Assignment-6

import numpy as np

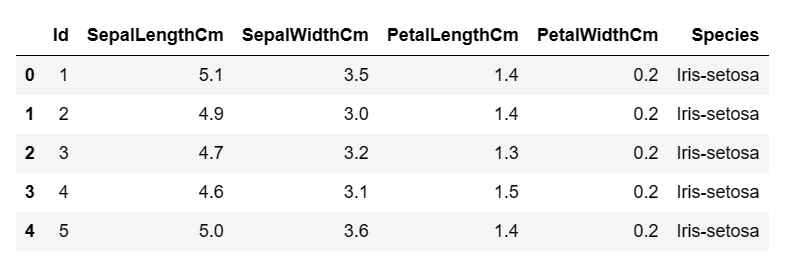
import pandas as pd

import matplotlib.pyplot as plt

import seaborn as sns

df = pd.read\_csv("Iris.csv")

df.head()



df['Species'].unique()

ouput: array(['Iris-setosa', 'Iris-versicolor', 'Iris-virginica'], dtype=object)

df.drop(columns="Id",inplace=True)

df.isnull().sum()

output: SepalLengthCm 0

SepalWidthCm 0

PetalLengthCm 0

PetalWidthCm 0

Species 0

dtype: int64

X=df.iloc[:,0:4].values

y=df.iloc[:,4].values

from sklearn.preprocessing import LabelEncoder

le = LabelEncoder()

y = le.fit\_transform(y)

from sklearn.metrics import make\_scorer, accuracy\_score,precision\_score

from sklearn.metrics import classification\_report

from sklearn.metrics import confusion\_matrix

from sklearn.metrics import accuracy\_score ,precision\_score,recall\_score,f1\_score

#Model Select

from sklearn.model\_selection import KFold,train\_test\_split,cross\_val\_score

from sklearn.naive\_bayes import GaussianNB

X\_train,X\_test,y\_train,y\_test=train\_test\_split(X,y,test\_size=0.3,random\_state=0)

gaussian = GaussianNB()

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

Y\_pred = gaussian.predict(X\_test)

accuracy\_nb=round(accuracy\_score(y\_test,Y\_pred)\* 100, 2)

acc\_gaussian = round(gaussian.score(X\_train, y\_train) \* 100, 2)

cm = confusion\_matrix(y\_test, Y\_pred)

accuracy = accuracy\_score(y\_test,Y\_pred)

precision =precision\_score(y\_test, Y\_pred,average='micro')

recall = recall\_score(y\_test, Y\_pred,average='micro')

f1 = f1\_score(y\_test,Y\_pred,average='micro')

print('Confusion matrix for Naive Bayes\n',cm)

print('accuracy\_Naive Bayes: %.3f' %accuracy)

print('precision\_Naive Bayes: %.3f' %precision)

print('recall\_Naive Bayes: %.3f' %recall)

print('f1-score\_Naive Bayes : %.3f' %f1)

output: Confusion matrix for Naive Bayes

[[16 0 0]

[ 0 18 0]

[ 0 0 11]]

accuracy\_Naive Bayes: 1.000

precision\_Naive Bayes: 1.000

recall\_Naive Bayes: 1.000

f1-score\_Naive Bayes : 1.000