Sereja and Commands

Problem Code: **SEACO**

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Sereja has an array **A** consisting of **n** integers. Initially, all the elements of array are zero.

Sereja writes down **m** commands on a piece of a paper. The commands are enumerated from **1** to **m**. These commands can be of the following two types of commands:

- **l r (l ≤ l ≤ r ≤ n)** — Increase all elements of the array by one, whose indices belongs to the range **[l, r]**
- **l r (1 ≤ l ≤ r ≤ m)** — Execute all the commands whose indices are in the range **[l, r]**. It's guaranteed that **r** is strictly less than the enumeration/number of the current command.

Can you please help Sereja in executing all the commands written on this piece of paper.

Input

The first line of the input contains an integer **T** denoting the number of test cases. The description of **T** test cases follows.

The first line contains integers **n** and **m**. Next **m** lines contain Sereja's commands in the format, described in statement: **t**, **l**, **r**, where **t** - number of type (1 or 2).

Output

For each test case on different lines print an array **a**, after executing all the commands. The numbers have to be separated by spaces. As the numbers can be quite large, print them modulo $10^9 + 7$.

Constraints

- $1 \le T \le 3$
- $1 \le n, m \le 10^5$

Subtasks

- Subtask #**1** (20 points): $1 \le n, m \le 10$
- Subtask #**2** (30 points): $1 \le n, m \le 1000$
- Subtask #**3** (50 points): original constraints

Example

```
Input:
3
5 5
1 1 2
1 4 5
2 1 2
2 1 3
2 3 4
1 2
1 1 1
1 1 1
10 10
1 1 10
2 1 1
2 1 2
2 1 3
2 1 4
2 1 5
2 1 6
2 1 7
2 1 8
2 1 9

Output:
7 7 0 7 7
2
512 512 512 512 512 512 512 512 512 512
```

Explanation:

Example case 1..

After the first command, the resulting array is [1 1 0 0 0], after second [1 1 0 1 1].

On third command, we repeat the 1'st and the 2'nd command, so that resulting array is [2 2 0 2 2].

After fourth command, the array will looks like [4 4 0 4 4].

Last command will apply 3'rd and 4'th commands, which by themselves will apply 1'st, 2'nd, 1'st, 2'nd, 3'rd(1'st, 2'nd), so resulting arrays is [7 7 0 7 7].

Author:	6★ sereja (/users/sereja)
Date Added:	28-05-2013
Time Limit:	1 secs
Source Limit:	50000 Bytes
Languages:	ADA, ASM, BASH, BF, C, C99 strict, CAML, CLOJ, CLPS, CPP 4.3.2, CPP 6.3, CPP14, CS2, D, ERL, FORT, FS, GO, HASK, ICK, ICON, JAVA, JS, LISP clisp, LISP sbcl, LUA, NEM, NICE, NODEJS, PAS fpc, PAS gpc, PERL, PERL6, PHP, PIKE, PRLG, PYTH, PYTH 3.5, RUBY, SCALA, SCM guile, SCM qobi, ST, TCL, TEXT, WSPC

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