

## Problem Statement -II

### 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-

The optimal value of alpha for ridge regression is **0.8**

```
print(model_cv.best_params_)  
{'alpha': 0.8}
```

The optimal value of alpha for lasso regression is **0.0001**

```
print(model_cv.best_params_)  
{'alpha': 0.0001}
```

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- If we double the value of alpha in ridge(**1.6**) and lasso(**0.0002**) regression there is decrease in value of coefficients.
- The most important predictor variable 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 –

We will use Lasso regression as the results in Lasso is better than Ridge.

- Lasso reduces the large number of features.
- It reduces constant to zero.

### 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-

1. OverallCond
2. KitchenAbvGr
3. Neighborhood\_Crawfor
4. OverallQual
5. KitchenQual

### 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-

We can make sure that a model is robust and generalizable by ensuring the following

- By reducing the number of features
  - Reducing multi-collinearity of the model by avoiding features that are highly correlated
  - Checking whether the features are significant or not by analysing the p-value
  - By reducing the variance
  - Making the model simple and giving explain ability of features in the model
- significance