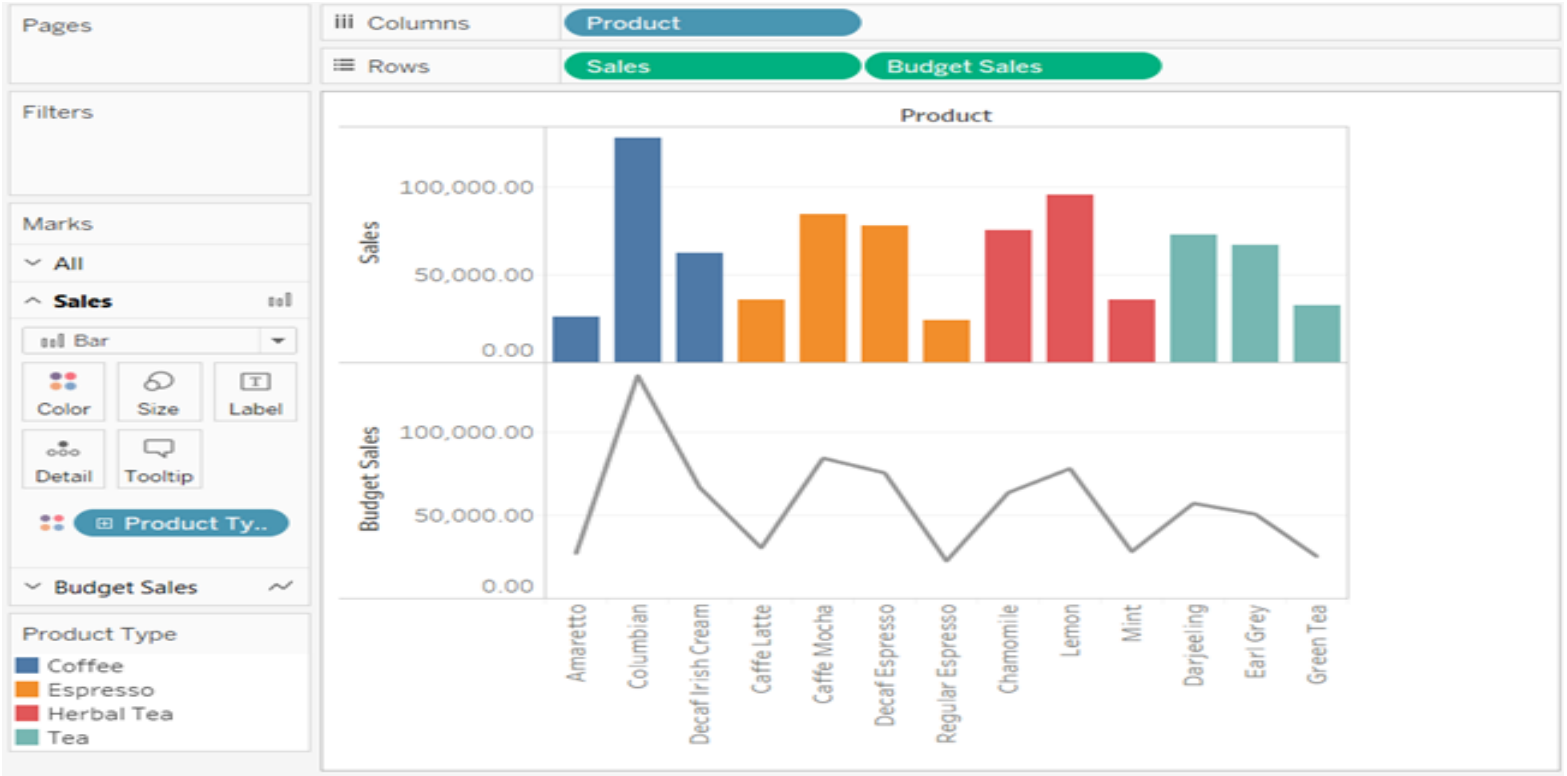
Step3: Select the Marks card for the measure that you want to customize. There is a Marks card for each measure on the Rows and Columns shelves.



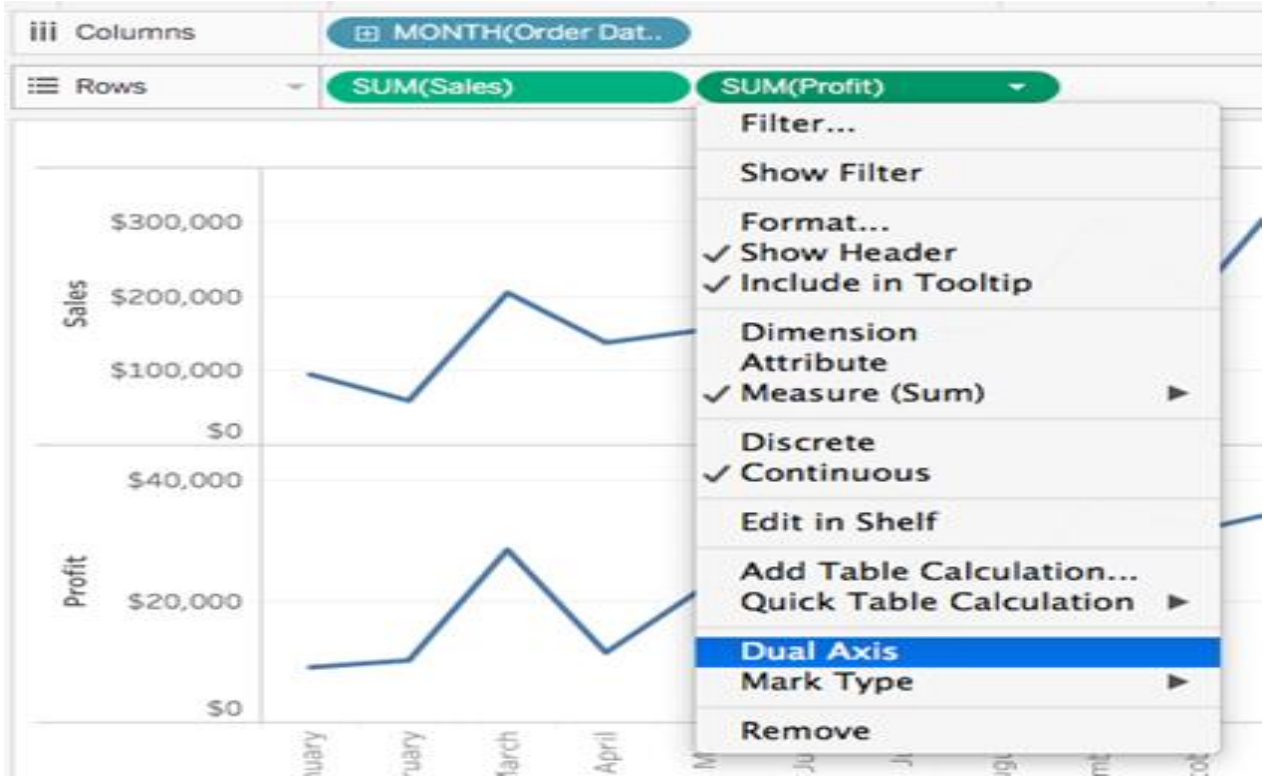
Step4: Select a new mark type for the measure.



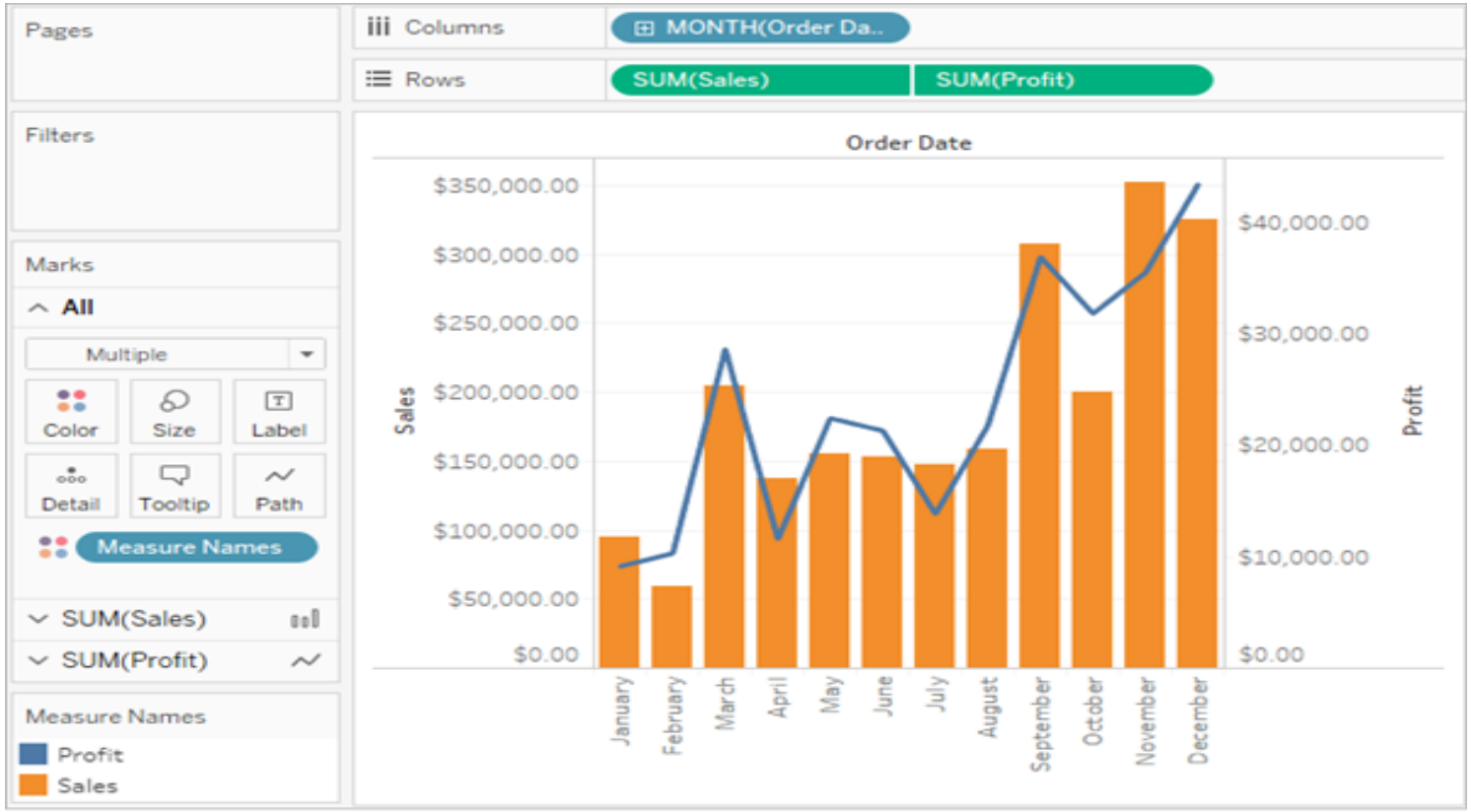
Result for Combined Axis Chart:



Step 5: On the Rows shelf, right-click SUM(Profit) and select Dual-Axis.



Result for Dual Axis Chart:



Area Chart?

- An area chart is a graph **that combines a line chart and a bar chart to show changes in quantities over time.** It's similar to a line graph in that data points are plotted and connected by line segments.
- An area chart is a line chart where the area between the line and the axis are shaded with a color. These charts are typically used to represent accumulated totals over time and are the conventional way to display stacked lines.

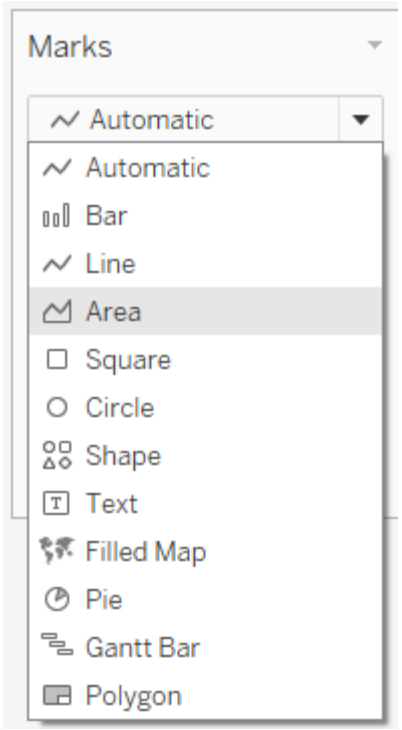
Mark type:	Area
Columns shelf:	Dimension
Rows shelf:	Measure
Color:	Dimension

Steps:

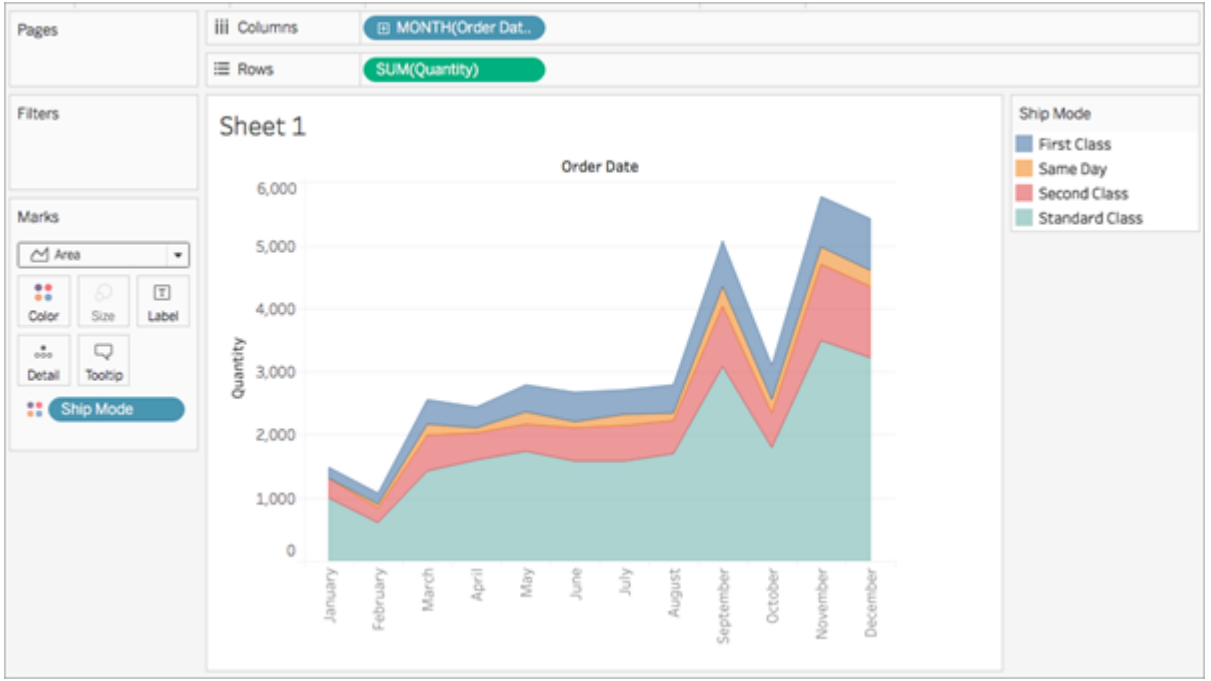
1. Give Dimension as Order Date and Measure as Quantity.

2. From the Data pane, drag Order Date to the Columns shelf.
3. From the Data pane, drag Quantity to the Rows shelf.
4. From the Date pane, drag Ship Mode to Color on the Marks card.
5. On the Marks card, click the Mark Type drop-down and select Area.

Step 5:



Result for Area Chart:



Stacked Bar Chart?

- Stacked Bar Charts in Tableau are **charts that use bars to show comparisons between categories of data while also allowing you to break down and compare parts of a larger picture.** Each bar in the graph represents a whole, with segments representing various parts or categories of that whole.
- A stacked bar chart can **show extra detail within the overall measure.** Take an office supplies store as an example. Different colored blocks in a bar representing revenue can represent types of sales opportunities.

Step 1:

- We select a dimension; Order Date from the Dimensions section and put it into the Columns section. Please note that we select YEAR as the field values for Order Date.
- Next, we select Sales from the Measures section and put it into the Rows section. Here, we select SUM as the aggregation type.
- Then we select the stacked bar chart option from the visualization pane present on the right. This creates a simple vertical bar chart with years on its x-axis and sales on the y-axis.

