Coding challenge

We would like to ask you to do a fun coding exercise for us. Please keep in mind that it is not a classical algorithmic problem, so **your task is not limited to producing a correct result.** Imagine that your code will be read and modified by other developers, so they should be able to understand it easily. You should also remember that code should be easily extensible and maintainable, but at the same time beware of overly complicated solutions and speculative design (we value a lot the KISS principle;-)). Last but not least: there is no single best solution, so we encourage you to design and implement the solution in a way you think is right.

Problem description

Humans have just invaded a new and unknown planet in a foreign galaxy. Surprisingly enough, matter does not act like it does on Earth. Besides solid, liquid, gas and plasma, humans have discovered a new state of matter which is still under test. It is called the “X” state. You have been asked to help the scientists by building a matter state simulator.

Matter can have one of these states:

● G: Gas

● S: Solid

● L: Liquid

● P: Plasma

● X: X state

In the “Matter state simulator” transitions are provided to all objects. It is not possible to target a specific object. This is the list of available transitions:

● Ht: Heat

● Pr: Pressure

● Di: Deionization

● Co: Cold

Transitions can change objects’ states. Transitions effects are described by the following rules:

● Heat turns Gas into Solid;

● Pressure turns Plasma into Solid;

● Deionization prevents Liquids turning into X, stays Liquid after applying it;

● If Deionization is mixed with Pressure, Solid turns into Gas;

● Cold turns Gas into Solid;

● Applying Heat and Cold at the same time, matter turns into X;

● One time in a million the planet’s God shows his alien power and turns X matter into Solid, which is impossible for humankind.

Input

Parameter 1

List of objects' state status codes, separated by a comma. e.g. “L,G,G” means we have 3 objects, one as liquid and two as gases.

Parameter 2

List of transition codes, separated by a comma, e.g. “Ht,Di” means objects will be transitioned with Heat and Deionization.

Output

The result should be sent to stdout. It should be a comma separated string with number of objects with a given state, following the format: G:NP,S:NP,L:NP,P:NP,X:NP Where:

● G, S, L, P, X are objects’ matter status codes;

● NP is a number of objects for a given state; E.g. “G:0,S:2,L:0,P:0,X:1” means there are two solid objects and one that is X.

Examples

1. Input: “L,L” “”

Output: “G:0,S:0,L:0,P:0,X:2” (liquid objects turn into X without deionization)

2. Input: “G”“Co”

Output: “G:0,S:1,L:0,P:0,X:0” (Cold turns Gas into Solid)

Result

When you feel pleased with your solution, please send us a zip source code of your project with instructions how to build and run it. Feel free to use a build automation tool (maven/gradle) or any other tool/library that you might find useful. **Make sure you put your full name in the file name of the zip file.**