

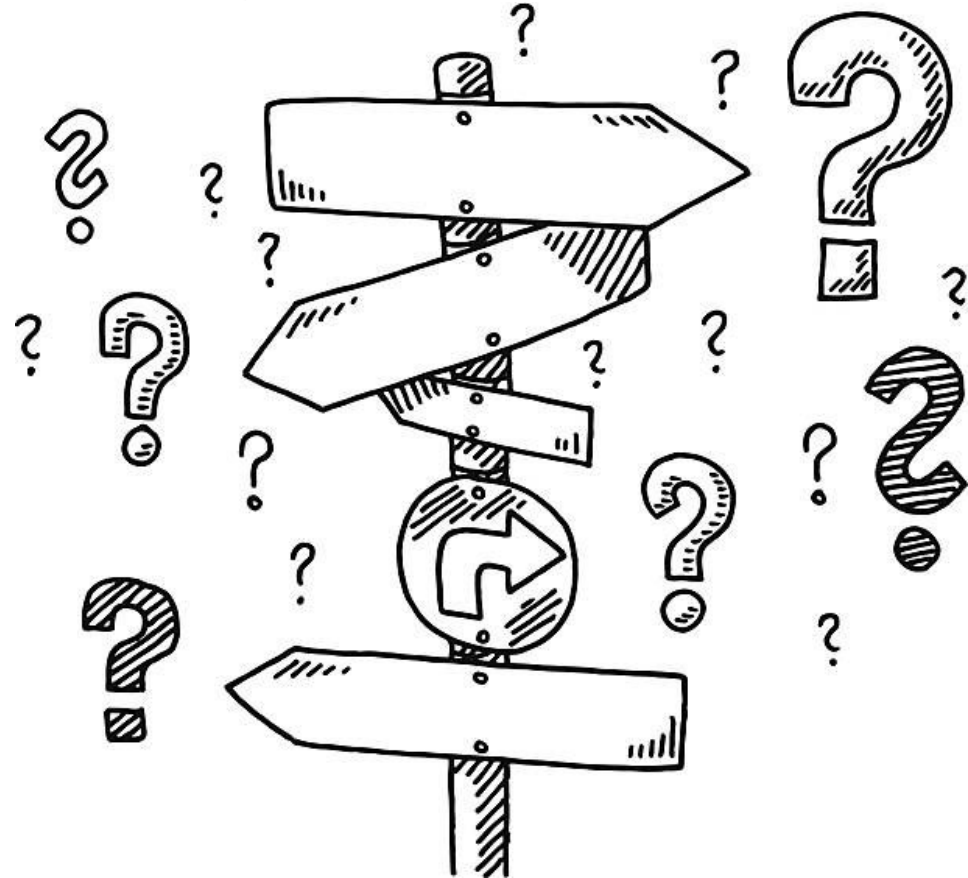
# Electric Vehicle Population Analysis

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# — Preliminary Questions Sought to Answer —

- Why are electric cars so popular?
- Is popularity due to price or consumer motivation for a cleaner environment?
- Do technological advancements play a role in the upward trending popularity of electric vehicles?
- Are there any demographic trends correlated with electric vehicle adoption?



