**Intelligent Systems Lab (CS 1763)**

**Naive Bayesian Classifier**

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Section: B

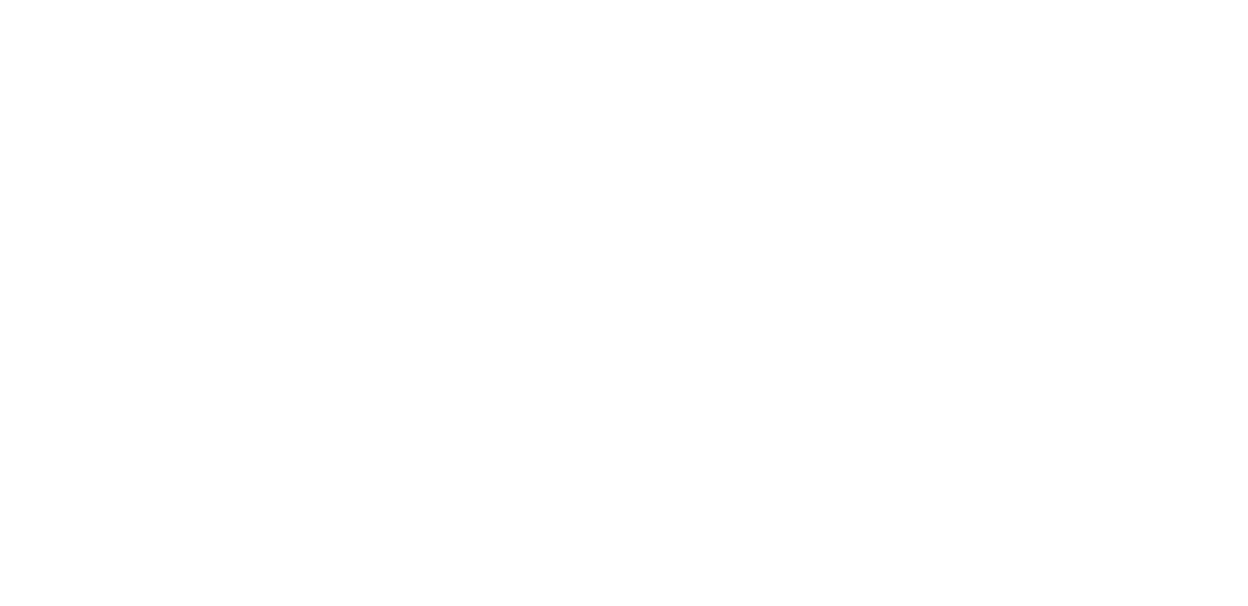


**Q. Write a program to implement the naïve Bayesian classifier for a sample training data set stored as a .CSV file. Compute the accuracy of the classifier, considering few test data sets.**

Ans.

**1. IRIS DATASET**

from​ sklearn.datasets ​import​ load\_iris dataset = load\_iris()



X = dataset.data

y = dataset.target

from​ sklearn.model\_selection ​import​ train\_test\_split

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size=​0.4​, random\_state=​1​)

from​ sklearn.naive\_bayes ​import​ GaussianNB gnb = GaussianNB()

gnb.fit(X\_train, y\_train)

y\_pred = gnb.predict(X\_test)

