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CS74040 NLP

10/24/2021

Homework 2

Report

1. [Movie review classification using Naïve Bayes - 10 points]

Assume that you have trained a Naïve Bayes classifier for the task of sentiment classification (Please refer to Chapter 4 in the J&M book). The classifier uses only bag-of-word features. Assume the following parameters for each word being part of a positive or negative movie review, and the prior probabilities are 0.4 for the positive class and 0.6 for the negative class.

Table

Description automatically generated

Question: What class will Naive Bayes assign to the sentence “I always like foreign films”? **Show your work.**

Ans:

P( “I always like foreign films” | pos ) = P(pos)

= 0.4 \* 0.09 \* 0.07 \* 0.29 \* 0.04 \* 0.08 = 0.00000233856

P( “I always like foreign films” | neg ) = P(neg)

= 0.6 \* 0.16 \* 0.06 \* 0.06 \* 0.15 \* 0.11 = 0.0000057024

According to the result, the Naïve Bayes classifier will assign negative to “I always like foreign films”.