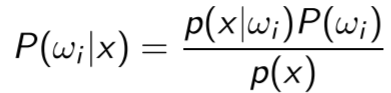
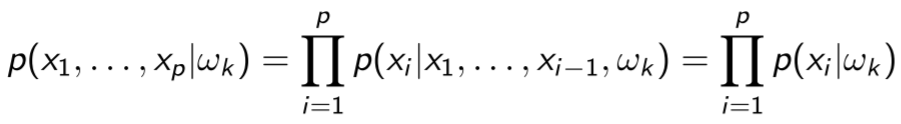
1.

The Bayes classifier is based on the calculation of the a posteriori distribution of the classes P(|x) by using the Bayes law:

By calculating this probability we can predict what class the element belongs to based on its features.

This is very easy to implement for a problem that only has 1 feature but it becomes quite difficult when we have many features since it is harder to calculate the conditional distribution .

This is where the Naïve Bayes classifier comes in, it simplifies the problem by assuming that features are independent from each other which allows us to do simplify the previous calculation:

2.

Sketch of the scatter plot of the training data, training data is not sketched since that is not asked for.

Green: Class = 1 ; Yellow: Class = 2 ; Red: Class = 3



3.

Test set error rate: 2,67%

4.

The test set error rate is very low which concludes that the obtained Naïve Bayes Classifier gives a reliable classification.