Object Oriented Programming (JAVA)

CST 8284

ASSIGNMENT 1

Instructions

This assignment is designed to be completed and submitted by you individually. It is your responsibility to ensure that your work is NOT replicated by any other student, and that you do not copy or submit someone else's work.

The **due date** for submission of this assignment is **Saturday, October 24 by midnight.** Carefully read the tasks to ensure that you deliver all aspects required.

Background

Complex numbers refer to numbers that have both a real and an imaginary part. Complex numbers have the form:

*real + imaginarypart * i*

Where "i" is the **square root of** – I.

Tasks

In this assignment, you are required to:

1. Create a class named **Analysis**, which is used in carrying out **computations** on complex numbers.

    a. Use **floating point variables** to represent the private data of the class.
    b. Create a **constructor** which will help an object of this class when declared, to be initialized.

c. Create a **no-argument constructor** that has default values, which can be used if no initializers are provided.

2. Create **public methods** that will make the following computations:

    a. **Subtraction of** two complex numbers. **Hint:** Note that for subtracting one complex number from another complex number, the real part (of the complex number) of the right operand is subtracted from the real part of the left operand; and then the imaginary part of the right operand is subtracted from the imaginary part of the left operand.

    b. **Addition** of two complex numbers. **Hint:** Note that for adding two complex numbers together, you have to add the real parts together, and then add the imaginary parts together.

    c. **Printing** of the complex numbers. **Hint:** print your output in such a way that it will have the format: **(*realPart , imaginaryPart*).**

3. Write a program to test your class. The user should be able to enter both parts of the complex number as input, and then select a choice of whether to add or subtract. You should provide your own sample input to generate required output.

4. **Provide a Javadoc** style documentation of your classes, methods, etc., ensuring that comments are placed in important sections of your code explaining what you did.

Items to Submit:

When you have completed this assignment, submit the following items to the designated box in **Section_300** of the course Brightspace page (NOT your lab section page):

i. The **files** containing your Java code
ii. Sample of your output file
iii. The Javadoc style documentation of the comments in your code.

Guide: Code files - 5%, Javadoc comments – 2%, Output file – 1%