Test yourself!

Background

The company Edison Cars AG has been facing a significant change in demand in recent years. With increasing end-consumer demand for low-emission vehicles and the EU ban on the sale of new petrol and diesel cars by 2035, the company had to adapt to these changes to remain competitive in the market. The Board of Edison Cars AG made the strategic decision to abandon their current combustion-engine-based cars and switch to the production of electric cars. The shift towards electric cars is a bold move for the company, but it is necessary to stay ahead of the competition and meet the growing demand for eco-friendly vehicles.
Before starting with the tasks, Edison Cars AG would like to assess your skills regarding programming. Therefore, they would like you to implement a simple linear regression model to predict the fuel efficiency of cars based on their horsepower.

Data

To predict the fuel efficiency of cars based on their horsepower, you are provided with the "Auto miles per gallon (MPG)" dataset, which contains information about various car models, including their attributes like horsepower and fuel efficiency. Also, they provide a starter code for the task.
Starter Code:

```
import numpy as np
import pandas as pd
# Load the Auto MPG dataset
url = "https://archive.ics.uci.edu/ml/machine-learning-databases/auto-mpg/auto-mpg.data"
column_names = ['mpg', 'cylinders', 'displacement', 'horsepower', 'weight', 'acceleration',
'model_year', 'origin', 'car_name']
df = pd.read_csv(url, sep='\s+', names=column_names, na_values='?')
# Your code for cleaning data and implementing linear regression goes here
# Print the equation of the regression line
print(f"Regression Line: mpg = {m} * horsepower + {b}")
```

Instructions

1. Download the "Auto MPG" dataset, which contains information about various car models, including their attributes like horsepower and fuel efficiency, as included in the starter code.
2. Clean the dataset by handling missing values and extracting relevant columns (e.g., 'horsepower' and 'mpg').
3. Use the cleaned data to implement a simple linear regression model. The goal is to predict the fuel efficiency (mpg) based on the horsepower (horsepower) of cars.
4. Print the equation of the regression line (mpg = mx + b) with the calculated slope (m) and intercept (b)

Keep in mind

The content provided here serves only as a starting point. Feel free to use your own approaches and algorithms to get the best possible prediction.