

Problem 2556: Disconnect Path in a Binary Matrix by at Most One Flip

Problem Information

Difficulty: Medium

Acceptance Rate: 27.67%

Paid Only: No

Tags: Array, Dynamic Programming, Depth-First Search, Breadth-First Search, Matrix

Problem Description

You are given a **0-indexed** $m \times n$ **binary** matrix `grid`. You can move from a cell `(row, col)` to any of the cells `(row + 1, col)` or `(row, col + 1)` that has the value `1`. The matrix is **disconnected** if there is no path from `(0, 0)` to `(m - 1, n - 1)`.

You can flip the value of **at most one** (possibly none) cell. You **cannot flip** the cells `(0, 0)` and `(m - 1, n - 1)`.

Return `true` if it is possible to make the matrix disconnect or `false` otherwise.

Note that flipping a cell changes its value from `0` to `1` or from `1` to `0`.

Example 1:



Input: `grid = [[1,1,1],[1,0,0],[1,1,1]]` **Output:** `true` **Explanation:** We can change the cell shown in the diagram above. There is no path from `(0, 0)` to `(2, 2)` in the resulting grid.

Example 2:



Input: `grid = [[1,1,1],[1,0,1],[1,1,1]]` **Output:** `false` **Explanation:** It is not possible to change at most one cell such that there is not path from `(0, 0)` to `(2, 2)`.

****Constraints:****

* `m == grid.length` * `n == grid[i].length` * `1 <= m, n <= 1000` * `1 <= m * n <= 105` *
`grid[i][j]` is either `0` or `1`. * `grid[0][0] == grid[m - 1][n - 1] == 1`

Code Snippets

C++:

```
class Solution {  
public:  
    bool isPossibleToCutPath(vector<vector<int>>& grid) {  
  
    }  
};
```

Java:

```
class Solution {  
    public boolean isPossibleToCutPath(int[][] grid) {  
  
    }  
}
```

Python3:

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