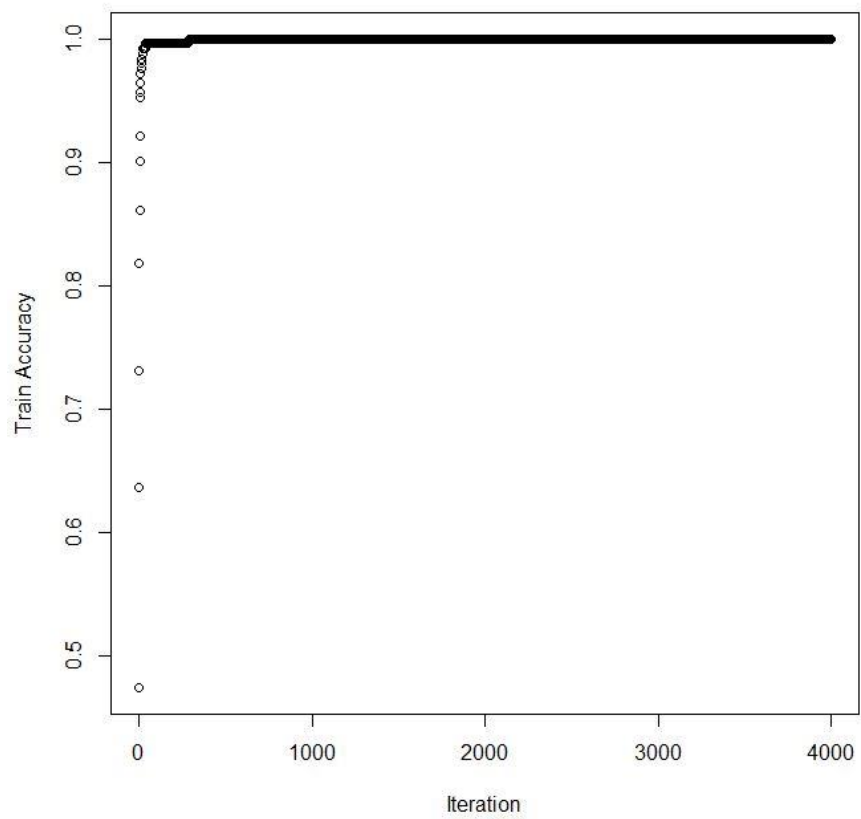**Name: Salil Kanetkar**

UCLA ID: 704557096

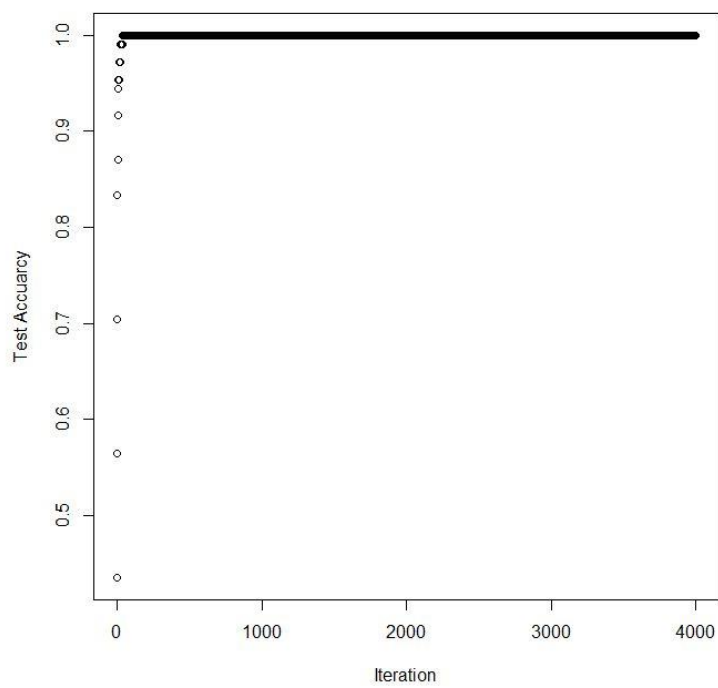**Homework 5 submission-**

Logistic Regression:

```
> final_result = train(training_digits, training_labels, testing_digits, testing_labels)
[1] 100.0000000    0.9960474    1.0000000
[1] 200.0000000    0.9960474    1.0000000
[1] 300      1      1
[1] 400      1      1
[1] 500      1      1
[1] 600      1      1
[1] 700      1      1
[1] 800      1      1
[1] 900      1      1
[1] 1000       1        1
[1] 1100       1        1
[1] 1200       1        1
[1] 1300       1        1
[1] 1400       1        1
[1] 1500       1        1
[1] 1600       1        1
[1] 1700       1        1
[1] 1800       1        1
[1] 1900       1        1
[1] 2000       1        1
[1] 2100       1        1
[1] 2200       1        1
[1] 2300       1        1
[1] 2400       1        1
[1] 2500       1        1
[1] 2600       1        1
[1] 2700       1        1
[1] 2800       1        1
[1] 2900       1        1
[1] 3000       1        1

[1] 3100       1        1
[1] 3200       1        1
[1] 3300       1        1
[1] 3400       1        1
[1] 3500       1        1
[1] 3600       1        1
