Before attempting the problem, you are **required** to thoroughly read the reference material - https://www.hackerearth.com/practice/data-structures/trees/heapspriority-queues/tutorial/.

Statement

You have been given a sequence A of N digits. Each digit in this sequence ranges from 1 to 10^9. You need to perform two types of operations on this list.

Addition $Add(x)$, add an element x to the end of the list.

Maximum of list $Max(list)$, find the maximum element of the current sequence.

Input

The first line consists of a single integer N, the size of the initial sequence. The next line consists of N space separated integers representing the elements of the initial sequence.

The next line contains a single integer q, the number of queries. The next q lines contain the operation details. The first integer type indicates the type of query. If $type_i = 1$, it is followed by another integer x and the operation to be performed is addition. If $type_i = 2$, the other operation is to be performed.

Output

For each operation of the second type, print a single integer on a new line.

Constraints

- $1 \leq N \leq 10^5$
- $1 \leq A[i] \leq 10^9$
- $1 \leq q \leq 10^4$

Sample

Sample Input	Sample Output
5 1 2 3 4 5 4 1 1 1 2 1 3 2	5