

WEEK1

Aim: Understanding Data, What is data, where to find data, Foundations for building Data Visualizations, Creating Your First visualization?

Solution:

What is Data?

Data refers to raw facts, statistics, or information collected or stored in a structured or unstructured form. Data can take various forms, such as text, numbers, images, videos, and more. It is the foundation of all information and knowledge and is used in various fields for analysis, decision-making, and understanding trends and patterns.

Data can be categorized into two main types:

- **Structured Data:** This type of data is organized into a specific format, such as tables or databases, and is easily searchable and analyzable. Examples include spreadsheets, relational databases, and CSV files.
- **Unstructured Data:** Unstructured data lacks a specific format and can include text documents, social media posts, images, audio recordings, and more. Analyzing unstructured data often requires advanced techniques like natural language processing and image recognition.

Where to Find Data?

You can find data from various sources, depending on your specific needs:

- **Open Data Portals:** Many governments and organizations provide free access to a wide range of data through open data portals. Examples include Data.gov (United States) and data.gov.uk (United Kingdom).

- **Data Repositories:** Academic institutions, research organizations, and data enthusiasts often share datasets on platforms like Kaggle, GitHub, and the UCI Machine Learning Repository.
- **APIs (Application Programming Interfaces):** Some websites and services offer APIs that allow you to programmatically access and retrieve data. Examples include Twitter API, Google Maps API, and financial market APIs.
- **Web Scraping:** You can extract data from websites using web scraping tools and libraries like BeautifulSoup and Scrapy. However, be mindful of the website's terms of use and legal restrictions.
- **Surveys and Surveys:** You can conduct your own surveys or collect data through questionnaires and interviews.
- **IoT Devices:** Internet of Things (IoT) devices generate vast amounts of data that can be used for various purposes.

Dataset

A data set is a collection of data. In the case of tabular data, a data set corresponds to one or more database tables. where every **column** of a table represents a particular **variable or features**, and each **row** corresponds to a given **record or observation or sample** of the data set

Dataset is collection of observation or samples or records. Each observation is consist of variables or features

Data set Representation $D=\{x_i, y_i\}$, x_i is represent the input variables

$x_i = \{x_1, x_2, x_3, \dots, x_n\}$, x_1 - 1st variable , x_2 – 2nd variable , y_i Represent class label

Example 1: Gender Dataset

S.no	Height	Weight	Gender
1	7	72	Male
2	6.2	70	Male
3	5	48	Female
4	5.5	50	Female
5	5.8	68	Male
6	4.8	52	Female
7	6	67	Male
8	5.9	70	Male
9	4.5	40	Female

10	5.7	64	Male
----	-----	----	------

In Gender Data set , S.no, Height, Weight, variables are input variables or independent variables and Gender is class Label. This dataset have X_i and Y_i .

Example 2: IRIS Dataset

S.no	sepal_length	sepal_width	petal_length	petal_width
1	5.1	3.5	1.4	5.1
2	4.9	3	1.4	4.9
3	4.7	3.2	1.3	4.7
4	6.4	3.2	4.5	6.4
5	6.9	3.1	4.9	6.9
6	5.5	2.3	4	5.5
7	6.5	2.8	4.6	6.5
8	6.5	3.2	5.1	2
9	6.4	2.7	5.3	1.9
10	6.8	3	5.5	2.1

IRIS Dataset have only input variable or features, no class label.

Example3: Rainfall Dataset

S.no	Month	Rain (CM)
1	Jan	6
2	Feb	4
3	March	3
4	APL	7
5	May	5
6	June	8
7	July	2
8	Aug	9
9	Sept	4
10	Oct	5
11	Nov	6
12	Dec	3

Foundations for Building Data Visualizations:

Creating effective data visualizations requires a strong foundation in several key areas:

- **Data Analysis:** Before creating visualizations, you should thoroughly analyze your data to understand its structure, relationships, and any patterns or trends. Exploratory data analysis (EDA) techniques can help with this.
- **Statistical Knowledge:** Understanding basic statistics is essential for making meaningful interpretations of data. Concepts like mean, median, standard deviation, and correlation are commonly used in data visualization.
- **Domain Knowledge:** Having knowledge of the specific domain or subject matter related to your data is crucial for creating contextually relevant visualizations. It helps you ask the right questions and provide valuable insights.
- **Visualization Tools:** Familiarize yourself with data visualization tools and libraries such as matplotlib, Seaborn, ggplot2, D3.js, and Tableau. Each tool has its strengths and can be used for different types of visualizations.

Different plots or Charts for Data Visualizations

- Line plot
- Bar plot
- Histogram plot
- Pie chart
- Boxplot
- Scatter plot
- Heatmap

Creating Your First Visualization:

To create your first data visualization, follow these general steps:

- **Select Your Data:** Choose a dataset that aligns with your goals and interests. Ensure that the data is clean and well-structured.

- **Define Your Objective:** Clearly define what you want to communicate or explore with your visualization. Are you looking to show trends, comparisons, or distributions?
- **Choose the Right Visualization Type:** Select a visualization type that suits your data and objectives. Common types include bar charts, line charts, scatter plots, histograms, and pie charts.
- **Prepare and Transform Data:** Preprocess your data as needed. This may involve aggregating, filtering, or transforming the data to fit the chosen visualization.
- **Create the Visualization:** Use a suitable tool or library to create your visualization. Customize it with labels, colors, and other design elements.
- **Interactivity (Optional):** If appropriate, add interactive features to your visualization to allow users to interact with the data.
- **Test and Iterate:** Review your visualization for accuracy and clarity. Seek feedback from others and make improvements as necessary.
- **Publish or Share:** Once you are satisfied with your visualization, publish it on a platform, embed it in a report, or share it with your intended audience.

Load Dataset into R Studio or Create Data frame using In R Studio

```
d<-read.csv("Dataset name")
rain <- c(6,4,3,7,5,8,2,9,4,5,6,3)
month<-c("Jan","Feb","March","Apl","May","June","July","Aug","Sept","Oct","Nov","Dec")
print(d)

      rain month
1     6   Jan
2     4   Feb
3     3   Mar
4     7   Apl
5     5   May
6     8   June
```

```
7 2 July  
8 9 Aug  
9 4 Sept  
10 5 Oct  
11 6 Nov  
12 3 Dec
```

```
print(dim(d))
```

```
12 2
```

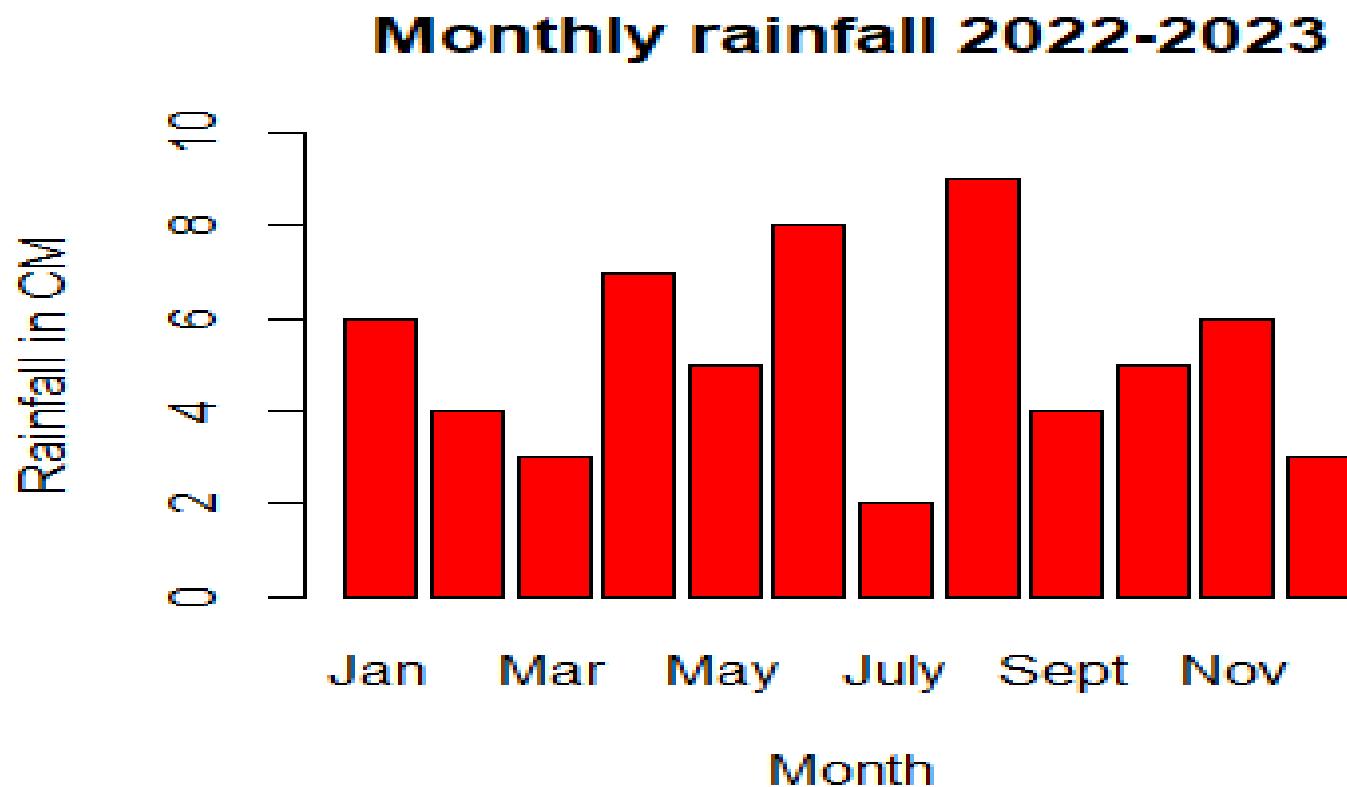
```
print(colnames)
```

```
rain month
```

First visualization

BAR CHART

```
barplot(rain, names=month, xlab="Month",ylab = "Rainfall in CM",ylim=c(0,10),col = "red", main = "Monthly rainfall 2022-2023")
```



WEEK-2

AIM : 2. Getting started with Tableau Software using Data file formats, connecting your Data to Tableau, creating basic charts(line, bar charts, Tree maps),Using the Show me panel.

Solution :

Getting started with Tableau software is a great way to create data visualizations quickly and efficiently. Here are the steps to get started, including connecting your data to Tableau, creating basic charts like line charts, bar charts, and treemaps, and using the Show Me panel:

1. Download and Install Tableau:

First, you'll need to download and install **Tableau Desktop** or **Tableau Public** (a free version). Follow the installation instructions provided on the Tableau website for your specific operating system.

2. Prepare Your Data:

Before connecting your data to Tableau, ensure that your data is in a suitable format. Common data file formats that Tableau supports include **Excel (.xlsx)**, **CSV (.csv)**, and **text files (.txt)**. Make sure your data is organized with headers for each column.

3. Connect Your Data to Tableau:

3.1 Launch **Tableau Desktop**. Use this **Licence Key**
TC5X-3A39-D8A0-3674-5903

3.2 Go to "**File**" Menu and then click on "**Open**".

Tableau - Book1

File Data Server Help

New Ctrl+N
Open... Ctrl+O
Hide Start Page Ctrl+2
Paste Ctrl+V
Repository Location...
Exit

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 (dep...
Other Databases (JDBC)
Other Databases (ODBC)
More... >

Saved Data Sources

Open

Open a Workbook

Accelerators

Superstore

World Indicators

Salesforce Pipeli...

keyrus
make data matter

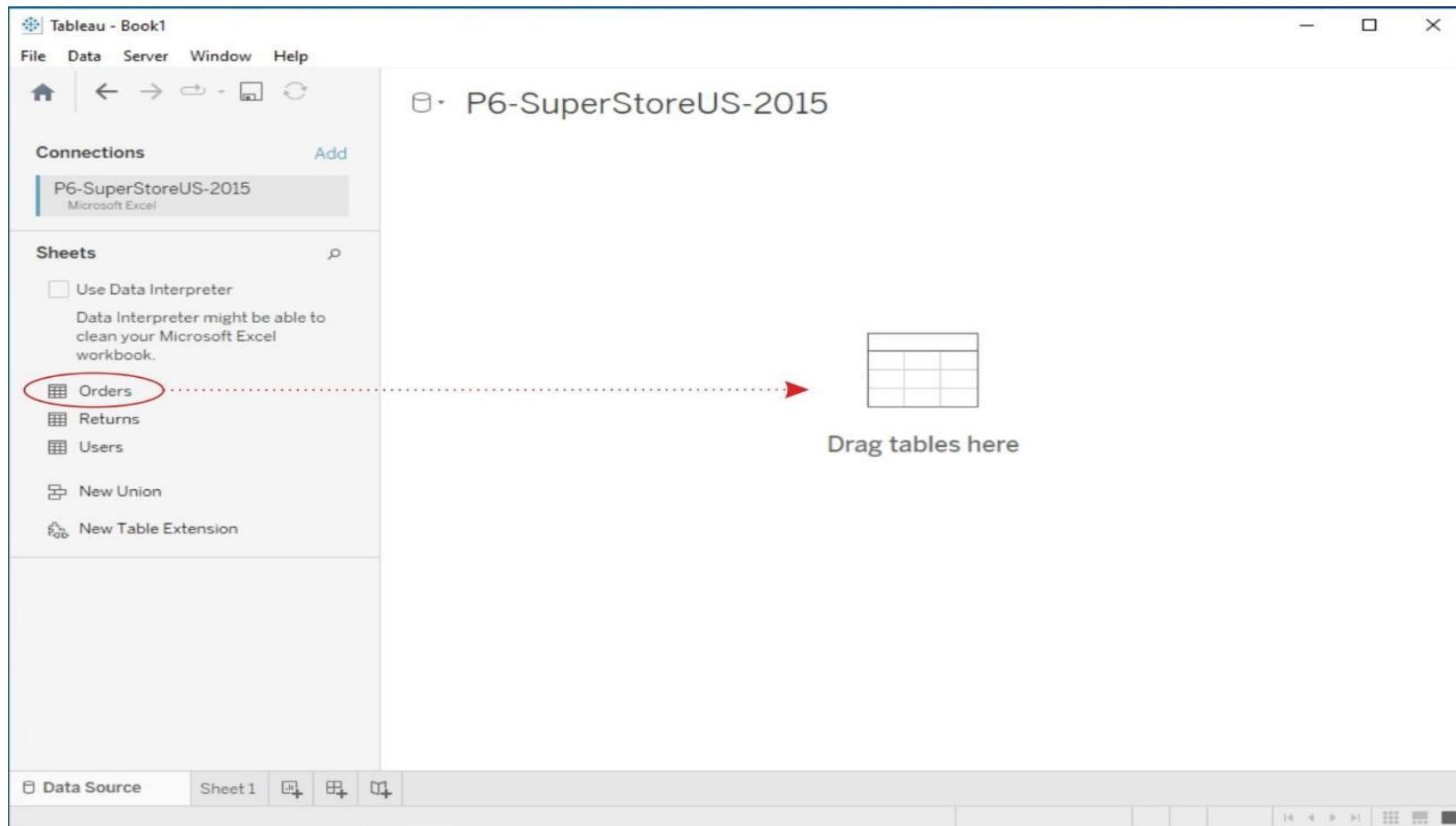
More Accelerators

Income Stateme...

The screenshot shows the Tableau desktop application window. The left sidebar contains the 'File' menu with options like 'New', 'Open...', 'Hide Start Page', 'Paste', 'Repository Location...', and 'Exit'. Below the menu is a 'To a File' section with options for Microsoft Excel, Text file, JSON file, Microsoft Access, PDF file, Spatial file, Statistical file, and More... A 'To a Server' section follows, listing Vertica, Web Data Connector (dependency), Other Databases (JDBC), Other Databases (ODBC), and More... with a dropdown arrow. At the bottom is a 'Saved Data Sources' section. The main area has an 'Open' header and a 'To a Workbook' link. On the right, there's an 'Accelerators' section with cards for 'Superstore', 'World Indicators', 'Salesforce Pipeline', 'keyrus make data matter', and a 'More Accelerators' link. The overall interface is clean with a dark blue header and light gray background.

3.3 Choose the data source type (e.g., Excel, CSV, text file) and Select the data file (**P6-SuperStoreUS-2015.xls**) and click "Open".

3.4 Drag any table (e.g. Orders) into the working area.



Click on Worksheet (**Sheet1**).

Tableau - Book1

File Data Server Window Help

Connections Add

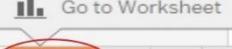
P6-SuperStoreUS-2015 Microsoft Excel

Sheets

Use Data Interpreter
Data Interpreter might be able to clean your Microsoft Excel workbook.

Orders Returns Users

New Union New Table Extension

click 

Orders (P6-SuperStoreUS-2...)

Connection Live Extract

Filters 0 | Add

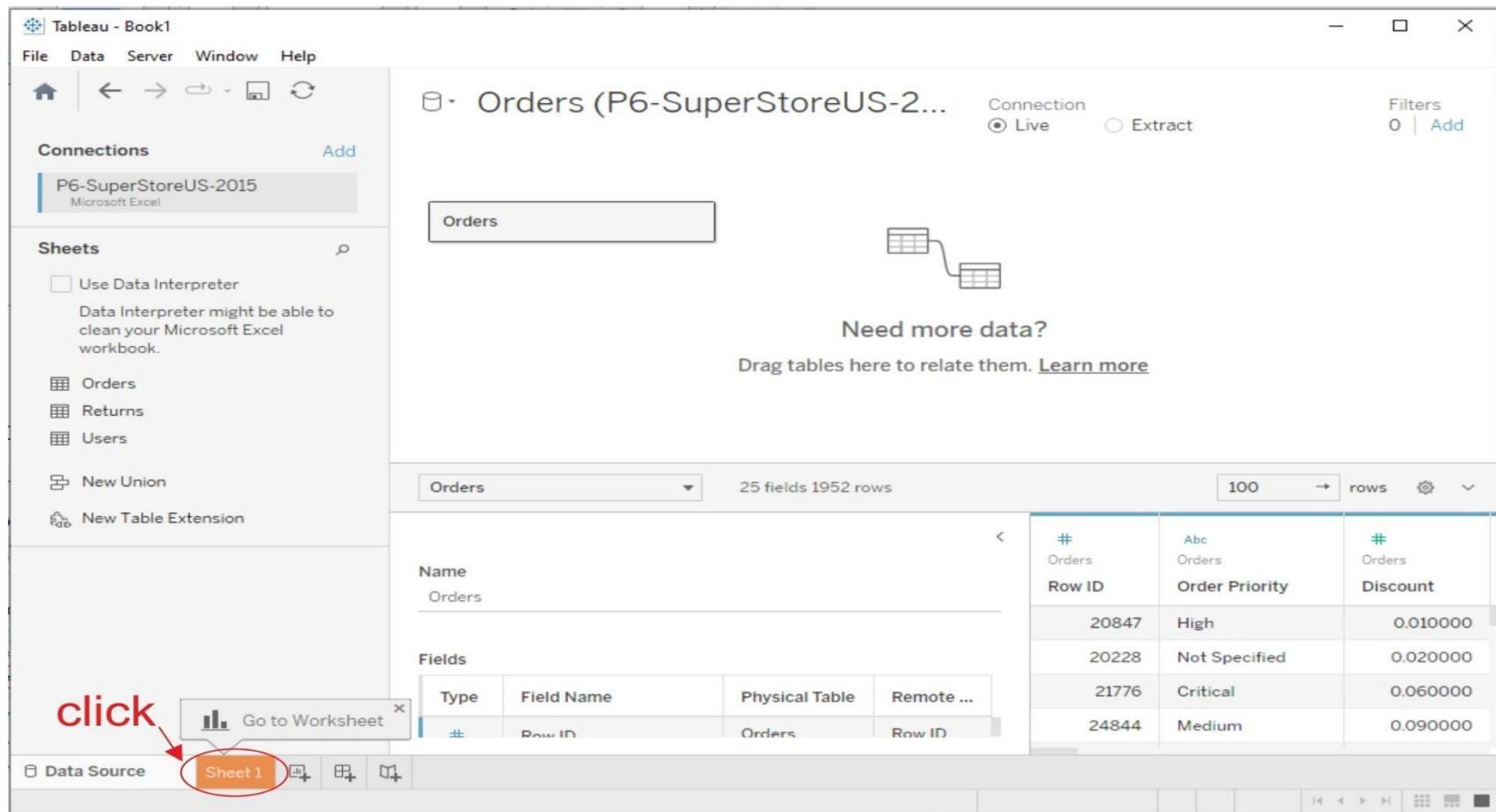
Orders

Need more data?
Drag tables here to relate them. [Learn more](#)

Orders 25 fields 1952 rows 100 rows

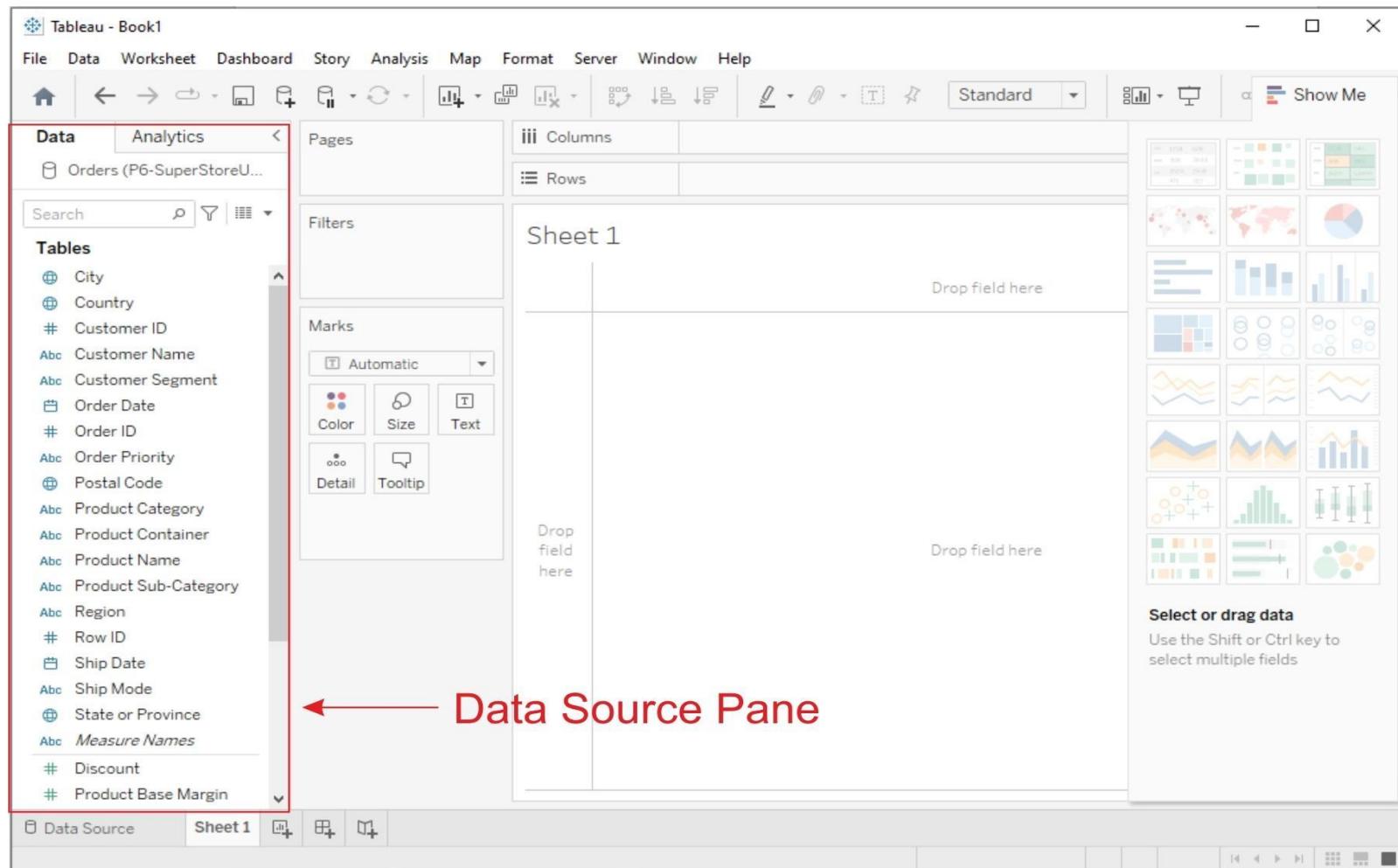
#	Abc	#
Row ID	Orders	Orders
	Order Priority	Discount
20847	High	0.010000
20228	Not Specified	0.020000
21776	Critical	0.060000
24844	Medium	0.090000

Data Source Sheet1



4. Data Source Pane:

Once your data is connected, the Data Source Pane will appear on the left-hand side of the Tableau interface. Here, you can see a preview of your data and perform data transformations or join multiple data sources if necessary.

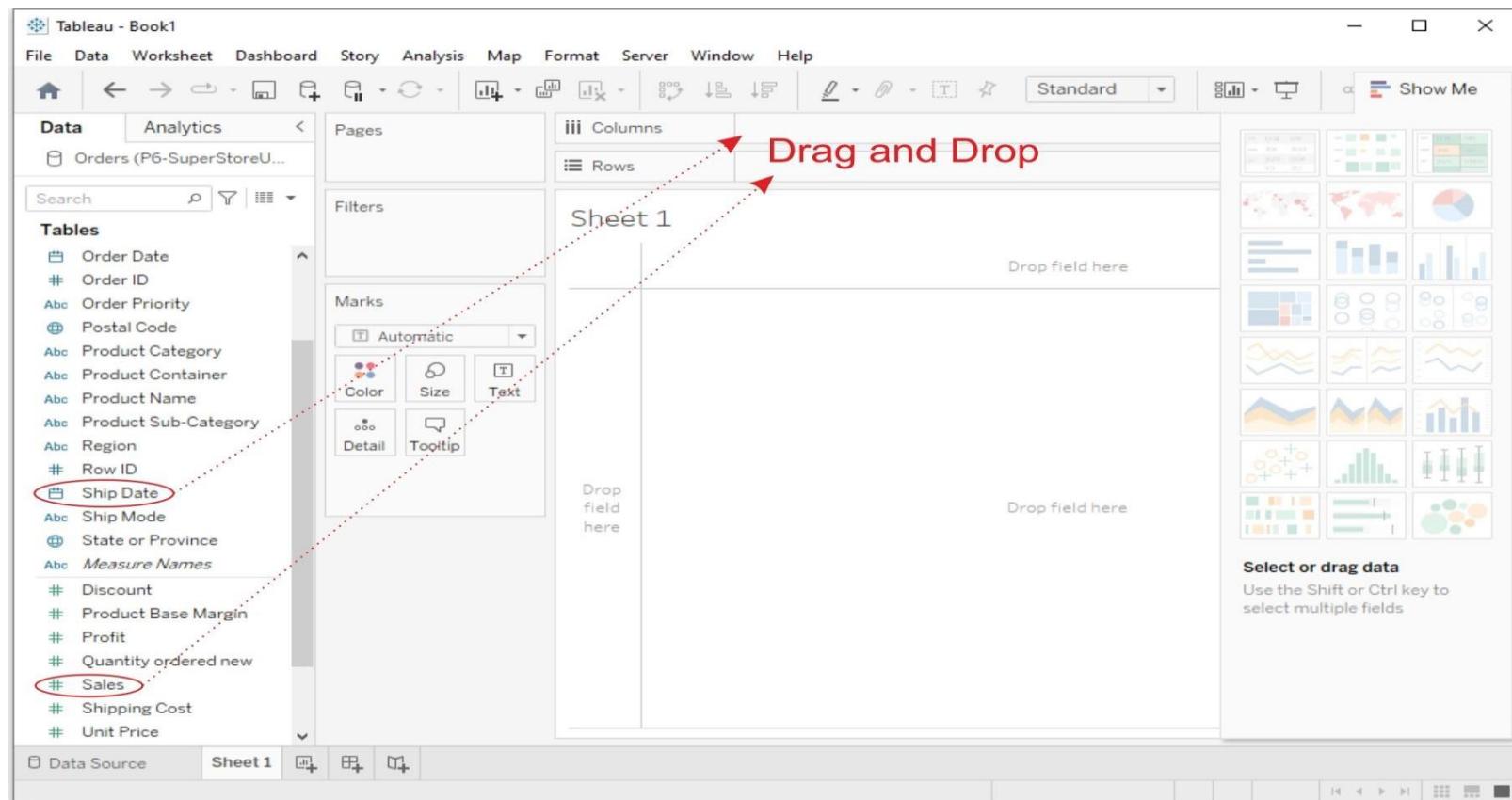


5. Creating Basic Charts:

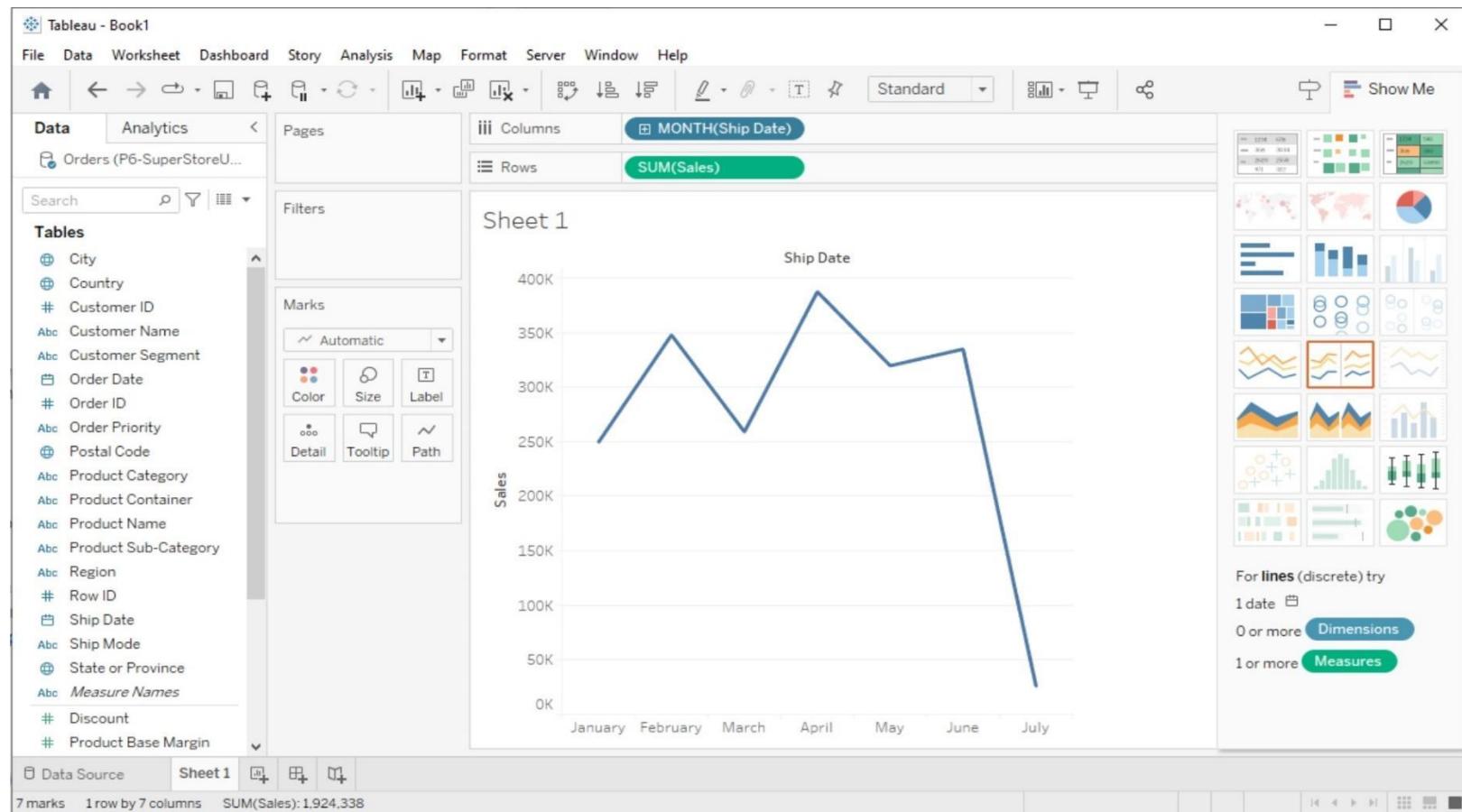
Now, let's create some basic charts using Tableau:

a. Line Chart:

1. From the "Data Source pane", drag and drop the date field to the **Columns shelf** and a numeric field (e.g., sales, revenue) to the **Rows shelf**.

