**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:**

For ridge regression the optimal value of alpha came out to be 9.0 and for lasso regression optimal value came out to be 500.

If we choose to double the value of alpha for both ridge and lasso regression the model created by such a change will force the model to pick lesser number of features introducing more bias in the model. It also may cause under fitting of the model.

In ridge, most important predictor variables after the change is implemented is "RoofMatl_CompShg".

In lasso, most important predictor variables after the change is implemented is

"GrLivArea".

**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:**

For ridge, I will choose alpha value as 9 as it the best parameter value after doing a cross-validation of 5 folds.

For lasso, I will choose alpha value as 500 as it the best parameter value after doing a cross-validation of 5 folds.

**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:**

'RoofMatl_CompShg', 'GrLivArea', 'RoofMatl_WdShngl', 'RoofMatl_Tar&Grv', 'RoofMatl_WdShake' are now the five most important predictor variables.

**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:**

With an optimal alpha value and a good number of features, the model can be made robust and generalizable. Also, will look for a correct bias and variance trade-off.

The model's accuracy will increase as we are making it more and more accurate in the predictions.