

Experiment - 2 - Implement a Classifier using an Open-Source Dataset

6/8/25

Aim:

To implement a supervised machine learning using an open-source dataset.

Pseudocode:

1) Import necessary libraries

- pandas, scikit-learn, dataset, metrics, KNN KNeighborsClassifier.

2) Load the dataset

- Use datasets.load_iris()

3) Prepare the data.

- Assign features to x , target to y .

4) Split into Training & Testing sets:-

- Use train_test_split($x, y, \text{test_size}=0.3, \text{random_state}=42$)

5) Instantiate the KNN Classifier:

- $knn = KNeighborsClassifier(n_neighbors=3)$

6) Train the model.

7) Make Predictions.

- $y_pred = knn.predict(x_test)$

8) Evaluate the classifier:

- Calculate accuracy: $\text{metrics.accuracy_score}(y_test, y_pred)$

Observation:

The KNN classifier is trained on the Iris dataset and tested with unseen data. Output is displayed.

Lowering 'k' can make the model more sensitive to noise, while larger k can smoothen decision boundaries.

Result:

KNN classifier was successfully implemented and tested using an open-source dataset.

Accuracy: 1

Precision: 1

Recall: 1

F-1: 1

```
jupyter-ra2311047010014@cintel:~/DLT$ python knn-week1.py  
Accuracy: 1.0  
Precision: 1.0  
Recall: 1.0  
F1 Score: 1.0
```