

```
from collections import deque
```

```
# Maze
```

```
# 0 = free path, 1 = wall
```

```
maze = [  
    [1, 0, 1, 0, 0],  
    [1, 0, 0, 0, 0],  
    [0, 0, 0, 1, 0],  
    [1, 0, 0, 0, 1],  
    [0, 0, 1, 0, 0]
```

```
]
```

```
start = (0, 0) # Start point(row,col)
```

```
goal = (0, 4) # Goal(row,col)
```

```
# Directions: up,down,left,right
```

```
direction = [(-1, 0), (1, 0), (0, -1), (0, 1)]
```

```
def bfs(start, goal):
```

```
    queue = deque([start])
```

```
    visited = set([start])
```

```
    parent = {start: None}
```

```
    while queue:
```

```
        r, c = queue.popleft()
```

```
        if (r, c) == goal:
```

```
            break
```

```
        for dr, dc in direction:
```

```
            nr, nc = r + dr, c + dc
```

```
            if 0 <= nr < len(maze) and 0 <= nc < len(maze[0]):
```

```
                if maze[nr][nc] == 0 and (nr, nc) not in visited:
```

```
                    queue.append((nr, nc))
```

```
                    visited.add((nr, nc))
```

```
                    parent[(nr, nc)] = (r, c)
```

```
# Build the path
```

```
path = []
```

```
node = goal
```

```
while node is not None:
```

```
    path.append(node)
```

```
    node = parent.get(node)
```

```
path.reverse()
```

```
# If path exist, return it
if path[0] == start:
    return path
else:
    return None
```

```
path = bfs(start, goal)
if path:
    print("Path found: ", path)
else:
    print("Path not found!")
```