

5117 Chemicals

There are N bottles each having a different chemical. For each chemical i , you have determined $C[i]$, which means that mixing chemicals i and $C[i]$ causes an explosion. You have K distinct boxes. In how many ways can you divide the N chemicals into those boxes such that no two chemicals in the same box can cause an explosion together?

Input

The first line of input is the number of test cases T . T test cases follow each containing 2 lines.

The first line of each test case contains 2 integers N and K .

The second line of each test case contains N integers, the i th integer denoting the value $C[i]$. The chemicals are numbered from 0 to $N - 1$.

Output

For each testcase, output the number of ways *modulo* 1,000,000,007.

Constraints:

- $T \leq 50$
- $2 \leq N \leq 100$
- $2 \leq K \leq 1000$
- $0 \leq C[i] < N$
- For all i , $i \neq C[i]$

Explanation:

In the first test case, we cannot mix any 2 chemicals. Hence, each of the 3 boxes must contain 1 chemical, which leads to 6 ways in total.

In the third test case, we cannot put the 3 chemicals in the 2 boxes satisfying all the 3 conditions.

Sample Input

```
3
3 3
1 2 0
4 3
1 2 0 0
3 2
1 2 0
```

Sample Output

```
6
12
0
```