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
package lab01_java;
//Text print
public class HelloWorld {
    public static void main(String[] var0) {
          System.out.println("Le Quoc Viet - 5165");
          System.out.println("Hello world");
       }

}
```

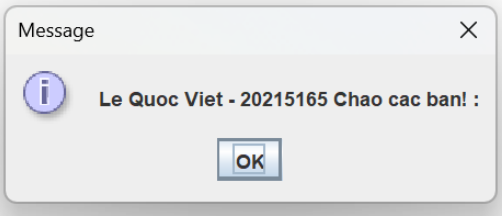
Kết quả

```
<terminated> HelloWorld [Java Application] C:\Users\QUOC VIET\.p2\po
Le Quoc Viet - 5165
Hello world
```

2.2.2 Write, compile the first dialog Java program

```java
package lab01_java;

import javax.swing.JOptionPane;
//oshirasewoshimeru.
public class FirtsDialog {
    public static void main(String[] args) {
            JOptionPane.showMessageDialog(null,"Le Quoc Viet - 20215165 Chao cac ban! :");
    }
}
```

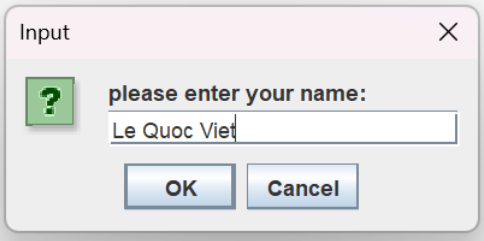
```java
package lab01_java;

import javax.swing.JOptionPane;
//oshirasewoshimeru.
public class FirtsDialog {
    public static void main(String[] args) {
            JOptionPane.showMessageDialog(null,"Le Quoc Viet - 20215165 Chao cac ban! :");
    }
}
```



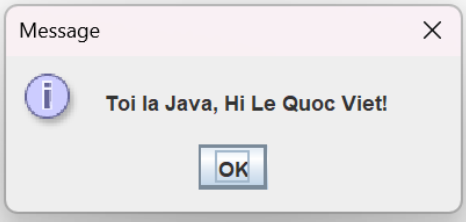
2.2.3 Write, compile the first input dialog Java application

```java
//Le Quoc Viet 20215165
package lab01_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, "Toi la Java, Hi " + result + "!");
        System.exit(0);
    }

}
```

```java
//Le Quoc Viet 20215165
package lab01_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, "Toi la Java, Hi " + result + "!");
        System.exit(0);
    }

}

```




```java
//Le Quoc Viet 20215165
package lab01_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, "Toi la Java, Hi " + result + "!");
        System.exit(0);
    }

}

```

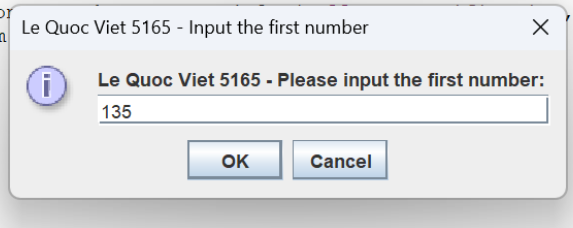


2.2.4 Write, compile, and run the following example:

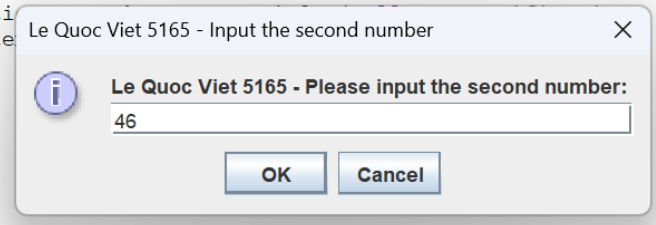
```
1  package lab01_java;
2  import javax.swing.JOptionPane;
3  public class ShowTwoNumbers {
4      public static void main(String[] args) {
5          String strNum1, strNum2;
6          String strNotification = "Le Quoc Viet 5165 - You've just entered: ";
7
8          strNum1 = JOptionPane.showInputDialog(null, "Le Quoc Viet 5165 - Please input the first number: ", "Le
9          strNotification += strNum1 + " and ";
10         strNum2 = JOptionPane.showInputDialog(null, "Le Quoc Viet 5165 - Please input the second number: ", "Le
11         strNotification += strNum2;
12
13         JOptionPane.showMessageDialog(null, strNotification, "Le Quoc Viet 5165 - Show two numbers", JOptionPane
14         System.exit(0);
15     }
16
17 }
18
```

FirtsDialog.... HelloWorld.java HelloNameDi... ShowTwoNumb... Matrix.java Array.java CheckNgay.java Choosi

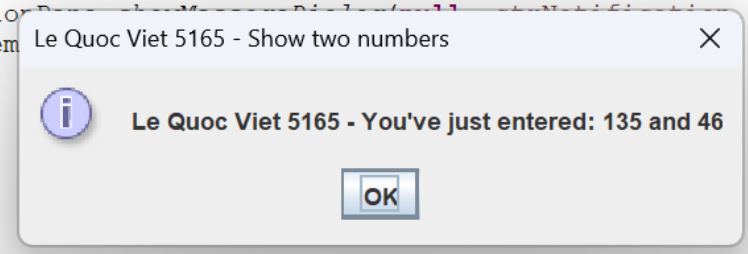
```
1  package lab01_java;
2  import javax.swing.JOptionPane;
3  public class ShowTwoNumbers {
4      public static void main(String[] args) {
5          String strNum1, strNum2;
6          String strNotification = "Le Quoc Viet 5165 - You've just entered: ";
7
8          strNum1 = JOptionPane.showInputDialog(null, "Le Quoc Viet 5165 - Please input the first r
9          strNotification += strNum1 + " and ";
10         strNum2 = JOptionPane.showInputDialog(null, "Le Quoc Viet 5165 - Please input the second
11         strNotification += strNum2;
12
13         JOption                                                    "Le Quoc Viet 5165 - Show two number
14         System
15     }
16
17 }
18
```




```
1  package lab01_java;
2  import javax.swing.JOptionPane;
3  public class ShowTwoNumbers {
4      public static void main(String[] args) {
5          String strNum1, strNum2;
6          String strNotification = "Le Quoc Viet 5165 - You've just entered: ";
7
8          strNum1 = JOptionPane.showInputDialog(null, "Le Quoc Viet 5165 - Please input the fi
9          strNotification += strNum1 + " and ";
10         strNum2 = JOptionPane.showInputDialog(null, "Le Quoc Viet 5165 - Please input the se
11         strNotification += strNum2;
12
13         JOpti                                                    "Le Quoc Viet 5165 - Show two r
14         Syste
15     }
16
17 }
18
```



```
import javax.swing.JOptionPane;
public class ShowTwoNumbers {
    public static void main(String[] args) {
        String strNum1, strNum2;
        String strNotification = "Le Quoc Viet 5165 - You've just entered: ";

        strNum1 = JOptionPane.showInputDialog(null, "Le Quoc Viet 5165 - Please
        strNotification += strNum1 + " and ";
        strNum2 = JOptionPane.showInputDialog(null, "Le Quoc Viet 5165 - Please
        strNotification += strNum2;

        JOptio                                                    "Le Quoc Viet 5165
        System
    }

