

Week-7

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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);

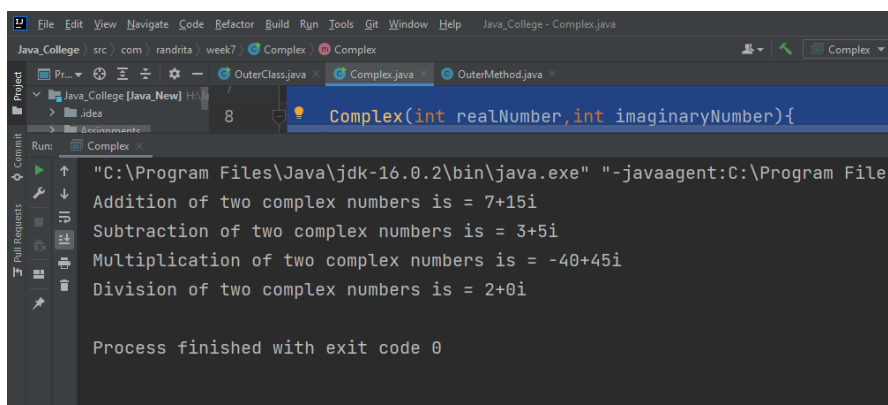
        int a= number1.realNumber;
        int b= number1.imaginaryNumber;
        int c=number2.realNumber;
        int d=number2.imaginaryNumber;

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

        return(temp);
    }
}

```

Output:



```

"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program File
Addition of two complex numbers is = 7+15i
Subtraction of two complex numbers is = 3+5i
Multiplication of two complex numbers is = -40+45i
Division of two complex numbers is = 2+0i

Process finished with exit code 0

```