Frequent Values

Given a non-decreasing series of integers $a_1, a_2, ..., a_n$ and indices $1 \le i \le j \le n$, what is the maximum number of repeated numbers within $a_i, a_{i+1}, ..., a_j$?

Input

Input contains several test cases.

Each case begins with two integers $1 \le n, q \le 10^5$.

Next line contains n integers $(a_1, a_2, ..., a_n)$, each one having a size of lower than or equal to 10^5.

In next q lines, there are queries. Each one contains two integers $1 \le i \le j \le n$.

Input terminates when n,q are zero.

Output

For each query, print the maximum number of repetitions within numbers $a_i, a_{i+1}, ..., a_j$.

Example

Input:
```
10 3
1 1 3 3 3 3 5 10 10 10
2 3
1 10
5 10
0 0
```
Output:
```
1
4
3
```