

START OF QUIZ

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Question 1

Topic: Lecture 1

Source: Lecture 1

When is dynamic programming more efficient than brute force programming? (ie, what assumptions do we make about a problem when we use dynamic programming?) (1)

Question 2

Topic: Lecture 3

Source: Lecture 3

When you were using Naive Bayes, a bag of words model was sufficient for classification. Why is it too simplistic for language modeling? (1)

Question 3

Topic: Lecture 2

Source: Lecture 2

Describe the purpose of linkage in hierarchical clustering. (1)

Question 4

Topic: Lecture 4

Source: Lecture 4

What is the main difference between the Viterbi algorithm and the Forward algorithm, and why does it allow us to find the optimal path through a sequence? (1)

Question 5

Topic: Lecture 3

Source: Lecture 3

If we have the sentence “The reason that the rich were so rich, Vimes reasoned, was because they managed to spend less money”, what is the probability of the bigram “the rich”, assuming that the sentence is the entire corpus? (1)

Question 6

Topic: Lecture 4

Source: Lecture 4

Let's imagine we're modifying our HMM to handle 2nd-order Markov operations (ie, consider the previous two states). Does anything in the model fundamentally change? Describe which aspects of the forward/Viterbi algorithm would need to be modified, if any. (2)

Question 7

Topic: Lecture 1
Source: Lecture 1

What is the primary concern of a semantic vector space (ie, a vector space representing meaning), and how does it relate to our use of cosine similarity to measure word similarity? Can you think of any sorts of words for which it might be very difficult to satisfy this concern? (2)

Question 8

Topic: Lecture 2

Source: Lecture 2

Imagine we were using k-means to cluster misspellings around their correct spellings. How many clusters would we need, and what would be a good distance function? Explain. (2)

Question 9

Topic: Long

Source: Lecture 3

In class, we built a collocation matrix for a bigram language model. Modify the function so that it can handle a trigram language model and implements “add-alpha” smoothing, instead of “add-one” smoothing. (3)

END OF QUIZ