# **Homework2**

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To calculate optimum value for alpha, so that test losses are minimum,

computed in **function\_alpha (Xtest, Ytest, Xtrain, Ytrain)**, keeping number of epochs constant at 500. Here, Optimum\_alpha is **0.69** for minimum test loss

**#To calculate optimum value for number of epochs so that test losses are minimum:**

**function\_epochs (Xtest, Ytest, Xtrain, Ytrain, alpha)** passing the optimum value of alpha calculated through function\_alpha.

Here, Optimum\_epochs = 62

Minimum\_TestLoss = 6.446571317466108e-29,

Minimum\_TrainLoss = 7.85863233781172e-29

**#Predicted value of Y (Yhat) for test samples:**

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**#The relation between alpha and number of epochs is computed in function: get\_alpha\_epochs\_relation (Xtrain, Ytrain, Xtest, Ytest).**

Here, alpha is iterated from 1 to 0.1 and number of epochs are iterated from 10 to 100. Training loss and test losses are calculated for each combination.

The combinations are printed in csv only for verifying purpose not added in the application.py

The following screenshot depicts the relation (generated by get\_alpha\_epochs\_relation function):

A screenshot of a computer

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For this scenario, it signifies that given a value for alpha, test loss decreases with increased number of epochs. And given a value of epoch, test loss increases on decreasing value of alpha.