

Range Additions

time limit per test: 1 second (2 seconds for Python)
memory limit per test: 976.6 megabytes
input: standard input
output: standard output
points: 100 · problem code: rangeadditions

You are given an array of n integers.

Then q queries follow. Each query contains three integers l, r, x and means to add x to every element from l to r , inclusive.

After processing all queries, print the final array.

Input

The first line contains two integers n and q , the length of the array and the number of queries.

The second line contains n integers: $a_1, a_2, \dots, a_n$.

Each of the next q lines contains three integers l, r, x , meaning add x to every element $a_l, a_{l+1}, \dots, a_r$.

Output

Print n space-separated integers: the final contents of the array after all q queries are applied.

Constraints

- $1 \leq n \leq 2 \cdot 10^5$
- $0 \leq q \leq 2 \cdot 10^5$
- $1 \leq l \leq r \leq n$
- $-10^9 \leq a_i \leq 10^9$
- $-10^9 \leq x \leq 10^9$

Example 1

Input

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

Output

```
3 3 4 10 4
```

Explanation

After the three updates, the array becomes $[3, 3, 4, 10, 4]$.

Example 2

Input

```
6 4
0 0 0 0 0 0
1 6 5
2 4 -3
3 3 10
6 6 -2
```

Output

```
5 2 12 2 5 3
```

Example 3

Input

```
4 0
8 -3 14 1
```

Output

```
8 -3 14 1
```