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import pandas as pd
from sklearn.datasets import load_iris
from sklearn.model_selection import train_test_split
from sklearn.neighbors import KNeighborsClassifier
from sklearn.metrics import accuracy_score, classification_report

iris = load_iris()

X = iris.data
y = iris.target

X_train, X_test, y_train, y_test = train_test_split(
    X, y, test_size=0.25, random_state=42
)

knn = KNeighborsClassifier(n_neighbors=5)
knn.fit(X_train, y_train)

KNeighborsClassifier()

y_pred = knn.predict(X_test)

print("Accuracy:", accuracy_score(y_test, y_pred))
print("\nClassification Report:",
      classification_report(y_test, y_pred, zero_division=0))

Accuracy: 1.0

Classification Report:
             precision    recall  f1-score   support

              0       1.00     1.00     1.00      15
              1       1.00     1.00     1.00      11
              2       1.00     1.00     1.00      12

   accuracy                           1.00      38
  macro avg       1.00     1.00     1.00      38
weighted avg       1.00     1.00     1.00      38

# New flower: Sepal length, Sepal width, Petal length, Petal width
new_sample = [[5.1, 3.5, 1.4, 0.2]]

prediction = knn.predict(new_sample)

print("Predicted Flower:", iris.target_names[prediction[0]])

Predicted Flower: setosa

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