Problem J. Descent of Dragons

Input file: `standard input`
Output file: `standard output`

Hey, look, what's that? It's dragons in dragons' descent!

There are n dragons in a row, indexed 1 through n. Every dragon has a level, and initially, every dragon is of level 0.

You are a hero of the league of explorers. And your task is to counter the attack of the league of evil.

You are training the dragons in peacetime. When the villains launched a battle, you have to select the best dragon to defend.

Specifically, you have to process q events in order. Each event has one of the following types.

Training Given l, r, x, for all dragons of level x with indices between l to r inclusive, increase their levels to $x + 1$;

Defense Given l, r, find the maximum level of dragons with indices between l to r inclusive.

Input

The first line contains two integers n, q ($1 \le n, q \le 5 \times 10^5$), representing the length of the sequence and the number of queries.

The next q lines contain the queries in order, one per line. Each line may either contain four integers $1, l, r, x$ ($1 \le l \le r \le n, 0 \le x \le 5 \times 10^5$), denoting a training event; or three integers $2, l, r$ ($1 \le l \le r \le n$), denoting a defense event. It is guaranteed that there is at least one defense event in the input.

Output

For each defense event, print the result in a line.

Example

standard input	standard output
5 5 1 3 5 0 1 1 4 1 1 1 5 2 2 2 2 2 4 5	0 3