

## BÁO CÁO THỰC HÀNH LAP 1 LẬP TRÌNH HƯỚNG ĐỐI TƯỢNG

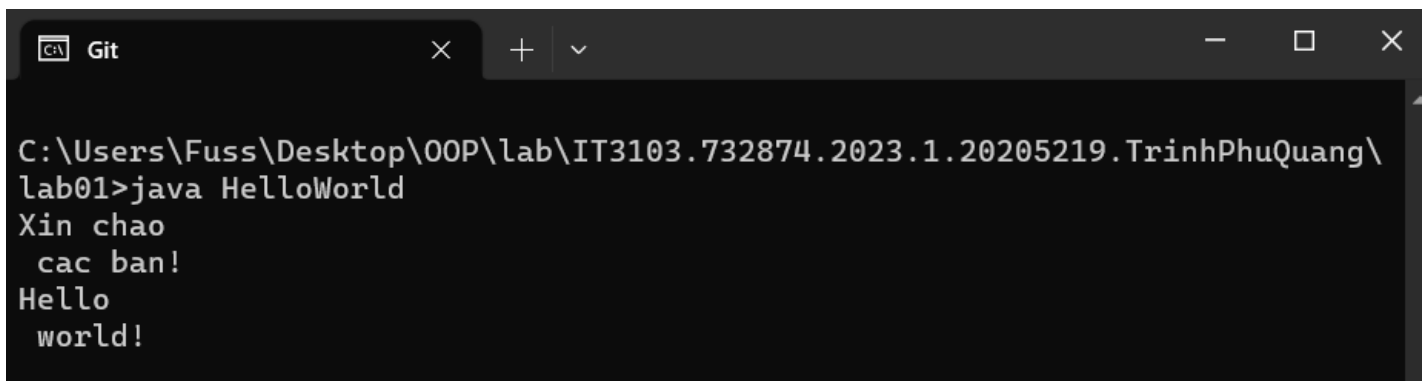
### The Very First Java Programs

#### 2.2.1 Write, compile the first Java application



```
1  
2 public class HelloWorld {  
3     public static void main(String args[]){  
4         System.out.println("Xin chao \n cac ban!");  
5         System.out.println("Hello \n world!");  
6     }  
7 }
```

Kết quả:



```
Git  
C:\Users\Fuss\Desktop\OOP\lab\IT3103.732874.2023.1.20205219.TrinhPhuQuang\  
lab01>java HelloWorld  
Xin chao  
cac ban!  
Hello  
world!
```

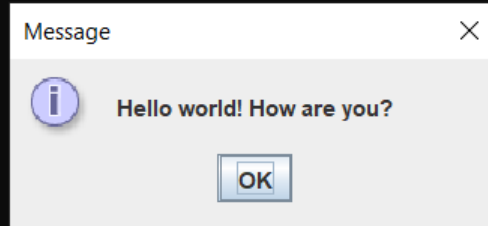
#### 2.2.2 Write, compile the first dialog Java program



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

Kết quả:

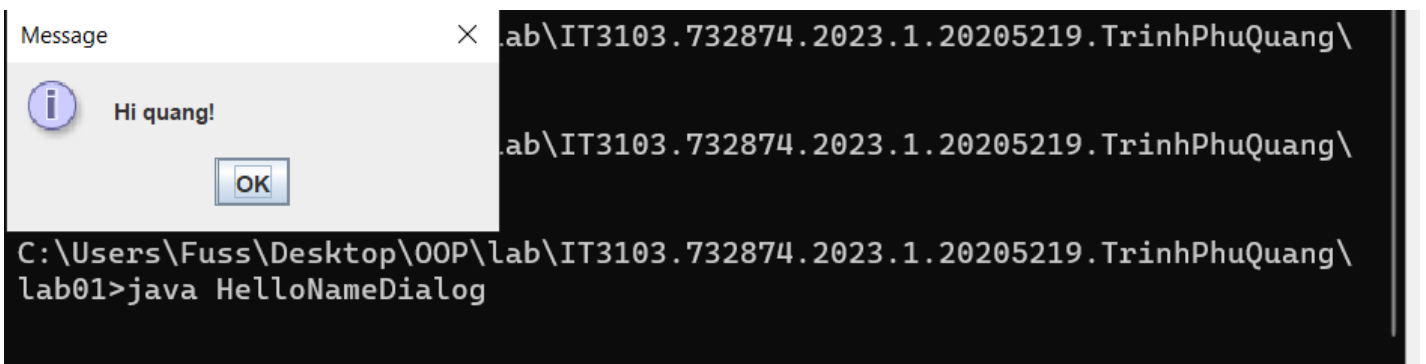
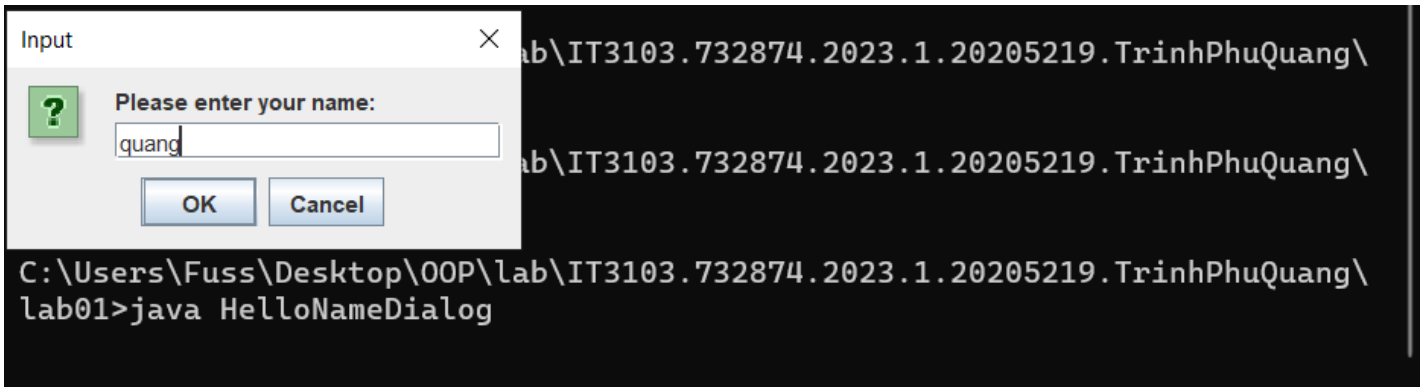
```
C:\Users\Fuss\Desktop\OOP\lab\IT3103.732874.2023.1.20205219.TrinhPhuQuang\lab01>java FirstDialog
```



### 2.2.3 Write, compile the first input dialog Java application

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

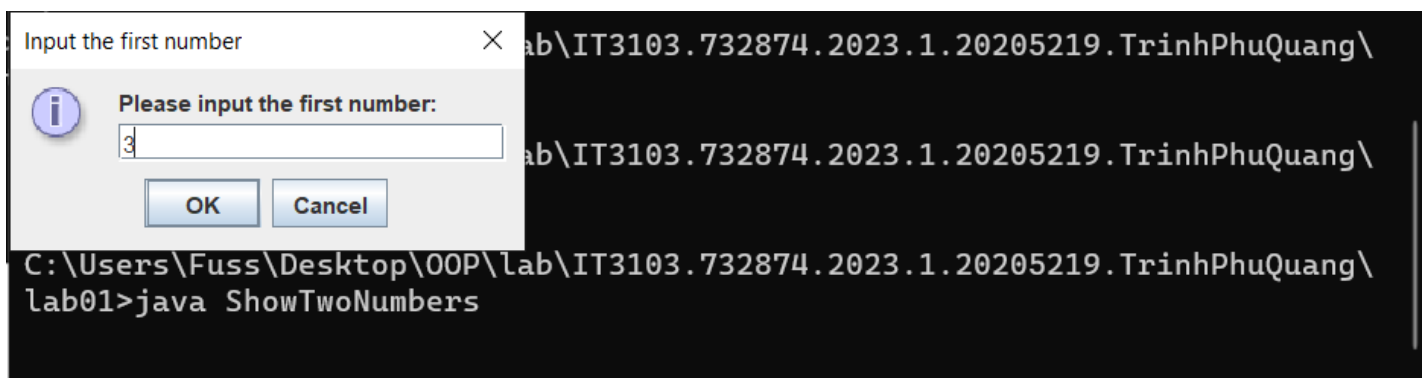
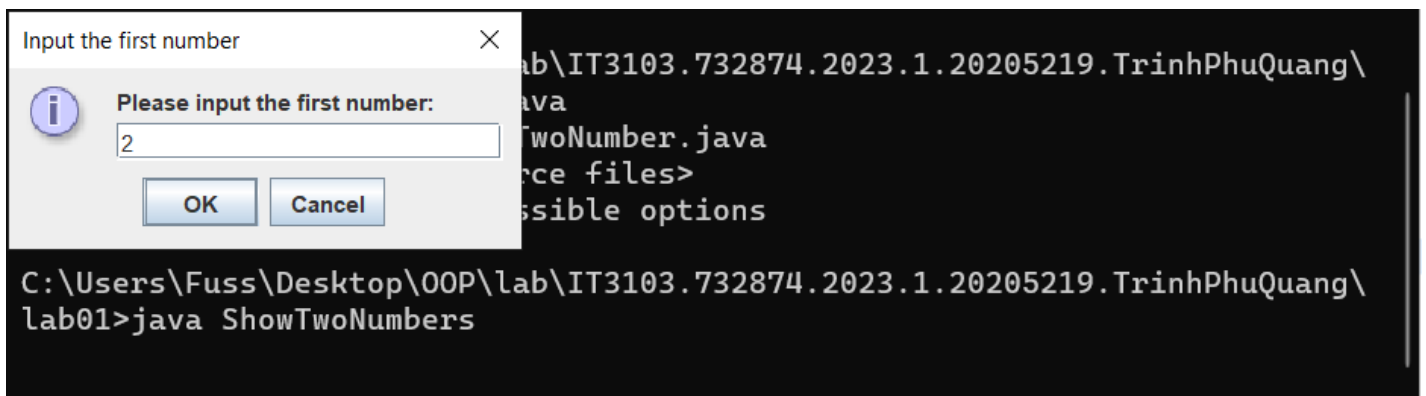
Kết quả:

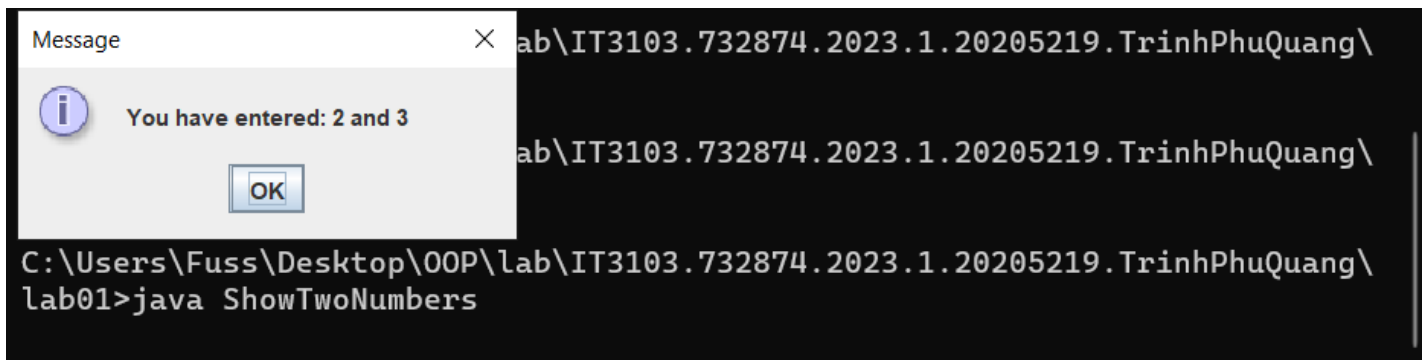


## 2.2.4 Write, compile, and run the following example:

```
Calculator.java x HelloWorld.java x FirstDialog.java x Equation.java x HelloNameDialog.java x ShowTwoNumbers.java x
1  import javax.swing.JOptionPane;
2
3  public class ShowTwoNumbers{
4      public static void main(String[] args) {
5          String strNum1, strNum2;
6          String strNotification = "You have entered: ";
7
8          strNum1 = JOptionPane.showInputDialog(null, "Please input the first number: ", "Input the first number",
9          strNotification += strNum1 + " and ";
10
11          strNum2 = JOptionPane.showInputDialog(null, "Please input the second number: ", "Input the second number",
12          strNotification += strNum2;
13
14          JOptionPane.showMessageDialog(null, strNotification);
15
16          System.exit(0);
17      }
18  }
```

