Naive Bayes
Exercises

Exercise 1.
A medical test for a specific desease has the following probabilies:

	sick	not sick
test positive	0.009	0.099
test negative	0.001	0.891

Compute the conditional probabilies for

1. receiving a positive test when being sick
2. receiving a negative test when not being sick
3. being actually sick when receiving a positive test,
   a) by computing the probabilies from the table
   b) by using Bayes Theorem and the result from 1.
4. Compare the results to your intuition.

Exercise 2.
Use the IRIS dataset with attributes petal length and width.

1. Compare Gaussian Naive Bayes to Categorical Naive Bayes on the dataset in a cross validation with 10 splits and 10 repetitions.
2. Plot the decision region for the Gaussian approach.
3. Explain how the Categorical Naive Bayes works in this case. Hint: take a look at the classifiers variable `n_categories_`.