

3228. Maximum Number of Operations to Move Ones to the End

Solved

Medium

Topics

Companies

Hint

You are given a **binary string** `s`.

You can perform the following operation on the string **any** number of times:

- Choose **any** index `i` from the string where `i + 1 < s.length` such that `s[i] == '1'` and `s[i + 1] == '0'`.
- Move the character `s[i]` to the **right** until it reaches the end of the string or another `'1'`. For example, for `s = "010010"`, if we choose `i = 1`, the resulting string will be `s = "000110"`.

Return the **maximum** number of operations that you can perform.

Example 1:

Input: $s = "1001101"$

Output: 4

Explanation:

We can perform the following operations:

- Choose index $i = 0$. The resulting string is $s = "0011101"$.
- Choose index $i = 4$. The resulting string is $s = "0011011"$.
- Choose index $i = 3$. The resulting string is $s = "0010111"$.
- Choose index $i = 2$. The resulting string is $s = "0001111"$.

Example 2:

Input: $s = "00111"$

Output: 0

Constraints:

- $1 \leq s.length \leq 10^5$
- $s[i]$ is either '0' or '1'.

Python:

```
class Solution:  
    def maxOperations(self, s: str) -> int:  
        n = len(s)  
        cnt = 0  
        ans = 0  
        i = 0  
        while i < n:  
            if s[i] == '0':
```

```

        ans += cnt
        while i < n and s[i] != '1':
            i += 1
        cnt += 1
        i += 1
    return ans

```

JavaScript:

```

/*
 * @param {string} s
 * @return {number}
 */
var maxOperations = function(s) {
    let result = 0;
    let ones = 0;
    let use = false;

    for (let c of s) {
        if (c === '0') {
            use = true;
        } else {
            if (use) {
                result += ones;
            }
            ones++;
            use = false;
        }
    }

    if (use) {
        result += ones;
    }

    return result;
};


```

Java:

```

class Solution {
    public int maxOperations(String s) {
        int n = s.length(), cnt = 0, ans = 0;
        for (int i = 0; i < n; i++) {
            if (s.charAt(i) == '0') {
                ans += cnt;
                while (i < n && s.charAt(i) != '1') {
                    i++;
                }
            }
        }
    }
}

```

```
        }
    }
    cnt++;
}
return ans;
}
}
```