Grid 3

Time limit: 5.0s **Memory limit:** 64M

Given an N dimensional grid with coordinates in the form $(x_1, x_2, \ldots, x_N)$, determine the number of shortest paths from $(1, 1, \ldots, 1)$ to $(a_1, a_2, \ldots, a_N)$, that do not pass through Q blocked points.

A path consists of a series of movements where for any single movement, you must increase a single x_i by 1 unit.

Input Specification

The first line will contain a single integer, N, $1 \leq N \leq 1000$.

The next line will contain N integers representing $(a_1, a_2, \ldots, a_N)$, $1 \leq a_i \leq 1000$.

The next line will contain a single integer, Q, $0 \leq Q \leq 1000$.

The next Q lines will each contain a single coordinate point $(x_1, x_2, \ldots, x_N)$, $1 \leq x_i \leq a_i$.

The Q points will be unique and will not include $(a_1, a_2, \ldots, a_N)$ or $(1, 1, \ldots, 1)$.

Output Specification

The number of ways to traverse the grid, modulo $10^9 + 7$.

Sample Input

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

Sample Output

```
3
```