

Depth First Search

Aim

To solve Depth First Search problem using python.

Code

```
m = [[1,0,0,0],[1,1,0,1],[0,1,0,0],[1,1,1,1]]
n = len(m)
v = [[0]*n for _ in range(n)]
p = []
def dfs(x,y):
    if x<0 or y<0 or x>=n or y>=n or not m[x][y] or v[x][y]: return False
    p.append((x,y)); v[x][y]=1
    if (x,y)==(n-1,n-1): return True
    if dfs(x+1,y) or dfs(x,y+1) or dfs(x-1,y) or dfs(x,y-1): return True
    p.pop(); return False
dfs(0,0)
print(p)
```

Output

```
[(0, 0), (1, 0), (1, 1), (2, 1), (3, 1), (3, 2), (3, 3)]
```

Result

The Depth First Search problem is solved using python successfully.