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Ask Doubt

Time-Limit: 1 sec

Score: 0/100

Difficulty :

Memory: 256 MB

Accepted Submissions: 100

Relevant For: 

AZ-201

AZ-202

Description

You've been given chemical formula of a compound. Your task is to print the count of each atom.

The atomic element always starts with an uppercase character, then zero or more lowercase letters, representing the name.

One or more digits representing that element's count may follow if the count is greater than 1. If the count is 1, no digits will follow. For example, H2O and H2O2 are possible, but H1O2 is impossible.

Two formulas concatenated together to produce another formula. For example, H2O2He3Mg4 is also a formula.

A formula placed in parentheses, and a count (optionally added) is also a formula. For example, (H2O2) and (H2O2)3 are formulas.

It's guaranteed that the total count of each individual atom is within INT\_MAX.

Input Format

The only line of input contains a string S representing the chemical formula of a compound.

Output Format

Print the count of all elements as a string in the following form: the first name (in sorted order), followed by its count (if that count is more than 1), followed by the second name (in sorted order), followed by its count (if that count is more than 1), and so on.

Constraints

$1 \leq |S| \leq 10^3$

Sample Input 1

Copy

Mg(OH)2

Sample Output 1

Copy

H2MgO2

Sample Input 2

Copy

K4(ON(SO3)2)2

C++14[GCC] ▾

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