Tableau - Electronics store sales- DataFlair - Tableau license expires tomorrow

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Standard | Show Me

Data | Analytics

Electronic store sales

Dimensions

- Managers
  - Area Manager
- Orders
  - Category
  - City
  - Country
  - Customer ID
  - Customer Name
  - Order Date
  - Order ID
  - Postal Code
  - Product ID
  - Product Name
  - Region
  - Row ID
  - Segment
  - Ship Date
  - Ship Mode
  - State
  - Sub-Category

Measures

- Quantity
- Sales
- Waterfall sizing

Parameters

- Profit Bin Size
- Quantity sold
- Top 10 brands
- Top Customers

Pages

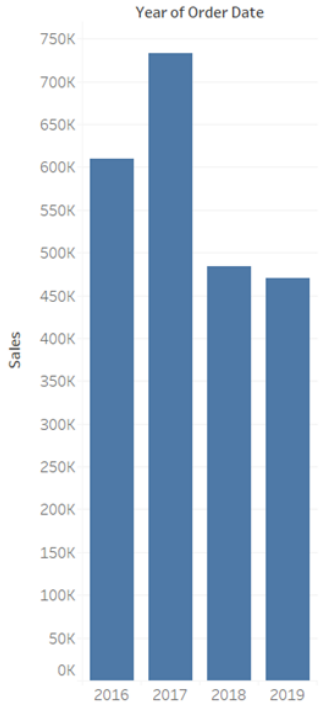
Filters: YEAR(Order Date)

Marks: Bar — Color, Size, Label, Detail, Tooltip

Columns: YEAR(Order Date)

Rows: SUM(Sales)

Stacked bar chart for sales- DataFlair



For **stacked bars** try

1 or more Dimensions

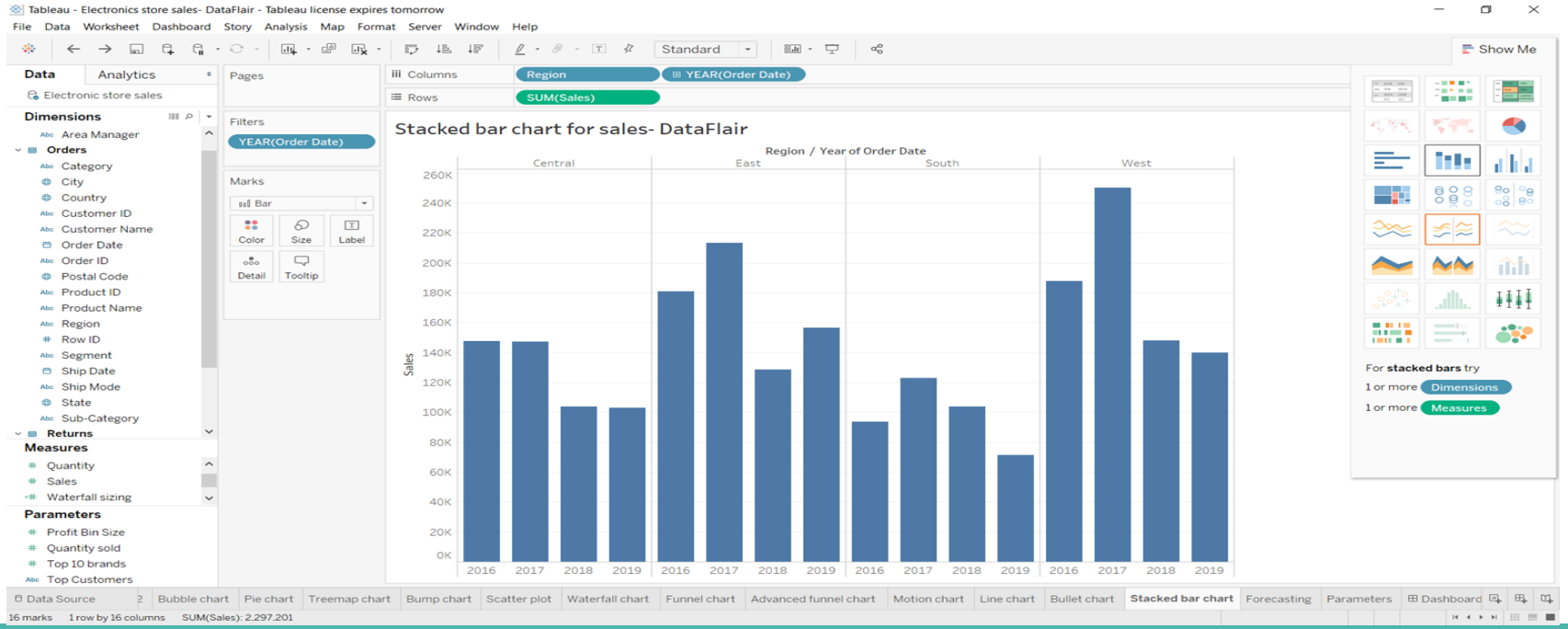
1 or more Measures

Data Source | 2 | Bubble chart | Pie chart | Treemap chart | Bump chart | Scatter plot | Waterfall chart | Funnel chart | Advanced funnel chart | Motion chart | Line chart | Bullet chart | **Stacked bar chart** | Forecasting | Parameters | Dashboard

4 marks | 1 row by 4 columns | SUM(Sales): 2,297,201

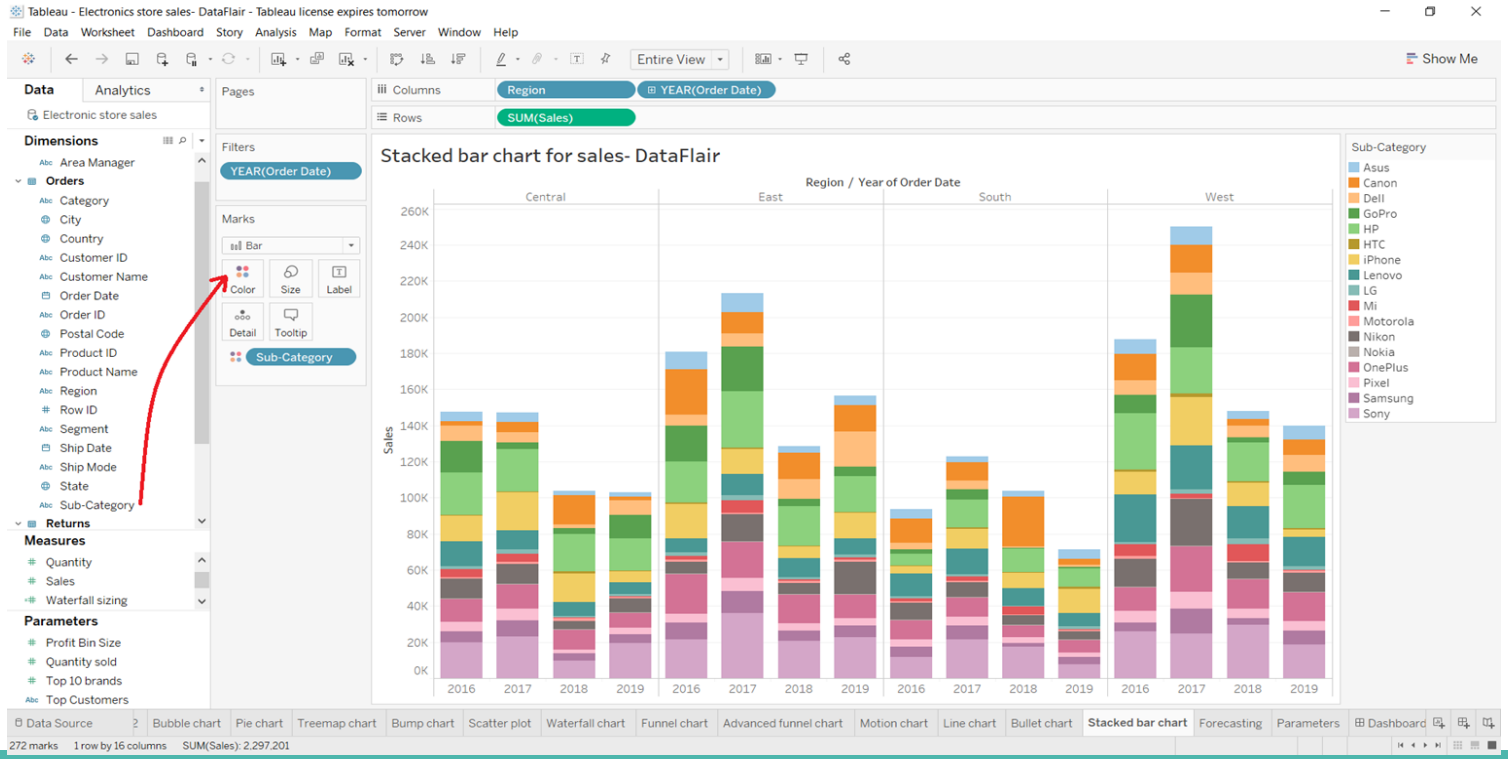
Step 2:

- Now, we add one more detail to our chart that is, Region dimension into the Columns section. This adds four sections or columns for four regions. Each column now has a set of four bars each pertaining to a year.



Step 3:

- Next, we perform the step to make this bar chart a stacked one. We add the dimension Category/Sub-Category into the Color card of the Marks section.



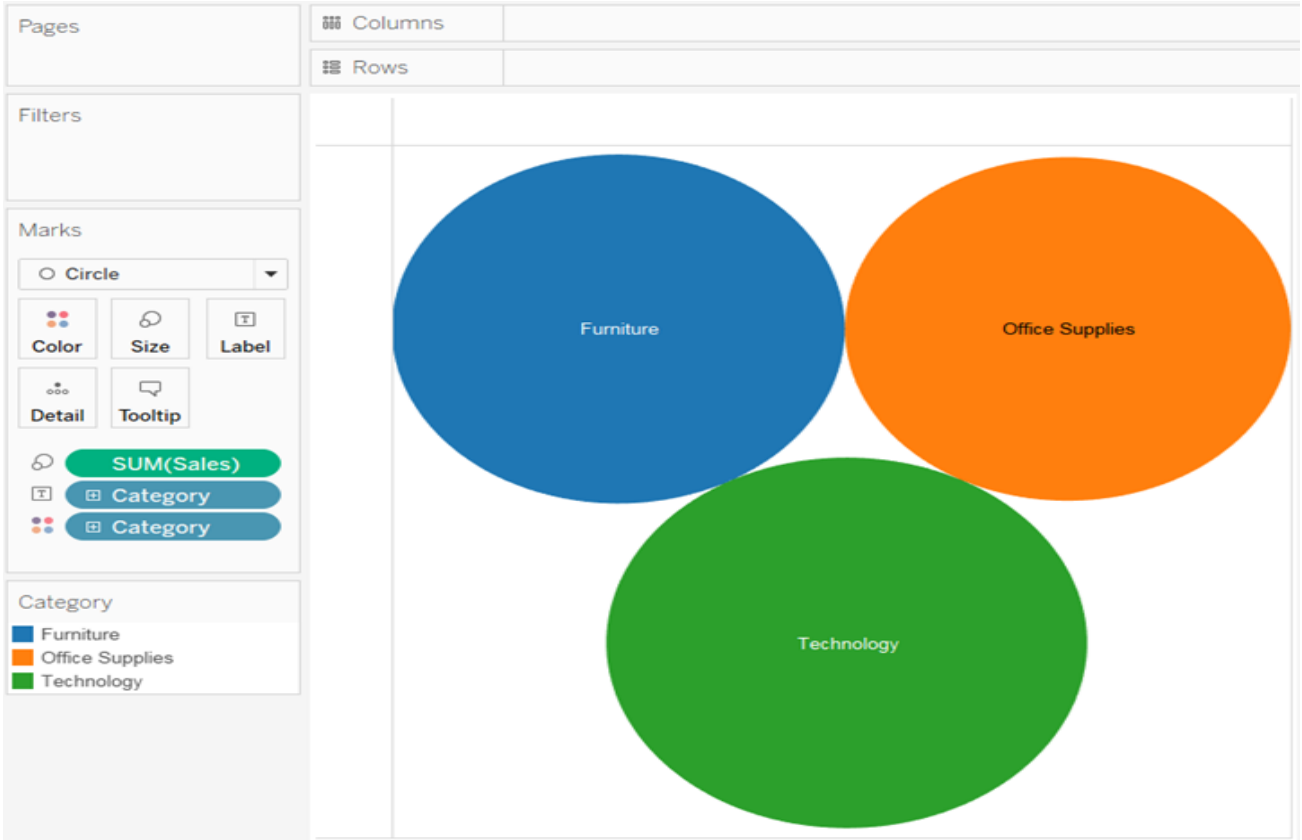
Bubble Chart?

- Bubble charts **display data as a cluster of circles.** Each of the values in the dimension field represents a circle whereas the values of measure represent the size of those circles.
- Use packed bubble charts to display data in a cluster of circles. Dimensions define the individual bubbles, and measures define the size and color of the individual circles.

Step 1:

- Drag the **Category** dimension to **Columns**.
  A horizontal axis displays product categories.
- Drag the **Sales** measure to **Rows**.
  The measure is aggregated as a sum and a vertical axis appears.
- Click **Show Me** on the toolbar, then select the packed bubbles chart type.

Tableau Displays following Bubble Chart



Step 2:

- Drag **Region** to **Detail** on the **Marks** card to include more bubbles in the view. Next we'll add another layer of information to the view.
- Drag **Profit** to **Color** on the **Marks** card
- Drag **Region** to Label on the **Marks** card to clarify what each bubble represents.

Pages

Filters

Marks

Circle

Color | Size | Label | Detail | Tooltip

SUM(Sales)

Region

Category

Region

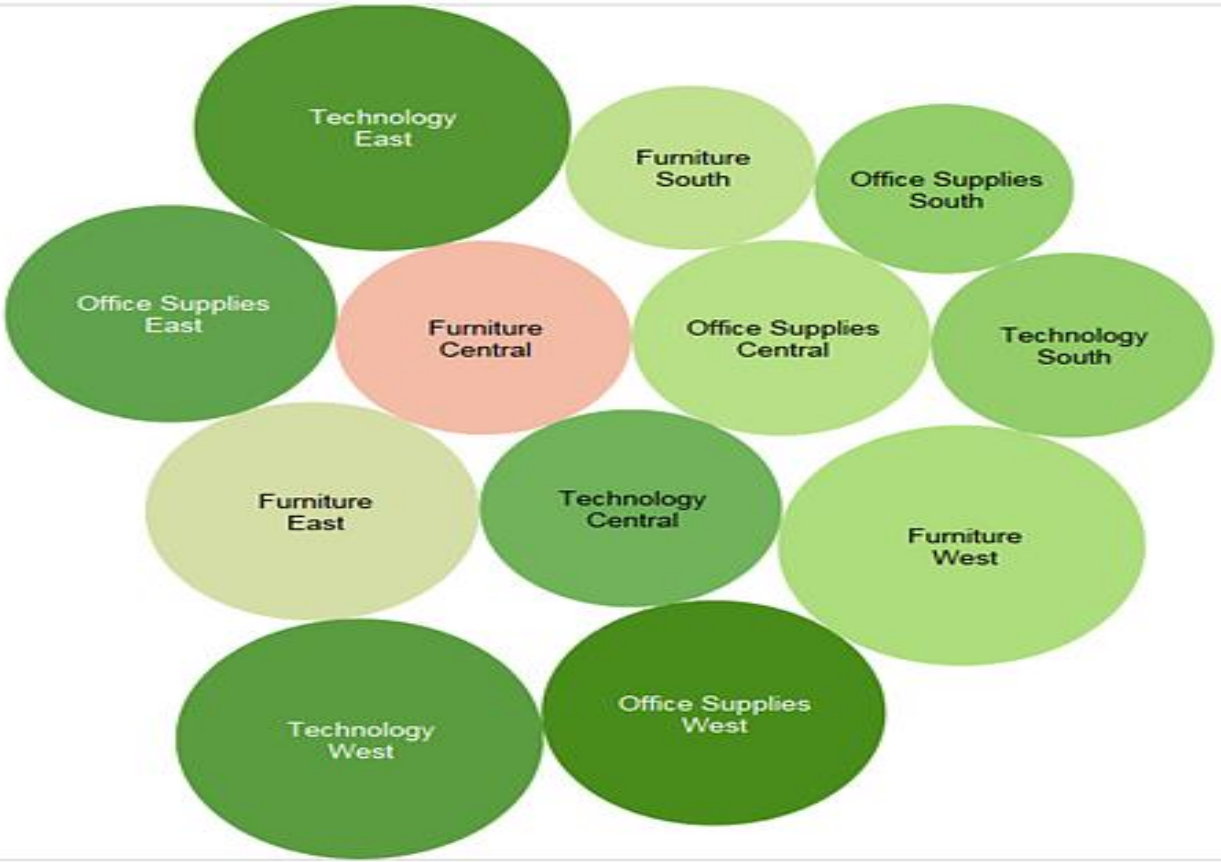
SUM(Profit)

SUM(Profit)

