

Three Subarrays

Time limit: 3.0s

Memory limit: 512M

Given a sequence A with n positive integers, $a_1, a_2, \dots, a_n$, and q queries. Each query specifies three subarrays $[L_1, R_1]$, $[L_2, R_2]$, and $[L_3, R_3]$. Bob wants to find the value

$$\text{len}(L_1, R_1) + \text{len}(L_2, R_2) + \text{len}(L_3, R_3) - 3 \times |a[L_1 : R_1] \cap a[L_2 : R_2] \cap a[L_3 : R_3]|$$

where $\text{len}(L_i, R_i)$ is the length of the subarray $[L_i, R_i]$ and $|a[L_1 : R_1] \cap a[L_2 : R_2] \cap a[L_3 : R_3]|$ represents the number of shared common integers in all three subarrays.

For example, if the 1st subarray is $[1, 2, 2, 3, 3]$, the 2nd subarray is $[3, 2, 3, 1, 1]$, and the 3rd subarray is $[1, 3, 2, 2, 3]$, the shared common integers are $(1, 2, 3, 3)$, and thus the value Bob wants to find is $5 + 5 + 5 - 3 \times 4 = 3$.

Input Specification

The first line of input contains two integers n and q ($1 \leq n, q \leq 10^5$), indicating the length of the sequence and the number of queries.

The second line of input contains n integers a_i ($1 \leq a_i \leq 10^9$).

Each of the following q lines contains six integers, $L_1, R_1, L_2, R_2, L_3, R_3$ ($1 \leq L_i \leq R_i \leq n$).

Output Specification

Output one integer per line for each query.

Constraints

Subtask	Points	Additional constraints
1	30	$n, q \leq 2000$.
2	70	No additional constraints.

Sample Input

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

Sample Output

3
0