**Question 13**

Please write in your own words that what you have learned by solving the Assignment 1.

I did not have hands on experience with developing these machine learning algorithms from scratch till now and have learnt a lot in the process of doing so. How the weights and the features were arranged and operated on in numpy arrays was seen first hand and conclusions on the cost, mse and other parameters were calculated through the code.

I further learnt to implement the Vectorized as well as non-vectorized forms of regression and see the results. Through the 2d and 3d graphs plotted, I was able to see first hand how the curves of batch, mini batch and stochastic gradient descent implementations vary with and without regularization. I also implemented regularization and saw first hand the difference it made to the test accuracy.

A look at Unsupervised learning came about when I implemented the K-means classification algorithm and saw the points being arranged in colored clusters on the graph.

A deeper understanding of Bayesian decision theory came about during the implementations of LRT (Likelihood ratio test), MAP (Maximum a posteriori) decision rule and the ML (Maximum Likelihood) decision rule.

Overall this assignment has made me get a firmer grasp on the finer aspects of neural networks and machine learning and I have learnt a lot from it.