

CS534 Implementation Assignment 2: Naive Bayes

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Abstract

In this assignment, we implemented the Naive Bayes classifier with the Bernoulli model and Multinomial model, and compared their performance.

1 Introduction

We implemented the Naive Bayes classifier to solve a document classification problem on the 20-newsgroup data set. Two models were implemented and compared for performance: Bernoulli model and Multinomial model.

2 Naive Bayes

Paragraph about Naive Bayes.

Paragraph about implementation, namely to answer, “Please explain how you use the log of probability to perform classification.” Also talk about using Laplace smoothing.

Paragraph about training and testing procedures.

3 Bernoulli Model

Paragraph about Bernoulli model.

Paragraph about Multinomial model.
Report overall testing accuracy.
Report the confusion matrix.

4 Multinomial Model

Paragraph about Multinomial model.
Report overall testing accuracy.
Report the confusion matrix.