CIS 313, Intermediate Data Structures
Fall 2016

Lab 0 : (due 10/02/16 11:59pm in Canvas)

1 Description

For this assignment, you are to write a program which will read a series of pairs of integers X and Y and print pairs $GCD(X, Y)$ and $LCM(X, Y)$, where

- $GCD(X, Y)$: the greatest common divisor of X and Y,

- $LCM(X, Y)$: the least common multiple of X and Y.

The purpose of this assignment is two-fold

- Practice using standard input and output.

- Learn how to submit your work.

You should write your program in Java (version 1.7). Other languages need to be approved by the GTF.

2 Input Description

The input will be a text file, for example *inSample.txt* below will be provided. The first line will contain an integer N, which is the number of lines to follow. Each of the N lines contains two integers X and Y, separated by a space.

```
5
4 2
8 9
143 247
1 1
10 10
```

3 Output Description

For each of the pairs X Y output $GCD(X, Y)$ and $LCM(X, Y)$ on a line, separated by a single space. For example, on the sample input above you should have

```
2 4
1 72
13 2717
1 1
10 10
```

4 Testing Protocol

We will test your program by running your program at the command line. You will need to use **STANDARD INPUT**. Do **not** pass in the name of the file as an argument - do **not** encode the name of your input file in your program. We will run your program on several different test files.

Examples of the commands we will use to test your program look like the following. Here *HW0* is a name of a turned-in program and *inSample.txt* is the sample test file. At the command line we might say something like

```
java HW0 < inSample.txt
```

We could also have used the unix *pipe* command:

```
cat inSample.txt | java HW0
```

5 Submission

You are provided with code (HW0.java) that you may use, which should streamline the assignment. Submit your .java file(s) via Canvas. Remember to remove any package statements.

6 Grading

Typically, half of your grade will be determined by attempting to implement the correct data structure, and half will be on correctness. For the assignment, there is only the correctness component.

There will be 50 total points possible for this assignment. Two points are assigned for each of the 25 test cases for this assignment. 5 of the test cases are given to you above, and 20 are hidden.