

## 5968. Number of Laser Beams in a Bank

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Anti-theft security devices are activated inside a bank. You are given a **0-indexed** binary string array `bank` representing the floor plan of the bank, which is an  $m \times n$  2D matrix. `bank[i]` represents the  $i^{\text{th}}$  row, consisting of '0' s and '1' s. '0' means the cell is empty, while '1' means the cell has a security device.

There is **one** laser beam between any **two** security devices **if both** conditions are met:

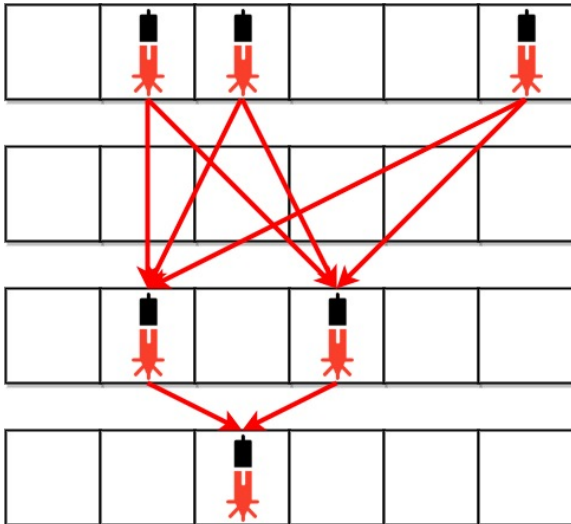
- The two devices are located on two **different rows**:  $r_1$  and  $r_2$ , where  $r_1 < r_2$ .
- For **each** row  $i$  where  $r_1 < i < r_2$ , there are **no security devices** in the  $i^{\text{th}}$  row.

Laser beams are independent, i.e., one beam does not interfere nor join with another.

Return *the total number of laser beams in the bank*.

User Accepted:	0
User Tried:	0
Total Accepted:	0
Total Submissions:	0
Difficulty:	Medium

**Example 1:**



**Input:** `bank = ["011001","000000","010100","001000"]`

**Output:** 8

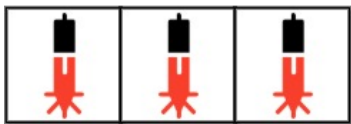
**Explanation:** Between each of the following device pairs, there is one beam. In total, there are 8 beams:

- \* `bank[0][1]` -- `bank[2][1]`
- \* `bank[0][1]` -- `bank[2][3]`
- \* `bank[0][2]` -- `bank[2][1]`
- \* `bank[0][2]` -- `bank[2][3]`
- \* `bank[0][5]` -- `bank[2][3]`
- \* `bank[0][5]` -- `bank[3][2]`
- \* `bank[2][1]` -- `bank[3][2]`
- \* `bank[2][3]` -- `bank[3][2]`

Note that there is no beam between any device on the  $0^{\text{th}}$  row with any on the  $3^{\text{rd}}$  row.

This is because the  $2^{\text{nd}}$  row contains security devices, which breaks the second condition.

**Example 2:**



**Input:** bank = ["000","111","000"]

**Output:** 0

**Explanation:** There does not exist two devices located on two different rows.

**Constraints:**

- $m == \text{bank.length}$
- $n == \text{bank}[i].\text{length}$
- $1 \leq m, n \leq 500$
- $\text{bank}[i][j]$  is either '0' or '1'.

C++



```
1 class Solution {  
2 public:  
3     int numberOfBeams(vector<string>& bank) {  
4  
5     }  
6 };
```

☐ Custom Testcase

Use Example Testcases

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