Guided Project Report

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Topic : Sample Super Store Data Analytics Using IBM Cognos Analytics

1.Introduction :

1.1 Overview :
This project is to analyse and visualize the sales and the profit at the superstore and to find out the weak areas so that the profit of the superstore could be more .
The dataset is called the **Sample-Superstore** which has three sheets namely Orders,People,Returns .

1.2 Purpose :
To create different calculations and visualizations that would help in the analysis .

<u>Calculations to be made :</u>
1)Calculations of Year, Month, Day fields for Order Dates and Ship Dates and also the related Navigation paths .
2)Navigation Path of Location with hierarchy as Region, Country / Region, State, City, Postal Code .
3)Navigation path of Product with hierarchy as Category, Sub-Category, Manufacturer, Product Name .
4) Calculations for sales range and target:
Target Sales = 110 % Sales,
Min Sales = 90 % Sales,
Max Sales = 120% Sales,
Middle Range Sales = 95% Sales.

Visulizations to be created :

1)Chart Showing The Regional Sales By Year.
2) A Text Table Showing The Regional Sales By Year And Category.
3)A Line Chart Showing The Sales And Profit Forecasts.
4)The Sales Vs Profit Scatter Plot.
5)Heat Map Showing The Regional, Segment And Sub-Category Wise Profits.
6)Bullet Chart Showing Sales Analytical Values Across Different Sub-Categories.
7)Tree Map By Sub-Category Of Sales.
8)Word Cloud Showing The Sales And Profits.
9)Geographical Map Showing The Sales By States.
10) Waterfall Chart Showing The Sub-Category Wise Sales.
11)Summary Cards Of Sales, Profit, Quantity And Discounts.
12)Hierarchical Bubble Chart To Show Case Category-Wise Regional Sale.

2. Literary Survey :

2.1 Existing Problem :

- We cannot find the solution without having the patterns or visuals like graphs or other means of visualization .

- Analysis can be best made with the help of visualizing it cannot be properly done .

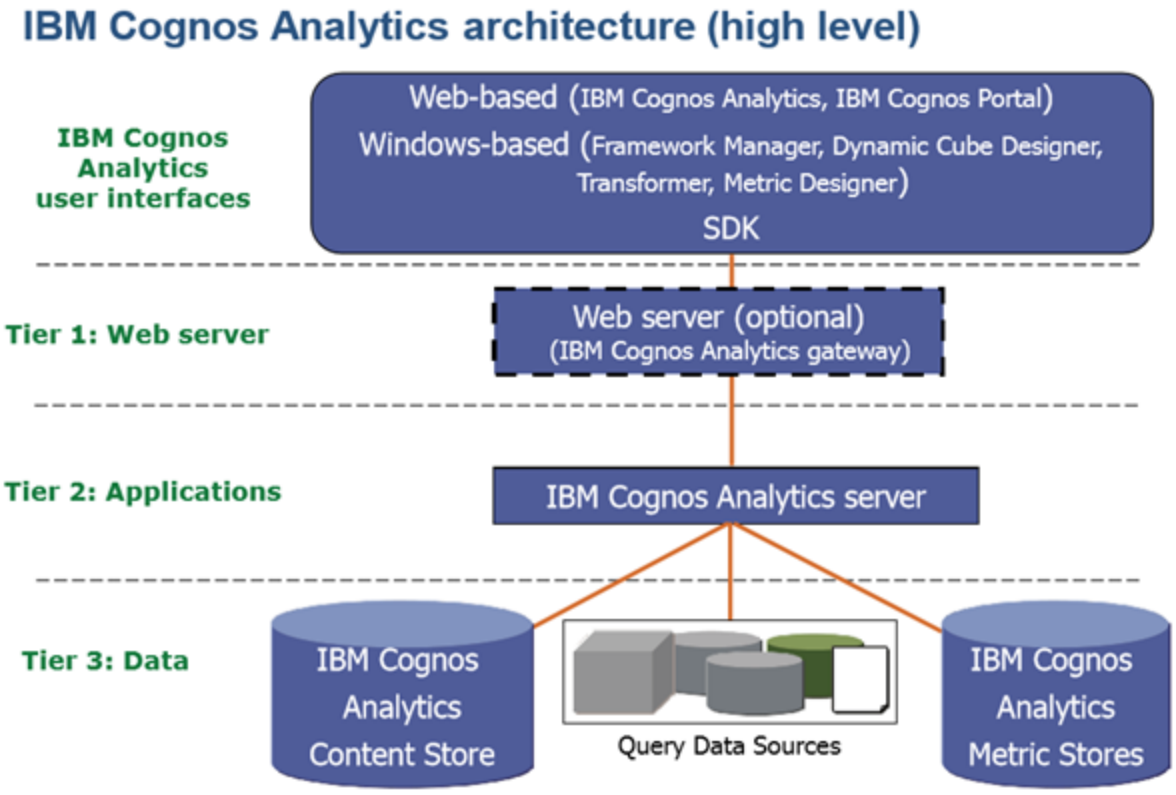
- Data cannot be interpreted as in a raw format, as understanding the data we need tools to represent it in simple form or understandable form.

