Problem 3370: Smallest Number With All Set Bits

Problem Information

Difficulty: Easy
Acceptance Rate: 0.00%
Paid Only: No

Problem Description

You are given a

positive

number

n

.

Return the

smallest

number

x

greater than

or

equal to

n

, such that the binary representation of

x

contains only

set bits

Example 1:

Input:

n = 5

Output:

7

Explanation:

The binary representation of 7 is

"111"

.

Example 2:

Input:

n = 10

Output:

15

Explanation:

The binary representation of 15 is

"1111"

.

Example 3:

Input:

n = 3

Output:

3

Explanation:

The binary representation of 3 is

"11"

.

Constraints:

1 <= n <= 1000

Code Snippets

C++:

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

}
};
```

Java:

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

}
}
```

Python3:

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

Python:

```
class Solution(object):
def smallestNumber(self, n):
"""
:type n: int
:rtype: int
"""
```

JavaScript:

```
/**
* @param {number} n
* @return {number}
*/
var smallestNumber = function(n) {

};
```

TypeScript:

```
function smallestNumber(n: number): number {

};
```

C#:

```
public class Solution {
public int SmallestNumber(int n) {
}
}
```

C:

```
int smallestNumber(int n) {

}
```

Go:

```
func smallestNumber(n int) int {

}
```

Kotlin:

```
class Solution {
fun smallestNumber(n: Int): Int {

}
}
```

Swift:

```
class Solution {
func smallestNumber(_ n: Int) -> Int {

}
}
```

Rust:

```
impl Solution {
pub fn smallest_number(n: i32) -> i32 {

}
}
```

Ruby:

```
# @param {Integer} n
# @return {Integer}
def smallest_number(n)

end
```

PHP:

```
class Solution {

/**
* @param Integer $n
* @return Integer
*/
function smallestNumber($n) {

}
}
```

Dart:

```
class Solution {
int smallestNumber(int n) {

}
}
```

Scala:

```
object Solution {
def smallestNumber(n: Int): Int = {

}
}
```

Elixir:

```
defmodule Solution do
@spec smallest_number(n :: integer) :: integer
def smallest_number(n) do

end
end
```

Erlang:

```
-spec smallest_number(N :: integer()) -> integer().
smallest_number(N) ->
.
```

Racket:

```
(define/contract (smallest-number n)
(-> exact-integer? exact-integer?)
)
```

Solutions

C++ Solution:

```
/*
* Problem: Smallest Number With All Set Bits
* Difficulty: Easy
* Tags: math
*
* Approach: Optimized algorithm based on problem constraints
* Time Complexity: O(n) to O(n^2) depending on approach
* Space Complexity: O(1) to O(n) depending on approach
*/

class Solution {
public:
int smallestNumber(int n) {

}
};
```

Java Solution:

```
/**
* Problem: Smallest Number With All Set Bits
* Difficulty: Easy
* Tags: math
*
* Approach: Optimized algorithm based on problem constraints
* Time Complexity: O(n) to O(n^2) depending on approach
* Space Complexity: O(1) to O(n) depending on approach
*/

class Solution {
public int smallestNumber(int n) {

}
}
```

Python3 Solution:

```
"""
Problem: Smallest Number With All Set Bits
Difficulty: Easy
Tags: math

Approach: Optimized algorithm based on problem constraints
Time Complexity: O(n) to O(n^2) depending on approach
Space Complexity: O(1) to O(n) depending on approach
"""

class Solution:
def smallestNumber(self, n: int) -> int:
# TODO: Implement optimized solution
pass
```

Python Solution:

```
class Solution(object):
def smallestNumber(self, n):
"""
:type n: int
:rtype: int
"""
```

JavaScript Solution:

```
/**
* Problem: Smallest Number With All Set Bits
* Difficulty: Easy
* Tags: math
*
* Approach: Optimized algorithm based on problem constraints
* Time Complexity: O(n) to O(n^2) depending on approach
* Space Complexity: O(1) to O(n) depending on approach
*/

/**
* @param {number} n
* @return {number}
*/
var smallestNumber = function(n) {

};
```

TypeScript Solution:

```
/**
* Problem: Smallest Number With All Set Bits
* Difficulty: Easy
* Tags: math
*
* Approach: Optimized algorithm based on problem constraints
* Time Complexity: O(n) to O(n^2) depending on approach
* Space Complexity: O(1) to O(n) depending on approach
*/

function smallestNumber(n: number): number {

};
```

C# Solution:

```
/*
* Problem: Smallest Number With All Set Bits
* Difficulty: Easy
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* Approach: Optimized algorithm based on problem constraints
* Time Complexity: O(n) to O(n^2) depending on approach
* Space Complexity: O(1) to O(n) depending on approach
```

```
*/

public class Solution {
public int SmallestNumber(int n) {

}
}
```

C Solution:

```
/*
* Problem: Smallest Number With All Set Bits
* Difficulty: Easy
* Tags: math
*
* Approach: Optimized algorithm based on problem constraints
* Time Complexity: O(n) to O(n^2) depending on approach
* Space Complexity: O(1) to O(n) depending on approach
*/

int smallestNumber(int n) {

}
```

Go Solution:

```
// Problem: Smallest Number With All Set Bits
// Difficulty: Easy
// Tags: math
//
// Approach: Optimized algorithm based on problem constraints
// Time Complexity: O(n) to O(n^2) depending on approach
// Space Complexity: O(1) to O(n) depending on approach

func smallestNumber(n int) int {

}
```

Kotlin Solution:

```
class Solution {
fun smallestNumber(n: Int): Int {

}
}
```

Swift Solution:

```
class Solution {
func smallestNumber(_ n: Int) -> Int {

}
}
```

Rust Solution:

```
// Problem: Smallest Number With All Set Bits
// Difficulty: Easy
// Tags: math
//
// Approach: Optimized algorithm based on problem constraints
// Time Complexity: O(n) to O(n^2) depending on approach
// Space Complexity: O(1) to O(n) depending on approach

impl Solution {
pub fn smallest_number(n: i32) -> i32 {

}
}
```

Ruby Solution:

```
# @param {Integer} n
# @return {Integer}
def smallest_number(n)

end
```

PHP Solution:

```
class Solution {
```

```
/**
* @param Integer $n
* @return Integer
*/
function smallestNumber($n) {

}
}
```

Dart Solution:

```
class Solution {
int smallestNumber(int n) {

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object Solution {
def smallestNumber(n: Int): Int = {

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end
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