START OF QUIZ
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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

List one advantage that regular expressions have over string comparison, and one disadvantage to using them. (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 5
Source: Lecture 5

Write a regex pattern that matches any valid email address (i.e., with basic rules like user@domain.com). What challenges might you face in accurately matching all possible email formats? (1)

Question 4

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 5

Topic: Lecture 6
Source: Lecture 6

Why is XML well-suited to representing linguistic data? (1)

Question 6

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 7

Do you think that we could do lemmatization before machine translation? Provide 1 argument that for why it might help, and one for why it might make things more complicated. List any assumptions that might make your answer more complicated. (2)

Question 8

Topic: Lecture 6
Source: Lecture 6

Suppose you've trained a Named Entity Recognition (NER) model using XML-annotated text data, but it consistently fails to recognize locations. What steps would you take to determine if the problem lies with the model, the training data, or both? What resources would you need to investigate further? (2)

Question 9

Suppose you're building a text classification model for a highly inflected language like Finnish. How might you approach preprocessing tasks such as lemmatization or stemming? Would you perform these tasks before or after feature extraction, and why? Discuss how the choice of sequence may impact the quality of the features and model accuracy. Would you make the same decision for sentiment analysis? (3)

END OF QUIZ