Queries with Fixed Length

You are given a sequence a that consists of N integers. There are Q queries. For each query, you will be given an integer d, and you need to calculate this equation:

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

Input Format

The first line consists of two space separated integers: N and Q.
The next line consists of N space separated integers: a_0, a_1,..., a_{N-1}
The following Q lines contains a single integer: d.

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

Output Q lines, each denoting the answer to the respective query.

Sample Input

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

Sample Output

```
1
2
3
4
5
```

Explanation

Each prefix has the least maximum value among the consecutive subsequences that have the same size.