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

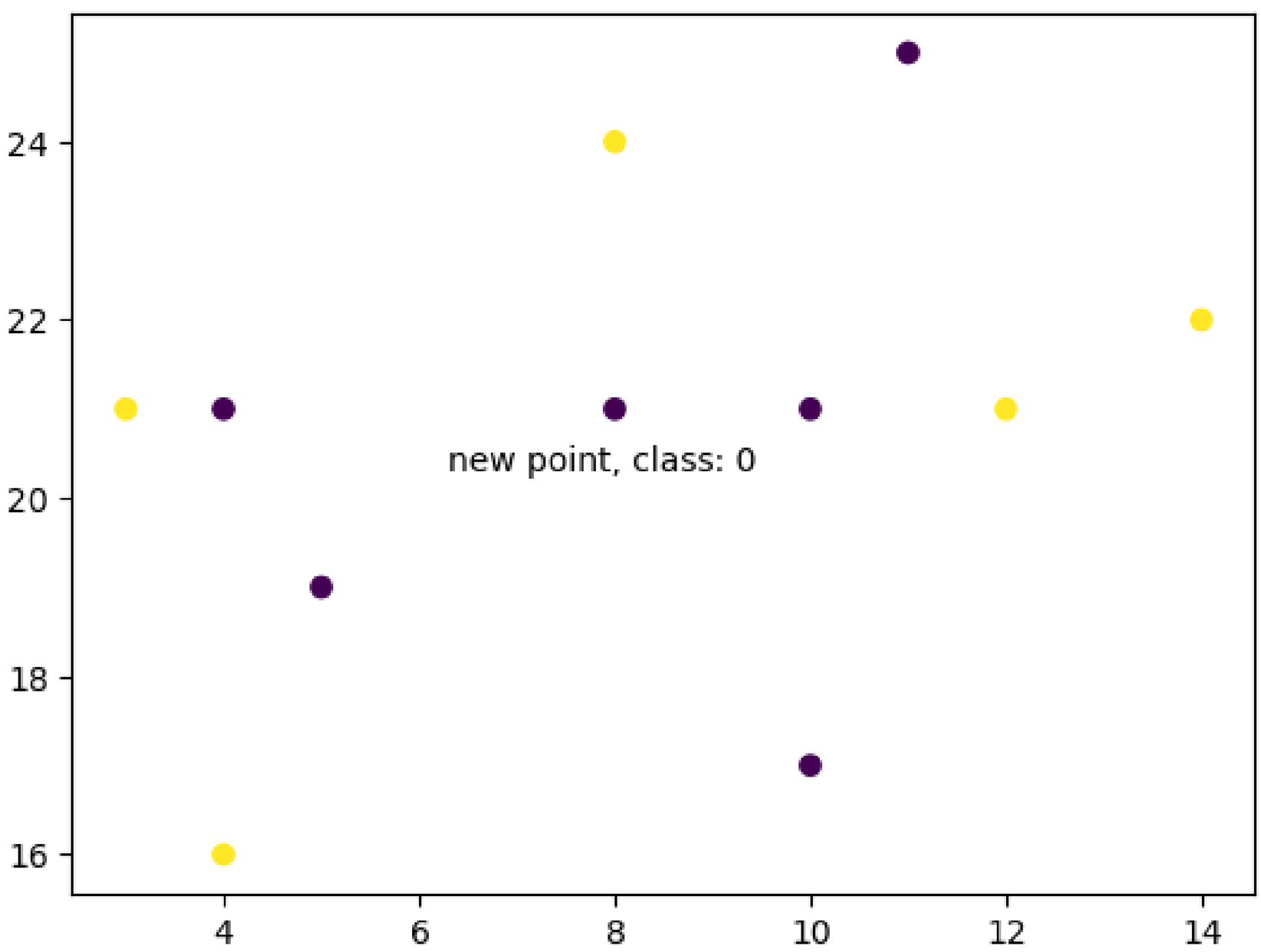
Program:

```
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.neighbors import
KNeighborsClassifierfile_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