703642, Advanced Machine Learning course 29th October, 2018

**Assignment 1**

**Programming Project: Ridge Regression and Model Selection**

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Introduction

numpy lib: for matrices

matplotlib libraries: for plotting

math lib: mathematical functions such as: square root functions

random lib: to randomly choose the noise for each point in its normal distribution, and to create the initial weights.

Notices:

1. The way of choosing the initial values of the weights vector always affect the final weights vector, choosing a constant initial values like 1 makes the model adjust them slightly without huge difference in the final weights.

On the other hand, choosing the initial weights randomly makes it produces different weights every trial, specially when we have few number of input points (x values), increasing the number of points in the training set affect the weights values and reduce the differences arises from the random selection of the initial values

1. In the beginning we have created dataset with a very high Y values, however depending on high Y values were really difficult and increased the error, that’s why we used a small X values that subsequently produced better Y values, generating the data set was one of the most underestimated step that affect the performance of our model.