DMOPC '18 Contest 4 P4 - Dr. Henri and Lab Data

Dr. Henri is working on a new method of analyzing lab data! He has collected N data points: $A_1, A_2, A_3, ...A_N$, and has defined the $k-\textbf{interest}$ of a subarray as the sum of all numbers greater than or equal to k minus the sum of all numbers less than k.

For example, the $5-\text{interest}$ of the array $[4, 2, 6, 5, 1]$ is $(6+5)-(4+2+1)=4$.

Dr. Henri knows that some of the data might be outliers, so he asks you Q queries of the form `l r k`, asking you to compute the $k-\text{interest}$ of the subarray $A_l, A_{l+1}, ...A_{r-1}, A_r$.

Can you write a program to help Dr. Henri?

Constraints

Subtask 1 [10%]

$1 \leq N, Q \leq 4\,000$
$1 \leq A_i \leq 10^9$

Subtask 2 [60%]

$1 \leq N, Q \leq 200\ 000$
$1 \leq A_i \leq 200\ 000$

Subtask 3 [30%]

$1 \leq N, Q \leq 200\ 000$
$1 \leq A_i \leq 10^9$

Input Specification

The first line of input will contain two space-separated integers, N and Q.
The second line of input will contain N space-separated integers, $A_1, A_2, A_3, ..., A_N$.
The next Q lines will each contain three space-separated integers, l_i, r_i, and k_i. It is guaranteed that $1 \leq l_i \leq r_i \leq N$ and $1 \leq k_i \leq 10^9$.

Output Specification

Q lines, where the i^{th} line is the answer to the i^{th} query.

Sample Input 1

```
3 6
5 10 15
1 2 1
1 3 16
2 2 10
2 2 11
1 3 6
1 1 9
```

Sample Output 1

```
15
-30
10
-10
20
-5
```

Sample Input 2

```
10 10
1 2 3 4 5 6 7 8 9 10
2 7 4
4 10 1
9 9 10
1 5 2
1 5 8
3 6 5
4 8 999
2 3 1
6 8 1
5 7 5
```

Sample Output 2

```
17
49
-9
13
-15
4
-30
5
21
18
```