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from sklearn.model_selection import train_test_split
from sklearn.neighbors import KNeighborsClassifier
from sklearn import datasets

iris = datasets.load_iris()
print("iris dataset loaded")

x_train, x_test, y_train, y_test = train_test_split(iris.data, iris.target, test_size = 0.1)
print("Dataset is split into training and testing")
print("Size of training data and its label", x_train.shape, y_train.shape)
print("Size of testing data and its label", x_test.shape, y_test.shape)

for i in range(len(iris.target_names)):
    print("Label", i, "-", str(iris.target_names[i]))

classifier = KNeighborsClassifier(n_neighbors = 1)

classifier.fit(x_train, y_train)
y_pred = classifier.predict(x_test)

print("Results of Classification using KNN with K = 1")
for r in range(0, len(x_test)):
    print("Sample:", str(x_test[r]), "Actual_label:", str(y_test[r]), "Predicted-label:", str(y_pred[r]))
print("Classification Accuracy:", classifier.score(x_test, y_test));

from sklearn.metrics import classification_report, confusion_matrix
print("Confusion matrix")
print(confusion_matrix(y_test, y_pred))
print("Accuracy metrics")
print(classification_report(y_test, y_pred))
```