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

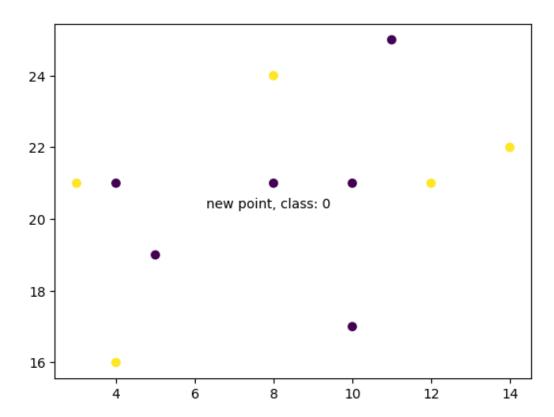
Program:

```
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:

Original Data Frame

x 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