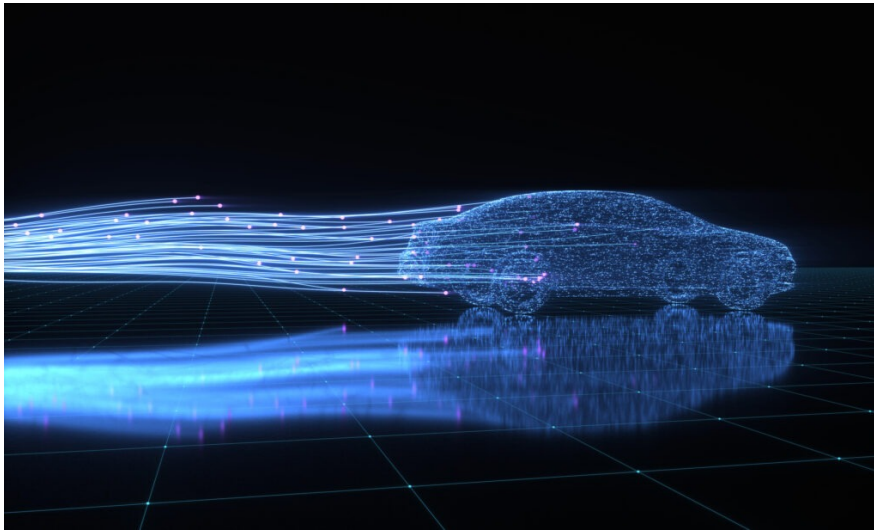# CARS DATASET ANALYSIS

INTRODUCTION

In today's competitive automotive market, understanding consumer preferences and identifying market trends are crucial for both buyers and sellers. Our dataset provides a comprehensive view of car specifications and purchasing information, offering valuable insights into market dynamics and consumer behaviour. The dataset includes detailed information on:

- Brand: The manufacturer or brand of the car.

- Year: The year of manufacture.

- Selling Price: The price at which the car is sold.

- Kilo-meter Driven: The total distance the car has been driven.

- Fuel Type: The type of fuel used by the car (e.g., petrol, diesel, electric).

- Seller Type: The type of seller (e.g., individual, dealership).

- Transmission: The type of transmission (e.g., manual, automatic).

- Owner: The number of previous owners.

- Mileage: The fuel efficiency of the car, typically in km/l or mpg.

- Engine Capacity: The size of the engine, usually in litres.

- Maximum Power: The maximum power output of the car's engine.

- Torque: The torque produced by the car's engine.

- Seats: The number of seats in the car.

- Name of the Car: The specific model name of the car.

- Mileage Category: Classification of mileage into categories (e.g., low, medium, high).

- Kilo-meter Category: Classification of total distance driven into categories.

- Power Category: Classification of maximum power into categories.

Aim of the Analysis

Identify Market Trends: In order to identify emerging car models and how customer choices are changing, we carry out an evaluation of car selling prices, specifications and model years. This will help car manufacturers and sellers in making products that are needed by the market.

Evaluate worthiness as per the market: The information provided enables us to establish how various factors such as the brand name of the manufacturer along with car specifications have a bearing on selling price. This knowledge is helpful in buying decisions for purchasers or establishing competitive vehicle prices for suppliers.

Anticipating New Developments in Future: With historical data available, these data can be used to predict future trends in this industry like changes in consumer preferences as well as identifying some potential new leaders of market leadership.

Objectives

1. **Data Collection:** By acquiring a well-structured dataset. This dataset included details such as brand of the car,Selling Price,Kilo-meter Driven, The type of transmission.

2. **Data Cleaning and Preprocessing:**
Data cleaning was done to deal with missing values, duplicate entries and outliers so as to maintain the integrity of the dataset.

3. **SQL Queries:**
Designed and executed SQL queries to extract relevant information from the database. This involved a range of SQL operations, including SELECT, JOIN, GROUP BY, and aggregation functions.

4. **Exploratory Data Analysis (EDA):**
Used SQL to perform a wide range of analyses to uncover hidden patterns and trends.

