2374 - I2P(I)2020_Chen_HW14

Scoreboard (/contest/scoreboard/2374/)

Time		
2021/06/15 21:30:00	06:30:18	2021/06/22 23

Clarification

#	Problem	Asker	Description	Reply	Replier	Reply Time	For all te

Overview Problem

12241 - Restaurants in Hsinchu

Status (/status/?pid=12241) | Limits Submit (/users/submit/12

Description

After some hard work of finding his queen, Knuckles finally arrived NTHU!

Knuckles is exhausted. He wants to grab some delicious food. However, as all of us know.....

THERE IS NO "DELICIOUS" FOOD IN HSINCHU.

~~(Actually there are some restaurants that are not bad. But just "not bad"...)~~

This truth, which is cruel, hits Knuckles pretty hard. Knuckles doesn't give up and start his journey of finding delicious food in Hsinchu.

However, the more he goes out and seeks, the truth is just getting more clear...

The i-th time that those bad-taste restaurants Knuckles found is F_i . Knuckles found that $F_1 = 1$, $F_2 = 1$, and $F_i = F_{i-1} + F_{i-2}$.

The more Knuckles goes out, the more bad-taste restaurants he found.

He is tired of finding more and more bad restaurants. He just wants to know there are how many bad restaurants when he goes out for the i-th time.

- There's a sequence ***F***.
- $F_1 = 1$, $F_2 = 1$, $F_i = F_{i-1} + F_{i-2}$.
- Find out F_i .

Hint：

$$\begin{bmatrix} F_n \\ F_{n-1} \end{bmatrix} = \begin{bmatrix} 1 & 1 \\ 1 & 0 \end{bmatrix} \begin{bmatrix} F_{n-1} \\ F_{n-2} \end{bmatrix}, \qquad n = 2, 3, 4, \dots$$

Input

The input contains multiple lines, ended by EOF.

Every line contains an integer ***i***.

$1 <= i <= 10^{18}$.

There will be at most 20 lines.

Output

Output F_i.

Because F_i might be too big, the answer should mod 10^9+7, which means you should output F_i % (10^9+7).

Remember to print a '\n' at the end of the output.

Sample Input

Download (data:text/plain;charset=utf-8,2%0A3%0A5%0A8%0A13%0A21%0A34%0A55%0A)

```
2
3
5
8
13
21
34
55
```

Sample Output

Download (data:text/plain;charset=utf-8,1%0A2%0A5%0A21%0A233%0A10946%0A5702887%0A583861472%0A)

```
1
2
5
21
233
10946
5702887
583861472
```

Discuss