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Electric Vehicle Competitive Landscape Analysis: Project Proposal

Problem Statement: Electric vehicle adoption has been growing rapidly and will continue to do so in the future. Several different car companies are also in competition with one another. Outside of considerations such as brand loyalty and personal preferences, the most important factor for neutral consumers deciding which electric vehicle to purchase is how much value they can get in return for their money. This project will seek to uncover insights into which car brands and models provide the best value for potential consumers.

Context: Electric vehicle sales rose 31% in 2023 to a total of 13.6 million units, which represents almost 15% of the total global market. As the market continues to shift fully into EVs over the long term, a lot of consumers will soon be purchasing an EV for the first time. As they consider several factors before making a decision, it would be helpful if they could see data that compares different car brands and how their models stack up against one another. Specifically, conscious spending consumers might be interested in knowing which models provide the best bang for their buck on key metrics such as range and performance.

Criteria for Success: Define a novel ranking system that can rate different EV models based on how much value for money they provide against key metrics in order to help consumers make sound purchasing decisions.

Scope of Solution Space: Create a novel ranking system for EVs based on data which tracks the purchase price in comparison to range, performance, and other factors, assigning a score to each EV, which can then be used to make a decision whether it would be a good purchase or not. Further categorize EV models based on different consumer budgets and provide recommendations for which EV model to purchase within each budget.

Constraints:

- Finding data that provides an exhaustive list of all EVs in the world.
- Acquiring accurate data on price, range, and performance for each model.
- Keeping track of new models entering the market and price fluctuations over time.

Stakeholders:

- Consumers looking to purchase a new EV.
- Car companies looking to understand how their offerings compare with the market.

Data Sources:

- Electric Vehicle Population Data - This dataset shows the Battery Electric Vehicles (BEVs) and Plug-in Hybrid Electric Vehicles (PHEVs) that are currently registered through the Washington State Department of Licensing (DOL).
- EV Ranking Data - This dataset contains the price, range, and acceleration for 36 EV models from the top 5 best-selling brands in Washington State. It also includes a ranking system which assigns points to each model based on how much bang for the buck they provide. This data was manually collected on April 27, 2024.