THE ANALYSIS OF THE RISE OF ELECTRIC VEHICLES AND ITS IMPACT ON CHARGING INFRASTRUCTURE IN THE UNITED STATES

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INTRODUCTION:

- This paper intends to provide an analysis of the total number of electric vehicles used by people in different cities in the USA also the amount of charging stations present on the basis of the total number of electrical vehicles present in different cities of the states.
- 3 datasets were taken into consideration for carrying out the analysis.
- Dataset 1 and Dataset 2 are taken from the **Data.gov** site whereas Dataset 3 was taken from the **U.S. Department of Transportation.**
- The name of the three datasets are as follow-
 - Dataset 1 "Electric Vehicle Title and Registrations activity"
 - Dataset 2 "Electric Vehicle Population Data"
 - Dataset 3 "Alternative Fueling Stations"

WHY ELECTRIC VEHICLE?

- We want to take some challenging topic which is a real problem of any country or state.
- Therefore, we have selected our topic "Electric Vehicle Adoption and Infrastructure in the United States".
- The reason why I choose this was because everybody knows electric vehicles are the future and have the potential to reduce dependence on fossil fuels and mitigate the environmental impact of transportation.
- we must adopt it moving forward since there is limited usage of resources in recent times.
- There can be factors that can affect and constrain the popularity of Electric vehicles.
- Therefore, to identify such potential issues and get deeper insights into these problems we decided to do our project in this topic.



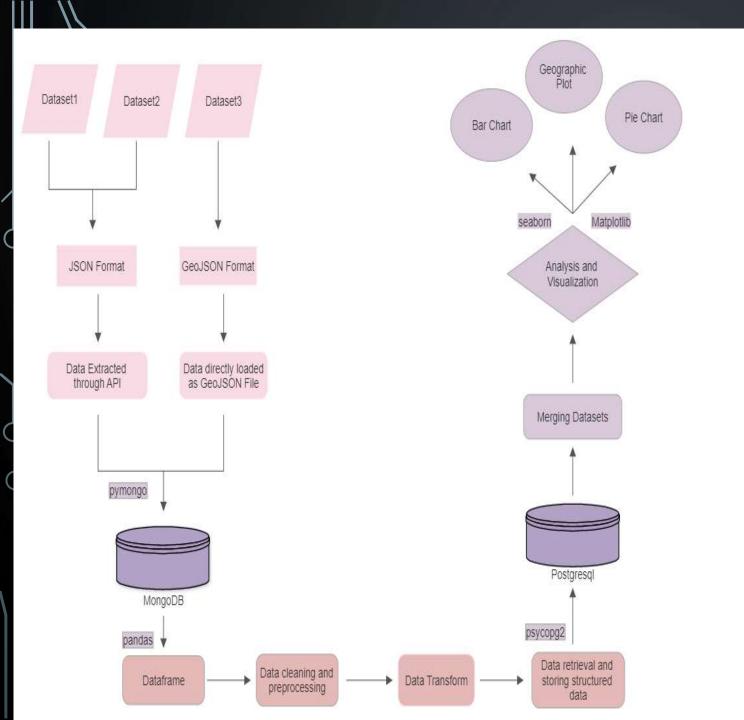
RESEARCH QUESTION





This report will explain the usage of resources such as the number of charging stations present in the cities as per the Electrical vehicle present.

This will give us information on how many charging stations are present in a city depending on the population of Electric vehicles present.



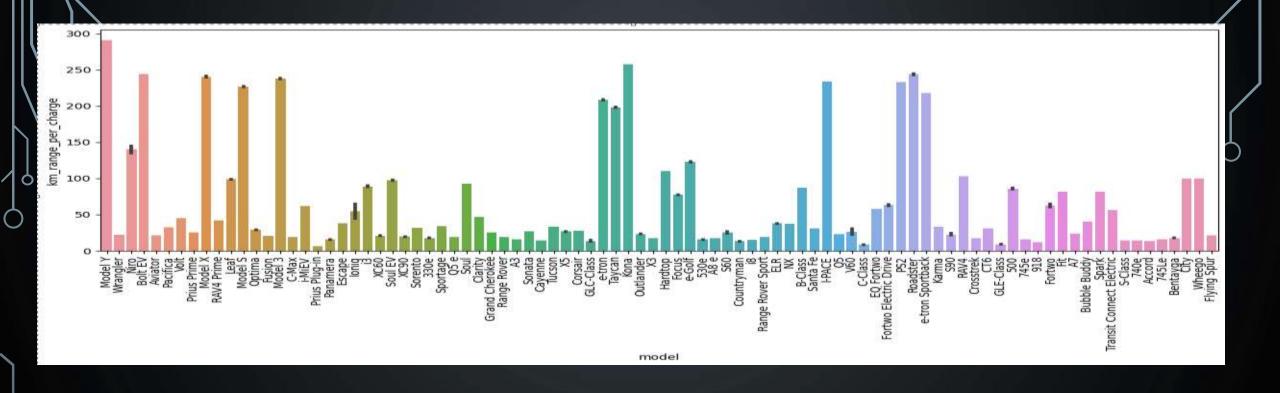
WORKFLOW CHART:



Total Number of Vehicle Registrated per Year Registration Year

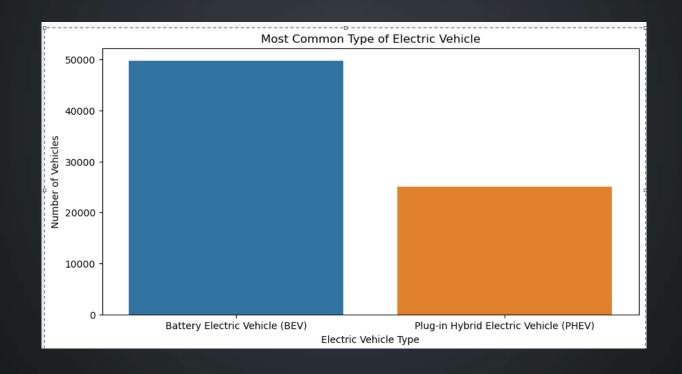
DATASET 1

- Total number of electric vehicles registered over a decade.
- In the year 2018, the most number of electric vehicles were registered.



TOTAL ELECTRIC RANGE PER KM MODELWISE

From the above graph, it can be seen that Model Y gives the maximum range.

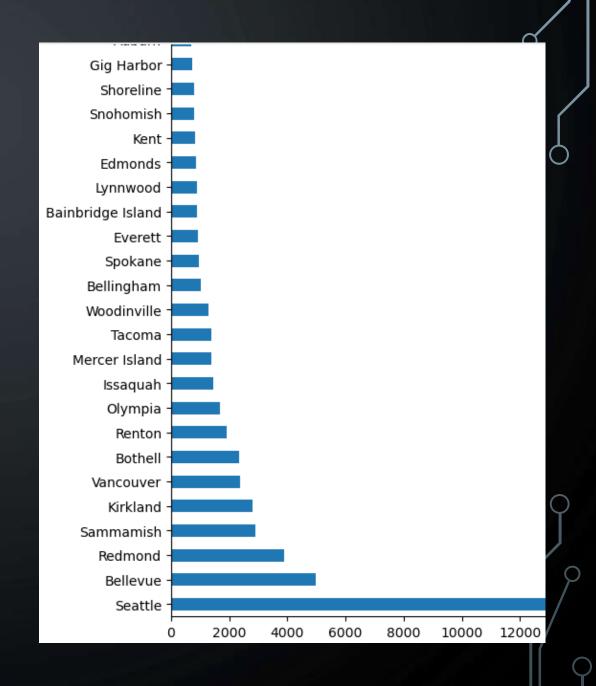


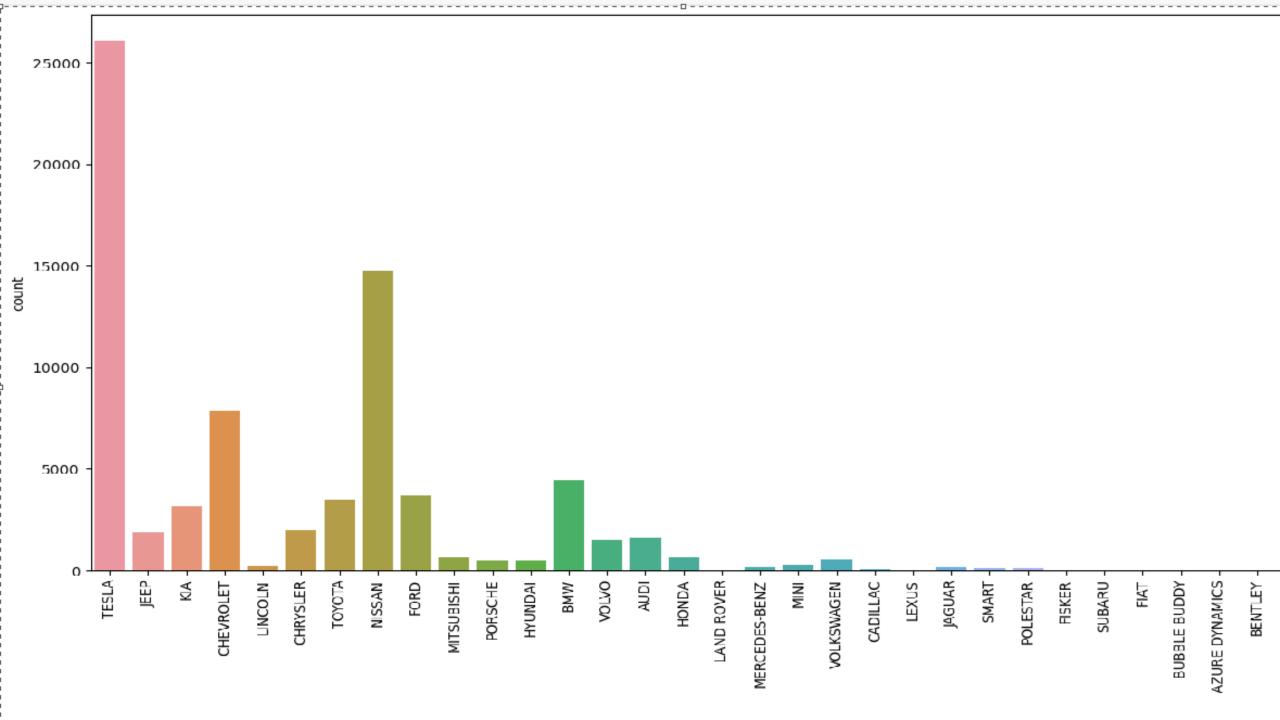
TOTAL SHARE OF ELECTRIC VEHICLES BY ITS TYPE (BEV'S/PHEV'S)

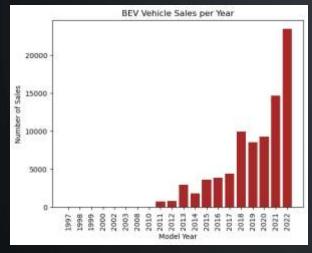
From the graph above it can be seen that Battery Electric Vehicles (BEV)are used much more than Plugin Hybrid Electrical vehicle(PHEV)

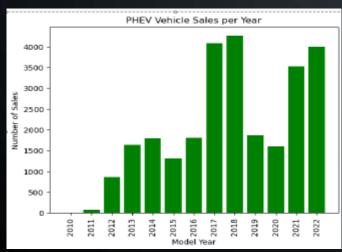
TOTAL REGISTRATION OF ELECTRICAL VEHICLE CITY WISE

It is evident from the plot that Seattle has the most number of registration done