from​ sklearn.metrics ​import​ accuracy\_score

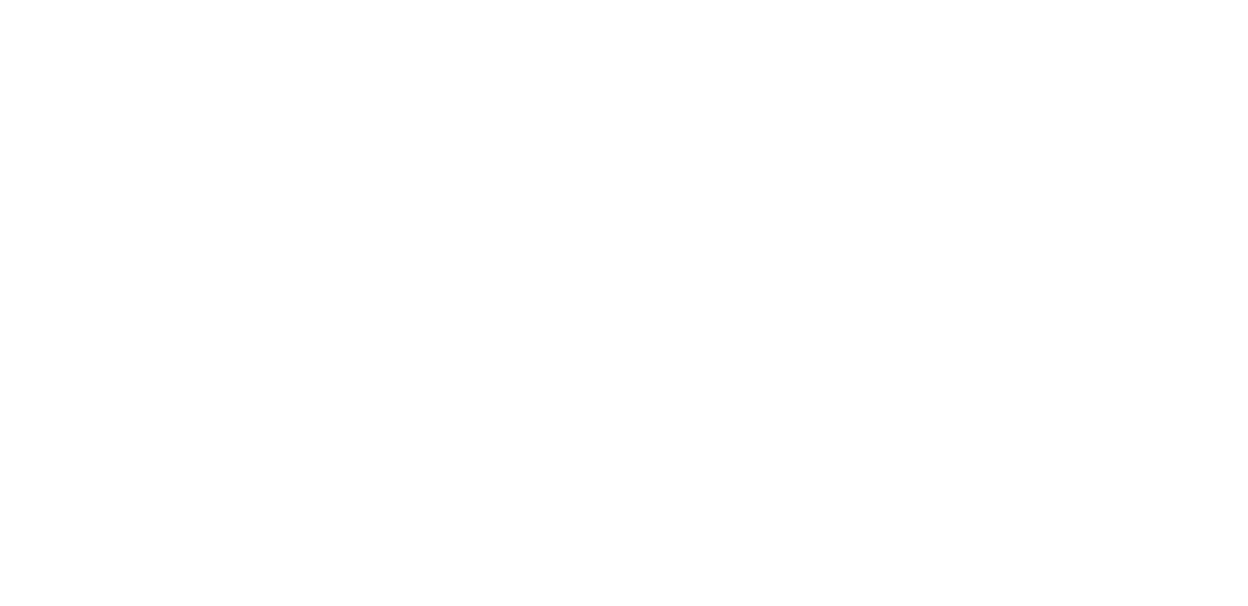
print​(​"Gaussian Naive Bayes accuracy:"​, accuracy\_score(y\_test, y\_pred)\*​100​)

**Output :-**



**2. DIGITS DATASET**

from​ sklearn.datasets ​import​ load\_digits dataset = load\_digits()



X = dataset.data

y = dataset.target

from​ sklearn.model\_selection ​import​ train\_test\_split

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size=​0.4​, random\_state=​1​)

from​ sklearn.naive\_bayes ​import​ GaussianNB gnb = GaussianNB()

gnb.fit(X\_train, y\_train)

y\_pred = gnb.predict(X\_test)

from​ sklearn.metrics ​import​ accuracy\_score

print​(​"Gaussian Naive Bayes accuracy:"​, accuracy\_score(y\_test, y\_pred)\*​100​)

**Output :-**



**3. WINE DATASET**

from​ sklearn.datasets ​import​ load\_wine



dataset = load\_wine()

X = dataset.data

y = dataset.target

from​ sklearn.model\_selection ​import​ train\_test\_split

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size=​0.4​, random\_state=​1​)

from​ sklearn.naive\_bayes ​import​ GaussianNB gnb = GaussianNB()

gnb.fit(X\_train, y\_train)

y\_pred = gnb.predict(X\_test)

from​ sklearn.metrics ​import​ accuracy\_score

print​(​"Gaussian Naive Bayes accuracy:"​, accuracy\_score(y\_test, y\_pred)\*​100​)

**Output :-**



**4. BREAST CANCER DATASET**

from​ sklearn.datasets ​import​ load\_breast\_cancer dataset = load\_breast\_cancer()



X = dataset.data

y = dataset.target

from​ sklearn.model\_selection ​import​ train\_test\_split

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size=​0.4​, random\_state=​1​)

from​ sklearn.naive\_bayes ​import​ GaussianNB gnb = GaussianNB()

gnb.fit(X\_train, y\_train)

y\_pred = gnb.predict(X\_test)

from​ sklearn.metrics ​import​ accuracy\_score

print​(​"Gaussian Naive Bayes accuracy:"​, accuracy\_score(y\_test, y\_pred)\*​100​)

**Output :-**

