**Exploratory Data Analysis of Car Performance using SQL: Unveiling Insights and Trends in the Automotive Industry**

**Problem Statement:**

The problem at hand is to analyze and gain insights from a dataset containing information about various car models, their specifications, and performance metrics. The objective is to explore the dataset using SQL and present the findings in a meaningful and easily understandable way to both technical and non-technical stakeholders.

The key challenges to address are as follows:

Data Exploration: The dataset contains a wide range of attributes, including car make, model, origin, engine specifications, MPG, weight, and more. The challenge is to effectively explore and analyze the data to uncover meaningful patterns, trends, and relationships among the variables.

Performance Comparison: The dataset provides performance metrics such as horsepower, MPG in the city and on the highway, and cylinders. The challenge is to compare the performance of different car models based on these metrics and identify any significant differences or similarities.

Car Origin Analysis: The dataset includes information about the origin of each car, such as USA, Europe, and Asia. The challenge is to analyze the data based on car origin, explore variations in performance, pricing, and other attributes, and identify any interesting insights specific to each region.

Data Visualization: To effectively communicate the findings, the challenge is to select appropriate data visualization techniques and tools (such as Excel or Tableau) to create visually appealing and easy-to-understand charts, graphs, and tables that convey the key insights from the analysis.

# Dataset Description:

The dataset used for this analysis contains detailed information about various car models, their specifications, and performance metrics. It encompasses a wide range of attributes, including the make, model, type, origin, drivetrain, MSRP (Manufacturer's Suggested Retail Price), invoice price, engine size, number of cylinders, horsepower, MPG (Miles Per Gallon) in the city and on the highway, weight, wheelbase, and length.

# Methodology:

In this data analysis project, a variety of SQL techniques and functionalities were employed to explore and analyze the dataset. The methodology involved the use of several essential SQL clauses and functions, including GROUP BY, ORDER BY, HAVING, window functions, and Common Table Expressions (CTEs), along with aggregate functions.