-$2,871 $52,610

Columns

Rows

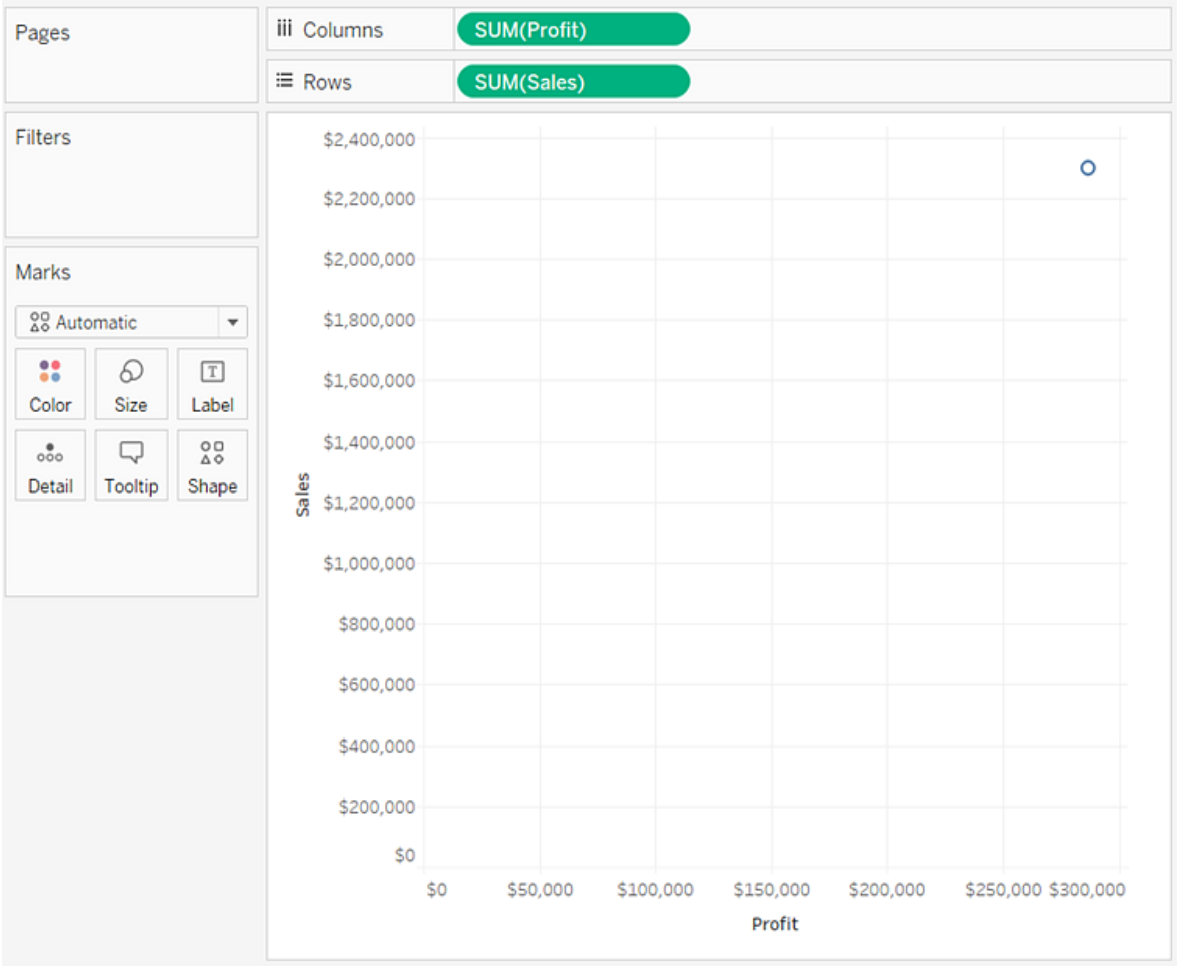


Scattered Chart?

- A scatter chart, also called a scatter plot, is a chart that **shows the relationship between two variables.** They are an incredibly powerful chart type, allowing viewers to immediately understand a relationship or trend, which would be impossible to see in almost any other form.
- As the name suggests, a scatter plot **shows many points scattered in the Cartesian plane.** It is created by plotting values of numerical variables as X and Y coordinates in the Cartesian plane. Tableau takes at least one measure in the Rows shelf and one measure in the Columns shelf to create a scatter plot.

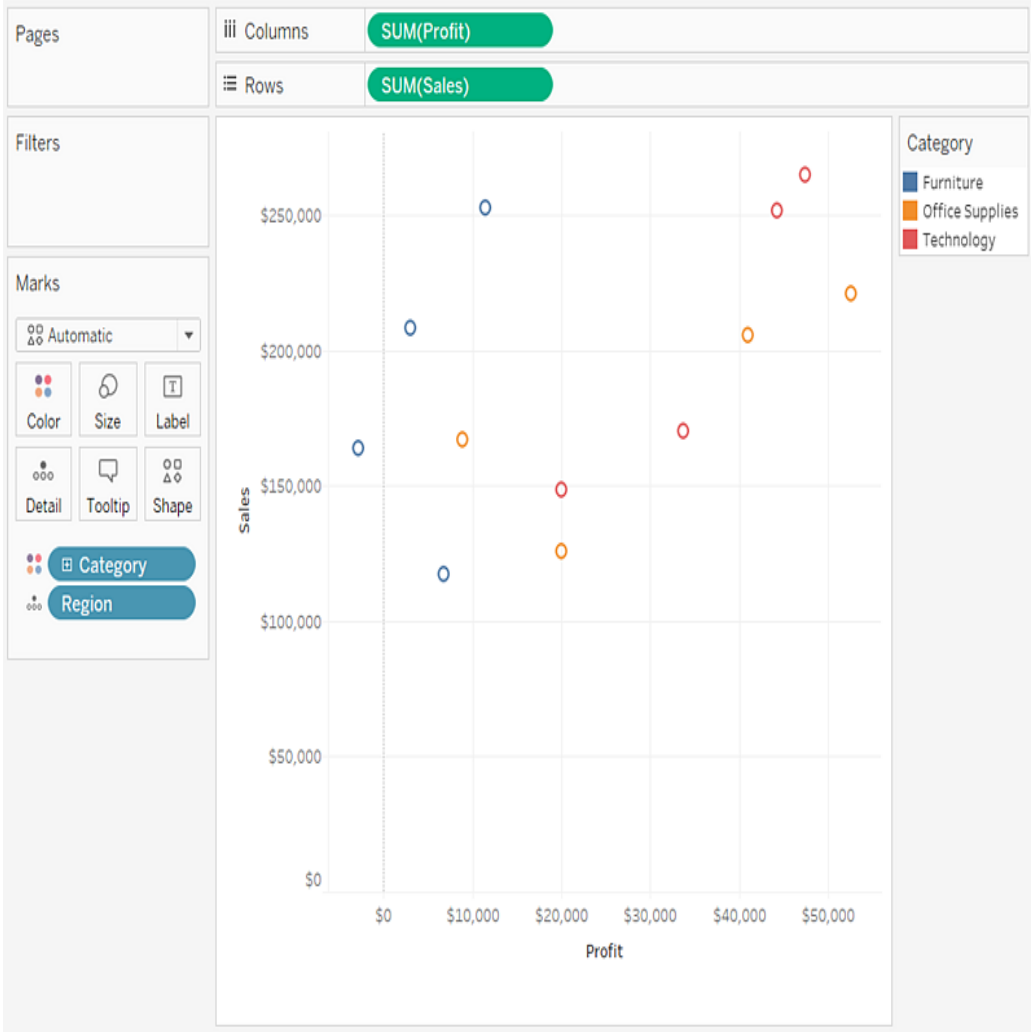
Step 1:

- Drag the **Profit** measure to **Columns.**
  Tableau aggregates the measure as a sum and creates a horizontal axis.
- Drag the **Sales** measure to **Rows.**
  Tableau aggregates the measure as a sum and creates a vertical axis.

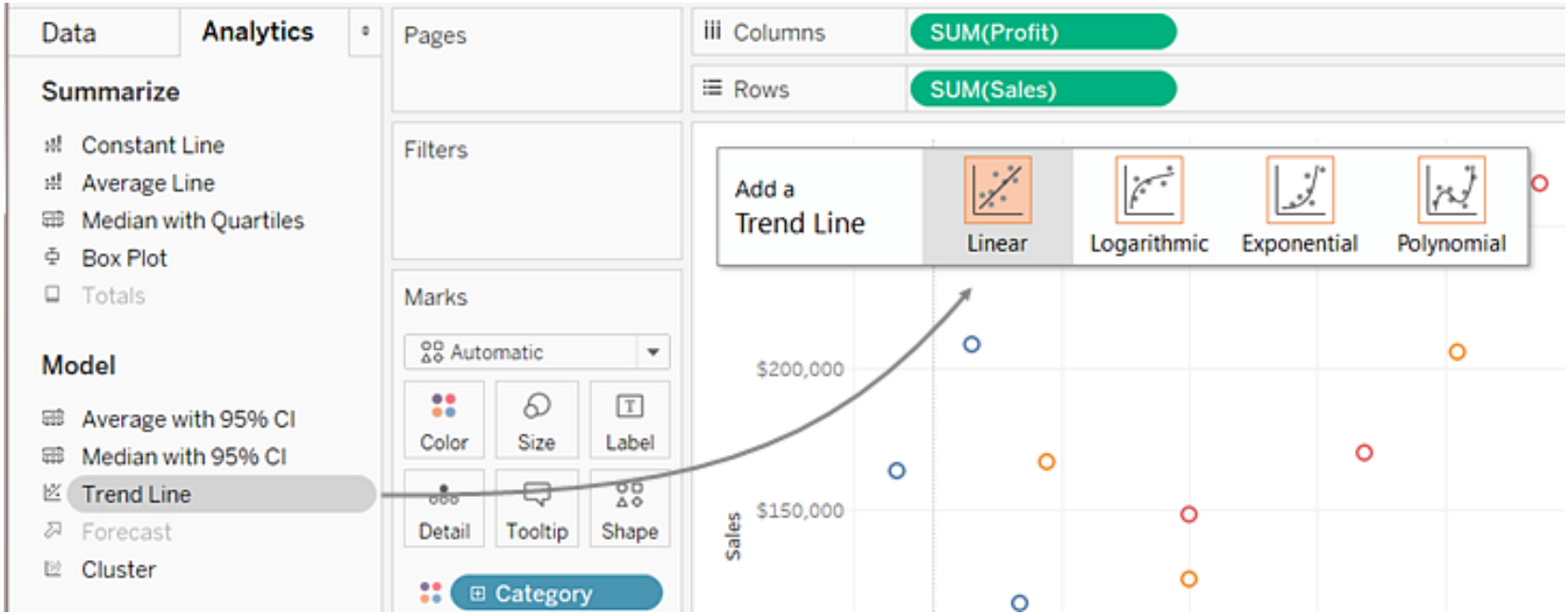


Step 2:

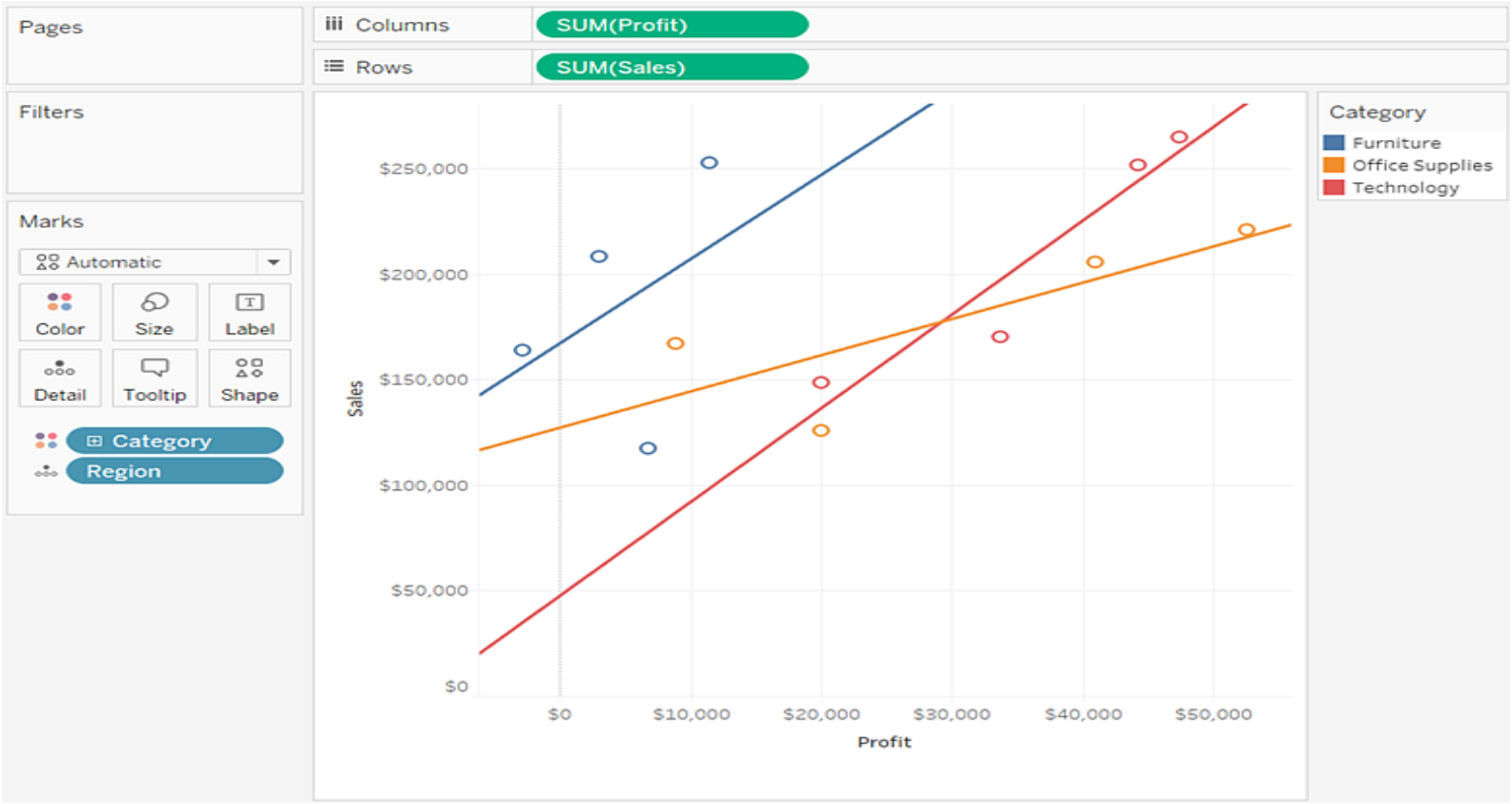
- Drag the Category dimension to Color on the Marks card.
- This separates the data into three marks—one for each dimension member—and encodes the marks using color.
- Drag the Region dimension to Detail on the Marks card.



Step 3: To add trend lines, from the Analytics pane, drag the Trend Line model to the view, and then drop it on the model type.



Result for Scattered Chart:



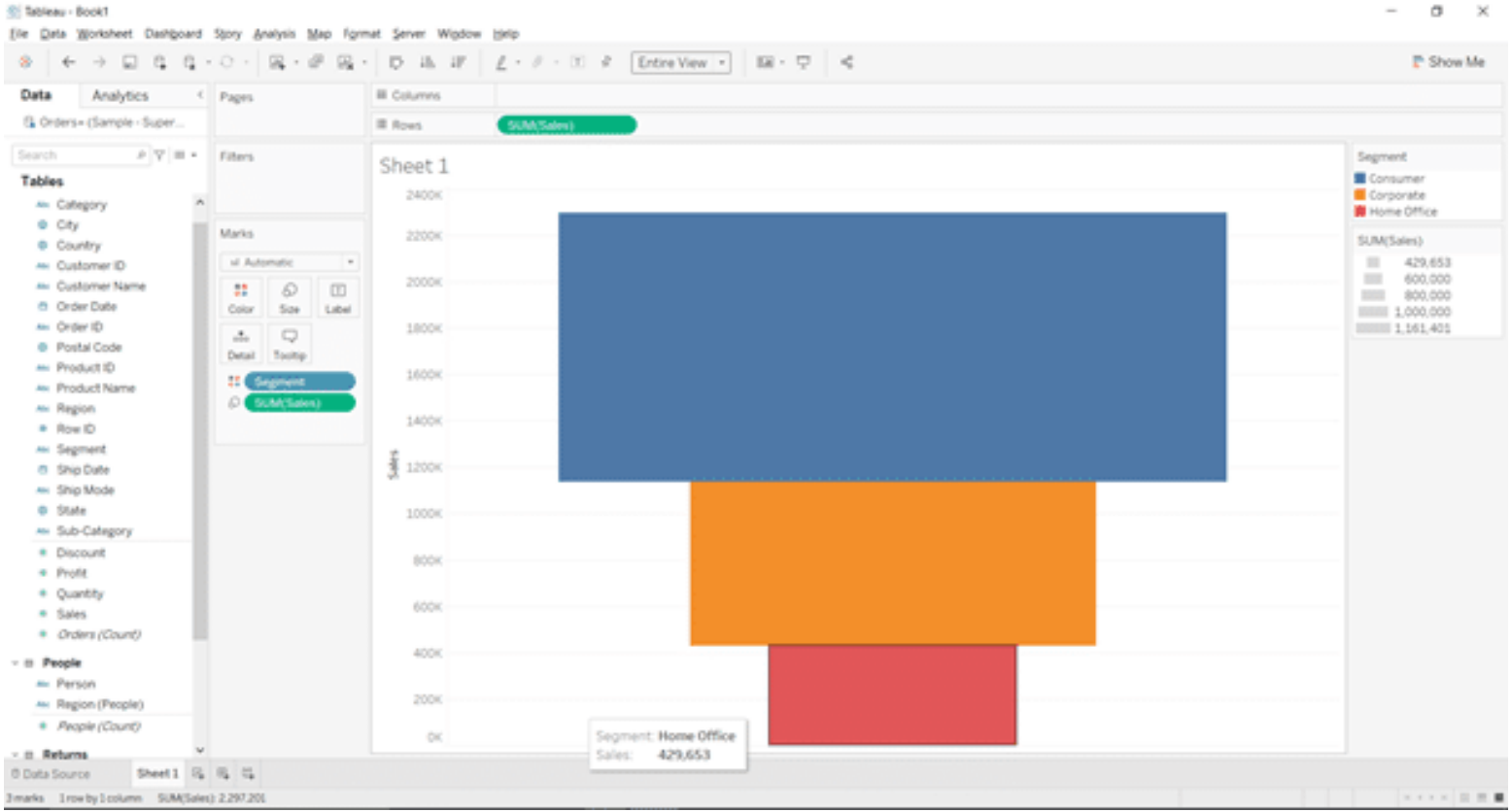
Funnel Chart?

