Placement

Description

There is an increasing sequence $(a_1, a_2, \cdots, a_n)$.
For given number x, find the proper place for inserting x.

(i.e. find i s.t. $(a_1, a_2, \cdots, a_i, x, a_{i+1}, \cdots, a_n)$ is still increasing.
If $x < a_1$ then i should be 0.
If $a_n < x$ then i should be n.

Input

Your program is to read from standard input. In first line you are given the length of sequence n, $(1 \leq n \leq 100{,}000)$. In next line you are given n integers $a_1, a_2, \cdots, a_n$, $(0 \leq a_i < a_{i+1} < 10^9)$ in increasing order, each separated by a space.
In third line you are given the number of queries q, $(1 \leq q \leq 100{,}000)$. Each of the following q lines contains the query, x $(0 \leq x < 10^9)$
You may assume that every number in input is different.

Output

Your program is to write to standard output. Your output should be q lines. Print the proper index for inserting x in each of the q lines.

Sample

Input	Output
5 2 3 9 18 100 4 19 1 1234 5	4 0 5 2