Competitive Programming and Contests

Queries of operations

You are given an array $A[1, n]$ of n integers and an array $O[1, m]$ of m operations. Each operation is a triple $\langle l, r, d\rangle$, with $1 \leq l \leq r \leq n$, and it increases the entries $A[l], A[l+1], \ldots, A[r]$ by value d, i.e., $A[l] = A[l] + d$.

You are also given k queries. Each query is a pair $\langle a, b\rangle$, with $1 \leq a \leq b \leq m$ and it asks to execute all the operations $O[a], O[a+1], \ldots, O[b]$.

Your goal is to perform all the queries and report the array A after all these operations. Note that the problem is offline, i.e., you can execute the queries in any order.

We assume that $k, m \leq n$, just for convenience in expressing the time complexities below. The solution should run in $\Theta((k+m)\log n + n))$ time.
Input. The first line contains n, m, and k. The next line contains the n integers in A. Next m lines contain the operations, a operation consists of three integers: l, r, and d. Next k lines contain the queries, a query number consists of two integers: a and b.

Output. On a single line print the n integers of the final array A. Separate the printed numbers by spaces.

Example

Input

```
3 3 3       // n m k
1 2 3       // A
1 2 1       // l r d
1 3 2       //
2 3 4       //
1 2         // a b
1 3         //
2 3         //
```

Output

```
9 18 17
```