Problem E. Emerging Tree

Input file:	*standard input*
Output file:	*standard output*
Time limit:	3 seconds
Memory limit:	512 mebibytes

Consider a set $V = \{1, \ldots, n\}$ of n vertices, and a sequence of directed edges $e_1, \ldots, e_{n-1}$. Let $G_0, \ldots, G_{n-1}$ be a sequence of graphs such that G_0 is empty, and G_i is obtained by introducing the edge e_i into G_{i-1} for each $i = 1, \ldots, n-1$. It is guaranteed that G_{n-1} is a rooted tree with all edges directed away from the root.

Your task is to find a *suitable* permutation $p_1, \ldots, p_n$ of the set $\{1, \ldots, n\}$. Let $S_i(v) = \{p_u \mid u \text{ can be reached from } v \text{ in } G_i\}$. A permutation $p_1, \ldots, p_n$ is called *suitable* if for any $i \in \{0, \ldots, n-1\}$ and for any $v \in V$ we have that $S_i(v)$ consists of consecutive numbers (that is, $S_i(v) = \{l, l+1, \ldots, r\}$ for some numbers l and r).

Input

The first line contains a single integer n ($2 \le n \le 10^6$).

The next $n-1$ lines describe the edges $e_1, \ldots, e_{n-1}$. The i-th of these lines contains two integers u_i and v_i — indices of the source and the target vertices of the edge e_i ($1 \le u_i, v_i \le n$).

It is guaranteed that adding all $n-1$ edges results in a rooted tree with edges directed away from the root.

Output

If there is no suitable permutation, print the only word "`No`" in the only line.

Otherwise, print "`Yes`" on the first line. On the second line print n integers $p_1, \ldots, p_n$ describing any suitable permutation.

Examples

standard input	standard output
4 3 1 1 4 1 2	Yes 3 1 4 2
7 1 2 1 3 1 4 2 5 3 6 4 7	No