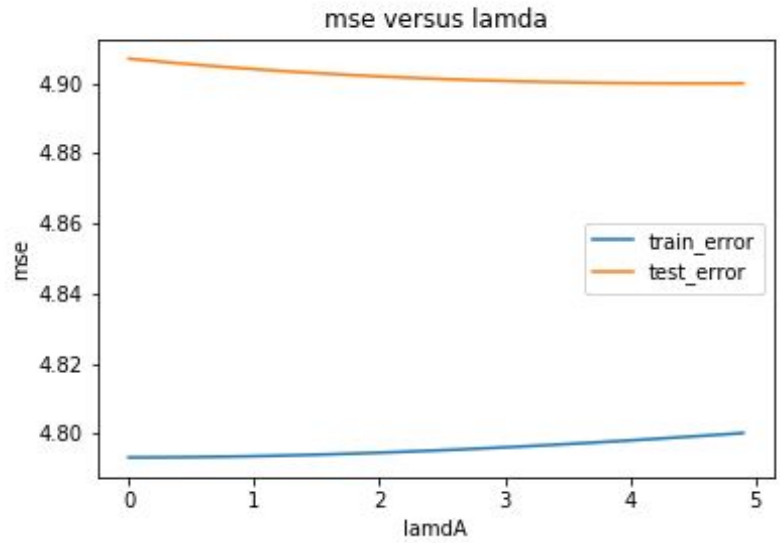
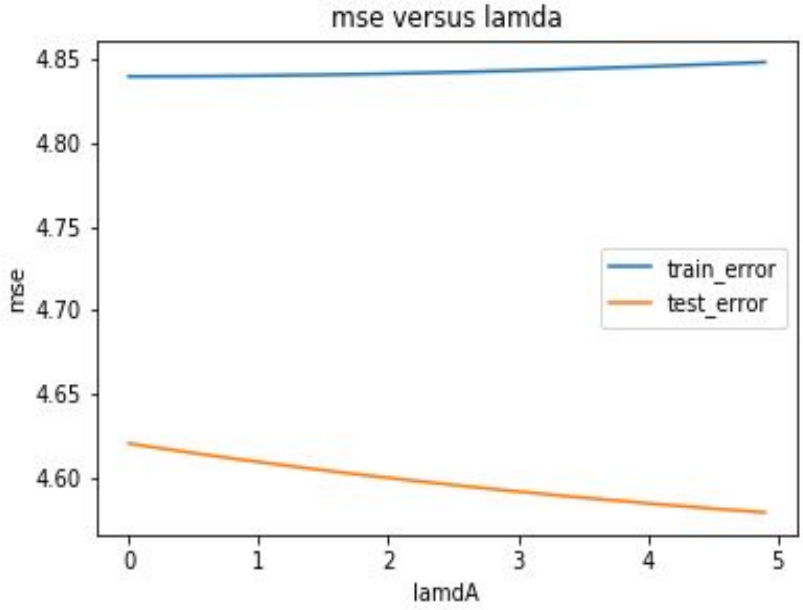
Que_3
Linear Regression

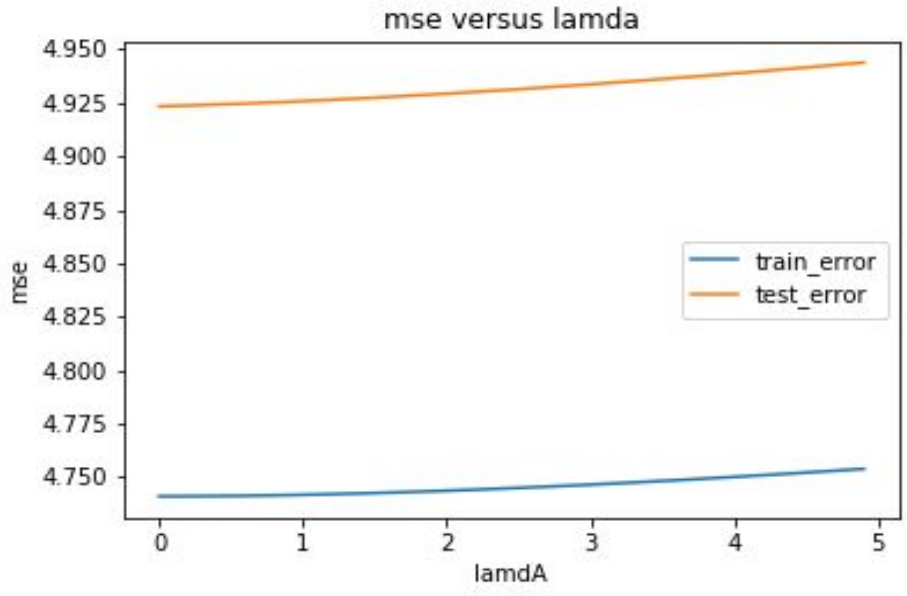
- F_part - **Effect of lambda on error, if we change the partition size**
  For test_size = 0.1



