Q.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:** Lasso- Optimal alpha is 0.0001, Ridge- Optimal alpha is 5.

After doubling the optimal alpha the test R2 score o went down from 0.89 to 0.86 for Ridge where as increased from 0.69 to 0.73 for Lasso Regression.

Ridge Imp Variables for twice the alpha:

* GrLivArea
* 2ndFlrSF
* OverallQual\_9
* 1stFlrSF
* OverallCond\_3

Lasso imp Variables for twice the alpha:

* PoolQC\_Gd
* Condition2\_PosN
* GrLivArea
* MSZoning\_FV
* MSZoning\_RH

Q.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:** Ridge Since it gave better accuracy on test data.

Q.3)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:**  top 5 Important predictor variable:

* 1stFlrSF
* 2ndFlrSF
* OverallQual\_9
* OverallCond\_3
* Neighborhood\_MeadowV

Q.4How 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: