Object Orientated Programming

Lab Manual 5

Instructor:
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CLO:
CLO1

Learning Objectives:

- Student should be able to create class using java
- Learn to write well documented and formatted code

Registration Number:

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Name:.

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Guidelines/Instructions:

- Use of NetBeans is must in this lab.
- Write well commented code.
- Name of variables should be meaningful.
- Use camel case for the naming convention
- Code should be well formatted
- Create meaningful variable names. Add comments for readability. Indent each line of your code.
- Plagiarism/Cheating is highly discouraged by penalizing to both who tried and one who shared his/her code.

What is Complex Number?

Complex Number are numbers that made up of real and imaginary part. For example: 2 + 3i where 2 is real number and 3 is imaginary.

Assignment Details

In this assignment you are required to create ComplexNumber class for following manipulation

1. The ComplexNumber java class should contain two types of data members for real and imaginary numbers
    a. real (double)
    b. imaginary (double)
2. Make two different types of constructors i.e. Default Constructor and Parameterized Constructor.
3. Declare and Define following arithmetic data methods that perform operator action invoking the methods to the complex number on the right side of complex number and return the object of complex number after performing action
    a. add(ComplexNumber cn)
    b. subtract (ComplexNumber cn)
    c. divide (ComplexNumber cn)
    d. multiply (ComplexNumber cn)
4. Declare and Define two accessor methods that returns the real and imaginary number separately from the complex number that invoke the method
    a. getReal()
    b. getImaginary()
5. Declare and Define data methods for trigonometric functions

   a. sine() // return a complex object whose value is the complex sine of invoking object
   b. cosine() // return a complex object whose value is the complex cosine of invoking object
   c. tangent() // return a complex object whose value is the complex tangent of invoking object
6. Declare and Define some other data method as
   a. To find to complex conjugate of complex number: **conjugate()**
   b. To display the absolute value of complex number: **abs()**
   c. To find the normalized values of complex number: **norm()**
7. Declare and Define **toString()** function of String datatype that display the complex number in a string with notation of imaginary number

Take user input using proper GUI and display it (use of JoptionPane)

What to submit

You are simply required to submit source files (**ComplexNumber.java** and **Driver.java** that includes the implementation of the above mentioned program. No extra file should be submitted.