Homework 2

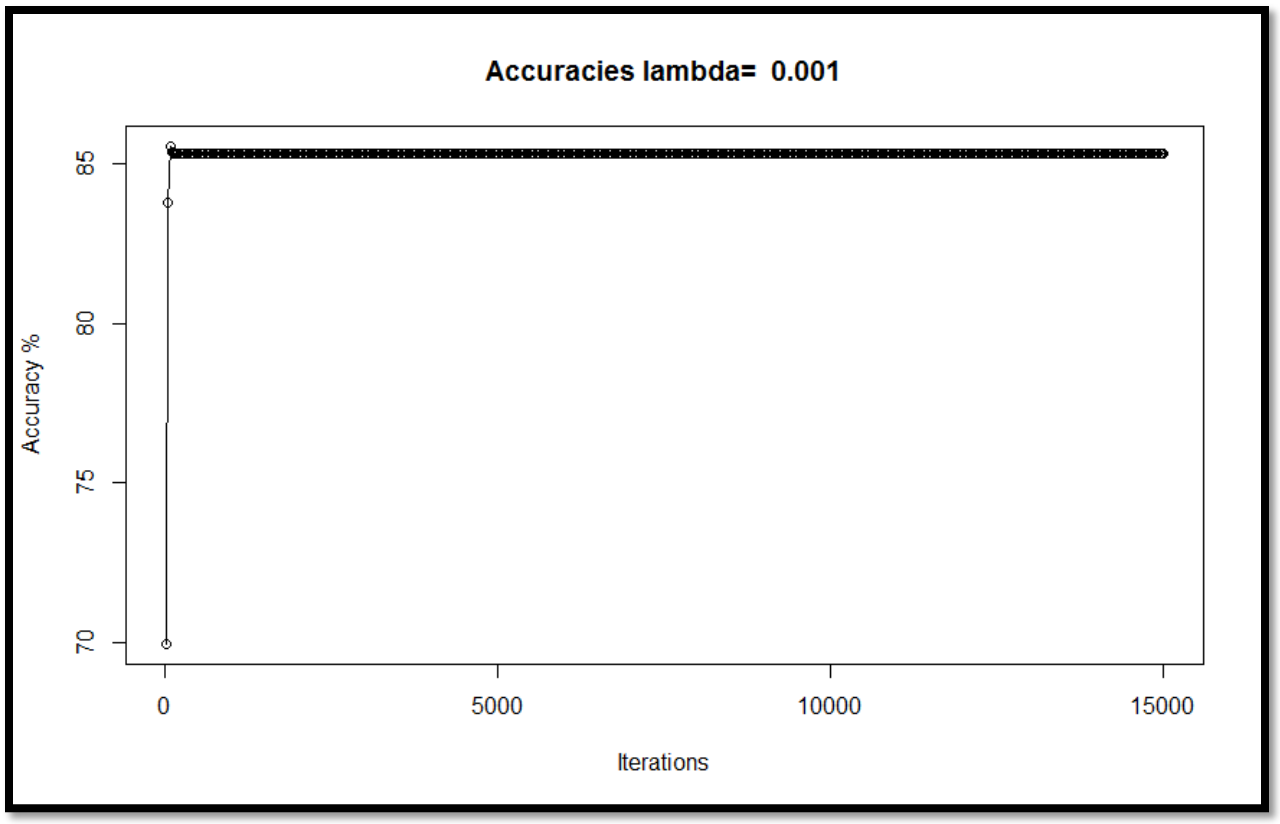
Code

