Problem 2482: Difference Between Ones and Zeros in Row and Column

Problem Information

Difficulty: Medium
Acceptance Rate: 84.37%
Paid Only: No
Tags: Array, Matrix, Simulation

Problem Description

You are given a **0-indexed** `m x n` binary matrix `grid`.

A **0-indexed** `m x n` difference matrix `diff` is created with the following procedure:

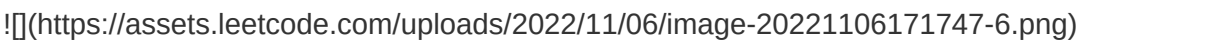
* Let the number of ones in the `ith` row be `onesRowi`. * Let the number of ones in the `jth` column be `onesColj`. * Let the number of zeros in the `ith` row be `zerosRowi`. * Let the number of zeros in the `jth` column be `zerosColj`. * `diff[i][j] = onesRowi + onesColj - zerosRowi - zerosColj`

Return _the difference matrix_`diff`.

Example 1:

Input: grid = [[0,1,1],[1,0,1],[0,0,1]] **Output:** [[0,0,4],[0,0,4],[-2,-2,2]] **Explanation:** - diff[0][0] = onesRow0 + onesCol0 - zerosRow0 - zerosCol0 = 2 + 1 - 1 - 2 = 0 - diff[0][1] = onesRow0 + onesCol1 - zerosRow0 - zerosCol1 = 2 + 1 - 1 - 2 = 0 - diff[0][2] = onesRow0 + onesCol2 - zerosRow0 - zerosCol2 = 2 + 3 - 1 - 0 = 4 - diff[1][0] = onesRow1 + onesCol0 - zerosRow1 - zerosCol0 = 2 + 1 - 1 - 2 = 0 - diff[1][1] = onesRow1 + onesCol1 - zerosRow1 - zerosCol1 = 2 + 1 - 1 - 2 = 0 - diff[1][2] = onesRow1 + onesCol2 - zerosRow1 - zerosCol2 = 2 + 3 - 1 - 0 = 4 - diff[2][0] = onesRow2 + onesCol0 - zerosRow2 - zerosCol0 = 1 + 1 - 2 - 2 = -2 - diff[2][1] = onesRow2 + onesCol1 - zerosRow2 - zerosCol1 = 1 + 1 - 2 - 2 = -2 - diff[2][2] = onesRow2 + onesCol2 - zerosRow2 - zerosCol2 = 1 + 3 - 2 - 0 = 2

Example 2:



Input: grid = [[1,1,1],[1,1,1]] **Output:** [[5,5,5],[5,5,5]] **Explanation:** - diff[0][0] = onesRow0 + onesCol0 - zerosRow0 - zerosCol0 = 3 + 2 - 0 - 0 = 5 - diff[0][1] = onesRow0 + onesCol1 - zerosRow0 - zerosCol1 = 3 + 2 - 0 - 0 = 5 - diff[0][2] = onesRow0 + onesCol2 - zerosRow0 - zerosCol2 = 3 + 2 - 0 - 0 = 5 - diff[1][0] = onesRow1 + onesCol0 - zerosRow1 - zerosCol0 = 3 + 2 - 0 - 0 = 5 - diff[1][1] = onesRow1 + onesCol1 - zerosRow1 - zerosCol1 = 3 + 2 - 0 - 0 = 5 - diff[1][2] = onesRow1 + onesCol2 - zerosRow1 - zerosCol2 = 3 + 2 - 0 - 0 = 5

Constraints:

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

Code Snippets

C++:

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

}
};
```

Java:

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

}
}
```

Python3:

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