1252. Cells with Odd Values in a Matrix

Description

There is an $m \times n$ matrix that is initialized to all `0`'s. There is also a 2D array `indices` where each `indices[i] = [r_i, c_i]` represents a **0-indexed location** to perform some increment operations on the matrix.

For each location `indices[i]`, do **both** of the following:

1. Increment **all** the cells on row `r_i`.
2. Increment **all** the cells on column `c_i`.

Given `m`, `n`, and `indices`, return *the **number of odd-valued cells** in the matrix after applying the increment to all locations in* `indices`.

Example 1:

$$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix} \rightarrow \begin{bmatrix} 1 & 2 & 1 \\ 0 & 1 & 0 \end{bmatrix} \rightarrow \begin{bmatrix} 1 & 3 & 1 \\ 1 & 3 & 1 \end{bmatrix}$$

```
Input: m = 2, n = 3, indices = [[0,1],[1,1]]
Output: 6
Explanation: Initial matrix = [[0,0,0],[0,0,0]].
After applying first increment it becomes [[1,2,1],[0,1,0]].
The final matrix is [[1,3,1],[1,3,1]], which contains 6 odd numbers.
```

Example 2:

$$\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix} \rightarrow \begin{bmatrix} 0 & 1 \\ 1 & 2 \end{bmatrix} \rightarrow \begin{bmatrix} 2 & 2 \\ 2 & 2 \end{bmatrix}$$

```
Input: m = 2, n = 2, indices = [[1,1],[0,0]]
Output: 0
Explanation: Final matrix = [[2,2],[2,2]]. There are no odd numbers in the final matrix.
```

Constraints:

- `1 <= m, n <= 50`
- `1 <= indices.length <= 100`
- `0 <= r_i < m`
- `0 <= c_i < n`

Follow up: Could you solve this in `O(n + m + indices.length)` time with only `O(n + m)` extra space?