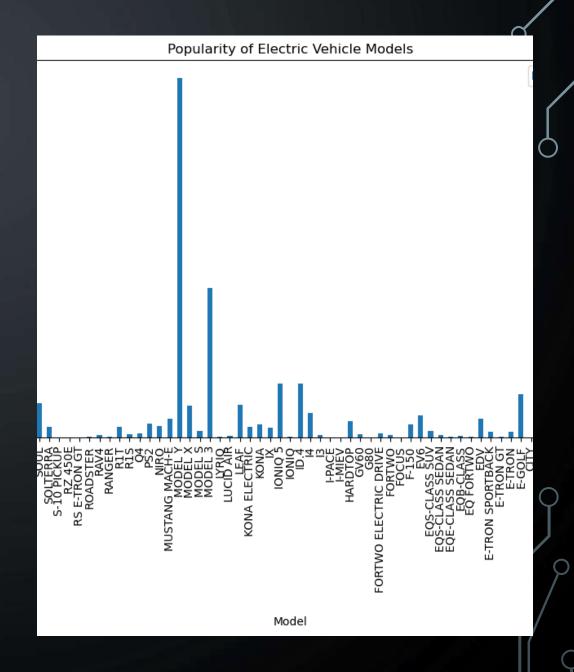
DATASET 2

SALES OF PHEV VS SALES OF BEV

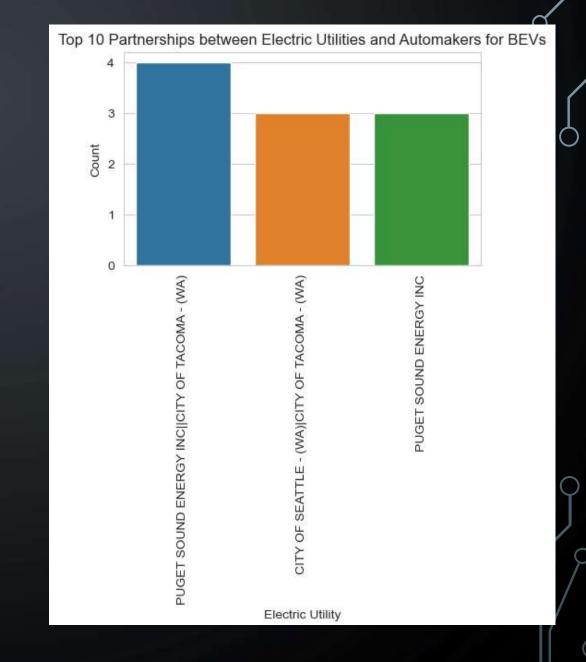
It can be seen that the sales of BEV increased exponentially for over a decade than that of PHEV.

MOST POPULAR MODEL IN BEV

 It is evident from the plotted graph that Model Y is the most popular model in BEV

