Twenty-two

Input file:	*standard input*
Output file:	*standard output*
Time limit:	3 seconds
Memory limit:	1024 mebibytes

Consider a sequence of length n, denoted as $a_1, a_2, \ldots, a_n$. There are q operations planned. Each operation has one of the two following types:

1. Given c, set $a_i \leftarrow \min(a_i, c)$ for all $1 \leq i \leq n$.
2. Given ℓ, r, and c, set $a_i \leftarrow \max(a_i, c)$ for all $\ell \leq i \leq r$.

We will apply each operation exactly once. However, the order of operations can be arbitrary: there are $q!$ different possible orders. For each order, applying the operations to the initial sequence $a_1, a_2, \ldots, a_n$ in that order will yield a final sequence. The question is how many different final sequences are possible, modulo 998 244 353.

Input

The first line contains three integers, n, m, and k: the length of the sequence, the number of operations of type 1, and the number of operations of type 2 ($1 \leq n, m, k \leq 150$).

The second line contains n integers $a_1, a_2, \ldots, a_n$: the initial sequence ($1 \leq a_i \leq n$).

The third line contains m integers: the parameter c for each operation of type 1 ($1 \leq c \leq n$).

The next k lines describe the operations of type 2. Each of these lines contains three integers, ℓ, r, and c: the parameters of the operation ($1 \leq \ell \leq r \leq n$; $1 \leq c \leq n$).

Output

Output a single positive integer: the number of different final sequences modulo 998 244 353.

Example

standard input	*standard output*
5 2 2 4 1 3 5 2 2 4 1 3 3 2 5 5	6