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Problem I
Square Stamping
Time Limit: 1.0 Seconds

In the plane, there are n points whose y-coordinates are either -9999, 0, or 9999. Let P be the set of these n points. Your task is to enclose all the points in P by a minimum number of congruent axis-parallel squares of side length $10{,}000$. As a subset of the plane, each such square consists of all points inside and on the boundary.

Input
Your program is to read from standard input. The input starts with a line consisting of a single integer n ($1 \leq n \leq 300{,}000$), representing the number of input points in P. In each of the following n lines, there are two integers x and y, representing the x- and y-coordinates of a point in P, respectively, such that it holds that $-10^9 \leq x \leq 10^9$ and $y \in \{-9999, 0, 9999\}$. You may assume that all the n input points are distinct.

Output
Your program is to write to standard output. Print exactly one line. The line should consist of a single integer that represents the minimum possible number t such that there exist t axis-parallel squares of side length $10{,}000$ whose union encloses all the input points in P.

The following shows sample input and output for three test cases.

Sample Input 1

```
5
0 9999
0 0
0 -9999
200 0
10000 9999
```

Output for the Sample Input 1

```
2
```

Sample Input 2

```
5
10 -9999
0 0
3 9999
9000 -9999
10003 9999
```

Output for the Sample Input 2

```
2
```

Sample Input 3

```
6
10 -9999
0 0
3 9999
9000 -9999
10003 -9999
10003 9999
```

Output for the Sample Input 3

```
3
```