SVM classification on k-cluster

clc;

close all;

clear all;

%data=load('Heirtrain.txt');

data1=load('Heir.txt');

dat=csvread('HT.csv');

data=dat\*data1;

[row,column]=size(data);

%let k=3;

k=3;

C=[];

for i=1:k

C(i,:)=data(i,:);

end

d=[];

for i=1:k

for j=1:row

d(i,j)=sqrt(sum((C(i,:)-data(j,:)).^2));

end

end

s=[];

l=d;

z=[];

for i=1:length(d)

[v,v1]=min(d(:,i));

d(:,i)=0;

d(v1,i)=1;

end

t=d+1;

while(t~=d)

siz=sum(d');

t=d;

C=d\*data;

for i=1:length(siz)

C(i,:)=C(i,:)/siz(i);

end

for i=1:k

for j=1:row

d(i,j)=sqrt(sum((C(i,:)-data(j,:)).^2));

end

end

l=d;

for i=1:length(d)

[v,v1]=min(d(:,i));

d(:,i)=0;

d(v1,i)=1;

end

end

d=d';

ps1=find(d(:,1)==1);

ps2=find(d(:,2)==1);

ps3=find(d(:,3)==1);

ft=csvread('features.csv');

male=0;

female=0;

male2=0;

female2=0;

male1=0;

female1=0;

for i=1:length(ps1)

if(ft(ps1(i))==1)

male=male+1;

else

female=female+1;

end

end

for i=1:length(ps3)

if(ft(ps3(i))==1)

male1=male1+1;

else

female1=female1+1;

end

end

for i=1:length(ps2)

if(ft(ps2(i))==1)

male2=male2+1;

else

female2=female2+1;

end

end

m3=male2/(female2+male2)\*100;

m1=male/(female+male)\*100;

m2=male1/(female1+male1)\*100;

m=[m1;m2;m3];

mm=-30;

for i=1:length(d)

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

data(i,5)=0;

elseif(d(i,2)==1);

data(i,5)=1;

else

data(i,5)=2;

end

end

plp=d;

data1=data;

qww=[];

min=100000000;

count=0;

di=[];

vi=find(data(:,5)==2);

for i=1:length(vi)

data(vi,5)=1;

end

vi1=find(data(:,5)==1);

vi0=find(data(:,5)==0);

for i=1:length(vi1)

for j=i:length(vi0)

d=sqrt(sum(((data(vi1(i),:)-data(vi0(j),:)).^2)));

if(min>d)

min=d;

di(1,:)=data(vi1(i),:);

di(2,:)=data(vi0(j),:);

%di(2,end)=-1;

count=0;

end

if(min==d)

count=count+1;

end

end

end

di(:,end+1)=di(:,end);

di(:,end-1)=1;

di=di';

A=di(end,:);

A=A';

di=di(1:end-1,:);

S=[sum(di(:,1).\*di(:,1)),sum(di(:,1).\*di(:,2));sum(di(:,1).\*di(:,2)),sum(di(:,2).\*di(:,2))];

alpha=linsolve(S,A)

for i=1:length(alpha)

w(:,i)=alpha(i)\*di(:,i);

end

w=sum(w');

qww(1,:)=w;

data=data1;

w=[]

min=100000000;

count=0;

di=[];

vi=find(data(:,5)==2);

for i=1:length(vi)

data(vi,5)=0;

end

vi1=find(data(:,5)==1);

vi0=find(data(:,5)==0);

for i=1:length(vi1)

for j=i:length(vi0)

d=sqrt(sum(((data(vi1(i),:)-data(vi0(j),:)).^2)));

if(min>d)

min=d;

di(1,:)=data(vi1(i),:);

di(2,:)=data(vi0(j),:);

%di(2,end)=-1;

count=0;

end

if(min==d)

count=count+1;

end

end

end

di(:,end+1)=di(:,end);

di(:,end-1)=1;

di=di';

A=di(end,:);

A=A';

di=di(1:end-1,:);

S=[sum(di(:,1).\*di(:,1)),sum(di(:,1).\*di(:,2));sum(di(:,1).\*di(:,2)),sum(di(:,2).\*di(:,2))];

alpha=linsolve(S,A)

for i=1:length(alpha)

w(:,i)=alpha(i)\*di(:,i);

end

w=sum(w');

qww(2,:)=w;

data=data1;

w=[]

min=100000000;

count=0;

di=[];

vi=find(data(:,5)==0);

vi2=find(data(:,5)==2);

for i=1:length(vi)

data(vi,5)=1;

%data(vi2,5)=0;

end

vi1=find(data(:,5)==1);

vi0=find(data(:,5)==2);

for i=1:length(vi1)

for j=i:length(vi0)

d=sqrt(sum(((data(vi1(i),:)-data(vi0(j),:)).^2)));

if(min>d)

min=d;

di(1,:)=data(vi1(i),:);

di(2,:)=data(vi0(j),:);

%di(2,end)=-1;

count=0;

end

if(min==d)

count=count+1;

end

end

end

di(:,end+1)=di(:,end);

di(:,end-1)=1;

di=di';

A=di(end,:);

A=A';

di=di(1:end-1,:);

S=[sum(di(:,1).\*di(:,1)),sum(di(:,1).\*di(:,2));sum(di(:,1).\*di(:,2)),sum(di(:,2).\*di(:,2))];

alpha=linsolve(S,A)

for i=1:length(alpha)

w(:,i)=alpha(i)\*di(:,i);

end

w=sum(w');

qww(3,:)=w;

sdsd=[];

for i=1:length(data1)

x1=data1(i,1:end-1);

y11=data1(1,end);

y1=qww(1,1:end-1)\*x1'+qww(1,end);

y2=qww(2,1:end-1)\*x1'+qww(2,end);

y3=qww(3,1:end-1)\*x1'+qww(3,end);

if(y1<0)

d1=0;

else

d1=1;

end

if(y2>1)

d2=1;

else

d2=0;

end

if(y3>2)

d3=2;

else

d3=1;

end

if(d1==0&&(d2==0||d3==1))

%disp('0')

sdsd(i)=0;

elseif((d2==1)&&(d2==1||d3==1))

%disp('1')

sdsd(i)=1;

else

%disp('2')

sdsd(i)=2;

end

end

match=0;

sp=[];

a=1;

for i=1:length(sdsd)

if(sdsd(i)==data1(i,5))

match=match+1;

else

mm=mm+1;

sp(a)=i;

a=a+1;

end

end

accuracy=(1-mm/length(sdsd))\*100

OUTPUT:

accuracy =

63.1579