

3068 - Sorting and Searching II

Description

Given $1 \leq N \leq 5 \cdot 10^4$ numbers between 1 and 10^5 , you must answer:

Between $1 \leq Q1 \leq 10^4$ questions where, for each, will be asked to determine whether a given number is or is not on the list initially provided.

Between $1 \leq Q2 \leq 10^4$ questions where, for each, are asked to know the i -th smallest number in the list initially provided (suggested sort the list).

Input specification

First a line with a integer number N , the amount of provided numbers in the list. The second line contains N integer numbers between 1 and 10^5 , separated by exactly one blank. The third line contains the number of questions to ask, separated by exactly one blank: $Q1$ and $Q2$. The fourth line contains $Q1$ integer numbers between 1 and 10^5 , separated by exactly one blank: the numbers to answer the questions of the first kind. The fifth line contains $Q2$ integer numbers between 1 and N , separated by exactly one blank: the numbers to answer the questions of the second type.

Output specification

For each question of first type, in the order of entry, you must print a line with characters ":" if the number is provided in the initial list. Conversely, if the number is not provided in the initial list you must print a line with characters "(". Then, for each question of second type, in the order of entry, you must print a line with the i th smallest number in the list initially provided. Note that quotes should not be printed in any case.

Sample input

```
5
45 3424 47654 5 5
3 6
47654 55 45
5 1 3 4 2 5
```

Sample output

:)
: (
:)
47654
5
45
3424
5
47654

Hint(s)

Source	[Yonny Mondelo Hernández]
Added by	ymondelo20
Addition date	2014-11-15
Time limit (ms)	30000
Test limit (ms)	1000
Memory limit (kb)	65536000
Output limit (mb)	64
Size limit (bytes)	15000
Enabled languages	Bash C C# C++ C++11 Java Pascal Perl PHP Python Ruby Text