20215292- PHẠM MINH TRƯỜNG
BÁO CÁO THỰC HÀNH LAB_1

2.2.1

HelloWorld - Notepad

File Edit Format View Help

```
public class HelloWorld{
        public static void main(String[] args){
                System.out.println("Hello World!");
}
}
```

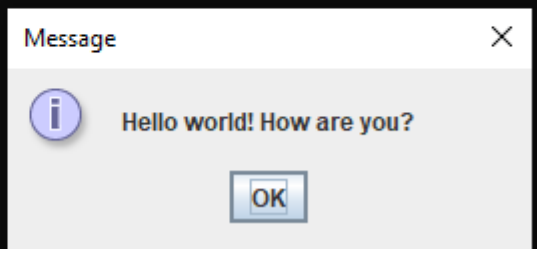
```
C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Documents\năm 3
 kì 1\Java_Project1>javac HelloWorld.java

C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Documents\năm 3
 kì 1\Java_Project1>java HelloWorld
Hello World!
```

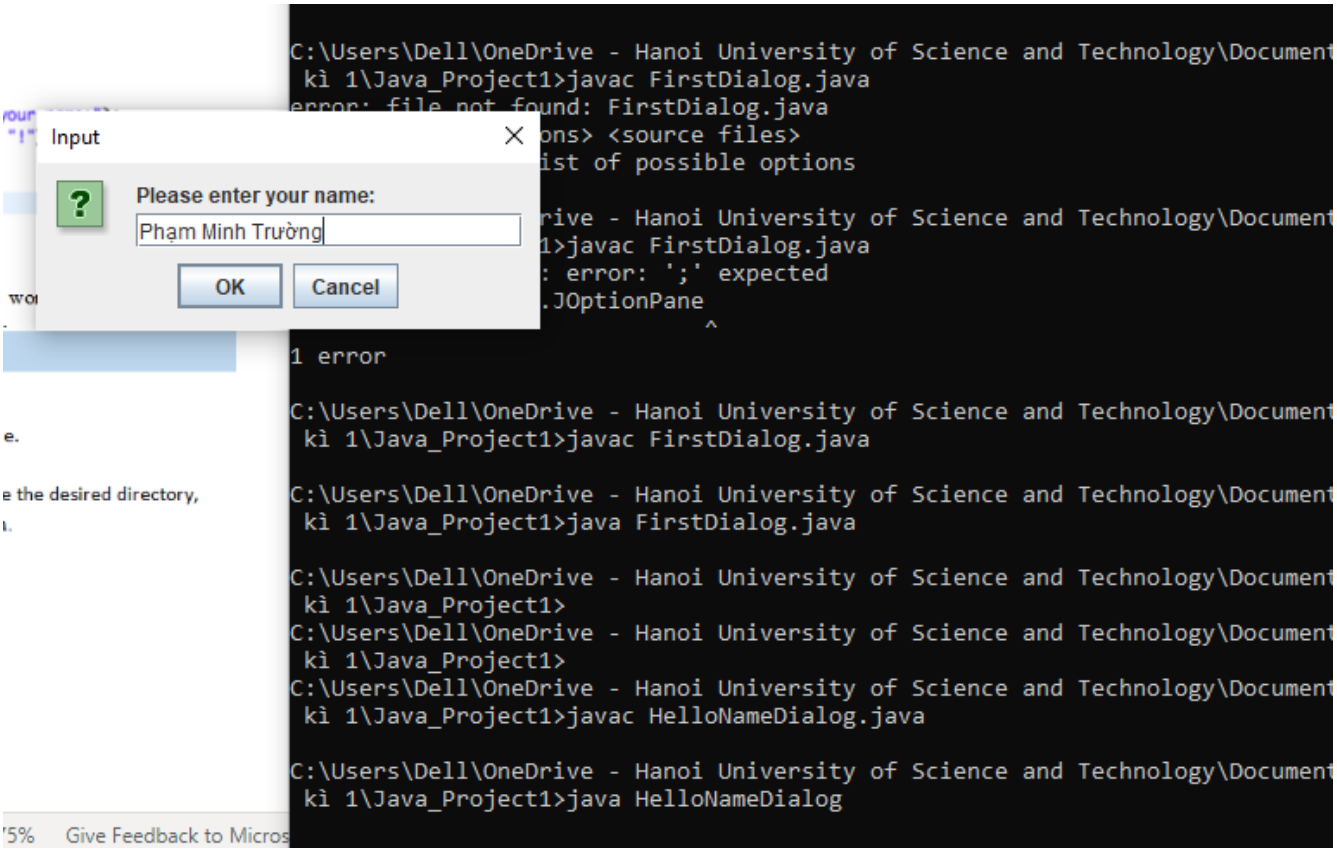
2.2.2

```
C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Documents\năm
 kì 1\Java_Project1>javac FirstDialog.java

C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Documents\năm
 kì 1\Java_Project1>java FirstDialog.java
```

