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## Name      : Ayush Pramod Chavan
##Roll No    : 23
## PRN       : 12310917
## Subject   : Deep Learning (Lab)
## Div       : CSE(AI)-A
Batch: 1
## Teacher/Guide : Mrs. Dnyanda Shinde
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Assignment - 3

✓ Problem Statement

Write a program to implement k-Nearest Neighbour algorithm to classify the iris data set. Print both correct and wrong predictions. Python ML library classes can be used for this problem.

```
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
```

✓ 1.load dataset

```
iris = load_iris()
X = iris.data
y = iris.target
target_names = iris.target_names
```

✓ 2. Split into training and testing sets

```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2,
```

✓ 3. Initialize and train the k-NN classifier

```
knn = KNeighborsClassifier(n_neighbors=3)
knn.fit(X_train, y_train)
```

Double-click (or enter) to edit

✓ 4. Make predictions

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

✓ 5. Compare results and print outcomes

```
print(f"{'Actual':<15} | {'Predicted':<15} | {'Status'}")
print("-" * 45)

correct = 0
wrong = 0
for actual, predicted in zip(y_test, y_pred):
    status = "✓ Correct" if actual == predicted else "x WRONG"
    if actual == predicted:
        correct += 1
    else:
        wrong += 1

    print(f"{target_names[actual]:<15} | {target_names[predicted]:<15} | {status}")

# Final Summary
print("-" * 45)
print(f"Total Correct: {correct}")
print(f"Total Wrong: {wrong}")
print(f"Accuracy: {accuracy_score(y_test, y_pred) * 100:.2f}%")
```

