Computer Science 204

Assignment #1

The Linear Forecast Program

Due Date : Monday, February 1, 2010, 11:59 p.m.

40 Points

Objective

The purpose of this assignment is to extend our familiarity with the Java language and to demonstate how a class file can be used. We will use declarations, assignment statements, input/output statements, and some of the features of the Math class. This program will make use of many of the statements and methods from Chapters 1 – 2 of your text. You will also have to look the the Java API and also interpret an API written for the class file provided. You, however sould not have to write any mathematical equations – you will use the methods from the class file.

Assignment Summary

Your program allows a user to enter two (x, y) data pairs, an x value for which the y value should be calculated, and a y value for whith the x value should be calculated. You may assume that the x values in the two (x, y) data pairs are always unique. Your program will then print the slope of the line passing through the two points, the value of the y-intercept, and the forecasted y and x values for the supplied data. The formatting must match mine *exactly*.

Notes

1. In solving this problem, you should follow the coding practices from Appendix A of your text. See if you can set *Eclipse* up to do your tabbing for you automatically.

2. Your source file should be named `Forecast.java` and will be turned in as an e-mail attachment. The subject line of your e-mail should be **CSC 204 – Project 1 – Linear Forecast Program**

3. You will download a file called `Line.class` from my website that will contain the constructors and methods you will need. I will provide API documentation for this class on my website and e-mail you when it is ready. You will have to set up *Eclipse* so that your code will find and use this class file.

4. The top of your source file should contain something like the following

```
/**
   COPYRIGHT (C) 2009  Your Name.  All Rights Reserved.
   Program for Simple Linear Forecasting
   Submitted for CSC 204 Program Assignment #1
   @author Your Name
   @version 1.01 2009-02-02
*/
```

5. All numeric values with more than three decimal places should be rounded to the third decimal point. Look at the API for `Math.round`.

6. All other formatting should strictly adhere to the example provided. I will provide a link to a text file so you can more carefully examine the formatting.

Revision Policy

All assignments handed in on or before the due date for which you do not receive full credit in correctness are eligible for revision. You can gain up to half of the points backs that you lost on correctness.

Sample Run

```
X Value from first data pair :  1.23456
Y Value from first data pair :  1.567
X Value from second data pair :  2
Y Value from second data pair :  5.78

X Value for coordinate computation :  12.5645

Y Value for coordinate computation :  19.01

************************************************************
   L I N E A R    F O R E C A S T   C A L C U L A T O R
************************************************************

------------------------------------------------------------
                      LINEAR PROPERTIES
------------------------------------------------------------

The line passing through the coordinates

(1.235,1.567) and (2.0,5.78)


Has the following properties:

Slope       = 5.504
Y-Intercept = -5.228

------------------------------------------------------------
                      FORECASTED VALUE
------------------------------------------------------------

For the user supplied X Value of 12.565

       The Forecasted Y Value is 63.927

For the user supplied Y Value of 19.01

       The Forecasted Y Value is 4.404

************************************************************
```