BÁO CÁO THỰC HÀNH LAP 1
LẬP TRÌNH HƯỚNG ĐỐI TƯỢNG

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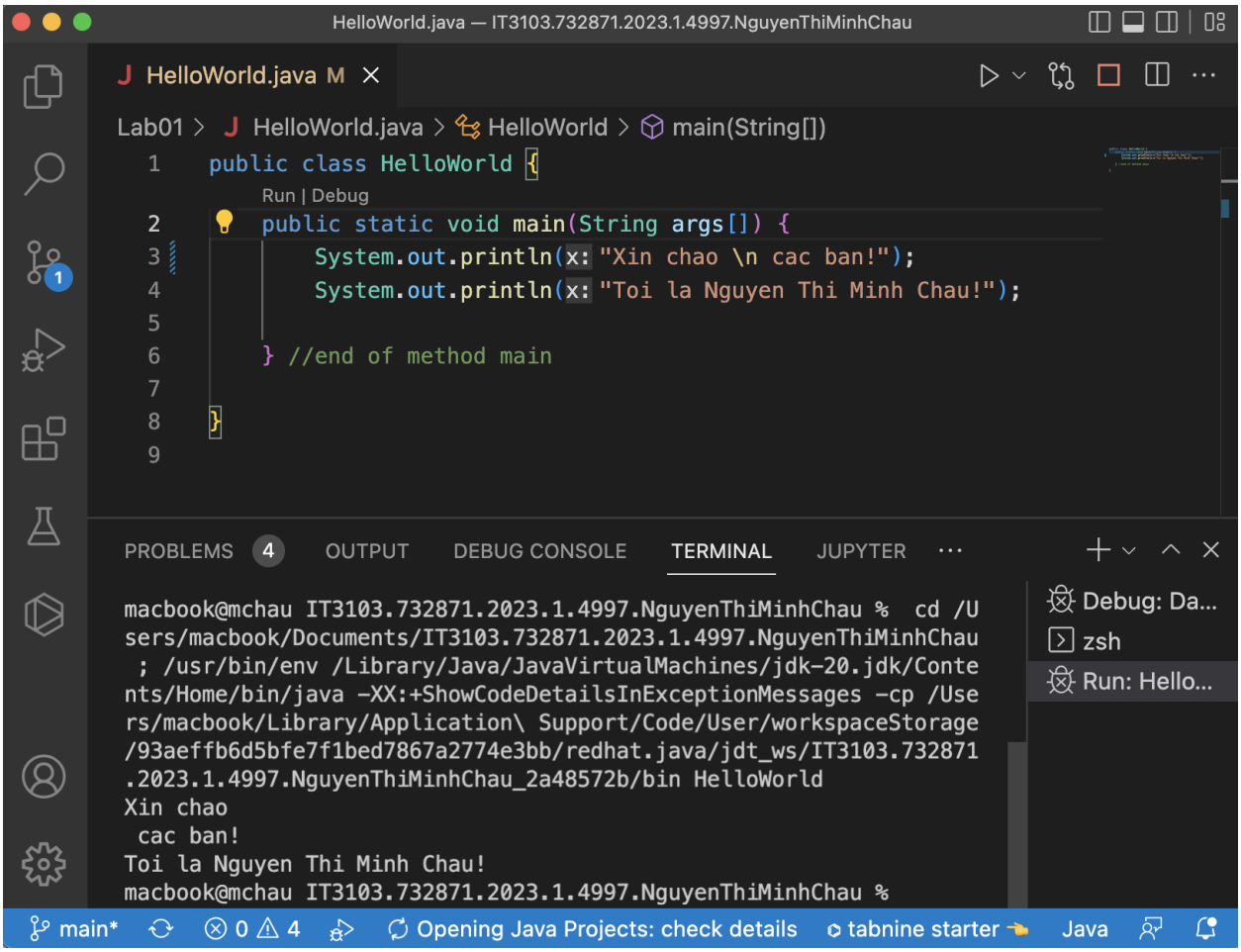
The Very First Java Programs

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
}
```

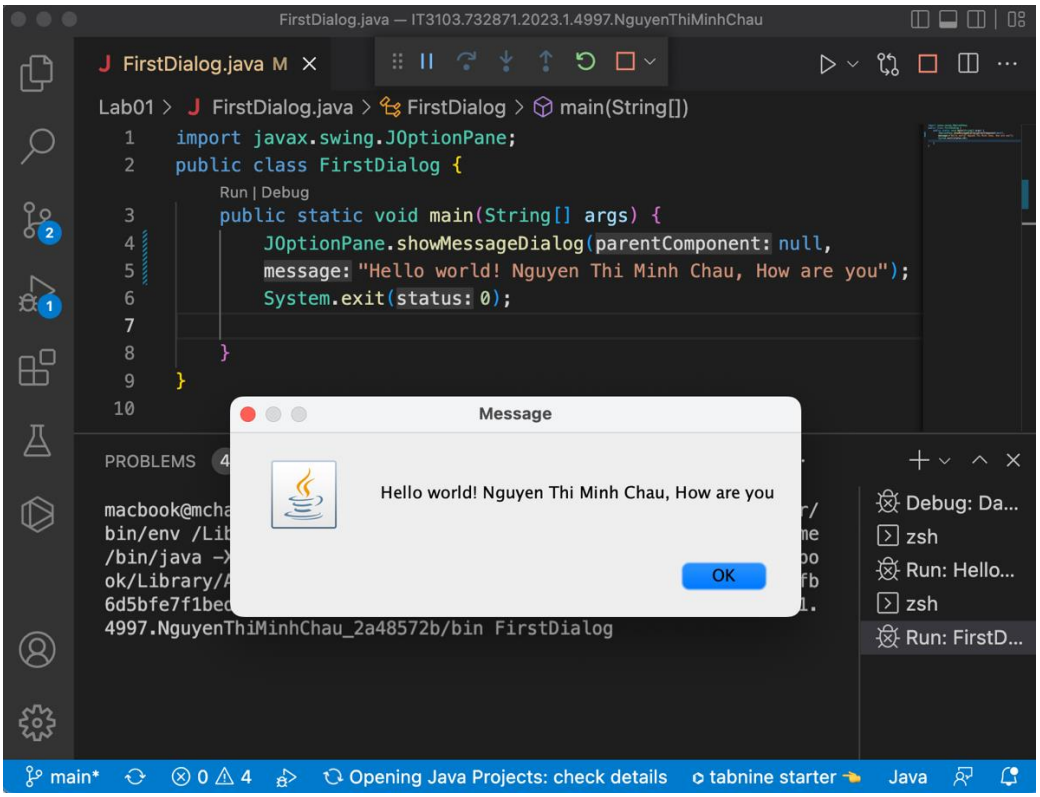
Kết quả:



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);
    }
}
```

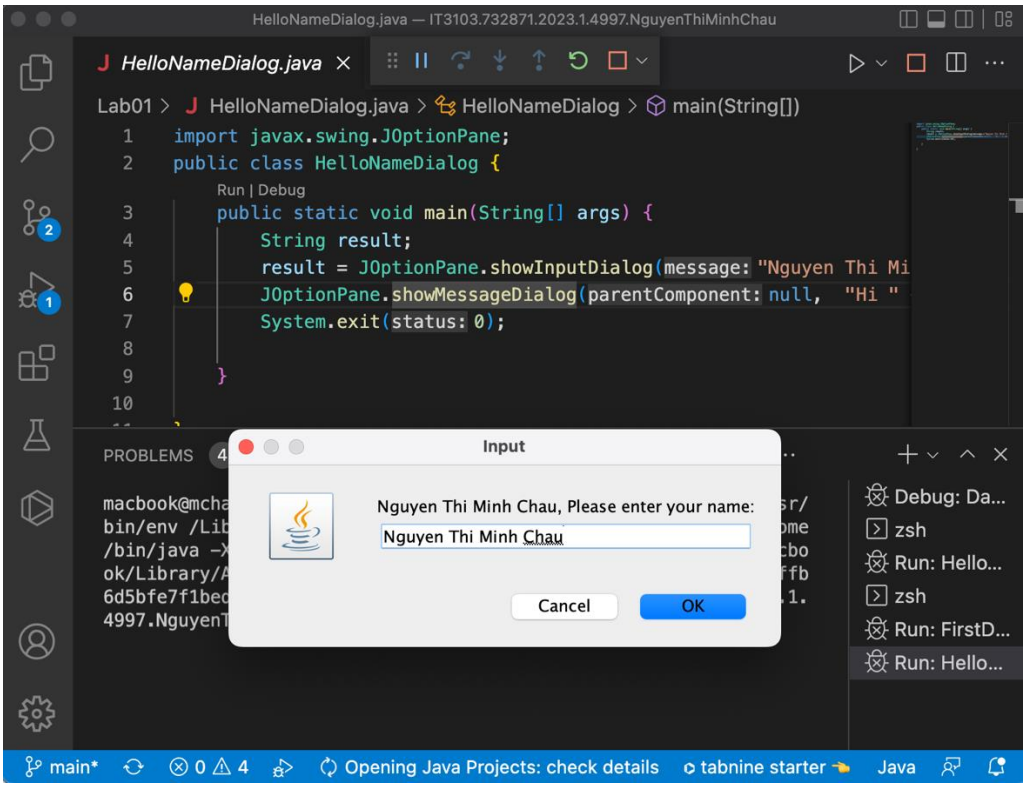
Kết quả:

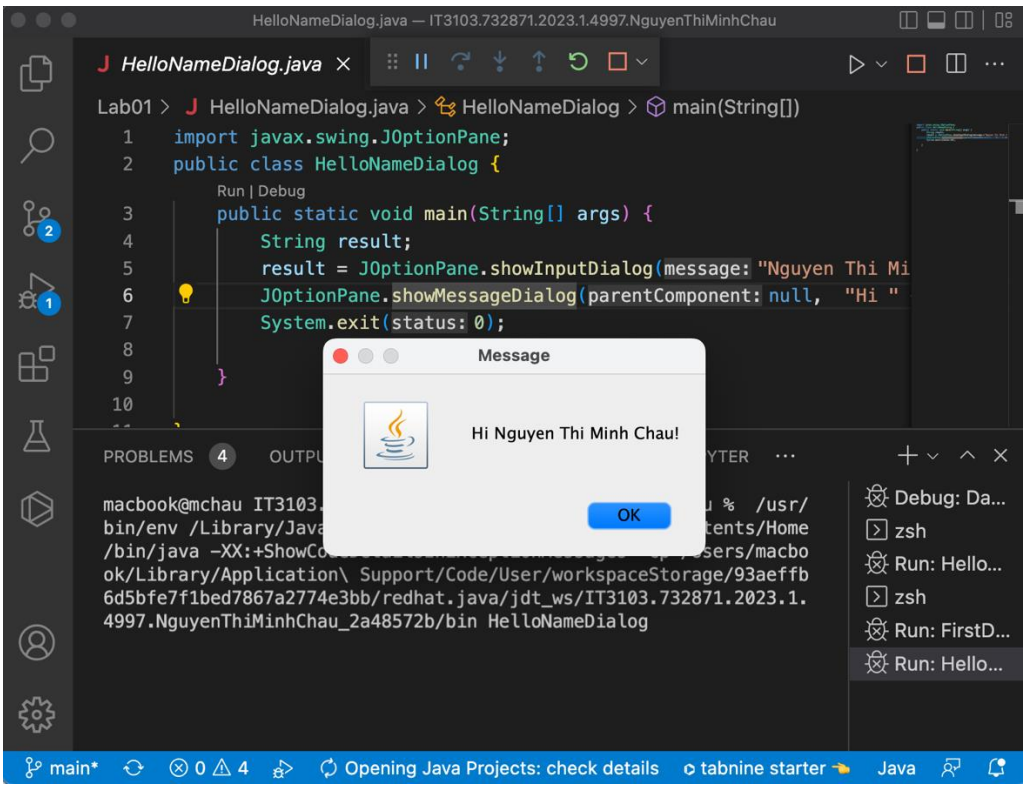


2.2.3 Write, compile the first input dialog Java application

```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:

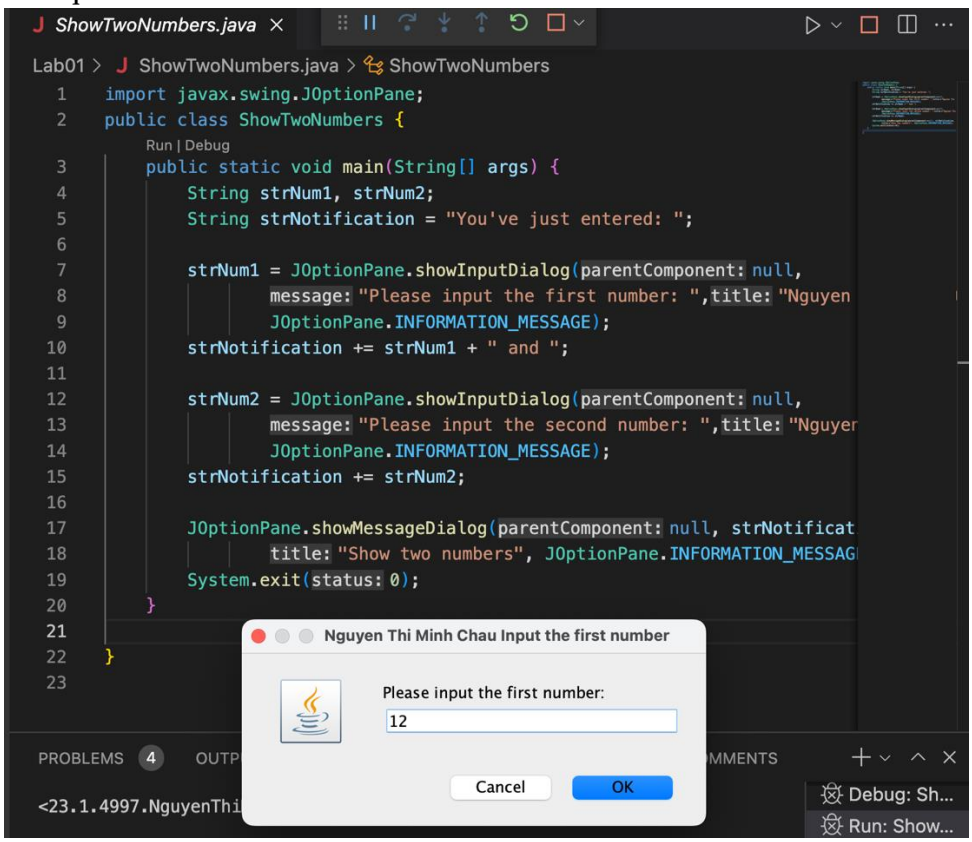

HelloNameDialog.java — IT3103.732871.2023.1.4997.NguyenThiMinhChau
HelloNameDialog.java
Lab01 > HelloNameDialog.java > HelloNameDialog > main(String[])
import javax.swing.JOptionPane;
public class HelloNameDialog {
Run | Debug
public static void main(String[] args) {
String result;
result = JOptionPane.showInputDialog(message: "Nguyen Thi Mi
JOptionPane.showMessageDialog(parentComponent: null, "Hi "
System.exit(status: 0);
}
Input
Nguyen Thi Minh Chau, Please enter your name:
Nguyen Thi Minh Chau
Cancel
OK
PROBLEMS
Debug: Da...
zsh
Run: Hello...
zsh
Run: FirstD...
Run: Hello...
main*
Opening Java Projects: check details
tabnine starter
Java

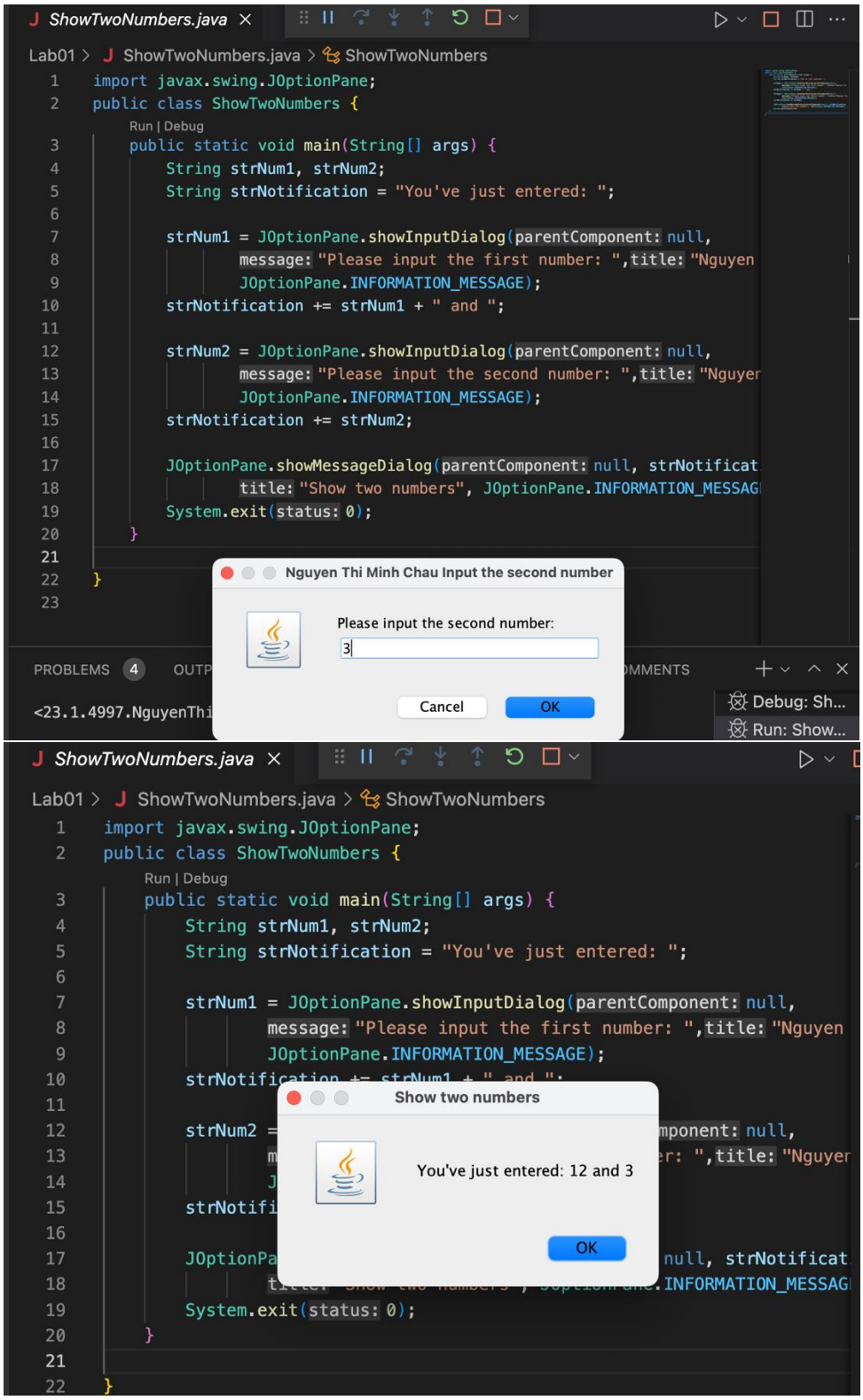

HelloNameDialog.java — IT3103.732871.2023.1.4997.NguyenThiMinhChau
HelloNameDialog.java
Lab01 > HelloNameDialog.java > HelloNameDialog > main(String[])
import javax.swing.JOptionPane;
public class HelloNameDialog {
Run | Debug
public static void main(String[] args) {
String result;
result = JOptionPane.showInputDialog(message: "Nguyen Thi Mi
JOptionPane.showMessageDialog(parentComponent: null, "Hi "
System.exit(status: 0);
}
Message
Hi Nguyen Thi Minh Chau!
OK
PROBLEMS 4
macbook@mchau IT3103.
bin/env /Library/Java
/bin/java -XX:+ShowCo
ok/Library/Application\ Support/Code/User/workspaceStorage/93aeffb
6d5bfe7f1bed7867a2774e3bb/redhat.java/jdt_ws/IT3103.732871.2023.1.
4997.NguyenThiMinhChau_2a48572b/bin HelloNameDialog
Debug: Da...
zsh
Run: Hello...
zsh
Run: FirstD...
Run: Hello...
main*
Opening Java Projects: check details
tabnine starter
Java

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);
  }
}
```

Kết quả:



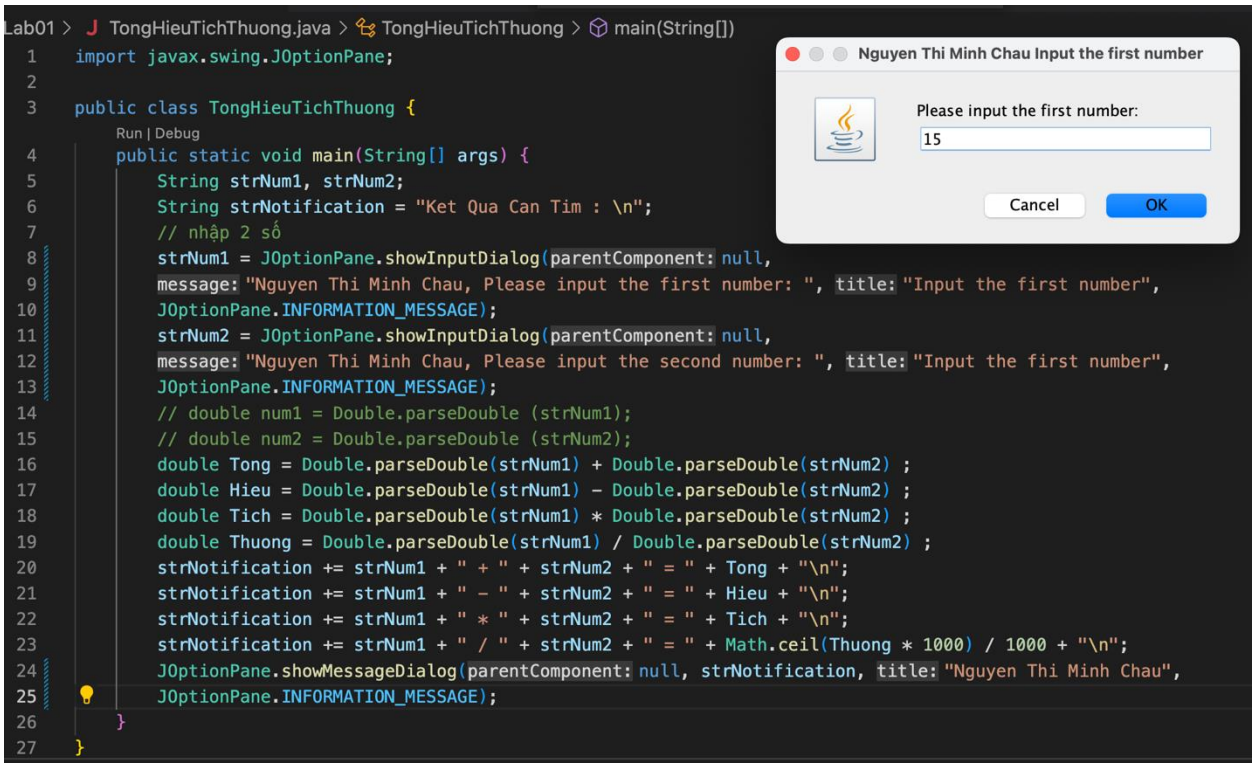

ShowTwoNumbers.java
Lab01 > ShowTwoNumbers.java > ShowTwoNumbers
import javax.swing.JOptionPane;
public class ShowTwoNumbers {
Run | Debug
public static void main(String[] args) {
String strNum1, strNum2;
String strNotification = "You've just entered: ";
strNum1 = JOptionPane.showInputDialog(parentComponent: null,
message: "Please input the first number: ",title: "Nguyen
JOptionPane.INFORMATION_MESSAGE);
strNotification += strNum1 + " and ";
strNum2 = JOptionPane.showInputDialog(parentComponent: null,
message: "Please input the second number: ",title: "Nguyer
JOptionPane.INFORMATION_MESSAGE);
strNotification += strNum2;
JOptionPane.showMessageDialog(parentComponent: null, strNotificat
title: "Show two numbers", JOptionPane.INFORMATION_MESSAG
System.exit(status: 0);
}
}
Nguyen Thi Minh Chau Input the second number
Please input the second number:
3
Cancel
OK
PROBLEMS 4
<23.1.4997.NguyenThi
Debug: Sh...
Run: Show...
ShowTwoNumbers.java
Lab01 > ShowTwoNumbers.java > ShowTwoNumbers
Show two numbers
You've just entered: 12 and 3
OK

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

Kết quả:



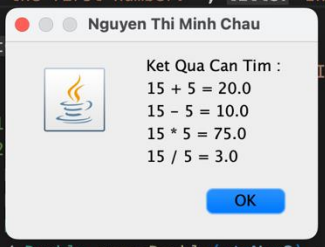

```java
import javax.swing.JOptionPane;

public class TongHieuTichThuong {
    Run | Debug
    public static void main(String[] args) {
        String strNum1, strNum2;
        String strNotification = "Ket Qua Can Tim : \n";
        // nhập 2 số
        strNum1 = JOptionPane.showInputDialog(parentComponent: null,
        message: "Nguyen Thi Minh Chau, Please input the first number: ", title: "Input the first number",
        JOptionPane.INFORMATION_MESSAGE);
        strNum2 = JOptionPane.showInputDialog(parentComponent: null,
        message: "Nguyen Thi Minh Chau, Please input the second number: ", title: "Input the first number",
        JOptionPane.INFORMATION_MESSAGE);
        // double num1 = Double.parseDouble (strNum1);
        // double num2 = Double.parseDouble (strNum2);
        double Tong = Double.parseDouble(strNum1) + Double.parseDouble(strNum2) ;
        double Hieu = Double.parseDouble(strNum1) - Double.parseDouble(strNum2) ;
        double Tich = Double.parseDouble(strNum1) * Double.parseDouble(strNum2) ;
        double Thuong = Double.parseDouble(strNum1) / Double.parseDouble(strNum2) ;
        strNotification += strNum1 + " + " + strNum2 + " = " + Tong + "\n";
        strNotification += strNum1 + " - " + strNum2 + " = " + Hieu + "\n";
        strNotification += strNum1 + " * " + strNum2 + " = " + Tich + "\n";
        strNotification += strNum1 + " / " + strNum2 + " = " + Math.ceil(Thuong * 1000) / 1000 + "\n";
        JOptionPane.showMessageDialog(parentComponent: null, strNotification, title: "Nguyen Thi Minh Chau",
        JOptionPane.INFORMATION_MESSAGE);
    }
}
```

Lab01 > TongHieuTichThuong.java > TongHieuTichThuong > main(String[])

```java
import javax.swing.JOptionPane;

public class TongHieuTichThuong {
    Run | Debug
    public static void main(String[] args) {
        String strNum1, strNum2;
        String strNotification = "Ket Qua Can Tim : \n";
        // nhập 2 số
        strNum1 = JOptionPane.showInputDialog(parentComponent: null,
        message: "Nguyen Thi Minh Chau, Please input the first number: ", title: "Input the first number",
        JOptionPane.INFORMATION_MESSAGE);
        strNum2 = JOptionPane.showInputDialog(parentComponent: null,
        message: "Nguyen Thi Minh Chau, Please input the second number: ", title: "Input the first number",
        JOptionPane.INFORMATION_MESSAGE);
        // double num1 = Double.parseDouble (strNum1);
        // double num2 = Double.parseDouble (strNum2);
        double Tong = Double.parseDouble(strNum1) + Double.parseDouble(strNum2) ;
        double Hieu = Double.parseDouble(strNum1) - Double.parseDouble(strNum2) ;
        double Tich = Double.parseDouble(strNum1) * Double.parseDouble(strNum2) ;
        double Thuong = Double.parseDouble(strNum1) / Double.parseDouble(strNum2) ;
        strNotification += strNum1 + " + " + strNum2 + " = " + Tong + "\n";
        strNotification += strNum1 + " - " + strNum2 + " = " + Hieu + "\n";
        strNotification += strNum1 + " * " + strNum2 + " = " + Tich + "\n";
        strNotification += strNum1 + " / " + strNum2 + " = " + Math.ceil(Thuong * 1000) / 1000 + "\n";
        JOptionPane.showMessageDialog(parentComponent: null, strNotification, title: "Nguyen Thi Minh Chau",
        JOptionPane.INFORMATION_MESSAGE);
    }
}
```

Lab01 > TongHieuTichThuong.java > TongHieuTichThuong > main(String[])

```java
import javax.swing.JOptionPane;

public class TongHieuTichThuong {
    Run | Debug
    public static void main(String[] args) {
        String strNum1, strNum2;
        String strNotification = "Ket Qua Can Tim : \n";
        // nhập 2 số
        strNum1 = JOptionPane.showInputDialog(parentComponent: null,
        message: "Nguyen Thi Minh Chau, Please input the first number: ", title: "Input the first number",
        JOptionPane.INFORMATION_MESSAGE);
        strNum2 = JOptionPane.showInputDialog(parent
        message: "Nguyen Thi Minh Chau, Please input                Input the first number",
        JOptionPane.INFORMATION_MESSAGE);
        // double num1 = Double.parseDouble (strNum1
        // double num2 = Double.parseDouble (strNum2
        double Tong = Double.parseDouble(strNum1) +
        double Hieu = Double.parseDouble(strNum1) -
        double Tich = Double.parseDouble(strNum1) *
        double Thuong = Double.parseDouble(strNum1) / Double.parseDouble(strNum2) ;
        strNotification += strNum1 + " + " + strNum2 + " = " + Tong + "\n";
        strNotification += strNum1 + " - " + strNum2 + " = " + Hieu + "\n";
        strNotification += strNum1 + " * " + strNum2 + " = " + Tich + "\n";
        strNotification += strNum1 + " / " + strNum2 + " = " + Math.ceil(Thuong * 1000) / 1000 + "\n";
        JOptionPane.showMessageDialog(parentComponent: null, strNotification, title: "Nguyen Thi Minh Chau",
        JOptionPane.INFORMATION_MESSAGE);
    }
}
```



2.2.6 Write a program to solve:

For simplicity, we only consider the real roots of the equations in this task.

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

Note: A first-degree equation with one variable can have a form such as $ax+b=0$ ($a\neq0$).

You should handle the case where the user input value 0 for a.

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

Note: A system of first-degree equations with two variables $x1$ and $x2$ can be written as follows.
$\{a11x1+a12x2=b1\ a21x1+a22x2=b2$

You should handle the case where the values of the coefficients produce infinitely many solutions and the case where they produce no solution.

Hint:

Use the following determinants: $D=|a11\ a12\ a21\ a22\ |=a11a22-a21a12D1=|b1\ a12\ b2\ a22\ |=b1a22-b2a12D2=|a11\ b1\ a21\ b2\ |=a11b2-a21b1$

- The second-degree equation with one variable

Note: A second-degree equation with one variable (i.e., quadratic equation) can have a form such as $ax2+bx+c=0$, where x is the variable, and a, b, and c are coefficients ($a\neq0$).

You should handle the case where the values of the coefficients produce a double root & the case where they produce no root. You should also handle the case where the user input value 0 for a.

Hint:

Use the discriminant $\Delta=b2-4ac$

Kết quả:

```java
import java.util.Scanner;   // Nguyễn Thị Minh Châu 20214997
import java.lang.Math;
public class PhuongTrinh{
    // giải phương trình bậc nhất
    public static void phuongtrinhbacnhat(double a, double b){
        if(a==0 && b==0) System.out.println(x: "Phuong trinh vo so nghiem\n");
        else if(a==0 && b!=0) System.out.println(x: "Phuong trinh vo nghiem ");
        else {
            double x = -b/a;
            System.out.println("Nghiem cua phuong trinh la x = " + Math.ceil(x * 1000) / 1000);
        }
    }
    // giải hệ phương trình
    public static void hephuongtrinh(double a1, double a2, double b1, double b2, double c1, double c2){
        double D = a1*b2-a2*b1;
        double Dx = c1*b2-c2*b1;
        double Dy = a1*c2-a2*c1;
        if(D==0 && Dx == 0 && Dy == 0) System.out.println(x: "He phuong trinh co vo so nghiem\n");
        else if((D==0 && Dx!= 0) || (D==0 && Dy!= 0)) System.out.println(x: "He phuong trinh vo nghiem");
        else System.out.println("x: " + Math.ceil((Dx/D) * 1000)/1000 + " y: " + Math.ceil((Dy/D) * 1000)/1000 + "\n");
    }
    // giải phương trình bậc 2
    public static void phuongtrinhbac2(double a, double b, double c){
        if(a==0 && b !=0) System.out.println("Phuong trinh co nghiem la: " + Math.ceil((-c/b) * 1000)/1000);
        else if(a==0 && b == 0 && c == 0)
            System.out.println(x: "Phuong trinh co vo so nghiem");
        else if(a==0 && b==0 && c!=0)
            System.out.println(x: "Phuong trinh vo nghiem");
        else {
            double denta = b*b-4*a*c;
        if(denta>0) {
            double x1 = Math.ceil(((-b+Math.sqrt(denta))/(2*a)) * 1000)/1000;
            double x2 = Math.ceil(((-b-Math.sqrt(denta))/(2*a)) * 1000)/1000;
            System.out.println("\n x1 = " + x1 + "\n x2 = " + x2);
        } else if(denta == 0) {
            double nghiemkep = Math.ceil((-b/(2*a)) * 1000)/1000;
            System.out.println("Nghiem kep cua phuong trinh la: " + nghiemkep);
        }
        if(denta<0) System.out.println(x: "Phuong trinh vo nghiem");
        }


    }

    public static void Menu(){
        System.out.println(x: "\n1) Phuong Trinh Bac Nhat \n2) He Phuong Trinh Bac Nhat \n3) Phuong Trinh Bac Hai");
    }
    /**
     * @param args
     */
    Run | Debug
    public static void main(String[] args) {
        double a,b,c;
      Menu();
      try (Scanner sc = new Scanner(System.in)) {
        int chucnang = sc.nextInt();
          if(chucnang == 1)
          {
            System.out.println(x: "Nhap he so ax+b=0");
            System.out.print(s: "Nhap a = "); a=sc.nextDouble();
            System.out.print(s: "Nhap b = "); b=sc.nextDouble();
            phuongtrinhbacnhat(a,b);
          }
          if(chucnang == 2)
          {
            double a1,a2,b1,b2,c1,c2;
```

Lab01 > PhuongTrinh.java > PhuongTrinh > phuongtrinhbac2(double, double, double)

```
62          {
63            double a1,a2,b1,b2,c1,c2;
64            System.out.println(x: "Nhap he so a1x + b1y = c1, a2x + b2y =c2");
65            System.out.print(s: "Nhap a1 = "); a1=sc.nextDouble();
66            System.out.print(s: "Nhap b1 = "); b1=sc.nextDouble();
67            System.out.print(s: "Nhap c1 = "); c1=sc.nextDouble();
68            System.out.print(s: "Nhap a2 = "); a2=sc.nextDouble();
69            System.out.print(s: "Nhap b2 = "); b2=sc.nextDouble();
70            System.out.print(s: "Nhap c2 = "); c2=sc.nextDouble();
71            hephuongtrinh(a1, a2, b1, b2, c1, c2);
72          }
73
74          if(chucnang == 3){
75            System.out.println(x: "Nhap phuong trinh aX^2 + bX + c = 0");
76            System.out.print(s: "Nhap a = "); a=sc.nextDouble();
77            System.out.print(s: "Nhap b = "); b=sc.nextDouble();
78            System.out.print(s: "Nhap c = "); c=sc.nextDouble();
79            phuongtrinhbac2(a, b, c);
```

