



ECS763U/ECS763P - Natural Language Processing - 2022/23 - Semester 1

Started on	Sunday, 6 November 2022, 11:17 PM
State	Finished
Completed on	Sunday, 6 November 2022, 11:26 PM
Time taken	9 mins 7 secs
Grade	8.00 out of 10.00 (80%)

Question 1

Correct

Mark 1.00 out of 1.00

Flag question

CRFs estimate the underlying probability model of the data $p(x)$ while HMMs cannot.

Select one:

☐ True

☒ False ✓

The correct answer is 'False'.

Question 2

Correct

Mark 1.00 out of 1.00

Flag question

In a fairly large corpus of texts like newspaper articles, it's highly likely the majority of word tokens will have an unambiguous POS tag.

Select one:

☐ True

☒ False ✓

The correct answer is 'False'.

Question 3

Correct

Mark 1.00 out of 1.00

Flag question

Conditional Random Fields are:

Select one:

☒ a. Discriminative sequence classifiers ✓

☐ b. Generative sequence classifiers

The correct answer is: Discriminative sequence classifiers

Question 4

Incorrect

Mark 0.00 out of 1.00

Flag question

In a fairly large corpus of texts like newspaper articles, it's highly likely the majority of word types which occur will have an unambiguous POS tag.

Select one:

☐ True

☒ False ✗

The correct answer is 'True'.

Question 5

Correct

Mark 1.00 out of 1.00

Flag question

Which of these are applications which use sequence classification?

Select one or more:

☐ a. Sentiment analysis only using the binary feature of whether a word is in the text or not.

☐ b. Finding a keyword in a text.

☐ c. N-gram language modelling.

☒ d. Named Entity Recognition. ✓

☒ e. Dialogue act tagging. ✓

☒ f. Part-of-speech tagging. ✓

The correct answers are: Part-of-speech tagging., Named Entity Recognition., Dialogue act tagging.

Question 6

Incorrect

Mark 0.00 out of 1.00

Flag question

In the below sentence showing the word/POS pair, select the appropriate Penn Treebank style POS tag in the missing position indicated by ?
Bill/NN went/VBD to/? the/DT shop/NN.

Select one:

☐ a. MD

☐ b. TO

☐ c. RB

☐ d. JJ

☐ e. IN

The correct answer is: IN

Question 7

Correct

Mark 1.00 out of 1.00

Flag question

Consider the below probability tables for a first order Hidden Markov Model for a Part-of-Speech tagger. The transition probabilities between the tags is shown in the top table, i.e. the $p(c_i | c_{i-1})$ values. The emission probabilities are shown in the bottom table, i.e. the $p(w_i | c_i)$ values. Give the probability that the first word will be 'will', given the first tag is NNP, i.e. $p(w_1 = will | c_1 = NNP)$.

c_{i-1}		c_i					
			NNP	MD	VB	DT	NN
		(s)	0.2	0	0	0.5	0.3
		NNP	0.2	0.3	0.4	0.1	0
		MD	0.5	0	0.5	0	0
		VB	0.4	0	0	0.4	0.2
		DT	0.1	0	0	0.5	0.4
		NN	0	0	0.6	0	0.4

c_i		w_i					
			john	will	like	the	food
		NNP	0.7	0.3	0	0	0
		MD	0	1.0	0	0	0
		VB	0	0.3	0.7	0	0
		DT	0	0	0	1.0	0
		NN	0.1	0.1	0	0	0.8

Answer: ✓

The correct answer is: 0.3

Question 8

Correct

Mark 1.00 out of 1.00

Flag question

Consider the below probability tables for a first order Hidden Markov Model for a Part-of-Speech tagger. The transition probabilities between the tags is shown in the top table, i.e. the $p(c_i | c_{i-1})$ values. The emission probabilities are shown in the bottom table, i.e. the $p(w_i | c_i)$ values. Give the probability that the first word will be 'john', given the first tag is NNP, i.e. $p(w_1 = john | c_1 = NNP)$.

c_{i-1}		c_i					
			NNP	MD	VB	DT	NN
		(s)	0.2	0	0	0.5	0.3
		NNP	0.2	0.3	0.4	0.1	0
		MD	0.5	0	0.5	0	0
		VB	0.4	0	0	0.4	0.2
		DT	0.1	0	0	0.5	0.4
		NN	0	0	0.6	0	0.4

c_i		w_i					
			john	will	like	the	food
		NNP	0.7	0.3	0	0	0
		MD	0	1.0	0	0	0
		VB	0	0.3	0.7	0	0
		DT	0	0	0	1.0	0
		NN	0.1	0.1	0	0	0.8

Answer: ✓

The correct answer is: 0.7

Question 9

Correct

Mark 1.00 out of 1.00

Flag question

Consider the below probability tables for a first order Hidden Markov Model for a Part-of-Speech tagger. The transition probabilities between the tags is shown in the top table, i.e. the $p(c_i | c_{i-1})$ values. The emission probabilities are shown in the bottom table, i.e. the $p(w_i | c_i)$ values. Give the probability that the first word will be 'will' i.e. $p(w_1 = will)$. Give your answer to 2 DECIMAL PLACES.

c_{i-1}		c_i					
			NNP	MD	VB	DT	NN
		(s)	0.2	0	0	0.5	0.3
		NNP	0.2	0.3	0.4	0.1	0
		MD	0.5	0	0.5	0	0
		VB	0.4	0	0	0.4	0.2
		DT	0.1	0	0	0.5	0.4
		NN	0	0	0.6	0	0.4

c_i		w_i					
			john	will	like	the	food
		NNP	0.7	0.3	0	0	0
		MD	0	1.0	0	0	0
		VB	0	0.3	0.7	0	0
		DT	0	0	0	1.0	0
		NN	0.1	0.1	0	0	0.8

Answer: ✓

The correct answer is: 0.09

Question 10

Correct

Mark 1.00 out of 1.00

Flag question

Consider the below probability tables for a first order Hidden Markov Model for a Part-of-Speech tagger. The transition probabilities between the tags is shown in the top table, i.e. the $p(c_i | c_{i-1})$ values. The emission probabilities are shown in the bottom table, i.e. the $p(w_i | c_i)$ values. Give the probability that the first word will be 'john' i.e. $p(w_1 = john)$. Give your answer to 2 DECIMAL PLACES.

c_{i-1}		c_i					
			NNP	MD	VB	DT	NN
		(s)	0.2	0	0	0.5	0.3
		NNP	0.2	0.3	0.4	0.1	0
		MD	0.5	0	0.5	0	0
		VB	0.4	0	0	0.4	0.2
		DT	0.1	0	0	0.5	0.4
		NN	0	0	0.6	0	0.4

c_i		w_i					
			john	will	like	the	food
		NNP	0.7	0.3	0	0	0
		MD	0	1.0	0	0	0
		VB	0	0.3	0.7	0	0
		DT	0	0	0	1.0	0
		NN	0.1	0.1	0	0	0.8

Answer: ✓

The correct answer is: 0.17