Initial Test	
Programming Test 60 minutes	
Periode Berlaku Semester Ganjil 2023/2024 ***Valid on*** *Odd Year 2023/2024*	**Software Laboratory Center** **Assistant Recruitment 24-1**

Soal

Case

Stairway to Heaven

There is a towering staircase, before ascending it, you need to **calculate** the potential risks associated with each step you take. These possibilities are **interconnected** with the likelihood of the step below, which when observed closely, **forms a formula**.

The formula is:

$C_n = C_{n-1} + C_{n-2} + A_{n-1}$

$B_n = B_{n-1} + C_{n-2} + C_{n-4}$

$A_n = A_{n-1} + B_{n-2}$

When you want to reach the **N-stair**, you need to calculate **Fn**, where:

$F_n = A_n + B_n + C_n$

There are some **differences** in the calculations for A_n, B_n, C_n, where $\mathbf{0} <= \boldsymbol{N} <= \mathbf{2}$:

$A_n = 2 \times (n + 5)$

$B_n = 2n + 1$

$C_n = n\text{^}2 - 7$

If the $\boldsymbol{F_n} \geq 999997$, take the **modulo** by 999997

Input

The program will ask for a single input, which is **N**.

Constraint

$1 \leq N \leq 10^8$

Output

Print the total of potential risks you could face by the given formula.

Example

Input	Output
12	7050
5	99

Explanation

In the first example, given input N = **12**

So, you need to calculate for

$A_9, B_9, C_9, A_{10}, B_{10}, C_{10}, A_{11}, B_{11}, C_{11}$.

Sum the total of these function