**//OOP Practical No.: 1**

**//Name: Prathamesh Sadashiv Gadekar**

**//SE : IT**

**//Roll No.: 14**

**------------------------------------------------------------------------------------------------------------------------------------------**

**Classes and object**

**Design a class ‘Complex’with data members for real and imaginary part. Provide default and**

**Parameterized constructors. Write a program to perform arithmetic operations of two complex**

**numbers**

**------------------------------------------------------------------------------------------------------------------------------------------**

import java.io.\*;

public class ComplexNumber

{

int real,img;

ComplexNumber(int r,int i)

{

this.real=r;

this.img=i;

}

public void showc()

{

System.out.println(this.real + " + " + this.img + "i");

}

public static ComplexNumber add(ComplexNumber n1, ComplexNumber n2)

{

ComplexNumber add = new ComplexNumber(0,0);

add.real = n1.real + n2.real;

add.img = n1.img + n2.img;

return add;

}

public static ComplexNumber sub(ComplexNumber n1, ComplexNumber n2)

{

ComplexNumber sub = new ComplexNumber(0,0);

sub.real = n1.real - n2.real;

sub.img = n1.img - n2.img;

return sub;

}

public static ComplexNumber mul(ComplexNumber n1, ComplexNumber n2)

{

ComplexNumber mul = new ComplexNumber(0,0);

mul.real = n1.real \* n2.real;

mul.img = n1.img \* n2.img;

return mul;

}

public static ComplexNumber div(ComplexNumber n1, ComplexNumber n2)

{

ComplexNumber div = new ComplexNumber(0,0);

div.real = n1. real / n2.real;

div.img = n1.img / n2.img;

return div;

}

public static void main(String args[])

{

ComplexNumber c1 = new ComplexNumber(13,7);

ComplexNumber c2 = new ComplexNumber(5,2);

System.out.print("First Complex Number is: ");

c1.showc();

System.out.print("Second Complex Number is: ");

c2.showc();

ComplexNumber add = add(c1,c2);

System.out.print("Addition (SUM) of Complex Numbers is: ");

add.showc();

ComplexNumber sub = sub(c1,c2);

System.out.print("Subtraction (Difference) of Complex Numbers is: ");

sub.showc();

ComplexNumber mul = mul(c1,c2);

System.out.print("Multiplication (Product) of Complex Numbers is: ");

mul.showc();

ComplexNumber div = div(c1,c2);

System.out.print("Division of Complex Numbers is: ");

div.showc();

}

}

**/\***

**OUTPUT:**

**First Complex Number is: 13 + 7i**

**Second Complex Number is: 5 + 2i**

**Addition (SUM) of Complex Numbers is: 18 + 9i**

**Subtraction (Difference) of Complex Numbers is: 8 + 5i**

**Multiplication (Product) of Complex Numbers is: 65 + 14i**

**Division of Complex Numbers is: 2 + 3i**

**\*/**