FINAL PROJECT

DELIVERABLES:

1. Final Report (as a PDF document)
2. Project Code (as a Python 3 Jupyter Notebook)
3. Final Presentation (slides as a pptx document; oral presentation during final exam period)

TASK 1: You will be assigned to work with one of three datasets with a corresponding learning task.

1. Titanic Dataset where you will predict who survived.
2. House Prices Dataset where you will predict the sale price of homes
3. Adult Census Income data where you will predict whether an individual makes more or less than $50,000 per year.

TASK 2: Conduct your investigation.

1. Examine your data. Make sure to deal with missing data, partition into a train and test data set, and consider scaling features.
2. Use at least one method to explore the features provided in your dataset. For example, you could plot pairs of features and calculate correlation coefficients to determine if there are any variables that are linearly dependent.
3. Implement at least one algorithm to complete either classification or regression on your dataset. Use information from 2 to choose which features you will use. Report training and testing accuracy for the algorithm. Examine the hyperparameters for the model and run the model at least three times with three different sets of hyperparameters, reporting the training and testing accuracy for each set.

TASK 3: Compile your report and presentation.

Your report/presentation should have the following basic sections:

1. Introduction
   a. Describe the dataset and learning task.
   b. Give an overview of the rest of the report.
2. Method
   a. Fully describe all methods used in the investigation with any implementation details that were important to obtaining your results.
3. Results and Discussion
   a. Show results including any relevant figures and a table showing testing and training accuracy for each method implemented.
   b. Discuss the results including an explanation for why you think you got the results you did.
4. Conclusions and Future Work
   a. Summarize and conclude the report.
   b. Include anything that you learned while conducting the investigation.

       c.   Discuss any topics you would like to investigate further.
5. References (optional)
       a.   Include any references that you used in compiling the report.