Name:kavitha.M

Rollno:15L125

Dept:Ece –'A'

JAVA PROGRAMMING

ASSIGMENT:6

COMPLEX.JAVA

```
public class Complex{
    private double real = 1.0;
    private double imaginary = 1.0;
   public Complex(){
       this(1.0,1.0);

   }
   public Complex(double real,double imaginary){
       this.real=real;
       this.imaginary=imaginary;


   }
   public Complex(double real){
      this.real=real;
   }
   public Complex add(Complex another){

       double real=another.real + this.real;
       double imaginary=another.imaginary+this.imaginary;
       Complex result = new Complex(real,imaginary);
       return result;
   }
   public Complex subtract(Complex another){
       double real = another.real-this.real;
       double imaginary = another.imaginary-this.imaginary;
       Complex result=new Complex(real,imaginary);
        return result;
   }
   public Complex multiplyWith(Complex another){
       double real=(another.real*this.real) - (another.imaginary*this.imaginary);
```

```
       double imaginary=(another.real*this.imaginary) +
(another.imaginary*this.real);
       Complex result=new Complex(real,imaginary);
        return result;
   }
   public Complex divideBy(Complex another){

        double spl = (this.real*this.real)+(this.imaginary*this.imaginary);

        double real
=Math.round(((another.real*this.real)+(another.imaginary*this.imaginary)) / spl);
        double imaginary = Math.round(((another.imaginary*this.real)-
(another.real*this.imaginary))/spl);
        Complex result=new Complex(real,imaginary);
         return result;
   }
   public boolean isReal(){

        if(this.real !=0 && this.imaginary==0){
            return true;
    }
    else{
        return false;
    }
 }
    public boolean isImaginary(){
        if(this.real==0 && this.imaginary!=0){

            return true;
        }
        else{
            return false;
        }
    }
    public String toString(){
        return "Complex Number:"+real+((imaginary>0)?"+":"")+imaginary+"j";
    }
}
```

SOLUTION.JAVA

```
public class Solution{
    public static void main(String arg[]){
        Complex complex = new Complex();
        Complex complex1 = new Complex(2,3);
         Complex complex2 = new Complex(5,2);

        System.out.println("Addtion               :"+complex1.add(complex2));
        System.out.println("Subtraction
:"+complex1.subtract(complex2));
        System.out.println("Multiplication        :"+
complex1.multiplyWith(complex2));
        System.out.println("Divition              :"+
complex1.divideBy(complex2));
        System.out.println("COMPLEX NUMBER ISREAL : "+complex1.isReal());
        System.out.println("COMPLEX NUMBER ISREAL : "+complex1.isImaginary());



    }
}
```

OUTPUT:

```
C:\Users\students\Documents\kavitha>javac Complex.java

C:\Users\students\Documents\kavitha>javac Solution.java

C:\Users\students\Documents\kavitha>java Solution
Addtion               :Complex Number:7.0+5.0j
Subtraction           :Complex Number:3.0-1.0j
Multiplication        :Complex Number:4.0+19.0j
Divition              :Complex Number:1.0-1.0j
COMPLEX NUMBER ISREAL : false
COMPLEX NUMBER ISREAL : false

C:\Users\students\Documents\kavitha>
```