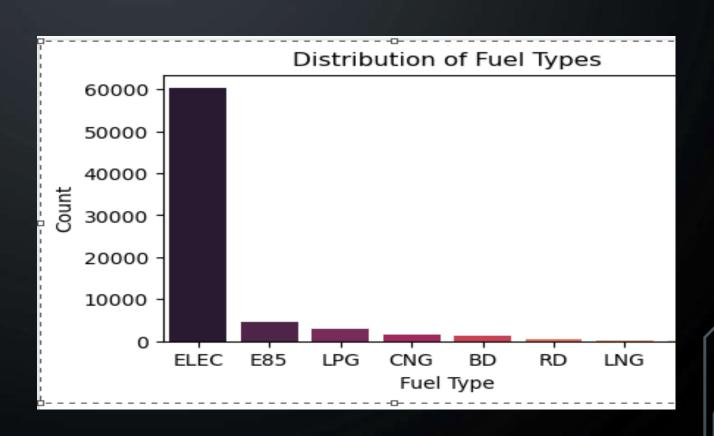


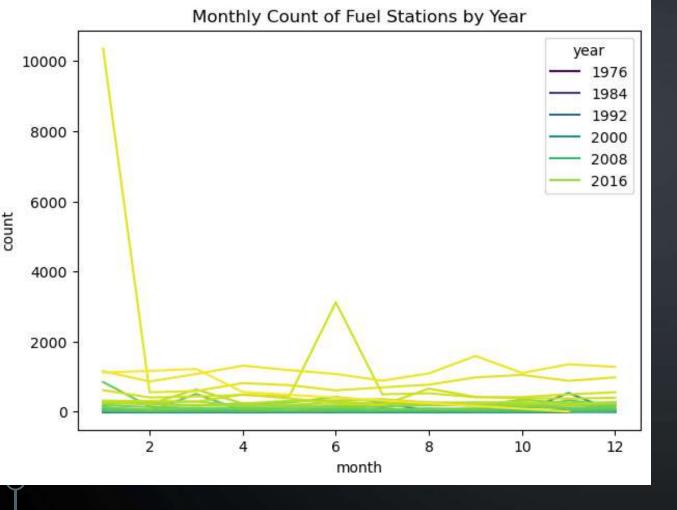
TOP 10 PARTNERSHIPS
BETWEEN ELECTRIC
UTILITIES AND
AUTOMAKERS FOR
BEVS



DATASET 3

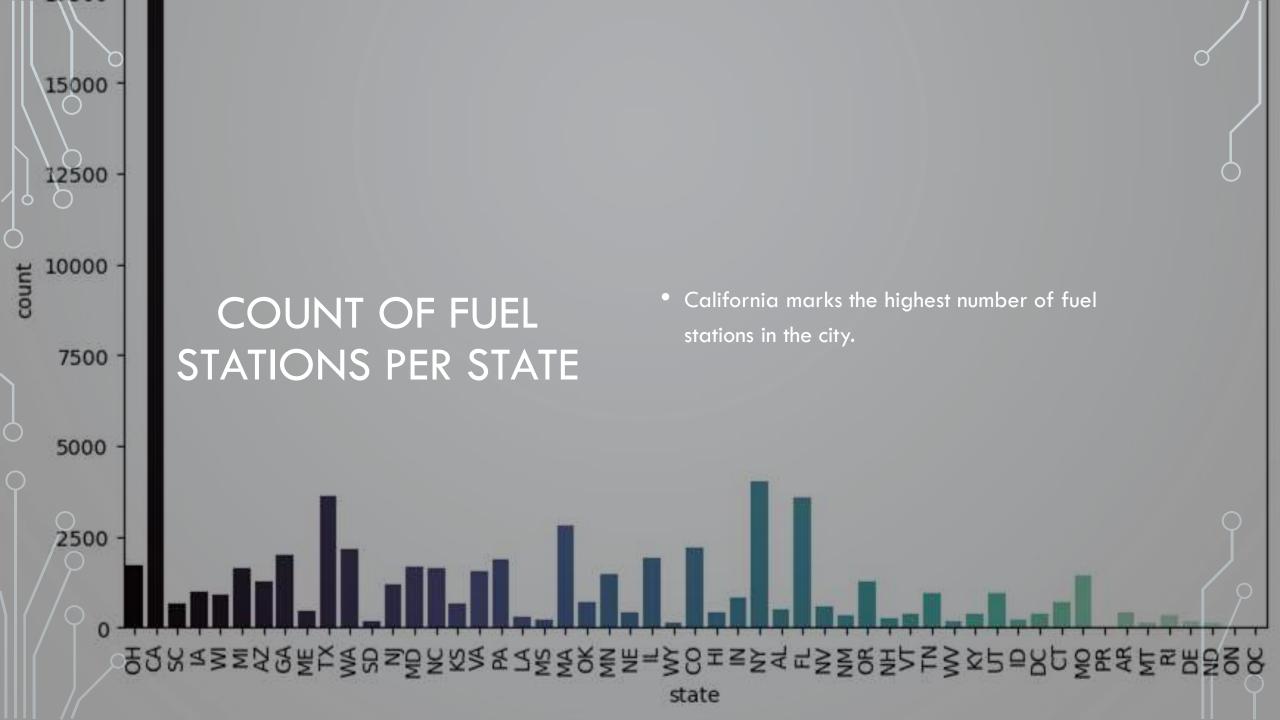
Distribution of Fuel types

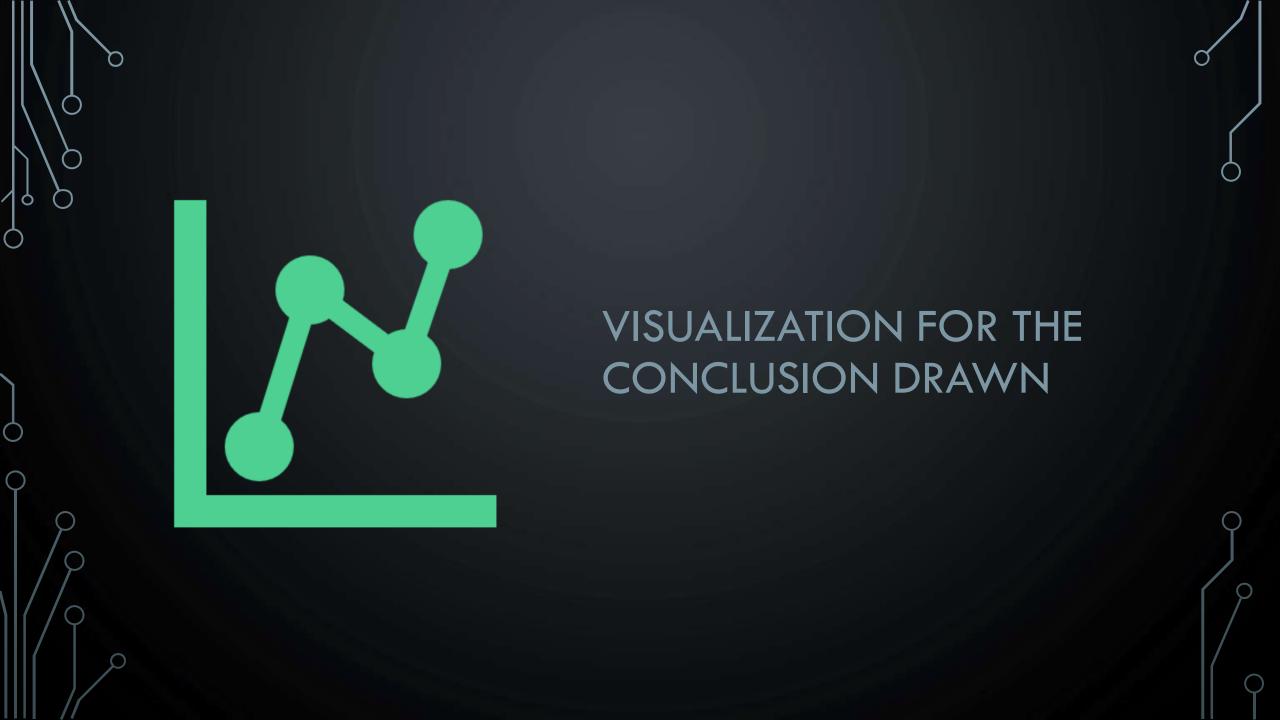




