

Ex.No-
10

K Nearest Neighbours

Aim:

To implement K-Nearest Neighbors machine learning algorithm.

Description:

1. Import KNeighbors Classifier through sklearn
2. Provide the necessary dataset through DataFrames
3. Finally we can obtain the KNN output through matplotlib as graph

Program:

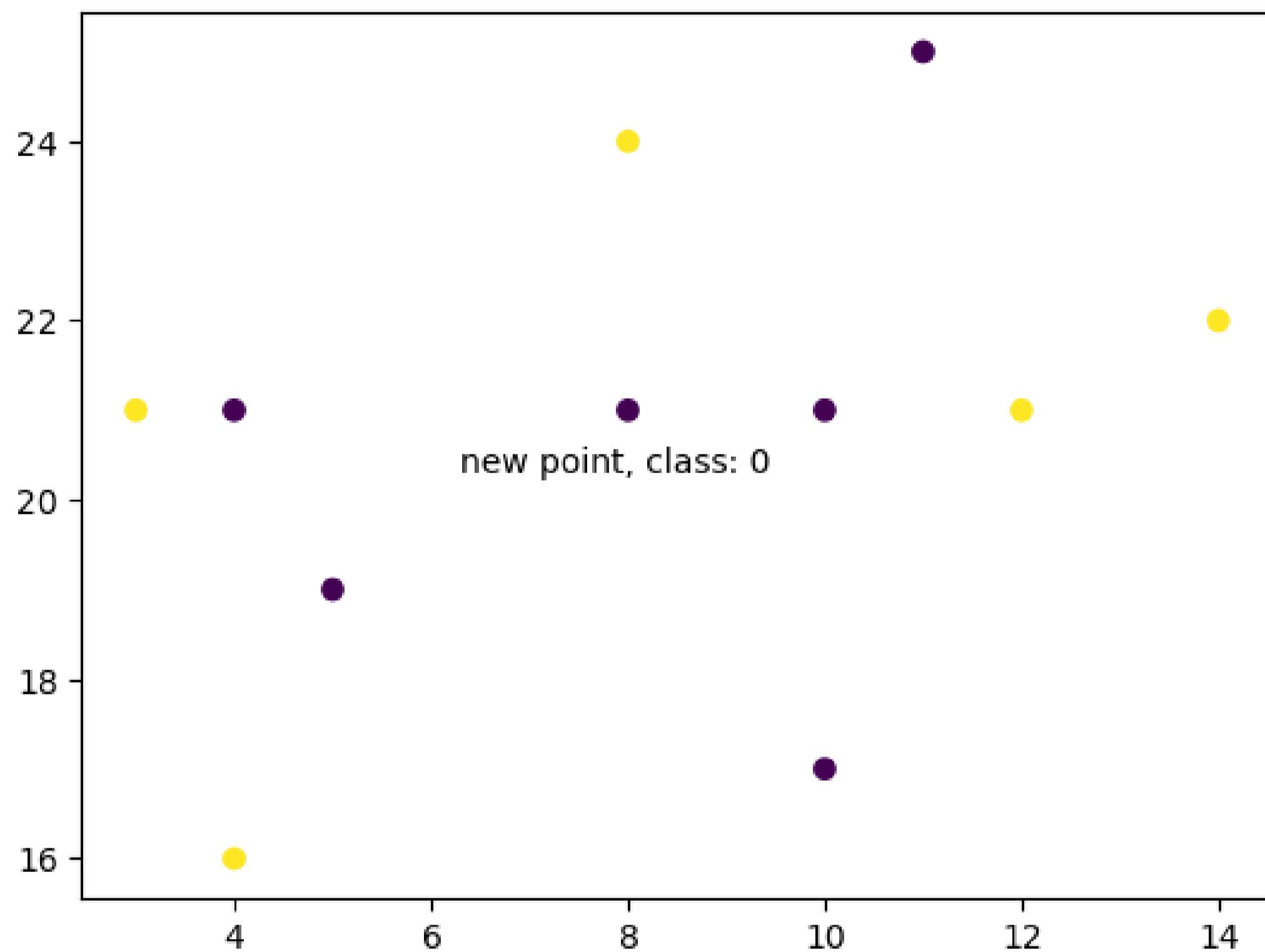
```
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.neighbors import
KNeighborsClassifier
file_path = "Book 8.csv"
df = pd.read_csv(file_path)
print("Original DataFrame:\n",
df)x = df['x'].tolist()
y = df['y'].tolist()
classes =
df['classes'].tolist()
data
= list(zip(x, y))
knn =
KNeighborsClassifier(n_neighbors=1)
knn.fit(data, classes)
new_x = 8
new_y = 21
new_point = [(new_x, new_y)]
prediction =
knn.predict(new_point)
plt.scatter(x + [new_x], y + [new_y], c=classes + [prediction[0]])
plt.text(x=new_x-1.7, y=new_y-0.7, s=f"new point, class:
```

```
{prediction[0]}")plt.show()
```

Output:

OriginalDataFra

```
mex y
classes
0 4 21  0
1 5 19  0
2 10 17 0
3 3 21  1
4 11 25 0
5 4 16  1
6 14 22 1
7 10 21 0
8 12 21 1
9 8 24  1
```

**Result:**

The programs were run successfully