

Description



CS101@ShanghaiTech

Programming assignment 2

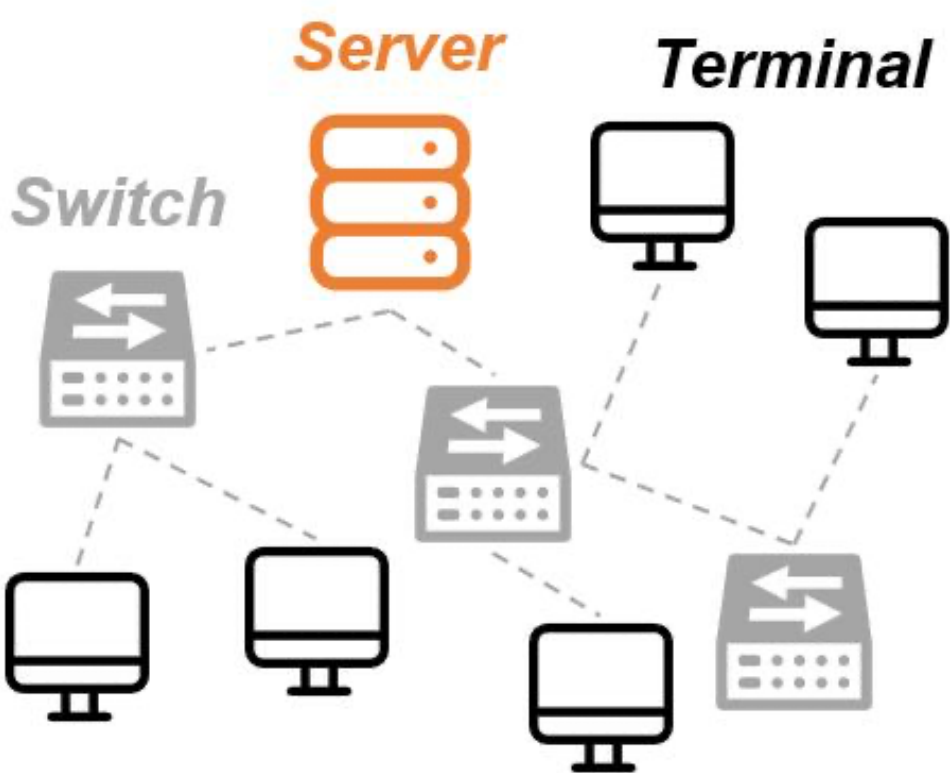
Computer networking in Zhangjiang zone

Motivation

At Zhangjiang zone of ShanghaiTech University, Network, as an important infrastructure, should be double checked. To realize FTTH(Fiber To The Home), working stuff suffers from a problem:**the decay of signal**,with respect to the disantce between nodes. The remote terminal cannot receive the weak signal from server.

An abstract model has been designed to analyze this challenge. First, Regard the whole network structure on campus as a tree:

- 1. Root node is a server, which releases signal to all terminals. There is only one server in this model for a tree.
- 2. Leaf nodes are terminals.
- 3. Intermidiate nodes are packet switches.
- 4. The edges between nodes are cables.



The signal starts from the server and ends at terminal. It will decay with the rules below:

- 1. The strength of signals share an initial value at root(server).
- 2. Each edge is assigned with a decay value. The signal strength will decrease by that value if it passes that cable(edge).
- 3. If the signal reaches the terminal with positive signal strength(**or zero**), it means the signal is sucessfully received.
- 4. If the signal from server can successfully reaches the terminal, the terminal is feasible. Otherwise, it is infeasible.

Signal strength



Decay value

In most cases, not all terminals are feasible. The IT section gives a proposal: the signal amplifier. A signal amplifier will reconst ruct the signal and resets the signal strength as the initial value at server(root). It can be installed on switches.

Installation of signal amplifier



Goal

To reduce the cost, for a specific network, we are curious about the minimal quantity of signal amplifier when all terminals are feasible.

Input

- 1. The first line is an integer N, indicating the total number of nodes in the network.
 - 2. The root is defined as the first node.
 - 3. The description (e.g., no. of children, decay value etc.) of the i_th node can be found in the i+1_th line. For example, the description of the root node (the first node) is presented in the second line.
 - 4. Each line includes several integers. The first integer k, representing the degree of the node. Then, there are 2*k integers following in pairs. Each pair of integer indicates the index of the child node and the decay value between the child node and the current node. (e.g.: 2,2,2,3,1 means the node has two children: node 2 and node 3, with decay values of 2 and 1 respectively).
 - 5. The last line contains an integer a, indicating the initial signal strength.
 - 6. All integers can be saved in an int32 variable.
- For 100% TestCase, N<=20000.

Output

An integer, the minimal quantity of signal amplifier that makes all terminals feasible.

If it is impossible, output "No solution." (Pay attention to the capital letter and the full stop)

输入样例 1

```
4
2 2 3 3 1
1 4 2
0
0
4
```

输出样例 1

```
1
```