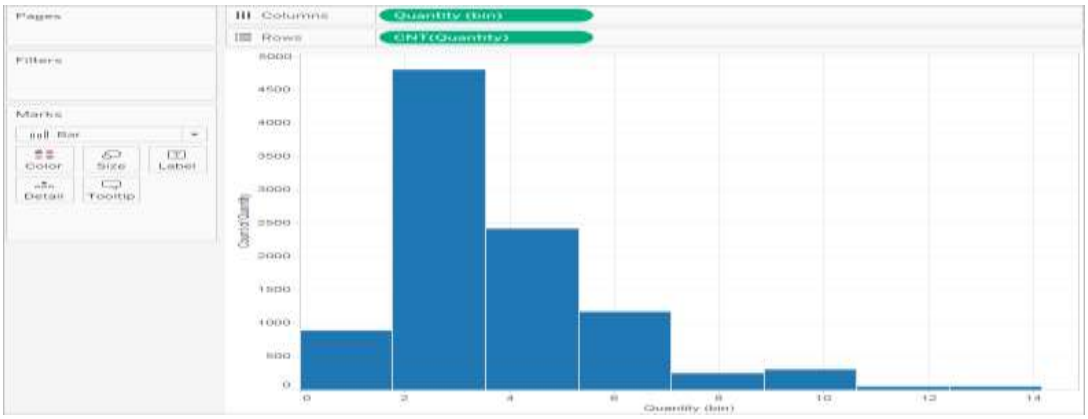
Ex No:1 HISTOGRAM CHART

Aim:

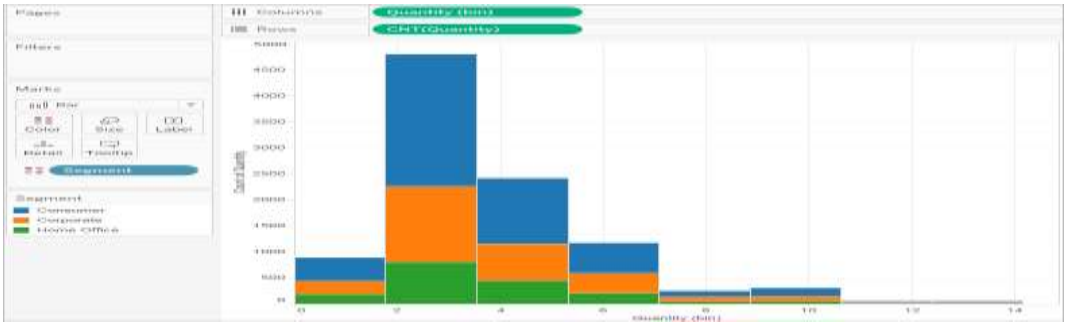
To analyze the quantity of products in a retail store using histogram Chart.

Procedure:

1. Connect to the **Sample - Superstore** data source.
2. Drag **Quantity** to **Columns**.
3. Click **Show Me** on the toolbar, then select the histogram chart type.

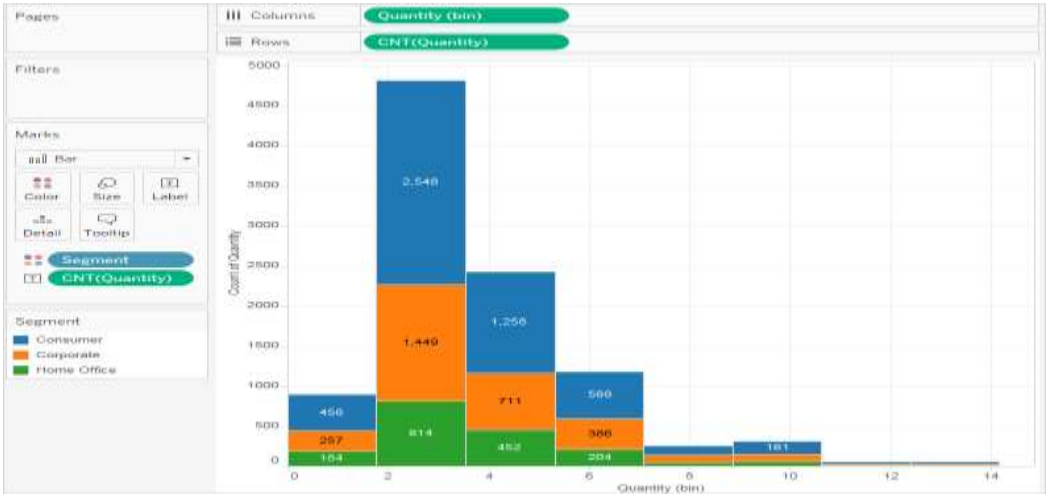


4. Drag **Segment** to **Color**.



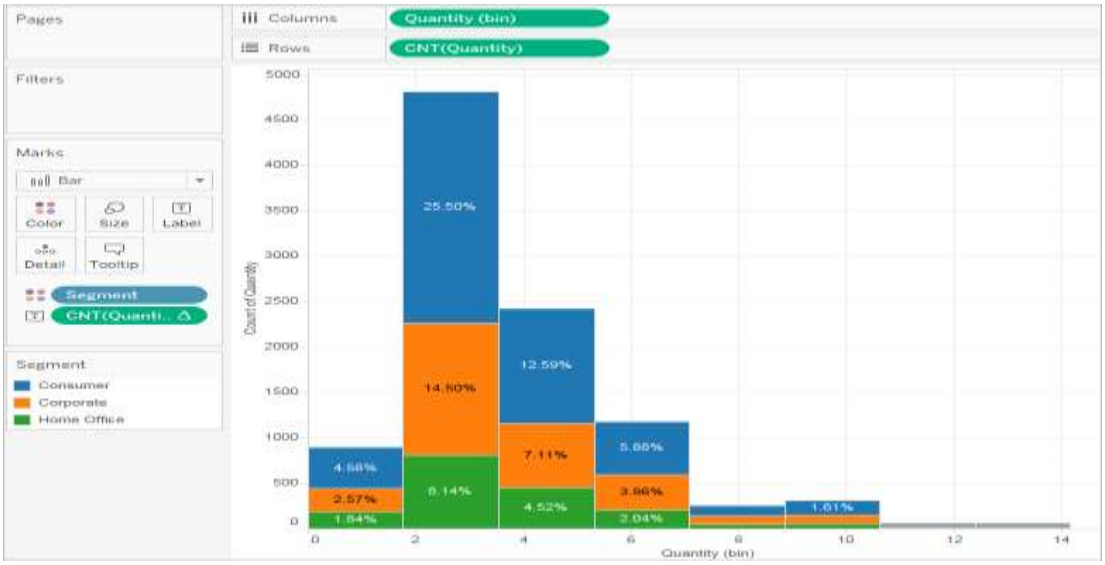
The colors don't show a clear trend. Let's show the percentage of each bar that belongs to each segment.

5. Hold down the Ctrl key and drag the **CNT(Quantity)** field from the **Rows** shelf to **Label**.



6. Right-click the **CNT(Quantity)** field on the **Marks** card and select **Quick Table Calculation** > **Percent of Total**.

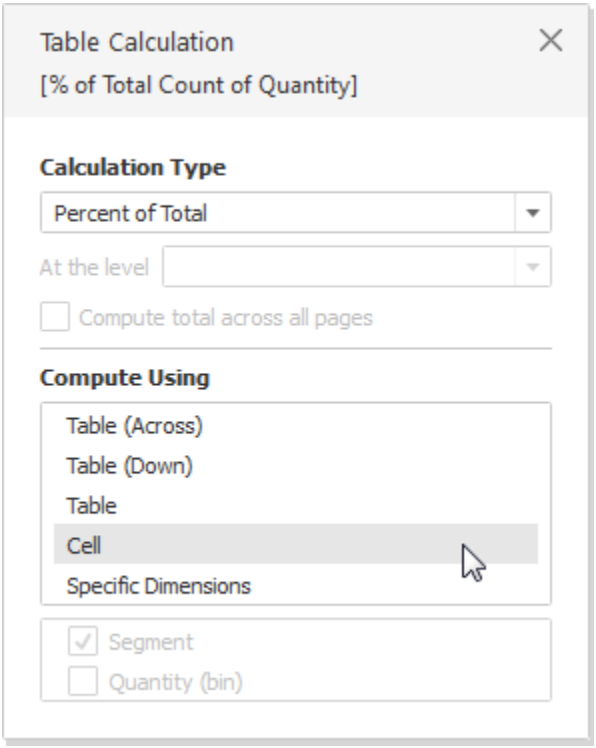
   Now each colored section of each bar shows its respective percentage of the total quantity.



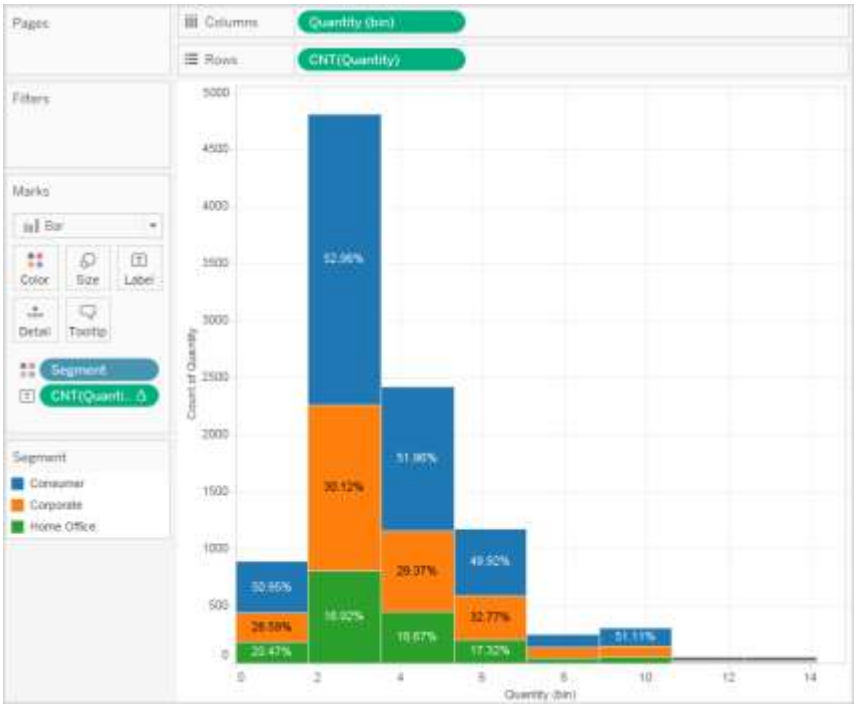
   But we want the percentages to be on a per-bar basis.

7. Right-click the **CNT(Quantity)** field on the **Marks** card again and select **Edit Table Calculation**.

8. In the Table Calculation dialog box, change the value of the **Compute Using** field to **Cell**.



OUTPUT:



Result:

The Histogram Chart has been created successfully in Tableau.

Pareto Chart

Ex No:2

Aim:

To analyze the Profit contributed by different subcategory of products in a retail store using Pareto Chart.

Step 1) Go to a new Worksheet.

1. Drag ‘Sub-Category’ into Columns.
2. Drag ‘Profit’ into Rows.

Step 2) Right click on ‘Sub-Category’.

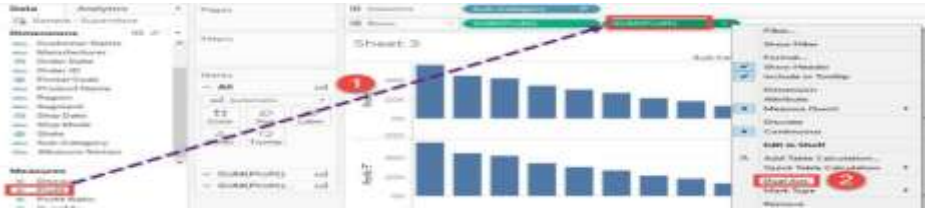
1. Select ‘Sort’ option from the list.

Step 3) It opens a Sort Window.

