

# Ballon Problem

Input file:            **standard input**  
Output file:           **standard output**  
Time limit:            2 seconds  
Memory limit:         1024 megabytes

A contest cannot be without a data structure problem, even if it is only a ballon problem.

You are given a matrix  $M$ . Let the element in the  $i$ -th row and  $j$ -th column of the matrix be  $M_{i,j}$ , and let the number of rows and columns be  $n$  and  $m$ , respectively. Initially,  $n = m = 1$ , and  $M_{1,1} = c$ .

You need to perform  $q$  operations, each of which belongs to one of the following three types:

- 1  $x$   $y$  ( $0 \leq x \leq n, 1 \leq y \leq 10^9$ ) insert a row with value  $y$  between the  $x$ -th row and the  $(x + 1)$ -th row; after this operation,  $n$  increases by 1;
- 2  $x$   $y$  ( $0 \leq x \leq m, 1 \leq y \leq 10^9$ ) insert a column with value  $y$  between the  $x$ -th column and the  $(x + 1)$ -th column; after this operation,  $m$  increases by 1;
- 3  $x$   $y$  ( $1 \leq x \leq n, 1 \leq y \leq m$ ) query the value of  $M_{x,y}$ .

## Input

The first line of input contains two integers  $q, c$  ( $1 \leq q \leq 5 \cdot 10^5, 1 \leq c \leq 10^9$ ).

The following  $q$  lines each describe one operation.

The three integers  $opt, x, y$  at the beginning of each line ( $opt \in \{1, 2, 3\}$ ) have the meaning described in the statement above.

## Output

For each query operation, output one line containing an integer representing the answer.

## Example

standard input	standard output
6 1	1
1 0 2	4
3 2 1	3
2 1 3	
1 1 4	
3 2 2	
3 3 2	