

1/8/25

Week-2

Aim:- To implement a classifier using an open source data set and evaluating its performance using ML Algorithm.

Procedure:-

- 1) Import the required Libraries.
- 2) Load an open source dataset.
- 3) preprocess the dataset if required.
- 4) split the dataset into training and testing sets.
- 5) Train a classifier (Logistic Regression).
- 6) Test the model on the test data.
- 7) measure the accuracy and visualize results.

Code :-

```

from sklearn.datasets import load_iris
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
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=0.3, random_state=42)

model = LogisticRegression(max_iter=200)
model.fit(X_train, Y_train)
Y_pred = model.predict(X_test)

accuracy = accuracy_score(Y_test, Y_pred)
report = classification_report(Y_test, Y_pred)
print("Accuracy of Logistic Regression model :", accuracy)
print("classification Report :\n", report)

```

Output :-

Accuracy : 1.0

Confusion matrix :

```
[[19  0  0]
 [ 0 13  0]
 [ 0  0 13]]
```

Classification Report :

	precision	recall	f1-score	support
0	1.00	1.00	1.00	19
1	1.00	1.00	1.00	13
2	1.00	1.00	1.00	13
accuracy			1.00	45
macro avg	1.00	1.00	1.00	45

Pseudocode :-

1.) Import Required Libraries :

- dataset Loader
- Train-test split
- Logistic Regression

2.) Load the Iris Dataset

- Store features in variable x
- Store labels in variable y

3.) Split dataset into training and testing sets

- use 70% for training
- use 30% for testing.

4.) Create Logistic Regression model.

5.) Train model using training data.

6.) Evaluate the model

- calculate accuracy, confusion matrix
- generate classification report.

Result :-

In this experiment we have successfully completed the implementing a classifier using open source data set.