**Week-7**

Name – Randrita Sarkar [11500219058]

IT PCC-CS593 L - OBJECT ORIENTED PROGRAMMING LAB

COMPLEX_NUMBER

1. Create an overloaded complex class to implement complex addition, subtraction, multiplication, division, finding argument of the complex number, initialization-using constructor, complex assignments etc.

```
package com.randrita.week7;

import java.sql.SQLOutput;

public class Complex {
    int realNumber,imaginaryNumber;

    Complex(int realNumber,int imaginaryNumber){
        this.realNumber=realNumber;
        this.imaginaryNumber=imaginaryNumber;
    }

    public static void main(String[] args) {
        Complex number1 = new Complex(5,10);
        Complex number2 = new Complex(2,5);
        Complex Add,Sub,Multi,Div;

        Add=add(number1,number2);
        Sub=sub(number1,number2);
        Multi=multiplication(number1,number2);
        Div=division(number1,number2);

        System.out.printf("Addition of two complex
numbers is =
%d+%di\n",Add.realNumber,Add.imaginaryNumber);
        System.out.printf("Subtraction of two
complex numbers is =
%d+%di\n",Sub.realNumber,Sub.imaginaryNumber);
        System.out.printf("Multiplication of two
```

```
complex numbers is =
%d+%di\n",Multi.realNumber,Multi.imaginaryNumber);
        System.out.printf("Division of two complex
numbers is =
%d+%di\n",Div.realNumber,Div.imaginaryNumber);
    }

    public static Complex add(Complex number1,
Complex number2){
        Complex temp = new Complex(0,0);

        temp.realNumber= number1.realNumber+
number2.realNumber;

temp.imaginaryNumber=number1.imaginaryNumber+numbe
r2.imaginaryNumber;

        return(temp);
    }

    public static Complex sub(Complex number1,
Complex number2){
        Complex temp = new Complex(0,0);

        temp.realNumber= number1.realNumber-
number2.realNumber;

temp.imaginaryNumber=number1.imaginaryNumber-
number2.imaginaryNumber;

        return(temp);
    }

    public static Complex multiplication(Complex
number1, Complex number2){
        Complex temp = new Complex(0,0);

        temp.realNumber=
(number1.realNumber*number2.realNumber)-
(number1.imaginaryNumber *number2.imaginaryNumber
);
```

```
        temp.imaginaryNumber=(number1.realNumber*
number2.imaginaryNumber)+(number1.imaginaryNumber*
number2.realNumber);

        return(temp);
    }

    public static Complex division(Complex
number1, Complex number2){
        Complex temp = new Complex(0,0);

        int a= number1.realNumber;
        int b= number1.imaginaryNumber;
        int c=number2.realNumber;
        int d=number2.imaginaryNumber;


temp.realNumber=((a*c)+(b*d))/((c*c)+(d*d));
        temp.imaginaryNumber=((b*c)-
(a*d))/((c*c)+(d*d));

        return(temp);

    }
}
```

**Output:**