Homework 10

Instructions
This homework contains **2** concepts and **3** programming questions. In MS word or a similar text editor, write down the problem number and your answer for each problem. Combine all answers for concept questions in a single PDF file. Export/print the Jupyter notebook as a PDF file including the code you implemented and the outputs of the program. Make sure all plots and outputs are visible in the PDF.

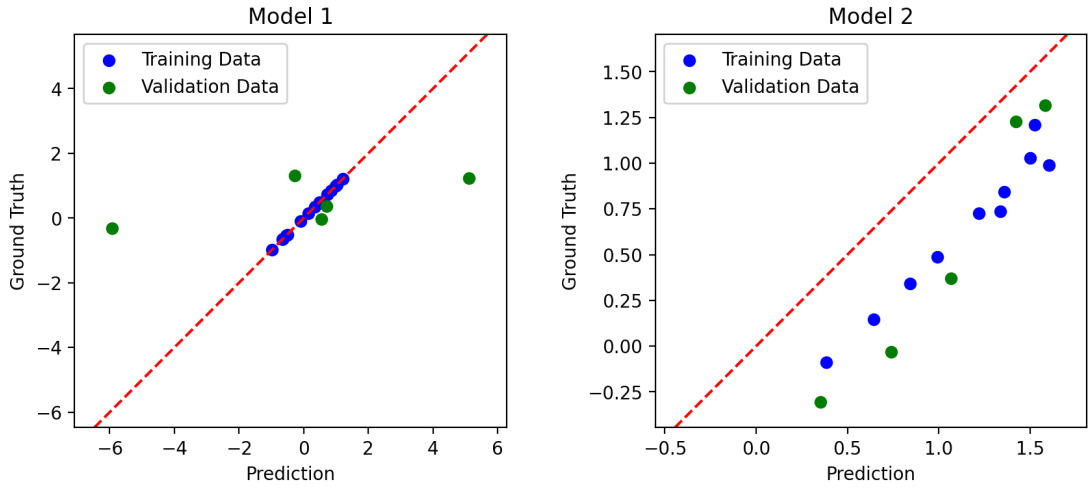
Combine all answers into a single PDF named andrewID_hw10.pdf and submit it to Gradescope before the due date. Refer to the syllabus for late homework policy. Please assign each question a page by using the "Assign Questions and Pages" feature in Gradescope.

Here is a breakdown of the points for programming questions:

Name	**Points**
M10-L1-P1	15
M10-L2-P1	15
M10-HW1	60

Problem 1 (5 points)

The two linear least squares regression models are fit on the same exact training and validation datasets. Below are the R^2 plots for the two models. Which of the following can be said about the models?



(Multiple choice - choose one)

1. Model 1 is low bias but high variance, Model 2 is low variance but high bias
2. Model 1 is high bias but low variance, Model 2 is high variance but low bias
3. Model 1 is low bias but high variance, Model 2 is high bias
4. Model 1 is high bias but low variance, Model 2 is high variance

Problem 2 (5 points)

Which of the following statements is true of k-fold cross validation?

Multiple choice (choose one)

1. K-fold cross validation helps us determine how to partition the data to obtain optimal model performance
2. K-fold cross validation trains k individual models and combines their predictions to generate a better performing model
3. K-fold cross validation trains k models to find the optimal set of hyperparameters for a given dataset
4. K-fold cross validation partitions the data into k equal sized subsets, and trains k models, each time using one subset as the validation data and the rest as the training data