PROBLEMS 4 OUTPUT DEBUG CONSOLE TERMINAL JUPYTER COMMENTS

```
<2774e3bb/redhat.java/jdt_ws/IT3103.732871.2023.1.4997.NguyenThiMinhChau_2a48572b/bin PhuongTrinh

1) Phuong Trinh Bac Nhat
2) He Phuong Trinh Bac Nhat
3) Phuong Trinh Bac Hai
1
Nhap he so ax+b=0
Nhap a = 2
Nhap b = 1
Nghiem cua phuong trinh la x = -0.5
macbook@mchau IT3103.732871.2023.1.4997.NguyenThiMinhChau %
```

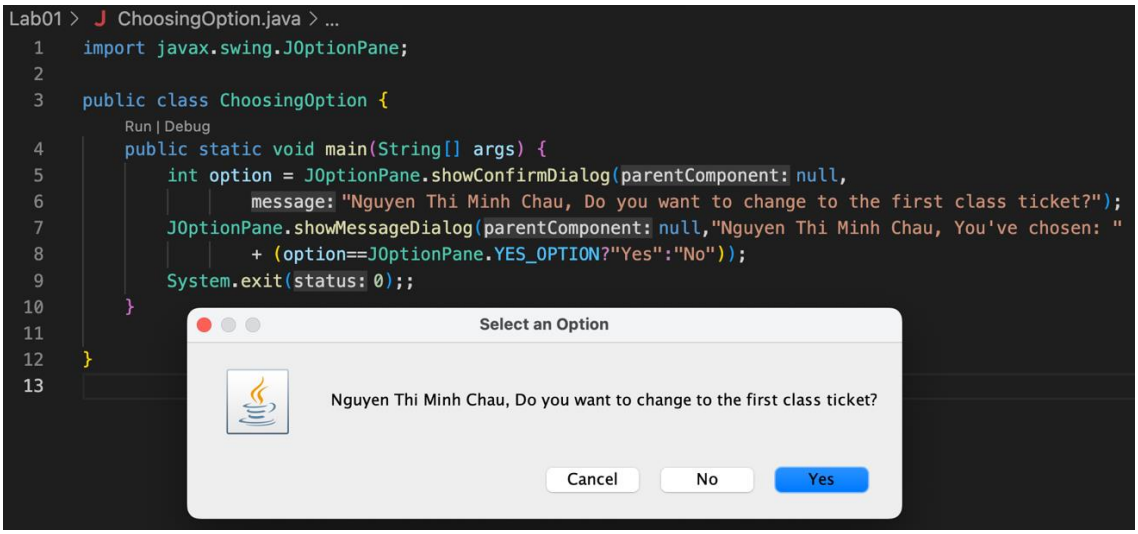
PROBLEMS 4 OUTPUT DEBUG CONSOLE TERMINAL JUPYTER COMMENTS

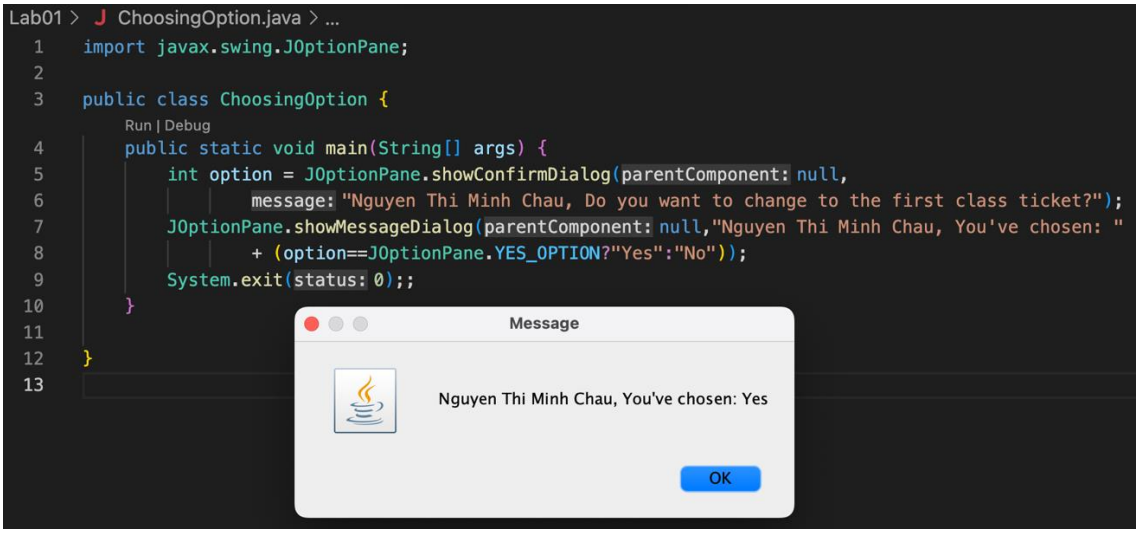
```
macbook@mchau IT3103.732871.2023.1.4997.NguyenThiMinhChau %  cd /Users/macbook/Documents/IT3103.732871.2023.1.4997.NguyenThiMinh
bin/env /Library/Java/JavaVirtualMachines/jdk-20.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/ma
ry/Application\ Support/Code/User/workspaceStorage/93aeffb6d5bfe7f1bed7867a2774e3bb/redhat.java/jdt_ws/IT3103.732871.2023.1.4997
nhChau_2a48572b/bin PhuongTrinh

1) Phuong Trinh Bac Nhat
2) He Phuong Trinh Bac Nhat
3) Phuong Trinh Bac Hai
2
Nhap he so a1x + b1y = c1, a2x + b2y =c2
Nhap a1 = 1
Nhap b1 = 2
Nhap c1 = 3
Nhap a2 = 4
Nhap b2 = 5
Nhap c2 = 6
x: -1.0 y: 2.0

macbook@mchau IT3103.732871.2023.1.4997.NguyenThiMinhChau %  cd /Users/macbook/Documents/IT3103.732871.2023.1.4997.NguyenThiMinh
bin/env /Library/Java/JavaVirtualMachines/jdk-20.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/ma
ry/Application\ Support/Code/User/workspaceStorage/93aeffb6d5bfe7f1bed7867a2774e3bb/redhat.java/jdt_ws/IT3103.732871.2023.1.4997
nhChau_2a48572b/bin PhuongTrinh

1) Phuong Trinh Bac Nhat
2) He Phuong Trinh Bac Nhat
3) Phuong Trinh Bac Hai
3
Nhap phuong trinh aX^2 + bX + c = 0
Nhap a = 1
Nhap b = 2
Nhap c = 1
Nghiem kep cua phuong trinh la: -1.0
macbook@mchau IT3103.732871.2023.1.4997.NguyenThiMinhChau %
```

6.1 Write, compile and run the ChoosingOption program:

```java
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?");

    JOptionPane.showMessageDialog(null,"You've chosen: "
                    + (option==JOptionPane.YES_OPTION?"Yes":"No"));
    System.exit(0);
  }
}
```

Kết quả:





Questions:

- What happens if users choose “Cancel”?

- How to customize the options to users, e.g. only two options: “Yes” and “No”, OR “I do” and “I don’t” (Suggestion: Use Javadocs or using Eclipse/Netbean IDE help).

