Problem S5: Good Influencers

Problem Description
There are N ($N \geq 2$) students in a computer science class, with distinct student IDs ranging from 1 to N. There are $N-1$ friendships amongst the students, with the ith being between students A_i and B_i ($A_i \neq B_i$, $1 \leq A_i \leq N$ and $1 \leq B_i \leq N$). Each pair of students in the class are either friends or socially connected. A pair of students a and b are socially connected if there exists a set of students $m_1, m_2, \ldots, m_k$ such that

- a and m_1 are friends,
- m_i and m_{i+1} are friends (for $1 \leq i \leq k-1$), and
- m_k and b are friends.

Initially, each student i either intends to write the CCC (if P_i is `Y`) or does not intend to write the CCC (if P_i is `N`). Initially, at least one student intends to write the CCC, and at least one student does not intend to write the CCC.

The CCC has allocated some funds to pay some students to be influencers for the CCC. The CCC will repeatedly choose one student i who intends to write the CCC, pay them C_i dollars, and ask them to deliver a seminar to all of their friends, and then all of their friends will intend to write the CCC.

Help the CCC determine the minimum cost required to have all of the students intend to write the CCC.

Input Specification
The first line contains the integer N.

The next $N-1$ lines each contain two space-separated integers, A_i and B_i ($1 \leq i \leq N-1$).

The next line contains N characters, $P_1 \ldots P_N$, each of which is either `Y` or `N`.

The next line contains N space-separated integers, $C_1 \ldots C_N$.

The following table shows how the available 15 marks are distributed.

Marks Awarded	**Number of students**	**Payment**	**Additional Constraints**
5 marks	$2 \leq N \leq 2\,000$	$1 \leq C_i \leq 1\,000$	$A_i = i$ and $B_i = i+1$ for each i
7 marks	$2 \leq N \leq 2\,000$	$1 \leq C_i \leq 1\,000$	None
3 marks	$2 \leq N \leq 200\,000$	$1 \leq C_i \leq 1\,000$	None

Output Specification
Output the minimum integer number of dollars required to have all of the students to intend to write the CCC.

La version française figure à la suite de la version anglaise.

Sample Input 1

```
4
1 2
2 3
3 4
YNYN
4 3 6 2
```

Output for Sample Input 1

```
6
```

Explanation of Output for Sample Input 1

The CCC should pay $6 to student 3 to deliver a seminar to their friends (students 2 and 4), after which all 4 students will intend to write the CCC.

Sample Input 2

```
15
1 5
5 2
2 15
15 4
2 10
8 3
3 1
1 6
11 6
12 6
11 9
11 14
12 7
13 7
NNYYYNYYNNNNNNN
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
```

Output for Sample Input 2

```
6
```

Explanation of Output for Sample Input 2

One optimal strategy is for the CCC to ask students 5, 1, 6, 11, 7, and 2 to deliver seminars, in that order, paying them $1 each.

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