Final Project Report

Visualization Tool for Electric Vehicle Charge and Range Analysis

Contributor Details:

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Project Introduction:

The Electric Vehicle (EV) is not new, but it has been receiving significantly more attention in recent years. Advances in both EV analytics and battery technologies have led to increased automotive market share. However, this growth is not attributed to hardware alone. The modern mechatronic vehicle marries electrical storage and propulsion systems with electronic sensors, controls, and actuators, integrated closely with software, secure data transfer, and data analysis, to form a comprehensive transportation solution. Advances in all these areas have contributed to the overall rise of EVs, but the common thread that runs through all these elements is data analytics.

Problem Statement:

Analyzing different data from multiple sources for electric cars in India and globally. We have 4 different datasets that need to be analyzed to create dashboards and stories that can represent the data and show the visualizations effectively.

Objectives:

- Visualize distribution of EV charging stations in India.

- Analyze EV car models available in India.

- Compare key parameters such as price, top speed, and efficiency.

- Summarize available EV models by brand.

- Develop dashboards and stories to present these insights effectively.

Tools & Technologies Used:

- Tableau Public

- GitHub

- CSV datasets

Datasets Used:

- EVIndia.csv

- Electric_vehicle_charging_station_list.csv

- ElectricCarData_Clean.csv

- Cheapestelectriccars-EVDatabase.csv

Approach:

1. Analyzed datasets and explored key variables.

2. Created multiple Tableau sheets for various visualizations.

3. Developed dashboards to combine related views.

4. Created a story to summarize project findings.

5. Organized project files and published on GitHub.

Key Visualizations Created:

- EV Charging Stations by Region and Type in India

- EV Charging Stations Map of India - Different EV Cars in India

- Top Speed Comparison for EV Brands

- Price Comparison for EV Cars in India

- Top 10 Most Efficient EV Brands

- Brands According to Body Style

- Brands Filtered by PowerTrain Type

- Number of Models by Each Brand

- Summary Cards for EV Cars (Global and India)

Links:

GitHub Repository:

https://github.com/MonikaAishwarya/ev-charge-range-analysis

Dashboard Link:

https://public.tableau.com/app/profile/monika.aishwarya.vegesna/viz/Project-EV/Dashboard1

Story Link:

https://public.tableau.com/app/profile/monika.aishwarya.vegesna/viz/Project-EV/Story1

Conclusion & Learning Outcome:

This project enhanced my ability to work with real-world datasets and create insightful data visualizations using Tableau. I developed a deeper understanding of EV market dynamics and improved my skills in data analysis, visualization, and dashboard creation.