CIS 315, Intermediate Algorithms
Spring 2018

Assignment 0

due April 9, 2018

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 $X + Y$ and $X * Y$. The purpose of this assignment is two-fold

- Practice using standard input and output.
- Learn how to submit your work.

You may write your program in either Java, Python, C (must compile on department machines), or C++ (same). 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 $X + Y$ and $X * Y$ on a line, separated by a single space. For example, on the sample input above you should have

```
6 8
```

```
17 72
390 35321
2 1
20 100
```

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 *addMultNum* is a name of a turned-in program (java or python, C++ would compile to *a.out*) and *inSample.txt* is the sample test file. At the command line we might say something like

```
java addMultNum < inSample.txt

python addMultNum.py < inSample.txt

./a.out < inSample.txt
```

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

```
cat inSample.txt | java addMultNum

cat inSample.txt | python addMultNum.py

cat inSample.txt | ./a.out
```

5 Submission

update: Submit your source file (.java, .py, .c, .cpp) as a single file via Canvas.