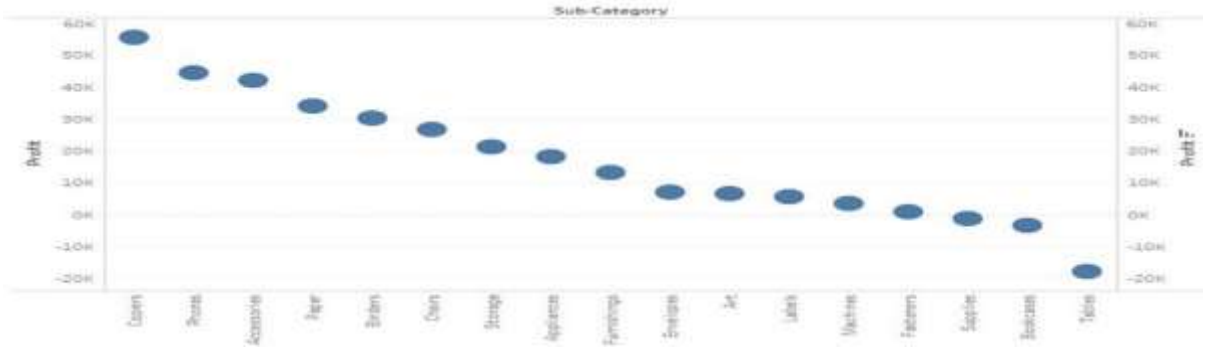
1. Click on ‘Descending’ in Sort order.
2. Select ‘Field’ in ‘Sort by” section. Select the field as Profit and choose ‘Sum’ as aggregation.
3. Click on OK.

Step 4) Drag ‘Profit’ again into Rows.

1. Right-click on the newly added ‘Profit’ and Select ‘Dual axis’ option.



It merges the x-axis of both measures and converts the visualization as given below.



Step 5) Go to Marks Card.

1. Select ‘SUM(Profit)’ for the marks card list.
2. Click on the drop-down button as shown in the image.
3. Select ‘Bar’ as chart type.

Step 6) Select ‘SUM(Profit)(2)’ from the marks card list.

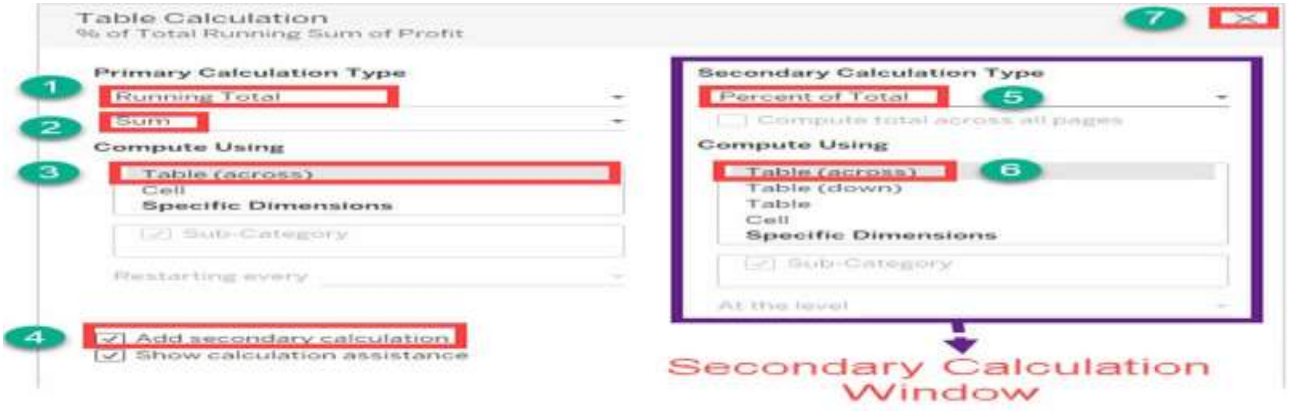
1. Select the drop-down button as given in the image.
2. Click on ‘Line’ from the list.

Step 7) Select ‘SUM(Profit)’ on the right side of rows as shown in the image.

1. Right click on it and select ‘Add Table Calculation’ from the list.

Step 8) It opens the Primary Calculation Type window.

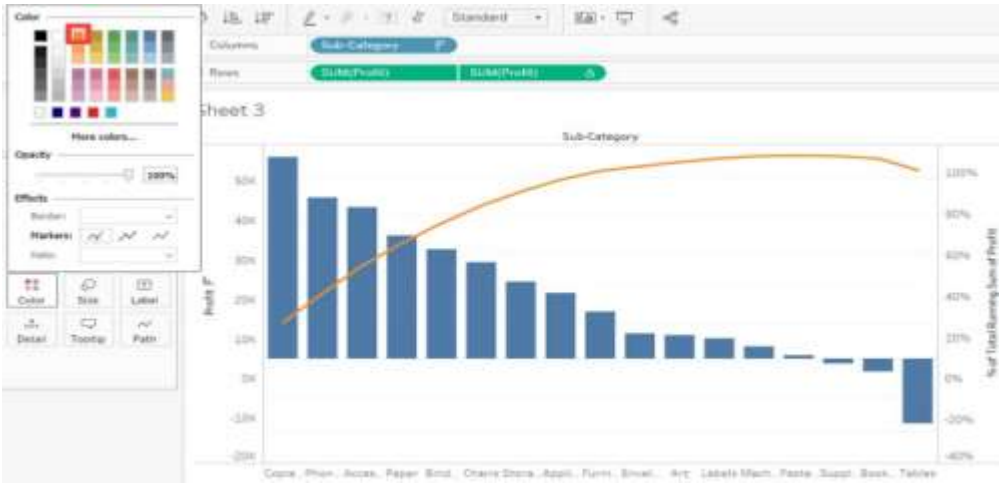
1. Select ‘Running Total’ from the drop-down.
2. Select ‘Sum’ as aggregation from the drop-down.
3. Click on Compute Using ‘Table (across)’.
4. Check in the ‘Add Secondary Calculation’ box.
5. It expands the window for ‘Secondary Calculation Type’. Select ‘Percent of Total’ from the dropdown list.
6. Select on Compute Using ‘Table (across)’
7. Now close the Window by clicking on close icon as shown in the image.



Step 9) Go to the last marks card namely 'SUM (Profit)'.

1. Click on color icon present in the marks card.

Step 10) Select any color of your choice.
This changes the color of line present in the graph.



Result:

The Pareto Chart has been created successfully in Tableau.

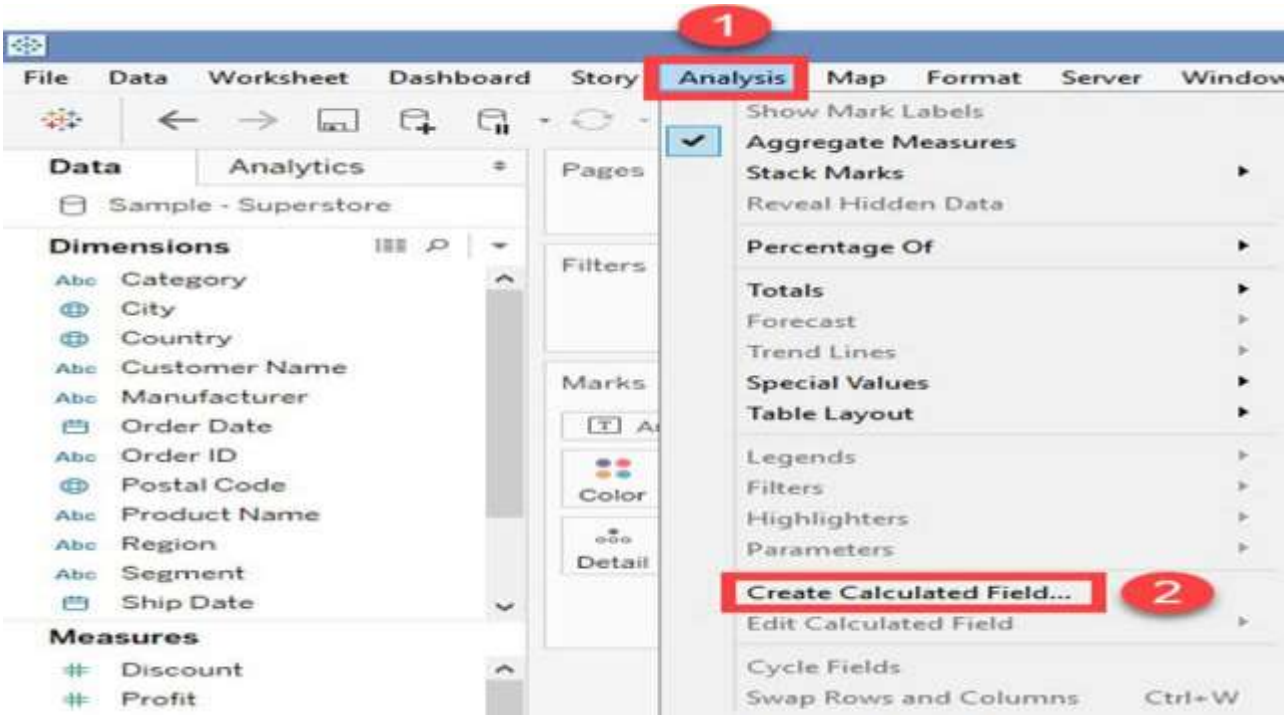
Ex No: 3 **Bullet Chart**

Aim:

To compare performance of measures of estimated profit and actual profit compare using bullet chart.

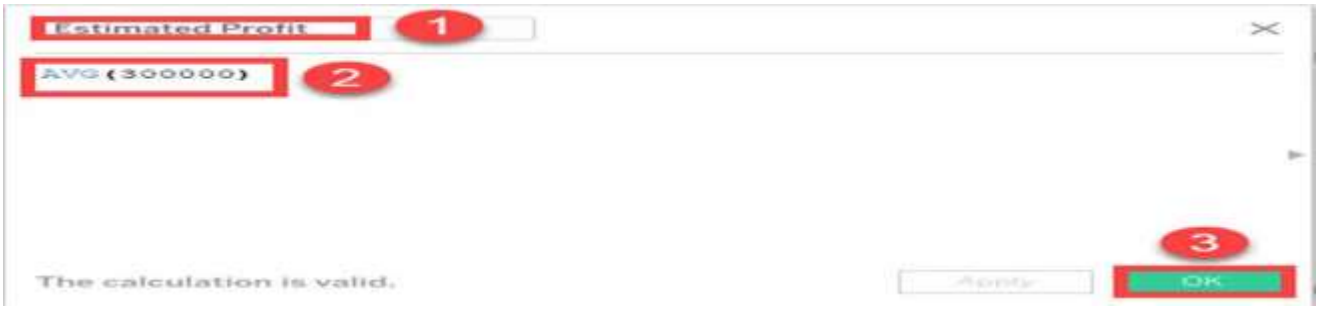
Step 1) Go to a new Worksheet.

1. Click on ‘Analysis’ present in the Menu bar.
2. Select ‘Create Calculated Field’ from the list.



Step 2) It opens Calculated Field Window.

1. Enter a name for the calculated field. In this example, it is named as ‘Estimated Profit’.
2. Type the estimated value of the measure. In this example, Profit is taken as the measure. So the calculated field is created for estimated profit.
3. Click on OK.



Step 3) Go to measures in Data pane. Hold the control key on keyboard and select ‘Estimated Profit’ and ‘Profit’.

Step 4) Click on ‘Show me’ button present in the top right corner of the worksheet.

Select bullet graph icon as shown in the image.

It creates a bullet graph as shown below.

Result:

The Bullet Chart has been created successfully in Tableau.

Ex No:4 **Bar chart and Line Chart**

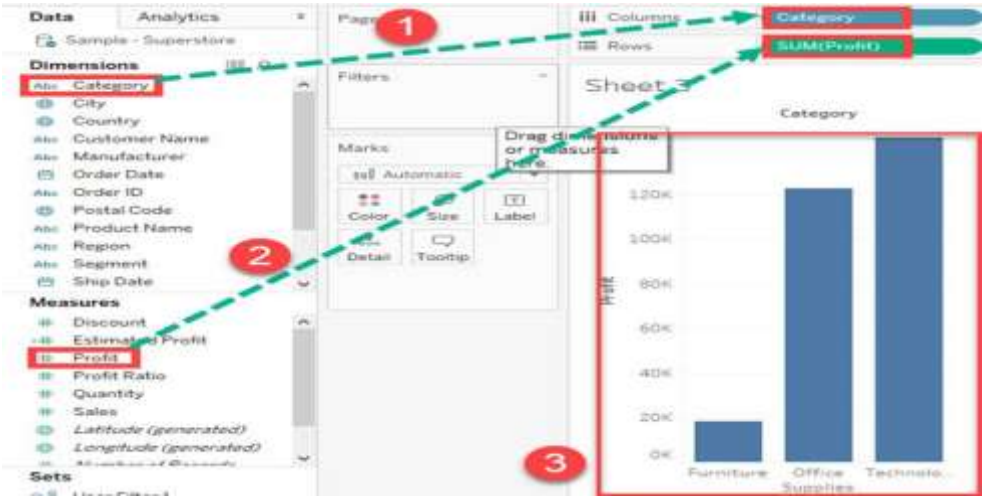
Aim:

To compare the data across different categories using Bar Chart and Line Chart and to show the exact value of measures across the different dimension.

