Assignment:

You have four colored cubes.

Each side of each cube is a single color, and there are four colors: blue (B), red (R), green (G) and yellow (Y).

A potential combination describing the six faces as front, back, left, right, top, bottom, the cube colors could be:

Cube	Front	Back	Left	Right	Top	Bottom
1	R	B	G	Y	B	Y
2	R	G	G	Y	B	B
3	Y	B	R	G	Y	R
4	Y	G	B	R	R	R

The objective is to find ways to stack the four cubes as a vertical column so that each side of the column is showing all four colors.

Write a program to find all successful permutations. Please submit the following:

1. Initial estimate of how long it will take you to code and test, ready for submission.
2. Actual time you take.
3. Source code of solution including any test code.
4. DO NOT include any compiled binary code (.exe, .class, etc.)

Notes:

We are *not* looking for the most efficient solution (in code lines or runtime) nor the cleverness of the solution (even though cleverness is good, just don't make it a mess).

Rather we are looking for code that is:

- beautiful
- easy to use
- easy to understand (so that another programmer could debug or extend)
- correct i.e. solves the problem, and validates through testing that the code would be correct with arbitrary inputs

Guidelines:

Write the program as you are writing it for yourself.

Make it beautiful, easy to use, easy to understand and debug.

Use best practices where possible.

Use design patterns where you think they can fit.

Show us your signature!

External Libraries:

The external libraries that you are allowed to use are basic things like testing and assertion frameworks.

If you want (and we encourage you) you can use maven and provide a maven build script (a simple POM).

If you feel like you want to use spring for this - use it.

Input

The program should accept string of comma separated cube definitions, see example:

> ./program "RBGYBY,RGGYBB,YBRGYR, YGBRRR"

Sides are encoded in following sequence: front, back, left, right, top, bottom.

Colors are: R = Red, G = Green, Y = Yellow, B = Blue

It outputs number of found solutions and prints them if they are under 12.

If many solutions are found, it prints the number and first 12 of them.

Output

1. The output needs to state clearly how many solutions are found.
2. Each combination should be printed with one cube on a single line.
3. Between the combinations there should be one empty line

Example output:

Found 1 solution. Printing it.

Cube	Front	Back	Left	Right	Top	Bottom
1	Y	B	R	B	Y	G
2	G	Y	G	R	B	B
3	R	G	B	Y	Y	R
4	B	R	Y	G	R	R

Test

Tests are important part of the problem. Please provide tests that show that for certain input parameters, exact output is expected.