D. Yet Another Array Queries Problem

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given an array a of size n, and q queries to it. There are queries of two types:

- $1\ l_i\ r_i$ — perform a cyclic shift of the segment $[l_i, r_i]$ to the right. That is, for every x such that $l_i \le x < r_i$ new value of a_{x+1} becomes equal to old value of a_x, and new value of a_{l_i} becomes equal to old value of a_{r_i};
- $2\ l_i\ r_i$ — reverse the segment $[l_i, r_i]$.

There are m important indices in the array $b_1, b_2, ..., b_m$. For each i such that $1 \le i \le m$ you have to output the number that will have index b_i in the array after all queries are performed.

Input

The first line contains three integer numbers n, q and m ($1 \le n, q \le 2 \cdot 10^5$, $1 \le m \le 100$).

The second line contains n integer numbers $a_1, a_2, ..., a_n$ ($1 \le a_i \le 10^9$).

Then q lines follow. i-th of them contains three integer numbers t_i, l_i, r_i, where t_i is the type of i-th query, and $[l_i, r_i]$ is the segment where this query is performed ($1 \le t_i \le 2$, $1 \le l_i \le r_i \le n$).

The last line contains m integer numbers $b_1, b_2, ..., b_m$ ($1 \le b_i \le n$) — important indices of the array.

Output

Print m numbers, i-th of which is equal to the number at index b_i after all queries are done.

Example

input Copy

```
6 3 5
1 2 3 4 5 6
2 1 3
2 3 6
1 1 6
2 2 1 5 3
```

output Copy

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3 3 1 5 2
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