750. Number Of Corner Rectangles Premium

Medium | Topics | Companies | Hint

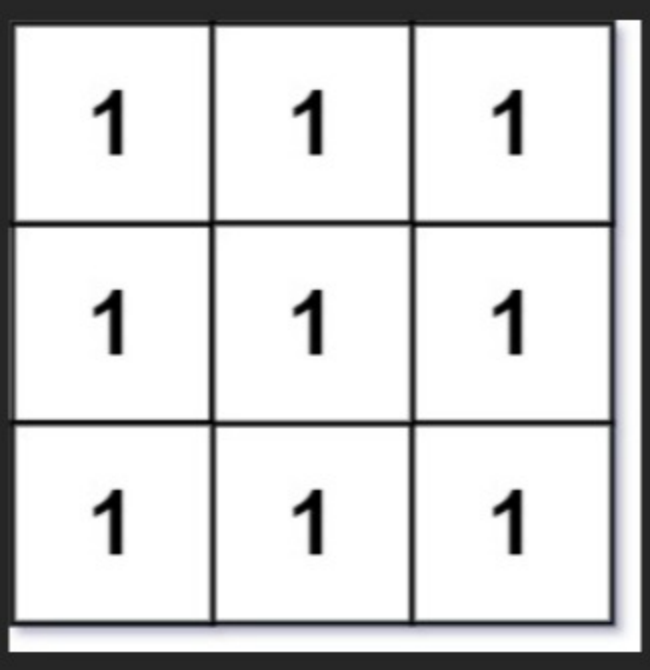
Given an `m x n` integer matrix `grid` where each entry is only `0` or `1`, return *the number of* ***corner rectangles***.

A **corner rectangle** is four distinct `1`'s on the grid that forms an axis-aligned rectangle. Note that only the corners need to have the value `1`. Also, all four `1`'s used must be distinct.

Example 1:


```
Input: grid = [[1,0,0,1,0],[0,0,1,0,1],[0,0,0,1,0],[1,0,1,0,1]]
Output: 1
Explanation: There is only one corner rectangle, with corners grid[1][2], grid[1][4], grid[3][2], grid[3][4].
```

Example 2:




```
Input: grid = [[1,1,1],[1,1,1],[1,1,1]]
Output: 9
Explanation: There are four 2x2 rectangles, four 2x3 and 3x2 rectangles, and one 3x3 rectangle.
```

Example 3:


```
Input: grid = [[1,1,1,1]]
Output: 0
Explanation: Rectangles must have four distinct corners.
```

Constraints:

- `m == grid.length`
- `n == grid[i].length`
- `1 <= m, n <= 200`
- `grid[i][j]` is either `0` or `1`.
- The number of `1`'s in the grid is in the range `[1, 6000]`.

Seen this question in a real interview before? 1/5

Yes No

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Topics

Array Math Dynamic Programming Matrix

Companies

0 - 6 months

Meta 2

Hint 1

For each pair of 1s in the new row (say at `new_row[i]` and `new_row[j]`), we could create more rectangles where that pair forms the base. The number of new rectangles is the number of times some previous row had `row[i] = row[j] = 1`.

Discussion (3)