START OF QUIZ
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Question 1

Topic: Lecture 2
Source: Lecture 2

What is the impact of choosing a poor value for k in k-means clustering? How can we determine a more appropriate k? (1)

Question 2

Topic: Lecture 4
Source: Lecture 4

How is it that EM can arrive at a good solution, even if we have a random initialization of parameters? (1)

Question 3

Topic: Lecture 2
Source: Lecture 2

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

Question 4

Topic: Lecture 3
Source: Lecture 3

Explain the purpose of padding in language modeling. (1)

Question 5

Topic: Lecture 3
Source: Lecture 3

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

Let's consider a variant of the string alignment problem where instead of aligning characters, we're aligning sequences of characters (maybe we're doing machine translation...). What would need to be modified to handle a situation where we likely have a much higher vocabulary, and there's a lot less copying going on? What assumptions would we be making about the data? Would any of these assumptions make Levensthein distance inappropriate? (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