B. Playing A Game

Description

Dateri is playing a game. There are n nodes(indexing 1 to n) in the game, making up a tree, and the root of the tree is node 1. You start at the root node with an initial HP 0 and need to traverse all the tree nodes and get back to the root node. Each edge has an obstacle, which takes you a certain amount of HP to go through it. Some nodes have food initially, and if you eat the food of node i, you will restore a_i HP. Also, you can take a rest for some unit of time to fix the same amount of HP as the resting time.

Rules: In the game, your HP can not be harmful, but it can be 0 or more than 0. It cost no time to eat food and go through the edge. You can only eat the food once, but it consumes HP each time you go through the edge. Also, you can pass one edge at most twice.

Now Dateri starts a new game, and he knows all the information about the tree. He wants to ask you the minimum resting time for him to end the game.

Input format

The first line contains an interger n representing the number of nodes in the tree.

The second line contains n integers, the i_{th} integer a_i indicates the HP that can be restored by eating the food at node i.

The next $n-1$ line, each line contains three integers u_i, v_i, w_i, indicating there is an edge between node u_i and node v_i , with an obstacle that takes you w_i HP to go through it.

$1 \leqslant n \leqslant 2 * 10^5, 0 \leqslant a_i, w_i < 2^{31}$.

Samples

input1

```
5
4 2 1 5 7
1 2 4
1 3 5
4 2 9
5 2 3
```

output1

```
23
```

Limitations & Hints

1 second for each test case. The memory limit is 256MB.

For 50% of test cases, $1 \leqslant n \leqslant 100$.

For all test cases, $1 \leqslant n \leqslant 2 * 10^5, 0 \leqslant a_i, w_i < 2^{31}$.