CSCE 421 HW 3

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Problem 1 Question 4

ridge mean AUCs:
lambda: 0.001 AUC: 0.6098
lambda: 0.01 AUC: 0.6098
lambda: 0.1 AUC: 0.6098
lambda: 1 AUC: 0.6098
lambda: 10.0 AUC: 0.6098
lambda: 100.0 AUC: 0.6132
lambda: 1000.0 AUC: 0.6014

Lambda val of 100 gives the highest accuracy since the AUC score is the highest. To do this, simply made a nested loop with the outer loop is the max iterations and the inner loop trains the Ridge model with the lambda current lambda val.

Problem 1 Question 5

lasso mean AUCs: lambda: 0.001 AUC: 0.6081
lambda: 0.01 AUC: 0.6098
lambda: 0.1 AUC: 0.5912
lambda: 1 AUC: 0.5541
lambda: 10.0 AUC: 0.5439
lambda: 100.0 AUC: 0.5152
lambda: 1000.0 AUC: 0.5000

Lambda val of 0.01 gives the highest accuracy since the AUC score is the highest. To do this, simply made a nested loop with the outer loop is the max iterations and the inner loop trains the Lasso model with the lambda current lambda val.
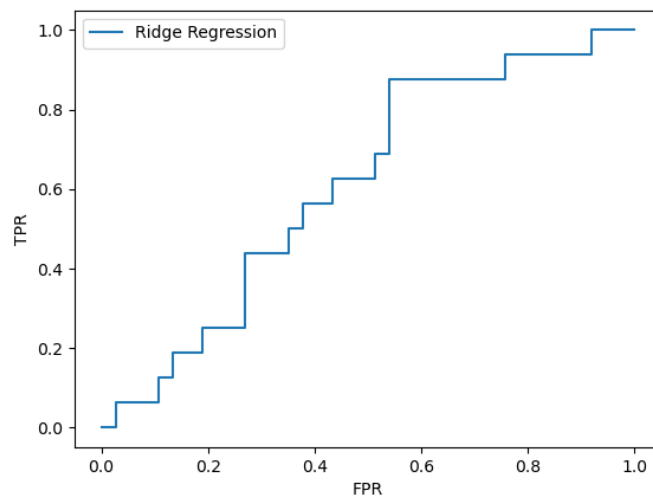
Problem 1 Question 8

Figure 1: The figure above is the ROC curve for the Ridge model
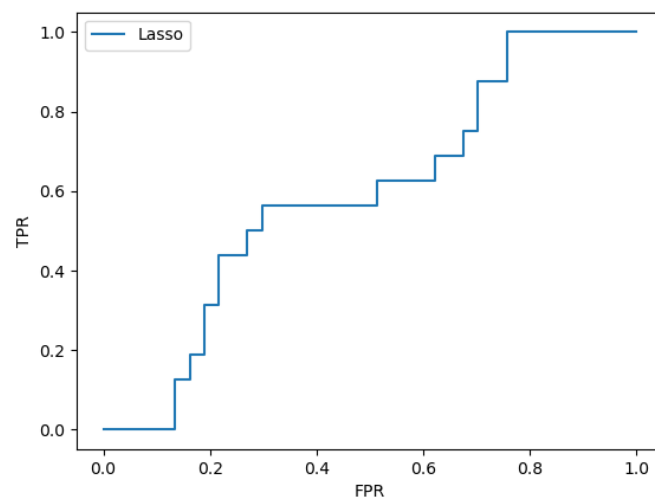
Problem 1 Question 9

Figure 2: The figure above is the ROC curve for the Lasso model
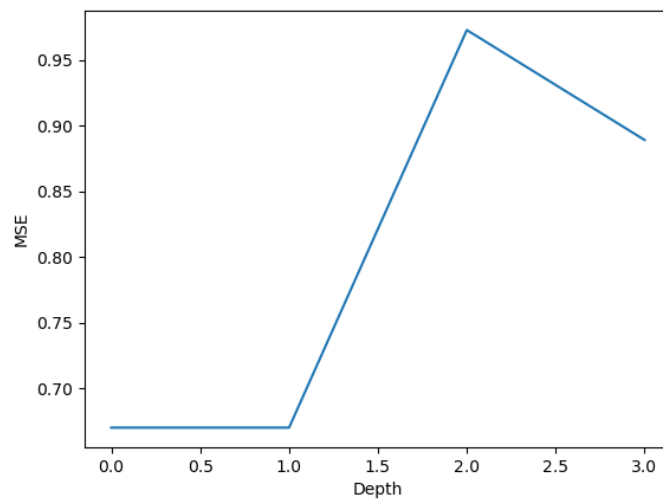
Problem 2 Regression Tree

Figure 3: The figure above is the plot of the error vs how deep the tree was
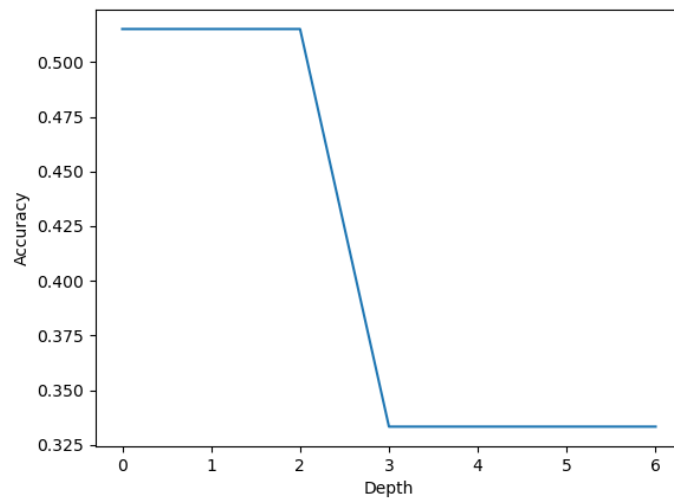
Problem 2 Decision Tree

Figure 4: The figure above is the plot of the accuracy for how deep I made the tree