问题1

close all;clear;clc;

s=5%%Æ½»ºÏµÊý

yeardata=xlsread('»ÆºÓÊµ²âÁ÷Á¿.xls',2,'C1:N38');

seasonpercent=xlsread('season.xlsx','A2:L2')

season=seasonpercent\*sum(sum(yeardata))/size(yeardata,1)/100

y=zeros(size(yeardata,1),1);

for i=1:size(yeardata,1)

y(i)=sum(yeardata(i,:));

end

liuliang=mean(y);

hold on

moom=(0:12)

%bar(season)

dseason=[season(12),season]

plot(moom,dseason,'b','LineWidth',2)%%%%%%%

if s==inf

goal=mean(season)\*ones(1,12)

else

goal=(season-mean(season))/s+mean(season)

end

dgoal=[goal(12),goal]

plot(moom,dgoal,'r','LineWidth',2 )%%%%%%%%

set(gca,'XTick',1:1:12);

xlabel('Month')

ylabel('Monthly average flow£¨m3/s£©')

legend('Seasonal trend','Water storage line','fontsize',16)

title('The graph of water storage objectivec')

title('The season trend')

text(1,28000,['smooth coefficient is ',num2str(s)],'fontsize',16)

set(get(gca,'XLabel'),'FontSize',16);%Í¼ÉÏÎÄ×ÖÎª8 point»òÐ¡5ºÅ

set(get(gca,'YLabel'),'FontSize',16);

set(get(gca,'TITLE'),'FontSize',18);

set(gca,'fontsize',14);

grid on;

%%%%%%%%%%%%%%%%%%%

S=zeros(1,4)

%y = ( (y0-y1)\*(y3-y2)\*x0 + (y3-y2)\*(x1-x0)\*y0 + (y1-y0)\*(y3-y2)\*x2 + (x2-x3)\*(y1-y0)\*y2 ) / ( (x1-x0)\*(y3-y2) + (y0-y1)\*(x3-x2) );

%x = x2 + (x3-x2)\*(y-y2) / (y3-y2);

x=[6 7 6 7]

y=[season(6),season(7),goal(6),goal(7)]

jiaodianY=( (y(1)-y(2))\*(y(4)-y(3))\*x(1) + (y(4)-y(3))\*(x(2)-x(1))\*y(1) + (y(2)-y(1))\*(y(4)-y(3))\*x(3) + (x(3)-x(4))\*(y(2)-y(1))\*y(3) ) / ( (x(2)-x(1))\*(y(4)-y(3)) + (y(1)-y(2))\*(x(4)-x(3)) );

jiaodianX=x(3) + (x(4)-x(3))\*(jiaodianY-y(3)) / (y(4)-y(3));

plot(jiaodianX,jiaodianY,'\*')

A = [jiaodianX,jiaodianY];

B = [7,season(7)];

C = [7,goal(7)];

% Èý±ß³¤

a = sqrt((A(1)-B(1))^2+(A(2)-B(2))^2)

b = sqrt((C(1)-B(1))^2+(C(2)-B(2))^2)

c = sqrt((A(1)-C(1))^2+(A(2)-C(2))^2)

p = (a+b+c)/2;

% Èý½ÇÐÎÃæ»ý

S(1) = sqrt(p\*(p-a)\*(p-b)\*(p-c))

%%%%%%%%%%%%%%%%%%%%

x=[9 10 9 10]

y=[season(9),season(10),goal(9),goal(10)]

%y = ( (y0-y1)\*(y3-y2)\*x0 + (y3-y2)\*(x1-x0)\*y0 + (y1-y0)\*(y3-y2)\*x2 + (x2-x3)\*(y1-y0)\*y2 ) / ( (x1-x0)\*(y3-y2) + (y0-y1)\*(x3-x2) );

%x = x2 + (x3-x2)\*(y-y2) / (y3-y2);

jiaodianY=( (y(1)-y(2))\*(y(4)-y(3))\*x(1) + (y(4)-y(3))\*(x(2)-x(1))\*y(1) + (y(2)-y(1))\*(y(4)-y(3))\*x(3) + (x(3)-x(4))\*(y(2)-y(1))\*y(3) ) / ( (x(2)-x(1))\*(y(4)-y(3)) + (y(1)-y(2))\*(x(4)-x(3)) );

jiaodianX=x(3) + (x(4)-x(3))\*(jiaodianY-y(3)) / (y(4)-y(3));

plot(jiaodianX,jiaodianY,'\*')

A = [jiaodianX,jiaodianY];

B = [9,season(9)];

C = [9,goal(9)];

% Èý±ß³¤

a = sqrt((A(1)-B(1))^2+(A(2)-B(2))^2)

b = sqrt((C(1)-B(1))^2+(C(2)-B(2))^2)

c = sqrt((A(1)-C(1))^2+(A(2)-C(2))^2)

p = (a+b+c)/2;

% Èý½ÇÐÎÃæ»ý

S(4) = sqrt(p\*(p-a)\*(p-b)\*(p-c));

%%%%%%%%%%%%%%%%%%%

for i=7:8

S(i-5)=(mean(season(i:i+1))-mean(goal(i:i+1)))/2;

end

rongliang=sum(S)\*60\*60\*24\*30/100000000

text(1,25000,['capacity needed ',num2str(rongliang)],'fontsize',16)

