CS571 - ARTIFICIAL INTELLIGENCE LAB

ASSIGNMENT-8: Logistic Regression

Date: October 09, 2023

Deadline: October 15, 2023

Total Credit: 30

- Markings will be based on the correctness and soundness of the outputs.
- Marks will be deducted in case of plagiarism.
- Proper indentation and appropriate comments are mandatory.
- *All code needs to be submitted in '.py' format.* Even if you code it in '.IPYNB' format, download it in '.py' format and then submit
- You should zip all the required files and name the zip file as:
    - <roll_no>_assignment_<#>.zip, eg. 1501cs11_assignment_01.zip.
- Upload your assignment (the zip file) in the following link: https://www.dropbox.com/request/3bKFePMmWzRxLsEVk0Z9
- **Note:** Code should be written from scratch and existing tools can not be used

Problem Statement:

- The MNIST dataset is a database of handwritten digits. The task is to classify the given handwritten digit into one of the 10 digits (0 to 9)

Dataset:

- **Description: mnist_train.csv** contains 60,000 instances and **mnist_test.csv** contains 10,000 instances with 785 features including the label (the digit the input corresponds to). The original dataset contains the handwritten digits in image format (28x28). In the given dataset, the images are already flattened in a single row (that's why each input will contain 784 features and one target digit that input corresponds to)
- **Task:** Given the input data, the logistic regression classifier has to classify the given data into one of the digit (from 0 to 9)
- The dataset can be downloaded from the following link:

- **train.csv:** Link
- **test.csv:** Link

Documents to submit:

- Model code
- Final parameter values of the logistic regression model
- Accuracy and Confusion matrix of test set

For any queries regarding this assignment, contact:

Ramakrishna Appicharla (ramakrishnaappicharla@gmail.com)