Instructions:

1. **Project1_dat.mat** : Data file and should be loaded first before running train.m and predict.m.

2. **Train.m** : This is written as a script file so just running it after loading data set will create M (degree of complexity), $\mathbf{W^*}$, μ_j (Mean) , **s** (standard deviation) and lambda. We are calling **predict.m and nn_model.m** from this file to calculate error on test set and error of Neural Network Model.

This file also print variables like M, lambda, rms error on test set with regression model, rms error on whole set with neural network model.

3. **Predict.m(input matrix, target matrix, mean, S, $\mathbf{W^*}$,M, lambda)**: This file is written as a function with takes degree of complexity(M), $\mathbf{W^*}$ matrix , lambda, Input Matrix , Target Matrix, μ_j (Mean) and Standard Deviation (s) and predict the error with those input values.

4 . **nn_model.m(input matrix, target matrix)**: This file is written as funtion and take input matrix and target matrix to print rms error using Neural Network Model.

Names of the important datasets(matrix):

Input dataset (test+validation+training)= matTestSup

Target dataset (test+validation+training)= matSuperValid

Learning Dataset= matLearing

Learning Target matrix= ReleMat

Validation dataset=matValid

Validation Target matrix= ReleValid

Testing Dataset= matTest.

Test Target matrix= ReleTest

M=m

$\mathbf{W^*}$ = Ww

μ_j = Mean

S= sd