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?

Answer: Optimal value for Lasso is: 0.001 and Ridge is: 0.9. When I double the values, getting these results

Lasso:

```
0.8413280515315759
0.865712359609305
```

	Feaure	Coef
23	Neighborhood_NoRidge	0.444853
24	Neighborhood_StoneBr	0.338198
11	GrLivArea	0.336636
42	RoofMatl_WdShngl	0.326075
1	OverallQual	0.260077
37	RoofMatl_CompShg	0.247843
34	HouseStyle_1Story	0.242886
4	BsmtQual	0.213642
48	Exterior2nd_ImStucc	0.206294
66	SaleType_New	0.174939

Ridge:

```
0.8526204776776305
0.8637621841196418
```

	Feaure	Coef
42	RoofMatl_WdShngl	0.837397
37	RoofMatl_CompShg	0.658043
48	Exterior2nd_ImStucc	0.512636
23	Neighborhood_NoRidge	0.474908
24	Neighborhood_StoneBr	0.422608
40	RoofMatl_Tar&Grv	0.360036
41	RoofMatl_WdShake	0.318030
68	SaleCondition_Alloca	0.315413
38	RoofMatl_Metal	0.265727
34	HouseStyle_1Story	0.251838

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?

Answer:

Both Lasso and Ridge is giving the same R2 scores. I will go with the Lasso regression model for this data set because it helps me in Feature elimination

Question 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?

Answer:

MiscVal

BsmtHalfBath

LowQualFinSF

 BsmtFullBath

HalfBath

Question 4

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?

<u>Answer:</u>

Making the model more robust and getting the same result on Test and Train data. Making the model not so simple and not so complicate. It should be balanced. Sensitivity and specificity are important items for each model in model evaluation. These items are important to make sure the model is robust and generalizable.