Problem 481: Magical String

Problem Information

Difficulty: Medium
Acceptance Rate: 53.43%
Paid Only: No
Tags: Two Pointers, String

Problem Description

A magical string `s` consists of only `'1'` and `'2'` and obeys the following rules:

* The string s is magical because concatenating the number of contiguous occurrences of characters `'1'` and `'2'` generates the string `s` itself.

The first few elements of `s` is `s = "1221121221221121122……"`. If we group the consecutive `1`'s and `2`'s in `s`, it will be `"1 22 11 2 1 22 1 22 11 2 11 22 ....."` and the occurrences of `1`'s or `2`'s in each group are `"1 2 2 1 1 2 1 2 2 1 2 2 ....."`. You can see that the occurrence sequence is `s` itself.

Given an integer `n`, return the number of `1`'s in the first `n` number in the magical string `s`.

Example 1:

Input: n = 6 **Output:** 3 **Explanation:** The first 6 elements of magical string s is "122112" and it contains three 1's, so return 3.

Example 2:

Input: n = 1 **Output:** 1

Constraints:

* `1 <= n <= 105`

Code Snippets

C++:

```
class Solution {
public:
int magicalString(int n) {

}
};
```

Java:

```
class Solution {
public int magicalString(int n) {

}
}
```

Python3:

```
class Solution:
def magicalString(self, n: int) -> int:
```