

CARS AND THEIR SIGNIFICANCE

Basic Info :

Done by :

Name : Krishna Teja Chadalavada

UID : U1419703

Email : chkrishnateja007@gmail.com

Name : Anusri Gunji

UID : U1419627

Email : anusrigunji@gmail.com

Link for project repository:

<https://github.com/KrishnaTejaCh7/cars-their-significance>

Background and motivation

As we know that cars are the leading automobiles which are being sold every year. There are multiple companies which manufacture the cars. Most of the companies are in Americas, China, Europe and India. So, we would like to demonstrate the hierarchy of the companies. The main motivation to choose this topic is because the sales of the cars never decreases and car can be viewed as one of the significant factor in the increasing population.

Project Objectives

By doing this visualization one can understand the hierarchy in the evolution of cars. Apart from this we can also learn the sales of the cars in the recent years.

In addition to that we can also know which cars are being sold the most in US.

We have considered the US sales data, so we can visualize the sales of cars considering a span of years.

Data

For this project there are two sources of data which is collected from:

- <https://www.johnhughes.com.au/blog/car-brands-and-their-parent-companies>
- <https://www.factorywarrantylist.com/sales-report.html>

As of now we are building data from other sources as well.

Data processing

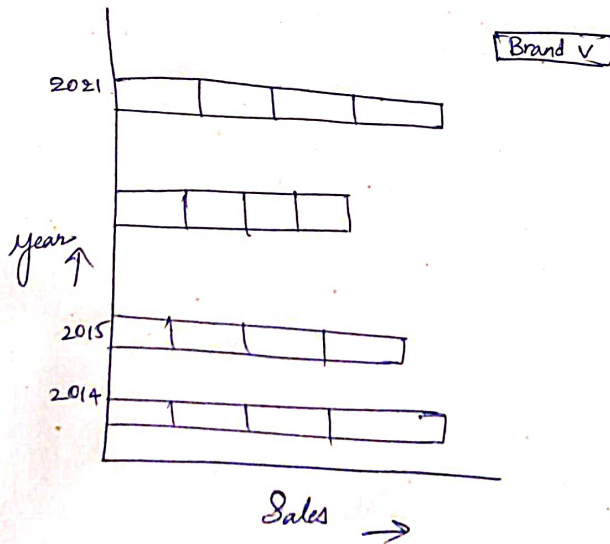
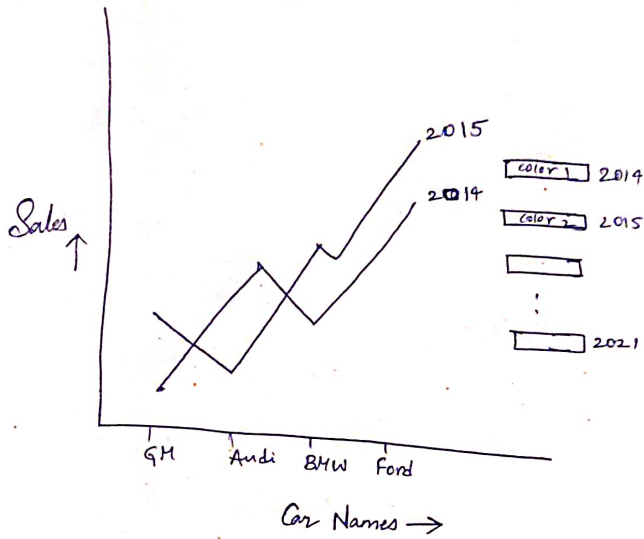
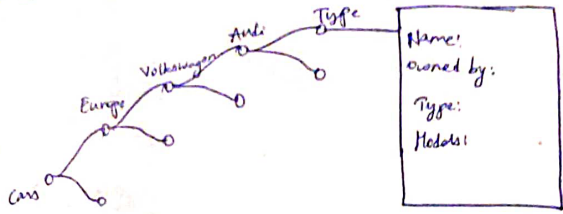
We are planning to take only the required attributes which are enough to provide the significant analysis of cars. So, from the above links we would like to consider the data of car manufacturer and their sales per quartile. Apart from these the other data can be excluded.

