

START OF QUIZ

Student ID:

27719509,Wang,Yirui

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I agree that all answers provided are in my own words, and that I will not discuss the contents of this quiz with any of my fellow students until after the exam period has completed for everyone. Furthermore, any response that used generative AI tools has been rephrased into my own interpretation, and has been appropriately cited.

Signature: _____

Question 1

Topic: Lecture 7

Source: Lecture 7

What is the difference between a stem and a lemma? What impacts does that have on our algorithms? (1)

Question 2

Topic: Lecture 8

Source: Lecture 8

If you were to encounter an alien text, which encoding might you want to use to digitize it?
Explain briefly. (1)

Question 3

Topic: Lecture 7

Source: Lecture 7

Can you think of any classes of words in English where the stem and the lemma will always be identical? Why is that of little interest to us? (1)

Question 4

Topic: Lecture 6

Source: Lecture 6

Beautiful Soup parses the children of a tag as a list. Why do you think they didn't use a set, instead, given the faster access times? Give 2 reasons, and briefly explain. (1)

Question 5

Topic: Lecture 5

Source: Lecture 5

List one advantage that regular expressions have over string comparison, and one disadvantage to using them. (1)

Question 6

Topic: Lecture 6

Source: Lecture 6

Consider using XML to represent a machine learning model's architecture. What XML tags might be useful for representing layers, activation functions, and connections between layers (you don't need to describe a deep-learning architecture - describe one you're familiar with)? If this doesn't seem possible, explain why not. (2)

Question 7

Topic: Lecture 5

Source: Lecture 5

Imagine you are processing a text document where dates are written in multiple formats, such as "12-05-2024", "05/12/2024", or "12 December 2024". How would you write a regex to capture these date formats (just the logic)? What assumptions would you make? (2)

Question 8

Topic: Lecture 8

Source: Lecture 8

In class, I mentioned that we always want to close a file correctly. Beyond freeing up system resources, it also "flushes the buffer", which ensures that any current read or write operations that are in the job queue, but haven't yet been processed, are completed. Knowing what you do about encodings, what is a possible ramification of not flushing the buffer? Explain at least 2. (2)

Question 9

Topic: Long

Source: Lecture 8

Imagine that you find an important file buried on a hard drive found in the basement of a university. You are trying to access the data, but realize it is corrupted. Some of the bits have been flipped (switched from 0 to 1, or 1 to 0), and others have been completely deleted. You don't know the encoding, and you don't know the language the data is written in. What are some tests you could run to try to establish and restore at least some of the data? (Hint: remember that a "byte" is 8-bits, and that UTF-8 is 1 byte, or 8 bits, UTF-16 is 2 bytes, or 16 bits, and UTF-32 is 4 bytes, or 32 bits). (3)

END OF QUIZ