# Tools Used

## Python Modules



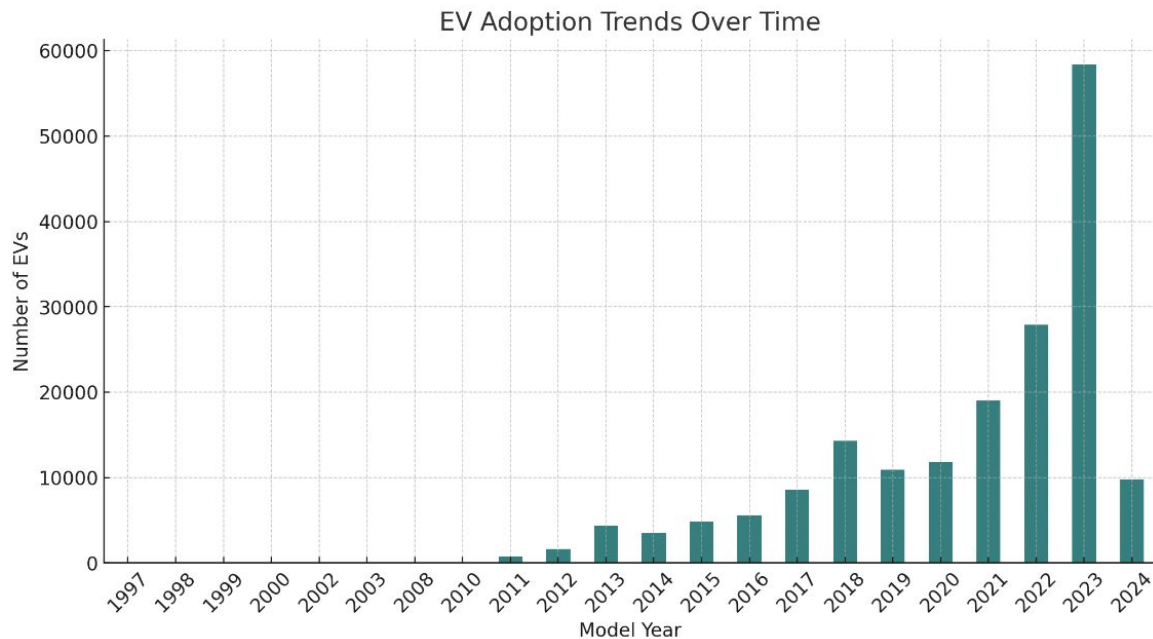
# Data Preparation

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- We downloaded the "Electric Vehicle" dataset from Kaggle website as our raw dataset because it provides comprehensive aspects of the EV data we need for analysis.
- We executed cleaning processes to remove duplicates and handle missing values by filling in average data.
- We standardized data formats across attributes to facilitate analysis.
- We employed outlier detection using Z-scores and IQR methods to refine the dataset.

# — Basic Exploration

There is a clear upward trend in EV adoption over the years, with a noticeable increase in recent model years.



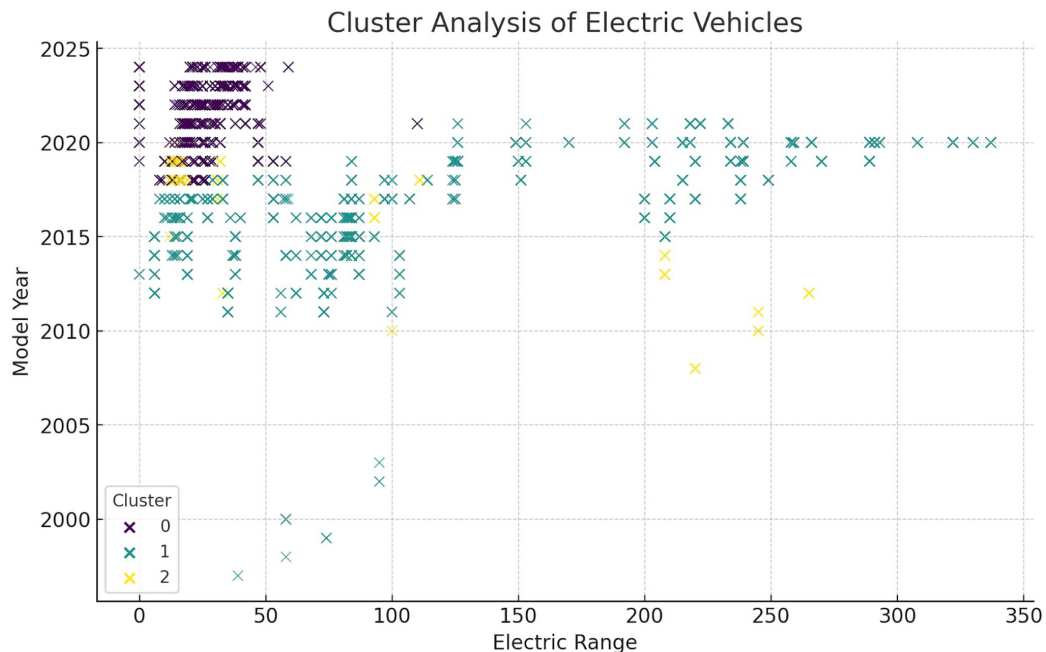
# – Classification/Clustering

Cluster 0 might represent more affordable vehicles with moderate electric range that are fairly new.

