Subject : AML

Subject Code : 3CS1111

Roll No : 20MCED08

Naive Bayes

In [2]:
```
import numpy
from sklearn import datasets, metrics
from sklearn.naive_bayes import GaussianNB
X,y=datasets.load_iris(return_X_y=True)
# print(X)
# print(y)
X_train=X[range(0,150,2),:]
y_train=y[range(0,150,2)]
X_test=X[range(1,150,2),:]
y_test=y[range(1,150,2)]
clf = GaussianNB() #creating instance of a classifier #BernoulliNB() for Berno
uliNB
#MultinomialNB() for MultinomialNB()
clf.fit(X_train, y_train)
prediction = clf.predict(X_test) #predict using the learnt classifier
print("################ Predictions #################")
print(prediction)
print("##############################################")
print("Accuracy:",metrics.accuracy_score(y_test, prediction, normalize=True))
print(metrics.classification_report(y_test, prediction))
print(metrics.confusion_matrix(y_test, prediction))
```

```
################ Predictions #################
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1
 1 2 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 1 2 2 2 2 2 2 1 2 2 2 2 2 2 2
 2]
##############################################
Accuracy: 0.96
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        25
           1       0.92      0.96      0.94        25
           2       0.96      0.92      0.94        25

    accuracy                           0.96        75
   macro avg       0.96      0.96      0.96        75
weighted avg       0.96      0.96      0.96        75

[[25  0  0]
 [ 0 24  1]
 [ 0  2 23]]
```