

## Problem C. Trading

Input file:            `trading.in`  
Output file:         `trading.out`  
Time limit:          2 seconds  
Memory limit:       64 megabytes

There are  $N$  small villages close to the highway between Almaty and Taraz numbered from 1 to  $N$ . At the beginning of the winter  $M$  unknown traders began trading knitted hats in these villages. They have only two rules: never trade in one place more than once (one day) and increase the price on hats each day. More formally, each  $i$ -th trader:

1. begins trading in village  $L_i$  with starting price  $X_i$ .
2. each day he moves to the next adjacent village, i.e. if he was trading in village  $j$  yesterday, then today he is trading in village  $j + 1$ .
3. each day he increases the price by 1, so if yesterday's price was  $x$ , then today's price is  $x + 1$ .
4. stops trading at village  $R_i$  (after he traded his knitted hats in village  $R_i$ ).

The problem is for each village to determine the maximal price that was there during the whole trading history.

### Input

Each line contains two integer number  $N$  and  $M$  — number of villages and traders accordingly.

Next  $M$  lines contains 3 numbers each:  $L_i$ ,  $R_i$  ( $1 \leq L_i \leq R_i \leq N$ ) and  $X_i$  ( $1 \leq X_i \leq 10^9$ ) — numbers of first and last village and starting price for  $i$ -th trader.

### Output

Output  $N$  integer numbers separating them with spaces —  $i$ -th number being the maximal price for the trading history of  $i$ -th village. If there was no trading in some village, output 0 for it.

### Examples

<code>trading.in</code>	<code>trading.out</code>
5 2 1 3 2 2 4 6	2 6 7 8 0
6 4 4 4 3 1 2 5 5 6 1 6 6 1	5 6 0 3 1 2

### Note

This task has 2 subtasks. Only full solution of a subtask will be counted.

Subtask 1. (37 points)  $1 \leq N, M \leq 5000$ .

Subtask 2. (63 points)  $1 \leq N, M \leq 300000$ .