Deep learning with applications in natural language processing
Lab 6. Text classification

1. Solve exercises 1 and 2 from Ch. 4. Naive Bayes and Sentiment Classification (book D. Jurafsky, J. Martin. Speech and Language Processing, https://web.stanford.edu/~jurafsky/slp3/).

2. A step of Gradient descent for the classifying sentiment example with x = (1, 3, 0), w=(-.6, -.5, 2), b=0.1, y=1, eta=0.2.

3. Apply the Naive Bayes classifier for a given dataset (for example, the 20 newsgroups dataset https://scikit-learn.org/stable/modules/generated/sklearn.datasets.fetch_20newsgroups.html#sklearn.datasets.fetch_20newsgroups, the reviews dataset http://ai.stanford.edu/~amaas/data/sentiment/, etc). Print the confusion matrix and compute accuracy, precision and recall.