Procedure:

Step) Go to a new worksheet.

1. Drag ‘Category’ into Column.
2. Drag ‘Profit’ into Rows.
3. It creates a bar chart by default.

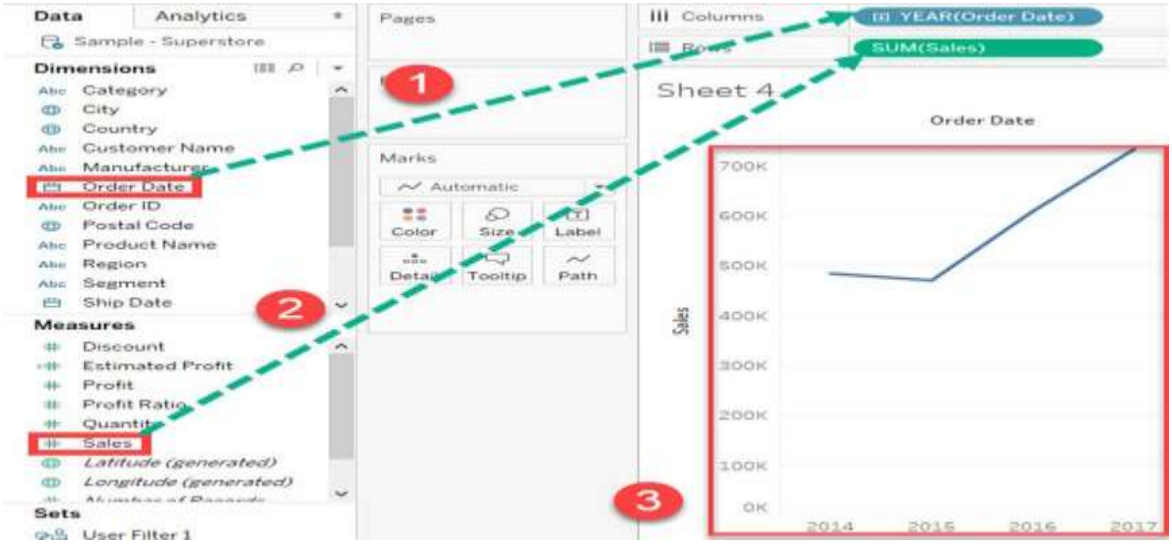


Line chart:

A Line Chart should be used to compare the data over the different periods. A line chart is created by the series of dots. These dots represent the measured value in each period. The procedure to create line graph is shown below.

Step) Go to a new Worksheet.

1. Drag ‘Order Date’ into Columns.
2. Drag ‘Sales’ into Rows.
3. It creates a line chart by default.

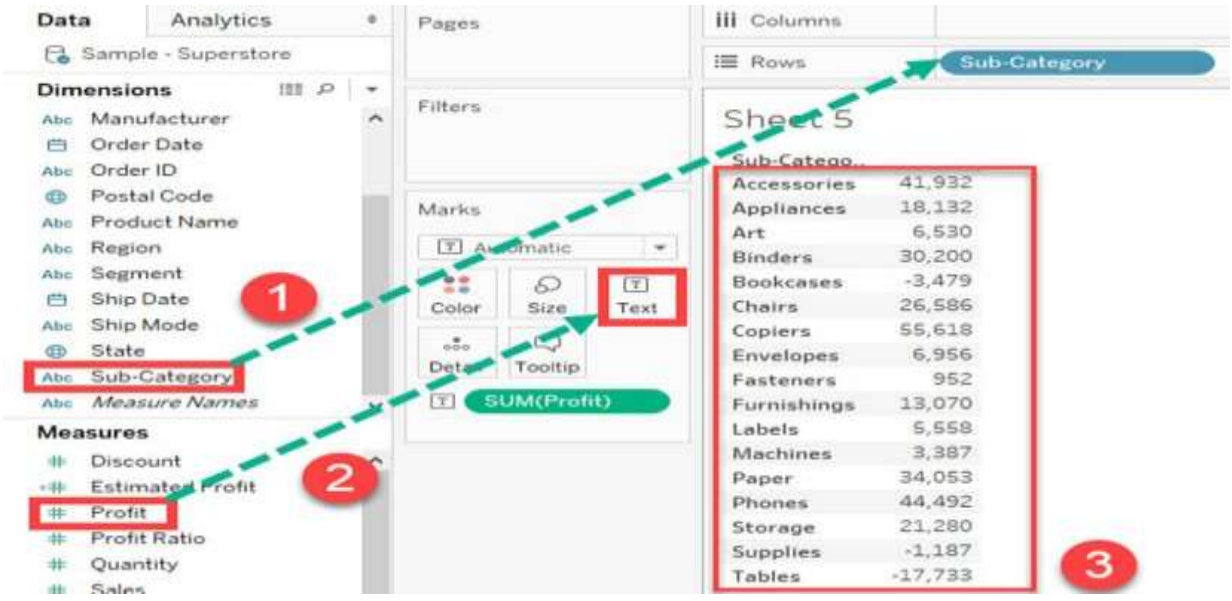


Text Tables:

Text tables are used to show the exact value of measures across the different dimension. A text table is also called as a **Pivot Table**. It groups the dimensions and measures by default. The procedure to design a text table is given as follows.

Step) Go to a new Worksheet.

1. Drag ‘Sub-Category’ into Rows.
2. Drag ‘Profit’ into text box present in the marks card.
3. It creates a text table by default.



Result:

The Line chart and Bar chart has been created successfully in Tableau.

EXNO: 5 **Waterfall Chart:**

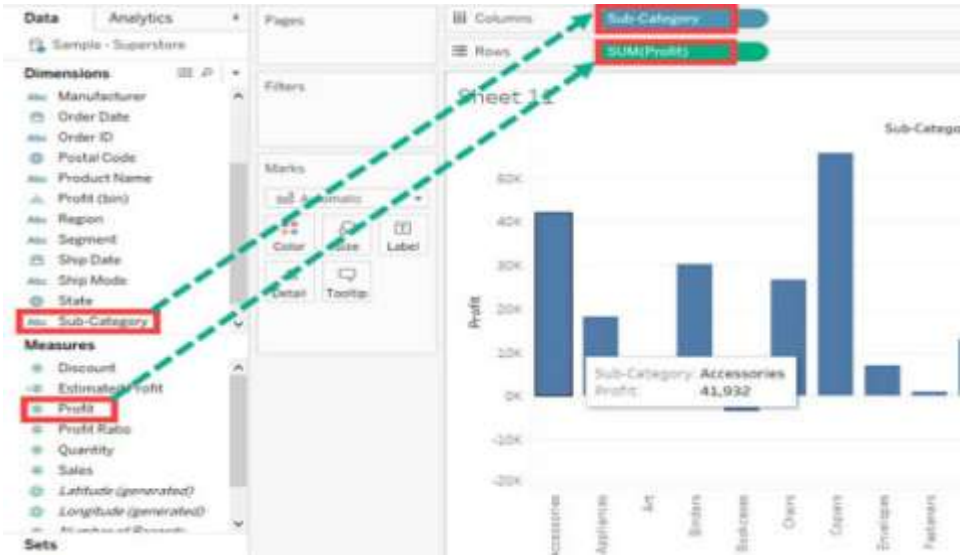
Aim:

To visualize the cumulative effect of a measure over dimension and to show the contribution of growth or decline of profit by each sub-category of product using a waterfall chart.

Procedure:

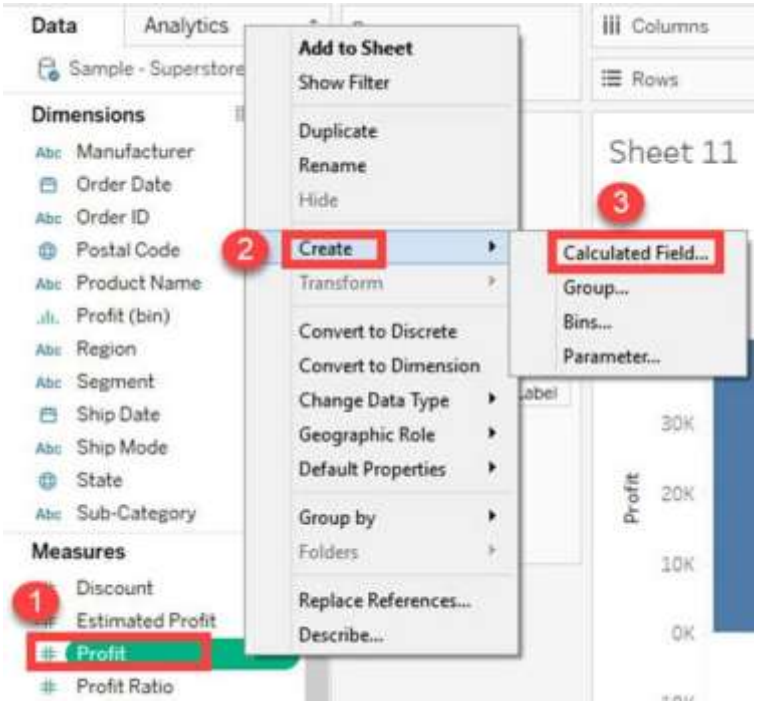
Step 1) Go to a new Worksheet.

1. Drag Sub-Category into Columns
2. Drag Profit into Rows.



Step 2)

1. Right click on ‘Profit’ present in Measures Pane.
2. Choose ‘Create’ from the list.
3. Select the ‘Calculated Field’ Option.



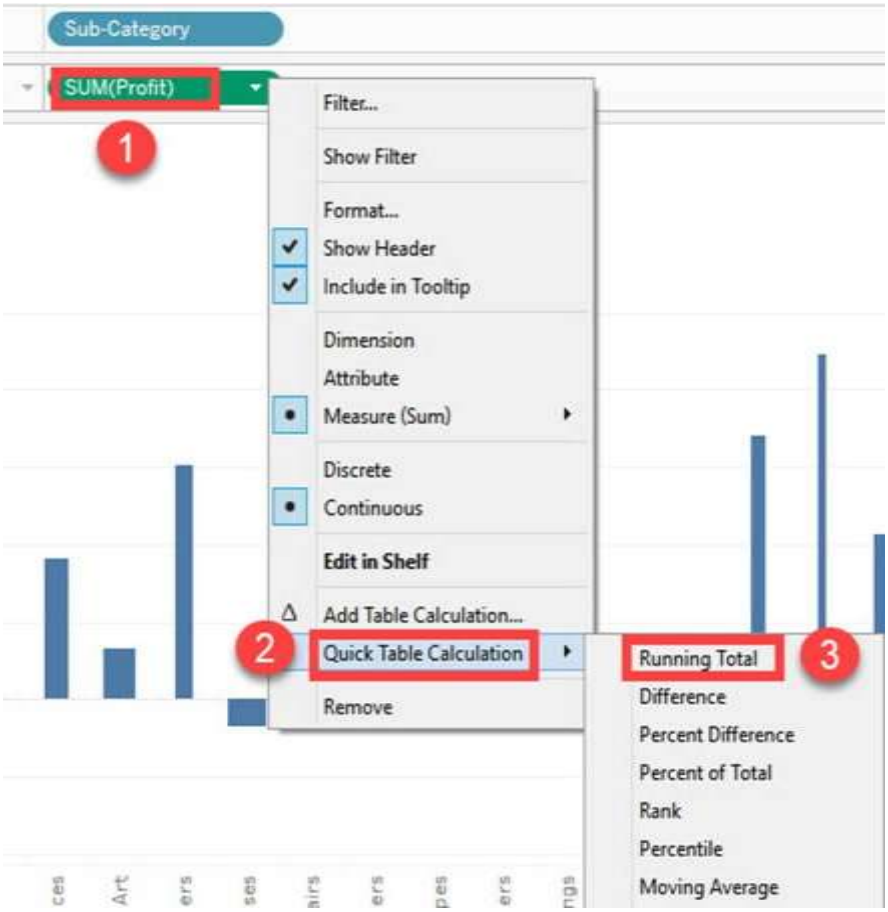
Step 3) It opens 'Calculated Field' Window.

