**Data Science for Engineers**

**Lab Report 11**

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**Section-7A**

Multiple Linear Regression

**INTRODUCTION:**

Multiple linear regression is a regression model that estimates the relationship between a quantitative dependent variable and two or more independent variables using a straight line. Multiple regression is a statistical technique that can be used to analyze the relationship between a single dependent variable and several independent variables. The objective of multiple regression analysis is to use the independent variables whose values are known to predict the value of the single dependent value. Multiple regression is a broader class of regressions that encompasses linear and nonlinear regressions with multiple explanatory variables. Whereas linear regress only has one independent variable impacting the slope of the relationship, multiple regression incorporates multiple independent variables.

**OBJECTIVES:**

• To get familiarized with multiple linear regression

**Application:**

The scientists might use different amounts of fertilizer and water on different fields and see how it affects crop yield. They might fit a multiple linear regression model using fertilizer and water as the predictor variables and crop yield as the response variable. Multiple linear regression allows the investigator to account for all of these potentially important factors in one model. The advantages of this approach are that this may lead to a more accurate and precise understanding of the association of each individual factor with the outcome. Regression analysis is used to estimate the relationship between a dependent variable and one or more independent variables. This technique is widely applied to predict the outputs, forecasting the data, analyzing the time series, and finding the causal effect dependencies between the variables.

**Issues:**

we never find any issue regarding this lab.

**Conclusion:**

In this lab we understand that there is a useful linear relationship between y and at least one of the four predictors in the model.