Problem 1646: Get Maximum in Generated Array

Problem Information

Difficulty: Easy
Acceptance Rate: 51.27%
Paid Only: No
Tags: Array, Simulation

Problem Description

You are given an integer `n`. A **0-indexed** integer array `nums` of length `n + 1` is generated in the following way:

* `nums[0] = 0` * `nums[1] = 1` * `nums[2 * i] = nums[i]` when `2 <= 2 * i <= n` * `nums[2 * i + 1] = nums[i] + nums[i + 1]` when `2 <= 2 * i + 1 <= n`

Return****_the**maximum** integer in the array _`nums`■■■.

Example 1:

Input: n = 7 **Output:** 3 **Explanation:** According to the given rules: nums[0] = 0 nums[1] = 1 nums[(1 * 2) = 2] = nums[1] = 1 nums[(1 * 2) + 1 = 3] = nums[1] + nums[2] = 1 + 1 = 2 nums[(2 * 2) = 4] = nums[2] = 1 nums[(2 * 2) + 1 = 5] = nums[2] + nums[3] = 1 + 2 = 3 nums[(3 * 2) = 6] = nums[3] = 2 nums[(3 * 2) + 1 = 7] = nums[3] + nums[4] = 2 + 1 = 3 Hence, nums = [0,1,1,2,1,3,2,3], and the maximum is max(0,1,1,2,1,3,2,3) = 3.

Example 2:

Input: n = 2 **Output:** 1 **Explanation:** According to the given rules, nums = [0,1,1]. The maximum is max(0,1,1) = 1.

Example 3:

Input: n = 3 **Output:** 2 **Explanation:** According to the given rules, nums = [0,1,1,2]. The maximum is max(0,1,1,2) = 2.

Constraints:

* `0 <= n <= 100`

Code Snippets

C++:

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

}
};
```

Java:

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

}
}
```

Python3:

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