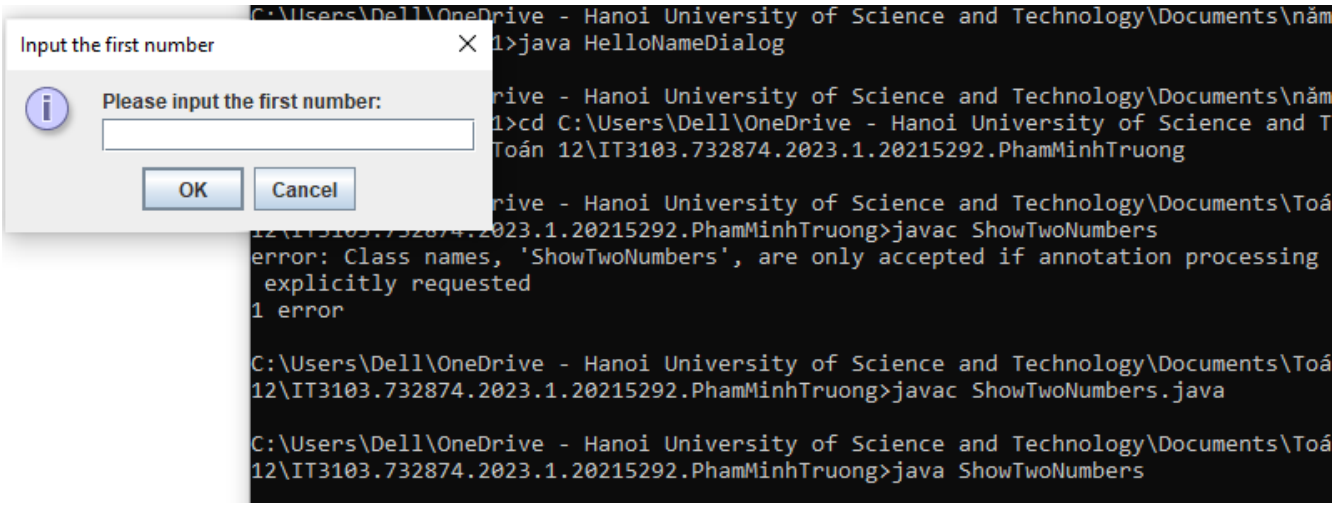


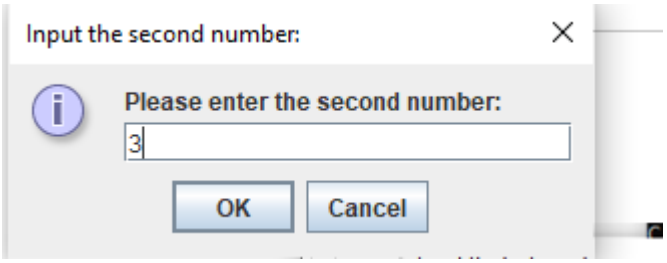
2.2.3

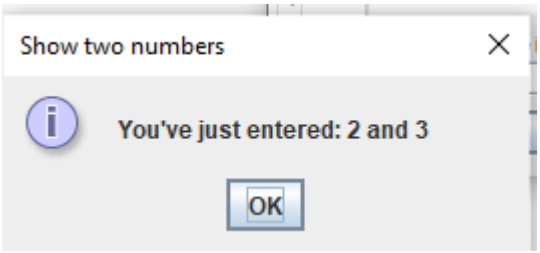

Input
Please enter your name:
Phạm Minh Trường
OK
Cancel
C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Document
kì 1\Java_Project1>javac FirstDialog.java
error: file not found: FirstDialog.java
ons> <source files>
ist of possible options
rive - Hanoi University of Science and Technology\Document
1>javac FirstDialog.java
: error: ';' expected
.JOptionPane
^
1 error
C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Document
kì 1\Java_Project1>javac FirstDialog.java
C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Document
kì 1\Java_Project1>java FirstDialog.java
C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Document
kì 1\Java_Project1>
C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Document
kì 1\Java_Project1>
C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Document
kì 1\Java_Project1>javac HelloNameDialog.java
C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Document
kì 1\Java_Project1>java HelloNameDialog
e the desired directory,
Give Feedback to Micros


