The 2021 Freshman Programming Contest

Hunan University

Problem A

A/virus

Time Limit: 1 second Memory Limit: 256 MB

Description

Sakuyalove finds a triangle pyramid which contains many nodes with its own A/virus value. Out of curiosity, she is trying to calculate the summation of A/virus value in all the nodes in the pyramid.

It is noticed that, the triangle pyramid consists of n layers, and the i^{th} layer consists of i nodes. At the top of the triangle pyramid, which is known as the single node in the 1^{st} layer, there is 1 A/virus value in this node.

As we know, A/virus is contagious, since there are more and more A-soul fans on the planet. During the process of propagation from the top layer to the bottom layer, each node will propagate its A/virus value to its bottom node and its bottom-right node, which means the final A/virus value of certain node is the summation of A/virus value from its top-left node (if it exists) and its top node (if it exists). Sakuyalove wants to calculate the summation of A/virus value in all the nodes in this triangle pyramid to speculate whether the planet can still be saved.

Note: Since the summation of A/virus value might be very large, you just need to output the answer modulo $10^9 + 7$.

Input

The Input consists of one integer n $(1 \leq n \leq 1000000)$.

Output

Output one integer, the summation of A/virus value in the pyramid.

Sample Input	Output for Sample input
3	7

Note:

The pyramid consists of 3 layers, and the A/virus value of every node goes as the following:

1 (first layer)

$1\ 1$ (second layer)

$1\ 2\ 1$ (third layer)

The summation of A/virus value in all the nodes is:

$$1 + 1 + 1 + 1 + 2 + 1 = 7$$