2.2 Proposed Solution :

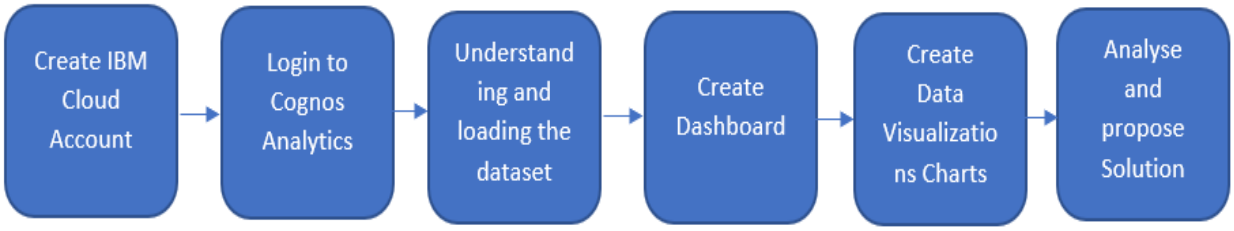
- Using Ibm Cognos to make calculations and to make the data clean.
- Making visualizations with the help of templates provided by Ibm Cognos .
- Making dashboard using Ibm Cognos which showcases the data in simple ,understandable form to represent .

3. Theoretical Analysis :

3.1 Block Diagram :



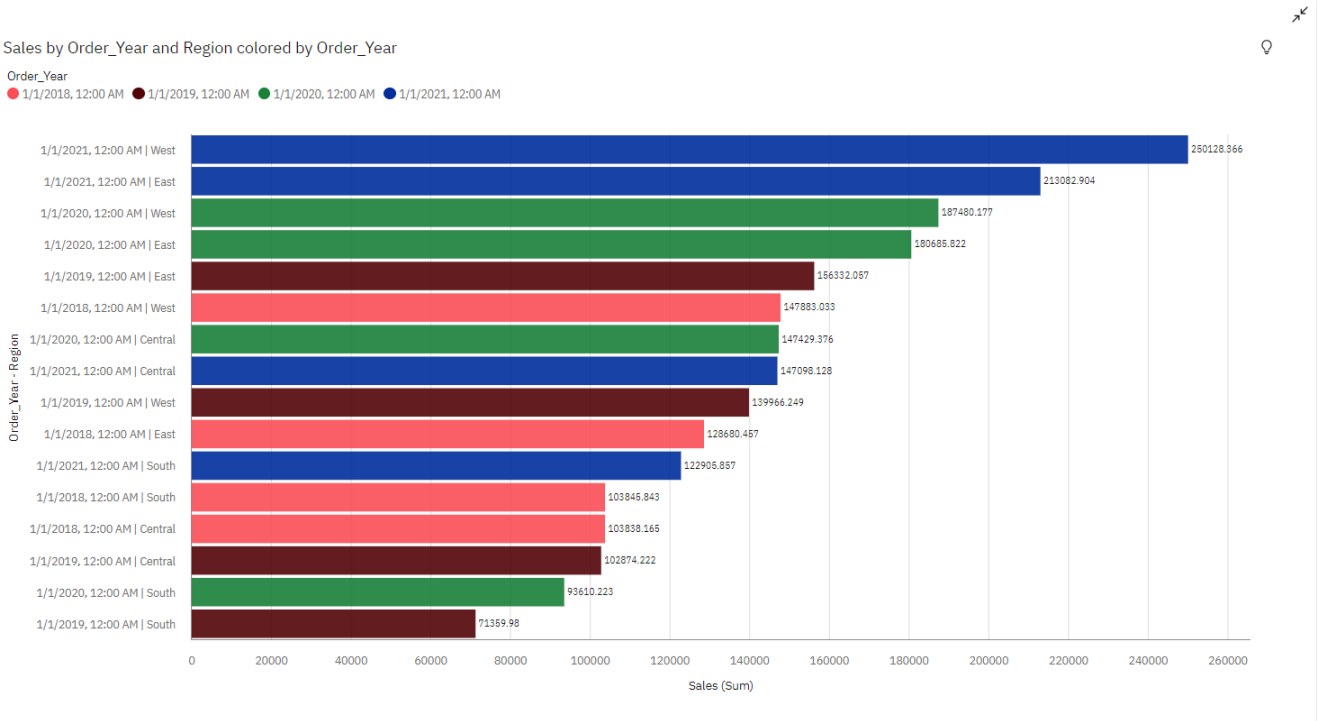
4. Flowchart :



5. Results:

- Chart Showing The Regional Sales By Year:

The Fields that have been taken are the order year and the region and the length is indicating the sales that has been done in the region in that year.



