Problem 1992: Find All Groups of Farmland

Problem Information

Difficulty: Medium
Acceptance Rate: 75.49%
Paid Only: No
Tags: Array, Depth-First Search, Breadth-First Search, Matrix

Problem Description

You are given a **0-indexed** `m x n` binary matrix `land` where a `0` represents a hectare of forested land and a `1` represents a hectare of farmland.

To keep the land organized, there are designated rectangular areas of hectares that consist **entirely** of farmland. These rectangular areas are called **groups**. No two groups are adjacent, meaning farmland in one group is **not** four-directionally adjacent to another farmland in a different group.

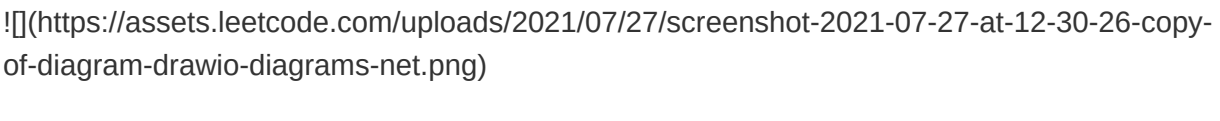
`land` can be represented by a coordinate system where the top left corner of `land` is `(0, 0)` and the bottom right corner of `land` is `(m-1, n-1)`. Find the coordinates of the top left and bottom right corner of each **group** of farmland. A **group** of farmland with a top left corner at `(r1, c1)` and a bottom right corner at `(r2, c2)` is represented by the 4-length array `[r1, c1, r2, c2].`

Return _a 2D array containing the 4-length arrays described above for each**group** of farmland in _`land` _. If there are no groups of farmland, return an empty array. You may return the answer in**any order**_.

Example 1:

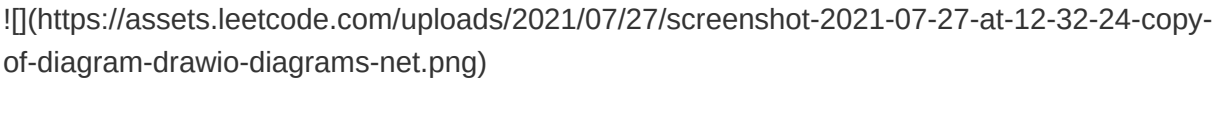
Input: land = [[1,0,0],[0,1,1],[0,1,1]] **Output:** [[0,0,0,0],[1,1,2,2]] **Explanation:** The first group has a top left corner at land[0][0] and a bottom right corner at land[0][0]. The second group has a top left corner at land[1][1] and a bottom right corner at land[2][2].

Example 2:



Input: land = [[1,1],[1,1]] **Output:** [[0,0,1,1]] **Explanation:** The first group has a top left corner at land[0][0] and a bottom right corner at land[1][1].

Example 3:



Input: land = [[0]] **Output:** [] **Explanation:** There are no groups of farmland.

Constraints:

* `m == land.length` * `n == land[i].length` * `1 <= m, n <= 300` * `land` consists of only `0`'s and `1`'s. * Groups of farmland are **rectangular** in shape.

Code Snippets

C++:

```
class Solution {
public:
vector<vector<int>> findFarmland(vector<vector<int>>& land) {

}
};
```

Java:

```
class Solution {
public int[][] findFarmland(int[][] land) {

}
}
```

Python3:

```
class Solution:
def findFarmland(self, land: List[List[int]]) -> List[List[int]]:
```