The Great Hunt

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	1024 megabytes

The Special Agents of ALU (the Anti Lolicon United) lead by the Prime Minister Rowdark himself has spotted an extremely dangerous Lolicon as he often participates in ICPC contests called TankEngineer. His false beliefs in Loli will corrupt the citizens of ALU and must be eliminated!

To prevent such a potential criminal from escaping, the Special Agents has closed most of the roads in ALU, so there are only $n-1$ bidirectional roads connects the n cities now but one can still travel to any other city by those roads. Furthermore, only the capital city(numbered 1) can have more than two open roads connected to it.

Though there has been a large amount of bounty on TankEngineer, the elite Special Agents failed to catch him in months. It is rumored that TankEngineer disguised himself as one of the Special Agents so no one could recognize him! The Prime Minister Rowdark got very angry and decided to clear this treat for the last time.

He gathered n of his most trusted agents and built up a plan. Rowdark knows the i-th agent can only be sent to a city on the unique simple path between city u_i and v_i because these are the cities he knows well of. And the key to success is that: there should be exactly one agent sent to each city, thus if another agent is spotted, it must be the disguised TankEngineer and will be eliminated at once.

Given the constrains where all the n agents could be sent, is it possible to come up with such a successful plan? Please give out the correct answer within 5 hours or you will be identified as an extremely dangerous Lolicon who participates ICPC contests and have your ID printed on the next problemset.

Input

The first line of input line contains a single integer n ($2 \leq n \leq 10^4$), which is both the number of the cities and the number of the agents.

The $(n-1)$ following lines describe the open roads in ALU. Each line contains two integers a_i, b_i which denote a road between cities a_i and b_i ($1 \leq a_i, b_i \leq n$). The capital city is numbered with number 1.

The later n lines describe the constrains for the agents. The i-th line of them contains two integers u_i, v_i ($1 \leq u_i, v_i \leq n$) which means the i-th agent could only be sent to a city lies on the path between city u_i and v_i, both ends included.

Output

Print a single line of "No"(without quotes) if such a plan is impossible.

Otherwise print "Yes"(without quotes) in the first line and print n integers in the second line. The i-th integer is the number of the city the i-th agent should be sent to.

If there are more than one possible plans, output anyone of them.

Examples

standard input	standard output
10 2 1 3 1 6 1 8 2 4 3 9 6 5 4 7 8 10 7 8 7 10 2 7 2 10 1 3 1 5 2 5 1 6 1 9 2 3 4	Yes 7 10 8 2 3 1 5 6 9 4
5 1 2 1 3 1 4 3 5 5 4 5 3 3 1 1 4 1 1	No