COMPARATIVE ANALYSIS OF

Electric vs Hybrid vehicles in the US

2016-2023

PROJECT 3 GROUP 4

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FOCUS

ELECTRICAL

Relies on battery packs and use no gasoline. EV drivers charge the battery at home or public charging stations. Well-known electric cars include the Kia EV6, Ford Mustang Mach-E, and the Tesla Model S.

HYBRID

Powered by both gasoline and electricity. Use battery power for driving shorter distances, often around 30 miles. When battery power depletes, a gas-powered engine takes over.

ELECTRICAL

Electric cars have a long and fascinating history that dates back to the early 19th century. Electric cars are expected to grow even more in the future, as more countries and regions adopt policies and incentives to support their adoption, such as emission standards, subsidies, tax credits, and charging infrastructure.

10.9m units in 2020

4.6% of total passenger market 2022

HYBRID/PLUG IN HYBRID

A viable alternative to gasoline cars as vehicle users are becoming more environmentally conscious, hybrid cars produce the power and performance modern car users need but produce less carbon.

“HYBRID VEHICLES ARE BELIEVED TO BE SAVING 8.5 MILLION BARRELS OF OIL PER YEAR.”

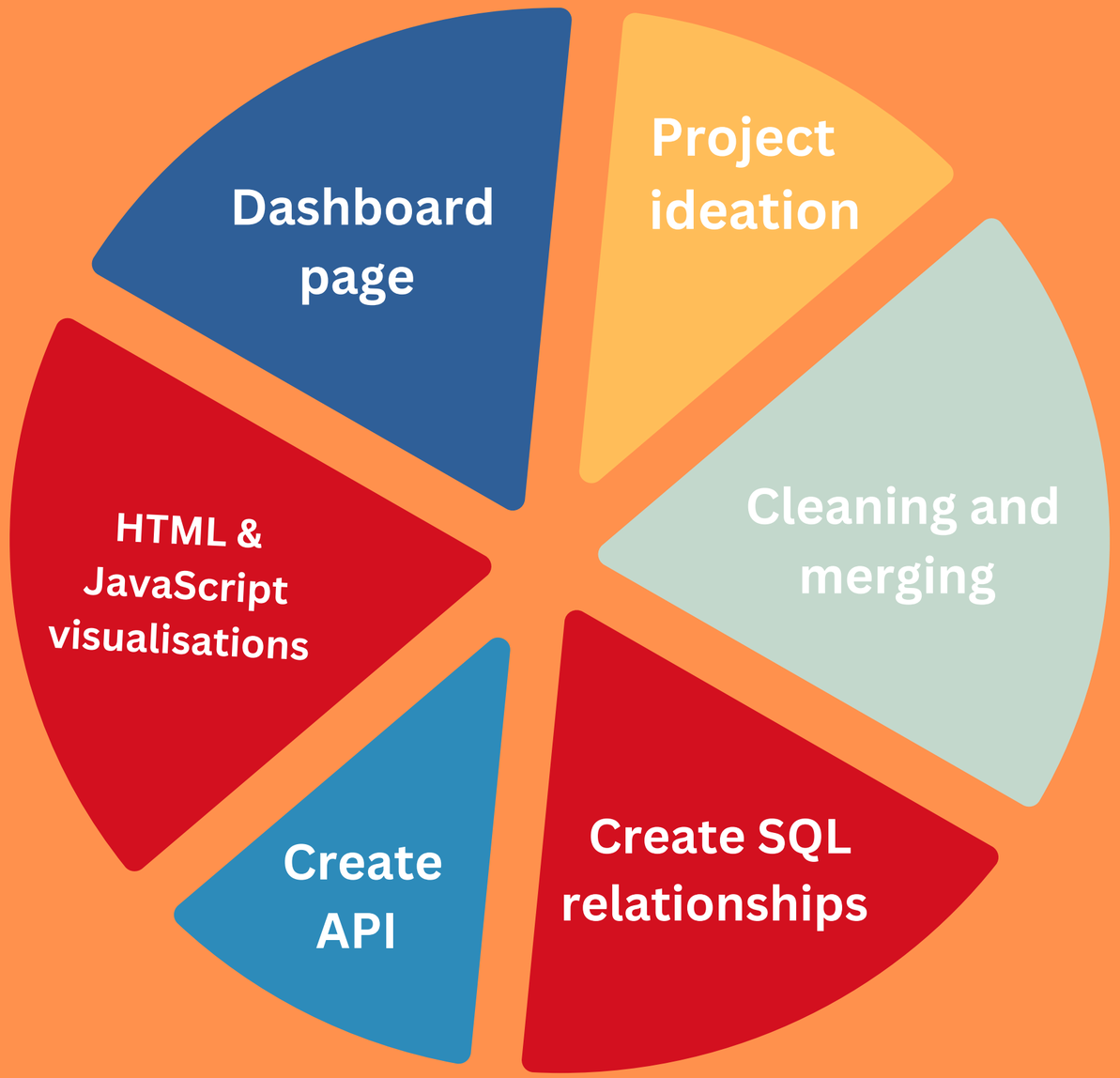
SCOPE OF PROJECT

- Preferences for EVs and Hybrid vehicles in the US
- Market trends

To compare Electric Vehicles (EVs) to Hybrid/Plug-in Hybrid vehicles in the United States, focusing on population vs. charging locations.

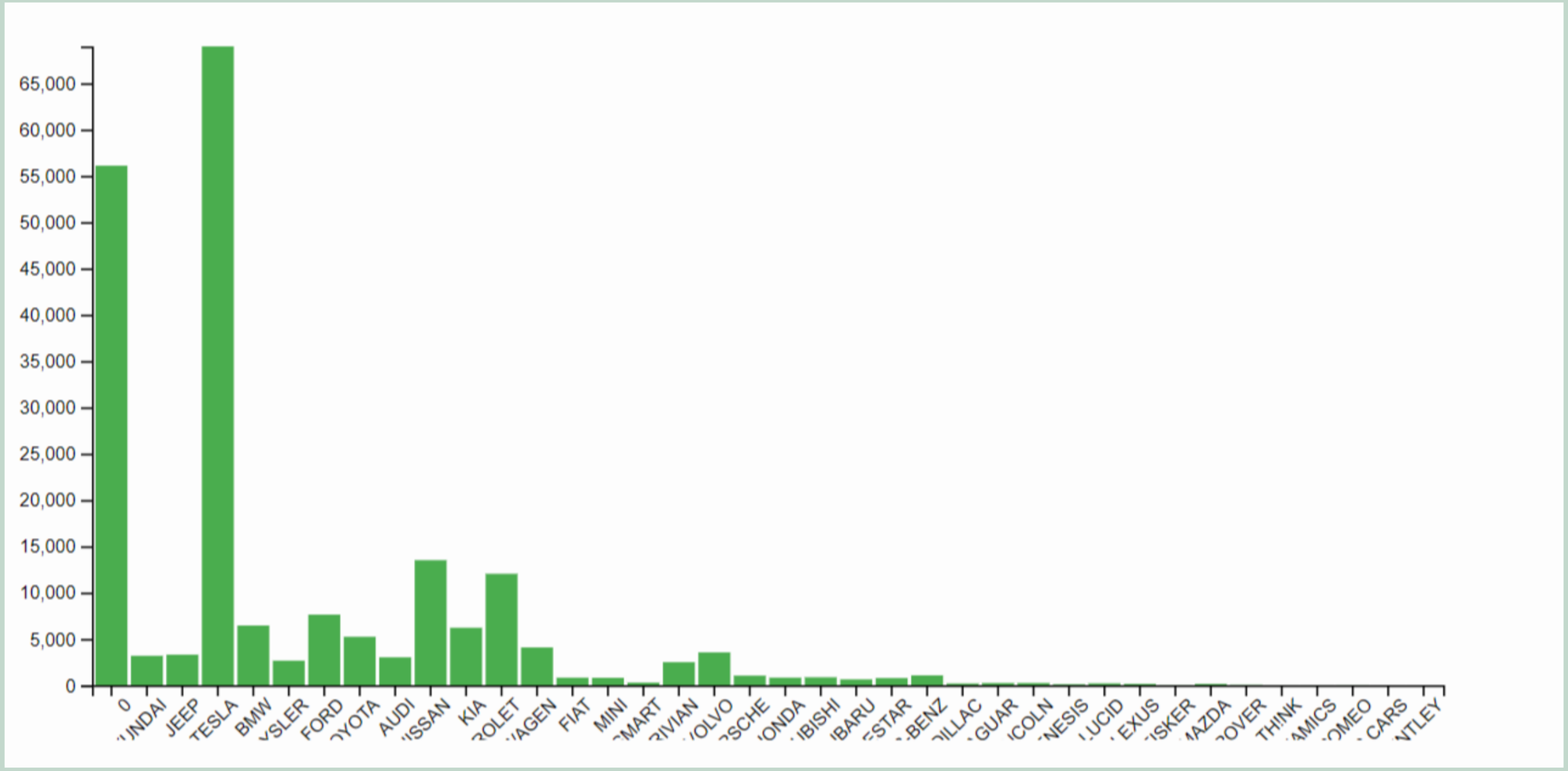
- Correlation between EV population and number of charging stations
- Quantity and distribution of EV charging stations per state in the US

