A. Assignment and Maximal Segment

time limit per test: 1 second
memory limit per test: 1024 megabytes
input: standard input
output: standard output

There is an array of n elements, initially filled with zeros. You need to write a data structure that processes two types of queries:

- assign value v to all elements on the segment from l to $r - 1$,
- find the segment with maximal sum.

Input

The first line contains two numbers n and m ($1 \le n, m \le 100000$), the size of the array and the number of operations. The following lines contain the description of the operations. The description of each operation is as follows: $l\ r\ v$: assign the value v to all elements on the interval from l to $r - 1$ ($0 \le l < r \le n$, $-10^9 \le v \le 10^9$).

Output

Print m lines: the maximum sum of numbers on a segment after each operation. Please note that this segment may be empty (so the sum on it will be equal to 0).

Example

input	Copy
5 3 0 5 3 1 3 -1 3 4 -5	

output	Copy
15 7 3	