A hundred years into the future, you own a service that lets people travel back in time and experience the past. An individual (Pat) visits and wants to experience riding on the titanic on April 15th 1912. You want Pat to survive so Pat can come spend more money at your business. What do you tell Pat to do – focus on being in a better class (Pclass) or spend more on the ticket fare (Fare)? In other words, which is a better predictor of survival – Fare or Pclass

* Import the necessary libraries in block 1
* Block 2 is your function:
  + Use a train and test split with a random\_seed = 1
  + Use decision tree binary classification
  + Make sure your decision tree isn’t overfitting!
    - * Think about what we discussed in class about what overfitting means. If you think the model is overfitting, make a change to the model to minimize the overfitting. For this exercise, let’s assuming overfitting is when the difference between testing and training validation scores is 0.10
  + Have an input argument into the function that determines whether you want plots or not
    - If you do want a figure, it should be a subplot (2,1) that shows a box plot of (y , X) and the ROC curve. Make sure the plots are labeled and legible so that you can show Pat the plots
    - This is just good practice when building functions!
* Block 3: load the data using sns.load\_dataset(‘titanic’)
* In separate blocks at the end (Block 4 and 5), use your function to answer the question at the end of the prompt. Make sure you include the option to have figures!
  + You should use a text block to describe what you found!

Partial credit = if you can’t get all of those things to work inside of a function, then put them into individual cells (like we do in class) to get at least some partial credit! If you include a function and it doesn’t work, you won’t get any credit because we cannot grade something that doesn’t work!

Bonus (1 point)

* Does the individual’s age or sex have more of an effect? If you have to do something to the dataframe to check these values, make sure whatever you do happens inside of the function!
  + So, you should change your function in block 2 and simply have additional blocks 6 and 7 for the new features.