

# Social Pairings (prob3)

## The Problem

John is the CEO of a company. He recently organized a social event for two branches of his company. In order to encourage the attendees to socialize with people from the other branch, John gave each employee a required task at the gathering: have a conversation with exactly 2 people from the other branch. He emphasized exactly 2 people, since if it was more than 2 people, the conversations may not be as meaningful. Thankfully, each of the branches had the same number of employees, otherwise it would be impossible for his requirement to be satisfied.

As John sits and watches his employees socialize, being a curious man, he wonders how many different possible ways there are of the employees conversing given his requirement. John assigns this question to you, his trusted technical advisor. Since John is the CEO, you do not want to disappoint him. Can you figure out how many ways there are and satisfy John's curiosity?

## Input

The first line of input will be a single integer  $t$ , representing the number of test cases. Then,  $t$  lines follow, each containing a single integer  $n$ ,  $1 \leq n \leq 2000$ , the number of employees at each branch of the company

## Output

For each test case, output the number of possible distinct ways that the two branches can socialize under the restriction that each employee must socialize with exactly 2 employees from the other branch. Since this number may be very large, output it modulo  $10^8+7$ .

## Sample Input

```
5
1
2
3
4
1932
```

## Sample Output

```
0
1
6
90
87032144
```