1. Enter the name of the Calculated field as '-Profit.'
2. Write the formula as shown in the image.
3. Click on OK.

Step 4) Drag the newly created calculated field '-Profit' into size option present in the marks card.

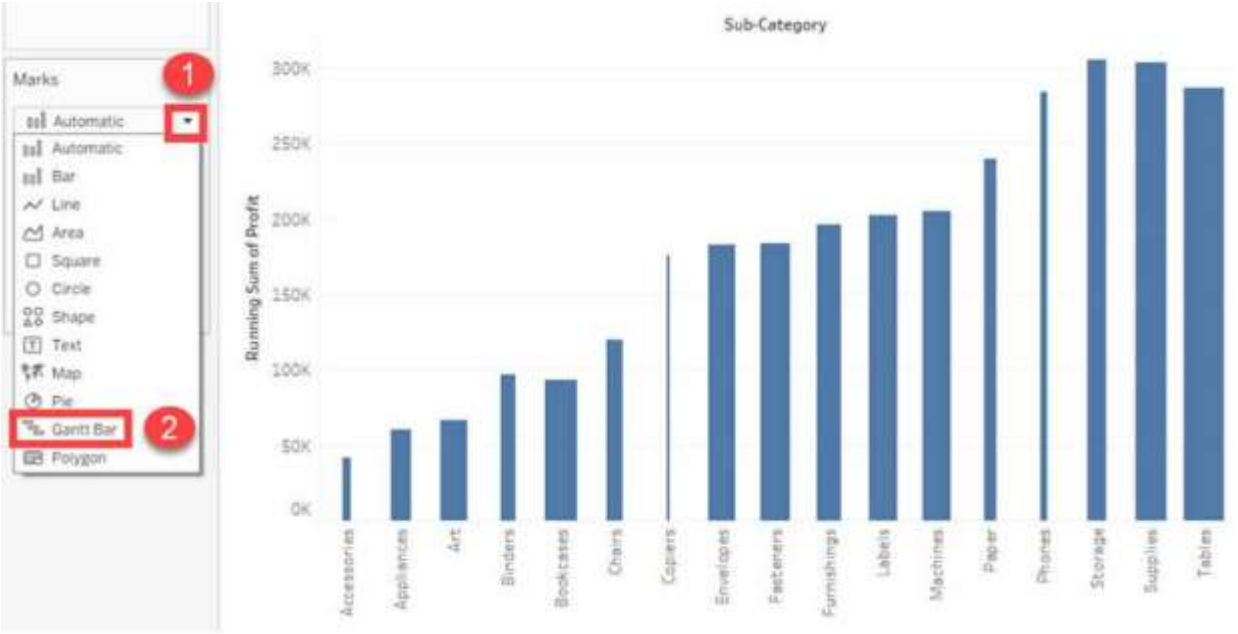
Step 5)

1. Right, Click on 'SUM (Profit)' present in the Rows.
2. Select 'Quick Table Calculation' from the list.
3. Click on 'Running Total' option.

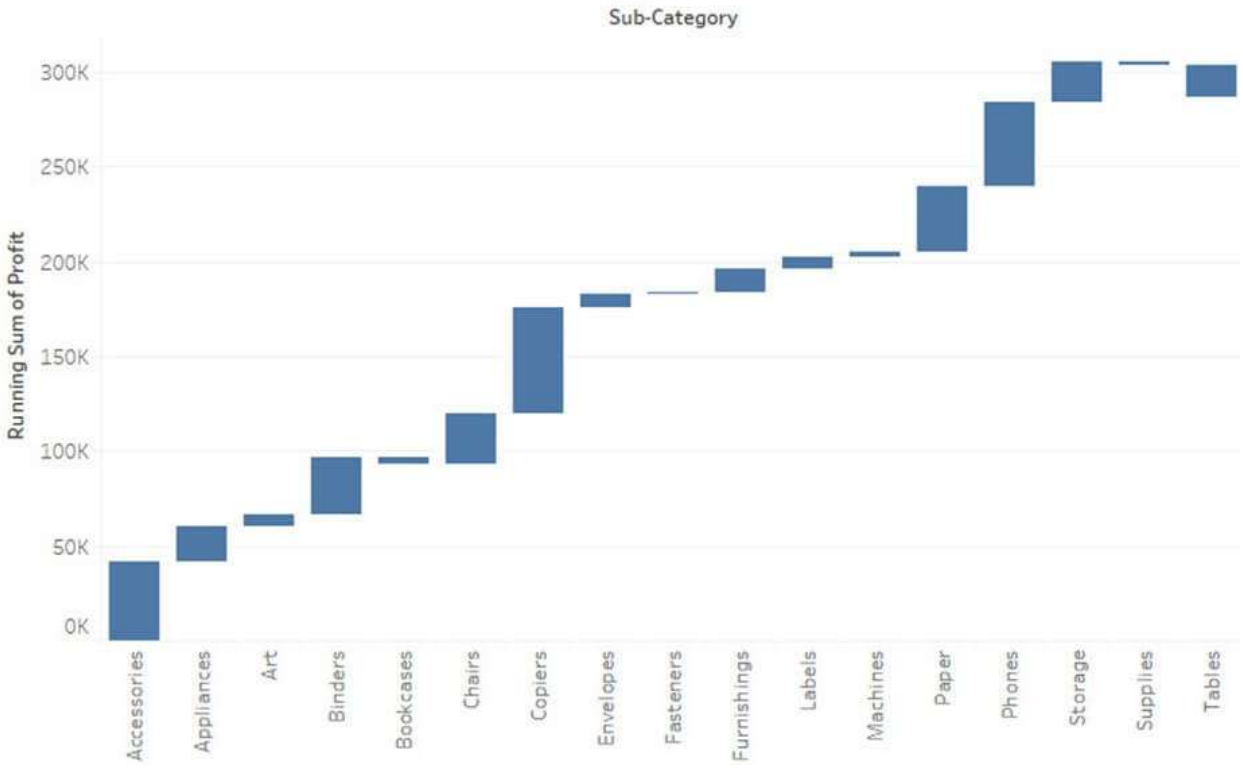


Step 6)

1. Click on the drop-down option present on the marks card.
2. Select ‘Gantt Chart’ from the list.



This creates a waterfall chart as shown below.



Result:

Thus the waterfall chart has been created successfully using Waterfall Chart.

EXNO: 6 **Gantt chart**

Objective:

To create a Gantt chart that shows how many days elapse on average between order date and ship date.

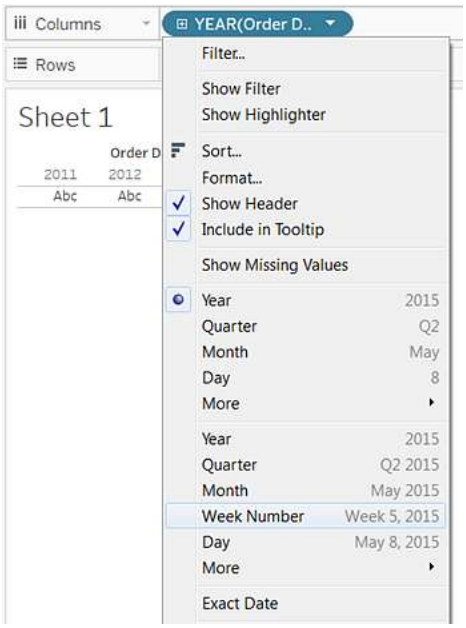
Procedure:

1. Connect to the **Sample - Superstore** data source.

2. Drag the **Order Date** dimension to **Columns**.

   Tableau aggregates the dates by year and creates column headers with labels for the years.

3. On the **Columns** shelf, click the **Year (Order Date)** drop-down arrow, and then select **Week Number**.



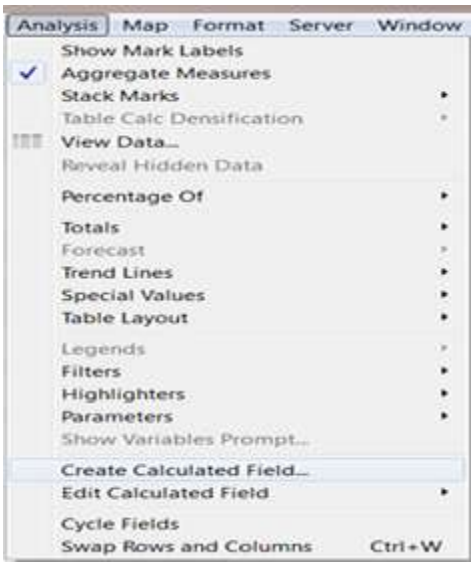
   The column headers change. Individual weeks are indicated by tick marks because there are 208 weeks in a four-year span—too many to show as labels in the view.

4. Drag the **Sub-Category** and **Ship Mode** dimensions to the **Rows** shelf. Drop **Ship Mode** to the right of **Sub-Category**.

   This builds a two-level nested hierarchy of dimensions along the left axis.

Next, we'll size the marks according to the length of the interval between the order date and the ship date. To do this, create a calculated field to capture that interval.

5. In the toolbar menu, click **Analysis > Create Calculated Field**. You can also right-click (Control-click on Mac) any field in the **Data** pane and select **Create** > **Calculated Field**.



6. In the calculation dialog box, name your calculated field **OrderUntilShip**.

7. Clear any content that's in the **Formula** box by default.

8. In the **Formula** box, enter the following formula and then click **OK**:

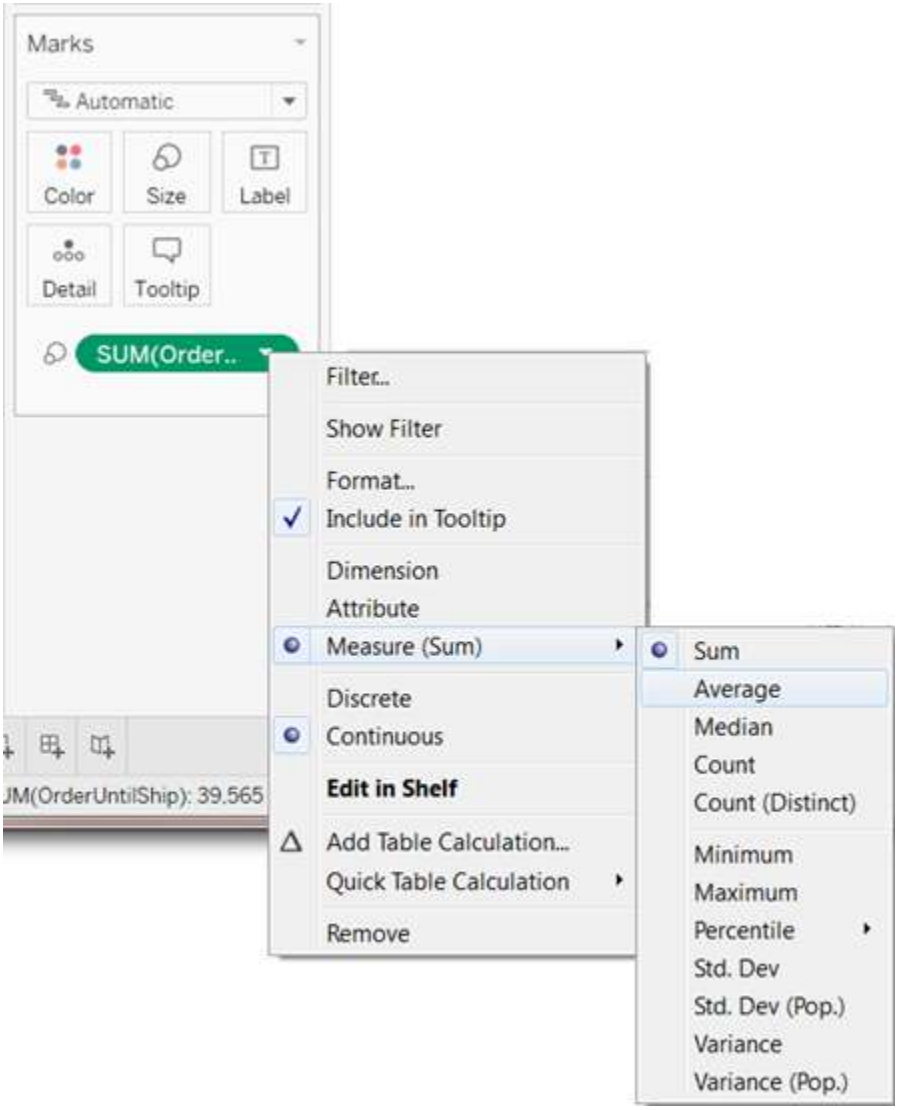
   DATEDIFF('day',[Order Date],[Ship Date])

   The formula creates a custom measure that captures the difference between the **Order Date** and **Ship Date** values, in days.

