

# 1513. Number of Substrings With Only 1s

Solved

Medium

Topics

Companies

Hint

Given a binary string  $s$ , return *the number of substrings with all characters 1's*. Since the answer may be too large, return it modulo  $10^9 + 7$ .

## Example 1:

**Input:**  $s = "0110111"$

**Output:** 9

**Explanation:** There are 9 substring in total with only 1's characters.

"1" -> 5 times.

"11" -> 3 times.

"111" -> 1 time.

## Example 2:

**Input:**  $s = "101"$

**Output:** 2

**Explanation:** Substring "1" is shown 2 times in  $s$ .

### Example 3:

**Input:** s = "111111"

**Output:** 21

**Explanation:** Each substring contains only 1's characters.

### Constraints:

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

## Python:

```
class Solution:  
    def numSub(self, s: str) -> int:  
        cnt = 0  
        for part in s.split('0'):  
            n = len(part)  
            cnt += n*(n+1)  
  
        return (cnt // 2) % (10**9 + 7)
```

## JavaScript:

```
/**  
 * @param {string} s  
 * @return {number}  
 */  
var numSub = function(s) {  
    let total = 0;  
    s.split("0").filter(block => {  
        const length = block.length;  
        if(length) {  
            total += (length * (length + 1))/2  
        }  
    });  
    return total % (10**9 + 7);  
};
```

## Java:

```
class Solution {  
    public int numSub(String s) {  
        final int mod=1000000007;  
        long cnt=0, ans=0;  
        for(char c: s.toCharArray()){  
            ans+=(1-(c-'0'))*cnt*(cnt+1)/2;  
            cnt=(c-'0')*(cnt+1);  
        }  
        ans+=cnt*(cnt+1)/2;// last one  
        return (int)(ans%mod);  
    }  
}
```