Candies

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	256 megabytes

New Year's vacation is ending, and *bthero* has already bought various delicious candies for his friends at the university. In total, he bought n candies, which he wants to distribute fairly among his friends.

To do this, he decided to arrange all of the candies in the list, where the i-th candy from the left can be labelled by its kind a_i. When one of his friends arrives, *bthero* picks a few candies from the beginning of the list and gives them to that friend. This continues until *bthero* runs out of candies.

One of his friends may be offended if he finds out that another friend got the kind of candy he doesn't have. *bthero* doesn't want his friends to be offended and wants to give out candies to as many friends as possible.

Also, *bthero* wondered if he bought too many candies. So he wants to know for some pairs (l, r): how many friends can get candies if he only uses candies from the interval $(a_l, \ldots, a_r)$? Notice that *bthero* must use all candies from the given interval.

Input

The first line of the input file contains two integers n and q — the number of candies and the number of pairs that are of interest to *bthero* ($1 \le n, q \le 10^6$).

The second line gives n integers $a_1, \ldots, a_n$ — types of all candies ($1 \le a_i \le n$).

The next q lines contain l_i, r_i — pairs for which *bthero* wants to know the answer ($1 \le l_i \le r_i \le n$).

Output

Print q numbers, each on a separate line. The i-th number must be equal to the maximum number of friends to whom *bthero* could give all of the candies from the interval (l_i, r_i).

Scoring

This problem contains 8 subtasks.

Subtask	Additional constraints	Points
0	Examples	0
1	$a_i = 1, n, q \le 1000$	5
2	$q = 1, n \le 100$	11
3	$a_i \le 2$	11
4	*bthero* has bought exactly two candies of each kind	10
5	$l_i = 1$	16
6	$a_i \le 100, n, q \le 10^5$	15
7	$n, q \le 3 \cdot 10^5$	12
8	—	20

Example

standard input	standard output
10 6 1 2 3 3 1 2 2 1 3 1 1 9 2 10 5 8 6 9 3 6 6 8	3 2 2 1 1 1

Note

In the example for the first pair $(1, 9)$, the candies $[a_1, \ldots, a_9]$ can be distributed as follows: the first friend will receive candies $[1, 2, 3]$, the second will receive $[3, 1, 2]$, and the third will receive $[2, 1, 3]$.

The answer for the second pair $(2, 10)$ could be $[[2, 3, 3, 1, 2], [2, 1, 3, 1]]$.