

File Name:mgLab3test1.ipynb

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Course:611

Date:2/27/2022

Program Description:program for TEST 2 – kNN CLASSIFIER

```
import numpy as np #used for numpy array
from sklearn import datasets #used for plotting
from sklearn.model_selection import train_test_split #used for seprating data from dataset
import matplotlib.pyplot as plt #used for plotting
from sklearn.neighbors import KNeighborsClassifier #used for sklearn KNN
```

```
run Knn.py #run developed knn file
```

```
<Figure size 432x288 with 0 Axes>
```

Testing our custom KNN on Iris dataset

```
iris = datasets.load_iris() #load data
```

```
X = iris.data
y = iris.target
```

```
X_train, X_test, y_train, y_test = train_test_split(X, y, random_state=50) #split data
classifier=knnBuild("classifier",3)
classifier.knnFit(X_train, y_train) #fit model
result=classifier.knnPredict(X_test)
print("Test set score of our model: {:.2f}".format(np.mean(result == y_test))) #shows the
```

```
Test set score of our model: 0.95
```

Testing iris dataset with Sklearn's KNN

```
#building sklearn KNN model
knn = KNeighborsClassifier(n_neighbors=3)
knn.fit(X_train, y_train)
y_pred = knn.predict(X_test)
print("Test set score of sklearn model: {:.2f}".format(np.mean(y_pred == y_test)))
```

```
Test set score of sklearn model: 0.95
```

Plotting Dataset

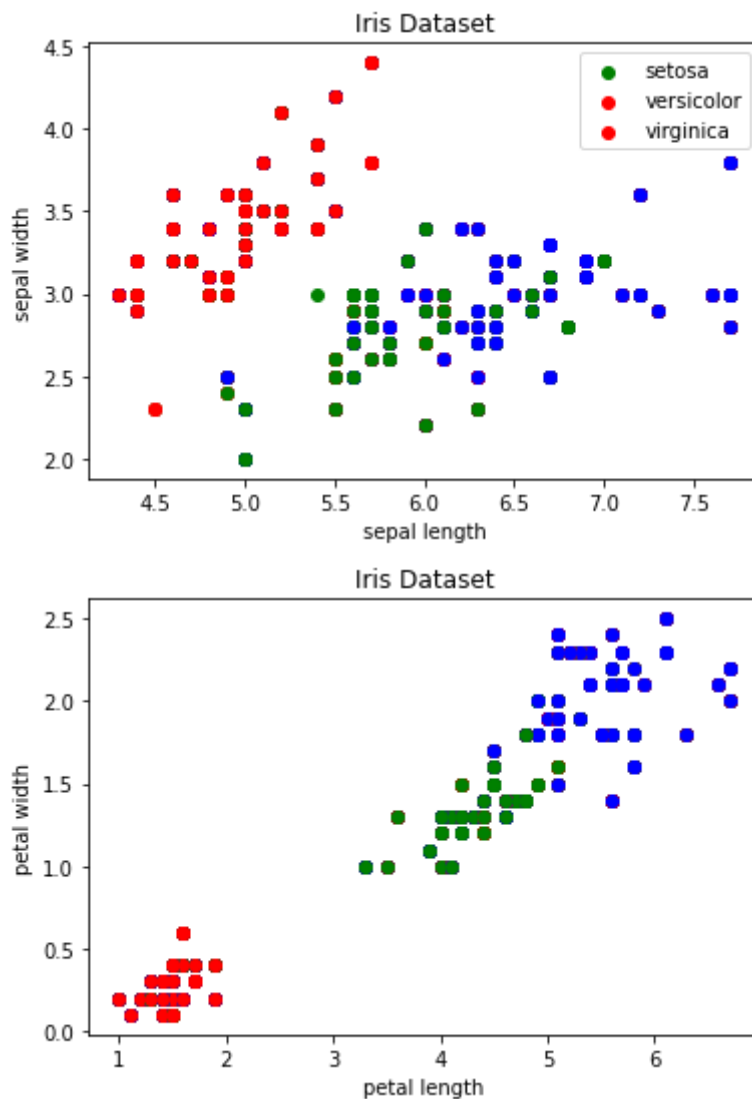
visualization of Data

```

#plotting the Dataset using matplotlib
#In the map Red color=setosa ,green=versicolor, blue=virginica
x_data=X_train.shape[0]
colors={0:'r',1:'g',2:'b'}
fig,ax=plt.subplots()
for i in range(x_data):
    ax.scatter(X_train[i,0],X_train[i,1],color=colors[y_train[i]])
ax.set_title('Iris Dataset')
ax.set_xlabel('sepal length')
ax.set_ylabel('sepal width')
plt.legend(['setosa', 'versicolor', 'virginica'])
fig1,ax1=plt.subplots()
for i in range(x_data):
    ax1.scatter(X_train[i,2],X_train[i,3],color=colors[y_train[i]])
ax1.set_title('Iris Dataset')
ax1.set_xlabel('petal length')
ax1.set_ylabel('petal width')

```

Text(0, 0.5, 'petal width')



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