



CODE FORCES
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E. Tree Queries

time limit per test: 2 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

You are given a rooted tree consisting of n vertices numbered from 1 to n . The root of the tree is a vertex number 1.

A tree is a connected undirected graph with $n - 1$ edges.

You are given m queries. The i -th query consists of the set of k_i distinct vertices $v_i[1], v_i[2], \dots, v_i[k_i]$. Your task is to say if there is a path from the root to some vertex u such that each of the given k vertices is either belongs to this path or has the distance 1 to some vertex of this path.

Input

The first line of the input contains two integers n and m ($2 \leq n \leq 2 \cdot 10^5$, $1 \leq m \leq 2 \cdot 10^5$) — the number of vertices in the tree and the number of queries.

Each of the next $n - 1$ lines describes an edge of the tree. Edge i is denoted by two integers u_i and v_i , the labels of vertices it connects ($1 \leq u_i, v_i \leq n, u_i \neq v_i$).

It is guaranteed that the given edges form a tree.

The next m lines describe queries. The i -th line describes the i -th query and starts with the integer k_i ($1 \leq k_i \leq n$) — the number of vertices in the current query. Then k_i integers follow: $v_i[1], v_i[2], \dots, v_i[k_i]$ ($1 \leq v_i[j] \leq n$), where $v_i[j]$ is the j -th vertex of the i -th query.

Codeforces Round #629 (Div. 3)

Finished

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graphs

trees

*1900

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• Tutorial





It is guaranteed that all vertices in a single query are distinct.

It is guaranteed that the sum of k_i does not exceed $2 \cdot 10^5$ ($\sum_{i=1}^m k_i \leq 2 \cdot 10^5$).

Output

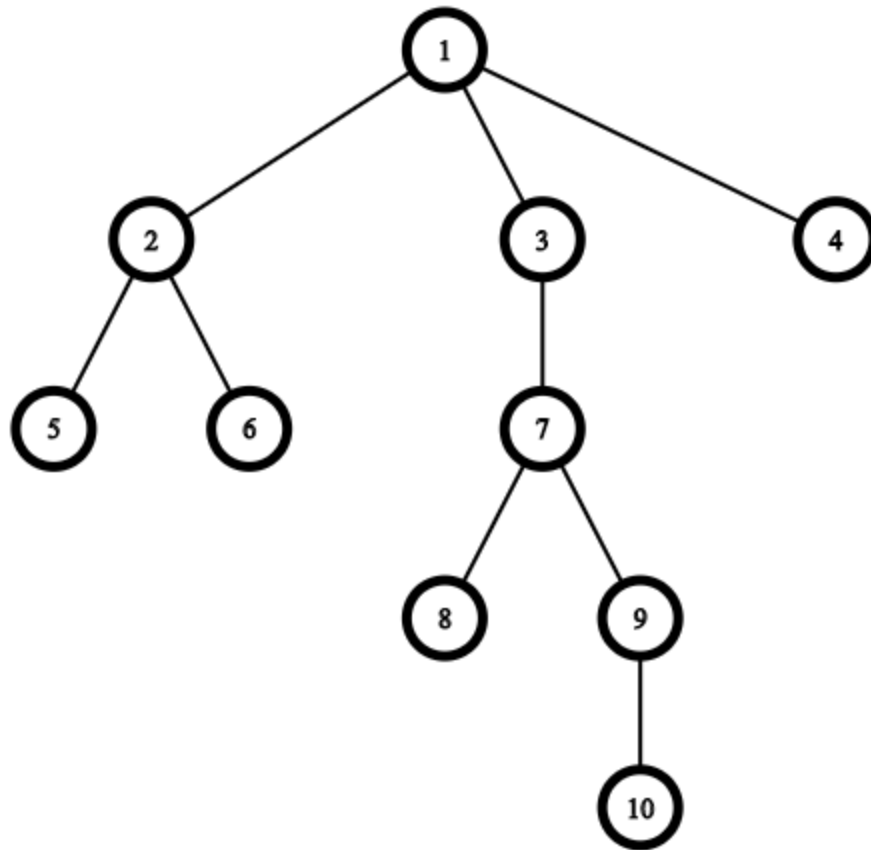
For each query, print the answer — "YES", if there is a path from the root to some vertex u such that each of the given k vertices is either belongs to this path or has the distance 1 to some vertex of this path and "NO" otherwise.

Example

input	Copy
10 6 1 2 1 3 1 4 2 5 2 6 3 7 7 8 7 9 9 10 4 3 8 9 10 3 2 4 6 3 2 1 5 3 4 8 2 2 6 10 3 5 4 7	
output	Copy
YES YES YES YES NO NO	

Note

The picture corresponding to the example:



Consider the queries.

The first query is $[3, 8, 9, 10]$. The answer is "YES" as you can choose the path from the root 1 to the vertex $u = 10$. Then vertices $[3, 9, 10]$ belong to the path from 1 to 10 and the vertex 8 has distance 1 to the vertex 7 which also belongs to this path.

The second query is $[2, 4, 6]$. The answer is "YES" as you can choose the path to the vertex $u = 2$. Then the vertex 4 has distance 1 to the vertex 1 which belongs to this path and the vertex 6 has distance 1 to the vertex 2 which belongs to this path.

The third query is $[2, 1, 5]$. The answer is "YES" as you can choose the path to the vertex $u = 5$ and all vertices of the query belong to this path.

The fourth query is $[4, 8, 2]$. The answer is "YES" as you can choose the path to the vertex $u = 9$ so vertices 2 and 4 both have distance 1 to the vertex 1 which belongs to this path and the vertex 8 has

↑ distance 1 to the vertex 7 which belongs to this path.

The fifth and the sixth queries both have answer "NO" because you cannot choose suitable vertex u .

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