[1] 3700       1        1
[1] 3800       1        1
[1] 3900       1        1
[1] 4000       1        1
```
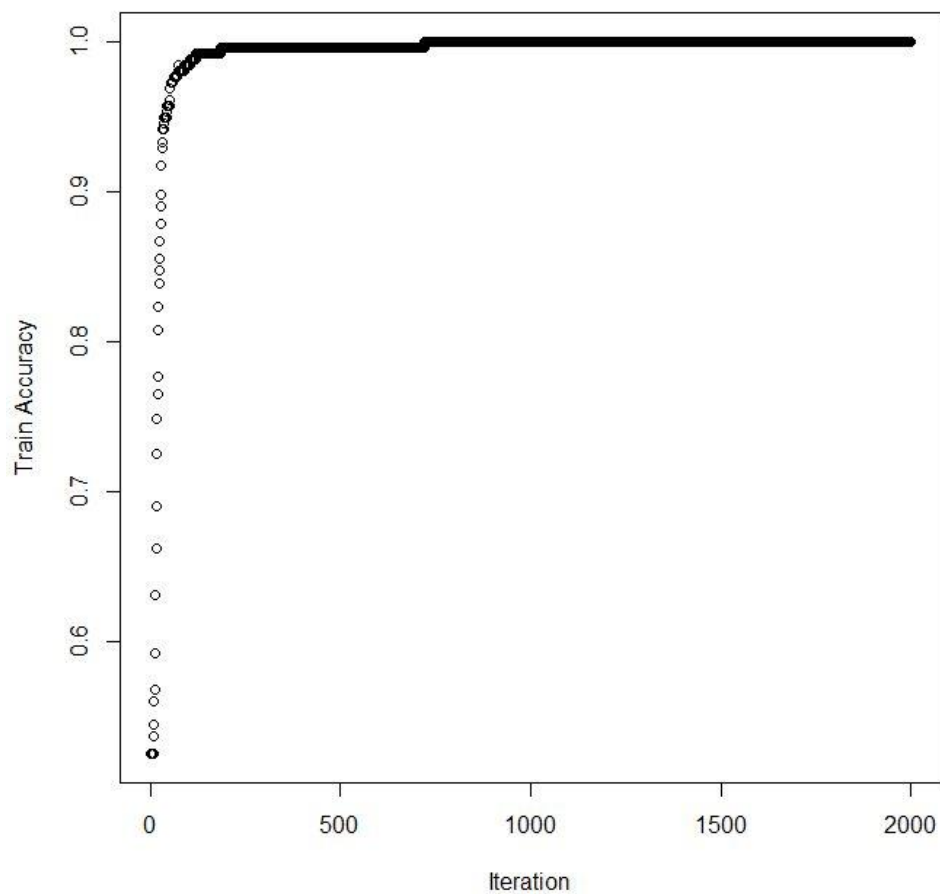
Train Accuracy Plot:

Testing Accuracy Plot:

Neural Networks: (learning_rate=1e-1)

```
> final_result = train(training_digits, training_labels, testing_digits, testing_labels)
[1] 100.0000000     0.9843137    0.9545455
[1] 200.0000000     0.9960784    0.9636364
[1] 300.0000000     0.9960784    0.9727273
[1] 400.0000000     0.9960784    0.9727273
[1] 500.0000000     0.9960784    0.9727273
[1] 600.0000000     0.9960784    0.9727273
[1] 700.0000000     0.9960784    0.9727273
[1] 800.0000000     1.0000000    0.9727273
[1] 900.0000000     1.0000000    0.9727273
[1] 1000.0000000    1.0000000    0.9727273
[1] 1100.0000000    1.0000000    0.9727273
[1] 1200.0000000    1.0000000    0.9727273
[1] 1300.0000000    1.0000000    0.9727273
[1] 1400.0000000    1.0000000    0.9727273
[1] 1500.0000000    1.0000000    0.9727273
[1] 1600.0000000    1.0000000    0.9727273
[1] 1700.0000000    1.0000000    0.9727273
[1] 1800.0000000    1.0000000    0.9727273
[1] 1900.0000000    1.0000000    0.9727273
[1] 2000.0000000    1.0000000    0.9727273
```

Train Accuracy Plot:

Test Accuracy Plot: