Problem 3212: Count Submatrices With Equal Frequency of X and Y

Problem Information

Difficulty: Medium
Acceptance Rate: 51.24%
Paid Only: No
Tags: Array, Matrix, Prefix Sum

Problem Description

Given a 2D character matrix `grid`, where `grid[i][j]` is either `'X'`, `'Y'`, or `'.'`, return the number of submatrices that contain:

* `grid[0][0]` * an **equal** frequency of `'X'` and `'Y'`. * **at least** one `'X'`.

Example 1:

Input: grid = [["X","Y","."],["Y",".","."]]

Output: 3

Explanation:

Example 2:

Input: grid = [["X","X"],["X","Y"]]

Output: 0

Explanation:

No submatrix has an equal frequency of `'X'` and `'Y'`.

Example 3:

Input: grid = [[".","."],[".","."]]

Output: 0

Explanation:

No submatrix has at least one `'X'`.

Constraints:

* `1 <= grid.length, grid[i].length <= 1000` * `grid[i][j]` is either `'X'`, `'Y'`, or `'.'`.

Code Snippets

C++:

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

}
};
```

Java:

```
class Solution {
public int numberOfSubmatrices(char[][] grid) {

}
}
```

Python3:

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