

Counting pairs

You're given a sequence A of N non-negative integers. Answer Q queries, where each query consists of three integers: v , a , b . The answer is number of pairs of integers i and j that satisfy these conditions:

$$1 \leq i \leq j \leq N$$

$$a \leq j-i+1 \leq b$$

$A[k] \geq v$ for every integer k between i and j , inclusive

Constraints

$$1 \leq N \leq 100\,000$$

$$1 \leq Q \leq 100\,000$$

$0 \leq A[k] \leq 1000$, for every integer k between 1 and N , inclusive

$$0 \leq v \leq 1000$$

$$1 \leq a \leq 100\,000$$

$$1 \leq b \leq 100\,000$$

Input

The first line of input contains two integers, N and Q . The second line contains the sequence A , consisting of N integers. Each of the next Q lines contains three numbers, v , a and b , defining a query.

Output

In the i -th line output only one integer denoting the answer to the i -th query.

Example

Input:

```
5 3
5 3 2 7 4
3 2 3
2 2 5
4 1 1
```

Output:

```
2
10
3
```