

Contest Duration: 2025-05-10(Sat) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250510T2100&p1=248>) - 2025-05-10(Sat) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250510T2240&p1=248>) (local time) (100 minutes)

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G - Range Shuffle Query

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 625 points

Problem Statement

You are given a length- N sequence $A = (A_1, A_2, \dots, A_N)$.

Process Q queries.

Each query gives you integers L, R, X and asks you to solve the following.

Let $B = (A_L, A_{L+1}, \dots, A_R)$ be the sequence formed by the L -th through R -th elements of A .

Perform the following procedure exactly once:

- First, remove from B every element whose value is at least X .
- Then, rearrange the remaining elements of B arbitrarily.

How many distinct sequences B can result? Find the count modulo 998244353.

Constraints

- $1 \leq N \leq 2.5 \times 10^5$
- $1 \leq Q \leq 2.5 \times 10^5$
- $1 \leq A_i \leq N$
- $1 \leq L \leq R \leq N$
- $1 \leq X \leq N$
- All input values are integers.

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Input

The input is given from Standard Input in the following format, where query_i denotes the i -th query:

```
 $N$   $Q$   
 $A_1$   $A_2$   $\dots$   $A_N$   
 $\text{query}_1$   
 $\text{query}_2$   
 $\vdots$   
 $\text{query}_Q$ 
```

Each query is given in the following format:

```
 $L$   $R$   $X$ 
```

Output

Output Q lines. The i -th line should contain the answer to the i -th query.

Sample Input 1

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

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Sample Output 1

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```
3  
1  
6
```

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For the first query, there are three possible resulting sequences B : $(1, 1, 2)$, $(1, 2, 1)$, and $(2, 1, 1)$.

For the second query, there is one possible resulting sequence B : the empty sequence $()$.

Sample Input 2

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```
8 6
6 2 4 1 5 1 8 6
5 6 3
1 5 7
1 4 6
4 7 8
4 8 2
5 8 6
```

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Sample Output 2

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```
1
120
6
3
1
2
```

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