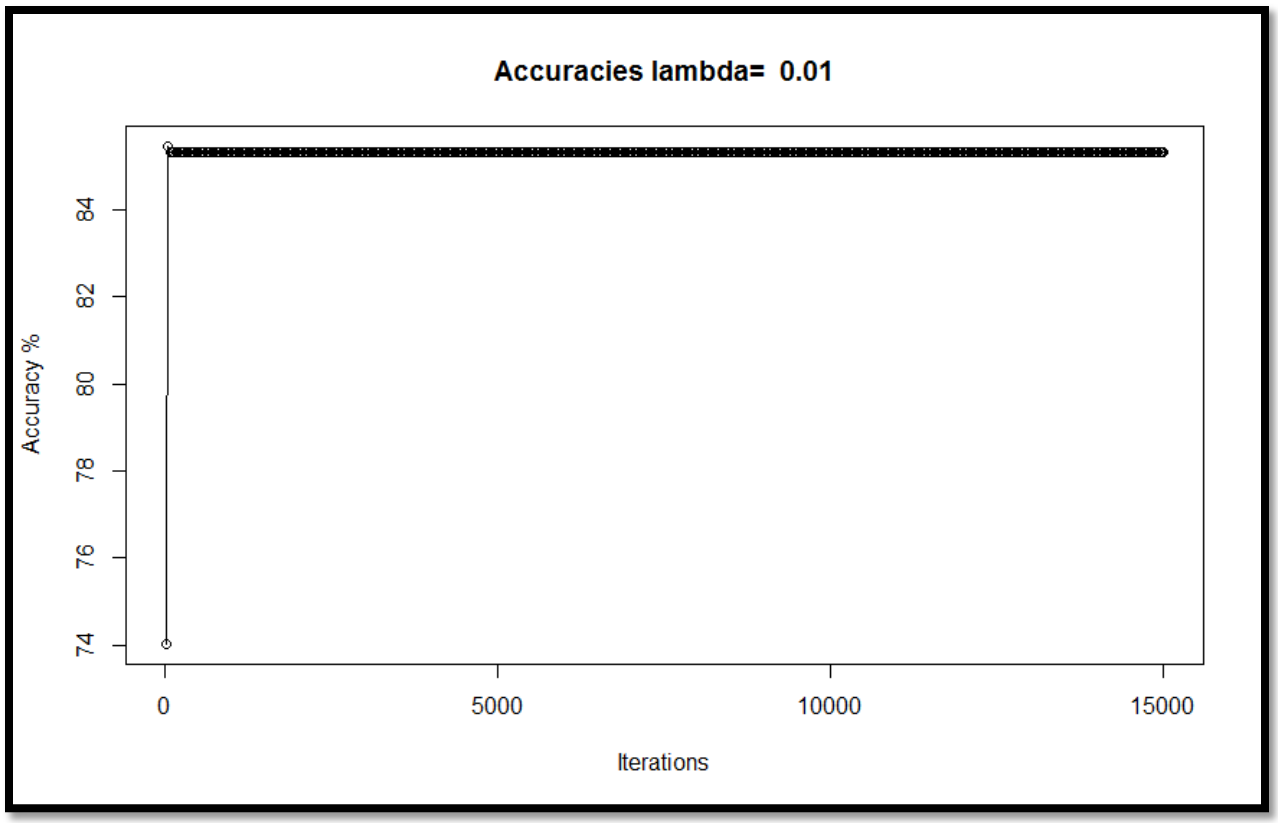
hw2.R

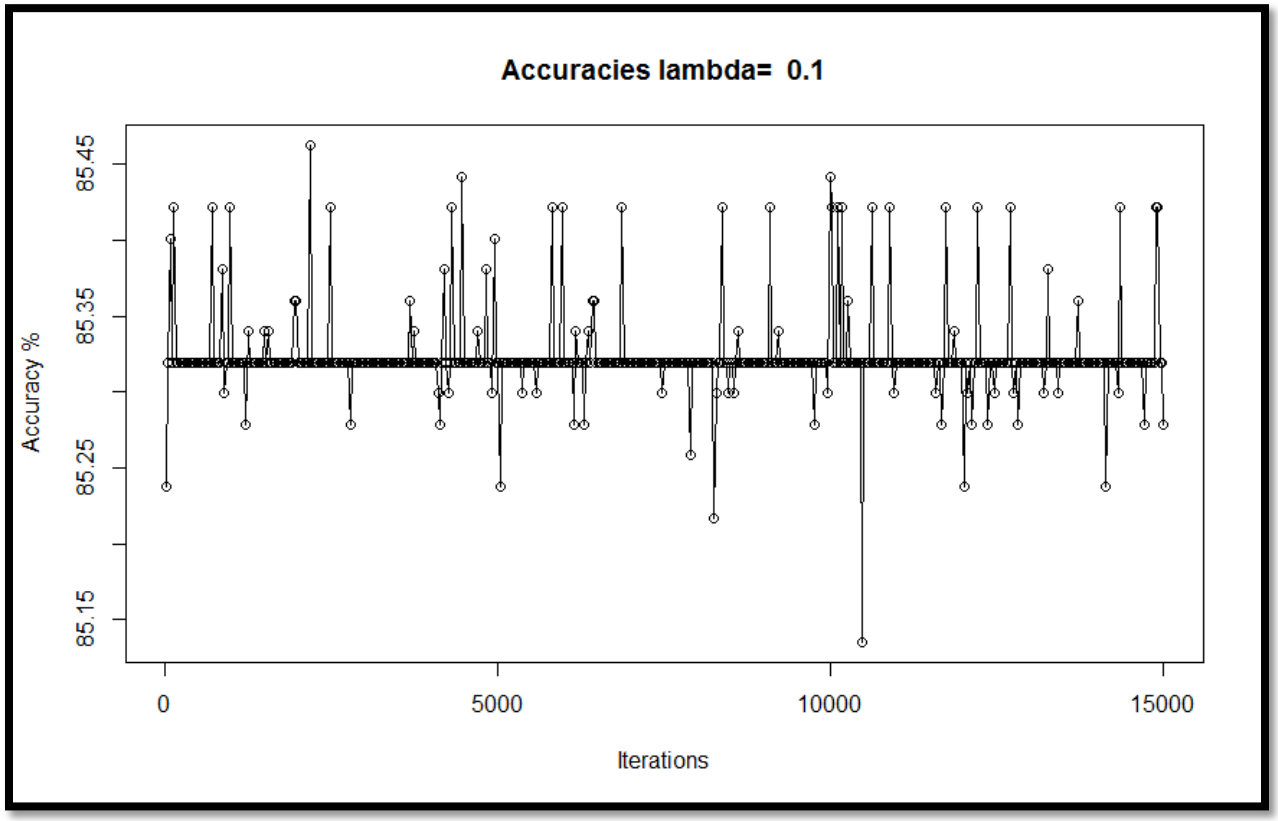
