

## DATA\_PRE-PROCESSING:

• In our project on the EV dataset, we used label encoding to convert categorical variables such as "car" , "Range" , "price\_range" into numerical labels. We used the >LabelEncoder class from the sklearn library to perform this transformation

Our exploratory data analysis led us to several interesting insights.

• For instance, we found that the Tata Nexon EV Max has the longest range among the four EV models in the dataset.

• We also observed that the majority of EVs in the dataset are classified as compact SUVs or subcompact sedans.

• Additionally, we found that there is a positive correlation between the range and price of EVs, indicating that higher range EVs tend to be more expensive.

Overall, our exploratory data analysis helped us to gain a better understanding of the EV dataset and identify key features and relationships that could be further explored in subsequent analysis.

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**Demographic Variables:** Age, gender, income, education, and occupation can be relevant to understand which demographic groups are most likely to adopt EVs and why.

**Psychographic Variables:** Attitudes towards the environment, climate change, and sustainability can be relevant to identify segments of the market that are more likely to be interested in EVs for their environmental benefits.

**Behavioral Variables:** Purchase behavior, brand loyalty, and product usage can be relevant to understand which segments of the market are more likely to consider EVs as an alternative to traditional vehicles and what factors influence their purchasing decisions.

>K-Means Clustering is an unsupervised learning algorithm that partitions a dataset into K clusters based on the mean distance between data points. In our project, we used K-Means Clustering to group EV models together based on their price range, price\_range, and car. This helped us identify groups of EV models that were similar to each other in terms of their features.

>Certainly! In our analysis of the EV dataset, we gained several insights and drew some conclusions about the EV market. Here are some of the key findings from our research:

>Range and price range are two critical features that consumers consider when purchasing an EV. Our analysis revealed that there is a positive correlation between the range of an EV and its price range.

>The market for EVs is still in its early stages of development. Although there are several EV models available in the market, the majority of them fall within the compact SUV and subcompact sedan categories. However, there is an increasing trend towards the development of larger EVs such as SUVs and pickups.

>The EV market is becoming more competitive, with several manufacturers entering the market with new models. As a result, the prices of EVs are becoming more competitive, making them more affordable for consumers.

>The EV market is evolving rapidly, with new technological advancements such as longer battery life and faster charging times becoming more prevalent. As these technologies become more accessible, we can expect to see further growth in the EV market.

>EVs are becoming more popular among consumers due to their environmental benefits, as they produce fewer emissions than traditional gas-powered vehicles. This trend is expected to continue in the coming years, as consumers become more environmentally conscious and governments implement policies to promote the adoption of EVs.

