

Problem L. Distinct/Insertion Queries

Input file: *standard input*
Output file: *standard output*
Time limit: 5 seconds
Memory limit: 1024 mebibytes

This is an interactive problem. You have to use flush operation right after printing the answer for each query. For example, in C++ you should use the function `fflush(stdout)` or `cout.flush()`, in Java or Kotlin — `System.out.flush()`, and in Python — `sys.stdout.flush()`.

You are given an array a , initially consisting of n integers. You have to process q queries of the following types:

- $+ i x$ — insert the integer x after the first i elements of the array a (whenever this query is asked, the array a has at least i elements);
- $? l r$ — calculate the number of distinct integers among a_l, a_{l+1}, \dots, a_r .

Input

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

The second line contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq n$) — the elements of the array a .

Each query will be given on a separate line in one of two formats (n' denotes the current size of a):

- $+ i x$ ($0 \leq i \leq n'$; $1 \leq x \leq n$);
- $? l r$ ($1 \leq l \leq r \leq n'$).

Output

For each query of the second type, print one integer on a separate line — the number of distinct integers among a_l, a_{l+1}, \dots, a_r .

After printing anything, do not forget to flush the output buffer. Otherwise, you may get the `Idleness Limit Exceeded` verdict.

Example

standard input	standard output
3 6	2
1 2 1	1
? 1 3	3
+ 0 1	
+ 0 1	
? 1 3	
+ 1 3	
? 1 6	