Main function

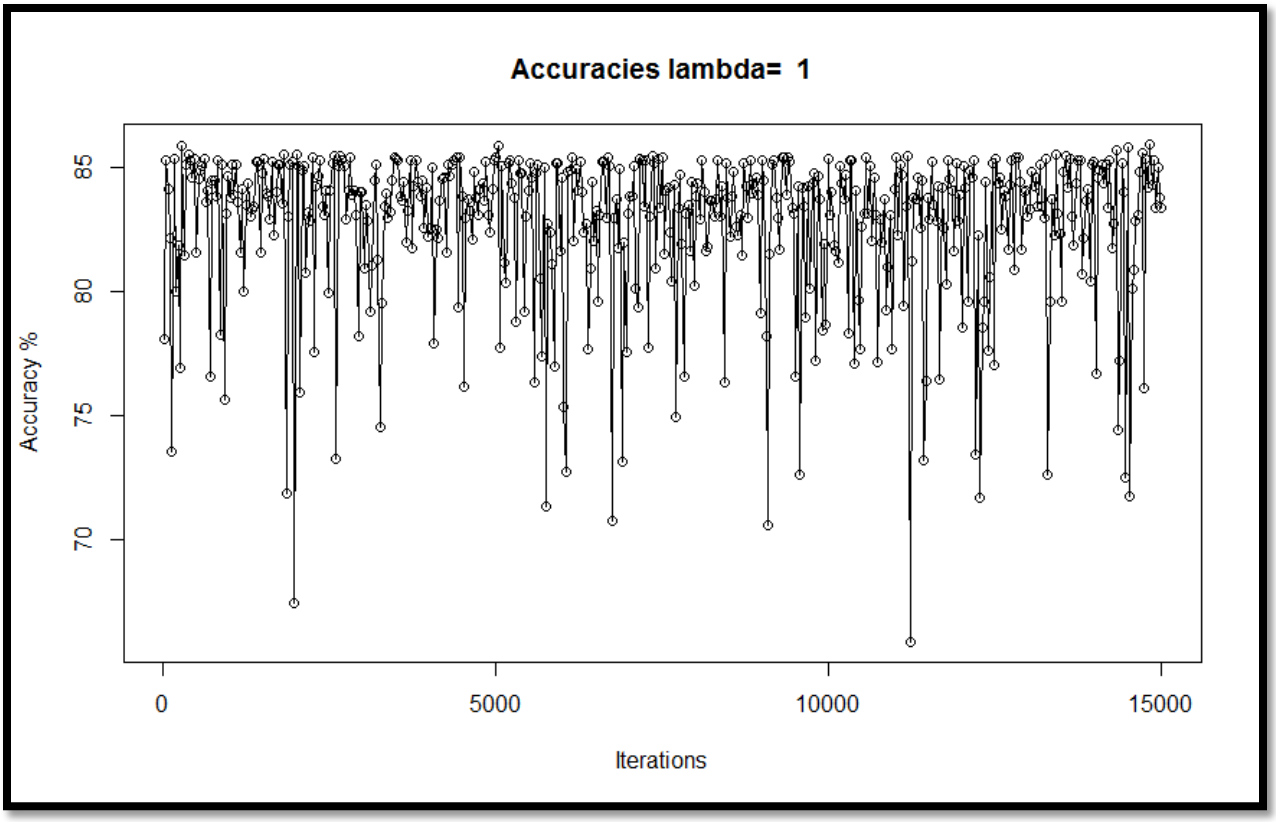
hw2()

