Most Frequent Value

You are given a sequence of **n** integers $\mathbf{a_0, a_1, ..., a_{n-1}}$. You are also given several queries consisting of indices **i** and **j** ($0 \le i \le j \le n-1$). For each query, determine the number of occurrences of the most frequent value among the integers $\mathbf{a_i, ..., a_j}$.

Input

First line contains two integers **n** and **q** ($1 \le n, q \le 100000$). The next line contains **n** integers $\mathbf{a_0, ... ,a_{n-1}}$ ($0 \le a_i \le 100000$, for each $i \in \{0, ..., n-1\}$) separated by spaces. The following **q** lines contain one query each, consisting of two integers **i** and **j** ($0 \le i \le j \le n-1$), which indicates the boundary indices for the query.

Output

For each query, print one line with one integer: The number of occurrences of the most frequent value within the given range.

Example

Input:

```
5 3
1 2 1 3 3
0 2
1 2
0 4
```

Output:

```
2
1
2
```

NOTE - This problem is similar to a problem Frequent values.