It is evident from the line graph that from the year 2008 to 2016 there has been an increment in the count of fuel stations.

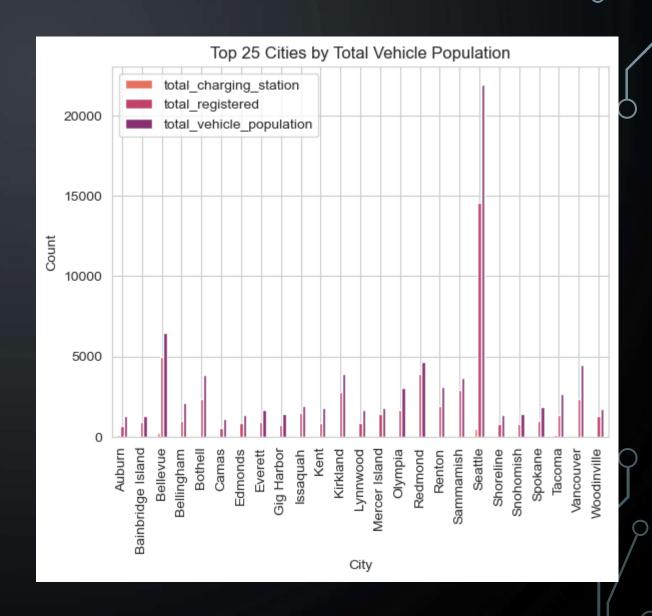
MONTHLY COUNT OF FUEL STATION BY YEAR





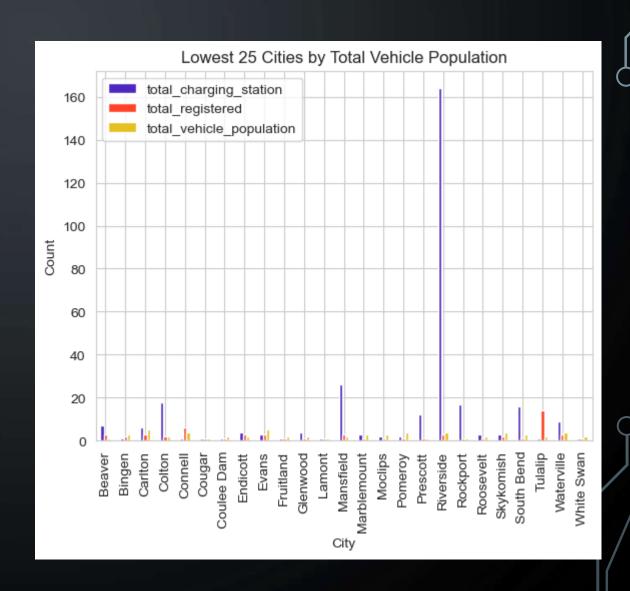
TOP 25 CITIES WITH TOTAL VEHICLE POPULATION

