Source:

Part B

Please answer the following questions and briefly explain your answer:

- Thinking about the R^2 metric used for evaluating regression, answer the following questions:
  - What is the best highest possible score you could get?
    - The highest possible score is 1, representing a perfect fit. In order to achieve an R^2 of 1, the error must be 0.
  - If your model simply predicted the average value of the training set no matter what the input was, what score would you get on a test set whose average matched that of the training set?
    - The score would be 0, as the denominator and numerator would be equal. This would result in the equation 1-1, which equals 0.
  - What is the lowest score that you can get?
    - Negative infinity.
- When using accuracy to measure your model's performance on a classification problem:
  - What is the best possible score you could get?
    - 1. In a scenario with x samples, an entirely correct classification would lead to x/x, which is 1.
  - If your model always predicted the same class no matter what the input, what score would you get on a test set where 85% of the items were in that class?
    - 85%
- What is the worst possible score you can get on a dataset that only has two classes?
  - 0. Every sample could be sorted incorrectly as long as there is more than one class.
- A model gets a recall score of 0 for class A on a test set with classes A, B, and C. If you take one of the test items that is in class A and have this model predict what class it is, what will it predict?
  - A recall score of 0 for class A means that every item in class A was labeled incorrectly. When given another sample in class A, the model will predict either class B or class C.
- A model gets a precision score of 1 for class A on a test set with classes A, B, and C. If you take one of the test items that is in class A and have your model predict what class it is, what will it predict?
  - The model could predict any of the three classes. A precision value is only effected by true positive and false positive rate, meaning that when given a sample in class A, predicting C or B would not lower class A's precision.

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a model with classes A and B has an AUC score of 1 and you give it an item from the test set that is in class A, what class

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a model with classes A and B has an AUC score of 0 and you give it an item from the test set that is in class A, what class

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