Plot of accuracies

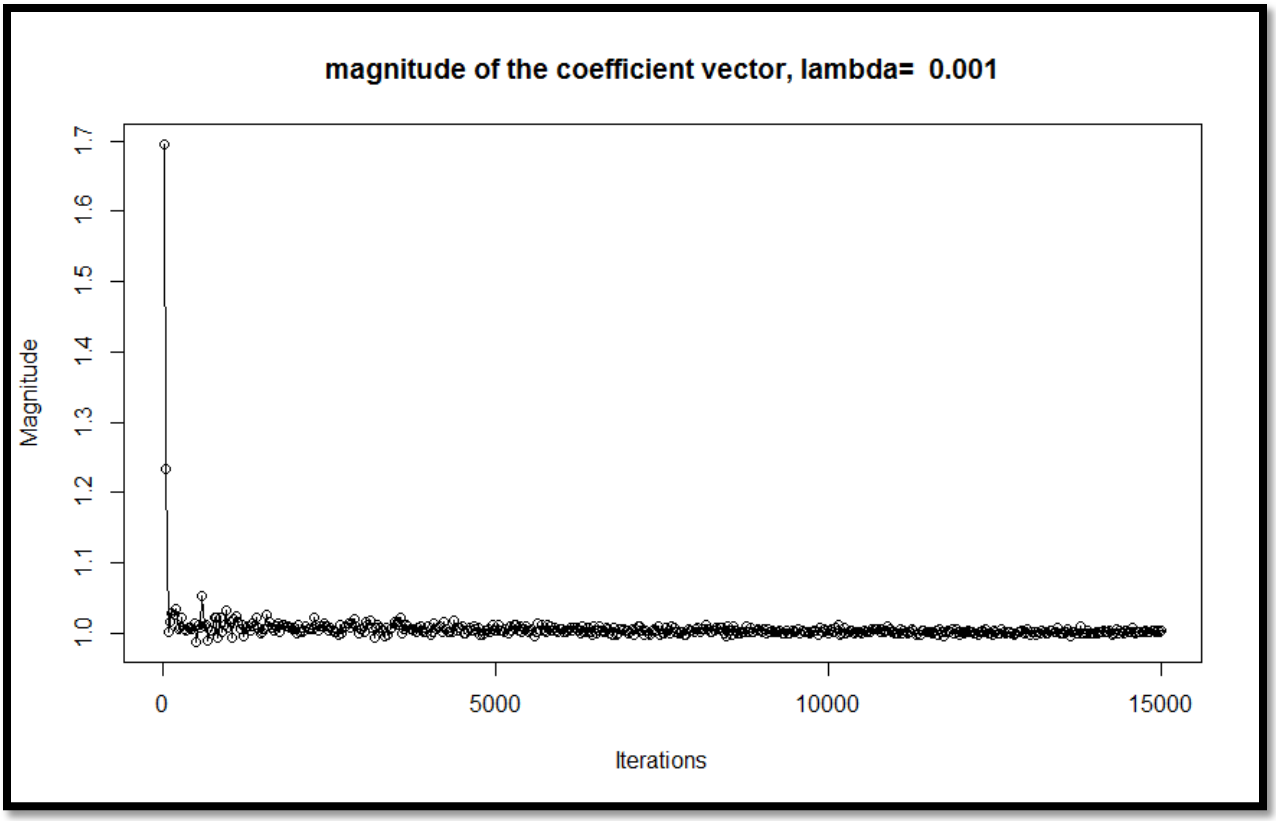


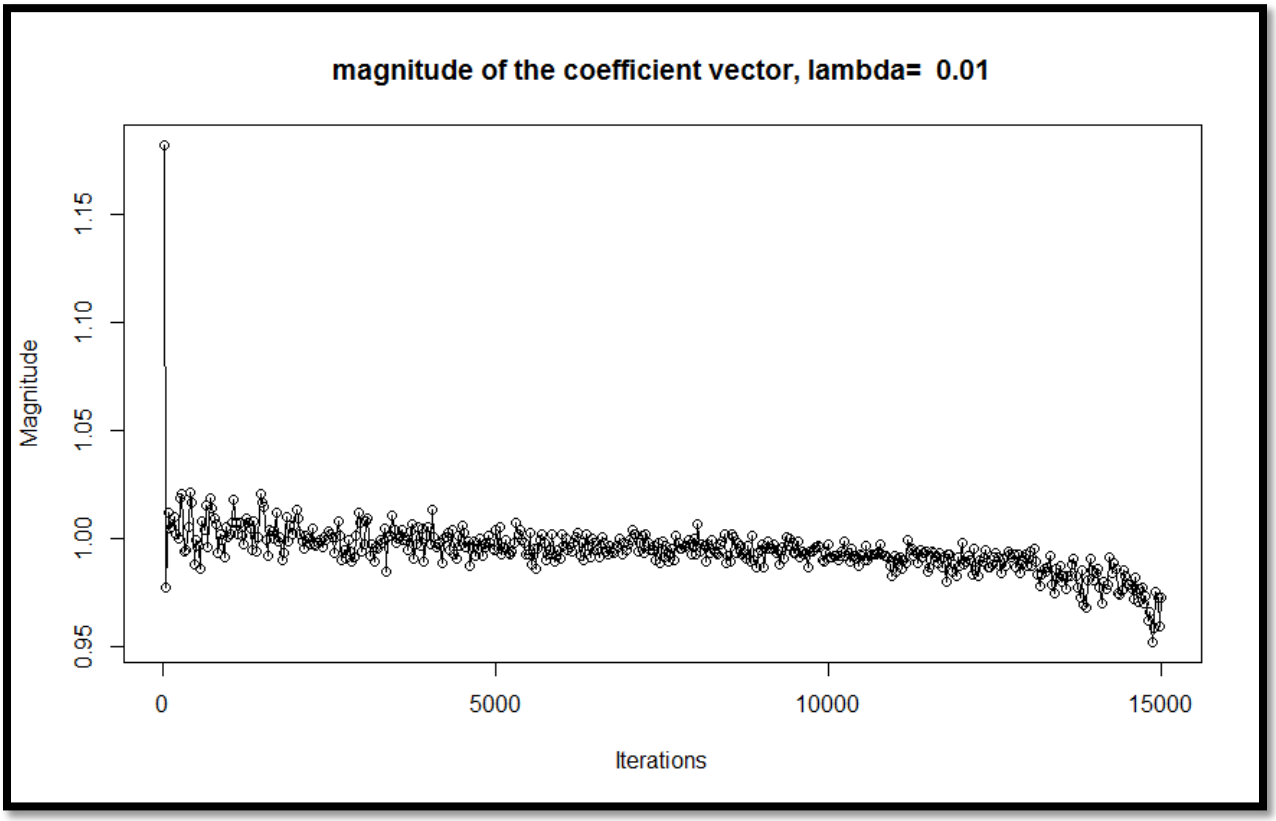

Accuracies lambda= 0.01
Accuracy %
74
76
78
80
82
84
0
5000
10000
15000
Iterations

