BÁO CÁO THỰC HÀNH LAP 1
LẬP TRÌNH HƯỚNG ĐỐI TƯỢNG

Mục lục

Các bài từ 2.2.1 đến 2.2.6

2.2.1 Write, compile the first Java application:

```java
//Example 1: HelloWorld.java
//Text-printing program
public class HelloWorld {

   public static void main(String args[]){
        System.out.println("Xin chao \n cac ban!");
        System.out.println("Hello \t world!");

   } // end of method main
}
```

Figure 1: Source code 2.2.1

Kết quả

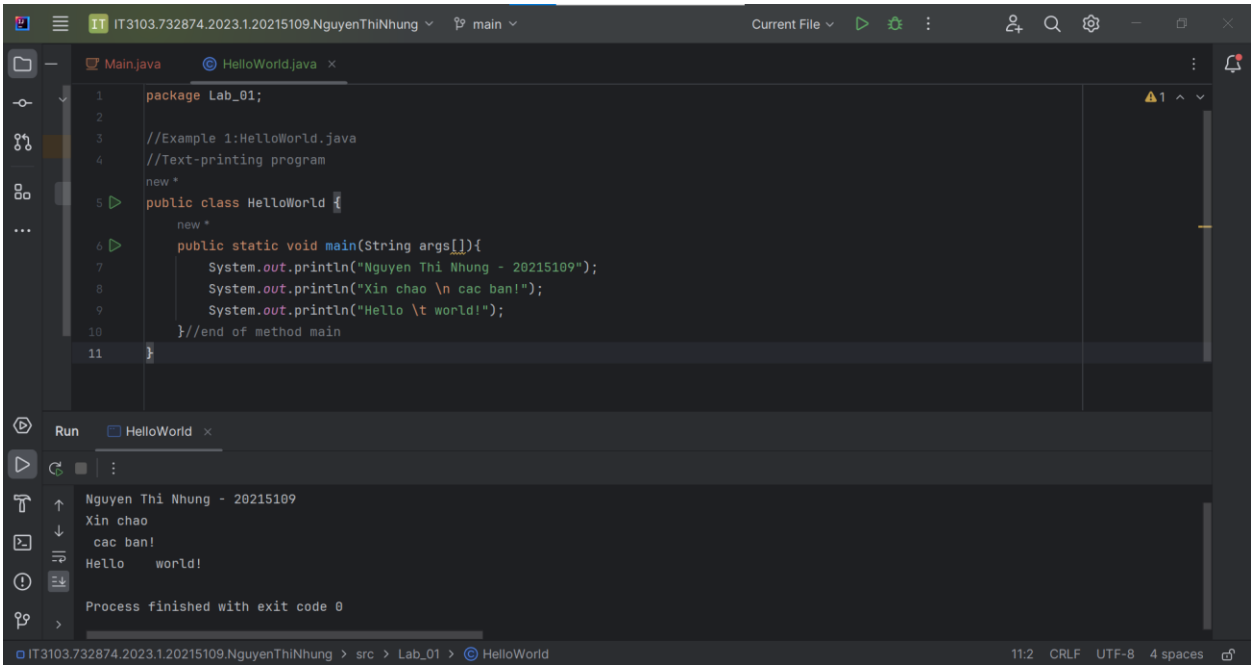


Figure 2: Run 2.2.1

2.2.2 Write, compile the first dialog Java program

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

Figure 3: Source code 2.2.2

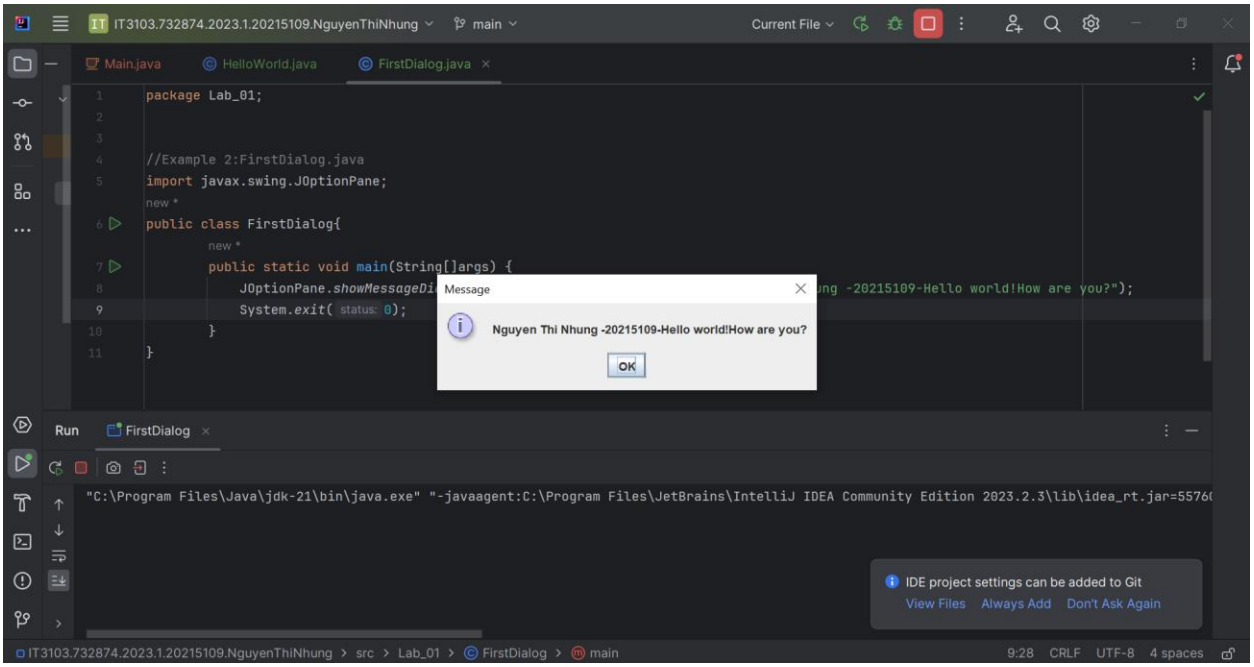


Figure 4: Run 2.2.2

2.2.3 Write, compile the first input dialog Java application

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

Figure 5: Source code 2.2.3

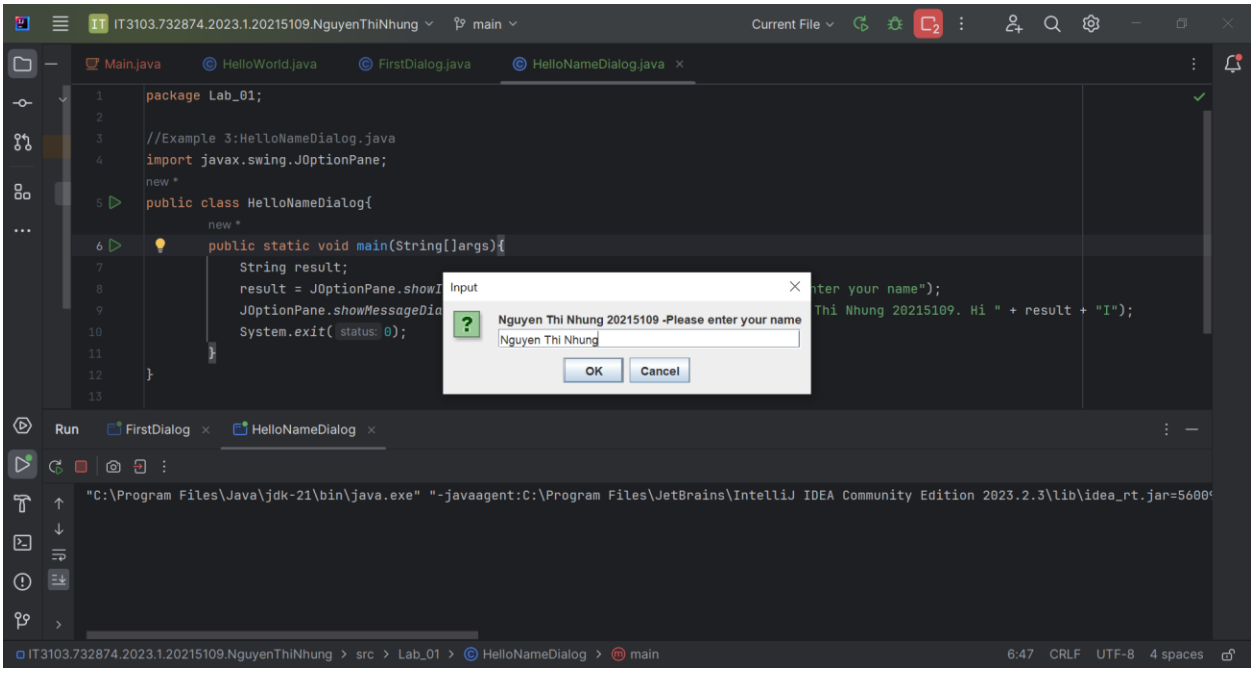


Figure 6: Run 2.2.3 (1)

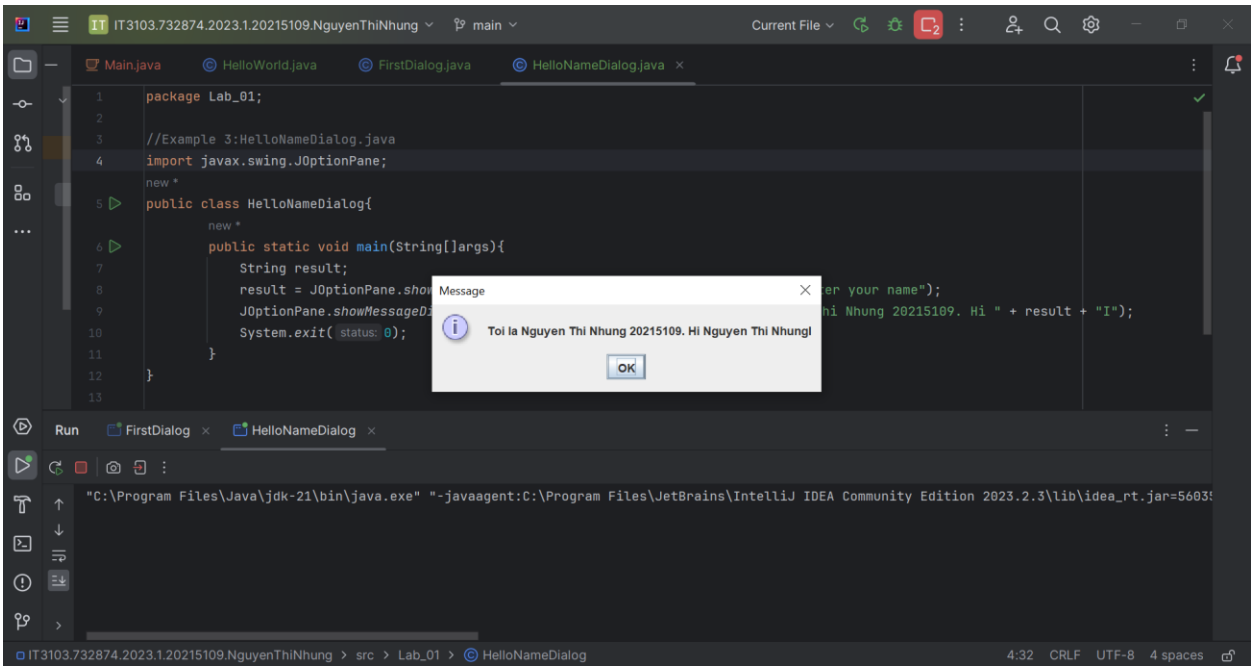


Figure 7: Run 2.2.3 (2)

2.2.4 Write, compile, and run the following example:

```java
// Example 5: ShowTwoNumbers.java
import javax.swing.JOptionPane;
public class ShowTwoNumbers {
  public static void main(String[] args){
    String strNum1, strNum2;
    String strNotification = "You've just entered: ";

    strNum1 = JOptionPane.showInputDialog(null,
                "Please input the first number: ","Input the first number",
                JOptionPane.INFORMATION_MESSAGE);
    strNotification += strNum1 + " and ";

    strNum2 = JOptionPane.showInputDialog(null,
                "Please input the second number: ","Input the second number",
                JOptionPane.INFORMATION_MESSAGE);
    strNotification += strNum2;

    JOptionPane.showMessageDialog(null,strNotification,
                "Show two numbers", JOptionPane.INFORMATION_MESSAGE);
    System.exit(0);
  }
}
```

Figure 8: Source code 2.2.4

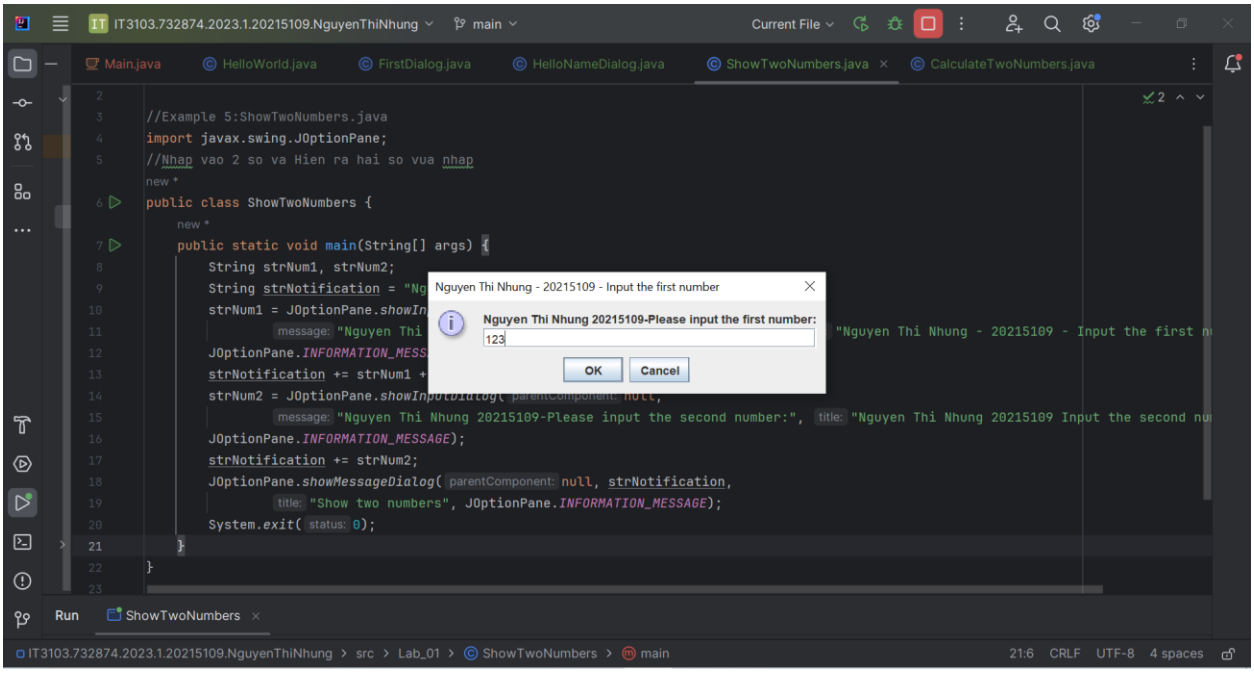


Figure 9: Run 2.2.4 (1)

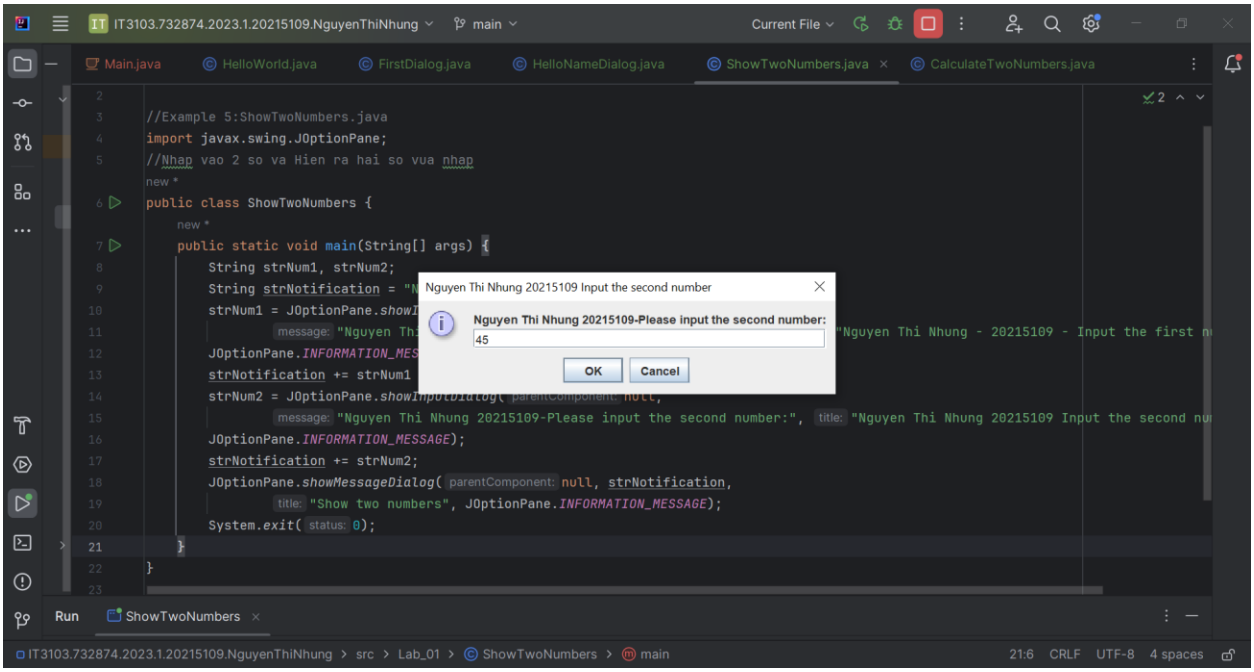


Figure 10: Run 2.2.4 (2)

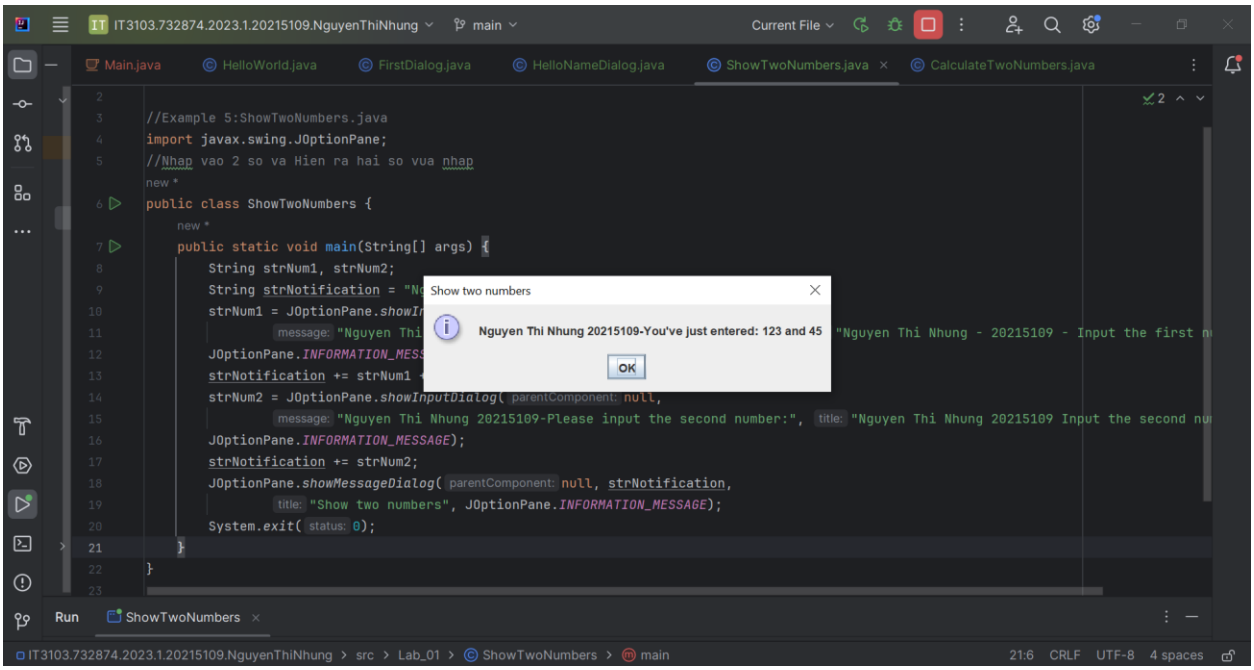


Figure 11: Run 2.2.4 (3)

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

Notes

- To convert from String to double, you can use

```
double num1 = Double.parseDouble(strNum1)
```

- Check the divisor of the division

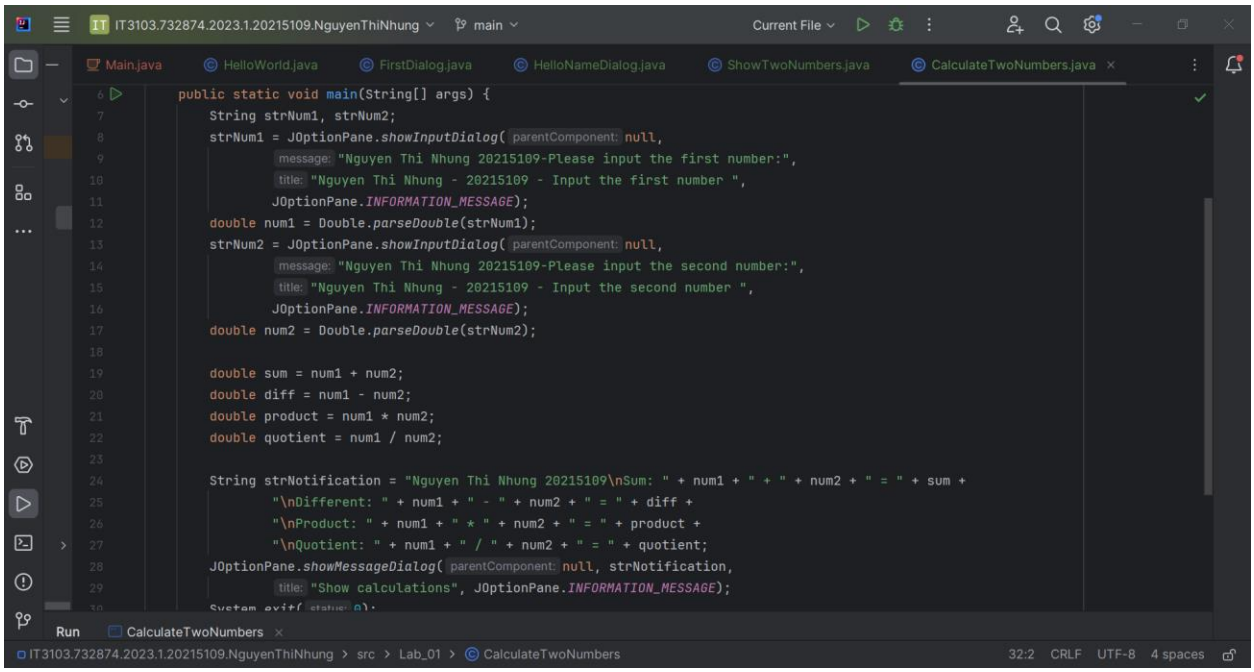


Figure 12: Source code 2.2.5

Kết quả:

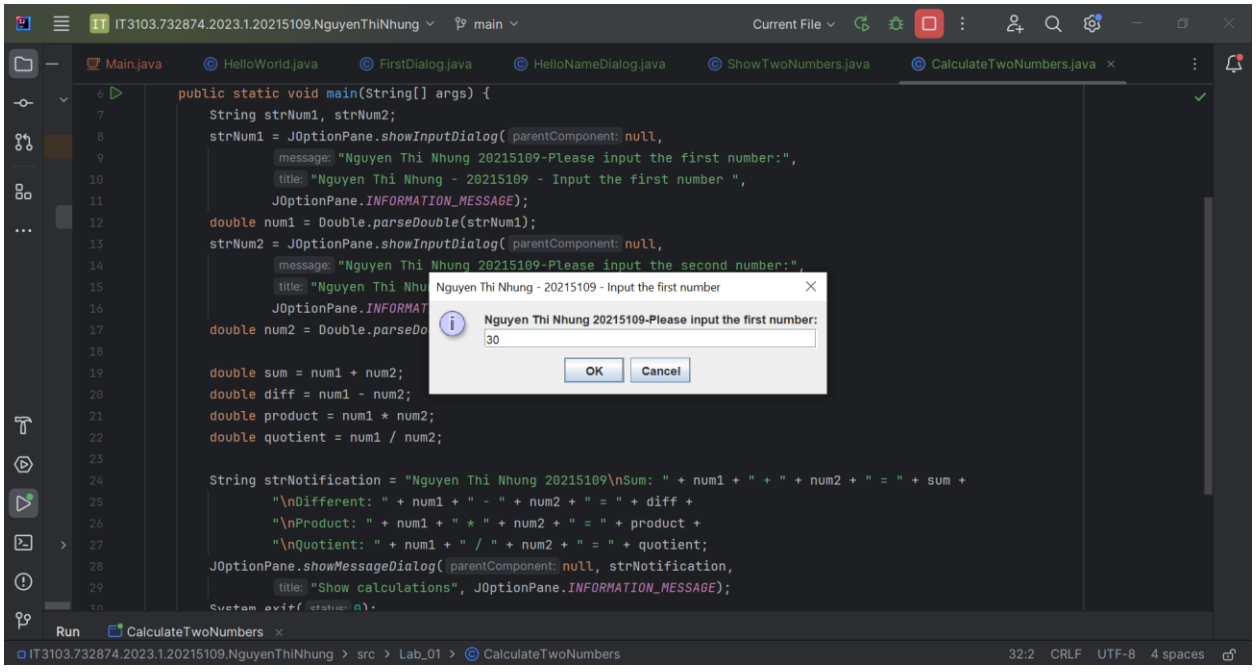


Figure 13: Run 2.2.5 (1)

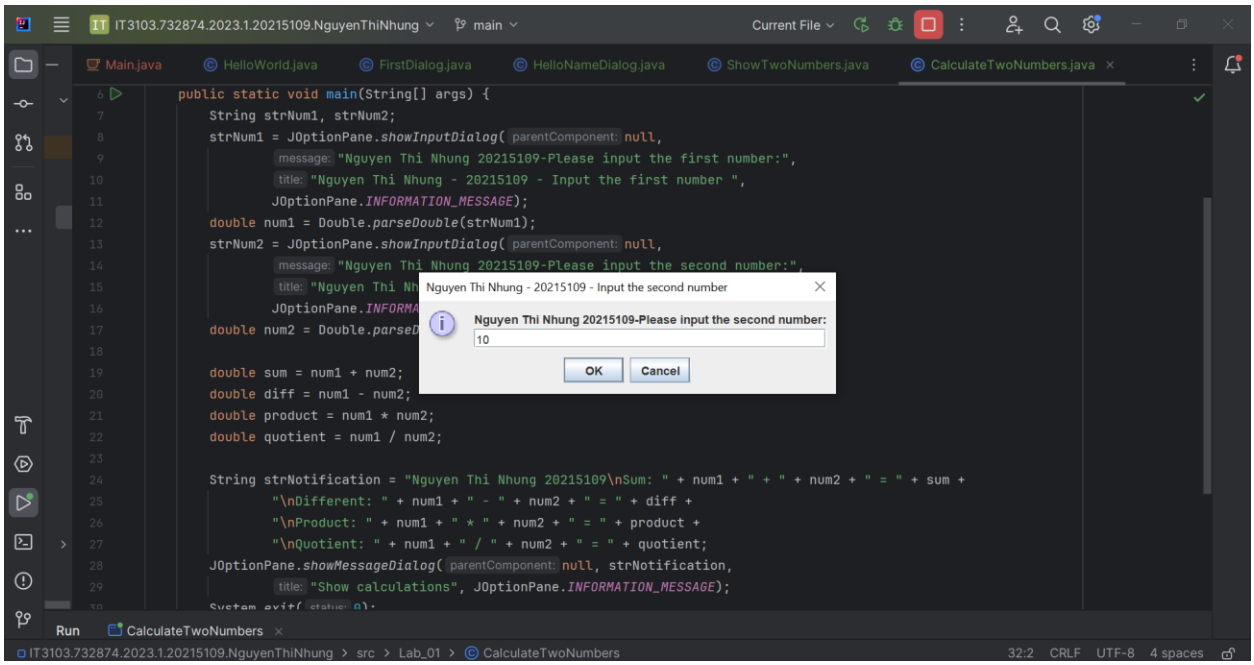


Figure 14: Run 2.2.5 (2)

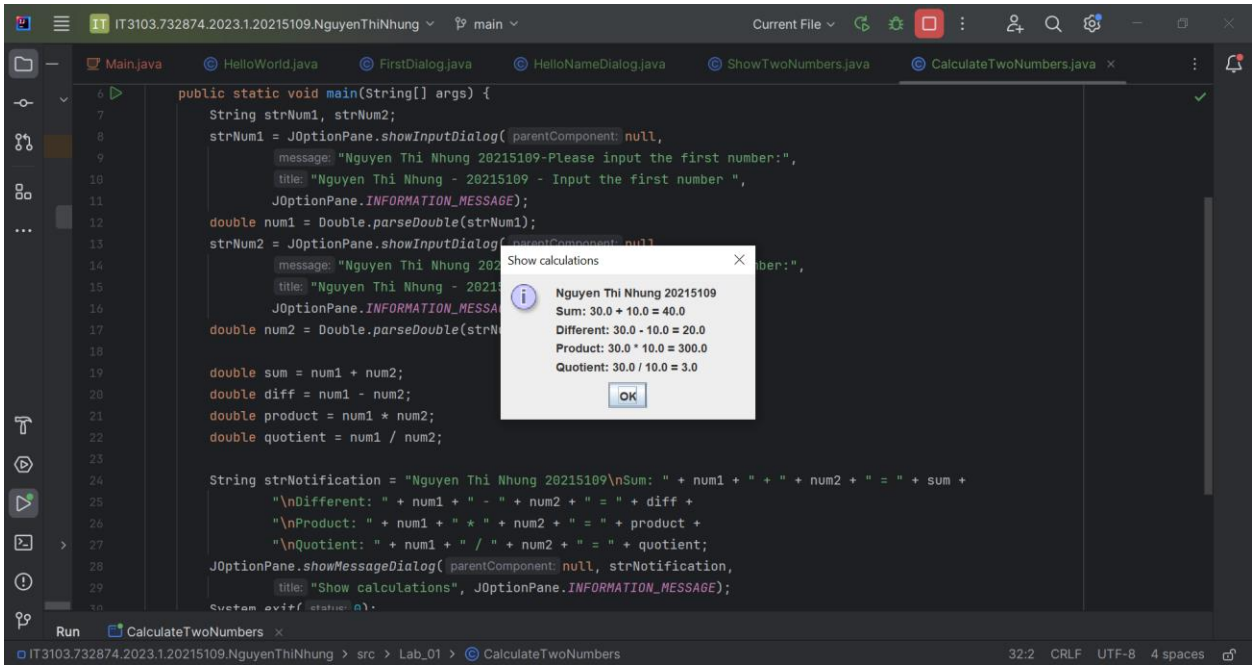


Figure 15: Run 2.2.5 (3)

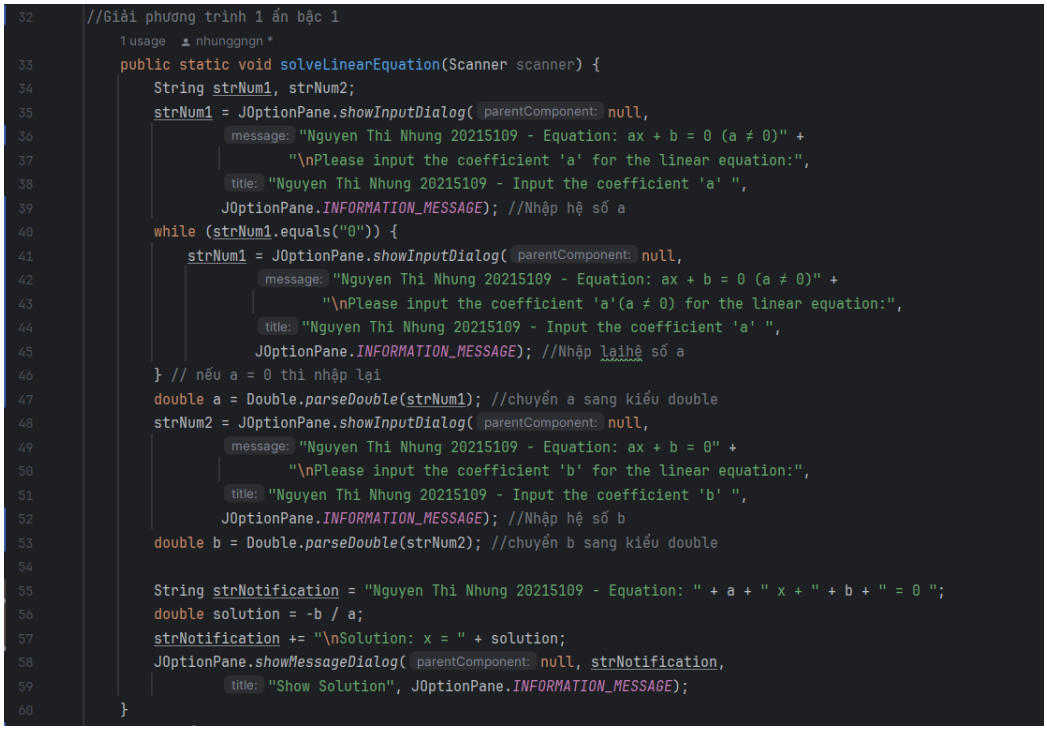
2.2.6 Write a program to solve the equation:

Mã nguồn:

```java
package Lab_01;
import javax.swing.*;
import java.util.Scanner;

nhunggngn *
public class EquationSolver {
    nhunggngn *
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        String choice = JOptionPane.showInputDialog( parentComponent: null,
                message: "Nguyen Thi Nhung 20215109-Please select the type of equation to solve:" +
                        "\n1. First-degree equation (linear equation) with one variable" +
                        "\n2. System of first-degree equations (linear system) with two variables" +
                        "\n3. Second-degree equation (quadratic equation) with one variable",
                title: "Nguyen Thi Nhung 20215109 - Select the type of equation ",
                JOptionPane.INFORMATION_MESSAGE); //đưa ra các lựa chọn bài toán
//lựa chọn bài toán
        switch (choice) {
            case "1": // nhập 1 thì giải phương trình 1 ẩn bậc 1
                solveLinearEquation(scanner);
                break;
            case "2": // nhập 2 thì giải hệ 2 phương trình 2 ẩn
                solveLinearSystem(scanner);
                break;
            case "3": // nhập 3 thì giải phương trình 1 ẩn bậc 2
                solveQuadraticEquation(scanner);
                break;
            default:
                System.out.println("Invalid choice");
                break;
        }
        System.exit( status: 0);
    }
```

Figure 16: Source code 2.2.6 (1)



```java
//Giải phương trình 1 ẩn bậc 1
    1 usage   nhunggngn *
    public static void solveLinearEquation(Scanner scanner) {
        String strNum1, strNum2;
        strNum1 = JOptionPane.showInputDialog( parentComponent: null,
                message: "Nguyen Thi Nhung 20215109 - Equation: ax + b = 0 (a ≠ 0)" +
                        "\nPlease input the coefficient 'a' for the linear equation:",
                title: "Nguyen Thi Nhung 20215109 - Input the coefficient 'a' ",
                JOptionPane.INFORMATION_MESSAGE); //Nhập hệ số a
        while (strNum1.equals("0")) {
            strNum1 = JOptionPane.showInputDialog( parentComponent: null,
                    message: "Nguyen Thi Nhung 20215109 - Equation: ax + b = 0 (a ≠ 0)" +
                            "\nPlease input the coefficient 'a'(a ≠ 0) for the linear equation:",
                    title: "Nguyen Thi Nhung 20215109 - Input the coefficient 'a' ",
                    JOptionPane.INFORMATION_MESSAGE); //Nhập laihệ số a
        } // nếu a = 0 thì nhập lại
        double a = Double.parseDouble(strNum1); //chuyển a sang kiểu double
        strNum2 = JOptionPane.showInputDialog( parentComponent: null,
                message: "Nguyen Thi Nhung 20215109 - Equation: ax + b = 0" +
                        "\nPlease input the coefficient 'b' for the linear equation:",
                title: "Nguyen Thi Nhung 20215109 - Input the coefficient 'b' ",
                JOptionPane.INFORMATION_MESSAGE); //Nhập hệ số b
        double b = Double.parseDouble(strNum2); //chuyển b sang kiểu double

        String strNotification = "Nguyen Thi Nhung 20215109 - Equation: " + a + " x + " + b + " = 0 ";
        double solution = -b / a;
        strNotification += "\nSolution: x = " + solution;
        JOptionPane.showMessageDialog( parentComponent: null, strNotification,
                title: "Show Solution", JOptionPane.INFORMATION_MESSAGE);
    }
```

Figure 17: Source code 2.2.6 (2)

```java
//Giải hệ 2 ẩn 2 phương trình
    1 usage   nhunggngn *
    public static void solveLinearSystem(Scanner scanner) {
        String strNum1, strNum2, strNum3, strNum4, strNum5, strNum6;
        strNum1 = JOptionPane.showInputDialog( parentComponent: null,
                message: "Nguyen Thi Nhung 20215109 \nEquation: a11x1 + a12x2 = b1; a21x1 + a22x2 = b2" +
                        "\nPlease input the coefficient 'a11' for equation 1:",
                title: "Nguyen Thi Nhung 20215109 - Input the coefficient 'a11' ",
                JOptionPane.INFORMATION_MESSAGE); // nhập a11
        double a11 = Double.parseDouble(strNum1);
        strNum2 = JOptionPane.showInputDialog( parentComponent: null,
                message: "Nguyen Thi Nhung 20215109 \nEquation: a11x1 + a12x2 = b1; a21x1 + a22x2 = b2" +
                        "\nPlease input the coefficient 'a12' for equation 1:",
                title: "Nguyen Thi Nhung 20215109 - Input the coefficient 'a12' ",
                JOptionPane.INFORMATION_MESSAGE);//nhập a12
        double a12 = Double.parseDouble(strNum2);
        strNum3 = JOptionPane.showInputDialog( parentComponent: null,
                message: "Nguyen Thi Nhung 20215109 \nEquation: a11x1 + a12x2 = b1; a21x1 + a22x2 = b2" +
                        "\nPlease input the coefficient 'b1' for equation 1:",
                title: "Nguyen Thi Nhung 20215109 - Input the coefficient 'b1' ",
                JOptionPane.INFORMATION_MESSAGE); //nhập b1
        double b1 = Double.parseDouble(strNum3);
        strNum4 = JOptionPane.showInputDialog( parentComponent: null,
                message: "Nguyen Thi Nhung 20215109 \nEquation: a11x1 + a12x2 = b1; a21x1 + a22x2 = b2" +
                        "\nPlease input the coefficient 'a21' for equation 2:",
                title: "Nguyen Thi Nhung 20215109 - Input the coefficient 'a21' ",
                JOptionPane.INFORMATION_MESSAGE); //nhập a21
        double a21 = Double.parseDouble(strNum4);
        strNum5 = JOptionPane.showInputDialog( parentComponent: null,
                message: "Nguyen Thi Nhung 20215109\nEquation: a11x1 + a12x2 = b1; a21x1 + a22x2 = b2" +
                        "\nPlease input the coefficient 'a22' for equation 2:",
```

Figure 18: Source code 2.2.6 (3)

```java
                title: "Nguyen Thi Nhung 20215109 - Input the coefficient 'a22' ",
                JOptionPane.INFORMATION_MESSAGE); //nhập a22
        double a22 = Double.parseDouble(strNum5);
        strNum6 = JOptionPane.showInputDialog( parentComponent: null,
                message: "Nguyen Thi Nhung 20215109\nEquation: a11x1 + a12x2 = b1; a21x1 + a22x2 = b2" +
                        "\nPlease input the coefficient 'b2' for equation 2:",
                title: "Nguyen Thi Nhung 20215109 - Input the coefficient 'b2' ",
                JOptionPane.INFORMATION_MESSAGE); //nhập b2
        double b2 = Double.parseDouble(strNum6);

        //tính các định thức a, d1, d2
        double d = a11 * a22 - a21 * a12;
        double d1 = b1 * a22 - b2 * a12;
        double d2 = a11 * b2 - a21 * b1;

        String strNotification = "Nguyen Thi Nhung 20215109 - Equation:\n" + a11 + " x1 + " + a12 +" x2 = " + b1 + ";\n" + a21 + " x1 + " + a22 +" x2 = " + b2;
        if (d != 0) { //nếu d khác 0 thì tính 2 nghiệm
            double x1 = d1 / d;
            double x2 = d2 / d;
            strNotification += "\nSolution: x1 = " + x1 + ", x2 = " + x2;
        } else {
            if (d1 == 0 && d2 == 0) { // nếu d = d1 = d2 = 0 thì hpt vô số nghiệm
                strNotification += "\nInfinite solutions";
            } else { // nếu d = 0 nhưng d1 hoặc d2 khác 0 thì hpt vô nghiệm
                strNotification += "\nNo solution";
            }
        }
        JOptionPane.showMessageDialog( parentComponent: null, strNotification,
                title: "Show Solution", JOptionPane.INFORMATION_MESSAGE);
    }
```

Figure 19: Source code 2.2.6 (4)

```java
// giải phương trình 1 ẩn bậc 2
    1 usage   nhunggngn *
    public static void solveQuadraticEquation(Scanner scanner) {
        String strNum1, strNum2, strNum3;
        strNum1 = JOptionPane.showInputDialog( parentComponent: null,
                message: "Nguyen Thi Nhung 20215109 - Equation: ax^2 + bx + c = 0" +
                        "\nPlease input the coefficient 'a' for the quadratic equation:",
                title: "Nguyen Thi Nhung 20215109 - Input the coefficient 'a' ",
                JOptionPane.INFORMATION_MESSAGE); // nhập hệ số a
        while (strNum1.equals("0")){
            strNum1 = JOptionPane.showInputDialog( parentComponent: null,
                    message: "Nguyen Thi Nhung 20215109 - Equation: ax^2 + bx + c = 0" +
                            "\nPlease input the coefficient 'a' (a ≠ 0) for the quadratic equation:",
                    title: "Nguyen Thi Nhung 20215109 - Input the coefficient 'a' ",
                    JOptionPane.INFORMATION_MESSAGE);
        } // nếu a=0 thì nhập lại
        double a = Double.parseDouble(strNum1);
        strNum2 = JOptionPane.showInputDialog( parentComponent: null,
                message: "Nguyen Thi Nhung 20215109 - Equation: ax^2 + bx + c = 0" +
                        "\nPlease input the coefficient 'b' for the quadratic equation:",
                title: "Nguyen Thi Nhung 20215109 - Input the coefficient 'b' ",
                JOptionPane.INFORMATION_MESSAGE); // nhập hệ số b
        double b = Double.parseDouble(strNum2);
        strNum3 = JOptionPane.showInputDialog( parentComponent: null,
                message: "Nguyen Thi Nhung 20215109 - Equation: ax^2 + bx + c = 0" +
                        "\nPlease input the coefficient 'c' for the quadratic equation:",
                title: "Nguyen Thi Nhung 20215109 - Input the coefficient 'c' ",
                JOptionPane.INFORMATION_MESSAGE); // nhập hệ số c
        double c = Double.parseDouble(strNum3);
        String strNotification = "Nguyen Thi Nhung 20215109 \nEquation: " + a + " x^2 + " + b +" x " + c + " = 0 "
        double discriminant = b * b - 4 * a * c; // tính denta
        if (discriminant > 0) { // nếu denta > 0 thì tính 2 nghiệm
            double root1 = (-b + Math.sqrt(discriminant)) / (2 * a);
```

Figure 20: Source code 2.2.6 (5)

```java
        if (discriminant > 0) { // nếu denta > 0 thì tính 2 nghiệm
            double root1 = (-b + Math.sqrt(discriminant)) / (2 * a);
            double root2 = (-b - Math.sqrt(discriminant)) / (2 * a);
            strNotification += "\nRoots: x1 = " + root1 + ", x2 = " + root2;
        } else if (discriminant == 0) { //nếu denta = 0 thì tính nghiệm kép
            double root = -b / (2 * a);
            strNotification += "\nDouble root: x = " + root;
        } else { //nếu denta < 0 thì pt vô nghiệm
            strNotification += "\nNo real roots";
        }
        JOptionPane.showMessageDialog( parentComponent: null, strNotification,
                title: "Show Solution", JOptionPane.INFORMATION_MESSAGE);
    }
}
```

Figure 21: Source code 2.2.6 (6)

Kết quả:

- First-degree equation (linear equation) with one variable:

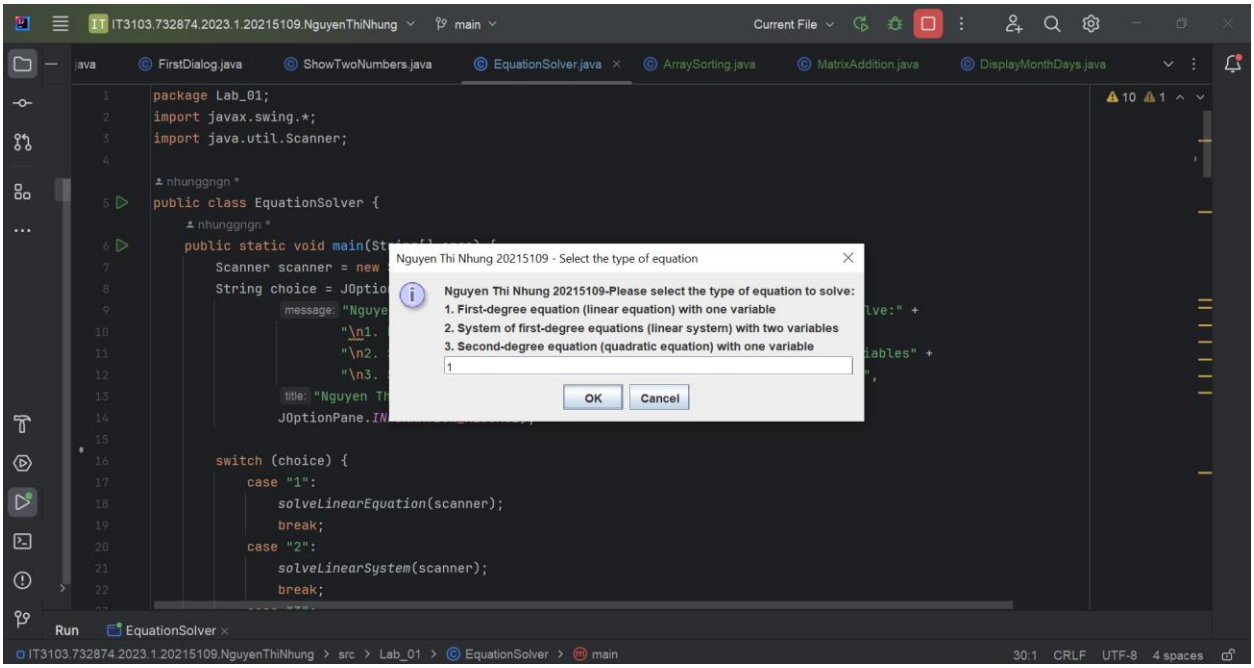


Figure 22: Run 2.2.6 (1.1)

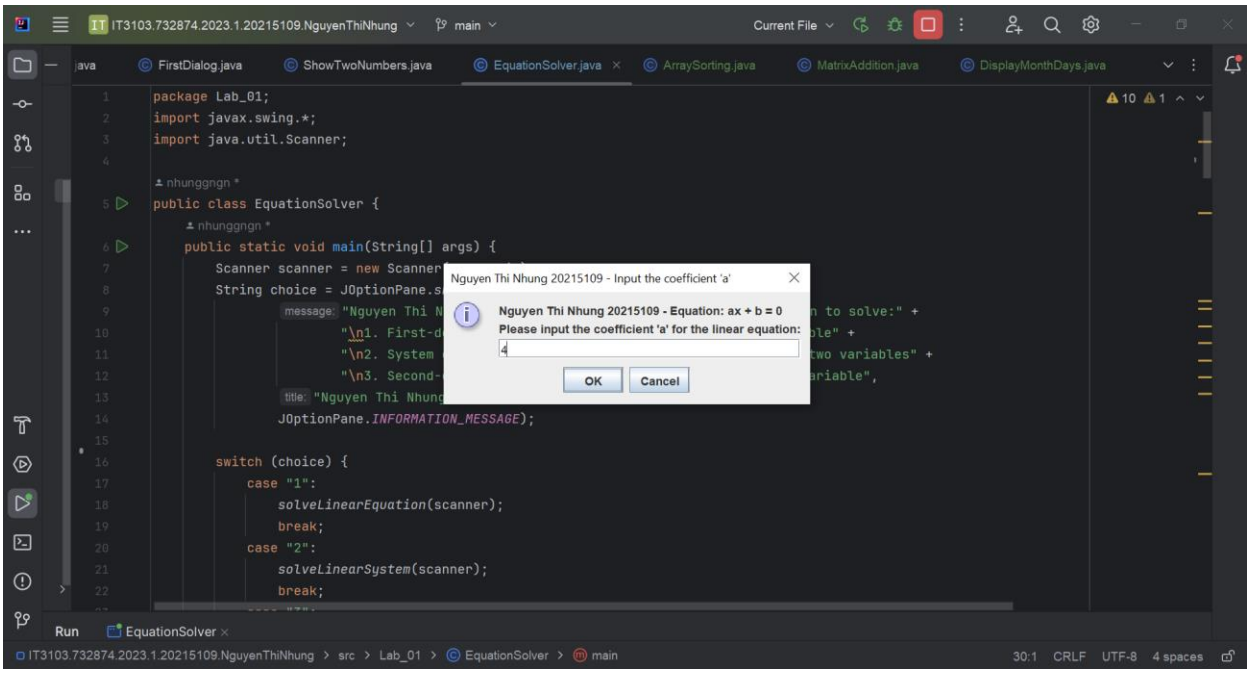


Figure 23: Run 2.2.6 (1.2)

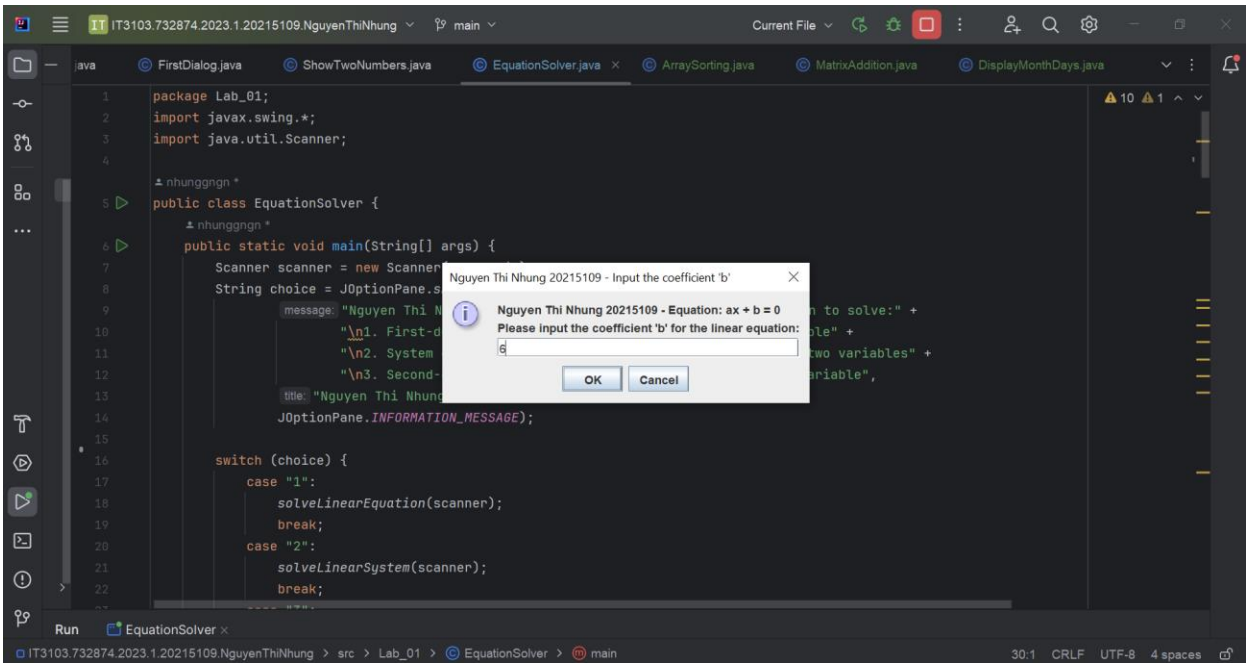


Figure 24: Run 2.2.6 (1.3)

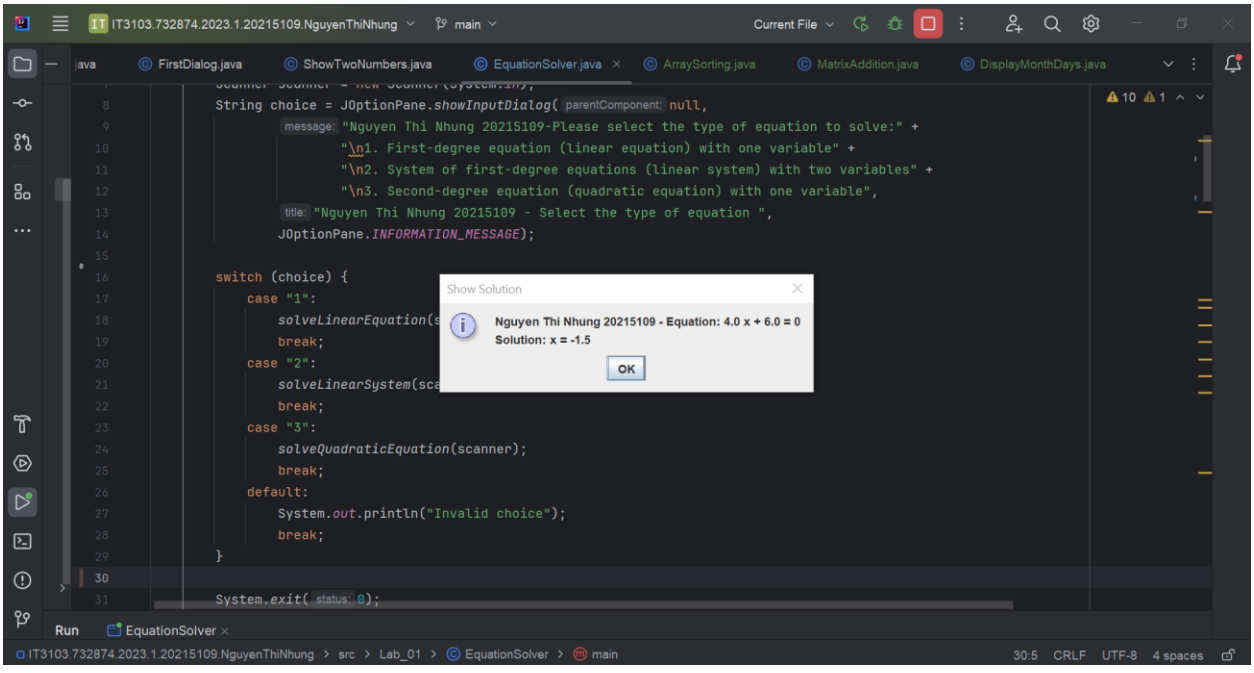


Figure 25: Run 2.2.6 (1.4)

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

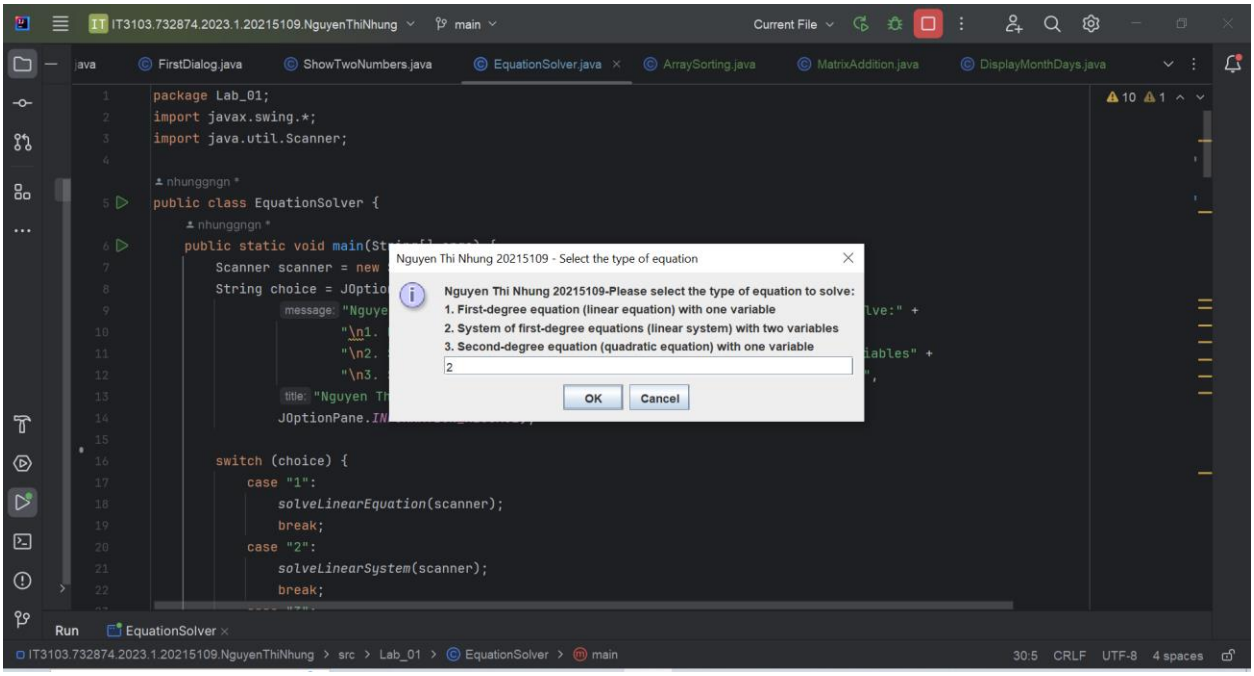


Figure 26: Run 2.2.6 (2.1)

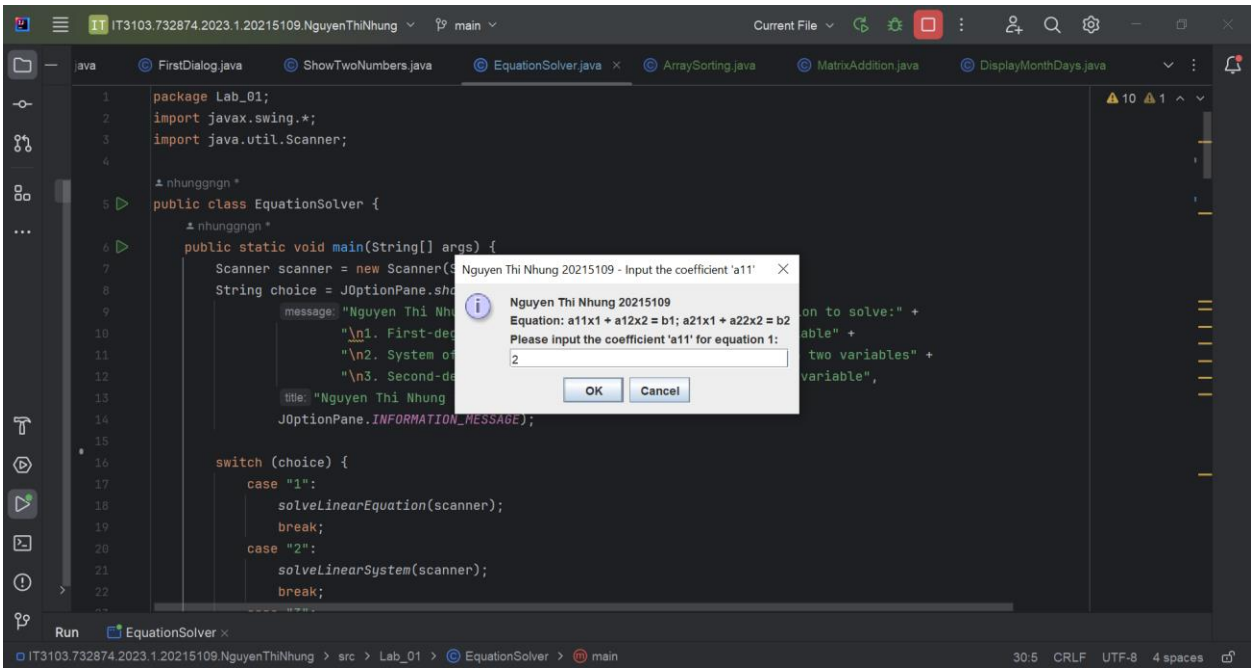


Figure 27: Run 2.2.6 (2.2)

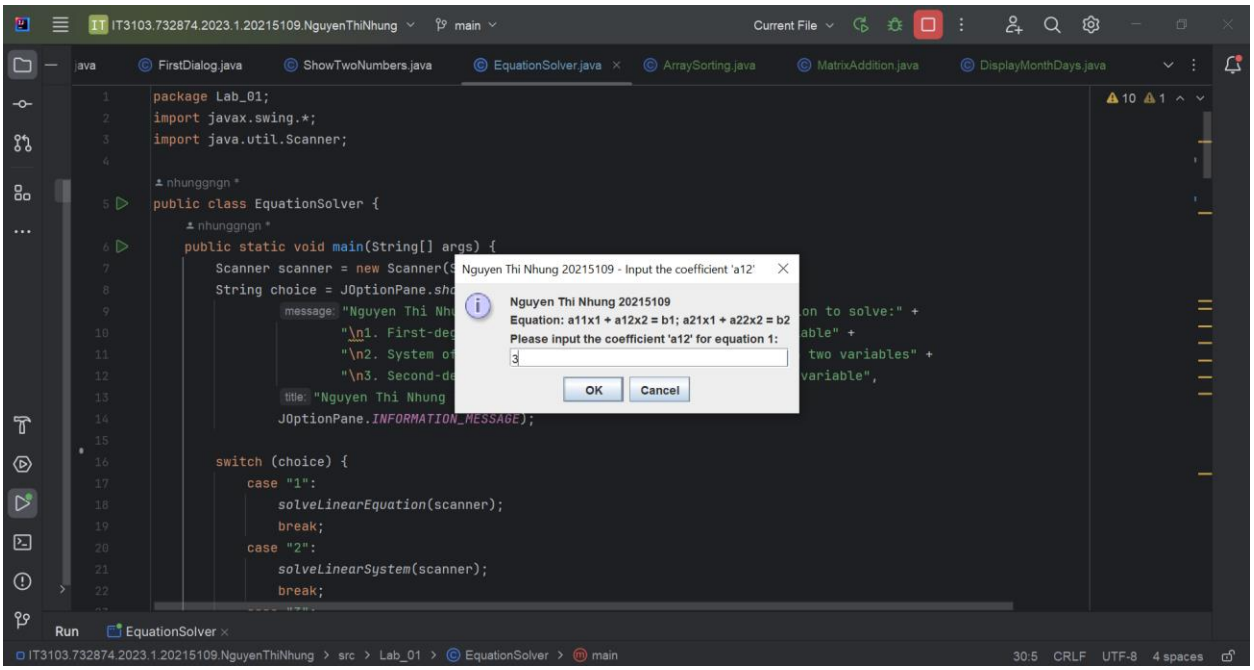


Figure 28: Run 2.2.6 (2.3)

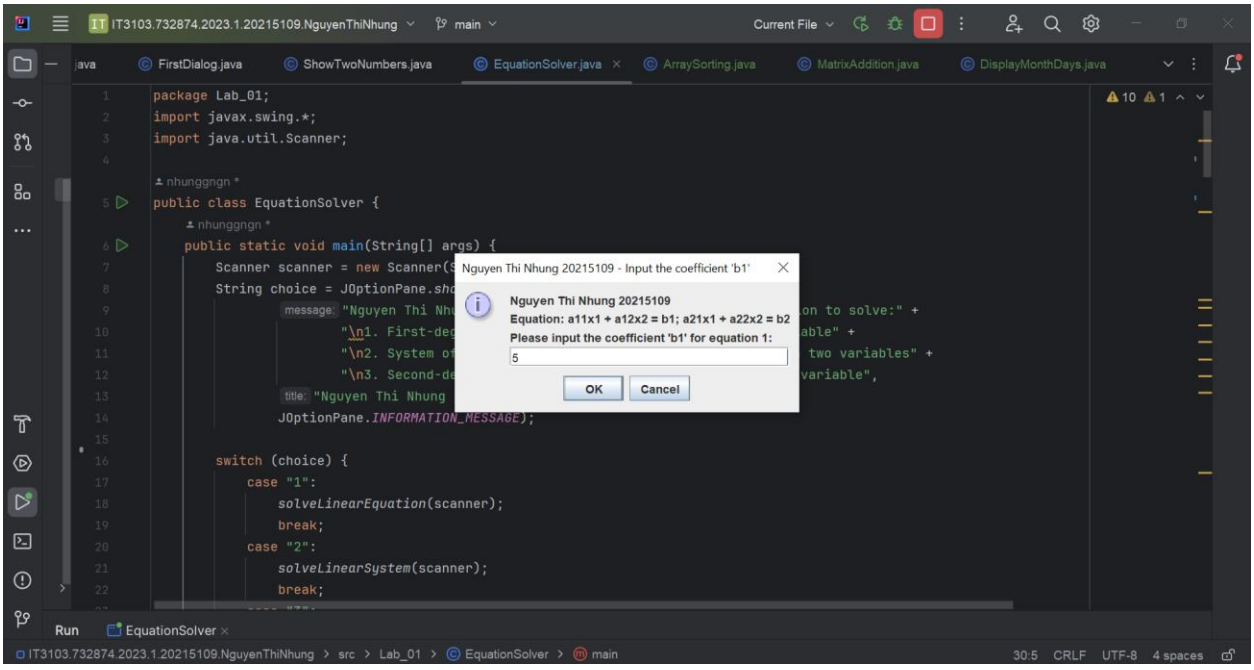


Figure 29: Run 2.2.6 (2.4)

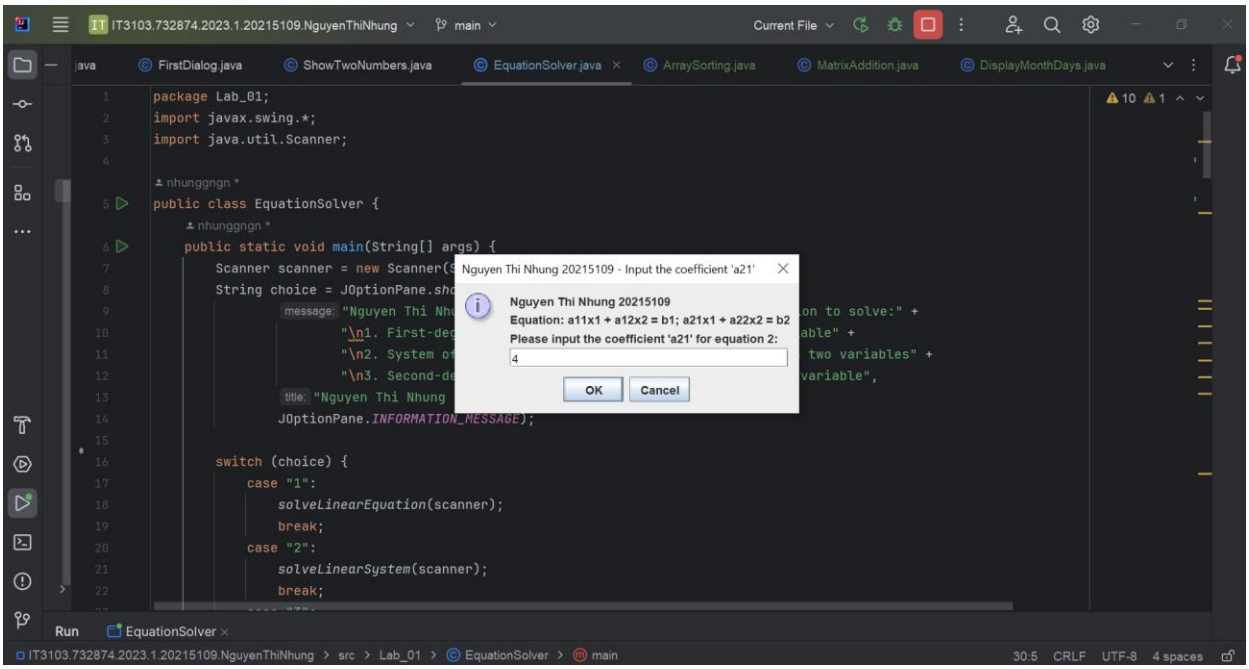


Figure 30: Run 2.2.6 (2.5)

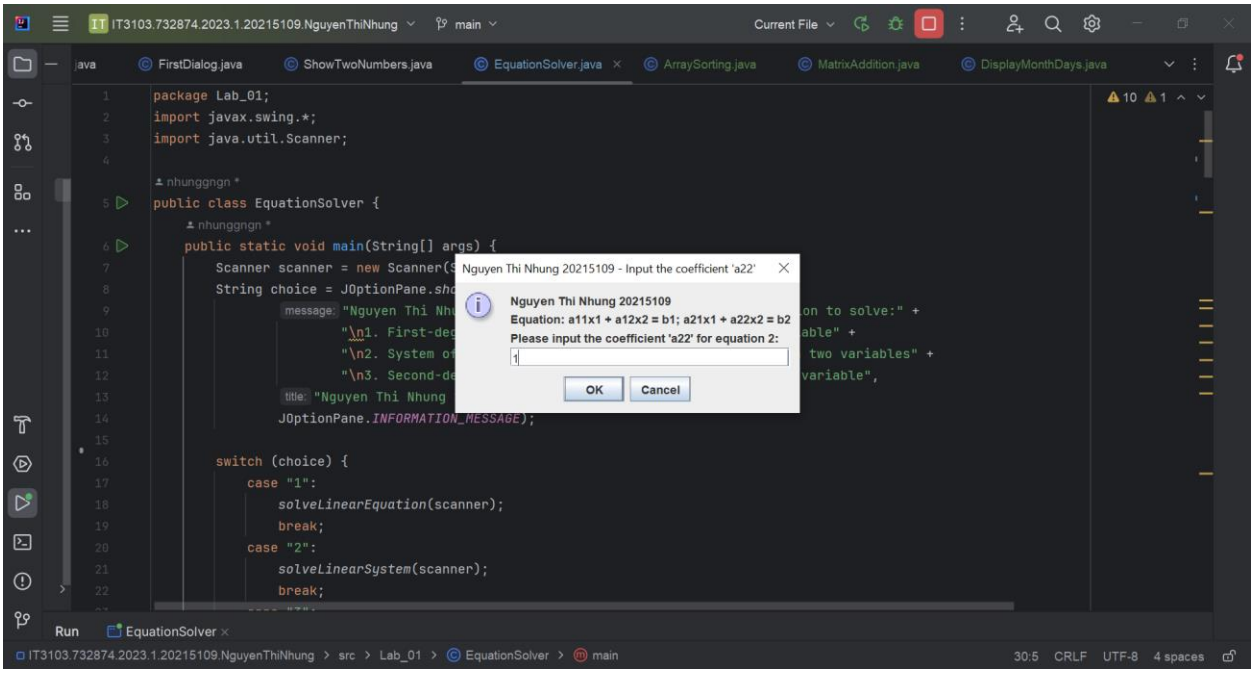


Figure 31: Run 2.2.6 (2.6)

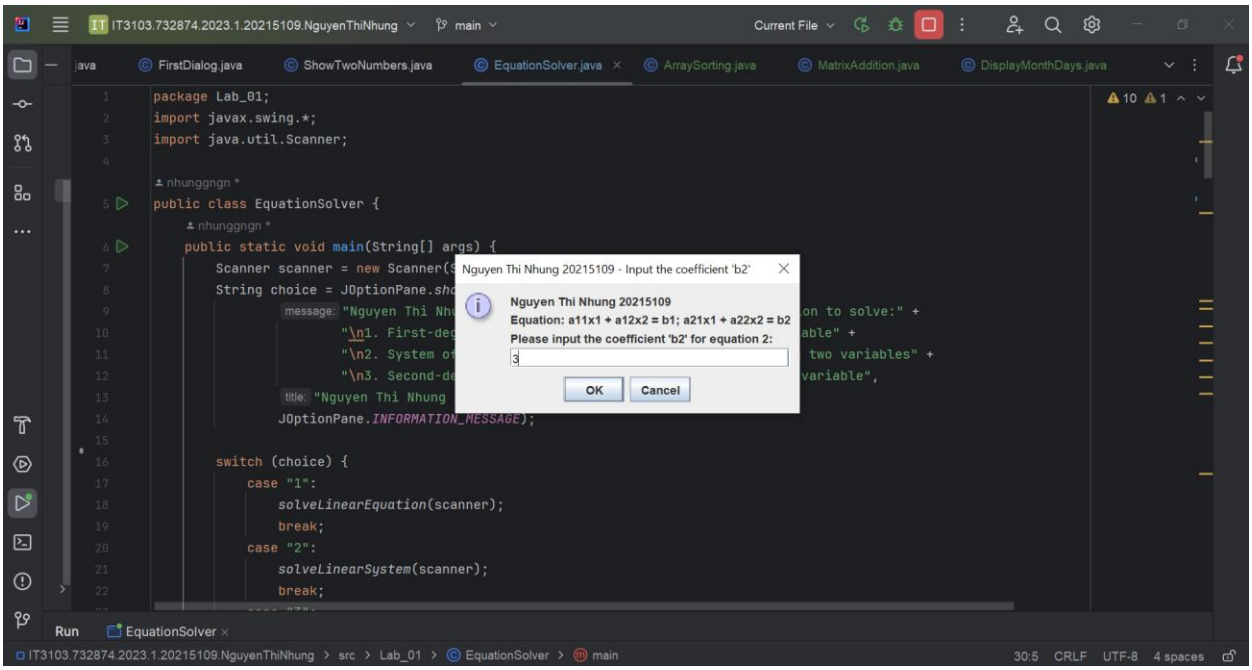


Figure 32: Run 2.2.6 (2.7)

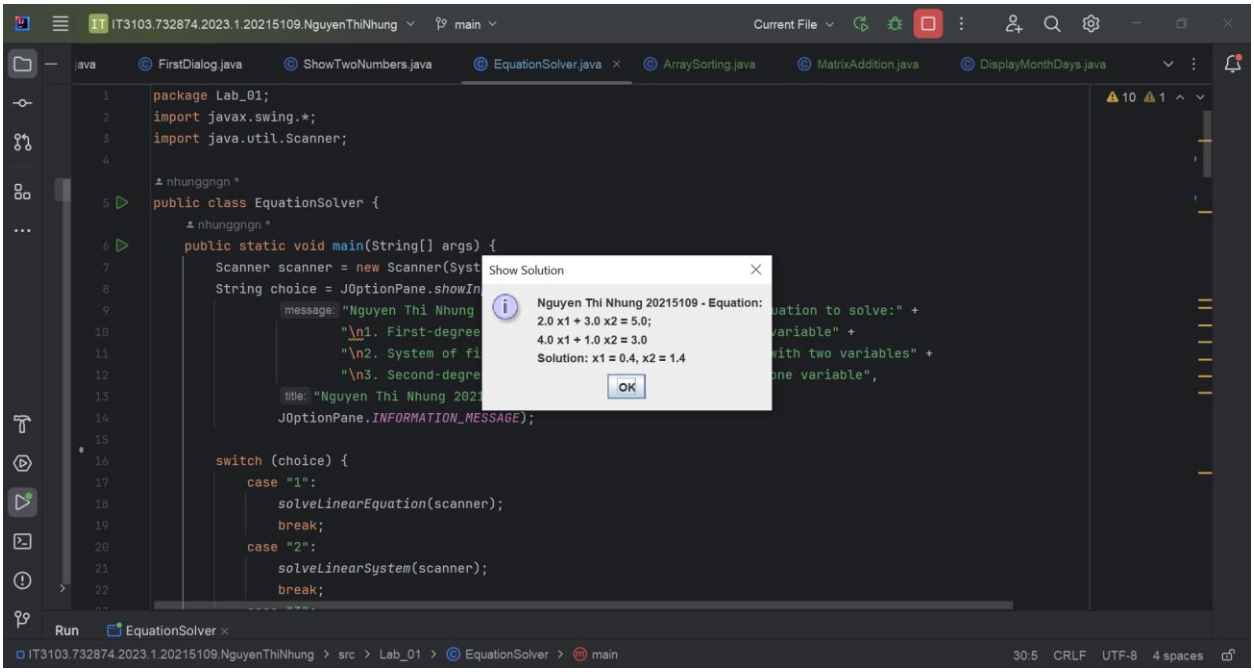


Figure 33: Run 2.2.6 (2.8)

- The second-degree equation with one variable:

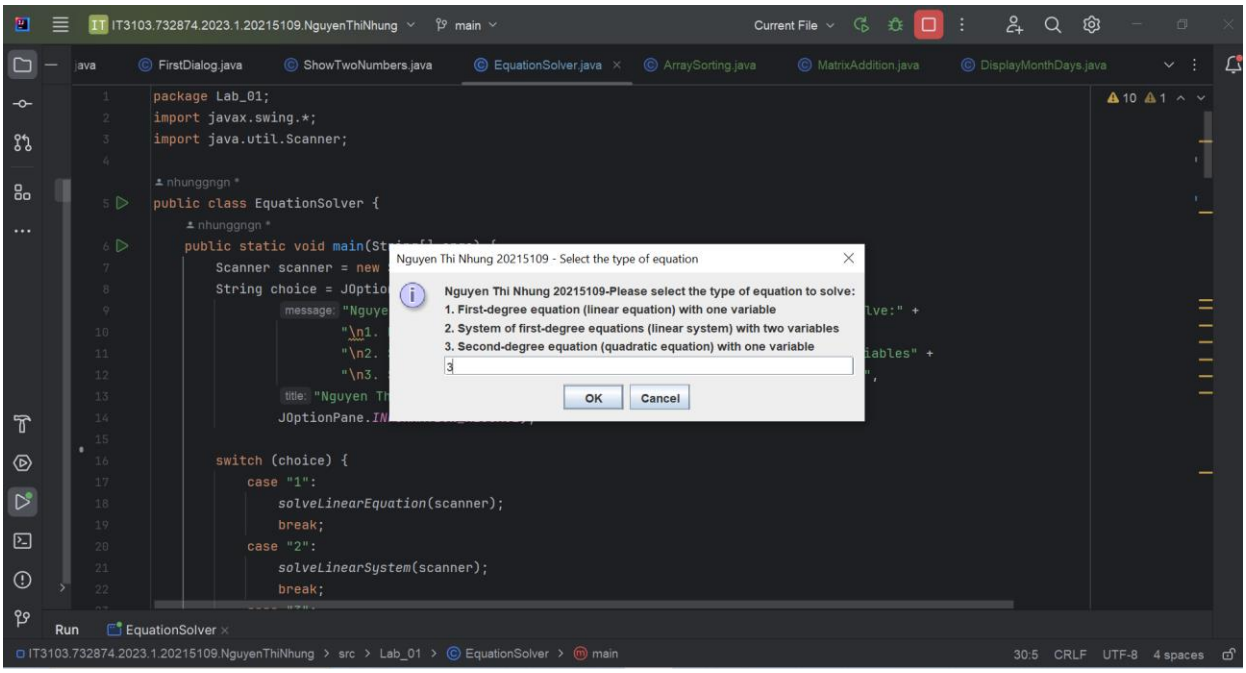


Figure 34: Run 2.2.6 (3.1)

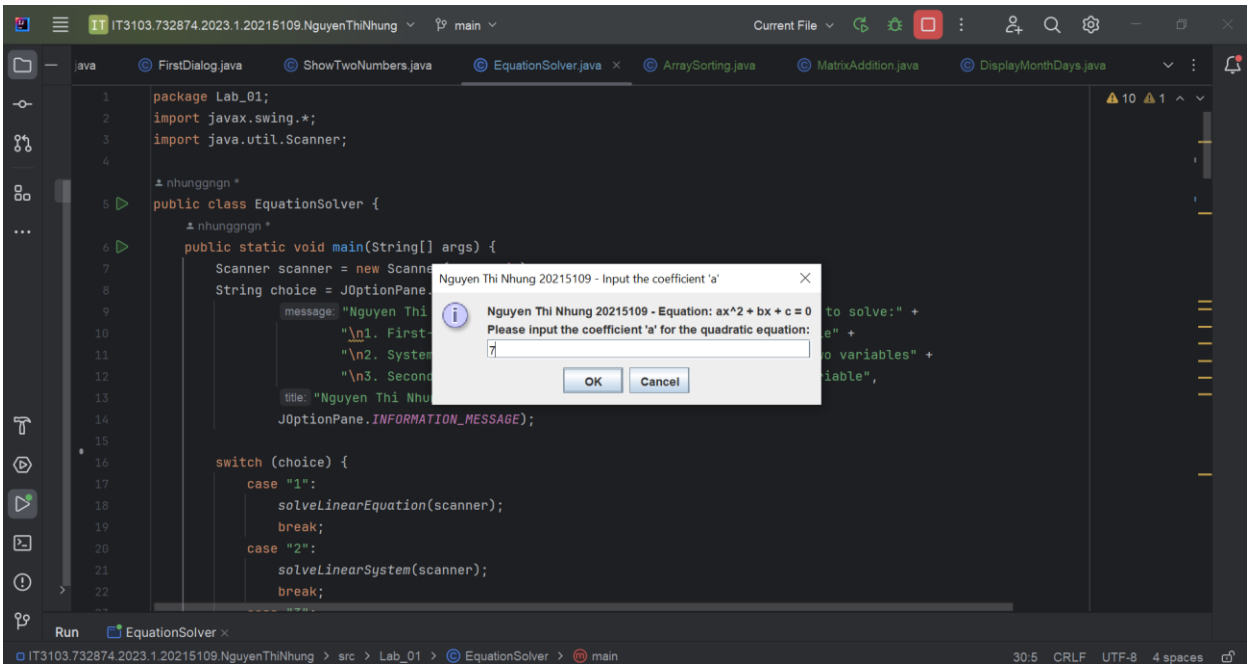


Figure 35: Run 2.2.6 (3.2)

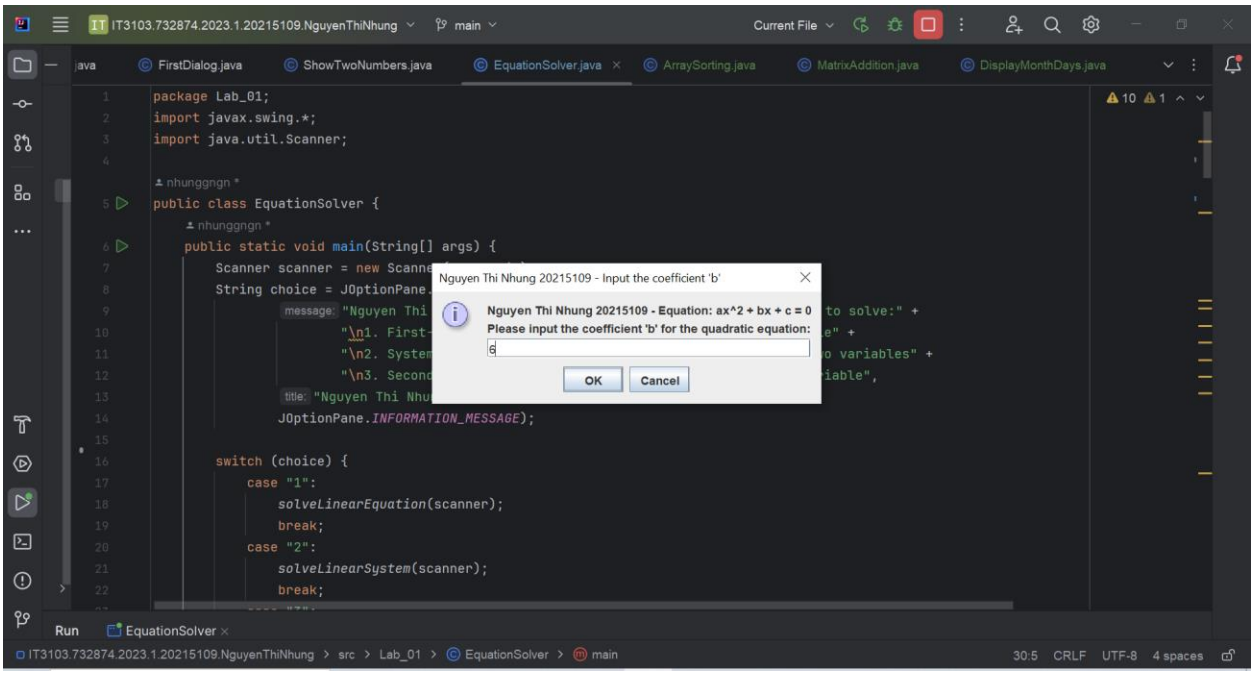


Figure 36: Run 2.2.6 (3.3)

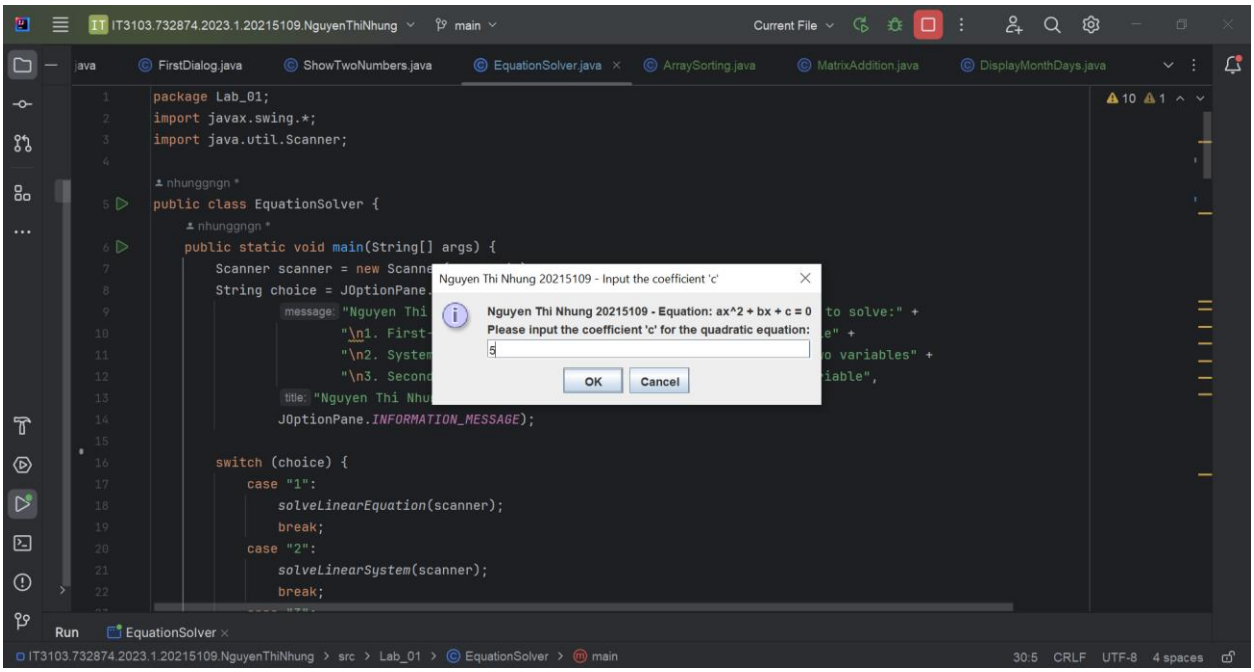


Figure 37: Run 2.2.6 (3.4)

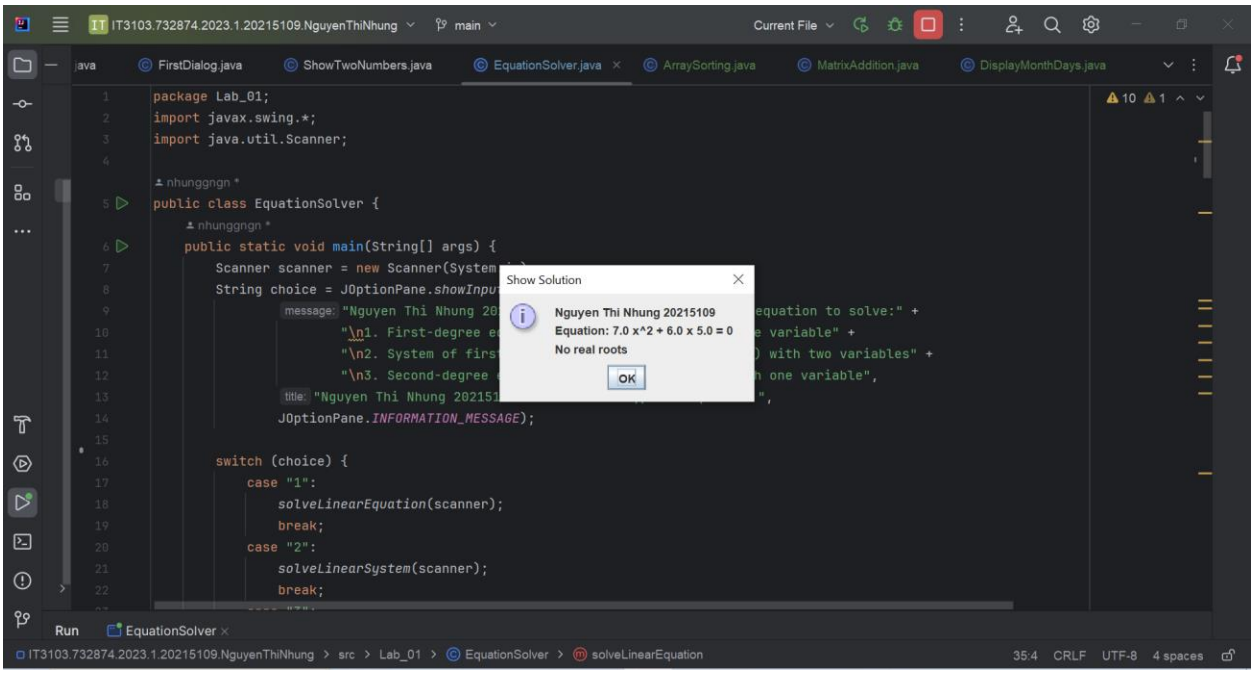


Figure 38: Run 2.2.6 (3.5)

Các bài từ 6.1 đến 6.6

6.1 Write, compile and run the ChoosingOption program:

Mã nguồn đề bài:

```
1  import javax.swing.JOptionPane;
2  public class ChoosingOption{
3    public static void main(String[] args){
4      int option = JOptionPane.showConfirmDialog(null,
5                   "Do you want to change to the first class ticket?");
6
7      JOptionPane.showMessageDialog(null,"You've chosen: "
8                     + (option==JOptionPane.YES_OPTION?"Yes":"No"));
9      System.exit(0);
10   }
11 }
```

Figure 21. Choosing Option Application

Figure 39: Source code 6.1

Kết quả:

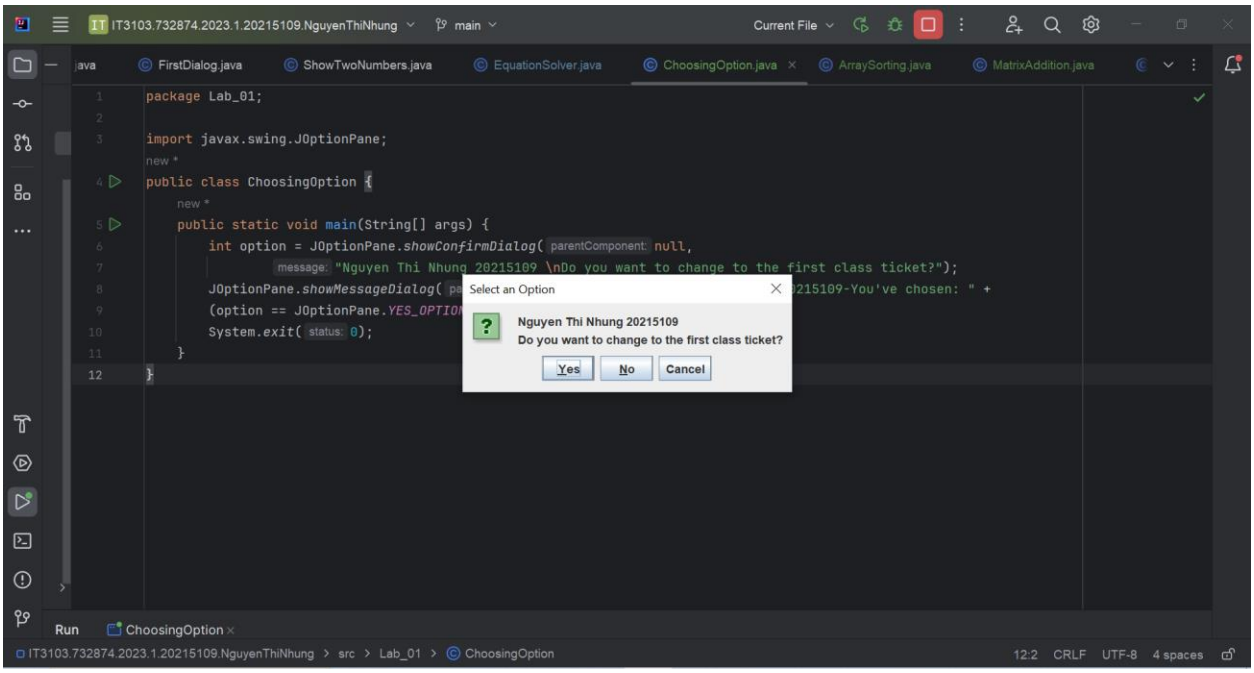


Figure 40: Run 6.1 (1)

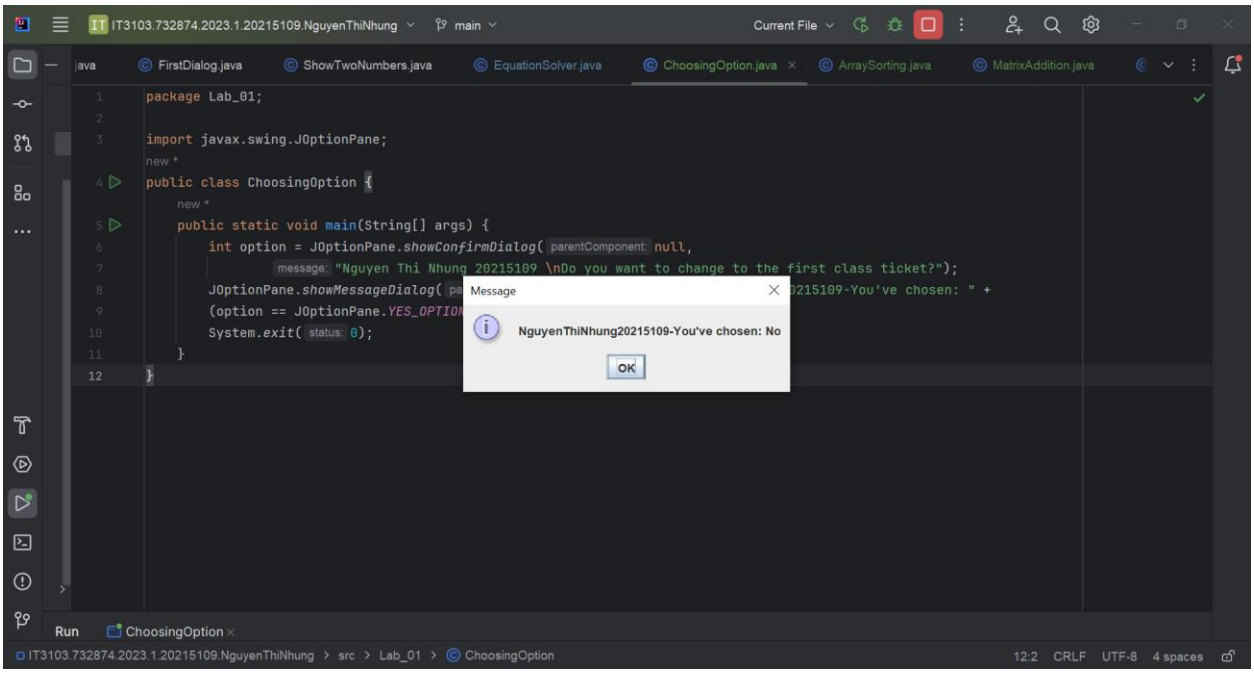


Figure 41: Run 6.1 (2)

6.2 Write a program for input/output from keyboard

Mã nguồn đề bài:

```java
import java.util.Scanner;
public class InputFromKeyboard{
    public static void main(String args[]){
        Scanner keyboard = new Scanner(System.in);

        System.out.println("What's your name?");
        String strName = keyboard.nextLine();
        System.out.println("How old are you?");
        int iAge = keyboard.nextInt();
        System.out.println("How tall are you (m)?");
        double dHeight = keyboard.nextDouble();

        //similar to other data types
        //nextByte(), nextShort(), nextLong()
        //nextFloat(), nextBoolean()

        System.out.println("Mrs/Ms. " + strName + ", " + iAge + " years old. "
                           + "Your height is " + dHeight + ".");

    }
}
```

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```
<terminated> InputFromKeyboard [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_171.jdk/Contents/Home/bin/
What's your name?
Trang
How old are you?
35
How tall are you (m)?
1.65
Mrs/Ms. Trang, 35 years old. Your height is 1.65.
```

Figure 25. InputFromKeyboard Application

Figure 42: Source code 6.2

Kết quả:

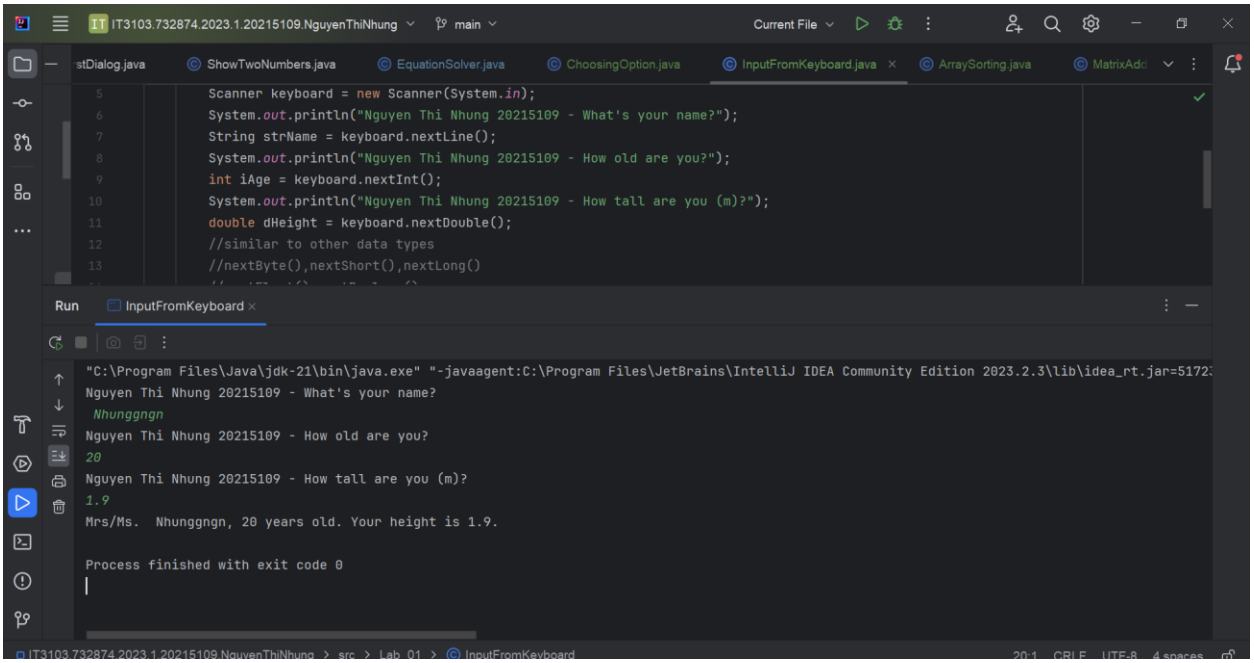

Figure 43: Run 6.2

6.3 Write a program to display a triangle with a height of n stars (*), n is entered by users.

```java
package Lab_01;
import java.util.Scanner;
nhunggngn *
public class TriangleDisplay {
    nhunggngn *
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Please enter the height of the triangle: ");
        int n = scanner.nextInt();

        for (int i = 1; i <= n; i++) {
            for (int j = 1; j <= n - i; j++) {
                System.out.print(" ");
            } // tạo ta i khoảng trắng ở đầu mỗi dòng
            for (int j = 1; j < 2 * i; j++){
                System.out.print("*");
            } // in ra 2i-1 ngôi sao
            System.out.println();
        }
    }
}
```

Figure 44: Source code 6.3

Kết quả:

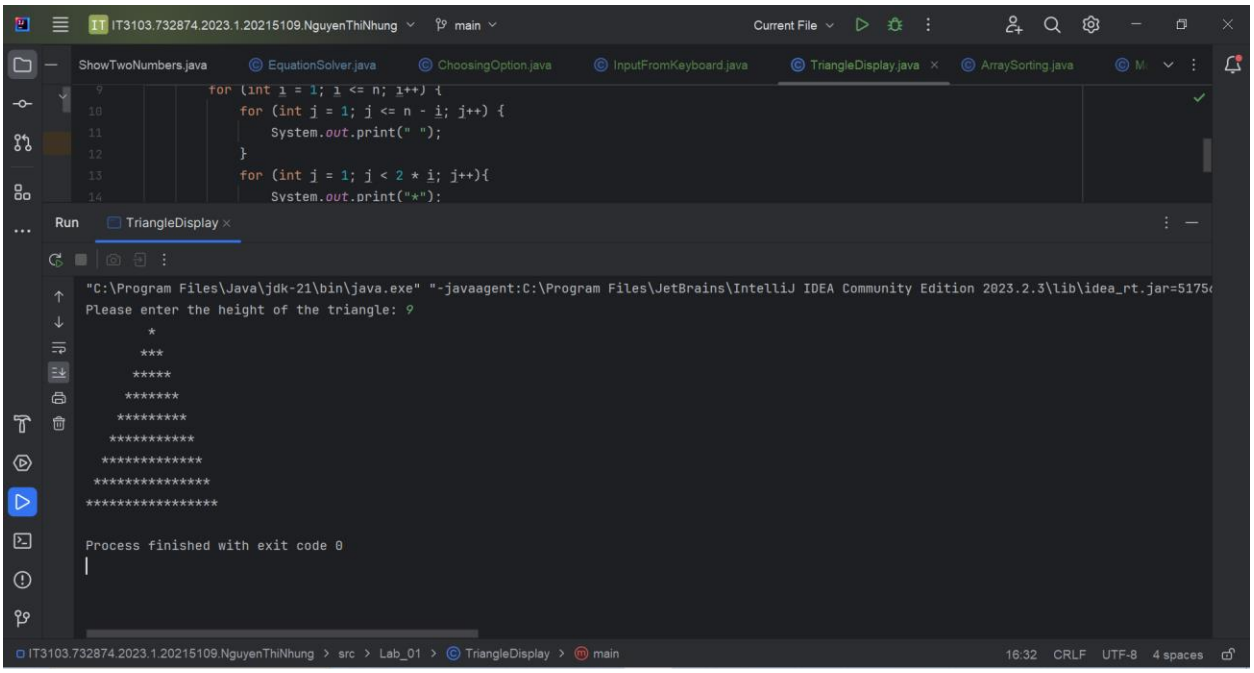

Figure 45: Run 6.3

6.4 Write a program to display the number of days of a month, which is entered by users (both month and year). If it is an invalid month/year, ask the user to enter again.

Mã nguồn:

```java
package Lab_01;

import java.util.Scanner;

nhunggngn *
public class DisplayMonthDays {
    nhunggngn *
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        int year = getValidYear(scanner); //gọi phương thức duyệt năm
        int month = getValidMonth(scanner); //gọi phương thức duyệt tháng

        int days = getNumberOfDays(month, year); //gọi phương thức duyệt số ngày
        System.out.println("Number of days: " + days);
    }

    //Phương thức duyệt năm
    1 usage  nhunggngn *
    private static int getValidYear(Scanner scanner) {
        int year;
        do {
            System.out.print("Please enter the year: ");
            while (!scanner.hasNextInt()) {
                System.out.println("Invalid input. Please enter a valid year.");
                scanner.next();
            } //nhập năm
            year = scanner.nextInt();
            if (year < 0) {
                System.out.println("Invalid input. Please enter a non-negative year.");
            } // nếu năm nhập vào không hợp lệ thì nhập lại
        } while (year < 0);
        return year;
    }
```

Figure 46: Source code 6.4 (1)

```java
    }

    //Phương thức duyệt tháng
    1 usage   nhunggngn *
    private static int getValidMonth(Scanner scanner) {
        int month;
        do {
            System.out.print("Please enter the month: ");
            String input = scanner.next();
            switch (input.toLowerCase()) {
                case "january":
                case "jan.":
                case "jan":
                case "1":
                    month = 1; //tháng 1
                    break;
                case "february":
                case "feb.":
                case "feb":
                case "2":
                    month = 2; //tháng 2
                    break;
                case "march":
                case "mar.":
                case "mar":
                case "3":
                    month = 3; //tháng 3
                    break;
                case "april":
                case "apr.":
                case "apr":
                case "4":
                    month = 4; //tháng 4
```

Figure 47: Source code 6.4 (2)

```
            break;
        case "may":
        case "5":
            month = 5; //tháng 5
            break;
        case "june":
        case "jun.":
        case "jun":
        case "6":
            month = 6; //tháng 6
            break;
        case "july":
        case "jul.":
        case "jul":
        case "7":
            month = 7; //tháng 7
            break;
        case "august":
        case "aug.":
        case "aug":
        case "8":
            month = 8; //tháng 8
            break;
        case "september":
        case "sep.":
        case "sep":
        case "9":
            month = 9; //tháng 9
            break;
        case "october":
        case "oct.":
        case "oct":
```

Figure 48: Source code 6.4 (3)

```
                case "10":
                    month = 10; //tháng 10
                    break;
                case "november":
                case "nov.":
                case "nov":
                case "11":
                    month = 11; //tháng 11
                    break;
                case "december":
                case "dec.":
                case "dec":
                case "12":
                    month = 12; //tháng 12
                    break;
                default:
                    month = 0;
                    System.out.println("Invalid input. Please enter a valid month.");
            }
        } while (month == 0);
        return month;
    }

    //Phương thức duyệt số ngày
    1 usage  nhunggngn *
    private static int getNumberOfDays(int month, int year) {
        int days;
        switch (month) {
            case 1:
            case 3:
            case 5:
            case 7:
            case 8:
```

Figure 49: Source code 6.4 (4)

```java
            case 8:
            case 10:
            case 12:
                days = 31;
                break;
            case 4:
            case 6:
            case 9:
            case 11:
                days = 30;
                break;
            case 2: // nếu năm nhuận thì có 29 ngày, không nhuận thì có 28 ngày
                days = isLeapYear(year) ? 29 : 28;
                break;
            default:
                days = 0;
        }
        return days;
    }

    //Phương thức tính năm nhuận
    1 usage  nhunggngn
    private static boolean isLeapYear(int year) {
        return (year % 4 == 0 && year % 100 != 0) || (year % 400 == 0);
    }
}
```

Figure 50: Source code 6.4 (5)

Kết quả:

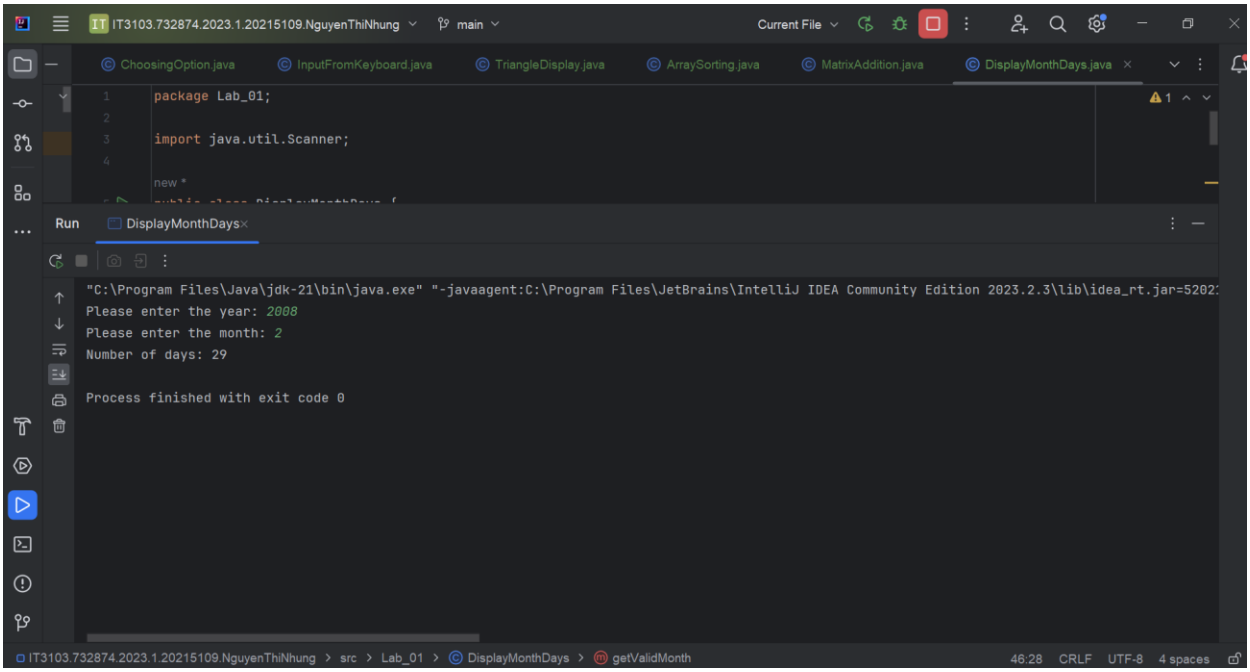

Figure 51: Run 6.4

6.5 Write a Java program to sort a numeric array, and calculate the sum and average value of array elements.

Mã nguồn:

```java
package Lab_01;
import java.util.Scanner;
import java.util.Arrays;

nhunggngn *
public class ArraySorting {
    nhunggngn *
    public static void main(String[] args) {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("PLease enter the numbers of element:");
        int n = keyboard.nextInt(); //Nhập số phần tử của mảng
        int[] array = new int[n]; //khai báo mảng số nguyên với số phần tử do người dùng nhập
        for (int i = 0; i < n; i++) {
            int b = i + 1;
            System.out.println("PLease enter the number " + b + ": ");
            array[i] = keyboard.nextInt(); // nhập các phần tử của mảng
        }
        // sắp xếp mảng theo thứ tự tăng dần
        Arrays.sort(array);
        // In mảng đã sắp xếp
        System.out.println("Sorted array: " + Arrays.toString(array));

        // tính tổng các phần tử
        int sum = 0;
        for (int num : array) {
                sum += num;
            }
        System.out.println("Sum: " + sum);

        // tính trung bình giá trị các phần tử
        double average = (double) sum / array.length;
        System.out.println("Average: " + average);
        }
```

Figure 52: Source code 6.5

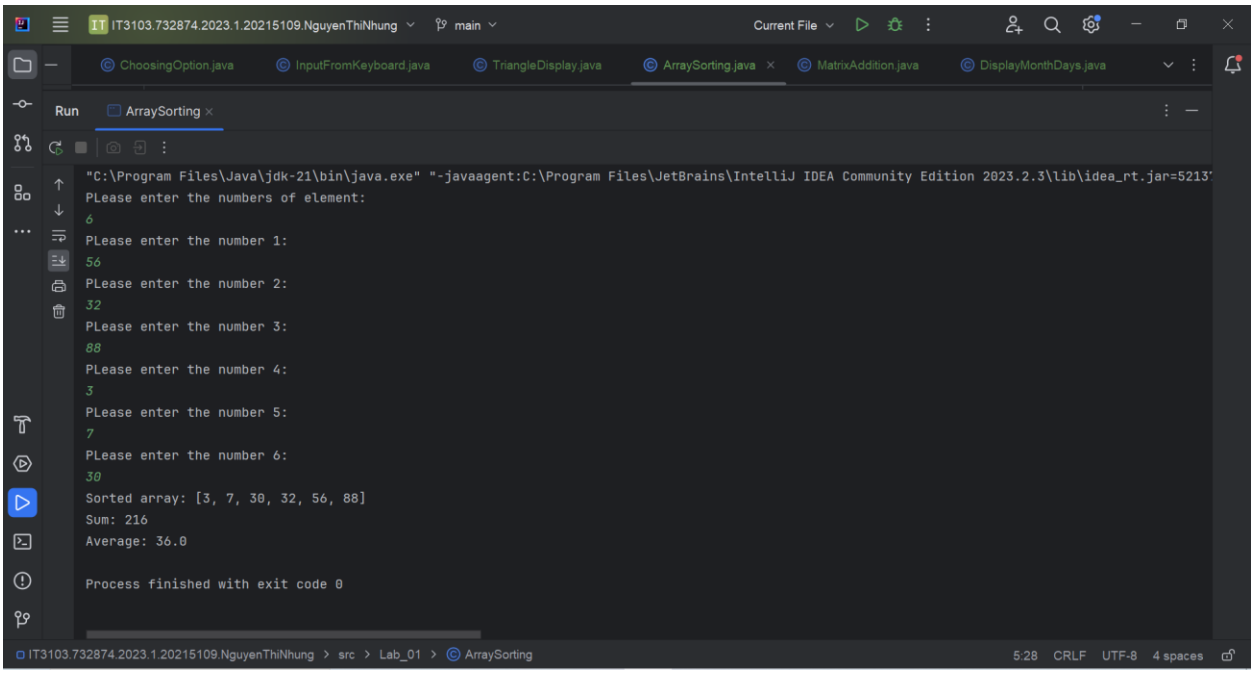

Figure 53: Run 6.5

6.6 Write a Java program to add two matrices of the same size.

Mã nguồn:

```java
package Lab_01;

import java.util.Scanner;

nhunggngn *
public class MatrixAddition {
    nhunggngn *
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Nhập kích thước của ma trận
        System.out.print("Enter the number of rows: ");
        int rows = scanner.nextInt();
        System.out.print("Enter the number of columns: ");
        int columns = scanner.nextInt();

        // Tạo ma trận thứ nhất
        int[][] matrix1 = createMatrix(scanner, rows, columns, matrixName: "Matrix 1");

        // Tạo ma trận thứ hai
        int[][] matrix2 = createMatrix(scanner, rows, columns, matrixName: "Matrix 2");

        // Tính tổng hai ma trận
        int[][] sumMatrix = addMatrices(matrix1, matrix2);

        // In ra ma trận tổng
```

Figure 54: Source code 6.6 (1)

```
        // In ra ma trận tổng
        System.out.println("Sum of matrices:");
        printMatrix(sumMatrix);
    }
    // Phương thức nhập giá trị cho các phần tử của ma trận
    2 usages  nhunggngn
    private static int[][] createMatrix(Scanner scanner, int rows, int columns, String matrixName) {
        System.out.println("Enter the elements of " + matrixName + ":");
        int[][] matrix = new int[rows][columns];
        for (int i = 0; i < rows; i++) {
            for (int j = 0; j < columns; j++) {
                System.out.print(matrixName + "[" + (i + 1) + "][" + (j + 1) + "]: ");
                matrix[i][j] = scanner.nextInt();
            }
        }
        return matrix;
    }
// Phương thức cộng ma trận
    1 usage  nhunggngn
    private static int[][] addMatrices(int[][] matrix1, int[][] matrix2) {
        int rows = matrix1.length;
        int columns = matrix1[0].length;

        int[][] sumMatrix = new int[rows][columns];
        for (int i = 0; i < rows; i++) {
            for (int j = 0; j < columns; j++) {
```

Figure 55: Source code 6.6 (2)

```
                for (int j = 0; j < columns; j++) {
                    sumMatrix[i][j] = matrix1[i][j] + matrix2[i][j];
                }
            }
            return sumMatrix;
        }
//Phương thức in ma trận
    1 usage  nhunggngn
    private static void printMatrix(int[][] matrix) {
        int rows = matrix.length;
        int columns = matrix[0].length;

        for (int i = 0; i < rows; i++) {
            for (int j = 0; j < columns; j++) {
                System.out.print(matrix[i][j] + " ");
            }
            System.out.println();
        }
    }
}
```

Figure 56: Source code 6.6 (3)

Kết quả:

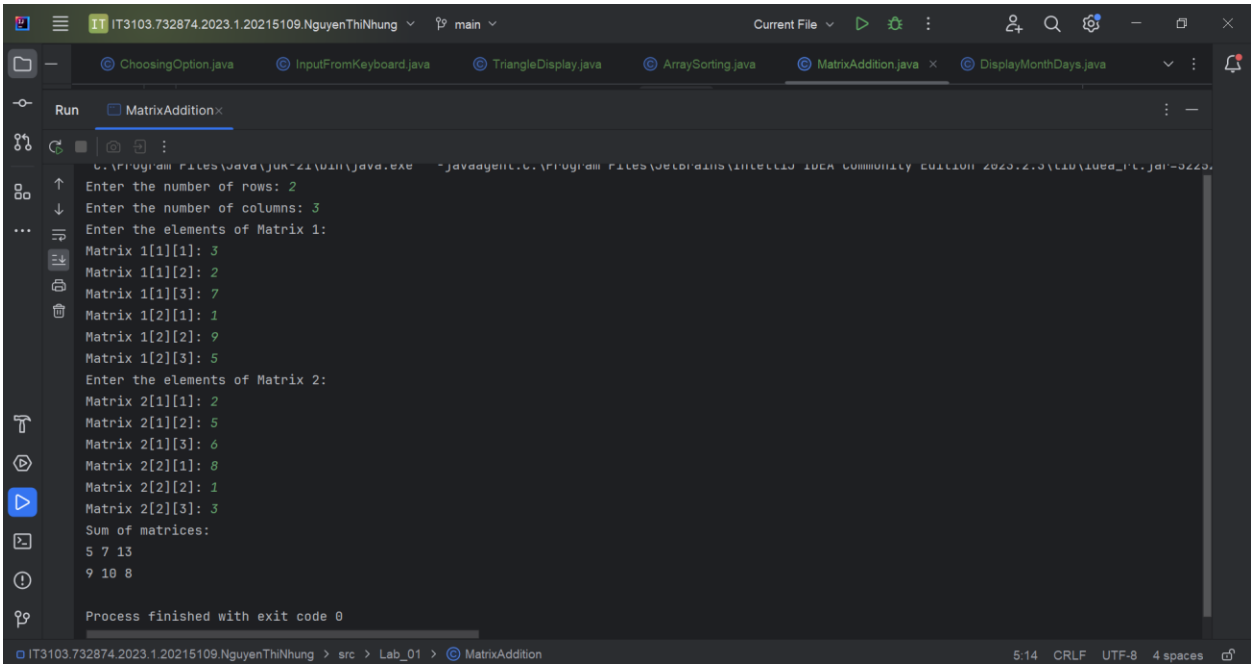

Figure 57: Run 6.6