

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

Started on	Sunday, 6 November 2022, 11:34 PM
State	Finished
Completed on	Sunday, 6 November 2022, 11:56 PM
Time taken	22 mins 25 secs
Grade	8.00 out of 10.00 (80%)

Question 1

Correct

Mark 1.00 out of 1.00

Flag question

A logistic regression classifier can be characterised as which kind of neural net? _____.

- ☐ a. a single-layered perceptron
- ☐ b. recurrent neural net



The correct answer is: a single-layered perceptron

Question 2

Correct

Mark 1.00 out of 1.00

Flag question

Neural nets have only recently been applied to natural language problems and weren't used for language applications before the 2010s.

Select one:

- ☐ True
- ☒ False



The correct answer is 'False'.

Question 3

Correct

Mark 1.00 out of 1.00

Flag question

A logistic regression classifier trained using gradient descent and cross-entropy loss is guaranteed to find a global minimum for its loss function.

Select one:

- ☒ True
- ☐ False



The correct answer is 'True'.

Question 4

Correct

Mark 1.00 out of 1.00

Flag question

A simple 3-node net with no bias nodes has two input nodes x1 and x2, which in practice receive either 0s or 1s for possible inputs, and two weights going to an output node Z with the ReLU activation: one weight w1 from node x1 to node Z with a weight of -1, and one weight w2 from node x2 to node Z with a weight of 1. The input to the net on a given example pair of inputs is x1=0 and x2=1 to the two input nodes. What is the activation value of node Z with these two inputs?

- ☐ a. 1
- ☐ b. 0



The correct answer is: 1

Question 5

Incorrect

Mark 0.00 out of 1.00

Flag question

A simple 3-node net with no bias nodes has two input nodes x1 and x2, which in practice receive either 0s or 1s for possible inputs, and two weights going to an output node Z with the ReLU activation: one weight w1 from node x1 to node Z with a weight of -1, and one weight w2 from node x2 to node Z with a weight of 1. The input to the net on a given example pair of inputs is x1=1 and x2=0 to the two input nodes. What is the activation value of node Z with these two inputs?

- ☐ a. -1
- ☐ b. 0



The correct answer is: 0

Question 6

Correct

Mark 1.00 out of 1.00

Flag question

Select all of the following which are non-linear functions:

- ☒ a. tanh
- ☐ b. OR gate
- ☒ c. ReLU
- ☐ d. naive bayes probability output
- ☒ e. XOR gate
- ☐ f. $f(x) = \frac{1}{2}x + 2$



The correct answers are: ReLU, tanh, XOR gate

Question 7

Correct

Mark 1.00 out of 1.00

Flag question

Select all the below which are similarities between a logistic regression classifier and a deeper neural net.

- ☐ a. They both are guaranteed to reach a global minimum for their loss functions during their training.
- ☒ b. They both have input and output layers
- ☒ c. The both can use softmax in their output layer
- ☒ d. They both can have loss functions regularised by L1 regularisation
- ☐ e. They both have hidden layers of nodes
- ☐ f. They both require backpropagation to be trained effectively



The correct answers are: They both have input and output layers, They both can have loss functions regularised by L1 regularisation, The both can use softmax in their output layer

Question 8

Incorrect

Mark 0.00 out of 1.00

Flag question

In a gradient descent optimisation which step needs to be run during the course of each iteration?

- ☐ a. Random shuffling of the dataset
- ☐ b. A decision on the learning rate
- ☐ c. Selecting the data to train on
- ☐ d. Updating the current loss on predicting the training data's labels with a new value
- ☒ e. A decision on what degree of precision or step size to accept as small enough to stop training



The correct answer is: Updating the current loss on predicting the training data's labels with a new value

Question 9

Correct

Mark 1.00 out of 1.00

Flag question

Which of the following is true of deep neural nets (DNNs) but not of classical machine learning?

- ☐ a. DNNs can be used for sentiment analysis
- ☒ b. DNNs do not require lots of manually defined feature interactions
- ☐ c. DNNs can be used for fake review detection
- ☐ d. DNNs require manual or experimental hyperparamter selection and optimization
- ☐ e. DNNs require evaluation on a test set for performance checks



The correct answer is: DNNs do not require lots of manually defined feature interactions

Question 10

Correct

Mark 1.00 out of 1.00

Flag question

Which of the following properties is true of deeper neural nets (DNNs) but not of logistic regression (LR) classifiers?

- ☐ a. DNNs have output nodes
- ☒ b. DNNs can learn non-linear functions from data
- ☐ c. DNNs can use softmax in their output layers
- ☐ d. DNNs are trained using gradient descent
- ☐ e. DNNs use non-linear functions in their node activations



The correct answer is: DNNs can learn non-linear functions from data

Finish review

◀ Lecture live Zoom link for remote participants

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⌵

Zoom Lab link for remote participants on Thursday 10th (due to tube strike) ▶

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