**CSE-6363-008 Programming Assignment 1 (Spring 2024)**

**Due Date: 11:59 pm 02/25 (Sunday) (upload file in canvas)**

**Problem 1: [30 points]**

Implement Linear regression using NumPy. You should implement your code in the provided linear\_regression.py file. This python file takes a csv file and a list of features as input. From these list of features, the last feature will be the target label and the remaining ones will be your training inputs. For example, in the following usage scenario, “linear.csv” is the csv file and “Writing” is the target label, while “Math” and “Reading” are training inputs.

$python3 linear\_regression.py linear.csv Math Reading Writing

Output the RMSE score of prediction.

**Problem 2: [35 points]**

Implement Logistic regression using Newton method. You should implement your code in the provided logistic\_regression\_newton.py file. This python file takes input features X and target labels y, and returns the predictions. For example, in the following usage scenario, “newton.csv” is the csv file.

$python3 logistic\_regression\_newton.py –-data newton.csv

Output the prediction.

**Problem 3: [35 points]**

Implement Logistic regression using NumPy. You should implement your code in the provided logistic\_regression.py file. This python file takes two csv files as inputs, which are training and testing csv files. For example, in the following usage scenario, log\_training.csv is the training input csv file and log\_testing.csv is the testing input csv file.

$python3 logistic\_regression.py log\_training.csv log\_testing.csv

Output the Accuracy score of prediction.

***\*\*\* Do not add or remove libraries and do not modify load\_data() function in any of the python files. \*\*\****

**Submission Format:**

Submit a zipped folder containing linear\_regression.py and logistic\_regression.py and logistic\_regression\_newton.py to canvas. The folder name should be in the format of FIRSTNAME\_LASTNAME\_10DigitUTAID.zip