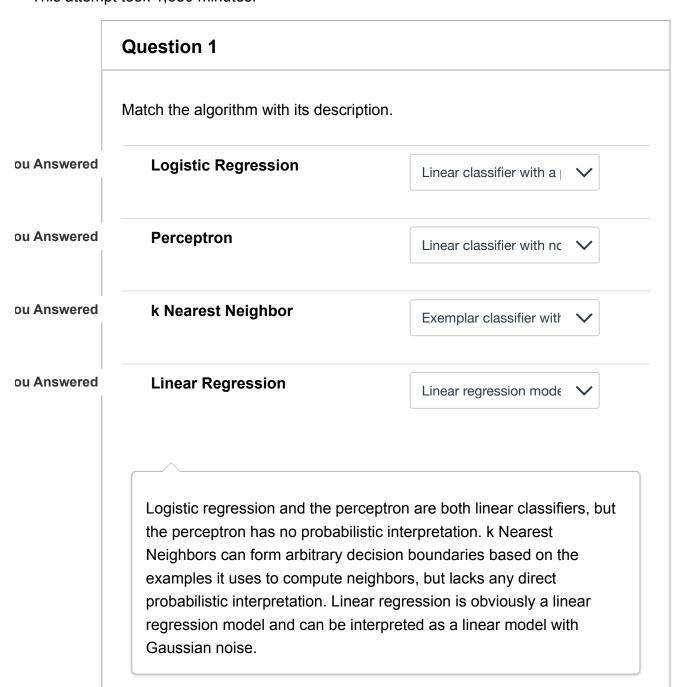
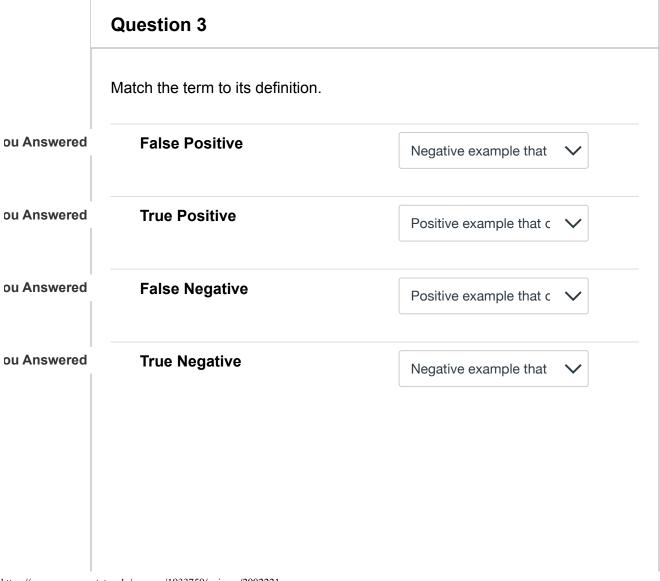
Concept Quiz Over Week 3 Material

Score for this survey: **1** out of 1 Submitted Oct 22 at 7:51pm This attempt took 1,630 minutes.



The standard perceptron learning algorithm is guaranteed to converge even for non-linearly separable data. True ou Answered False False It will continue to oscillate as zero error will never be reached.



False positive -> Negative example that our model predicts as positive

True positive -> Positive example that our models predicts as positive

False negative -> Positive example that our model predicts as negative

True Negative -> Negative example that our model predicts as negative

Question 4

What are recall and precision?

Your Answer:

Recall is the fraction of my model predicted as positive

Precision is Of things your model predicts as positives, what fraction are correct?

Recall is the fraction of positive examples correctly predicted as positive. Precision is the fraction of positive predictions that are actually positive examples.

Question 5 Bayes error is the error due to ______. training a model from a finite dataset. the difficulty of optimization.

ou Answered

- inherit uncertainty in the problem.
- our model not being expressive enough.

inherit uncertainty in the problem.

If two examples look identical except they have different outputs, no model can get them both correct.

Question 6

Both discriminative and generative classifiers make decisions according to P(y|x) (where y is the output and x is the input). However, discriminative model learn _____, while generative models learn _____.

ou Answered

P(y|x), P(y|x) & P(y)

P(y|x) directly; P(x|y) and P(y) and apply Bayes Theorem

Generative models make use of Bayes Theorem and learn make decisions according to argmax_y P(x|y)P(y)

Question 7

Given random variables X, Y, and Z -- what does it mean for X and Y to be conditionally independent given Z?

(Hint: Review the height/vocabulary/age example in lecture)

Your Answer:

P(X,Y|Z) = P(X)P(Y|Z)

P(X,Y|Z) = P(X|Z)

P(Y,X|Z) = P(Y|Z)

Conditioned on the value of Z, X and Y do not provide additional information about each other. That is to say P(X,Y|Z) = P(X|Z)P(Y|Z).

Question 8

The Naive Bayes assumption is that _____.

ou Answered

- the input features are conditionally independent given the class label.
- the input features are distributed according to a Normal distribution.
- the input features are independent.
- \bigcirc that P(y|x) is proportional to P(x|y)P(y).

the input features are conditionally independent given the class label.

Question 9

The Naïve Bayes assumption generally reduces the number of parameters we have to learn in our model. This is because we don't need to learn the full conditional joint distribution $P(x_1,x_2,\ldots,x_d|y)$ and can instead learn conditionals for individual input dimensions $P(x_i|y) \ \forall i$.

ou Answered

True

False

True! The conditional independence assumption in Naïve Bayes lets us assume

 $P(x_1,x_2,\ldots,x_d|y)=P(x_1|y)*P(x_2|y)*\ldots*P(x_d|y)$ so we can then just learn the individual conditional (right) rather than the full conditional joint (left).

Survey Score: 1 out of 1