

# **Applied Data Analytics**

**Lakshay Chauhan**

**Griffith College, Dublin**

## **Assignment Part-1**

### **(Data Analytics & Information Dashboard)**

**Domain:** - The domain that is selected for this assignment is “Global Superstore Dataset”.

**Source of the Data:** - The Global Superstore dataset is acquired from the given link

Link: - <https://data.world/vikas-0731/global-super-store>

This dataset is reliable and we can perform analytics on the dataset to get useful information by making informative dashboard on the dataset.

#### **Description of attribute of the Dataset:-**

- **Row id:** - This is an ID for each row.
- **Order ID:** - This is unique id for each order placed by the customer to the different vendor.
- **Order Date:** - The attribute describes the date when the order was placed by customer.
- **Ship Date:** - the attribute describes the date when the order was shipped from the source place.
- **Ship Mode:** - The attribute describes the shipping mode for the delivery of the product chosen by the customer.
- **Customer ID:** - This is a unique ID for different customer.
- **Customer Name:** - It describe the name of the customer.
- **Segment:** - It describe the type of customer that has ordered like we have three segment consumer, Home office, Corporate.
- **Postal Code:** - It is the numeric value that describe the destination of the customer that is unique for each place.
- **City:** - It is name of city in each state.
- **State:** - It is name of state in each country.
- **Country:** - It is name of the country in the world. This variable is related to the geo location.

- **Region:** - It describe the area of the country.
- **Market:** - It describe the five market on different continents of the world.
- **Product ID:** - It is a unique id for each product.
- **Category:** - It is attribute that group the products that meet similar needs.
- **Sub Category:** - It is attribute that shows different class of category.
- **Product Name:** - It is attribute that shows the name of the product.
- **Sales:** - It is a numeric value and shows value of each order.
- **Quantity:** - It is numeric value and shows the total number of quantities ordered.
- **Discount:** - It is numeric value that shows the discount on the ordered product.
- **Profit:** - It is a numeric value that shows the total profit gained by vendor on each order.
- **Shipping Cost:** - It is numeric value that shows the cost of shipping each order.
- **Order Priority:** - It shows the priority of each order. This variable related to each order.
- **Min:** - It is a calculated variable and it is created to make donut chart.
- **Rank:** - It is a calculated variable and it is created to show the rank of the sales.
- **Show Rank:** - It is a calculated variable and it created to show the Top N sales.
- **Profit vs Sale:** - It is a calculated variable and it is created show profit sale ratio.

### **Question that can be Explored: -**

The Global Superstore 2016 dataset is the dataset based on orders that is placed with different vendors and markets between the year 2012 to 2015. There are many question or issues that can be explored on the Global Superstore datasets and we can find the answers to this question. Below is some question that we can explore using dashboard in tableau:

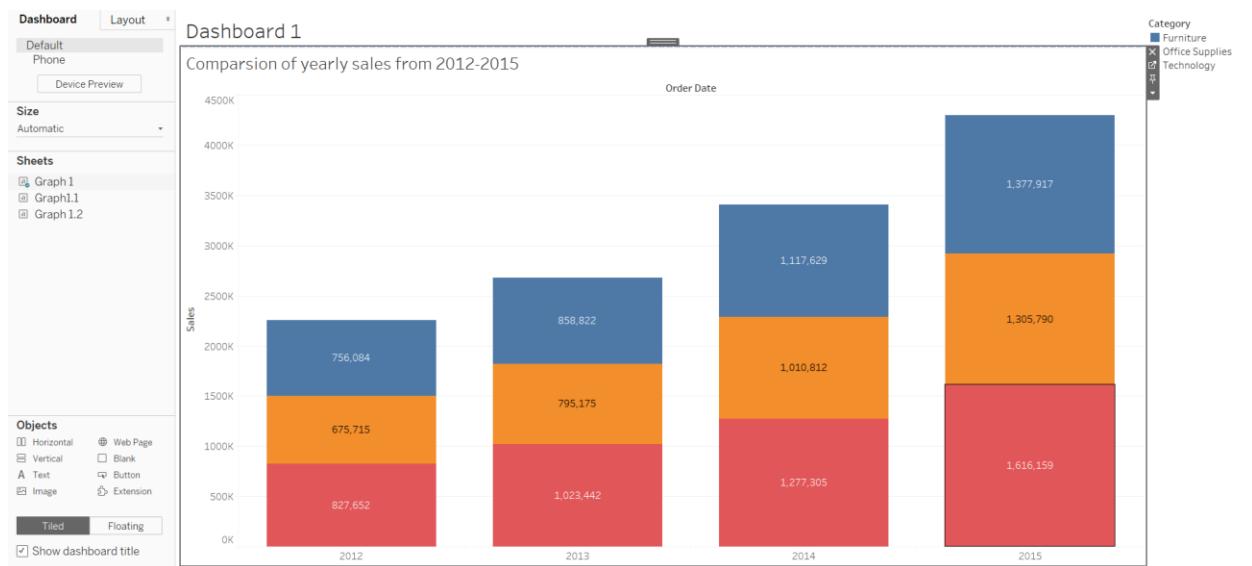
- What is the Global Performance?
- What are the performances of different countries based on profit, sales etc.?
- We can tell the overview statistic of the global superstore.
- What is the sales overview for different category or countries or region and many more?
- What is the price overview for different category or countries or region and many more?
- What is the discount overview for different category or countries or region and many more?
- We can compare different categorical/sub-category for the comparisons.
- What is the different market performance?
- We can also find the product summary.
- What is the performance for sales vs profit?
- What are top N sales?

- What is the profit generated by vendors?
  - What are different customer segments for different category?
- Many more question like this.....

**Problem Statement:** - The Global Superstore 2016 dataset is very large and insightful dataset and we can make lot of question from this dataset that can be useful to the vendors, market investors, manufacturer, market analyst etc. and above some question that can be explored use by different organization mentioned above we can get useful answer like global profit, sales and discounts and we can also get information about different market or countries performance on different category or sub-category on different measures value. We can collect lots of actionable intelligence from the dataset.

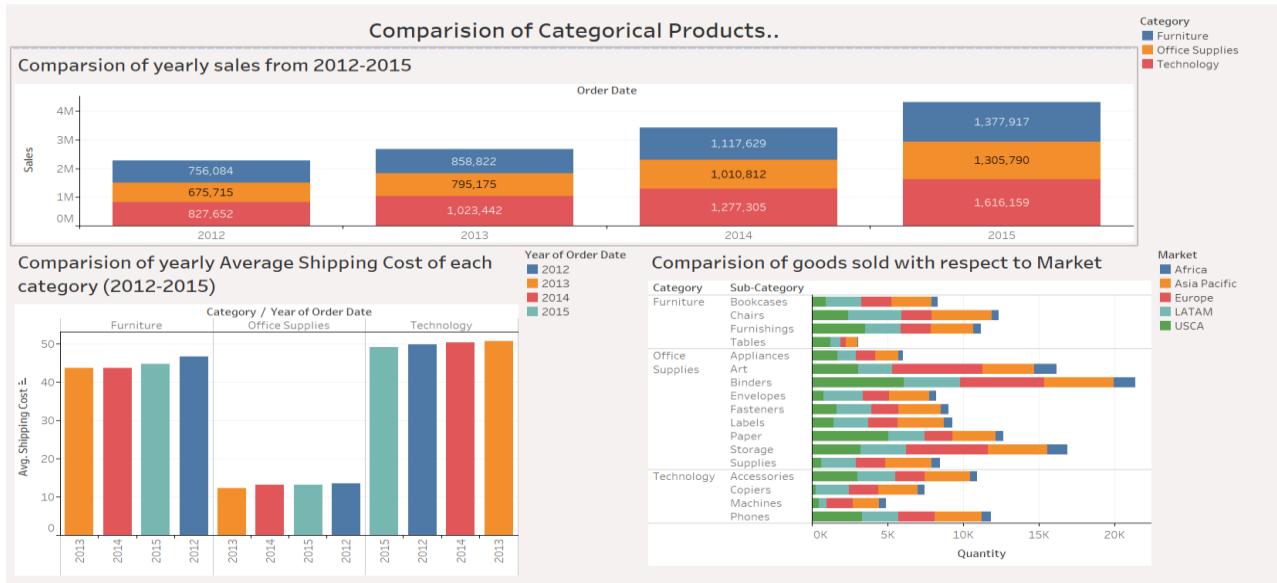
## Screenshots and Summary of Dashboards: -

### Dashboard 1: -



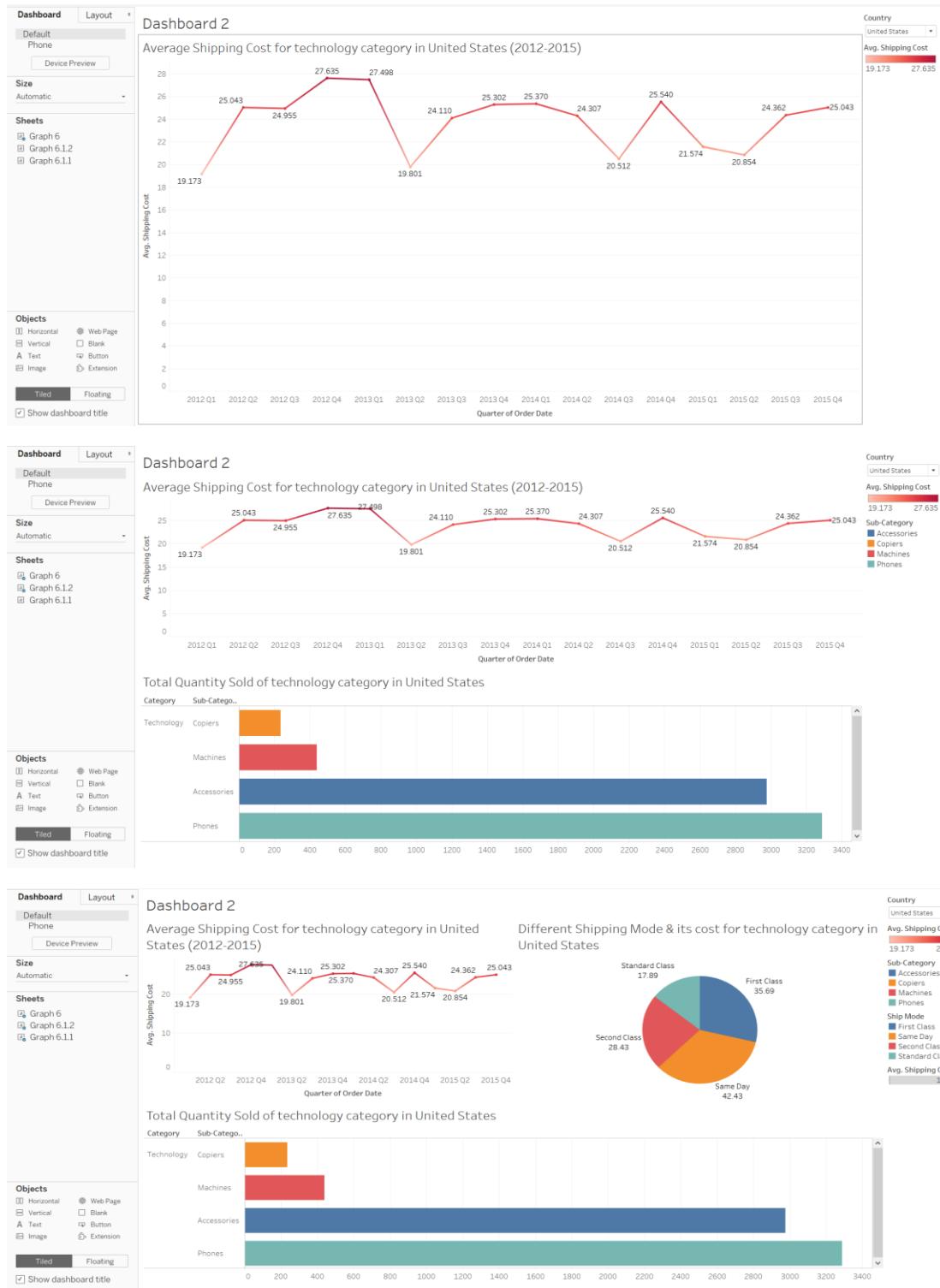


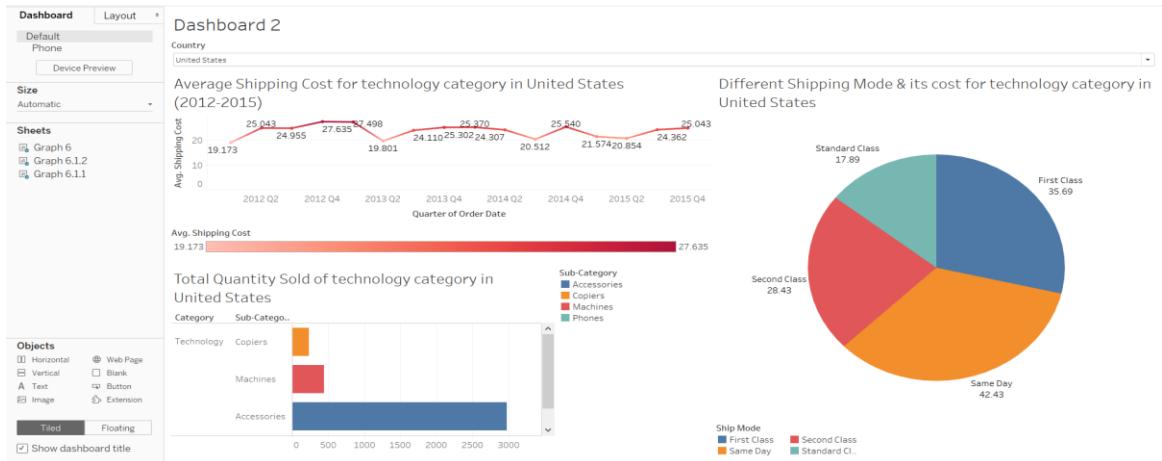
## Final Dashboard 1:



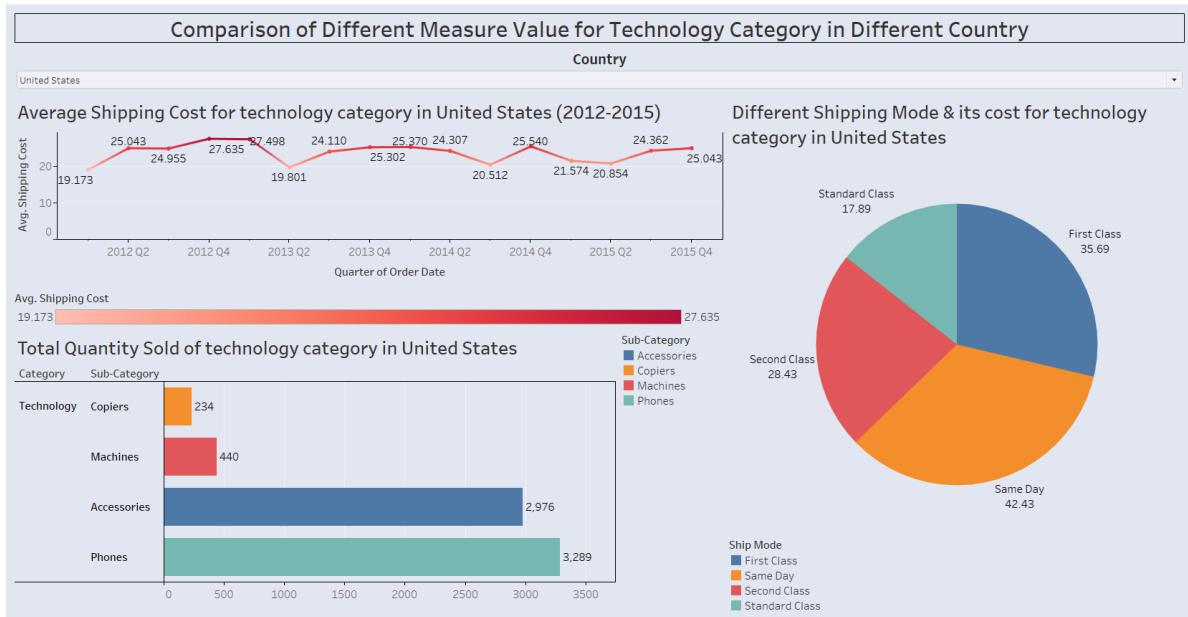
**Summary:** The dashboard 1 is comparison of categorical product using the measure value like sales, shipping cost and quantity and we are comparing different measures by year from 2012 to 2015 and I have used filters on each sheet to configure the different categorical data and these dashboard is made for the vendors and market analysis as target audience and this dashboard can be used to get useful information about each category on different measure and as we are using filter it can show different category in different year that can be useful to vendor or analyst to analyses what are the average shipping cost or how many units have been sold for the category etc.

