

Problem List

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3125. Maximum Number That Makes Result of Bitwise AND Zero

Solved

MediumTopicsCompaniesHint

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:

- $1 \leq n \leq 10^{15}$

Seen this question in a real interview before? 1/5

Yes

No

Accepted 372

Submissions 519

Acceptance Rate 71.7%

Topics

Companies

Hint 1

Hint 2

Hint 3

Discussion (1)

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Python3Auto

```
1 class Solution:
2     def maximumNumber(self, n: int) -> int:
3         return 2**(int(log2(n))) - 1
4 
```

Saved

Ln 4, Col 9

TestcaseTest Result

Case 1Case 2Case 3

n =

7

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