START OF QUIZ
Student ID:
74035403,Zheng,Meiyu

Question 1

Topic: Topic1
Source: Lecture 1

Suppose we are filling the table for the Levenshtein distance algorithm. We are in cell (x, y). The values of cell (x-1, y-1), (x-1, y), and (x, y-1) are 1, 0, and 3, respectively. What is the value we will put in cell (x, y), given that the letters are NOT equal?

Question 2

Topic: Topic4
Source: Lecture 4

Why can we use logarithms for the Viterbi algorithm, but not for the Forward algorithm?

Question 3

Topic: Topic4
Source: Lecture 4

What is the main purpose of semi-supervised learning in EM? That is, how does it affect the overall model, and where is the effect the largest?

Question 4

Topic: Topic1
Source: Lecture 1

When is cosine similarity appropriate as a similarity measure?

Question 5

Topic: Topic2
Source: Lecture 2

How do we choose the number of clusters for K-means? What are the consequences if we choose poorly?

Question 6

Topic: Topic2
Source: Lecture 2

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

Question 7

Topic: Topic3
Source: Lecture 3

In your own words, explain the Markov assumption, and how it is used for language modeling.

Question 8

Topic: Topic3
Source: Lecture 3

If our vocabulary consists of just symbols A and B, and our corpus consists of the sequence: A B B A A B, and we build a bigram language model by applying add-one smoothing to the MLE from the corpus, what is the probability of P(B||A)? Please show your work.

Question 9

Topic: Coding
Source: Lecture 1

Write a function that, given 2 vectors, calculates the cosine distance between them (don't just use the built-in cosine similarity function).

END OF QUIZ