Kết quả

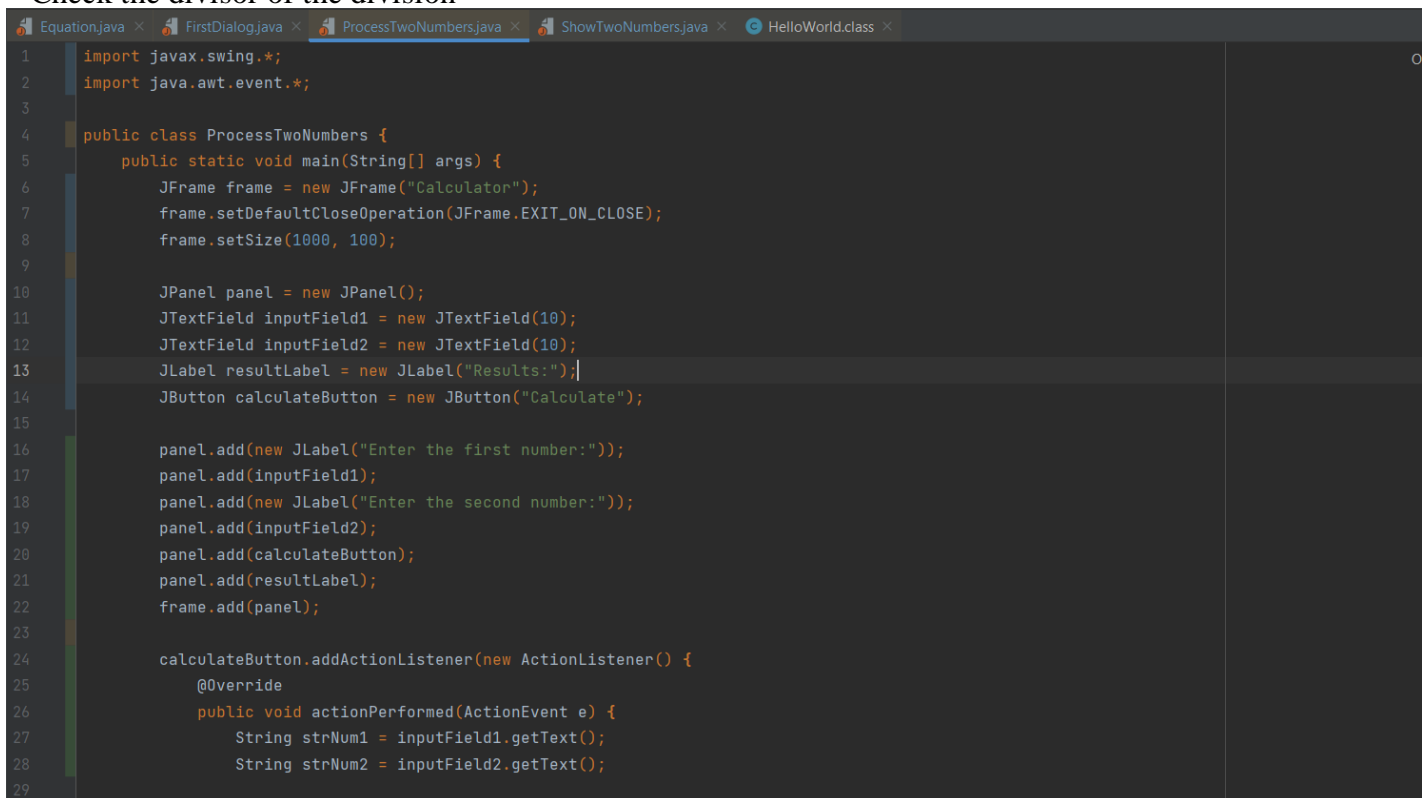




2.2.5 Write a program to calculate sum, difference, product, and quotient of 2 double numbers which are entered by users.

