

Problem A. Arnold

Input file: *standard input*
Output file: *standard output*
Time limit: 4 seconds
Memory limit: 512 mebibytes

Arnold's principle (sometimes also called *Stigler's law of eponimiy*) claims that "No scientific discovery is named after its original discoverer". Of course this law applies to itself: it is first mentioned by neither Arnold nor Stigler. In order to respect it, this problem is not invented by any of them and does not mention these scientists anywhere except for this paragraph.

You are given an unrooted tree of n vertices. Each edge has associated length. Some vertices are *special* and have desired height. Your task is to find all such vertices u that, if the tree is rooted at u , then for every special vertex, its desired height matches its actual height.

Input

On the first line of input, there are two integers n and k : the number of vertices of the tree and the number of special vertices ($0 \leq k \leq n \leq 500\,000$, $2 \leq n$).

Each of the next $n - 1$ lines contains three integers u_i, v_i, w_i ($1 \leq u_i, v_i \leq n$, $1 \leq w_i \leq 1000$). For each i , there is an edge between vertices u_i and v_i of length w_i .

Each of the next k lines contains two integers s_j, h_j ($1 \leq s_j \leq n$, $0 \leq h_j \leq 10^9$). For each j , vertex s_j is a special vertex with desired height h_j . All s_j are distinct.

Output

On the first line, print one integer m : the number of appropriate roots. On the second line, print m integers: the numbers of these roots in any order. Vertices are numbered from 1 to n as in the input.

Example

standard input	standard output
7 2	2
1 2 1	3 4
2 3 1	
2 4 1	
1 5 1	
5 6 1	
5 7 1	
2 1	
5 3	