CS460G – Machine Learning

Assignment # 3

Logistic Regression and Linear Regression

**Note:** Please implement these algorithms from scratch. Do not use libraries that provide implementation for the core parts of the ML algorithms.

This problem will test you for the following learning objectives:

* I have acquired or improved my ability to analyze complex machine learning problems and apply principles of computing to identity solutions. (SO1). Question 3.
* I have acquired or improved my ability to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of a machine learning problem. (SO2). Question 4

1. Implement logistic regression algorithm from scratch (preferably in python) and test your code on a tiny dataset of your choice. You might want to break down the full algorithm into small functions. 10 pts
2. Implement linear regression algorithm from scratch (preferably in python) and test your code on a tiny dataset of your choice. You might want to break down the full algorithm into small functions. 10 pts
3. Please see the house prices dataset [(https://www.kaggle.com/competitions/house-prices-advanced-regression-techniques/data](https://www.kaggle.com/competitions/house-prices-advanced-regression-techniques/data)) on Kaggle. Use the appropriate algorithm (from question 1 or 2) to learn a model from the training set and predict the prices for the test set. 30 pts
   1. Report your average error in the prediction. 10 pts
4. Please modify the above dataset (in question 3) to answer whether the house will sell for 180000 or not and use the appropriate algorithm (from question 1 or 2) to learn a model from the training set and answer whether the prices > 180000 or not for the test set. 30 pts
   1. Report your accuracy. 10 pts