

Problem 3125: Maximum Number That Makes Result of Bitwise AND Zero

Problem Information

Difficulty: **Medium**

Acceptance Rate: 69.81%

Paid Only: Yes

Tags: String, Greedy, Sorting

Problem Description

Given an integer n , return the **maximum** integer x such that $x \leq n$, and the bitwise `AND` of all the numbers in the range $[x, n]$ is 0.

Example 1.

Input: $n = 7$

Output: 3

Explanation:

The bitwise `AND` of $[6, 7]$ is 6. The bitwise `AND` of $[5, 6, 7]$ is 4. The bitwise `AND` of $[4, 5, 6, 7]$ is 4. The bitwise `AND` of $[3, 4, 5, 6, 7]$ is 0.

Example 2.

Input: $n = 9$

Output: 7

Explanation:

The bitwise `AND` of $[7, 8, 9]$ is 0.

****Example 3:****

****Input:**** n = 17

****Output:**** 15

****Explanation:****

The bitwise `AND` of `[15, 16, 17]` is 0.

****Constraints:****

* `1 <= n <= 1015`

Code Snippets

C++:

```
class Solution {
public:
    long long maxNumber(long long n) {

    }
};
```

Java:

```
class Solution {
    public long maxNumber(long n) {

    }
}
```

Python3:

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