**GNR-652 Assignment 1:**

I used matlab to find the model parameters as I have a better hold of it.

***Scripts have been attched in the zip folder.***

The performance has been reported in this file.Mean Squared error with the test data was used.

**The weight matrix (approximate) is=**

**[4.58,0.31,0.2,-0.13,1.452,0.0885,-0.0034,2.282,-0.386,0.52,-0.4,0.008,2.4087,0.66,0.0134,-0.27,2.1,-0.133]**

1)Closed Form Solution:

|  |  |
| --- | --- |
| J(training data) | J(test data) |
| 2.6739 | 4.3263 |
| 2.8732 | 4.7079 |
| 2.6571 | 4.1784 |
| 2.6656 | 3.6151 |

2)Gradient Descent:

|  |  |
| --- | --- |
| J(training data) | J(test data) |
| 3.1704 | 3.1190 |
| 3.1709 | 3.5616 |
| 3.0972 | 3.4747 |
| 3.0043 | 3.5644 |

3)MLE approach:

|  |  |  |
| --- | --- | --- |
| J(training data) | J(test data) | Sigma |
| 2.7304 | 5.4783 | 2.2334 |
| 2.6846 | 8.2379 | 2.2429 |
| 2.8502 | 2.8917 | 2.3265 |
| 2.5803 | 4.87 | 2.2173 |