问题2——灰色预测

loaddata

% ±¾³ÌÐòÖ÷ÒªÓÃÀ´¼ÆËã¸ù¾Ý»ÒÉ«ÀíÂÛ½¨Á¢µÄÄ£ÐÍµÄÔ¤²âÖµ¡£

% Ó¦ÓÃµÄÊýÑ§Ä£ÐÍÊÇ GM(1,1)¡£

% Ô­Ê¼Êý¾ÝµÄ´¦Àí·½·¨ÊÇÒ»´ÎÀÛ¼Ó·¨¡£

predicted=zeros(length(predict),2);

for ii=1:length(predict)

BT=[];

B=[];

YN=[];

%y=predict(ii,:);%ÒÑÖªÊý¾Ý

y=filter(ones(1,2)/2,2,predict(ii,:));%%ÒÆ¶¯Æ½¾ù

%y=log(predict(ii,:));

n=length(y);

yy=ones(n,1);

yy(1)=y(1);

for i=2:n

yy(i)=yy(i-1)+y(i);

end

B=ones(n-1,2);

for i=1:(n-1)

B(i,1)=-(yy(i)+yy(i+1))/2;

B(i,2)=1;

end

BT=B';

for j=1:n-1

YN(j)=y(j+1);

end

YN=YN';

A=inv(BT\*B)\*BT\*YN;

a=A(1);

u=A(2);

t=u/a;

t\_test=11; %ÐèÒªÔ¤²â¸öÊý

i=1:t\_test+n;

yys(i+1)=(y(1)-t).\*exp(-a.\*i)+t;

yys(1)=y(1);

for j=n+t\_test:-1:2

ys(j)=yys(j)-yys(j-1);

end

x=1:n;

xs=2:n+t\_test;

yn=ys(2:n+t\_test);

%plot(x,y,'^r',xs,yn,'\*-b');

det=0;

for i=2:n

det=det+abs(yn(i)-y(i));

end

det=det/(n-1);

%disp(['°Ù·Ö¾ø¶ÔÎó²îÎª£º',num2str(det),'%']);

%disp(['Ô¤²âÖµÎª£º ',num2str(ys(n+1:n+t\_test))]);

predicted(ii,:)=[ys(22),det];

end

minS=zeros(length(sumS),1)

for i=1:length(sumS)

minS(i)=min(sumS(i,:));

end

PsumS=predicted(1:31,1);

PsumD=predicted(125:155,1);

PlifeD=predicted(156:186,1);

PindD=predicted(187:217,1);

PagrD=predicted(218:248,1);

PecoD=predicted(249:279,1);

psumD=PlifeD+PindD+PagrD+PecoD;

P=[minS,PsumD,psumD,PlifeD,PindD,PagrD,PecoD];

b=psumD-0.8\*minS%sumS(:,11)%minS

xlswrite('b.xls',b)

xlswrite('PindD',PindD)

xlswrite('psumD',psumD)

问题2——求邻接矩阵

close all;clear;clc;

position=xlsread('×ø±ê.xlsx','D1:E31');

juli=zeros(31,31);

for i=1:length(position)

for j=1:length(position)

juli(i,j)=sqrt((position(i,1)-position(j,1))^2+(position(i,2)-position(j,2))^2);

end

end

B=[];

for i=1:length(position)

for j=1:length(position)

B=[B;i,j];

end

end

C=[];

for i=1:length(position)

for j=1:length(position)

C=[C;sqrt((position(i,1)-position(j,1))^2+(position(i,2)-position(j,2))^2)];

end

end

D=zeros(length(position),length(position));

for i=1:length(B)

D(B(i,1),B(i,2))=C(i,1);

D(B(i,2),B(i,1))=C(i,1);

end

xlswrite('D',D)

问题2——线性规划

close all;clear;clc

D=xlsread('D.xls')

b=xlsread('b.xls');

R=xlsread('R.xls');

PindD=xlsread('PindD.xls')

k=1;

yunshu=0.3019%0.03116%%%¹ÜÏßÔËÊäµ¥Î»³É±¾

jinghua=1.56%%ÎÛË®´¦Àíµ¥Î»³É±¾

mark=[];

f=zeros(1,31\*31)

for i=1:length(D)

for j=1:length(D)

if i==j

f(k)=jinghua;

else

f(k)=D(i,j)\*yunshu;

end

mark=[mark;k,i,j];

k=k+1;

end

end

yuandi=[]

A=zeros(31,961);

for k=1:length(mark)

i=mark(k,2);

j=mark(k,3);

A(i,k)=-1;

A(j,k)=1;

if i==j

yuandi=[yuandi;k]

end

end

A=-1\*A;

b=-1\*b;

Aeq=[];

beq=[];

lb=zeros(1,961);

ub=100\*ones(1,961);

ub(yuandi)=PindD/2

[x fval]=linprog(f,A,b,Aeq,beq,lb,ub);

[k,kk]=find(x>1);

num=x(k);

df=f(k)

df=df'

i=mark(k,2);

j=mark(k,3);

result=[k,i,j,num,df]

Route=[];

for k=1:length(result)

route=zeros(1,10)

i=result(k,2);

j=result(k,3);

n=1;

route(n)=i;

while i~=j

n=n+1;

i=R(i,j);

route(n)=i;

end

Route=[Route;route];

end

finalresult=[result,Route]

xlswrite('result',result)