Question5:

Scenario: You are a data analyst working for a car manufacturing company. As part of your analysis, you have a dataset containing information about the fuel efficiency of different car models. The dataset is stored in a NumPy array named fuel\_efficiency, where each element represents the fuel efficiency (in miles per gallon) of a specific car model. Your task is to calculate the average fuel efficiency and determine the percentage improvement in fuel efficiency between two car models.

Question: How would you use NumPy arrays and arithmetic operations to calculate the average fuel efficiency and determine the percentage improvement in fuel efficiency between two car models?

Answer:

Code:

import pandas as pd

import numpy as np

df = pd.read\_csv(r"D:\datasets\question3.csv")

fuel\_efficiency = df['Fuelefficiency'].to\_numpy()

average\_efficiency = np.mean(fuel\_efficiency)

efficiency\_model\_2 = df.loc[df['carmodel'] == 'model2', 'Fuelefficiency'].values[0]

efficiency\_model\_10 = df.loc[df['carmodel'] == 'model10', 'Fuelefficiency'].values[0]

percentage\_improvement = ((efficiency\_model\_10 - efficiency\_model\_2) / efficiency\_model\_2) \* 100

print(f"Average Fuel Efficiency: {average\_efficiency:.2f} mpg")

print(f"Fuel Efficiency of Model\_2: {efficiency\_model\_2:.2f} mpg")

print(f"Fuel Efficiency of Model\_7: {efficiency\_model\_10:.2f} mpg")

print(f"Percentage Improvement from Model\_2 to Model\_7: {percentage\_improvement:.2f}%")

Output:

