第一问中文

clear all;

clc;load test1.mat

dirname='E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件1\';

files=dir([dirname,'\\*.bmp']);

Num\_file=numel(files);

I=cell(1,Num\_file);

for k = 1:19

I{k} = imread([dirname '\' files(k).name]);

end

for k=1:19

J(k)=graythresh(I{k});

P{k}=im2bw(I{k},J(k));

end

for k=1:19

[le,n]=size(P{k});

left{k}=P{k}(:,1);

right{k}=P{k}(:,n);

end

for k=1:19

for n=1:19

if n==k

else

a(n,k)=sum(abs(left{n}-right{k}));

end

end

end

circle=[8,14,12,15,3,10,2,16,1,4,5,9,13,18,11,7,17,0,6];

for k=1:19

circle2(k)=circle(20-k);

end

circle2;

for i=1:19

begin=72\*(i-1)+1;

end\_f=72\*i;

num=circle2(i);

end

imshow(question1)

第一问英文

clear all;

clc;load test2.mat

dirname='E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件2\';

files=dir([dirname,'\\*.bmp']);

Num\_file=numel(files);

I=cell(1,Num\_file)

for k = 1:19

I{k} = imread([dirname '\' files(k).name]);

end

for k=1:19

J(k)=graythresh(I{k});

P{k}=im2bw(I{k},J(k));

end

for k=1:19

[le,n]=size(P{k});

left{k}=P{k}(:,1);

right{k}=P{k}(:,n);

end

for k=1:19

for n=1:19

if n==k

else

a(n,k)=sum(abs(left{n}-right{k}));

end

end

end

circle=[4,7,3,8,16,19,12,1,6,2,10,14,11,9,13,15,18,17,5];

for k=1:19

circle2(k)=circle(20-k);

end

circle2;

for i=1:19

begin=72\*(i-1)+1;

end\_f=72\*i;

num=circle2(i);

end

imshow(question2)

第二问中文

clear all;

clc; % 导入附件3图像矩阵

syms h;

for i=0:208

if i<10

t=strcat('00',int2str(i),'.bmp');

cell{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件3\',t));

else if i<100

t=strcat('0',int2str(i),'.bmp');

cell{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件3\',t));

else

t=strcat(int2str(i),'.bmp');

cell{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件3\',t));

end

end

end

for i=1:209

level=graythresh(cell{1,i});

% graythresh是一个函数，

% 功能是使用最大类间方差法找到图片的一个合适的阈值。

% 利用这个阈值通常比人为设定的阈值能更好地把一张灰度图像转换为二值图像。

cell1{1,i}=im2bw(cell{1,i},level); %图像二值化处理

end

sum=zeros(209,180);

for i=1:209

for j=1:180

for k=1:72

sum(i,j)=sum(i,j)+cell1{i}(j,k);

end

end

end

sum1=zeros(209,180);

for i=1:209

for j=1:180

if sum(i,j)==72

sum1(i,j)=1;

else

sum1(i,j)=0;

end

end

end

% Y=pdist(sum1,'euclidean');

% Z=linkage(Y,'single');

% C=cophenet(Z,Y);

% T=cluster(Z,11);

load test3.mat

s1=zeros(209,1);

s2=zeros(209,1);

h=1;

b=1;

for j=1:209

for i=20:180

if sum1(j,i)==0

if h==1

s1(j,1)=i;

b=j;

h=0;

end

end

if sum1(b,i)==1&&h==0

h=1;

s2(j,1)=i;

break;

end

% a=a+1;

end

end

a=1;

%误差

%kmeans聚类

for i=1:209

s3(i,1)=(s1(i,1)+s2(i,1))/2;

end

idx=kmeans(s3,11);

d=1;

for i=1:11

for j=1:209

if idx(j)==i

d1(i,d)=j;

d=d+1;

end

end

d=1;

end

%聚类得：

% 9 10 25 26 36 39 47 75 82 89 104 106 123 131 149 162 168 190 194 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

% 1 35 43 44 48 59 78 85 91 95 98 113 122 125 128 137 145 150 165 184 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

% 6 11 30 38 45 49 56 60 65 76 93 99 105 112 172 173 181 202 207 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

% 15 90 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

% 2 19 24 27 31 42 51 63 77 87 88 101 121 143 148 169 180 192 196 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

% 14 16 17 18 22 28 34 61 67 81 84 86 107 110 111 126 133 134 140 146 151 153 157 158 166 171 174 182 183 185 188 198 199 201 203 205 206

% 7 8 20 21 33 37 46 53 54 57 62 64 68 69 70 71 73 79 80 94 97 100 117 127 132 138 139 154 159 163 164 167 175 176 178 197 209

% 5 41 102 103 109 114 115 118 120 124 141 147 152 155 156 186 195 208 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

% 3 12 23 29 50 55 58 66 92 96 119 130 142 144 179 187 189 191 193 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

% 4 13 32 40 52 74 83 108 116 129 135 136 160 161 170 177 200 204 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

% 72 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

%对中间的两组进行再聚类

s5=[7 8 20 21 33 37 46 53 54 57 62 64 68 69 70 71 73 79 80 94 97 100 117 127 132 138 139 154 159 163 164 167 175 176 178 197 209];

for i=1:37 %collections in 6 lines.

s6(i,1)=s3(s5(i),1);

end

idx1=kmeans(s6,2);

d2=1;

for i=1:2

for j=1:37

if idx1(j)==i

d3(i,d2)=j;

d2=d2+1;

end

end

d2=1;

end

s7=[7 8 20 21 33 37 46 53 54 57 62 64 68 69 70 71 73 79 80 94 97 100 117 127 132 138 139 154 159 163 164 167 175 176 178 197 209];

for i=1:37

s8(i,1)=s3(s7(i),1);

end

idx2=kmeans(s8,2);

d4=1;

for i=1:2

for j=1:37

if idx1(j)==i

d5(i,d4)=j;

d4=d4+1;

end

end

d4=1;

end

%经过整理得到的聚类数据为

new1{1}=[8 209 139 159 127 69 176 46 175 138 54 57 94 154 71 167 33 197];

new1{2}=[ 129 4 160 83 200 136 13 74 161 204 170 135 40 32 52 108 116 177];

new1{3}=[30 65 112 202 6 93 181 49 38 76 56 45 207 11 105 99 173 172 60];

new1{4}=[39 149 47 162 25 36 82 190 123 104 131 194 89 168 26 9 10 106 75];

new1{5}=[50 55 66 144 187 3 58 193 179 119 191 96 130 29 92 189 142 12 23];

new1{6}=[62 20 79 68 70 100 163 97 132 80 64 117 164 73 7 178 21 53 37];

new1{7}=[ 157 84 133 201 18 81 34 203 199 16 134 171 206 86 153 166 28 61];

new1{8}=[ 147 103 155 115 41 152 208 156 141 186 109 118 5 102 114 195 120 124];

new1{9}=[1 95 35 85 184 91 48 122 43 125 145 78 113 150 98 137 165 128 59 44];

new1{10}=[126 14 183 110 198 17 185 111 188 67 107 151 22 174 158 182 205 140 146];

new1{11}=[169 101 77 63 143 31 42 24 148 192 51 180 121 87 196 27 2 88 19];

new1{12}=[15 90];

new1{13}=[72];

%人工干预改变4个数的位置

new{1}=[8 209 139 159 127 69 176 46 175 1 138 54 57 94 154 71 167 33 197];

new{2}=[15 129 4 160 83 200 136 13 74 161 204 170 135 40 32 52 108 116 177];%

new{3}=[30 65 112 202 6 93 181 49 38 76 56 45 207 11 105 99 173 172 60];

new{4}=[39 149 47 162 25 36 82 190 123 104 131 194 89 168 26 9 10 106 75];

new{5}=[50 55 66 144 187 3 58 193 179 119 191 96 130 29 92 189 142 12 23];

new{6}=[62 20 79 68 70 100 163 97 132 80 64 117 164 73 7 178 21 53 37];

new{7}=[72 157 84 133 201 18 81 34 203 199 16 134 171 206 86 153 166 28 61];%

new{8}=[90 147 103 155 115 41 152 208 156 141 186 109 118 5 102 114 195 120 124];%

new{9}=[95 35 85 184 91 48 122 43 125 145 78 113 150 98 137 165 128 59 44];%

new{10}=[126 14 183 110 198 17 185 111 188 67 107 151 22 174 158 182 205 140 146];

new{11}=[169 101 77 63 143 31 42 24 148 192 51 180 121 87 196 27 2 88 19];

%at=[];

% for j=1:19

% k=new{1,9}(j);

% k=k-1;

% disp(k)

% if k<10

% t=strcat('00',int2str(k),'.bmp');

% at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件3\',t))];

% elseif k>=10 && k<100

% t=strcat('0',int2str(k),'.bmp');

% at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件3\',t))];

% else

% t=strcat(int2str(k),'.bmp');

% at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件3\',t))];

% j=j+1;

% end

% end

% b=[at(1:180,1:72),at(1:180,73:144),at(1:180,145:217),at(1:180,218:289),at(1:180,290:361),at(1:180,362:433),at(1:180,434:505),at(1:180,506:580),at(1:180,581:652),at(1:180,653:724),at(1:180,725:796),at(1:180,797:868),at(1:180,869:940),at(1:180,941:1012),at(1:180,1013:1083),at(1:180,1084:1156),at(1:180,1157:1228),at(1:180,1229:1300),at(1:180,1301:1368)];

% imshow(b)

% saveas(gcf,'9.bmp')

at=[];b=cell(1,11);

for i=1:11

for j=1:19

k=new{1,i}(j);

k=k-1;

if k<10

t=strcat('00',int2str(k),'.bmp');

at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件3\',t))];

elseif k>=10 && k<100

t=strcat('0',int2str(k),'.bmp');

at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件3\',t))];

else

t=strcat(int2str(k),'.bmp');

at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件3\',t))];

j=j+1;

end

end

b{1,i}=[at(1:180,1:72),at(1:180,73:144),at(1:180,145:217),at(1:180,218:289),at(1:180,290:361),at(1:180,362:433),at(1:180,434:505),at(1:180,506:580),at(1:180,581:652),at(1:180,653:724),at(1:180,725:796),at(1:180,797:868),at(1:180,869:940),at(1:180,941:1012),at(1:180,1013:1083),at(1:180,1084:1156),at(1:180,1157:1228),at(1:180,1229:1300)];

at=[];

i=i+1;

end

c=[];

for i=1:11

c=[c;b{1,test3(i)}];

end

imshow(c);

第二问英文

clear all;

clc; % 导入附件4图像矩阵

syms h;

for i=0:208

if i<10

t=strcat('00',int2str(i),'.bmp');

cell{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件4\',t));

else if i<100

t=strcat('0',int2str(i),'.bmp');

cell{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件4\',t));

else

t=strcat(int2str(i),'.bmp');

cell{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件4\',t));

end

end

end

for i=1:209

level=graythresh(cell{1,i});

% graythresh是一个函数，

% 功能是使用最大类间方差法找到图片的一个合适的阈值。

% 利用这个阈值通常比人为设定的阈值能更好地把一张灰度图像转换为二值图像。

cell1{1,i}=im2bw(cell{1,i},level); %图像二值化处理

end

sum=zeros(209,180);

for i=1:209

for j=1:180

for k=1:72

sum(i,j)=sum(i,j)+cell1{i}(j,k);

end

end

end

sum1=zeros(209,180);

for i=1:209

for j=1:180

if sum(i,j)==72

sum1(i,j)=1;

else

sum1(i,j)=0;

end

end

end

% Y=pdist(sum1,'euclidean');

% Z=linkage(Y,'single');

% C=cophenet(Z,Y);

% T=cluster(Z,11);

s1=zeros(209,1);

s2=zeros(209,1);

h=1;

b=1;

for j=1:209

for i=20:180

if sum1(j,i)==0

if h==1

s1(j,1)=i;

b=j;

h=0;

end

end

if sum1(b,i)==1&&h==0

h=1;

s2(j,1)=i;

break;

end

% a=a+1;

end

end

a=1;load test4.mat

%误差

%kmeans聚类

for i=1:209

s3(i,1)=(s1(i,1)+s2(i,1))/2;

end

idx=kmeans(s3,11);

d=1;

for i=1:11

for j=1:209

if idx(j)==i

d1(i,d)=j;

d=d+1;

end

end

d=1;

end

%聚类得：

%[4,6,9,14,25,26,28,30,38,41,47,52,59,60,70,92,93,95,96,99,108,111,112,114,118,128,131,133,145,151,159,164,167,171,179,182,187,189,202]

%[33,40,66,160,205,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[12,22,50,55,65,76,113,119,120,134,143,155,163,169,174,181,185,190,191,192,193,198,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[16,21,37,42,44,46,48,74,77,103,107,109,117,136,137,141,162,180,200,208,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[87,97,110,157,186,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[10,11,17,20,31,35,45,56,57,58,67,72,83,89,94,106,122,127,135,142,144,146,152,153,156,158,166,168,172,177,183,184,195,203,206,207,0,0,0]

%[2,3,13,34,78,80,116,121,124,130,161,178,188,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[5,68,148,150,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[7,8,15,18,27,29,61,62,69,71,79,81,85,101,102,104,132,138,147,149,165,175,176,196,197,199,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[24,63,91,100,105,123,170,173,209,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[1,19,23,32,36,39,43,49,51,53,54,64,73,75,82,84,86,88,90,98,115,125,126,129,139,140,154,194,201,204,0,0,0,0,0,0,0,0,0]

%对不是19的再次聚类

s5=[4,6,9,14,25,26,28,30,38,41,47,52,59,60,70,92,93,95,96,99,108,111,112,114,118,128,131,133,145,151,159,164,167,171,179,182,187,189,202];

for i=1:39 %collections in 6 lines.

s6(i,1)=s3(s5(i),1);

end

idx1=kmeans(s6,2);

d2=1;

for i=1:2

for j=1:39

if idx1(j)==i

d3(i,d2)=j;

d2=d2+1;

end

end

d2=1;

end

s7=[4,6,9,14,25,26,28,30,38,41,47,52,59,60,70,92,93,95,96,99,108,111,112,114,118,128,131,133,145,151,159,164,167,171,179,182,187,189,202];

for i=1:39

s8(i,1)=s3(s7(i),1);

end

idx2=kmeans(s8,2);

d4=1;

for i=1:2

for j=1:37

if idx1(j)==i

d5(i,d4)=j;

d4=d4+1;

end

end

d4=1;

end

%经过整理得到的聚类数据为

new1{1}=[20 195 94 142 89 122 127 106 156 115 177 183 152 23 58 203 72 166 83];

new1{2}=[71 85 61 15 69 175 138 196 9 48 173 157 97 24 100 123 91 186];

new1{3}=[82 78 129 201 132 53 126 141 194 88 90 49 73 13 178 125 1 103];

new1{4}=[202 149 171 197 199 95 114 165 79 104 92 81 102 27 101 7 18 29 147 144];

new1{5}=[172 67 206 11 158 75 146 84 135 56 19 57 36 17 10 184 153 45];

new1{6}=[21 42 109 117 137 74 37 208 136 16 77 44 200 46 174 80 162 180];

new1{7}=[209 22 8 50 62 120 34 143 169 63 170 55 193 134 119 190 163 198];

new1{8}=[192 76 12 155 191 185 3 105 181 65 107 5 150 33 205 66 40 68 148 113];

new1{9}=[133 182 96 70 168 164 167 189 112 145 207 4 131 35 14 111 26 28 179];

new1{10}=[160 140 2 130 64 139 154 54 39 124 121 176 86 51 161 188 98 204];

new1{11}=[87 52 108 30 41 159 187 99 25 118 151 60 59 93 31 38 47 128];

new1{12}=[116 43];

new1{13}=[110];

new1{14}=[32];

new1{15}=[6];

%人工干预改变个数的位置

new{1}=[20 195 94 142 89 122 127 106 156 115 177 183 152 23 58 203 72 166 83];

new{2}=[71 85 61 15 69 175 138 196 9 48 173 157 97 24 100 123 91 186 110];

new{3}=[82 78 129 201 132 53 126 141 194 88 90 49 73 13 178 125 1 103 116];%

new{4}=[202 149 171 197 199 95 114 165 79 104 92 81 102 27 101 7 18 29 147];%

new{5}=[172 43 67 206 11 158 75 146 84 135 56 19 57 36 17 10 184 153 45];%

new{6}=[21 42 109 117 137 74 37 208 136 16 77 44 200 46 174 80 162 180 144];

new{7}=[209 22 8 50 62 120 34 143 169 63 170 55 193 134 119 190 163 198 113];

new{8}=[192 76 12 155 191 185 3 105 181 65 107 5 150 33 205 66 40 68 148];

new{9}=[133 182 96 70 168 164 167 189 112 145 207 4 131 35 14 111 26 28 179];

new{10}=[160 140 2 130 64 139 154 54 39 124 121 176 86 51 161 188 98 204 32];%

new{11}=[87 52 108 30 41 159 187 99 25 118 151 6 60 59 93 31 38 47 128];%

%at=[];

% for j=1:19

% k=new{1,5}(j);

% k=k-1;

% if k<10

% t=strcat('00',int2str(k),'.bmp');

% at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件4\',t))];

% elseif k>=10 && k<100

% t=strcat('0',int2str(k),'.bmp');

% at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件4\',t))];

% else

% t=strcat(int2str(k),'.bmp');

% at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件4\',t))];

% j=j+1;

% end

% end

% b=[at(1:180,1:72),at(1:180,73:144),at(1:180,145:217),at(1:180,218:289),at(1:180,290:361),at(1:180,362:433),at(1:180,434:505),at(1:180,506:580),at(1:180,581:652),at(1:180,653:724),at(1:180,725:796),at(1:180,797:868),at(1:180,869:940),at(1:180,941:1012),at(1:180,1013:1083),at(1:180,1084:1156),at(1:180,1157:1228),at(1:180,1229:1300)];

% imshow(b)

% saveas(gcf,'5.bmp')

at=[];b=cell(1,11);

for i=1:11

for j=1:19

k=new{1,i}(j);

k=k-1;

if k<10

t=strcat('00',int2str(k),'.bmp');

at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件4\',t))];

elseif k>=10 && k<100

t=strcat('0',int2str(k),'.bmp');

at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件4\',t))];

else

t=strcat(int2str(k),'.bmp');

at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件4\',t))];

j=j+1;

end

end

b{1,i}=[at(1:180,1:72),at(1:180,73:144),at(1:180,145:217),at(1:180,218:289),at(1:180,290:361),at(1:180,362:433),at(1:180,434:505),at(1:180,506:580),at(1:180,581:652),at(1:180,653:724),at(1:180,725:796),at(1:180,797:868),at(1:180,869:940),at(1:180,941:1012),at(1:180,1013:1083),at(1:180,1084:1156),at(1:180,1157:1228),at(1:180,1229:1300)];

at=[];

i=i+1;

end

c=[];

for i=1:11

c=[c;b{1,test4(i)}];

end

imshow(c);

第三问

clear all;

clc; % 导入附件5图像矩阵

syms h;

for i=0:208

if i<10

t=strcat('00',int2str(i),'a.bmp');

cell{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件5\',t));

else if i<100

t=strcat('0',int2str(i),'a.bmp');

cell{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件5\',t));

else

t=strcat(int2str(i),'a.bmp');

cell{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件5\',t));

end

end

end

for i=0:208

if i<10

t=strcat('00',int2str(i),'b.bmp');

cell1{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件5\',t));

else if i<100

t=strcat('0',int2str(i),'b.bmp');

cell1{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件5\',t));

else

t=strcat(int2str(i),'b.bmp');

cell1{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件5\',t));

end

end

end

for i=1:209

level=graythresh(cell{1,i});

% graythresh是一个函数，

% 功能是使用最大类间方差法找到图片的一个合适的阈值。

% 利用这个阈值通常比人为设定的阈值能更好地把一张灰度图像转换为二值图像。

cell1{1,i}=im2bw(cell{1,i},level); %图像二值化处理

end

sum=zeros(209,180);

for i=1:209

for j=1:180

for k=1:72

sum(i,j)=sum(i,j)+cell1{i}(j,k);

end

end

end

sum1=zeros(209,180);

for i=1:209

for j=1:180

if sum(i,j)==72

sum1(i,j)=1;

else

sum1(i,j)=0;

end

end

end

% Y=pdist(sum1,'euclidean');

% Z=linkage(Y,'single');

% C=cophenet(Z,Y);

% T=cluster(Z,11);

load test6.mat

s1=zeros(209,1);

s2=zeros(209,1);

h=1;

b=1;

for j=1:209

for i=20:180

if sum1(j,i)==0

if h==1

s1(j,1)=i;

b=j;

h=0;

end

end

if sum1(b,i)==1&&h==0

h=1;

s2(j,1)=i;

break;

end

% a=a+1;

end

end

a=1;load test4.mat

%误差

%kmeans聚类

for i=1:209

s3(i,1)=(s1(i,1)+s2(i,1))/2;

end

idx=kmeans(s3,11);

d=1;

for i=1:11

for j=1:209

if idx(j)==i

d1(i,d)=j;

d=d+1;

end

end

d=1;

end

%聚类得：

%[4,6,9,14,25,26,28,30,38,41,47,52,59,60,70,92,93,95,96,99,108,111,112,114,118,128,131,133,145,151,159,164,167,171,179,182,187,189,202]

%[33,40,66,160,205,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[12,22,50,55,65,76,113,119,120,134,143,155,163,169,174,181,185,190,191,192,193,198,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[16,21,37,42,44,46,48,74,77,103,107,109,117,136,137,141,162,180,200,208,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[87,97,110,157,186,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[10,11,17,20,31,35,45,56,57,58,67,72,83,89,94,106,122,127,135,142,144,146,152,153,156,158,166,168,172,177,183,184,195,203,206,207,0,0,0]

%[2,3,13,34,78,80,116,121,124,130,161,178,188,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[5,68,148,150,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[7,8,15,18,27,29,61,62,69,71,79,81,85,101,102,104,132,138,147,149,165,175,176,196,197,199,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[24,63,91,100,105,123,170,173,209,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

%[1,19,23,32,36,39,43,49,51,53,54,64,73,75,82,84,86,88,90,98,115,125,126,129,139,140,154,194,201,204,0,0,0,0,0,0,0,0,0]

%对不是19的再次聚类

s5=[4,6,9,14,25,26,28,30,38,41,47,52,59,60,70,92,93,95,96,99,108,111,112,114,118,128,131,133,145,151,159,164,167,171,179,182,187,189,202];

for i=1:39 %collections in 6 lines.

s6(i,1)=s3(s5(i),1);

end

idx1=kmeans(s6,2);

d2=1;

for i=1:2

for j=1:39

if idx1(j)==i

d3(i,d2)=j;

d2=d2+1;

end

end

d2=1;

end

s7=[4,6,9,14,25,26,28,30,38,41,47,52,59,60,70,92,93,95,96,99,108,111,112,114,118,128,131,133,145,151,159,164,167,171,179,182,187,189,202];

for i=1:39

s8(i,1)=s3(s7(i),1);

end

idx2=kmeans(s8,2);

d4=1;

for i=1:2

for j=1:37

if idx1(j)==i

d5(i,d4)=j;

d4=d4+1;

end

end

d4=1;

end

load test5.mat

%经过整理得到的聚类数据为

new1{1}=[20 195 94 142 89 122 127 106 156 115 177 183 152 23 58 203 72 166 83];

new1{2}=[71 85 61 15 69 175 138 196 9 48 173 157 97 24 100 123 91 186];

new1{3}=[82 78 129 201 132 53 126 141 194 88 90 49 73 13 178 125 1 103];

new1{4}=[202 149 171 197 199 95 114 165 79 104 92 81 102 27 101 7 18 29 147 144];

new1{5}=[172 67 206 11 158 75 146 84 135 56 19 57 36 17 10 184 153 45];

new1{6}=[21 42 109 117 137 74 37 208 136 16 77 44 200 46 174 80 162 180];

new1{7}=[209 22 8 50 62 120 34 143 169 63 170 55 193 134 119 190 163 198];

new1{8}=[192 76 12 155 191 185 3 105 181 65 107 5 150 33 205 66 40 68 148 113];

new1{9}=[133 182 96 70 168 164 167 189 112 145 207 4 131 35 14 111 26 28 179];

new1{10}=[160 140 2 130 64 139 154 54 39 124 121 176 86 51 161 188 98 204];

new1{11}=[87 52 108 30 41 159 187 99 25 118 151 60 59 93 31 38 47 128];

new1{12}=[116 43];

new1{13}=[110];

new1{14}=[32];

new1{15}=[6];

%人工干预改变个数的位置

new{1}=[20 195 94 142 89 122 127 106 156 115 177 183 152 23 58 203 72 166 83];

new{2}=[71 85 61 15 69 175 138 196 9 48 173 157 97 24 100 123 91 186 110];

new{3}=[82 78 129 201 132 53 126 141 194 88 90 49 73 13 178 125 1 103 116];%

new{4}=[202 149 171 197 199 95 114 165 79 104 92 81 102 27 101 7 18 29 147];%

new{5}=[172 43 67 206 11 158 75 146 84 135 56 19 57 36 17 10 184 153 45];%

new{6}=[21 42 109 117 137 74 37 208 136 16 77 44 200 46 174 80 162 180 144];

new{7}=[209 22 8 50 62 120 34 143 169 63 170 55 193 134 119 190 163 198 113];

new{8}=[192 76 12 155 191 185 3 105 181 65 107 5 150 33 205 66 40 68 148];

new{9}=[133 182 96 70 168 164 167 189 112 145 207 4 131 35 14 111 26 28 179];

new{10}=[160 140 2 130 64 139 154 54 39 124 121 176 86 51 161 188 98 204 32];%

new{11}=[87 52 108 30 41 159 187 99 25 118 151 6 60 59 93 31 38 47 128];%

%at=[];

% for j=1:19

% k=new{1,5}(j);

% k=k-1;

% if k<10

% t=strcat('00',int2str(k),'.bmp');

% at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件4\',t))];

% elseif k>=10 && k<100

% t=strcat('0',int2str(k),'.bmp');

% at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件4\',t))];

% else

% t=strcat(int2str(k),'.bmp');

% at=[at imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件4\',t))];

% j=j+1;

% end

% end

% b=[at(1:180,1:72),at(1:180,73:144),at(1:180,145:217),at(1:180,218:289),at(1:180,290:361),at(1:180,362:433),at(1:180,434:505),at(1:180,506:580),at(1:180,581:652),at(1:180,653:724),at(1:180,725:796),at(1:180,797:868),at(1:180,869:940),at(1:180,941:1012),at(1:180,1013:1083),at(1:180,1084:1156),at(1:180,1157:1228),at(1:180,1229:1300)];

% imshow(b)

% saveas(gcf,'5.bmp')

clear cell cell1;

for i=0:208

if i<10

t=strcat('00',int2str(i),'a.bmp');

cell{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件5\',t));

else if i<100

t=strcat('0',int2str(i),'a.bmp');

cell{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件5\',t));

else

t=strcat(int2str(i),'a.bmp');

cell{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件5\',t));

end

end

end

for i=0:208

if i<10

t=strcat('00',int2str(i),'b.bmp');

cell1{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件5\',t));

else if i<100

t=strcat('0',int2str(i),'b.bmp');

cell1{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件5\',t));

else

t=strcat(int2str(i),'b.bmp');

cell1{1,i+1}=imread(strcat('E:\大学资料\2019年国赛数模\Text 2019.8.5\cumcm2013\B\附件5\',t));

end

end

end

%imshow(check\_1)

imshow(check\_2)