Yet Another Contest 1 P2 - A Boring Problem

Time limit: 1.0s	**Memory limit:** 256M
Java: 2.0s	Java: 512M
Python: 2.0s	Python: 512M

You are given a tree containing N nodes where each node is coloured black or white. The i-th edge is bidirectional and connects the nodes u_i and v_i. Find the number of simple paths containing at least three nodes of the same colour.

Note that traversing a path from either end counts as the same path.

Constraints

$3 \leq N \leq 2 \times 10^5$

$1 \leq u_i, v_i \leq N, u_i \neq v_i$

It is guaranteed that the graph described in the input is a tree.

Subtask 1 [10%]

All nodes are black.

Subtask 2 [10%]

The graph is linear. More specifically, for $1 \leq i < N$, $u_i = i$ and $v_i = i + 1$.

Subtask 3 [80%]

No additional constraints.

Input Specification

The first line of input contains a single integer, N.

The second line of input contains a string of N characters, each character being either `B` or `W`. The i-th node is black if the i-th character is `B`, and white otherwise.

The following $N - 1$ lines of input contain two space-separated integers u_i and v_i, representing that there is a bidirectional edge between u_i and v_i in the tree.

Output Specification

Output a single integer, representing the number of simple paths containing at least three nodes of the same colour.

Sample Input

```
5
BBBWB
1 2
4 2
5 2
1 3
```

Sample Output

```
4
```

Explanation

The simple paths in the graph with at least three nodes of the same colour are the paths between nodes:

- 1 and 5
- 2 and 3
- 3 and 4
- 3 and 5