# Jams

| | |
|---|---|
| Input file: | `stdin` |
| Output file: | `stdout` |
| Time limit: | 2 seconds |
| Memory limit: | 256 megabytes |

Boondex has decided to improve its traffic jams coloring algorithm to be more consistent with drivers' expectations. For this purpose Boondex has collected drivers' feedback as a set of $N$ integer pairs $V_i, C_i$ where $V_i$ is the speed of the driver's vehicle and $C_i$ ($C_i \in \{0, 1, 2\}$) is the color that is expected to be seen on the map for this speed by this driver.

Please help Boondex find two integers $A$ and $B$ ($0 \le A \le B$) that will be used for their new traffic jams coloring algorithm. Traffic color will be considered to be color 0 if $0 \le V \le A$, color 1 if $(A+1) \le V \le B$ and color 2 if $(B+1) \le V$. Values $A$ and $B$ should be chosen to minimize the number of cases where traffic color from the new coloring algorithm is different from the driver's feedback. Among the possible combinations of $A$ and $B$ minimizing the number of such cases, the one with minimal value of $(A+B)$ should be chosen as an answer.

## Input

In the first line of input integer $N$ is given — the total number of feedback pairs ($1 \le N \le 10^5$). On the next $N$ lines of input integers $V_i$ ($0 \le V_i \le 10^6$) and $C_i$ ($C_i \in \{0, 1, 2\}$) are given — the driver's speed and expected traffic color for that speed respectively.

## Output

Print two integers $A$ and $B$ — the answer for this problem.

## Examples

| stdin | stdout |
|---|---|
| 3<br>5 0<br>20 1<br>40 2 | 5 20 |
| 3<br>10 2<br>20 1<br>30 0 | 0 0 |