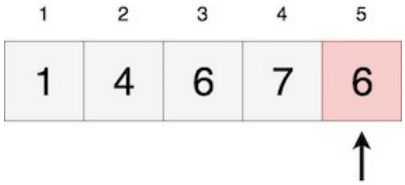
Stock Purchase Day

In a stock-market, there is one special product with infinite stocks. Its stock price is given for n days, where $A[i]$ denotes the price of the stock on the i^{th} day. You are given q queries, each denoting a customer who is willing to buy the stock for a particular value x. For each customer, find and print the last possible day such that the customer can purchase the stock. If the purchase is not possible, print `-1`.

For example, in the image shown below, the prices of the stock for 5 days are given as $1, 4, 6, 7, 6$ and you have a query where $x = 6$. The last day where a customer can purchase stock for that value is on day 5.



Input Format

The first line of the input contains n denoting the number of days.
Next line contains n space-separated positive integers, where i^{th} of them denotes the cost of the stock on the i^{th} day.
Next line contains a single integer q denoting the total number of customers.
Next, q lines contain a single integer x denoting the price which i^{th} customer wants to buy the stock at.

Constraints

- $1 \leq n \leq 10^5$
- $1 \leq q \leq 10^5$
- $1 \leq A[i] \leq 10^9$
- $1 \leq x \leq 10^9$

Output Format

For each customer, print `-1` if the customer can't buy the stock on any of the n days. Otherwise, print the maximum day on which the customer can buy the stock.

Sample Input 0

```
8
4 2 2 3 3 4 6 5
5
2
1
3
4
5
```

Sample Output 0

```
3
-1
5
6
8
```

Explanation 0

- The first customer can buy the stock on 2^{nd} and 3^{rd} day. Hence $max = 3$.
- The second customer can't buy the stock on any day. Hence print -1.
- The third customer can buy the stock on 4^{th} and 5^{th} day. Hence $max(4, 5) = 5$.
- The fourth customer can buy the stock on 1^{st} and 6^{th} day. Hence $max(1, 6) = 6$.
- The fifth customer can buy the stock on 8^{th} day. Hence, answer is 8.