Quiz 1 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 following logical sentences.

1. If Hermione is in the library, then Harry is in the library.
2. Hermione is in the library.
3. Ron is in the library and Ron is not in the library.
4. Harry is in the library.
5. Harry is not in the library or Hermione is in the library.
6. Ron is in the library or Hermione is in the library.

✓ Which of the following logical entailments is true? * 1/1

- ○ Sentence 1 entails Sentence 2
- ◉ Sentence 2 entails Sentence 5 ✓
- ○ Sentence 5 entails Sentence 6
- ○ Sentence 1 entails Sentence 4
- ○ Sentence 6 entails Sentence 3
- ○ Sentence 6 entails Sentence 2

✓ There are other logical connectives that exist, other than the ones discussed in lecture. One of the most common is "Exclusive Or" (represented using the symbol ⊕). The expression A ⊕ B represents the sentence "A or B, but not both." Which of the following is logically equivalent to A ⊕ B? *1/1

- ○ (A ∨ B) ∧ (A ∧ B)
- ◉ (A ∨ B) ∧ ¬ (A ∧ B) ✓
- ○ (A ∨ B) ∧ ¬ (A ∨ B)
- ○ (A ∧ B) ∨ ¬ (A ∨ B)

✓ Let propositional variable R be that "It is raining," the variable C be that "It is cloudy," and the variable S be that "It is sunny." Which of the following a propositional logic representation of the sentence "If it is raining, then it is cloudy and not sunny."? *1/1

- ○ (R → C) ∧ ¬S
- ○ R → C → ¬S
- ○ R ∧ C ∧ ¬S
- ◉ R → (C ∧ ¬S) ✓
- ○ (C ∨ ¬S) → R

✓ Consider, in first-order logic, the following predicate symbols. Student(x) represents the predicate that "x is a student." Course(x) represents the predicate that "x is a course." Enrolled(x, y) represents the predicate that "x is enrolled in y." Which of the following is a first-order logic translation of the sentence "There is a course that Harry and Hermione are both enrolled in."? *1/1

- (●) ∃x. Course(x) ∧ Enrolled(Harry, x) ∧ Enrolled(Hermione, x) ✓
- ( ) ∀x. Enrolled(Harry, x) ∧ ∀y. Enrolled(Hermione, y)
- ( ) ∀x. Course(x) ∧ Enrolled(Harry, x) ∧ Enrolled(Hermione, x)
- ( ) ∃x. Enrolled(Harry, x) ∨ Enrolled(Hermione, x)
- ( ) ∃x. Enrolled(Harry, x) ∧ ∃y. Enrolled(Hermione, y)
- ( ) ∀x. Enrolled(Harry, x) ∨ Enrolled(Hermione, x)

Comments, if any