Problem 1568: Minimum Number of Days to Disconnect Island

Problem Information

Difficulty: Hard
Acceptance Rate: 58.85%
Paid Only: No
Tags: Array, Depth-First Search, Breadth-First Search, Matrix, Strongly Connected Component

Problem Description

You are given an `m x n` binary grid `grid` where `1` represents land and `0` represents water. An **island** is a maximal **4-directionally** (horizontal or vertical) connected group of `1`'s.

The grid is said to be **connected** if we have **exactly one island** , otherwise is said **disconnected**.

In one day, we are allowed to change **any** single land cell `(1)` into a water cell `(0)`.

Return _the minimum number of days to disconnect the grid_.

Example 1:

Input: grid = [[0,1,1,0],[0,1,1,0],[0,0,0,0]] **Output:** 2 **Explanation:** We need at least 2 days to get a disconnected grid. Change land grid[1][1] and grid[0][2] to water and get 2 disconnected island.

Example 2:

Input: grid = [[1,1]] **Output:** 2 **Explanation:** Grid of full water is also disconnected ([[1,1]] -> [[0,0]]), 0 islands.

Constraints:

* `m == grid.length` * `n == grid[i].length` * `1 <= m, n <= 30` * `grid[i][j]` is either `0` or `1`.

Code Snippets

C++:

```
class Solution {
public:
int minDays(vector<vector<int>>& grid) {

}
};
```

Java:

```
class Solution {
public int minDays(int[][] grid) {

}
}
```

Python3:

```
class Solution:
def minDays(self, grid: List[List[int]]) -> int:
```