

Question 1

What is the optimal value of alpha for ridge and lasso regression? What will be the changes in the model if you choose double the value of alpha for both ridge and lasso? What will be the most important predictor variables after the change is implemented?

Ans: optimal value of alpha for ridge is 2 and lasso regression is 0.001. in these value the R2 of the model was approx. 0.83. if we choose to double the value of alpha the accuracy of prediction will remain 0.823. there will be small changes in coefficient values.

Question 2

You have determined the optimal value of lambda for ridge and lasso regression during the assignment. Now, which one will you choose to apply and why?

Ans: will choose Lasso as its also giving feature selection option . It has removed unwanted features from model without affecting the model accuracy. Which makes are model generalized, accurate and simple.

Question 3

After building the model, you realized that the five most important predictor variables in the lasso model are not available in the incoming data. You will now have to create another model excluding the five most important predictor variables. Which are the five most important predictor variables now?

Ans: The five most important predictor variables in the lasso model is- GarageArea , Total_sqr_footage, OverallCond , TotRmsAbvGrd , LotArea. We build a Lasso model in the Jupiter notebook after removing the attributes from the dataset. The R2 of the new model without the top 5 predictors drops to .73, and The Mean Squared Error increases to 0.0028575670906482538.

Question 4

How can you make sure that a model is robust and generalizable? What are the implications of the same for the accuracy of the model and why?

Ans: To make model robust and generalizable 3 features are required: 1. Model accuracy should be > 70-75%: In our case its coming 80% for Train and 81% for Test. 2. P-value of all the features is < 0.05 3. VIF of all the features are < 5 .In this way we are sure that model is generalizable & robust.