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?

A. Value of Alpha for ridge: 20

B. Value of Alpha for Lasso: 0.0005

C. Changes in model in Alpha for ridge is doubled:
   a. Mean Square error changed to 0.016203 from 0.016024

D. Changes in model in Alpha for lasso is doubled:
   a. Mean Square error changed to 0.01607 from 0.01580

E. Most important predictor variables after change:
   a. **Ridge**

	Features	rfe_support	rfe_ranking	Coefficient
5	GrLivArea	True	1	0.0940
1	OverallQual	True	1	0.0764
4	TotalBsmtSF	True	1	0.0527
2	OverallCond	True	1	0.0421
12	MSZoning_RL	True	1	0.0418
14	Foundation_PConc	True	1	0.0355
6	GarageCars	True	1	0.0326
10	MSZoning_FV	True	1	0.0326
3	BsmtFinSF1	True	1	0.0232
0	LotArea	True	1	0.0210

   b. **Lasso**

	Features	rfe_support	rfe_ranking	Coefficient
5	GrLivArea	True	1	0.103166
1	OverallQual	True	1	0.080508
12	MSZoning_RL	True	1	0.075934
4	TotalBsmtSF	True	1	0.052781
10	MSZoning_FV	True	1	0.051236
2	OverallCond	True	1	0.043043
14	Foundation_PConc	True	1	0.040828
13	MSZoning_RM	True	1	0.036561
6	GarageCars	True	1	0.033949
11	MSZoning_RH	True	1	0.023886

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?

    Basis Mean Square Error Lasso is better option than Ridge.

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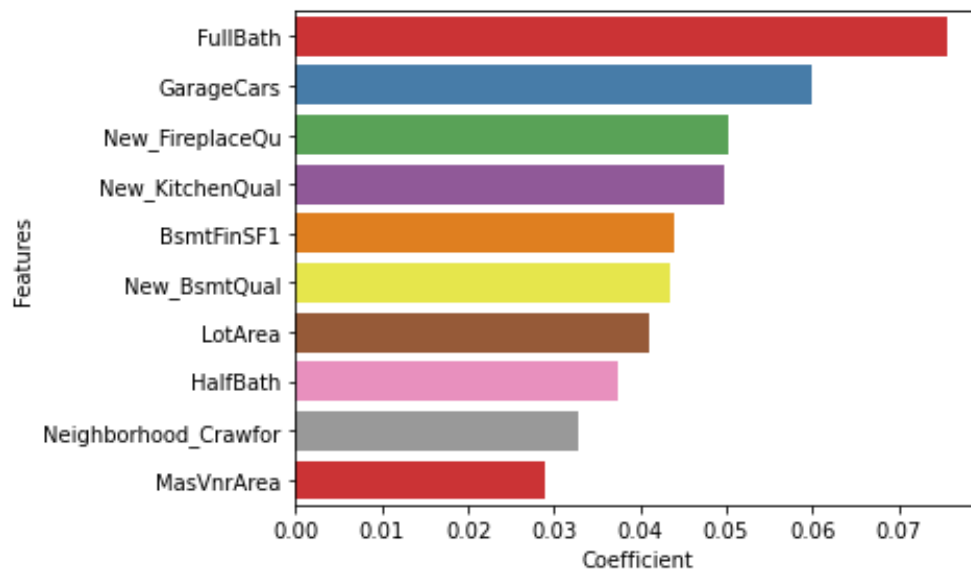
4. How can you make sure that a model is robust and generalizable? What are the implications of the same for the accuracy of the model and why?

    A more complex model has higher Bias and hence tends to perform low on unseen data. Therefore, ensure a right mix of Accuracy and Bias using Ridge or Lasso technique. This will ensure that the model is robust and generalized.