**PRACTICAL-15**

**AIM:** Imagine you're building a scientific calculator application. One crucial feature is handling complex numbers. You decide to create a Complex class to represent complex numbers and perform operations on them.(sum, difference and product)

**CODE:**

import java.util.Scanner;

import java.util.\*;

public class Complex {

    private double real;

    private double imaginary;

    // Constructor to initialize the complex number

    public Complex(double real, double imaginary) {

        this.real = real;

        this.imaginary = imaginary;

    }

    // Method to add two complex numbers

    public Complex add(Complex other) {

        return new Complex(this.real + other.real, this.imaginary + other.imaginary);

    }

    // Method to subtract two complex numbers

    public Complex subtract(Complex other) {

        return new Complex(this.real - other.real, this.imaginary - other.imaginary);

    }

    // Method to multiply two complex numbers

    public Complex multiply(Complex other) {

        double realPart = (this.real \* other.real) - (this.imaginary \* other.imaginary);

        double imaginaryPart = (this.real \* other.imaginary) + (this.imaginary \* other.real);

        return new Complex(realPart, imaginaryPart);

    }

    // Method to represent the complex number as a string

    @Override

    public String toString() {

        return real + " + " + imaginary + "i";

    }

    // Main method for testing

    public static void main(String[] args) {

        // Create some complex numbers

        Complex c1 = new Complex(2.0, 3.0);

        Complex c2 = new Complex(4.0, 5.0);

        // Perform operations

        Complex sum = c1.add(c2);

        Complex difference = c1.subtract(c2);

        Complex product = c1.multiply(c2);

        // Display results

        System.out.println("c1: " + c1);

        System.out.println("c2: " + c2);

        System.out.println("Sum: " + sum);

        System.out.println("Difference: " + difference);

        System.out.println("Product: " + product);

        System.out.println("23DIT044-Heli Patel");

    }

}

**OUTPUT:**

