Longest Interesting Subarray

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Mina has finished playing and celebrating his excellent grade. Now, he will try to be serious for a while to solve a difficult problem. He has got an array $a_1, a_2, ..., a_n$ and wants to find the longest interesting subarray.

A subarray $S_{ij} = a_i, a_{i+1}, ..., a_{j-1}, a_j$ is interesting if

$$a_i \leq a_{i+1} \leq ... \leq a_{j-1} \leq a_j$$

Mina believes that this problem is very easy. That's why he decided to make it more difficult and do range queries and point updates. Now, he needs your help!

Input

The first line contains two integers n, q ($1 \leq n, q \leq 10^5$) — the array length and the number of queries.

The second line contains n integers $a_1, a_2, ..., a_n$ ($1 \leq a_i \leq 10^5$) — the array elements.

Then q lines follow, each describing a query. Each query is one of the following types:

- `1 i x`: set the value of a_i to x.

- `2 l r`: print the length of longest interesting subarray S_{ij} where $l \leq i \leq j \leq r$.

where $1 \leq i \leq n; 1 \leq l \leq r \leq n; 1 \leq x \leq 10^5$.

Output

For each print query, output the length of the longest interesting subarray.

Example

standard input	standard output
10 10	4
1 4 3 4 5 6 1 8 9 10	3
2 2 6	8
2 4 9	6
1 7 7	5
2 1 10	9
1 2 1	
2 1 6	
1 5 7	
2 1 9	
1 6 7	
2 1 9	