



Problem A
Three Squares

Input File: A.in

Output File: standard output

Time Limit: 1 seconds (C/C++)

Memory Limit: 256 megabytes

There are N distinct points located at integer coordinates in the plane. We want to place three identical axis-parallel squares on the plane, such that each of the N points is located inside (or on the borders of) at least one of the squares. What is the minimum possible side length of the squares?

Input

The first line contains the integer number N ($1 \leq N \leq 100000$). The next N lines contain two space-separated integers each, the x and y coordinates of one of the points ($0 \leq x, y \leq 10^9$).

Output

Print the minimum possible side length of the 3 squares, such that all the N points are covered by them.

Sample input	Sample output
5 0 0 10 0 0 1 2 2 9 3	2

Explanation

You can place the 3 squares with their bottom-left corners at the following coordinates: (0,0), (8,0), (7,1).