Question 2 : Naïve Bayesian Classifier

1. Find a good R package that does naïve Bayesian classification or write your own Java/Python code. Clearly mention the approach that you take.

Answer : Language Used: **R Language**

I have used the following R package for classification **e1071 package.**

Installing package,

install.packages('e1071', dependencies = TRUE)

Use the package

library(e1071)

2. Using a random number generator, split the Pima dataset into a ratio of 90:10 for training and testing. Use the training data to build a naïve Bayesian model and then use the model to find the prediction on the test data.
Repeat this experiment 10 times using different samples each time. You can create training/test data using R's sample function.

Please run file : **q2_Naive_bayes.R** for above question.
Run using command : **rscript q2_Naive_bayes.R**

3. For each experiment, compute the accuracy. Also, report the average accuracy of the 10 experiments.

Report of output :

```
Experiment:  1 Accuracy 68.83117 %
Experiment:  2 Accuracy 77.92208 %
Experiment:  3 Accuracy 84.41558 %
Experiment:  4 Accuracy 76.62338 %
Experiment:  5 Accuracy 72.72727 %
Experiment:  6 Accuracy 70.12987 %
Experiment:  7 Accuracy 81.81818 %
Experiment:  8 Accuracy 79.22078 %
Experiment:  9 Accuracy 77.92208 %
Experiment:  10 Accuracy 67.53247 %

Overall Accuracy is: 75.71429 %
```