Quiz Submissions - Q2-2

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Attempt 1

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Submission View

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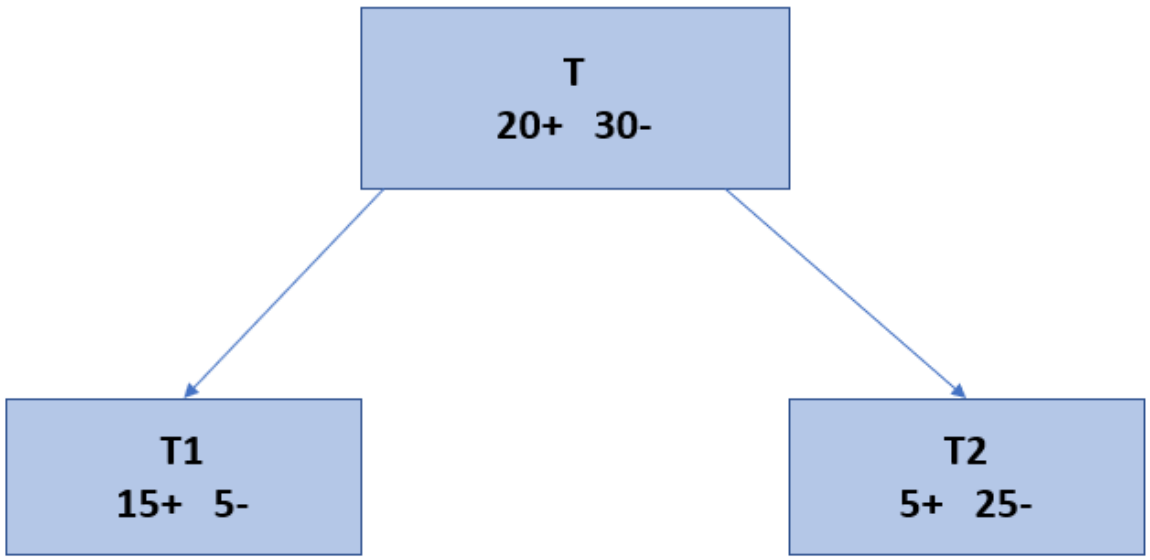
Question 1 **1 / 1 point**

Consider following decision tree where the numbers denote how many samples of each class (+ or -) are in that node. Calculate the total entropy cost of this tree, when we use base 2 for the logarithm:



- ✔ 0.714
- 0.568
- 0.667
- 0.202

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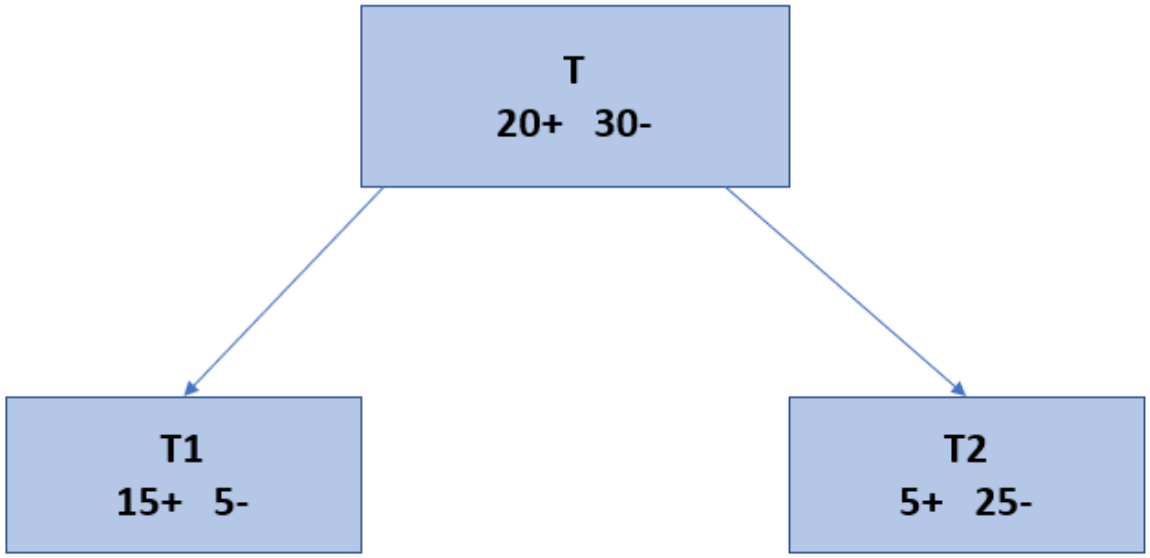
Question 2 **1 / 1 point**

