**代码**

#include <stdio.h>

#include <stdlib.h>

#include <graphics.h>

#include "Scenespot.h"

#include "Ljjz.h"

#include "EgeTest.h"

#include "Arti.h”

int main()

{

int path\_dij[M];

int dist\_dij[M];

int path\_flo[M][M];

int dist\_flo[M][M];

int stack\_dij[M];

int stack\_flo[M];

int stack\_All[M];

SpotList sp;

readFile(&sp);

Mgraph g;

ALGraph G;

creat(&g,0);

MatToList(&g,&G);

dijkstra(g,0,path\_dij,dist\_dij);

floyd(g,path\_flo,dist\_flo);

char getK;

int x,y,i,j;

while(getK!=key\_esc)

{

if(getK=='a')

{

char str[NameSpace];

inputbox\_getline("请输入", "序号", str, NameSpace);

x=readnumber(str);

sprintf(str,"%d %s %s",sp.place[x].No,sp.place[x].name,sp.place[x].detail); outtextxy(0,0,str);

}

char str1[NameSpace];

char str2[NameSpace];

inputbox\_getline("请输入", "序号", str1, NameSpace);

x=readnumber(str1);

sprintf(str1,"需要花费时间：%d",dist\_dij[x]);

outtextxy(0,0,str1);

print\_gpd(g,x,path\_dij,dist\_dij,stack\_dij);

int counter=0,top\_dij=StTop(stack\_dij);

while(top\_dij>0)

{

sprintf(str2,"%d->",stack\_dij[top\_dij--]);

outtextxy(30+(counter++)\*70,30,str2);

}

sprintf(str2,"%d",stack\_dij[top\_dij--]);

outtextxy(30+(counter++)\*70,30,str2);

}

else if(getK=='d')

{

char str1[NameSpace];

char str2[NameSpace];

char str3[NameSpace];

inputbox\_getline("请输入", "序号1", str1, NameSpace);

inputbox\_getline("请输入", "序号2", str2, NameSpace);

x=readnumber(str1);

y=readnumber(str2);

sprintf(str1,"需要花费时间：%d",dist\_flo[x][y]);

outtextxy(0,0,str1);

print\_floyd(g,x,y,path\_flo,dist\_flo,stack\_flo);

int counter=0,top\_flo=StTop(stack\_flo);

while(top\_flo>0)

{

sprintf(str3,"%d->",stack\_flo[top\_flo--]);

outtextxy(30+(counter++)\*70,30,str3);

}

sprintf(str3,"%d",stack\_flo[top\_flo--]);

outtextxy(30+(counter++)\*70,30,str3);

}

else if(getK=='f')

{

char str1[NameSpace];

char str2[NameSpace];

int iti[NameSpace];

int AllNum;

int top\_All;

int counter=0;

inputbox\_getline("请输入", "空格隔开", str1, NameSpace);

AllNum=LongNum(str1,iti);

sprintf(str1,"需要花费时间：%d",OverFloyd(g,iti,AllNum,path\_flo,dist\_flo,stack\_All));

outtextxy(0,0,str1);

top\_All=StTop(stack\_All);

printf("%5d",top\_All);

while(top\_All>0)

{

sprintf(str2,"%d->",stack\_All[top\_All--]);

outtextxy(30+(counter++)\*70,30,str2);

}

sprintf(str2,"%d",stack\_All[top\_All]);

outtextxy(30+(counter++)\*70,30,str2);

stack\_All[0]='\0';/\*全局变量初始化\*/

}

else if(getK=='h')

{

char str1[NameSpace];

char str2[NameSpace];

int x;

i=0;

inputbox\_getline("你选择从哪里遍历关节点", "回车确认", str2, NameSpace);

x=readnumber(str2);

arti(&G,x);

while(i<anti\_cnt)

{

sprintf(str1,"%d",anti\_array[i++]);

outtextxy(30+(i)\*70,30,str1);

}

anti\_array[0]='\0';

}

else if(getK=='g')

{

char str1[NameSpace];

char str2[NameSpace];

char str3[NameSpace];

inputbox\_getline("请输入", "序号1", str1, NameSpace);

inputbox\_getline("请输入", "序号2", str2, NameSpace);

x=readnumber(str1);

y=readnumber(str2);

SearchAllpath(g,x,y);

i=0;j=0;

for(i=0;i<=cnt;i++)

{

for(j=0;v[i][j]!=y;j++)

{

if(10+i\*20<750)

{

sprintf(str3,"%d->",v[i][j]);

outtextxy(10+j\*40,10+i\*20,str3);

}

else

{

sprintf(str3,"%d->",v[i][j]);

outtextxy(693+j\*40,i\*20-730,str3);

}

}

if(10+i\*20<750)

{

sprintf(str3,"%d",v[i][j]);

outtextxy(10+j\*40,10+i\*20,str3);

}

else

{

sprintf(str3,"%d",v[i][j]);

outtextxy(693+j\*40,i\*20-730,str3);

}

}

}

getK=getch();

delimage(NUC);

cleardevice();

return 0;

