

305. Number of Islands II Premium

Hard Topics Companies

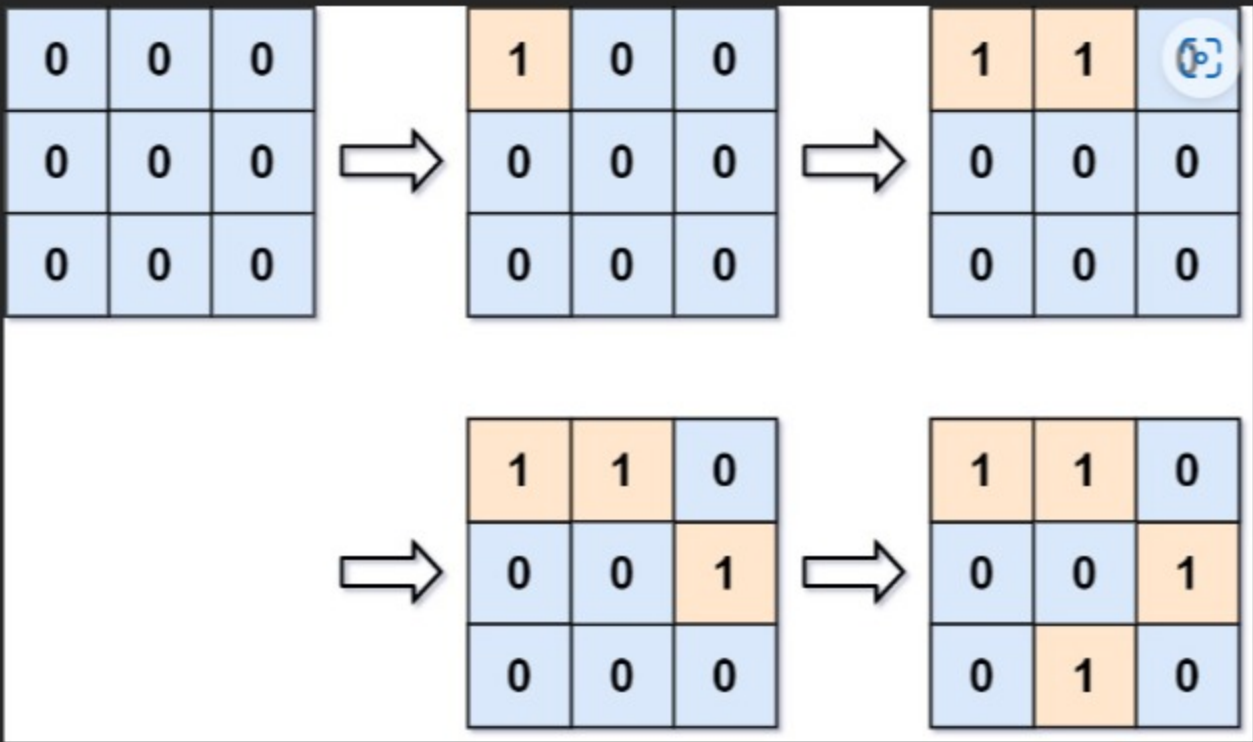
You are given an empty 2D binary grid `grid` of size `m x n`. The grid represents a map where `0`'s represent water and `1`'s represent land. Initially, all the cells of `grid` are water cells (i.e., all the cells are `0`'s).

We may perform an add land operation which turns the water at position into a land. You are given an array `positions` where `positions[i] = [ri, ci]` is the position `(ri, ci)` at which we should operate the `ith` operation.

Return an array of integers `answer` where `answer[i]` is the number of islands after turning the cell `(ri, ci)` into a land.

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:



Input: `m = 3, n = 3, positions = [[0,0],[0,1],[1,2],[2,1]]`

Output: `[1,1,2,3]`

Explanation:

Initially, the 2d grid is filled with water.

- Operation #1: `addLand(0, 0)` turns the water at `grid[0][0]` into a land. We have 1 island.
- Operation #2: `addLand(0, 1)` turns the water at `grid[0][1]` into a land. We still have 1 island.
- Operation #3: `addLand(1, 2)` turns the water at `grid[1][2]` into a land. We have 2 islands.
- Operation #4: `addLand(2, 1)` turns the water at `grid[2][1]` into a land. We have 3 islands.

Example 2:

Input: `m = 1, n = 1, positions = [[0,0]]`

Output: `[1]`

Constraints:

- `1 <= m, n, positions.length <= 104`
- `1 <= m * n <= 104`
- `positions[i].length == 2`
- `0 <= ri < m`
- `0 <= ci < n`

Follow up: Could you solve it in time complexity `O(k log(mn))`, where `k == positions.length`?

Seen this question in a real interview before? 1/5

Yes No

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