

**START OF QUIZ**

**Student ID:**

**65952574,Sharma,Jai**

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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 5

Source: Lecture 5

There are two ways of matching a pattern against the start of a string. Describe them. (1)

## Question 2

Topic: Lecture 7

Source: Lecture 7

What impact does lemmatization or stemming have with respect to the Zipfian curve? How might that affect our algorithms? (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

What kinds of tags might be useful in the following text (describe at least two): "But you liked Rashomon!" "That's not how I remember it!" (1)

## Question 5

Topic: Lecture 8

Source: Lecture 8

Why do Python programmers like working with (t/c)sv files? When are they appropriate, and what advantages do they provide over .txt files? (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

Imagine that you're working with a linguist who is not very good with technology. They store all of their data in .docx files, scattered across their desktop. What arguments would you make for them to convert to .tsv or .json, and how would you alleviate their worries that they wouldn't be able to access or modify their information (no, you can't teach them Python)? (2)

## Question 9

Topic: Long

Source: Lecture 6

You've been hired by a company that is working with their own version of XML that they call "NQAXML" (Not-Quite-As-eXtensible Markup Language). It provides stronger restrictions on tag names (they must be all uppercase, and no longer than 10 characters long), and it doesn't allow nested spans with identically-named tags. Like HTML, it also has a set of tags that must appear in every document. Describe your process for creating a data validator that takes an XML file, and ensures that it satisfies the rules of NQAXML. (3)

**END OF QUIZ**