Potato Farmers

Lea's friend Nick is a biologist at UBOP (University for Biologists and Other People). Recently, the IMLRS (Institute for More or Less Reliable Statistics) published a report showing a strong correlation between a farmer's capacity for logical thinking and the dimensions of their produced agricultural products.

This study would make a great source for Nick's next paper on "Agricultural Production Techniques Through The Ages". However, there have been several incidents with studies by that particular institute, so Nick wants to verify their results for himself. Luckily for him, the IMLRS included their data in the report.

As a start, Nick wants to find examples for farmers where those with lower IQ produce higher average weight of their potatoes.

Input

The first line of the input contains an integer t. t test cases follow, each of them separated by a blank line.

Every test case starts with a line containing an integer n, the amount of farmers. n lines follow. The k-th line contains two integers iq, the IQ of farmer k (in hundredths of IQ points) and w, the average weight of his potatoes (in tenths of grams).

Output

Your task is for each test case to find a sequence of farmers $k_1, ...k_n$ with maximum length such that $iq(k_1) \leq iq(k_2) \leq ... \leq iq(k_n)$ and $w(k_1) > w(k_2) > ... > w(k_n)$. Note that you can reorder the farmers given in the input as you see fit.

For each test case, print a line containing "Case #i: x" where i is its number, starting at 1, and x is the maximum possible length of the sequence.

Constraints

- $1 \leq t \leq 20$
- $1 \leq n \leq 20000$
- $1 \leq iq \leq 20000$
- $1 \leq w \leq 10000$

Sample Input 1

```
2
2
100 1000
150 800

3
120 1000
100 800
150 900
```

Sample Output 1

```
Case #1: 2
Case #2: 2
```

Sample Input 2

```
7
5
9 19
7 13
12 20
7 15
20 19

5
4 20
6 15
14 12
8 9
19 13

6
11 9
1 17
6 18
17 13
17 17
6 9

9
10 11
8 12
7 16
14 7
2 2
20 17
9 17
10 4
2 15

6
10 6
16 6
17 2
14 1
9 1
7 11

7
12 5
17 10
15 10
12 1
11 13
12 7
8 12

5
1 16
3 7
11 1
4 11
15 7
```

Sample Output 2

```
Case #1: 2
Case #2: 3
Case #3: 3
Case #4: 4
Case #5: 3
Case #6: 4
Case #7: 3
```