

Apple Tree

<https://vjudge.net/problem/poj-2486>

Wshxzt is a lovely girl. She likes apple very much. One day HX takes her to an apple tree. There are N nodes in the tree. Each node has an amount of apples. Wshxzt starts her happy trip at one node. She can eat up all the apples in the nodes she reaches. HX is a kind guy. He knows that eating too many can make the lovely girl become fat. So he doesn't allow Wshxzt to go more than K steps in the tree. It costs one step when she goes from one node to another adjacent node. Wshxzt likes apple very much. So she wants to eat as many as she can. Can you tell how many apples she can eat in at most K steps.

Input

There are several test cases in the input

Each test case contains three parts.

The first part is two numbers N K , whose meanings we have talked about just now. We denote the nodes by $1\ 2\ \dots\ N$. Since it is a tree, each node can reach any other in only one route. ($1 \leq N \leq 100$, $0 \leq K \leq 200$)

The second part contains N integers (All integers are nonnegative and not bigger than 1000). The i th number is the amount of apples in Node i .

The third part contains $N-1$ line. There are two numbers A, B in each line, meaning that Node A and Node B are adjacent.

Input will be ended by the end of file.

Note: Wshxzt starts at Node 1.

Output

For each test case, output the maximal numbers of apples Wshxzt can eat at a line.

Sample

| Input | Output |
|--|---------|
| 2 1 0 11 1 2 3 2 0 1 2 1 2 1 3 | 11 2 |