



Exploring Insights from the Cars Dataset: A Comprehensive Analysis

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CONTENTS

1. Introduction
2. Dataset Overview
3. Methodology
4. Insights and visualizations
5. Key findings
6. Future recommendations
7. Conclusions





Introduction

Welcome to the **Exploring Insights** from the *Cars Dataset* presentation. This comprehensive analysis will delve into the key **trends** and **patterns** in the automotive industry. In this analysis, I used Python programming language and various data visualization libraries to derive insights from the dataset.

Data Collection and Overview:

The car dataset offers a wealth of information, including unique car identifiers, model names, model IDs, fuel IDs, fuel types, mileage, miles per gallon (mpg), engine sizes, transmission IDs, and transmission types. This diverse range of attributes provides a comprehensive view of each car model, facilitating thorough analysis and interpretation.





Methodology:

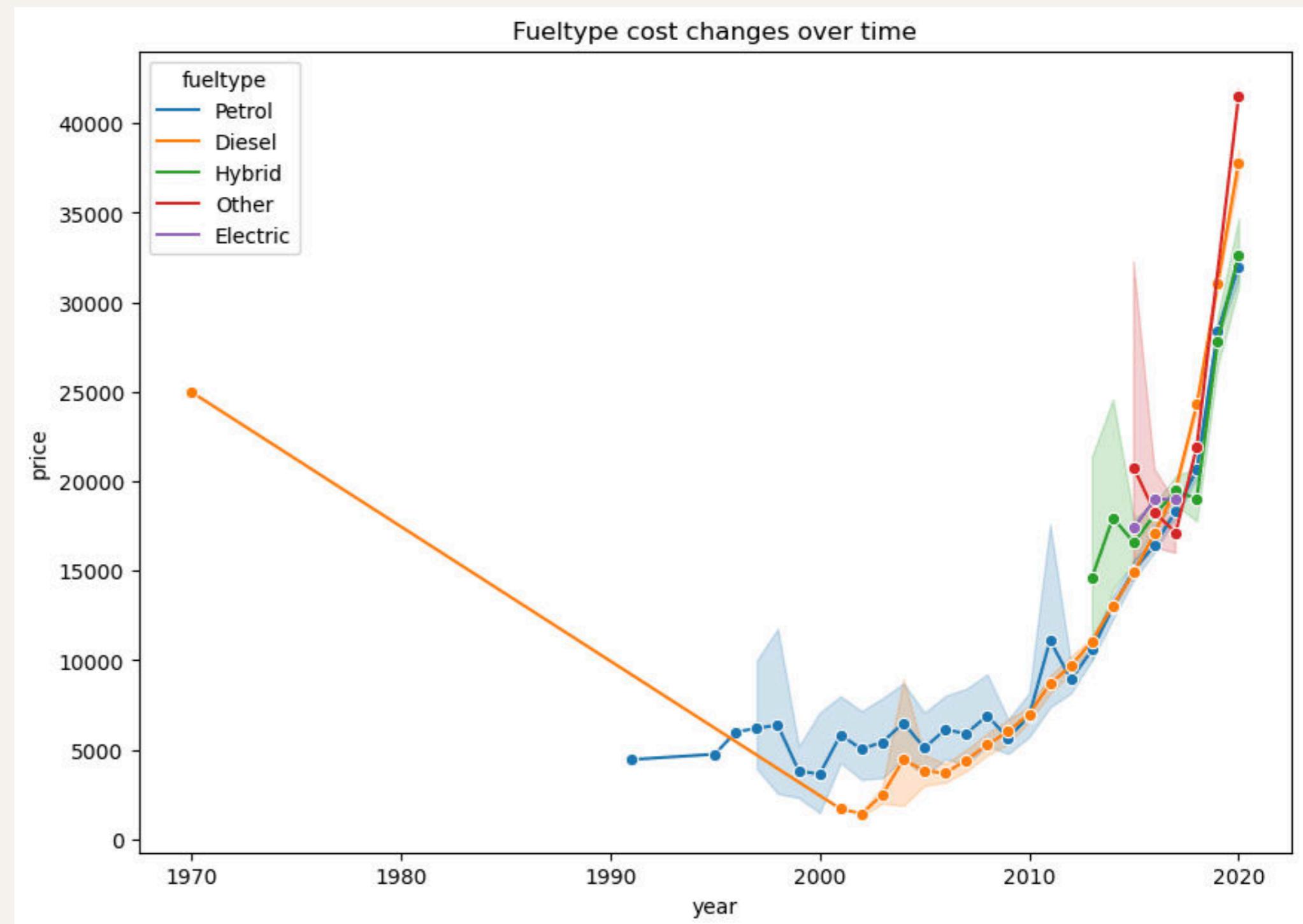
- 1. Data manipulation** - Importing the data through Python library pandas, merging and arranging, and renaming columns and indexes.
- 2. Data Cleaning** - it includes cleaning like checking and removing null, and duplicate values and correcting the dataset With pandas.
- 3. Data visualization** - Visual representation of analysis with python visualization libraries like Matplotlib and seaborn.
- 4. Interpretation and Reporting** - Reports and key findings explanations.