- A Text Table Showing The Regional Sales By Year And Category:

Here we have the text table where the columns indicate the region and

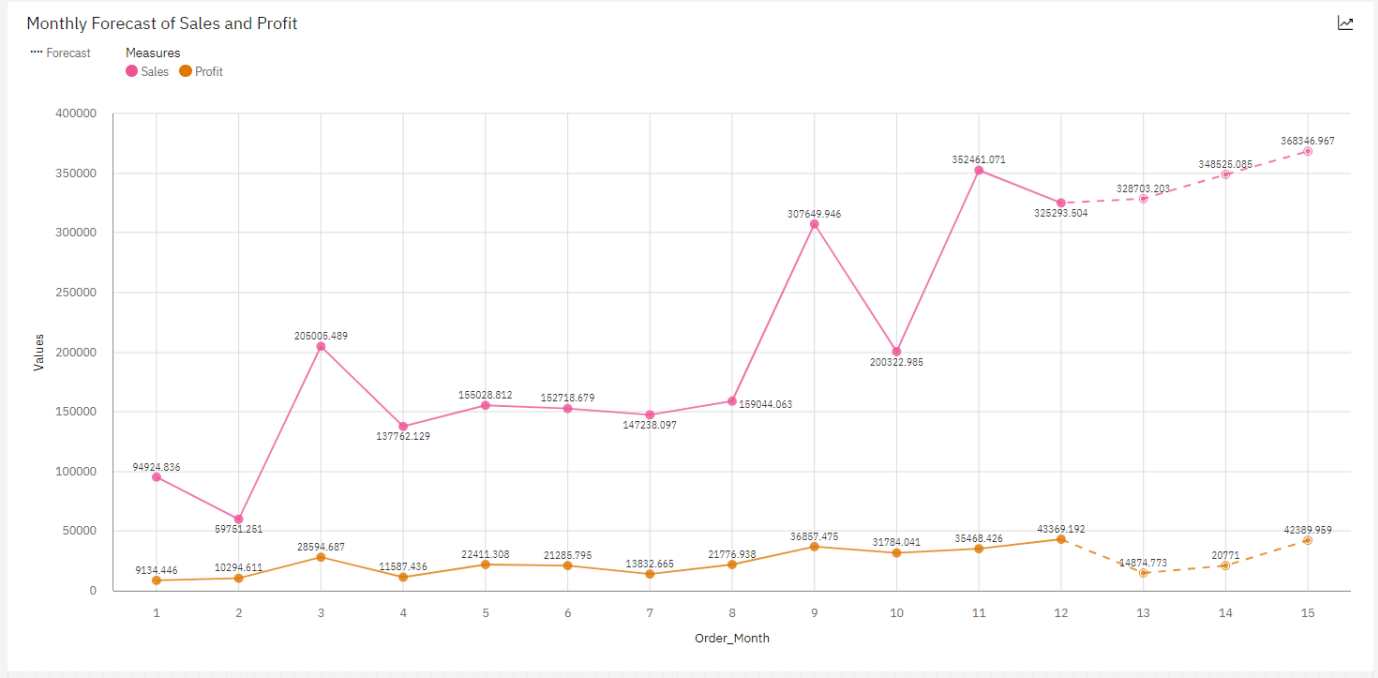
the rows indicate the category and year with values indicating the sales.

Regional Sales by Order Year and Category

Sales		Central	East	South	West	Summary
1/1/2018, 12:00 AM	Furniture	32909.664	47232.739	26968.003	50082.448	**157192.853**
	Office Supplies	37001.691	35968.989	25958.878	52846.854	**151776.412**
	Technology	33926.81	45478.729	50918.963	44953.731	**175278.233**
	Summary	**103838.165**	**128680.457**	**103845.844**	**147883.033**	**484247.498**
1/1/2019, 12:00 AM	Furniture	35592.047	53817.432	24103.814	57004.944	**170518.237**
	Office Supplies	25461.391	42655.245	31253.295	37863.532	**137233.463**
	Technology	41820.784	59859.38	16002.871	45097.774	**162780.809**
	Summary	**102874.222**	**156332.057**	**71359.98**	**139966.25**	**470532.509**
1/1/2020, 12:00 AM	Furniture	50773.182	46387.172	27921.441	73819.64	**198901.436**
	Office Supplies	45792.789	61801.208	28666.628	47679.357	**183939.982**
	Technology	50863.405	72497.442	37022.154	65981.179	**226364.18**
	Summary	**147429.376**	**180685.822**	**93610.223**	**187480.177**	**609205.598**
1/1/2021, 12:00 AM	Furniture	44522.271	60853.861	38305.425	71705.711	**215387.269**
	Office Supplies	58770.544	65090.613	39772.512	82463.506	**246097.175**
	Technology	43805.313	87138.43	44827.92	95959.148	**271730.811**
	Summary	**147098.128**	**213082.904**	**122905.857**	**250128.365**	**733215.255**
Summary		**501239.891**	**678781.24**	**391721.905**	**725457.825**	**2297200.86**