Trả lời :

1. Khi người dùng chọn Cancel thì sẽ xuất hiện Dialog thông báo "You've choosen : No".

Bởi JOptionPane.YES_OPTION luôn trả về giá trị 0, trong khi ấn vào No hay Cancel thì giá trị option sẽ là 1 hoặc 2

nên option không bằng JOptionPane.YES_OPTION do đó hiện thị thông báo "You've choosen : No".

2. Code bài 6.1 sẽ chạy xuất hiện Dialog với 3 options : YES, NO, CANCEL.

Cách tùy chỉnh options với người dùng , ví dụ chỉ hiển thị 2 options: YES, NO hay I do, I don't có thể sử dụng đoạn code sau :

```
String[] options = new String[] {"Yes", "No"};
int response = JOptionPane.showOptionDialog(null, "Message", "Title",
    JOptionPane.DEFAULT_OPTION, JOptionPane.PLAIN_MESSAGE,
    null, options, options[0]);
```

Ở đoạn code trên Dialog sẽ xuất hiện 2 options là YES và NO. Nếu muốn thêm nhiều options, sẽ thêm các options ở mảng options. Ví dụ :

```
String[] options = new String[] {"Yes", "No", "Maybe", "Never"};
```

Khi đó Dialog sẽ xuất hiện 4 options : Yes, No, Maybe và Never

6.2 Write a program for input/output from keyboard

```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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Kết quả:

Lab01 > InputFromKeyboard.java > InputFromKeyboard > main(String[])

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

        System.out.println(x: "What's your name?");
        String strName = keyboard.nextLine();
        System.out.println(x: "Minh Chau, How old are you?");
        int iAge = keyboard.nextInt();
        System.out.println(x: "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 + ".");
    }
// NguyenThiMinhChau 20214997
}
```

```
macbook@mchau IT3103.732871.2023.1.4997.NguyenThiMinhChau %  /usr/bin/en
jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /
Code/User/workspaceStorage/93aeffb6d5bfe7f1bed7867a2774e3bb/redhat.java/
inhChau_2a48572b/bin InputFromKeyboard
What's your name?
Nguyen Thi Minh Chau
Minh Chau, How old are you?
20
How tall are you (m)?
1,6
Mrs/Ms. Nguyen Thi Minh Chau,20 years old. Your height is 1.6.
macbook@mchau IT3103.732871.2023.1.4997.NguyenThiMinhChau %
```

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

E.g. n=5:

```
    *
   ***
  *****
 *******
*********
```

Kết quả:

```java
import java.util.Scanner;
public class Triangle {
    public static void drawTriangle(int height) {
        for (int i = 1; i <= height; i++) {
            // In khoảng trắng phía trước để tạo tam giác cân
            for (int j = 1; j <= height - i; j++) {
                System.out.print(s: " ");
            }
            // In dấu '*' tạo thành từng hàng của tam giác
            for (int k = 1; k <= 2 * i - 1; k++) {
                System.out.print(s: "*");
            }
            System.out.println(); // Xuống dòng sau mỗi hàng
        }
    }     // Nguyễn Thị Minh Châu 20214997
    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print(s: "Nhap vao chieu cao cua tam giac n sao: ");
        int n = sc.nextInt();
        drawTriangle(n);
    }
}
```

```
macbook@mchau IT3103.732871.2023.1.4997.NguyenThiMinhChau %  cd /Users/macbook/
guyenThiMinhChau ; /usr/bin/env /Library/Java/JavaVirtualMachines/jdk-20.jdk/Co
ailsInExceptionMessages -cp /Users/macbook/Library/Application\ Support/Code/Us
ed7867a2774e3bb/redhat.java/jdt_ws/IT3103.732871.2023.1.4997.NguyenThiMinhChau_
Nhap vao chieu cao cua tam giac n sao: 5
    *
   ***
  *****
 *******
*********
```

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.

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

- The user can either enter a month in its full name, abbreviation, in 3 letters, or in number. To illustrate, the valid inputs of January are January, Jan., Jan, and 1.

- The user must enter a year in a non-negative number and enter all the digits. For instance, the valid inputs of year 1999 is only 1999, but not 99, "one thousand nine hundred ninety-nine", or anything else.

- A year is either a common year of 365 days or a leap year of 366 days. Every year that is divisible by 4 is a leap year, except for years that are divisible by 100, but not by 400. For instance, year 1800 is not a leap year, yet year 2000 is a leap year. In a year, there are twelve months, which are listed in order as follows.

Month	January	February	March	April	May	June	July	August	September	October	November	December
Abbreviation	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
In 3 letters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
In Number	1	2	3	4	5	6	7	8	9	10	11	12
Days of Month in Common Year	31	28	31	30	31	30	31	31	30	31	30	31
Days of Month in Leap Year	31	**29**	31	30	31	30	31	31	30	31	30	31

Kết quả:

```
1  import java.util.Arrays;
2  import java.util.Scanner;    // Nguyễn Thị Minh Châu
3
4  public class DaysofMonth {
5      static String[] January = {"January", "Jan.", "Jan", "1"};
6      static String[] February = {"February", "Feb.", "Feb", "2"};
7      static String[] March = {"March", "Mar.", "Mar", "3"};
8      static String[] April = {"April", "Apr.", "Apr", "4"};
9      static String[] May = {"May", "May.", "5"};
10     static String[] June = {"June", "Jun.", "Jun", "6"};
11     static String[]  String[] October                 ul.", "Jul", "7"};
12     static String[]                                   , "Aug.", "Aug", "8"};
13     static String[]  October                          ember", "Sep.", "Sep", "9"};
14     static String[] October = {"October", "Oct.", "Oct", "10"};
15     static String[] November = {"November", "Nov.", "Nov", "11"};
16     static String[] December = {"December", "Dec.", "Dec", "12"};
17
       Run | Debug
18     public static void main(String[] args){
19         Scanner scanner = new Scanner(System.in);
20         String month;
21         int year;
22         do {
23             System.out.println( x: "Input month : ");
24             month = scanner.nextLine();
25         }
26         while (!checkMonth(month));
27         do {
28             System.out.println( x: "Input year : ");
29             year = scanner.nextInt();
30         }
31         while (!checkYear(year));
32         if (Arrays.asList(January).contains(month) || Arrays.asList(March).contains(month) ||
```

```
33              Arrays.asList(May).contains(month) || Arrays.asList(July).contains(month) ||
34              Arrays.asList(August).contains(month) ||
35              Arrays.asList(October).contains(month) ||Arrays.asList(December).contains(month)){
36                  System.out.println(month + "/" + year + " has 31 days");
37              }
38          else if (Arrays.asList(April).contains(month) || Arrays.asList(June).contains(month) ||
39                   Arrays.asList(September).contains(month) || Arrays.asList(November).contains(m
40                      System.out.println( month + "/" + year + " has 30 days");
41                   }
42          else {
43              if (year % 4 == 0 || (year % 4 == 0 && year % 100 != 0)){
44                  System.out.println(month + "/" + year + " has 29 days");
45              }
46              else System.out.println(month + "/" + year + " has 28 days");
47
48          }
49          scanner.close();
50
51      }
52
53      public static boolean checkMonth(String month){
54      if (Arrays.asList(January).contains(month) || Arrays.asList(February).contains(month) ||
55          Arrays.asList(April).contains(month) || Arrays.asList(March).contains(month) ||
56          Arrays.asList(May).contains(month) || Arrays.asList(June).contains(month) ||
57          Arrays.asList(July).contains(month) || Arrays.asList(August).contains(month) ||
58          Arrays.asList(September).contains(month) || Arrays.asList(October).contains(month) ||
59          Arrays.asList(November).contains(month) || Arrays.asList(December).contains(month)){
60          return true;
61          }
62          return false;
63      }
64
65      public static boolean checkYear(int year){
```

