Electric Vehicle Population Data

GROUP 5

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Final Project Proposal: Regression Analysis of Electric Vehicle Population Data

Dataset: Electric Vehicle Population Data

Overview and Rationale: As the automotive industry shifts towards sustainable practices, understanding the factors influencing electric vehicle (EV) adoption is crucial. This project will employ regression analysis to explore how various factors such as vehicle characteristics and regional demographics impact the adoption rates of electric vehicles. The "Electric Vehicle Population Data" dataset provides a comprehensive look at EV registrations, which includes vehicle types, models, and geographic details.

Assignment Summary: This project will apply statistical methods, particularly regression analysis, to identify and quantify the relationships between different variables in the electric vehicle market. Our goal is to determine the key predictors of EV adoption and understand their impact.

Questions and Objectives:

- **What factors most significantly affect the adoption of electric vehicles?**
- **How do vehicle characteristics like electric range and model year influence the likelihood of an EV being registered?**
- **Is there a relationship between the geographic location and the type of electric vehicles adopted?**

Methods:

- **Linear Regression:** To explore the relationship between continuous variables such as electric range and the number of EV registrations.
- **Logistic Regression:** To analyze how categorical variables like vehicle type (BEV, PHEV) influence the likelihood of EV adoption.
- **Multivariate Regression:** To assess the combined effect of multiple factors such as model year, make, and geographic region on EV adoption rates.

Expected Outcomes: Through regression analysis, we expect to identify significant predictors of electric vehicle adoption. This will include quantifying the impact of vehicle specifications and regional factors on the likelihood of EV registration. The insights derived could inform stakeholders in the automotive industry and policymakers about effective strategies to enhance EV adoption.

Conclusion: This project will leverage our theoretical knowledge in practical scenarios, applying advanced statistical techniques to real-world data. By focusing on regression analysis, we aim to provide a nuanced

understanding of the dynamics influencing the electric vehicle market, thereby contributing to informed decision-making in the transition towards sustainable transportation.
