Submission

ID	DATE	PROBLEM	STATUS	CPU	LANG
	TEST CASES				
8097828	14:55:01	Dungeon master	✔ **Accepted**	0.00 s	C++
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FILENAME	FILESIZE	SHA-1 SUM	
dungeon.cpp	2871 bytes	1668f5b8111f20b3ce3fff2c4df6e3ea8a88d2c3	[download]

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dungeon.cpp

```cpp
1   #include <bits/stdc++.h>
2   using namespace std;
3   int x, y, z;
4   bool inrange(int a, int b, int c)
5   {
6       return (a >= 0 && b >= 0 && b >= 0 && a < x && b < y && c < z);
7
8   }
9   int main()
10  {
11      ios::sync_with_stdio(false);
12      cin.tie(NULL);
13
14      while(cin >> x >> y >> z) {
15          tuple<int,int,int> s;
16          tuple<int,int,int> e;
17
18          if(x == 0 || y == 0 || z == 0) {
19              break;
20          }
21
22          vector<vector<vector<int>>> v(x);
23          for(auto& i : v) {
24              i.resize(y, vector<int>(z, -2));
25          }
26
27          for(int i = 0; i < x; i++)
28          {
29              for(int j = 0; j < y; j++)
30              {
31                  for(int k = 0; k < z; k++)
32                  {
33                      char c;
34                      cin >> c;
35                      if(c == '#') {
36                          v[i][j][k] = -1;
```

```
37                        }
38                        if(c == 'S') {
39                            get<0>(s) = i;
40                            get<1>(s) = j;
41                            get<2>(s) = k;
42                        }
43                        if(c == 'E') {
44                            get<0>(e) = i;
45                            get<1>(e) = j;
46                            get<2>(e) = k;
47                        }
48                    }
49                }
50            }
51
52            // BFS
53            queue<tuple<int,int,int>> q;
54            q.push(s);
55            v[get<0>(s)][get<1>(s)][get<2>(s)] = 0;
56
57            while(!q.empty()) {
58                auto c = q.front();
59                q.pop();
60                int x = get<0>(c);
61                int y = get<1>(c);
62                int z = get<2>(c);
63                if(inrange(x-1,y,z) && v[x-1][y][z] == -2) {
64                    v[ x-1][ y][ z] = v[ x][ y][ z] + 1;
65                    q.push({ x-1, y, z});
66                }
67                if(inrange( x+1, y, z) && v[ x+1][ y][ z] == -2) {
68                    v[ x+1][ y][ z] = v[ x][ y][ z] + 1;
69                    q.push({ x+1, y, z});
70                }
71                if(inrange( x, y-1, z) && v[ x][ y-1][ z] == -2) {
72                    v[ x][ y-1][ z] = v[ x][ y][ z] + 1;
73                    q.push({ x, y-1, z});
74                }
75                if(inrange( x, y+1, z) && v[ x][ y+1][ z] == -2) {
76                    v[ x][ y+1][ z] = v[ x][ y][ z] + 1;
77                    q.push({ x, y+1, z});
78                }
79                if(inrange( x, y, z-1) && v[ x][ y][ z-1] == -2) {
80                    v[ x][ y][ z-1] = v[ x][ y][ z] + 1;
81                    q.push({ x, y, z-1});
82                }
83                if(inrange( x, y, z+1) && v[ x][ y][ z+1] == -2) {
84                    v[ x][ y][ z+1] = v[ x][ y][ z] + 1;
85                    q.push({ x, y, z+1});
86                }
87            }
88
89            if(v[get<0>(e)][get<1>(e)][get<2>(e)] < 0) {
90                cout << "Trapped!" << endl;
91            }
92            else {
93                cout << "Escaped in " << v[get<0>(e)][get<1>(e)][get<2>(e)]  << " minute(s)." <<
    endl;
94            }
95        }
96  }
```