

# TLE '15 P5 - Prefix Sum Array

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**Time limit:** 1.0s    **Memory limit:** 256M

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Fax McClad, Croneria's most courageous bounty hunter, often has weird dreams in his sleep. Sometimes, he dreams about his past experiences, and at other times, **he has nightmares about problem statements that have no relation to the actual problem.**

One night, Fax had a very, very bizarre dream about **d**:

**d** received an array of length  $N$  ( $1 \leq N \leq 2\,000$ ) with elements numbered from  $1 \dots N$ , and he performed the sum operation on it.

The sum operation takes in an array  $A$  and returns an array  $B$ . Array  $B$  has these two important properties:

1. Array  $A$  and array  $B$  are equal in length.
2. For all elements  $B_k$ , the element satisfies  $B_k = A_1 + A_2 + \dots + A_k$ .

Unimpressed with the result, **d** fed the result back in to the sum operation repeatedly, performing the operation  $M$  ( $2 \leq M \leq 10^9$ ) times in total. At this point, **d**

Suddenly, Fax wakes up! Disturbed by the abstract dream, he asks you to help solve the problem so he can focus on his bounty hunting.

## Constraints

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### Subtask 1 [20%]

$$N \times M \leq 10^6$$

### Subtask 2 [60%]

$$N \leq 100$$

### Subtask 3 [20%]

No additional constraints.

## Input Specification

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The first line will contain  $N$ , the number of elements in the array.

The next line will contain the elements  $A_1, A_2, \dots, A_N$  ( $0 \leq A_i \leq 10^9 + 6$ ), each separated by a space.

The final line of input will contain  $M$ , the number of times the sum operation is performed.

## Output Specification

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The array after performing  $M$  sum operations on the given array.

Each element should be outputted mod  $10^9 + 7$  and elements should be separated by a single space.

## Sample Input

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```
5
4 2 8 1 1
2
```

## Sample Output

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```
4 10 24 39 55
```

## Explanation for Sample Output

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After one sum operation, the array is changed to:

```
4 6 14 15 16
```

After the second sum operation, the array is changed to:

```
4 10 24 39 55
```