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?
   Ans:
   Alpha value is 500 for both Ridge and Lasso regression. When we doubled the alpha to 1000 r2 score got reduced for both Ridge and Lasso.

   Ridge:
   With Alpha=500
   R2_train = 0.8833640207105398
   R2_test = 0.8552245904027665

   With Alpha=1000
   R2_train = 0.8585426288104515
   R2_test = 0.8408222758197038

   Lasso:
   With Alpha=500
   R2_train = 0.9233130762054743
   R2_test = 0.8443289107406342

   With Alpha=1000
   R2_train = 0.8918758284766238
   R2_test = 0.8417915856887832

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:
   R2 scores for train and test seems to be closer for Ridge regression compared to Lasso regression. So we will use Ridge regression model.

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:
   Initial most important predictor variables are
   - GrLivArea
   - OverallQual
   - YearBuilt
   - Neighborhood_NoRidge
   - GarageCars

   After excluding these variables from the dataset and building new model, next most important variables are
   - 2ndFlrSF
   - 1stFlrSF
   - TotalBsmtSF

- MasVnrArea
- GarageArea

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?

   Ans:

   To make model robust and generalisable, we need to make sure its not overfitting. Overfitting will reduce the accuracy and efficiency of the model.