- A tableau funnel chart is a type of visualization that represents linear workflows in decreasing order. It visually represents the progression of a business process and helps the user get a systematic view of various data values.

Step 1:

- Add the Sales dimension to the Row section and the Segment to the Color in the Marks section.
- Drop the Sales dimension in the Size field of the Marks section. The Size field will convert the visualization into variable-sized blocks based on the Sales value.
- In the toolbar, click on the highlighted dropdown menu and click on ‘Entire View’.
- The funnel will appear on the entire worksheet of your Tableau Desktop.

The funnel will appear on the entire worksheet of your Tableau Desktop.

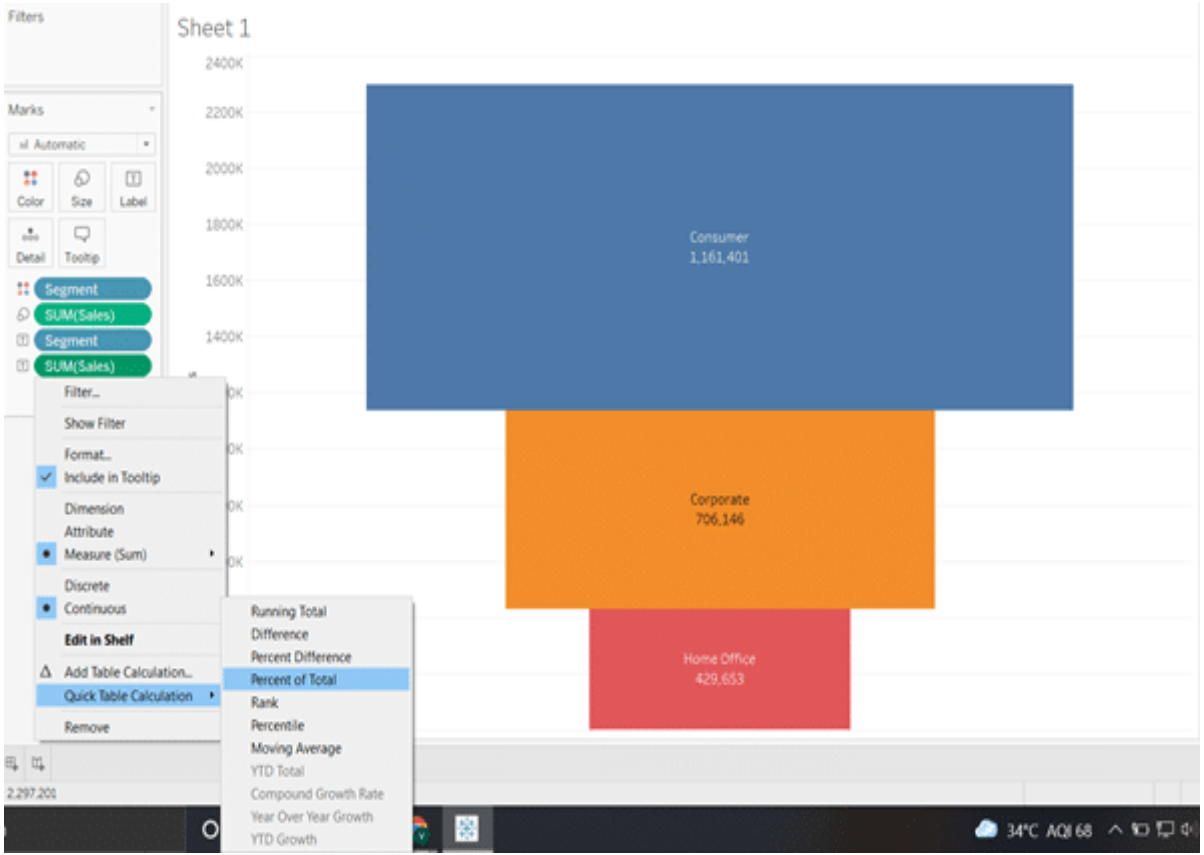


Step 2:

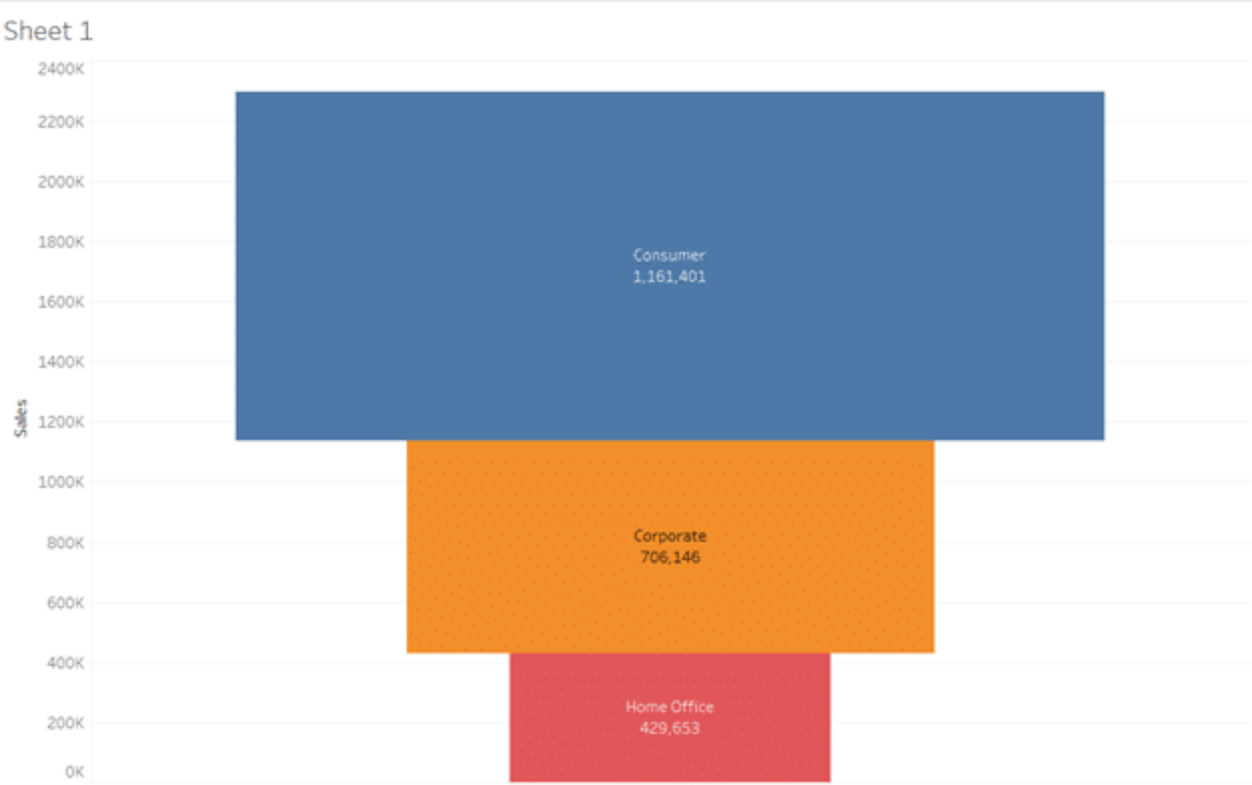
- Add both the Segment and Sales dimensions as labels in the Marks dimension. Now, each box in the funnel chart will display its segment along with the sales.
- As shown in the above screenshot, the profit displayed by our funnel chart is in the form of numbers. But, what if you want to display it in a different format like the percentage.
- You need to go to the Sales dropdown menu>> Quick Table Calculation and the format.

Step 2:

- Add both the **Segment and Sales** dimensions as labels in the **Marks dimension.** Now, each box in the funnel chart will display its segment along with the sales.
- As shown in the above screenshot, the profit displayed by our funnel chart is in the form of numbers. But, what if you want to display it in a different format like the **percentage.**
- You need to go to the **Sales dropdown menu>> Quick Table Calculation** and the format.



Result of Funnel Chart:

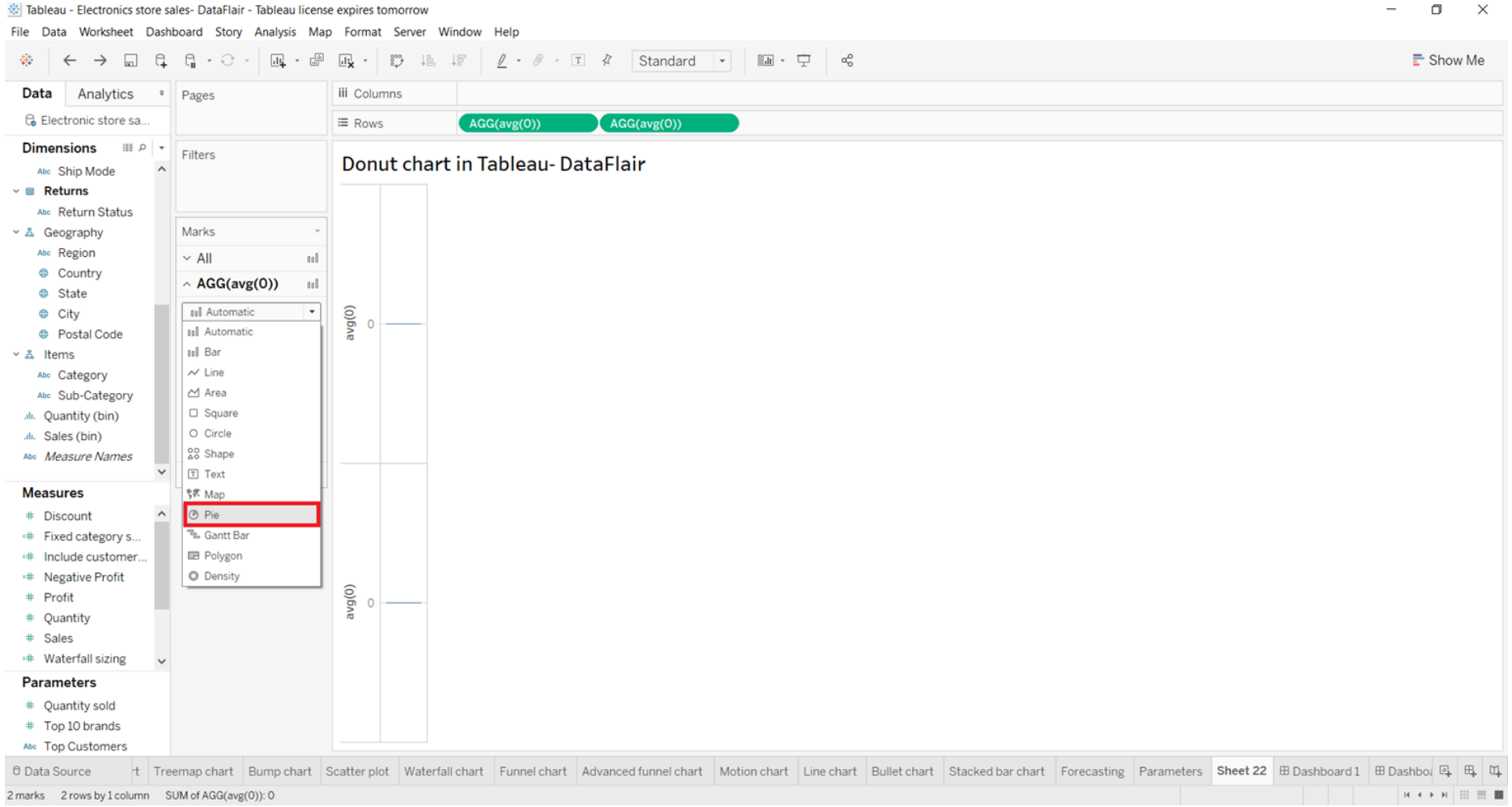


Donut Chart?

- However, it is **similar to pie chart which divides the a circle in different sectors based on the value of their proportions.**
- **Data that is arranged in columns or rows only on a worksheet** can be plotted in a doughnut chart. Just like a pie chart, a doughnut chart shows the relationship of parts to a whole, but a doughnut chart can contain more than one data series. Each data series that you plot in a doughnut chart adds a ring to the chart.

Step 1:

- Create Two Aggregate Measure Fields
- We will start by creating two aggregate measure fields in the Rows section. In this section, we double-click and write *avg(0)* then click enter.
- Select Mark Type for Measures
- Next, we select the mark type for the first measure as Pie from the Marks list. Also, note that by creating two aggregate measures, we have two sections for each measure in the Marks card.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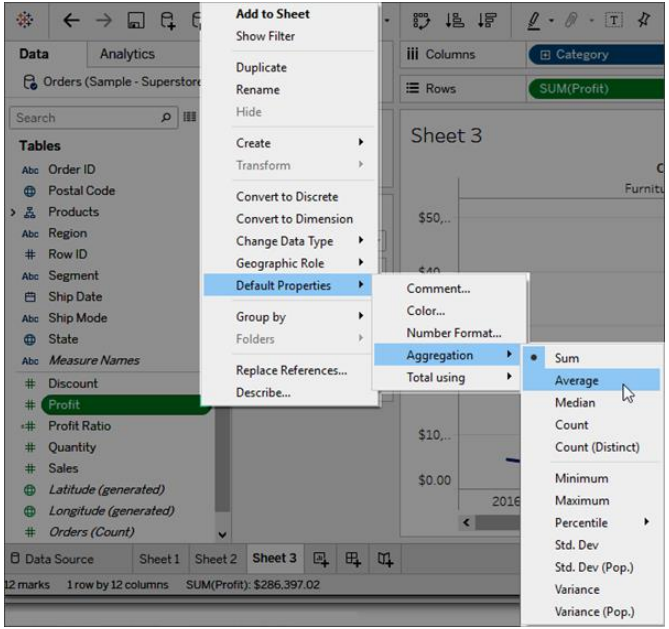
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Show Me
Data
Analytics
Electronic store sa...
Dimensions
Ship Mode
Returns
Return Status
Geography
Region
Country
State
City
Postal Code
Items
Category
Sub-Category
Quantity (bin)
Sales (bin)
Measure Names
Measures
Discount
Fixed category s...
Include customer...
Negative Profit
Profit
Quantity
Sales
Waterfall sizing
Parameters
Quantity sold
Top 10 brands
Top Customers
Pages
Filters
Marks
All
AGG(avg(0))
Automatic
Automatic
Bar
Line
Area
Square
Circle
Shape
Text
Map
Pie
Gantt Bar
Polygon
Density
Columns
Rows
AGG(avg(0))
AGG(avg(0))
Donut chart in Tableau- DataFlair
avg(0)
0
avg(0)
0
Data Source
Treemap chart
Bump chart
Scatter plot
Waterfall chart
Funnel chart
Advanced funnel chart
Motion chart
Line chart
Bullet chart
Stacked bar chart
Forecasting
Parameters
Sheet 22
Dashboard 1
2 marks
2 rows by 1 column
SUM of AGG(avg(0)): 0

Default Properties of Field?

- The Default Properties menu includes default settings for aggregation, comments, number formatting, color, shape, and totals (based on the type of field).

