IOI Training Camp 2017
Team Selection Tests, Day 2

Collecting Coins

You're given a rooted, edge-weighted tree with N nodes. Nodes are numbered from 1 to N. Node 1 is the root. All the nodes in this tree have some nonnegative number of coins. You are at the root of the tree initially and you can move at most D distance in total. You must start and end at the root. Compute the maximum number of coins that you can collect.

Input

The first line of the input contains 2 integers, N and D, denoting the number of nodes and the maximum total distance allowed.
The next line contains N integers: $C_1, C_2, \ldots, C_N$. C_i denotes the number of coins on the i-th node.
The next $N-1$ lines describe the tree. Each contains three integers: U_i V_i W_i, denoting that there is an edge between U_i and V_i of weight W_i.

Output

Output the maximum number of coins which can be collected.

Constraints

Let $C = \sum_{i=1}^{N} C_i$ denote total number of coins in the entire tree. Unless specially mentioned:

- $1 \leq N \leq 1000$
- $1 \leq D \leq 10^9$
- $1 \leq C \leq 30000$
- $0 \leq C_i \leq 30000$
- $1 \leq W_i \leq 10^9$

Subtasks

Subtask 1 (11 Points):

- $1 \leq N \leq 100$
- $1 \leq D \leq 100$

Subtask 2 (25 Points):

- $1 \leq N \leq 100$
- $1 \leq C \leq 5000$

Subtask 3 (64 Points):

- No Additional Constraints.

Sample Input

```
6 8
0 10 5 3 2 8
1 3 1
3 2 5
3 4 1
4 6 2
1 5 1
```

Sample Output

```
16
```

Explanation

You can start at the root, go down to 3, then 4, then 6 and come all the way back to the root. This has a total distance of 8, and we collect 0+5+3+8 = 16 coins. You cannot do better.

Limits

Time: 2 seconds

Memory: 256 MB