Message
Hi Phạm Minh Trường!
OK

2.2.4







2.2.5

Mã nguồn:

```
import java.util.Scanner;


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


        System.out.print("Enter the first number: ");
        String strNum1 = scanner.nextLine();
        double num1 = Double.parseDouble(strNum1);

        System.out.print("Enter the second number: ");
```

```
        String strNum2 = scanner.nextLine();
        double num2 = Double.parseDouble(strNum2);

        double sum = num1 + num2;
        double difference = num1 - num2;
        double product = num1 * num2;
        double quotient = 0.0;

        if (num2 != 0) {
            quotient = num1 / num2;
        } else {
            System.out.println("Division by zero is not allowed.");
        }

        System.out.println("Sum: " + sum);
        System.out.println("Difference: " + difference);
        System.out.println("Product: " + product);

        if (num2 != 0) {
            System.out.println("Quotient: " + quotient);
        }

        scanner.close();
    }
}
```

Kết quả:

```
C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Documents\Toán 12\IT3103.732874.2023.1.20215292.Pham
MinhTruong\lab01>java Calculator.java
Enter the first number: 16
Enter the second number: 8
Sum: 24.0
Difference: 8.0
Product: 128.0
Quotient: 2.0
```

2.2.6

Mã nguồn:

```
import java.util.Scanner;

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

```
        System.out.println("Equation Solver Menu:");
        System.out.println("1. Solve a first-degree equation (ax + b = 0)");
        System.out.println("2. Solve a system of first-degree equations (ax1 + bx2 = c
and dx1 + ex2 = f)");
        System.out.println("3. Solve a second-degree equation (ax^2 + bx + c = 0)");
        System.out.print("Enter your choice (1/2/3): ");
        int choice = scanner.nextInt();

        switch (choice) {
            case 1:
                solveFirstDegreeEquation();
                break;
            case 2:
                solveSystemOfFirstDegreeEquations();
                break;
            case 3:
                solveSecondDegreeEquation();
                break;
            default:
                System.out.println("Invalid choice. Please select 1, 2, or 3.");
        }

        scanner.close();
    }

    public static void solveFirstDegreeEquation() {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the value of a: ");
        double a = scanner.nextDouble();
        System.out.print("Enter the value of b: ");
        double b = scanner.nextDouble();

        if (a != 0) {
            double x = -b / a;
            System.out.println("The solution is x = " + x);
        } else if (b == 0) {
            System.out.println("The equation has infinitely many solutions.");
        } else {
            System.out.println("The equation has no solution.");
        }
    }

    public static void solveSystemOfFirstDegreeEquations() {
```

```
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the values of a11, a12, b1, a21, a22, and b2 (space-
separated): ");
        double a11 = scanner.nextDouble();
        double a12 = scanner.nextDouble();
        double b1 = scanner.nextDouble();
        double a21 = scanner.nextDouble();
        double a22 = scanner.nextDouble();
        double b2 = scanner.nextDouble();

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

        if (D != 0) {
            double x1 = D1 / D;
            double x2 = D2 / D;
            System.out.println("The solutions are x1 = " + x1 + " and x2 = " + x2);
        } else if (D1 == 0 && D2 == 0) {
            System.out.println("The system has infinitely many solutions.");
        } else {
            System.out.println("The system has no solution.");
        }
    }

    public static void solveSecondDegreeEquation() {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the values of a, b, and c (space-separated): ");
        double a = scanner.nextDouble();
        double b = scanner.nextDouble();
        double c = scanner.nextDouble();

        double discriminant = b * b - 4 * a * c;

        if (a == 0) {
            System.out.println("This is not a second-degree equation.");
        } else if (discriminant > 0) {
            double x1 = (-b + Math.sqrt(discriminant)) / (2 * a);
            double x2 = (-b - Math.sqrt(discriminant)) / (2 * a);
            System.out.println("The solutions are x1 = " + x1 + " and x2 = " + x2);
        } else if (discriminant == 0) {
            double x = -b / (2 * a);
            System.out.println("The double root is x = " + x);
```

```
        } else {
            System.out.println("The equation has no real roots.");
        }
    }
}
```

Kết quả:

```
C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Documents\Toán 12\IT3103.732874.2023.1.20215292.Pha
MinhTruong\lab01>javac EquationSolve.java

