Protect the Cities

Attempted by: **213** / Accuracy: **30%** / Maximum Score: **20** / 0 Votes

Tag(s): Data Structures, Easy, Greedy, approved

There are N cities in Imaginary Land. The President of Imaginary Land uses the Cartesian coordinates. Each city is located at some point with integer co-ordinates. The President is very careful and concerned about the well-being of the citizens of his country.

For that reason, he wants to create a boundary and cover all the cities inside that boundary. The boundary should in the shape of a square and should be parallel to the coordinate axes. Find the minimum area enclosed by the boundary such that all the cities are on or inside the boundary.

Input:

The first line of the input contains T, denoting the number of test cases.

Each test case consists of a single positive integer N denoting the number of cities in Imaginary Land.

Each of the next N lines contains two integers x_i and y_i denoting the coordinates of the i^{th} city.

Output:

For each test-case, output a single non-negative integer denoting the minimum area of the square boundary that encloses all the cities inside or on its boundary.

Constraints:

- $1 \leq T \leq 5$
- $1 \leq N \leq 10^5$
- $-10^9 \leq x_i, y_i \leq 10^9$

SAMPLE INPUT

```
2
4
-1 -1
1 1
1 -1
-1 1
3
0 0
1 1
2 2
```

SAMPLE OUTPUT

```
4
4
```


Explanation

In the first test case, all the points are on the boundary of a square of side 2. Hence $answer = 4$.

In the second test case, the smallest square can be drawn is of side 2 having center at $(0, 0)$.

Time Limit:	1,0 sec(s) for each input file.
Memory Limit:	256 MB
Source Limit:	1024 KB
Marking Scheme:	Marks are awarded when all the testcases pass.
Allowed Languages:	C, C++, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, JavaScript(Rhino), JavaScript(Node.js), Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, R(RScript), Racket, Ruby, Rust, Scala, Scala 2.11.8, Swift, Visual Basic

CODE EDITOR

Enter your code or Upload your code as file. Salvar C (gcc 4.8.2)

```c
#include <stdio.h>

int main()
{
    printf("Hello World!\n");
    return 0;
}

```

1:1

Provide custom input

COMPILE & TEST SUBMIT

Press Ctrl-space for autocomplete suggestions. POWERED BY code table