

PROBLEM

Fibonacci series up to Nth term



Easy Accuracy: 51.0% Submissions: 25K+ Points: 2

You are given an integer n , return the fibonacci series till the n th(0-based indexing) term. Since the terms can become very large return the terms modulo 10^9+7 .

Example 1:

Input:

$n = 5$

Output:

0 1 1 2 3 5

Explanation:

0 1 1 2 3 5 is the Fibonacci series up to the 5th term.

Example 2:

Input:

$n = 10$

Output:

0 1 1 2 3 5 8 13 21 34 55

Explanation:

0 1 1 2 3 5 8 13 21 34 55 is the Fibonacci series up to the 10th term.

Your Task:

You don't need to read input or print anything. Your task is to complete the function `Series()` which takes an Integer n as input and returns a Fibonacci series up to the n th term.

Expected Time Complexity: $O(n)$

Expected Space Complexity: $O(n)$

Constraint:

$1 \leq n \leq 10^5$

CODE

```
class Solution {  
  
    int[] Series(int n) {  
        // code here  
        int[] ar = new int[n+1];  
        ar[0] = 0;  
        ar[1] = 1;  
        int i=2;  
        int mod = (int)(1e9 + 7);  
        while(i<n+1)  
        {  
            ar[i] = (ar[i-1] + ar[i-2]) % mod;  
        }  
    }  
}
```

```
        i++;  
    }  
    return ar;  
}  
}
```

OUTPUT

Compilation Completed

For Input:  

5

Your Output:

0 1 1 2 3 5

Expected Output:

0 1 1 2 3 5

EXPLANATION

- **Initialize Array:** It creates an array called ar with a size of n+1, where n is the length of the series we want to generate.
- **Initialize First Two Numbers:** The first two numbers of the Fibonacci sequence are set as 0 and 1.
- **Calculate the Rest of the Sequence:** It then calculates the subsequent numbers in the series by adding the two previous numbers (which are already stored in the array) and storing the result in the current position. This is done until we reach the desired length of the series.
- **Using Modulo for Large Numbers:** To prevent the numbers from becoming too large and causing issues, it uses modulo operation with a large prime number ($1e9 + 7$). This keeps the numbers manageable.
- **Return the Result:** Finally, it returns the array containing the generated Fibonacci sequence.
- So, when you call this method with a number n, it will return an array containing the Fibonacci sequence of length n.