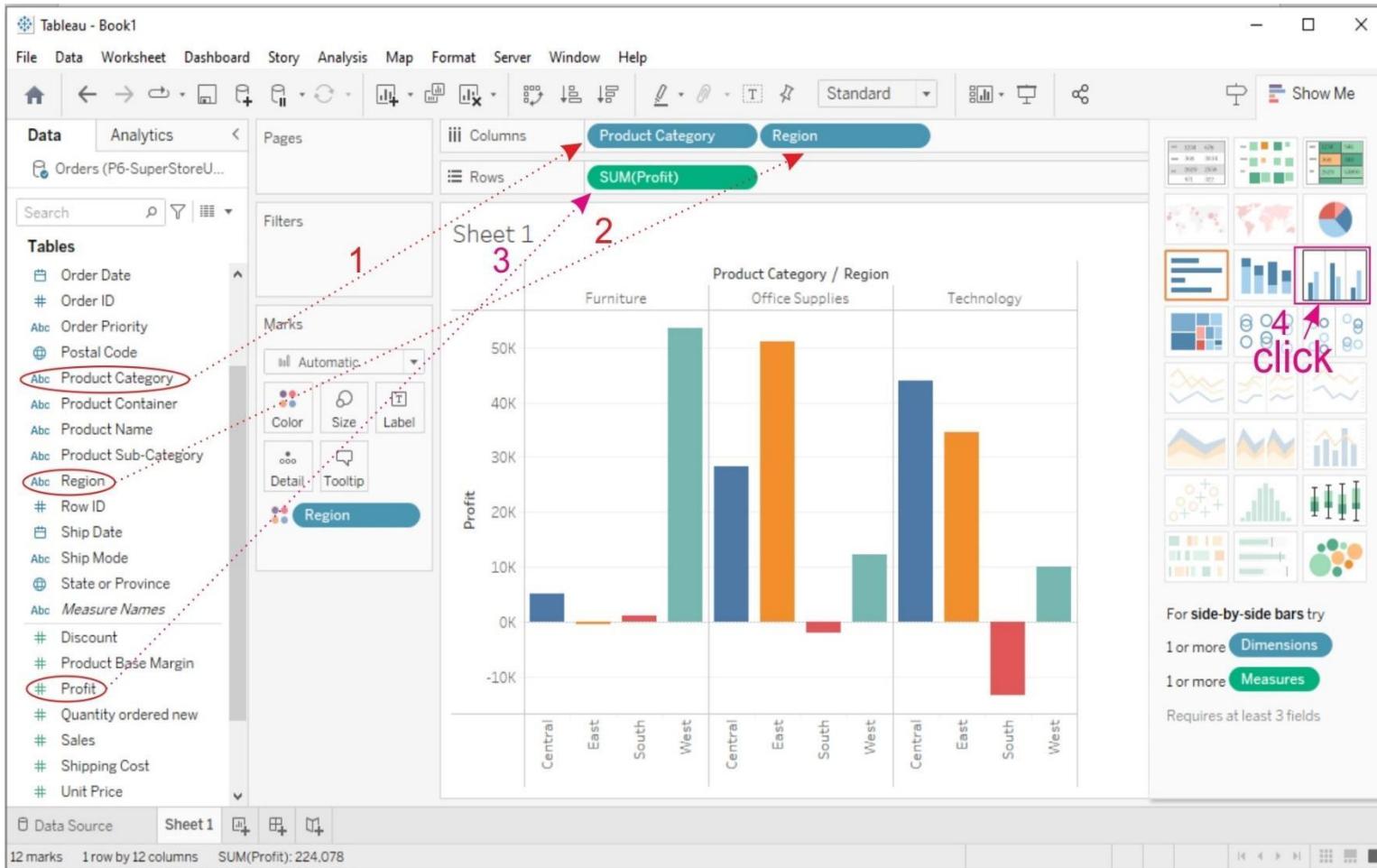


2. Then Tableau will automatically create a line chart. You can customize it by adding labels, titles, and formatting.

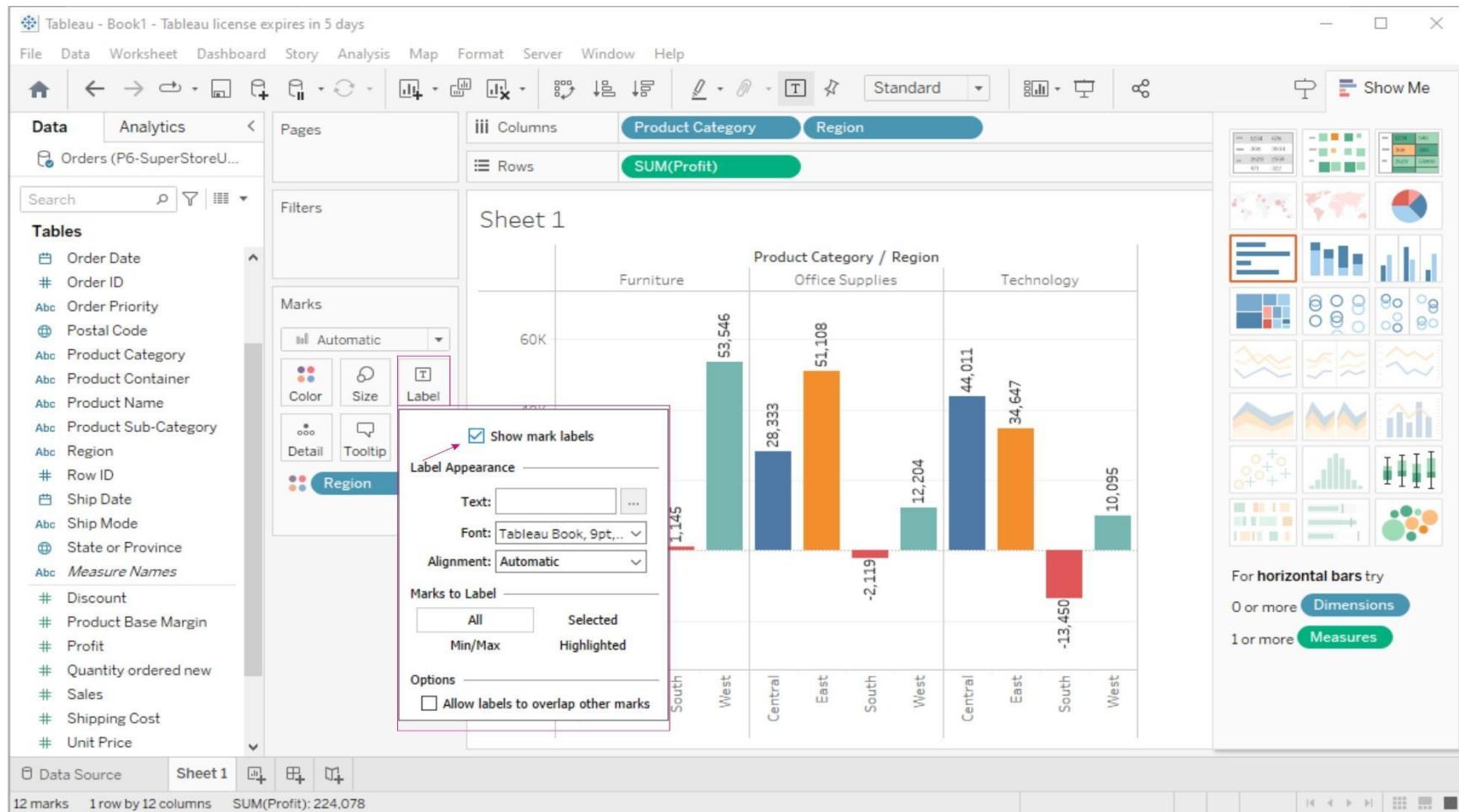


b. Bar Chart:

1. Drag and drop a **categorical field** (e.g., product category, region) to the Columns shelf and a **numeric field** to the Rows shelf.

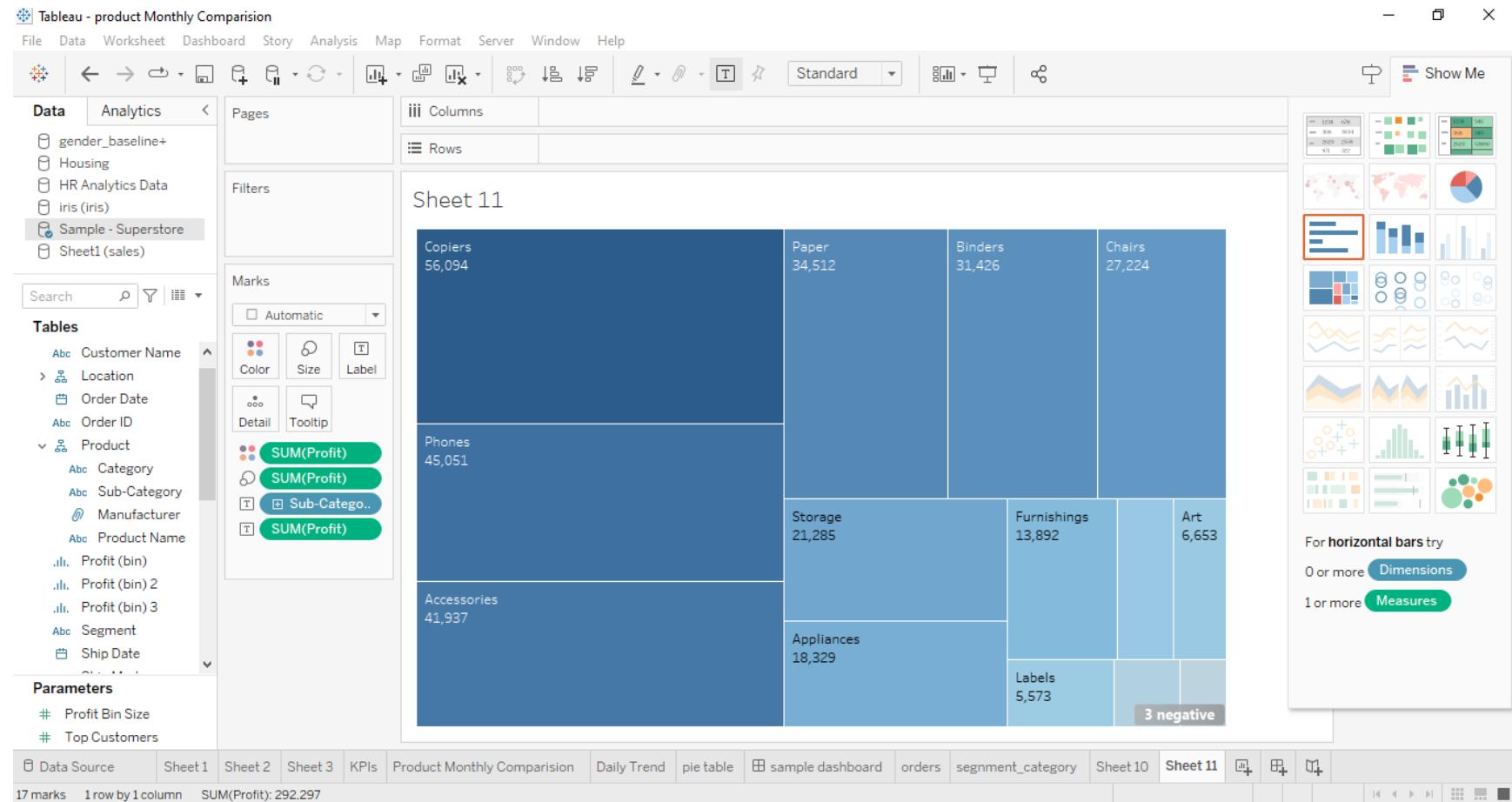


2. Then Tableau will create a bar chart. You can adjust the orientation and formatting as needed. To display Labels on the bars click on Labels and select "Show mark labels".



c. Treemap:

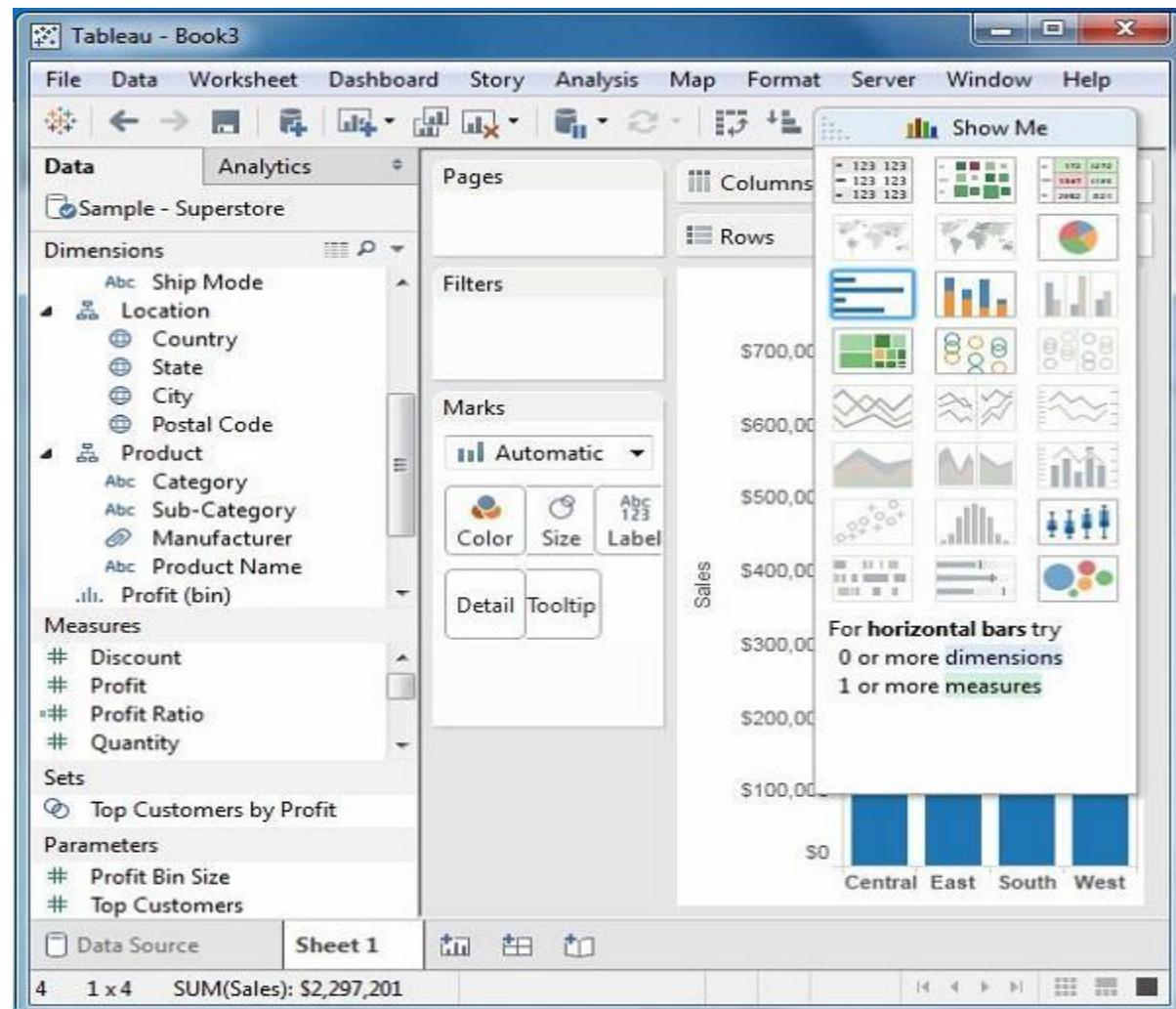
1. Drag and drop a categorical field to the Columns shelf.
2. Drag and drop a numeric field to the Size shelf.
3. Tableau will create a treemap visualization. You can further customize it by adjusting colors and labels.



6. Using the Show Me Panel:

The Show Me panel in Tableau helps you explore various chart types based on your data and the fields you select. Here's how to use it:

1. After adding fields to the Rows and Columns shelves, click on the "Show Me" panel located on the left side of the Tableau interface.
2. In the Show Me panel, you'll see a variety of chart options that Tableau recommends based on your data. Click on a chart type to create it.
3. Tableau will automatically generate the selected chart type with your data.
4. To go back to the regular worksheet view, click the "Clear" button in the Show Me panel.



Load the Dataset into R Studio

```
df<-read_excel("I:\\MGIT\\Data Visualization\\sales.xlsx")
```

```
head(df)
```

Date	Item_name	Customer	Sales	
1	2023-08-02 00:00:00	Books	Raju	10
2	2023-08-03 00:00:00	pens	Tulasi	20
3	2023-08-12 00:00:00	laptop	Ravi	40
4	2023-07-13 00:00:00	mobiles	Ramesh	12
5	2023-03-20 00:00:00	pens	soni	50
6	2023-08-17 00:00:00	mobiles	pooja	45

Bar chart

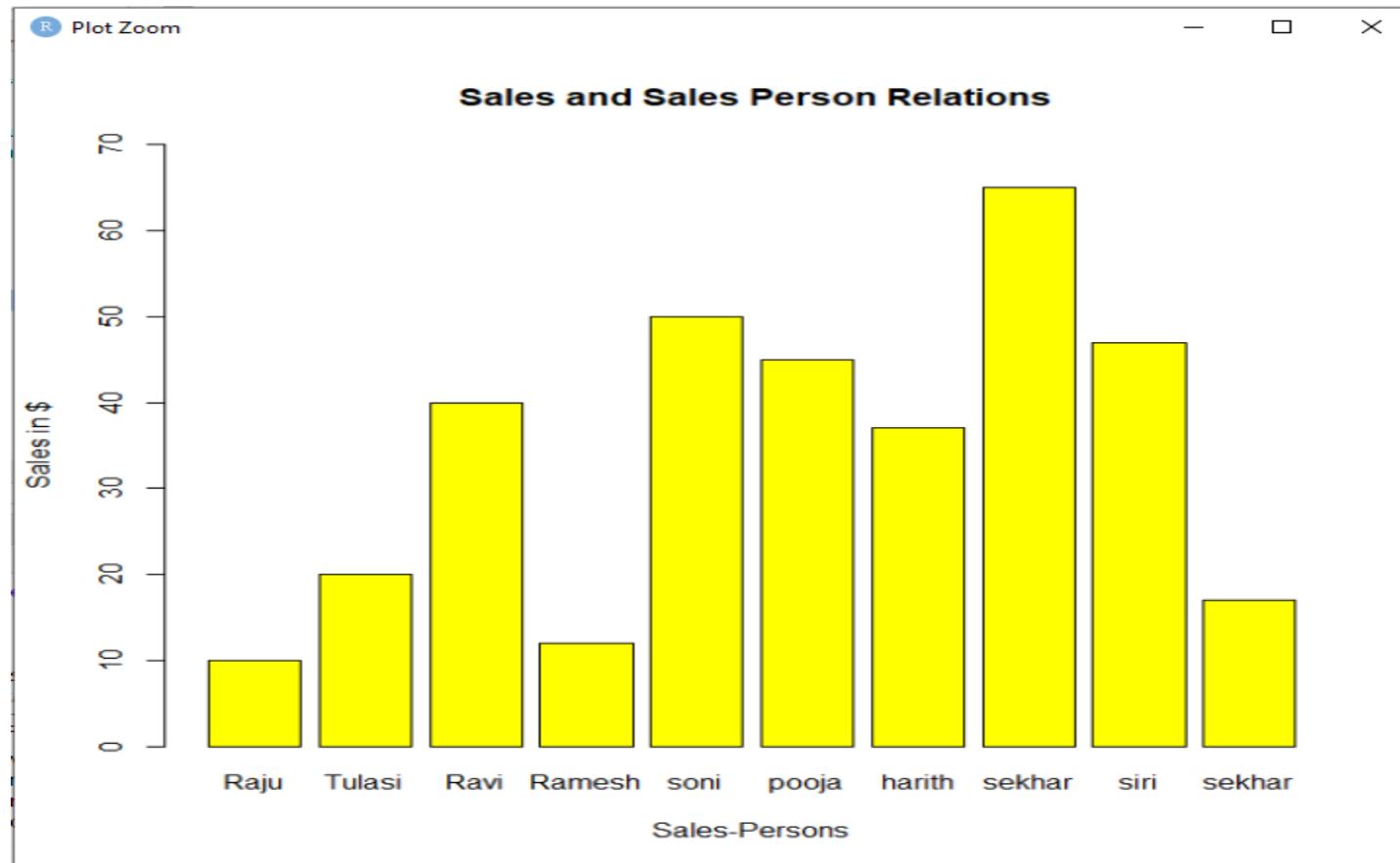
A bar chart represents data in rectangular bars with length of the bar proportional to the value of the variable. R uses the function **barplot()** to create bar charts. R can draw both vertical and Horizontal bars in the bar chart. In bar chart each of the bars can be given different colors.

Syntax : barplot (H,xlab,ylab,main, names.arg,col)

- **H** is a vector or matrix containing numeric values used in bar chart.
- **xlab** is the label for x axis.
- **ylab** is the label for y axis.
- **main** is the title of the bar chart.
- **names.arg** is a vector of names appearing under each bar.
- **col** is used to give colors to the bars in the graph

Code:

```
barplot(sales,names.arg =sales_person,xlab ="Sales-Persons",ylab ="Sales in $",col = "yellow",main = " Sales and Sales Person Relations",ylim = c(0,70))
```



Line Graphs

A line chart is a graph that connects a series of points by drawing line segments between them.

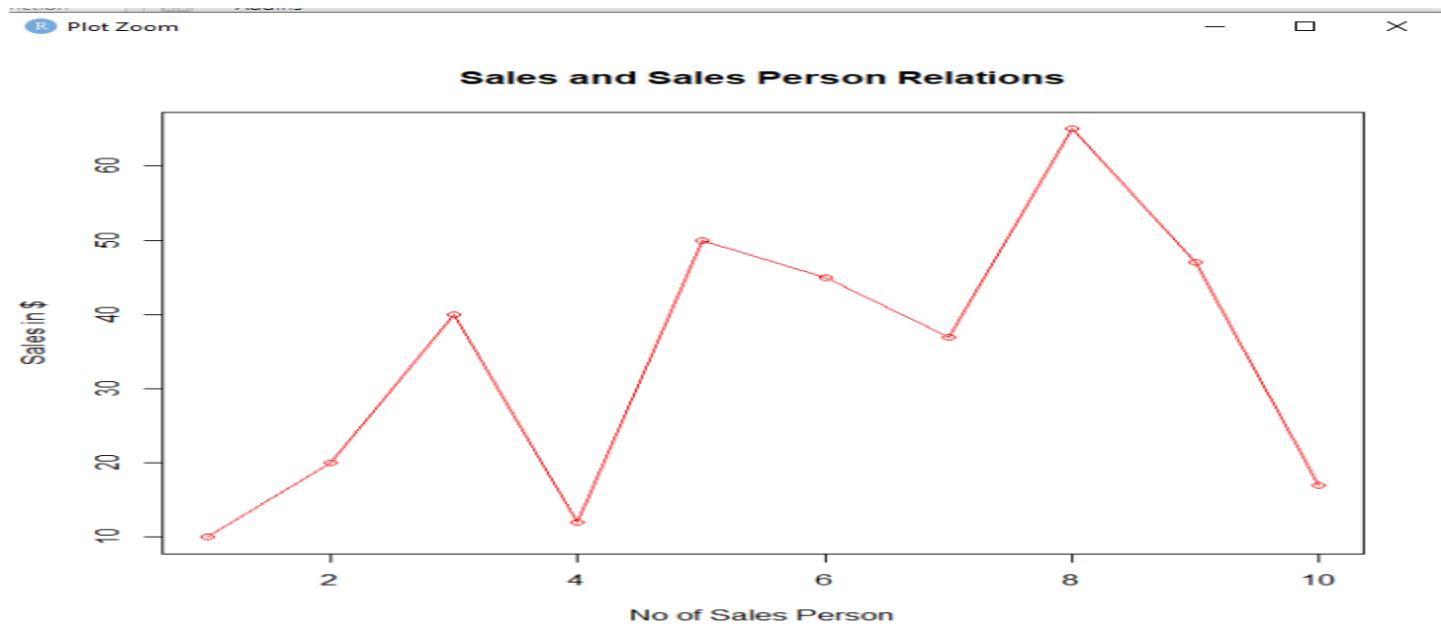
the **plot()** function in R is used to create the line graph.

Syntax : `plot(v,type,col,xlab,ylab)`

- **v** is a vector containing the numeric values.
- **type** takes the value "p" to draw only the points, "l" to draw only the lines and "o" to draw both points and lines.
- **xlab** is the label for x axis.
- **ylab** is the label for y axis.
- **main** is the Title of the chart.
- **col** is used to give colors to both the points and lines.

Code :

```
plot(sales,type = "o",col="red",xlab = "No of Sales Person",main = "Sales and Sales Person Relations",ylab="Sales in $")
```



Pie chart

A pie-chart is a representation of values as slices of a circle with different colors. The slices are labeled and the numbers corresponding to each slice is also represented in the chart.

In R the pie chart is created using the **pie()** function which takes positive numbers as a vector input. The additional parameters are used to control labels, color, title etc.

Syntax : **pie(x, labels, radius, main, col, clockwise)**

- **x** is a vector containing the numeric values used in the pie chart.
- **labels** is used to give description to the slices.
- **radius** indicates the radius of the circle of the pie chart.(value between -1 and +1).
- **main** indicates the title of the chart.
- **col** indicates the color palette.

- **clockwise** is a logical value indicating if the slices are drawn clockwise or anti clockwise.

Code:

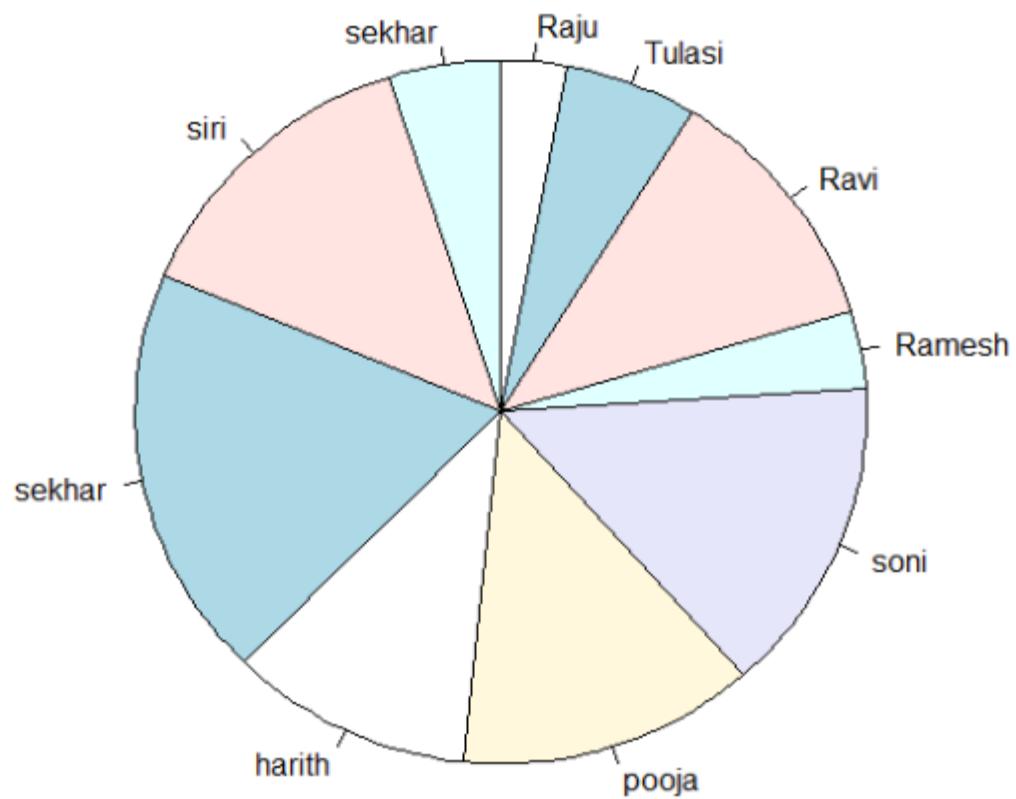
```
pie(sales,labels=sales_person,radius = 1,clockwise = TRUE)
```

R Plot Zoom

-

□

X



WEEK-3

3. Tableau Calculations, Overview of SUM, AVR, and Aggregate features, Creating custom calculations and fields.

1. Drag and drop a categorical field (e.g., product category) to the Rows shelf.

The screenshot shows the Tableau Data Editor interface. On the left, the 'Data' shelf contains various dimensions and measures from the 'Sample - Superstore Sales' data source. A red arrow points from the 'Ship Mode' dimension in the 'Data' shelf towards the 'Rows' shelf. The 'Rows' shelf is highlighted with a blue box and contains the field 'Product Sub-Category'. The main workspace, 'Sheet 1', displays a list of product sub-categories with their corresponding 'Abc' ratings. The bottom status bar indicates there are 17 marks and 17 rows by 1 column.

Product Sub-Category	Rating
Appliances	Abc
Binders and Binder Acces..	Abc
Bookcases	Abc
Chairs & Chairmats	Abc
Computer Peripherals	Abc
Copiers and Fax	Abc
Envelopes	Abc
Labels	Abc
Office Furnishings	Abc
Office Machines	Abc
Paper	Abc
Pens & Art Supplies	Abc
Rubber Bands	Abc
Scissors, Rulers and Trim..	Abc
Storage & Organization	Abc
Tables	Abc
Telephones and Communi..	Abc

2. Click on Numerical Field (e.g. Sales), Select Create option and Click on Calculated Field

The screenshot shows the Tableau desktop application interface. The top menu bar includes File, Data, Worksheet, Dashboard, Story, Analysis, Map, Format, Server, Window, and Help. The main workspace displays a data source named "Sample - Superstore Sales". A context menu is open over a numerical field named "Sales". The "Create" option is selected, and its submenu is visible, showing "Calculated Field..." as the currently selected item. Other options in the submenu include Transform, Convert to Discrete, Convert to Dimension, Change Data Type, Default Properties, Geographic Role, Group by, Replace References..., and Describe... . The right side of the screen shows a list of product sub-categories: Appliances, Envelopes, Labels, Office Furnishings, Office Machines, Paper, Pens & Art Supplies, Rubber Bands, Scissors, Rulers and Trim..., Storage & Organization, Tables, and Telephones and Communi... . The bottom of the screen shows the Windows taskbar with various pinned icons and system status information.

3. After click on the calculated field, open the pop-up window, apply the Min_Aggregation function on Sales field and submit the Apply and ok button.

The screenshot shows the Tableau Data Editor interface. On the left, the 'Tables' pane lists various dimensions and measures, with 'Sales' highlighted. In the center, a calculated field named 'Minimum_Sale' is being created, containing the formula 'MIN([Sales])'. A pop-up window titled 'Aggregate' is open, showing the aggregation type set to 'min' (highlighted in green). The 'Data type' is listed as 'Float'. At the bottom of the pop-up, it says 'The calculation is valid.' with 'Apply' and 'OK' buttons. The status bar at the bottom indicates '17 marks 17 rows by 1 column'.

4. Drag and drop a **Minimu_Sale** Field into worksheet.

The screenshot shows the Tableau desktop interface with a data visualization titled "Sheet 1". The visualization displays a list of Product Sub-Categories and their corresponding sales values. The data is presented in a table format with the following rows:

Product Sub-Category	Sales
Appliances	15.7
Binders and Binder Acces..	3.2
Bookcases	71.6
Chairs & Chairmats	55.2
Computer Peripherals	9.7
Copiers and Fax	614.1
Envelopes	8.3
Labels	3.9
Office Furnishings	7.2
Office Machines	24.5
Paper	5.7
Pens & Art Supplies	3.4
Rubber Bands	2.2
Scissors, Rulers and Trim..	5.0
Storage & Organization	18.2
Tables	17.4
Telephones and Communi..	31.1

The visualization is built using the "Sample - Superstore Sales" data source. The "Rows" shelf contains the "Product Sub-Category" field. The "Marks" shelf is set to "Automatic" and includes fields for "Color", "Size", and "Text". A red arrow points from the "Minimum_Sale" field in the Marks shelf to the "Add(Minimum...)" button.

5. After click on the calculated field, open the pop-up window , apply the Max_Aggregation function on Sales field and submit the Apply and ok button.

The screenshot shows the Tableau Data Editor interface. A context menu is open over a calculated field named "Max_Sale". The menu is titled "Aggregate" and lists various aggregation functions: COLLECT, CORR, COUNT, COUNTD, COVAR, COVARP, EXCLUDE, FIXED, INCLUDE, MAX, and MEDIAN. The "MAX" option is selected. The calculated field definition is shown as "MAX ([Sales])". Below the field list, a message says "The calculation is valid." with "Apply" and "OK" buttons. In the bottom right corner of the dialog, there is a "Describe..." button. The status bar at the bottom indicates "17 marks 17 rows by 1 column SUM of AGG(Minimum_Sale): 896.4".

6. Drag and drop a **Minimum_Sale** Field into worksheet.

The screenshot shows the Tableau desktop interface with a data visualization titled "Sheet 1". The visualization displays a list of Product Sub-Categories and their corresponding Minimum_Sale values. A red arrow points from the "Minimum_Sale" field in the Data pane to the "Marks" shelf, indicating the action of dragging it into the worksheet.

Product Sub-Categories and Minimum Sales:

Product Sub-Category	Minimum Sale
Appliances	15.7
Binders and Binder Acces..	3.2
Bookcases	71.6
Chairs & Chairmats	55.2
Computer Peripherals	9.7
Copiers and Fax	6.1
Envelopes	8.3
Labels	3.9
Office Furnishings	7.2
Office Machines	5.7
Paper	3.4
Pens & Art Supplies	2.2
Rubber Bands	5.0
Scissors, Rulers and Trim...	18.2
Storage & Organization	17.4
Tables	31.1
Telephones and Communi...	

7. After Maximum_sales drag into worksheet,

Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics < Sample - Superstore Sales

Search Standard

Show Me

Tables

Order Priority
Product Category
Product Container
Product Name
Product Sub-Category
Province
Region
Row ID
Ship Date
Ship Mode
Measure Names
Discount
Maximum_Sale
Minimum_Sale
Order Quantity
Product Base Margin
Profit
Sales
Shipping Cost
Unit Price
Latitude (generated)
Longitude (generated)
Orders (Count)

Pages

Measure Names
Product Sub-Category

Filters

Measure Names

Marks

Measure Values

Sheet 1

Product Sub-Category	Maximum_Sale	Minimum_Sale
Appliances	16,002	16
Binders and Binder Acces..	25,410	3
Bookcases	29,345	72
Chairs & Chairmats	24,701	55
Computer Peripherals	12,859	10
Copiers and Fax	33,368	614
Envelopes	7,523	8
Labels	2,905	4
Office Furnishings	12,636	7
Office Machines	89,061	25
Paper	3,677	6
Pens & Art Supplies	2,072	3
Rubber Bands	339	2
Scissors, Rulers and Trim..	23,516	5
Storage & Organization	21,337	18
Tables	26,623	17
Telephones and Communi..	8,558	31

Data Source Sheet 1

34 marks 17 rows by 2 columns SUM of Measure Values: 340,829

26°C ENG 10:47 AM IN 11/2/2023

8. After clicking on the calculated field, open the pop-up window , apply the Average_Aggregation function on Sales field and submit the Apply and ok button.

