| K | **Billionheir Gift** | |
|---|---|---|
| | Time Limit | 1 second |
| | Memory Limit | 32 MB |

Amy is about to turn 20 and her dad has already prepared a gift for her birthday. Since a normal gift would be too simple for a billionaire's daughter, her dad comes up with some challenging tasks for her.

Her dad has bought **N** cars and parked them randomly all over the city. No two cars will be on the same location. Each car has different level of fuel and can go for some certain distance. All Amy knows is the location of each car $(X_i, Y_i)$ and the maximum distance it can travel $(D_i)$. Then she must follow these instructions:

1) Chooses one car, as a starting point, and now she owns this car

2) Chooses the direction to go (there are only four directions: **+X, -X, +Y** and **-Y**)

3) Drives the chosen car straight on the chosen direction

4) If she meets any other car while driving, she also owns that car and has 2 options

    a. Adopts her new car, and drives new car on the same <u>old direction</u>

    b. Continues driving straight with her old car and leaves new car behind

    Note that she will <u>own both new and old cars</u> regardless of the option she chooses.

5) Repeats instruction 4) until her current car runs out of fuel (i.e. reaches its maximum distance)

That is, she will own every car she finds along the way. Following the instructions above, help Amy find a way to maximize the total number of cars she can get as a gift for her birthday.

Since the input file is large, you should use **scanf** for reading input.

**INPUT**

The first line of an input contains an integer **T** (0 < **T** ≤ 20) the number of test cases. Each test case starts with a line containing an integer **N** (1 ≤ **N** ≤ 50,000) the number of cars. Each of

the next **N** lines describes the status of one car. Each car is described with three integers $X_i$, $Y_i$ and $D_i$ ($-10^8 \le X_i, Y_i \le 10^8$ and $1 \le D_i \le 10^8$) where $(X_i, Y_i)$ is the location of that car and $D_i$ is the maximum distance it can travel.

## OUTPUT

An output of each test case will be a line "**Case #c: A**" where **c** is the test case number and **A** is the maximum number of cars she can get.

## EXAMPLE

| Sample Input | Sample Output |
|---|---|
| 3<br>4<br>1 2 2<br>-1 2 1<br>2 1 4<br>1 7 3<br>5<br>0 0 1<br>0 2 2<br>0 4 1<br>0 6 4<br>0 8 1<br>3<br>-4 4 10<br>-3 5 2<br>2 8 12 | Case #1: 2<br>Case #2: 4<br>Case #3: 1 |