## Dashboard 2: -



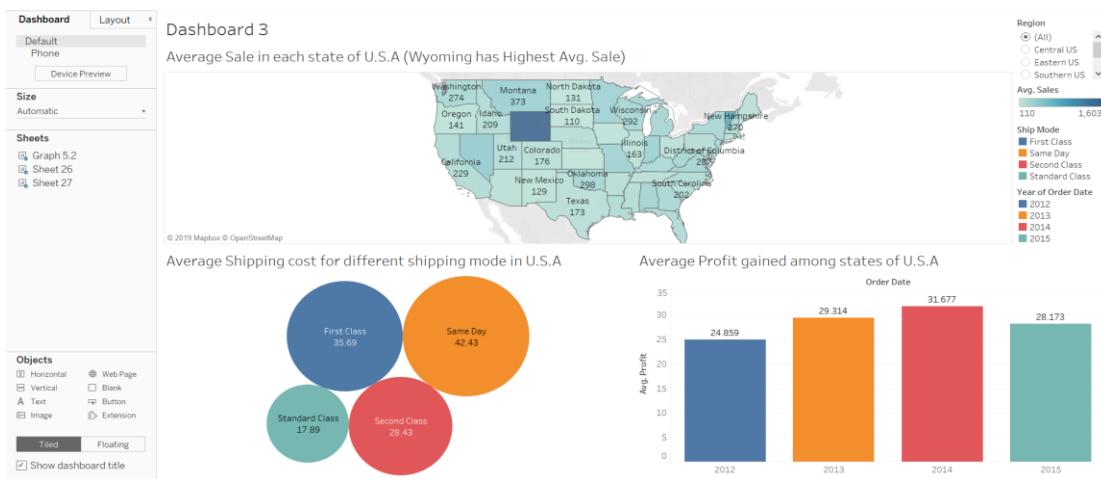
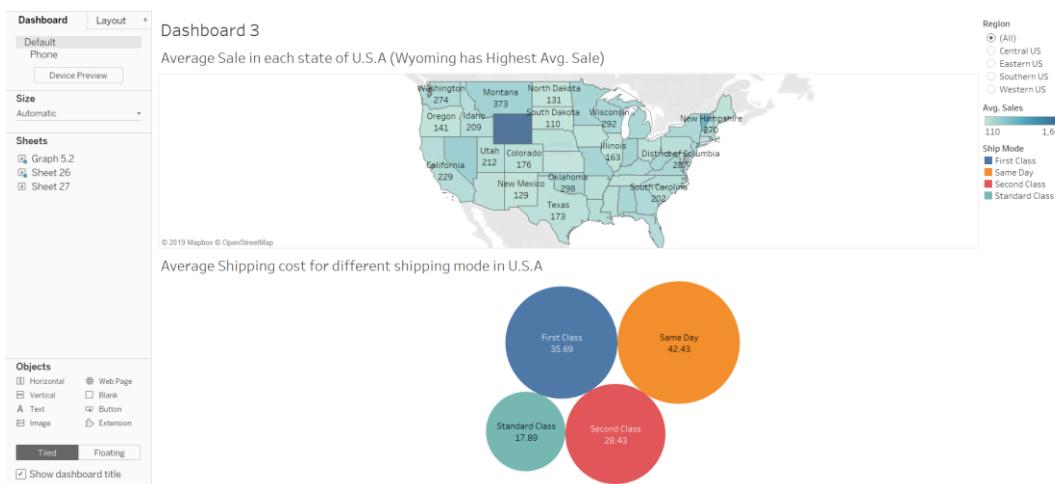
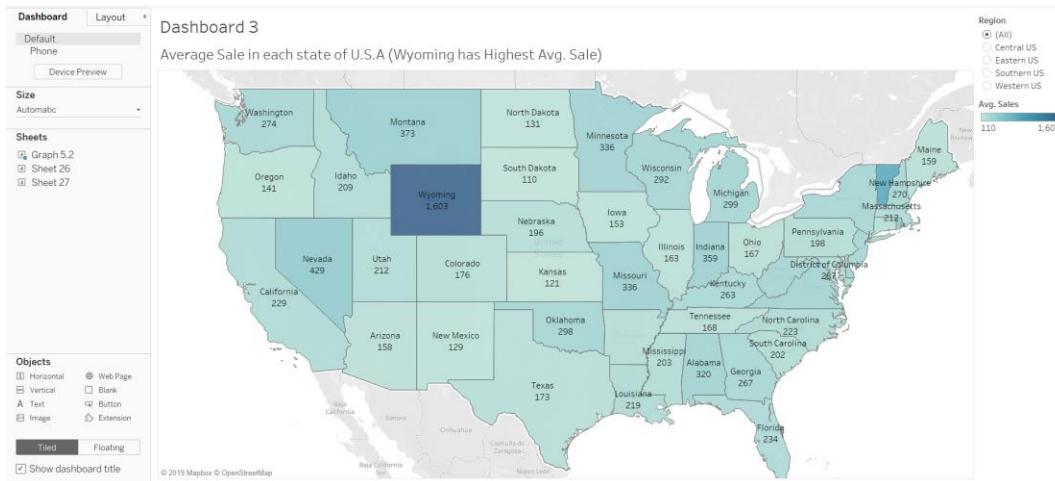


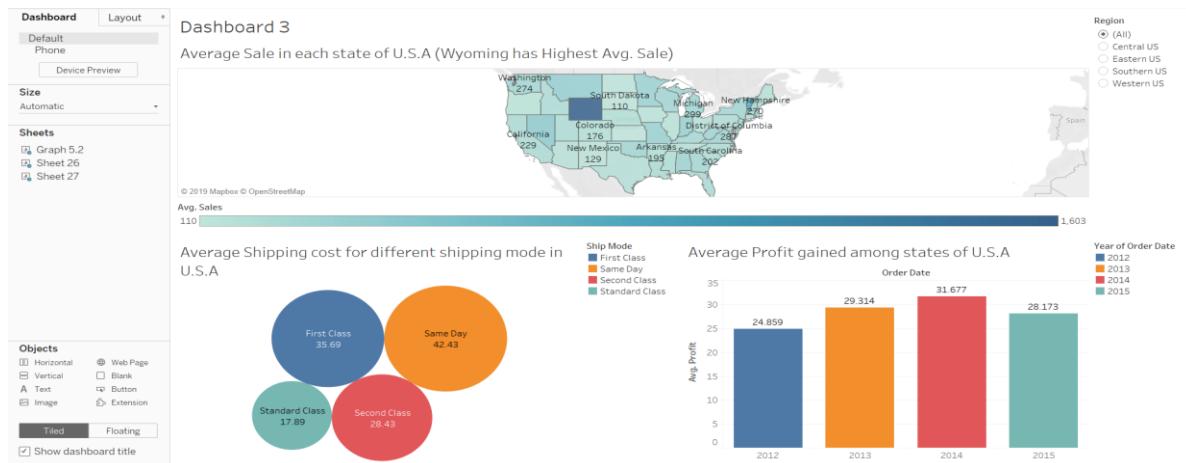
## Final Dashboard 2:



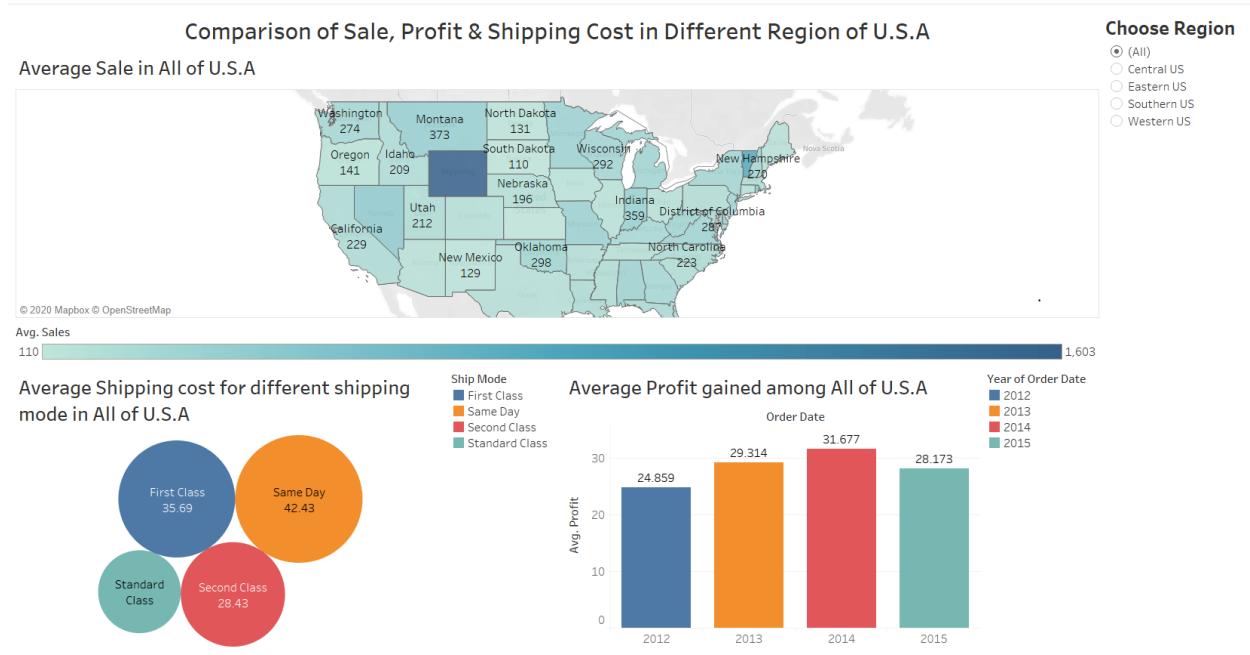
**Summary:** The dashboard 2 is the comparison of different measure values for technology category in Different Country by selecting country from the dropdown option. Measure value like shipping cost, quantity, shipping mode are been used for the comparison for the Technology category because that is the important and highly profitable category from other. This dashboard can be used by manufacturer, market analyst & vendors to analyze the trend of average shipping cost or we can see how many quantities of sub-category of technology category are been sold to the customer or the manufacture can find the cost of different shipping mode. This dashboard can be used in making decision for manufacture to make decision on which sub-category of technology product to produce more.

## Dashboard 3: -



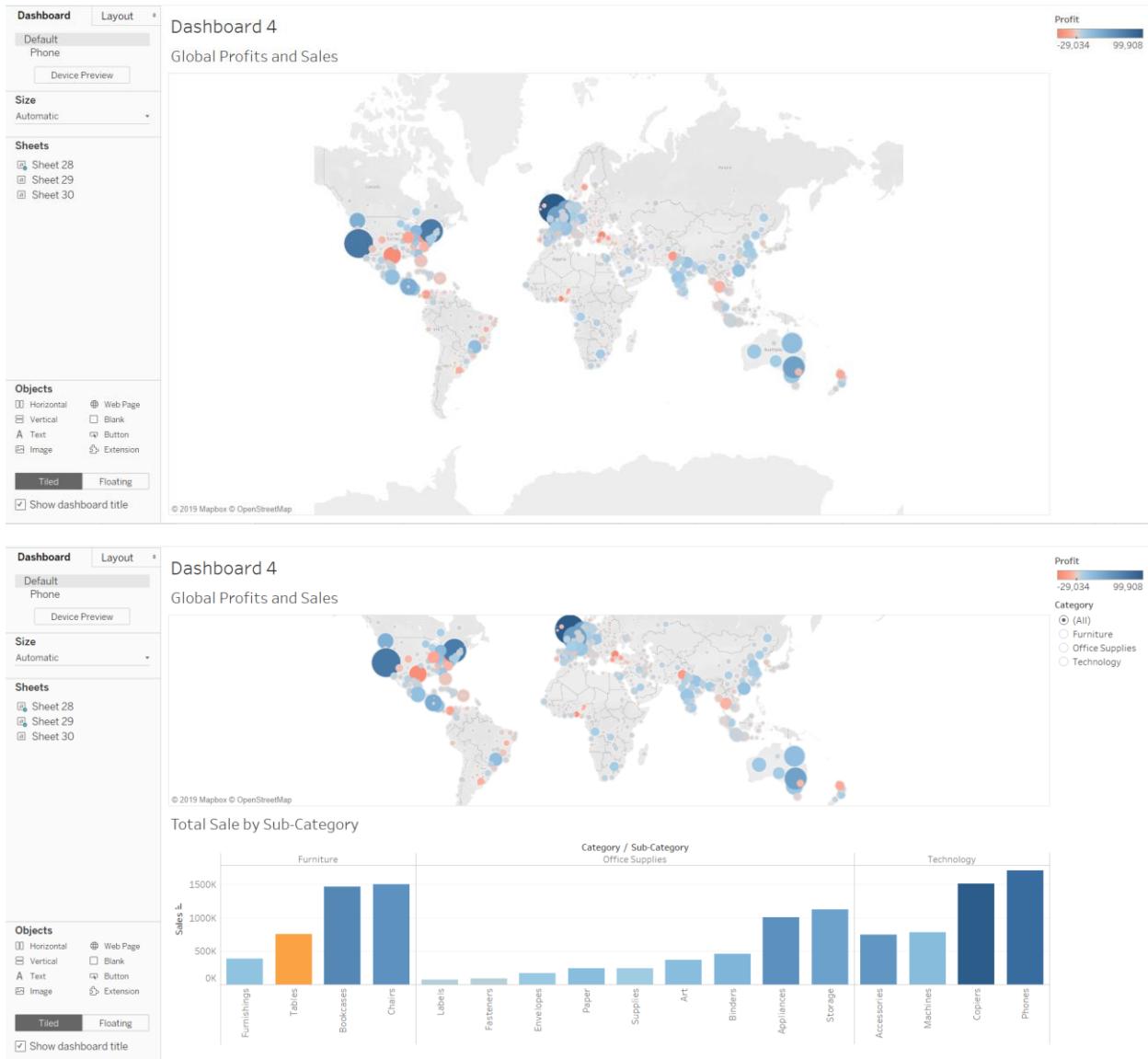


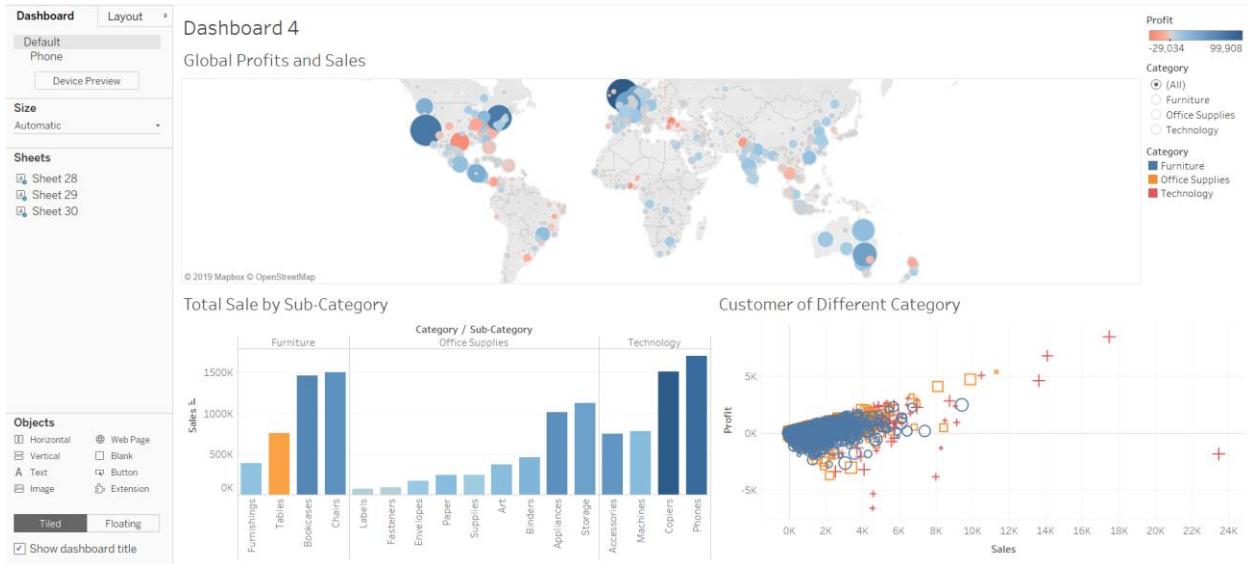
## Final Dashboard 3:



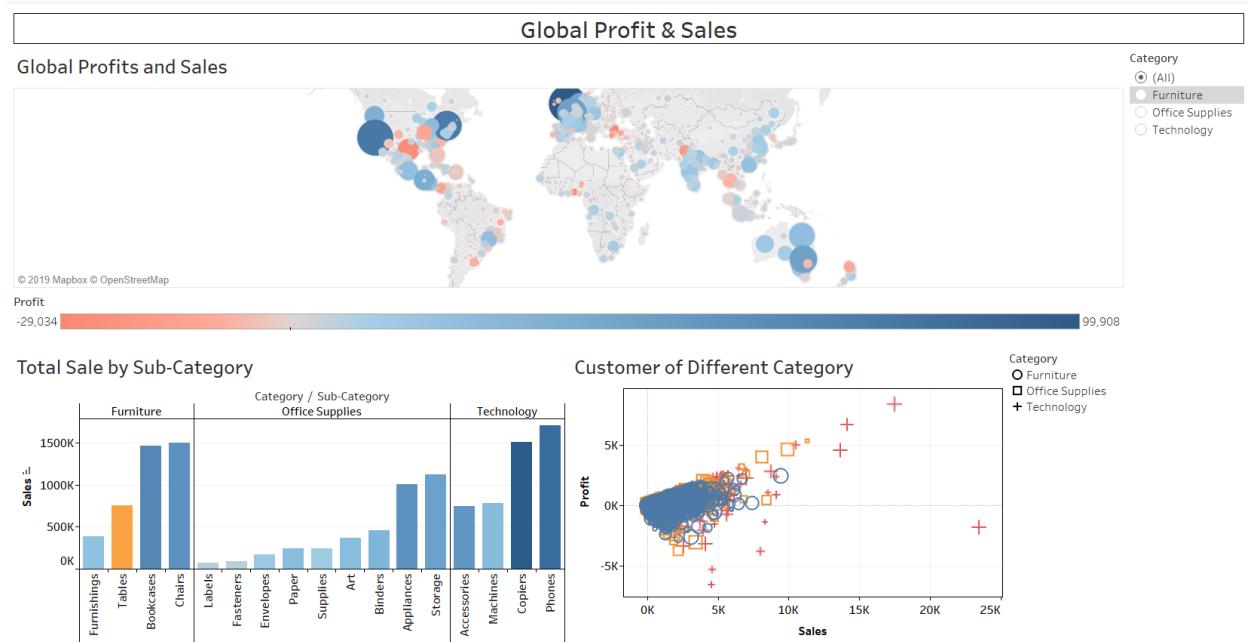
**Summary:** The dashboard 3 is the comparison of sale, profit & shipping cost in different region of U.S.A where you can choose region of U.S.A and get information like sales of each state in united states or Average shipping cost for different shipping mode or profit gained among the region of U.S.A. U.S.A is the biggest economy in the world that's why it is important to make dashboard for this specific country. Vendors, market analyst or the investor are the target audience for this dashboard. The market analyst can use this to analyze the profit gained among the region of U.S.A over the year or average shipping cost for different shipping mode in different region of united states and same data on the dashboard can be used by vendors to track sale and profit of each state in different region of United States of America. This dashboard will be helpful in decision making for vendors to get which regions are making more profit or have higher sale with low shipping cost & mode.

## Dashboard 4: -



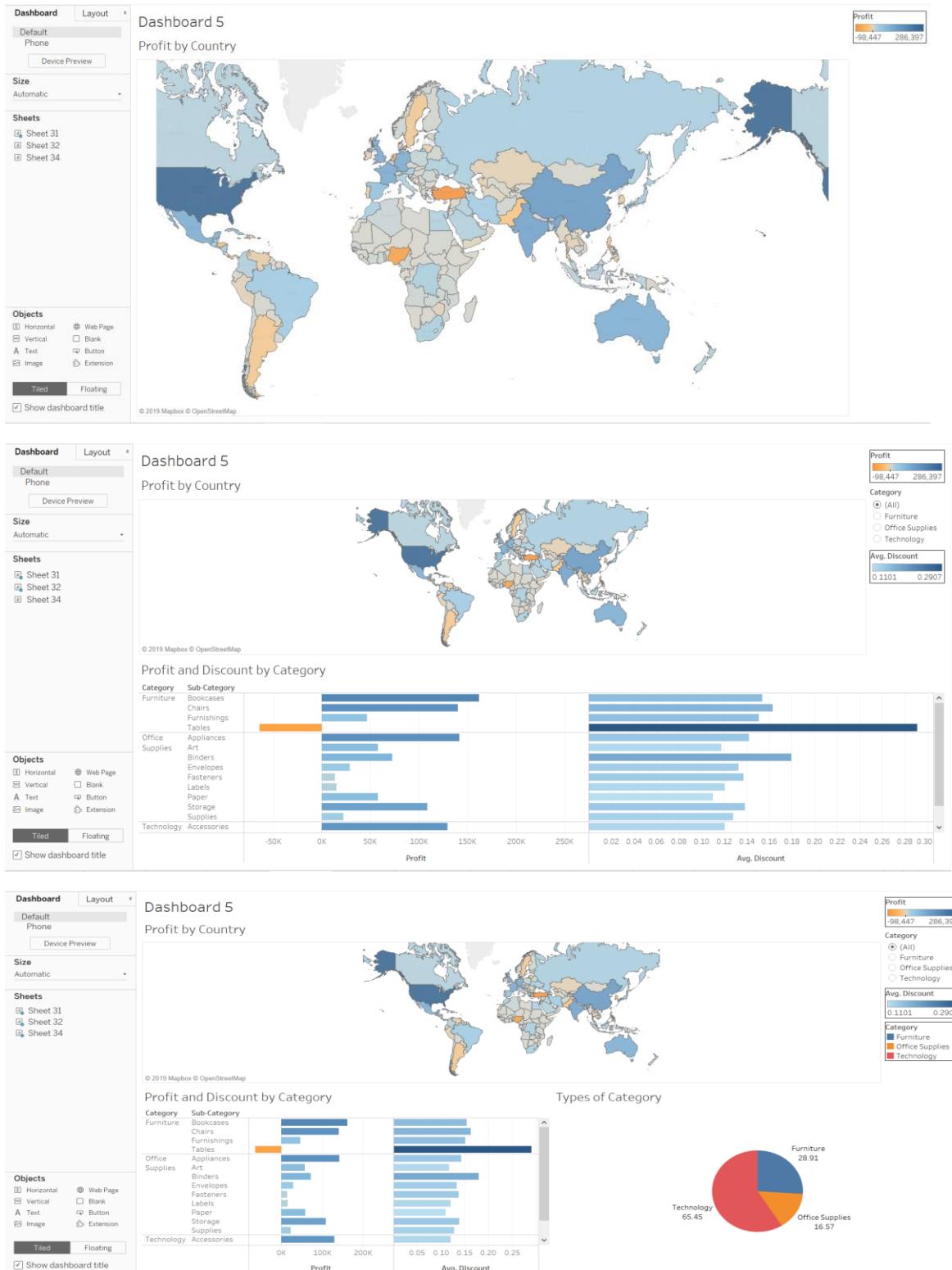


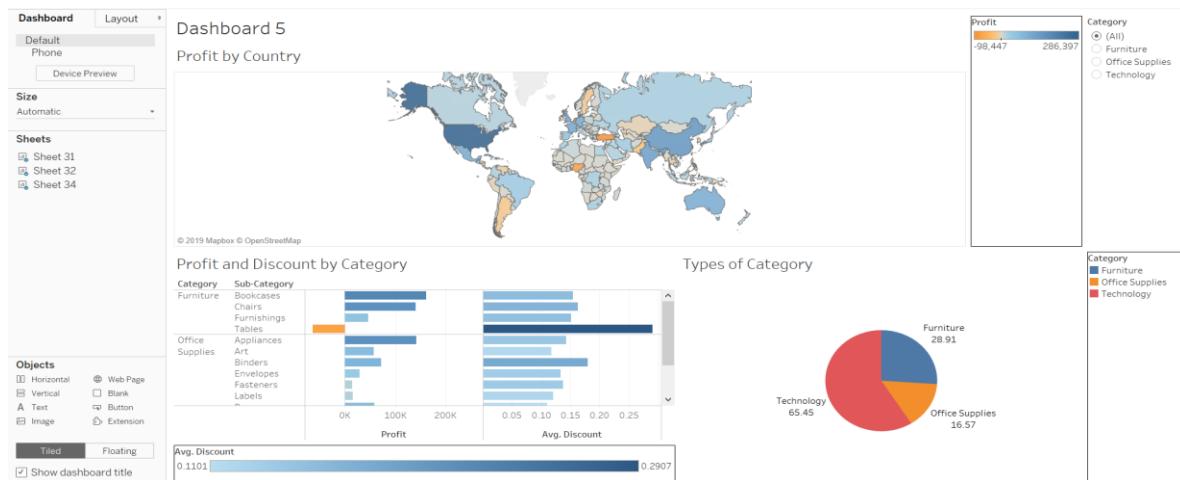
## Final Dashboard 4:



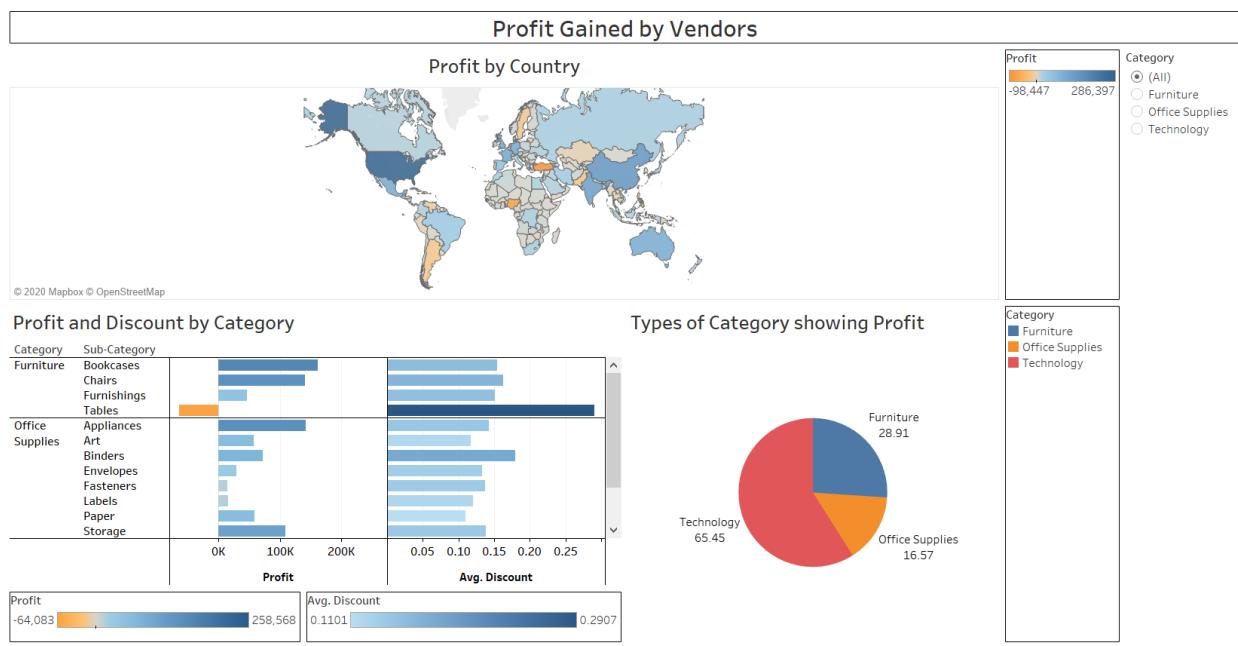
**Summary:** The Dashboard 4 is the Global Profit & Sales where there is map of the world showing the profit density with sales circle, sales of each sub-category product and see the customer of different category. This dashboard can be used by market analyst to understand the trend global sales a profit and try to find what countries are generating more profits and have good sales. The dashboard has option to choose the category type all, furniture, office supplies or technology to select from to analyze sales or profit on that specific category. The analyst can use this feature to understand the profit or sales if they are rising or lowering globally or categorical.

## Dashboard 5: -



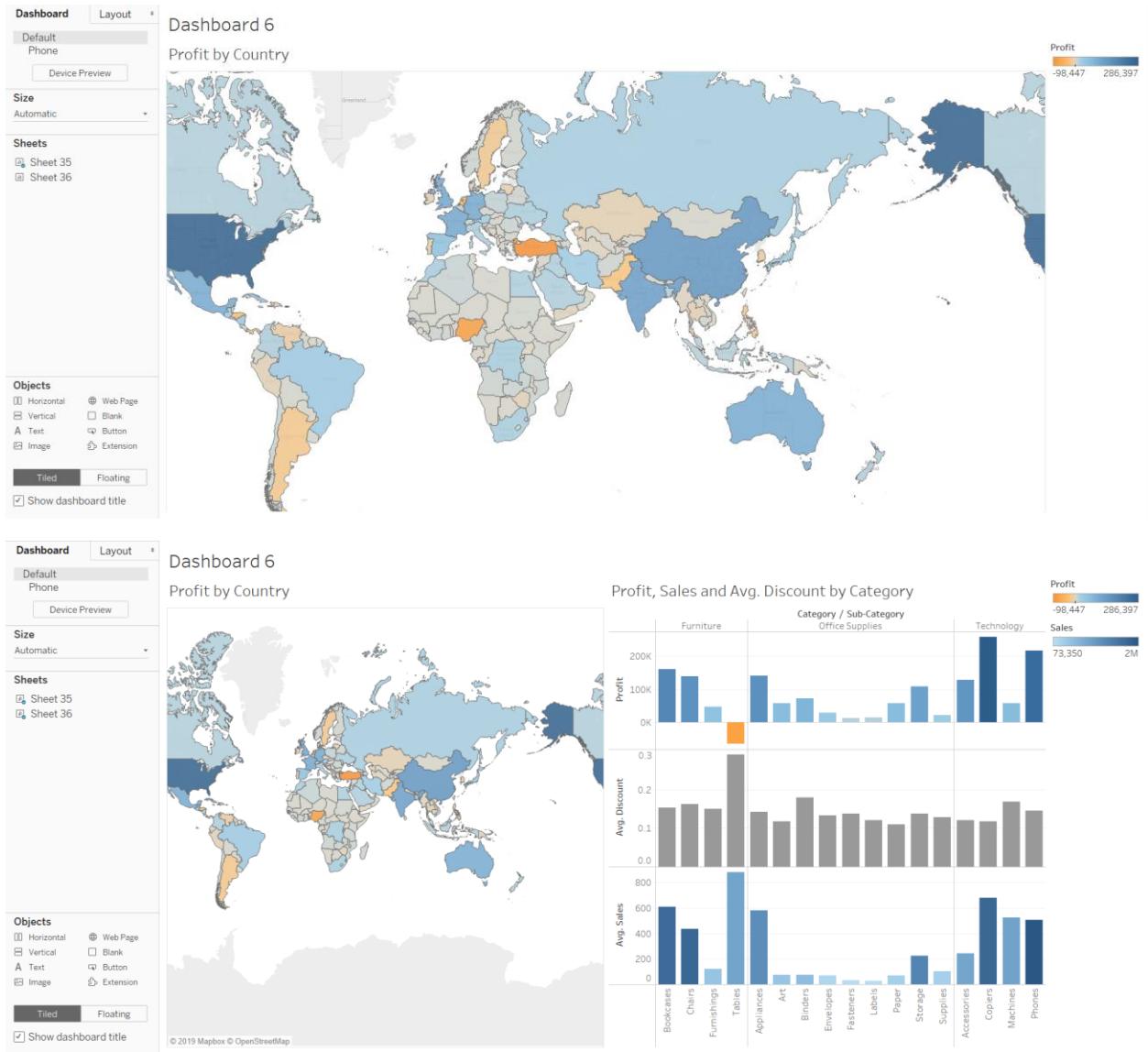


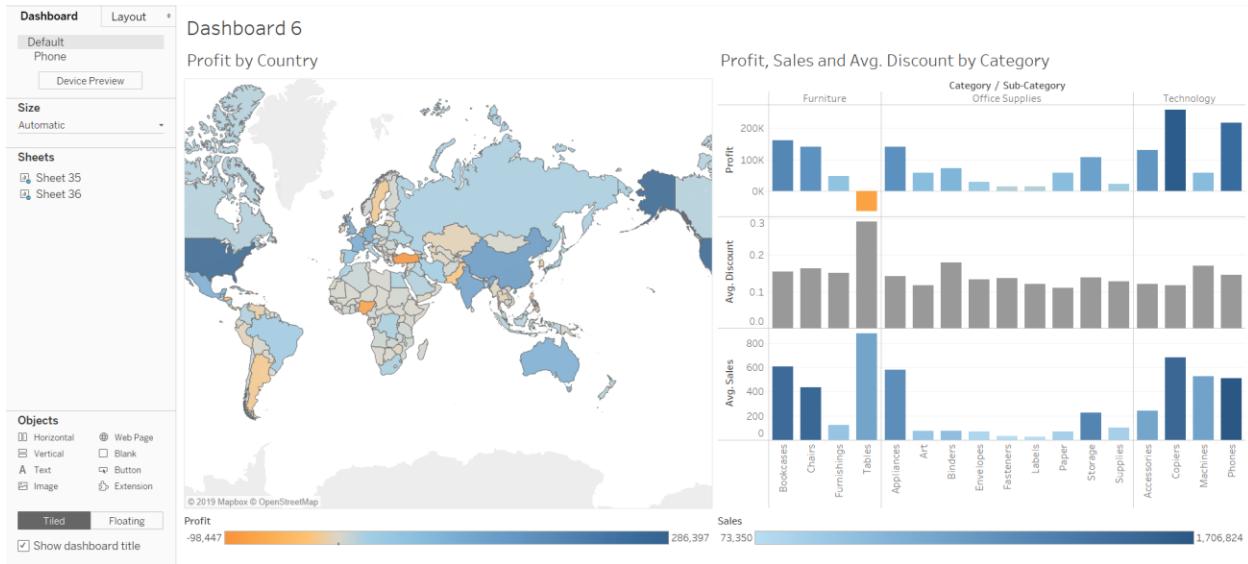
## Final Dashboard 5:



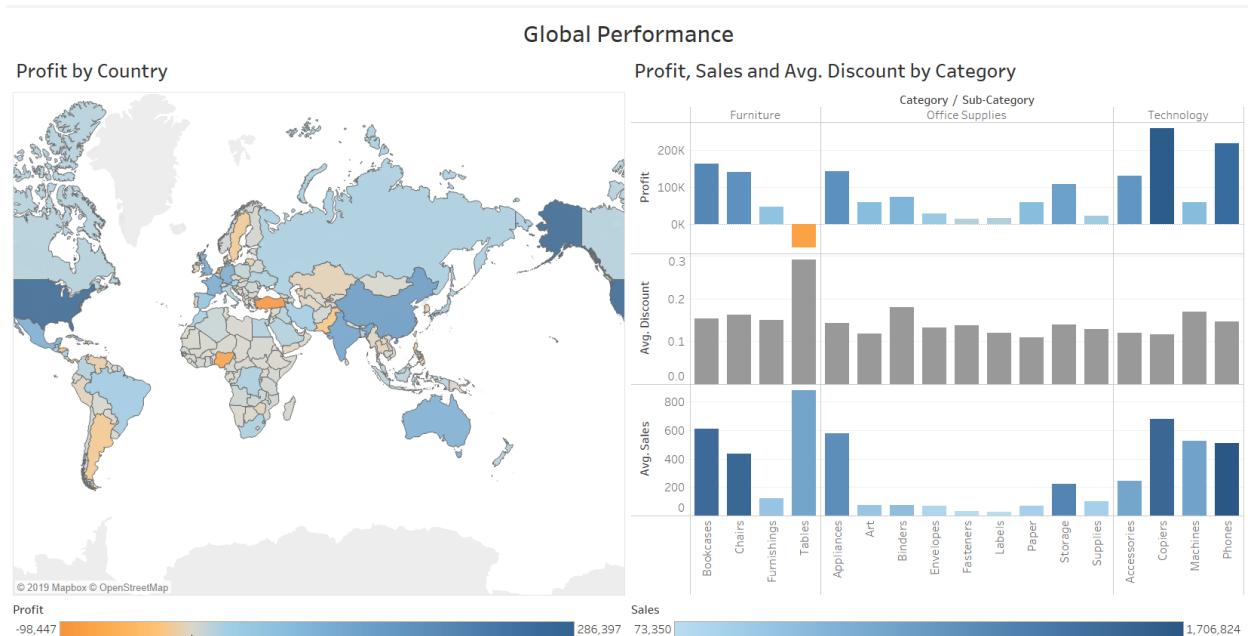
**Summary:** The dashboard 5 is the profit gained by vendors. As from the title of the dashboard the target audience are the vendors that can view the profit generated by different countries or categories or sub-categories. The category selection option is also given in the dashboard to view the profit & discount for different category. Vendors can use this dashboard information to make better decision to which sub-category product are making more profit and can order more from the manufacturer or which are good for the business and we can see the bar chart of the dashboard the technology category is most profitable that can be useful to vendors.

## Dashboard 6: -



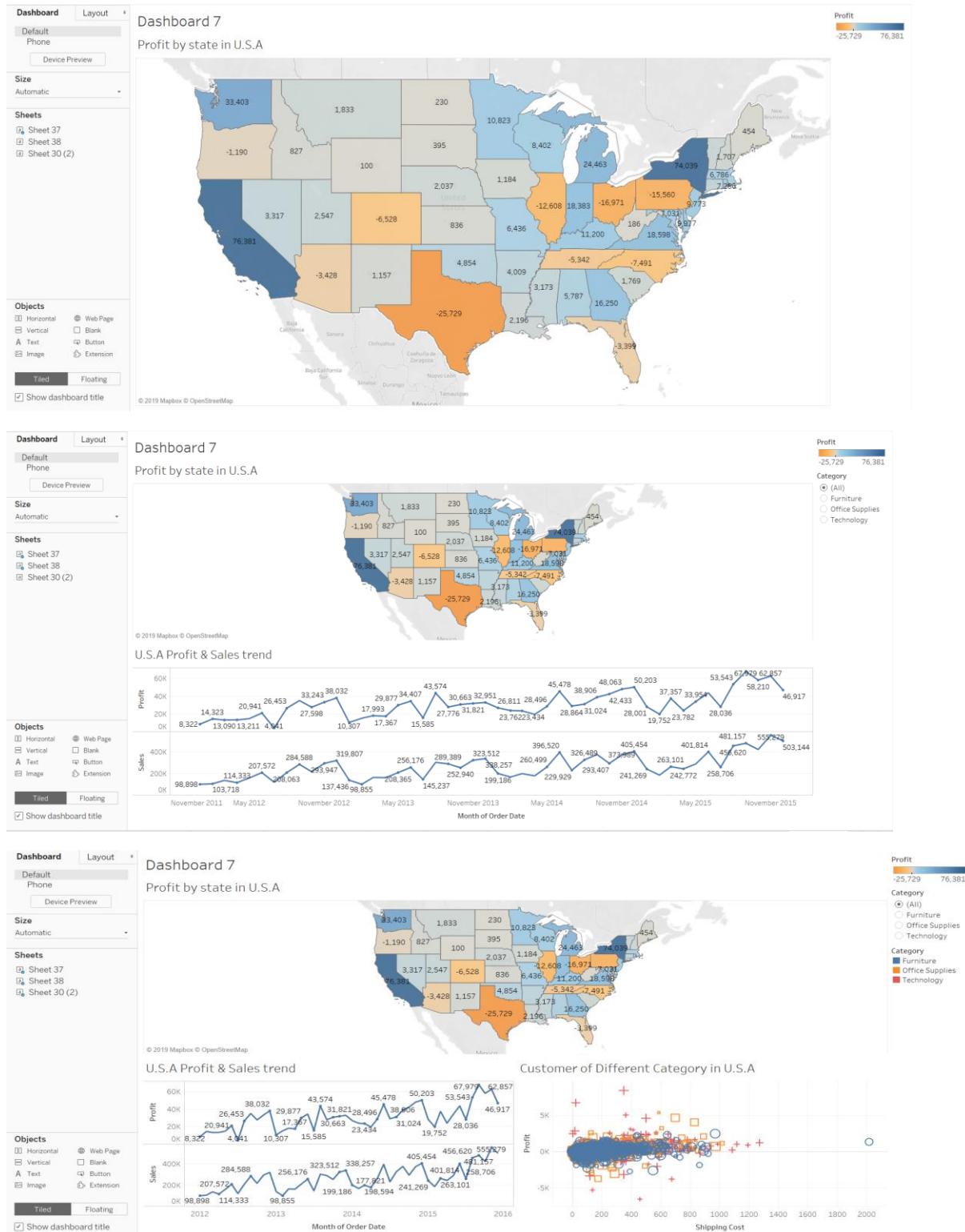


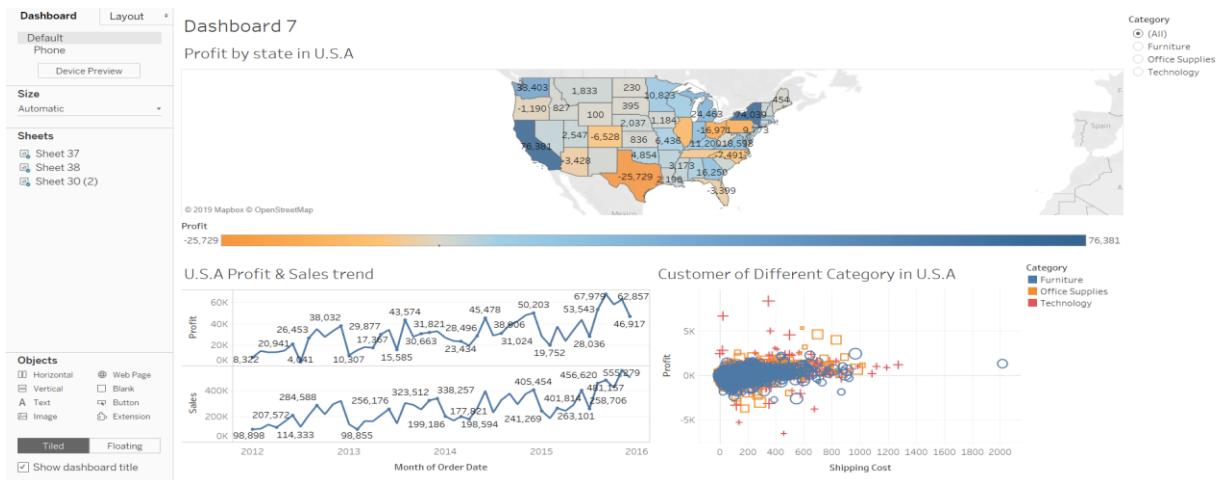
## Final Dashboard 6:



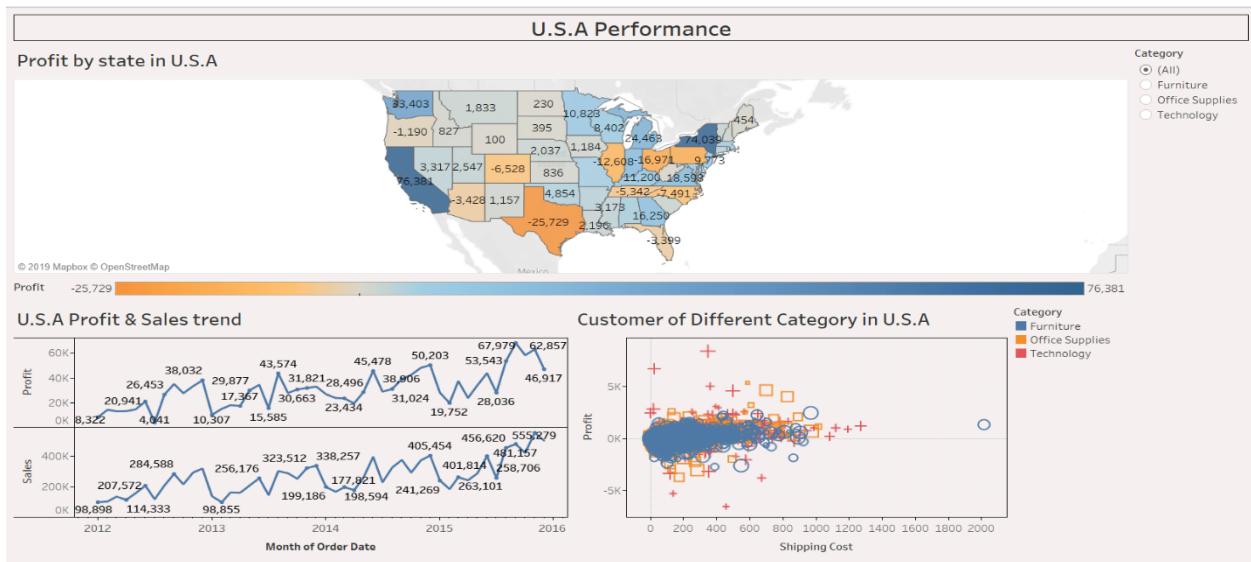
**Summary:** The dashboard 6 is the Global Performance that are using the world map with profit density showing which country are more profitable and which are least profitable and the bar chart showing the average sales & Discount and profit by Sub-category/category. Market analyst and vendors are the main target audience for this dashboard to see which sub-category products have high or low average sales or discount and profit and by hovering on different countries you can see the change the bar chart for that specific country. This could be used in making decision for the vendors to concentrate on that country that have higher sale and profit and make better decision to improve their sales in worst performing countries.

## Dashboard 7: -



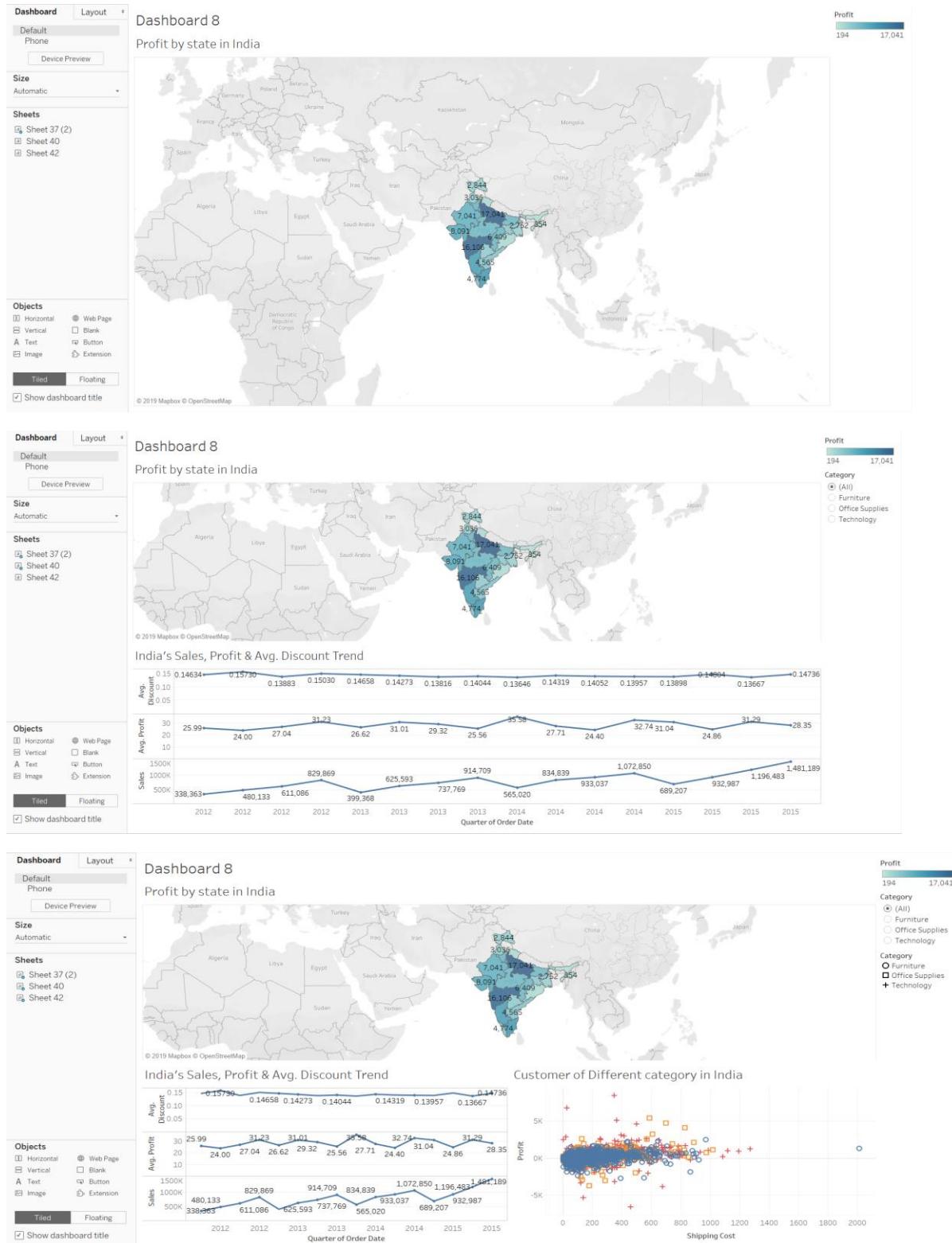


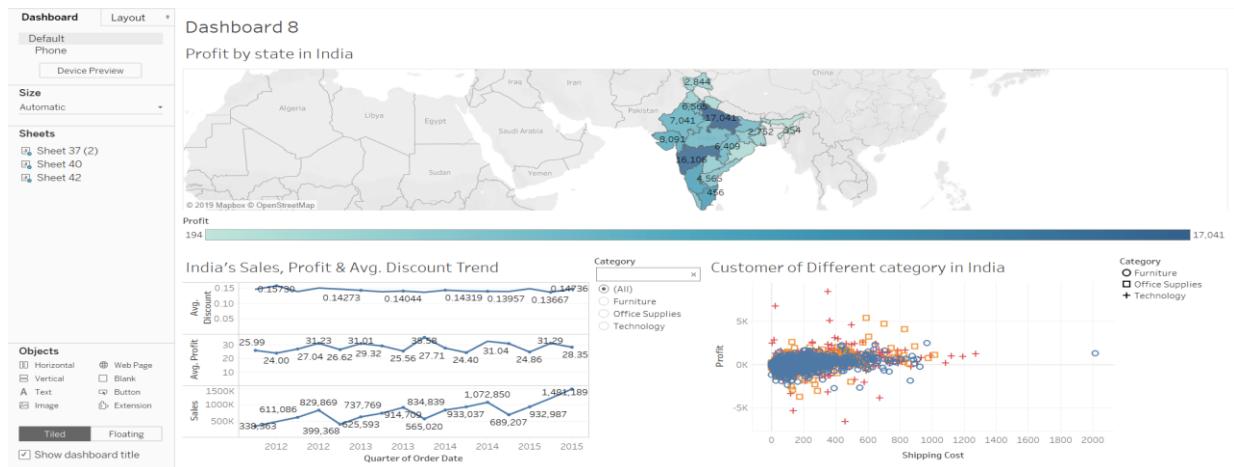
## Final Dashboard 7:



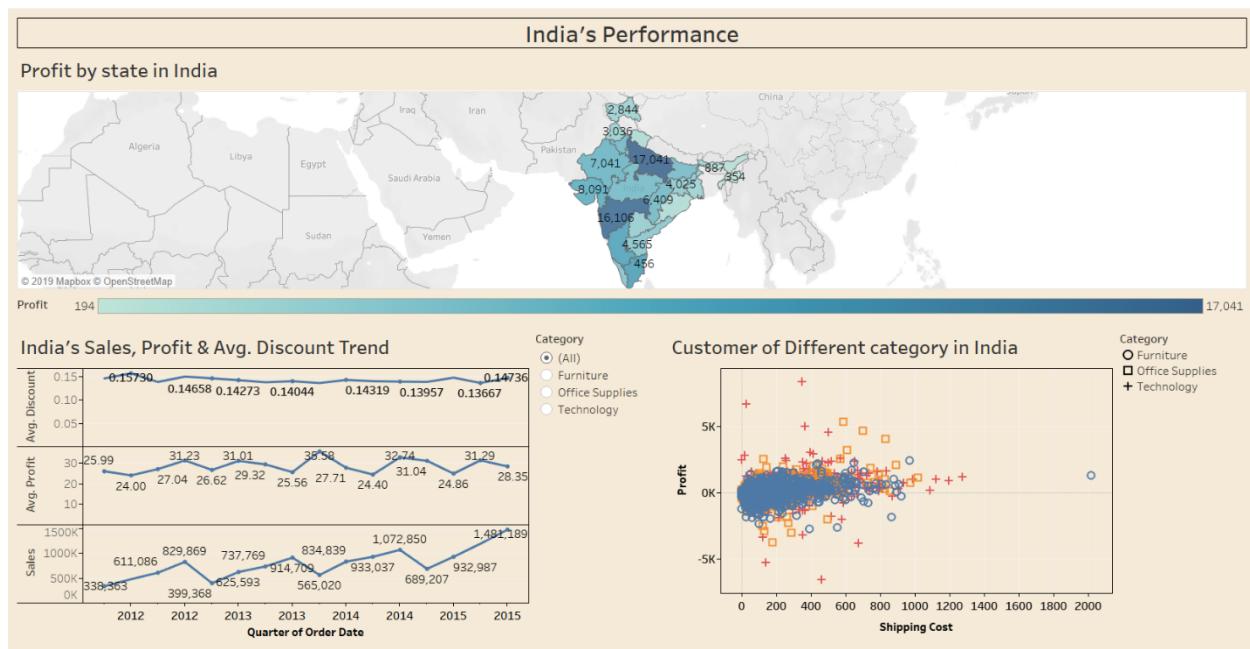
**Summary:** The dashboard 7 is about the U.S.A performance. It tells the performance of each state and sales & profit trends and customer of different category in United States of America. This dashboard is connected with dashboard 3 but this dashboard tells about the whole country not the regions specifically. When the user hover over any state of U.S on the map the both graph below changes to show that specific state statistics or user can select different categories to check the trends of profit and Sales. The market analyst, vendor and investors will be good audiences for the dashboard and will help them for better decision making in predicting the future sales and profit.

## Dashboard 8: -





## Final Dashboard 8:



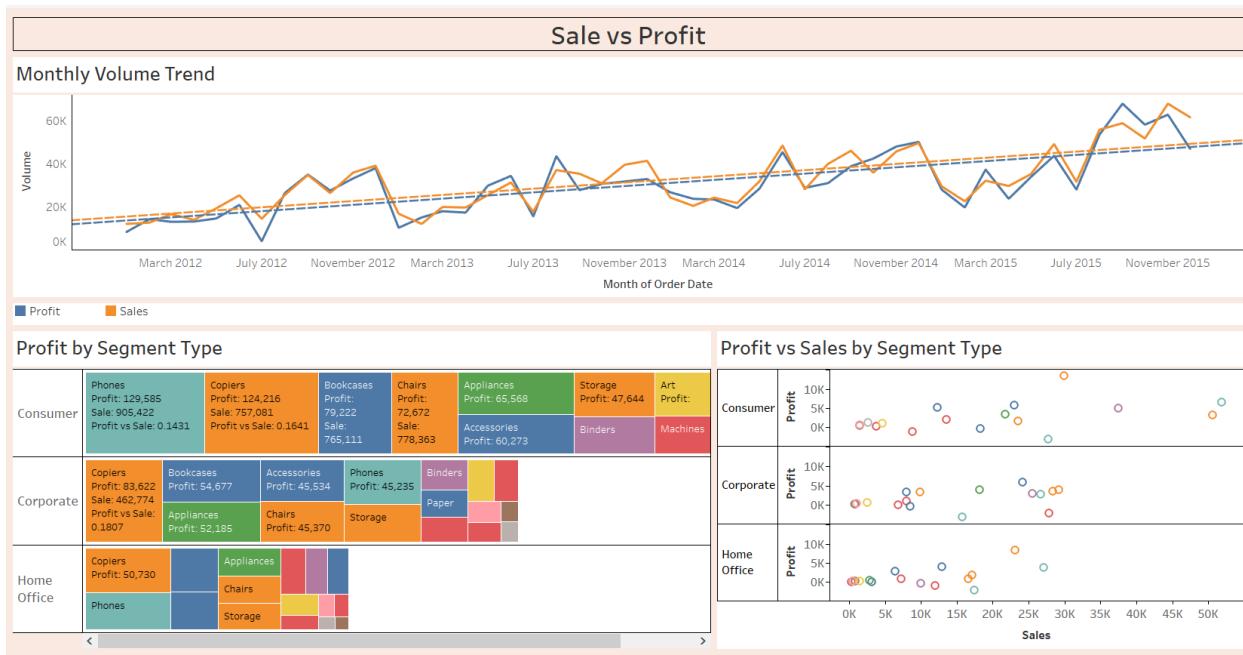
**Summary:** The dashboard 8 tells about the India's performance that is the biggest growing economy in the world and in coming future it can beat U.S economy and it is the world biggest market and are good for the vendors to generate sales and profit. The India's map shows the profit density of each state or we can see the trends of sales, profit and discount or customer of different category. A user can hover over the map to see specific state statistics or trend for sales, profit or discount. This dashboard can be useful to vendors, market analyst or the manufacturer that which states of India have the highest sales or profit or which states needs attention of vendors which are not doing great sales.

## Dashboard 9: -



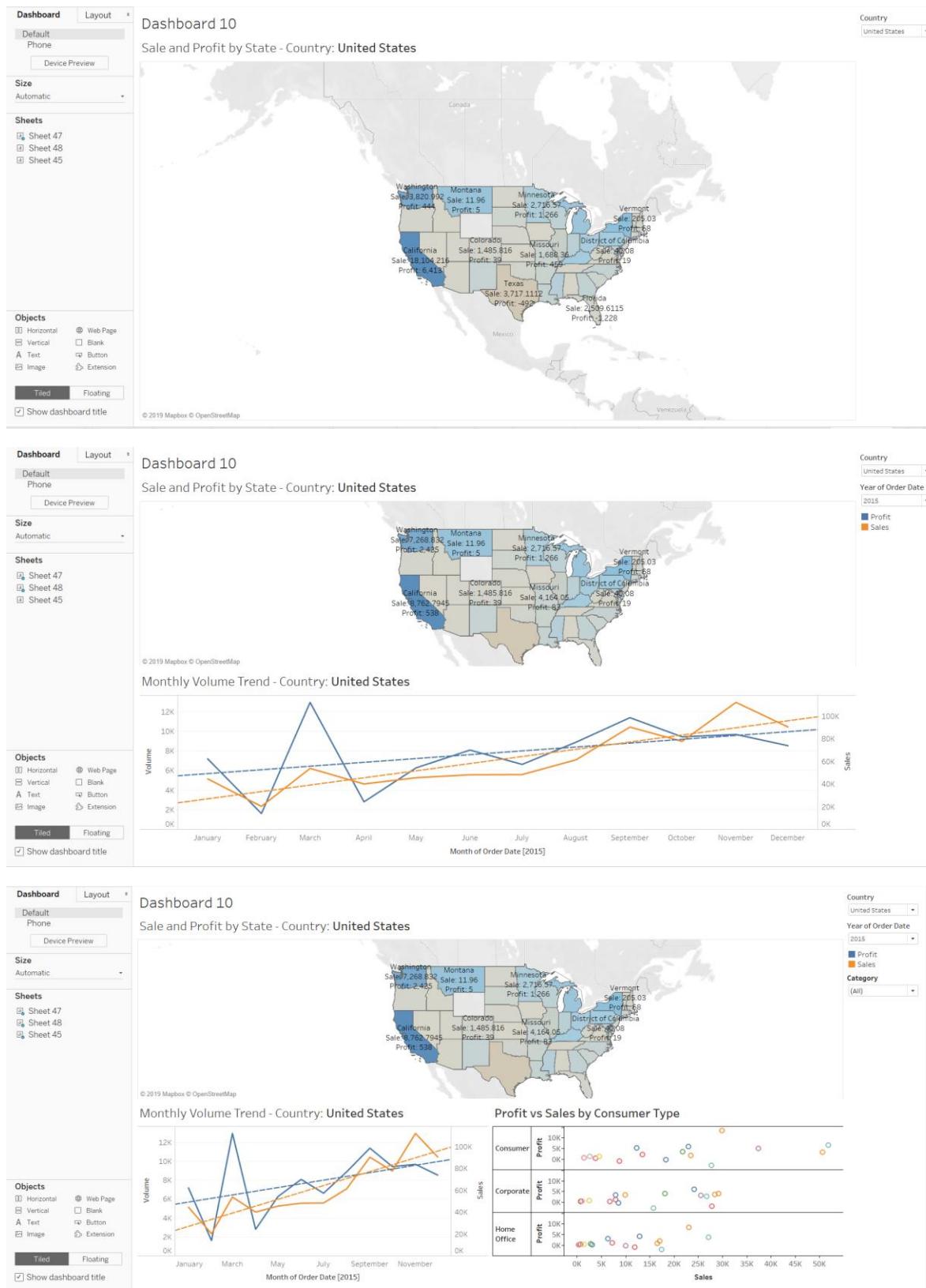


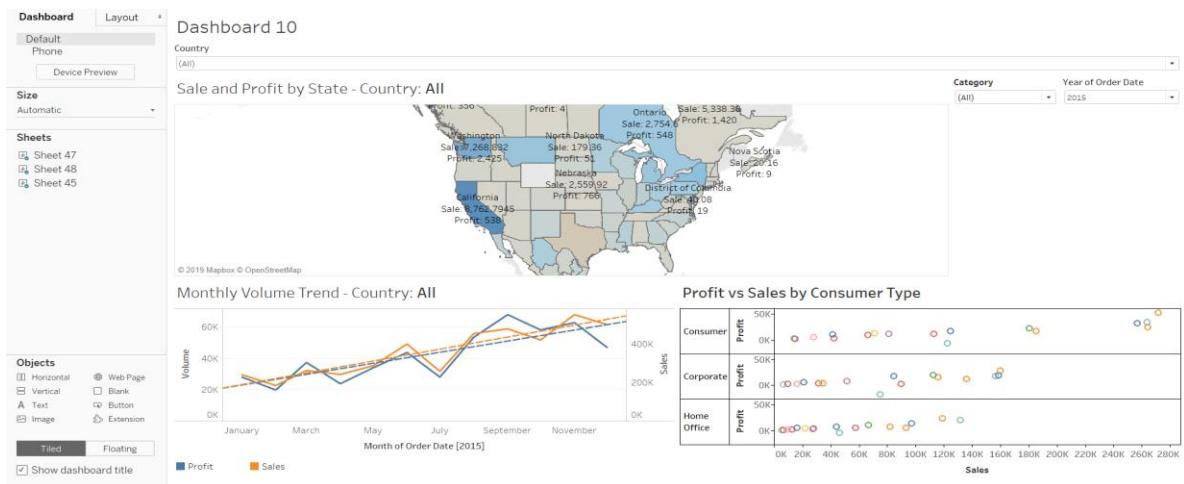
## Final Dashboard 9:



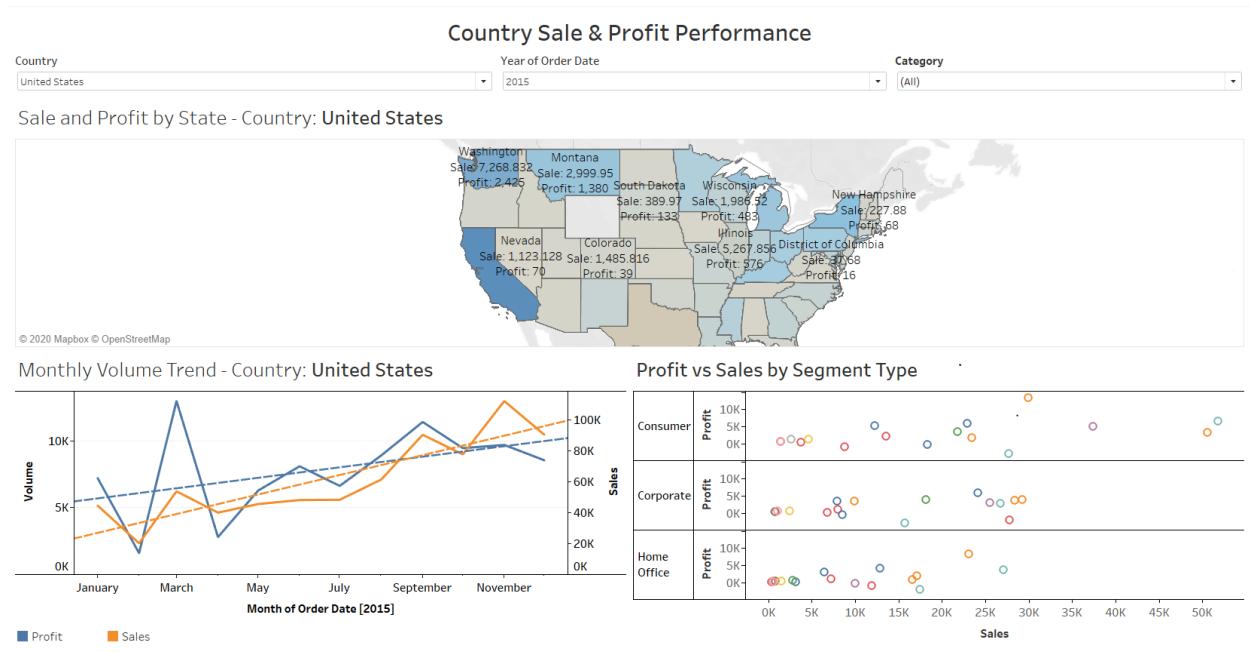
**Summary:** The dashboard 9 is about Sale vs Profit. I have created a calculated field profit vs sale for this dashboard. The line charts show the trend of sales and profit over the month of order date so we can see when are both measures are higher or lower with trend lines. The below two charts shows the profit, sales & profit vs sales by Segment type can tell about three types of segment by sub-category of the product. It is important dashboard for the vendors to study the sales vs profit trend and improve their sales and profit for specific segments. This dashboard can be used by market analyst to analyze and predict the sales or profit for specific segment.

## Dashboard 10: -



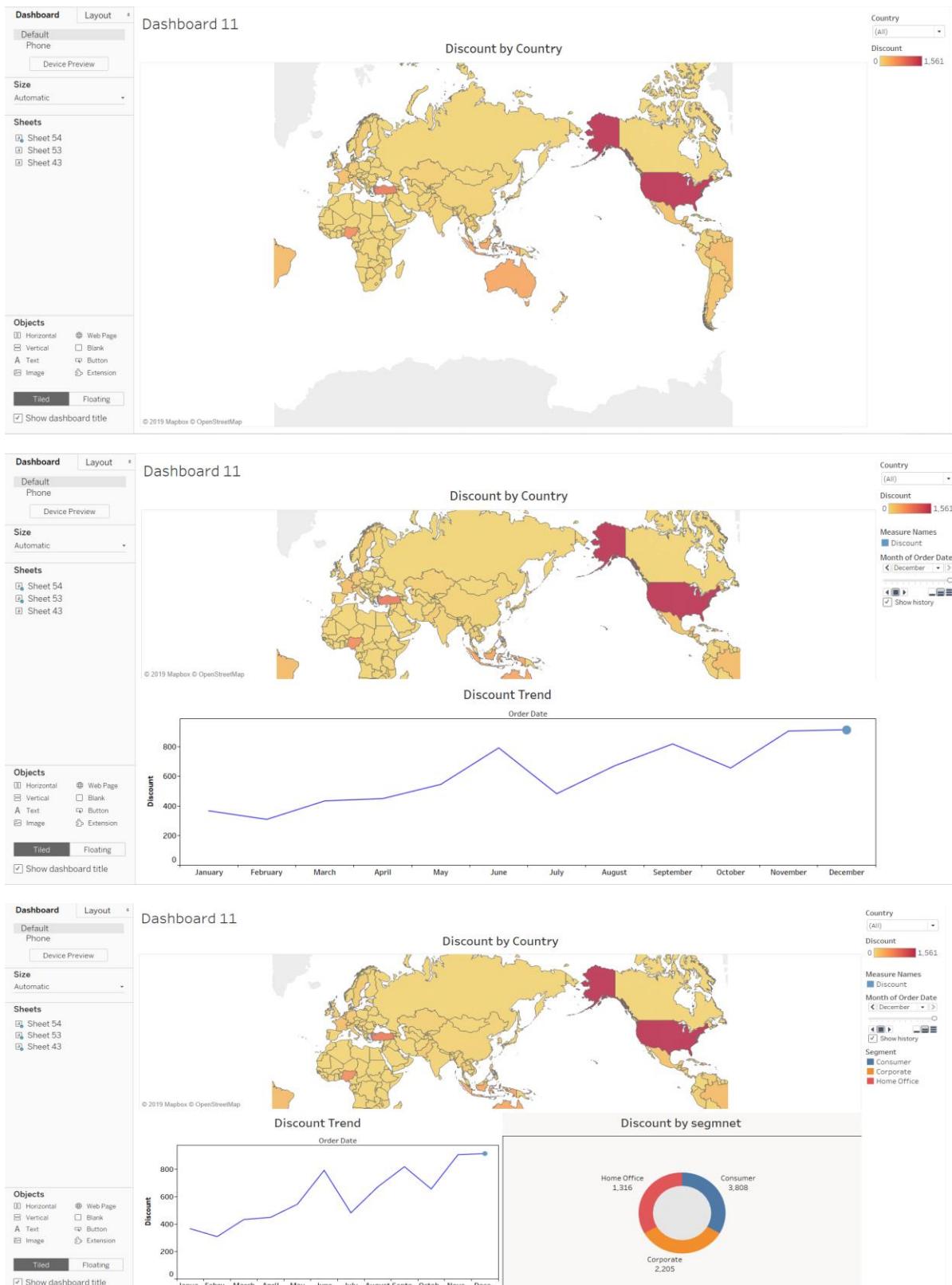


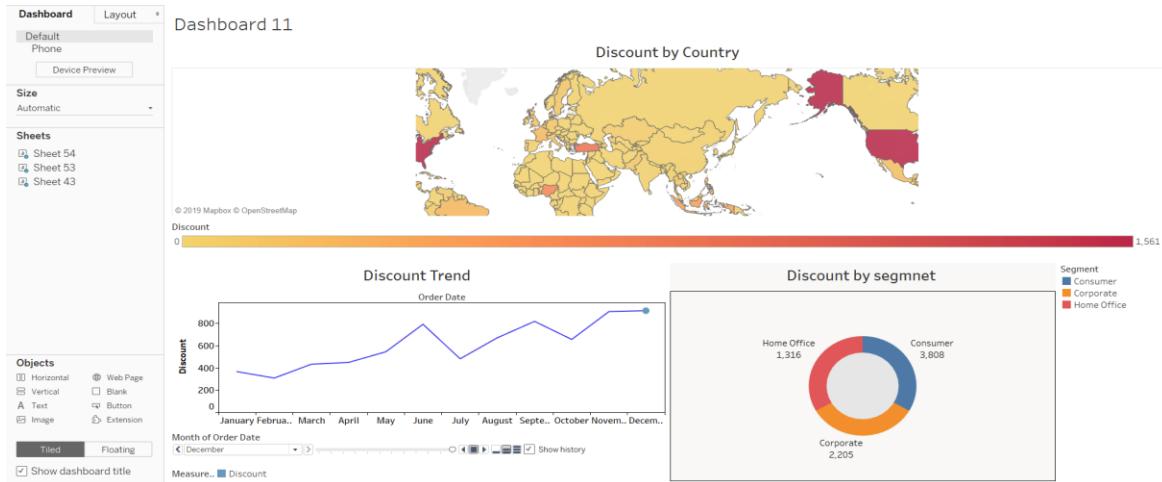
## Final Dashboard 10:



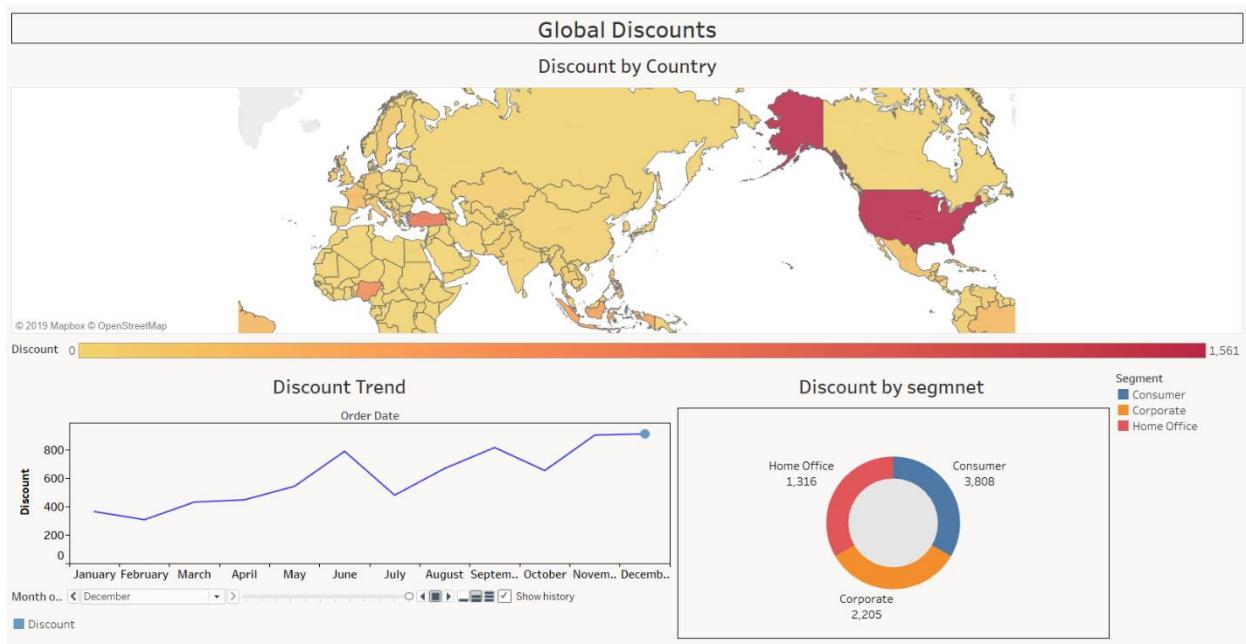
**Summary:** The dashboard 10 tells about the Country Sale & Profit Performance. This is the best dashboard to analyze each country for sales and profit for different years and category by selecting them by option given in the dashboard. The dashboard has world map to show the country and other graph shows the monthly volume trend and other graph shows the profit vs sale by segment type. The target audience will be vendors, market analyst or the data analyst.

## Dashboard 11: -



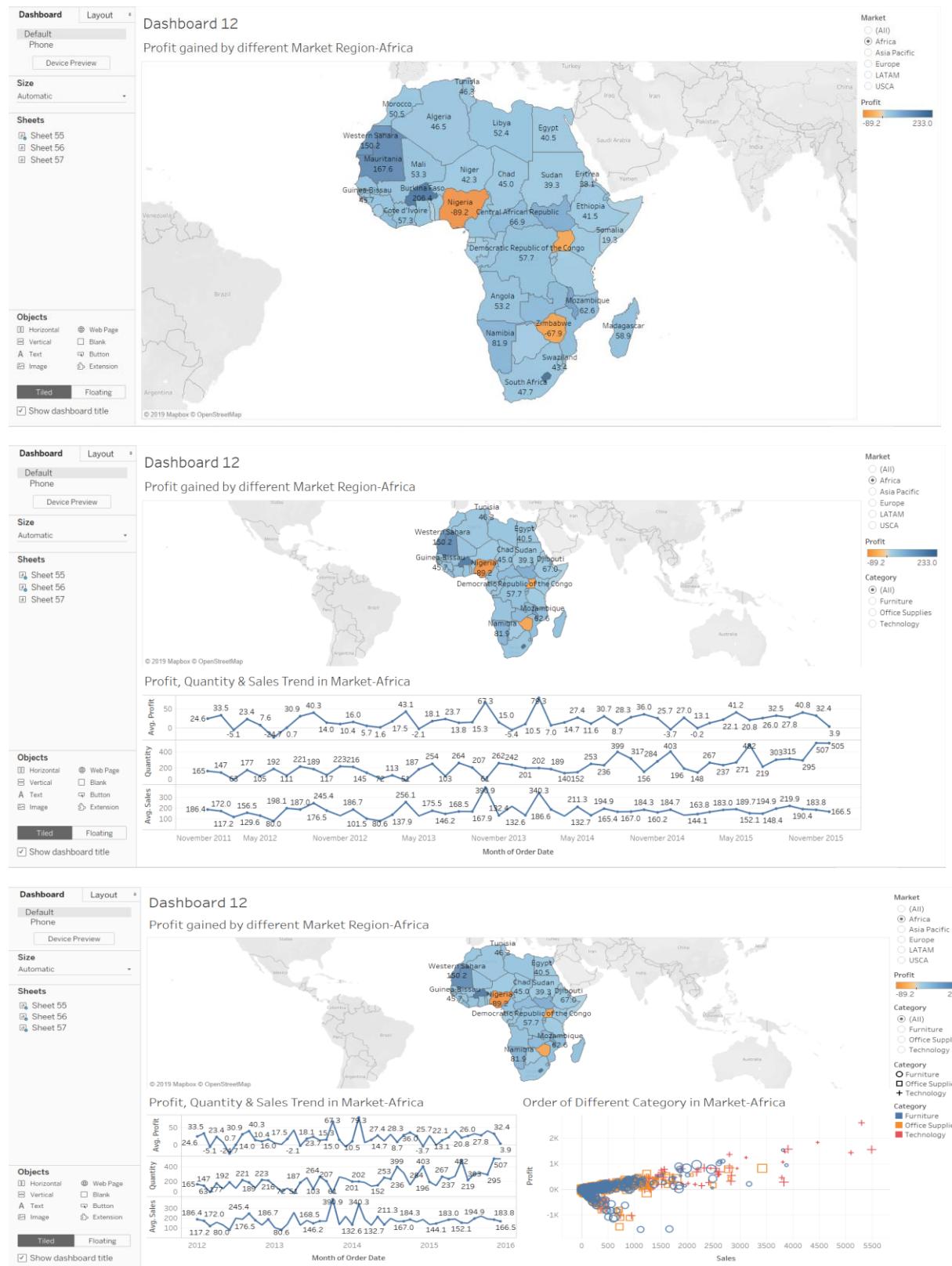


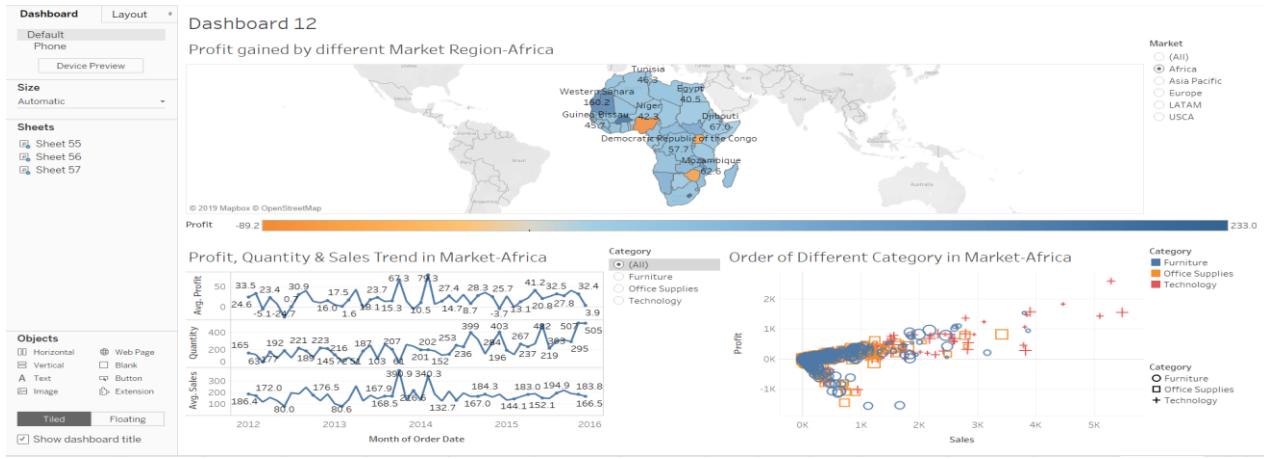
## Final Dashboard 11:



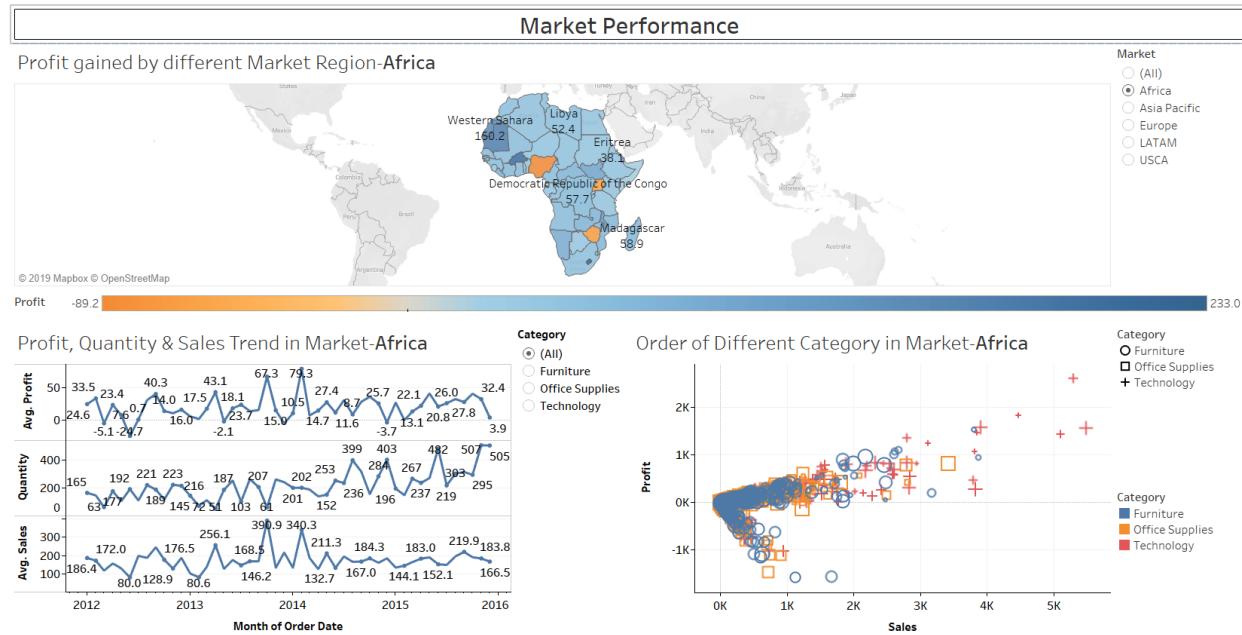
**Summary:** The dashboard 11 is about the Global Discounts. This dashboard tells about the discount given by the vendors for the product. There are three types of graphs in the dashboard one that shows the discount trends, shows the discounts by country and discount by segment. The discount trends line graph can be played or you can hover over any country in the map to see the specific country trend and its discount on the different segment. The dashboard can be used by analyst or vendors to track the country where the discounts are higher so they can recommend the customer to purchase from specific region.

