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 of alpha for Ridge regression is 10 and for Lasso is 0.001. In case we decide to double the value of alpha, for ridge, the coefficient values will be lower and for Lasso, a fee variables would be removed from the regression as dependent variables since their coefficients would be zero.
The most important predictor variables once change is implemented would be:

Ridge:
- GarageFinish_RFn, 0.091
- GarageFinish_Unf, 0.093
- SaleCondition_Normal, 0.098
- SaleCondition_Others, 0.105
- SaleCondition_Partial, 0.142)

Lasso:
- GarageFinish_RFn, 0.067
- GarageFinish_Unf, 0.068
- SaleCondition_Normal, 0.101
- SaleCondition_Others, 0.111
- SaleCondition_Partial, 0.161

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:
We will go ahead with Lasso regression in this case since variables having lower coefficients will become zero which will result in optimum bias and variance.

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:
Five most important predictor variables after removing the most 5 important ones now are:
- GarageType_BuiltIn
- GarageType_Detchd
- GarageType_No Garage
- GarageType_Others
- GarageFinish_No Garage

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?

Answer:
The different ways to make a model more robust and generalisable are:
- Scaling Data
- Transforming data as needed

- Checking for bias and variance: Finding the optimum mix of bias and variance is key in making sure that the model does not overfit and also that it does vary significantly for various trainings sets as well.