Consider the same tree, what would be the Gini indexes of node T1 and T2, respectively: (Round off to 3 decimal places)



- 0.375, 0.565
- ✓ 0.375, 0.278
- 0.525, 0.256
- 0.256, 0.278

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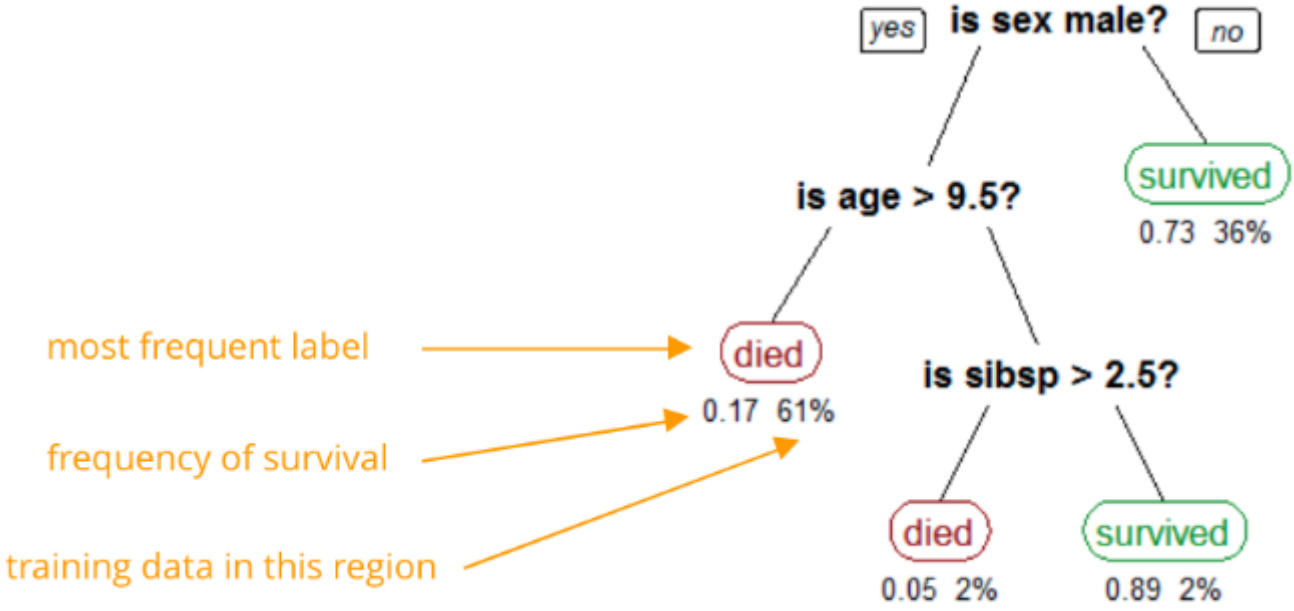
Question 3 **1 / 1 point**

What is the total misclassification cost for the below example?



- [x] 0.2041
- [ ] 0.1037
- [ ] 0.0994
- [ ] 0.1047

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Question 4 **1 / 1 point**

Select all true statements about decision and regression trees:

- [x] In building a decision tree our (initial) objective is to minimize the misclassification rate
- [x] Every boolean function can be fully expressed by decision tree. (i.e, decision tree can classify all boolean functions with 100% accuracy).
- [x] It is possible to find the optimal decision tree in polynomial time in the number of data points
- [x] By using entropy cost we pick the test with maximum mutual information with the label
- [x] Decision trees are not robust to noise and scaling of features

Question 5 **1 / 1 point**

The choice of best hyperparameter(s) is decided based on model's performance on?

A: Training dataset

B: Validation dataset

C: Test dataset

- A only
- ✓ B only
- C only
- Both B and C

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Question 6 **1 / 1 point**

Select all the **false** statments: [all or nothing]

- ✓ we can set the hyperparameters of our model to the values that result in minimum training error
- ✓ we can estimate the generalization error based on the error on the training set
- ✓ we can measure the generalization error based on the error on the validation set
- ✓ we can measure the generalization error based on the error on the test set

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Attempt Score: 6 / 6 - 100 %

Overall Grade (highest attempt)**:** 6 / 6 - 100 %

Done