START OF QUIZ
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Question 1

Topic: Lecture 3
Source: Lecture 3

Describe the noisy channel model, and how it can be used to represent ASR. (1)

Question 2

If we have the sentence "You keep using that word - I do not think it means what you think it means", what is the probability of the bigram "you think", assuming that the sentence is the entire corpus? (1)

Question 3

Topic: Lecture 2
Source: Lecture 2

Explain the purpose of a centroid in K-means clustering, and how we can think of it with respect to its cluster. (1)

Question 4

Topic: Lecture 4
Source: Lecture 4

Why can we use logarithms for the Viterbi algorithm, but not the forward algorithm? (1)

Question 5

Why is cosine distance typically a more suitable distance metric for semantic spaces than Euclidean distance? (1)

Question 6

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 7

Topic: Lecture 2
Source: Lecture 2

What kinds of data might be difficult to cluster using k-means? Is it a shortcoming of the algorithm, or does it just need very careful feature engineering and distance calculations? (2)

Question 8

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 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