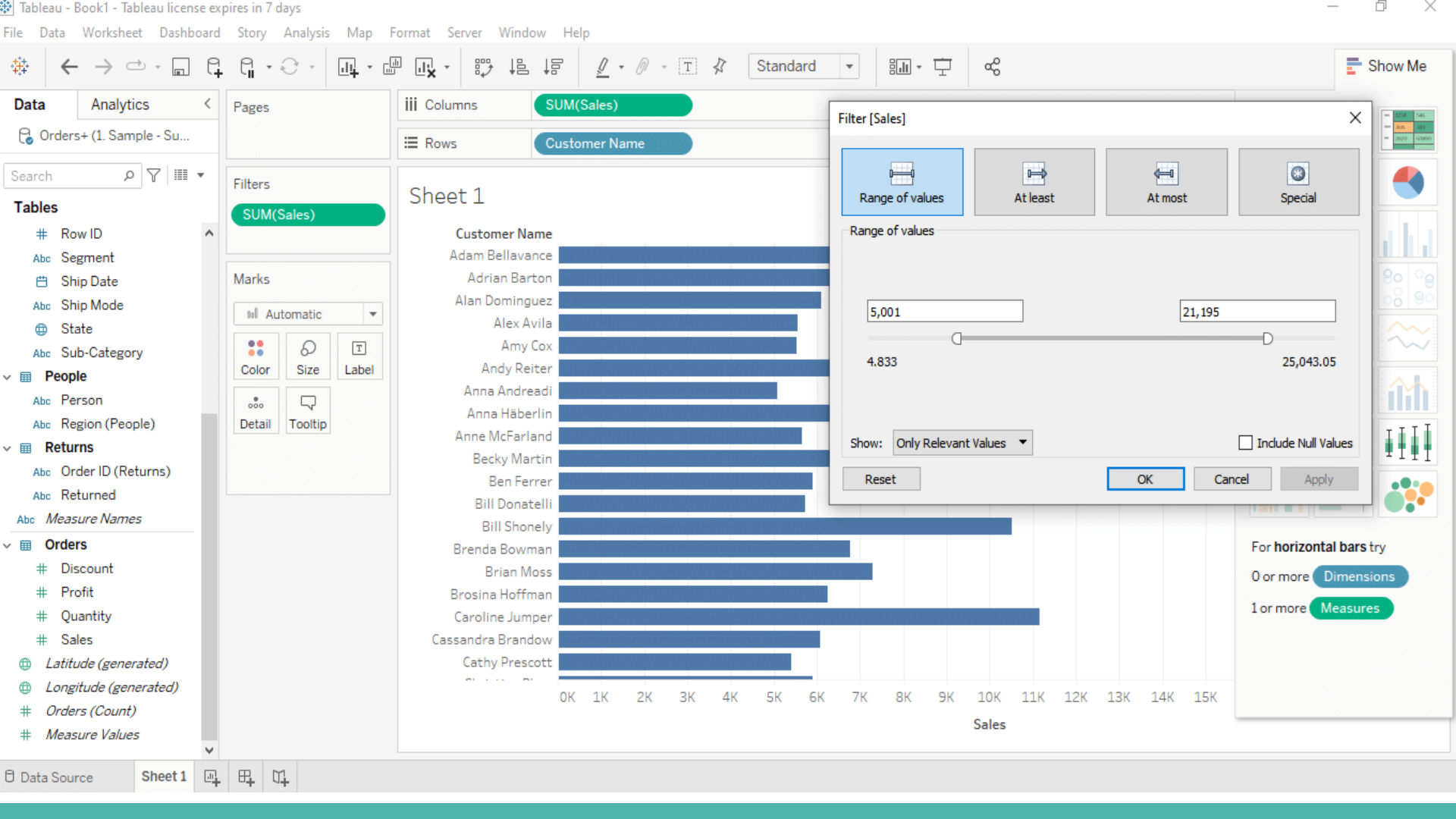


Types of Filters in Tableau?

- Measure Filters
- Dimension Filters
- Data Source Filters
- Context Filters
- Visual Filters
- Interactive Filters

Measure Filter?

- Using a Measure filter in Tableau allows for various operations and aggregate functions such as sum, median, avg, standard deviation, etc. Aggregated filters are always applied after non-aggregated filters, no matter what the order is on the Filters pane. The filters are applied to Measure fields consisting of quantitative data.
- In the next stage in a subsequent dialog box, you will get four types of filters:
    1. **Range:** Select the range of values to include in the result
    2. **At least:** Select the minimum value of a measure
    3. **At most:** Select the maximum value of a measure.
    4. **Special:** Select null or non-null values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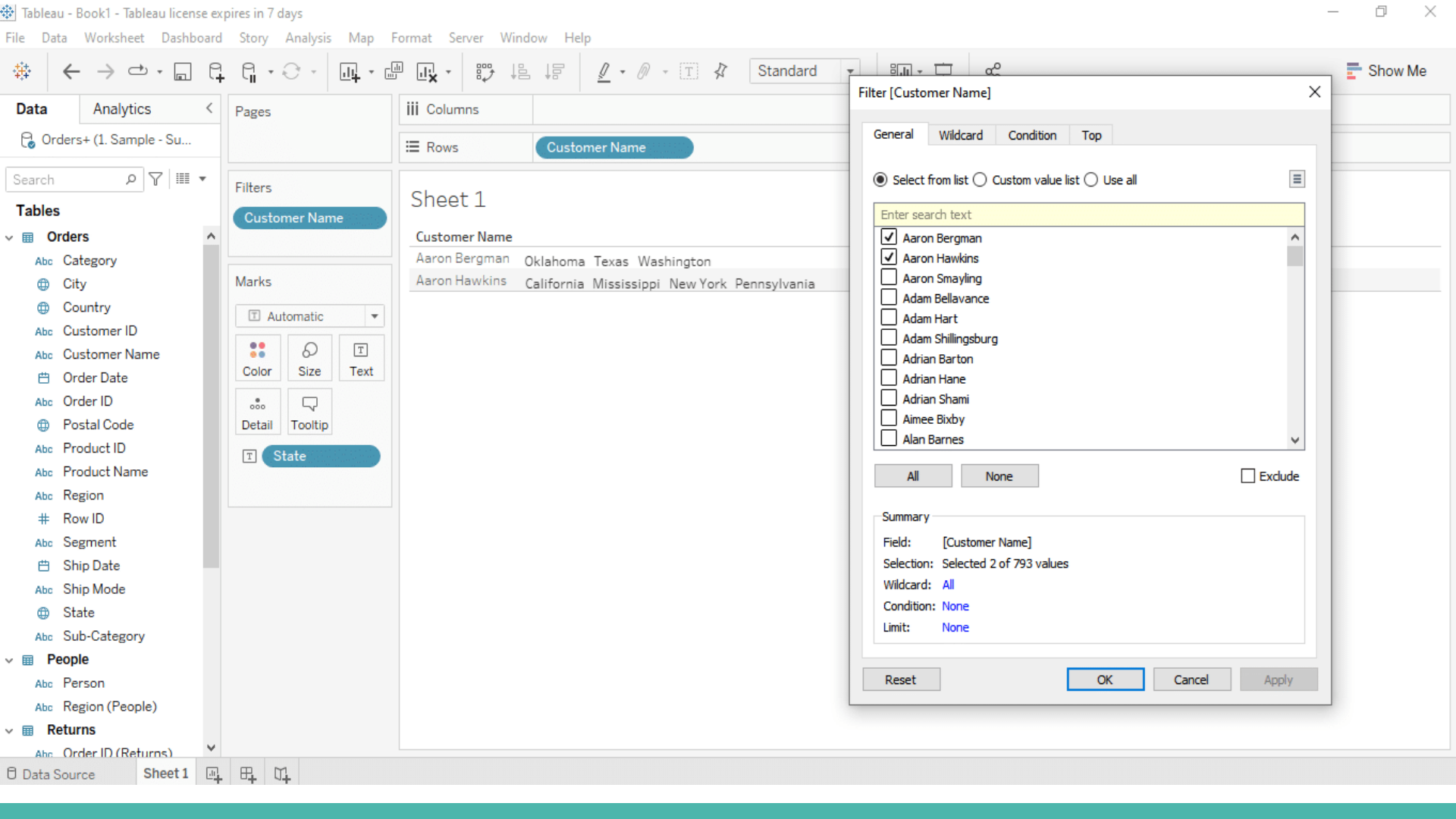
Search
Tables
Row ID
Segment
Ship Date
Ship Mode
State
Sub-Category
People
Person
Region (People)
Returns
Order ID (Returns)
Returned
Measure Names
Orders
Discount
Profit
Quantity
Sales
Latitude (generated)
Longitude (generated)
Orders (Count)
Measure Values
Pages
Filters
SUM(Sales)
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Columns
SUM(Sales)
Rows
Customer Name
Sheet 1
Customer Name
Adam Bellavance
Adrian Barton
Alan Dominguez
Alex Avila
Amy Cox
Andy Reiter
Anna Andreadi
Anna Häberlin
Anne McFarland
Becky Martin
Ben Ferrer
Bill Donatelli
Bill Shonely
Brenda Bowman
Brian Moss
Brosina Hoffman
Caroline Jumper
Cassandra Brandow
Cathy Prescott
0K 1K 2K 3K 4K 5K 6K 7K 8K 9K 10K 11K 12K 13K 14K 15K
Sales
Filter [Sales]
Range of values
At least
At most
Special
Range of values
5,001
21,195
4.833
25,043.05
Show:
Only Relevant Values
Include Null Values
Reset
OK
Cancel
Apply
For horizontal bars try
0 or more
Dimensions
1 or more
Measures
Data Source
Sheet 1

Dimension Filters?

- Dimension filters in Tableau are non-aggregated filters. The dimensions that are used are mostly blue pills. Blue pills correspond to discrete data. **The dimension filter can be applied by dragging it from the Filters pane. The same can also be achieved by right-clicking on a particular dimension and selecting Show Filter. This way, one can exclude or include the values that they want to analyze.**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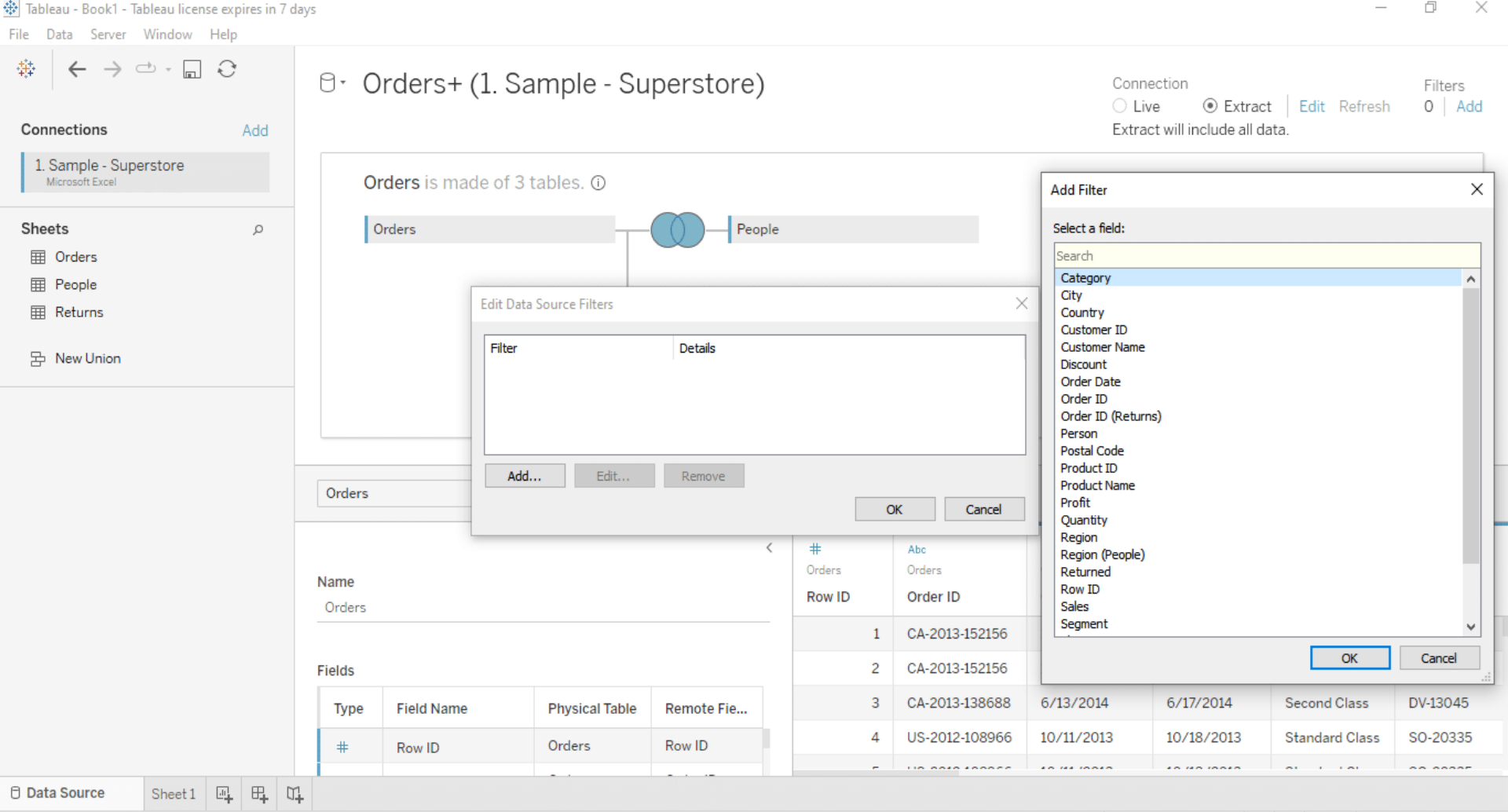
Standard
Show Me
Data
Analytics
Orders+ (1. Sample - Su...
Search
Tables
Orders
Category
City
Country
Customer ID
Customer Name
Order Date
Order ID
Postal Code
Product ID
Product Name
Region
Row ID
Segment
Ship Date
Ship Mode
State
Sub-Category
People
Person
Region (People)
Returns
Order ID (Returns)
Pages
Filters
Customer Name
Marks
Automatic
Color
Size
Text
Detail
Tooltip
State
Columns
Rows
Customer Name
Sheet 1
Customer Name
Aaron Bergman Oklahoma Texas Washington
Aaron Hawkins California Mississippi New York Pennsylvania
Filter [Customer Name]
General
Wildcard
Condition
Top
Select from list
Custom value list
Use all
Enter search text
Aaron Bergman
Aaron Hawkins
Aaron Smayling
Adam Bellavance
Adam Hart
Adam Shillingsburg
Adrian Barton
Adrian Hane
Adrian Shami
Aimee Bixby
Alan Barnes
All
None
Exclude
Summary
Field: [Customer Name]
Selection: Selected 2 of 793 values
Wildcard: All
Condition: None
Limit: None
Reset
OK
Cancel
Apply
Data Source
Sheet 1

Data Source Filters?