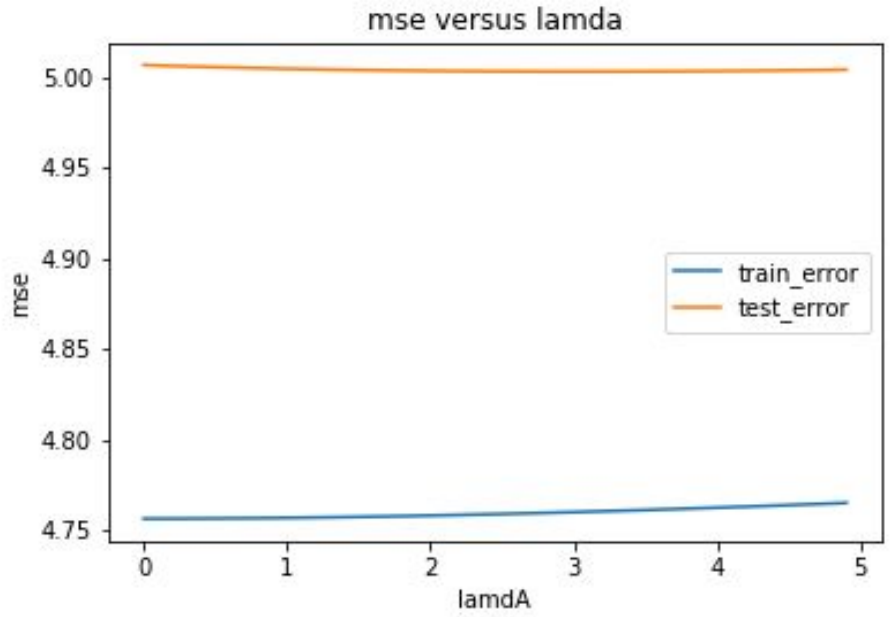
For test_size = 0.15



For test_size = 0.4



For test_size = 0.2



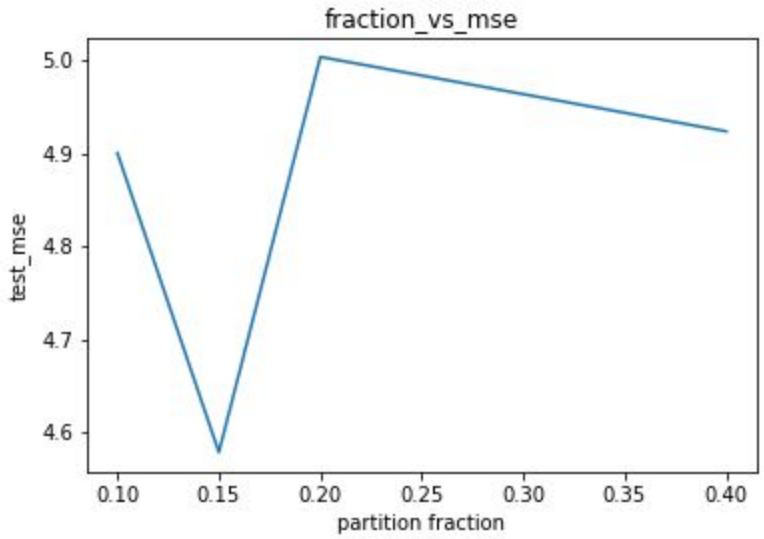
Observations-

- As from the above figures we can see that if the partition size changes than it affect both the optimal value of lambda as well as the minimum mean squared error of test and train