The screenshot shows the Tableau Data Editor interface. A modal dialog box is open, prompting the user to define an aggregation for the calculated field 'average_Sale'. The dialog has the following fields:

- Aggregate dropdown set to "Sales".
- Function dropdown set to "avg".
- Data type: Float.

The main workspace shows a table with two rows:

Tables	26,623	17
Telephones and Communi..	8,558	31

The status bar at the bottom indicates: 34 marks, 17 rows by 2 columns, SUM of Measure Values: 340,829.

9. Drag and drop a **Average_Sale** Field into worksheet.

The screenshot shows the Tableau Data Editor interface. On the left, the 'Tables' pane lists various dimensions and measures. The 'Measure Names' section is expanded, showing 'Average_Sale' highlighted with a green border. A red arrow points from this highlighted field to the 'Average_Sale' column in the main data table. The data table, titled 'Sheet 1', contains four columns: 'Product Sub-Category', 'Average_Sale', 'Maximum_Sale', and 'Minimum_Sale'. The 'Average_Sale' column includes a header row with values 1,698, 1,118, 4,353, etc., and a summary row with AGG(Average_Sale) showing a value of 1,051. The 'Maximum_Sale' and 'Minimum_Sale' columns also have summary rows at the bottom. The 'Rows' shelf at the top is set to 'Product Sub-Category'. The 'Marks' shelf on the right shows 'Automatic' selected, with 'Color', 'Size', and 'Text' options available. The status bar at the bottom indicates 51 marks, 17 rows by 3 columns, and a sum of 385,389.

Product Sub-Category	Average_Sale	Maximum_Sale	Minimum_Sale
Appliances	1,698	16,002	16
Binders and Binder Acces..	1,118	25,410	3
Bookcases	4,353	29,345	72
Chairs & Chairmats	4,564	24,701	55
Computer Peripherals	1,051	12,859	10
Copiers and Fax	12,993	33,368	614
Envelopes	709	7,523	8
Labels	135	2,905	4
Office Furnishings	886	12,636	7
Office Machines	6,422	89,061	25
Paper	364	3,677	6
Pens & Art Supplies	264	2,072	3
Rubber Bands	84	339	2
Scissors, Rulers and Trim..	562	23,516	5
Storage & Organization	1,963	21,337	18
Tables	5,253	26,623	17
Telephones and Communi..	2,140	8,558	31

8. After click on the calculated field, open the pop-up window, apply the SUM_Aggregation function on Sales field and submit the Apply and ok button.

The screenshot shows the Tableau desktop application interface. A context menu is open over a calculated field named "Total_Sale". The menu is titled "Sales" and contains the option "SUM". The "Data type" is listed as "Float". At the bottom of the menu, there are "Apply" and "OK" buttons, with "OK" being highlighted in green. Below the menu, a preview pane displays a table with three rows:

Tables	5,253	26,623	17
AGG(Maximum_Sale)			
AGG(Minimum_Sale)	2,140	8,558	31

The status bar at the bottom of the screen shows "51 marks 17 rows by 3 columns SUM of Measure Values: 385,389".

9. Drag and drop a **Total_Sale** Field into worksheet.

The screenshot shows the Tableau Data Editor interface. On the left, the 'Tables' pane lists various dimensions and measures. A red arrow points from the 'Total_Sale' field in the 'Measure Values' section of the Marks shelf to the 'Total_Sale' column in the data grid. The data grid displays sales statistics by Product Sub-Category, including Average_Sale, Maximum_Sale, Minimum_Sale, and Total_Sale. The 'Total_Sale' column is highlighted with a red arrow. The bottom status bar shows '68 marks 17 rows by 4 columns SUM of Measure Values: 15,281,551'.

Product Sub-Category	Average_Sale	Maximum_Sale	Minimum_Sale	Total_Sale
Appliances	1,698	16,002	16	736,992
Binders and Binder Acces..	1,118	25,410	3	1,022,278
Bookcases	4,353	29,345	72	822,652
Chairs & Chairmats	4,564	24,701	55	1,761,837
Computer Peripherals	1,051	12,859	10	794,724
Copiers and Fax	12,993	33,368	614	1,130,361
Envelopes	709	7,523	8	173,648
Labels	135	2,905	4	38,982
Office Furnishings	886	12,636	7	698,094
Office Machines	6,122	89,061	25	2,157,657
Paper	364	3,677	6	445,582
Pens & Art Supplies	264	2,072	3	167,107
Rubber Bands	84	339	2	15,007
Cissors, Rulers and Trim..	562	23,516	5	80,996
Storage & Organization	1,963	21,337	18	1,069,908
Tables	5,253	26,623	17	1,891,025
Telephones and Communi..	2,140	8,558	31	1,889,314

10. Final output

Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics < Pages Columns Measure Names

Sample - Superstore Sales Rows Product Sub-Category

Search

Tables

- Product Sub-Category
- Province
- Region
- Row ID
- Ship Date
- Ship Mode
- Measure Names
- Average_Sale
- Discount
- Maximum_Sale
- Minimum_Sale
- Order Quantity
- Product Base Margin
- Profit
- Sales
- Shipping Cost
- Total_Sale
- Unit Price
- Latitude (generated)
- Longitude (generated)
- Orders (Count)
- Measure Values

Filters Measure Names

Marks Automatic

- Color
- Size
- Text
- Detail
- Tooltip

Measure Values

- AGG(Average_Sale)
- AGG(Maximum_Sale)
- AGG(Minimum_Sale)
- AGG(Total_Sale)

Product Sub-Category Average_Sale Maximum_Sale Minimum_Sale Total_Sale

Product Sub-Category	Average_Sale	Maximum_Sale	Minimum_Sale	Total_Sale
Appliances	1,698	16,002	16	736,992
Binders and Binder Acces..	1,118	25,410	3	1,022,278
Bookcases	4,353	29,345	72	822,652
Chairs & Chairmats	4,564	24,701	55	1,761,837
Computer Peripherals	1,051	12,859	10	794,724
Copiers and Fax	12,993	33,368	614	1,130,361
Envelopes	709	7,523	8	173,648
Labels	135	2,905	4	38,982
Office Furnishings	886	12,636	7	698,094
Office Machines	6,422	89,061	25	2,157,657
Paper	364	3,677	6	445,582
Pens & Art Supplies	264	2,072	3	167,107
Rubber Bands	84	339	2	15,007
Scissors, Rulers and Trim..	562	23,516	5	80,996
Storage & Organization	1,963	21,337	18	1,069,908
Tables	5,253	26,623	17	1,891,025
Telephones and Communi..	2,140	8,558	31	1,889,314

Apply the Aggregate functions on Sales field

Data Source Sheet 1

68 marks 17 rows by 4 columns SUM of Measure Values: 15,281,551

Type here to search

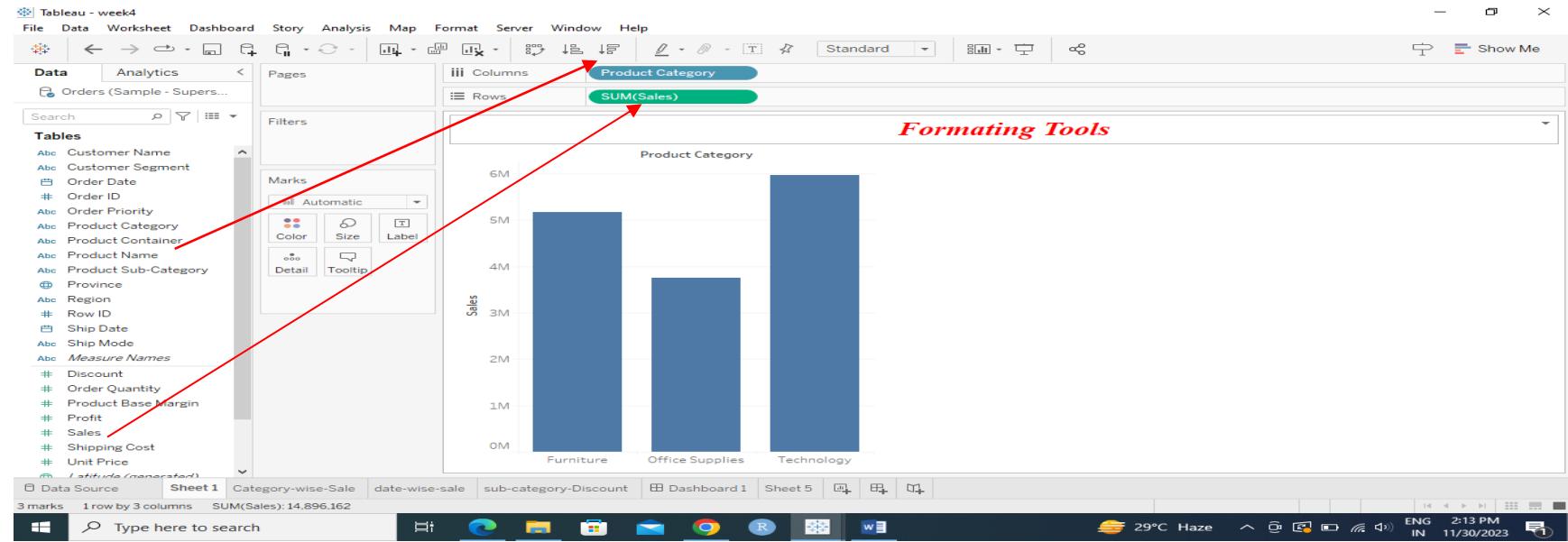
Windows Start Task View File Home Insert Data View Analysis Window Help

27°C ENG 11:47 AM IN 11/2/2023

WEEK-4

4. Applying new data calculations to your visualizations, Formatting Visualizations, Formatting Tools and Menus, Formatting specific parts of the view.

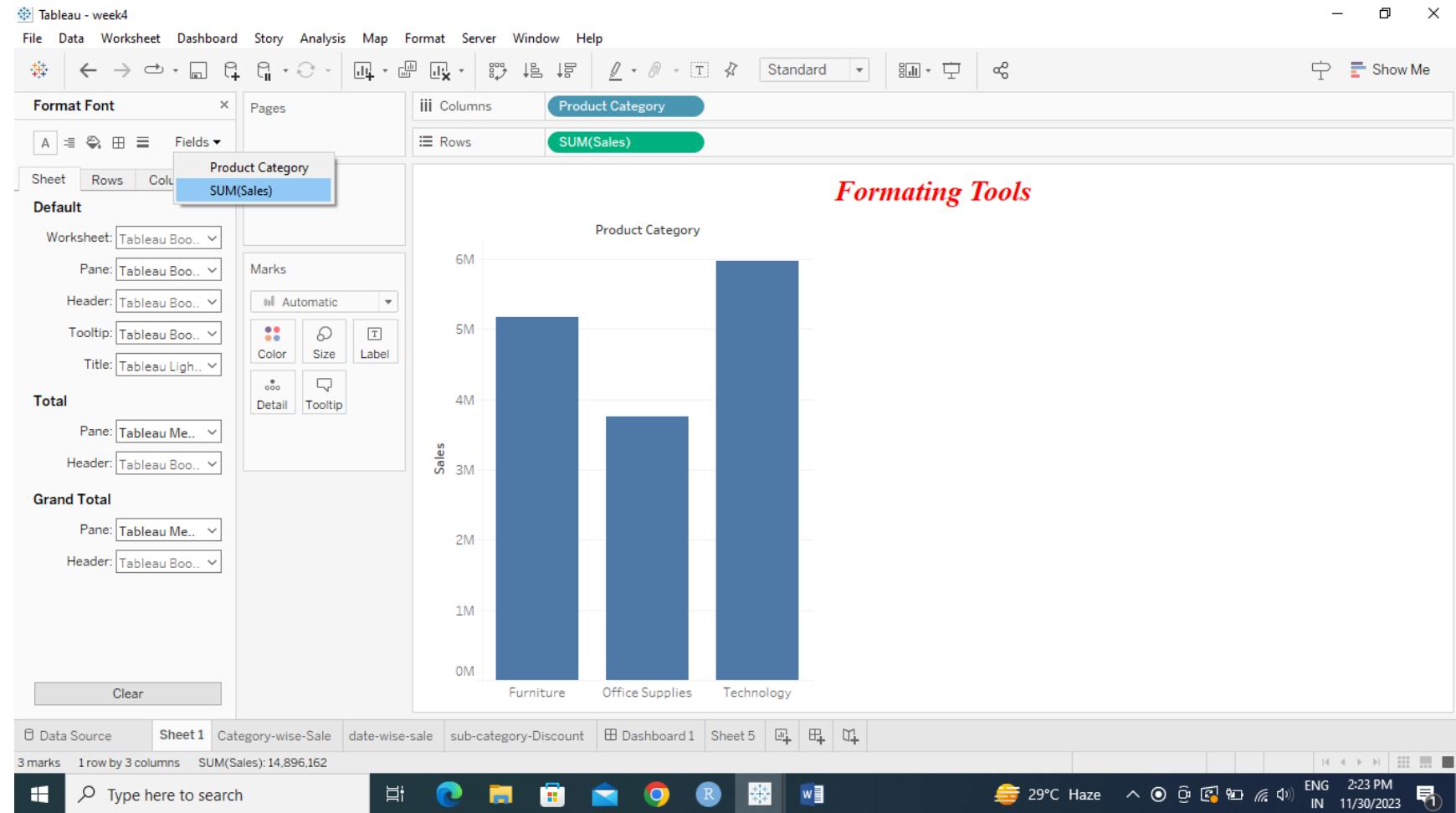
1. Drag and drop a **categorical field** (e.g., product category) to columns shelf, **numeral field** (e.g., sales) into the Rows shelf and create bar chart.



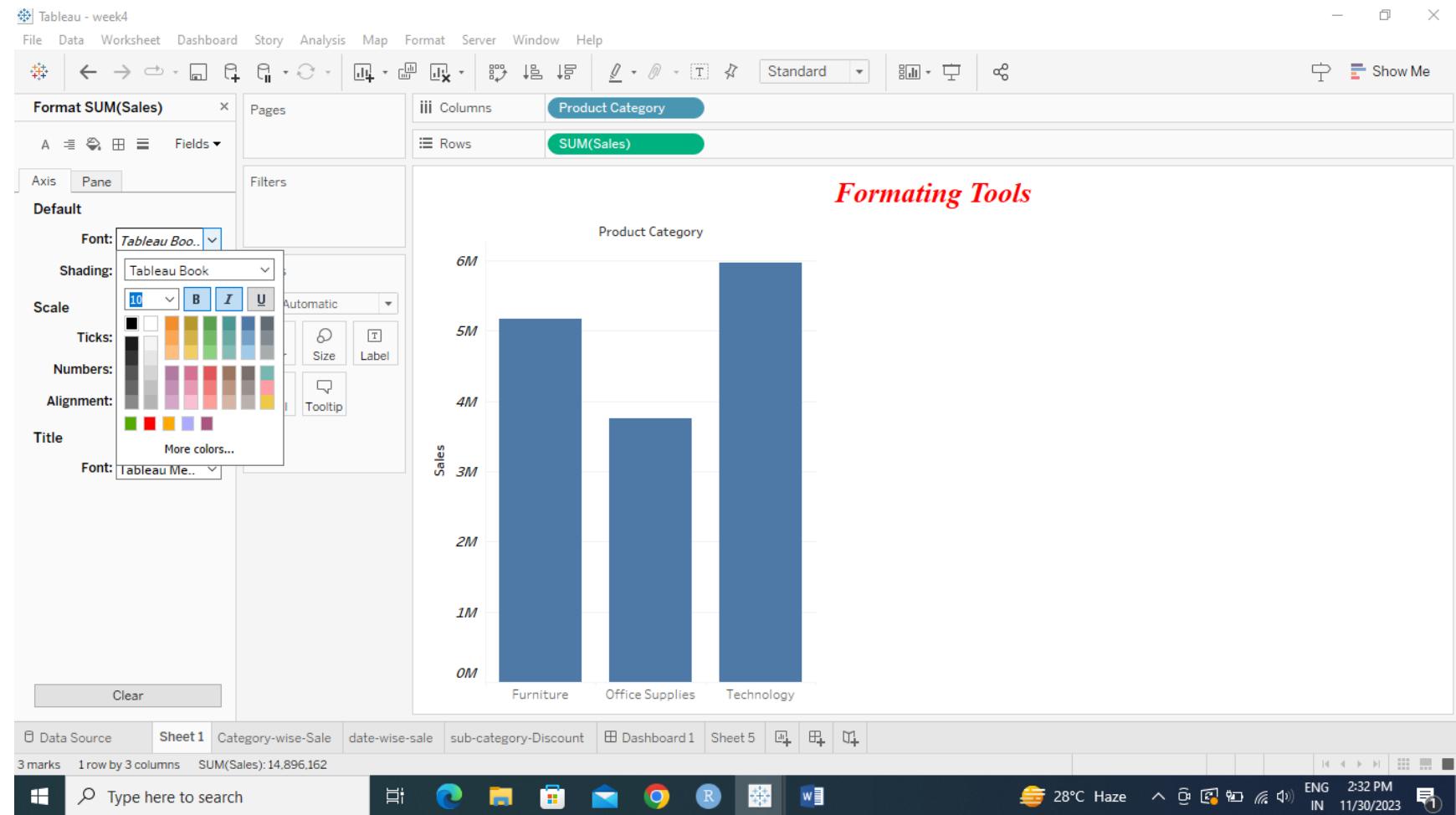
2. Select format option in tool menu and click font

The screenshot shows the Tableau interface with the 'Format' menu open. The 'Font...' option is highlighted in blue, indicating it is selected. The main workspace displays a bar chart titled 'Product Category' with three bars: Furniture (blue), Office Supplies (white), and Technology (dark blue). The chart has a legend below it. The top navigation bar includes 'File', 'Data', 'Worksheet', 'Dashboard', 'Story', 'Analysis', 'Map', 'Format', 'Server', 'Window', and 'Help'. The left sidebar shows 'Tables' and 'Filters'. The bottom navigation bar includes 'Data Source', 'Sheet 1', 'Category-wise-Sale', 'date-wise-sale', 'sub-category-Discount', 'Dashboard 1', 'Sheet 5', and various icons. A watermark 'Formatting Tools' is overlaid in red text on the right side of the chart area.

3. After click format font option, show the figure below and select SUM (sales) in Format Font.



4. Select Font style , Font size and font color.



5.Click the shading option and pick-up the color for the y-axis.

Formating Tools

The screenshot shows the Tableau desktop application. In the center is a bar chart titled "Product Category" with three bars representing "Furniture", "Office Supplies", and "Technology". The Y-axis is labeled "Sales" and has major ticks at 1M, 2M, 3M, 4M, 5M, and 6M. The bars are blue. A floating callout box labeled "Formatting Tools" points to the "Shading" dropdown in the "Format" pane on the left, which is currently set to orange. The "Format" pane also includes sections for "Default", "Scale", and "Title". The status bar at the bottom shows "3 marks 1 row by 3 columns SUM(Sales): 14.896.162".

Tableau - week4

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Format SUM(Sales)

Pages Columns Product Category

Rows SUM(Sales)

A Fields Axis Pane

Default

Font: Tableau Boo..

Shading: Orange

Scale

Ticks:

Numbers:

Alignment:

Marks

Automatic

Size

Label

Tooltip

More colors...

Title

Font: Tableau Me..

Clear

Data Source Sheet1 Category-wise-Sale date-wise-sale sub-category-Discount Dashboard1 Sheet 5

3 marks 1 row by 3 columns SUM(Sales): 14.896.162

Type here to search

28°C Haze ENG 2:37 PM IN 11/30/2023

6. Select Ticks color and select the number standard in number format.

Formating Tools

The screenshot shows the Tableau desktop interface with a bar chart titled "Product Category". The chart has three bars representing different categories: Furniture, Office Supplies, and Technology. The Furniture bar is orange and labeled "6,000,000". The Office Supplies bar is blue and labeled "5,000,000". The Technology bar is blue and labeled "0". The chart is set against a light gray background with horizontal grid lines. In the top-left corner, there is a "Format" dialog box for the "SUM(Sales)" field. The dialog includes sections for "Default", "Scale", and "Title". Under "Scale", the "Number" dropdown is set to "Number (Standard)". The "Font" dropdown is set to "Tableau Boo..". The "Shading" dropdown shows a yellow gradient. The "Ticks" dropdown is set to "Red". The "Numbers" dropdown shows the value "123,456". The "Alignment" dropdown is set to "Automatic". The "Title" section shows a list of options: Automatic, Number (Standard), Number (Custom), Currency (Standard), Currency (Custom), Scientific, Percentage, and Custom. The "Font" section also lists these options. At the bottom of the dialog, there is a "Clear" button. The status bar at the bottom of the screen shows "Data Source: Sheet1", "3 marks", "1 row by 3 columns", "SUM(Sales): 14,896,162.38", and system information like "28°C Haze" and "ENG 2:40 PM IN 11/30/2023".

Product Category

Product Category	SUM(Sales)
Furniture	6,000,000
Office Supplies	5,000,000
Technology	0

Format SUM(Sales)

Pages Columns Product Category

Rows SUM(Sales)

A Fields Axis Pane

Default

Font: Tableau Boo..

Shading:

Scale

Ticks: Red

Numbers: 123,456

Alignment: Automatic

Title

Font:

Number (Standard)

Number (Custom)

Currency (Standard)

Currency (Custom)

Scientific

Percentage

Custom

Clear

Data Source: Sheet1 Category-wise-Sale date-wise-sale sub-category-Discount Dashboard1 Sheet 5

3 marks 1 row by 3 columns SUM(Sales): 14,896,162.38

Type here to search

28°C Haze ENG 2:40 PM IN 11/30/2023

7. Click the Alignment option and select the Up option

Tableau - week4

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Format SUM(Sales)

A Fields

Axis Pane

Default

Font: Tableau Boo..

Shading:

Scale

Ticks: 123,456

Numbers: 123,456

Alignment: Up

Title

Font: Up

Marks

Color Size Label

Detail Tooltip

Product Category

Sales

6,000,000

4,000,000

2,000,000

0

Furniture Office Supplies Technology

Formating Tools

Product Category

Clear

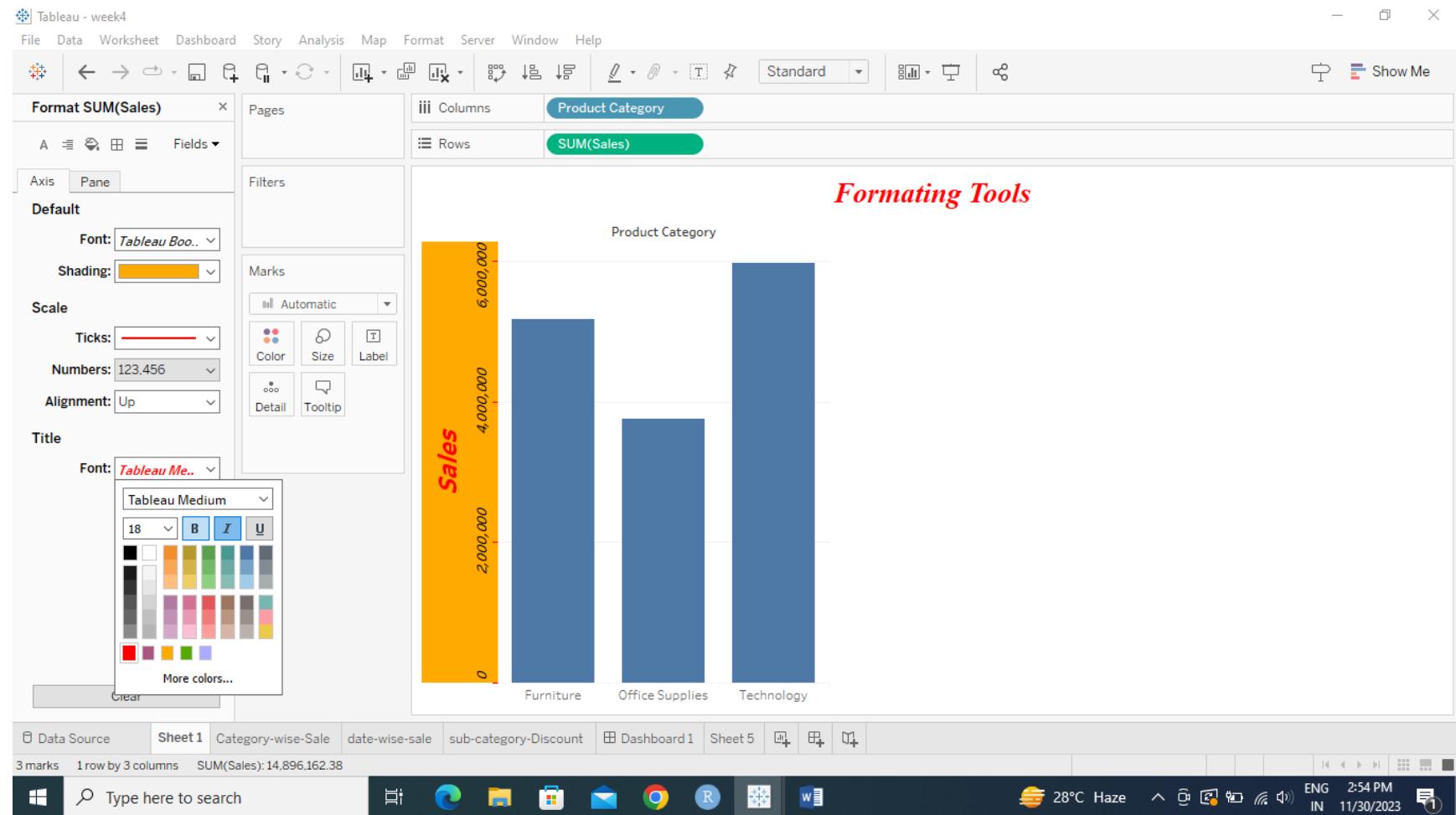
Data Source Sheet1 Category-wise-Sale date-wise-sale sub-category-Discount Dashboard1 Sheet 5

3 marks 1 row by 3 columns SUM(Sales): 14,896,162.38

28°C Haze ENG 2:44 PM IN 11/30/2023

Type here to search

8. Select the font style , font color and size in title of y-Ais



9. Select product Category from font format

Tableau - week4

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Format Product Category x Pages Columns Product Category

Rows SUM(Sales)

Header Pane • Product Category SUM(Sales)

Default

Font: Tableau Boo.. Alignment: Automatic Numbers: Shading:

Totals

Font: Tableau Boo.. Alignment: Automatic Label: Total

Grand Totals

Font: Tableau Boo.. Alignment: Automatic Label: Grand Total

Clear

Product Category

Sales

6,000,000
4,000,000
2,000,000
0

Furniture Office Supplies Technology

Formating Tools

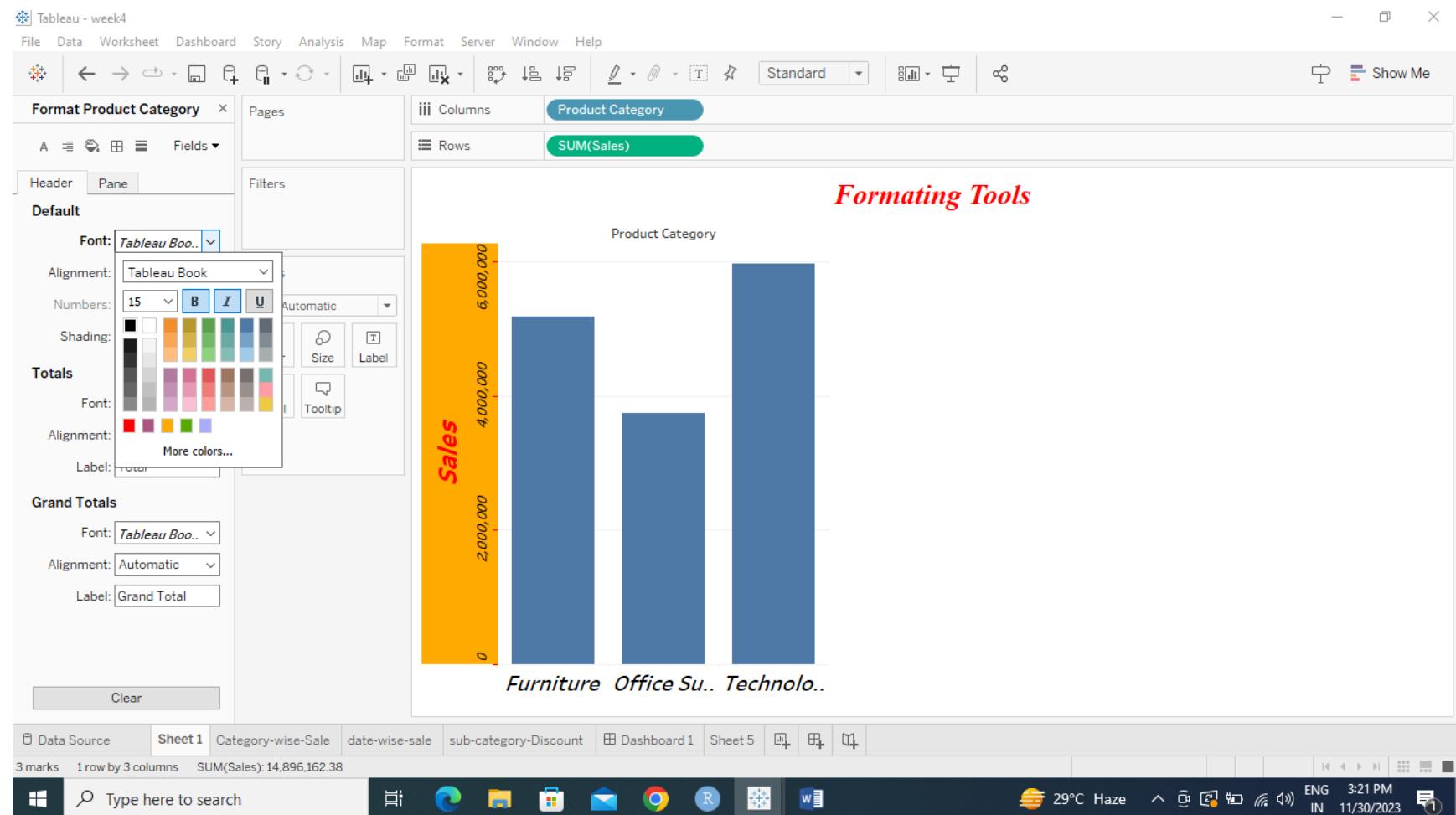
Data Source Sheet 1 Category-wise-Sale date-wise-sale sub-category-Discount Dashboard 1 Sheet 5

3 marks 1 row by 3 columns SUM(Sales): 14,896,162.38

Type here to search

29°C Haze ENG 3:08 PM IN 11/30/2023

10. Select the font style ,size and color of X-Axis



11. Select direction of text in X-Axis

Tableau - week4

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Format Product Category x

Pages Columns Product Category

Rows SUM(Sales)

Header Pane

Filters

Product Category

Formating Tools

Sales

Furniture Office Supplies Technology

Font: Tableau Boo.. Alignment: Custom

Numbers: Horizontal Direction: Automatic

Shading: Automatic

Totals Font: Tableau Boo.. Alignment: Custom

Vertical Wrap: Automatic

Label: Grand Total

Grand Totals Font: Tableau Boo.. Alignment: Custom

Label: Grand Total

Clear

Data Source Sheet1 Category-wise-Sale date-wise-sale sub-category-Discount Dashboard1 Sheet 5

3 marks 1 row by 3 columns SUM(Sales): 14,896,162.38

Type here to search

29°C Haze ENG 3:23 PM IN 11/30/2023

12. Pick-up the color from shading

Tableau - week4

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Format Product Category x

Pages Columns Product Category

Rows SUM(Sales)

Header Pane

Default

Font: Tableau Boo..

Alignment: Custom

Numbers:

Shading:

Totals

Font:

Alignment:

Label:

Grand Totals

Font: Tableau Boo..