- Data source filters in Tableau are mainly used to restrict sensitive data from viewers and reduce data feeds. Viewers can, however, have certain access rights to view the underlying data. Data source filters allow the direct application to source data. One important thing to mention is that the extract filter and the data source filter are not linked, and if you happen to go back to a live connection, the data source filter will remain intact.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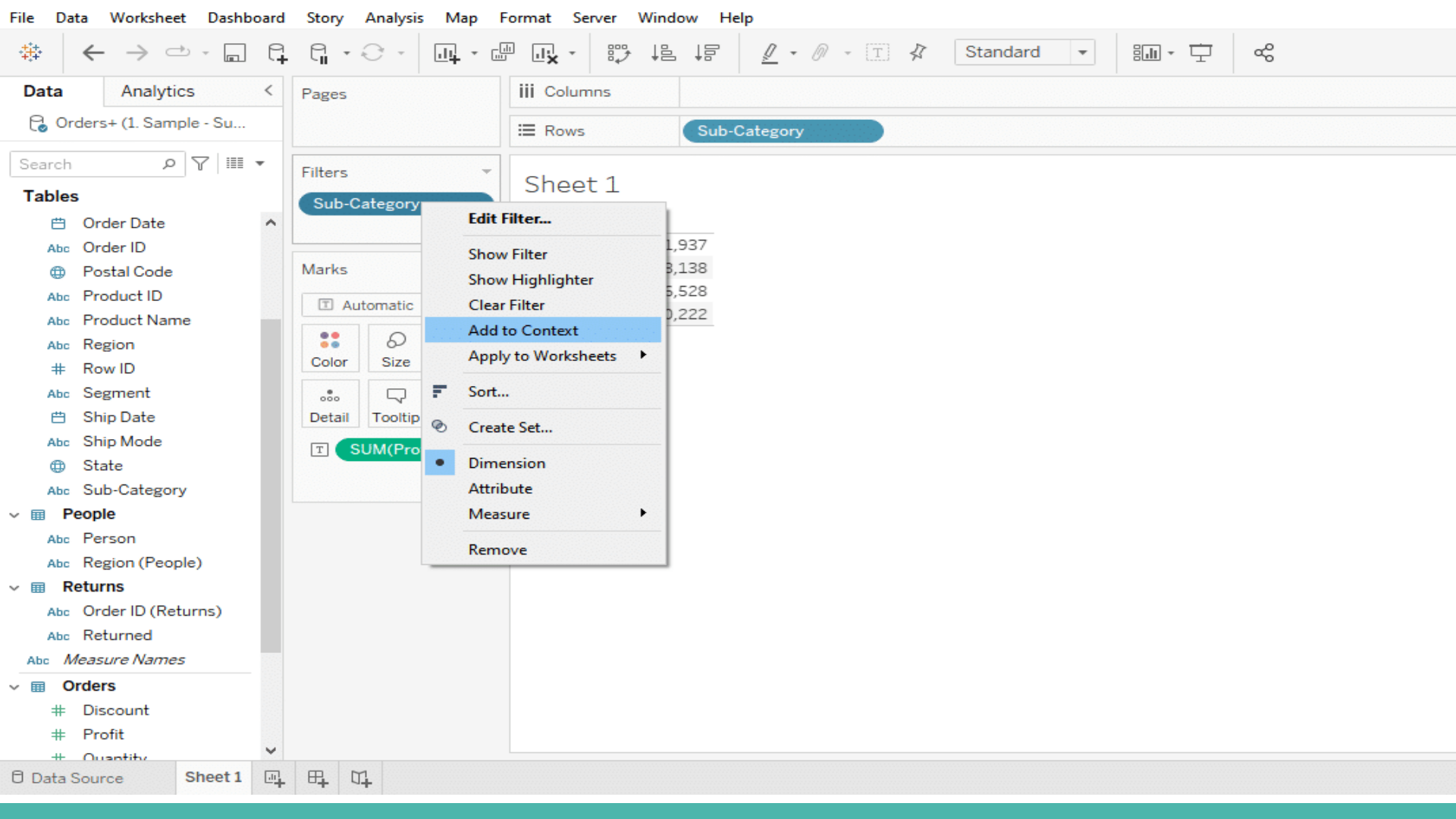
File Data Server Window Help
Orders+ (1. Sample - Superstore)
Connection
Live Extract Edit Refresh
Extract will include all data.
Filters
0 Add
Connections Add
1. Sample - Superstore
Microsoft Excel
Sheets
Orders
People
Returns
New Union
Orders is made of 3 tables.
Orders
People
Edit Data Source Filters
Filter
Details
Add... Edit... Remove
OK Cancel
Add Filter
Select a field:
Search
Category
City
Country
Customer ID
Customer Name
Discount
Order Date
Order ID
Order ID (Returns)
Person
Postal Code
Product ID
Product Name
Profit
Quantity
Region
Region (People)
Returned
Row ID
Sales
Segment
OK Cancel
Orders
Name
Orders
Fields
Type Field Name Physical Table Remote Fie...
Row ID Orders Row ID
Orders Orders
Row ID Order ID
1 CA-2013-152156
2 CA-2013-152156
3 CA-2013-138688 6/13/2014 6/17/2014 Second Class DV-13045
4 US-2012-108966 10/11/2013 10/18/2013 Standard Class SO-20335
Data Source
Sheet 1

Context Filters?

- Context filter in Tableau can help to create data sets by applying relevant presets for compilation.
- Tableau context filter is always processed and applicable first, even if other filters are applied. The multiple preset categories in the worksheet can be divided into many more parts that end up working like a context filter in itself. Data sets are created based on the original datasheet, and data can be minimized efficiently to allow for viewing all data rows despite the constraints. The sheets can be chosen as and when needed.
- The context filter adds an actionable context to data analysis, but if the data is not reduced enough, the cost of computing can be very high.


File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Data
Analytics
Orders+ (1. Sample - Su...
Search
Tables
Order Date
Order ID
Postal Code
Product ID
Product Name
Region
Row ID
Segment
Ship Date
Ship Mode
State
Sub-Category
People
Person
Region (People)
Returns
Order ID (Returns)
Returned
Measure Names
Orders
Discount
Profit
Pages
Columns
Rows
Sub-Category
Filters
Sub-Category
Marks
Automatic
Color
Size
Detail
Tooltip
SUM(Pro
Sheet 1
1,937
3,138
5,528
0,222
Edit Filter...
Show Filter
Show Highlighter
Clear Filter
Add to Context
Apply to Worksheets
Sort...
Create Set...
Dimension
Attribute
Measure
Remove
Data Source
Sheet 1

Sets?

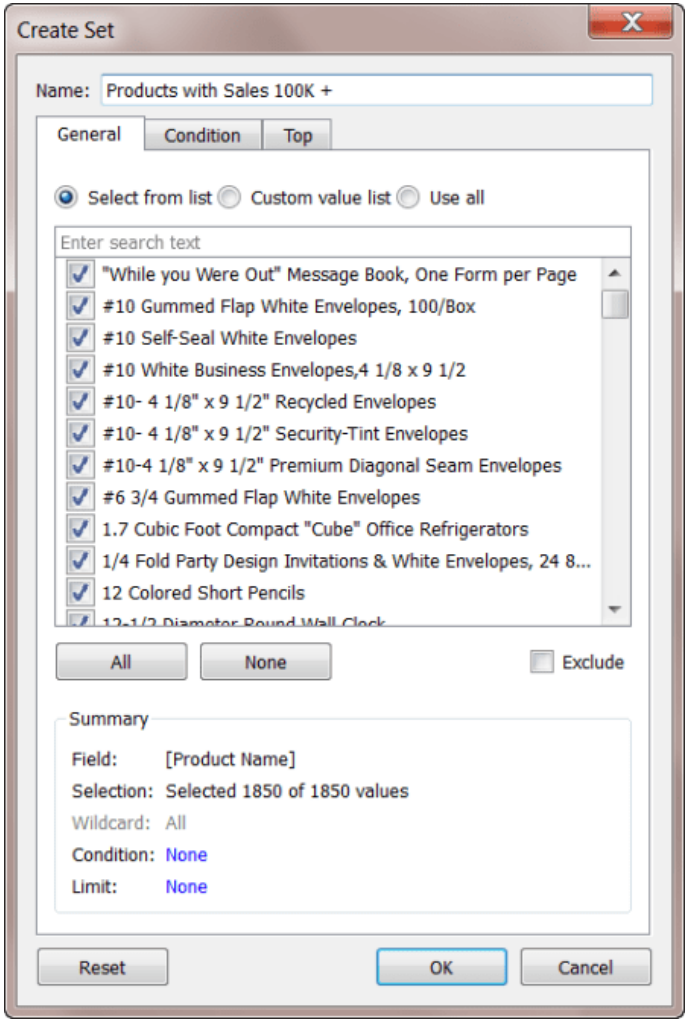
- **Tableau Sets** are custom fields that are used to keep a subset of data based on a condition. You can create a set in real-time by picking members from a list or a visualization. You can perform the same thing by writing custom conditions or selecting a few records from the top or bottom of a **Measure.**

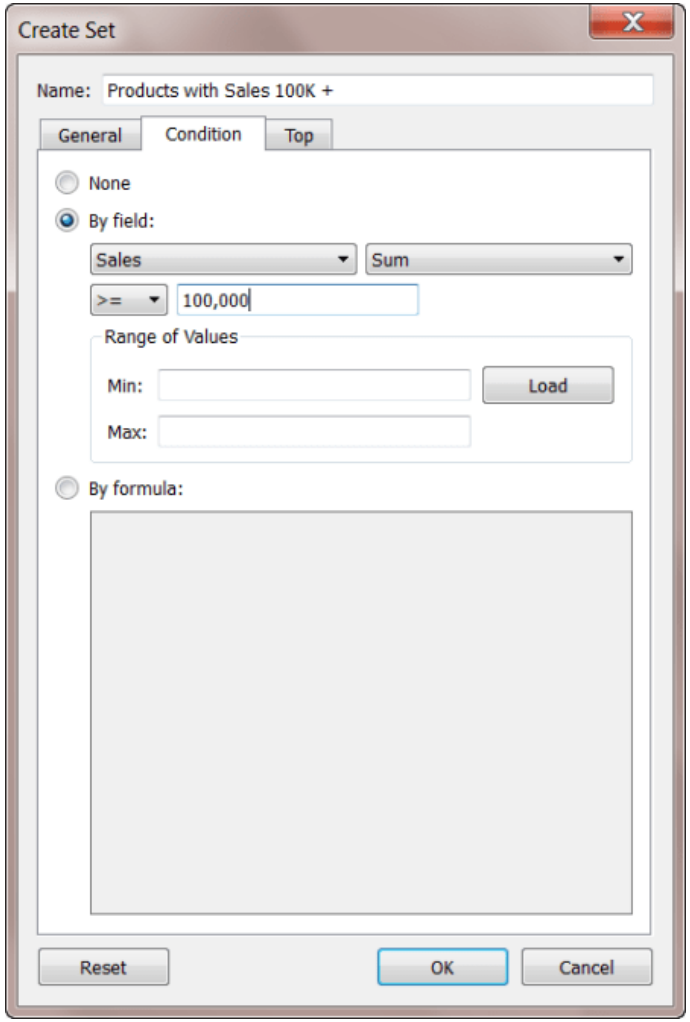
  Types:

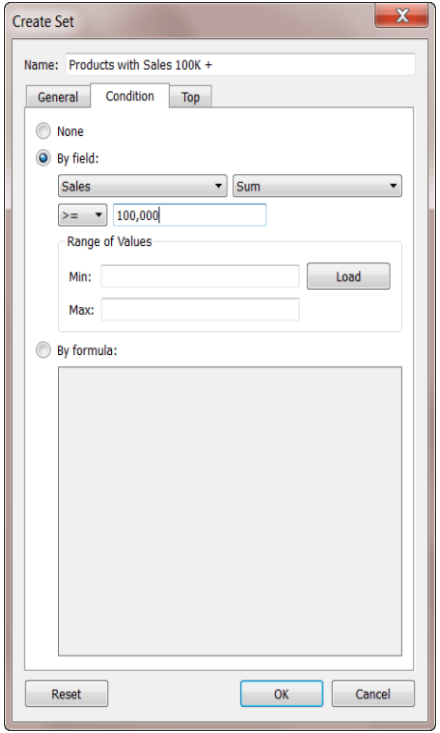
  1. Dynamic Sets
  2. Fixed Sets

Dynamic Set: The members of a Dynamic Set change when the set data changes. They only have one single dimension.

- **Step 1:** Go to Data Pane, select Dimensions, and then click on Create > Set.
- **Step 2:** In the Create Set box, configure the dimensions according to the below parameters:
  - **General:** Use this parameter to select one or more values that will be considered while computing the set. You can also use the **Use All** option to select all the values. This works even if you add or remove values from the set.
  - **Condition:** This tab is used to define rules that decide which values need to be included in the set. For example, you could create a condition based on total sales that only contains products with sales of $100,000 or more.
  - **Top:** This parameter is used to set limits on what values need to be included. For example, you could set a limit based on total sales that consider only the top 5 product based on sales.


Create Set
Name: Products with Sales 100K +
General
Condition
Top
Select from list
Custom value list
Use all
Enter search text
"While you Were Out" Message Book, One Form per Page
#10 Gummed Flap White Envelopes, 100/Box
#10 Self-Seal White Envelopes
#10 White Business Envelopes,4 1/8 x 9 1/2
#10- 4 1/8" x 9 1/2" Recycled Envelopes
#10- 4 1/8" x 9 1/2" Security-Tint Envelopes
#10-4 1/8" x 9 1/2" Premium Diagonal Seam Envelopes
#6 3/4 Gummed Flap White Envelopes
1.7 Cubic Foot Compact "Cube" Office Refrigerators
1/4 Fold Party Design Invitations & White Envelopes, 24 8...
12 Colored Short Pencils
All
None
Exclude
Summary
Field: [Product Name]
Selection: Selected 1850 of 1850 values
Wildcard: All
Condition: None
Limit: None
Reset
OK
Cancel

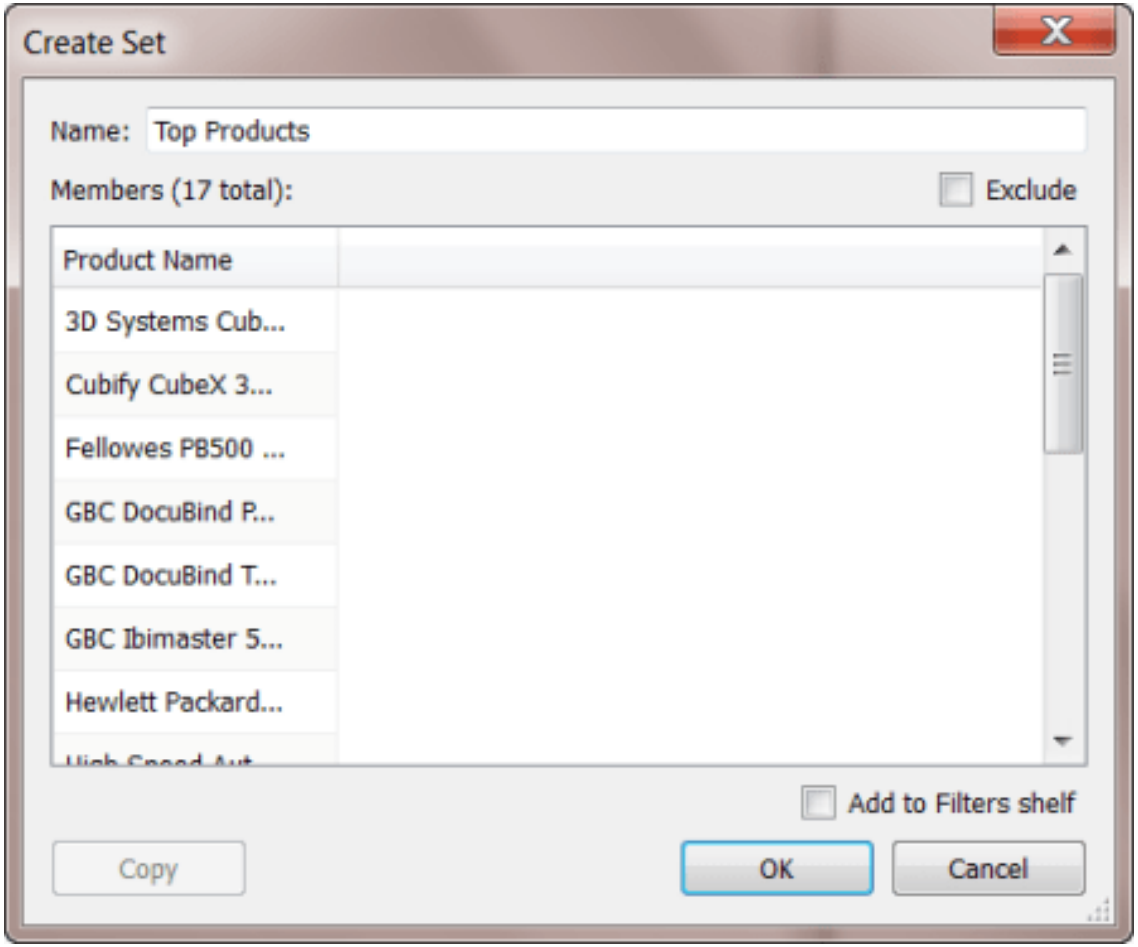

Create Set
Name: Products with Sales 100K +
General
Condition
Top
None
By field:
Sales
Sum
>=
100,000
Range of Values
Min:
Load
Max:
By formula:
Reset
OK
Cancel


Create Set
Name: Products with Sales 100K +
General
Condition
Top
None
By field:
Sales
Sum
>=
100,000
Range of Values
Min:
Load
Max:
By formula:
Reset
OK
Cancel

Fixed Sets: **Unlike the Dynamic Set, values of a Fixed Set do not change. They can either be single-dimensional or multi-dimensional.**

- **Step 1:** Select one or more markers in the visualization.
- **Step 2:** Right-click on the marks and select **Create Set.**
- **Step 3:** Type a name for your set in the **Create Set** dialogue box.
- **Step 4:** The following steps are optional:
  - The default setting is to select all the members of the set. You can exclude certain members too. When you use the **Exclude** option, the set will include all the members you didn't choose to be excluded.
  - You can remove any dimensions that you don't want. You can hover over the column heading and click on the red X that appears.
  - Similarly, you can remove any rows that you don't want. Hover over the row and click on the red X.
  - If you chose multiple dimensions for your markings, each member of the set will be a combination of those dimensions. The character that separates the dimension values can be specified. To do this, for **Separate Members By,** choose a character.
  - Once the set is formed, select **Add to Filters** shelf to add it to the **Filters** shelf automatically.

