



4 Naive bayes

(16%) Consider the training and testing data in the Table below. Classify the test records in Table b using the Naive Bayes classifier trained on the training data in Table a. You only need to compute the probabilities you will need for the classification. For your answer, you need to tell which class has the highest posterior probability – you do not have to compute the final posteriors as long as it is clear which one is bigger.

X	Y	X	Class
1	1	1	+
1	0	0	-
1	1	1	+
1	1	0	+
1	1	1	-
1	1	0	-
0	1	1	-
0	1	1	+
0	0	1	+
0	0	0	+

Using the naive bayes for training from above training data We are interested in classifying two test data entries:

Test1: $X=0, Y=1, Z=0$

Test2: $X=1, Y=0, Z=1$

Compute the likelihood of test cases belonging to certain class.

Note: You can omit the final posterior (the denominator) for computing the $P(X,Y,Z)$ in the bayes theorem formula to fill in the following probabilities.

$$P[C = + | X = 0, Y = 1, Z = 0] =$$

$$P[C = - | X = 0, Y = 1, Z = 0] =$$

$$P[C = + | X = 1, Y = 0, Z = 1] =$$

$$P[C = - | X = 1, Y = 0, Z = 1] =$$

$$P[C = + | X = 0, Y = 1, Z = 0] =$$



Class for $X=0$, $Y=1$, $Z=0$?

Class for $X=1$, $Y=0$, $Z=1$? placeholder

Nullstill

Maks poeng: 15



1

2

3

4

5

6

7

8

9

10

11



All lecture slides