Problem 390: Elimination Game

Problem Information

Difficulty: Medium
Acceptance Rate: 45.48%
Paid Only: No
Tags: Math, Recursion

Problem Description

You have a list `arr` of all integers in the range `[1, n]` sorted in a strictly increasing order. Apply the following algorithm on `arr`:

* Starting from left to right, remove the first number and every other number afterward until you reach the end of the list. * Repeat the previous step again, but this time from right to left, remove the rightmost number and every other number from the remaining numbers. * Keep repeating the steps again, alternating left to right and right to left, until a single number remains.

Given the integer `n`, return _the last number that remains in_ `arr`.

Example 1:

Input: n = 9 **Output:** 6 **Explanation:** arr = [_1_ , 2, _3_ , 4, _5_ , 6, _7_ , 8, _9_] arr = [2, _4_ , 6, _8_] arr = [_2_ , 6] arr = [6]

Example 2:

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

Constraints:

* `1 <= n <= 109`

Code Snippets

C++:

```cpp
class Solution {
public:
int lastRemaining(int n) {


}
};
```

Java:

```java
class Solution {
public int lastRemaining(int n) {


}
}
```

Python3:

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