Subjective Questions

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?
   - The optimal value of alpha for Ridge regression is 100, whereas it is 500 for Lasso regression. If we double the value of alpha for both types of regressions, it could have different types of implications like having smaller coefficients, higher regularization, reduced model complexity etc. 'OverallQual' and 'GrLivArea' seems to be the most important predictor variables after the change.

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?
   - In this case, even though both models are performing almost similarly on the train data, it looks like the values are better for Ridge regression when using it on test data. The R squared values are higher as well as the RSS, MSE values are lower when using Ridge.

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?
   - The new most important predictor variables would be 'BsmtFinSF1', 'Fireplaces', 'GarageCars', 'Neighborhood_Crawfor' and 'PoolArea'.

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?
   - To ensure that the model is robust, we need to use proper cross validation and regularization on the models. Regularization helps prevent overfitting of data. The implications for accuracy are that it may perform slightly badly on the training data, but on the other side, it will give good performance on the unseen test data. This will be the main purpose of any machine learning model in real world.