Problem Sumex

Input file	`sumex.in`
Output file	`sumex.out`

You are given a sequence $a_1, \ldots, a_n$ and q independent queries. In each query you are given two integers l and r. Consider the sequence $a_l, a_{l+1}, \ldots, a_r$. Your task is to compute the sum of the *minimum excluded element* of all sequences of form $a_i, a_{i+1}, \ldots, a_j$, for $l \leq i \leq j \leq r$.

The *minimum excluded element* of a sequence is the smallest *non-negative* integer that does not appear in the sequence. For example, for the sequence $0, 1, 4, 2$ it is 3, but the for the sequence $1, 2, 3, 4$ it is 0.

Input data

The first line of the input contains the integers n and q. The second line contains n integers $a_1, a_2, \ldots, a_n$, representing the initial sequence. Each of the next q lines contains two integers l and r, describing each query.

Output data

The output should contain the answers to the q queries in order, each on a new line.

Restrictions

- $1 \leq n, q \leq 2 \cdot 10^5$
- $0 \leq a_i \leq n$
- $1 \leq l \leq r \leq n$

#	Points	Restrictions
1	3	$1 \leq a_i \leq n$
2	10	$1 \leq q \leq 200$; $r - l \leq 200$
3	12	$1 \leq n \leq 5000$
4	15	Each number from 0 to $n-1$ appears exactly once in $a_1, a_2 \ldots, a_n$.
5	15	$0 \leq a_i \leq 100$ and there are no two queries i and j such that $l_i < l_j$ and $r_j < r_i$.
6	22	$l = 1$ for each query.
7	23	No further restrictions.

Examples

sumex.in	sumex.out
6 3 0 1 2 0 1 3 1 2 3 5 1 6	3 7 39

Explanations

Explanation for the first two queries:

Subsequence	Min. excl. elem.
0	1
1	0
0, 1	2
Total:	3

Subsequence	Min. excl. elem.
2	0
0	1
1	0
2, 0	1
0, 1	2
2, 0, 1	3
Total:	7

Explanation for the third query:

Subsequence	Minimum excluded element
0	1
0, 1	2
0, 1, 2	3
0, 1, 2, 0	3
0, 1, 2, 0, 1	3
0, 1, 2, 0, 1, 3	4
1	0
1, 2	0
1, 2, 0	3
1, 2, 0, 1	3
1, 2, 0, 1, 3	4
2	0
2, 0	1
2, 0, 1	3
2, 0, 1, 3	4
0	1
0, 1	2
0, 1, 3	2
1	0
1, 3	0
3	0
Total:	39