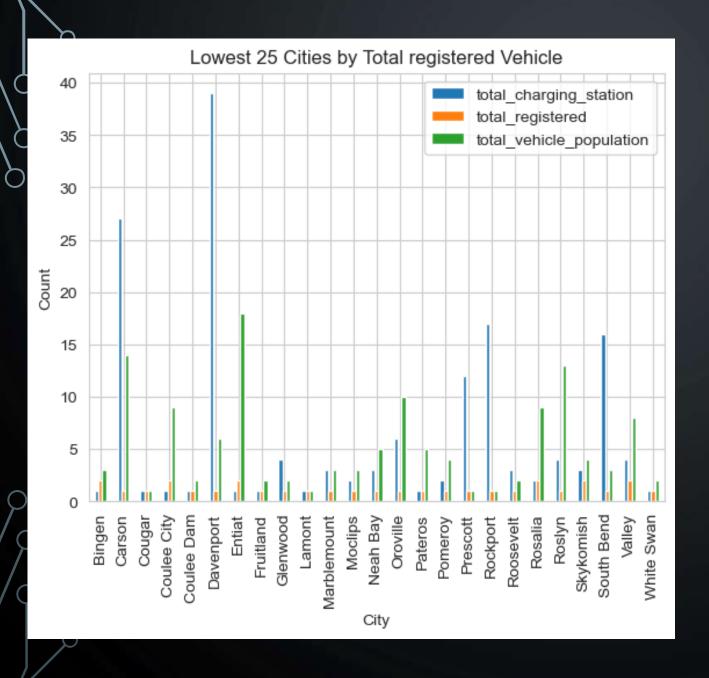
It is evident from the bar graph that the city of
Seattle records the highest number of Electric
vehicles but despite that, the charging stations in the
city are really very less as compared to the total
Evs present.



LOWEST 25 CITIES BY TOTAL VEHICLE POPULATION

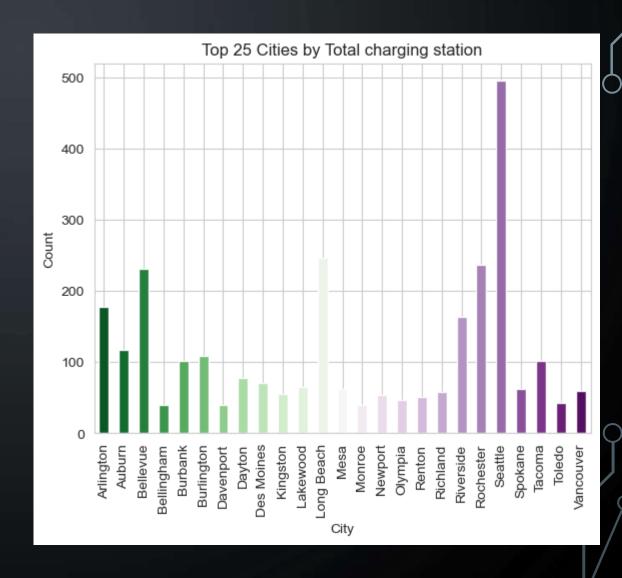
Camas have the lowest Electric vehicle population among all the cities present in the USA.





LOWEST 25 CITIES WITH TOTAL REGISTERED VEHICLES

TOP 25 CITIES WITH HIGHEST NUMBER OF CHARGING STATIONS



CONCLUSION

- Seattle has the most number of electric vehicles running still the amount of charging station present is a lot less.
- There are cities like Riverside where an adequate amount of charging stations are present but still the population of vehicles are lot less.



THANK YOU