Machine Learning Project 1 - Fall 2020

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***Abstract*—Implement basic Machine Learning methods on a given data set and analyze the predictions from it.**

I. Introduction

The goal of this first mini project is to implement all basic Machine Learning methods on a given data set and analyze the results we obtained from running these algorithms. Essentially, the demanded algorithms were:

1) Linear regression using Gradient Descent and Stochastic Gradient descent
2) Least squares regression and ridge regression using normal equations
3) Logistic regression using Gradient Descent
4) Regularized logistic regression using Gradient Descent

II. Algorithms implementation details

A. Linear regression

This first algorithm is essential to Machine Learning. It consists of taking a data set that often contains two different data point types and split them using a line described by a linear function in order to divide the points the best way possible. We have performed two different implementations of it: one using Gradient Descent and the other one using Stochastic Gradient Descent.

B. Least squares regression

C. Ridge regression

D. Logistic regression

III. Results obtained

IV. Conclusion