1183 – Computing Fast Average

Given an array of integers (**0** indexed), you have to perform two types of queries in the array.

1. **1 i j v** - change the value of the elements from **i**th index to **j**th index to **v**.
2. **2 i j** - find the average value of the integers from **i**th index to **j**th index.

You can assume that initially all the values in the array are **0**.

Input

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

Each case contains two integers: **n (1 ≤ n ≤ 10^5), q (1 ≤ q ≤ 50000)**, where **n** denotes the size of the array. Each of the next **q** lines will contain a query of the form:

1 i j v (0 ≤ i ≤ j < n, 0 ≤ v ≤ 10000)
2 i j (0 ≤ i ≤ j < n)

Output

For each case, print the case number first. Then for each query of the form **'2 i j'** print the average value of the integers from **i** to **j**. If the result is an integer, print it. Otherwise print the result in **'x/y'** form, where **x** denotes the numerator and **y** denotes the denominator of the result and **x** and **y** are relatively prime.

Sample Input	Output for Sample Input
1 10 6 1 0 6 6 2 0 1 1 1 1 2 2 0 5 1 0 3 7 2 0 1	Case 1: 6 16/3 7

Note

Dataset is huge. Use faster i/o methods.