 **GHARDA INSTITUTE OF TECHNOLOGY** 

***Department of Computer Engineering***

**Machine Learning Lab BE Computer (Semester-VII)**

**Experiment No.2 : Multiple Linear Regression**

**Aim**- To study, understand and implement a multiple linear regression algorithm.

**Theory**-

Multiple linear regression attempts to model the relationship between **two or more features** and a response by fitting a linear equation to the observed data. Clearly, it is nothing but an extension of simple linear regression.

It has a dataset with **p** features(or independent variables) and one response(or dependent variable). Also, the dataset contains **n** rows/observations.

It is to be observed on any dataset having more than one input parameter to predict one output variable which is with continuous value.

**Code -**

**Results-**

**Discussion-**

## **Applications-**

* Trend lines: A trend line represents the variation in quantitative data with the passage of time (like GDP, oil prices, etc.). These trends usually follow a linear relationship. Hence, linear regression can be applied to predict future values. However, this method suffers from a lack of scientific validity in cases where other potential changes can affect the data.
* Economics: Linear regression is the predominant empirical tool in economics. For example, it is used to predict consumer spending, fixed investment spending, inventory investment, purchases of a country’s exports, spending on imports, the demand to hold liquid assets, labor demand, and labor supply.
* Finance: The capital price asset model uses linear regression to analyze and quantify the systematic risks of an investment.  
  4. Biology: Linear regression is used to model causal relationships between parameters in biological systems.

**Conclusion-**

**References-**

1. http://scikit-learn.org/stable/auto\_examples/linear\_model/plot\_ols.html
2. http://www.statisticssolutions.com/assumptions-of-linear-regression/