}

**图的关节点模块**

### 代码

void dfs\_sqc(ALGraph \*g,int u)/\*第二个参数选择遍历起点\*/

{

int v;

//记录dfs遍历次序

//记录节点u的子树数

int children = 0;

ArcNode \*p = g->adjlist[u].firstarc;

visit[u] = 1;

//初始化dfn与low

dfs\_seq[u]=low\_anc[u] = counter++;

for(; p != NULL; p = p->nextarc)

{

v = p->adjvex;

//节点v未被访问，则(u,v)为树边

if(!visit[v])

{

children++;

parent[v] = u;

dfs\_sqc(g,v);

low\_anc[u] = min(low\_anc[u], low\_anc[v]);

//case (1)

if(parent[u] == -1 && children > 1)

{

anti\_array[anti\_cnt++]=u;

}

//case (2)

if(parent[u] != -1 && low\_anc[v] >= dfs\_seq[u])

{

anti\_array[anti\_cnt++]=u;

}

}

//节点v已访问，则(u,v)为回边

else if(v != parent[u])

{

low\_anc[u] = min(low\_anc[u], dfs\_seq[v]);

}

}

}

void arti(ALGraph\* g,int v)

{

// int i;

parent[0]=-1;

dfs\_sqc(g,v);

}

**主函数模块**

### 代码

#include <stdio.h>

#include <stdlib.h>

#include <graphics.h>

#include "Scenespot.h"

#include "Ljjz.h"

#include "EgeTest.h"

#include "Arti.h"

int main()

{

int path\_dij[M];

int dist\_dij[M];

int path\_flo[M][M];

int dist\_flo[M][M];

int stack\_dij[M];

int stack\_flo[M];

int stack\_All[M];

SpotList sp;

readFile(&sp);

Mgraph g;

ALGraph G;

creat(&g,0);

MatToList(&g,&G);

dijkstra(g,0,path\_dij,dist\_dij);

floyd(g,path\_flo,dist\_flo);

setinitmode(0,0,0);

initgraph(1366, 768);

setcolor(EGERGB(0x0, 0xFF, 0x0));

setfont(80, 0, "黑体");

setbkmode(TRANSPARENT);

outtextxy(523, 150, "中北大学");

setcolor(EGERGB(0xff, 0x0, 0xff));

setfont(60, 0, "黑体");

outtextxy(503, 400, "校园导游系统");

setcolor(EGERGB(0x40, 0xe0, 0xd0));

setfont(40, 0, "黑体");

outtextxy(563, 680, "按任意键继续");

getch();

cleardevice();

char getK;

int x,y,i,j;

while(getK!=key\_esc)

{

PIMAGE NUC = newimage();

getimage(NUC, "NUC.jpg");

putimage(10, 10, NUC);

setcolor(EGERGB(0xEE,0x82,0xEE));

setfont(40, 0, "黑体");

char str[NameSpace];

for(i=0;i<sp.capacity/2;i++)

{

sprintf(str,"%d %s",sp.place[i].No,sp.place[i].name);

outtextxy(700, 20+i\*40, str);

}

for(;i<sp.capacity;i++)

{

sprintf(str,"%d %s",sp.place[i].No,sp.place[i].name);

outtextxy(900, 20+(i-sp.capacity/2)\*40, str);

}

setcolor(EGERGB(0x0,0xFF,0x0));

setfont(20, 0, "宋体");

outtextxy(1200, 720, "按Esc退出");

i=0;

setcolor(EGERGB(0x00, 0xFF, 0xFF));

setfont(40, 0, "微软雅黑");

setbkmode(TRANSPARENT);

outtextxy(200, 500, "A: 查询景点详细信息");

outtextxy(650, 500, "S: 查询当前位置到任意景点路径及耗时");

outtextxy(200, 550, "D: 任意两景点路径及耗时");

outtextxy(650, 550, "F: 定制路径及耗时");

outtextxy(200, 600, "G: 两个景点所有路径查询");

outtextxy(650, 600, "H: 看一看关节点");

getK=getch();

if(getK=='a')

{

setviewport(30, 650, 1300, 700, 1);

char str[NameSpace];

inputbox\_getline("请输入", "序号", str, NameSpace);

x=readnumber(str);

sprintf(str,"%d %s %s",sp.place[x].No,sp.place[x].name,sp.place[x].detail);

setcolor(EGERGB(0x87,0xCE,0xFA));

setfont(30, 0, "宋体");

outtextxy(0,0,str);

setviewport(0, 0, getwidth(), getheight(), 1);

}

else if(getK=='s')

{

setviewport(50, 650, 1300, 750, 1);

char str1[NameSpace];

char str2[NameSpace];

inputbox\_getline("请输入", "序号", str1, NameSpace);

x=readnumber(str1);

sprintf(str1,"需要花费时间：%d",dist\_dij[x]);

setcolor(EGERGB(0x87,0xCE,0xFA));

setfont(30, 0, "宋体");

outtextxy(0,0,str1);

print\_gpd(g,x,path\_dij,dist\_dij,stack\_dij);

int counter=0,top\_dij=StTop(stack\_dij);

while(top\_dij>0)

