**K-means**

clc;

clear all;

close all;

o=[1 2 4 5;1 1 3 4];

c=[1 1;2 1];

[m1,n1]=size(o);

counter=0;

g=[0 0 0 0;0 0 0 0];

while(1)

counter=counter+1;

for i=1:m1

for j=1:n1

C=c(i,:);

O=o(:,j)';

a=O-C;

a=a.\*a;

s=sum(a);

d(i,j)=sqrt(s);

end

end

disp('d=');

disp(d);

m=min(d);

for i=1:m1

for j=1:n1

if(d(i,j)==m(1,j))

g(i,j)=1;

else

g(i,j)=0;

end

end

end

for i=1:m1

G=g(i,:);

for j=1:n1

if(G(j)==1)

q(i,j)=j;

else

q(i,j)=0;

end

end

end

disp('g=');

disp(g);

nn=0;

for i=1:m1

Q=q(i,:);

for(j=1:n1)

if(Q(j)>0)

X(j,:)=o(:,j)';

nn=nn+1;

else

X(j,:)=[0 0];

end

end

cn(i,:)=sum(X)/nn;

nn=0;

end

if(cn==c)

break;

else

c=cn;

end

disp('cn=');

disp(cn);

end

**OUTPUT:**

d=

0 1.0000 3.6056 5.0000

1.0000 0 2.8284 4.2426

g=

1 0 0 0

0 1 1 1

cn=

1.0000 1.0000

3.6667 2.6667

d=

0 1.0000 3.6056 5.0000

3.1447 2.3570 0.4714 1.8856

g=

1 1 0 0

0 0 1 1

cn=

1.5000 1.0000

4.5000 3.5000

d=

0.5000 0.5000 3.2016 4.6098

4.3012 3.5355 0.7071 0.7071

g=

1 1 0 0

0 0 1 1