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**Aim:**

Python program to implement Depth First Search.

**Program:**

def dfs(maze, start, goal):

stack = [start]

visited = set()

while stack:

current = stack.pop()

if current == goal:

return True

visited.add(current)

for neighbor in get\_neighbors(maze, current):

if neighbor not in visited:

stack.append(neighbor)

return False

def get\_neighbors(maze, node):

x, y = node

neighbors = []

directions = [(0, 1), (1, 0), (0, -1), (-1, 0)] #

for dx, dy in directions:

nx, ny = x + dx, y + dy

if is\_valid(maze, nx, ny):

neighbors.append((nx, ny))

return neighbors

def is\_valid(maze, x, y):

return 0 <= x < len(maze) and 0 <= y < len(maze[0]) and maze[x][y] == 0

**Output:**

maze = [

[0, 1, 0, 0, 0],

[0, 1, 0, 1, 0],

[0, 0, 0, 1, 0],

[1, 1, 0, 1, 0],

[0, 0, 0, 0, 0]

]

start = (0, 0)

goal = (4, 4)

print(dfs(maze, start, goal))

**Result:**

Successfully implemented Depth First Search algorithm and output verified.