Iniciado em	segunda, 26 set 2022, 09:21
Estado	Finalizada
Concluída em	segunda, 26 set 2022, 09:21
Tempo empregado	30 segundos
Avaliar	**0,00** de um máximo de 10,00(**0**%)

Questão **1**

Não respondido

Vale 1,00 ponto(s).

[4 minutes]

The probability that classifier A makes an error is $1/4$; the probability that the correct decision is reached given that classifier A makes the correct classification is $9/10$, and the probability that the correct decision is reached given that classifier A makes an error is $3/10$. What is the probability that classifier A makes the correct classification given that the correct decision is reached?

Escolha uma opção:

a. 2/3

b. 8/9

c. 9/40

d. 9/10

e. 1/4

A resposta correta é: 9/10

Questão **2**

Não respondido

Vale 1,50 ponto(s).

[5 minutes]

A class variable Y has values -1 and 1. A feature X is to be observed, with integer values from 1 to 10; the probability of X given Y is equal to:

$P(X = x|Y = y) = (5(1 - y) + y \times x)/(5y + 50)$.

If $P(Y = 1) = 2/3$, what is the output of the Bayes classifier respectively for observations $X = 2$ and $X = 8$?

a. -1 and 1.

b. 1 and 1.

c. 1 and -1.

d. -1 and -1.

A resposta correta é:
-1 and 1.

Questão **3**

Não respondido

Vale 1,50 ponto(s).

[5 minutes]

A regressor was learned with a single continuous feature (covariate) X. The result was the regressor $\hat{Y} = \hat{f}(X)$ where $\hat{f}(X) = 2X$.

It was later known that in fact $Y = X + 2$ (that is, given X we have that Y is exactly determined).

Also we know that the density of X is given by $p(x) = x/2$ for values x between 0 and 2 (values of X are not possible outside this interval). What is the value of the Expected Square Error for this regressor?

a. 1/2

b. 3/2

c. 21/12

d. 28/11

e. 2/3

A resposta correta é:
2/3

Questão **4**

Não respondido

Vale 1,00 ponto(s).

[2 minutes]

A classifier was built and tested, with a class variable Y with three values in $\{1, 2, 3\}$. The following confusion matrix was obtained:

	Y=1	Y=2	Y=3
$\hat{Y} = 1$	35	3	2
$\hat{Y} = 2$	6	40	4
$\hat{Y} = 3$	8	6	30

Suppose we are only interested in whether an observation should receive label 1 or not. Then the precision of the classifier is:

Escolha uma opção:

- a. 7/8
- b. 15/16
- c. 2/3
- d. 1/7
- e. 10/19

A resposta correta é: 7/8

Questão **5**

Não respondido

Vale 1,00 ponto(s).

[2 minutes]

A sentence that describes advantages of the KNN classifier is:

Escolha uma opção:

- a. Its error converges to the Bayes rate as the training data grows in size, once hyperparameters are set to optimal values.
- b. It reduces variance by combining a large number of simple classifiers into a weighted average.
- c. It is simple to understand and to code, and it makes sense.
- d. The 1-NN classifier tends to the Bayes classifier as the number of training points grows without bound.
- e. It is based on a credible model of the human brain.

A resposta correta é: It is simple to understand and to code, and it makes sense.

Questão **6**

Não respondido

Vale 1,00 ponto(s).

[2 minutes]

Consider the following statements:

(a) Typically, an hypothesis test places a limit on the probability that the null hypothesis is rejected when the alternative hypothesis is false.

(b) The Wald test is used to compare the p-value of two classifiers.

Only the following statements are correct:

a. (a) and (b).

b. (a).

c. none.

d. (b).

A resposta correta é:
(a).

Questão **7**

Não respondido

Vale 1,00 ponto(s).

[3 minutes]

A classifier was trained using a training dataset with 90000 observations of 5 different features; the classifier was tested in a testing dataset with 10000 observations. The classifier correctly classified 8000 observations, and incorrectly classified 2000 observations, in the testing dataset. Based on this, the confidence interval for the error rate, with confidence 0.95, is:

Escolha uma opção:

a. [0,1]

b. [0.83,0.92]

c. [0.199,0.202]

d. [0.197,0.203]

e. [0.19216, 0.20784]

A resposta correta é: [0.19216, 0.20784]

Questão **8**

Não respondido

Vale 1,00 ponto(s).

[2 minutes]

Indicate the activity that is NOT contemplated during DataPrep:

Escolha uma opção:

a. Detection of outliers.

b. Combination of tables and other data from various sources.

c. Normalization of values of features.

d. Testing machine learning system for deployment.

e. Transformation of continuous features by discretization.

A resposta correta é: Testing machine learning system for deployment.

Questão **9**

Não respondido

Vale 1,00 ponto(s).

[2 minutes]

Consider the following statements:

(a) The Bayes classifier minimizes overfitting.

(b) The bias/variance tradeoff for regression indicates that any increase in the variance of the response variable Y leads to an increase in the bias of the regressor.

Then:

a. both (a) and (b) are true.

b. both (a) and (b) are false.

c. (a) is false and (b) is true.

d. (a) is true and (b) is false.

A resposta correta é:
both (a) and (b) are false.

◄ Avisos

Seguir para...

Exam 2: December 15th ►