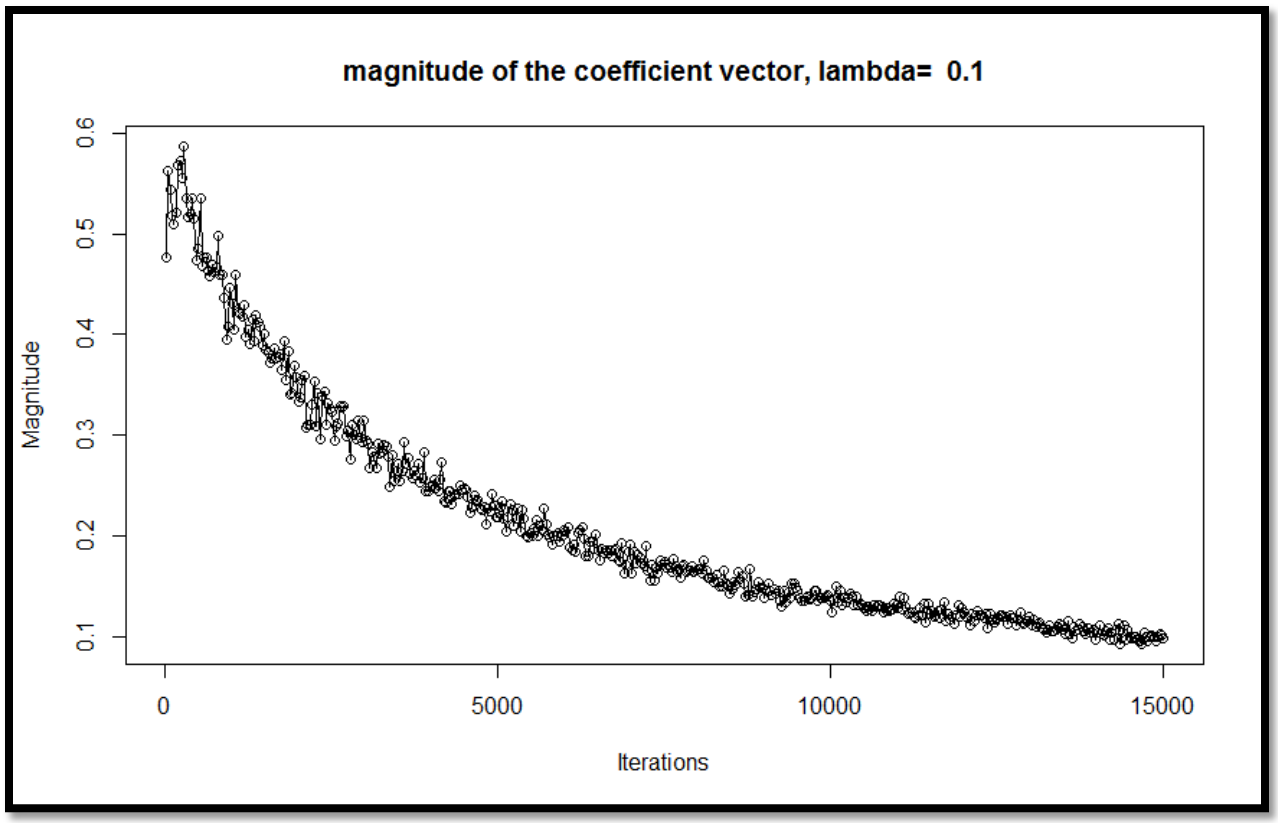

Accuracies lambda= 0.1
Accuracy %
85.15
85.25
85.35
85.45
0
5000
10000
15000
Iterations