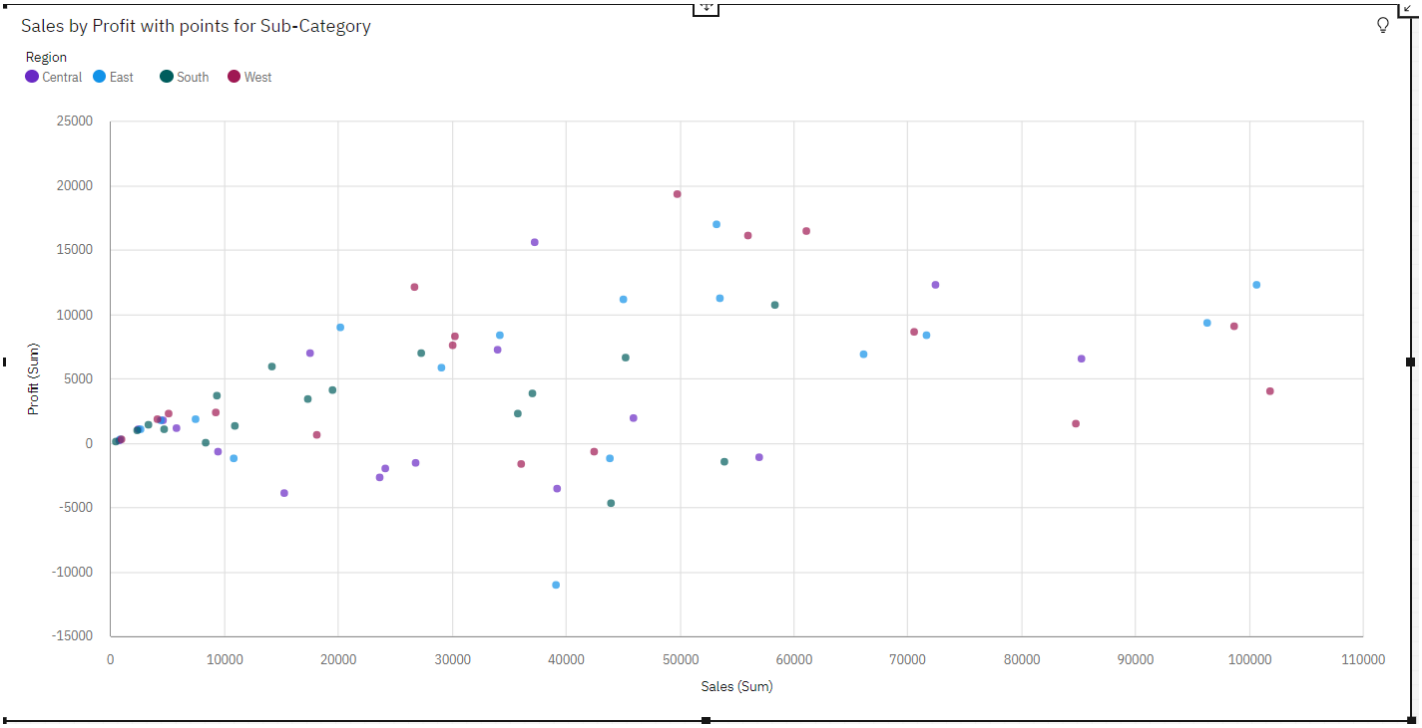
- A Line Chart Showing The Sales And Profit Forecasts:

With the line chart we have the sales and profit and through ibm tools we can forecast or predict the position of the sales and profit .



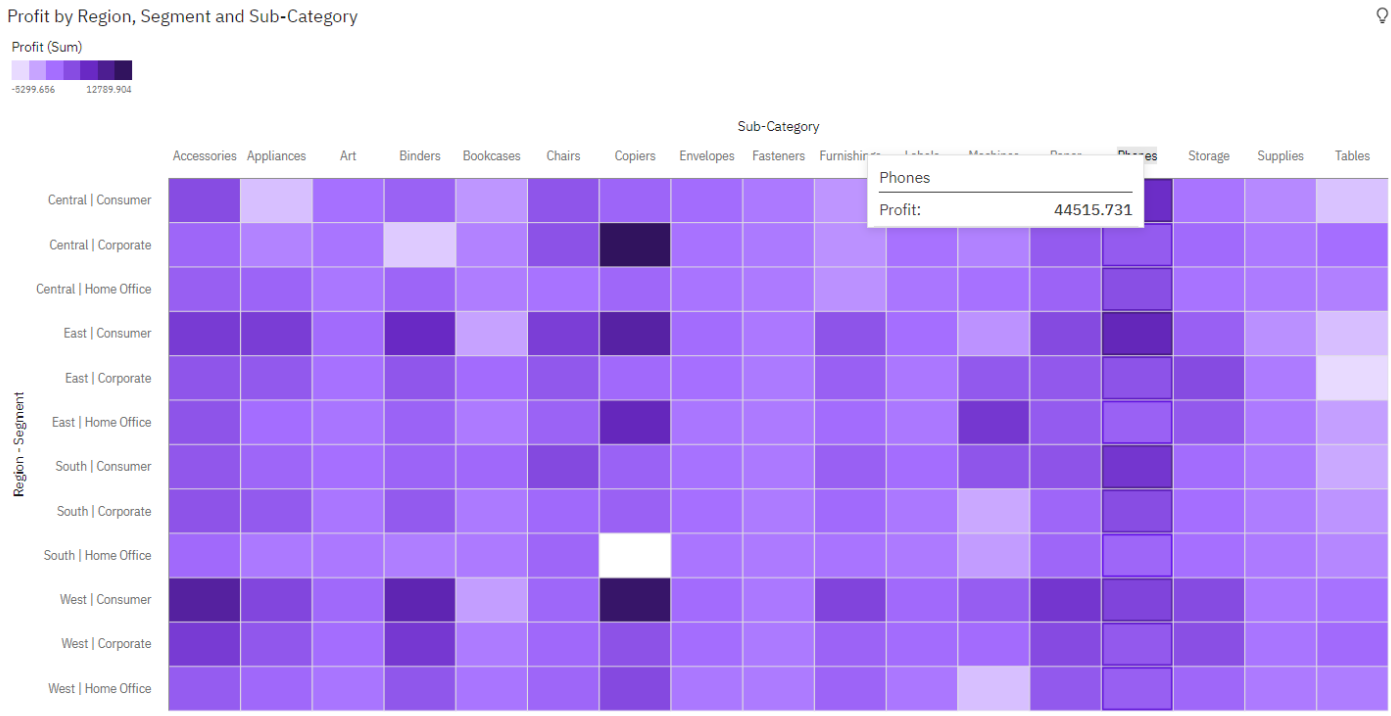
- <u>The Sales Vs Profit Scatter Plot:</u>

We have the scatter plot to determine whether that how much they are correlating .



- Heat Map Showing The Regional, Segment And Sub-Category Wise Profits:

In this heatmap we have region and segment as the rows and sub-category as column and more the darker the shade more is the profit in that region.

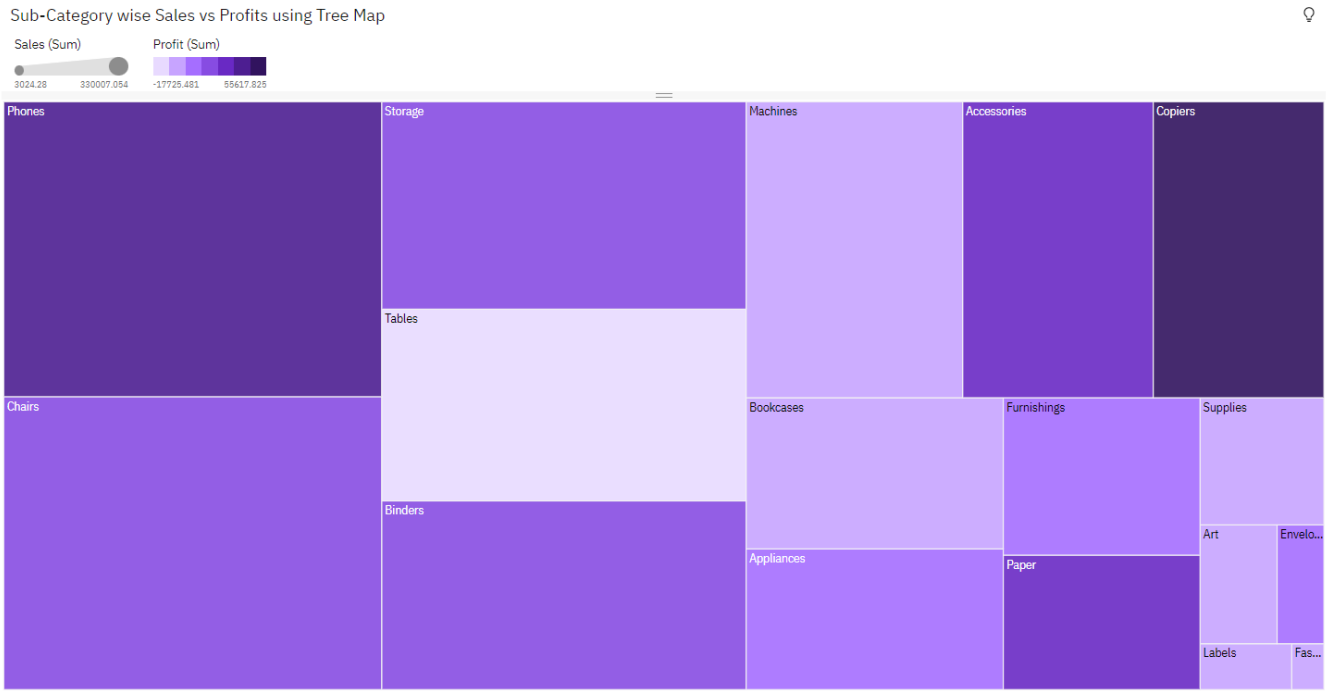


- Bullet Chart Showing Sales Analytical Values Across Different Sub-Categories:

The bullet chart shows all the range of the sales and where the actual sale stands in the range .