9. Drag the **OrderUntilShip** measure to **Size** on the **Marks** card.

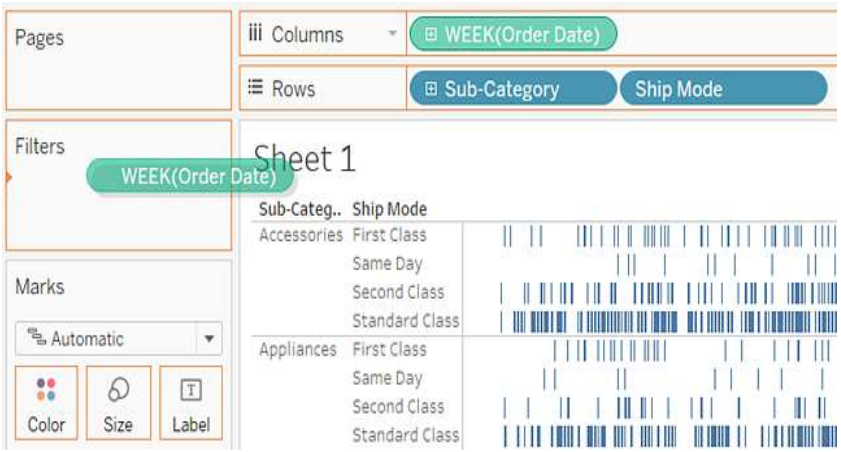
The default aggregation for **OrderUntilShip** is **Sum**, but in this case it makes more sense to average the values.

10. Right-click (Control-click on Mac) the **SUM(OrderUntilShip)** field on the **Marks** card, and then select **Measure (Sum)** > **Average**.



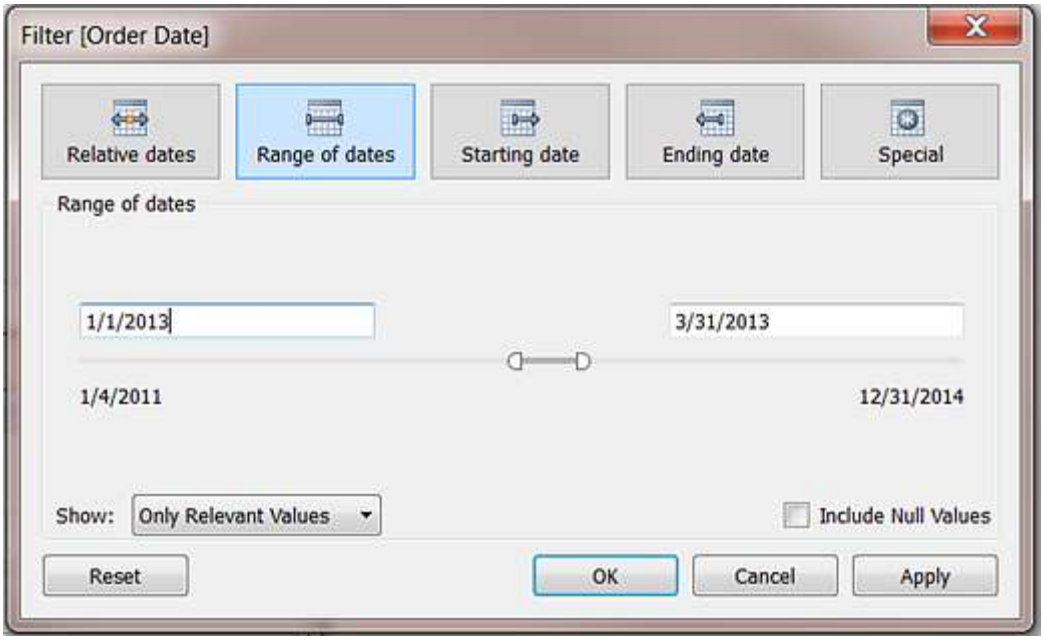
We can make our data more readable by filtering down to a smaller time window.

11. Hold down the Ctrl key (Option key on the Mac) and drag the **Week(Order Date)** field from the **Columns** shelf to the **Filter** shelf.



By holding down the Ctrl key (or the Option key), you tell Tableau that you want to copy the field to the new location, with whatever customizations you have added, without removing it from the old location.

12. In the Filter Field dialog box, select **Range of Dates** and then click **Next**.



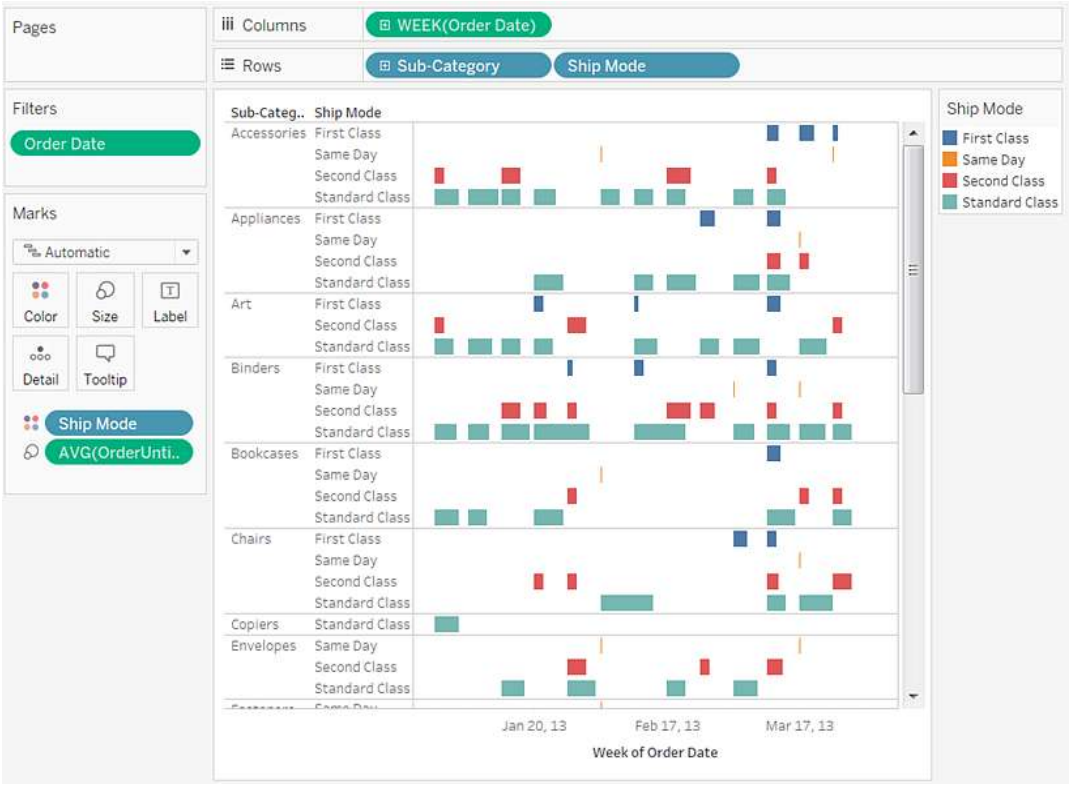
13. Set the range to a three-month time interval, such as 1/1/2013 to 3/31/2013, and then click **OK**.

    It can be difficult to get the exact date using the sliders—it's easier just to enter the numbers you want directly into the date boxes or use the calendar to select the dates.

14. Drag the **Ship Mode** dimension to **Color** on the **Marks** card.

    Now your view shows you all sorts of information about the lag between order times and ship times.

Output:



Result:

The Gantt Chart has been created successfully in Tableau.

EXNO: 7 **Heatmap**

Aim:

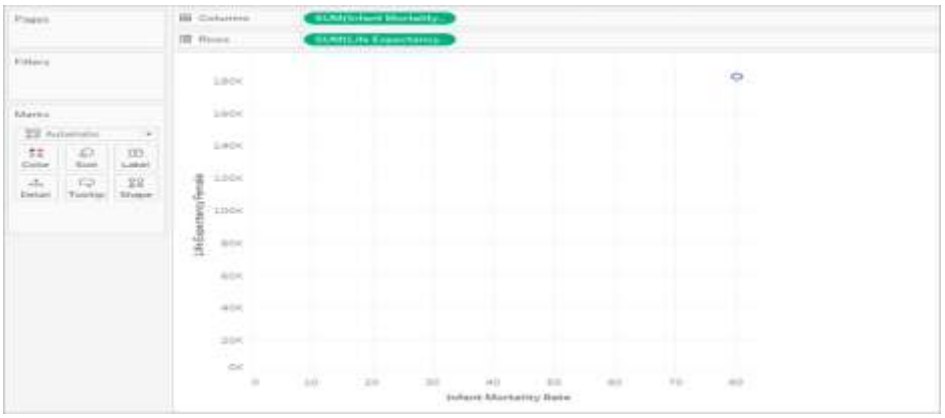
To create a basic scatter plot and to categorize the most dense plots with lots of overlapping marks and to create a visualization to mark the most dense plots.

1. Open the **World Indicators** data source from the **Saved Data Sources** section of the Start screen.

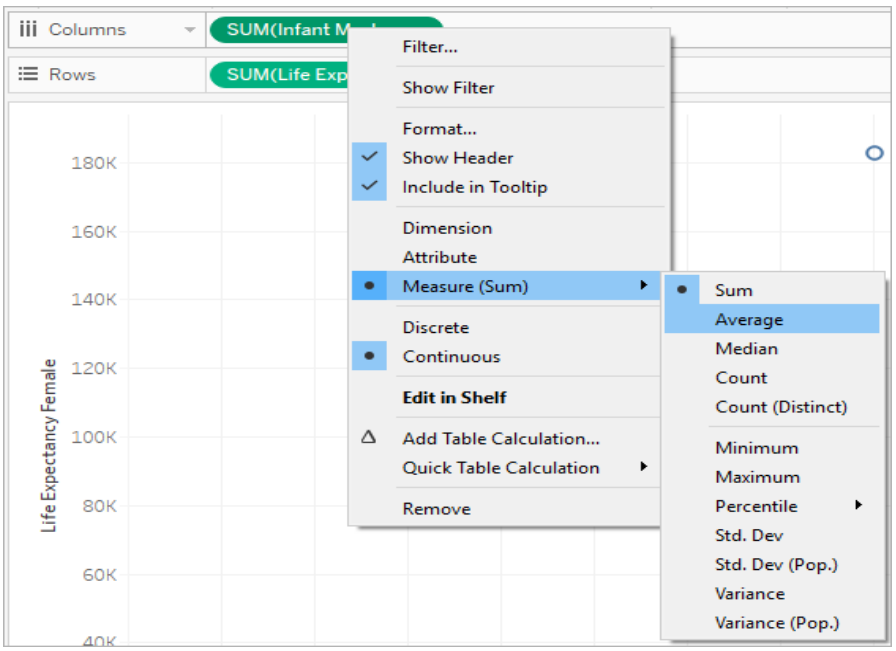
2. From the Health folder, drag **Infant Mortality** to the Columns shelf. Tableau aggregates the measure as a sum and creates a horizontal axis.

