

BÁO CÁO THỰC HÀNH LAB 11

Lập trình hướng đối tượng

Nguyễn Xuân Tùng - 20215162

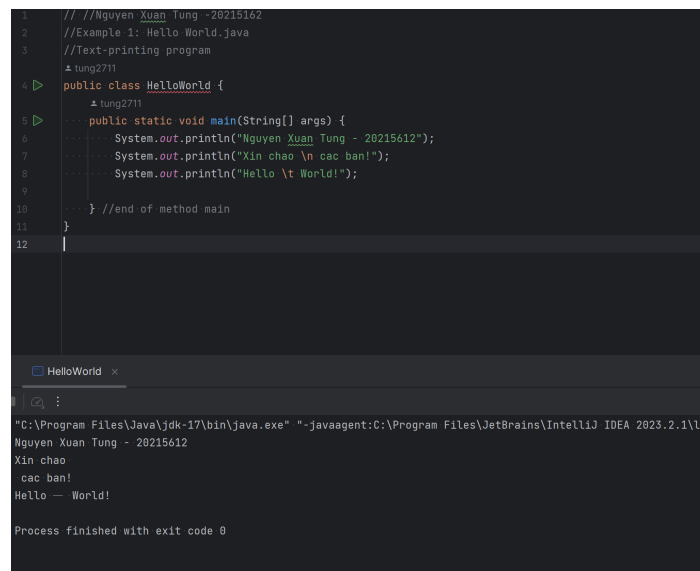
Ngày 15 tháng 10 năm 2023

The Very First Java Programs

2.2.1 Write, compile the first Java application:

```
1 //Example 1: HelloWorld.java
2 //Text-printing program
3 public class HelloWorld {
4
5     public static void main(String args[]){
6         System.out.println("Xin chào \n các bạn!");
7         System.out.println("Hello \t world!");
8     } // end of method main
9 }
10 }
```

Hình 1: đề bài 2.2.1



The screenshot shows an IDE with two panels. The top panel displays the source code for a Java class named `HelloWorld`. The code includes comments and a `main` method that prints two lines of text: "Xin chào \n các bạn!" and "Hello \t World!". The bottom panel shows the output of the program, which matches the printed text in the source code. The output is displayed in a console window with a dark background and white text.

```
1 // Nguyễn Xuân Tùng - 20215162
2 //Example 1: Hello World.java
3 //Text-printing program
4 //tung2711
5 public class HelloWorld {
6     //tung2711
7     public static void main(String[] args) {
8         System.out.println("Nguyễn Xuân Tùng - 20215162");
9         System.out.println("Xin chào \n các bạn!");
10        System.out.println("Hello \t World!");
11    } //end of method main
12 }
```

HelloWorld x

```
"C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2023.2.1\lib\idea_rt.jar=2023.2.1\C:\Program Files\Java\jdk-17\bin" -classpath C:\Program Files\Java\jdk-17\bin\java.exe
Nguyễn Xuân Tùng - 20215162
Xin chào
các bạn!
Hello — World!

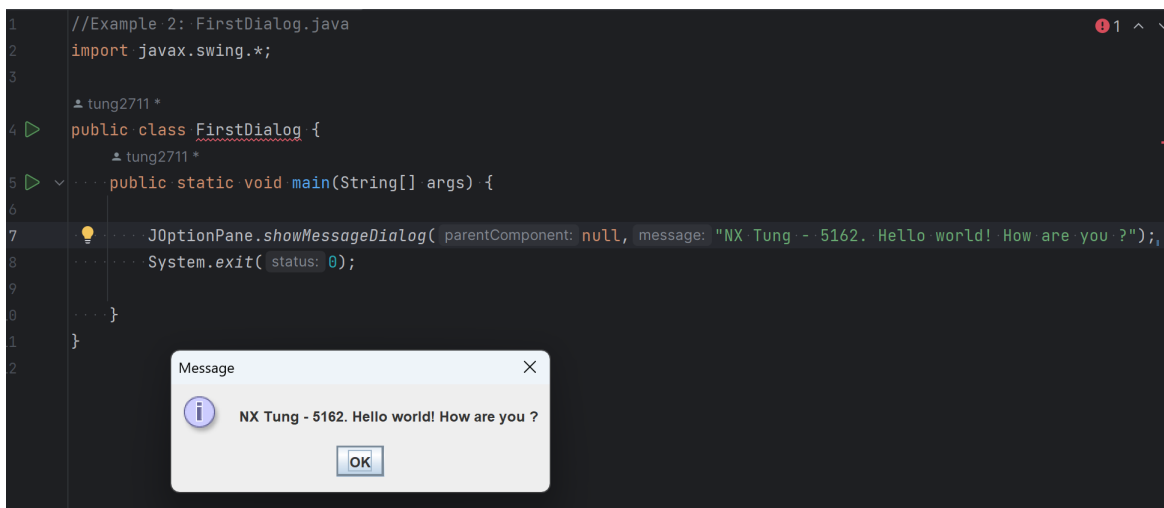
Process finished with exit code 0
```

Hình 2: Mã nguồn và kết quả 2.2.1

2.2.2 Write, compile the first dialog Java program

```
1 // Example 2: FirstDialog.java
2 import javax.swing.JOptionPane;
3 public class FirstDialog{
4     public static void main(String[] args){
5         JOptionPane.showMessageDialog(null,"Hello world! How are you?");
6         System.exit(0);
7     }
8 }
```

Hình 3: Đề bài 2.2.2

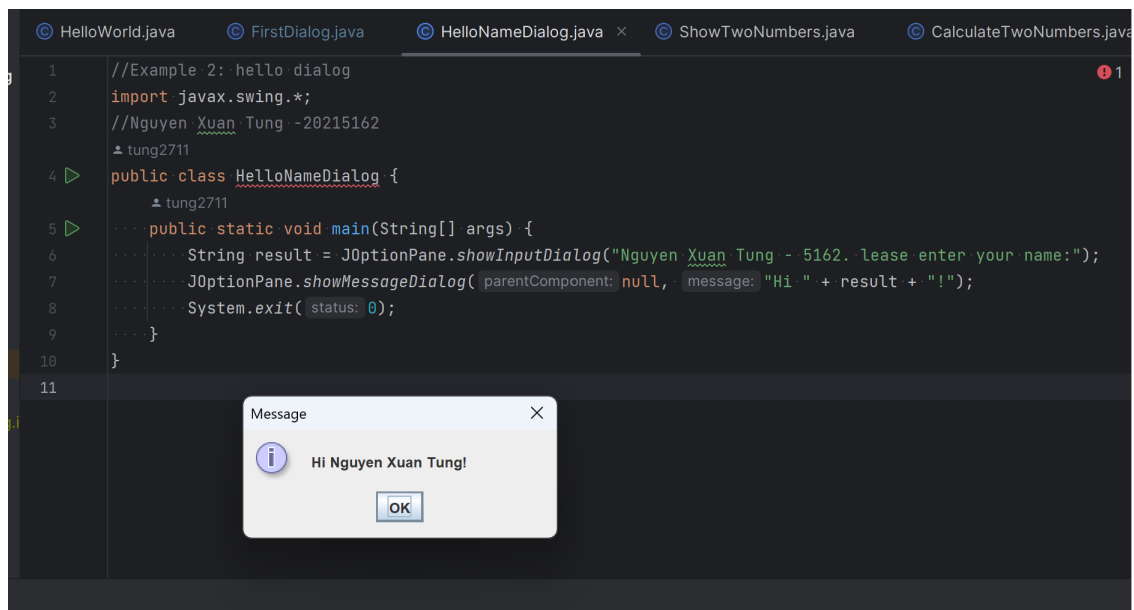
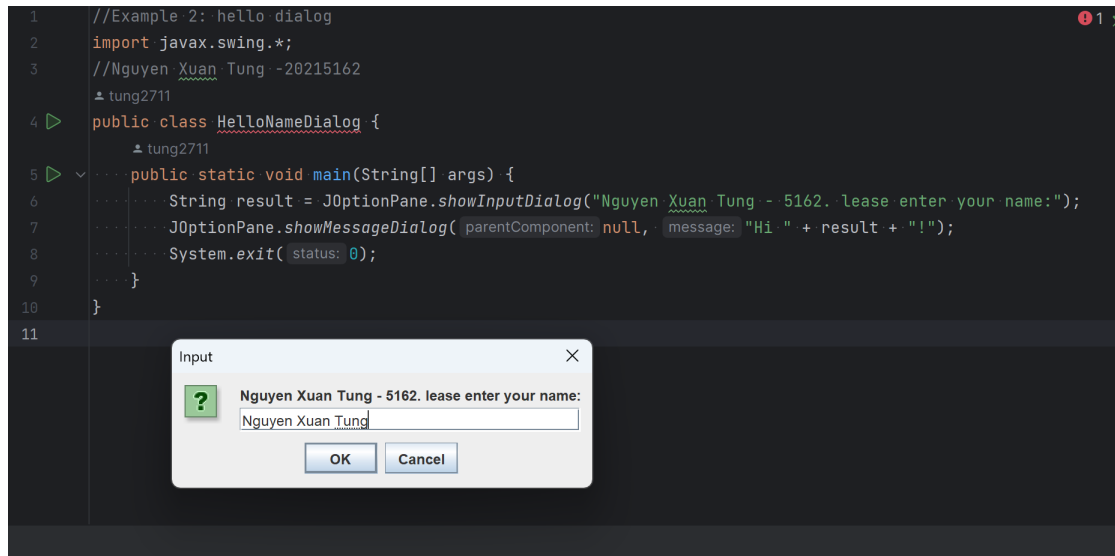


Hình 4: Mã nguồn và kết quả 2.2.2

2.2.3 Write, compile the first input dialog Java application

```
1 // Example 3: HelloNameDialog.java
2 import javax.swing.JOptionPane;
3 public class HelloNameDialog{
4     public static void main(String[] args){
5         String result;
6         result = JOptionPane.showInputDialog("Please enter your name:");
7         JOptionPane.showMessageDialog(null, "Hi " + result + "!");
8         System.exit(0);
9     }
10 }
```

Hình 5: Đề bài 2.2.3



Hình 6: Kết quả 2.2.3

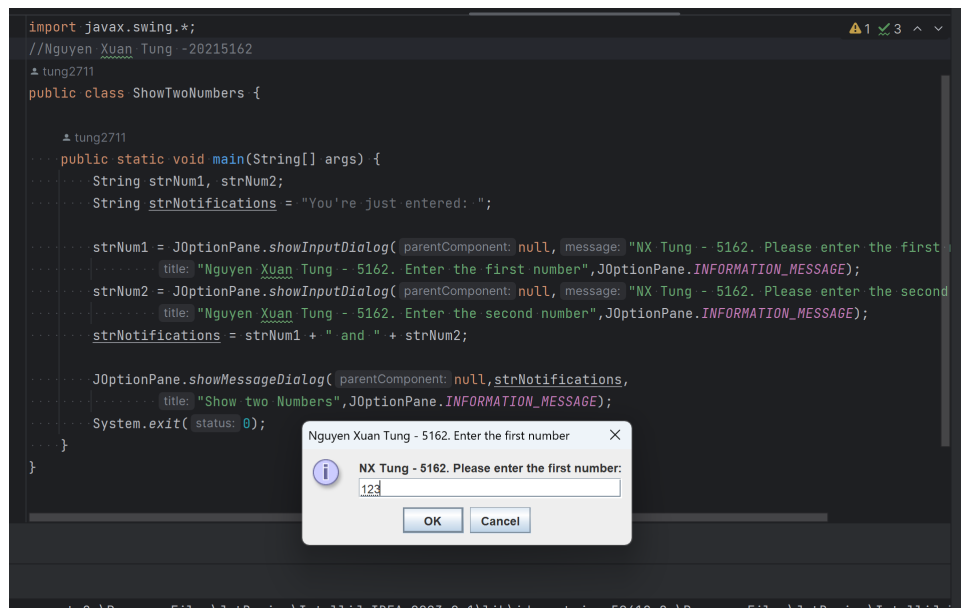
2.2.4 Write, compile, and run the following example:

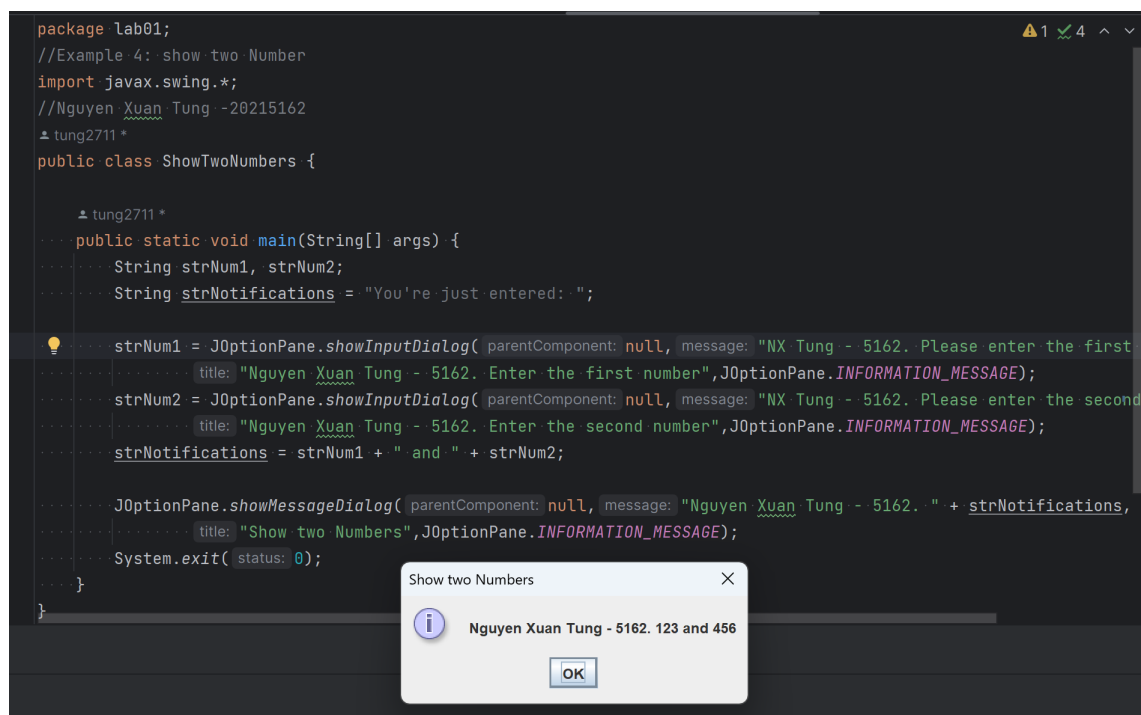
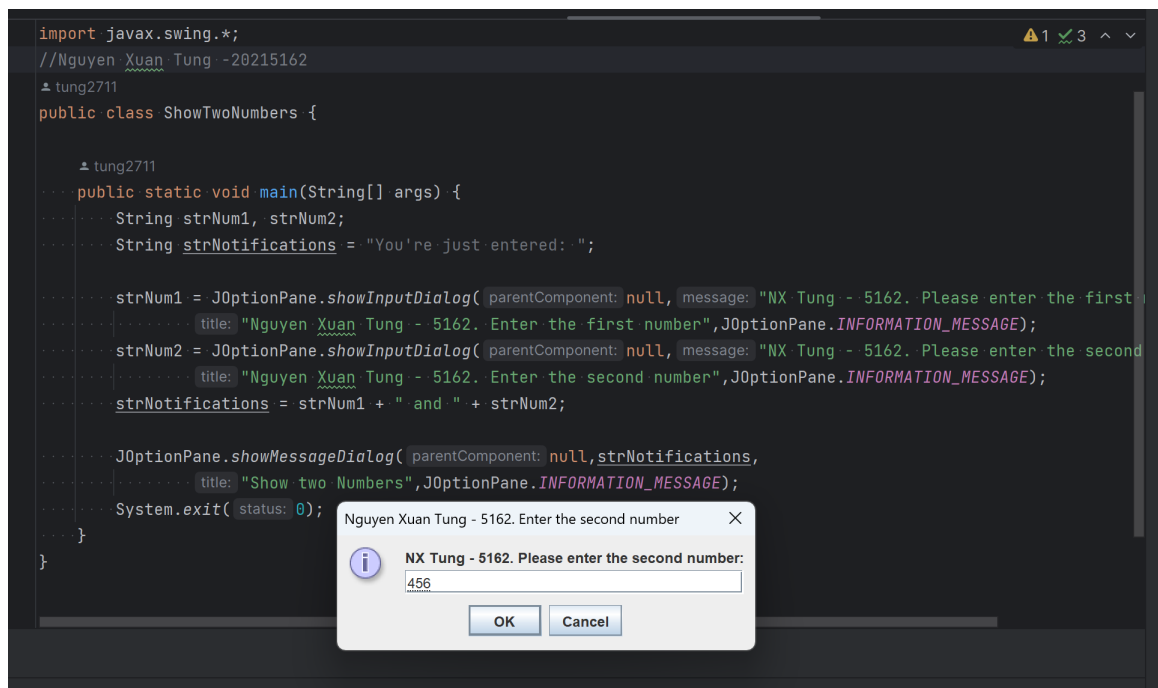
```

1 // Example 5: ShowTwoNumbers.java
2 import javax.swing.JOptionPane;
3 public class ShowTwoNumbers {
4     public static void main(String[] args){
5         String strNum1, strNum2;
6         String strNotification = "You've just entered: ";
7
8         strNum1 = JOptionPane.showInputDialog(null,
9             "Please input the first number: ", "Input the first number",
10            JOptionPane.INFORMATION_MESSAGE);
11         strNotification += strNum1 + " and ";
12
13         strNum2 = JOptionPane.showInputDialog(null,
14             "Please input the second number: ", "Input the second number",
15            JOptionPane.INFORMATION_MESSAGE);
16         strNotification += strNum2;
17
18         JOptionPane.showMessageDialog(null, strNotification,
19             "Show two numbers", JOptionPane.INFORMATION_MESSAGE);
20         System.exit(0);
21     }
22 }

```

Hình 7: Đề bài 2.2.4





Hình 8: Mã nguồn và kết quả 2.2.4

2.2.5 Write a program to calculate sum, difference, product, and quotient of 2 double numbers which are entered by users.

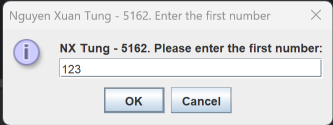
```
//Example5: Calculate two number
import javax.swing.*;
// Tinh toan tong, hieu, tich, thuong tu 2 so nhap vao
@tung2711

public class CalculateTwoNumbers {
    @tung2711
    public static void main(String[] args) {
        String strNum1, strNum2;

        strNum1 = JOptionPane.showInputDialog( parentComponent: null, message: "NX Tung - 5162. Please enter the first number", title: "Nguyễn Xuân Tùng - 5162. Enter the first number",JOptionPane.INFORMATION_MESSAGE);
        strNum2 = JOptionPane.showInputDialog( parentComponent: null, message: "NX Tung - 5162. Please enter the second number", title: "Nguyễn Xuân Tùng - 5162. Enter the second number",JOptionPane.INFORMATION_MESSAGE);

        double num1 = Double.parseDouble(strNum1);
        double num2 = Double.parseDouble(strNum2);

        JOptionPane.showMessageDialog( parentComponent: null, message: "sum: " + (num1+num2) + "\n"
        + "difference: " + (num1 - num2) + "\n"
        + "product: " + num1*num2 + "\n"
        + "quotient: " + num1/num2);
        System.exit( status: 0);
    }
}
```



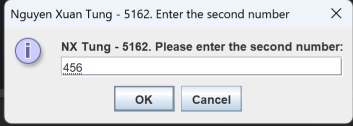
```
//Example5: Calculate two number
import javax.swing.*;
// Tinh toan tong, hieu, tich, thuong tu 2 so nhap vao
@tung2711

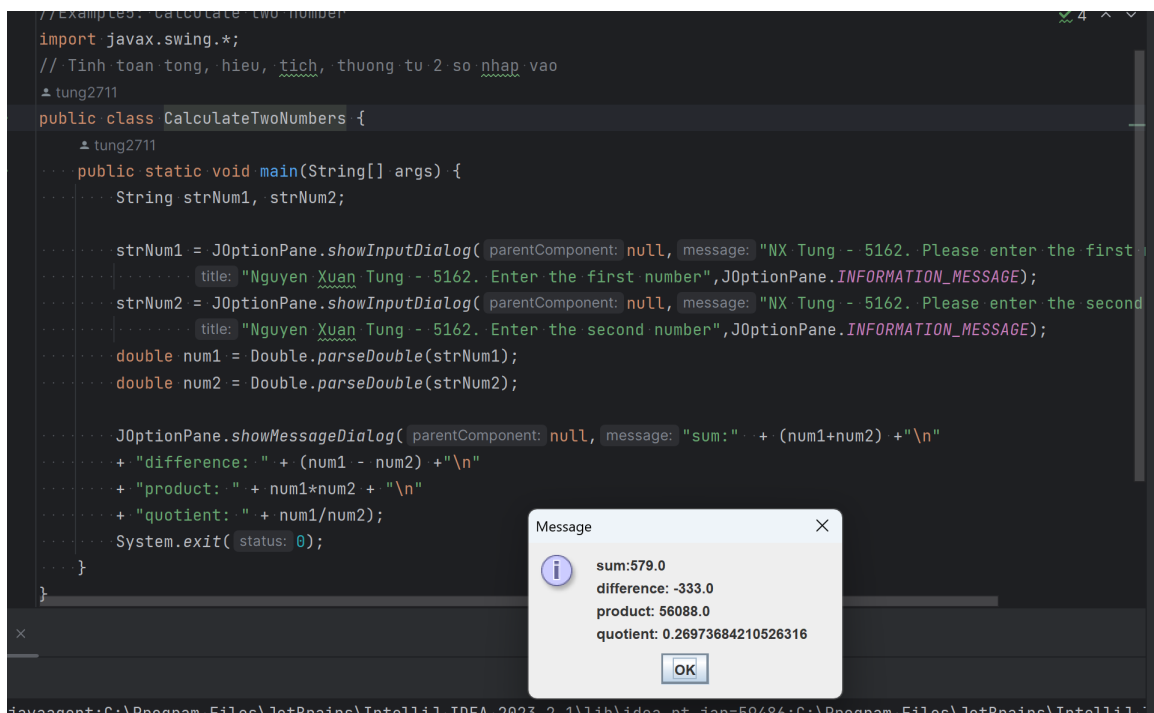
public class CalculateTwoNumbers {
    @tung2711
    public static void main(String[] args) {
        String strNum1, strNum2;

        strNum1 = JOptionPane.showInputDialog( parentComponent: null, message: "NX Tung - 5162. Please enter the first number", title: "Nguyễn Xuân Tùng - 5162. Enter the first number",JOptionPane.INFORMATION_MESSAGE);
        strNum2 = JOptionPane.showInputDialog( parentComponent: null, message: "NX Tung - 5162. Please enter the second number", title: "Nguyễn Xuân Tùng - 5162. Enter the second number",JOptionPane.INFORMATION_MESSAGE);

        double num1 = Double.parseDouble(strNum1);
        double num2 = Double.parseDouble(strNum2);

        JOptionPane.showMessageDialog( parentComponent: null, message: "sum: " + (num1+num2) + "\n"
        + "difference: " + (num1 - num2) + "\n"
        + "product: " + num1*num2 + "\n"
        + "quotient: " + num1/num2);
        System.exit( status: 0);
    }
}
```





```
//Examples: calculate two number
import javax.swing.*;
// Tính toán tổng, hiệu, tích, thương từ 2 số nhập vào
@tung2711
public class CalculateTwoNumbers {
    @tung2711
    public static void main(String[] args) {
        String strNum1, strNum2;

        strNum1 = JOptionPane.showInputDialog( parentComponent: null, message: "NX Tung - 5162. Please enter the first number", title: "Nguyễn Xuân Tùng - 5162. Enter the first number",JOptionPane.INFORMATION_MESSAGE);
        strNum2 = JOptionPane.showInputDialog( parentComponent: null, message: "NX Tung - 5162. Please enter the second number", title: "Nguyễn Xuân Tùng - 5162. Enter the second number",JOptionPane.INFORMATION_MESSAGE);
        double num1 = Double.parseDouble(strNum1);
        double num2 = Double.parseDouble(strNum2);

        JOptionPane.showMessageDialog( parentComponent: null, message: "sum: " + (num1+num2) + "\n"
        + "difference: " + (num1 - num2) + "\n"
        + "product: " + num1*num2 + "\n"
        + "quotient: " + num1/num2);
        System.exit( status: 0);
    }
}
```

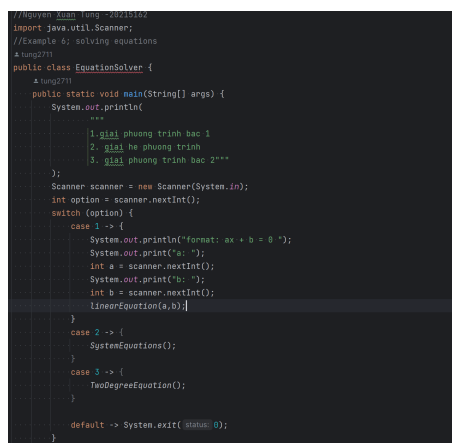
Message

sum:579.0
difference: -333.0
product: 56088.0
quotient: 0.26973684210526316

OK

Hình 9: Mã nguồn và kết quả 2.2.5

2.2.6 Write a program to solve equation



```
// Nguyen Xuân Tùng - 20215162
import java.util.Scanner;
//Example 6: solving equations
@tung2711
public class EquationSolver {
    @tung2711
    public static void main(String[] args) {
        System.out.println(
            """
            1. giải phương trình bậc 1
            2. giải hệ phương trình
            3. giải phương trình bậc 2"""
        );
        Scanner scanner = new Scanner(System.in);
        int option = scanner.nextInt();
        switch (option) {
            case 1 -> {
                System.out.println("format: ax + b = 0");
                System.out.print("a: ");
                int a = scanner.nextInt();
                System.out.print("b: ");
                int b = scanner.nextInt();
                linearEquation(a,b);
            }
            case 2 -> {
                SystemEquations();
            }
            case 3 -> {
                TwoDegreeEquation();
            }
            default -> System.exit( status: 0);
        }
    }
}
```

```

14  // usage: java tung271
15  // public static void linearEquation(int a, int b) {
16  //     System.out.print("result: ");
17  //     System.out.println((a==0 && b == 0) ? "Infinite result": ((a == 0) ? "no solution": (double) -a/b));
18  // }
19
20  // usage: java tung271
21  // public static void SystemEquations() {
22  //     System.out.println("Format: \na11*x1+ a12*x2 = b1 \na21*x1 + a22*x2 = b2\n");
23  //     Scanner scanner = new Scanner(System.in);
24  //     System.out.print("a11: ");
25  //     int a11 = scanner.nextInt();
26  //     System.out.print("a12: ");
27  //     int a12 = scanner.nextInt();
28  //     System.out.print("b1: ");
29  //     int b1 = scanner.nextInt();
30  //     System.out.print("a21: ");
31  //     int a21 = scanner.nextInt();
32  //     System.out.print("a22: ");
33  //     int a22 = scanner.nextInt();
34  //     System.out.print("b2: ");
35  //     int b2 = scanner.nextInt();
36
37  //     int D = a11*a22 - a21*a12;
38  //     int D1 = b1*a22 - b2*a12;
39  //     int D2 = b2*a11 - b1*a21;
40
41  //     System.out.println("x1: " + (double) D1/D);
42  //     System.out.println("x1: " + (double) D2/D);
43
44  // }

```

```

// usage: java tung271
// public static void TwoDegreeEquation() {
//     System.out.println("Format: a*x^2 + b*x c = 0");
//     Scanner scanner = new Scanner(System.in);
//     System.out.print("a b c: ");
//     int a = scanner.nextInt();
//     int b = scanner.nextInt();
//     int c = scanner.nextInt();
//
//     int delta = b*b - 4*a*c;
//
//     int x1 = 0, x2 = 0;
//
//     if(delta < 0) {
//         System.out.println("No solution");
//     } else if(delta == 0) {
//         System.out.println("x: " + (double) -b/(2*a));
//     } else {
//         System.out.println("x1: " + (double) ((-b + Math.sqrt(delta))/(2*a)) + " x2: " +
//             (double) ((-b - Math.sqrt(delta))/(2*a)));
//     }
// }
// }

```

Hình 10: Mã nguồn 2.2.6

The first-degree equation (linear equation) with one variable

```
1.giai phuong trinh bac 1
2. giai he phuong trinh
3. giai phuong trinh bac 2
1
format: ax + b = 0
a: 5
b: 5
result: -1.0
```

The system of first-degree equations (linear system) with two variables

```
1.giai phuong trinh bac 1
2. giai he phuong trinh
3. giai phuong trinh bac 2
2
Format:
a11*x1+ a12*x2 = b1
a21*x1 + a22*x2 = b2

a11: 1
a12: 1
b1: 0
a21: 1
a22: -1
b2: 2
x1: 1.0
x1: -1.0
```

The second-degree equation with one variable

```
1.giai phuong trinh bac 1
2. giai he phuong trinh
3. giai phuong trinh bac 2
3
Format: a*x^2 + b*x + c = 0
a b c: 1 2 1
x: -1.0

Format: a*x^2 + b*x + c = 0
a b c: 1 1 1
No solution

Format: a*x^2 + b*x + c = 0
a b c: 1 3 2
x1: -1.0 x2: -2.0
```