**Simple Linear Regression on Auto Dataset**

This project uses simple linear regression techniques to analyze the **Auto dataset**. The analysis focuses on examining the relationships between **mpg (miles per gallon)** and other key variables such as **horsepower**, **weight**, and **acceleration**.

**Project Overview**

1. **Correlation Analysis**:
   * Calculate the correlation between **mpg** and other variables (horsepower, weight, and acceleration) to understand the strength and direction of their relationships.
2. **Scatter Plots**:
   * Visualize the relationships between **mpg** and other variables using scatter plots.
   * Include both scatter plots with and without confidence intervals (CI) to highlight trends and variability.
3. **Simple Linear Regression Models**:
   * Build linear regression models to predict **mpg** based on:
     + **Horsepower**
     + **Weight**
   * Use the models to interpret the impact of an increase in horsepower or weight on **mpg**.
4. **Predictions**:
   * Predict **mpg** for specific car attributes, such as:
     + A car with 190 horsepower
     + A car weighing 4000 lbs

**Key Objectives**

* Understand the relationships between **mpg** and other important automotive variables.
* Use regression models to predict **mpg** based on given horsepower and weight values.
* Interpret the correlations and regression results to identify patterns in the dataset.