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**Batch: R MCA-B**

**Date:31-10-2022**

**DATA SCIENCE LAB**

**Experiment No.: 10**

**Aim**

Program to Implement multiple regression

**Procedure**

**import numpy as np**

**from sklearn.linear\_model import LinearRegression**

**x = [[0, 1], [5, 1], [15, 2], [25, 5], [35, 11], [45, 15], [55, 34], [60, 35]]**

**y = [4, 5, 20, 14, 32, 22, 38, 43]**

**x, y = np.array(x), np.array(y)**

**//printing x and y coordinates**

**print(x)**

**print(y)**

**output:**

**[[ 0 1]**

**[ 5 1]**

**[15 2]**

**[25 5]**

**[35 11]**

**[45 15]**

**[55 34]**

**[60 35]]**

**[ 4 5 20 14 32 22 38 43]**

**model = LinearRegression().fit(x, y)**

**//printing co-efficient and intercept**

**r\_sq = model.score(x, y)**

**print(f"coefficient of determination: {r\_sq}")**

**print(f"intercept: {model.intercept\_}")**

**print(f"coefficients: {model.coef\_}")**

**output:**

**coefficient of determination: 0.8615939258756775**

**intercept: 5.52257927519819**

**coefficients: [0.44706965 0.25502548]**

**// Predicted response**

**y\_pred = model.predict(x)**

**print(f"predicted response:\n{y\_pred}”)**

**output:**

**predicted response:**

**[ 5.77760476 8.012953 12.73867497 17.9744479 23.97529728 29.4660957**

**38.78227633 41.27265006]**

**x\_new = np.arange(10).reshape((-1, 2))**

**print(x\_new)**

**y\_new = model.predict(x\_new)**

**y\_new**