}
```



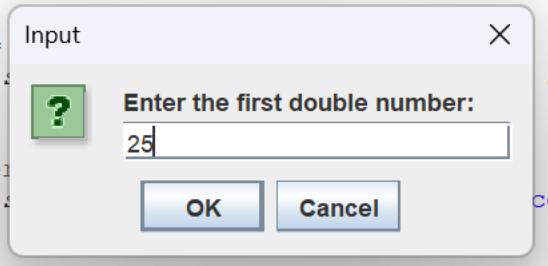
2.2.5 Write a program to calculate sum, difference, product, and quotient of 2 double numbers which are entered by users.

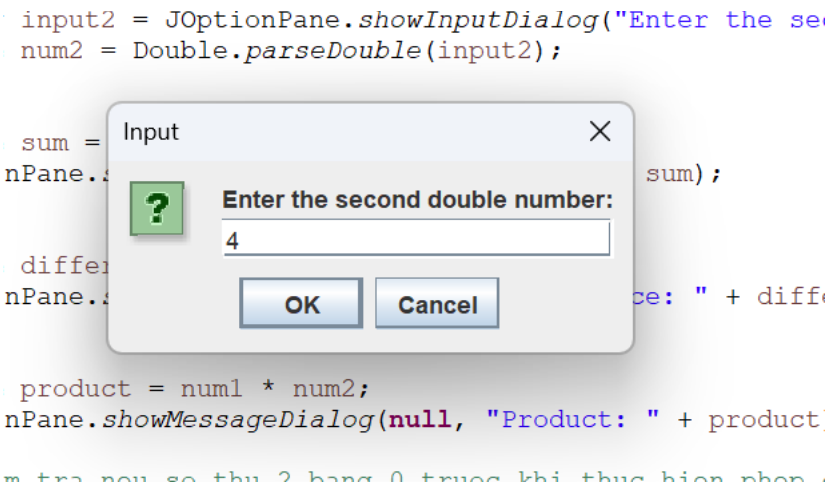
Notes

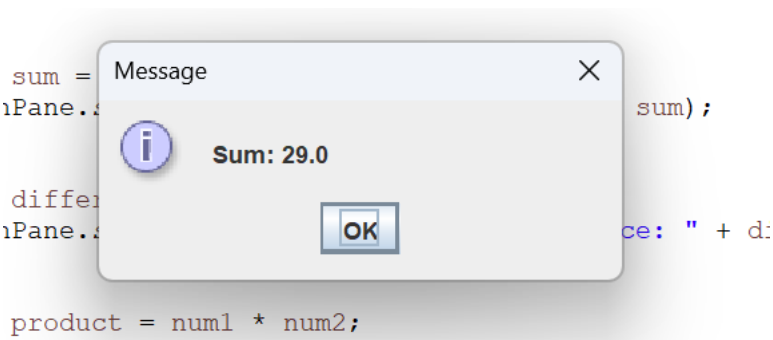
- To convert from String to double, you can use
  `double num1 = Double.parseDouble(strNum1)`
- Check the divisor of the division

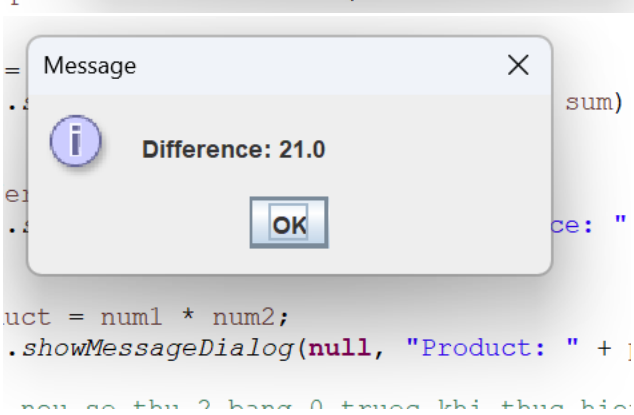
```java
package lab01_java;
import javax.swing.JOptionPane;
public class Divide {
public static void main(String[] args) {

        String input1 = JOptionPane.showInputDialog("Enter the first double number:");
        double num1 = Double.parseDouble(input1);


        String input2 = JOptionPane.showInputDialog("Enter the second double number:");
        double num2 = Double.parseDouble(input2);


        double sum = num1 + num2;
        JOptionPane.showMessageDialog(null, "Sum: " + sum);


        double difference = num1 - num2;
        JOptionPane.showMessageDialog(null, "Difference: " + difference);


        double product = num1 * num2;
        JOptionPane.showMessageDialog(null, "Product: " + product);

        // Kiem tra neu so thu 2 bang 0 truoc khi thuc hien phep chia
        if (num2 != 0) {

            double quotient = num1 / num2;
            JOptionPane.showMessageDialog(null, "Quotient: " + quotient);
        } else {
            JOptionPane.showMessageDialog(null, "Cannot divide by zero. Quotient is undefined.");
        }
    }
```