Data visualization

Prototype 1:

In this prototype we are willing to implement the hierarchy of the car companies using the dendrogram which could be an interactive visualization technique. In the first step when we click the node then we will get the major 3 manufacturing children which are Americas, European and Asia. From then the children will be the respective brands for that region and is followed. Later, to show the stats we would like to implement two different visualizations such as line chart and the stacked bar graph. In the line chart we are willing to visualize the sales vs car manufactures for the respective years. Initially we will be having graphs for all the years then after when we click on year which is a button which is placed in the right side of the visualization we will start by the selected line and if we select another year the lines in the graphs will be added. Later in the stacked bar graph we would like to visualize the quartile sales per company by selecting it in the drop down box.

Prototype-1:

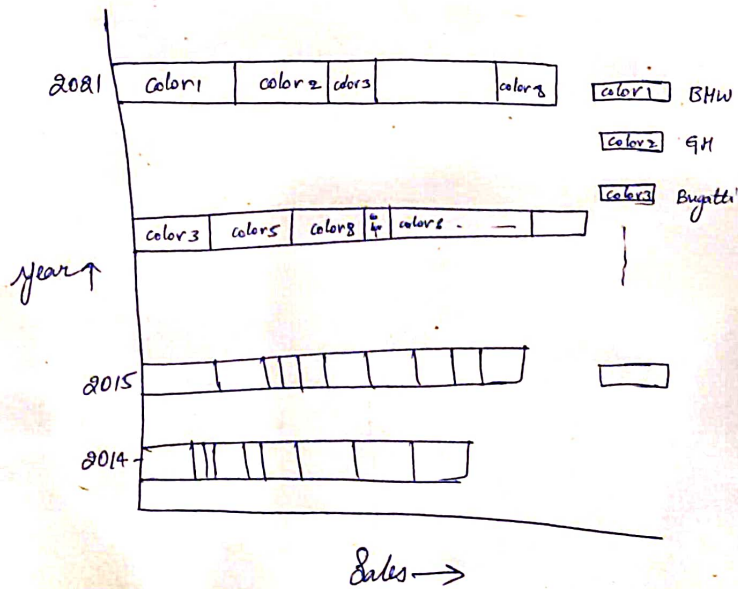
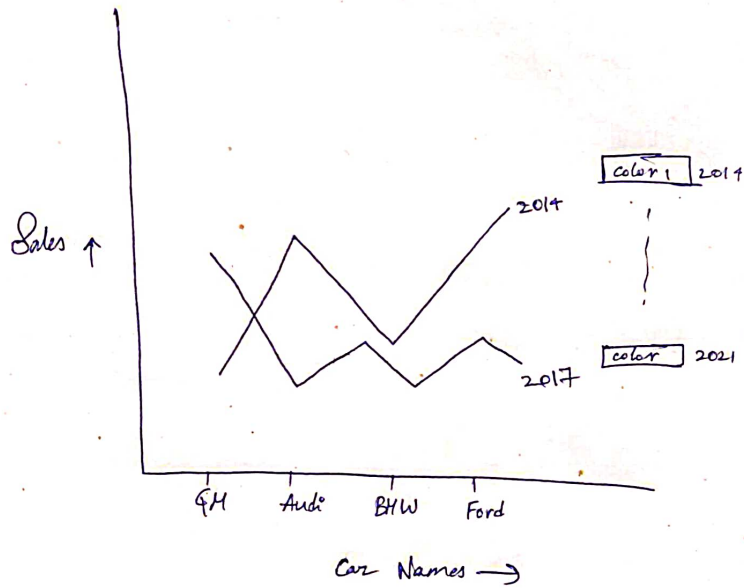
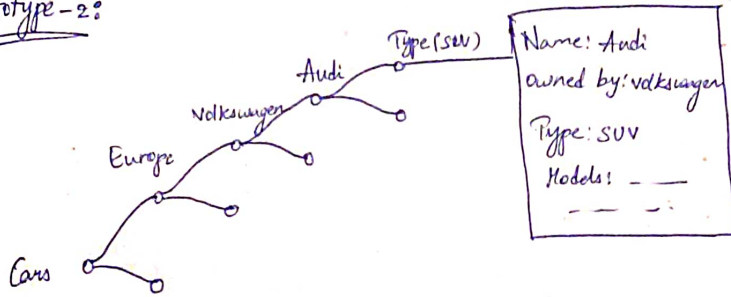


Prototype 2:

Here in this prototype, we changed the third part which was representing the quartile. We turned it into the stacked bar chart which represents all sales vs years. Here each manufacturer will be represented with a unique color.

When the cursor is hovered on the stacked data then that color will be highlighted in every year. For instance, if the BMW is pink and if the cursor is on pink in any of the year then the BMW pink color will be highlighted in every year of the graph.

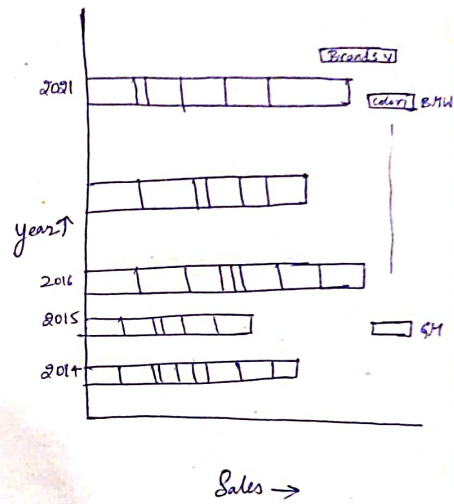
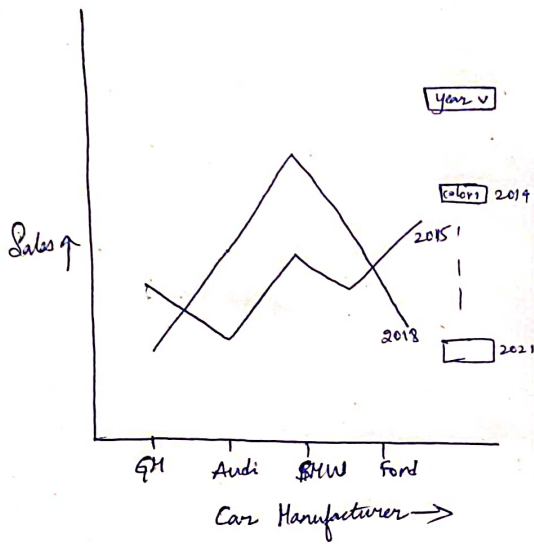
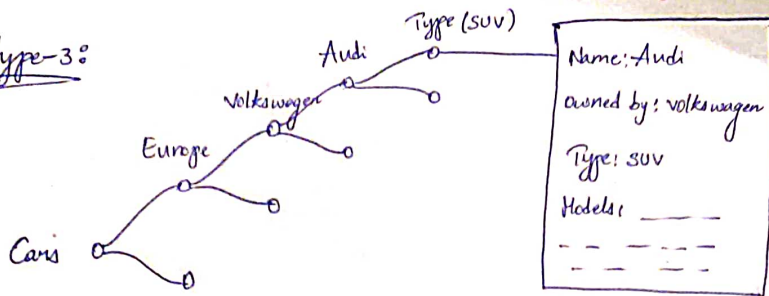
Prototype-2:



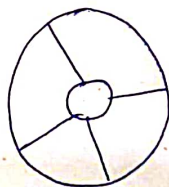
Prototype 3:

Here in this prototype, we got an idea to implement the visualization user friendly. Such that if user wants to get the comparison between the sales vs manufacturer or sales vs years. Here it is done using a dropdown menu. So, if the user selects year then it will show the graph on the left side or if the user selects brands then the right side stacked graph will appear. Later we got an idea that it would become clumsy and difficult to understand if there is no clarity in the stacked bar chart. So, we included the pie charts which represents 4 quarters and total sales in that year. We statically created 8 charts for 8 years. In middle we will be having value of total cars sold and at the quartiles we will be having sales at that particular quartile. Here in the stacked bar chart when we hover the pointer at a particular bar then the manufacturing company's sales in all the years will be high lightened. And only when we click on them the pie chart will get the data to show the quartile.

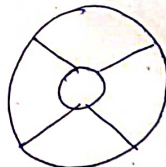
Prototype-3:



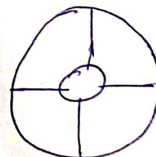
2014 (GM)



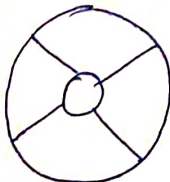
2015 (Audi)