- Tree Map By Sub-Category Of Sales:

It shows the hierarchy with respect to sub-category and displays the shades with respect to amount of sales .

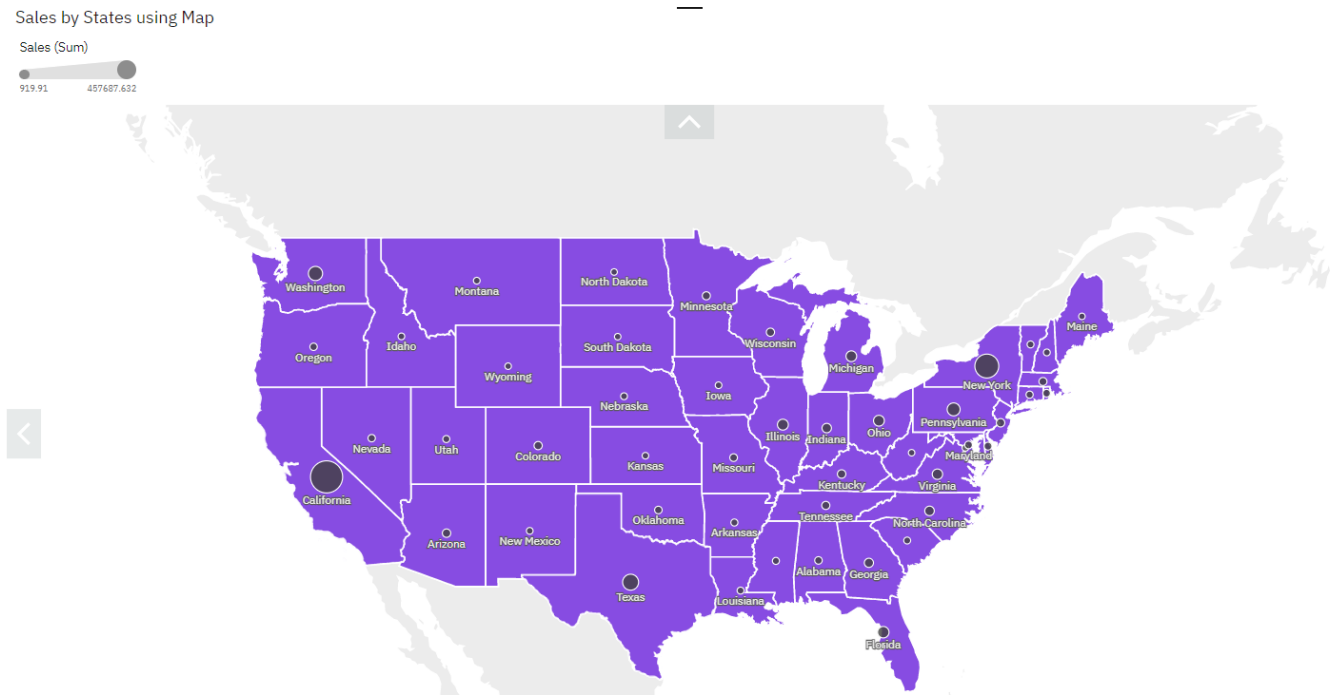


- <u>Word Cloud Showing The Sales And Profits:</u>

It is a very simple representation that which part of the country is having more sales which is represented by how big the name of the region is and profit is shown by the shade .

