

Quiz 6 Submission

Total points 4/4 ?

A score of 3/4 or 4/4 is required to be considered to have "passed" a quiz. Please do not resubmit a quiz if you obtain a score of 3/4. You don't receive a final grade at the end of the course, so it will have no bearing on your certificate!

Your quiz will be graded and returned to you within a few minutes in most cases. However, it may take up to three weeks for your work to appear in your Gradebook. Do be patient, please!

Quizzes (which are submitted via Google Forms and not submit50) may not show up as submitted in your Gradebook until the scores have been imported, and even then will only show up if you have received a passing score.

Remember, you are limited to a maximum of EIGHT attempts at a quiz in a single calendar year. If you submit this assignment more than eight times, **all** of your submissions will be deleted, and you **will not be eligible to earn a certificate in CS50AI during this calendar year**. Take this assignment seriously! (Submissions from 28 December 2022 count towards 2023 eligibility.)

Attempts to circumvent this policy, if detected, will be treated as violations of the course's academic honesty policy and will result in permanent expulsion from the course.

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The following question will ask you about the below context-free grammar, where S is the start symbol.

```
S -> NP V
NP -> N | A NP
A -> "small" | "white"
N -> "cats" | "trees"
V -> "climb" | "run"
```

The following question will also ask you about the following four sentences.

Sentence 1: Cats run.

Sentence 2: Cats climb trees.

Sentence 3: Small cats run.

Sentence 4: Small white cats climb.



✓ Of the four sentences above, which sentences can be derived from the above context-free grammar? *1/1

- ☐ Only Sentence 1
- ☐ Only Sentence 1 and Sentence 2
- ☐ Only Sentence 1 and Sentence 3
- ☐ Only Sentence 1 and Sentence 4
- ☐ Only Sentence 1, Sentence 2, and Sentence 3
- ☐ Only Sentence 1, Sentence 2, and Sentence 4
- ☒ Only Sentence 1, Sentence 3, and Sentence 4
- ☐ All four sentences
- ☐ None of the four sentences



✓ Which of the following is not a true statement? * 1/1

- ☐ Attention mechanisms can be used to determine which parts of an input sequence are most important to focus on.
- ☒ One-hot representations of words better represent word meaning than distributed representations of words.
- ☐ Transformers can be faster to train than recurrent neural networks because they are more easily parallelized.
- ☐ A Naive Bayes Classifier assumes that the order of words doesn't matter when determining how they should be classified.



✓ Why is "smoothing" useful when applying Naive Bayes? *

1/1

- ☐ Smoothing allows Naive Bayes to turn a conditional probability of evidence given a category into a probability of a category given evidence.
- ☒ Smoothing allows Naive Bayes to better handle cases where evidence has never appeared for a particular category. ✓
- ☐ Smoothing allows Naive Bayes to be less "naive" by not assuming that evidence is conditionally independent.
- ☐ Smoothing allows Naive Bayes to better handle cases where there are many categories to classify between, instead of just two.

✓ From the phrase "must be the truth", how many word n-grams of length 2 *1/1 can be extracted?

- ☐ 0
- ☐ 1
- ☐ 2
- ☒ 3 ✓
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 15
- ☐ 17



Comments, if any

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