Alignment: Custom

Label: Grand Total

Clear

Product Category

Formating Tools

Sales

Product Category

Furniture

Office Supplies

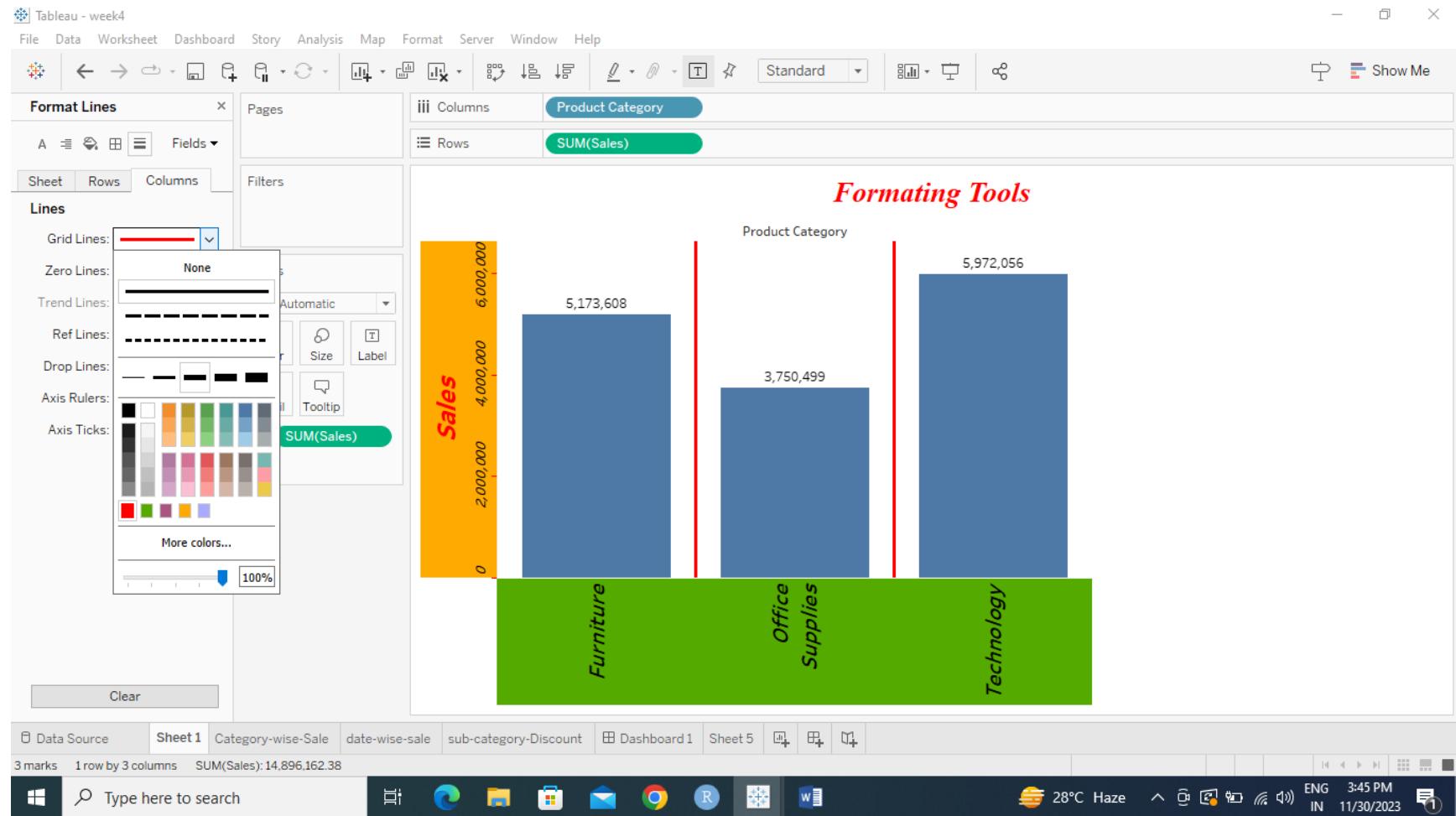
Technology

Data Source Sheet1 Category-wise-Sale date-wise-sale sub-category-Discount Dashboard1 Sheet 5

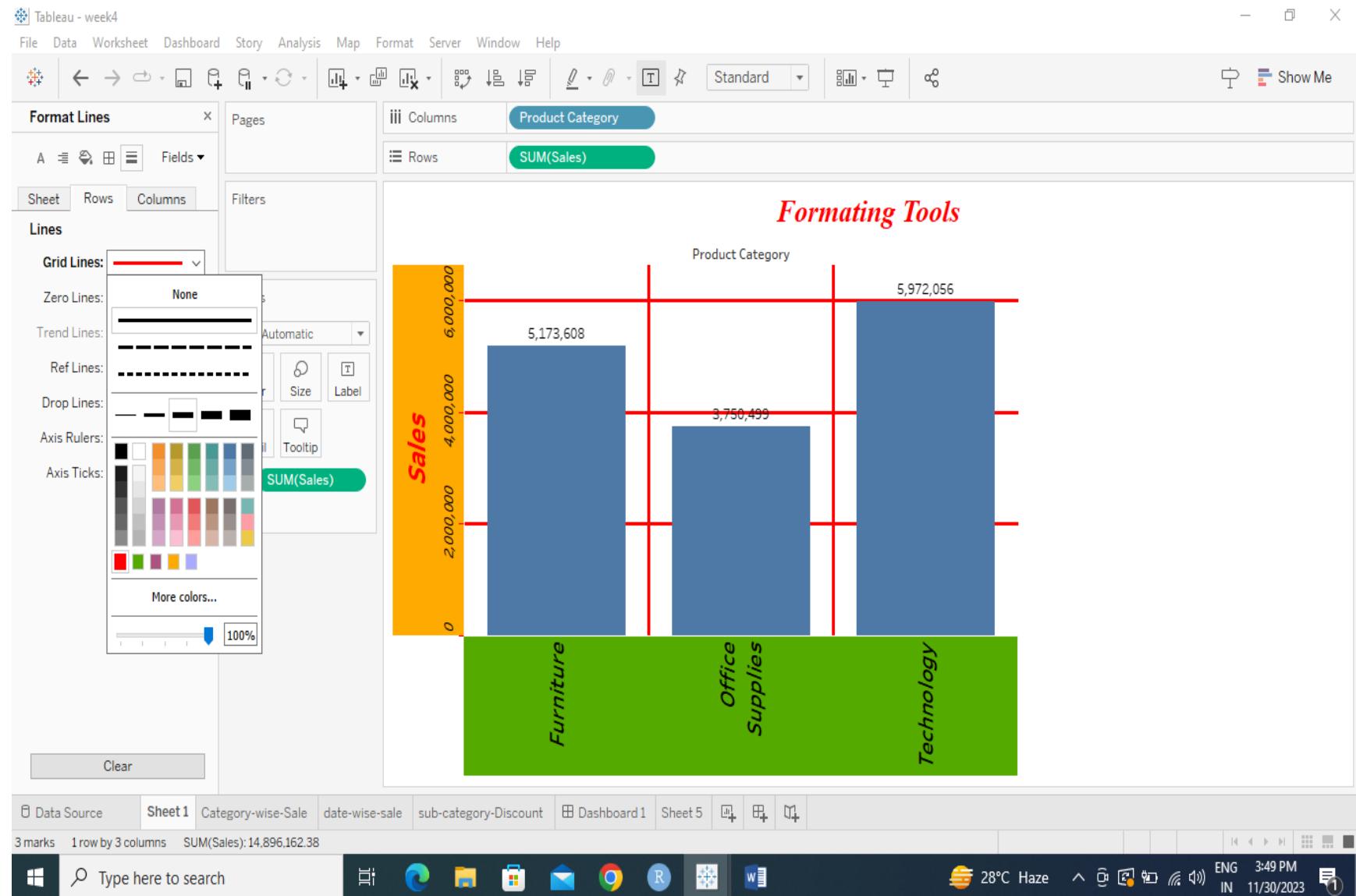
3 marks 1 row by 3 columns SUM(Sales): 14,896,162.38

Windows Taskbar: Type here to search, File Explorer, Mail, Google Chrome, Microsoft Edge, Task View, Taskbar settings, 29°C Haze, ENG IN 3:28 PM IN 11/30/2023

12. Click columns options from Format Lines and Select Grid Lines, color and Size



13. Click Rows options from Format Lines and Select Grid Lines, color and Size



14.Click the Format Shading and Select worksheet color

Tableau - week4

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Format Shading X

Pages Columns Product Category

Rows SUM(Sales)

Sheet Rows Columns Filters

Default

Worksheet: cyan

Pane: None

Header: black white light gray yellow light blue light green pink light purple light orange light red light brown light teal light gray black

Total

Pane: None

Header: black white light gray yellow light blue light green pink light purple light orange light red light brown light teal black

Grand Total

Pane: None

Header: None

Row Banding

Pane: None

Header: None

Band Size:

Level:

Clear

Formatting Tools

Product Category

Sales

6,000,000

5,173,608

3,750,493

5,972,056

Furniture

Office Supplies

Technology

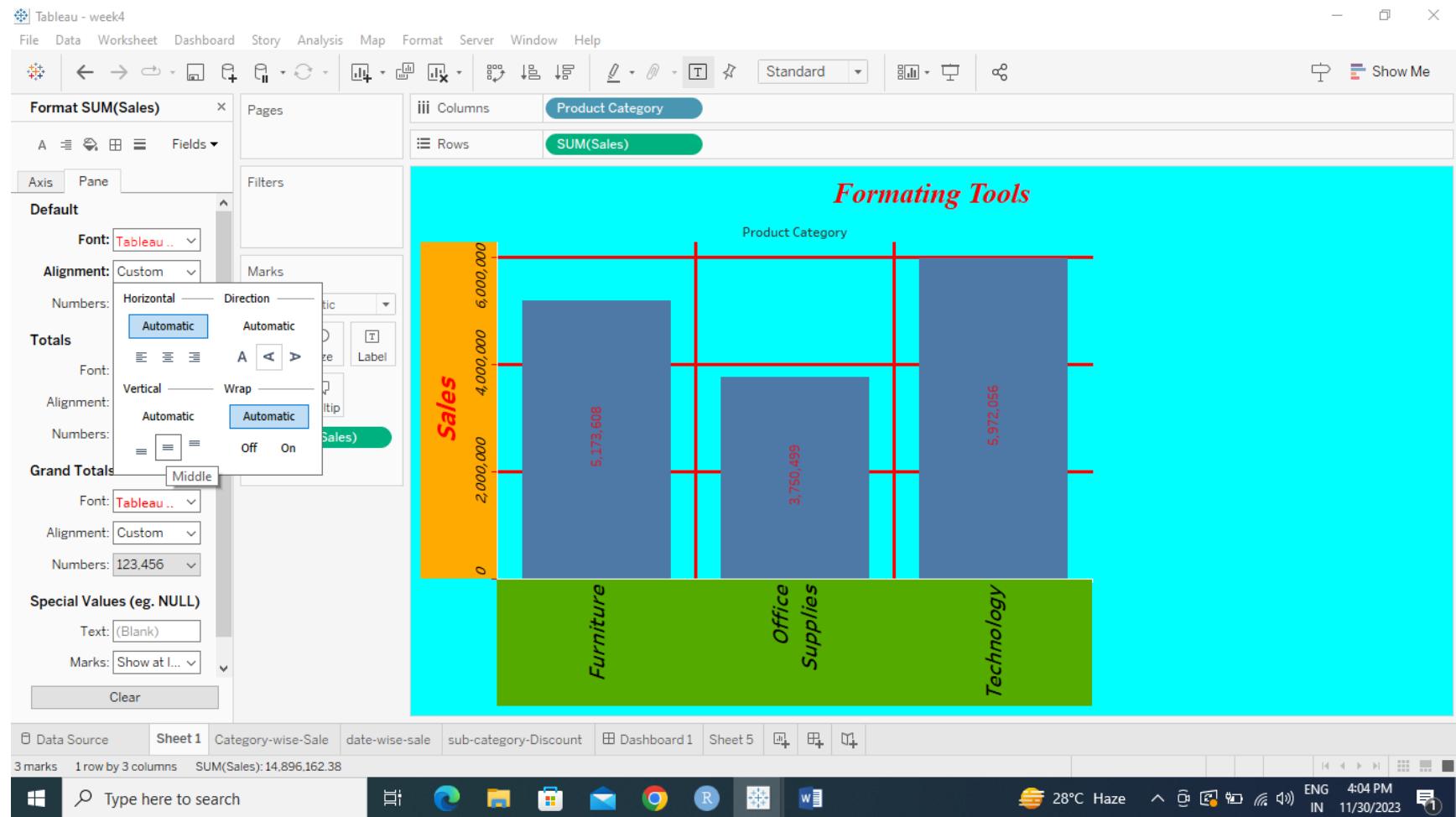
Data Source Sheet1 Category-wise-Sale date-wise-sale sub-category-Discount Dashboard1 Sheet 5

3 marks 1 row by 3 columns SUM(Sales): 14,896,162.38

Type here to search

28°C Haze ENG 3:53 PM IN 11/30/2023

15. Click the Alignment and keep the sales values in middle of bar chart



WEEK-5

5.Editing and Formatting Axes, Manipulating Data in Tableau data, Pivoting Tableau data.

Editing and Formatting Axes:

The screenshot shows the Tableau interface with a bar chart on the right. The chart has 'Region' on the vertical axis and 'Profit_Margin' on the horizontal axis. The bars represent different regions with their corresponding profit margins: Central (17.26), East (14.40), South (14.40), and West (-4.04). The 'Format' menu is open, and the 'Font...' option is highlighted with a red box and a cursor arrow pointing to it. A text label 'click' is placed near the cursor. The 'Format' menu also includes options like Alignment..., Shading..., Borders..., Lines..., Animations..., Reference Lines..., Drop Lines..., Annotations..., Title and Caption..., Field Labels..., Legends..., Filters..., Highlighters..., Parameters..., Cell Size, Workbook Theme, Copy Formatting, Paste Formatting, and Clear Worksheet Formatting.

Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map

Data Analytics < Orders (P6-SuperStoreU... Search

Tables

- City
- Country
- Customer ID
- Customer Name
- Customer Segment
- Order Date
- Order ID
- Order Priority
- Postal Code
- Product Category
- Product Container
- Product Name
- Product Sub-Category
- Region
- Row ID
- Ship Date
- Ship Mode
- State or Province
- Measure Names
- Discount
- Product Base Margin
- Profit
- Profit Margin
- Quantity ordered new
- Sales
- Shipping Cost
- Unit Price

Marks

- Automatic
- Color
- Detail

Font...

click

Dashboard... Story... Workbook... Font... Alignment... Shading... Borders... Lines... Animations... Reference Lines... Drop Lines... Annotations... Title and Caption... Field Labels... Legends... Filters... Highlighters... Parameters... Cell Size Workbook Theme Copy Formatting Paste Formatting Clear Worksheet Formatting

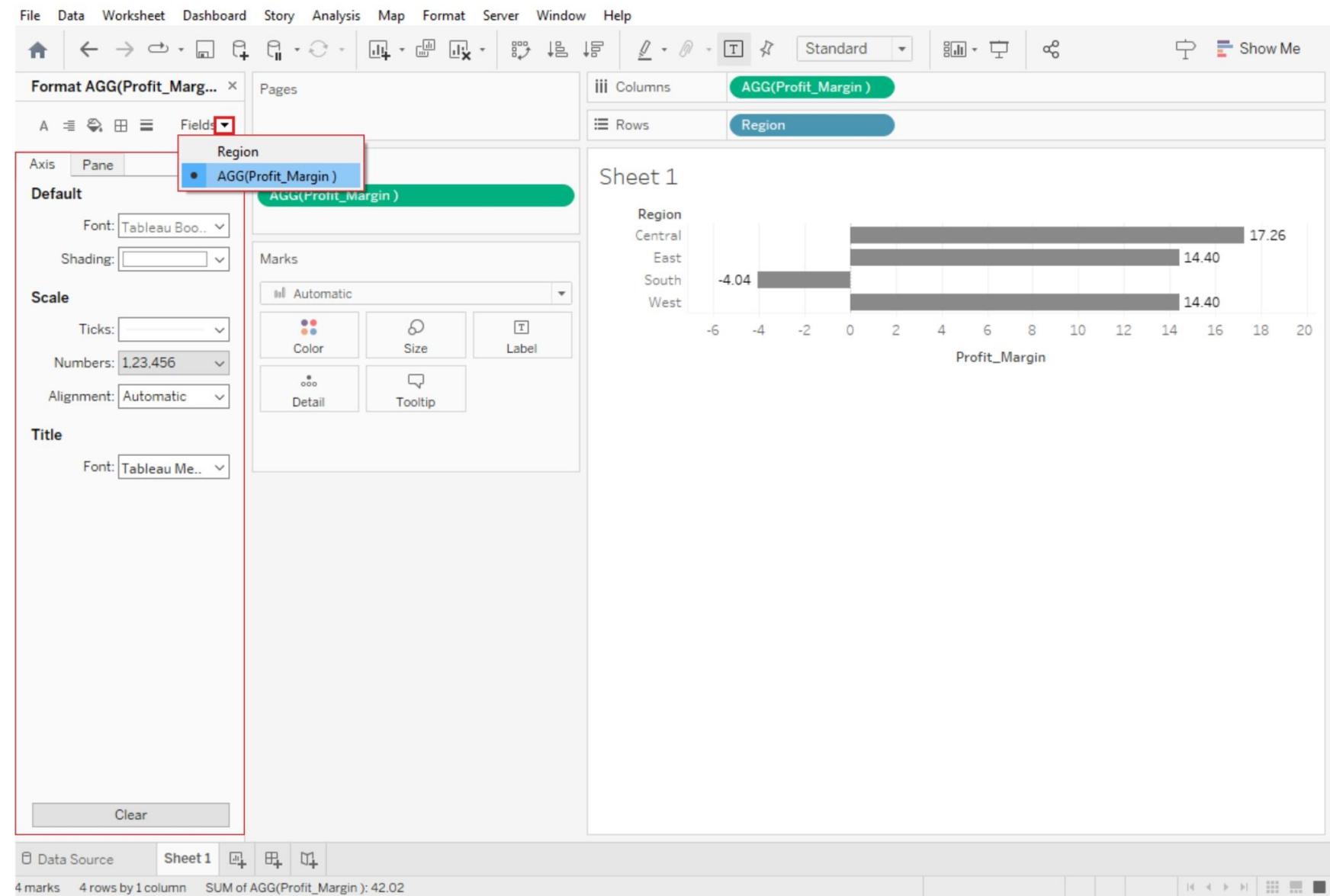
Regions

Central: 17.26
East: 14.40
South: 14.40
West: -4.04

Profit_Margin

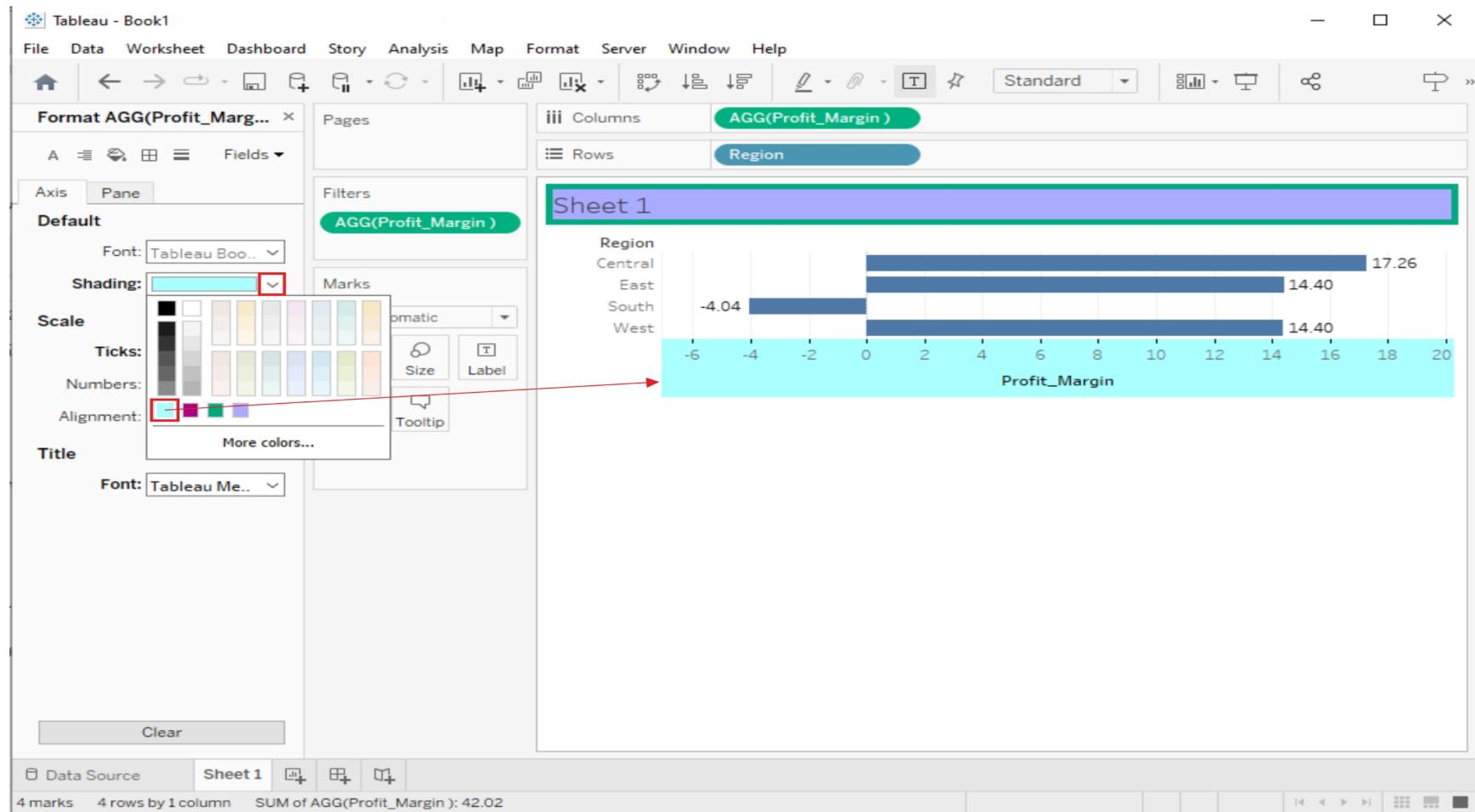
4 marks 4 rows by 1 column SUM of AGG(Profit_Margin): 42.02

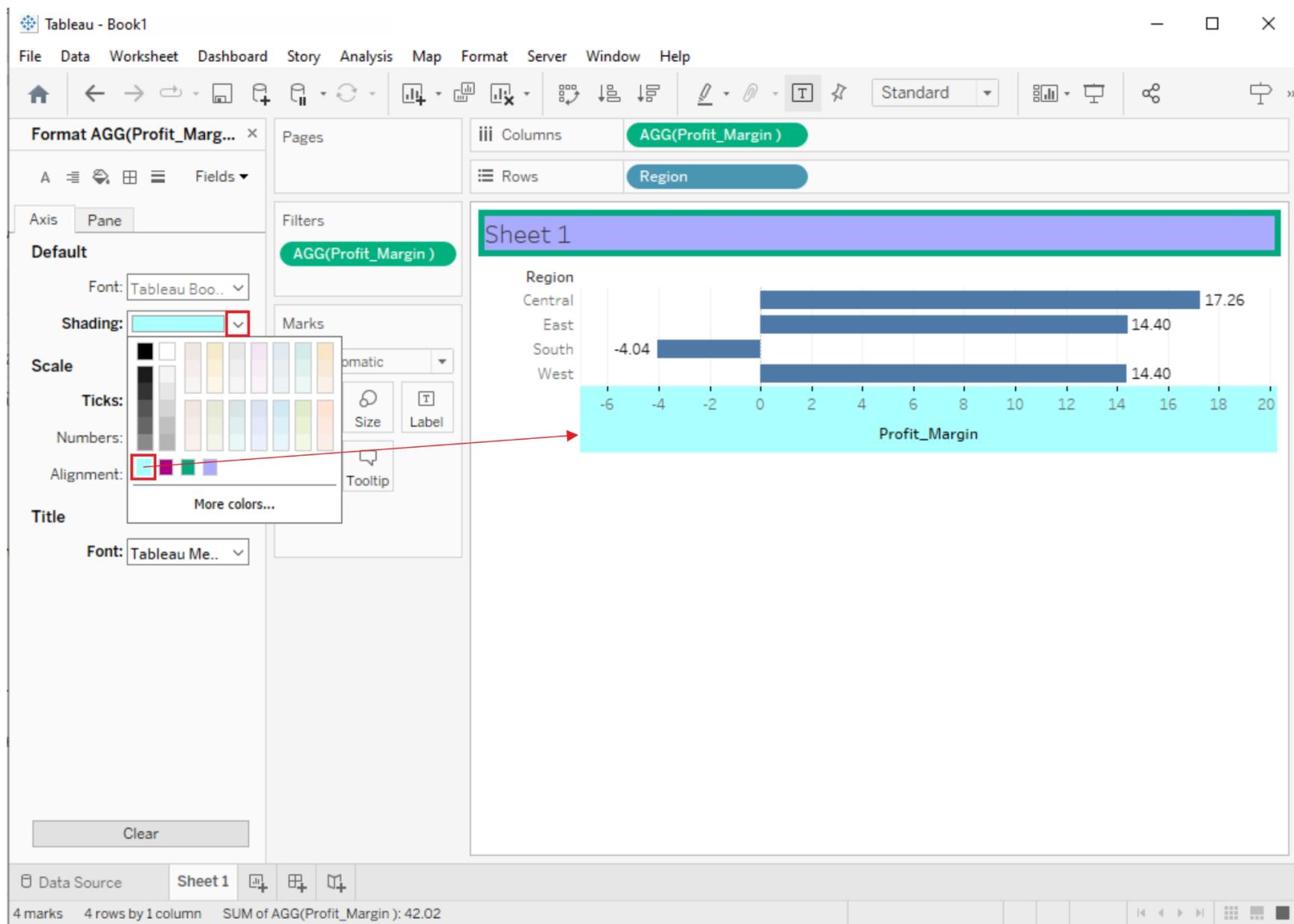
Tableau - Book1



1. Edit Axis Title:

- Click on the axis title you want to edit.
- You can now modify the title text, font, size, color, and alignment using the Format pane or the toolbar at the top.





2. Edit Axis Labels:

- Right-click on an axis and select "Edit Axis."
- In the Edit Axis dialog box, you can change the formatting of labels, tick marks, and other axis-related properties.

3. Scale and Range:

- To change the scale or range of an axis, right-click on it and select "Edit Axis."
- In the dialog box, adjust the Minimum and Maximum values, scale, or range according to your needs.

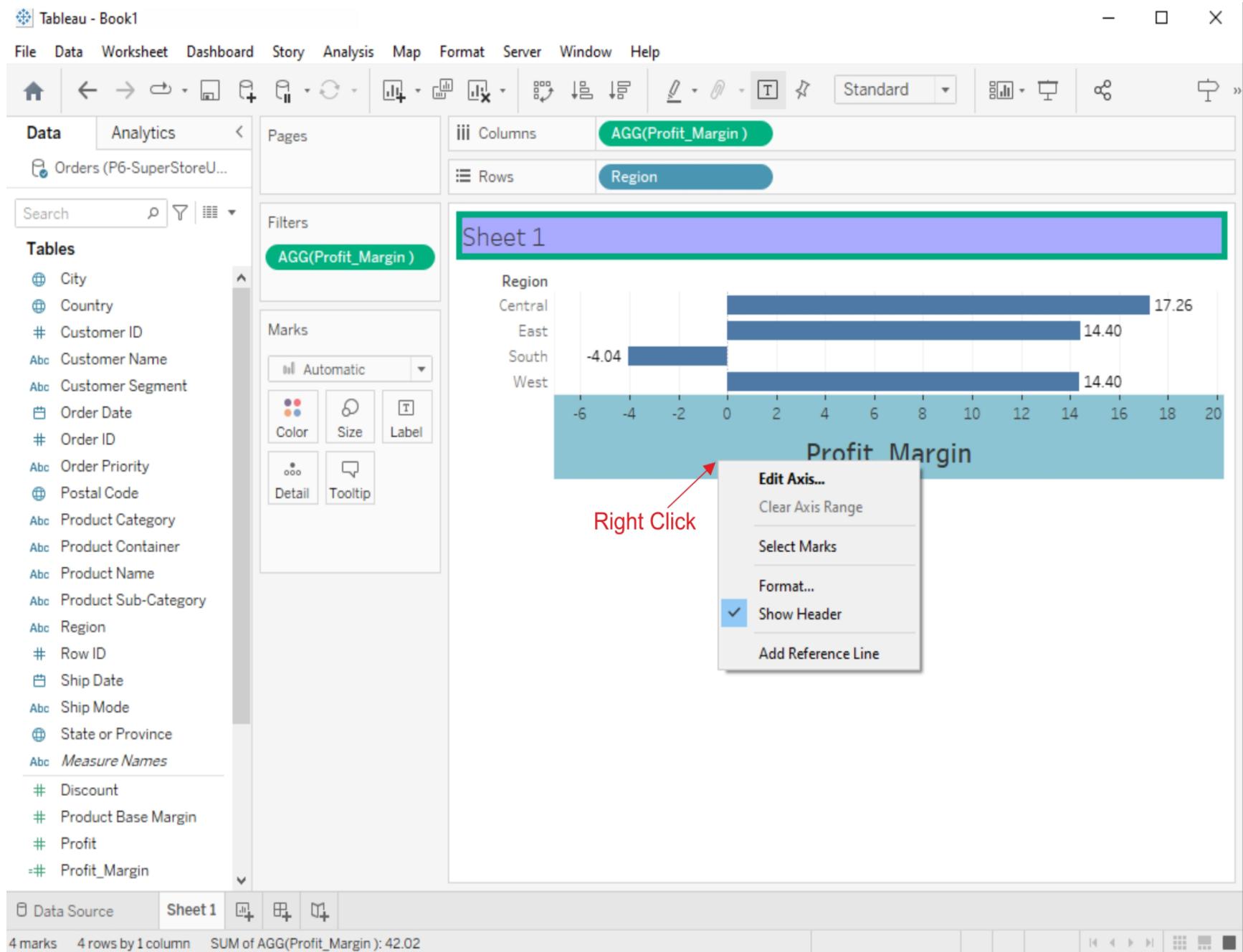


Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Format AGG(Profit_Margin)

Pages

General Tick Marks

Range

Automatic Include zero

Uniform axis range for all rows or columns

Independent axis ranges for each row or column

Custom

Marks

Automatic Automatic

-7.076319382 20.295268707

Scale

Reversed

Logarithmic

Positive Symmetric

Axis Titles

Title

Custom Profit_Margin

Subtitle

Subtitle Automatic

Clear

Reset

Data Source Sheet 1

4 marks 4 rows by 1 column SUM of AGG(Profit_Margin): 42.02

Margin

Margin
17.26
14.40
14.40
14.40

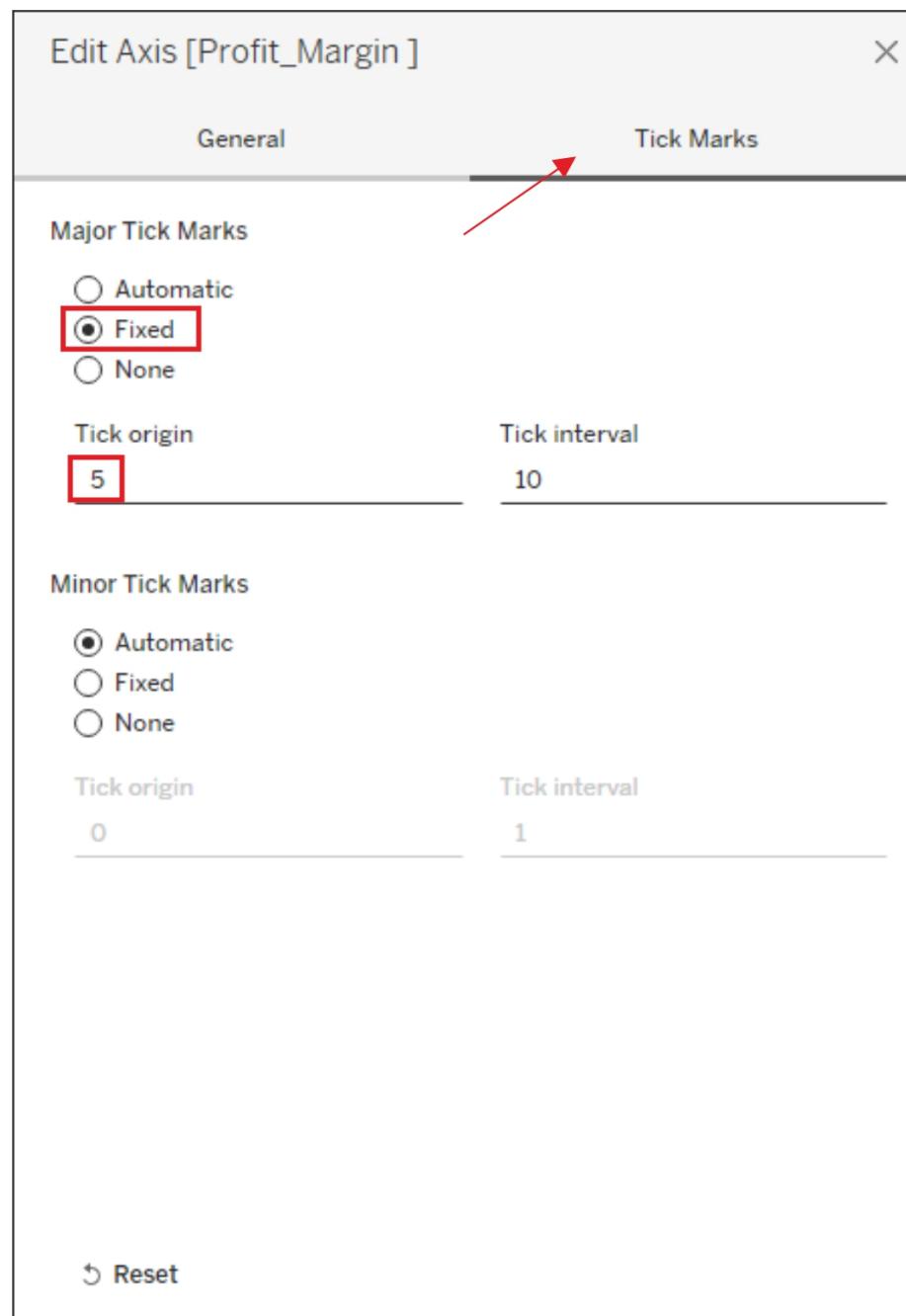
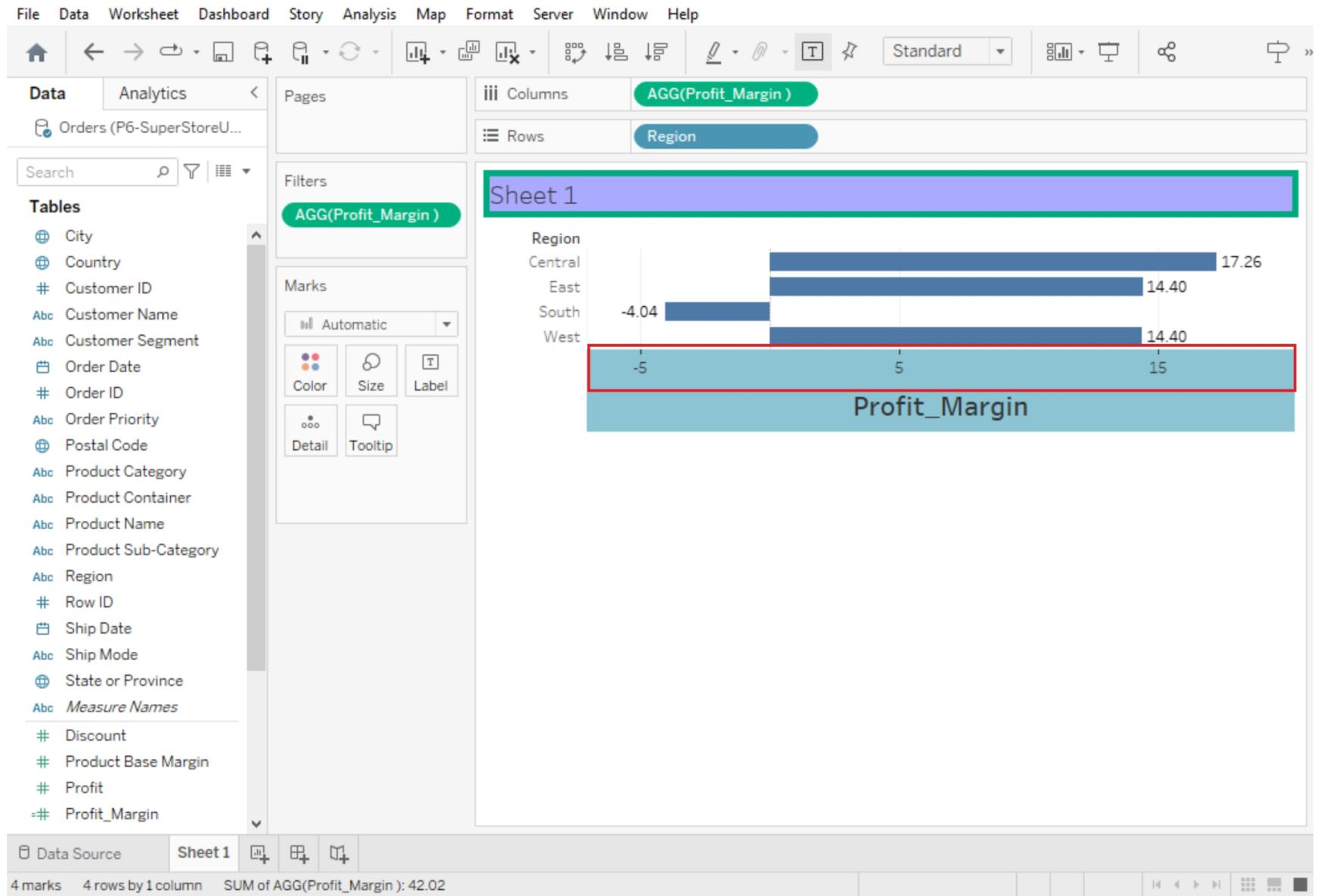


Tableau - Book1



Manipulating Data in Tableau data

Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics < Pages Columns AGG(Profit_Margin)

Orders (P6-SuperStoreU... Rows Region

Search Filters

Tables AGG(Profit_Margin)

- City
- Country
- Customer ID
- Customer Name
- Customer Segment
- Order Date
- Order ID
- Order Priority
- Postal Code
- Product Category
- Product Container
- Product Name
- Product Sub-Category
- Region
- Row ID
- Ship Date
- Ship Mode
- State or Province
- Measure Names
- Discount
- Product Base Margin
- Profit
- Profit Margin

Marks Automatic Color Size Label Detail Tooltip

Sheet 1

Region

Region	Profit Margin
Central	17.26
East	14.40
South	-4.04
West	14.40

Profit Margin

Data Source Sheet 1

4 marks 4 rows by 1 column SUM of AGG(Profit Margin): 42.02

The screenshot shows a Tableau interface with a bar chart titled 'Sheet 1'. The chart displays the 'Profit Margin' for four regions: Central, East, South, and West. The Central region has a profit margin of 17.26, the East region has 14.40, the South region has -4.04, and the West region has 14.40. The chart is set against a light blue background with a white grid. The Tableau interface includes a sidebar with tables and a marks shelf, and a bottom navigation bar.

