 **GHARDA INSTITUTE OF TECHNOLOGY** 

***Department of Computer Engineering***

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

**Experiment No.3 : Logistic Regression**

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

**Theory**-

Logistic regression aims to solve classification problems. It does this by predicting categorical outcomes, unlike linear regression that predicts a continuous outcome.

In the simplest case there are two outcomes, which is called binomial, an example of which is predicting if a tumor is malignant or benign. Other cases have more than two outcomes to classify, in this case it is called multinomial. A common example for multinomial logistic regression would be predicting the class of an iris flower between 3 different species.

**General Terms:**

Below are statistical concepts commonly used in testing.

**Sigmoid**: A sigmoid function is an activation function. The output of the sigmoid function is always between a range of 0 to1.

**Optimization**: optimization is a process that maximizes or minimizes the variables or parameters of a machine learning model with respect to the selected loss function.

**Code -**

**Results-**

**Discussion-**

**Conclusion-**

**References-**

1. <https://www.w3schools.com/python/python_ml_logistic_regression.asp>
2. <https://www.analyticsvidhya.com/blog/2022/02/implementing-logistic-regression-from-scratch-using-python/>
3. <https://towardsdatascience.com/logistic-regression-from-scratch-in-python-ec66603592e2>
4. <https://dhirajkumarblog.medium.com/logistic-regression-in-python-from-scratch-5b901d72d68e>