

Rainbow Road

Input file: **standard input**
Output file: **standard output**
Time limit: 1.5 seconds
Memory limit: 256 megabytes

Whiterabbit like rainbows, and thus wants to travel on a rainbow journey across Bunnyland. In Bunnyland, there are N cities connected by $N - 1$ roads. The roads are constructed in such a way that there is 1 unique way to get from any city to any other city using only the roads. The i^{th} road connects cities A_i and B_i , but since Whiterabbit only cares about the 7 colours in the rainbow, he interprets the i^{th} road as having a colour C_i that is between 1 and 7 inclusive.

Whiterabbit will pick some starting city S and some ending city E . He will then travel from S to E using only the roads along the unique path between those 2 cities. This journey is considered a rainbow journey if for all 7 colours, he travels along at least 1 road of that colour in his journey.

Help Whiterabbit determine the number of different rainbow journeys he can take in Bunnyland. 2 journeys are considered distinct if their start cities differ or their end cities differ.

Input

The first line contains one integer N .

Then, $N - 1$ lines follow, each representing an road. The i^{th} line contains 3 integers A_i, B_i and C_i .

Output

Print one integer, the number of different rainbow journeys that Whiterabbit can take.

Constraints

All input data satisfy the following constraints:

- $1 \leq N \leq 10^5$
- $1 \leq A_i, B_i \leq N$
- $1 \leq C_i \leq 7$

Scoring

Subtask	Score	N	Additional Constraints
1	9	$1 \leq N \leq 200$	-
2	17	$1 \leq N \leq 2000$	-
3	28	$1 \leq N \leq 10^5$	$A_i = i, B_i = i + 1$
4	46	$1 \leq N \leq 10^5$	-
5	0	Sample Testcases	

Examples

standard input	standard output
9 1 2 1 2 3 2 3 4 3 4 5 4 5 6 5 6 7 6 7 8 7 7 9 7	4
12 1 2 3 2 3 6 3 4 7 4 5 1 5 6 2 6 7 1 7 8 2 8 9 4 9 10 5 10 11 3 11 12 6	12
1	0

Note

In the first sample, there are 4 rainbow journeys. The start and end points are 1 and 8, 1 and 9, 8 and 1, 9 and 1.

In the third sample, there are no roads, so obviously there are no possible rainbow journeys.