

Quiz 6

Due Nov 22 at 11:59pm

Points 6

Questions 6

Time Limit None

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	2,694 minutes	6 out of 6

Score for this quiz: **6** out of 6

Submitted Nov 20 at 10:47am

This attempt took 2,694 minutes.

Question 1

1 / 1 pts

We are testing a set of toy cars from a new manufacturer. Each toy car has the same probability p to be incorrectly assembled. If we tested 5 toy cars, and we found 3 of those toy cars are incorrectly assembled. What is the most probable value for p based on the maximum likelihood estimation? Round it to two decimals.

Correct!

0.6

Correct Answers

0.6 (with margin: 0)

0 (with margin: 0)

0 (with margin: 0)

0 (with margin: 0)

Question 2

1 / 1 pts

Follow the previous question. If we know the density function of the prior distribution of p is:

$$P(p) = 2p$$

What is the most probable value for p based on the maximum a posteriori estimation? Round it to two decimals.

Correct!

Correct Answers

0.67 (with margin: 0.01)

0 (with margin: 0)

0 (with margin: 0)

0 (with margin: 0)

Question 3

1 / 1 pts

Follow the previous questions. Which of the following statement is INCORRECT?

(A) As we examine more and more toys, the choice of prior becomes less impactful.

(B) We usually assume a uniform prior distribution if no further information is given for p .

(C) A proper choice of prior distribution can significantly reduce the number of experiments needed for the convergence to optimal p .

(D) When the prior is a normal distribution, Maximum A Posteriori estimator is the same as Maximum Likelihood estimator

☐ A

☐ B

☐ C

☒ D

Correct!

Question 4**1 / 1 pts**

Consider building a Naive Bayes classifier for a 3-class multi-class classification problem with 20 binary features. What is the minimal number of parameters we need to specify for this Naive Bayes classifier?

Correct!

62

Correct Answers

62 (with margin: 0)

0 (with margin: 0)

0 (with margin: 0)

0 (with margin: 0)

Question 5**1 / 1 pts**

Consider building a Naive Bayes classifier based on the training data below.

Patient	Age (A)	Weight (W)	Workout Regularly (E)	Diabetes (D)
1	Young	Light	No	Yes
2	Young	Heavy	No	Yes
3	Young	Heavy	No	No
4	Young	Heavy	No	No
5	Young	Light	Yes	No
6	Young	Light	Yes	No
7	Young	Light	Yes	No
8	Young	Light	Yes	No
9	Old	Heavy	No	Yes
10	Old	Heavy	Yes	Yes
11	Old	Light	No	No
12	Old	Light	Yes	No

What is the prior probability $P(D = \text{Yes})$ for the Naive Bayes classifier trained on the above data based on the maximum likelihood estimation? Round it to two decimals.

Correct!**Correct Answers**

0.33 (with margin: 0.01)

0 (with margin: 0)

0 (with margin: 0)

0 (with margin: 0)

Question 6**1 / 1 pts**

Follow the previous question. What is the probability $P(W = \text{Heavy} | D = \text{No})$ for the Naive Bayes classifier trained on the above data based on the maximum likelihood estimation?
Round it to two decimals.

Correct!**Correct Answers**

0.25 (with margin: 0.01)

0 (with margin: 0)

0 (with margin: 0)

0 (with margin: 0)

Quiz Score: 6 out of 6