OTHS Coding Competition 3 (Mock CCC) S3 - Domain Expansion

Time limit: 3.0s	**Memory limit:** 512M
Java: 5.0s	Java: 1G
Python: 5.0s	Python: 1G

N jujutsu sorcerers are on a battlefield which can be represented by a line with K regions. Each sorcerer uses their domain expansion, with the i^{th} sorcerer's domain expansion covering and controlling all regions from l_i to r_i, inclusive, and having strength s_i. It is guaranteed that no two sorcerer's domain expansions have the same strength. If a region is covered by two or more domain expansions, it will be controlled by the strongest one.

How many regions are controlled by each jujutsu sorcerer's domain expansion?

Constraints

$1 \leq N \leq 5 \times 10^5$

$1 \leq K \leq 10^9$

$1 \leq l_i \leq r_i \leq K$

$1 \leq s_i \leq 10^9$

All values of s_i are unique.

Subtask 1 [2/15]

$1 \leq N, K \leq 100$

Subtask 2 [4/15]

$1 \leq N \leq 3 \times 10^3$

Subtask 3 [4/15]

$1 \leq K \leq 10^6$

Subtask 4 [5/15]

No additional constraints.

Input Specification

The first line of input contains N and K, representing the number of people and the number of regions.

The next N lines of input each contain l_i, r_i, s_i, representing the range covered by the i^{th} sorcerer's domain expansion and its strength.

Output Specification

Output N space separated integers, with the i^{th} integer representing how many regions the i^{th} sorcerer's domain expansion controls.

Sample Input 1

```
2 5
1 3 1
3 5 2
```

Sample Output 1

```
2 3
```

Explanation for Sample Output 1

The first sorcerer's domain expansion covers regions $1, 2, 3$. The second sorcerer's domain expansion covers regions $3, 4, 5$. Region 3 is controlled by the second sorcerer's domain expansion as it is stronger.

Sample Input 2

```
4 10
1 5 1
1 1 100
3 4 2
7 10 3
```

Sample Output 2

```
2 1 2 4
```