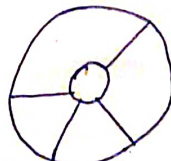
2016



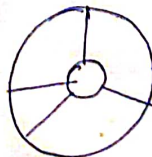
2017



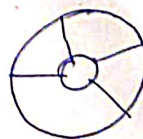
2018



2019



2020



2021

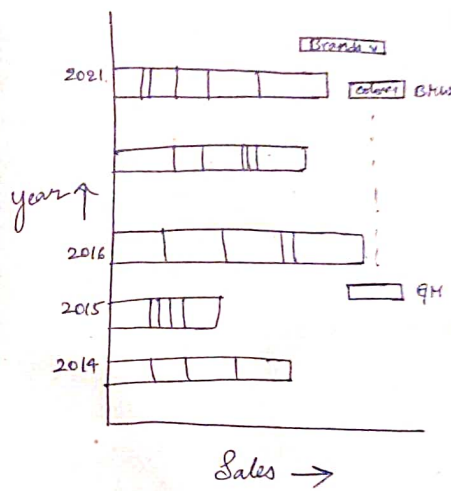
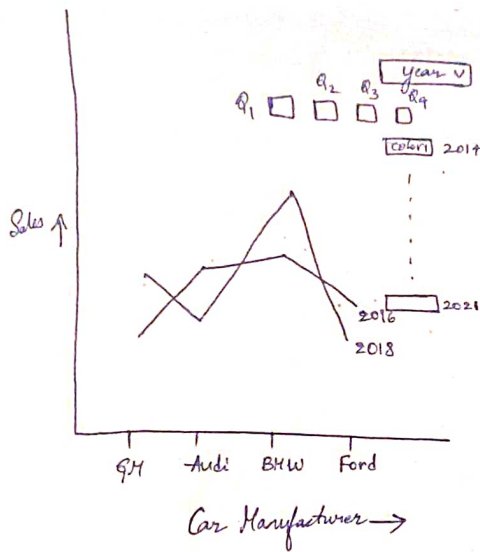
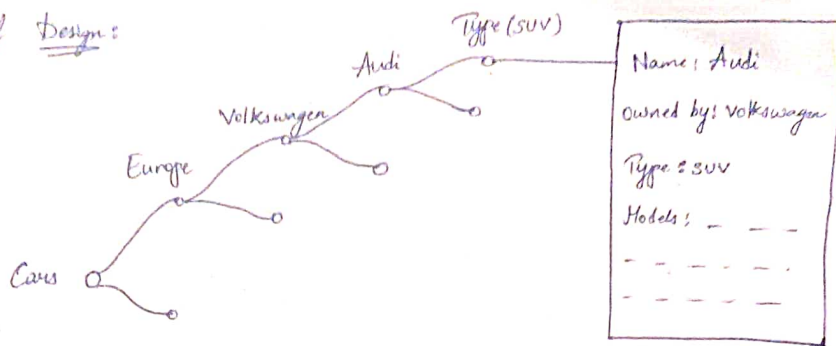
Final design:

In the final design we added a sorting feature for the line chart so that we can get the graphs for each quartile sorted for every brand which can determine the maximum number of sales at each quartile of the year. And also, we would like to add the pie chart dynamically so that we can have as many comparisons as we need.

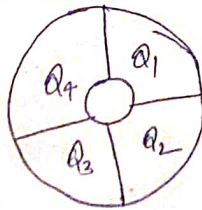
For instance, the prototype-3 doesn't cover the comparison between Audi and Ford in year 2014, but dynamically we can add as many pie charts as we want for comparison.

We also included a clear button so that we can clear the canvas whenever it is full and restart selecting the comparisons. By doing all these upgrades we thought it would be a good design for this project.

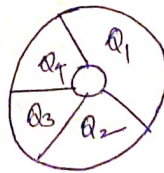
Final Design:



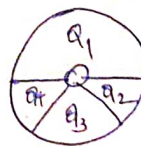
clear v



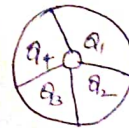
2014 (GM)



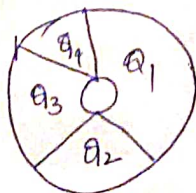
2014 (Audi)



2015 (Bugetti)



2021 (Ford)



2016 (Honda)

Must have features

In our opinion dendrogram, line chart and stacked bar chart are more important for visualization by taking the parameters sales, year and car manufacturing company.

Optional features

The pie chart can be considered as an optional as even without it we can gain insights of the visualization but having the pie chart would give us more insights about the visualization of various brands by quartiles in a year.

Project schedule

We are planning to do this project as follows:

- One week for building the dataset from scratch.
- Two weeks for building dendrogram and line chart.
- One week for stacked bar chart.
- One week for the pie chart implementation.
- One week for developing the interactions.