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# Alfa Pool

Time limit: 1000 ms  
Memory limit: 362 MB

In an online pool tournament, players play against each other in pairs, in the order dictated by the system. For each game, the winner earns a given number of points and the loser earns no points.

To make the tournament more interesting, the organizers decided on the following set of rules:

- The points awarded are doubled for every successive win. The first win earns 1 point, the second successive win earns 2 points, the third successive win earns 4 points, and so on.
- In case of a loss, the successive win streak resets. A subsequent win earns again 1 point.
- If a player loses twice in a row, they are eliminated from the tournament.

Find out in how many different ways a player can earn  $B$  points, before being eliminated. For example, let  $B = 5$ . A player can earn 5 points in 8 different ways, where a number  $K$  denotes a win earning  $K$  points and  $X$  denotes a loss.

```

1  1 X 1 X 1 X 1 X 1 X X
2  X 1 X 1 X 1 X 1 X 1 X X
3  1 2 X 1 X 1 X X
4  X 1 2 X 1 X 1 X X
5  1 X 1 2 X 1 X X
6  X 1 X 1 2 X 1 X X
7  1 X 1 X 1 2 X X
8  X 1 X 1 X 1 2 X X
9

```

In all the 8 scenarios above, the player exited the tournament with a total of 5 points.

## Standard input

Your program must read from the standard input. The first line contains the number of queries  $N$  that you have to answer. Each of the following  $N$  lines contains one query, consisting of one non-negative integer  $B_i$ .

## Standard output

Your program must print to the standard output exactly  $N$  lines, each containing exactly one integer number: the number of different ways in which a player can earn  $B_i$  points before exiting the tournament. For each query, you have to print the result modulo  $10^9 + 7$ .

## Constraints and notes

- $1 \leq N \leq 10^4$
- $0 \leq B_i \leq 10^5$

WORKSPACE / SUBMIT

Input

Output

Explanation

1  
Input

8  
Output

This is the example shown  
above.