

Project Proposal

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Project Title: “EV Dynamics in Washington State: A Data-Driven Investigation of Electric Vehicle Adoption in Washington State”

Brief Description: The dataset contains information related to the population of electric vehicles, featuring various attributes such as VIN, County, City, State, Model Year, Make, Model, Electric Vehicle Type, CAFV Eligibility, Electric Range, Base MSRP, Legislative District, DOL Vehicle ID, Vehicle Location, Electric Utility, and Census Tract. Our objective is to conduct a comprehensive analysis to understand the distribution, characteristics, and factors influencing the adoption of electric vehicles registered in Washington State. Our proposed solution approach involves data preprocessing, exploratory data analysis, data visualization, and potential utilization of predictive modeling techniques, such as regression or classification.

Problems to Investigate:

- **Geographical Adoption Patterns:** Analyze the dataset to pinpoint geographical trend in EV adoption within WA State. Explore which counties and cities have the highest and lowest EV adoption rates. Inspect factors contributing to these regional differences, such as EV Type, EV Make and Model, Companies providing Electric Utility, and legislative district policies.
- **Aspects Influencing CAFV Eligibility:** Understand the aspects that impact Clean Alternative Fuel Vehicle (CAFV) eligibility for EVs in Washington. Explore how elements like vehicle type, electric range, and base MSRP influence a vehicle's eligibility for CAFV position.
- **Electric Range and Price Trends:** Study the connection between electric range and base MSRP in EVs registered in Washington. This investigation can shed light on consumer preferences and market dynamics in the state of Washington.

Proposed Solution Approach:

1. Data Preprocessing: Clean the dataset by handling missing values, identifying, and dealing with outliers, and addressing any data quality issues.

2. Exploratory Data Analysis (EDA): Perform EDA to understand the distribution of different attributes, examine correlations between variables, and identify patterns within the electric vehicle population.

3. Data Visualization: Utilize various visualization techniques to present the insights effectively, including plots, graphs, and maps, to highlight the geographical distribution and characteristics of electric vehicles.

4. Descriptive and Inferential Analysis: Conduct descriptive statistical analysis to summarize the main characteristics of the dataset and potentially apply inferential analysis techniques to understand the relationships between variables.

5. Predictive Modeling (if applicable): Consider implementing predictive models, such as regression or classification, to predict factors affecting CAFV eligibility, electric range, or other significant attributes.

URL for the dataset: <https://catalog.data.gov/dataset/electric-vehicle-population-data>