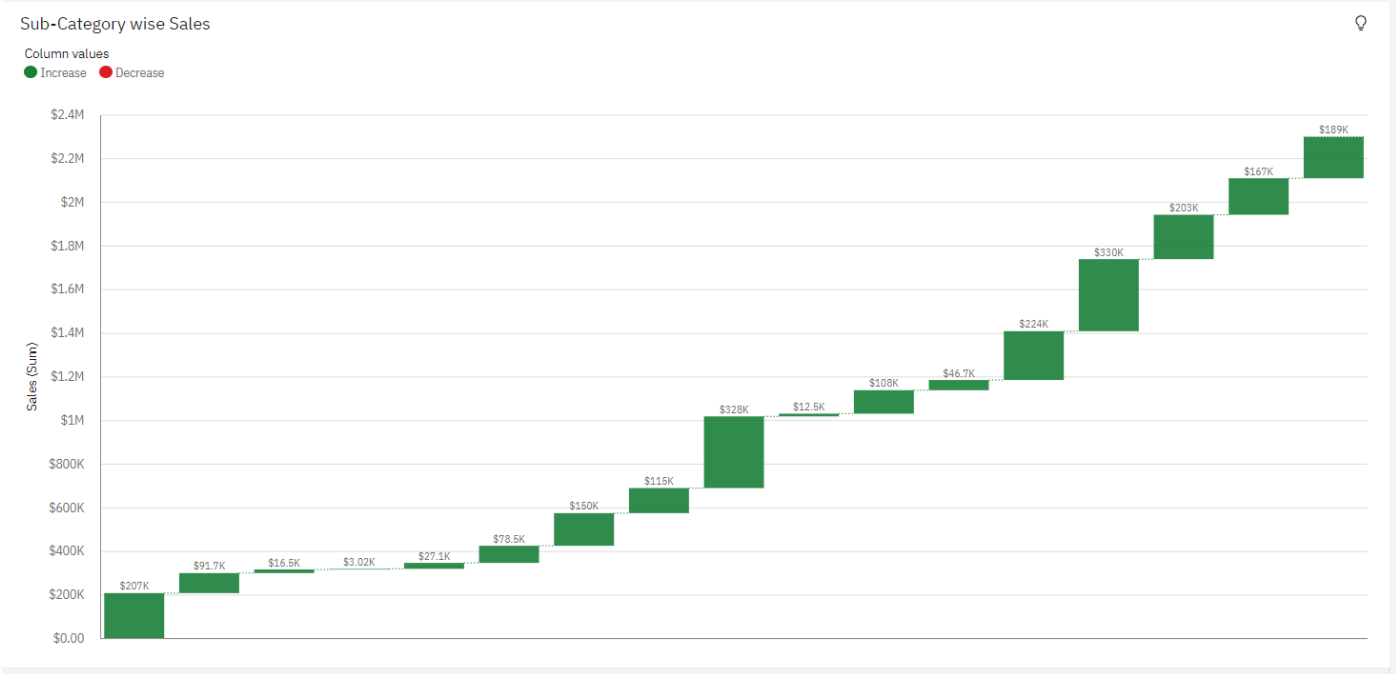
- <u>Geographical Map Showing The Sales By States:</u>

It shows a geographical map which shows the sales by a circle on that region.



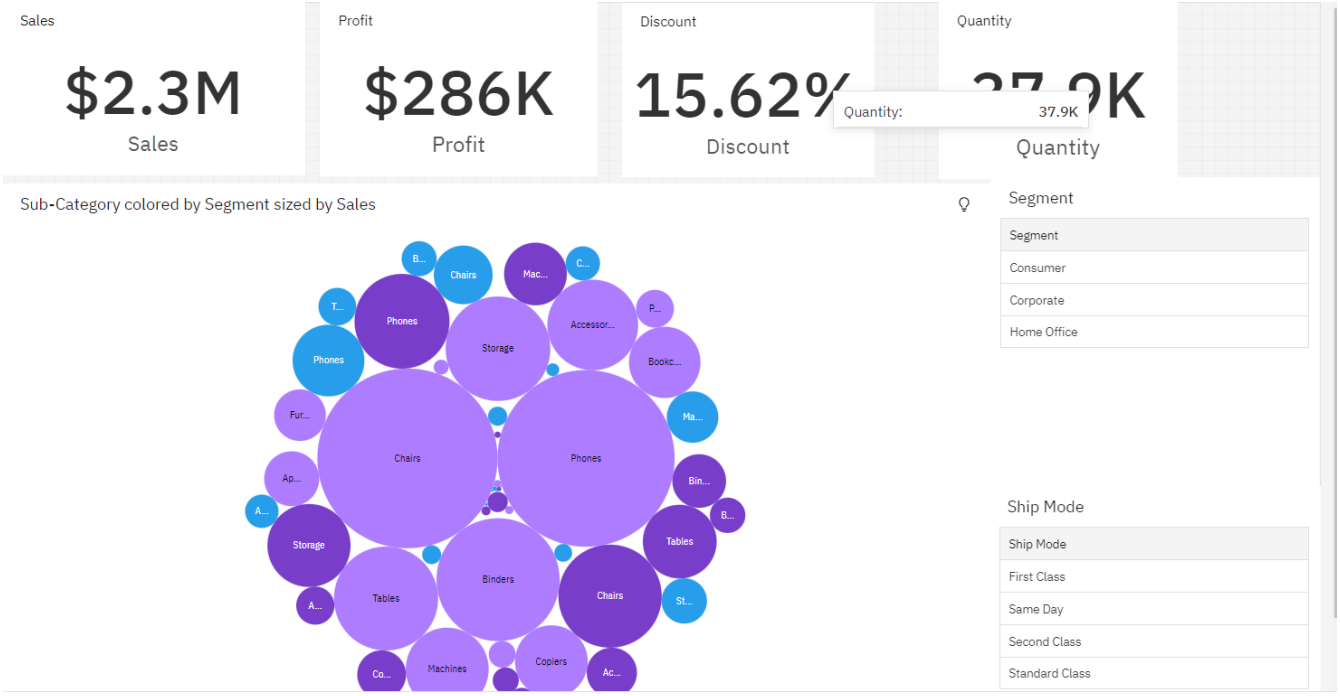
- Waterfall Chart Showing The Sub-Category Wise Sales:

This Waterfall chart shows shows the sub-category wise sales.

