Experiment No 7:Kmean clustering using python

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**Code:**

import time

import sys

a=[]

c1=[]

c2=[]

c3=[]

co1=0

co2=0

co3=0

n=int(input("Enter the number of data elements\n"))

if(n<=3):

print("Invalid number of data")

sys.exit()

for i in range(n):

d=int(input("Enter the data: "))

a.append(d)

print("This is your data: ",a)

print("A cluster of size 3 is preparing...")

time.sleep(5)

#print(m1,m2,m3)

m1=a[0]

m2=a[1]

m3=a[2]

k=0

l=len(a)

l=l

for i in range(l):

if(abs(a[i]-m1)<abs(a[i]-m2)):

if(abs(a[i]-m1)<abs(a[i]-m3)):

c1.append(a[i])

k=k+1

else:

c3.append(a[i])

k=k+1

elif(abs(a[i]-m2)<abs(a[i]-m1)):

if(abs(a[i]-m2)<abs(a[i]-m3)):

c2.append(a[i])

k=k+1

else:

c3.append(a[i])

k=k+1

elif(abs(a[i]-m3)<abs(a[i]-m1)):

if(abs(a[i]-m3)<abs(a[i]-m2)):

c3.append(a[i])

k=k+1

else:

c2.append(a[i])

k=k+1

print("cluster1:",c1,"\tmean1",m1)

print("cluster2:",c2,"\tmean2",m2)

print("cluster3:",c3,"\tmean3",m3)

f=0

while(f!=1):

co1=0

co2=0

co3=0

m1=(sum(c1)/len(c1))

m2=(sum(c2)/len(c2))

m3=(sum(c3)/len(c3))

dc1=list(c1)

dc2=list(c2)

dc3=list(c3)

c1=[]

c2=[]

c3=[]

for i in range(l):

if(abs(a[i]-m1)<abs(a[i]-m2)):

if(abs(a[i]-m1)<abs(a[i]-m3)):

c1.append(a[i])

k=k+1

else:

c3.append(a[i])

k=k+1

elif(abs(a[i]-m2)<abs(a[i]-m1)):

if(abs(a[i]-m2)<abs(a[i]-m3)):

c2.append(a[i])

k=k+1

else:

c3.append(a[i])

k=k+1

elif(abs(a[i]-m3)<abs(a[i]-m1)):

if(abs(a[i]-m3)<abs(a[i]-m2)):

c3.append(a[i])

k=k+1

else:

c2.append(a[i])

k=k+1

if(set(dc1)==set(c1)):

co1=1

if(set(dc2)==set(c2)):

co2=1

if(set(dc3)==set(c3)):

co3=1

if(co1+co2+co3==3):

f=1

print("cluster1:",c1,"\tmean1",m1)

print("cluster2:",c2,"\tmean2",m2)

print("cluster3:",c3,"\tmean3",m3)

OUTPUT

