Problem 0: Domino Tiling

(Medium)

Accifibon has a weird chessboard. It only has two rows but has N columns. Accifibon also has a set of N dominos. A domino can be thought of like a 2×1 tile (or a 1×2 tile after rotating it). Accifibon is interested to find out the **number of ways that he can tile his chessboard** using his N dominos. **He does not want to split the dominos, nor can the dominos overlap with one another**.

Input Format

The only line of input contains a single integer N, representing the number of columns Accifibon has on his chessboard.

Constraints

- $1 \leq N \leq 10^4$

The time limit for this problem is 1 second.

Output Format

The only line of output should contain the number of ways that Accifibon can tile his chessboard. As this number is large, give your answer **modulo** $10^9 + 7$.

Sample Input 1

```
2
```

Sample Output 1

```
2
```

Explanation 1

There are 2 ways to tile a 2×2 chessboard using 2×1 dominos.
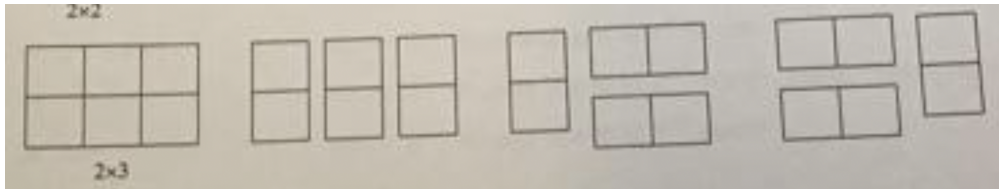

Sample Input 2

Sample Output 2

3

Explanation 2

There are 3 ways to tile a 2×3 chessboard using 2×1 dominos.

Hints

1. Consider the cases where $N = 1$, $N = 2$, $N = 3$, $N = 4$, $N = 5$, $N = 6$, and $N = 7$. Do you see a pattern?
2. Accifibon is an apt name.
3. Bar, Gjb, Guerr, Svir, Rvtug, Guvegrra, Gjragl-bar.