Problem H – Healthy Baker

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Baker (cat) and his friends Iris (dog) and Riven (rabbit) are going to a new restaurant. In this restaurant they sell food combos for these three animal species. The restaurant has N different meals for each species, in order to make a combo they select a meal for each species which can not be used in other combo.

As the owners love their pets, they always want their pets to be well fed, so they asked for a ranking on how healty each combo is, the ranking is given with three values (X_i, Y_i, Z_i) each is an integer between 1 and N where the meal with ranking 1 is the most healty, and the one with ranking N is the less healthy. X_i is the ranking for Bakers meal in the combo, Y_i for Iris and Z_i for Riven.

Owners told their pets that they should order only those combos that are more healthy for the three of them, a combo is less healthy than other combo if the three meals have lower ranking in that combo.

Help the three pets to know how many different combos they can order.

Input

The first line of input contains a number T $(1 \leq T \leq 30)$, the number of test cases. Each test case starts with a line with a single number N $(1 \leq N \leq 2 * 10^5)$, the number of combos in the restaurant. The next N lines of the test case contain the ranking (X_i, Y_i, Z_i) for the meals in the combo.

Output

For each test case print "case y: C" where y is the number of case starting with 1, and C is the number of combos that the pets can order at the restaurant.

Sample input 1	**Sample output 1**
2 3 1 1 1 2 2 2 3 3 3 10 8 9 9 3 7 2 5 5 10 9 3 5 4 6 8 2 8 1 1 2 6 7 4 7 6 1 3 10 10 4	case 1: 1 case 2: 4