Naive Bayes Results:

Document classification is a classical machine learning problem. If there is a set of documents that is already categorized/labeled in existing categories, the task is to automatically categorize a new document into one of the existing categories.

APPLYING MULTINOMIAL BAYES CLASSIFICATION

Step 1

Calculate prior probabilities. These are the probability of a document being in a specific category from the given set of documents.

P(Category) = (No. of documents classified into the category) divided by (Total number of documents)

Step 2

Calculate Likelihood. Likelihood is the conditional probability of a word occurring in a document given that the document belongs to a particular category.

P(Word/Category) = (Number of occurrence of the word in all the documents from a category+1) divided by (All the words in every document from a category + Total number of unique words in all the documents)

Step 3

Calculate P(Category/Document) = P(Category) * P(Word1/Category) * P(Word2/Category) * P(Word3/Category)

Step 4

Choose the highest probability among the different classes.

The results are as follows:
The accuracy is: 0.683592110785
The precision is: 0.788712011577
The recall is: 0.472679965308
The F1 Score is:0.591106290672

Confusion Matrix depicting the True Positives, True Negatives, False Positives and False Negatives: