**Progress Report-03**

- Completed third, fourth, fifth and sixth week on the ML course

Content:

- WEEK-3

-Classification Problem

-Logistic Regression Problem with the sigmoid function

-Compacted Logistic regression cost function

- Vectorised implementation of cost function

- Advanced Optimization techniques (fminunc)

- Multiclass classification (One-vs-all/rest)

- Regularisation to solve underfitting and overfitting

- WEEK-4

- Introduction to neural networks due to the increasing requirement of features in non- linear hypothesis

- Forward propagation

- Implementation of binary functions through neural networks

- Multiclass neural Classification

-WEEK-5

- Modified cost for Neural Network

- Back Propagation and vectorized implementation of it

- Unrolling and rolling matrices into vectors for advanced optimization techniques

- Gradient Checking (Two- sided difference for higher accuracy)

- Random initialization to break symmetry of weights

-WEEK-6

-Test errors for linear regression and classification problems were defined

-Model Selection, 60% training set, 20% cross validation set and 20% test set

- Definition of training error, cross validation error and test set error

- Learning curves for segregation of high bias and high variance curves

- Debugging and identifying the classification of these

- Stemming software to classify emails as spam or non-spam

- Precision and Recall for Skewed Classes

- Large data handling