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from sklearn.model_selection import train_test_split
from sklearn.neighbors import KNeighborsClassifier
from sklearn.metrics import accuracy_score, classification_report, confusion_matrix
from sklearn.datasets import load_iris
# Load the Iris dataset
iris = load_iris()
X = iris.data
y = iris.target
# Split the dataset into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
# Initialize the KNN classifier
knn = KNeighborsClassifier(n_neighbors=3)
# Train the classifier
knn.fit(X_train, y_train)
# Make predictions on the test set
y_pred = knn.predict(X_test)
# Evaluate the performance
accuracy = accuracy_score(y_test, y_pred)
conf_matrix = confusion_matrix(y_test, y_pred)
class_report = classification_report(y_test, y_pred)
# Print the results
print(f'Accuracy: {accuracy:.2f}')
print('Confusion Matrix:')
print(conf_matrix)
print('Classification Report:')
print(class_report)
Accuracy: 1.00
     Confusion Matrix:
     [[10 0 0]
      [0 9 0]
      [ 0 0 11]]
     Classification Report:
                              recall f1-score support
                  precision
                              1.00
                                          1.00
               0
                       1.00
                                                       10
```

1

accuracy

macro avg weighted avg 1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

1.00

9

11

30

30

30