Problem C. Subtract if Greater!

Input file:	*standard input*
Output file:	*standard output*
Time limit:	6 seconds
Memory limit:	512 mebibytes

Consider a multiset A consisting of n elements: $a_1, a_2, \ldots, a_n$.

Let us define two types of operations which can be performed on this multiset:

1. Given x_i, you have to print the number which will be x_i-th element if we sort the multiset in non-decreasing order.
2. Given x_i, you have to subtract x_i from all the elements of A which are strictly greater than x_i.

Your task is to perform q given operations in the given order and output the results of all operations of the first type.

Input

The first line contains two integers n and q: the size of the multiset A and the number of queries ($1 \le n \le 10^5$, $1 \le q \le 10^6$).

The second line contains n integers $a_1, a_2, \ldots, a_n$ ($1 \le a_i \le 10^9$): the elements of A.

Each of the next q lines describes a single operation. An operation is given as two integers t_i and x_i: the type and the parameter of the operation. It is guaranteed that $t_i \in \{1, 2\}$. If $t_i = 1$, then $1 \le x_i \le n$. If $t_i = 2$, then $1 \le x_i \le 10^9$.

It is guaranteed that there is at least one operation of type 1.

Please note that elements of A are given in **arbitrary** order.

Output

For each operation of the first type, output the x_i-th element in non-decreasing order. Separate the answers with line breaks.

Examples

standard input	standard output
4 5 1 5 6 12 2 5 1 1 1 2 1 3 1 4	1 1 5 7
5 4 1 10 5 4 2 2 1 1 5 2 3 1 2	9 1
3 2 3 2 1 2 10000 1 3	3