3. Drag the **Life Expectancy Female** to the **Rows** shelf.

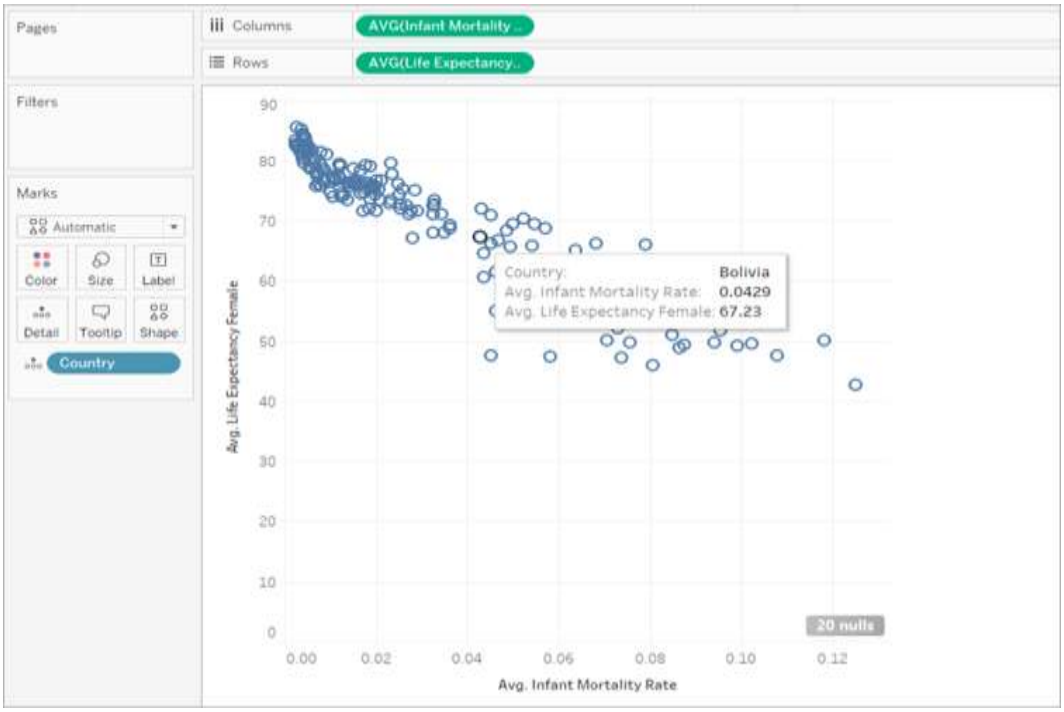
   Now you have a one-mark scatter plot.



4. Both Infant Mortality and Life Expectancy are listed as a **Sum**, rather than average. Right click on both of these measures and to change Measure(Sum) to **Average**.



5. Drag the **Country** dimension to **Details** on the Marks card.



6. On the **Marks** card, select **Density** from the menu to change this scatter plot into a density chart.

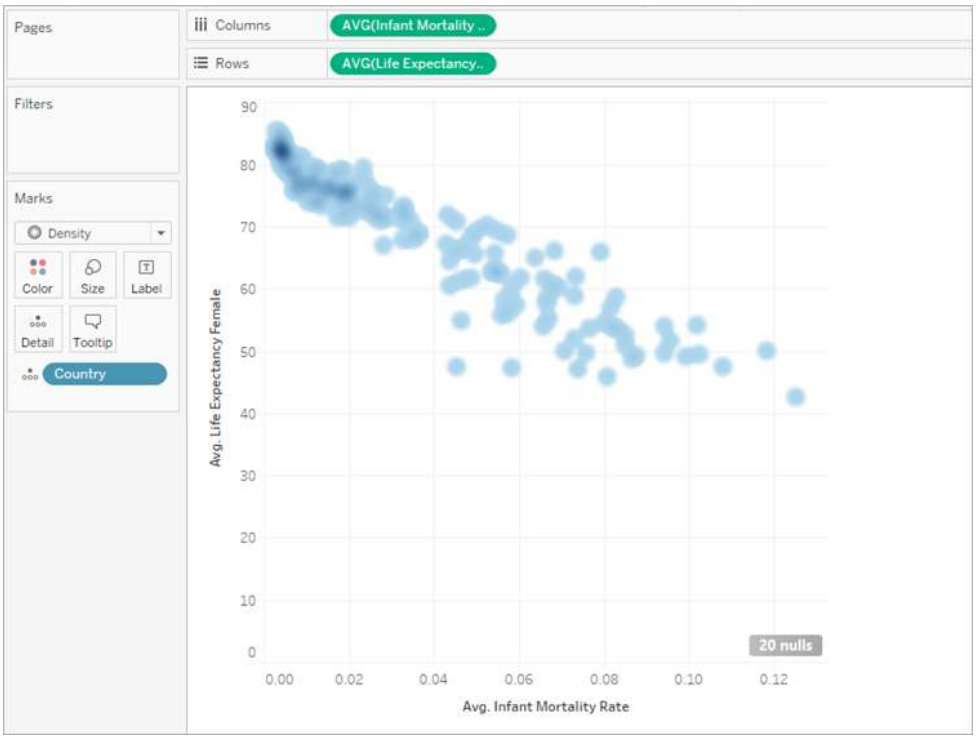
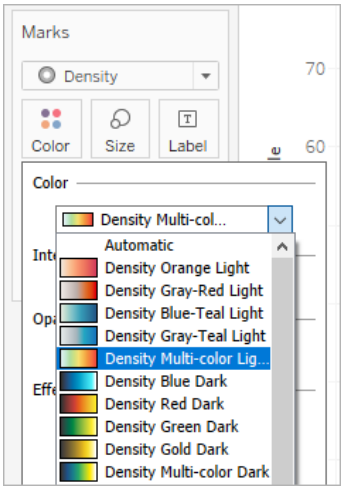


Tableau selected a blue color palette by default, but you can choose from ten density color palettes or any of the existing color palettes.

7. Select **Color** from the **Marks** card and select **Density Multi-color Light** from the menu.

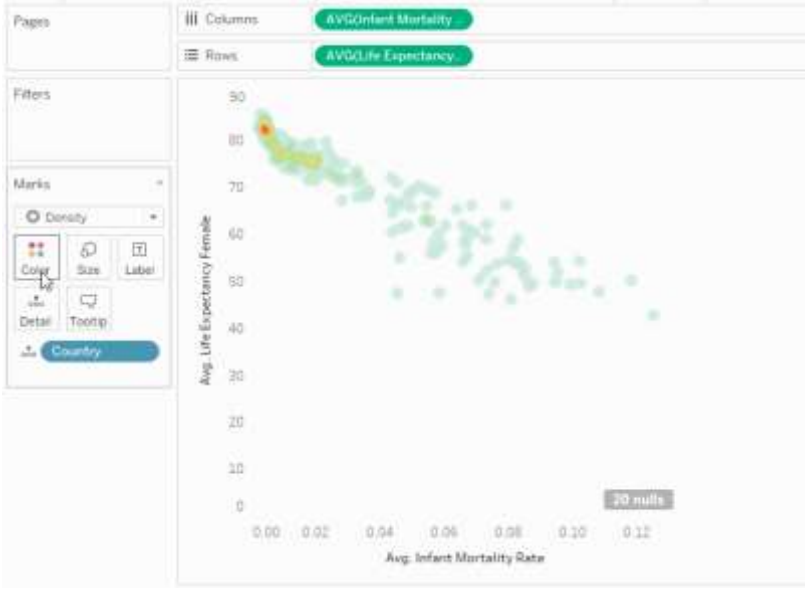


The names of the color palettes indicate whether they're designed for use on charts with dark or light backgrounds. Since our chart has a light background, we picked a "Light" palette.

This changes the color palette on your chart. More concentrated areas will appear red, while areas without overlapping marks will appear green.

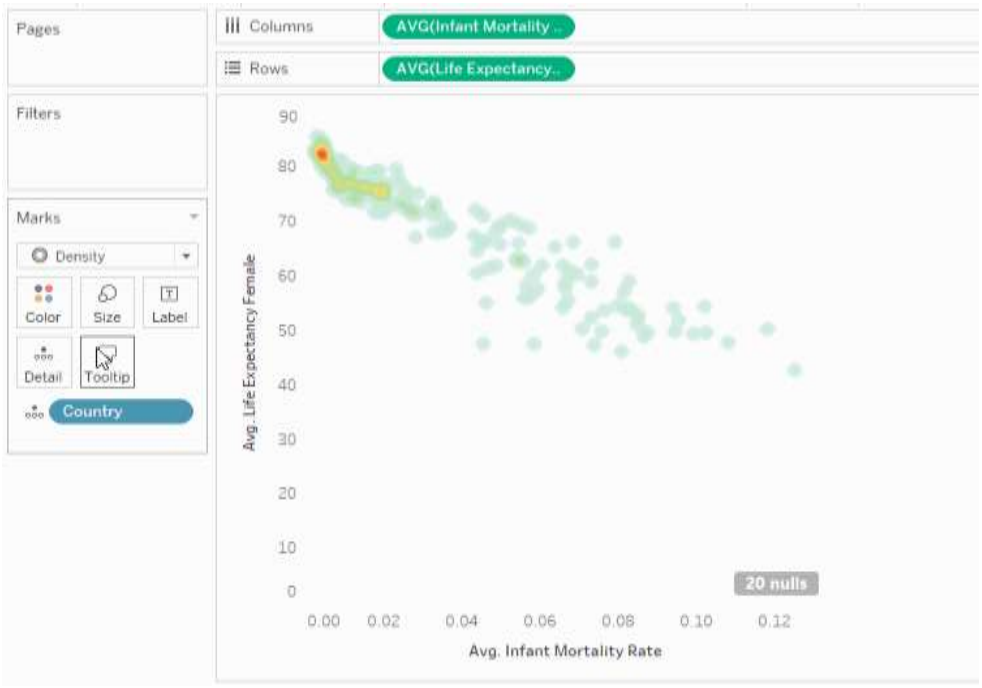
Note: Color legends are not available for density marks.

8. In the Color menu, use the Intensity slider to increase or decrease the vividness of the density marks.



9. Select **Size** from the Marks card to adjust the size of the density's kernel.

OUTPUT



Result:

The HeatMap has been created successfully in Tableau.

EXNO: 8 **Highlight Table**

To create a highlight table to explore how profit varies across regions, product sub-categories, and customer segments.

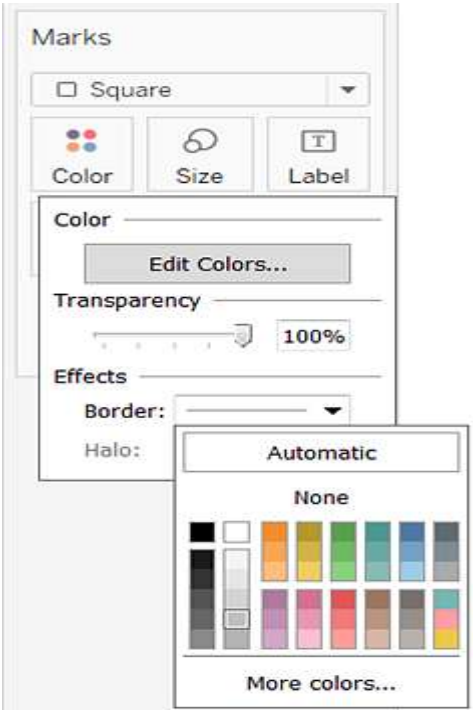
Procedure:

1. Connect to the **Sample - Superstore** data source.
2. Drag the **Segment** dimension to **Columns**.

   Tableau creates headers with labels derived from the dimension member names.
3. Drag the **Region** and **Sub-Category** dimensions to **Rows**, dropping **Sub-Category** to the right of **Region**.
4. Drag the **Profit** measure to **Color** on the **Marks** card.

   Tableau aggregates the measure as a sum. The color legend reflects the continuous data range.

   In the Central region, copiers are shown to be the most profitable sub-category, and binders and appliances the least profitable.
5. Click **Color** on the **Marks** card to display configuration options. In the **Border** drop-down list, select a medium gray color for cell borders, as in the following image:



Now it's easier to see the individual cells in the view:

6. The default color palette is Orange-Blue Diverging. A Red-Green Diverging palette might be more appropriate for profit. To change the color palette and to make the colors more distinct, do the following:

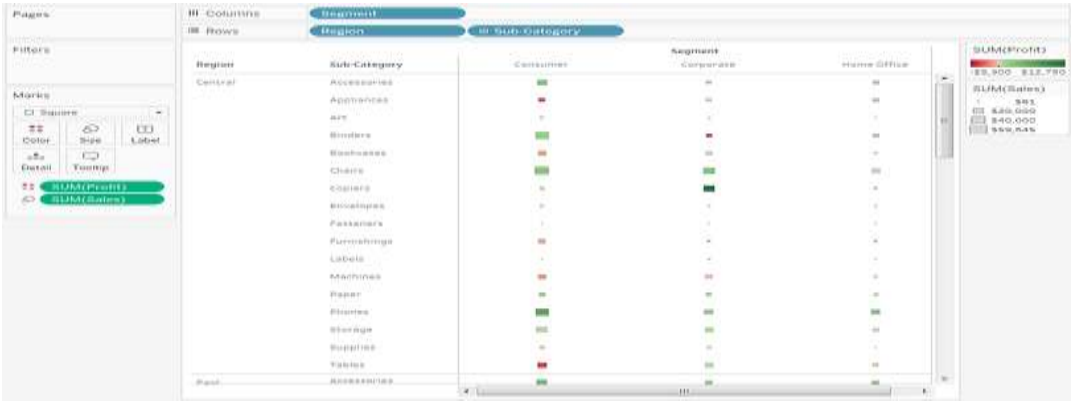
    - Hover over the **SUM(Profit)** color legend, then click the drop-down arrow that appears and select **Edit Colors**.