Cluster 1 might consist of vehicles with better range but slightly older models, possibly indicating earlier adopters of high-range EVs.

Cluster 2 could represent premium, high-cost electric vehicles, regardless of their range and model year.

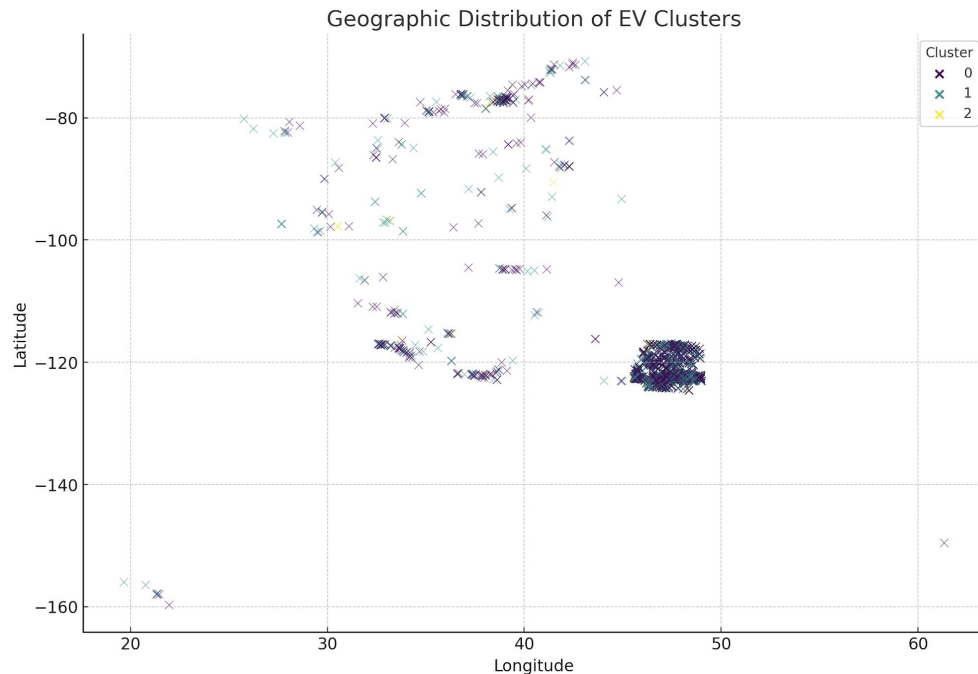
K-means based on the Electric Range and Model Year of the electric vehicles.



# — Classification/Clustering

To analyze the geographic distribution of clusters, we visualized the locations of the electric vehicles (based on their Vehicle Location data) and color-code them according to their cluster membership.

Certain clusters are more concentrated in specific areas, this might indicate regional policy preferences or market segmentation.



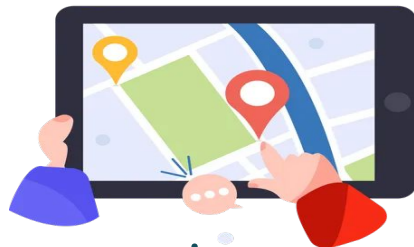
# — Knowledge Gained

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Temporal Trends



Geographic Distribution



Economic Factors



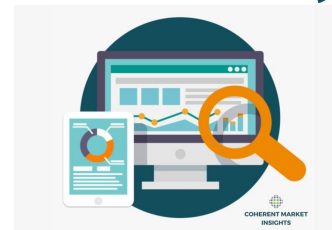
Electric Range



Policy and Infrastructure



Market Maturity





# — Applications

## Policy and Incentives



## Automotive Industry



## Energy and Utility



## Urban Planning



## Environmental Sustainability



## Consumer Behavior



## Finance Sector



**— Thank You—**

