The Maze Problem

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September 10, 2017

Contents

1 codes

```cpp
#include <iostream>
using namespace std;

const int MAX_N = 0x3f3f3f3f;
char maze[5][5];
int dis[5][5];
int dx[4] = {1, 0, -1, 0}, dy[4] = {0, 1, 0, -1};
int top = 0, rear = 1;
struct S{
        int x;int y;
        int pas;
}que[100];

void print(int i){
        if(que[i].pas != -1){
                print(que[i].pas);
                cout << "(" << que[i].x << "," << que[i].y << ")" <<
                    endl;
        }

}
void findpath(){
        for(int i = 0; i < 5; i++)
                for(int j = 0; j < 5; j++)
                        dis[i][j] = MAX_N;
        dis[0][0] = 0;
        que[0].x = 0;
        que[0].y = 0;
        que[0].pas = -1;
        while(top < rear){
                int k = 0;
                for(k; k < 4; k++){
                        int nx = que[top].x + dx[k];
                        int ny = que[top].y + dy[k];
                        if(nx == 4 && ny == 4){
                                print(top);
                        }
                        if(0 <= nx && nx < 5 && 0 <= ny && maze[nx][ny]
                            != '1' && dis[nx][ny] == MAX_N){
                                que[rear].x = nx;
                                que[rear].y = ny;
                                que[rear].pas = top;
                                dis[nx][ny] = dis[que[top].x][que[top].y
                                    ] + 1;
                                rear++;
                        }
                }
        }
```
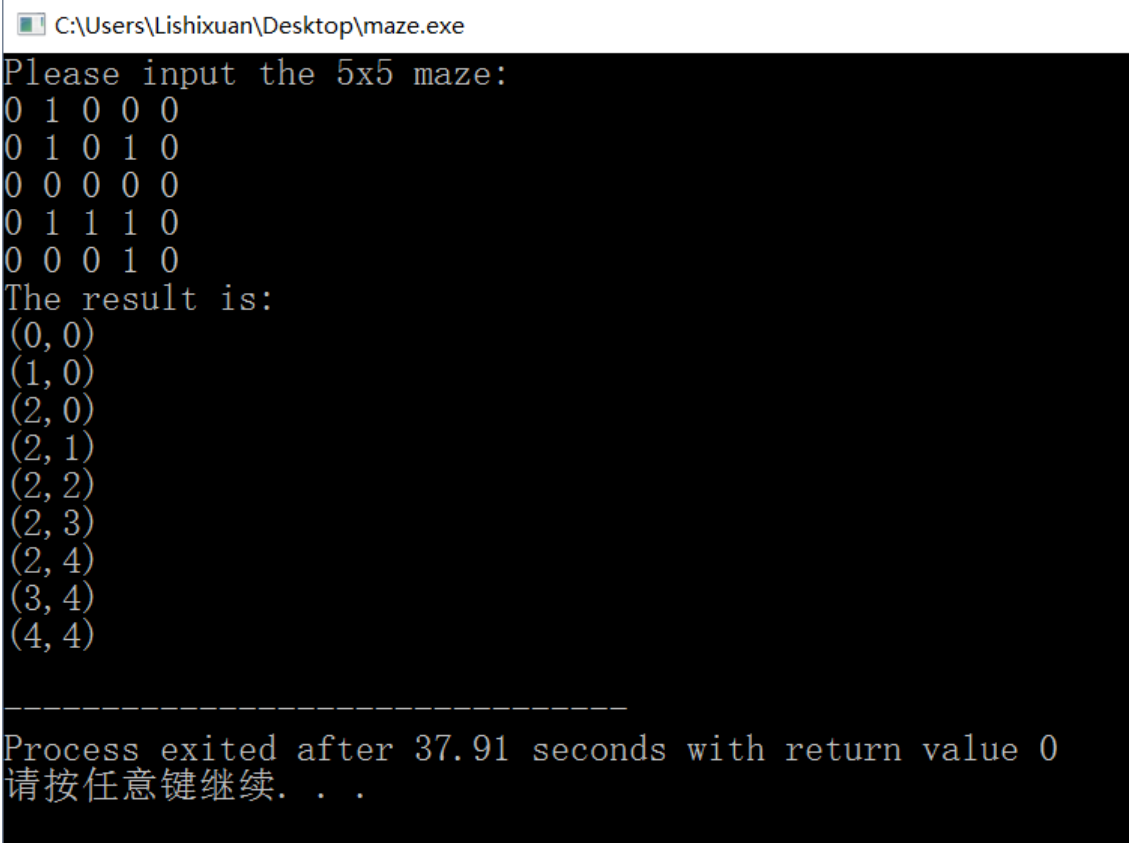
```cpp
                top++;
        }
}

int main(){
        cout << "Please input the 5x5 maze:" << endl;
        for(int i = 0; i < 5; i++){
                for(int j = 0 ; j < 5; j++){
                        cin >> maze[i][j];
                }
        }
        cout << "The result is:" << endl;
        cout << "(0,0)" << endl;
        findpath();
        cout << "(4,4)" << endl;
        return 0;
}
```

2 Results


```
C:\Users\Lishixuan\Desktop\maze.exe
Please input the 5x5 maze:
0 1 0 0 0
0 1 0 1 0
0 0 0 0 0
0 1 1 1 0
0 0 0 1 0
The result is:
(0,0)
(1,0)
(2,0)
(2,1)
(2,2)
(2,3)
(2,4)
(3,4)
(4,4)

_____
Process exited after 37.91 seconds with return value 0
请按任意键继续. . .
```