DWITE '12 R2 #3 - Bitstrings

Time limit: 2.0s **Memory limit:** 64M

DWITE, November 2012, Problem 3

A 'bitstring' is a string consisting of 0s and 1s. However, you're only looking for bitstrings with the following properties:

- There are no two consecutive 1s in the bitstring.
- Every run of 0s is of even length (i.e. every block of 0s has an even number of 0s in it).

1001 is an example of such a bitstring, but 10001 is not. Luckily, your Computer Science (or Combinatorics) teacher shares a formula for figuring out how many such bitstrings exist for any given length N:

$$\begin{aligned} &s(0) = 1 \\ &s(1) = 1 \\ &s(2) = 1 \\ &s(n) = s(n-2) + s(n-3) \text{ for all } n > 2 \end{aligned}$$

That is, there is only 1 string of size 0 (empty string matches both rules). Only 1 string of size 1 ("1"), and only 1 string of size 2 ("00"). For size 3, you'd need to calculate the sum of $s(3-2)$ and $s(3-3)$, which are known from the results above.

The input will contain 5 test cases, each a line with a single integer $1 \le N \le 75$, the length of the bitstring.

The output will contain 5 lines of output, each the number of different bitstrings of the corresponding length N, with the described properties.

Sample Input

```
1
20
```

Sample Output

```
1
200
```

Problem Resource: DWITE