Problem I. WO MEI K

Time limit: 4 seconds
Memory limit: 256 Megabytes

There is a weighted tree with n vertices and $n-1$ edges. each edge has a value. Let $f(v,u)$ be the number of values that appear exactly once on the edges of a simple path between vertices v and u.
Now you randomly choose k vertices, which is $x_1, x_2, \ldots, x_k$. For all $k = 1, 2, \ldots, n$, calculate the expectation of $e_k = \sum_{i=1}^{k} \sum_{j=i+1}^{k} f(x_i, x_j)$ modulo 998244353

Input

This problem contains multiple test cases.The first line of input contains a single integer $t(1 \le t \le 2 \cdot 10^5)$—the number of test cases.The description of test cases follows.
In a test, the first line contains a single integer n $(2 \le n \le 2 \cdot 10^5)$ — the number of island
Each of the next $n-1$ lines contains three integers v, u and x $(1 \le v, u, x \le n)$ — This means that this egde connects u and v, and the value of this edge is x.
It's guarantee the sum of n over all test cases doesn't exceed 10^6.

Output

For each test case, print a single value $X = e_1 \oplus e_2 \oplus \cdots \oplus e_n$, where the note $\oplus$ denotes XOR by bit.

Example

standard input	standard output
2 2 1 2 1 3 1 2 1 1 3 2	1 332748115