Problem E. Every Queen

Time limit:	2 seconds
Memory limit:	1024 megabytes

There are n chess queens on an infinite grid. They are placed in squares with coordinates $(x_1, y_1), (x_2, y_2), \ldots, (x_n, y_n)$. Your task is to find a square that all queens attack, or report that no such square exists.

A queen in square (x_i, y_i) attacks square (x, y) if at least one of the following conditions is satisfied:

- $x_i = x$;
- $y_i = y$;
- $|x_i - x| = |y_i - y|$.

Note that in this problem, the queens do not block each other. For example, if there are queens in squares $(1, 1)$ and $(2, 2)$, both of them attack square $(3, 3)$. Moreover, you can choose a square that already contains a queen. For example, square $(1, 1)$ would be a valid answer in this case.

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \le t \le 10^5$). The description of the test cases follows.

The first line of each test case contains a single integer n, denoting the number of queens ($1 \le n \le 10^5$).

The i-th of the following n lines contains two integers x_i and y_i, denoting the coordinates of the square containing the i-th queen ($-10^8 \le x_i, y_i \le 10^8$). No two queens share the same square.

It is guaranteed that the sum of n over all test cases does not exceed 10^5.

Output

For each test case, if an answer exists, print "`YES`" in the first line. Then, in the second line, print two integers x and y, denoting the coordinates of a square attacked by every queen ($-10^9 \le x, y \le 10^9$).

If no such square exists, print a single line containing "`NO`" instead.

It can be shown that if an answer exists, there also exists an answer that satisfies $-10^9 \le x, y \le 10^9$. If there are multiple answers, print any of them.

Example

standard input	standard output
3 2 1 1 2 2 4 0 1 1 0 3 1 4 0 5 0 1 1 0 1 2 2 2 4 2	YES 1 1 NO YES -1 2