{

sprintf(str2,"%d->",stack\_dij[top\_dij--]);

outtextxy(30+(counter++)\*70,30,str2);

}

sprintf(str2,"%d",stack\_dij[top\_dij--]);

outtextxy(30+(counter++)\*70,30,str2);

setviewport(0, 0, getwidth(), getheight(), 1);

}

else if(getK=='d')

{

setviewport(50, 650, 1300, 750, 1);

char str1[NameSpace];

char str2[NameSpace];

char str3[NameSpace];

inputbox\_getline("请输入", "序号1", str1, NameSpace);

inputbox\_getline("请输入", "序号2", str2, NameSpace);

x=readnumber(str1);

y=readnumber(str2);

sprintf(str1,"需要花费时间：%d",dist\_flo[x][y]);

setcolor(EGERGB(0x87,0xCE,0xFA));

setfont(30, 0, "宋体");

outtextxy(0,0,str1);

print\_floyd(g,x,y,path\_flo,dist\_flo,stack\_flo);

int counter=0,top\_flo=StTop(stack\_flo);

while(top\_flo>0)

{

sprintf(str3,"%d->",stack\_flo[top\_flo--]);

outtextxy(30+(counter++)\*70,30,str3);

}

sprintf(str3,"%d",stack\_flo[top\_flo--]);

outtextxy(30+(counter++)\*70,30,str3);

setviewport(0, 0, getwidth(), getheight(), 1);

}

else if(getK=='f')

{

setviewport(50, 650, 1300, 750, 1);

char str1[NameSpace];

char str2[NameSpace];

int iti[NameSpace];

int AllNum;

int top\_All;

int counter=0;

inputbox\_getline("请输入", "空格隔开", str1, NameSpace);

AllNum=LongNum(str1,iti);

sprintf(str1,"需要花费时间：%d",OverFloyd(g,iti,AllNum,path\_flo,dist\_flo,stack\_All));

setcolor(EGERGB(0x87,0xCE,0xFA));

setfont(30, 0, "宋体");

outtextxy(0,0,str1);

top\_All=StTop(stack\_All);

printf("%5d",top\_All);

while(top\_All>0)

{

sprintf(str2,"%d->",stack\_All[top\_All--]);

outtextxy(30+(counter++)\*70,30,str2);

}

sprintf(str2,"%d",stack\_All[top\_All]);

outtextxy(30+(counter++)\*70,30,str2);

stack\_All[0]='\0';/\*全局变量初始化\*/

setviewport(0, 0, getwidth(), getheight(), 1);

}

else if(getK=='h')

{

setviewport(50, 650, 1300, 750, 1);

char str1[NameSpace];

char str2[NameSpace];

int x;

i=0;

inputbox\_getline("你选择从哪里遍历关节点", "回车确认", str2, NameSpace);

x=readnumber(str2);

arti(&G,x);

setcolor(EGERGB(0x87,0xCE,0xFA));

setfont(30, 0, "宋体");

while(i<anti\_cnt)

{

sprintf(str1,"%d",anti\_array[i++]);

outtextxy(30+(i)\*70,30,str1);

}

anti\_array[0]='\0';

setviewport(0, 0, getwidth(), getheight(), 1);

}

else if(getK=='g')

{

char str1[NameSpace];

char str2[NameSpace];

char str3[NameSpace];

inputbox\_getline("请输入", "序号1", str1, NameSpace);

inputbox\_getline("请输入", "序号2", str2, NameSpace);

x=readnumber(str1);

y=readnumber(str2);

cleardevice();

SearchAllpath(g,x,y);

setcolor(EGERGB(0x87,0xCE,0xFA));

setfont(15, 0, "黑体");

i=0;j=0;

for(i=0;i<=cnt;i++)

{

for(j=0;v[i][j]!=y;j++)

{

if(10+i\*20<750)

{

sprintf(str3,"%d->",v[i][j]);

outtextxy(10+j\*40,10+i\*20,str3);

}

else

{

sprintf(str3,"%d->",v[i][j]);

outtextxy(693+j\*40,i\*20-730,str3);

}

}

if(10+i\*20<750)

{

sprintf(str3,"%d",v[i][j]);

outtextxy(10+j\*40,10+i\*20,str3);

}

else

{

sprintf(str3,"%d",v[i][j]);

outtextxy(693+j\*40,i\*20-730,str3);

}

}

}

getK=getch();

delimage(NUC);

cleardevice();

}

setcolor(EGERGB(0x0, 0xFF, 0x0));

setfont(80, 0, "黑体");

setbkmode(TRANSPARENT);

outtextxy(523, 150, "感谢使用");

setcolor(EGERGB(0x0, 0xFF, 0xFF));

setfont(50, 0, "黑体");

outtextxy(450, 400, "组长： 朱继熠");

outtextxy(450, 480, "组员： 梁亚亚");

outtextxy(450, 560, "组员： 李静涵");

outtextxy(450, 640, "组员： 涂大祥");

getch();

closegraph();

return 0;

}