    - In the **Edit Colors** dialog box, in the **Palette** field, select **Red-Green Diverging** from the drop-down list.

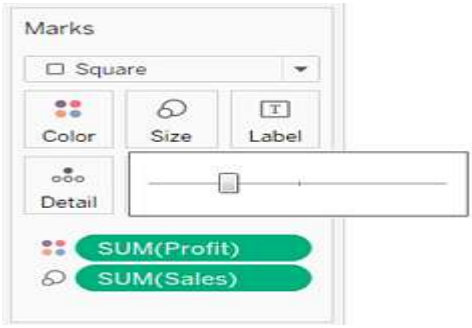
    - Select the **Use Full Color Range** check box and click **Apply** and then click **OK**.

Modify the size to create a heat map

7. Drag the **Sales** measure to **Size** on the **Marks** card to control the size of the boxes by the Sales measure. You can compare absolute sales numbers (by size of the boxes) and profit (by color).



8. To enlarge the marks, click **Size** on the **Marks** card to display a size slider:



9. Drag the slider to the right until the boxes in the view are the optimal size.

OUTPUT:

Result:

Thus, the Highlight Table has been created successfully in Tableau.

EXNO: 9 **Scatter Plot**

Aim:

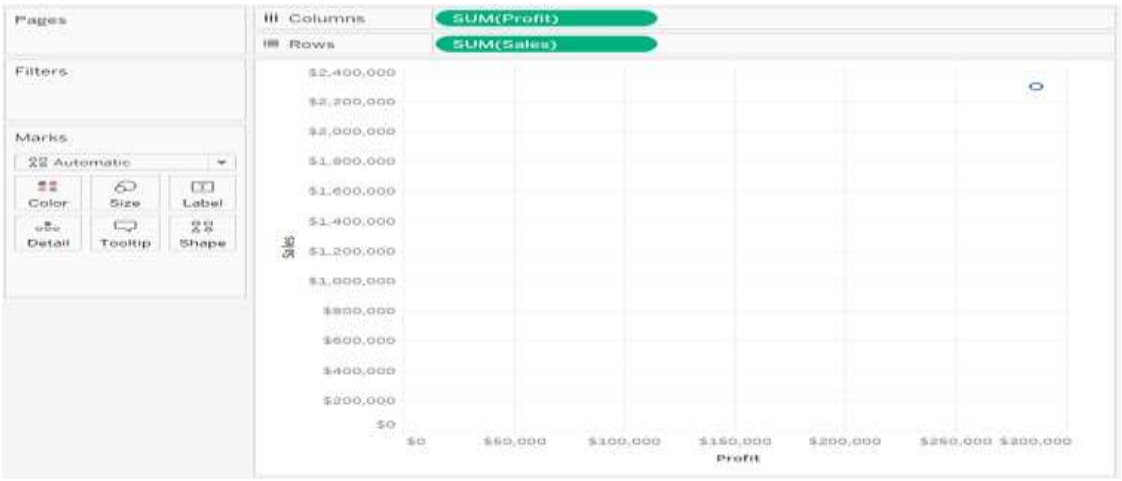
To use scatter plots and trend lines to compare sales to profit.

Procedure:

1. Open the **Sample - Superstore** data source.
2. Drag the **Profit** measure to **Columns**.

   Tableau aggregates the measure as a sum and creates a horizontal axis.
3. Drag the **Sales** measure to **Rows**.

   Tableau aggregates the measure as a sum and creates a vertical axis.Measures can consist of continuous numerical data. Now you have a one-mark scatter plot:

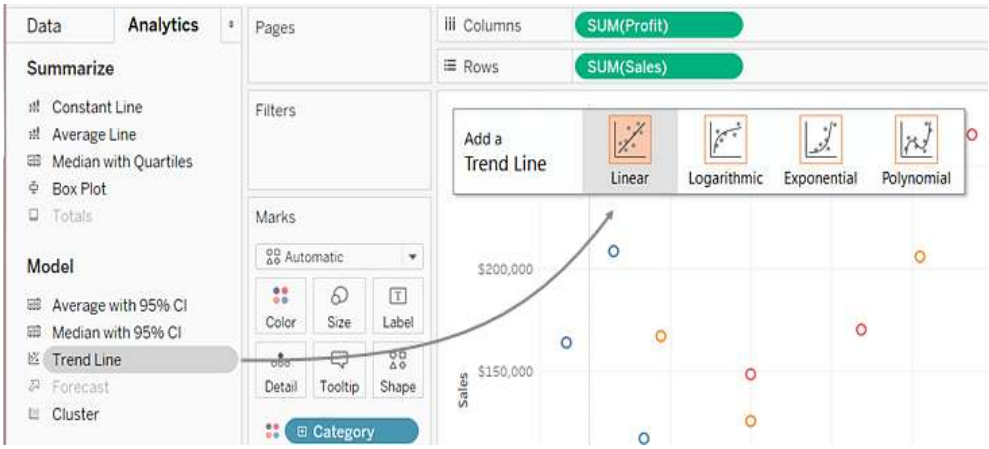


4. Drag the **Category** dimension to **Color** on the Marks card.

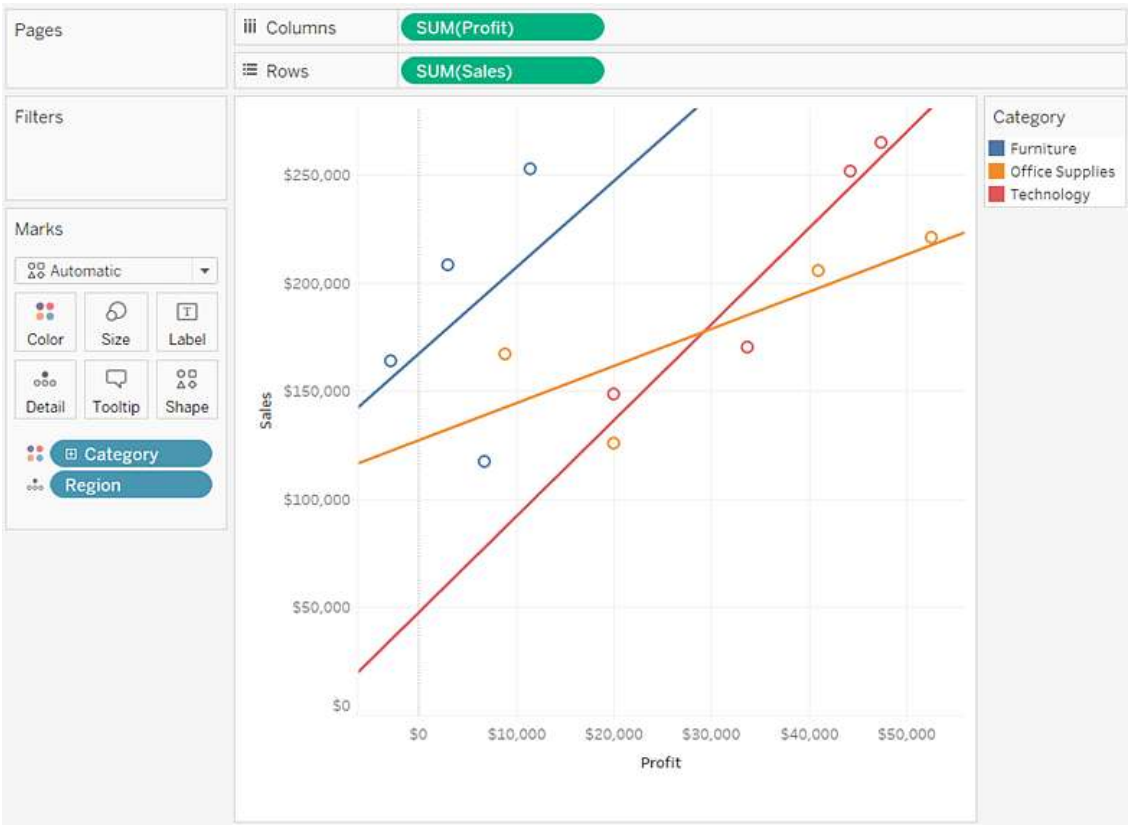
   This separates the data into three marks—one for each dimension member—and encodes the marks using color.

5. Drag the **Region** dimension to **Detail** on the **Marks** card.

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



A trend line can provide a statistical definition of the relationship between two numerical values.



7. Hover the cursor over the trend lines to see statistical information about the model that was used to create the line:

Result:

Thus, the Scatter Plots has been created successfully in Tableau.

Tree map

Exno:10

Aim:

To create a treemap that shows aggregated sales totals across a range of product categories.

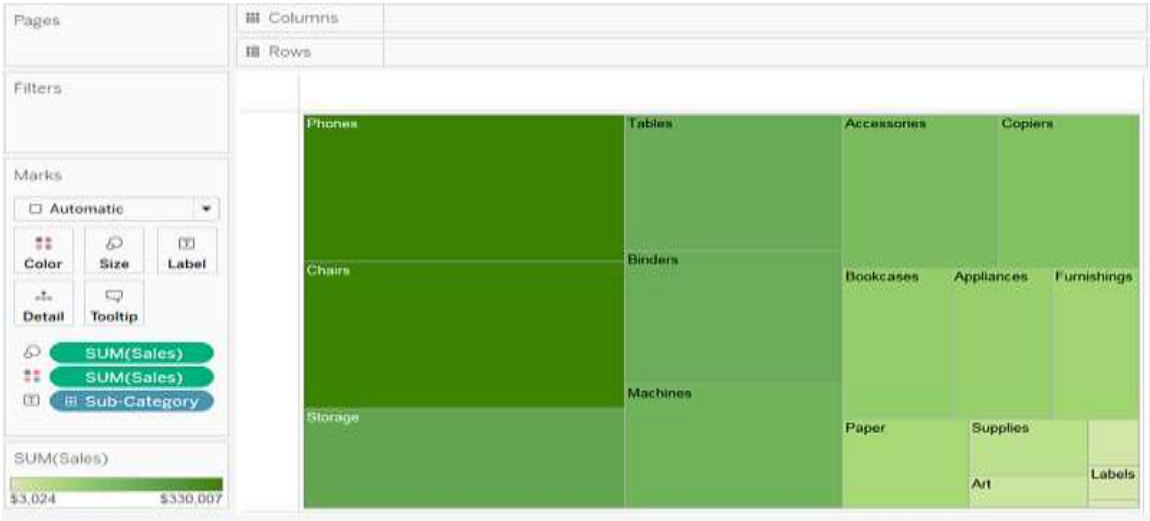
1. Connect to the **Sample - Superstore** data source.
2. Drag the **Sub-Category** dimension to **Columns**.

   A horizontal axis appears, which shows product categories.
3. 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.
4. Click **Show Me** on the toolbar, then select the treemap chart type.

   Tableau displays the following treemap:

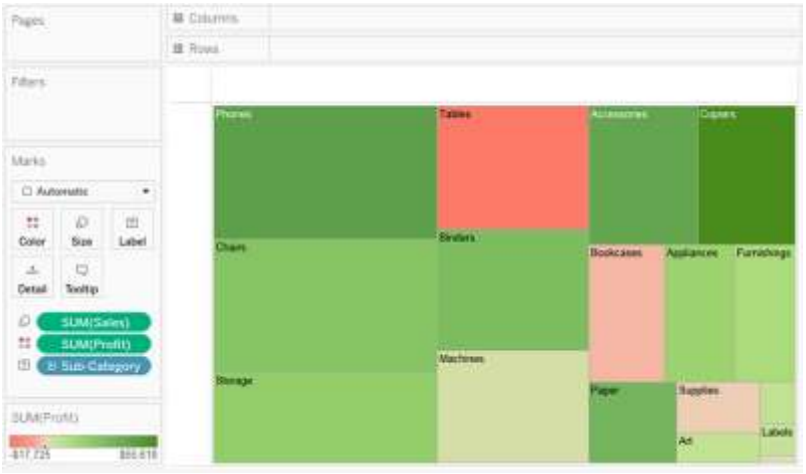


In this treemap, both the size of the rectangles and their color are determined by the value of **Sales**—the greater the sum of sales for each category, the darker and larger its box.

