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

Ans: **alpha for ridge is 1X10^-8 and lasso regression. when we double the value the model performance remains the same in both the cases .**

**Lasso -OverallQual, OverallCond,BsmtFullBath,GarageCars,MSZoning,RoofStyle,CentralAir,FullBath**

**Ridge - OverallQual, OverallCond,BsmtFullBath,GarageCars,MSZoning, CentralAir,FullBath, RoofStyle**

1. 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: Lasso regression, The reason is it adds a feature selection algorithm which helps to find the most important feature with accuracy.

1. After building the model, you realised 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: After dropping the five most important variable of Lasso , the next five variables are

Functional, CentralAir, Electrical, Foundation, ExterQual, RoofStyle, YearBuilt

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

Ans : while we tried to fit the linear regression model we got a extremely over fit model with R2(train) = 0.91 and R2(test) = 0.12. After using Lasso and Ridge, the model is regularized by hyper parameter tuning which made the model a good fit for a completely unseen data.