## Dashboard 12: -



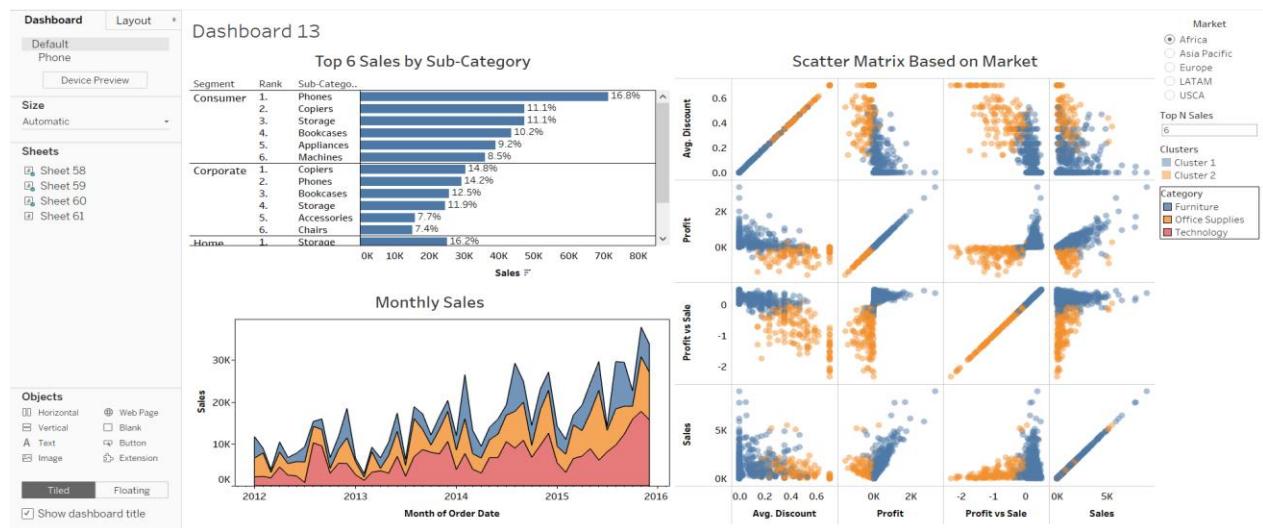
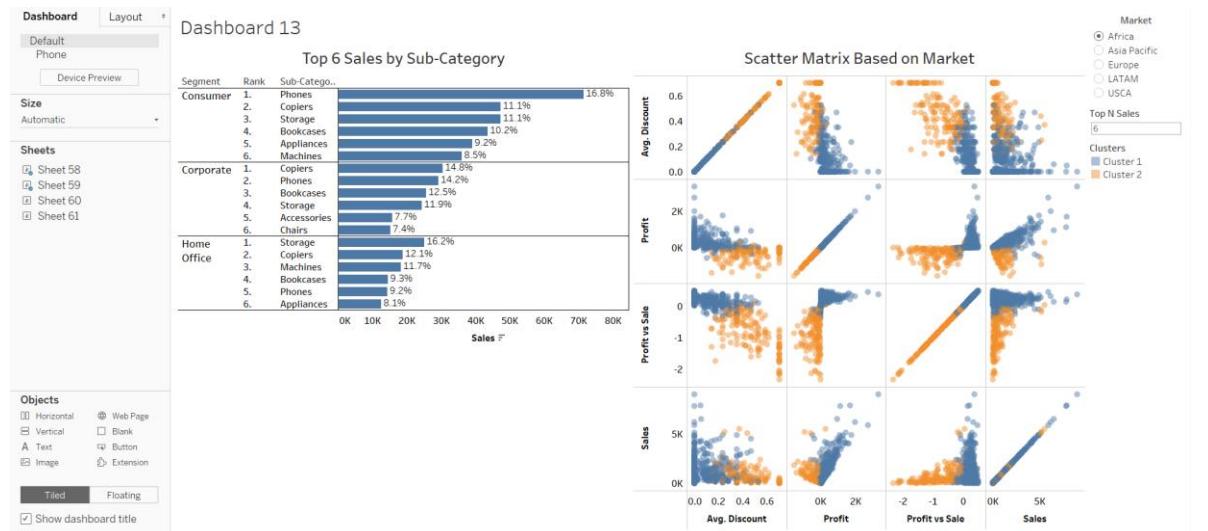
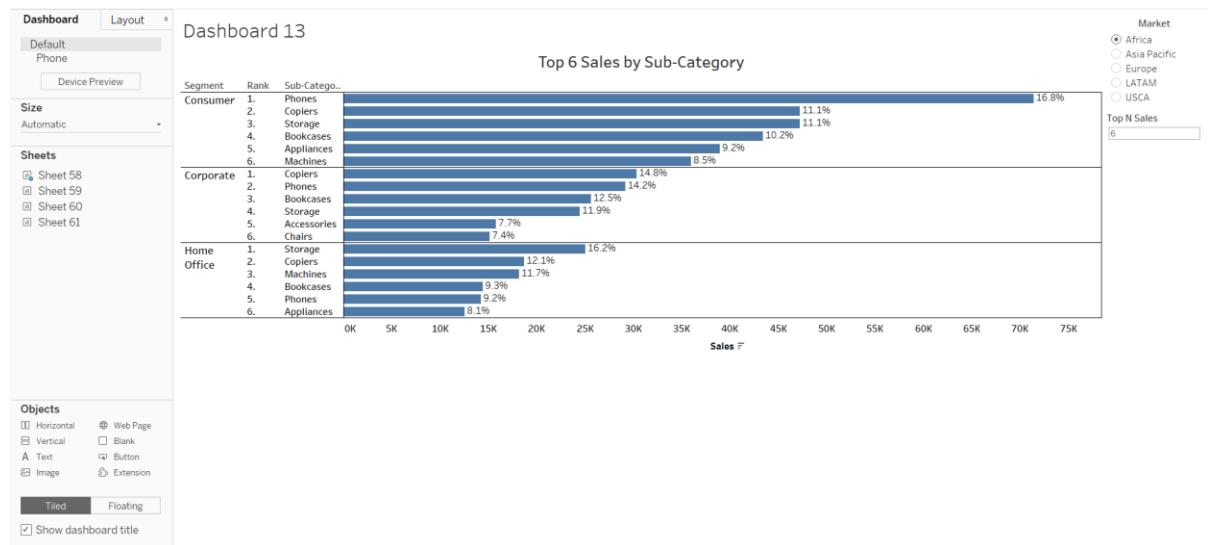


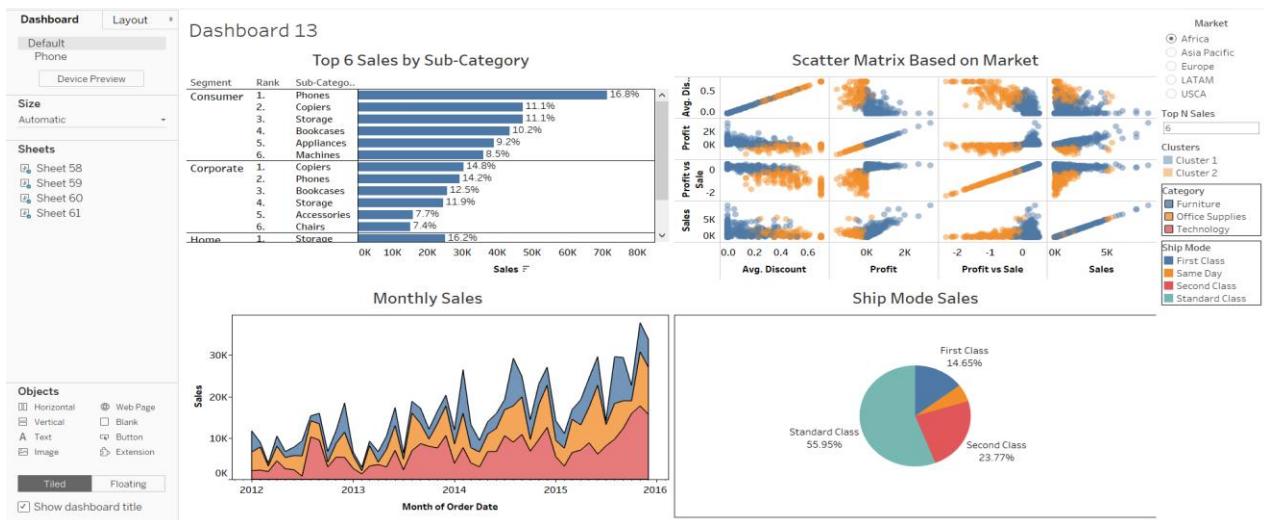
## Final Dashboard 12:



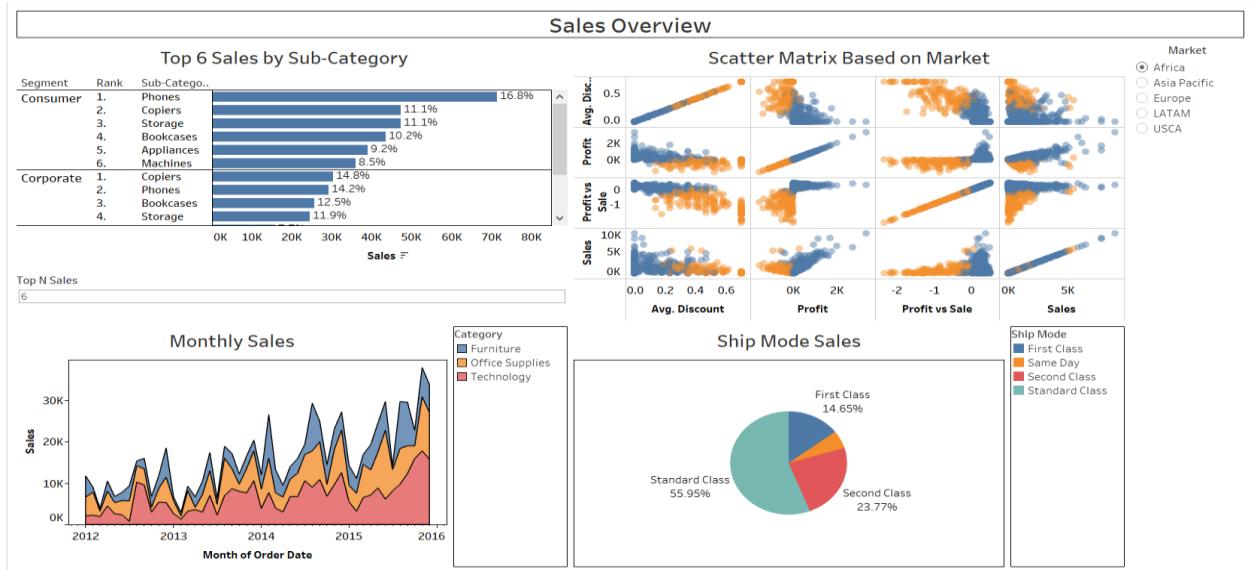
**Summary:** The dashboard 12 is about the Market Performance. This Dashboard has option to select different market to analyze profit, quantity and sales trends or the order of different categories. The market analyzer or analyst are the target audience for the dashboard because they can analyze the profit gained among different markets and compare trends of profit, quantity and sales for respective different markets and you can see order of different category for different market. The decision can be made to decide which market are more profitable and vendors can use this data to focus for poor performing markets that are not generating average profit also.

## Dashboard 13: -





## Final Dashboard 13:



**Summary:** The dashboard 13 tells about the Sales Overview and it is also important dashboard to analyze the Global Superstore dataset. The dashboard has option to choose different market to analyze their Sales. The dashboard also shows the bar chart on top N sales by Sub-category. The vendors and manufacturer are main audience for this dashboard to get insights on the sales of different market. The decision can make based on these sales overview dashboard by which market are best and worst and by seeing the data of top N sales of the sub-category manufacturer can decide which product have best sales and vendors also can see which ship modes are the best based on the sales.

## **Dashboard 14: -**

Dashboard Layout Default Phone Device Preview

Size Automatic

Sheets Sheet 62 Sheet 65 Sheet 66 Sheet 63 Sheet 64

Objects Horizontal Web Page Vertical Blank Text Button Image Extension

Tiled Floating Show dashboard title

### Dashboard 14

#### Net Statistic

Discount	Number of Records	Profit	Quantity	Sales	Shipping Cost
7,330	51,290	1,467,457	178,312	12,642,502	1,358,086

#### Sales & Profit Growth

#### Sales & Profit Growth

#### Sales & Profit over the Year

Year of Order Date	Sales
2012	2,259,450.89553999
2013	2,677,438.69439998
2014	3,405,746.44937998
2015	4,299,865.87055999
	504,166

#### Monthly Sales & Profit Values

Month of Order Date	Sales
January	676,788.927039998
February	554,649.891319999
March	760,517.975959998
April	695,978.410840001
May	915,492.83088
June	1,262,080.91694
July	752,306.302219998
August	1,294,314.95781999
September	1,431,753.40347999
October	1,185,227.68972
November	1,546,728.15616
December	1,566,662.4475

## Final Dashboard 14:

### Overview of Global Superstore

#### Net Statistic

Discount	Number of Records	Profit	Quantity	Sales	Shipping Cost
7,330	51,290	1,467,457	178,312	12,642,502	1,358,086