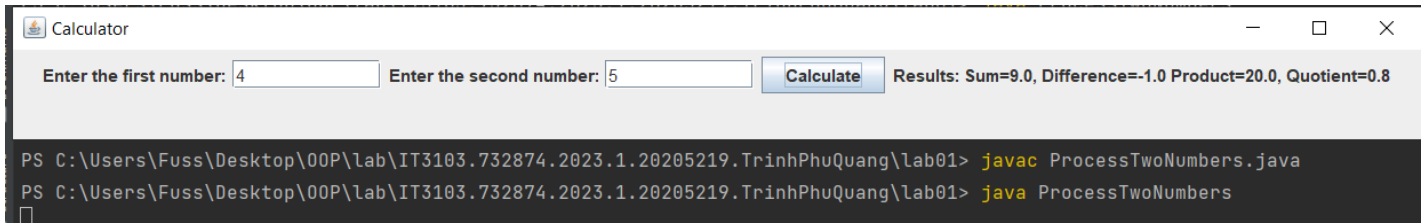
### Notes

- To convert from String to double, you can use  
**double num1 = Double.parseDouble(strNum1)**
- Check the divisor of the division



```
24 calculateButton.addActionListener(new ActionListener() {
25     @Override
26     public void actionPerformed(ActionEvent e) {
27         String strNum1 = inputField1.getText();
28         String strNum2 = inputField2.getText();
29
30         double num1 = Double.parseDouble(strNum1);
31         double num2 = Double.parseDouble(strNum2);
32
33         double sum = num1 + num2;
34         double difference = num1 - num2;
35         double product = num1 * num2;
36         double quotient;
37
38         if (num2 != 0) {
39             quotient = num1 / num2;
40             resultLabel.setText("Results: Sum=" + sum + ", Difference=" + difference + "\n Product=" + product + ", Quotient=" + quotient);
41         } else {
42             resultLabel.setText("Cannot divide by zero. Please enter a non-zero second number.");
43         }
44     }
45 });
46
47 frame.setVisible(true);
```

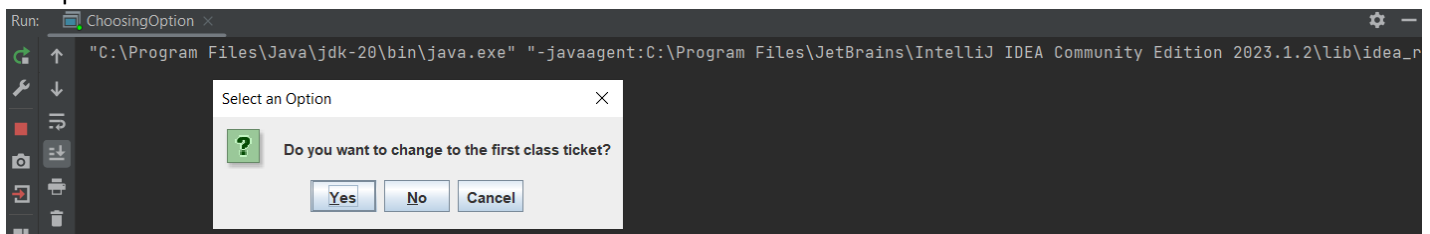
Kết quả:



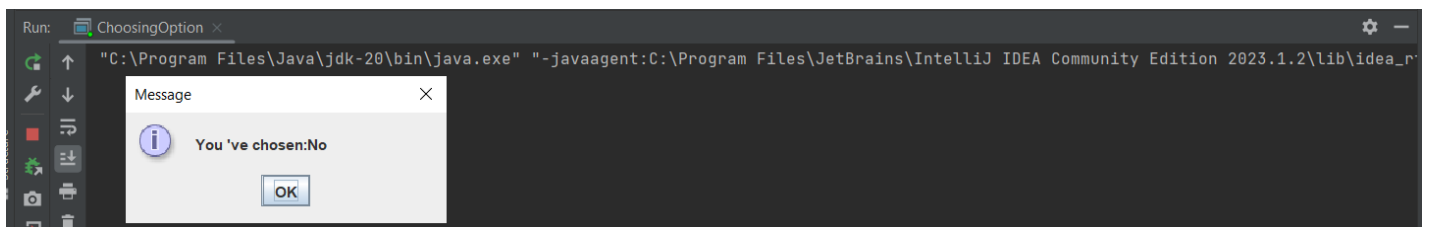
## 6.1 Write, compile and run the ChoosingOption program:

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

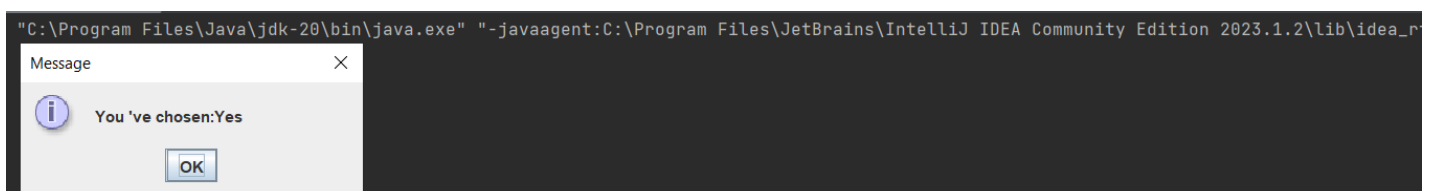
Kết quả:



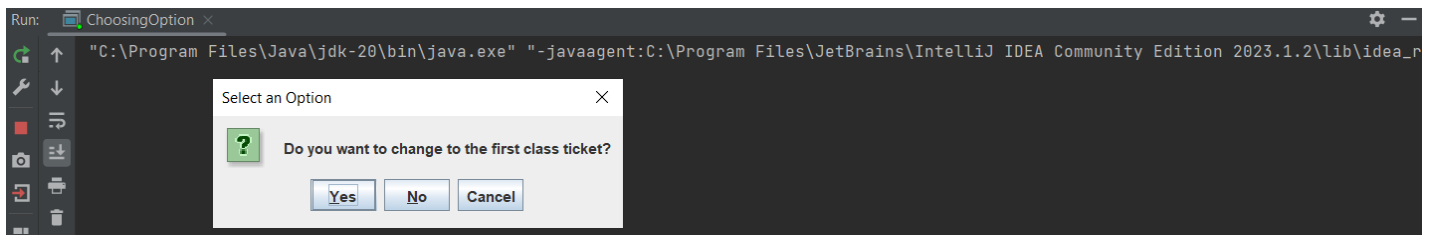
Nếu chọn cancel:



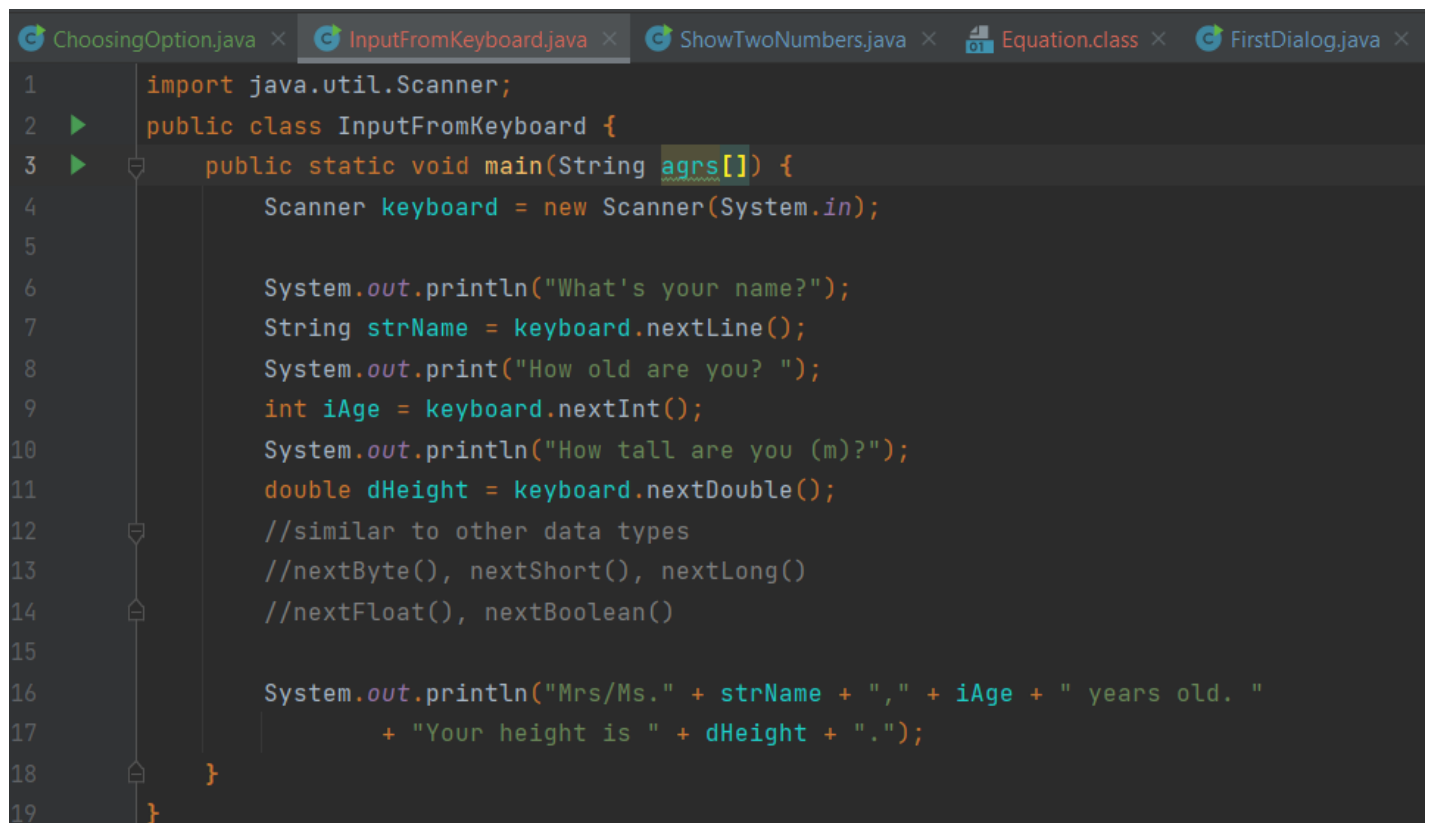
Chọn yes:



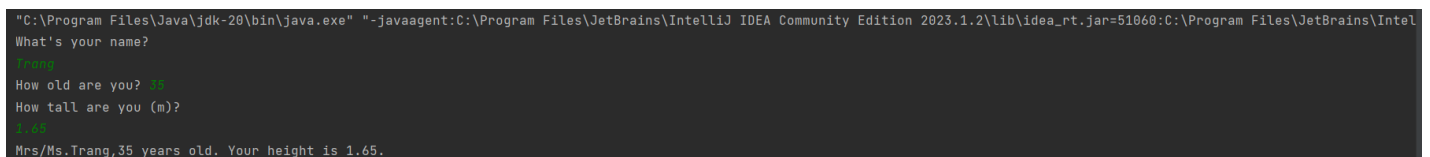
Chọn No:



## 6.2 Write a program for input/output from keyboard



Kết quả:





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

```

1  import java.util.Scanner;
2
3  public class Star {
4      public static void main(String[] args) {
5          Scanner input = new Scanner(System.in);
6          System.out.print("Enter the height of the triangle: ");
7          int n = input.nextInt();
8          for (int i = 1; i <= n; i++) {
9              for (int j = 1; j <= n - i; j++) {
10                 System.out.print(" ");
11             }
12             for (int k = 1; k <= 2 * i - 1; k++) {
13                 System.out.print("*");
14             }
15             System.out.println();
16         }
17         input.close();
18     }
19 }
20

```

Kết quả:

```

"C:\Program Files\Java\jdk-20\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.1.2\lib\idea_rt.jar=51097:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.1.2\bin" -Dfile.encoding=UTF-8
Enter the height of the triangle: 5
*
***
*****
*****
*****

```

### 6.4 Write a program to display the number of days of a month, which is entered by users (both month and year).

```

1  import java.util.Scanner;
2
3  public class DayAMonth {
4      public static void main(String[] args) {
5          Scanner input = new Scanner(System.in);
6          String[] monthNames = { "January", "February", "March", "April", "May", "June",
7                                   "July", "August", "September", "October", "November", "December"
8          };
9          String[] monthAbbreviations = { "Jan.", "Feb.", "Mar.", "Apr.", "May", "Jun.",
10                                             "Jul.", "Aug.", "Sep.", "Oct.", "Nov.", "Dec."
11          };
12          int[] daysInMonth = {
13              31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31
14          };
15          System.out.print("Enter a month (e.g., January, Jan., Jan, 1): ");
16          String userInput = input.nextLine().toLowerCase();
17          int month = -1;
18          for (int i = 0; i < 12; i++) {
19              if (userInput.equals(monthNames[i].toLowerCase()) ||
20                  userInput.equals(monthAbbreviations[i].toLowerCase()) ||
21                  userInput.equals(monthNames[i].substring(0, 3).toLowerCase()) ||
22                  userInput.equals(String.valueOf(i + 1))) {
23                  month = i;
24                  break;
25              }
26          }
27      }
28  }

```

```
ChoosingOption.java x InputFromKeyboard.java x Star.java x DayAMonth.java x ShowTwoNumbers.java x Equation.class x FirstDialog
25     }
26     if (month == -1) {
27         System.out.println("Invalid month input. Please enter a valid month.");
28         input.close();
29         return;
30     }
31     System.out.print("Enter a year (e.g., 1999): ");
32     int year = input.nextInt();
33     if (year < 0) {
34         System.out.println("Invalid year input. Please enter a non-negative year.");
35     } else {
36         if (isLeapYear(year) && month == 1) {
37             System.out.println(monthNames[month] + " " + year + " has 29 days (leap year).");
38         } else {
39             System.out.println(monthNames[month] + " " + year + " has " + daysInMonth[month] + " days.");
40         }
41     }
42     input.close();
43 }
44 public static boolean isLeapYear(int year) {
45     return (year % 4 == 0 && year % 100 != 0) || (year % 400 == 0);
46 }
47 }
```

### Kết quả:

```
"C:\Program Files\Java\jdk-20\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.1.2\lib\idea_rt.jar=51193:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.1.2\bin" -Dfile.encoding=UTF-8
Enter a month (e.g., January, Jan., Jan, 1): feb
Enter a year (e.g., 1999): 2000
February 2000 has 29 days (Leap year).
```

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

```
ChoosingOption.java × InputFromKeyboard.java × Star.java × SortArray.java × DayAMonth.java
1  import java.util.Arrays;
2  import java.util.Scanner;
3
4  public class SortArray {
5      public static void main(String[] args) {
6          Scanner input = new Scanner(System.in);
7          System.out.print("Enter the size of the array: ");
8          int size = input.nextInt();
9          double[] arr = new double[size];
10         for (int i = 0; i < size; i++) {
11             System.out.print("Enter element " + (i + 1) + ": ");
12             arr[i] = input.nextDouble();
13         }
14         Arrays.sort(arr);
15         double sum = 0;
16         for (double num : arr) {
17             sum += num;
18         }
19         double average = sum / size;
20
21         System.out.println("Sorted array: " + Arrays.toString(arr));
22         System.out.println("Sum of array : " + sum);
23         System.out.println("Average of array : " + average);
24         input.close();
25     }
26 }
```

Kết quả:

```
"C:\Program Files\Java\jdk-20\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.1.2\lib\idea_rt.jar=51259:C:\Program Files\JetBrains\Intel
Enter the size of the array: 4
Enter element 1: 3
Enter element 2: 5
Enter element 3: 7
Enter element 4: 9
Sorted array: [3.0, 5.0, 7.0, 9.0]
Sum of array : 24.0
Average of array : 6.0
```

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

```
ChoosingOption.java × InputFromKeyboard.java × Star.java × SortArray.java × Matrix.java × DayAMonth.java ×
1  import java.util.Scanner;
2  public class Matrix {
3      public static void main(String[] args) {
4          Scanner input = new Scanner(System.in);
5
6          System.out.print("Enter the number of rows: ");
7          int rows = input.nextInt();
8          System.out.print("Enter the number of columns: ");
9          int cols = input.nextInt();
10         int[][] matrix1 = new int[rows][cols];
11         int[][] matrix2 = new int[rows][cols];
12         int[][] resultMatrix = new int[rows][cols];
13
14         System.out.println("Enter elements of the first matrix:");
15         for (int i = 0; i < rows; i++) {
16             for (int j = 0; j < cols; j++) {
17                 System.out.print("Enter element [" + i + "][" + j + "]: ");
18                 matrix1[i][j] = input.nextInt();
19             }
20         }
21         System.out.println("Enter elements of the second matrix:");
22         for (int i = 0; i < rows; i++) {
23             for (int j = 0; j < cols; j++) {
24                 System.out.print("Enter element [" + i + "][" + j + "]: ");
25                 matrix2[i][j] = input.nextInt();
26             }
27         }
28     }
29 }
```

```
ChoosingOption.java × InputFromKeyboard.java × Star.java × SortArray.java × Matrix.java × DayAMonth.java ×
19     }
20 }
21 System.out.println("Enter elements of the second matrix:");
22 for (int i = 0; i < rows; i++) {
23     for (int j = 0; j < cols; j++) {
24         System.out.print("Enter element [" + i + "][" + j + "]: ");
25         matrix2[i][j] = input.nextInt();
26     }
27 }
28 for (int i = 0; i < rows; i++) {
29     for (int j = 0; j < cols; j++) {
30         resultMatrix[i][j] = matrix1[i][j] + matrix2[i][j];
31     }
32 }
33 System.out.println("Resultant matrix after addition:");
34 for (int i = 0; i < rows; i++) {
35     for (int j = 0; j < cols; j++) {
36         System.out.print(resultMatrix[i][j] + " ");
37     }
38     System.out.println();
39 }
40 input.close();
41 }
42 }
```

Kết quả:

```
"C:\Program Files\Java\jdk-20\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.1.2\lib\idea_rt.jar=51354:C:\Program Files\JetBrains\Intel
Enter the number of rows: 2
Enter the number of columns: 3
Enter elements of the first matrix:
Enter element [0][0]: 1
Enter element [0][1]: 2
Enter element [0][2]: 3
Enter element [1][0]: 1
Enter element [1][1]: 2
Enter element [1][2]: 3
Enter elements of the second matrix:
Enter element [0][0]: 1
Enter element [0][1]: 1
Enter element [0][2]: 1
Enter element [1][0]: 1
Enter element [1][1]: 1
Enter element [1][2]: 1
Resultant matrix after addition:
2 3 4
2 3 4
```