**LAB ASSIGNMENT 1**

**Name: SANDEEP PABOLU**

**CLASS ID: 35**

**AIM:**

1. Implement the Logistic regression with new data set which is not used in class
2. Show the graph in TensorBoard
3. Change the hyperparameter and compare the result

1. **Objectives**

The main objectives of the assignment are implementation of the logistic regression on a data set and populating the graph in the tensor flow, also comparing the results obtained.

1. **Approaches/Methods/Workflow:**

The process flow goes on as like:

**![A screenshot of a cell phone

Description generated with very high confidence]()**We do the basic import where we import the environment and the main tensor flow modules necessary for the functionality. We also import the dataset and the numpy.

Then we setup the placeholders for holding the values at different stages for the user convenience so that we can easily handle the values for the outputs to be displayed. These are simultaneously used as the graph co-ordinates.

![A screenshot of a cell phone

Description generated with very high confidence]()

Then we construct the model and minimize the error using the cross entropy. The gradient descent mainly creates the graph necessary for the plotting from the output values that are populated from the function.

![A screenshot of a cell phone

Description generated with high confidence]()![A screenshot of a cell phone

Description generated with very high confidence]() We now initialize the variables with their default values and then start the training of the given data with these default values. All this process takes place within the session operator where we run the initializer, train the model, compute the average loss, display the loss

Then we train the obtained model on the data set of our choice.

1. **Datasets**

The data set set used in the program is mnist ,it is one of the tensorflow dataset obtained from the tensorflow official website. It has numbers repeated in columns and rows such that they have 784 data points. This has a 1d tensor size.

1. **Parameters**

**Learning rate, Number of epochs Batch size, Display size**

1. **Evaluation & Discussion**

**A close up of a map

Description generated with very high confidence![A screenshot of a social media post

Description generated with very high confidence]()**

After changing the hyper parameters we the following results.

![A screenshot of a social media post

Description generated with very high confidence]()

![A screenshot of a social media post

Description generated with very high confidence]()

1. **Conclusion**

If learning rate increases the accuracy increases.

If the number of epochs increase that leads to the increased accuracy.

If the size of the batch increases it leads to the decrease in the accuracy.