UNIVERSITETET I BERGEN
Det samfunnsvitenskapelige fakultet

Naive Bayes for Sentiment Analysis

INFO284 – First Group Assignment

Candidates: 17, 14,81,16

Characters: 1219

The Performance of Our Model

Our Naïve Bayes classifier has the following scores when testing it on 1000 reviews from the test set:

- accuracy: 0.817
- precision: 1.000
- recall: 0.817
- f-measure: 0.899

The scores are decent, but our opinion is that it could do better with minor improvements. The main fault of the classifier is that it returns a relatively high number of false positives. When it comes to false negatives, our classifier always returns close to none. No false negatives results in a high precision score but the number of false positives hurts the overall performance of the classifier. The model that is made the first time the program runs is reusable and is loaded the next time the program runs, saving the time it would take to train a model all over again.

The exact reason why the model is prone to falsely categorize negative reviews as positive is unknown to the group. One option is that we make a mistake when we tokenize words or apply Naïve Bayes on the model in our somewhat messy code in the fit() method. On the other hand, the predictions could be improved by implementing a few more features. One feature could include eliminating neutral words and stop words, so that these types of words do not affect the predictions. We could also implement a feature that folds synonyms and related words and synonyms into a single word.