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| **Course Code: CSL603** | **Course Name: DWM LAB** |
| **Class: TE-CO** | **Batch: 3** |
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**Experiment :07**

**Aim:** Implementation of K-means algorithm

**Code:**

import random

arr = list(map(int, input("Data: ").split()))

k = int(input("Number of clusters: "))

m1 = random.choices(arr, k=k)

print("Random means:",m1)

m2 = []

K = []

for l in range(k):

K.append([])

for i in range(len(arr)):

n = 0

mini = float("inf")

p = 0

for j in range(k):

if abs(m1[j]-arr[i])<mini:

mini = abs(m1[j]-arr[i])

n = arr[i]

p = j

K[p].append(n)

while (m1!=m2):

for l in range(k):

m2.append(sum(K[l])/len(K[l]))

K[l].clear()

#print("Means:",m2)

for i in range(len(arr)):

n = 0

mini = float("inf")

p = 0

for j in range(k):

if abs(m2[j]-arr[i])<mini:

mini = abs(m2[j]-arr[i])

n = arr[i]

p = j

K[p].append(n)

if m1!=m2:

m1 = m2.copy()

m2.clear()

else:

break

else:

print("Clusters formed:",K)

print("Clusters formed:",K)

**Output:**