Dialogue Box:

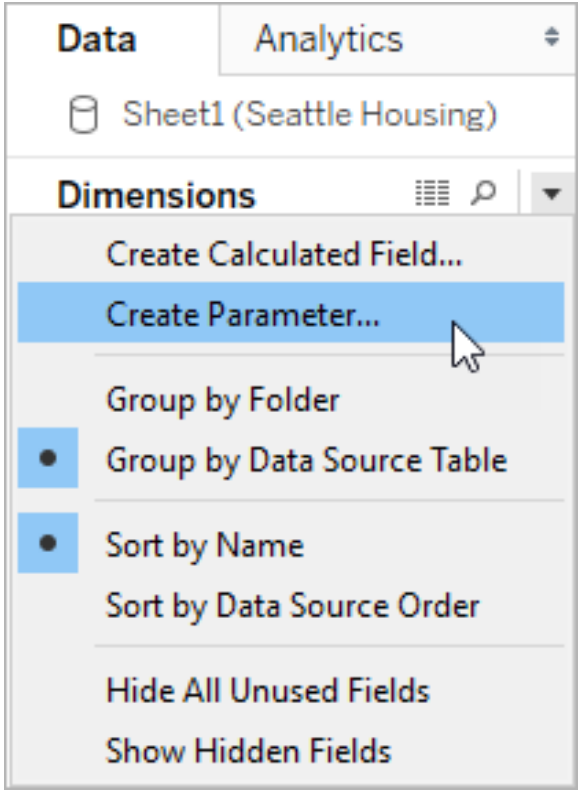


Parameters?

- A parameter is a **workbook variable such as a number, date, or string that can replace a constant value in a calculation, filter, or reference line.** For example, you may create a calculated field that returns True if Sales is greater than $500,000 and otherwise returns False.
- You can use parameters **in calculations and calculated fields that are used in the view.** You can display the parameter control in the view for users to select parameters. You can reference parameters in parameter actions.

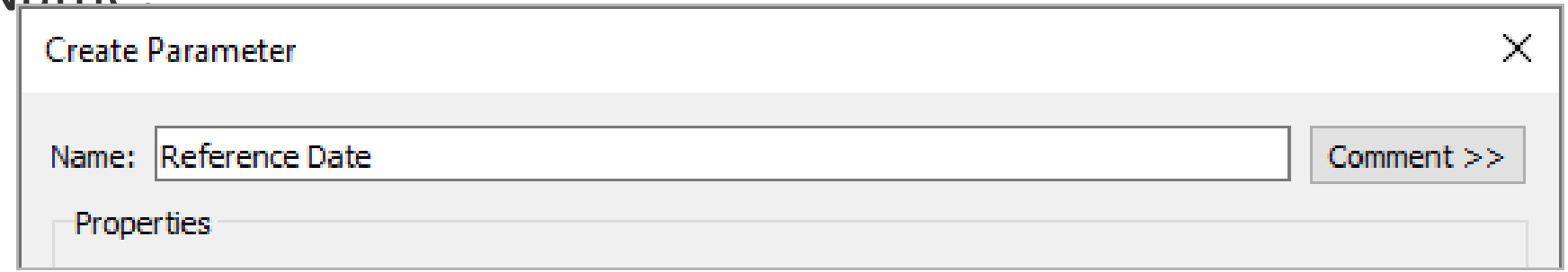
Step 1:

In the Data pane, click the drop-down arrow in the upper right corner and select Create Parameter.



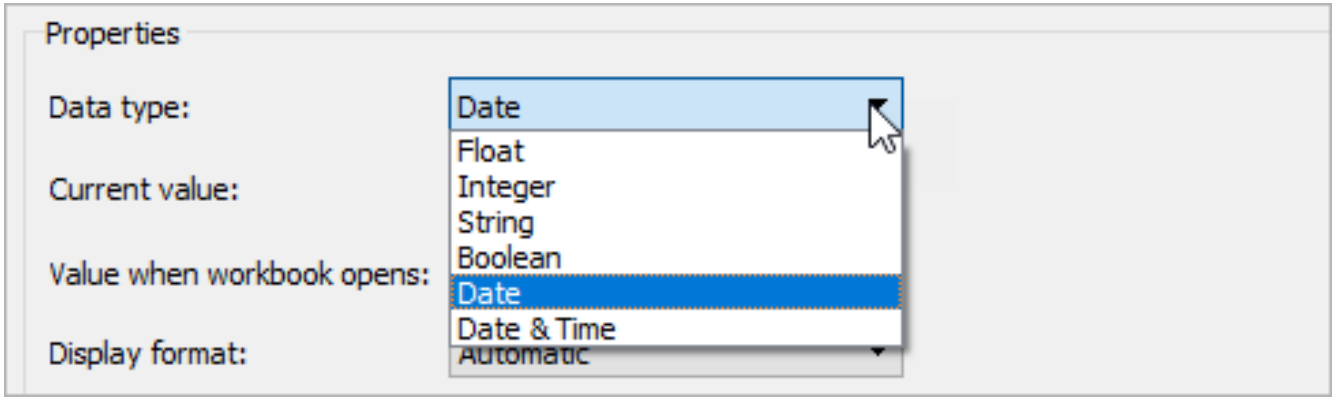
Step 2:

In the Create Parameter dialog box, give the field a Name.



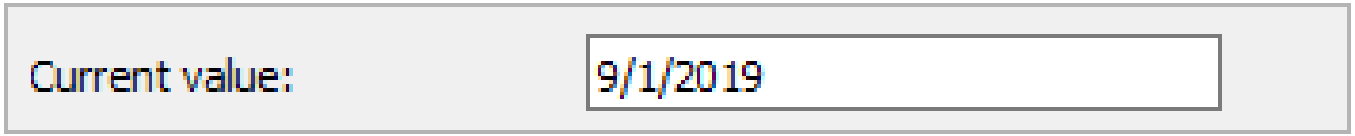
Step 3:

Specify the data type for the values it will accept:



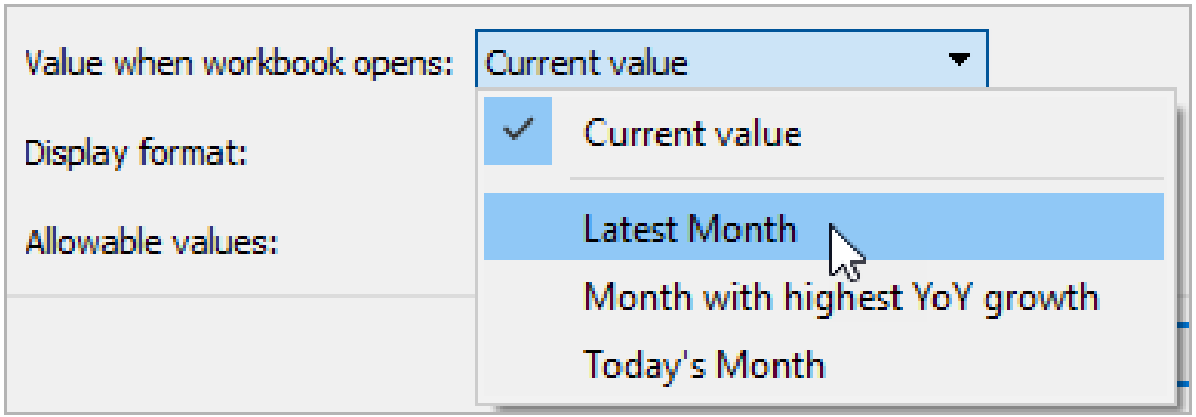
Step 4:

Specify a current value. This is the default value for the parameter. In this case, let's leave the field as is because we'll be using the latest data, which we'll configure in the next step.



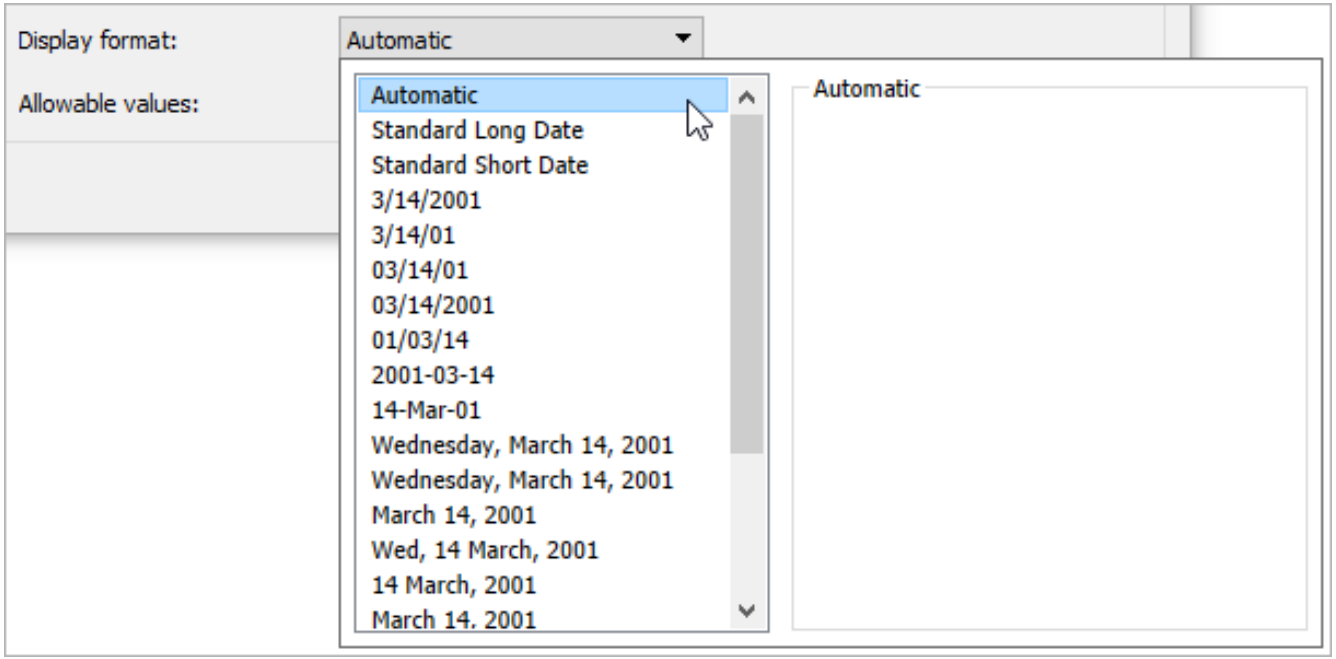
Step 5:

For this dynamic parameter, let's use Latest Month. This means that if the connected data source is updated and the workbook is opened, the parameter will automatically update when the workbook is opened.



Step 6:

Specify the display format to use in the parameter control (Tableau Desktop only).



Step 7:

Specify how the parameter will accept values. You can select from the following options:

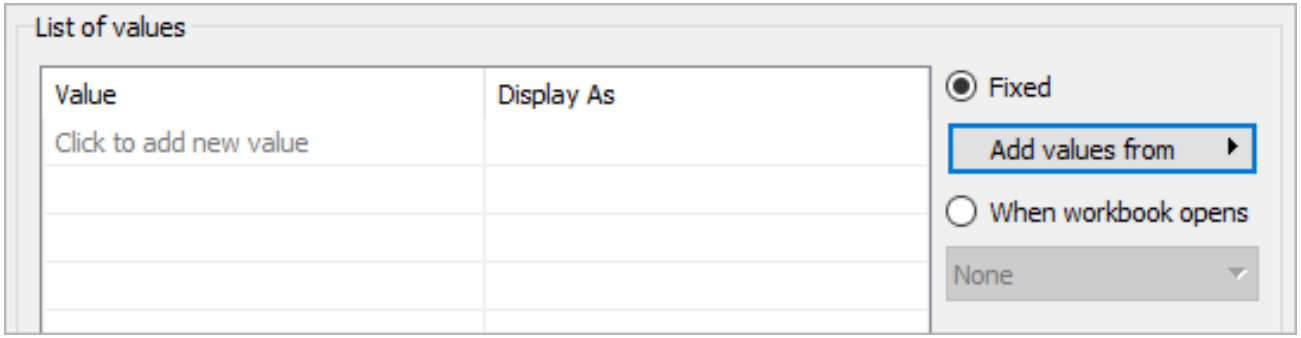
1. All - The parameter control is a simple text field.
2. List - The parameter control provides a list of possible values for you to select from.
3. Range - The parameter control lets you select values within a specified range.

The availability of these options is determined by the data type. For example, a string parameter can only accept all values or a list. It does not support a range.

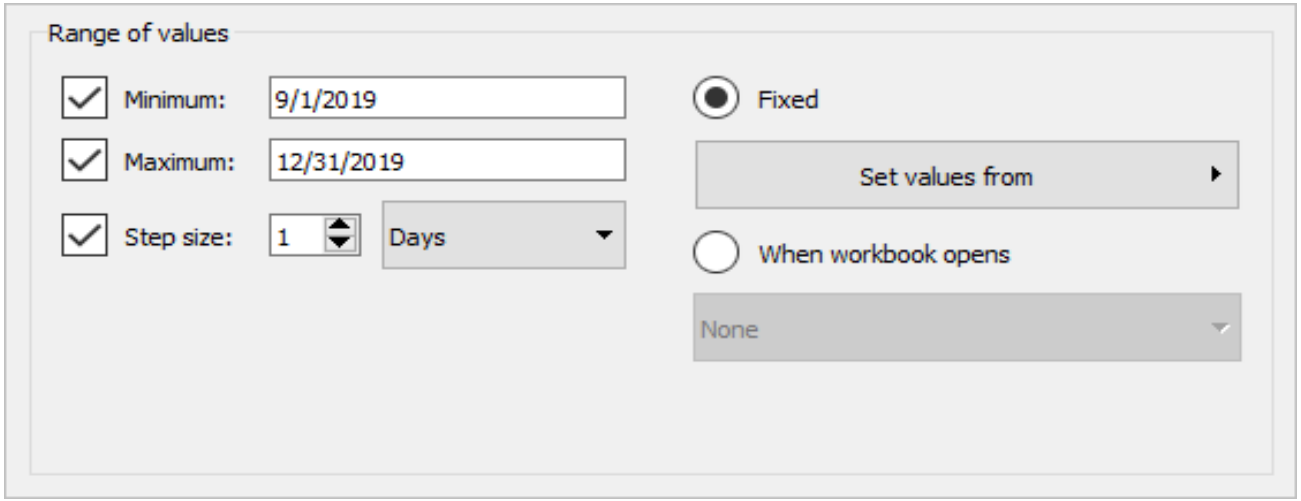
If you select List, you must specify the list of values. Click in the left column to type your list of values, or you can add members of a field by selecting Add values from.

If you select Range, you must specify a minimum, maximum, and step size. For example, you can define a date range between January 1, 2019 and December 31, 2019, with the step size set to 1 month to create a parameter control that lets you select each month in 2019.

List of Values



List of Values



The parameter is now listed in the Parameters section at the bottom of the Data pane.

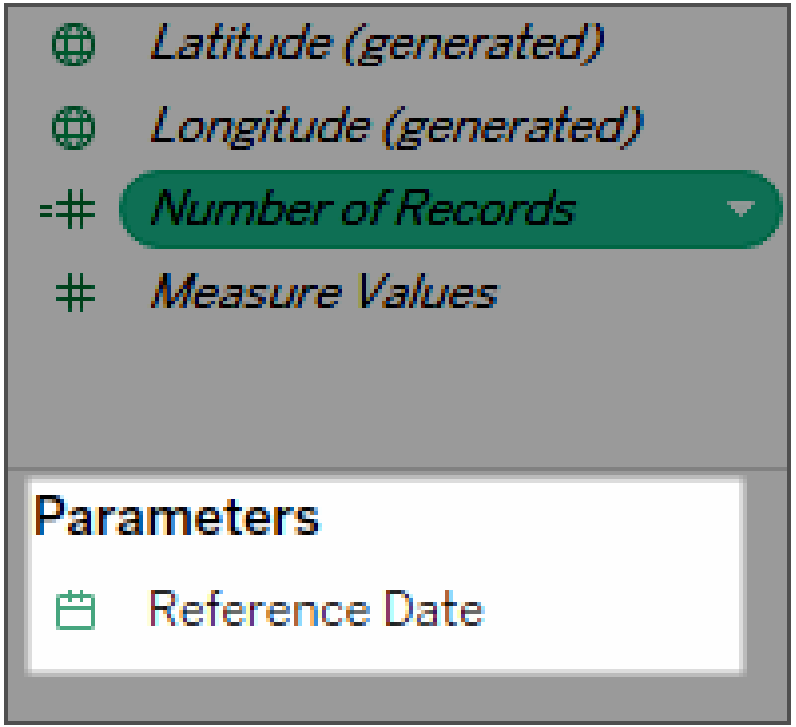
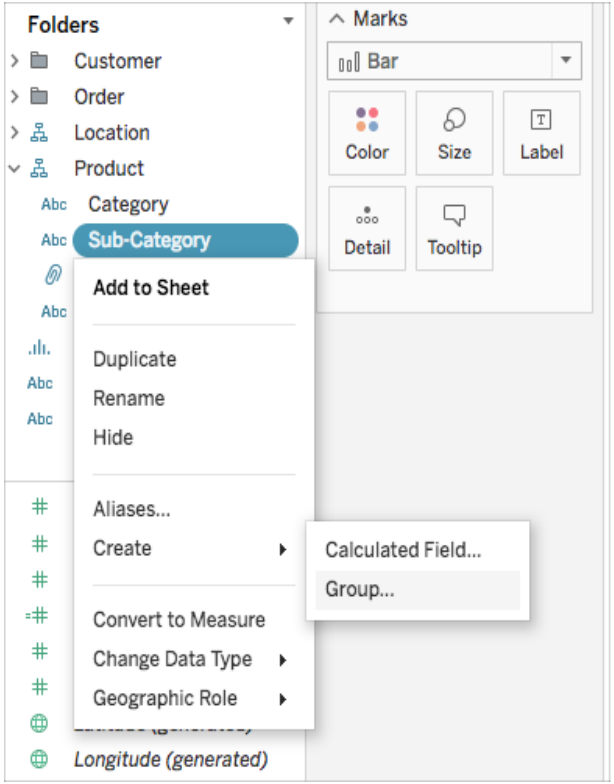


Tableau Groups?

