200. Number of Islands

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Question

Given an m x n 2d grid map of '1's (land) and '0's (water), return the number of islands.

An island is surrounded by water and is formed by connecting adjacent lands horizontally or vertically. You may assume all four edges of the grid are all surrounded by water.

Example 1:

Example 2:

```
Input: grid = [
    ["1","1","1","1","0"],
    ["1","1","0","1","0"],
    ["1","1","0","0","0"],
    ["0","0","0","0","0"]
]
Output: 1
```

```
Input: grid = [
    ["1","1","0","0","0"],
    ["1","1","0","0","0"],
    ["0","0","1","0","0"],
    ["0","0","0","1","1"]
]
Output: 3
```



The output is 1.

The output is 3.

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Island is formed by connecting adjacent lands horizontally and vertically. Diagonal doesn't count.

- Once we start on index 0, we search top, bottom, left and right.
- Once visited, we mark it as 0. (do DFS)
- Increment the number of island count.

```
Input: grid = [
    "1" "1","0","0","0","0"],
    ["1","1","0","0","0"],
    ["0","0","1","0","0"],
    ["0","0","0","1","1"]
]
```

```
Input: grid = [
    ["0","1","0","0","0","0"],
    ["1","1","0","0","0"],
    ["0","0","1","0","0"],
    ["0","0","0","1","1"]
```

```
["1","1","0","0","0"],
["1","1","0","0","0"],
["0","0","1","0","0"],
["0","0","0","1","1"]
```

```
islands = 0
for r in range(len(grid)):
    for c in range(len(grid[r])):
        if grid[r][c] == '1':
            self.dfs(grid, r, c)
            islands += 1
return islands
```

```
["1","1","0","0","0","0"],
["1","1","0","0","0"],
["0","0","1","0","0"],
["0","0","0","1","1"]
```

The input grid = """11001 11010 00100 10000""" grid = [list(line) for line in grid.splitlines()] print(Solution().numIslands(grid)) 5

Process finished with exit code 0

Submission on LeetCode

Time Submitted	Status	Runtime	Memory	Language
03/10/2021 22:15	Accepted	128 ms	15.4 MB	python3

References

https://leetcode.com/problems/number-of-islands/discuss/1103775/DFS-and-BFS-with-Easy-Explanation

https://www.youtube.com/watch?v=IFseCKh6Ndw&t=705s

https://github.com/kamyu104/LeetCode-Solutions/blob/master/Python/number-of-island s.py

Thank You