CSC 401, Weekly Coding Assignment #9, Fall 2024 Name_____

Instructions: For these weekly coding assignments, you will be asked to extend the examples from class to create custom code to answer the questions below. You will create an R code file that uses built-in datasets as the data sources. You will write the code, and an example showing that the code works. Be sure to include any packages in the code that are required for the functions to run (you may want to clear the environment in RStudio before your final check to make sure nothing is missing). The instructor will run the file to ensure that it works with no errors. Clearly label your code so it's clear which question/task is being responded to.

Submission:
A word document with any explanations (if needed), and a clearly labeled R code file.

Tasks/Questions:

1. Using the examples from lecture, update the decision tree algorithm to apply an alternative splitting criterion for the classification tree (which one is your choice).

2. Using the examples from lecture to update the decision tree algorithm from lecture for regression, update the method of making predictions to use something other than the mean.

3. Adapt the random forest algorithm to run on the Glass dataset from the mlbench package. It has 7 classes rather than 3. Produce appropriate visualizations.

4. Adapt the adaboost binary classifier to run on the PimaIndiansDiabetes dataset from the mlbench package. It is already binary so you don't need to remove any classes. Produce appropriate visualizations.