C:\Users\Dell\OneDrive - Hanoi University of Science and Technology\Documents\Toán 12\IT3103.732874.2023.1.20215292.Pha
MinhTruong\lab01>java EquationSolve
Equation Solver Menu:
1. Solve a first-degree equation (ax + b = 0)
2. Solve a system of first-degree equations (ax1 + bx2 = c and dx1 + ex2 = f)
3. Solve a second-degree equation (ax^2 + bx + c = 0)
Enter your choice (1/2/3): 1
Enter the value of a: 10 2
Enter the value of b: The solution is x = -0.2
```

6.1

Khi user chọn “cancel” thì sẽ in ra thông báo là bạn đã chọn “No”

Để chỉ có 2 option, ta có thể định nghĩa lại String[] options={“Yes”,”No”}; hoặc

String[] options={"I do”,”I don’t”};

6.2

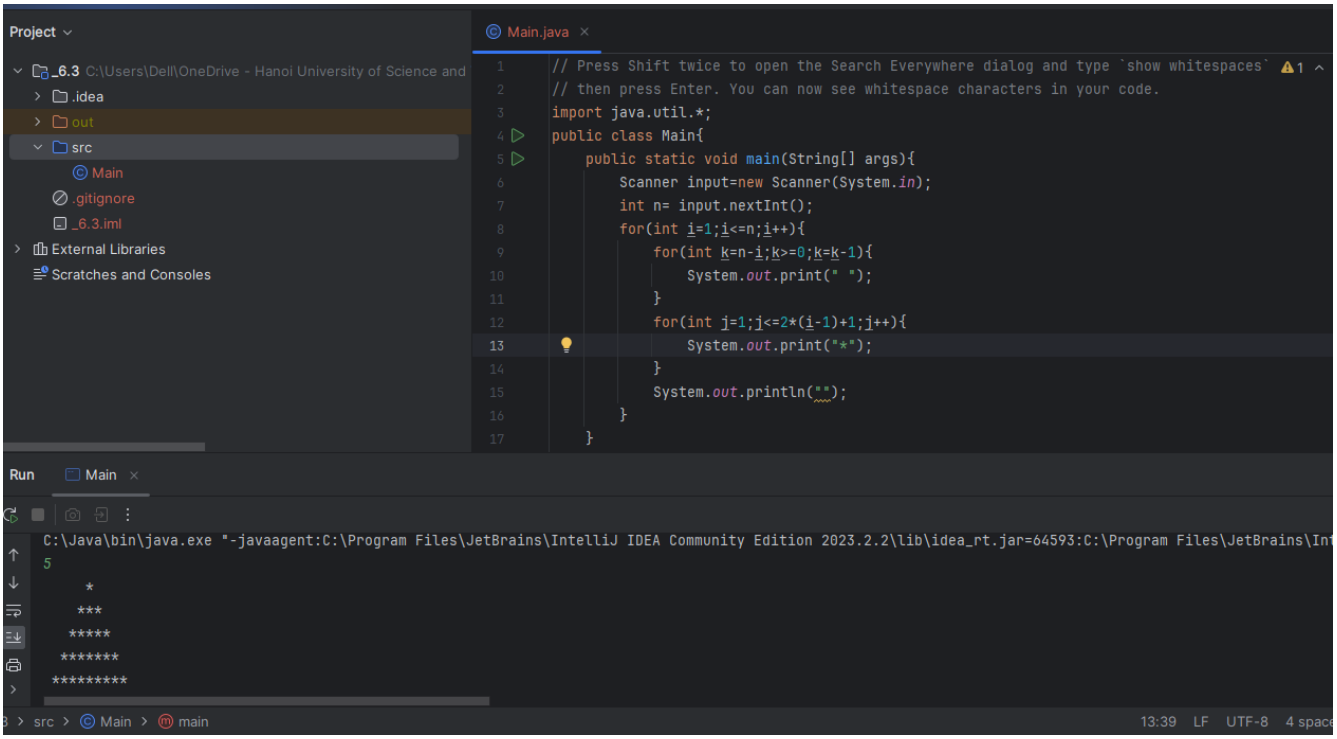
Kết quả:

```
What's your name?
Pham Minh Truong
How old are you?
20
How tall are you?
170
Mrs/Ms. Pham Minh Truong,Age: 20years old. Your height is: 170.0.
```

6.3

Đã tạo Project mới : 6.3.

Kết quả và mã nguồn như ở trong hình



6.4

Mã nguồn:

```java
import java.util.Scanner;


public class MonthDaysCalculator{

    private static String[] months = {
        "January", "February", "March", "April", "May", "June",
        "July", "August", "September", "October", "November", "December"
    };

    private static String[] monthAbbreviations = {
        "Jan.", "Feb.", "Mar.", "Apr.", "May", "June",
        "July", "Aug.", "Sept.", "Oct.", "Nov.", "Dec."
    };

    private static String[] monthShortNames = {
        "Jan", "Feb", "Mar", "Apr", "May", "Jun",
        "Jul", "Aug", "Sep", "Oct", "Nov", "Dec"
    };