#### Sales & Profit Growth

#### Sales & Profit Growth

#### Sales & Profit over the Year

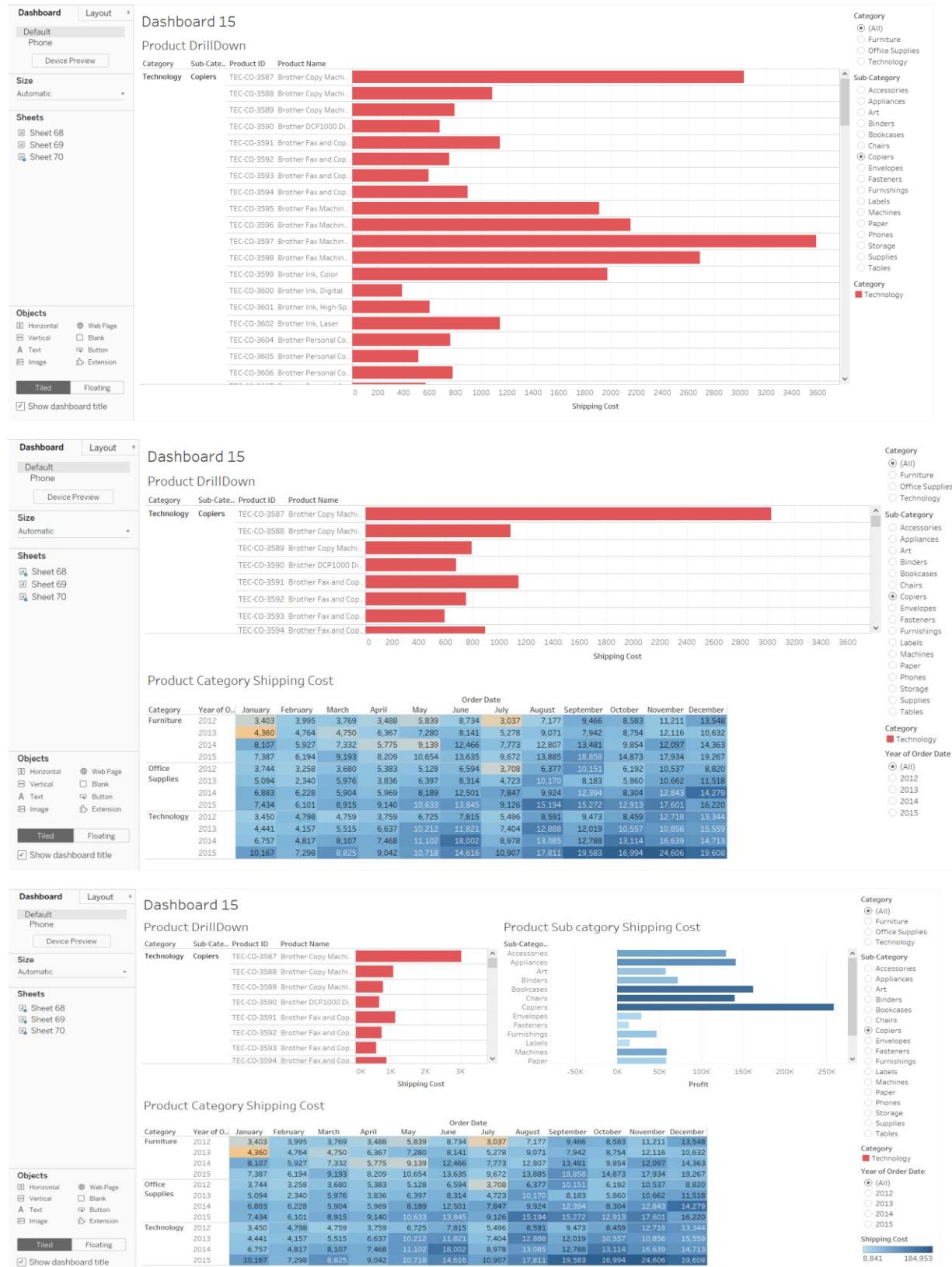
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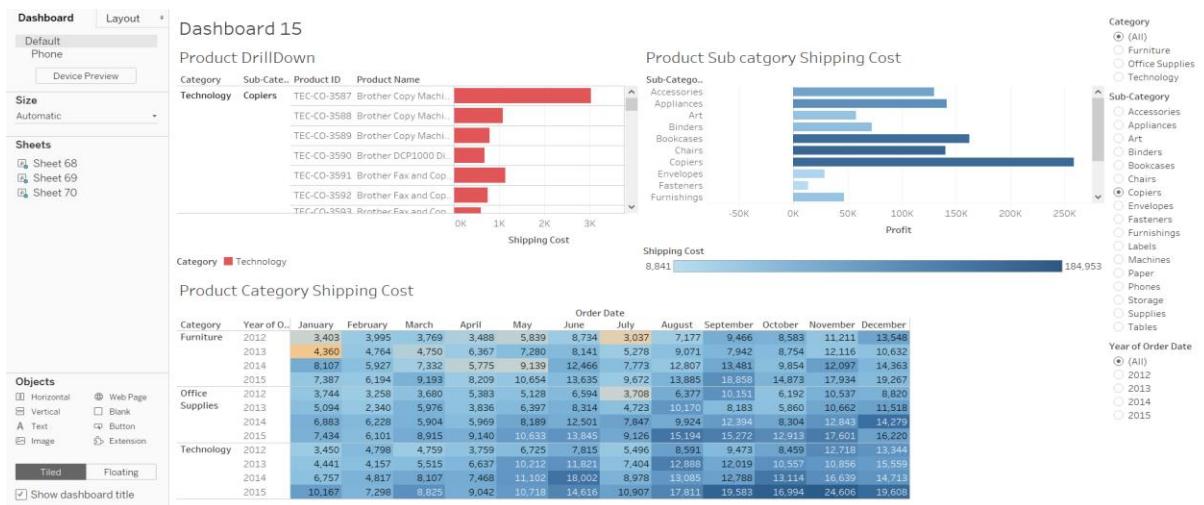
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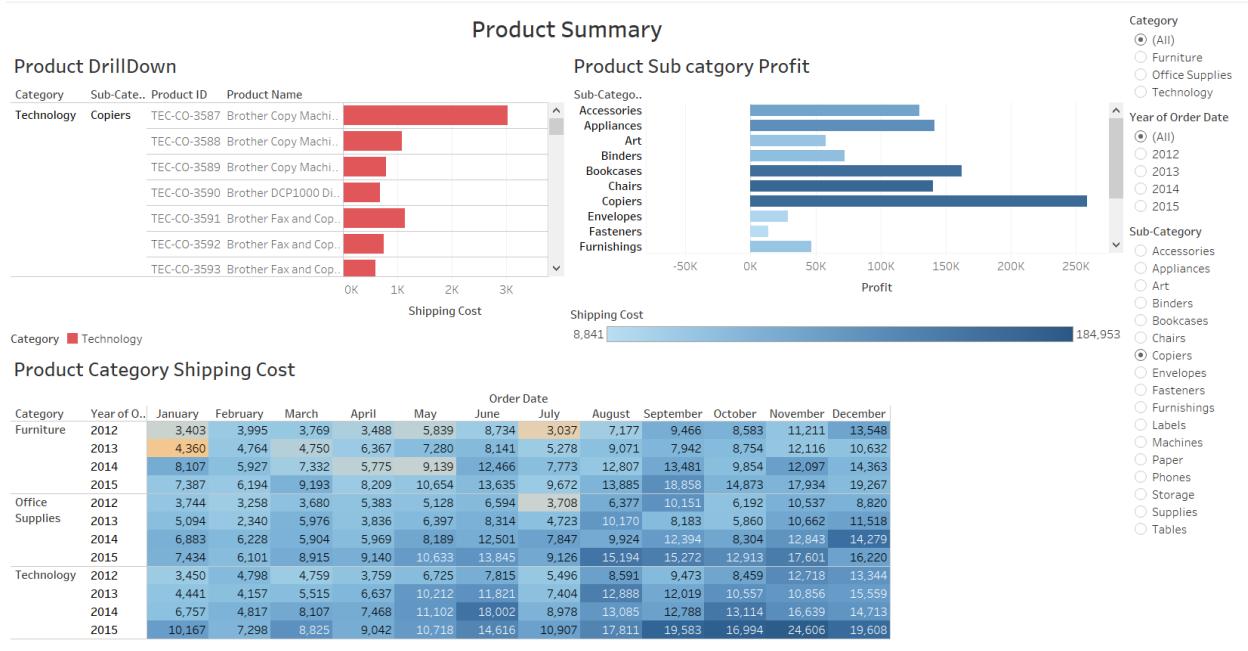
**Summary:** The dashboard 14 is the Overview of Global Superstore that shows the overall statistics of the Global superstore dataset. This dashboard can be used by vendors, market analyst or customer to see the overall performance of the dataset. The overall number of total no. of customer, profit, sales, quantity and shipping cost can be shown in the net statistics. The target audiences can see the monthly and yearly sales and profit for the overall superstore globally. From the line charts we can see that overall sales have increased over the year but the profit is not increased that much over the year.

## Dashboard 15: -





## Final Dashboard 15:



**Summary:** The dashboard 15 shows the Product Summary. It is also important dashboard that summarize the product that are been sold by the vendor. There are several options to select on those dashboards like you can select category/sub-category product or select the year to get the product summary for that specific year. The product's shipping cost and profit can be seen in the dashboard. The target audiences are vendor and analyst that can analyze how much is the shipping for each product and profit for sub-category and we can find the best and worst product sub-category which are making profit and there shipping cost. This dashboard can be used by vendors to find which sub-category/category product are costing more in shipping and how they can reduce their shipping cost.

## **Assignment Part-2**

### **(Predictive Analysis & Visualization of Insights)**

This part of the assignment we will try to explain the insights gained after performing predictive & prescriptive analytics for the Global Superstore 2016. After completing the part 1 of the assignment we have gained so much information and actionable intelligence so we can make decision for the future. There can be more question that we can explore using advance analytic techniques in tableau.

## **Question that can be Explored: -**

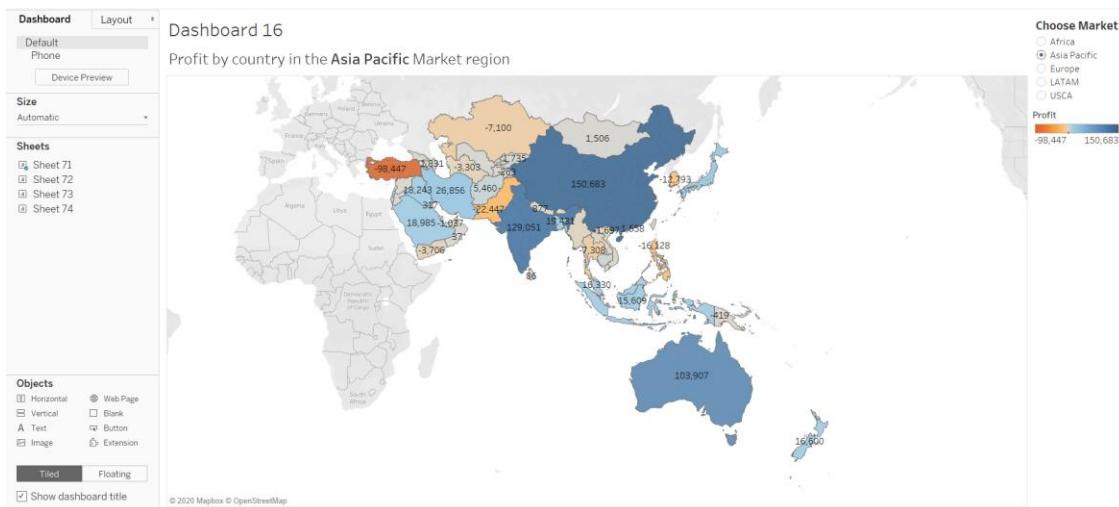
The Global superstore 2016 dataset has many questions left to explore. Below are some questions that we will be discussing in part 2 of the report: -

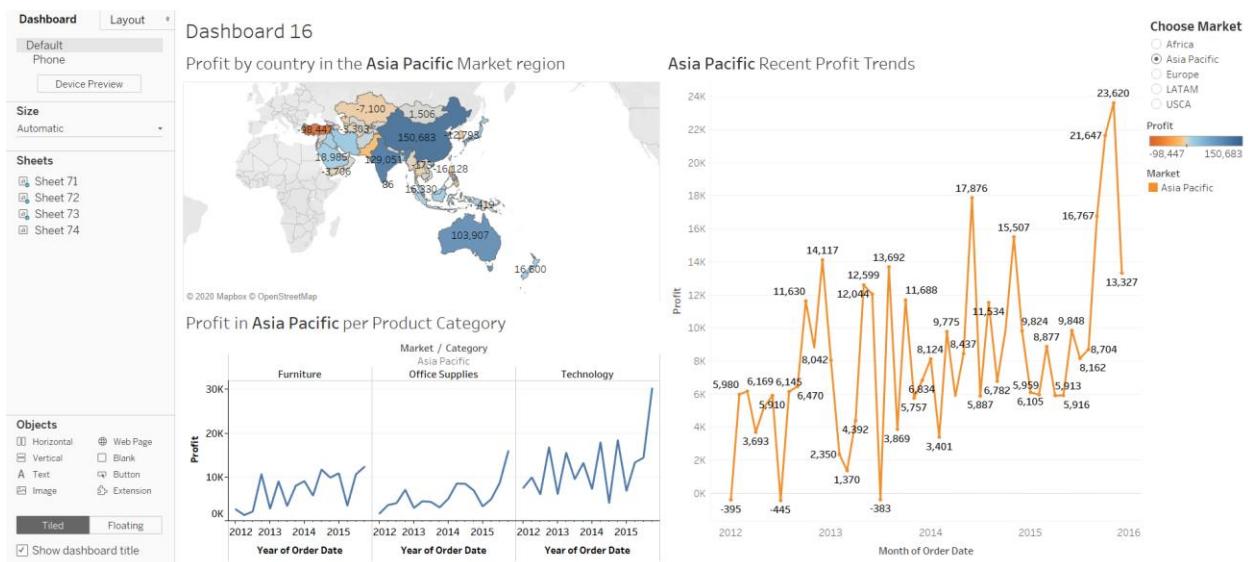
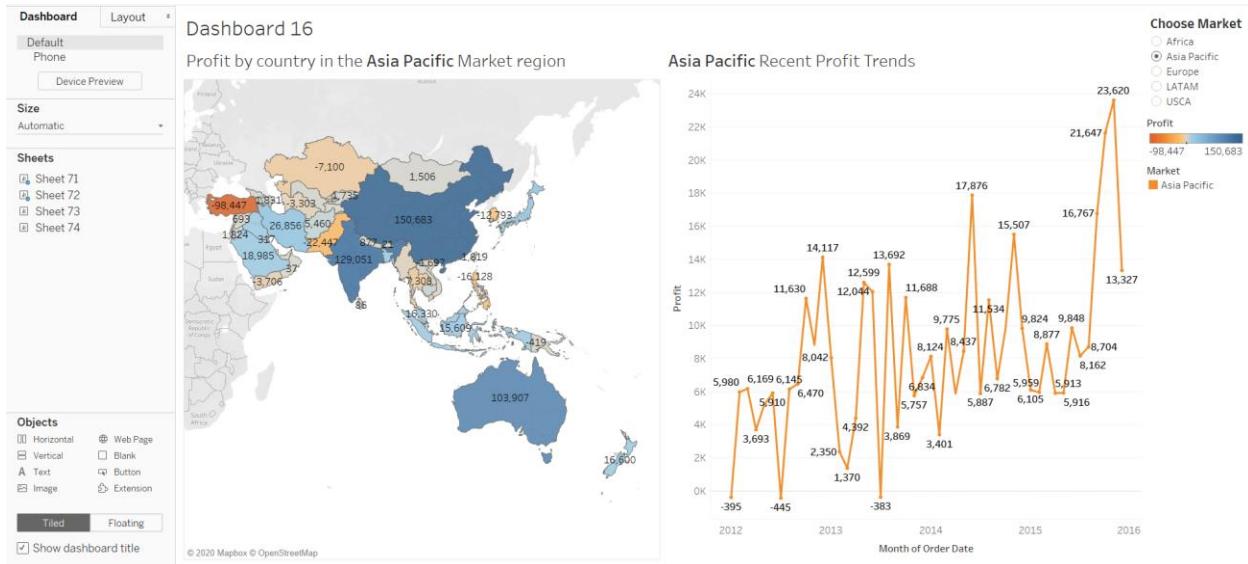
- What is the future projection of different measures?
  - What are the different statistics techniques can be used on the dataset?
  - What is the projection of sales for different market or categories?  
Many more question like this.....

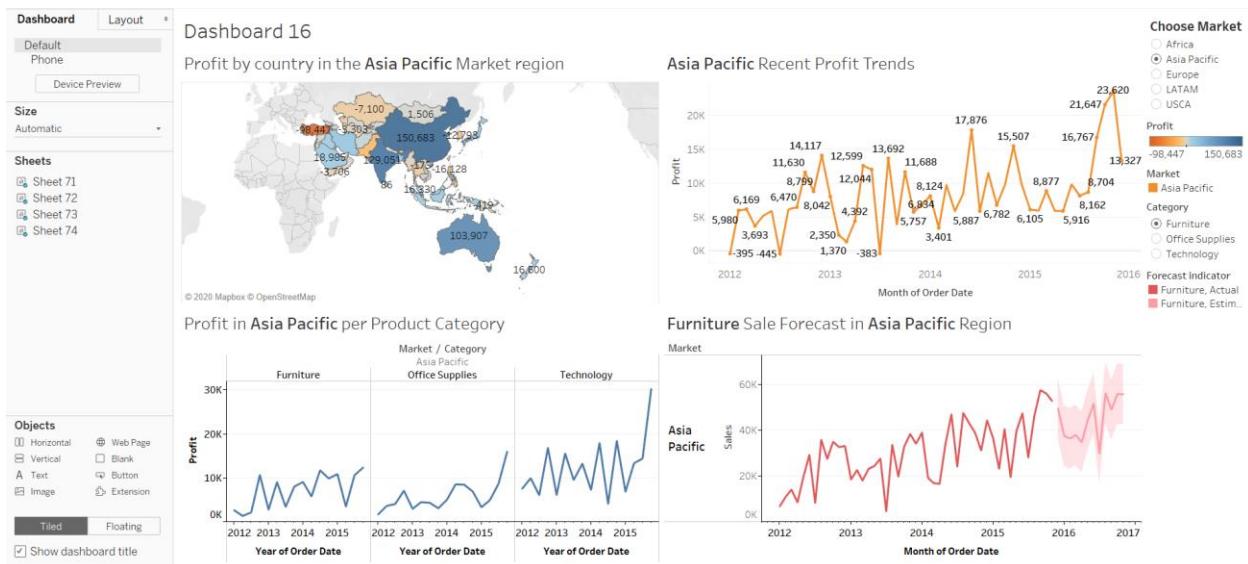
Measure value like sale, profit, quantity & shipping cost are the variable that can be related. Profit and sales are the variables that can be related the most as both variables are correlated (more sales means more profit vice versa) so predictive dashboard made on it. There are many actionable insights we can gather by applying different statistical techniques on those different measure.

