Consider an n-integer sequence, $A = \{a_0, a_1, \ldots, a_{n-1}\}$. We perform a query on A by using an integer, d, to calculate the result of the following expression:

$$\min_{0 \le i \le n-d} \left(\max_{i \le j < i+d} a_j \right)$$

In other words, if we let $m_i = \max(a_i, a_{i+1}, a_{i+2}, \ldots, a_{i+d-1})$, then you need to calculate $\min(m_0, m_1, \ldots, m_{n-d})$.

Given A and q queries (each query consists of an integer, d), print the result of each query on a new line.

Input Format

The first line consists of two space-separated integers describing the respective values of n and q.
The second line consists of n space-separated integers describing the respective values of $a_0, a_1, \ldots, a_{n-1}$.
Each of the q subsequent lines contains a single integer denoting the value of d for that query.

Constraints

- $1 \le n \le 10^5$
- $0 \le a_i < 10^6$
- $1 \le q \le 100$
- $1 \le d \le n$

Output Format

For each query, print an integer denoting the query's answer on a new line. After completing all the queries, you should have printed q lines.

Sample Input 0

```
5 5
33 11 44 11 55
1
2
3
4
5
```

Sample Output 0

```
11
33
44
44
55
```

Explanation 0

For $d = 1$, the answer is

$$\min(\max(a_0), \max(a_1), \max(a_2), \max(a_3), \max(a_4)) = 11$$

.
For $d = 2$, the answer is

$$\min(\max(a_0, a_1), \max(a_1, a_2), \max(a_2, a_3), \max(a_3, a_4)) = 33$$

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For $d = 3$, the answer is

$$\min(\max(a_0, a_1, a_2), \max(a_1, a_2, a_3), \max(a_2, a_3, a_4)) = 44$$

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For $d = 4$, the answer is

$$\min(\max(a_0, a_1, a_2, a_3), \max(a_1, a_2, a_3, a_4)) = 44$$

.
For $d = 5$, the answer is

$$\min(\max(a_0, a_1, a_2, a_3, a_4)) = 55$$

.

Sample Input 1

```
5 5
1 2 3 4 5
1
2
3
4
5
```

Sample Output 1

```
1
2
3
4
5
```

Explanation 1

For each query, the "prefix" has the least maximum value among the consecutive subsequences of the same size.