Contents

- set the target graph of successive approximation method
- plot the graph
- the dijkstra algorithm
- set the target graph of successive approximation method
- plot the graph
- the successive approxiamtion algoritm


```
clc,clear
```

set the target graph of successive approximation method

```
%(mainly the adjacent matrix)
M=[1 6 3 0 0 0 0 0 0;
   0 1 2 0 3 2 0 0 0;
   0 0 1 1 0 3 0 0 0;
   0 0 0 1 5 7 3 0 0;
   0 0 0 0 1 4 3 0 2;
   0 0 0 0 0 1 0 6 0 ;
   0 0 0 0 0 0 1 5 0;
   0 0 0 0 0 0 0 1 2;
   0 0 0 0 0 0 0 0 1];
```

plot the graph

```
figure(1)
Grph= graph(M,'upper','OmitSelfLoops');
plot(Grph,'EdgeLabel',Grph.Edges.Weight)
title('the target graph of dijkstra algoritm')
```

the dijkstra algorithm

```
D=M+M';
D(find(D==0))=inf;
D=D-diag(diag(D));
for i=2:9
[mydistance mypath]=mydijkstra(D,1,i);
end
```

set the target graph of successive approximation method

```
%(mainly the adjacent matrix)
M=[1 -1 -3 3 0 0 0 0;
   7 1 0 0 5 0 0 0;
   0 -3 1 -5 0 2 0 0;
   0 0 0 1 0 0 8 0;
```

```
   0 -2 0 0 1 0 0 0;
   0 0 0 0 1 1 1 7;
   0 0 0 -3 0 0 1 0;
   0 0 0 0 -3 0 -5 1];
```

plot the graph

```
figure(2)
Grph= digraph(M,'OmitSelfLoops');
plot(Grph,'EdgeLabel',Grph.Edges.Weight)
title('the target graph of the approximation algorithm')
```

the successive approxiamtion algoritm

```
S=M;
S(find(S==0))=inf;
S=S-diag(diag(S));
stepmat=mystepsapprox(S,1,8)
```

```
stepmat =

     0     0     0     0
    -1    -6    -6    -6
    -3    -3    -3    -3
     3    -8    -8    -8
   Inf     4    -1    -1
   Inf    -1    -1    -1
   Inf    11     0     0
   Inf   Inf     6     6
```