Question 1: Successor Function [50 points]

This is a programming question. The solution to the programming problem should be coded in Java, and **you are required to use only built-in libraries** to complete this homework. Please submit a source code file named **successor.java** with **no package statements**, and make sure your program is runnable from command line on a department Linux machine. We provide a skeleton successor.java code that you can optionally use, or you can write your own.

The goal of this assignment is to become familiar with the state space in a real-world problem.
You are given three water jugs with capacity A, B, C liters, respectively. A, B, C are positive integers. At each step, you can perform one of these actions:

- Empty a jug
- Fill a jug
- Pour water from one jug to another until either the former is empty or the latter is full.

Write a program **successor.java** to print the successor states of an input state.

- Input: 6 integers A, B, C, a, b, c, where (A, B, C) are the capacity of the jugs, and (a, b, c) are the current amount of water in each jug. You may assume that the input is valid, namely $a \leq A, b \leq B, c \leq C$, and A, B, C are positive integers, and a, b, c are non-negative integers.
- Output: Print the list of successor states reachable in one step from (a, b, c), one one each line. The lines do not need to be sorted. The successors should not include (a, b, c) itself.

Here are some examples of running the program from the command line. The inputs and outputs are space-separated with no comma. Please follow the same input/output format.
Example 1:

```
$java successor 3 2 1 3 2 0
0 2 0
3 0 0
3 2 1
2 2 1
3 1 1
```

Example 2:

```
$java successor 11 5 2 6 3 1
0 3 1
6 0 1
6 3 0
11 3 1
6 5 1
6 3 2
9 0 1
7 3 0
4 5 1
6 4 0
5 3 2
6 2 2
```