Insights:

Insight.1 Car price by fuel type over time.

ANALYSIS:

In this price over year report, we can see that as per demand the price for diesel and petrol are also increasing over a year. In 2020 the change in price as per fuel type is quite high and from 1970 to 2000 we can see a downfall in price.

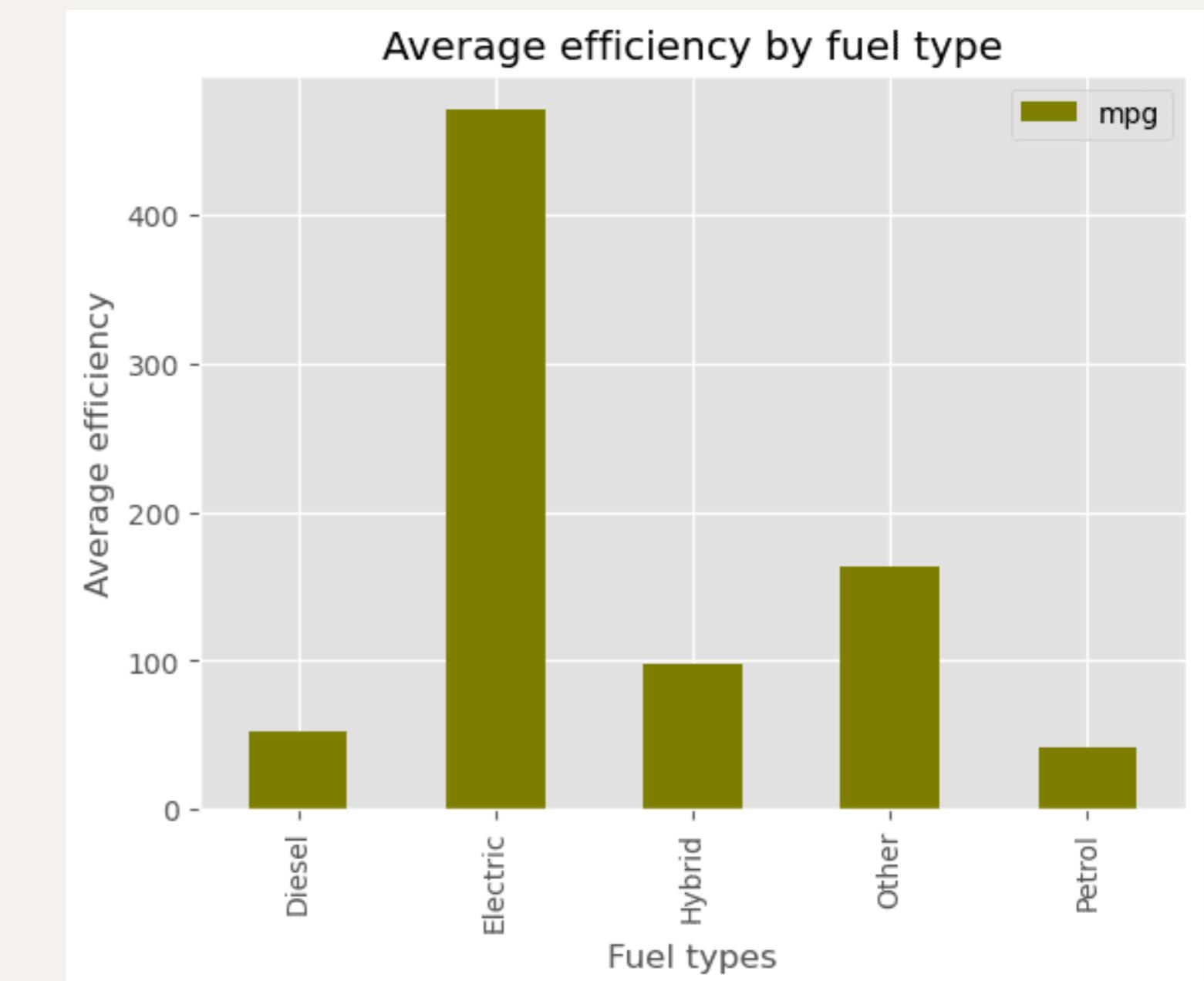


Insight.2 Efficiency Analysis:



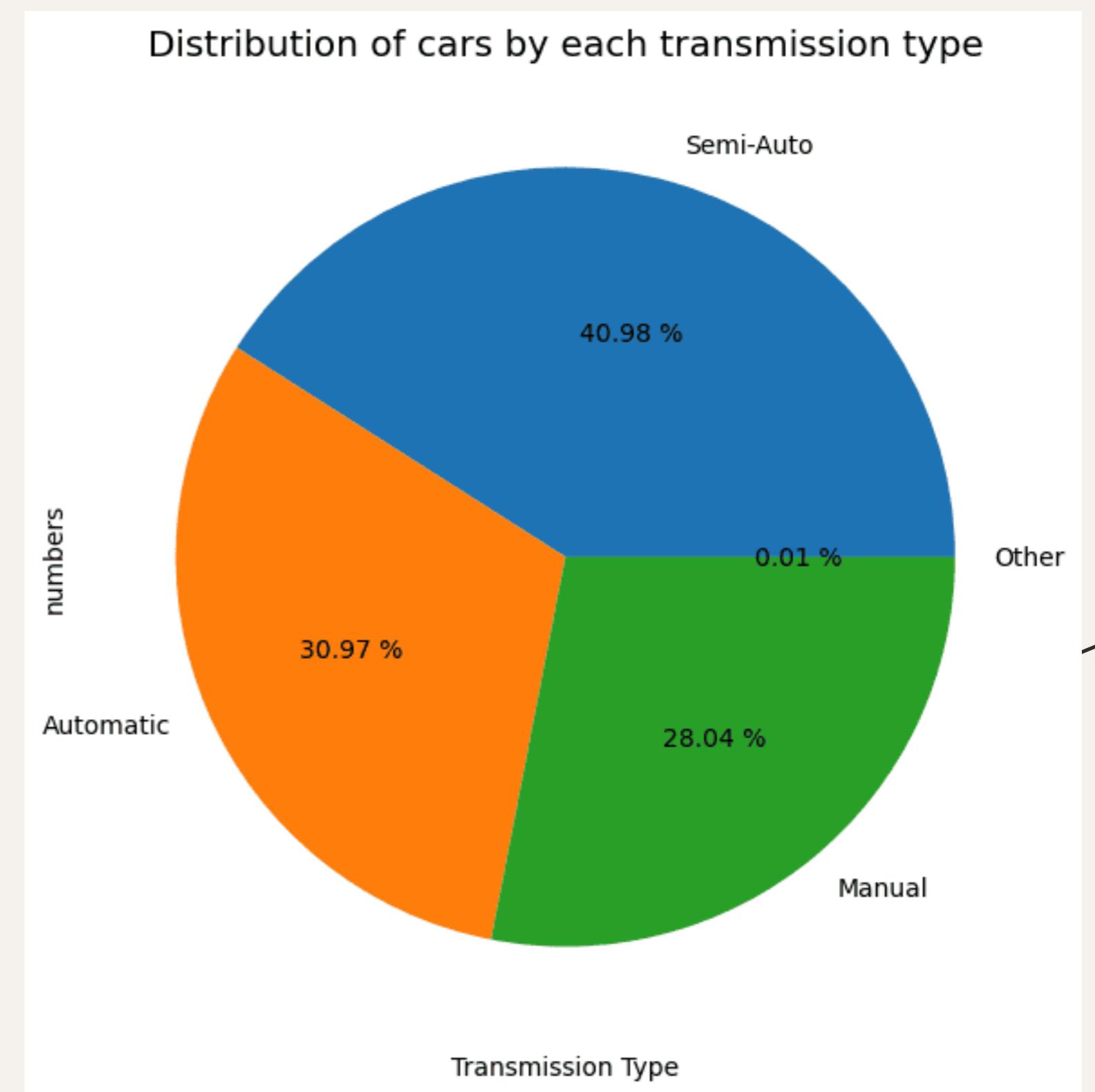
Analysis:

This data shows how efficient cars are based on their fuel types. Electric cars lead the pack by a significant margin, followed by Hybrids, while Diesel and Petrol cars trail behind in efficiency. This highlights the appeal of Electric and Hybrid options for those looking to save on fuel costs and reduce environmental impact.



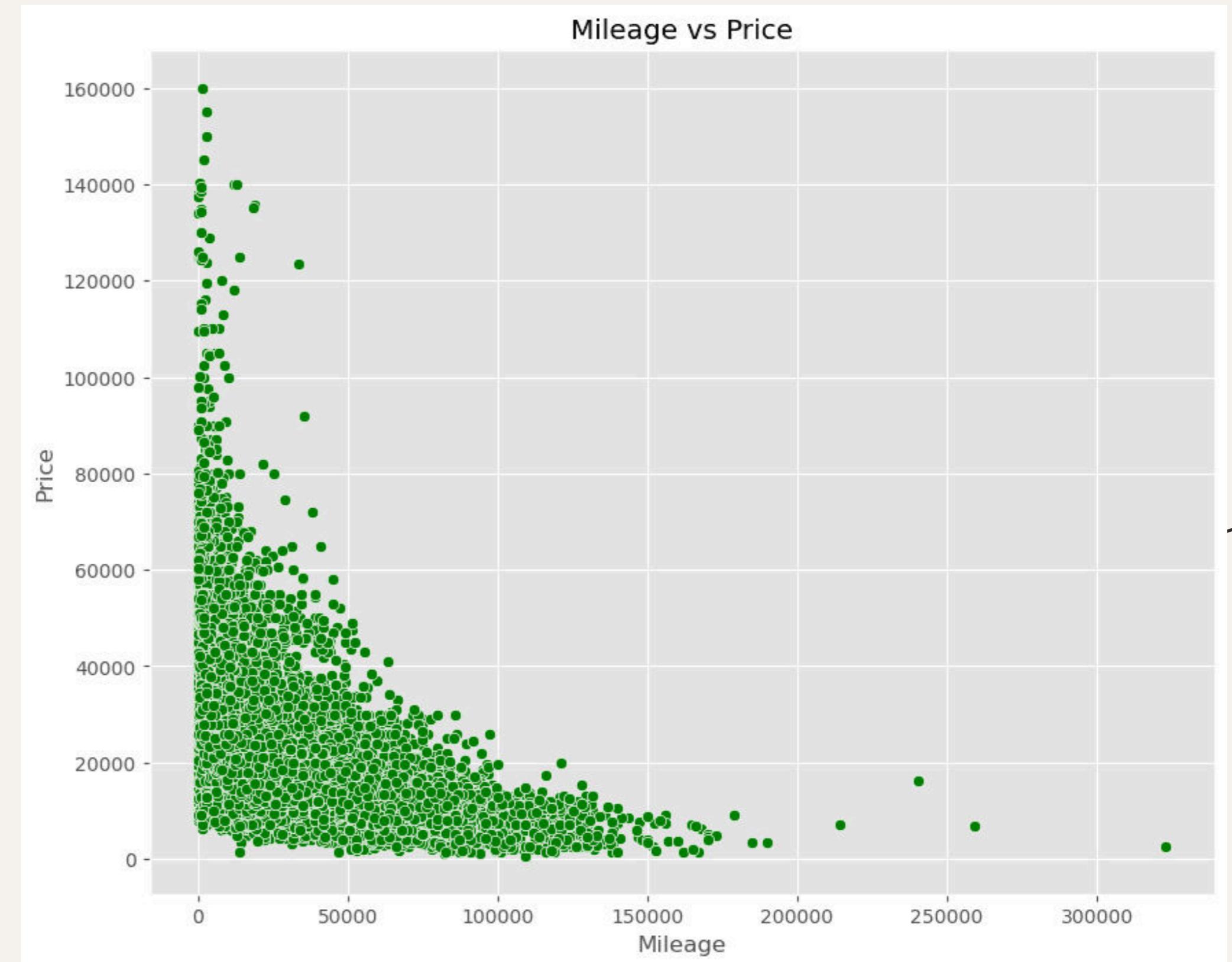
Insight 3. Transmission analysis

This data outlines the distribution of cars based on their transmission types. The majority of cars have Semi-Automatic transmission, followed by Automatic and Manual transmissions. This suggests a preference for Semi-Automatic transmissions among consumers, possibly due to their convenience and ease of use, while Manual transmissions remain a popular choice for those who prefer more control over their driving experience.



