



Experiment 2.3

Student Name: Jitesh Kumar

Branch: CSE

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Subject Name: Machine Learning Lab

UID: 20BCS2334

Section/Group 20BCS_WM_903(A)

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1. Aim/Overview of the practical:

1. Implement K-Nearest Neighbor on any data set

2. Source Code:

```
from sklearn.neighbors import KNeighborsClassifier
from sklearn.model_selection import train_test_split
from sklearn.datasets import load_wine
import numpy as np
dData = load_wine()
print(dData.feature_names)
print(dData.target_names)
X= dData.data
y= dData.target

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=0)

knn=KNeighborsClassifier(n_neighbors=2)

knn.fit(X_train,y_train)

y_pred=knn.predict(X_test)

y_pred

from sklearn.metrics import accuracy_score, precision_score, recall_score, f1_score

print("\nAccuracy: ", accuracy_score(y_test, y_pred))
```

Result/Output

```
In [5]: from sklearn.neighbors import KNeighborsClassifier
        from sklearn.model_selection import train_test_split
        from sklearn.datasets import load_wine
        import numpy as np
```

```
dData = load_wine()
```

```
In [7]: print(dData.feature_names)
```

```
['alcohol', 'malic_acid', 'ash', 'alcalinity_of_ash', 'magnesium', 'total_phenols', 'flavanoids', 'nonflavanoid_phenols', 'proanthocyanins', 'color_intensity', 'hue', 'od280/od315_of_diluted_wines', 'proline']
```

```
In [8]: print(dData.target_names)
```

```
['class_0' 'class_1' 'class_2']
```

```
In [10]: X= dData.data
```

```
y= dData.target
```

```
In [11]: X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=0)
```

```
In [12]: knn=KNeighborsClassifier(n_neighbors=2)
        knn.fit(X_train,y_train)
```

```
Out[12]: KNeighborsClassifier(n_neighbors=2)
```

```
In [13]: y_pred=knn.predict(X_test)
```

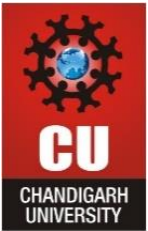
```
In [14]: y_pred
```

```
Out[14]: array([0, 1, 1, 0, 1, 1, 0, 1, 1, 1, 0, 1, 0, 2, 1, 1, 0, 0, 1, 0, 1, 0,
                1, 1, 0, 1, 1, 1, 2, 2, 0, 0, 1, 0, 0, 0])
```

```
In [15]: from sklearn.metrics import accuracy_score, precision_score, recall_score, f1_score
        A|
        print("\nAccuracy: ", accuracy_score(y_test, y_pred))
```

```
Accuracy: 0.75
```

```
In [ ]:
```



Learning outcomes (What I have learnt):

1. Learnt to analyze the data.
2. Learnt to import various libraries.
3. Learnt to read csv files.
4. Learnt to implement KNN .
5. Learnt to train and test the data.