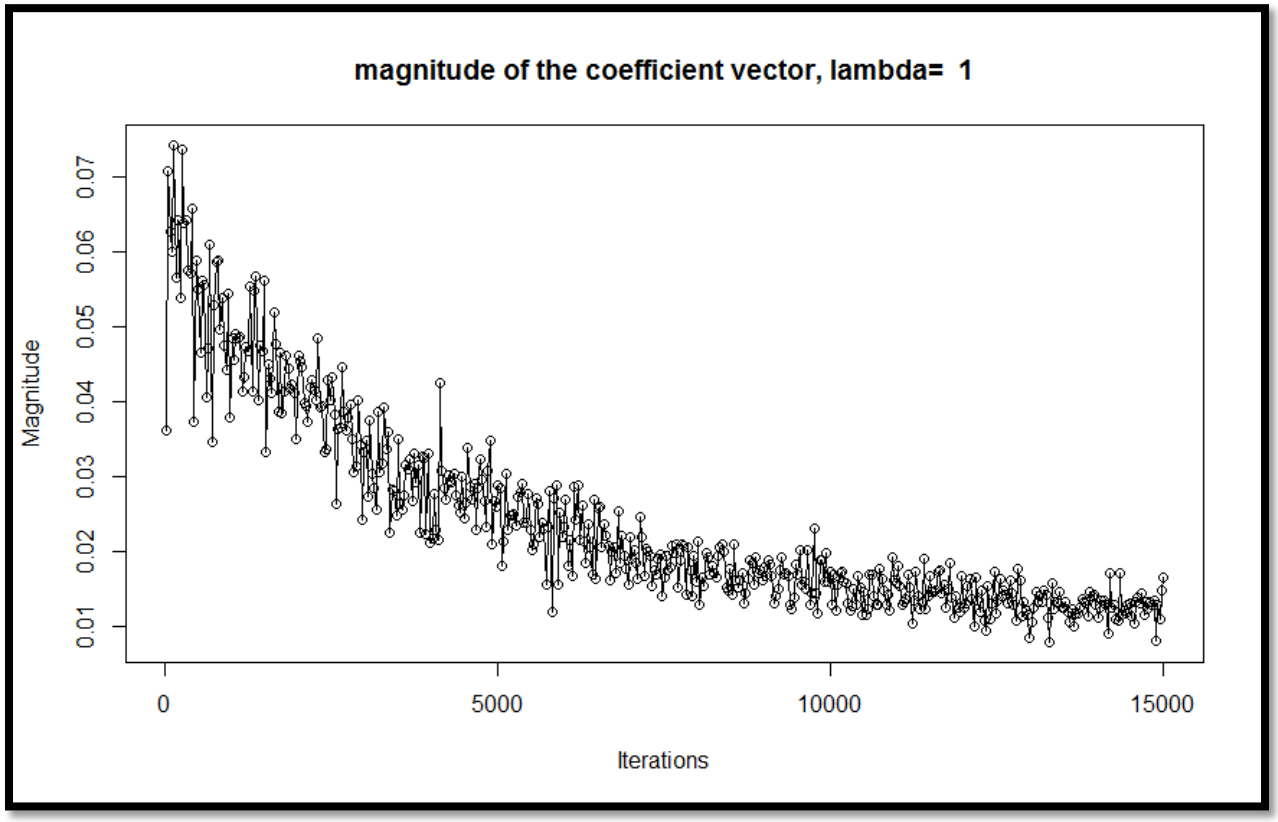


Magnitude of the coefficient vector


magnitude of the coefficient vector, lambda= 0.001
Magnitude
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
0
5000
10000
15000
Iterations


magnitude of the coefficient vector, lambda= 0.01
Magnitude
0.95
1.00
1.05
1.10
1.15
0
5000
10000
15000
Iterations


magnitude of the coefficient vector, lambda= 0.1
Magnitude
0.1
0.2
0.3
0.4
0.5
0.6
0
5000
10000
15000
Iterations


magnitude of the coefficient vector, lambda= 1
Magnitude
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0
5000
10000
15000
Iterations

Best regularization Constant

I used 1e-3, 1e-2, 1e-1 and 1.

Out of these I found **1e-2** to be the best for this purpose. I selected it because of following reasons:

- Accuracies with regulation constant smaller than this show very small variance in accuracy. It also has smaller accuracy percentages.
- Accuracies with regularization constant greater than this show a lot of variance. Average accuracy becomes lower.

Accuracy

84.4012282497441 %