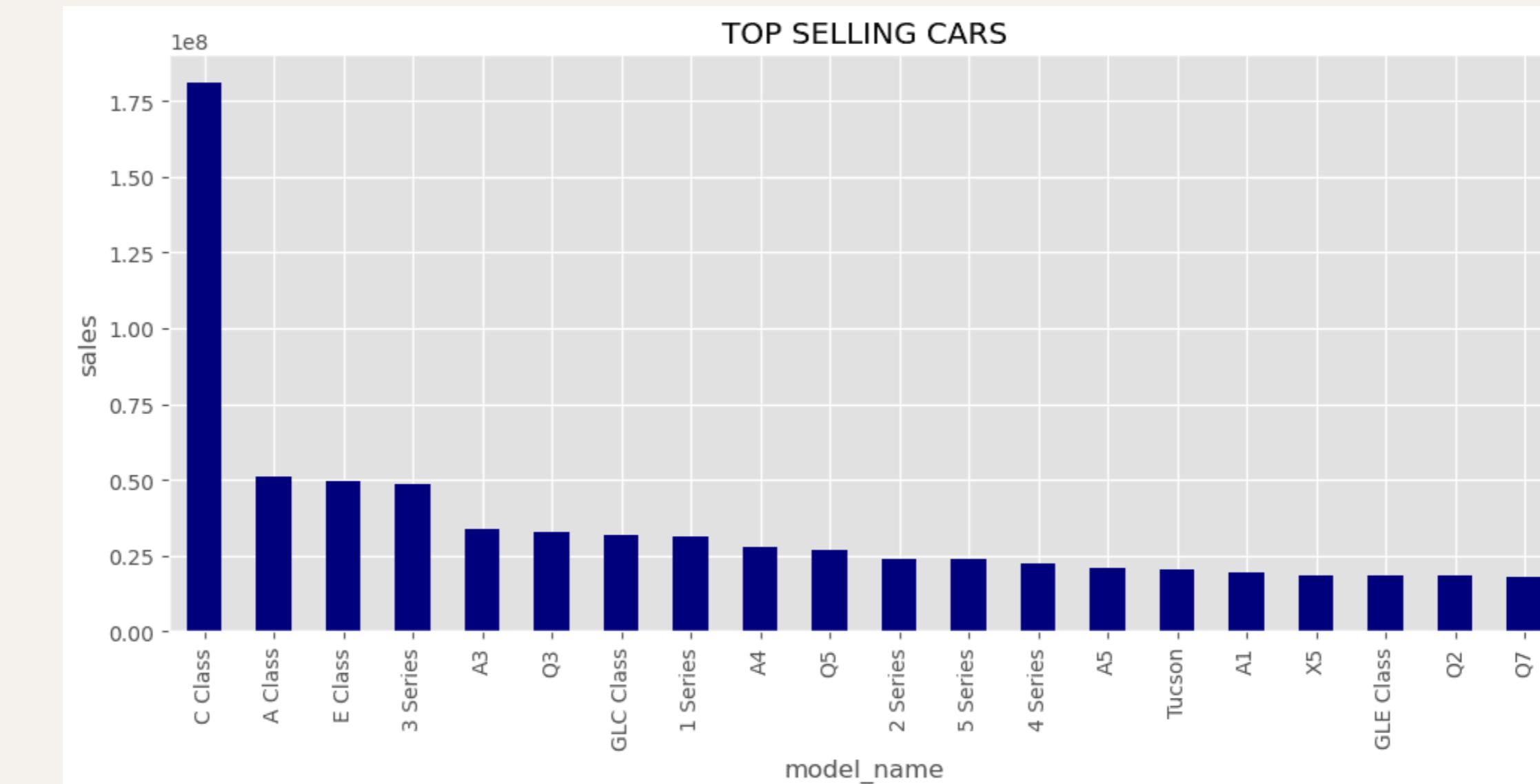
Insight 4. Mileage vs Price analysis

Based on the scatter chart of mileage versus price reveals a noticeable relationship between the two variables. As both price and mileage increase, there appears to be a widening gap between them. This suggests that while higher-priced cars tend to offer better mileage.



Insight 5. Model Performance through ranking

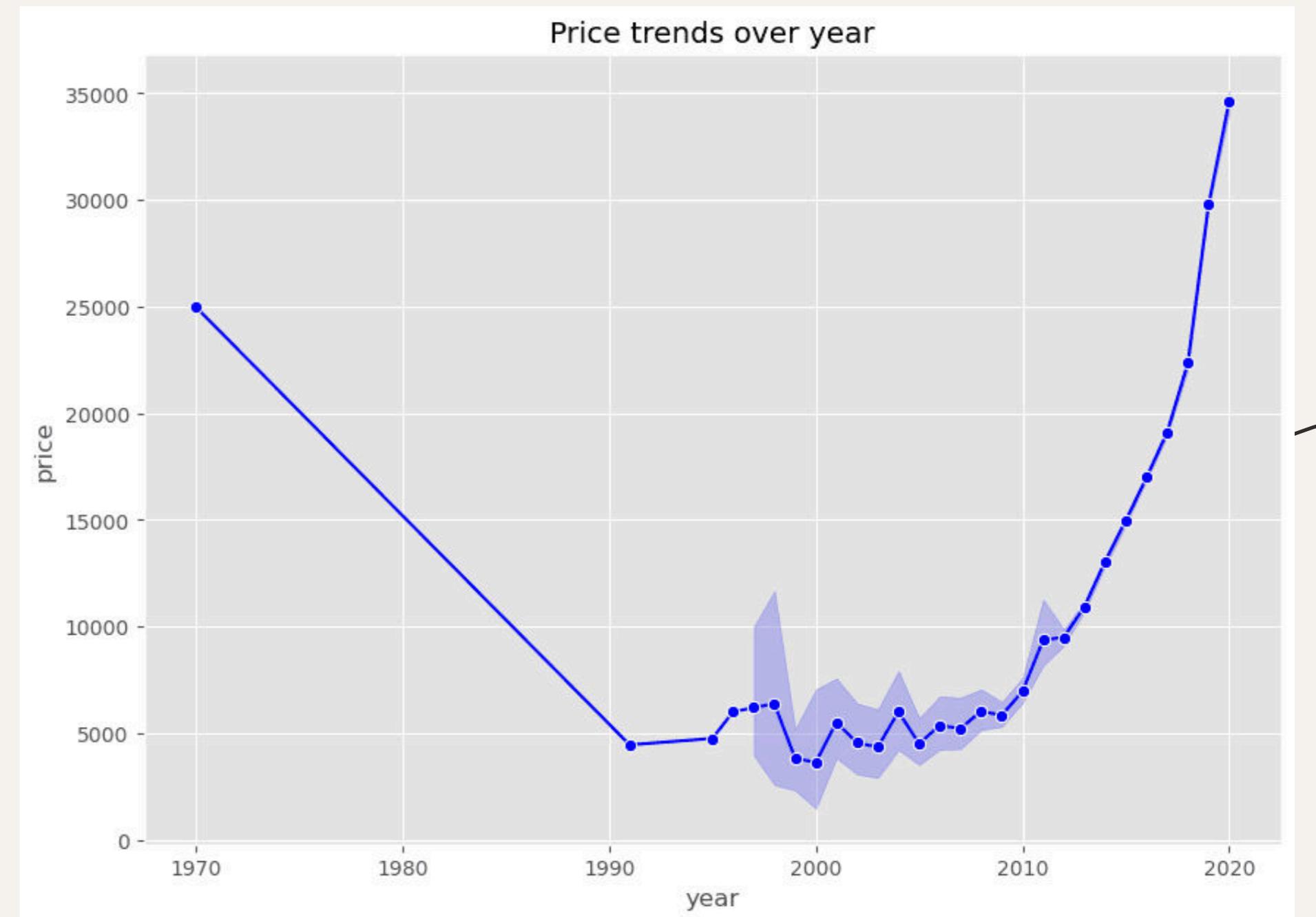
Based on the chart for top-selling cars highlights strong market demand for diverse models, including luxury car like C Class and S Class, as well as GLC Class and GLE Class. Performance-oriented models like A class and 3 series also feature prominently, indicating consumer interest in high-performance vehicles. This diversity in top sellers reflects evolving consumer preferences across different segments of the automotive market.



