1135 – Count the Multiples of 3

You have an array with **n** elements which is indexed from **0** to **n - 1**. Initially all elements are zero. Now you have to deal with two types of operations

1. Increase the numbers between indices **i** and **j** (inclusive) by **1**. This is represented by the command **'0 i j'**.
2. Answer how many numbers between indices **i** and **j** (inclusive) are divisible by **3**. This is represented by the command **'1 i j'**.

Input

Input starts with an integer **T (≤ 5)**, denoting the number of test cases.

Each case starts with a line containing two integers **n (1 ≤ n ≤ 10^5)** and **q (1 ≤ q ≤ 50000)** denoting the number of queries. Each query will be either in the form **'0 i j'** or **'1 i j'** where **i, j** are integers and **0 ≤ i ≤ j < n**.

Output

For each case, print the case number first. Then for each query in the form **'1 i j'**, print the desired result.

Sample Input	Output for Sample Input
1 10 9 0 0 9 0 3 7 0 1 4 1 1 7 0 2 2 1 2 4 1 8 8 0 5 8 1 6 9	Case 1: 2 3 0 2

Note

Dataset is huge, use faster i/o methods.