Experiment No - 3

Aim - Implement Multiple Linear Regression using R/Python programming.

Objective:- To understand the use of Multiple linear regression techniques by implementing a predefined dataset of R Studio.

Description-

Multiple linear regression is the extension of linear regression in the relationship between more than two variables. In simple linear regression, we have one predictor and one response variable. But in multiple regressions, we have more than one predictor variable and one response variable.

There is the following general mathematical equation for multiple regression -

$$y=b_0+b_1*x_1+b_2*x_2+b_3*x_3+\cdots b_n*x_n$$

Here,

- **y** is a response variable.
- **b0, b1, b2...bn** are the coefficients.
- **x1, x2, ...xn** are the predictor variables.

Program(Code)-

Output- (screenshots)

Conclusion-

1.Equation for multiple linear regression is $y=b_0+b_1*x_1+b_2*x_2+b_3*x_3+\cdots b_n*x_n$

2.When there is only one dependent variable and multiple independent variable then this types of regression is known as multiple linear regression.

3.How to check inbuilt dataset in R/Python programming?

Using datasets Package:

Load the datasets package: library(datasets)
List available datasets: data()
Individual Dataset Check:

Check for a specific dataset: data(mtcars) (replace "mtcars" with the dataset name)
Python:
Using Libraries (e.g., seaborn/matplotlib/sklearn):

Example with seaborn: sns.get_dataset_names()
Example with sklearn: from sklearn import datasets; datasets.load_iris()
Using datasets Module (Python 3.7 and above):

Install the datasets module if needed: pip install datasets
List available datasets: from datasets import list_datasets; print(list_datasets())