BÁO CÁO THỰC HÀNH LAB 1
LẬP TRÌNH HƯỚNG ĐỐI TƯỢNG

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Mã số sinh viên: 20215106

Lớp: 732871

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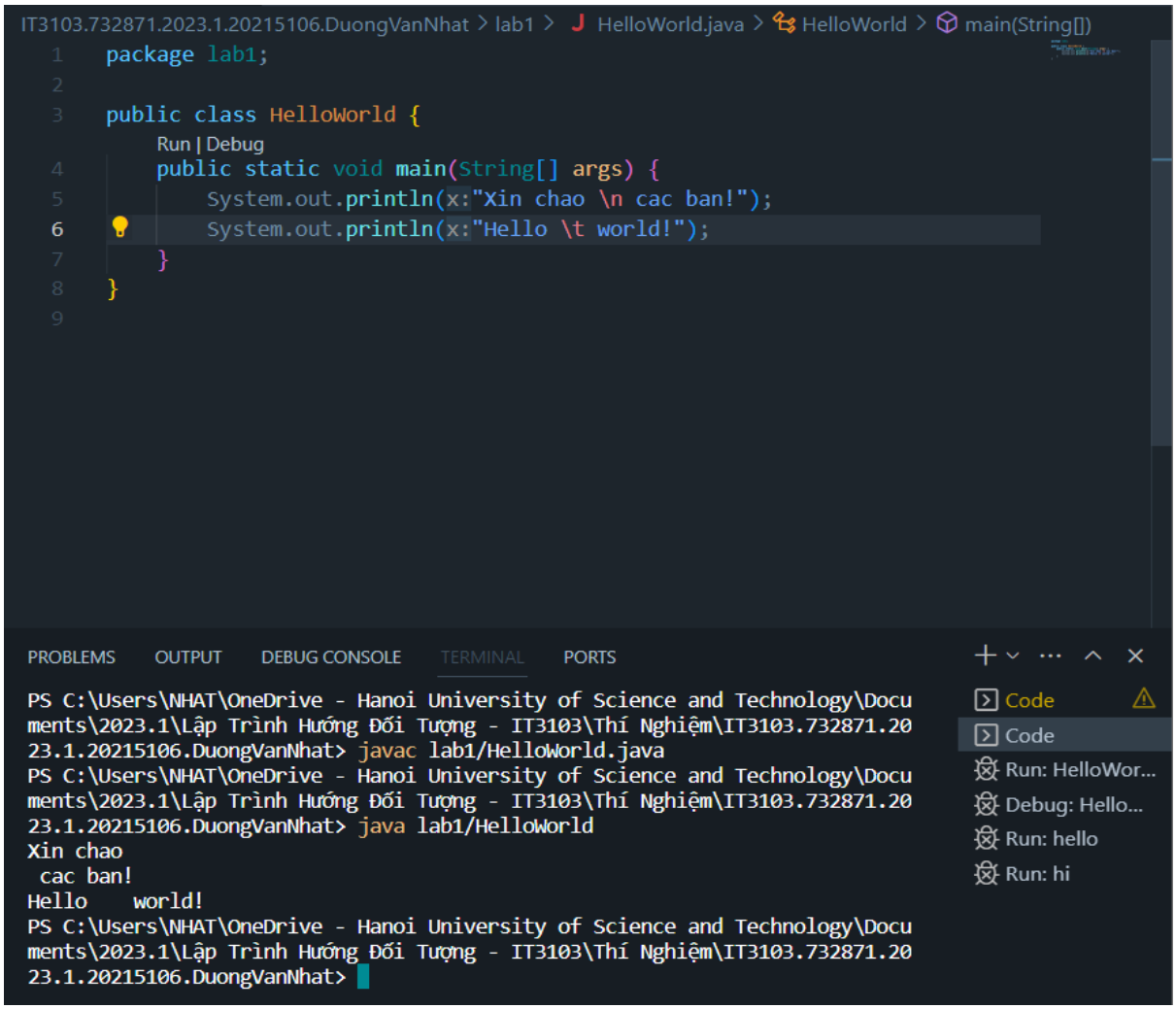
2.2.1 Write, compile the first Java application:

```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
}
```

Kết quả:

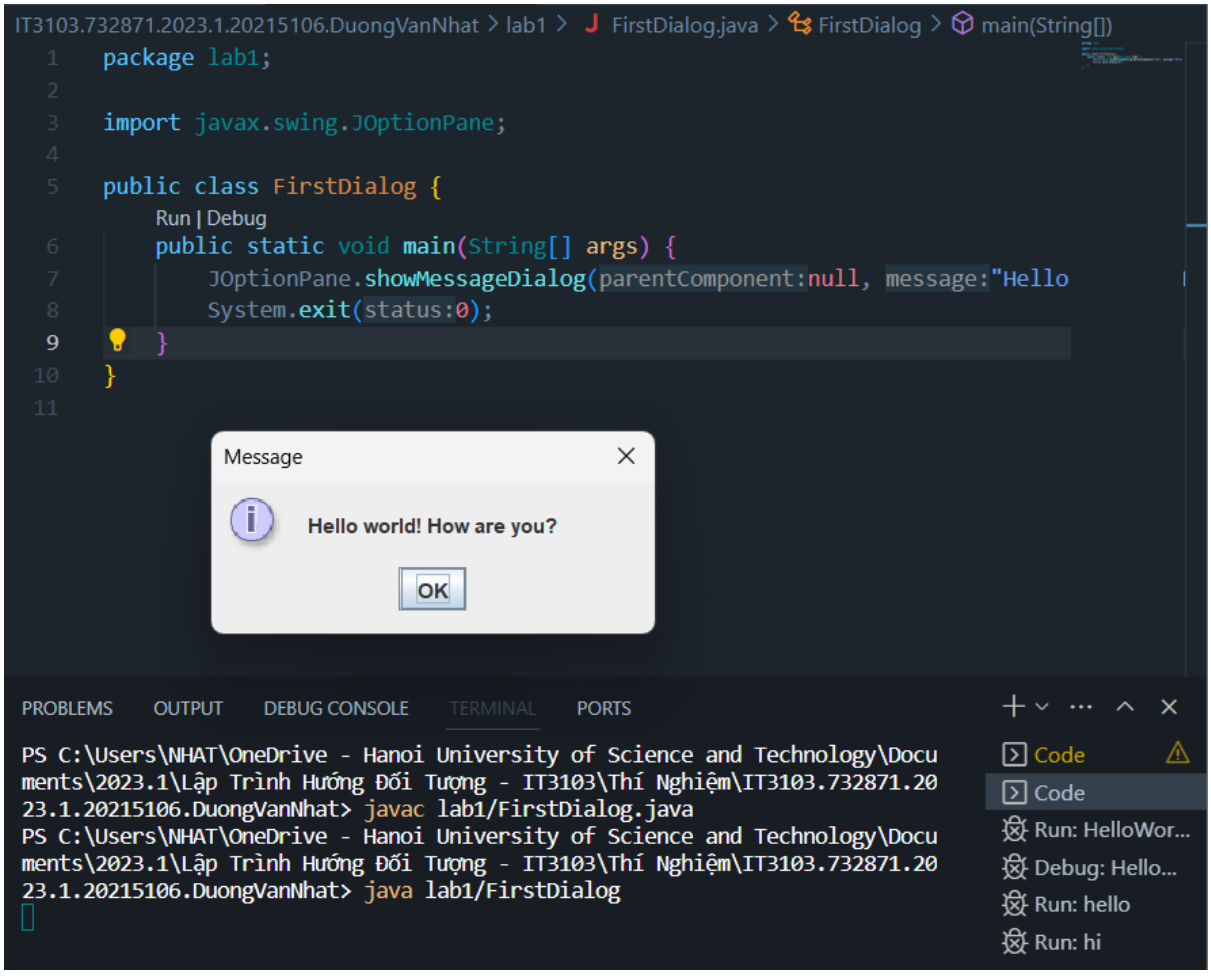


2.2.2 Write, compile the first dialog Java program:

```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 6. The First Dialog Java Application

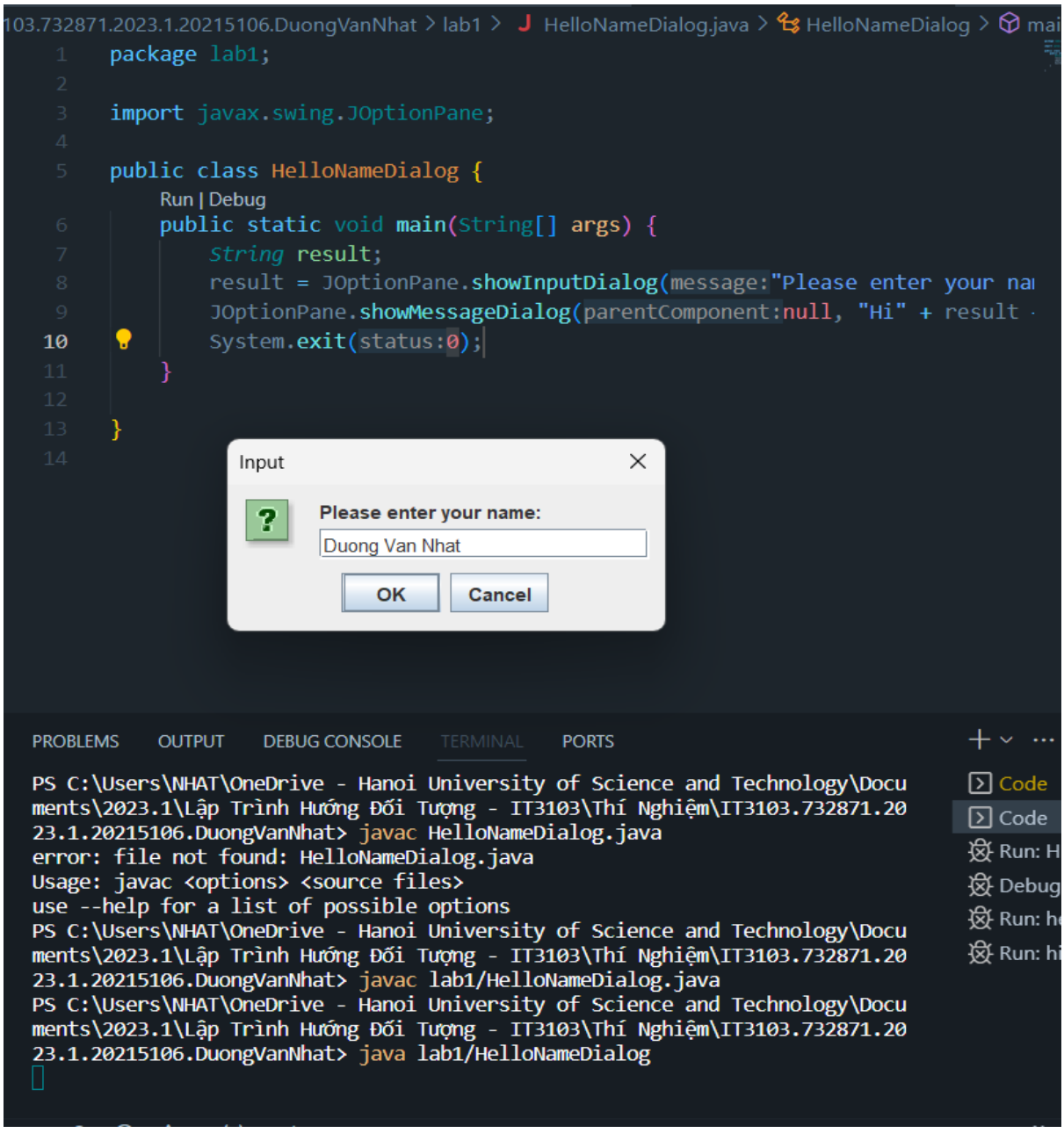
Kết quả:

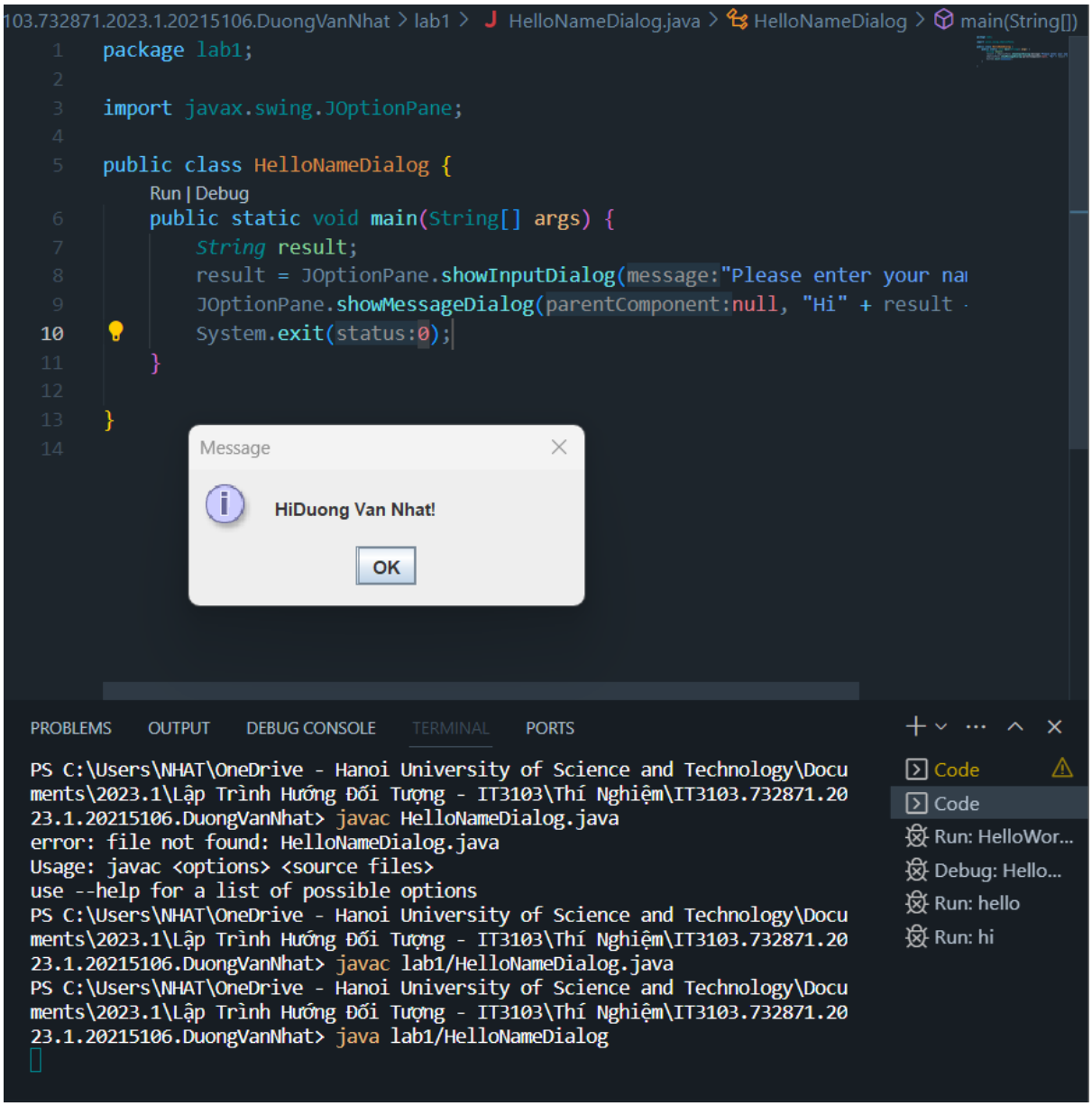


2.2.3 Write, compile the first input dialog Java application:

```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);
  }
}
```

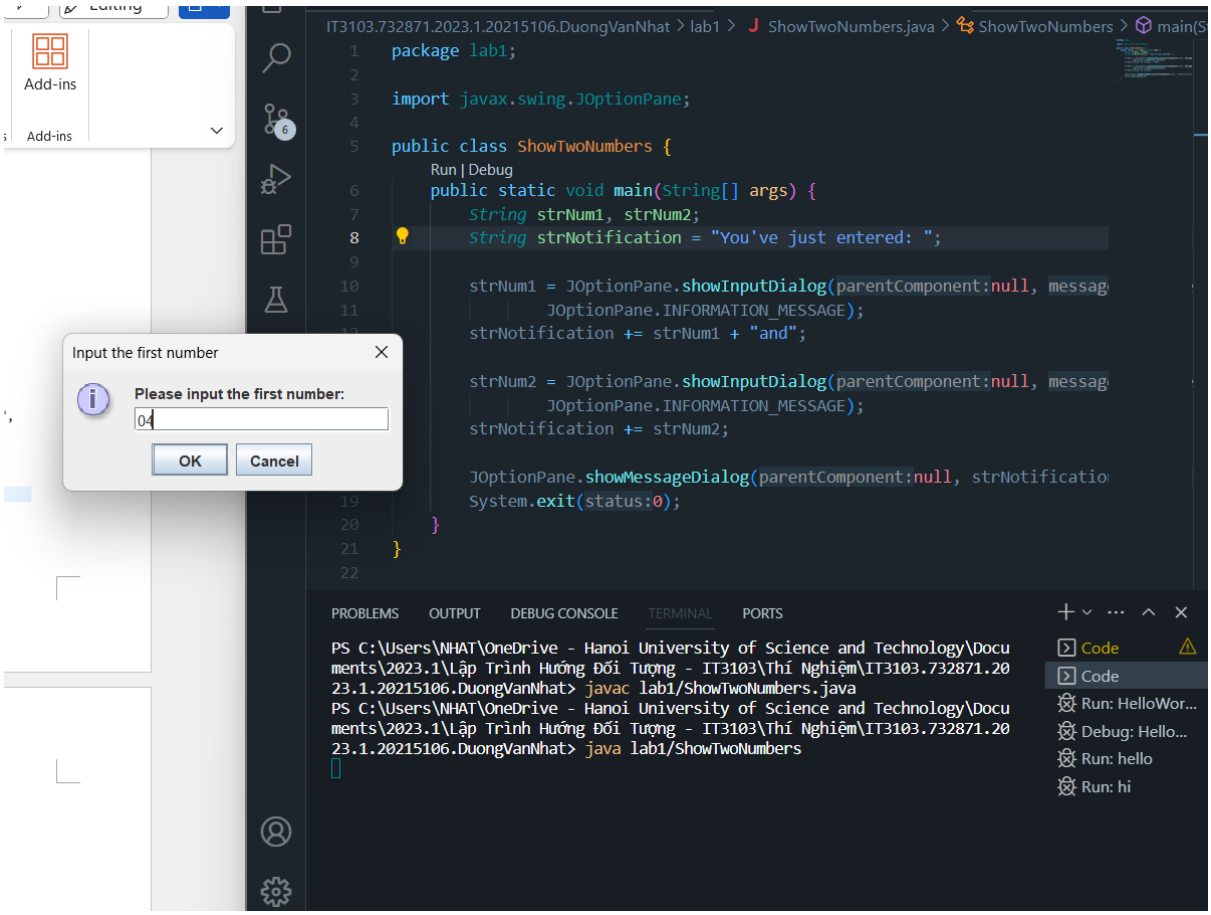
Kết quả:

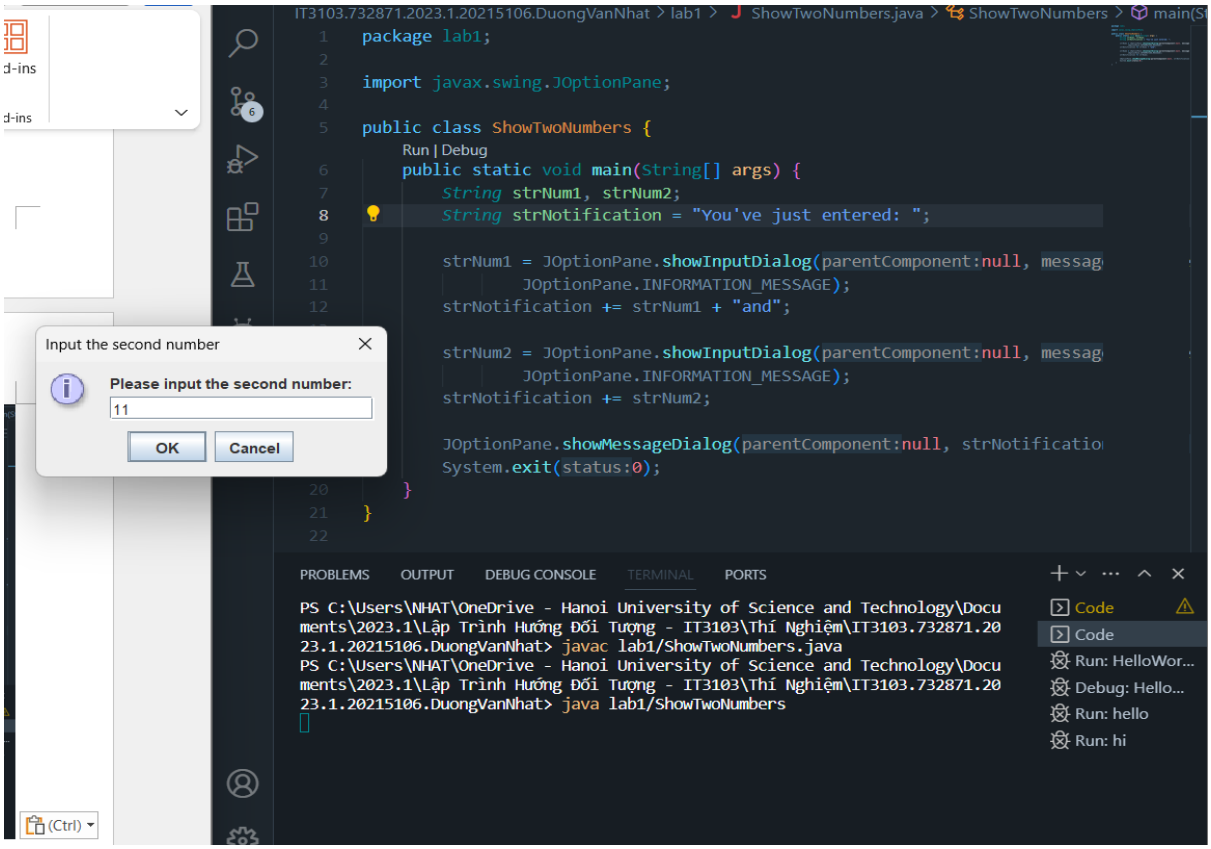


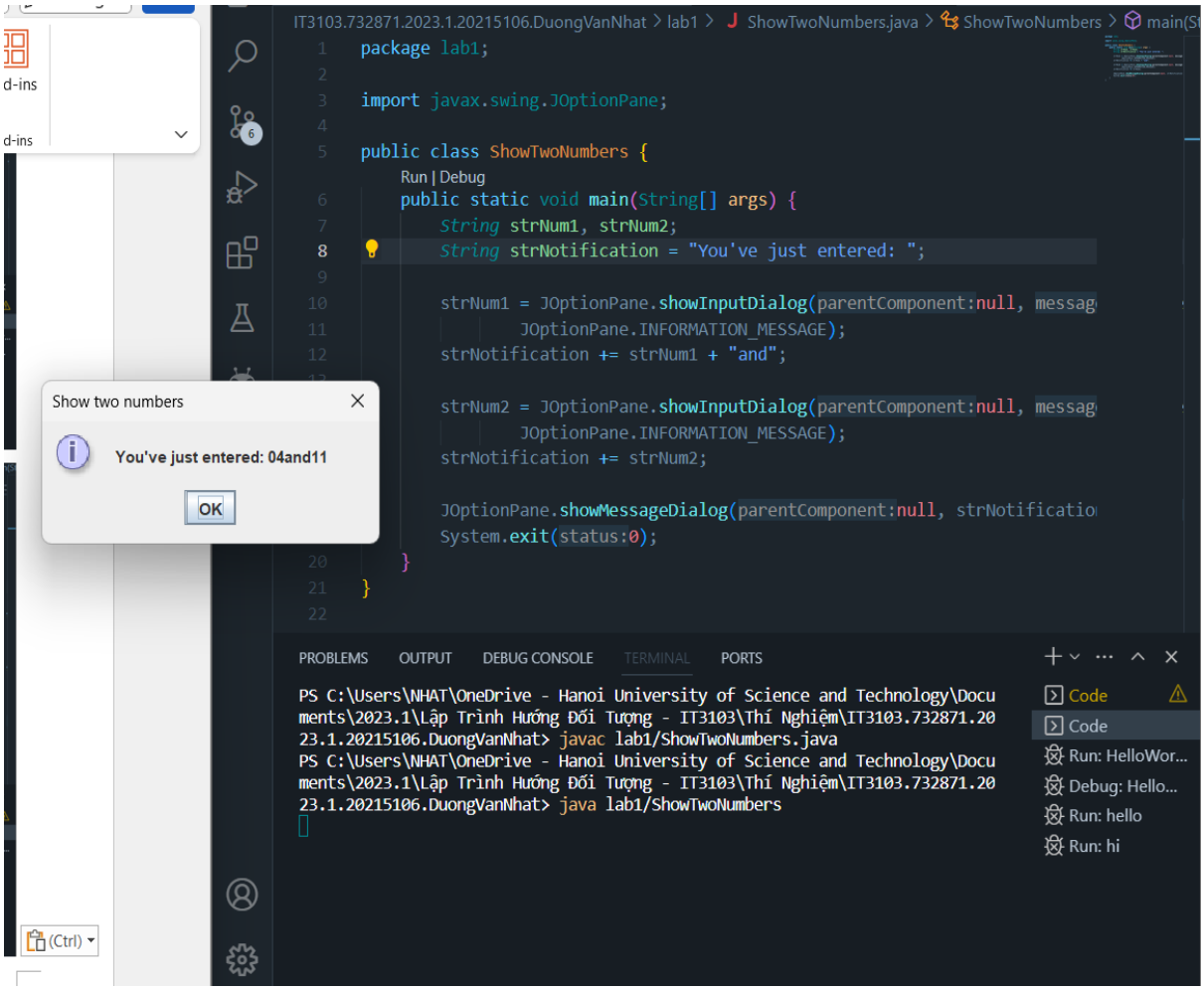

103.732871.2023.1.20215106.DuongVanNhat > lab1 > HelloNameDialog.java > HelloNameDialog > main(String[])
package lab1;
import javax.swing.JOptionPane;
public class HelloNameDialog {
Run | Debug
public static void main(String[] args) {
String result;
result = JOptionPane.showInputDialog(message:"Please enter your nai
JOptionPane.showMessageDialog(parentComponent:null, "Hi" + result
System.exit(status:0);
}
}
Message
HiDuong Van Nhat!
OK
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat> javac HelloNameDialog.java
error: file not found: HelloNameDialog.java
Usage: javac <options> <source files>
use --help for a list of possible options
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat> javac lab1/HelloNameDialog.java
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat> java lab1/HelloNameDialog
Code
Code
Run: HelloWor...
Debug: Hello...
Run: hello
Run: hi

2.2.4 Write, compile, and run the following example:

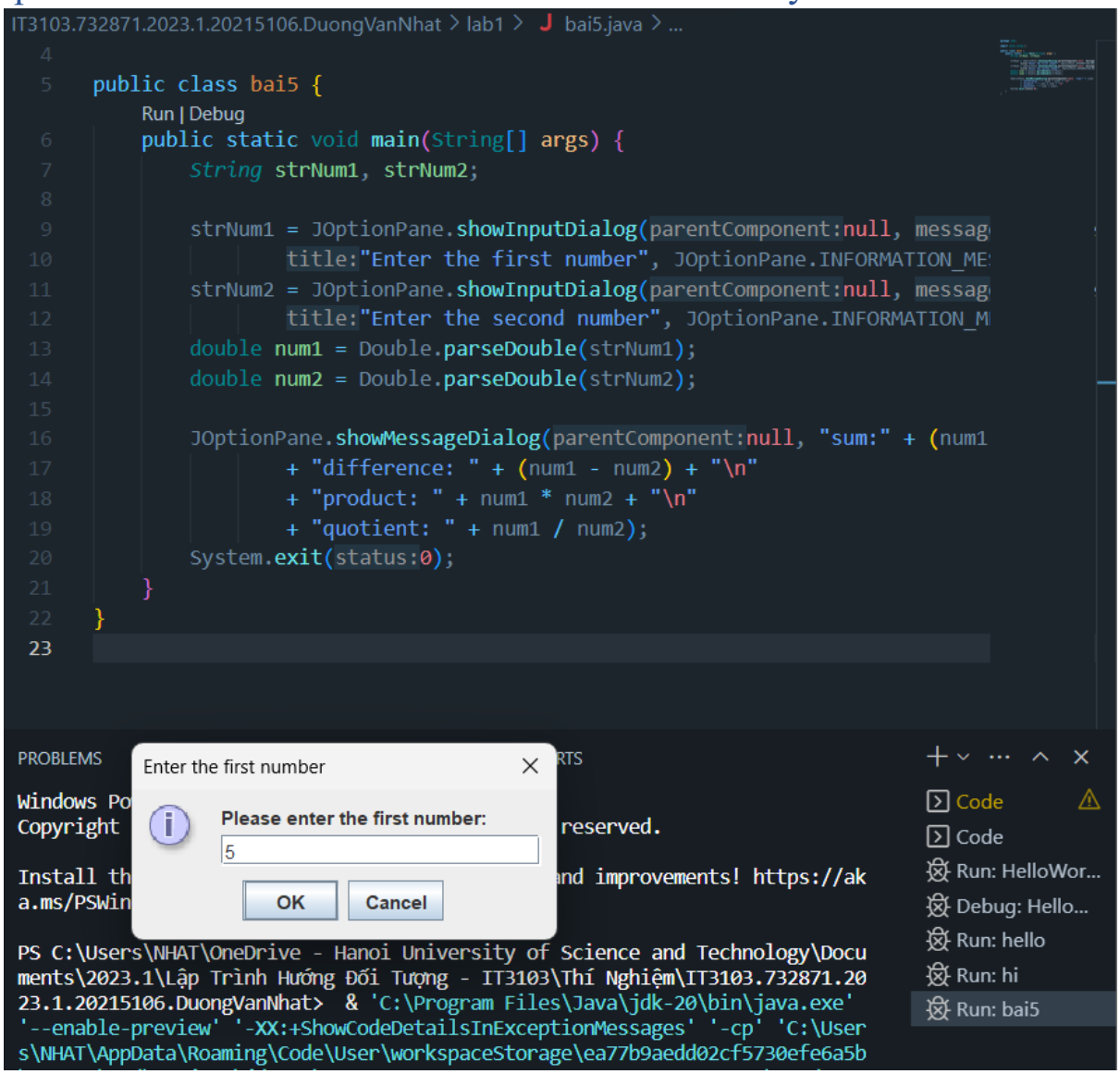
```java
// Example 5: ShowTwoNumbers.java
import javax.swing.JOptionPane;
public class ShowTwoNumbers {
  public static void main(String[] args){
    String strNum1, strNum2;
    String strNotification = "You've just entered: ";

    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);
  }
}
```

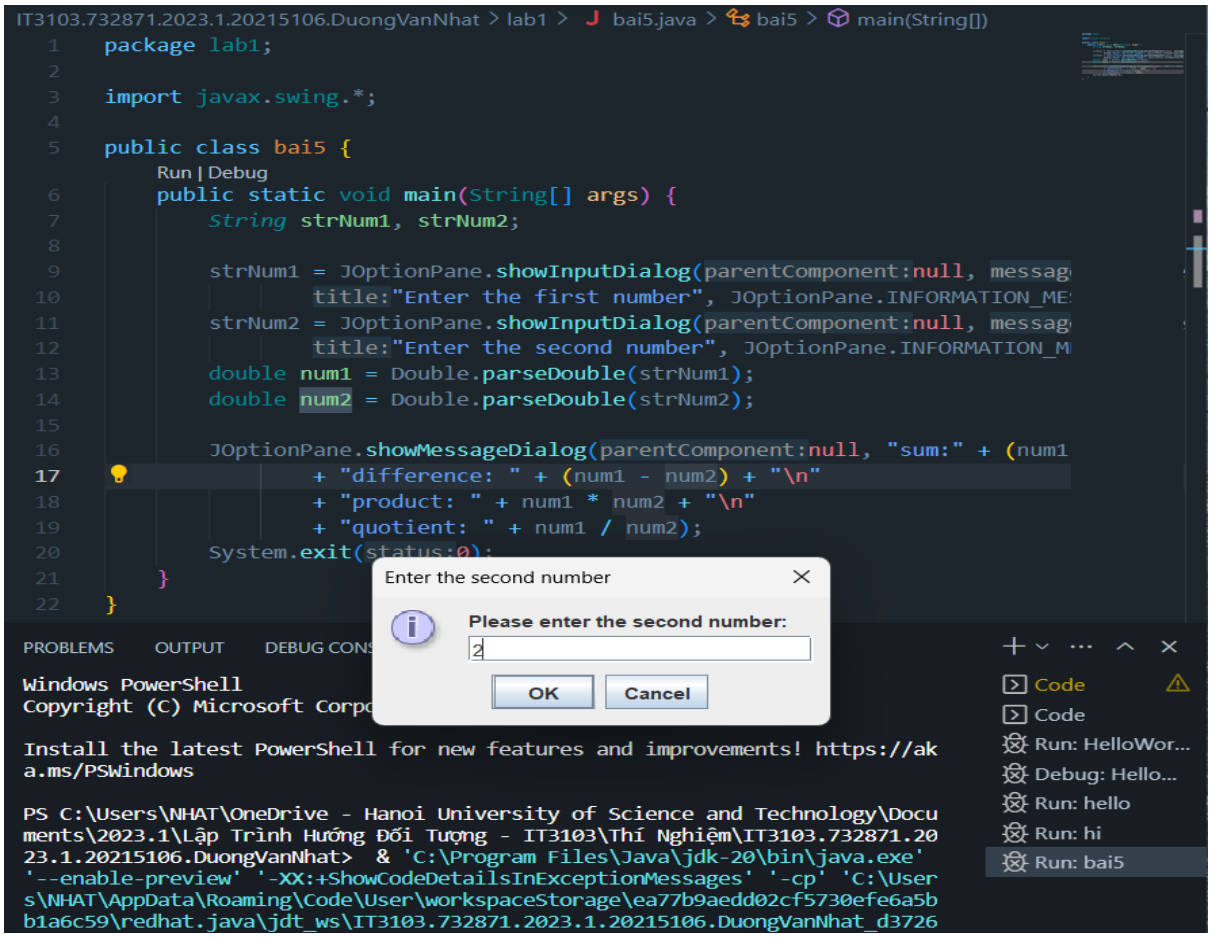


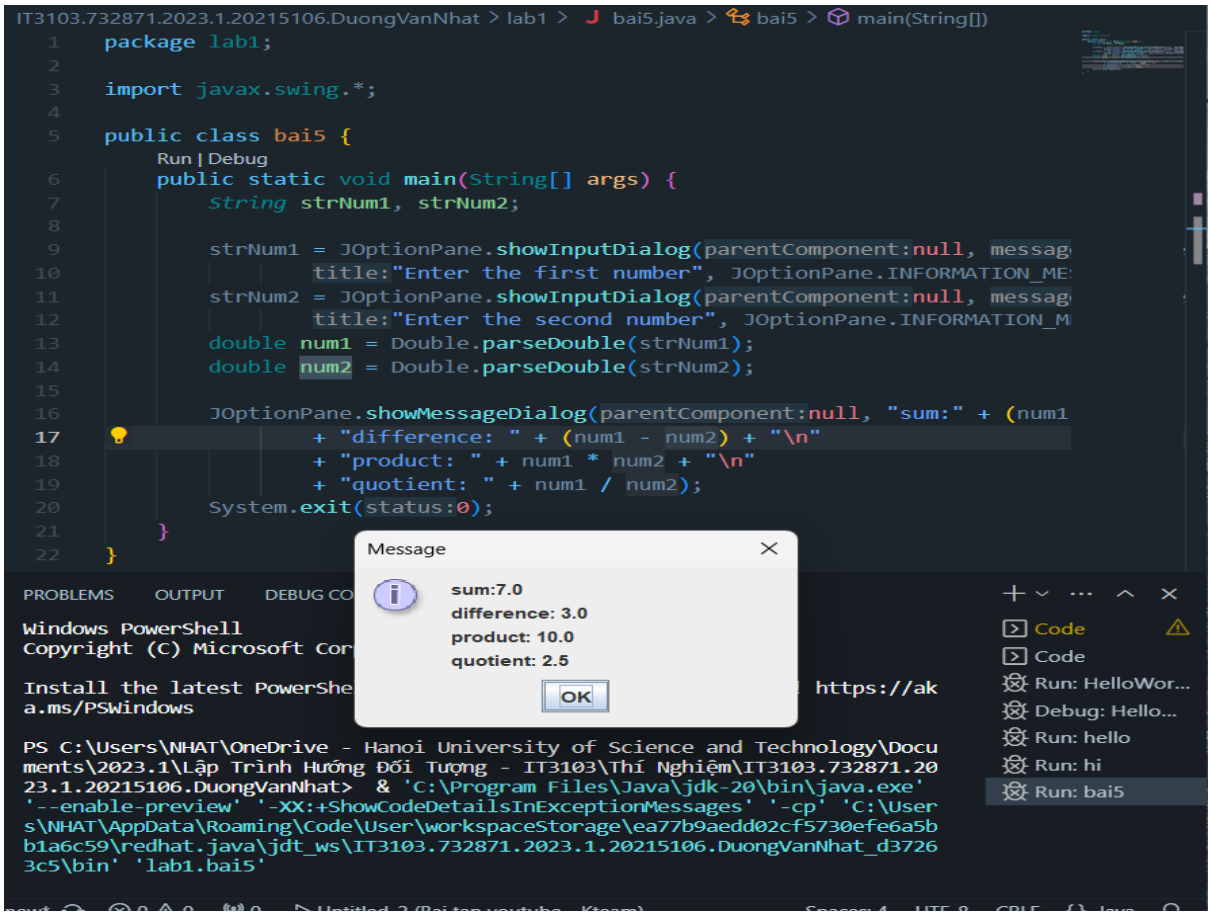

IT3103.732871.2023.1.20215106.DuongVanNhat > lab1 > ShowTwoNumbers.java > ShowTwoNumbers > main(St
package lab1;
import javax.swing.JOptionPane;
public class ShowTwoNumbers {
Run | Debug
public static void main(String[] args) {
String strNum1, strNum2;
String strNotification = "You've just entered: ";
strNum1 = JOptionPane.showInputDialog(parentComponent:null, messag
JOptionPane.INFORMATION_MESSAGE);
strNotification += strNum1 + "and";
strNum2 = JOptionPane.showInputDialog(parentComponent:null, messag
JOptionPane.INFORMATION_MESSAGE);
strNotification += strNum2;
JOptionPane.showMessageDialog(parentComponent:null, strNotificatio
System.exit(status:0);
}
}
Input the second number
Please input the second number:
11
OK
Cancel
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat> javac lab1/ShowTwoNumbers.java
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat> java lab1/ShowTwoNumbers
Code
Code
Run: HelloWor...
Debug: Hello...
Run: hello
Run: hi


IT3103.732871.2023.1.20215106.DuongVanNhat > lab1 > ShowTwoNumbers.java > ShowTwoNumbers > main(St
package lab1;
import javax.swing.JOptionPane;
public class ShowTwoNumbers {
Run | Debug
public static void main(String[] args) {
String strNum1, strNum2;
String strNotification = "You've just entered: ";
strNum1 = JOptionPane.showInputDialog(parentComponent:null, messag
JOptionPane.INFORMATION_MESSAGE);
strNotification += strNum1 + "and";
strNum2 = JOptionPane.showInputDialog(parentComponent:null, messag
JOptionPane.INFORMATION_MESSAGE);
strNotification += strNum2;
JOptionPane.showMessageDialog(parentComponent:null, strNotificatio
System.exit(status:0);
}
}
Show two numbers
You've just entered: 04and11
OK
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat> javac lab1/ShowTwoNumbers.java
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat> java lab1/ShowTwoNumbers
Code
Code
Run: HelloWor...
Debug: Hello...
Run: hello
Run: hi

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




IT3103.732871.2023.1.20215106.DuongVanNhat > lab1 > bai5.java > bai5 > main(String[])
package lab1;
import javax.swing.*;
public class bai5 {
Run | Debug
public static void main(String[] args) {
String strNum1, strNum2;
strNum1 = JOptionPane.showInputDialog(parentComponent:null, messag
title:"Enter the first number", JOptionPane.INFORMATION_ME
strNum2 = JOptionPane.showInputDialog(parentComponent:null, messag
title:"Enter the second number", JOptionPane.INFORMATION_M
double num1 = Double.parseDouble(strNum1);
double num2 = Double.parseDouble(strNum2);
JOptionPane.showMessageDialog(parentComponent:null, "sum:" + (num1
+ "difference: " + (num1 - num2) + "\n"
+ "product: " + num1 * num2 + "\n"
+ "quotient: " + num1 / num2);
System.exit(status:0);
}
}
Enter the second number
Please enter the second number:
2
OK
Cancel
PROBLEMS
OUTPUT
DEBUG CONS
Windows PowerShell
Copyright (C) Microsoft Corpo
Install the latest PowerShell for new features and improvements! https://ak
a.ms/PSWindows
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Docu
ments\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.20
23.1.20215106.DuongVanNhat> & 'C:\Program Files\Java\jdk-20\bin\java.exe'
'--enable-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\User
s\NHAT\AppData\Roaming\Code\User\workspaceStorage\ea77b9aedd02cf5730efe6a5b
b1a6c59\redhat.java\jdt_ws\IT3103.732871.2023.1.20215106.DuongVanNhat_d3726
Code
Code
Run: HelloWor...
Debug: Hello...
Run: hello
Run: hi
Run: bai5

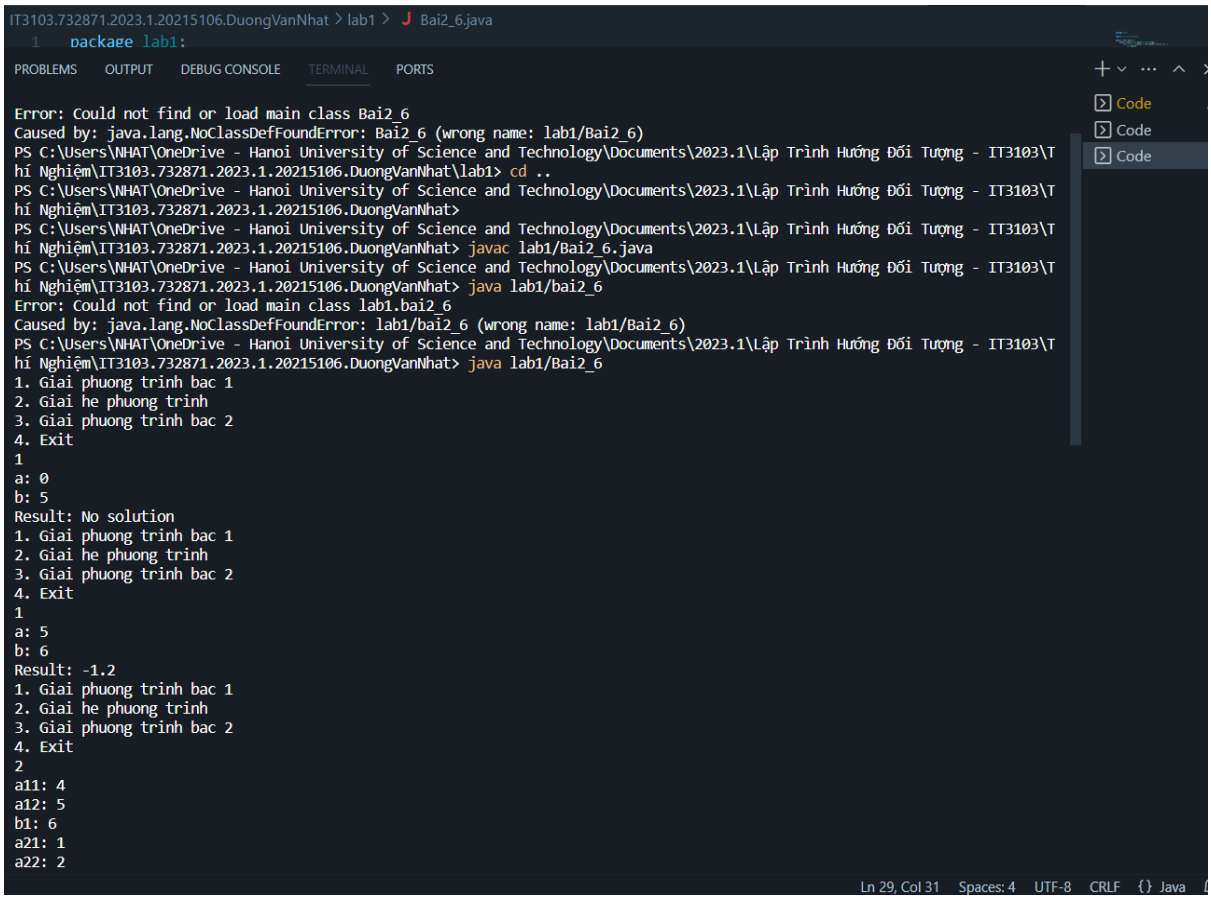

IT3103.732871.2023.1.20215106.DuongVanNhat > lab1 > bai5.java > bai5 > main(String[])
package lab1;
import javax.swing.*;
public class bai5 {
Run | Debug
public static void main(String[] args) {
String strNum1, strNum2;
strNum1 = JOptionPane.showInputDialog(parentComponent:null, messag
title:"Enter the first number", JOptionPane.INFORMATION_ME
strNum2 = JOptionPane.showInputDialog(parentComponent:null, messag
title:"Enter the second number", JOptionPane.INFORMATION_M
double num1 = Double.parseDouble(strNum1);
double num2 = Double.parseDouble(strNum2);
JOptionPane.showMessageDialog(parentComponent:null, "sum:" + (num1
+ "difference: " + (num1 - num2) + "\n"
+ "product: " + num1 * num2 + "\n"
+ "quotient: " + num1 / num2);
System.exit(status:0);
}
}
Message
sum:7.0
difference: 3.0
product: 10.0
quotient: 2.5
OK
PROBLEMS
OUTPUT
Windows PowerShell
Copyright (C) Microsoft Cor
Install the latest PowerShe
https://ak
a.ms/PSWindows
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Docu
ments\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.20
23.1.20215106.DuongVanNhat> & 'C:\Program Files\Java\jdk-20\bin\java.exe'
'--enable-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\User
s\NHAT\AppData\Roaming\Code\User\workspaceStorage\ea77b9aedd02cf5730efe6a5b
b1a6c59\redhat.java\jdt_ws\IT3103.732871.2023.1.20215106.DuongVanNhat_d3726
3c5\bin' 'lab1.bai5'
Code
Code
Run: HelloWor...
Debug: Hello...
Run: hello
Run: hi
Run: bai5

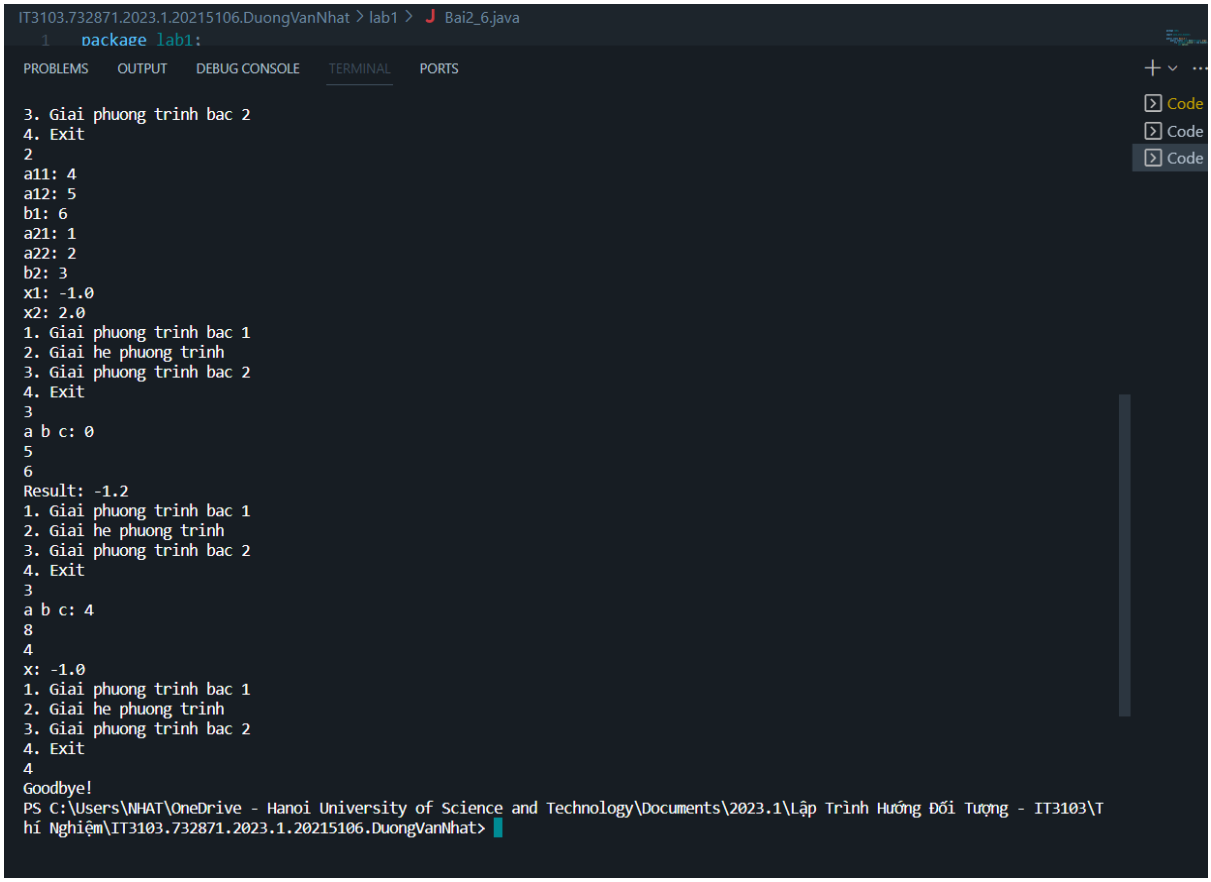
2.2.6 Write a program to solve:

```
package lab1;

import java.util.Scanner;

public class Bai2_6 {
    public static void main(String[] args) {
        try (Scanner scanner = new Scanner(System.in)) {
            int option;

            do {
                System.out.print("1. Giai phuong trinh bac 1\n2. Giai he phuong trinh\n3. Giai phuong trinh bac 2\n4. Exit\n");
                option = scanner.nextInt();

                switch (option) {
                    case 1 -> {
                        System.out.print("a: ");
                        int a = scanner.nextInt();
                        System.out.print("b: ");
                        int b = scanner.nextInt();
                        linearEquation(a, b);
                        break;
                    }
                    case 2 -> {
                        SystemEquations(scanner);
                        break;
                    }
                    case 3 -> {
                        TwoDegreeEquation(scanner);
                        break;
                    }
                    case 4 -> {
                        System.out.println("Goodbye!");
                        break;
                    }
                    default -> {
                        System.out.println("Please re-enter");
                        break;
                    }
                }
            } while (option != 4);
        }
    }

    public static void linearEquation(int a, int b) {
```

```
        System.out.print("Result: ");
        System.out.println((a == 0 && b == 0) ? "Infinite solutions" : ((a == 0) ? "No solution" : (double) (-b)
/ a));
    }

    public static void SystemEquations(Scanner scanner) {
        System.out.print("a11: ");
        int a11 = scanner.nextInt();
        System.out.print("a12: ");
        int a12 = scanner.nextInt();
        System.out.print("b1: ");
        int b1 = scanner.nextInt();
        System.out.print("a21: ");
        int a21 = scanner.nextInt();
        System.out.print("a22: ");
        int a22 = scanner.nextInt();
        System.out.print("b2: ");
        int b2 = scanner.nextInt();

        int D = a11 * a22 - a21 * a12;
        int D1 = b1 * a22 - b2 * a12;
        int D2 = b2 * a11 - b1 * a21;

        System.out.println("x1: " + (double) D1 / D);
        System.out.println("x2: " + (double) D2 / D);
    }

    public static void TwoDegreeEquation(Scanner scanner) {
        System.out.print("a b c: ");
        int a = scanner.nextInt();
        int b = scanner.nextInt();
        int c = scanner.nextInt();
        if (a == 0) {
            linearEquation(b, c);
        } else {
            int delta = b * b - 4 * a * c;
            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)));
            }
        }
    }
}
```

Kết quả:


IT3103.732871.2023.1.20215106.DuongVanNhat > lab1 > Bai2_6.java
1 package lab1;
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code
Code
Code
Error: Could not find or load main class Bai2_6
Caused by: java.lang.NoClassDefFoundError: Bai2_6 (wrong name: lab1/Bai2_6)
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat\lab1> cd ..
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat>
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat> javac lab1/Bai2_6.java
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat> java lab1/bai2_6
Error: Could not find or load main class lab1.bai2_6
Caused by: java.lang.NoClassDefFoundError: lab1/bai2_6 (wrong name: lab1/Bai2_6)
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat> java lab1/Bai2_6
1. Giai phuong trinh bac 1
2. Giai he phuong trinh
3. Giai phuong trinh bac 2
4. Exit
1
a: 0
b: 5
Result: No solution
1. Giai phuong trinh bac 1
2. Giai he phuong trinh
3. Giai phuong trinh bac 2
4. Exit
1
a: 5
b: 6
Result: -1.2
1. Giai phuong trinh bac 1
2. Giai he phuong trinh
3. Giai phuong trinh bac 2
4. Exit
2
a11: 4
a12: 5
b1: 6
a21: 1
a22: 2
Ln 29, Col 31 Spaces: 4 UTF-8 CRLF {} Java

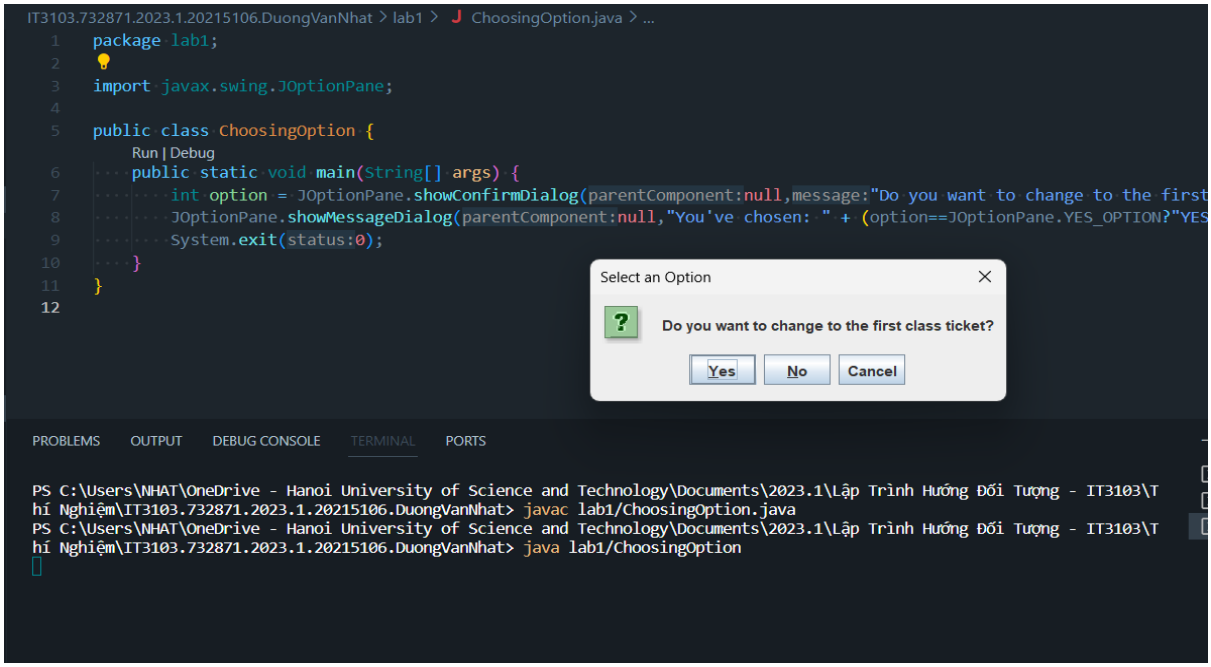

IT3103.732871.2023.1.20215106.DuongVanNhat > lab1 > Bai2_6.java
1 package lab1;
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code
Code
Code
3. Giai phuong trinh bac 2
4. Exit
2
a11: 4
a12: 5
b1: 6
a21: 1
a22: 2
b2: 3
x1: -1.0
x2: 2.0
1. Giai phuong trinh bac 1
2. Giai he phuong trinh
3. Giai phuong trinh bac 2
4. Exit
3
a b c: 0
5
6
Result: -1.2
1. Giai phuong trinh bac 1
2. Giai he phuong trinh
3. Giai phuong trinh bac 2
4. Exit
3
a b c: 4
8
4
x: -1.0
1. Giai phuong trinh bac 1
2. Giai he phuong trinh
3. Giai phuong trinh bac 2
4. Exit
4
Goodbye!
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat>

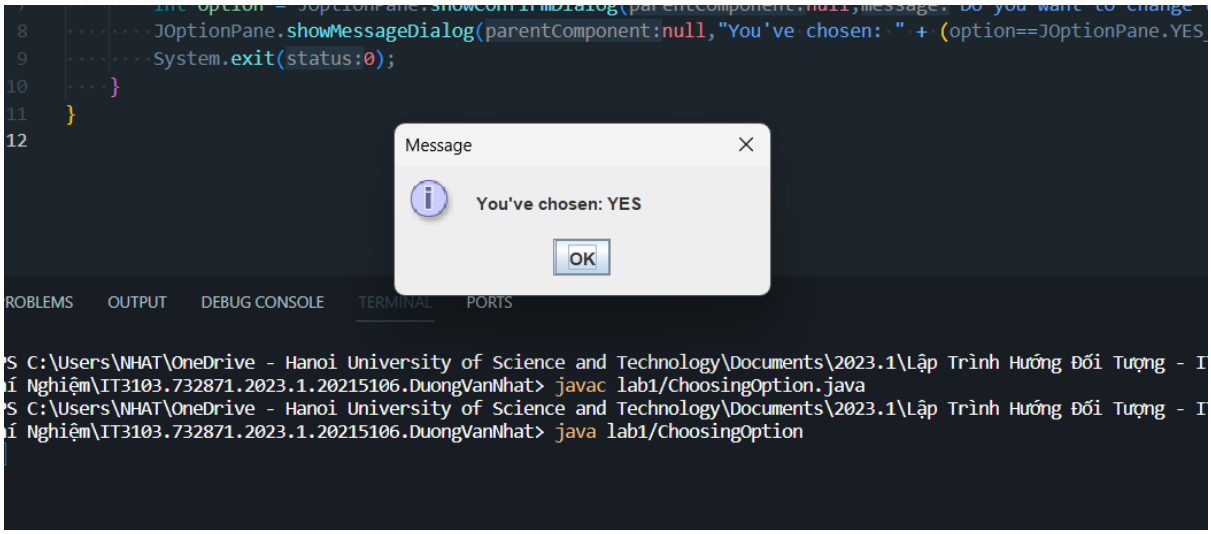
6.1 Write, compile and run the ChoosingOption program:

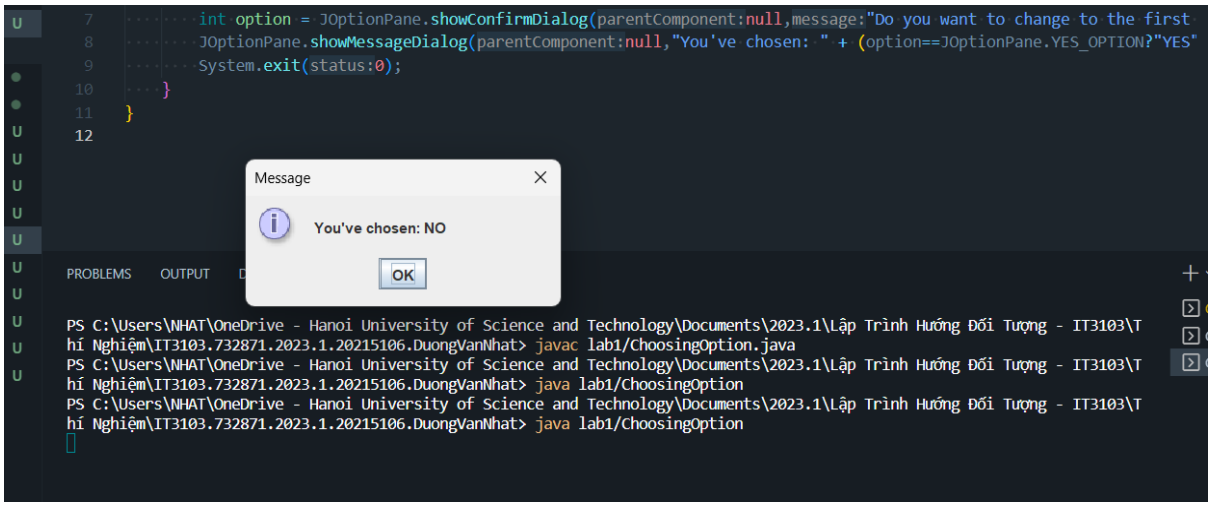
```
1  import javax.swing.JOptionPane;
2  public class ChoosingOption{
3    public static void main(String[] args){
4      int option = JOptionPane.showConfirmDialog(null,
5                   "Do you want to change to the first class ticket?");
6
7      JOptionPane.showMessageDialog(null,"You've chosen: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

Figure 21. Choosing Option Application

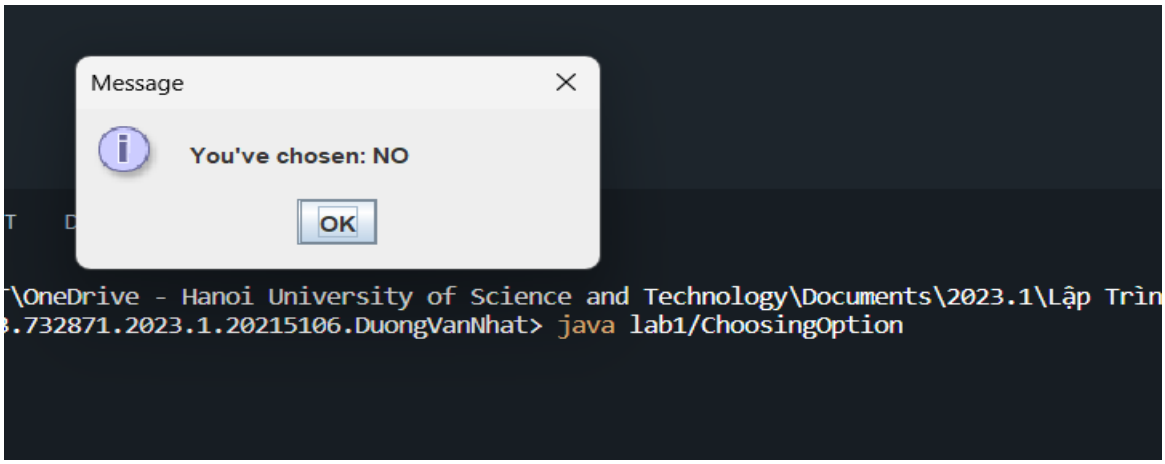
Kết quả:







Kết quả khi chọn cancel:



Cập nhật code:

```
package lab1;
import javax.swing.JOptionPane;
public class ChoosingOption {
    public static void main(String[] args) {
        int option = JOptionPane.showConfirmDialog(null, "Do you want to change to the first class
ticket?");
        if (option == JOptionPane.YES_OPTION) {
            JOptionPane.showMessageDialog(null, "You've chosen: YES");
        } else if (option == JOptionPane.NO_OPTION) {
            JOptionPane.showMessageDialog(null, "You've chosen: NO");
        } else if (option == JOptionPane.CANCEL_OPTION) {
            JOptionPane.showMessageDialog(null, "You've chosen: CANCEL");
        } else if (option == JOptionPane.CLOSED_OPTION) {
            JOptionPane.showMessageDialog(null, "You've closed the dialog");
        }
        System.exit(0);
    }
}
```

6.2 Write a program for input/output from keyboard

Figure 24: Run Application (2)

```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 + ".");

    }
}
```

Markers | Properties | Servers | Data Source Explorer | Snippets | Problems | Console | Searc

IT3103.732871.2023.1.20215106.DuongVanNhat > lab1 > InputFromKeyboard.java > InputFromKeyboard > main(String[])

```java
package lab1;

import java.util.Scanner;

public class InputFromKeyboard {
    Run | Debug
    public static void main(String agrs[]) {
        try (Scanner keyboard = new Scanner(System.in)) {
            System.out.println(x:"What's your name?");
            String strName = keyboard.nextLine();
            System.out.println(x:"How old are you?");
            int iAge = keyboard.nextInt();
            System.out.println(x:"How tall are you?");
            double dHeight = keyboard.nextDouble();

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

    }
}
```

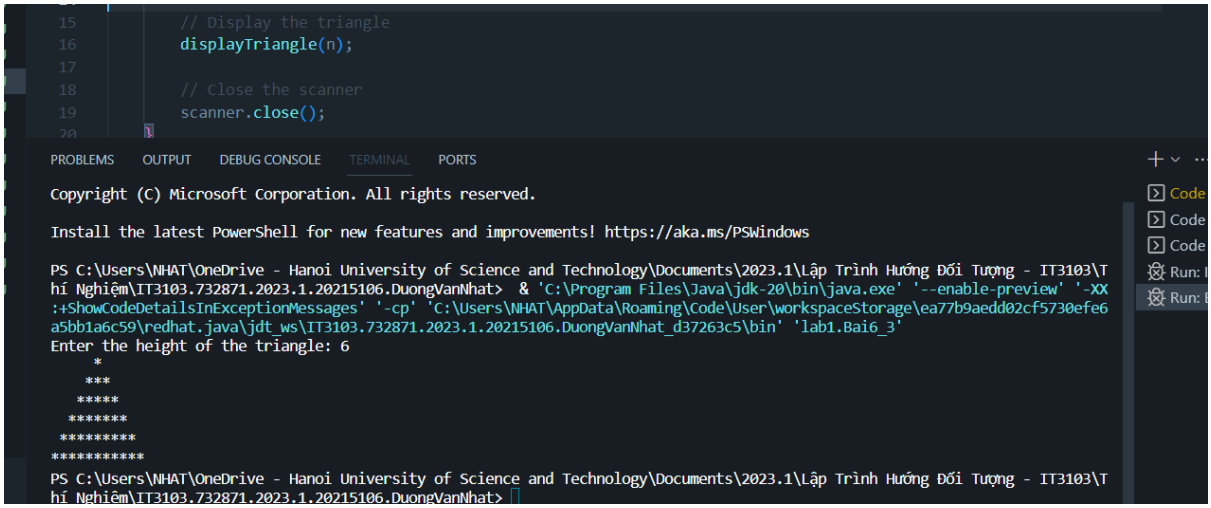
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat> c:;
 cd 'c:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat'; &
 'C:\Program Files\Java\jdk-20\bin\java.exe' '--enable-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\NHAT\AppData\Roaming\Code\User\workspaceStorage\ea77b9aedd02
cf5730efe6a5bb1a6c59\redhat.java\jdt_ws\IT3103.732871.2023.1.20215106.DuongVanNhat_d37263c5\bin' 'lab1.InputFromKeyboard'
What's your name?
nhat
How old are you?
20
How tall are you?
1.73
Mrs/Ms.nhat , 20 years old.Your height is 1.73.
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\Thí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat>
```

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

```java
// 6.3 Write a program to display a triangle with a height of n stars (*), n is entered by users.
package lab1;
import java.util.Scanner;
public class Bai6_3 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        // Get the height of the triangle from the user
        System.out.print("Enter the height of the triangle: ");
        int n = scanner.nextInt();
        // Display the triangle
        displayTriangle(n);
        // Close the scanner
        scanner.close();
    }
    // Function to display the triangle
    private static void displayTriangle(int height) {
        for (int i = 1; i <= height; i++) {
            // Print spaces before the stars
            for (int j = 1; j <= height - i; j++) {
                System.out.print(" ");
            }
            // Print stars
            for (int k = 1; k <= 2 * i - 1; k++) {
                System.out.print("*");
            }
            // Move to the next line after each row
            System.out.println();
        }
    }
}
```

Kết quả:



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.

```
// 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.


package lab1;

import java.util.Scanner;

public class Bai6_4 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Get the month from the user
        int month;
        do {
            System.out.print("Enter the month (1-12): ");
            month = scanner.nextInt();
        } while (month < 1 || month > 12);

        // Get the year from the user
        int year;
        do {
            System.out.print("Enter the year: ");
            year = scanner.nextInt();
        } while (year < 0);

        // Display the number of days
        int daysInMonth = getDaysInMonth(month, year);
        if (daysInMonth != -1) {
            System.out.println("Number of days in month " + month + ", year " + year + ": " + daysInMonth);
        } else {
            System.out.println("Invalid month or year.");
        }

        // Close the scanner
        scanner.close();
    }

    // Function to get the number of days in a month
    private static int getDaysInMonth(int month, int year) {
        if (month < 1 || month > 12 || year < 0) {
            return -1; // Invalid input
        }
```

```
        switch (month) {
            case 1: case 3: case 5: case 7: case 8: case 10: case 12:
                return 31;
            case 4: case 6: case 9: case 11:
                return 30;
            case 2:
                if (isLeapYear(year)) {
                    return 29;
                } else {
                    return 28;
                }
            default:
                return -1; // Invalid month
        }
    }

    // Function to check if a year is a leap year
    private static boolean isLeapYear(int year) {
        return (year % 4 == 0 && year % 100 != 0) || (year % 400 == 0);
    }
}
```

Kết quả:

```
a5bb1a6c59\redhat.java\jdt_ws\IT3103.732871.2023.1.20215106.DuongVanNhat_d37263c5\bin' 'lab1.Bai6_4'
Enter the month (1-12): 11
Enter the year: 2003
Number of days in month 11, year 2003: 30
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng - IT3103\T
hí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat>  & 'C:\Program Files\Java\jdk-20\bin\java.exe' '--enable-preview' '-X
:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\NHAT\AppData\Roaming\Code\User\workspaceStorage\ea77b9aedd02cf5730efe
a5bb1a6c59\redhat.java\jdt_ws\IT3103.732871.2023.1.20215106.DuongVanNhat_d37263c5\bin' 'lab1.Bai6_4'
Enter the month (1-12): 2
Enter the year: 2002
Number of days in month 2, year 2002: 28
```

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

```java
package lab1;
import java.util.Arrays;
import java.util.Scanner;
public class Bai6_5 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        // Get the size of the array
        System.out.print("Enter the size of the array: ");
        int size = scanner.nextInt();
        // Create an array of the specified size
        int[] numericArray = new int[size];
        // Input array elements from the user
        for (int i = 0; i < size; i++) {
            System.out.print("Enter element " + (i + 1) + ": ");
            numericArray[i] = scanner.nextInt();
        }
        // Sort the array
        Arrays.sort(numericArray);
        // Display the sorted array
        System.out.println("Sorted array: " + Arrays.toString(numericArray));
        // Calculate the sum of array elements
        int sum = 0;
        for (int num : numericArray) {
            sum += num;
        }
        // Calculate the average value
        double average = (double) sum / size;
        // Display the sum and average
        System.out.println("Sum of array elements: " + sum);
        System.out.println("Average value of array elements: " + average);
        // Close the scanner
        scanner.close();
    }
}
```

Kết quả:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng -
hí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat>  & 'C:\Program Files\Java\jdk-20\bin\java.exe' '--enable-prev
:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\NHAT\AppData\Roaming\Code\User\workspaceStorage\ea77b9aedd02d
a5bb1a6c59\redhat.java\jdt_ws\IT3103.732871.2023.1.20215106.DuongVanNhat_d37263c5\bin' 'lab1.Bai6_5'
Enter the size of the array: 5
Enter element 1: 5
Enter element 2: 9
Enter element 3: 6
Enter element 4: 3
Enter element 5: 7
Sorted array: [3, 5, 6, 7, 9]
Sum of array elements: 30
Average value of array elements: 6.0
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents\2023.1\Lập Trình Hướng Đối Tượng -
hí Nghiệm\IT3103.732871.2023.1.20215106.DuongVanNhat>
```

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

Note: You must create a new Java project for this exercise.

- The matrices can be entered by the user or constants.

```
package lab1;
import java.util.Scanner;
import java.util.Random;

public class Bai6_6 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Nhap so hang cua ma tran: ");
        int hang = scanner.nextInt();
        System.out.print("Nhap so cot cua ma tran: ");
        int cot = scanner.nextInt();

        int[][] maTran1 = nhapMaTran(scanner, hang, cot, "đầu tiên");
        int[][] maTran2 = nhapMaTran(scanner, hang, cot, "thứ hai");

        System.out.println("\nMa Tran 1:");
        hienThiMaTran(maTran1);

        System.out.println("\nMa Tran 2:");
        hienThiMaTran(maTran2);

        int[][] ketQua = congHaiMaTran(maTran1, maTran2);

        System.out.println("\nMa Tran Ket Qua:");
        hienThiMaTran(ketQua);

        scanner.close();
    }

    private static int[][] nhapMaTran(Scanner scanner, int hang, int cot,
String tenMaTran) {
        System.out.println("Chon cach nhap ma tran " + tenMaTran + ":");
        System.out.println("1. Nhap tu nguoi dung");
        System.out.println("2. Sinh ngau nhien");

        int luaChon = scanner.nextInt();
        int[][] maTran = new int[hang][cot];

        switch (luaChon) {
            case 1:
                System.out.println("Nhap cac phan tu cho ma tran " + tenMaTran
+ ":");
```

```
                for (int i = 0; i < hang; i++) {
                    for (int j = 0; j < cot; j++) {
                        System.out.print("Nhap phan tu tai vi tri [" + (i + 1)
+ "][" + (j + 1) + "]: ");
                        maTran[i][j] = scanner.nextInt();
                    }
                }
                break;

            case 2:
                System.out.println("Ma tran " + tenMaTran + " duoc sinh ngau
nhien:");
                Random random = new Random();
                for (int i = 0; i < hang; i++) {
                    for (int j = 0; j < cot; j++) {
                        maTran[i][j] = random.nextInt(100); // Giả sử giá trị
ngẫu nhiên từ 0 đến 99
                    }
                }
                break;

            default:
                System.out.println("Lua chon khong hop le. Su dung mac dinh la
nhap tu nguoi dung.");
                return nhapMaTran(scanner, hang, cot, tenMaTran);
        }

        return maTran;
    }

    private static int[][] congHaiMaTran(int[][] maTran1, int[][] maTran2) {
        int hang = maTran1.length;
        int cot = maTran1[0].length;
        int[][] ketQua = new int[hang][cot];

        for (int i = 0; i < hang; i++) {
            for (int j = 0; j < cot; j++) {
                ketQua[i][j] = maTran1[i][j] + maTran2[i][j];
            }
        }
        return ketQua;
    }

    private static void hienThiMaTran(int[][] maTran) {
        for (int[] hang : maTran) {
            for (int phanTu : hang) {
                System.out.print(phanTu + " ");
            }
```

```
            System.out.println();
        }
    }
}
```

Kết quả:

```
55d\bin' 'lab1.Bai6_6'
Nhap so hang cua ma tran: 2
Nhap so cot cua ma tran: 2
Chon cach nhap ma tran dau tien:
1. Nhap tu nguoi dung
2. Sinh ngau nhien
1
Nhap cac phan tu cho ma tran dau tien:
Nhap phan tu tai vi tri [1][1]: 1
Nhap phan tu tai vi tri [1][2]: 1
Nhap phan tu tai vi tri [2][1]: 1
Nhap phan tu tai vi tri [2][2]: 1
Chon cach nhap ma tran thu hai:
1. Nhap tu nguoi dung
2. Sinh ngau nhien
2
Ma tran thu hai duoc sinh ngau nhien:

Ma Tran 1:
1 1
1 1

Ma Tran 2:
71 44
91 98

Ma Tran Ket Qua:
72 45
92 99
PS C:\Users\NHAT\OneDrive - Hanoi University of Science and Technology\Documents
```