

## Problem A. Arrange and Count!

Input file: *standard input*  
Output file: *standard output*  
Time limit: 5 seconds  
Memory limit: 512 mebibytes

Alice has a sequence  $a_1, a_2, \dots, a_n$ . She can rearrange the sequence using the following operation any number of times:

- Select an integer  $i$  ( $1 \leq i \leq n$ ) and change the sequence to  $a_i, a_{i-1}, \dots, a_1, a_n, a_{n-1}, \dots, a_{i+1}$ .

Alice would like to know the number of different sequences can be obtained modulo  $(10^9 + 7)$ .

### Input

The input consists of several test cases terminated by end-of-file. For each test case:

The first line contains an integer  $n$ , the length of the sequence.

The second line contains  $n$  integers  $a_1, a_2, \dots, a_n$ .

- $1 \leq n \leq 10^5$
- $1 \leq a_i \leq n$
- The sum of  $n$  does not exceed  $2 \times 10^6$ .

### Output

For each test case, print an integer which denotes the result.

### Example

| standard input | standard output |
|----------------|-----------------|
| 4              | 1               |
| 1 1 1 1        | 4               |
| 4              | 2               |
| 1 1 2 2        | 2               |
| 4              |                 |
| 1 2 1 2        |                 |
| 4              |                 |
| 2 1 2 1        |                 |