Quiz 6

Started: Nov 18 at 1:53pm

Quiz Instructions

Question 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.

Question 2 — 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.

Question 3 — 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 Likehood estimatior

- ○ A
- ○ B
- ○ C
- ○ D

Question 4

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?

Question 5

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 = Yes) for the Naive Bayes classifier trained on the above data based on the maximum likelihood estimation?
Round it to two decimals.

Question 6

1 pts

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

Not saved Submit Quiz