Experiment No. 6

Title: To Implement Bayesian Analysis in R

Problem

For this analysis, we will use the iris dataset that comes with R by default. iris is a standard built-in dataset. Here we need to predict species if sepal length & width and Petal length and width are given.

1. Import the data and library(e1071)

   #loading the data and libraries

   library(e1071)

   library(caTools)

   data(iris)

2. Create the training (development) and test (validation) data samples from original data.

   #splitting the data for training and testing purpose

   split <- sample.split(iris, SplitRatio=0.7)

   train <- subset(iris, split=TRUE)

   test <- subset(iris, split=FALSE)

3. Develop the model on the training data using the "naiveBayes()" function

   #creating naive bayes model

   myModel <- naiveBayes(train[,1:4], train[,5])

   myModel$apriori #to check whats the training given.

4. Use the model to predict the class -Species on test data

table(predict(myModel, test[,-5]), test[,5], dnn=list('Predicted','Actual')) #returns the confusion matrix

```
> myModel <- naiveBayes(train[,1:4], train[,5])

> table(predict(myModel, test[,-5]), test[,5], dnn=list('Predicted','Actual')) #returns t
he confusion matrix
           Actual
Predicted    setosa versicolor virginica
  setosa         50          0         0
  versicolor      0         47         3
  virginica       0          3        47

> myModel$apriori
train[, 5]
    setosa versicolor  virginica
        50         50         50
```