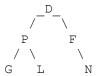
HPCODEWARSXVII

You weave your way through several trees at the edge of the arena, finding various letters hanging in a pattern representing a binary tree. Every node in a binary tree has some kind of value and it can also have references to two child nodes, called left and right. Either or both child references may be empty. The top node in a tree (or subtree) is called the parent node or head node.

problem 17 **Depth First**12 points



In this diagram, D is a parent of two children: P is the left child and F is the right child. Node F is the parent of one child, N, on its right, while F's left child reference is empty. Node P is the parent of G and L. Nodes G, L, and N each have two empty child references. Node processing can be done in a variety of ways. For this program, the goal is to process the left child first, then the right child, and then the parent. This type of traversal is called post-order. Using a post-order traversal, the nodes in the example tree would be processed in the following sequence:

GLPNFD

Input

The first line of input indicates the number of subtrees in the input. Each line after is a simple subtree. Each subtree line has three letters, separated by spaces, in this order: parent, left, then right. Empty child references are represented by a period. The subtrees are not given in any particular order. You'll have to determine the head of the tree using cleverness and ingenuity, which are not included in the input.

7 O . L C O W S C G G I N T A R I H T L F .

Output

The program must print the post-order traversal sequence of the nodes.

F L O W C H A R T I N G S

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