Change Data Type

Note:-If Tableau has inferred a wrong data type for a column, the data type can be changed by clicking on the data type symbol in the column header

The screenshot shows the Tableau Data Source view for a connection named 'P6-SuperStoreUS-2015'. The 'Orders' sheet is selected. A context menu is open over the 'Discount' field in the 'Fields' list, with the 'Number (decimal)' option selected. Other options visible in the menu include 'Number (whole)', 'Date & Time', 'Date', 'String', and 'Boolean'. The main pane displays the 'Orders' table with 26 fields and 1952 rows.

Row ID	Name	Order Priority	Discount	Unit Price	Shipping Cost
495	Medium	0.090000	2.88	1.4900	
18495	Medium	0.090000	2.88	1.4900	
21103	Critical	0.090000	2.88	0.7000	
20847	High	0.010000	2.84	0.9300	
26241	Low	0.070000	2.12	1.9900	

New Column(Calculated Fields)

Calculated fields can be used if you need to create customized logic for manipulating certain data types or data values. There are a large-range of functions available in Tableau that can be used individually or collectively for data manipulation

The screenshot shows the Tableau Data Source interface for a connection named "P6-SuperStoreUS-2015". The main pane displays the "Orders" sheet with 26 fields and 1952 rows. A context menu is open over a specific cell in the "Row ID" column, listing options like Rename, Copy Values, Hide, Aliases..., Create Calculated Field..., Create Group..., Create Bins..., Pivot (select multiple fields), and Describe... (which is highlighted with a red box). The "Row ID" column header is also highlighted with a red box.

#	Row ID	Order Priority	Discount	Unit Price	Shipping Cost
8241	Low	0.070000	2.12	1.9900	
19314	Critical	0.050000	1.88	1.4900	
20698	Medium	0.060000	1.76	0.7000	
24319	Not Specified	0.020000	1.74	4.0800	
20632	High	0.020000	1.68	1.5700	



Connections Add

P6-SuperStoreUS-2015
Microsoft Excel

Sheets

 Use Data Interpreter
Data Interpreter might be able to clean your Microsoft Excel workbook. Orders
 Returns
 Users New Union New Table Extension

Orders (P6-SuperStoreUS-2015)

Connection
 Live
 ExtractFilters
0 | Add

Orders



Profit_Margin

$$(\text{SUM}([\text{Profit}]) / \text{SUM}([\text{Sales}]))) * 100$$

Orders

Name

Orders

The calculation is valid.

Apply

OK

#	Orders	Shipping Cost
8241	Low	0.070000
19314	Critical	0.050000
20698	Medium	0.060000
24319	Not Specified	0.020000
20632	High	0.020000

Data Source

Sheet 1



Tableau - Book1

File Data Server Window Help

Connections Add

P6-SuperStoreUS-2015 Microsoft Excel

Sheets

Use Data Interpreter
Data Interpreter might be able to clean your Microsoft Excel workbook.

Orders Returns Users

New Union New Table Extension

Orders (P6-SuperStoreUS-2015)

Connection Live Extract Filters 0 | Add

Orders

Need more data?
Drag tables here to relate them. [Learn more](#)

Orders 26 fields 1952 rows 100 rows

Total Code	Order Date	Ship Date	Profit	Quantity ordered new	Sales	Order ID	Profit Margin	
55372	12-05-2015	13-05...	-0.71		4	14.26	86838	-4.98
55372	12-05-2015	13-05...	-24.03		7	22.23	86838	-108.10
55372	12-05-2015	13-05...	-37.03		4	13.99	86838	-264.69
13210	12-02-2015	15-02...	2.63		6	18.80	86836	13.99
97030	15-06-2015	16-06...	24.31		18	53.10	89201	45.79
02129	22-06-2015	23-06...	-3.38		17	47.31	3397	-7.15
07644	22-06-2015	23-06...	-2.70		4	11.13	88205	-24.30
37918	15-01-2015	16-01...	-172.72		2	5.50	89520	-3,140.33

Data Source Sheet1

Pivoting Tableau data

Data pivoting enables you to rearrange the columns and rows in a report so you can view data from different perspectives

The screenshot shows the Tableau Data Source interface for a connection named 'P6-SuperStoreUS-2015'. The 'Orders' sheet is selected. A context menu is open over the 'Order Priority' column header, with the 'Pivot' option highlighted.

Table Details:

#	Row ID	Abc Orders	Order Priority	#	Shipping Cost	#	Customer ID	Abc Orders	Customer Name
20632	High			58	1.5700	24	Edna Thomas		
24319	Not Specified			74	4.0800	129	Kara Allison		
20698	Medium			76	0.7000	56	Randall Montgomery		
19314	Critical			88	1.4900	171	Christina Matthews		
26241	Low	0.070000		2.12	1.9900	115	Dwight M Carr		
8241	Low	0.070000		2.12	1.9900	117	Linda Weiss		
20847	High	0.010000		2.84	0.9300	3	Bonnie Potter		
495	Medium	0.090000		2.88	1.4900	102	Caroline Johnston		

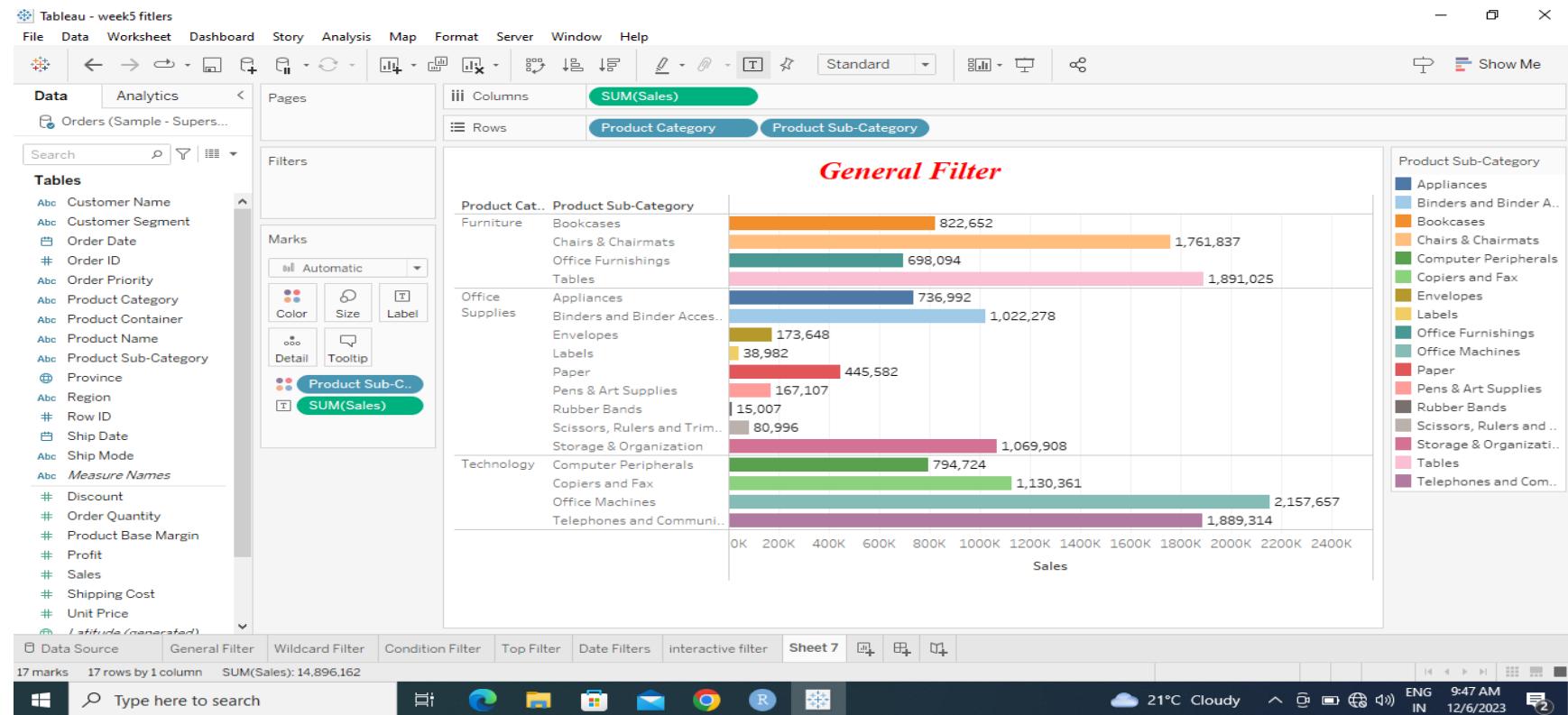
Context Menu (Open over Order Priority):

- Select required columns
- Need more data?
Drag tables here to relate them. [Learn more](#)
- Orders
- 26 fields 1952 rows
- 100 rows
- Table Details
- Row ID
- Abc Orders
- Order Priority
- Pivot (highlighted)
- Merge Mismatched Fields

WEEK-6

6. Structuring your data, Sorting and filtering Tableau data, Pivoting Tableau data.

1. Drag and drop a **categorical fields** (e.g., product category and product sub-category) to rows shelf, **numeral field** (e.g., sales) into the columns shelf and create bar chart and assign the color, label for each bar and Assign the title.



2. Drag and drop a Region field into Filter Card and after drop, automatically open a General filter window

The screenshot shows a Tableau interface with a 'Filter [Region]' dialog box overlaid on a bar chart. The 'Region' field has been dragged from the Data pane into the 'Filters' section of the Marks card.

Tableau - week5 filters

Data Analytics

Tables

- Customer Name
- Customer Segment
- Order Date
- Order ID
- Order Priority
- Product Category
- Product Container
- Product Name
- Product Sub-Category
- Province
- Region
- Row ID
- Ship Date
- Ship Mode
- Measure Names
- Discount
- Order Quantity
- Product Base Margin
- Profit
- Sales
- Shipping Cost
- Unit Price
- Latitude (generated)

Marks

- Automatic
- Color
- Size
- Label
- Detail
- Tooltip

Product Cat

Furniture

Office Supplies

Technology

Filter [Region]

General

Select from list Custom value list Use all

Enter search text

- Atlantic
- Northwest Territories
- Nunavut
- Ontario
- Prairie
- Quebec
- West
- Yukon

All None Exclude

Summary

Field: [Region]
Selection: Selected 0 of 8 values
Wildcard: All
Condition: None
Limit: None

Reset OK Cancel Apply

Product Sub-Category

- Appliances
- Binders and Binder A..
- Bookcases
- Chairs & Chairmats
- Computer Peripherals
- Copiers and Fax
- Envelopes
- Labels
- Office Furnishings
- Office Machines
- Paper
- Pens & Art Supplies
- Rubber Bands
- Scissors, Rulers and ..
- Storage & Organizati..
- Tables
- Telephones and Com..

1,761,837

1,891,025

2,157,657

1,889,314

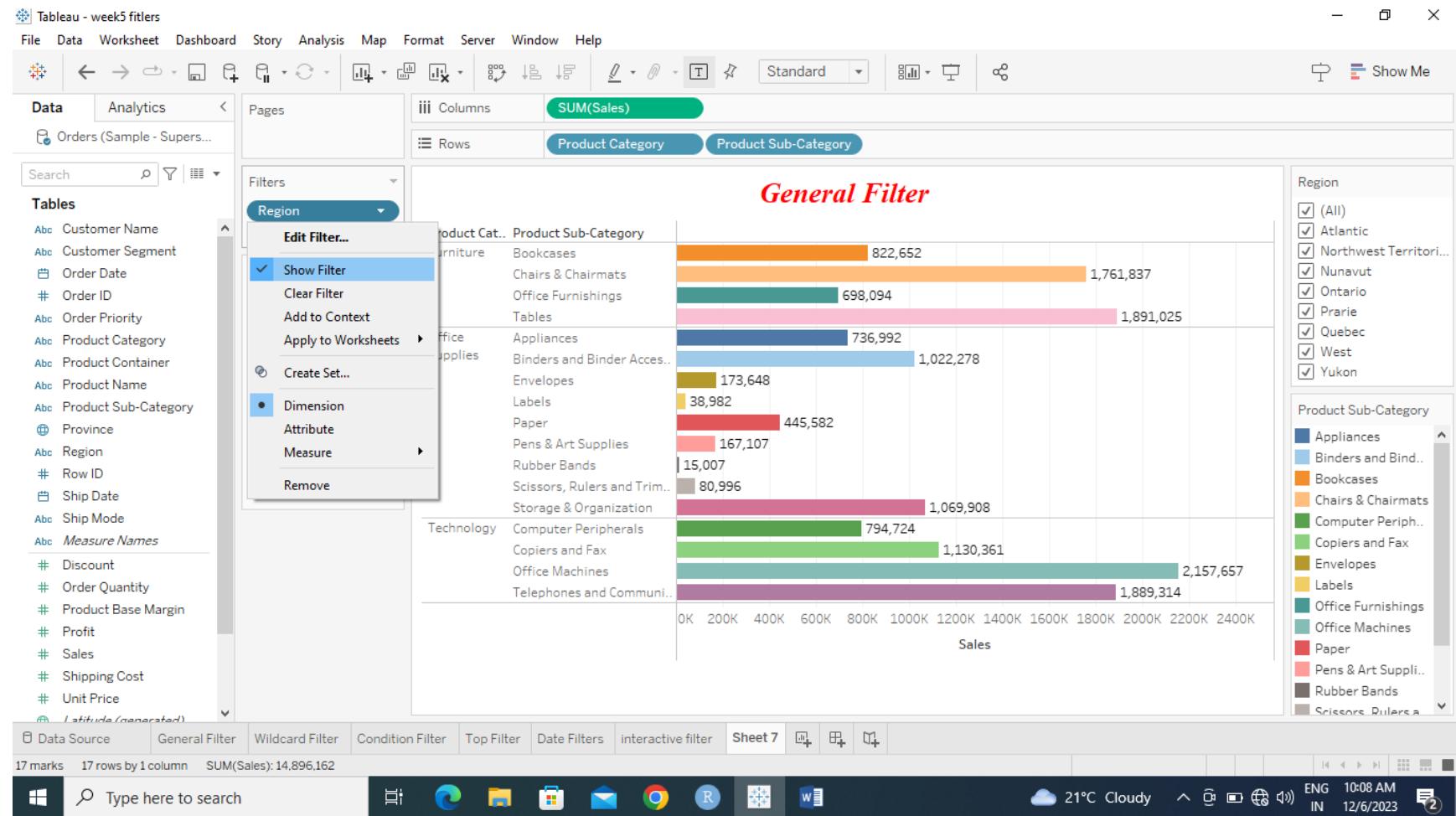
1400K 1600K 1800K 2000K 2200K 2400K

17 marks 17 rows by 1 column SUM(Sales): 14,896,162

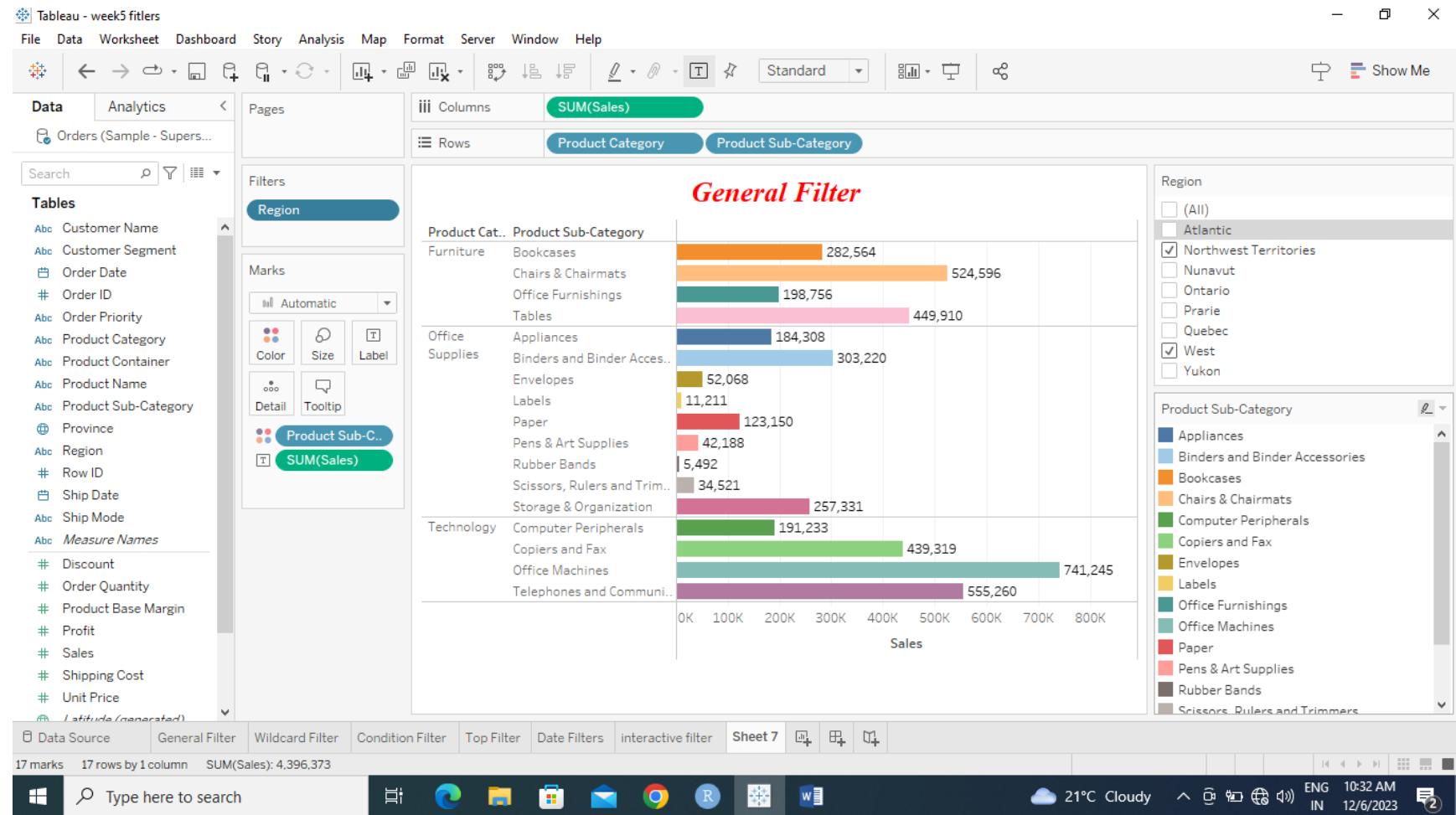
Type here to search

21°C Cloudy ENG 10:01 AM IN 12/6/2023

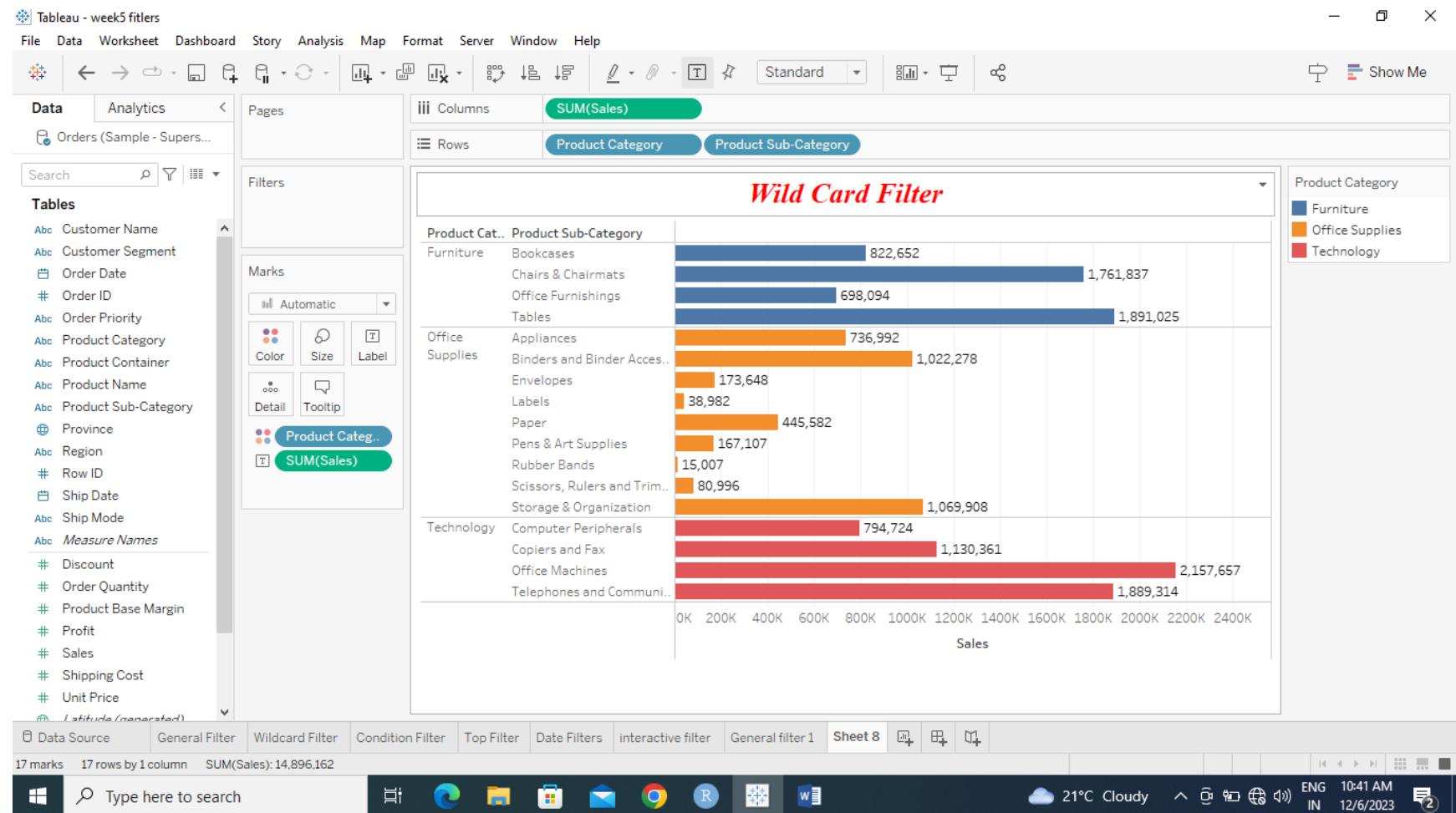
3. Right click on region field in filter card and select show filter option, show the Region panel



4. pick-up some countries from Region panel



5. Drag and drop a **categorical fields** (e.g., product category and product sub-category) to rows shelf, **numeral field** (e.g., sales) into the columns shelf and create bar chart and assign the color, label for each bar and Assign the title.



6. Drag and drop the product sub-Category field into filter card , after perform the drag and drop operation , show the filter window and select wildcard option

The screenshot shows a Tableau interface with a 'Filter [Product Sub-Category]' dialog box open. The dialog has tabs for General, Wildcard, Condition, and Top. The General tab is selected. It includes fields for 'Match value:' and 'Exclude', and radio buttons for 'Contains' (selected), 'Starts with', 'Ends with', and 'Exactly matches'. There is also a checkbox for 'Include all values when empty'. The 'OK' button is highlighted in blue. In the background, a bar chart displays sales data by Product Category: Furniture (1,761,837), Office Supplies (1,891,025), Technology (2,157,657), and others. The 'Product Category' legend shows Furniture (blue), Office Supplies (orange), and Technology (red). The 'Data' tab is selected in the top navigation bar. The 'Marks' shelf on the left contains 'Automatic' marks for Color, Size, Label, Detail, and Tooltip, with 'Product Categ.' selected. The 'Filters' section in the Data pane shows 'Product Sub-Category' selected. The bottom navigation bar includes tabs for Data Source, General Filter, Wildcard Filter, Condition Filter, Top Filter, Date Filters, interactive filter, General filter 1, Sheet 8, and various icons.

7. Select Starts-with radio button from wildcard window and enter latter 'C '

Tableau - week5 filters

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics < Orders (Sample - Supers... Search

Tables

- Customer Name
- Customer Segment
- Order Date
- Order ID
- Order Priority
- Product Category
- Product Container
- Product Name
- Product Sub-Category
- Province
- Region
- Row ID
- Ship Date
- Ship Mode
- Measure Names
- Discount
- Order Quantity
- Product Base Margin
- Profit
- Sales
- Shipping Cost
- Unit Price
- Latitude (generated)

Pages Columns SUM(Sales) Rows Product Category P

Filters Product Sub-Catego..

Marks Automatic Color Size Label Detail Tooltip

Product Cat.. Product Sub-Category

Product Cat..	Product Sub-Category	Sum(Sales)
Furniture	Bookcases	1,234
	Chairs & Chairmats	1,234
	Office Furnishings	1,234
	Tables	1,234
Office Supplies	Appliances	1,234
	Binders and Binder Acces..	1,234
	Envelopes	1,234
	Labels	1,234
	Paper	1,234
	Pens & Art Supplies	1,234
	Rubber Bands	1,234
	Scissors, Rulers and Trim..	1,234
	Storage & Organization	1,234
Technology	Computer Peripherals	1,234
	Copiers and Fax	1,234
	Office Machines	1,234
	Telephones and Communi..	1,234

Filter [Product Sub-Category]

General Wildcard Condition Top

Match value: C Exclude

Contains
 Starts with
 Ends with
 Exactly matches

Include all values when empty

Reset OK Cancel

Product Sub-Category

Product Category

- Furniture
- Office Supplies
- Technology

57,657

< 2400K

Data Source General Filter Wildcard Filter Condition Filter Top Filter Date Filters interactive filter General filter 1 Sheet 8

17 marks 17 rows by 1 column SUM(Sales): 14,896,162

Type here to search

21°C Cloudy ENG 10:52 AM IN 12/6/2023

8. After the submit the ok button, display the items name with starting Latter 'C'

Tableau - week5 filters

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Show Me

Data Analytics <

Pages Columns SUM(Sales)

Rows Product Category Product Sub-Category

Search

Tables

- Customer Name
- Customer Segment
- Order Date
- Order ID
- Order Priority
- Product Category
- Product Container
- Product Name
- Product Sub-Category
- Province
- Region
- Row ID
- Ship Date
- Ship Mode
- Measure Names
- Discount
- Order Quantity
- Product Base Margin
- Profit
- Sales
- Shipping Cost
- Unit Price
- Latitude (generated)

Filters Product Sub-Cat...
Marks Automatic Color Size Label Detail Tooltip
Product Categ...
SUM(Sales)

Wild Card Filter

Product Cat..	Product Sub-Category	Sales
Furniture	Chairs & Chairmats	1,761,837
Technology	Computer Peripherals	794,724
	Copiers and Fax	1,130,361

Product Sub-Category C*
Product Category Furniture Technology

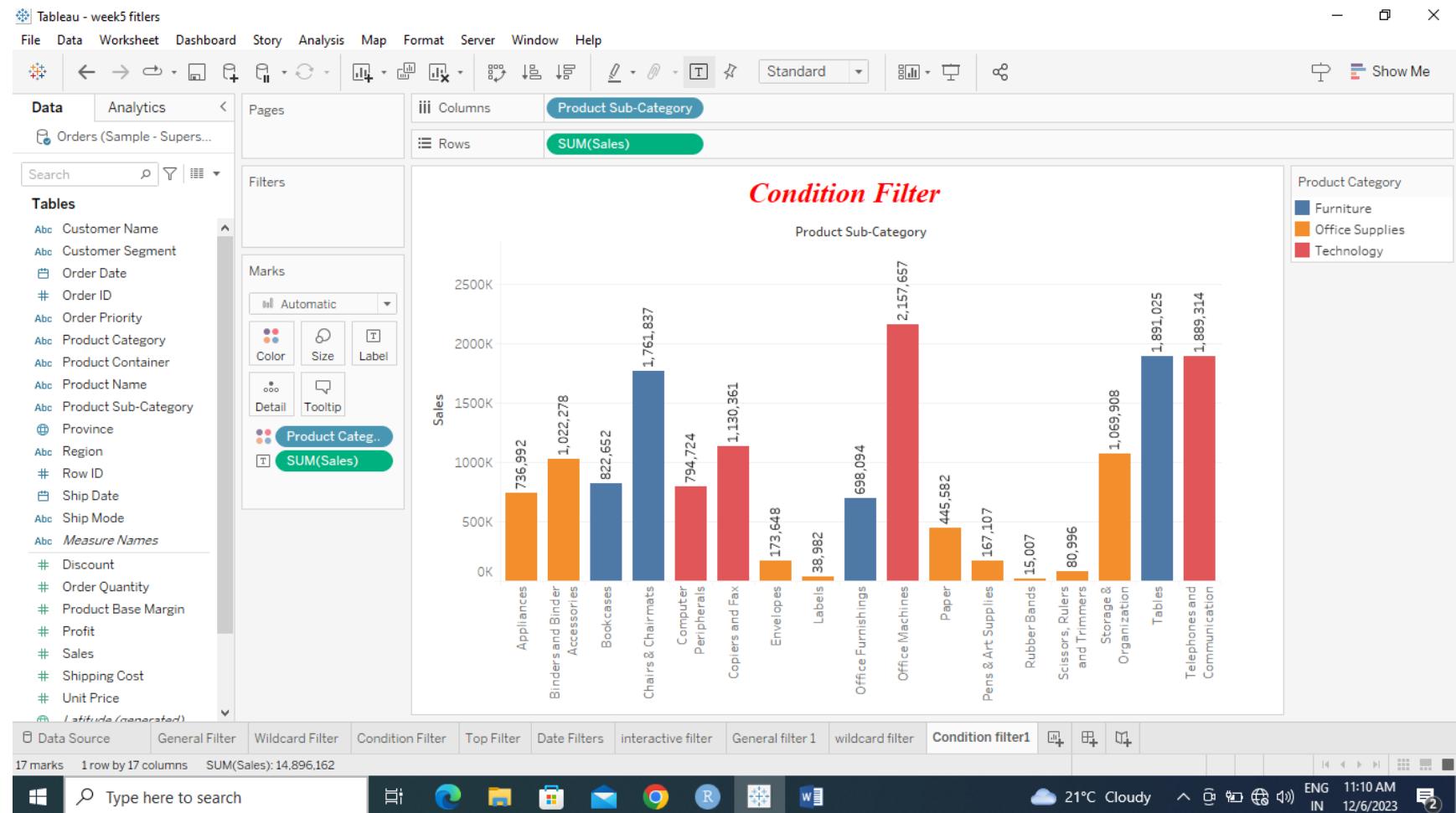
Data Source General Filter Wildcard Filter Condition Filter Top Filter Date Filters interactive filter General filter 1 Sheet 8

3 marks 3 rows by 1 column SUM(Sales): 3,686,922

Type here to search

21°C Cloudy ENG IN 10:56 AM 12/6/2023

9. Drag and Drop the sales field into rows self, product sub-category into columns self and assign the title, color and labels



9.Drag and drop the product sub-category into filter card and select the condition filter option from filter window.