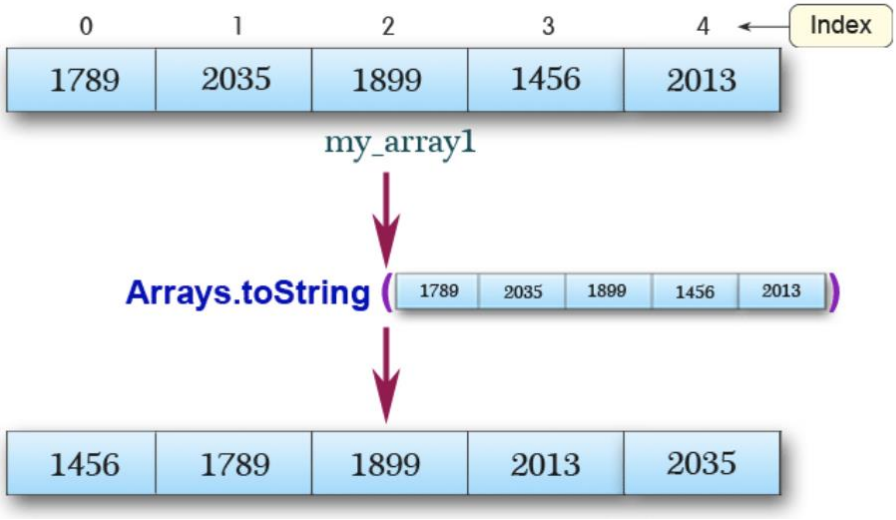
Lab01 > DaysofMonth.java > DaysofMonth > main(String[])

```
63      }
64
65      public static boolean checkYear(int year){
66          String Year = Integer.toString(year);
67          if (Year.length() != 4)
68          return false;
69          return true;
70      }
71  }
72
```

PROBLEMS 3 OUTPUT DEBUG CONSOLE TERMINAL JUPYTER COMMENTS

```
macbook@mchau IT3103.732871.2023.1.4997.NguyenThiMinhChau %  /usr/bin/env /Library/Java/JavaVirtualMach
a -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/macbook/Library/Application\ Support/Code/User/wor
a2774e3bb/redhat.java/jdt_ws/IT3103.732871.2023.1.4997.NguyenThiMinhChau_2a48572b/bin DaysofMonth
Input month :
12
Input year :
2024
12/2024 has 31 days
macbook@mchau IT3103.732871.2023.1.4997.NguyenThiMinhChau %
```

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



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

- The array can be entered by the user or a constant.

Kết quả:

```java
import java.util.Scanner;
public class Array {
    // sắp xếp mảng
    public static void Sapxep(int a[], int n){
        for (int i=0;i<n;i++)
            for(int j=i;j<n;j++)
                if(a[i]>a[j]){
                    int tg = a[i];
                        a[i] = a[j];
                        a[j] = tg;
                }
        System.out.print(s: "Mang da duoc xep tu nho toi lon la: ");
        for (int i=0;i<n;i++) System.out.print(a[i]+", ");
        System.out.println(x: "\n");
    }

    // in ra tổng và trung bình
    public static void SumEndAverage(int a[], int n){
        long sum=0;
        for (int i=0;i<n;i++) sum+=a[i];
        System.out.print("Tong cua mang la: " + sum + "\nTrung binh cua mang la: " + sum/n);
        System.out.println(x: "\n");
    }
```

```java
    // in mảng
    public static void Inmang(int a[], int n){
        System.out.println(x: "Mang ban vua nhap la: ");
        for (int i=0;i<n;i++) System.out.print(a[i]+", ");
        System.out.println(x: "\n");
    }

    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print(s: "Nguyen Thi Minh Chau, Nhap vao so luong phan tu cua mang: ");
        int n = sc.nextInt();
        int[] a=new int[100] ;
        for (int i=0;i<n;i++){
            System.out.print("a["+i+"]: ");
            a[i] = sc.nextInt();
        }
        Inmang(a,n);
        Sapxep(a, n);
        SumEndAverage(a,n);
    }
}
```

```
macbook@mchau IT3103.732871.2023.1.4997.NguyenThiMinhChau % >....
ry/Application\ Support/Code/User/workspaceStorage/93aeffb6d5bfe7f1bed7867a2774e3bb/redhat.java/jd
nhChau_2a48572b/bin Array
Nguyen Thi Minh Chau, Nhap vao so luong phan tu cua mang: 5
a[0]: 1
a[1]: 2
a[2]: 3
a[3]: 4
a[4]: 5
Mang ban vua nhap la:
1, 2, 3, 4, 5,

Mang da duoc xep tu nho toi lon la: 1, 2, 3, 4, 5,

Tong cua mang la: 15
Trung binh cua mang la: 3

macbook@mchau IT3103.732871.2023.1.4997.NguyenThiMinhChau %
```

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

Note: The matrices can be entered by the user or constants.

Kết quả:

```java
public class Matrices {
    Run | Debug
    public static void main(String[] args) {
        int rows = 2, columns = 4;
        //Khai báo hai ma trận dưới dạng mảng đa chiều
        int[][] MatrixA = {{1, 1, 1, 1}, {2, 3, 5, 2}};
        int[][] MatrixB = {{2, 3, 4, 5}, {2, 2, 4, -4}};
    /* Khai báo một tổng ma trận, đó sẽ là tổng của MatrixA và MatrixB,
        ma trận tổng sẽ có cùng các hàng và cột như các ma trận đã cho.
     */
        int[][] sum = new int[rows][columns];
        for (int i = 0; i < rows; i++) {
            for (int j = 0; j < columns; j++) {
                sum[i][j] = MatrixA[i][j] + MatrixB[i][j];
            }
        }
        // Nguyen Thi Minh Chau 20214997
        //Hiển thị ma trận tổng
        System.out.println(x: "Ma tran tong cua hai ma tran da cho la: ");
        for (int i = 0; i < rows; i++) {
            for (int j = 0; j < columns; j++) {
                System.out.print(sum[i][j] + "    ");
            }
            System.out.println();
        }
}
}
```

```
macbook@mchau IT3103.732871.2023.1.4997.NguyenThiMinhChau %  cd /Users/macbook/Doc
guyenThiMinhChau ; /usr/bin/env /Library/Java/JavaVirtualMachines/jdk-20.jdk/Conte
ailsInExceptionMessages -cp /Users/macbook/Library/Application\ Support/Code/User/
ed7867a2774e3bb/redhat.java/jdt_ws/IT3103.732871.2023.1.4997.NguyenThiMinhChau_2a4
Ma tran tong cua hai ma tran da cho la:
3    4    5    6
4    5    9    -2
macbook@mchau IT3103.732871.2023.1.4997.NguyenThiMinhChau %
```