

Program 2

Aim:- Program to implement KNN classification using any random dataset without using inbuilt packages.

Program Code

```
from math import sqrt
def euclidean_distance(row1, row2):
    distance = 0.0
    for i in range(len(row1) - 1):
        distance += (row1[i] - row2[i]) ** 2
    return sqrt(distance)
def get_neighbors(train, test_row, num_neighbors):
    distances = list()
    for train_row in train:
        dist = euclidean_distance(test_row, train_row)
        distances.append((train_row, dist))
    distances.sort(key=lambda tup: tup[1])
    neighbors = list()
    for i in range(num_neighbors):
        neighbors.append(distances[i][0])
    return neighbors
def predict_classification(train, test_row, num_neighbors):
    neighbors = get_neighbors(train, test_row, num_neighbors)
    output_values = [row[-1] for row in neighbors]
    prediction = max(set(output_values), key=output_values.count)
    return prediction
dataset = [[2.7810836, 2.550537003, 0],
           [1.4645489372, 2.362125076, 0],
           [3.396561688, 4.400293529, 0],
           [1.38807019, 1.850220317, 0],
           [3.06407232, 3.005305973, 1],
           [7.627531214, 2.759262635, 1],
           [5.332441248, 2.088626775, 1],
           [6.922596716, 1.77106367, 1],
           [8.675418651, -0.242068655, 1],
           [7.673756466, 3.508563011, 1]]
prediction = predict_classification(dataset, dataset[0], 5)
print('Expected %d, Got %d.' % (dataset[0][-1], prediction))
```

Output

```
C:\Users\mca\PycharmProjects\pythonProject\venv\Scripts\python.exe C:/Users/mca/PycharmProjects/pythonProject1/evcdist.py
Expected 0, Got 0.

Process finished with exit code 0
```