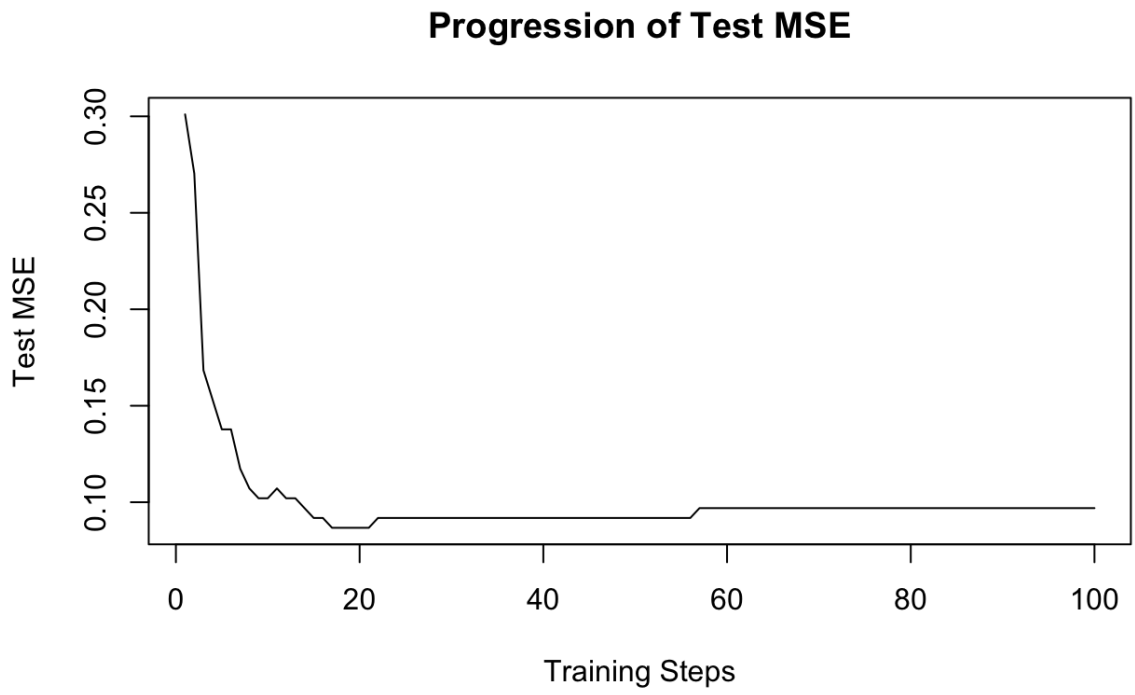
Report for the output in Assignment 1 for Data Analysis (CS5100J)

Task 4: Small table of test and training MSEs in your report

Learning Rate	Training Steps	Test MSE	Train MSE
0.0001	1500	0.229592	0.280612
0.001	1000	0.173469	0.178571
0.01	500	0.122449	0.091837
0.1	100	0.096939	0.076531

Comments : We see that, as we decrease the learning rate and the Training steps (iterations), the Test and Train MSEs decrease in this case.

Task 6 : In each of the 100 cases compute the test MSE and show it in your report as a boxplot.



Comments: Graph - Plotting Test MSE versus 100 training steps

Task 4 (Comments): Try different values of the learning rate η and of the number of training steps - print output:

Output:

[1] "CASE 1"

[1] "Train MSE for 0.0001 η and 1500 training steps: 0.280612"

[1] "Test MSE for 0.0001 η and 1500 training steps: 0.229592"

[1] "CASE 2"

[1] "Train MSE for 0.001 η and 1000 training steps: 0.178571"

[1] "Test MSE for 0.001 η and 1000 training steps: 0.173469"

[1] "CASE 3"

[1] "Train MSE for 0.01 η and 500 training steps: 0.091837"

[1] "Test MSE for 0.01 η and 500 training steps: 0.122449"

[1] "CASE 4"

[1] "Train MSE for 0.1 η and 100 training steps: 0.076531"

[1] "Test MSE for 0.1 η and 100 training steps: 0.096939"