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

```
        System.out.println("Enter the month and year (e.g., January 2023 or Jan
2023):");
        String input = scanner.nextLine().trim();

        int month = -1;
        int year = -1;

        while (true) {
            if (isValidInput(input)) {
                break;
            } else {
                System.out.println("Invalid input. Please enter the month and year
(e.g., January 2023 or Jan 2023):");
                input = scanner.nextLine().trim();
            }
        }

        String[] inputParts = input.split(" ");
        for (int i = 0; i < months.length; i++) {
            if (inputParts[0].equalsIgnoreCase(months[i]) ||
inputParts[0].equalsIgnoreCase(monthAbbreviations[i]) ||
inputParts[0].equalsIgnoreCase(monthShortNames[i]) ||
inputParts[0].equals(String.valueOf(i + 1))) {
                month = i + 1;
                break;
            }
        }

        year = Integer.parseInt(inputParts[1]);

        int daysInMonth = getDaysInMonth(month, year);
        System.out.println("There are " + daysInMonth + " days in " + months[month -
1] + " " + year + ".");
    }

    public static boolean isValidInput(String input) {

        String[] inputParts = input.split(" ");
        if (inputParts.length != 2) {
            return false;
        }

        // Validate month part
        for (int i = 0; i < 12; i++) {
```

```
            if (inputParts[0].equalsIgnoreCase(months[i]) ||
inputParts[0].equalsIgnoreCase(monthAbbreviations[i]) ||
inputParts[0].equalsIgnoreCase(monthShortNames[i]) ||
inputParts[0].equals(String.valueOf(i + 1))) {
                return true;
            }
        }


        String yearPart = inputParts[1];
        if (yearPart.matches("\\d+") && Integer.parseInt(yearPart) >= 0) {
            return true;
        }

        return false;
    }

    public static int getDaysInMonth(int month, int year) {
        int[] daysInMonthCommonYear = {
            31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31
        };

        int[] daysInMonthLeapYear = {
            31, 29, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31
        };

        if (isLeapYear(year)) {
            return daysInMonthLeapYear[month - 1];
        } else {
            return daysInMonthCommonYear[month - 1];
        }
    }

    public static boolean isLeapYear(int year) {
        if (year % 4 == 0) {
            if (year % 100 == 0) {
                return year % 400 == 0;
            } else {
                return true;
            }
        }
        return false;
    }
}
```

Kết quả:

```
Enter the month and year (e.g., January 2023 or Jan 2023):
May 2023
There are 31 days in May 2023.
```

```
Enter the month and year (e.g., January 2023 or Jan 2023):
2 2020
There are 29 days in February 2020.
```

6.5

Mã nguồn:

```java
import java.util.Arrays;

public class ArrayCal{
    public static void main(String[] args) {
        double[] numbers = {1234, 1000, 5000, 2000, 10000};


        Arrays.sort(numbers);

        System.out.println("Sorted array: " + Arrays.toString(numbers));


        double sum = 0;
        for (double number : numbers) {
            sum += number;
        }
        System.out.println("Sum of array elements: " + sum);


        double average = sum / numbers.length;
        System.out.println("Average value of array elements: " + average);
    }
}
```

Kết quả:

```
Sorted array: [1000.0, 1234.0, 2000.0, 5000.0, 10000.0]
Sum of array elements: 19234.0
Average value of array elements: 3846.8
```

6.6 Ta tạo Project tên là BaiTap6 ;

Mã nguồn:

6.6

```java
package BaiTap6;

public class MatrixAddition{
    public static void main(String[] args) {

        int[][] matrix1 = {
            {1, 2, 3},
            {4, 5, 6},
            {7, 8, 9}
        };

        int[][] matrix2 = {
            {9, 8, 7},
            {6, 5, 4},
            {3, 2, 1}
        };

        int rows = matrix1.length;
        int cols = matrix1[0].length;


        int[][] resultMatrix = new int[rows][cols];


        for (int i = 0; i < rows; i++) {
            for (int j = 0; j < cols; j++) {
                resultMatrix[i][j] = matrix1[i][j] + matrix2[i][j];
            }
        }


        System.out.println("Matrix 1:");
```

```
        displayMatrix(matrix1);

        System.out.println("Matrix 2:");
        displayMatrix(matrix2);

        System.out.println("Result Matrix (Matrix 1 + Matrix 2):");
        displayMatrix(resultMatrix);
    }

    public static void displayMatrix(int[][] matrix) {
        for (int[] row : matrix) {
            for (int element : row) {
                System.out.print(element + " ");
            }
            System.out.println();
        }
    }
}
```

Kết quả: