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Aim: 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.

Complex numbers are numbers that consist of two parts — a real number and an imaginary number. Complex numbers are the building blocks of more intricate math, such as algebra. The standard format for complex numbers is a + bi, with the real number first and the imaginary number last.

General form for any complex number is : a+ib

Where "a" is real number and "b" is Imaginary number.

Construction of Complex number :

For creating a complex numbers, we will pass imaginary numbers and real numbers as parameters for constructors.

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Program:

public class Complex{

float real,img;

Complex(){

}

Complex(float r,float i){

real = r;

img = i;

}

Complex add(Complex a){

Complex temp = new Complex();

temp.real = this.real + a.real;

temp.img = this.img + a.img;

return temp;

}

Complex sub(Complex a){

Complex temp = new Complex();

temp.real = this.real - a.real;

temp.img = this.img - a.img;

return temp;

}

public static void main(String args[]){

Complex c1 = new Complex(5.6f,6.12f);

Complex c2 = new Complex(12.6f,4.03f);

Complex result;

result = c1.add(c2);

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

result = c1.sub(c2);

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

}

}

Output:

java -cp /tmp/RGwcsL7qcy Complex

Addition....18.2+10.15i

Subtraction....-7.0000005+2.0899997i