Tableau - week5 filters

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics < Pages Columns Rows

Orders (Sample - Supers... Search

Tables

- Customer Name
- Customer Segment
- Order Date
- Order ID
- Order Priority
- Product Category
- Product Container
- Product Name
- Product Sub-Category
- Province
- Region
- Row ID
- Ship Date
- Ship Mode
- Measure Names
- Discount
- Order Quantity
- Product Base Margin
- Profit
- Sales
- Shipping Cost
- Unit Price
- Latitude (generated)

Marks

- Automatic
- Color
- Size
- Label
- Detail
- Tooltip

Product Categ... SUM(Sales)

Filter [Product Sub-Category]

General Wildcard Condition Top

None

By field:

Sales Sum = 0

Range of Values

Min: Max: Load

By formula:

Reset OK Cancel Apply

Condition filter1

17 marks 1 row by 17 columns SUM(Sales): 14,896,162

21°C Cloudy ENG 11:15 AM IN 12/6/2023

Product Sub-Category	Sales
Pens & Art Supplies	167,107
Rubber Bands	15,007
Scissors, Rulers and Trimmers	80,995
Storage & Organization	1,069,908
Tables	1,891,025
Telephones and Communication	1,889,314

10. Select sales from first list-box ,select sum operation option from second list-box in By field and give some condition

Tableau - week5 filters

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics < Pages Columns Rows

Orders (Sample - Supers...)

Search

Tables

- Customer Name
- Customer Segment
- Order Date
- Order ID
- Order Priority
- Product Category
- Product Container
- Product Name
- Product Sub-Category
- Province
- Region
- Row ID
- Ship Date
- Ship Mode
- Measure Names
- Discount
- Order Quantity
- Product Base Margin
- Profit
- Sales
- Shipping Cost
- Unit Price
- Latitude (generated)

Marks

- Automatic
- Color
- Size
- Label
- Detail
- Tooltip

Product Categ...
SUM(Sales)

Filter [Product Sub-Category]

General Wildcard Condition Top

None

By field:

Sales Sum
>= 1,000,000

Range of Values
Min: 15,007 Load
Max: 2,157,657

By formula:

Reset OK Cancel Apply

Condition filter1

17 marks 1 row by 17 columns SUM(Sales): 14,896,162

21°C Cloudy ENG IN 11:20 AM 12/6/2023

Product Category

- Furniture
- Office Supplies
- Technology

Pens & Art Supplies 157,107

Rubber Bands 15,007

Scissors, Rulers 80,995

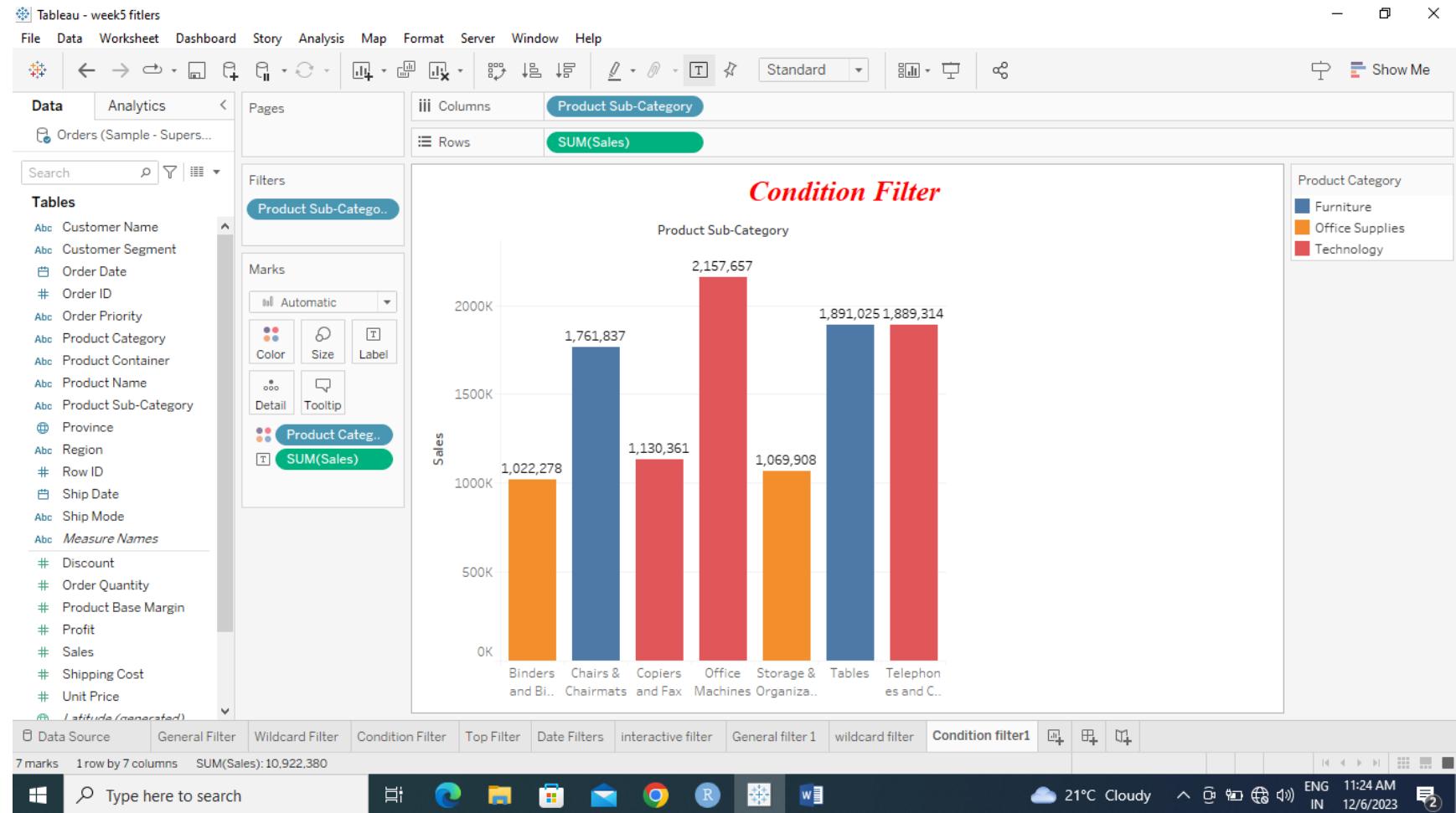
Storage & Organization 1,069,908

Tables 1,891,025

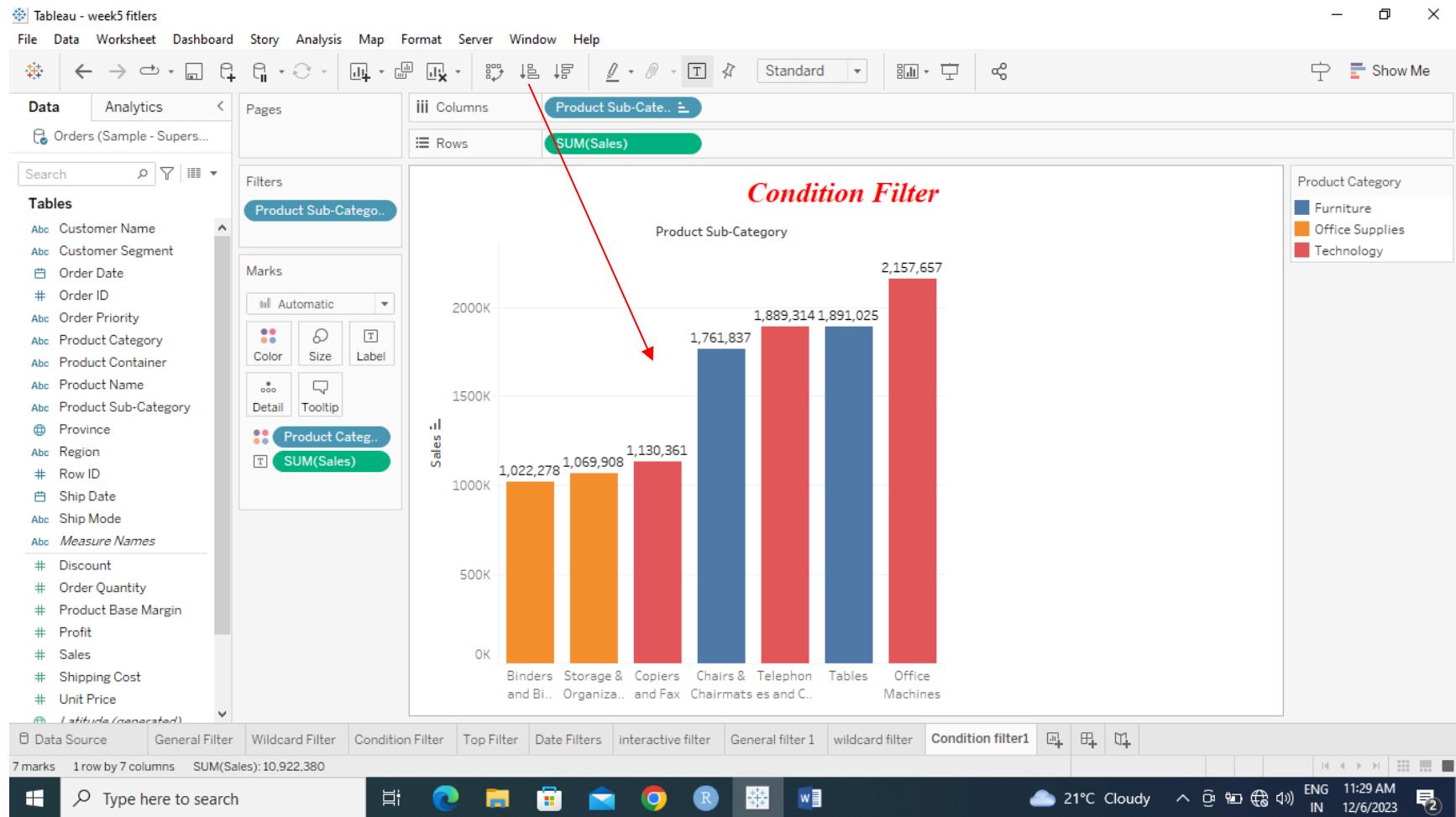
Telephones and Communication 1,889,314

Product Category	Sales
Furniture	1,891,025
Office Supplies	1,069,908
Technology	1,889,314

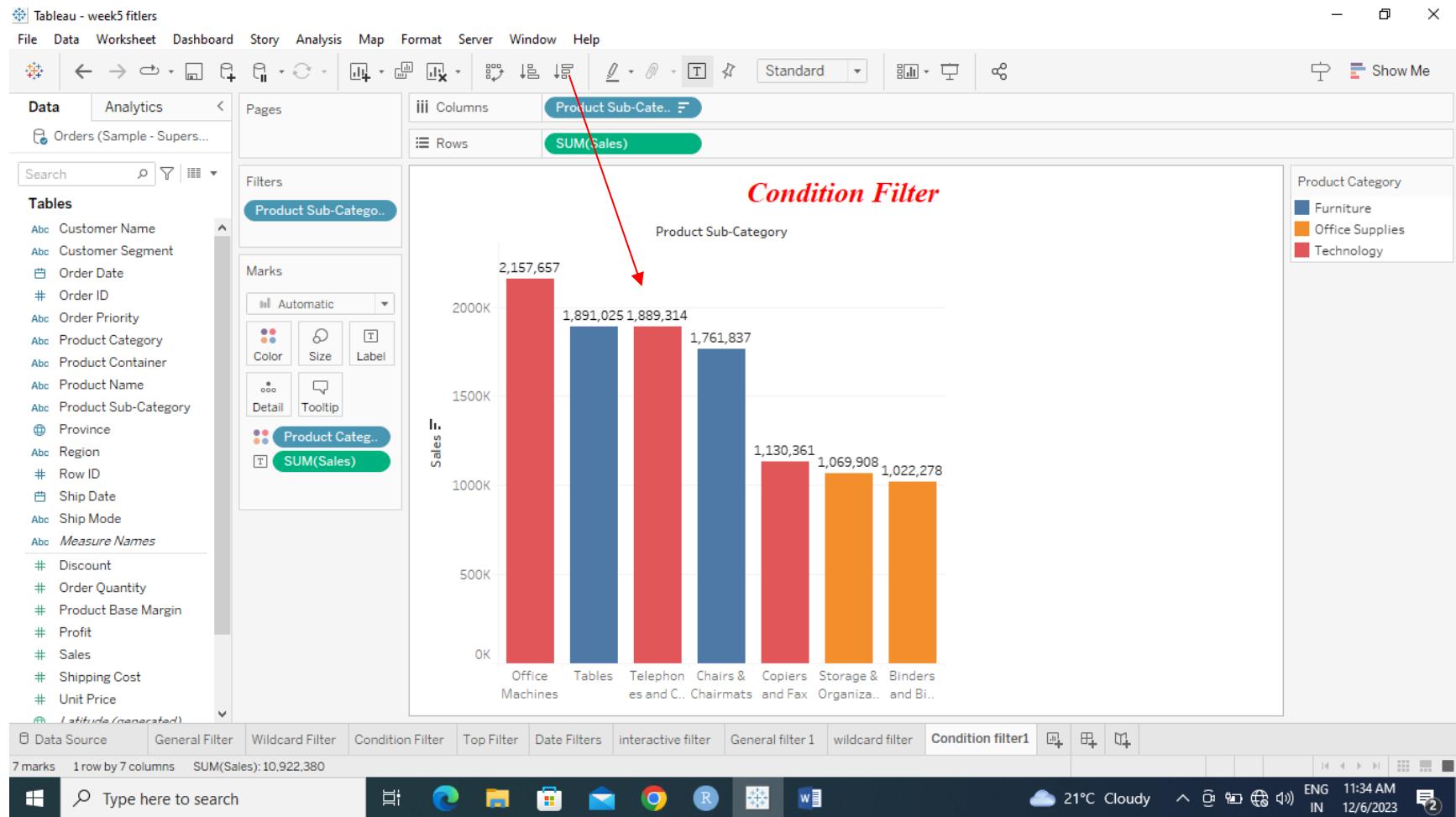
11. Display the corresponding output.



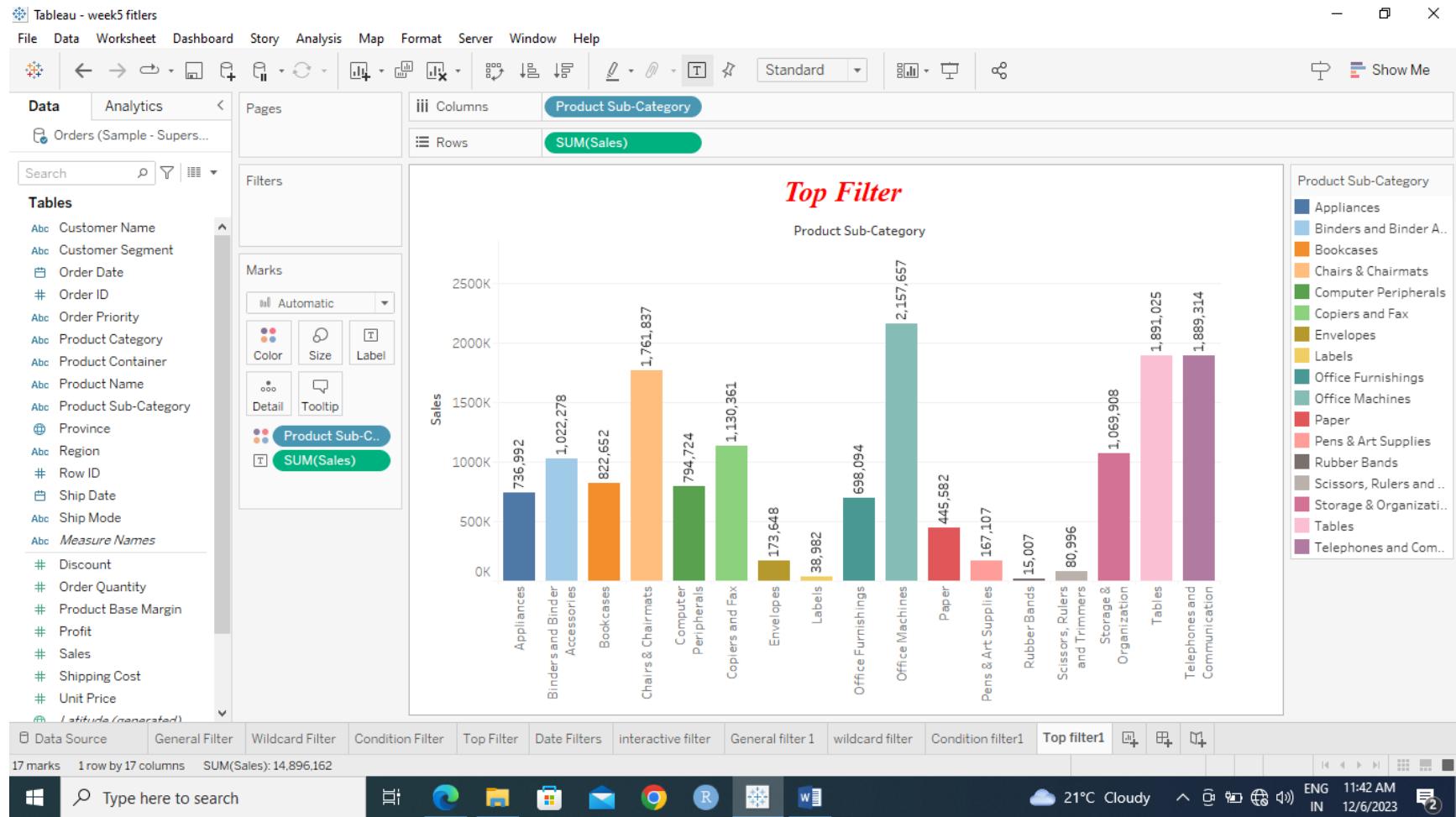
12. Apply the sort (ascending order) method on sales from Tool bar.



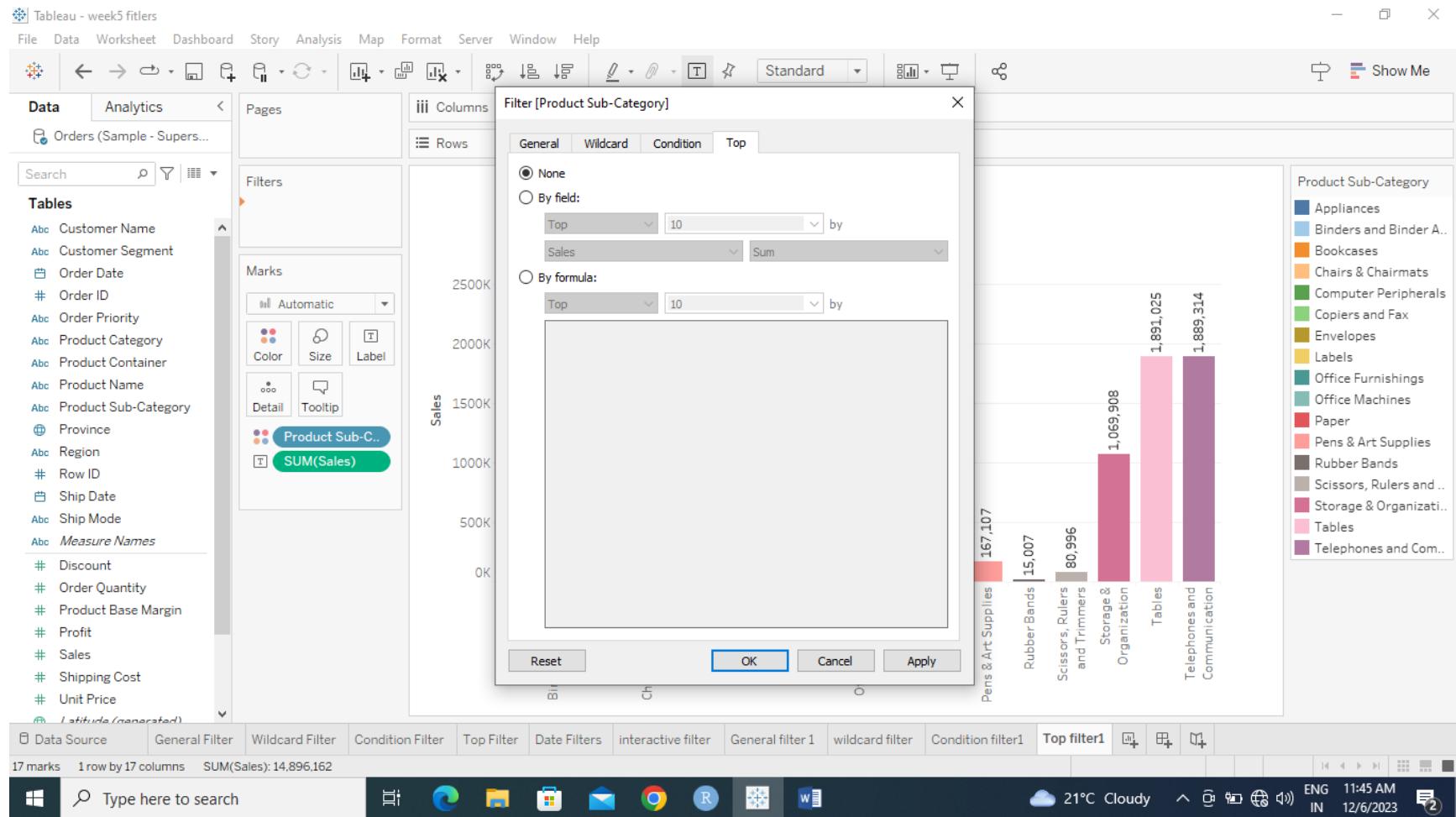
13. Apply the sort (descending order) method on sales from Tool bar.



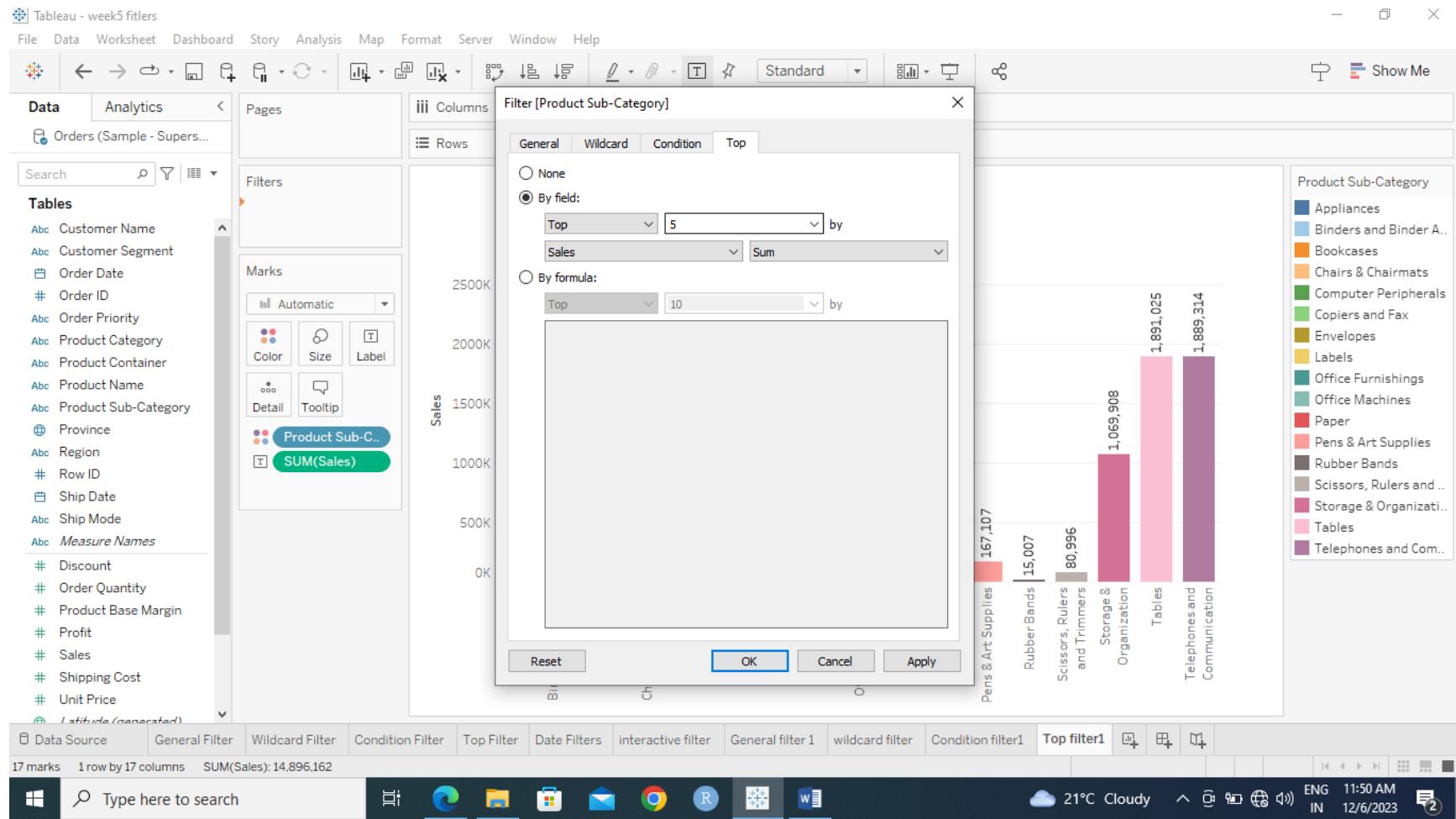
14.Drag and Drop the sales field into rows self, product sub-category into columns self and assign the title, color and labels



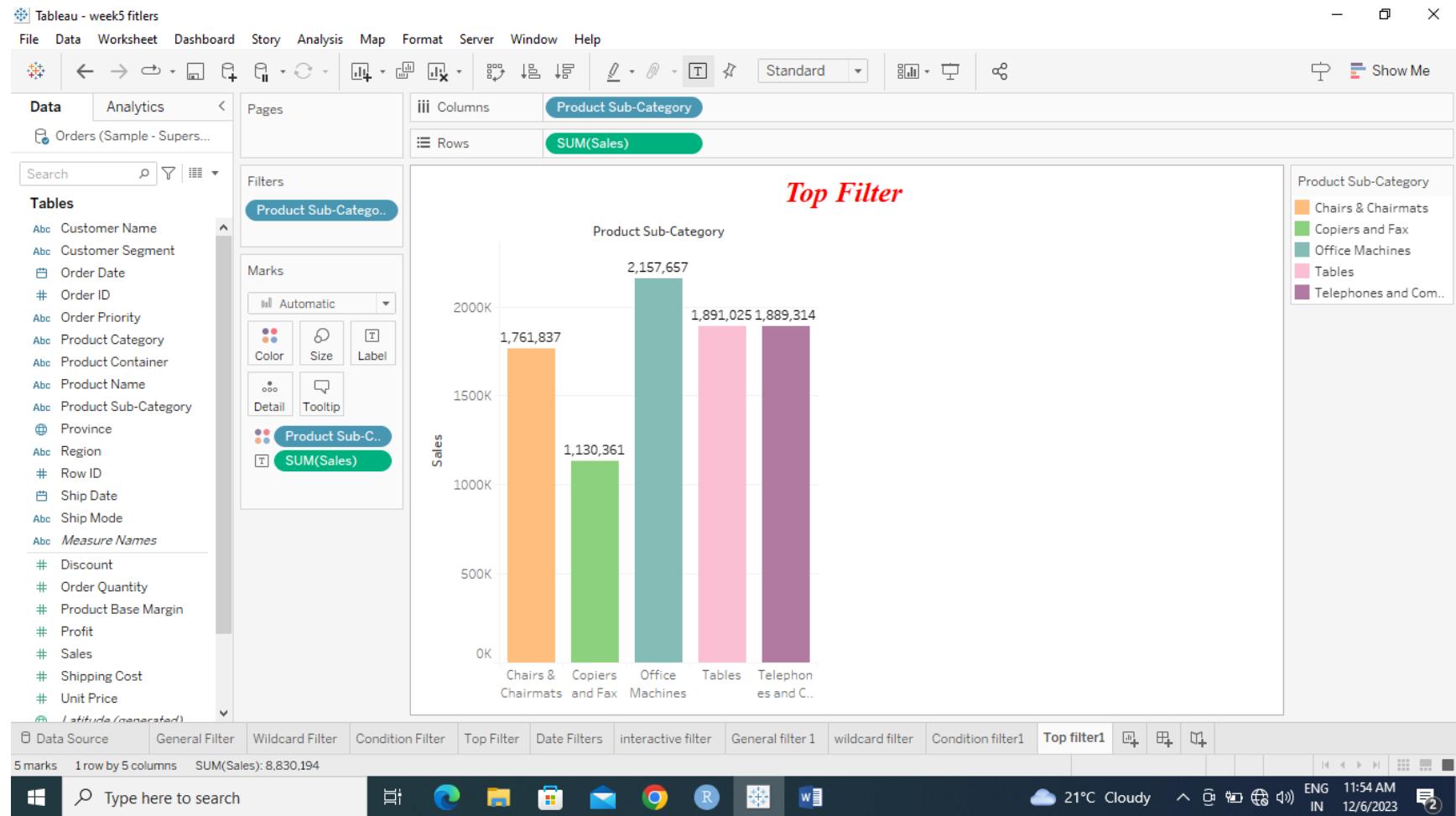
15. Drag and drop the product sub-category into filter card and select top filter option from filter window



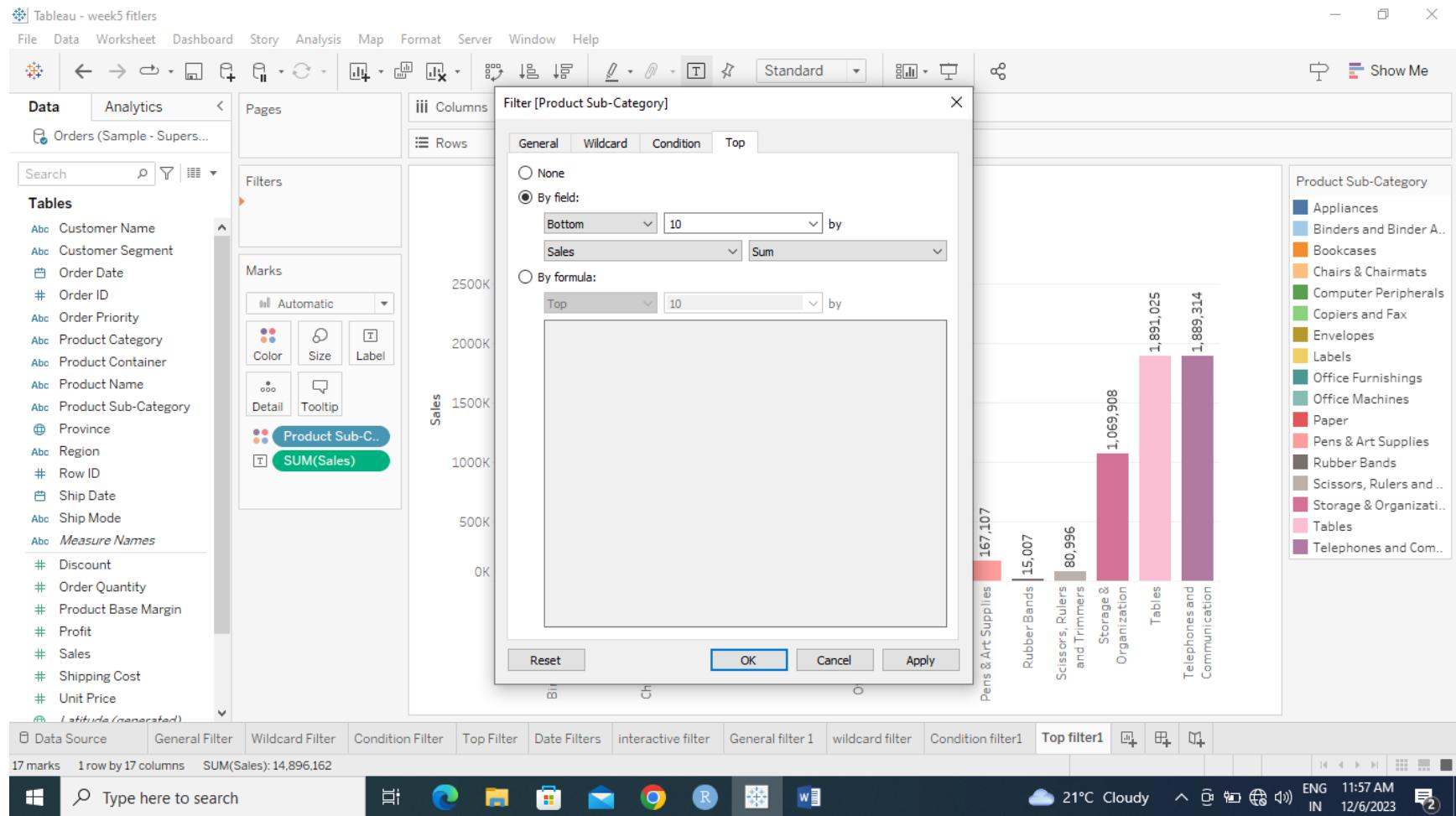
16. Select top option from first list-box, select 5 value from second list box.