- In Tableau, grouping is the process of combining multiple members from a single dimension into a higher category, whereas creating a set is the process of combining members from multi-dimensions and/or conditions into a dynamic or constant Group. Standard dimensions filters are used to process Tableau Groups.

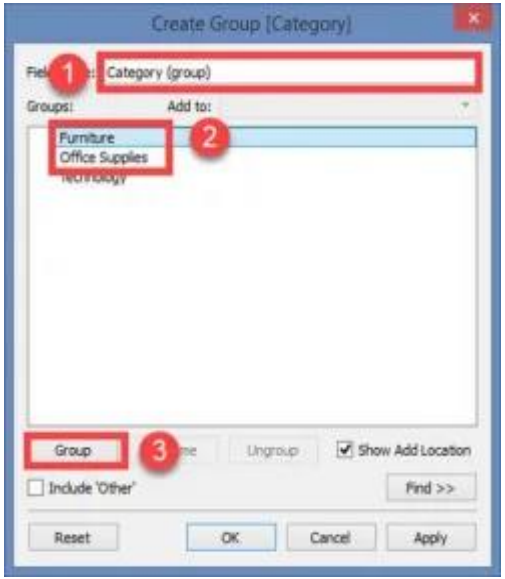
Step 1:

Select **Category** from the right-clicking menu. Choose the option **Create** then choose the option **Group** for creating Tableau Groups.



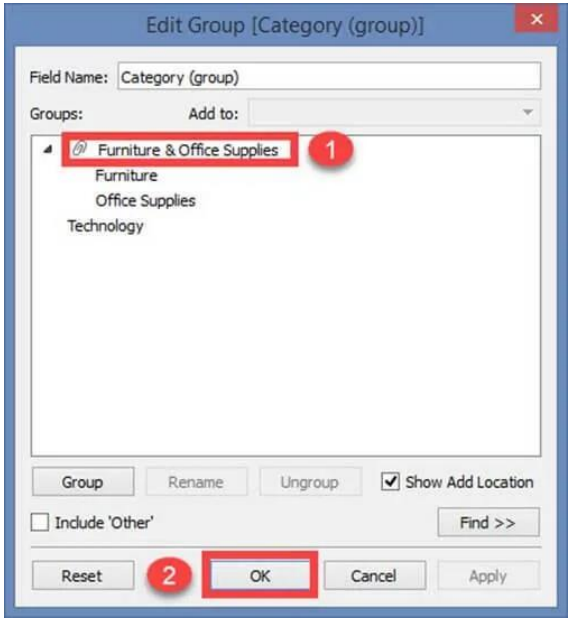
Step 2:

The **Create Group** window appears. Enter the name of the Group data in Tableau. Choose the members who will be grouped. Select the **Group** button.



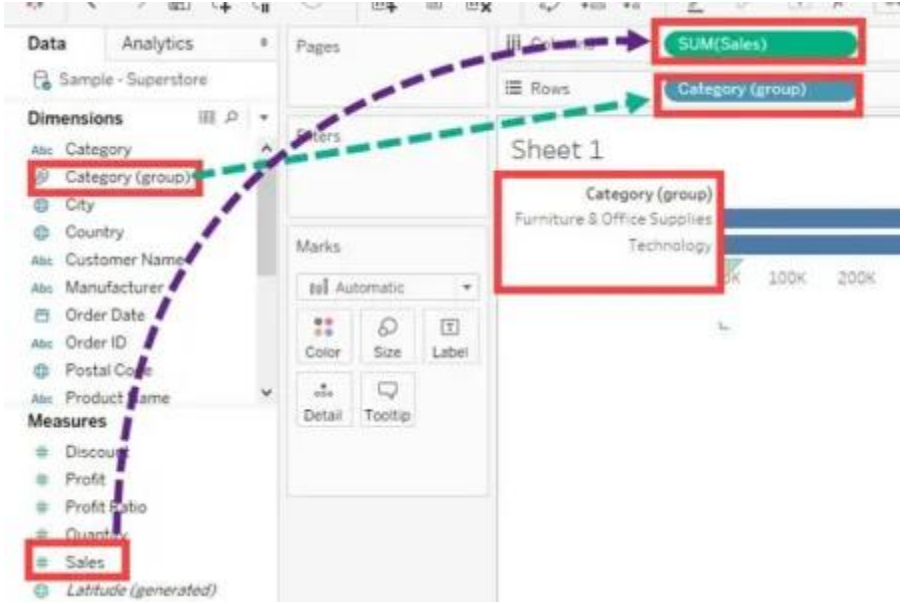
Step 3:

In the Edit Group Window Furniture and Office supplies are created as Tableau Groups. To create Tableau groups, simply click Ok.



Result:

- This creates the Tableau groups with the name of the group and added it to the dimension list.
- This can be used to visualize a group of people using the Tableau method for members in a field.
- The functionality of the Tableau create group is demonstrated in the image below.
- In Tableau, the total sales for both furniture and office supplies are visualized for grouping.



Calculated Fields?

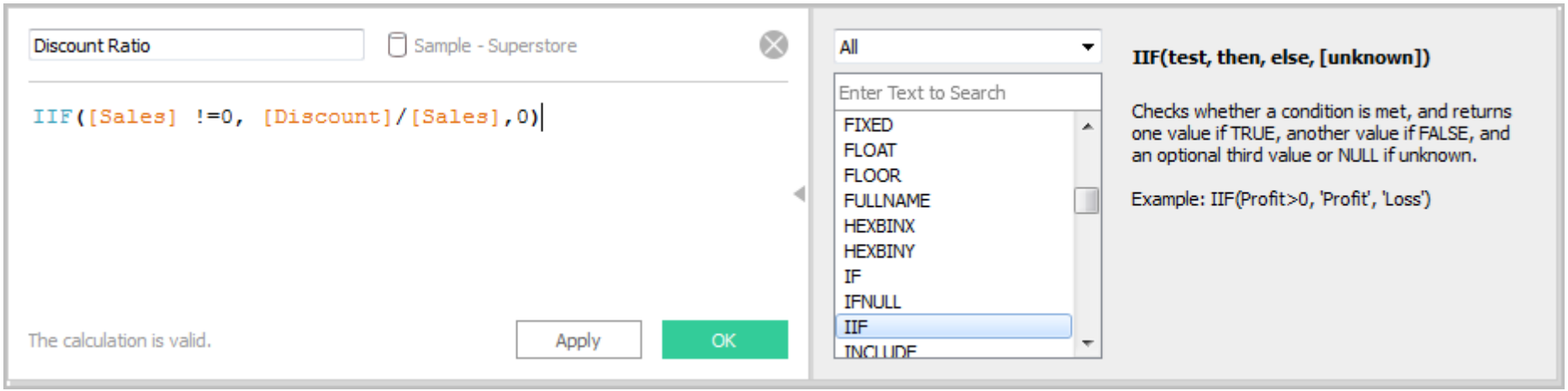
- Calculated fields **allow you to create new data from data that already exists in your data source**. When you create a calculated field, you are essentially creating a new field (or column) in your data source, the values or members of which are determined by a calculation that you control.
- You can use calculated fields for many, many reasons. Some examples might include:
  - To segment data
  - To convert the data type of a field, such as converting a string to a date.
  - To aggregate data
  - To filter results
  - To calculate ratios

Steps:

- Select **Analysis > Create Calculated Field.**
- In the Calculation Editor that opens, do the following:
  - Enter a name for the calculated field. In this example, the field is called, **Discount Ratio.**
  - Enter a formula. This example uses the following

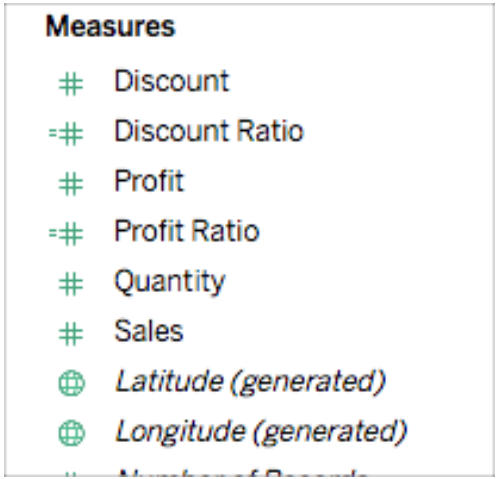
```
IIF([Sales] !=0, [Discount]/[Sales],0)
```

This formula checks if sales is not equal to zero. If true, it returns the discount ratio (Discount/Sales); if false, it returns zero.



Result for Calculated Field:

- When finished, click **OK.**
- The new calculated field is added to Measures in the Data pane because it returns a number. An equal sign (=) appears next to the data type icon. All calculated fields have equal signs (=) next to them in the



Text Functions?

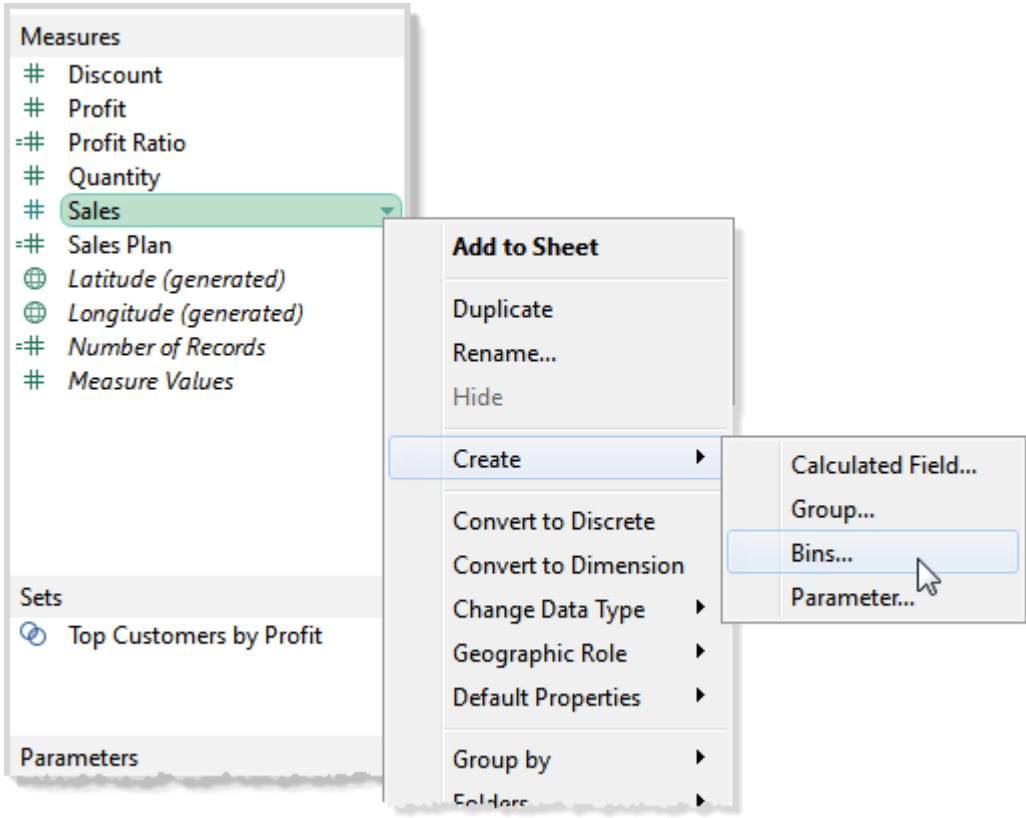
Date Functions?

Histogram and Bins?

Bins:

Step 1: Navigate to the **Data pane** and right-click on the desired field or dimension from which you want to retrieve the data.

Step 2: Select the **Create** option and then click on **Bins**. As you can see in the image below, we have used the **Sales** field for this tutorial.



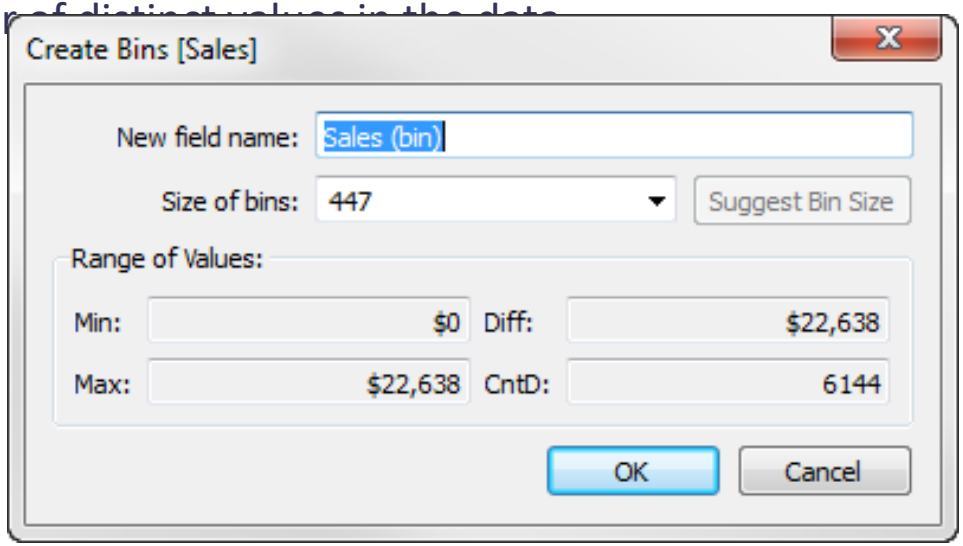
Step 3: Once you click on the Bins option, you will see a dialog box on your screen. You can either select the proposed field name or specify a different name for the new field.

Step 4: Now, enter a value in the Size of Bins field. You can also click on the **Suggest Bin Size** button to get a Bin Size recommendation from Tableau for the data set you've chosen. The formula used by Tableau to calculate an optimal Bin size is:

```
Number of Bins = 3 + log2(n) * log(n)
```

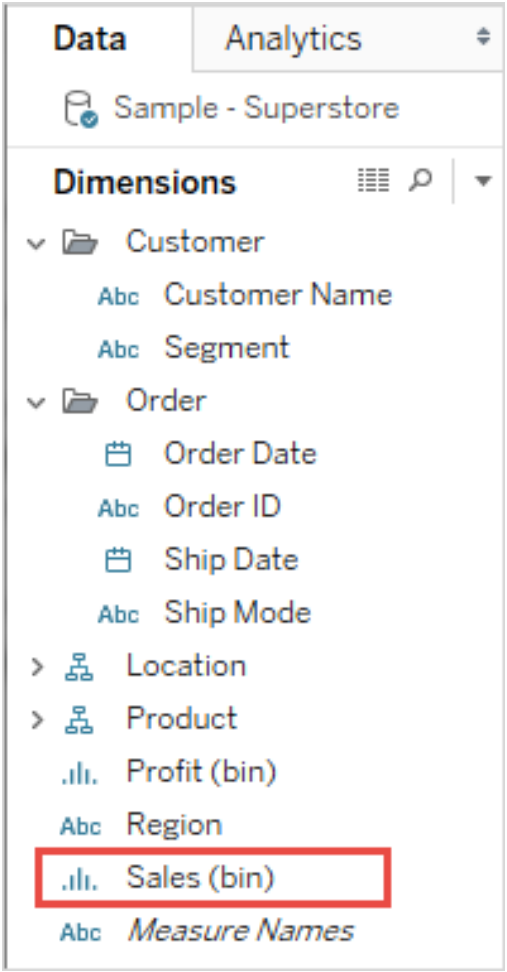
If you want to manually calculate the bin size, you can also take these parameters into account. They are as follows:

- **Min:** It represents the minimum value for the field.
- **Max:** It represents the maximum value for the field.
- **Diff:** It represents the difference between the Min and Max fields.
- **CntD:** It represents the total number of distinct values in the data.



Step 5: Once you have successfully entered all the required parameters to create a bin, click on the **OK** button to finish the setup.

Step 6: Now, head back to the Data Pane and you'll see the Tableau Bins named **Sales Bin** under the list of fields.



STEP BY STEP PROCESS

Theory

Practical

Assignment

Live Projects

Resume Preparation

Mock Interview

Live Interview

Job Offer

THANK YOU

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