## Screenshots and Summary of Dashboards: -

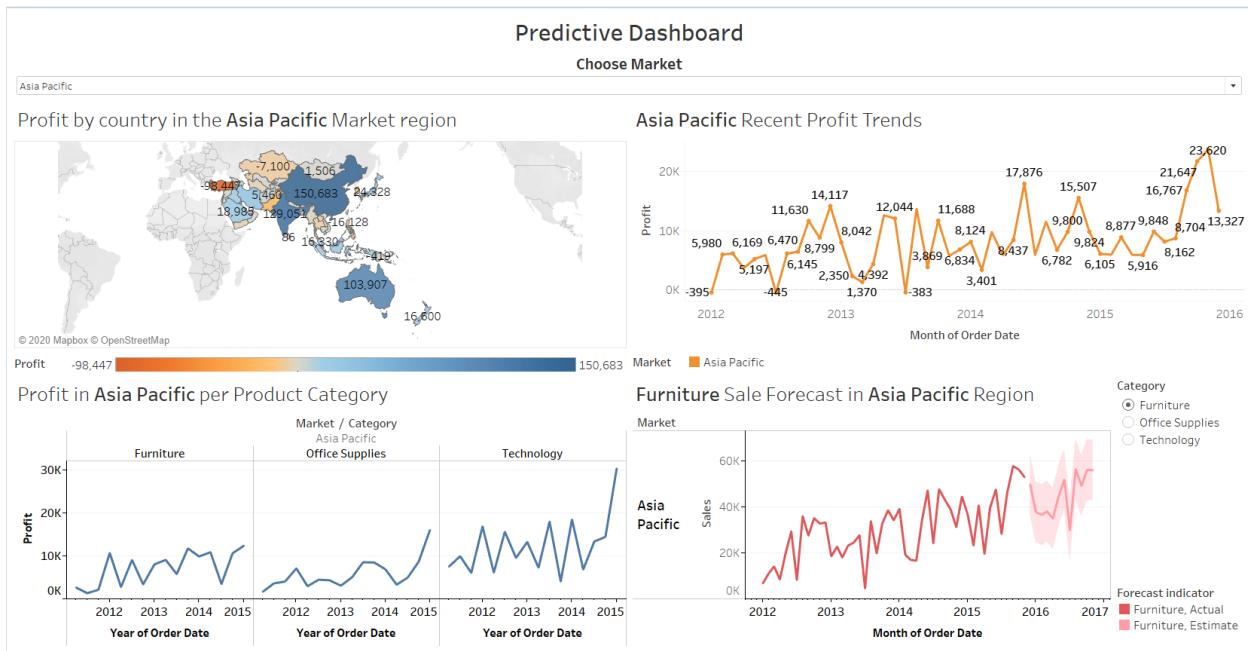
## Dashboard 1: -





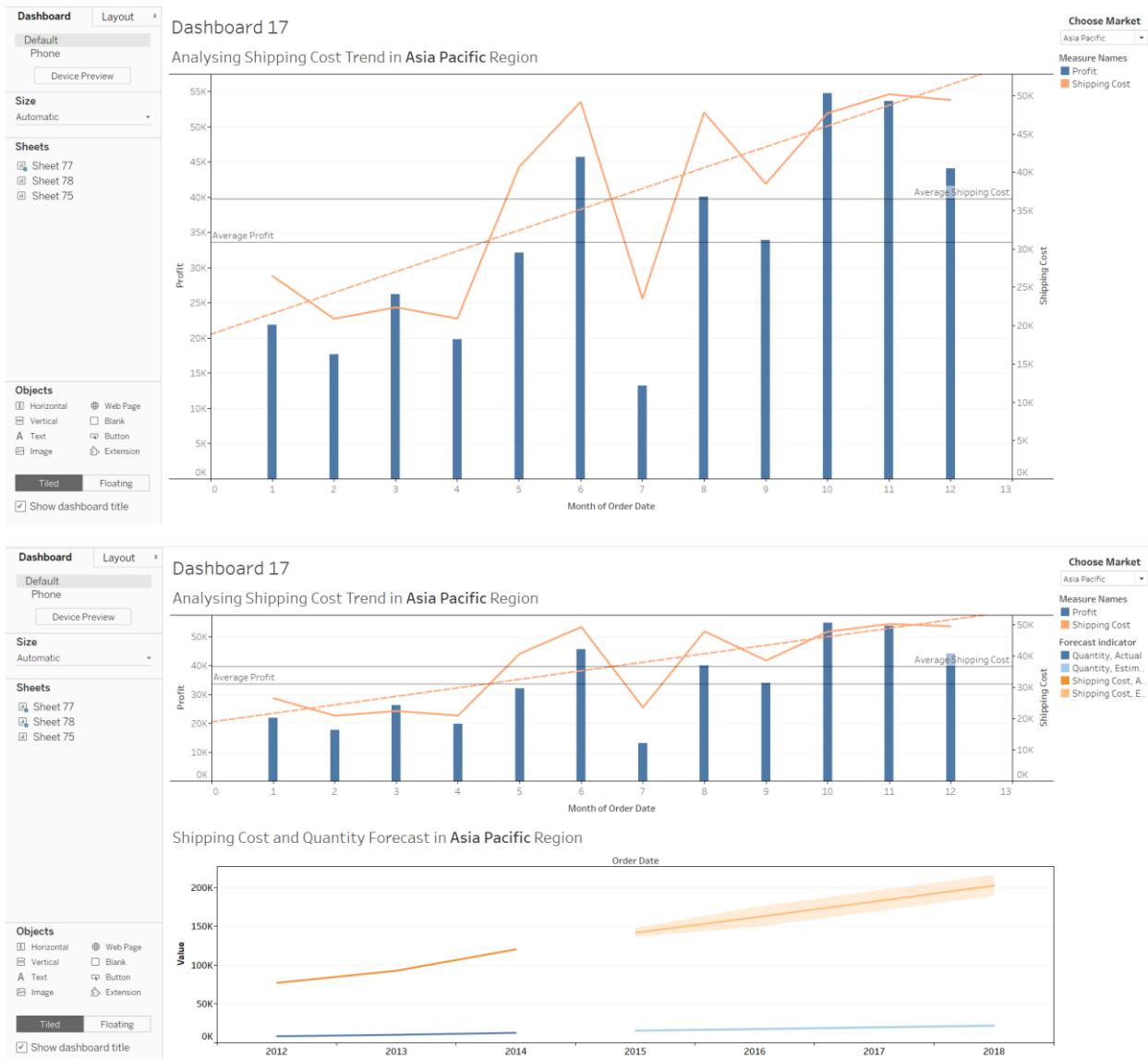


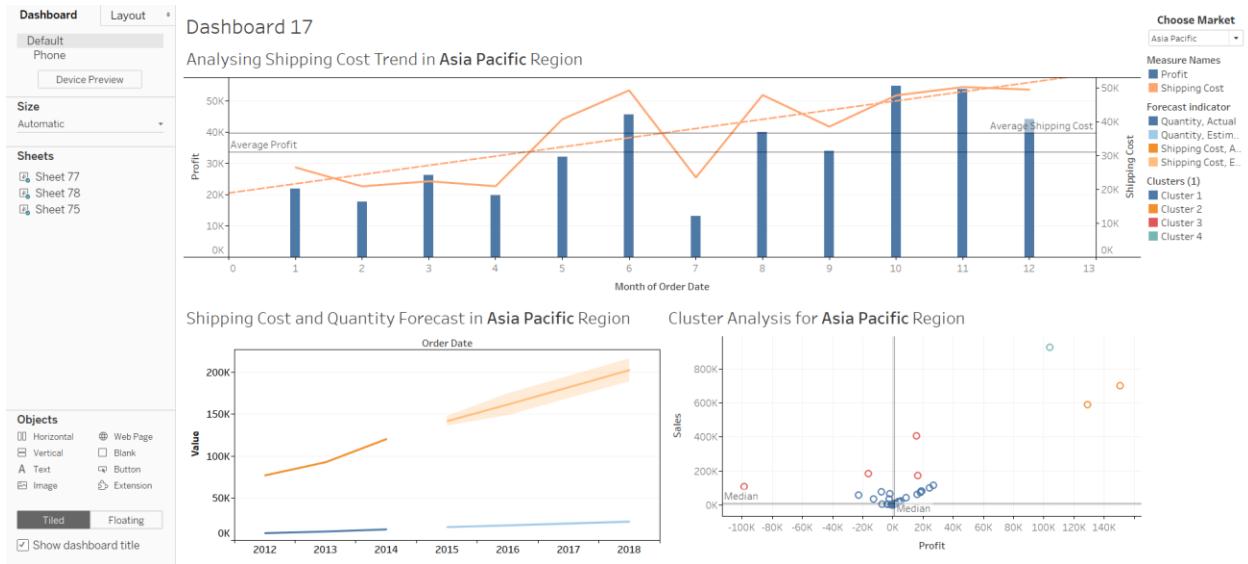
## Final Dashboard 1:



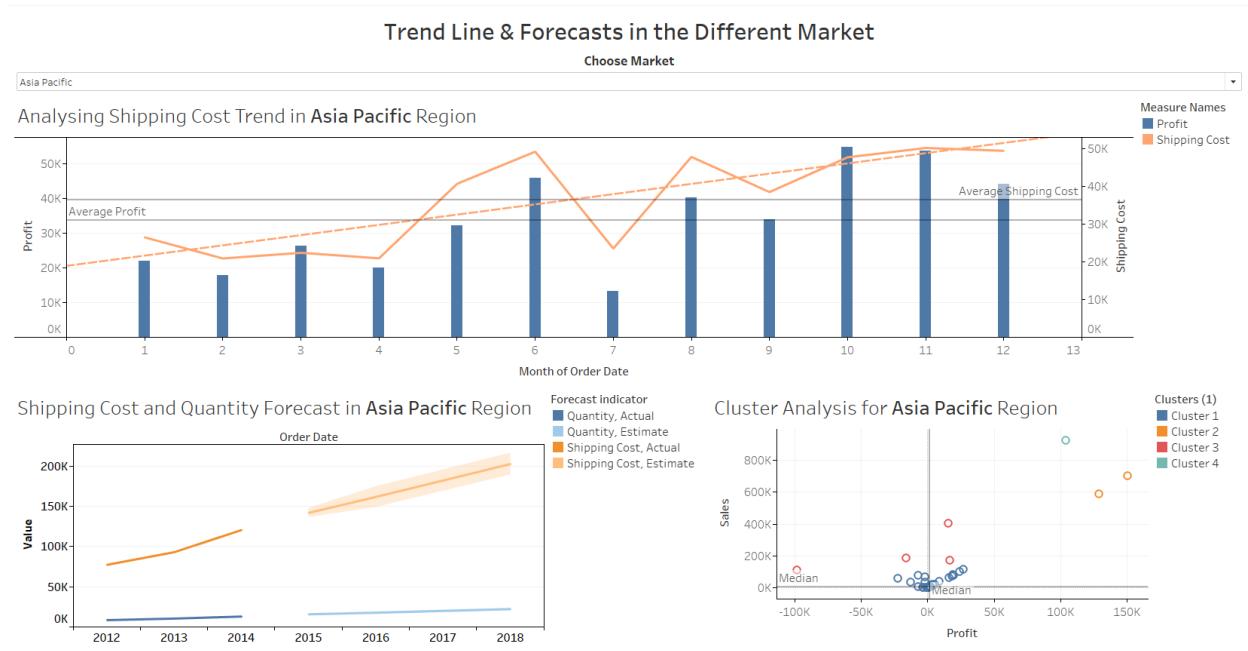
**Summary:** The dashboard 1 tells about the predictive analysis by forecasting sales value for next two years based on the profit generated for the year 2011 to 2015. The predictive dashboard tells you about the profit trends for different markets and categories. The dashboard lets you choose the market and based on that you can see the profit trend and sales forecasting. The forecasting sheet on the dashboard predicts the next two years sales and it let you choose different category to understand different forecasting number per category. The main audience for the dashboard will be the vendor to get number on the sales for the next year and based on that vendor can predict their revenue for next two year. This dashboard shows the relation between two variable profit and sales.

## Dashboard 2: -





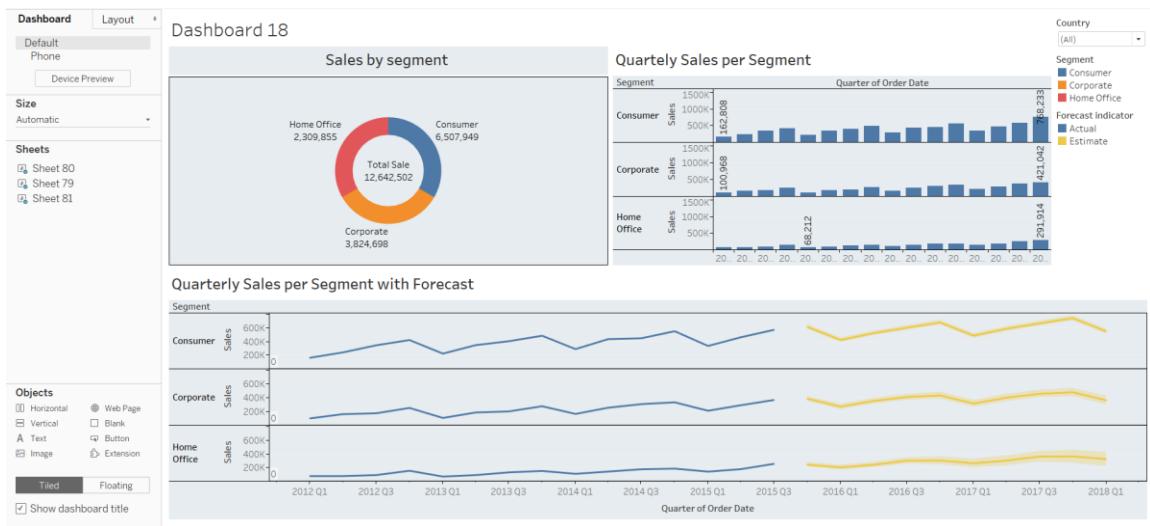
## Final Dashboard 2:



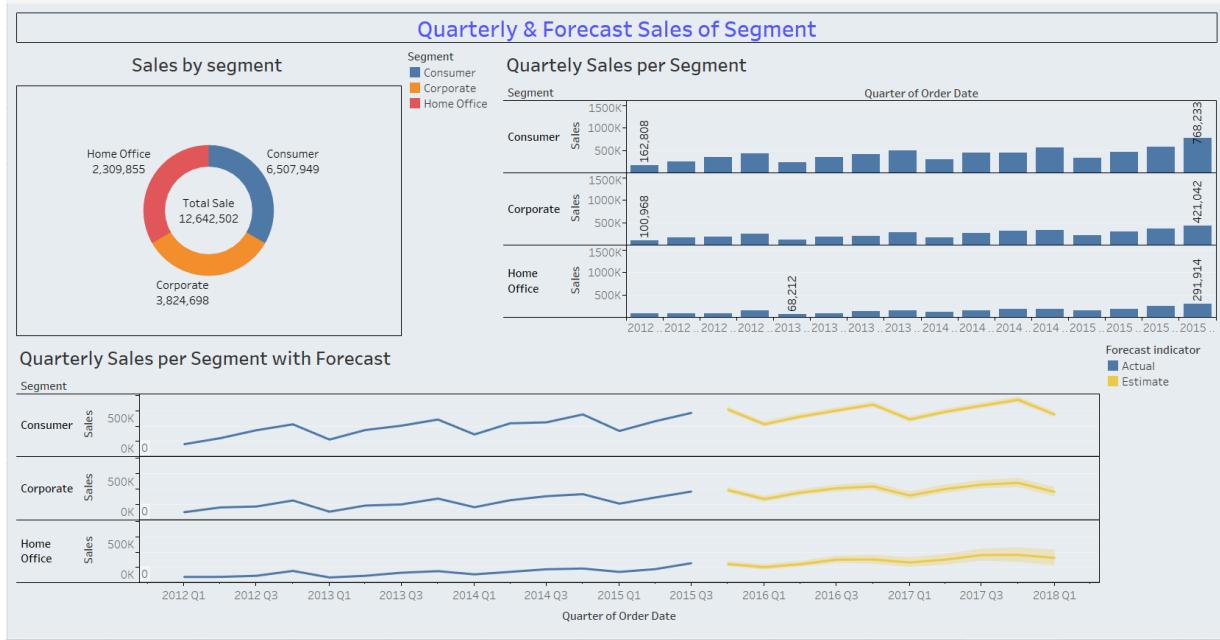
**Summary:** The dashboard 2 shows the trend line and forecasts in different market we are using measure value like profit, shipping cost, quantity and sales. The dashboard uses some statistical methods to make the dashboard unique as trend lines, average line (reference line), forecasting & cluster (model). The dashboard also gives the option to choose the market so we can see dashboard for different markets. The target audience this dashboard will be vendor, investor and market analyst that can analyze trends for shipping cost and forecasting for quantity and shipping cost that can have many useful information for those audience.

## Dashboard 3: -



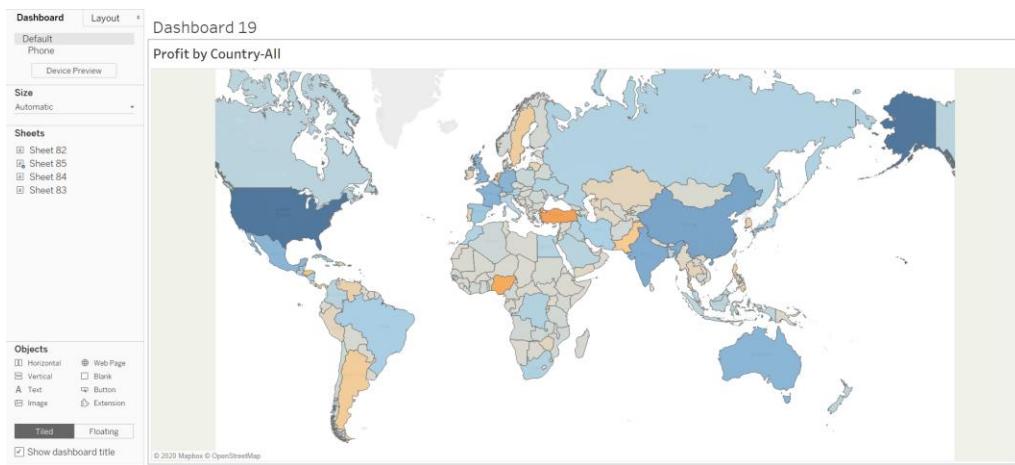


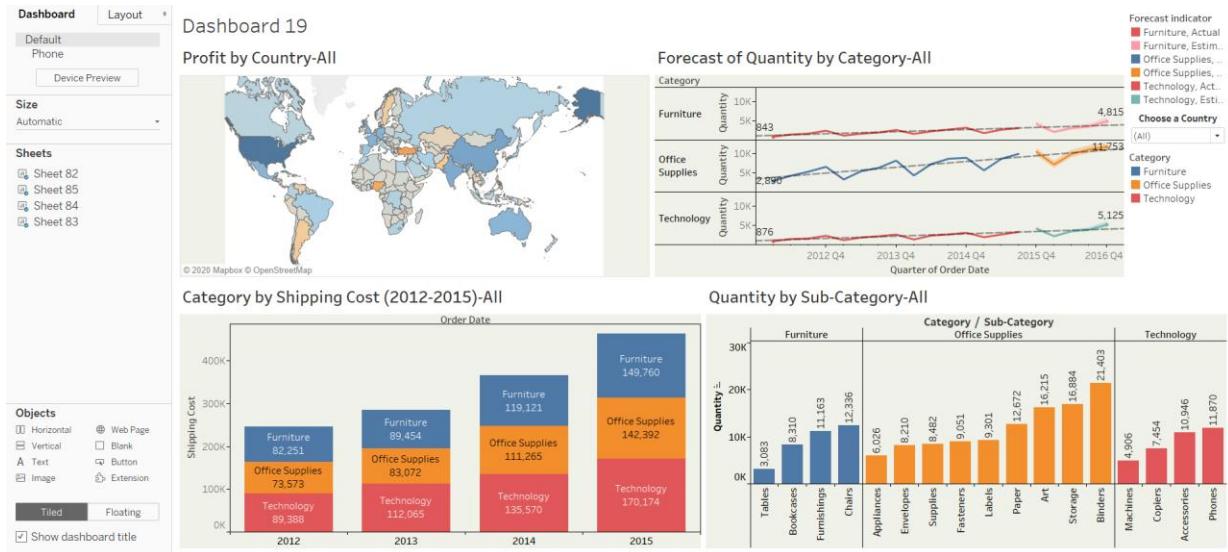
## Final Dashboard 3:



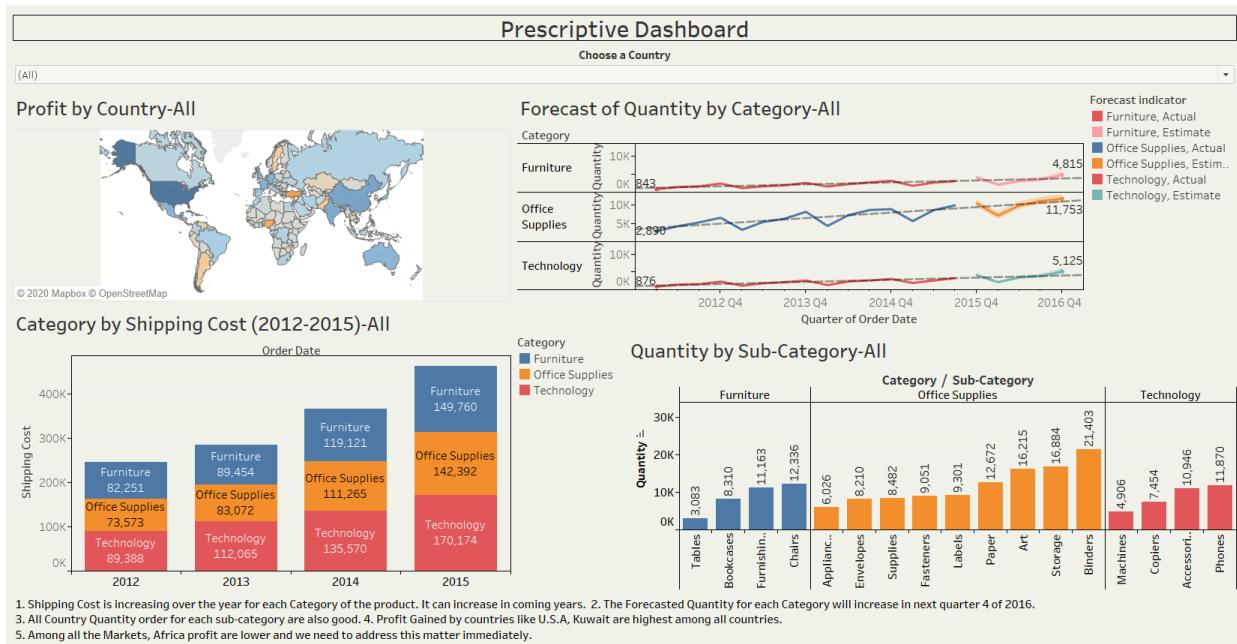
**Summary:** The dashboard shows the Quarterly & Forecast Sales of Segment that gives the information about sales for different segments. The dashboard shows the quarterly forecast for sales for different sales as dashboard use analytic technique to see the future sales number. The investor and market analyst will be the best audiences for this dashboard. The information obtained from this dashboard can be useful in making decision for the future sales by the vendor across the globe.

## Dashboard 4: -





## Final Dashboard 4:



**Summary:** The dashboard is a prescriptive dashboard that tells about different possible outcome based on the sheets that we have used on that dashboard. The prescriptive dashboard provides with few recommendations to tackle some problem based on the prediction and statistics that we can observe from the dashboard. The vendors are the target audiences for this dashboard as they can understand different outcomes from the sheets and suggest some solutions to it. This dashboard different measure like profit, quantity and shipping cost to get details and get insights from these measures. In the bottom of the dashboard there are some suggestion that can be beneficial for the future.