



## **Lab #10**

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**Subject: AI Lab**

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## Lab # 08

# Task 1

## Solution:

```
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


# Load Iris dataset

iris = load_iris()

X = iris.data

y = iris.target


# Split into training and testing data (70% train, 30% test)

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3,
random_state=42)


# Create KNN model (k=3)

knn = KNeighborsClassifier(n_neighbors=3)


# Train the model

knn.fit(X_train, y_train)
```

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# Predict on test data

```
y_pred = knn.predict(X_test)
```

# Accuracy

```
accuracy = accuracy_score(y_test, y_pred)
```

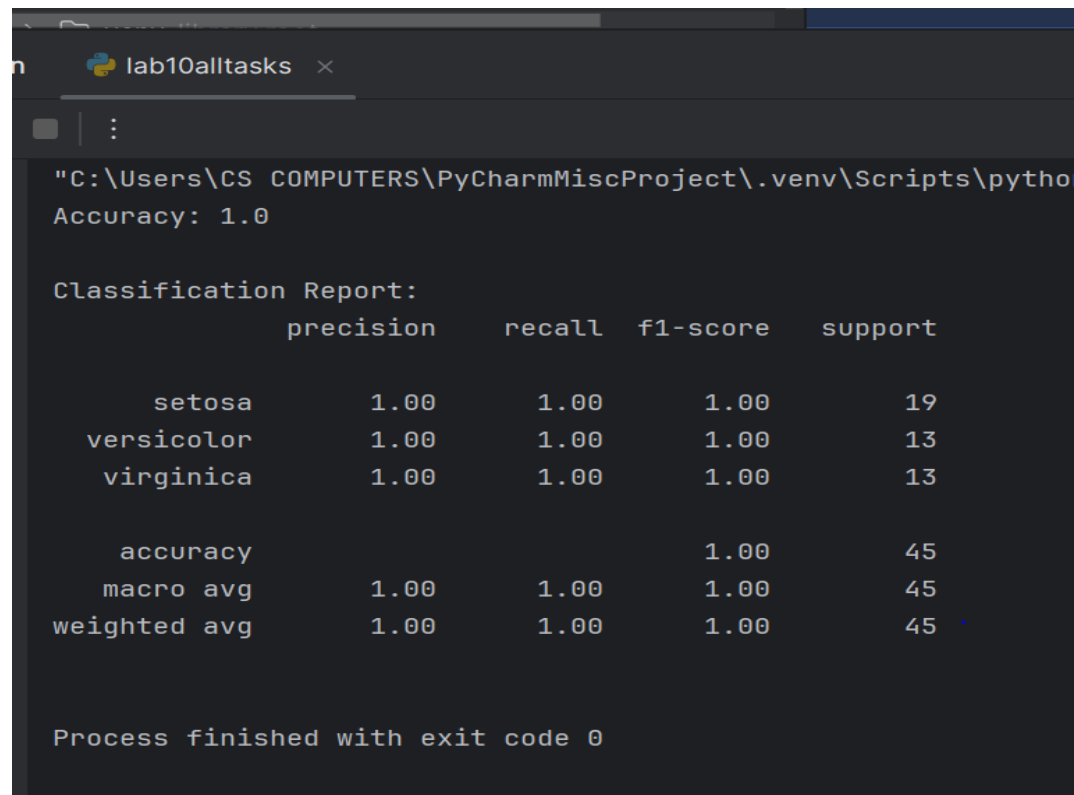
```
print("Accuracy:", accuracy)
```

# Classification report

```
print("\nClassification Report:")
```

```
print(classification_report(y_test, y_pred, target_names=iris.target_names))
```

## Output:



```
"C:\Users\CS COMPUTERS\PyCharmMiscProject\.venv\Scripts\python.exe"
lab10alltasks x

Accuracy: 1.0

Classification Report:
              precision    recall  f1-score   support

   setosa         1.00        1.00        1.00        19
  versicolor      1.00        1.00        1.00        13
   virginica      1.00        1.00        1.00        13

   accuracy                   1.00         45
  macro avg         1.00        1.00        1.00         45
 weighted avg         1.00        1.00        1.00         45

Process finished with exit code 0
```