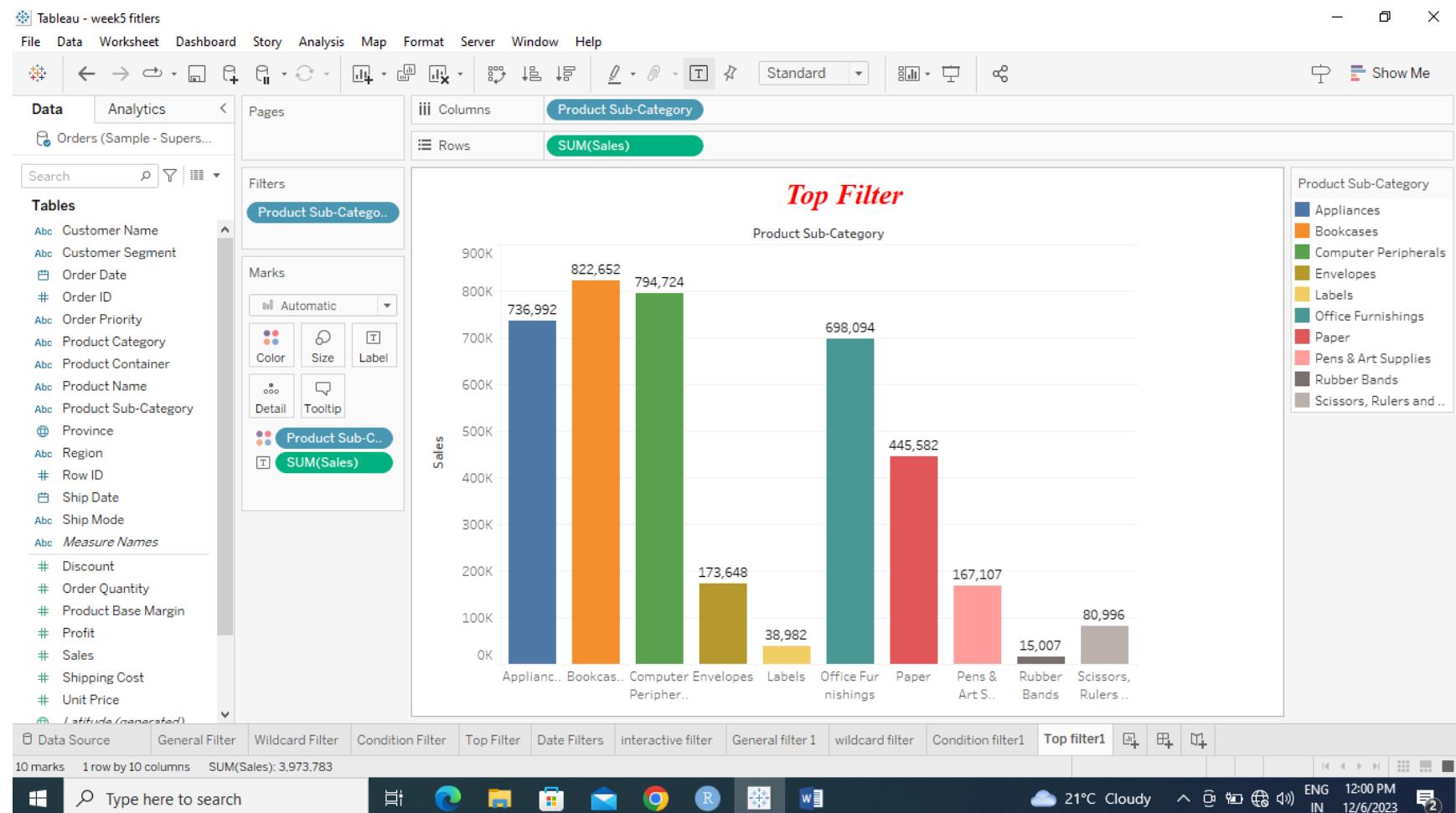
17. After submit the apply and ok button, display the top 5 sales



18. Select Bottom option from first list-box, select 10 value from second list box.



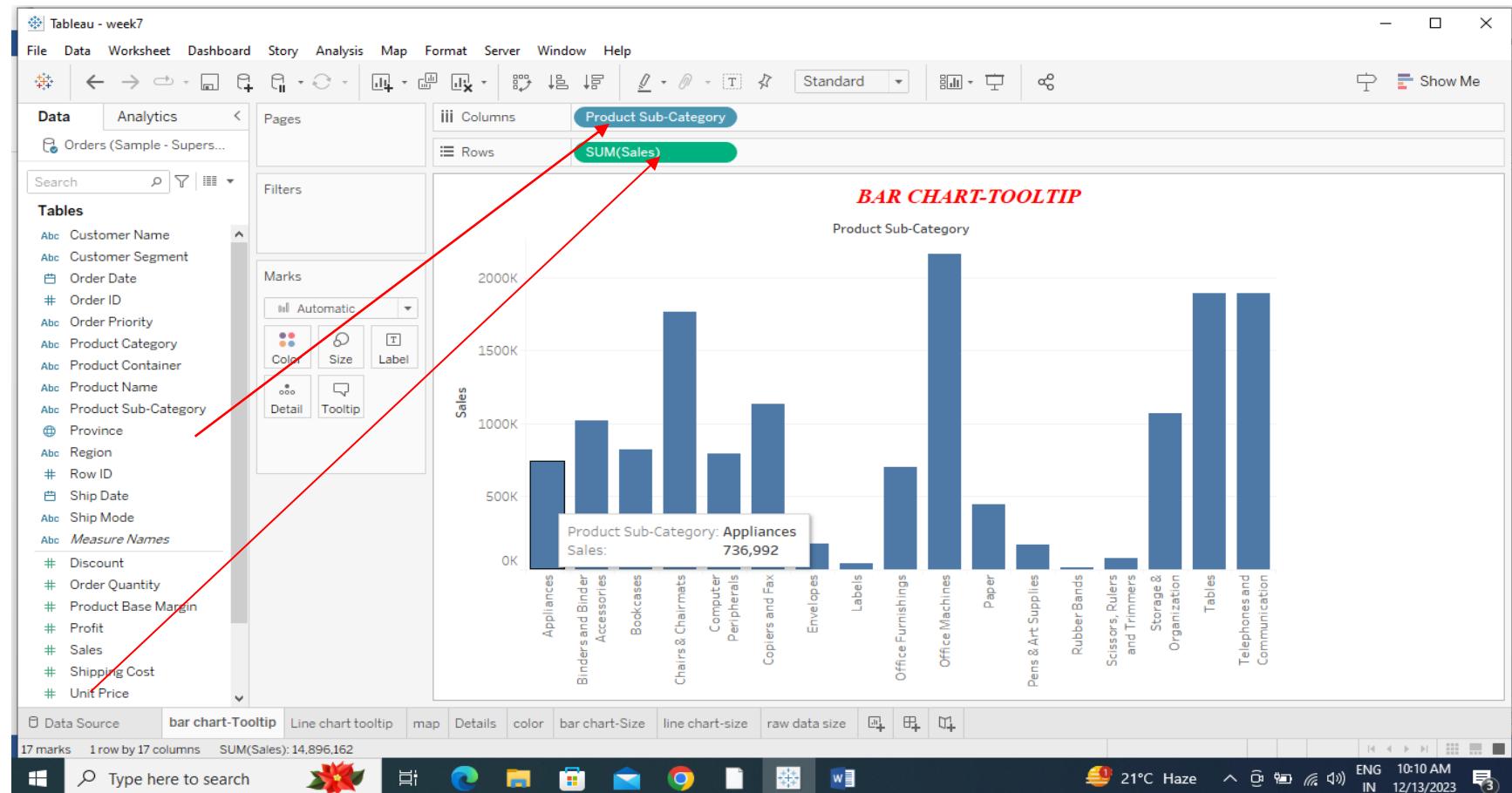
20. After submit the apply and ok button, display the last (Bottom) 10 sales



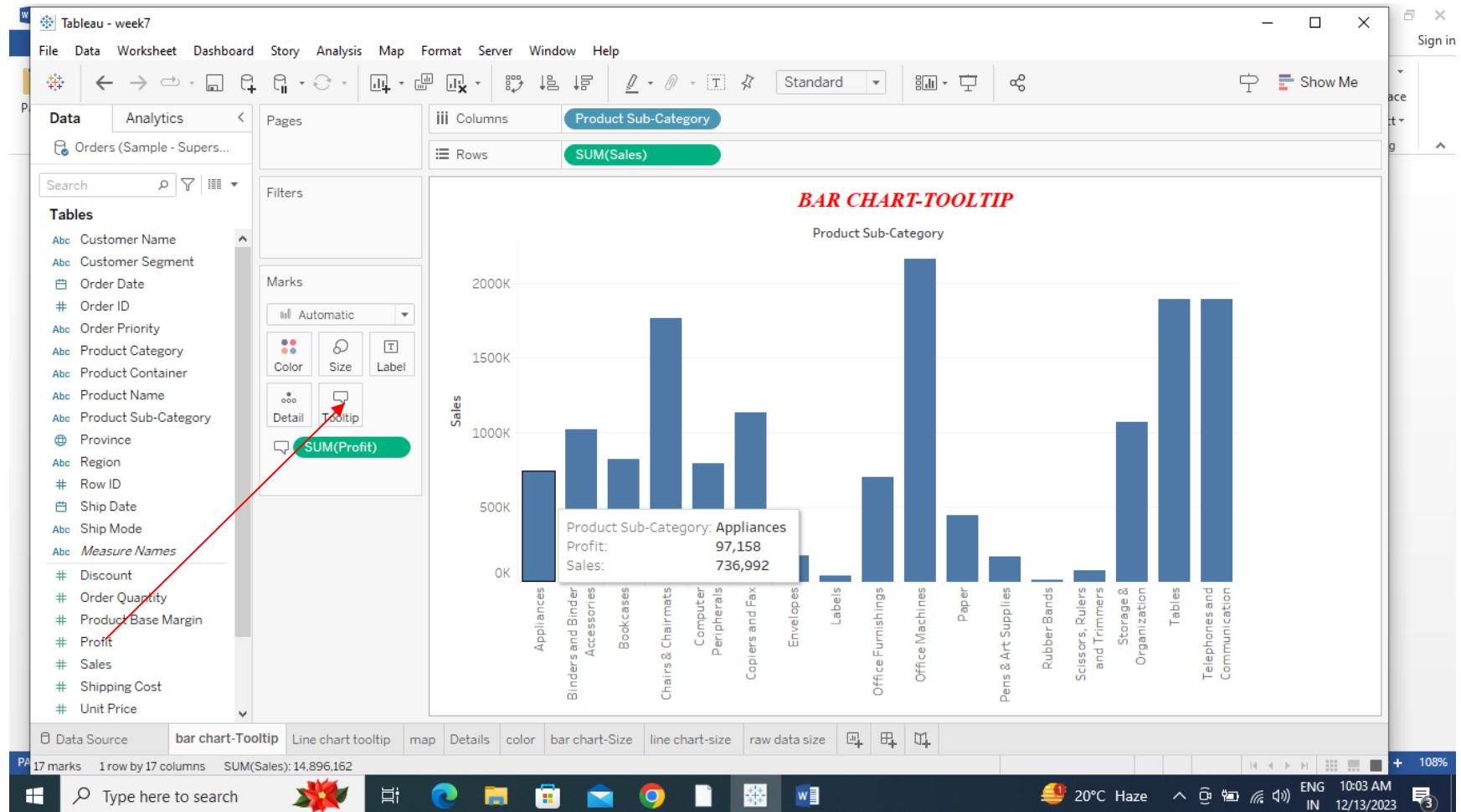
WEEK-7

7. Advanced Visualization Tools: Using Filters, Using the Detail panel, using the Size panels, customizing filters, Using and Customizing tooltips, formatting your data with colors

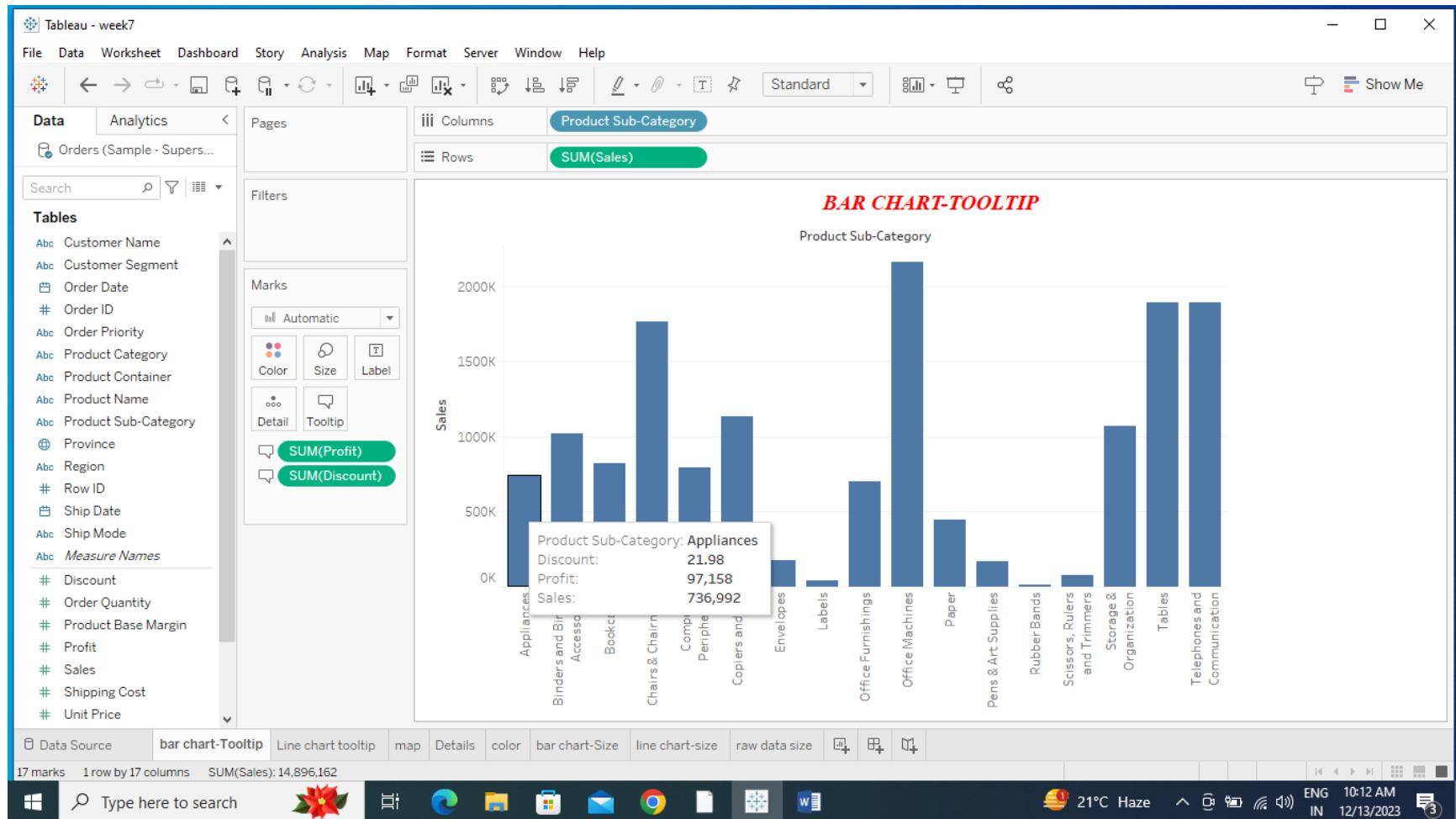
1. Drag and Drop sales and Product sub-category in row and columns silts



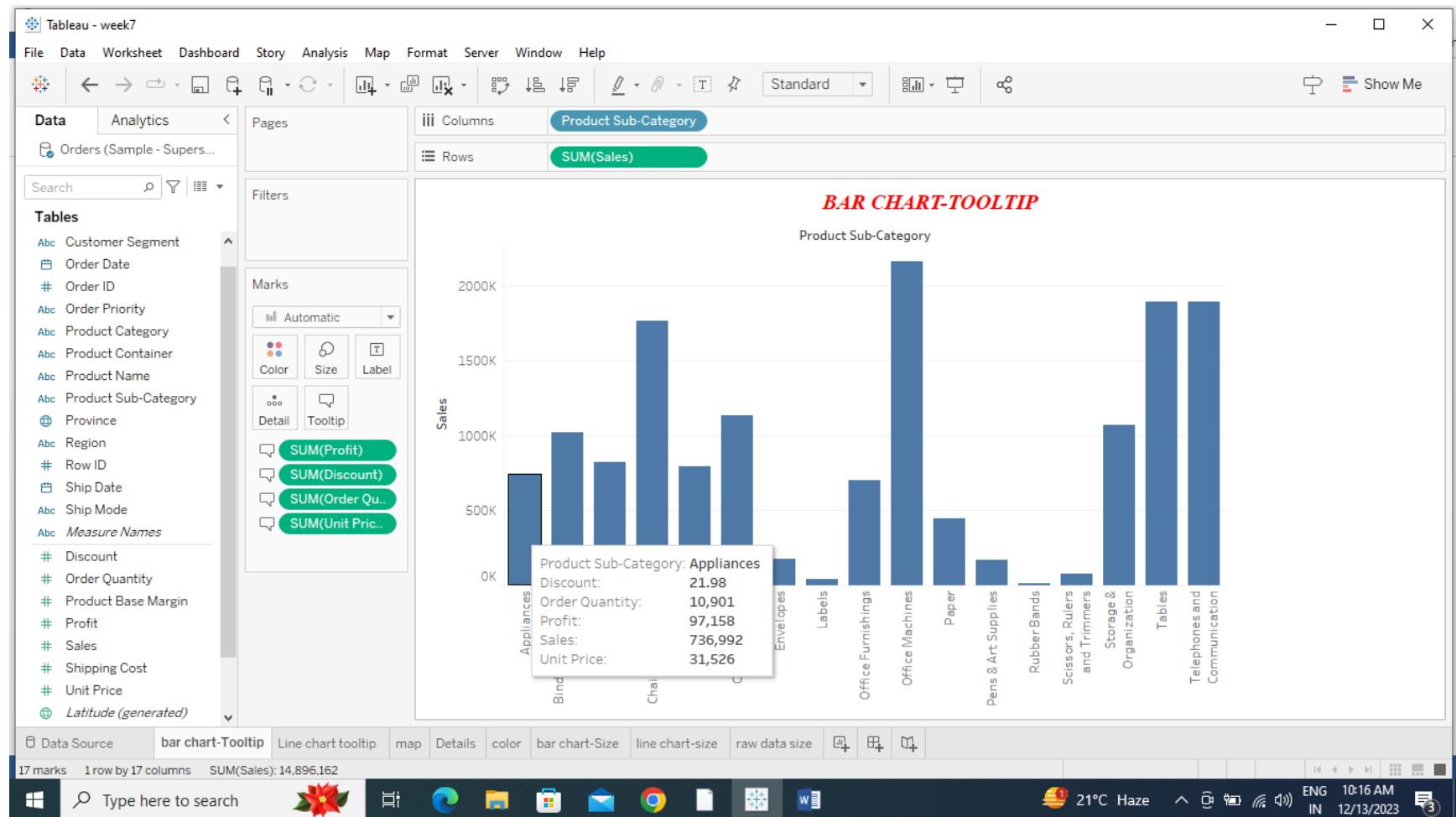
2. Drag and drop the profit field into tooltip marks card and after click any bar, automatically showing the profit in pop-up window



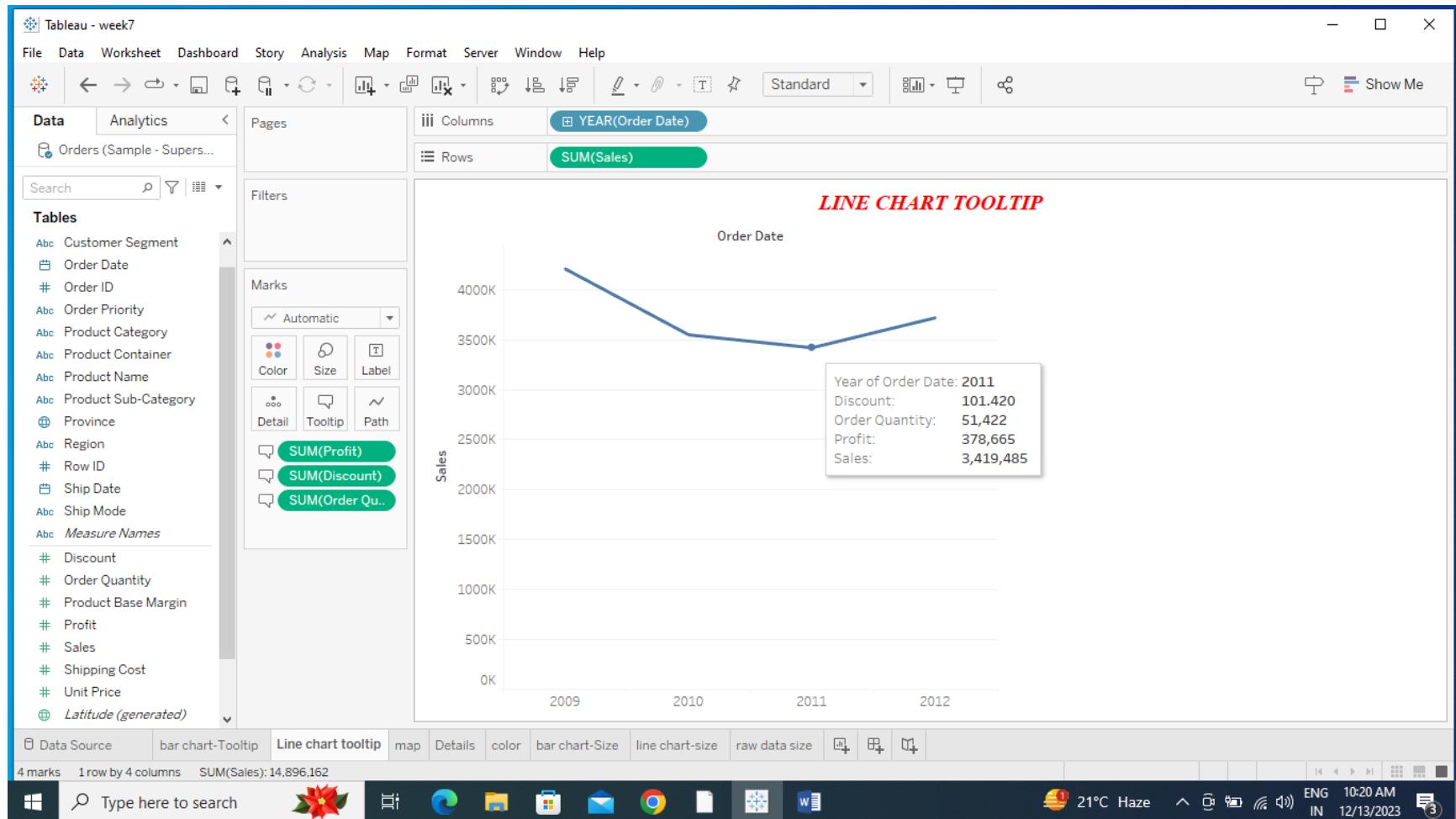
3. Drag and drop the Discount field into tooltip marks card and after click any bar, automatically showing Discount field in pop-up window



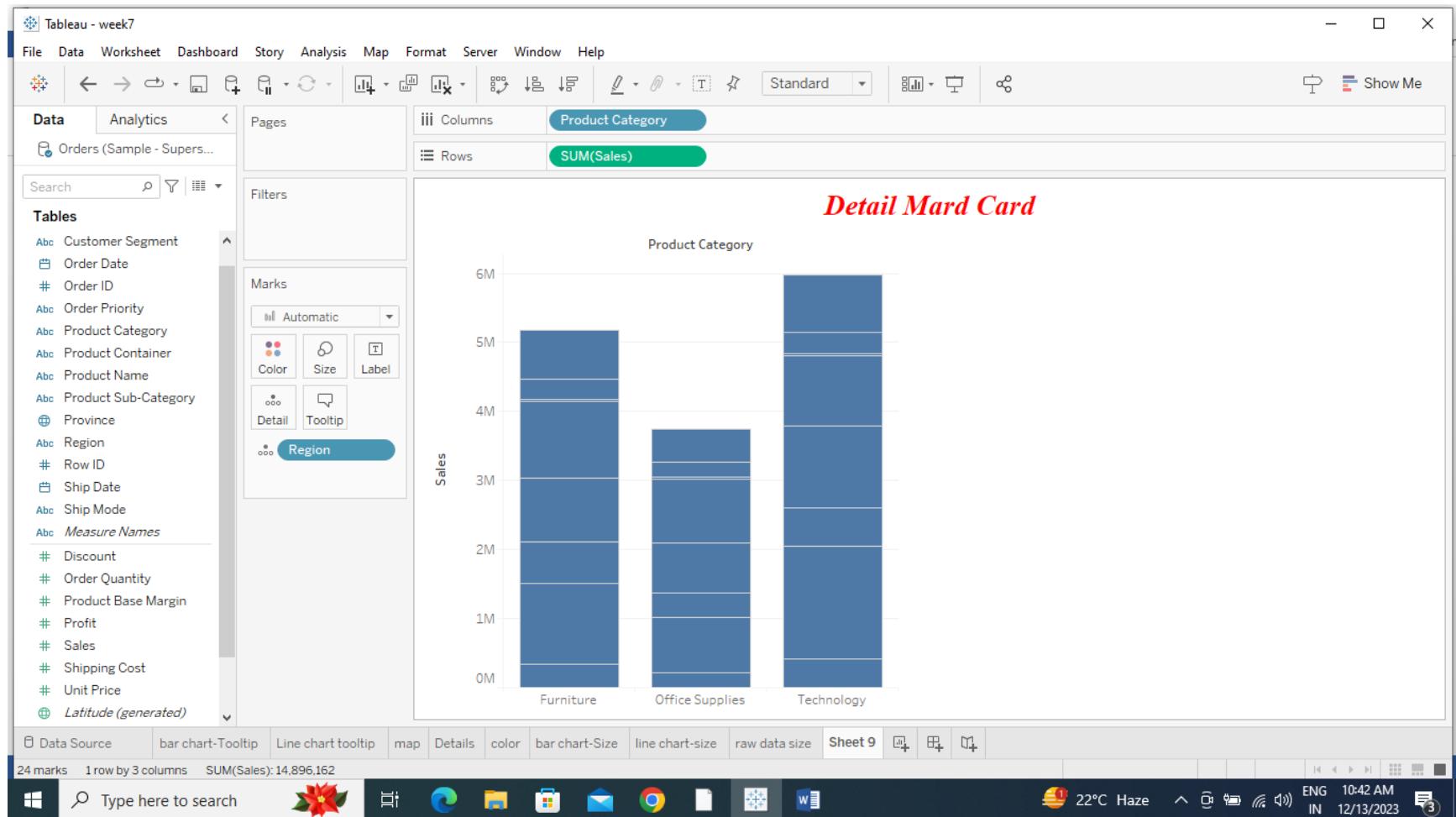
3. Drag and drop the Order Quantity, Unit Price fields into tooltip marks card and after click any bar, automatically showing in pop-up window



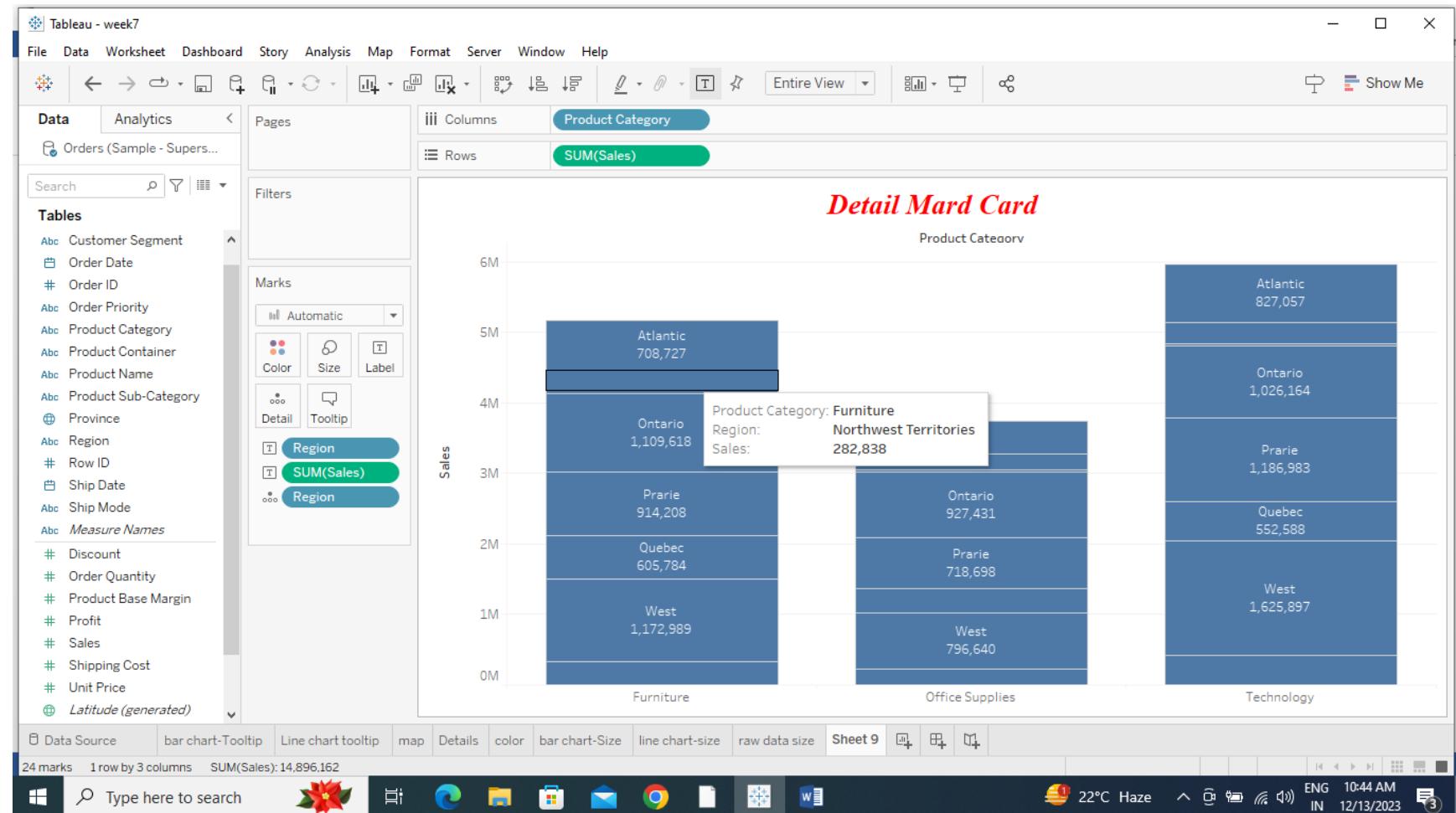
4. Drag and drop the Customer required fields into tooltip marks card and after click any whereof the line chart, automatically showing in pop-up window



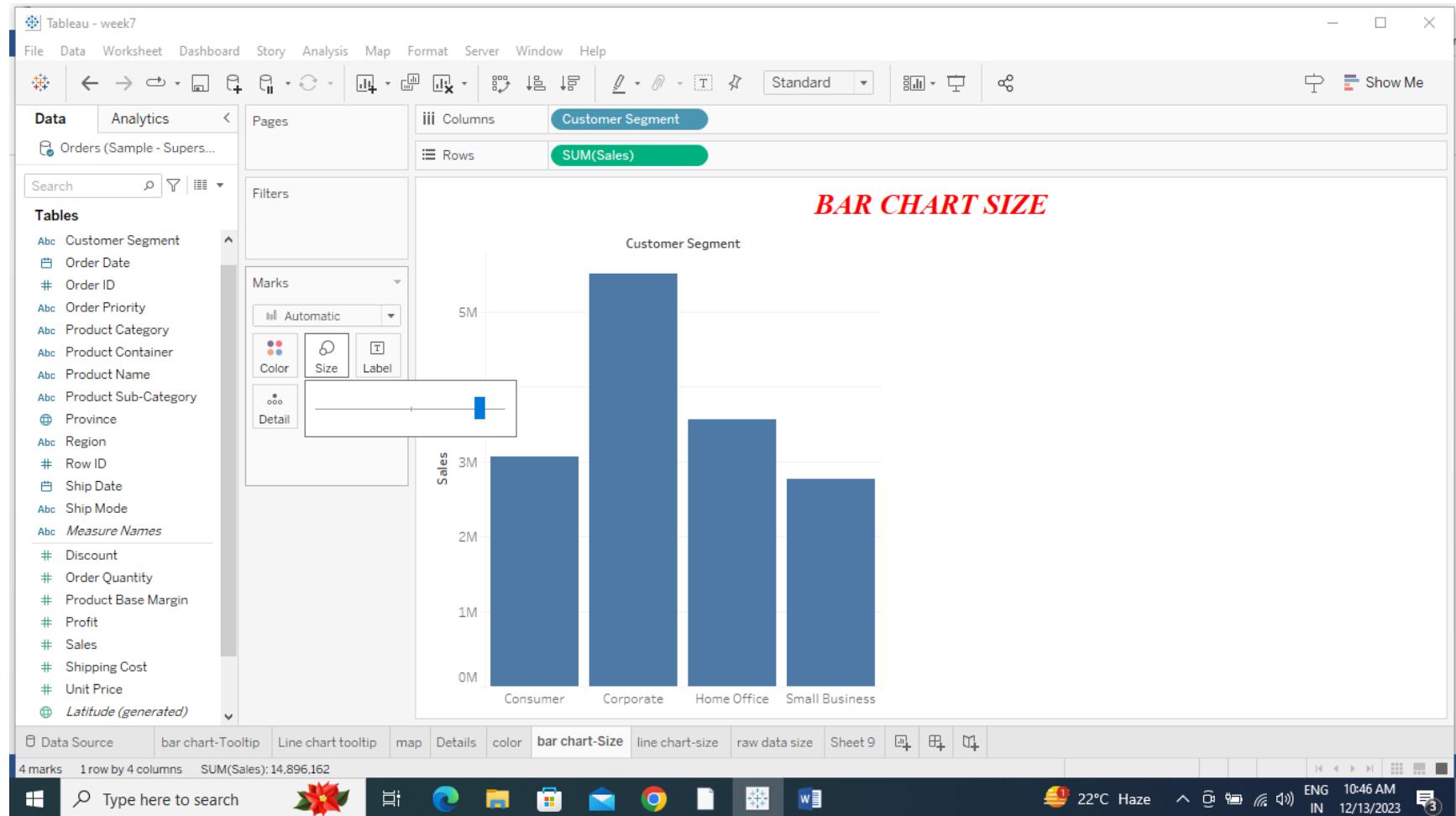
5. Drag and drop the fields into row and columns self, automatically create bar chart. And drag and drop the region field into Detail mark card. After drop, each bar is segmented into no of regions



