Problem A. AmazingTalker

Input file:	*standard input*
Output file:	*standard output*
Time limit:	5 seconds
Memory limit:	1024 mebibytes

Frank is a new teacher on AmazingTalker and has observed that teachers there have varying talents. On AmazingTalker, one teacher refers to another as their "teacher" if the other has superior abilities in at least one respect. Just like students from National Taiwan University.

Each teacher has two distinct abilities: Go and Piano, represented by two rankings, x_i and y_i, respectively. Note that a lower rank corresponds to a greater ability in that skill. For example, a teacher with a Go rank of 1 is better at Go than a teacher with a Go rank of 2.

Frank wonders if it's possible to construct a friendship graph among all the teachers such that each teacher calls more than half of their friends "teacher". Formally, each teacher considers more than half of their friends to have strictly greater abilities than themself in either Go, Piano, or both.

Your task is to determine whether such a relationship graph can be built and, if possible, to output the relationships between the teachers.

Input

The first line contains a single integer N, the number of teachers ($1 \le N \le 5 \cdot 10^5$). Each of the next N lines contains two integers x_i and y_i, representing the Go ability rank and the piano ability rank of the i-th teacher ($1 \le x_i, y_i \le N$). Note that different teachers may have the same rank since they can be equally good at the same thing.

Output

If such a relationship graph cannot be created, output "`No`" on a single line. If the graph can be created, output "`Yes`" on a single line. Additionally, you need to output the relationship between teachers.

The format of the relationship is as follows: The first line contains an integer M, the number of teacher relationships ($0 \le M \le 3.1416 \cdot N$). The next M lines each contain two integers u_i and v_i, meaning the u_i-th and v_i-th teachers are friends ($u_i \ne v_i$). No friendship can be listed more than once.

Furthermore, it can be proven that if the answer is "`Yes`" we can always find a graph with $M \le 3.1416 \cdot N$. Hence, the number of relationships you output should not be greater than $3.1416 \cdot N$.

Examples

standard input	*standard output*
2 1 2 2 1	Yes 1 1 2
2 1 1 2 2	No
5 1 2 3 3 1 5 4 1 5 4	Yes 3 1 4 2 4 3 5