

Fun With Inequalities

You are given 'n' inequalities. Each inequality is of one of the following 4 types:

Type 1: $x > v$

Type 2: $x < v$

Type 3: $x = v$

Type 4: $x \neq v$

where 'x' is a variable which can only take non-negative integral values.

Your task is to find the maximum number of inequalities which are satisfied for some value of 'x'.

You are also required to find the minimum value of 'x' for which the maximum number of inequalities are satisfied.

Input

The first line of input contains a single integer 'n', denoting the total number of inequalities.

Each of the next 'n' lines contain 2 space separated integers t_i and v_i . t_i denotes the type of inequality and v_i denotes the value on the right hand side of the inequality.

Output

Output two space separated integers, the first integer denoting the maximum number of inequalities which are satisfied for some value of 'x', and the second integer denoting the minimum value of 'x' for which the maximum number of inequalities are satisfied.

Example

Input:

```
4
1 10
2 9
3 7
4 4
```

Output:

```
3 7
```

Constraints:

$1 \leq n \leq 100000$

$1 \leq t_i \leq 4$

$1 \leq v_i \leq 10^{18}$

Explanation:

The given inequalities are: 1) $x > 10$, 2) $x < 9$, 3) $x = 7$, 4) $x \neq 4$. For $x=7$, the inequalities 2), 3) and 4) are satisfied.