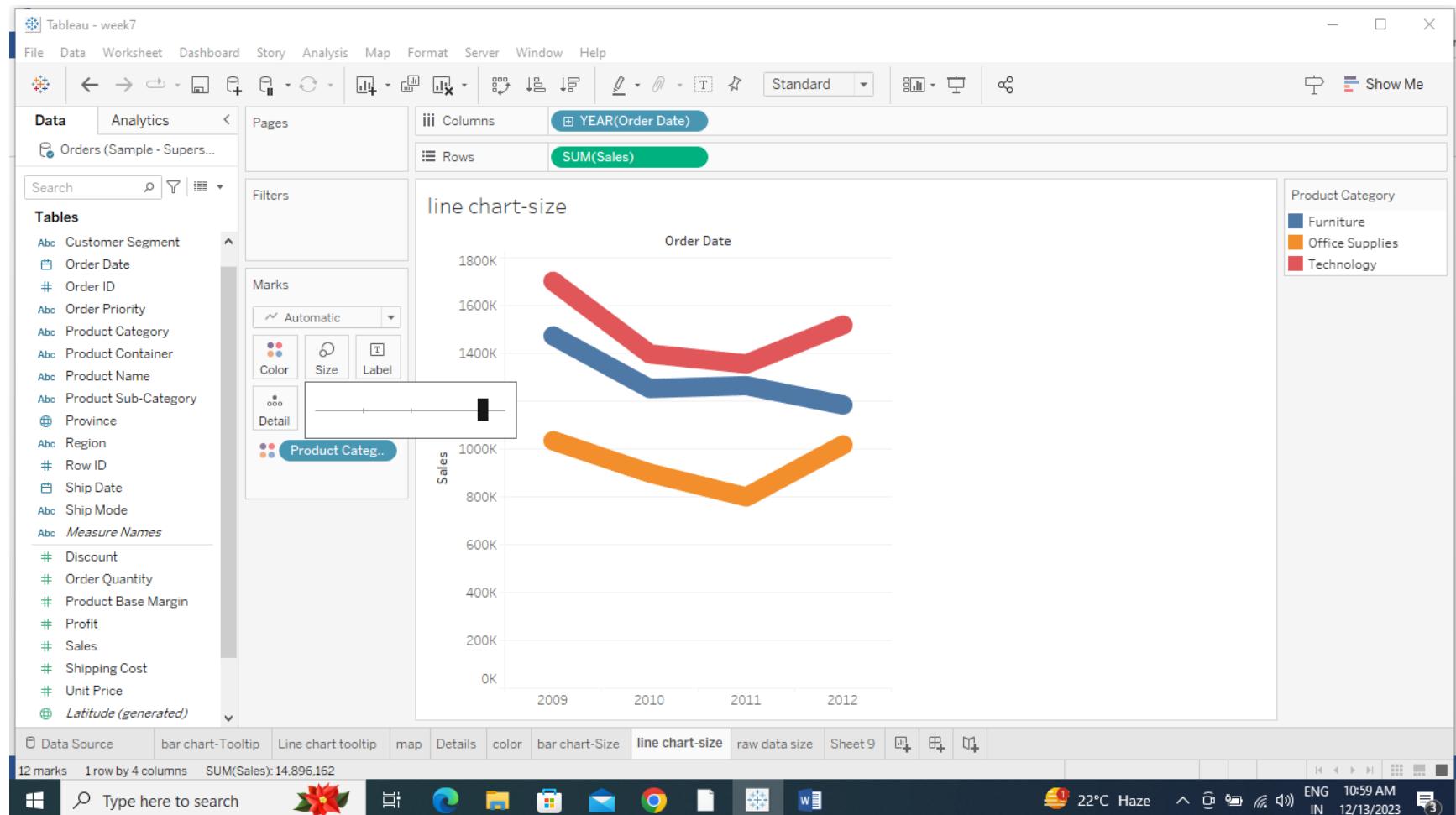
6. Drag and drop the sales and Region fields into Label Mark card



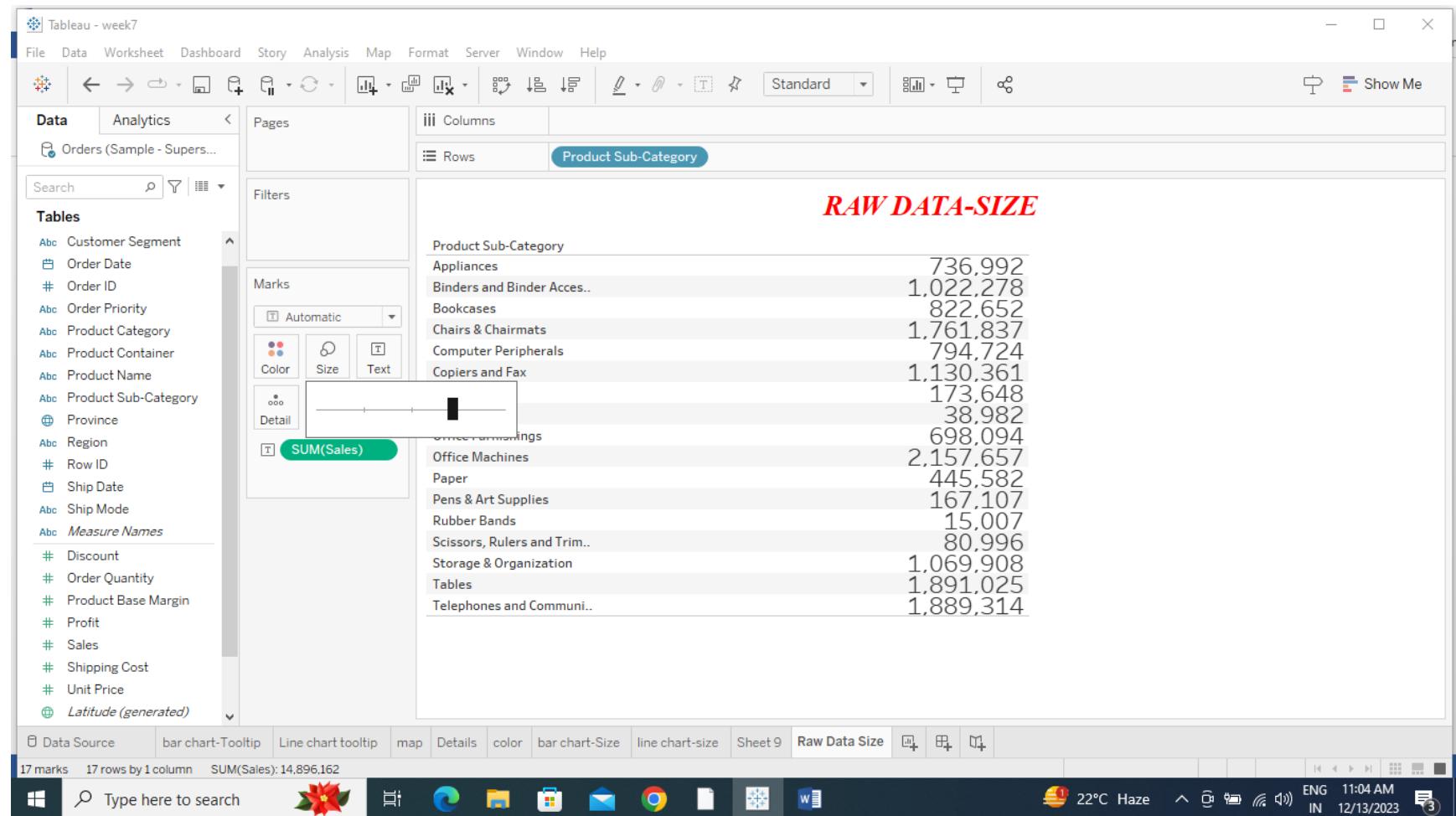
7. Drag and drop the sales and Segment into row and columns marks ,automatocally created the bar chart and using size markcard ,increase the each bar width



8. Drag and drop the sales and order date fields into row and columns marks , created the Line chart and using size markcard ,increase the each line width



9. 8. Drag and drop the sales and order date fields into row and columns marks and using size markcard ,increase the raw data(Numerical values)size



WEEK-5

5. Editing and Formatting Axes, Manipulating Data in Tableau data, Pivoting Tableau data.

1. After creation of the bar chart, right click on the y-axis and select the format option.

The screenshot shows a Tableau interface with a bar chart titled "Product Category". The y-axis ranges from 0M to 6M. The x-axis categories are Furniture, Office Supplies, and Technology. A context menu is open over the y-axis, with the "Format..." option highlighted. The chart has a title "Formating and Editing Axes".

Product Category

Product Category	SUM(Sales)
Furniture	~5.2M
Office Supplies	~5.5M
Technology	~6.0M

Formating and Editing Axes

Context menu options:

- Edit Axis...
- Select Marks
- Format...**
- Show Header
- Add Reference Line

Tableau interface elements:

- File, Data, Worksheet, Dashboard, Story, Analysis, Map, Format, Server, Window, Help menus.
- Data and Analytics tabs.
- Pages, Columns, Rows, Product Category, SUM(Sales) items in the shelf.
- Search bar.
- Tables pane: Customer Name, Customer Segment, Order Date, Order ID, Order Priority, Product Category, Product Container, Product Name, Product Sub-Category, Province, Region, Row ID, Ship Date, Ship Mode, Measure Names, Discount, Order Quantity, Product Base Margin, Profit, Sales, Shipping Cost, Unit Price, Latitude (generated).
- Data Source: Sheet 2.
- Bottom taskbar: Windows Start button, search bar, pinned icons (File Explorer, Mail, Google Chrome, Word), system tray (Weather, Battery, Network, ENG IN, 11:39 AM, 12/13/2023).

2.set the font color, size , font style and shading of y-axis

Tableau - Book3

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Format SUM(Sales) x

Pages Columns Product Category

Rows SUM(Sales)

A Fields

Axis Pane

Default

Font: Tableau Boo..

Shading:

Scale

Ticks: 0M, 1M, 2M, 3M, 4M, 5M, 6M

Numbers:

Alignment:

Marks

Automatic

Size

Label

Tooltip

Title

Font: Tableau Me..

Clear

Product Category

Formating and Editing Axes

Sales

Furniture

Office Supplies

Technology

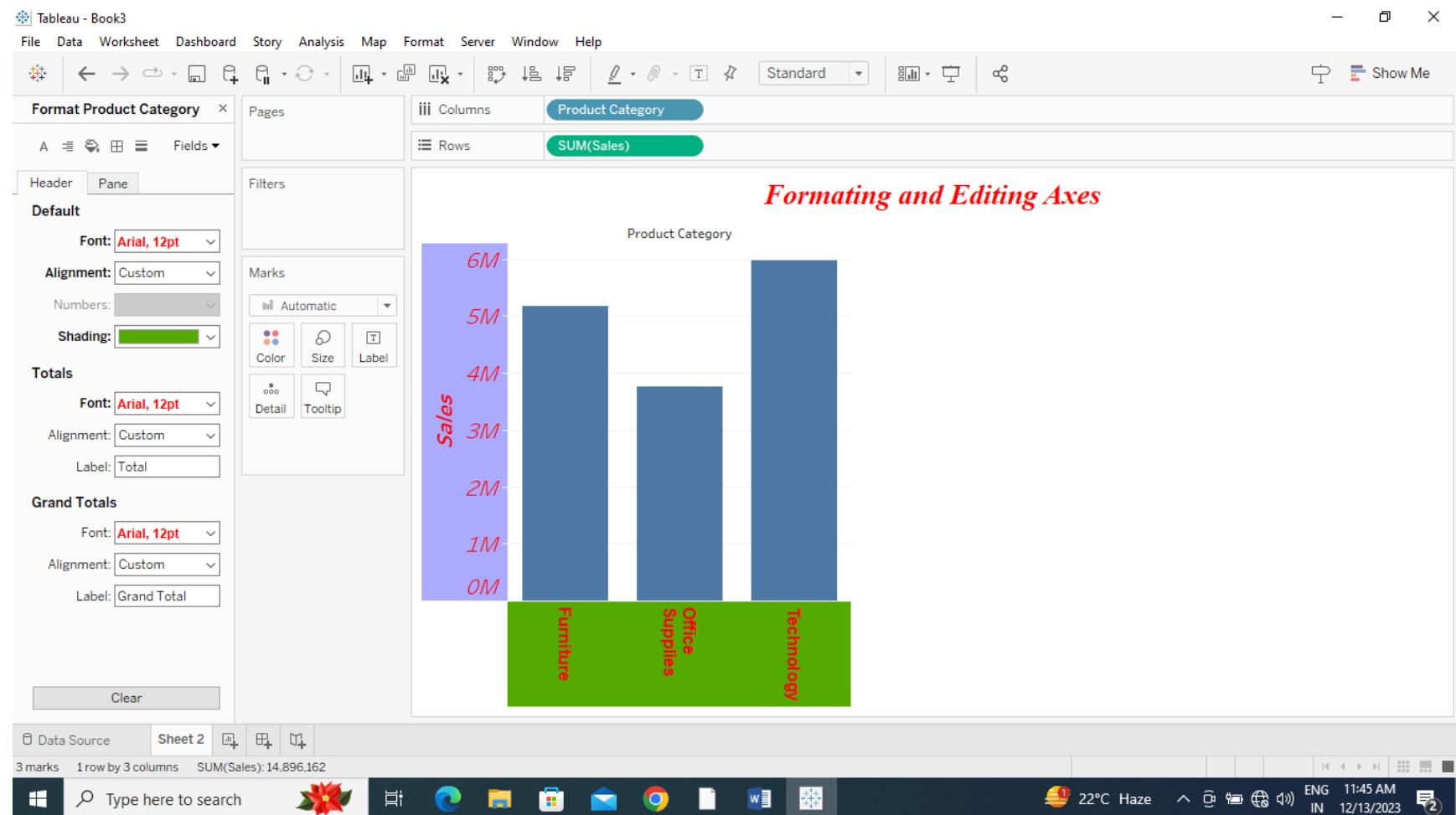
Data Source Sheet 2

3 marks 1 row by 3 columns SUM(Sales): 14.896.162

Type here to search

22°C Haze ENG 11:41 AM IN 12/13/2023

3. Right click on the x-axis, select format option and set the color, font size, font style and alignment.



4.Right click on y-axis and select edit axis option

Tableau - Book3

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Show Me

Format Product Category x

Pages Columns Product Category

Rows SUM(Sales)

Header Pane

Default

Font: Arial, 12pt

Alignment: Custom

Numbers:

Shading:

Totals

Font: Arial, 12pt

Alignment: Custom

Label: Total

Grand Totals

Font: Arial, 12pt

Alignment: Custom

Label: Grand Total

Clear

Product Category

Formating and Editing Axes

Sales

6M

2M

1M

0M

Furniture Office Supplies Technology

Edit Axis...

Clear Axis Range

Select Marks

Format...

Show Header

Add Reference Line

Product Category	SUM(Sales)
Furniture	~2.5M
Office Supplies	~3.5M
Technology	~5.5M

5. After selecting the edit axis, open the new window and Edit the y-axis title.

Tableau - Book3

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Format SUM(Sales)

A Fields Axis Pane

Font: Tableau Boo.. Shading:

Default Scale Title

Font: Tableau Me..

Product Category

Rows: SUM(Sales)

Pages

Filters

Marks

Color Size Label Detail Tooltip

Product Category-Sales

Formating

6M 5M 4M 3M 2M 1M 0M

Furniture Office Supplies Technology

Product Category

Edit Axis [Sales]

General Tick Marks

Range

Automatic Include zero

Uniform axis range for all rows or columns

Independent axis ranges for each row or column

Fixed

Automatic Automatic

0 6,270,659.0121

Scale

Reversed Logarithmic

Positive Symmetric

Axis Titles

Title: Custom Product Category-Sales

Subtitle: Automatic

Reset

Data Source Sheet 2

3 marks 1 row by 3 columns SUM(Sales): 14,896,162

Type here to search

22°C Haze ENG 11:50 AM IN 12/13/2023

6. Click the Reversed check box in the edit axis window, automatically bar chart is showing reverse.

Tableau - Book3

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Format SUM(Sales)

A Fields Axis Pane

Default

Font: Tableau Boo.. Shading:

Scale

Ticks: Numbers: 123,456 Alignment: Automatic

Title

Font: Tableau Me..

Clear

Pages Columns Product Category

Rows SUM(Sales)

Product Category-Sales

Furniture Office Supplies Technology

Formating

Edit Axis [Sales]

General Tick Marks

Range

Automatic Include zero

Uniform axis range for all rows or columns

Independent axis ranges for each row or column

Fixed

Automatic Automatic

0 6,270,659.0121

Scale

Reversed Logarithmic

Positive Symmetric

Axis Titles

Title Custom Product Category-Sales

Subtitle Subtitle Automatic

Reset

Data Source Sheet 2

3 marks 1 row by 3 columns SUM(Sales): 14,896,162

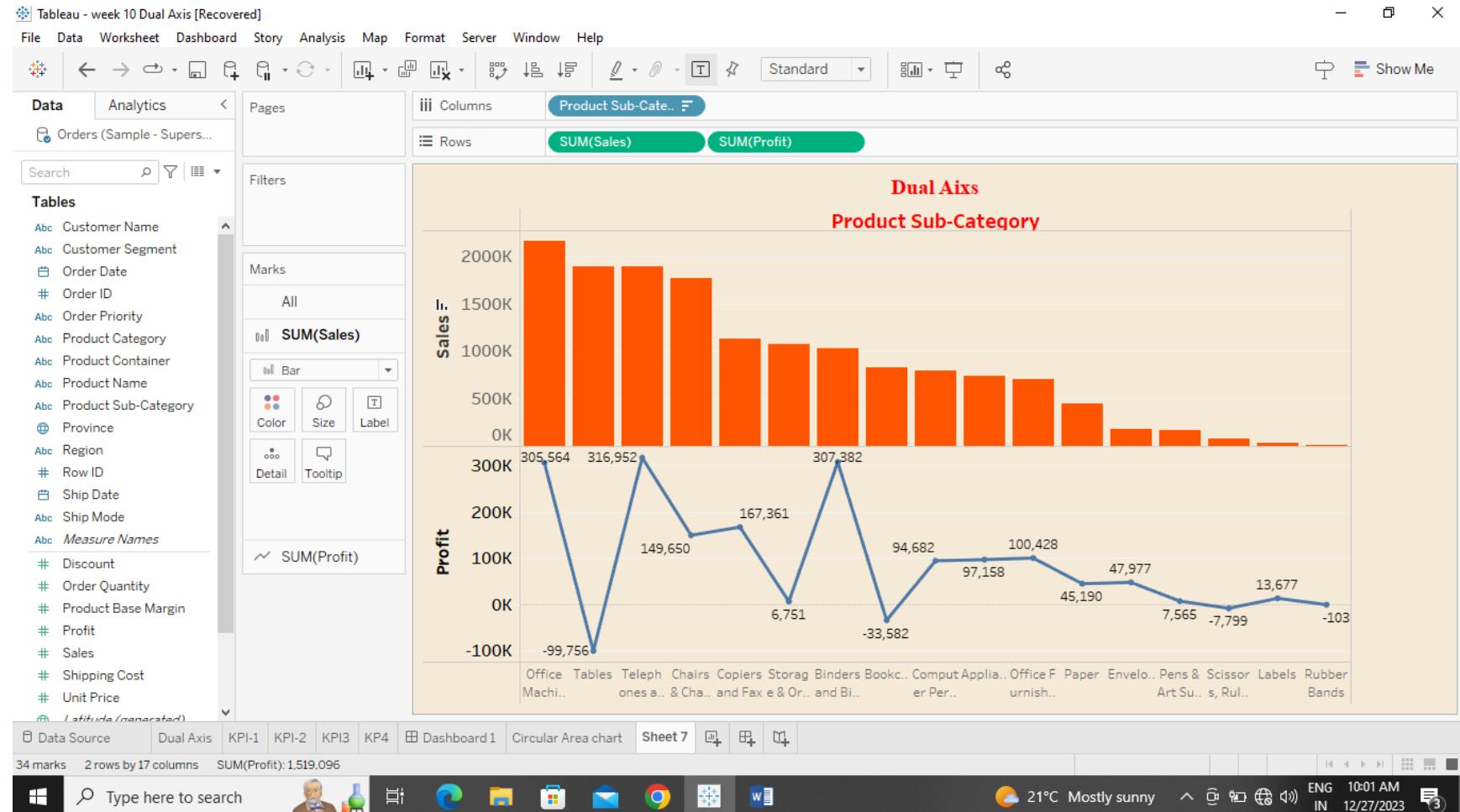
Type here to search 22°C Haze ENG 11:54 AM IN 12/13/2023

Windows Start Chrome Mail Word Tableau Server

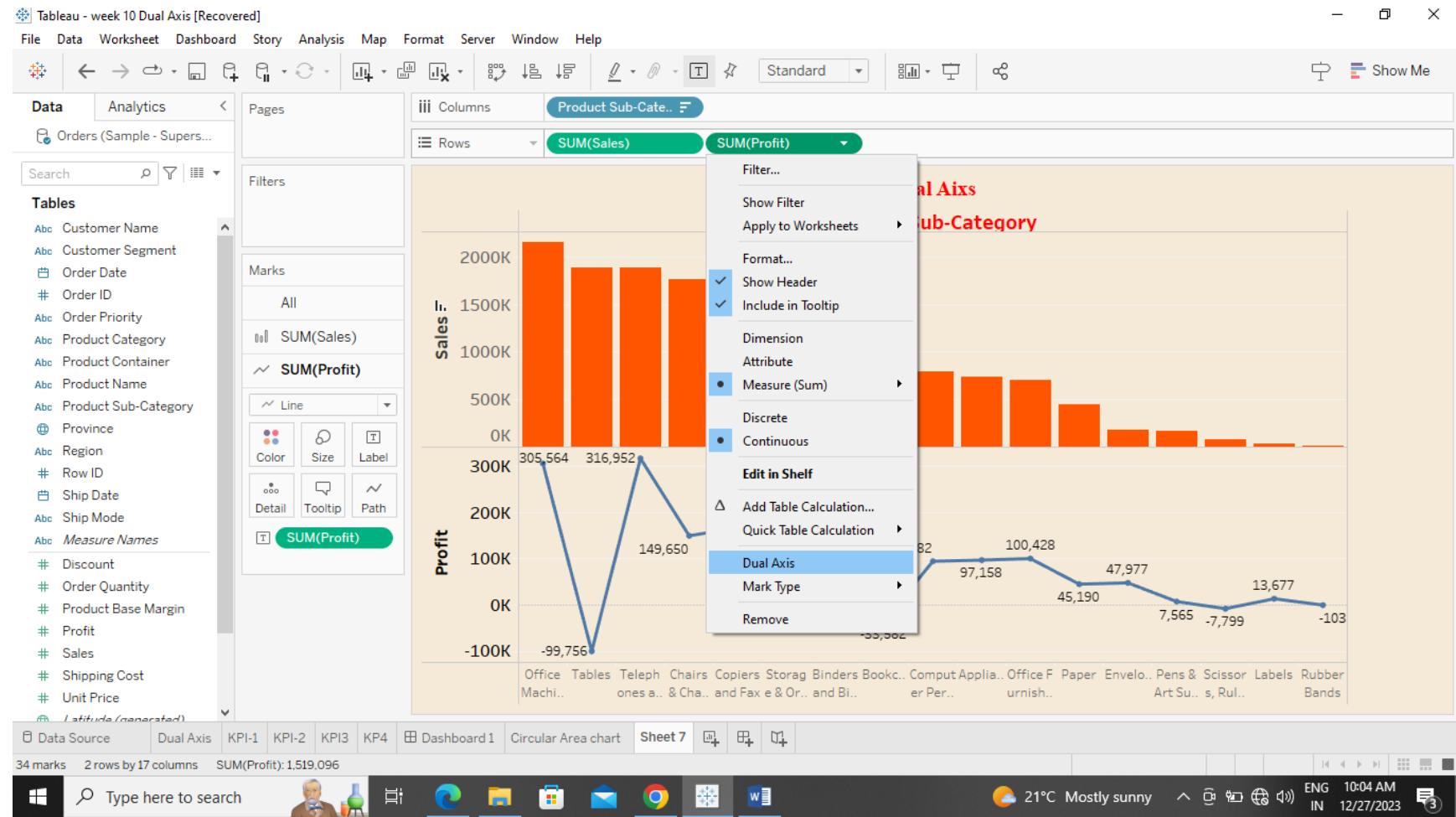
WEEK-9

9. Creating custom charts, cyclical data and circular area charts, Dual Axis charts.

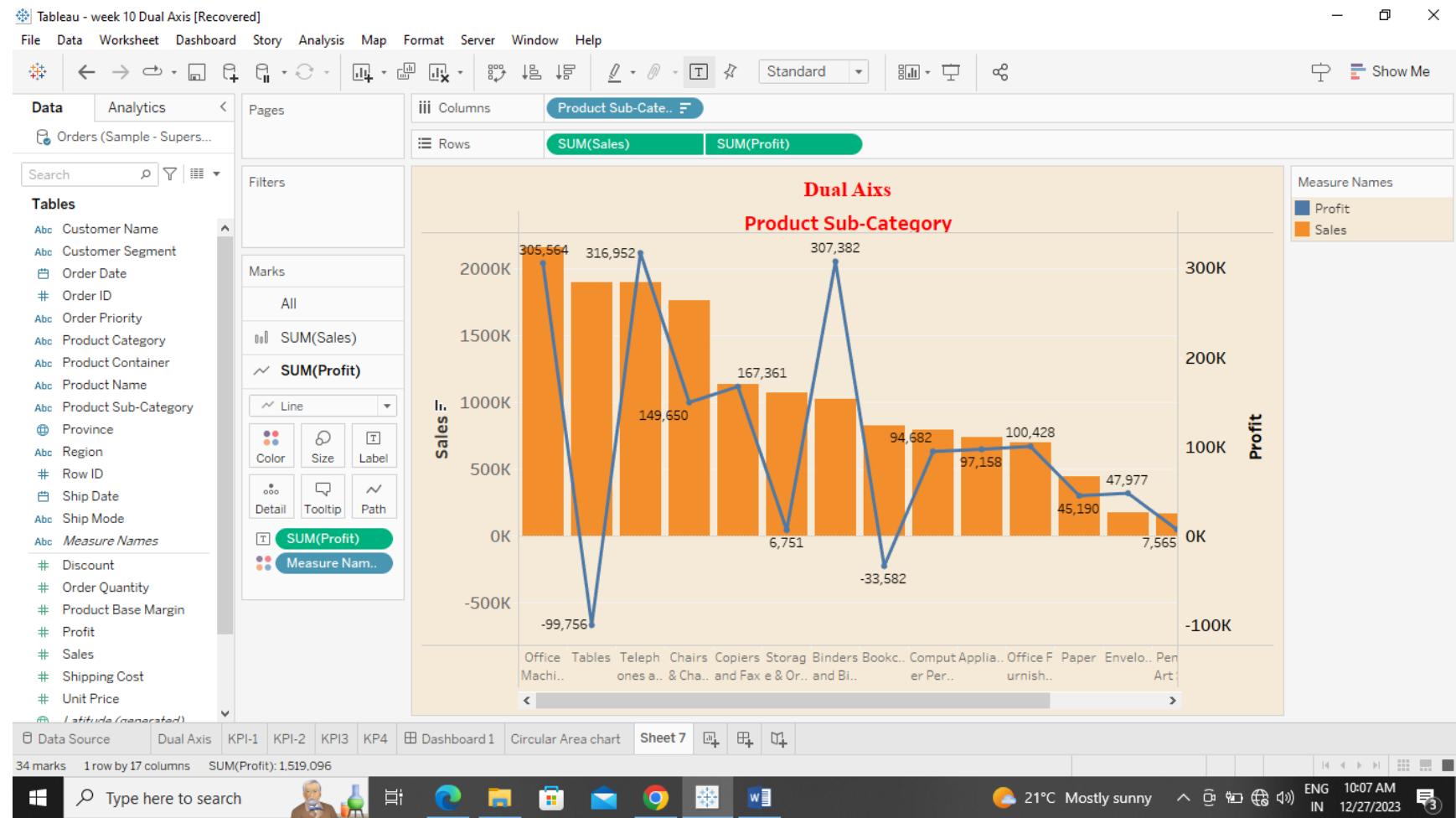
1. Create Bar chart for Sales and line chart for Profit



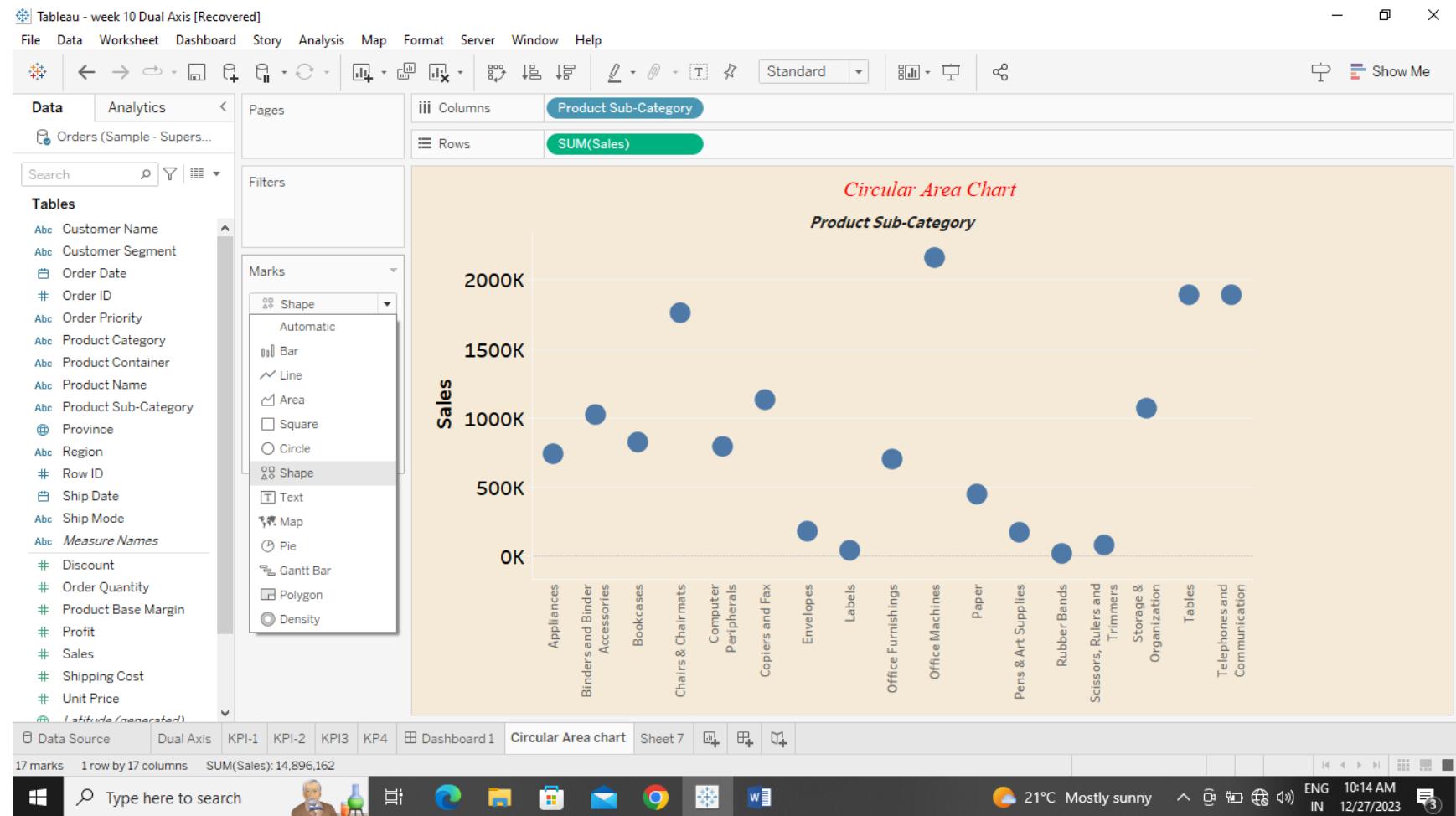
2. Click the profit field in rows shelf, open pop-up window and select Dual Axis



3. After select Dual Axis , display the dual axis worksheet.



4. Drag and Drop the sub-category, sale fields into columns and rows self's and select shape chart from mark card



5. Region field drag and drop into color mark card.