METHODOLOGY



MARKET SHARE

Figure 1 showing the market share of various Electric Vehicle (EV) brands in the United States



MARKET SHARE

Analysis

THE CHART REVEALS

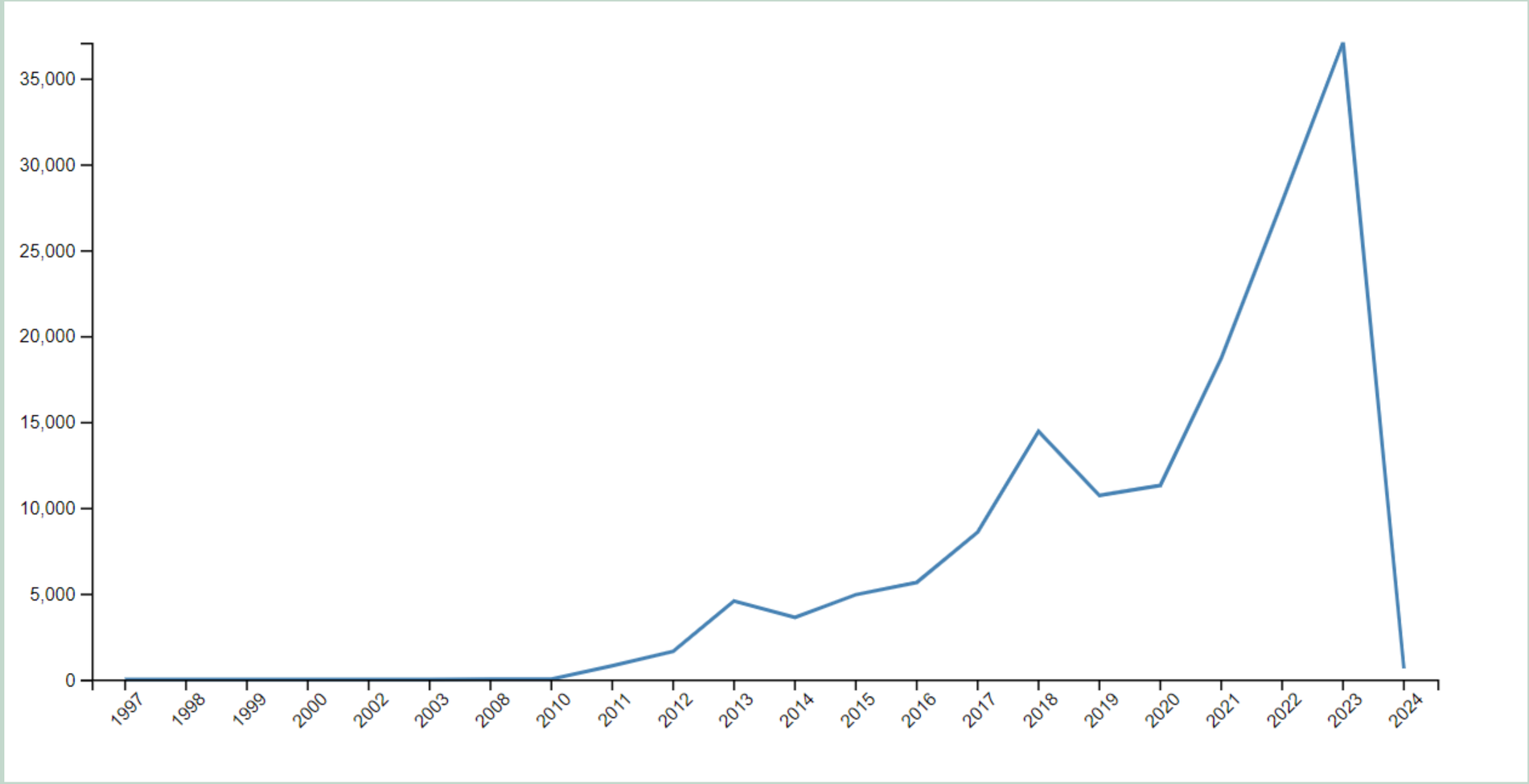
Tesla dominates the market as the most popular brand with 68,981 cars sold.