Data overview

Column Name	Datatype
Brand	Varchar
year	Int
selling_price	Int
km_driven	Int
fuel	Varchar
seller_type	Varchar
transmission	Varchar
owner	Varchar
mileage	Int
engine	Int
max_power	Int
torque	Int

name	Varchar
mileage_category	Varchar
km_category	Varchar
power_category	Varchar
seats	Int

Data analysis

1.Car Age vs. Selling Price

Objective: Understand how the age of a car (calculated as current_date1 - year) affects its selling price.

Insights: Older cars typically sell for less, but this analysis can quantify that relationship and reveal any exceptions.

2. Fuel Type and Selling Price

Objective: Investigate how the type of fuel (e.g., petrol, diesel) impacts the selling price.
Insights: This can reveal whether certain fuel types are more valuable or desirable.

3. Transmission Type and Selling Price

Objective: Determine how the type of transmission (manual vs. automatic) affects the selling price.
Insights: Automatic cars might generally be priced higher, depending on market demand.

4. Owner Type vs. Selling Price

Objective: Understand how the number of previous owners (owner) affects the selling price.
Insights:Cars with fewer previous owners may sell for more due to perceived better maintenance.

5.Distribution of Car Brands

Objective: Determine the most common car brands in the dataset.
Insights: Identify which brands are most represented in the dataset. This can provide insights into market dominance or consumer preference.

6.Impact of Kilo-meters Driven on Selling Price

Objective: Analyze how the number of kilo-meters driven (`km_driven`) influences the selling price.
Insights:More driven cars often sell for less, but this can vary based on other factors like brand or condition.

These points can help you extract valuable insights from the dataset, understand market trends, and make informed decisions or predictions based on the data.

Questions

1.**To find the most common car brand**

select count(brand) as count,brand

from car_table

group by brand

 order by count desc limit 1;

2.**To find the average selling price depends on fuel type;**

select fuel,avg(selling_price) as avg1

from car_table

 group by fuel

order by avg1 desc;

3.To find the average selling price depends on owner type;

select owner,avg(selling_price) as avg1

from car_table

 group by owner

 order by avg1 desc;

4.To find the average selling price depends on transmission type;

select transmission,avg(selling_price) as avg1

from car_table

 group by transmission

order by avg1 desc;

5.To find the average selling price depends on year of manufacture   type;

select year,avg(selling_price) as avg1

from car_table

group by year

 order by avg1 desc;

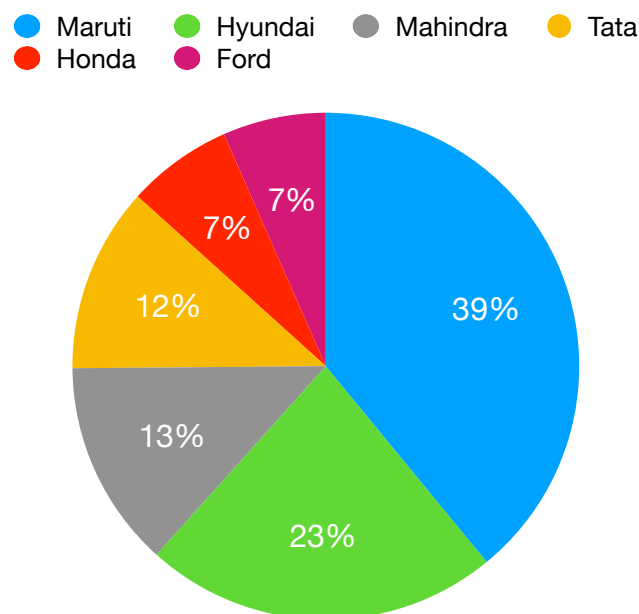**6.To find the average selling price depends on kilometer driven by the car type;**

select km_category,avg(selling_price) as avg1

from car_table

 group by km_category order by avg1 desc;

Conclusion

This dataset serves as a valuable resource for analyzing current market conditions and understanding consumer preferences. Through detailed examination of car specifications and purchasing information, we aim to uncover actionable insights that will benefit both buyers and sellers in making informed decisions. By identifying trends and preferences, this analysis will contribute to a deeper understanding of the automotive market and guide strategic decision-making.