5. Drag the **Ship Mode** dimension to **Color** on the **Marks** card. In the resulting view, **Ship Mode** determines the color of the rectangles—and sorts them into four separate areas accordingly. **Sales** determines the size of the rectangles:

6. Try another option to modify the treemap: click the **Undo** button to remove **Ship Mode** from view.

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



Result:

Thus, the TreeMap has been created successfully in Tableau.

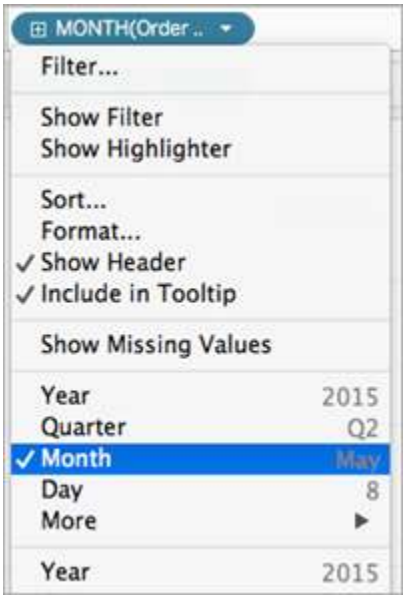
Exno:11 **Combination chart**

Aim:

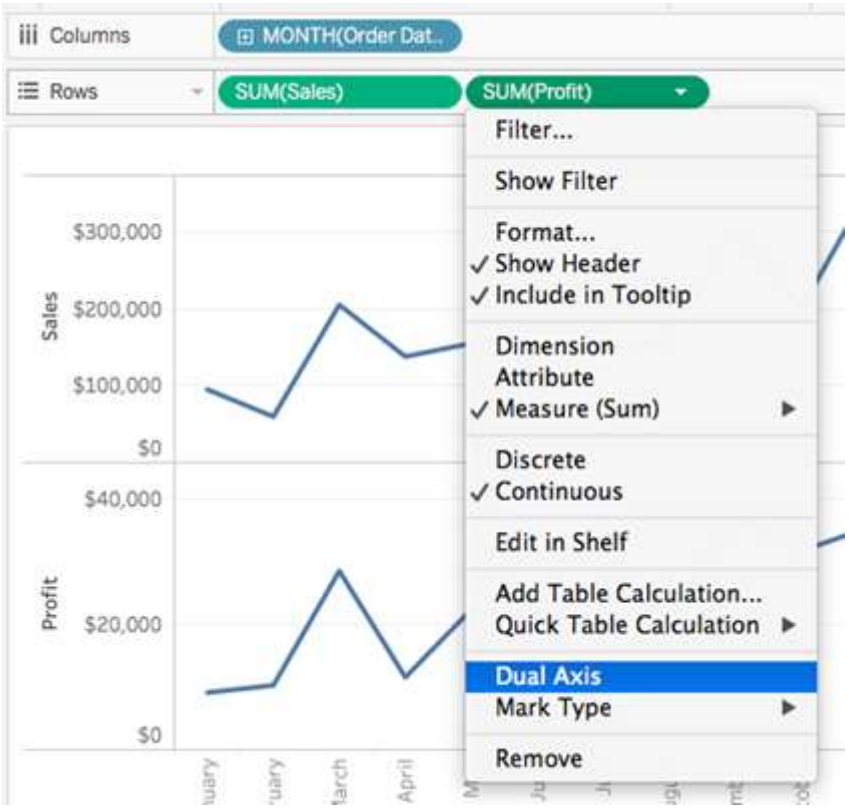
To create a combination chart to compare the profit and Sales using sample dataset

Procedure:

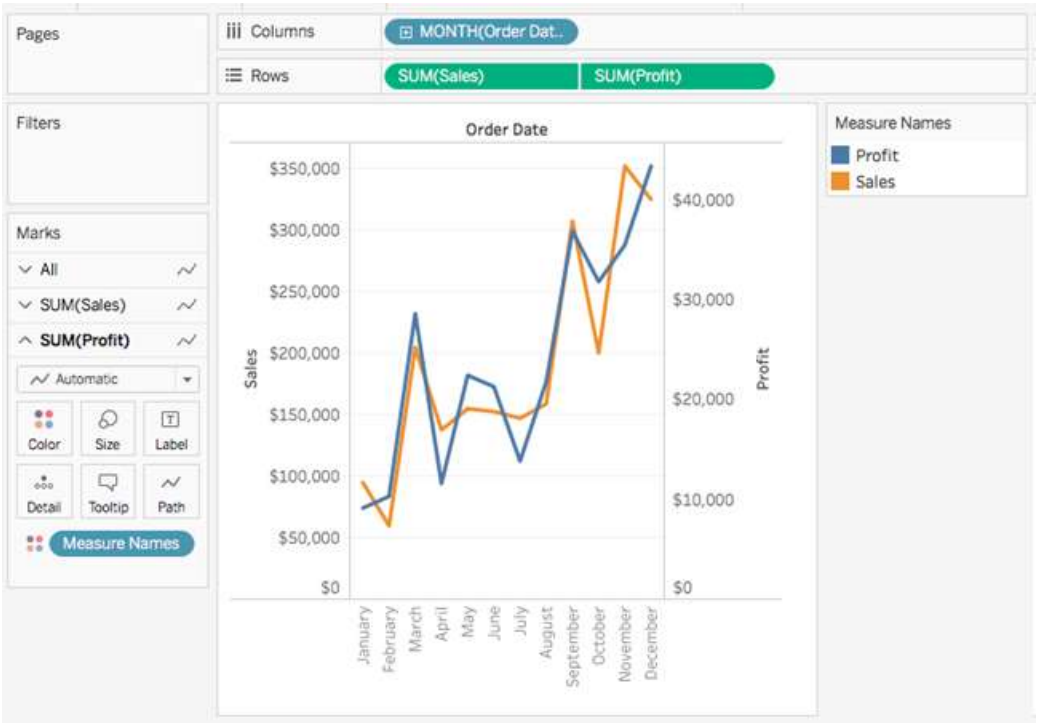
1. Open Tableau Desktop and connect to the Sample - Superstore data source.
2. Navigate to a new worksheet.
3. From the **Data** pane, drag **Order Date** to the **Columns** shelf.
4. On the Columns shelf, right-click **YEAR(Order Date)** and select **Month**.



5. From the **Data** pane, drag **Sales** to the **Rows** shelf.
6. From the **Data** pane, drag **Profit** to the **Rows** shelf and place it to the right of SUM(Sales).
7. On the Rows shelf, right-click **SUM(Profit)** and select **Dual-Axis**.

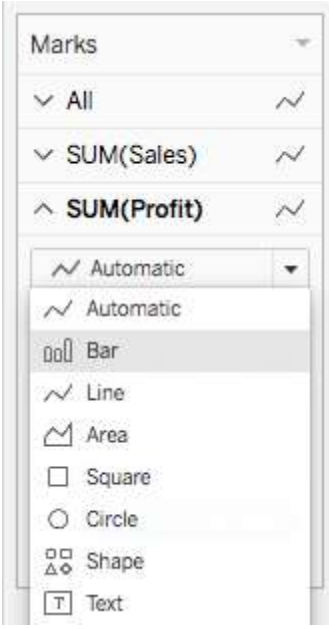


The view updates. Measure Names is added to Color on the Marks card to differentiate the lines.

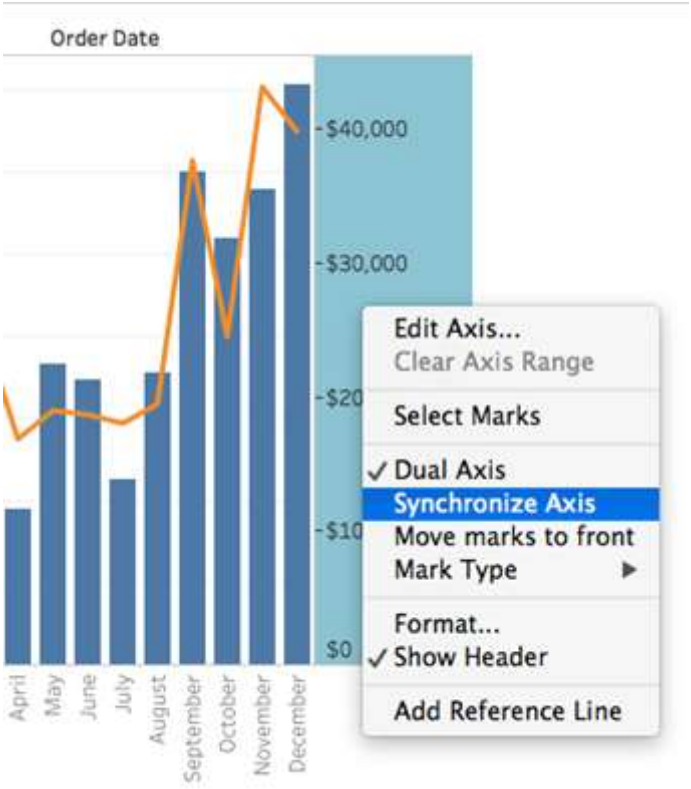


Note: Some marks can be hidden behind others. To move the marks forward or backward, right-click one of the axes in the visualization and select Move Marks to Back or Move Marks to Front.

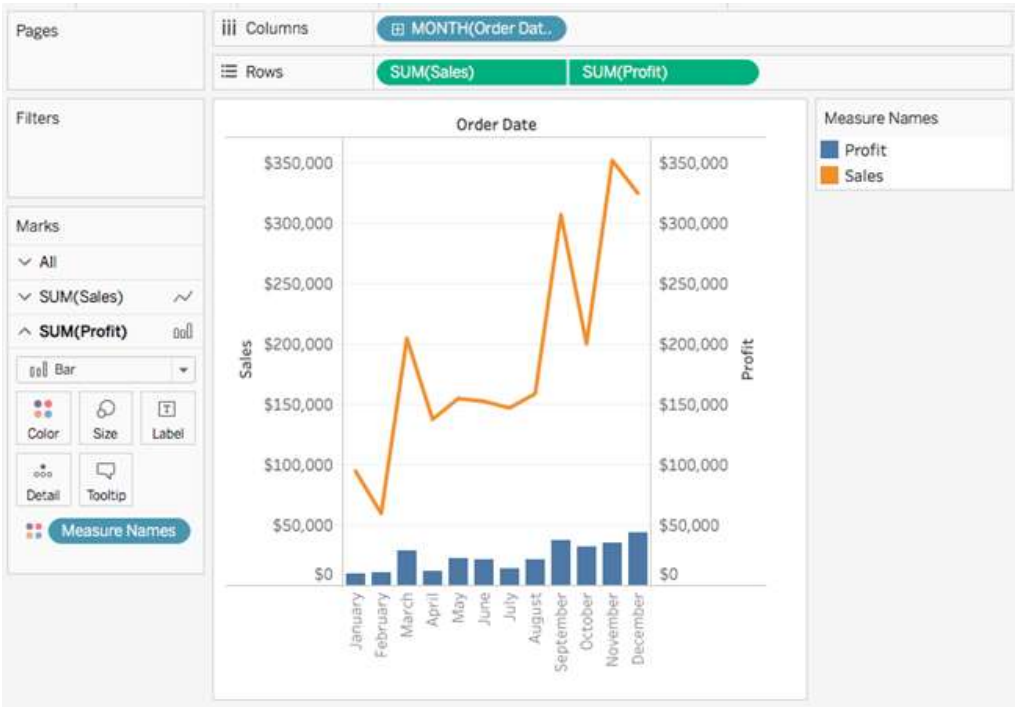
8. On the SUM(Profit) Marks card, click the Mark Type drop-down and select **Bar**.



9. In the visualization, right-click the **Profit** axis and select **Synchronize Axis**.



The view updates to look like this:


Pages
Columns
MONTH(Order Dat..
Rows
SUM(Sales)
SUM(Profit)
Filters
Marks
All
SUM(Sales)
SUM(Profit)
Bar
Color
Size
Label
Detail
Tooltip
Measure Names
Order Date
$350,000
$300,000
$250,000
$200,000
$150,000
$100,000
$50,000
$0
Sales
Profit
January
February
March
April
May
June
July
August
September
October
November
December
Measure Names
Profit
Sales