

Problem AY. Three ones

Time limit 1000 ms

Mem limit 131072 kB

Find the number of sequences of length n , consisting only of zeros and ones, that do not have three one's in a row.

Input

The length of the sequences n ($1 \leq n \leq 10^5$).

Output

Print the required number of sequences modulo **12345**.

Sample 1

Input	Output
1	2

Sample 2

Input	Output
4	13