Insight 6. Price trend over year analysis

Based on the price trend chart over the years, it's evident that car prices were relatively lower in the 1990s and early 2000s. Prices remained relatively stable until 2020 when the price get increased in a high rate.

This increase in prices in 2020 could be attributed to growing consumer demand. However, it's essential to note that several other factors, such as inflation, technological advancements, and changes in manufacturing costs, could also influence price fluctuations. Therefore, while consumer demand likely played a role in the price increase in 2020, it's essential to consider various other factors that may have contributed to this trend.





Future Recommendations:

Technological Advancements:

AI-Driven Predictive Maintenance: Implement AI technology to predict vehicle maintenance needs based on sensor data, reducing downtime and repair costs.

Personalized Vehicle Recommendations: Utilize AI recommendation engines to offer personalized car suggestions tailored to individual preferences and needs.



Consumer Behaviour Analysis:

We should prioritize understanding customer preferences and market trends to better align with their demands. By implementing an AI chatbot, we can efficiently address customer inquiries and resolve issues, ultimately enhancing satisfaction and loyalty.

Conclusion and key takeaways:

Price Variation Reflects Consumer Demands: Across all insights, price fluctuation mirrors consumer preferences. Focusing on these fluctuations enables a deeper understanding of preferences and facilitates tailored strategies.

Rising Demand for Electric and Hybrid Vehicles: Notably, there's a growing preference for electric and hybrid vehicles, indicating a shift towards eco-friendly and economically viable options, particularly among newer generations.

Impact of COVID-19 Pandemic on Revenue: The car industry witnessed a significant revenue increase from 2016 (120,241,268) to 2019 (414,179,360). However, in 2020, there was a sharp decline (84,943,399) attributed to the COVID-19 pandemic.

Correlation Between Model Ranking and Demand: Models with higher rankings also exhibit higher average prices and increased demand, suggesting a correlation between popularity, pricing, and consumer preferences.



Thanks!

Do you have any questions?

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