Finding a closest pair of points

Given a set of points {p1, . . ., pn} find the pair of points {pi , pj } that are closest together. With the distance calculated using the formula:

$$Distance = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

1 Input

-The first line contains an integer N is the number of points.
-The next N line is each line has 2 integers x and y indicating that there is a point at coordinates x and y

2 Ouput:

The distance of the closest pair.

3 Example:

Input
5
1 1
2 2
3 3
4 4
5 5
Output:
1.414