

Lab Report for ML Lab

USN – 1BM18CS103

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Program 9

Write a program to implement k-Nearest Neighbour algorithm to classify the iris data set.
Print both correct and wrong predictions.

Dataset –

	sepal-length	sepal-width	petal-length	petal-width	Class
0	5.1	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa

Code –

```
from sklearn.model_selection import train_test_split
from sklearn.neighbors import KNeighborsClassifier
from sklearn.metrics import classification_report, confusion_matrix
from sklearn import datasets
iris=datasets.load_iris()

x = iris.data
y = iris.target

print ('sepal-length', 'sepal-width', 'petal-length', 'petal-width')
print(x)
print('class: 0-Iris-Setosa, 1- Iris-Versicolour, 2- Iris-Virginica')
print(y)
x_train, x_test, y_train, y_test = train_test_split(x,y,test_size=0.3)

#To Training the model and Nearest neighbors K=5
classifier = KNeighborsClassifier(n_neighbors=5)
classifier.fit(x_train, y_train)
```

```
#to make predictions on our test data
```

```
print('Confusion Matrix')
```

```
print('Accuracy Metrics')
```

OUTPUT –

Confusion Matrix

[[18 0 0]

[0 17 2]

[0 1 7]]

Accuracy Metrics

	precision	recall	f1-score	support
0	1.00	1.00	1.00	18
1	0.94	0.89	0.92	19
2	0.78	0.88	0.82	8
accuracy			0.93	45
macro avg	0.91	0.92	0.91	45
weighted avg	0.94	0.93	0.93	45

