Problem 3234: Count the Number of Substrings With Dominant Ones

Problem Information

Difficulty: Medium
Acceptance Rate: 42.13%
Paid Only: No
Tags: String, Enumeration

Problem Description

You are given a binary string `s`.

Return the number of substrings with **dominant** ones.

A string has **dominant** ones if the number of ones in the string is **greater than or equal to** the **square** of the number of zeros in the string.

Example 1:

Input: s = "00011"

Output: 5

Explanation:

The substrings with dominant ones are shown in the table below.

i | j | s[i..j] | Number of Zeros | Number of Ones ---|---|---|---|--- 3 | 3 | 1 | 0 | 1 4 | 4 | 1 | 0 | 1 2 | 3 | 01 | 1 | 1 3 | 4 | 11 | 0 | 2 2 | 4 | 011 | 1 | 2 **Example 2:**

Input: s = "101101"

Output: 16

Explanation:

The substrings with **non-dominant** ones are shown in the table below.

Since there are 21 substrings total and 5 of them have non-dominant ones, it follows that there are 16 substrings with dominant ones.

i | j | s[i..j] | Number of Zeros | Number of Ones ---|---|---|---|--- 1 | 1 | 0 | 1 | 0 4 | 4 | 0 | 1 | 0 1 | 4 | 0110 | 2 | 2 0 | 4 | 10110 | 2 | 3 1 | 5 | 01101 | 2 | 3

Constraints:

* `1 <= s.length <= 4 * 104` * `s` consists only of characters `'0'` and `'1'`.

Code Snippets

C++:

```
class Solution {
public:
int numberOfSubstrings(string s) {

}
};
```

Java:

```
class Solution {
public int numberOfSubstrings(String s) {

}
}
```

Python3:

```
class Solution:
def numberOfSubstrings(self, s: str) -> int:
```