

## solve1.py

```
1 # solve1.py
2 # define the maze as an array
3 # 2 is the start
4 # 3 is the end
5 # 1 is a path
6 # 0 is blocked
7
8 #10x10 list of lists
9 maze = [
10     [2, 0, 3, 1, 1, 0, 1, 1, 1, 1],
11     [1, 0, 1, 0, 1, 0, 0, 0, 0, 1],
12     [1, 1, 1, 0, 1, 0, 0, 1, 1, 1],
13     [1, 0, 1, 0, 0, 0, 0, 1, 0, 0],
14     [1, 0, 1, 1, 1, 1, 1, 1, 0, 1],
15     [1, 0, 0, 0, 0, 0, 0, 1, 0, 1],
16     [1, 1, 1, 1, 0, 1, 0, 1, 0, 1],
17     [1, 0, 0, 0, 0, 1, 0, 1, 1, 1],
18     [1, 0, 1, 0, 0, 1, 0, 0, 0, 1],
19     [1, 1, 1, 1, 1, 1, 0, 1, 1, 1]
20 ]
21
22
23 def solve(maze):
24
25     # get the number of rows and columns
26     rows = len(maze)
27     cols = len(maze[0]) if rows > 0 else 0
28
29     # find the start position
30     start = None
31     for i in range(len(maze)):
32         for j in range(len(maze[i])):
33             if maze[i][j] == 2:
34                 start = (i, j)
35                 break
36     # we found start so stop looking
37     if start:
38         break
39
40     # find the end position
41     end = None
42     for i in range(len(maze)):
43         for j in range(len(maze[i])):
44             if maze[i][j] == 3:
45                 end = (i, j)
46                 break
47     # we found end so stop looking
48     if end:
49         break
50
51     if not start or not end:
```

```
52         return None
53
54     # initialize the path
55     path = []
56
57     #create and set visited to false
58     visited = [[False]*cols for _ in range(rows)]
59
60     def check(r, c):
61         if not (0 <= r < rows and 0 <= c < cols):
62             return False
63         if maze[r][c] == 0 or visited[r][c]:
64             return False
65
66         visited[r][c] = True
67         #print(f"Visiting: ({r}, {c})")
68
69         path.append((r, c))
70
71         if (r, c) == end:
72             return True
73
74         # Check all four directions recursively
75         if (check(r+1, c) or check(r-1, c) or check(r, c+1) or check(r, c-1)):
76             return True
77
78         # If none of the directions lead to a solution, backtrack
79         path.pop()
80         return False
81
82
83
84     if check(*start):
85         return path
86     else:
87         return None
88
89 # Test
90 path = solve(maze)
91 if path:
92     print("Path found:")
93     for step in path:
94         print(step)
95 else:
96     print("No path found.")
97
98
```