Nissan holds the second position with 13,496 cars

Chevrolet ranks third with 12,026 cars.

POPULARITY TRENDS

Figure 2 illustrates the trends in Electric Vehicle (EV) and Hybrid popularity over the years based on the provided dataset



POPULARITY TRENDS

Analysis

Major Shifts:

Significant increases in certain years might indicate important events or milestones in the electric vehicle industry. For example, the chart might show a notable jump in a particular year due to the introduction of new models, improvements in battery technology, or changes in government policies supporting electric vehicles.

Slight Decline:

Towards the end of the chart, there seems to be a plateau or a slight decline in the number of new EVs and Hybrids. This could be due to data limitations, market saturation, or a reflection of the dataset's endpoint.

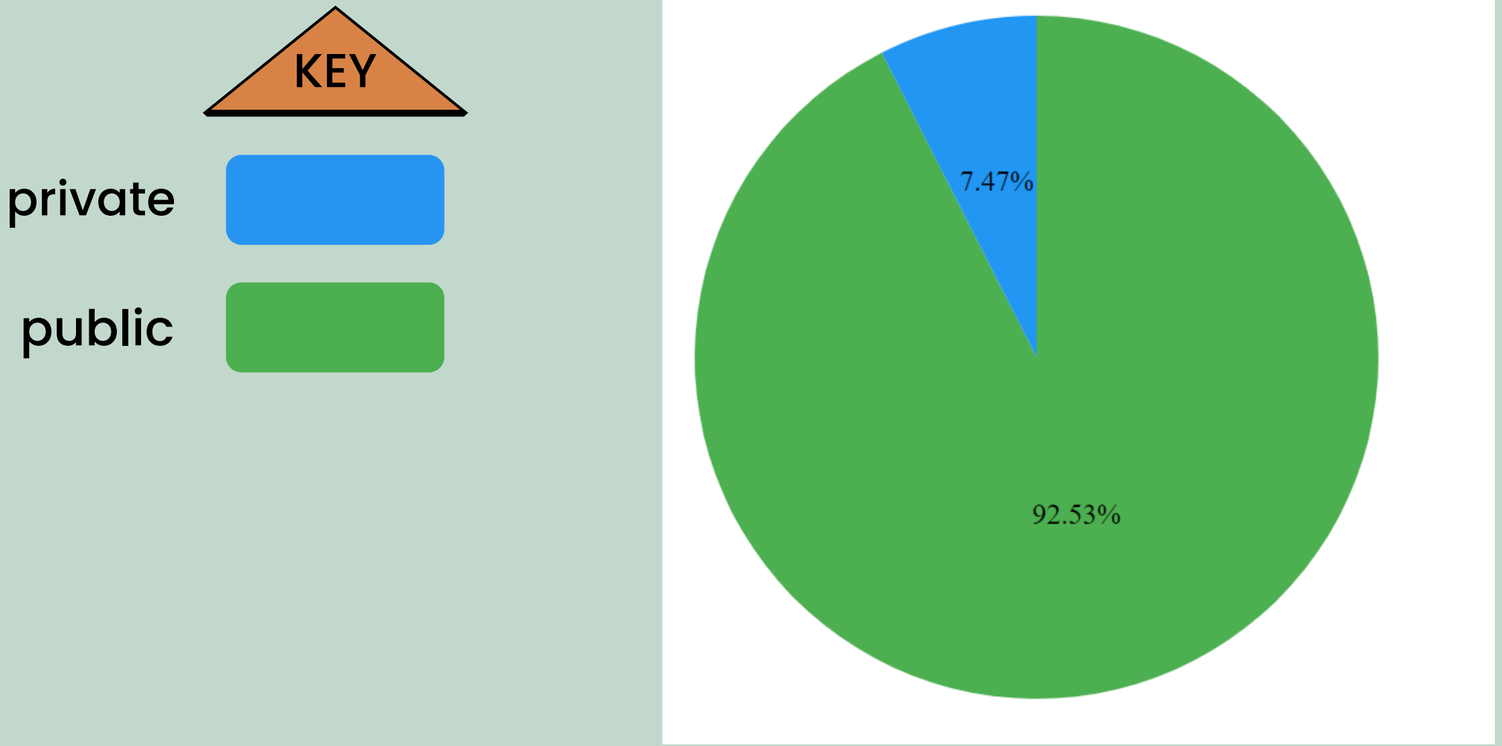
Overall Growth: The line chart shows an overall increase in the number of EVs and Hybrids over the years. The trend suggests a growing acceptance and adoption of electric and hybrid vehicles.

Yearly Fluctuations: While there is a general upward trend, there are some variations from year to year. These fluctuations could be influenced by factors such as advancements in technology, changes in consumer preferences, and government incentives.

CHARGING STATIONS

EV Population and numbers

Figure 4 depicting the spread between public charging stations vs private charging stations



CHARGING STATIONS

Analysis

92.53% PUBLIC
7.47% PRIVATE

Easy Access for All:

Most charging stations are for everyone, making electric vehicles available to a wide range of people and encouraging more folks to use them.

Market Focus:

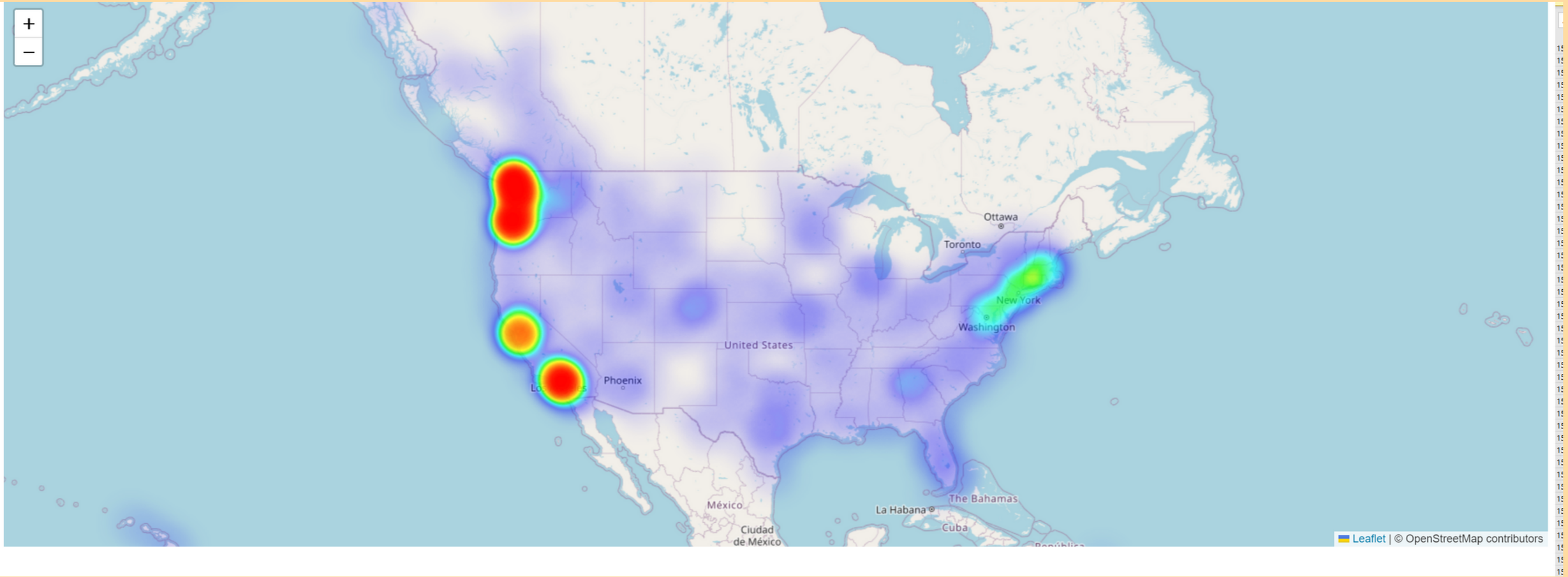
Since a lot of charging stations are open to the public, it seems like they're aiming to help regular people, supporting the increasing interest in electric cars.

Government Support:

Many public charging stations could mean that the government is actively promoting electric vehicles. Having easily accessible charging spots is important for getting more people to use electric cars and easing worries about running out of power.

HEATMAP

Figure 3 showing density of charging stations across the US states



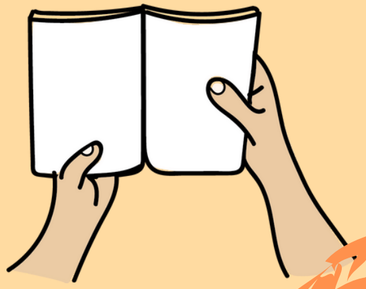
HEATMAP ANALYSIS

High-Density Areas:

- Busy Places: Lots of charging stations in busy cities or popular spots mean there's good support for electric cars.
- Travel Spots: If you see many charging points around airports or big roads, it's because they want to make it easy for people on the move.

Low-Density Areas:

- Not Many Stations: Places with few or no charging stations might be in smaller towns or places where electric cars aren't as common.
- Outside Cities: In places around cities but not right in them, there might be fewer charging spots.



What Businesses Can See:

- **Good Spots**: If a commercial area has lots of charging, businesses might want to set up there .
- **New Opportunities**: Areas with few stations could be new markets for electric car services.

What It Tells Us:

- **Where People Live:** More charging spots where lots of people live, less where fewer people live.
- **Plan for More:** Places with few stations might need more for electric cars to become popular there.

Government and Policies:

- **Influence of Rules:** The map shows how government rules about electric cars affect where charging spots are.

LIMITATIONS

1.The project is limited to the US market only

2. Data is limited to the past 6-7 years

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THANK YOU!