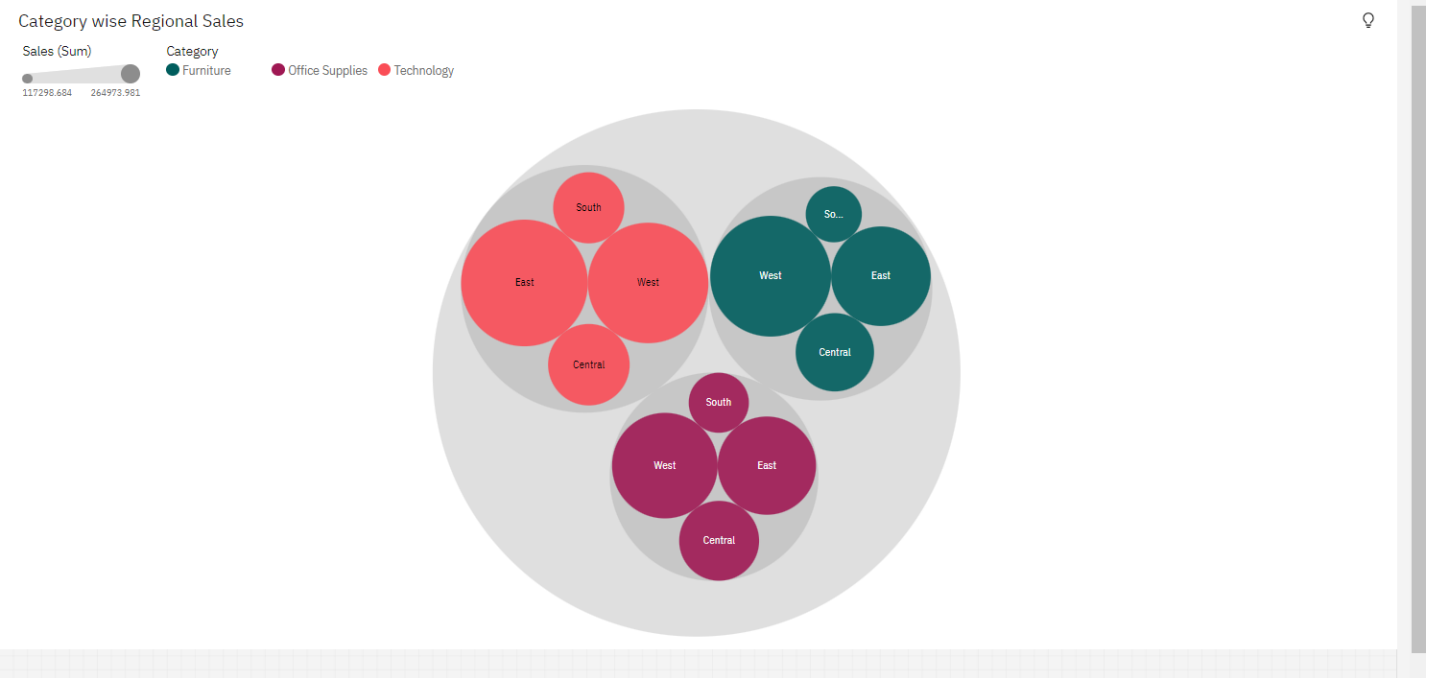


- Summary Cards Of Sales, Profit, Quantity And Discounts.

It shows the summary of the sales ,profit ,quantity and discounts which you can see according to the segment and the ship mode .



- Hierarchical Bubble Chart To Show Case Category-Wise Regional Sale:



6. Advantages and Disadvantages :

Advantages:

- Dashboard provides us with many templates that helps in the visualization .
- No multiple files needed to be generated as dashboard provides multiple visualizations at the same time .
- It provides us with forecasting using its algorithms and helps to analyse the data better.
- We get a better understanding of the data and also let us analyze and make better decisions .

Disadvantages:

- The Software may be difficult to use for some .
- Its User Interface is not Familiar for many .
- Not similar to other softwares so new users might find it difficult .
- Need some time to understand the tools.

7. Applications :

- Dashboard can be synchronized by sharing it with team - mates so that everyone could analyse and change the parameters or anything else and also they can see the progress each individual is making .
- If the dashboard is made neatly then others can simply understand the data irrespective of they having prior knowledge of data analytics.
- Having a centralized dashboard makes work much easier .As one has to get all the data then have to make all charts on their own takes a lot of time but dashboard does it for you .

7. Conclusion :

With this project we learned about how to understand datasets ,prepare it and upload it and how to make visualizations ,calculations and analyse different aspects of the dataset . We also got the statistical knowledge with calculations we have done for the data which helped to visualize the data and got to know about different charts ,graph and bars and about the dashboard .