#include<iostream>

using namespace std;

#define M 32767

void ShortestPath\_Floyd(int c, int d)

{

cout << "最短路径需经过：";

cout << "终点";

c = c - 1; d = d - 1;

int D[10][10];

int G[10][10] = {

{ 0, 20, 160, M, M, M, 80, M, M, M },//数据初始化

{ 20, 0, 80, M, M, M, M, 260, M, M },

{ 160, 80, 0, 15, M, M, M, M, M, M },

{ M, M, 15, 0, 150, M, M, M, M, M },

{ M, M, M, 150, 0, 100, M, M, M, 400 },

{ M, M, M, M, 100, 0, M, 10, M, M },

{ 80, M, M, M, M, M, 0, 50, 160, M },

{ M, 260, M, M, M, 10, 50, 0, M, 55 },

{ M, M, M, M, M, M, 160, M, 0, 40 },

{ M, M, M, M, 400, M, M, 55, 40, 0 } };

int Path[10][10];

for (int i = 0; i < 10; ++i)

for (int j = 0; j < 10; ++j)

{

D[i][j] = G[i][j];

if (D[i][j] < M&&i != j)

Path[i][j] = i;//有弧前驱1

else Path[i][j] = -1;//没 -1

}

for (int k = 0; k < 10; ++k)

for (int i = 0; i < 10; ++i)

for (int j = 0; j < 10; ++j)

if (D[i][k] + D[k][j] < D[i][j])

{

D[i][j] = D[i][k] + D[k][j];//插中间路径

Path[i][j] = Path[k][j];//找前驱

}

/\*for (int k = 0; k < 10; ++k)

{

for (int i = 0; i < 10; ++i)

{ cout<< Path[k][i]+1<<" ";

}cout << endl;

}\*/

while (c != Path[c][d])

{

switch (Path[c][d]+1)

{

case 1:

cout << " <---学一食堂" ; break;

case 2:cout << " <---排球场"; break;

case 3:cout << " <--- 泽园" ; break;

case 4:cout << "<---春晖楼" ; break;

case 5:cout << "<--- 招待所 "; break;

case 6:cout << "<---沁园" ; break;

case 7:cout << "<---消费合作社" ; break;

case 8: cout << "<---图书馆" ; break;

case 9:cout << "<---西操场" ; break;

case 10:cout << "<---体育馆" ; break;

}

d = Path[c][d];

}

cout << "<---起始点" << endl;

cout << "长度" << D[c][d]<<endl;

}

int main()

{

//平面图

cout << " 9西操场 160 " << endl;

cout << " | |------------------7消费合作社 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_1学一食堂 " << endl;

cout << " | 40 |50 80 |20 | " << endl;

cout << " | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_2排球场 | " << endl;

cout << " | 55 || 260 | | " << endl;

cout << " |\_\_\_10体育馆——8图书馆 | | " << endl;

cout << " | |10 |80 |160 " << endl;

cout << " | 6沁园\_\_\_\_\_\_\_\_\_\_ | | " << endl;

cout << " | | | | " << endl;

cout << " | |100 3泽园\_\_\_\_\_\_\_\_\_\_\_\_\_\_| " << endl;

cout << " |400 | |15 " << endl;

cout << " | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_4春晖楼 " << endl;

cout << " | | | 150 " << endl;

cout << " |\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_5招待所 " << endl;

cout << " " << endl;

cout << " 石家庄铁道大学自制平面图 " << endl;

while (1){

cout << "你想要了解的是：";

cout << " 1 景点介绍 ";

int l;

cout << " 2 到那里去" << endl;

int x = 0;

cin >> l;

char a, b;

if (l == 1)

{

cout << "你想要了解的是：";

cin >> x;

switch (x)

{

case 1:cout << "学一食堂,今年夏天重新装修的，有三层，第三层有电梯。吃的种类比较多样，价格比别的食堂贵，环境还不错，饭点的时候人比较多，需要排很长的队，离我们宿舍楼不足十米距离，是肥宅首选买饭地点　　" << endl;

break;

case 2:cout << "排球场，经常有学生在里面打排球，四周有很高的拦网，防止球出来，夏天晚上还会有人在里面跳健美操。　　　" << endl;

break;

case 3:cout << "泽园，有毛爷爷雕像，国旗台也在那里，每天国旗护卫队的小哥哥都在里面训练。　" << endl;

break;

case 4:cout << "春晖楼，留学生上课的地方，学校为数不多有电梯的地方，里面还有很多办公室。　　　" << endl;

break;

case 5:cout << "招待所，留学生公寓在这边有各种小吃摊，周五晚上可以逛逛。　　" << endl;

break;

case 6:cout << "沁园，有喷泉，虽然很少打开，不过开的时候还挺好看的，有人物雕像。" << endl;

break;

case 7:cout << "消费合作社，不知道为啥不叫超市（哈哈哈），有电梯呦，还有很多吃的，比如大家最爱的辣条。　　　" << endl;

break;

case 8:cout << "图书馆，知识的海洋，里面的自习室一座难求，基本上常年有人占座位，一层大厅里面还有各种漂亮的石头，嘻嘻嘻。　　　" << endl;

break;

case 9:cout << "西操场，有橡胶跑道，白天用来上体育课，早晚会有很多中老年人健身，感觉比大学生还有活力，精神。　　　" << endl;

break;

case 10:cout << "体育馆，里面可以打篮球和羽毛球，每次路过都可以看到180+的小哥哥打篮球，亮丽的风景线。　　　" << endl;

break;

}//switch

}//if

if (l == 2)

{

int c, d;

cout << "我的位置：" << endl;

cin >> c;

cout << "终点位置：" << endl;

cin >> d;

ShortestPath\_Floyd(c, d);

}//if

}//while

}//main