

Post Order Traversal

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

You are provided with a string consisting only of characters "1" to "9" and the symbols "(" and ")". Your task is to take this string, convert it into a binary tree and print the post order traversal of that tree.

The details of how this string was generated are as follows:

- 1.) A binary tree was created.
- 2.) Modified Inorder traversal was performed on the tree in the following way
 - a.) Print("(")
 - b.) Traverse the left sub tree.
 - c.) Print(root)
 - d.) Traverse the right sub tree.
 - e.) Print(")")

You will be required to write the code that creates nodes of a tree on your own.

Input

The input consists of a single string without any spaces containing only the characters "1" to "9" and the symbols "(" and ")".

3 ≤ Input Length ≤ 30

Output

The output is a single string consisting of space separated characters (obviously the characters "1" to "9"). There must not be any other characters in this string. Also this string must represent the post order traversal of the binary tree.

Example

standard input	standard output
(((4) 2 (5)) 1 ((6) 3 (7)))	4 5 2 6 7 3 1