1.Common car brand

Common car brand is Maruti
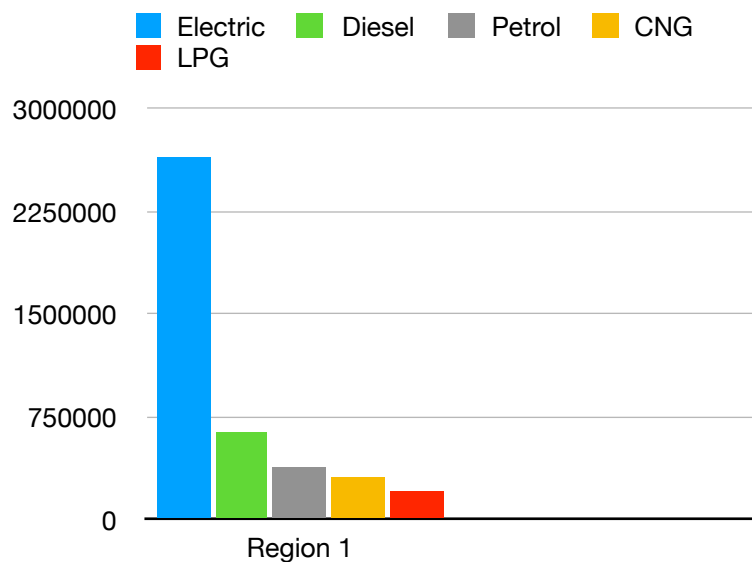
2. Highest average selling price depends on fuel type

Electric cars average selling price 2650000

Diesel cars average selling price 649140

Petrol cars average selling price 387132

CNG cars average selling price 317666

LPG cars average selling price 210885
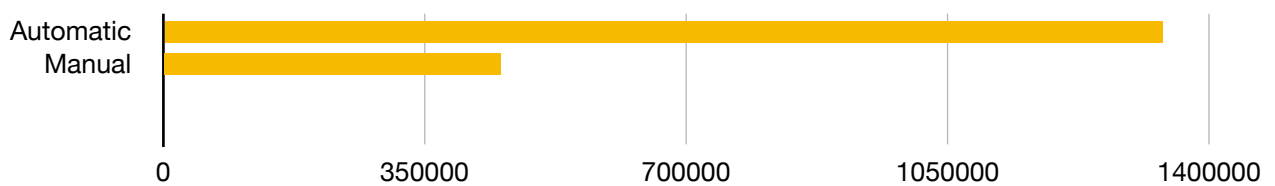

3.Highest average selling price depends on owner type

This analysis shows us that number of previous owners (owner) affects the selling price if number of previous owners increase the selling price depreciate

Test drive car · **First Owner** · **Second Owner** · **Third Owner** · **Fourth&above owner**

74%

10%

7%

5%

4%
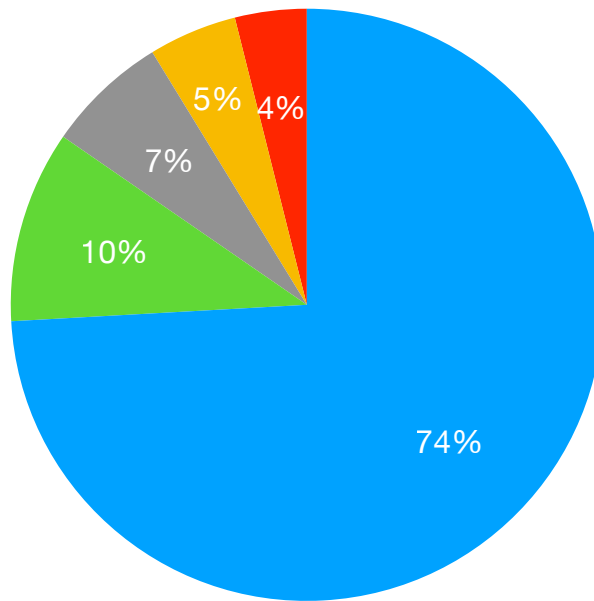
4.Highest average selling price depends on transmission

■ Region

	0	350000	700000	1050000	1400000
Automatic					
Manual					

 Automatic cars might generally be priced higher, depending on market demand