import pandas as pd

from sklearn.cluster import KMeans

from sklearn.preprocessing import StandardScaler

data = {

    'Annual\_Income': [15, 16, 17, 18, 25, 28, 29, 35, 45, 55, 65, 75, 85, 95],

    'Spending\_Score': [39, 81, 6, 77, 40, 76, 6, 94, 72, 55, 80, 20, 90, 60]

}

df = pd.DataFrame(data)

scaler = StandardScaler()

X\_scaled = scaler.fit\_transform(df)

kmeans = KMeans(n\_clusters=3, random\_state=42)

kmeans.fit(X\_scaled)

df['Cluster'] = kmeans.labels\_

print("Customer Segments Assigned in Dataset:")

print(df)

print("\nEnter details of a new customer:")

income = float(input("Annual Income (in $1000s): "))

spending = float(input("Spending Score (1–100): "))

new\_customer = pd.DataFrame([[income, spending]], columns=['Annual\_Income', 'Spending\_Score'])

new\_customer\_scaled = scaler.transform(new\_customer)

cluster = kmeans.predict(new\_customer\_scaled)[0]

print(f"\n🧑‍🤝‍🧑 The new customer belongs to \*\*Segment {cluster}\*\*")

OUTPUT:

Customer Segments Assigned in Dataset:

Annual\_Income Spending\_Score Cluster

0 15 39 2

1 16 81 0

2 17 6 2

3 18 77 0

4 25 40 2

5 28 76 0

6 29 6 2

7 35 94 0

8 45 72 0

9 55 55 1

10 65 80 1

11 75 20 1

12 85 90 1

13 95 60 1

Enter details of a new customer:

Annual Income (in $1000s): 60

Spending Score (1–100): 90

🧑‍🤝‍🧑 The new customer belongs to \*\*Segment 1\*\*