

600. Non-negative Integers without Consecutive Ones

Description

Given a positive integer n , return the number of the integers in the range $[0, n]$ whose binary representations **do not** contain consecutive ones.

Example 1:

Input: $n = 5$

Output: 5

Explanation:

Here are the non-negative integers ≤ 5 with their corresponding binary representations:

0 : 0

1 : 1

2 : 10

3 : 11

4 : 100

5 : 101

Among them, only integer 3 disobeys the rule (two consecutive ones) and the other 5 satisfy the rule.

Example 2:

Input: $n = 1$

Output: 2

Example 3:

Input: $n = 2$

Output: 3

Constraints:

- $1 \leq n \leq 10^9$

