



**ALGERIAN OLYMPIAD IN INFORMATICS
& EUREKA NHSM CLUB**

The first AOI College Cup

December 14th, 2024

*Task 7 - Binary Strings
This task is worth 100 points*

Task 7 - Binary Strings

Time limit per test : 2 second

Memory limit per test : 512 megabytes

Your task is to calculate the number of bit strings of length n . For example, if $n=3$, the correct answer is 8, because the possible bit strings are 000, 001, 010, 011, 100, 101, 110, and 111.

Input

The only input line has a positive integer $n \leq 10^{18}$.

Output

Print the result modulo $10^9 + 7$

Subtasks

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases

Subtask 1 (20 pts) : $n \leq 60$

Subtask 2 (30 pts) : $n \leq 10^7$

Subtask 3 (50 pts) : $n \leq 10^{18}$

Examples

Input	Output
3	8