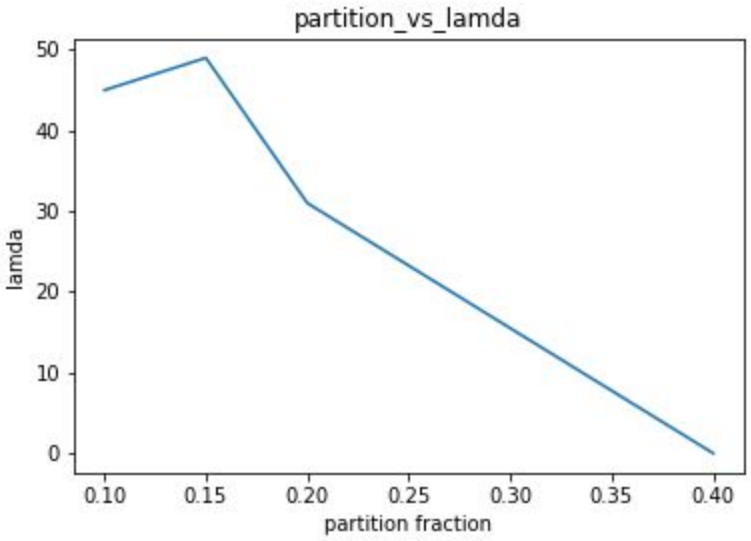
- Test mse is always greater than train mse
- As the partition size of the test data increases mean squared error increases upto some partition size and then starts decreasing
- **G_part**

  Yes, the above figures gives some clarity like as explained above in the observations

  Now, the plot between partition fraction and minimum mean squared error is shown

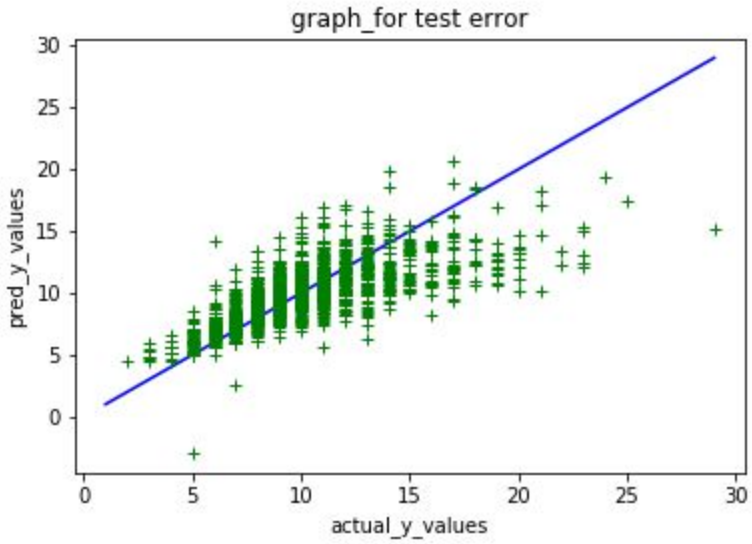


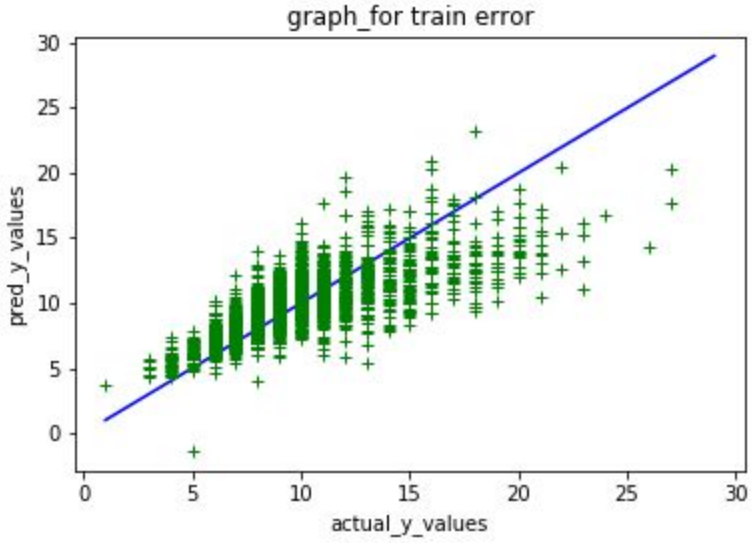
And the plot between optimal lambda versus partition is



- H_part

  Now, we are interested in checking how good is our model?
  - Model is good if y_pred is close to y_actual
  - Lets visualise this using graph





As we can see that the most of the points are closer to the 45 degree line and only few points are far from the line which are increasing the overall mse.