Pizza Delivery

Assignment 2
Data Structures & Algorithms
Due date: xx February, 2020

Problem Statement: City X is in the form of a weighted tree with buildings as nodes and roads which connect buildings. Each road has some weight. The city can be assumed to be rooted at node 1 (Dominos Building). It has in total **n** buildings and n - 1 roads.

A Pizza delivery boy starts from node 1 with order number **x** and moves down the tree until there are no valid moves left.

Valid moves - From all the roads between the current node and it's children, go through the road with the maximum weight less than x.

Note that he can only move to the children, not to the parent.

The Delivery boy gets paid the amount equal to the node number where he stops. The Pizza Company has sent **q** such delivery boys with different order numbers x_i.

Find the total amount that the company gains for all the orders.

Input

The first line contains two space-separated integers n and q - Number of buildings and Number of Delivery boys.

The following n - 1 lines contain 3 integers u_i , v_i , w_i. This means that there is a road connecting buildings u_i and v_i, with weight w_i.

The following line contains q integers x_i - Order number of ith delivery boy.

Constraints

$1 \le n \le 10^5$
$1 \le q \le 10^5$
$1 \le u_i, v_i \le n$
$1 \le w_i \le 10^9$
$1 \le x_i \le 10^9$

Output

Print a single Integer, total amount that the company gains.

Time Limit: 1 sec
Memory Limit: 256 MB

Sample Test Case

Input	Output
6 6 5 6 14 6 2 4 6 1 8 5 4 7 2 3 12 8 3 10 12 14 15	13

Explanation
For x = 8 he will stop at node 1.
For x = 3 he will stop at node 1.
For x = 10 he will stop at node 2.
For x = 12 he will stop at node 2.
For x = 14 he will stop at node 3.
For x = 15 he will stop at node 4.
Total sum = 1 + 1 + 2 + 2 + 3 + 4 = 13