```
ıg input2 = JOptionPane.showInputDialog("Enter the second dc
.e num2 = Double.parseDouble(input2);

.e sum =
.onPane.                                                    sum);

.e differ
.onPane.                                                    ce: " + difference)

.e product = num1 * num2;
.onPane.showMessageDialog(null, "Product: " + product);

.em tra neu so thu 2 bang 0 truoc khi thuc hien phep chia
ıum2 != 0) {
```

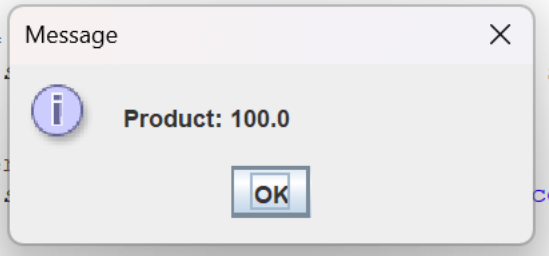



input2 = JOptionPane.showInputDialog("Enter the se
num2 = Double.parseDouble(input2);
Input
Enter the second double number:
4
OK
Cancel
sum);
product = num1 * num2;
nPane.showMessageDialog(null, "Product: " + product

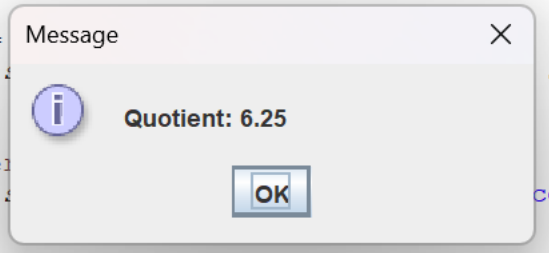

Message
Sum: 29.0
OK
sum);
product = num1 * num2;


Message
Difference: 21.0
OK
sum)
uct = num1 * num2;
.showMessageDialog(null, "Product: " +

```
num2 = Double.parseDouble(input2);

sum =
nPane.
```




```
differ
nPane.
                                    ce:

product = num1 * num2;
nPane.showMessageDialog(null, "Product: " +

m tra neu so thu 2 bang 0 truoc khi thuc hi
```

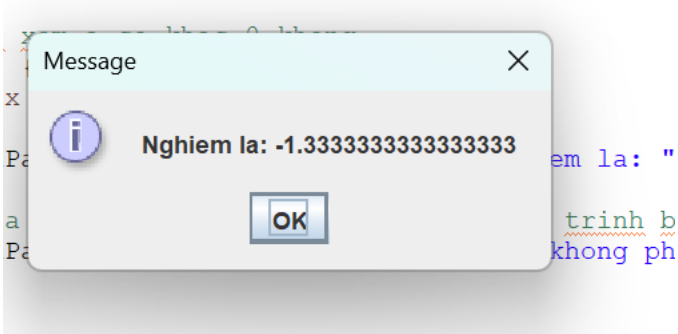



```
m =
ne.
                                    sum

ffer
ne.
                                    ce:

oduct = num1 * num2;
ne.showMessageDialog(null, "Product: " +
```

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

```
1  package lab01_java;
2  import javax.swing.JOptionPane;
3  public class PtBacI {
4      public static void main(String[] args) {
5          // nhap a va b
6          String inputA = JOptionPane.showInputDialog("Nhap he so 'a':");
7          String inputB = JOptionPane.showInputDialog("Nhap he so 'b':");
8
9          // chuyen tu string sang double
0          double a = Double.parseDouble(inputA);
1          double b = Double.parseDouble(inputB);
2
3          // kiem tra xem a co khac 0 khong
4          if (a != 0) {
5              double x = -b / a;
6
7              JOptionPane.showMessageDialog(null, "Nghiem la: " + x);
8          } else {
9              // neu a = 0 thi day khong phai la phuong trinh bac 1
0              JOptionPane.showMessageDialog(null, "Day khong phai phuong trinh bac 1");
1          }
2      }
3
4  }
5
```

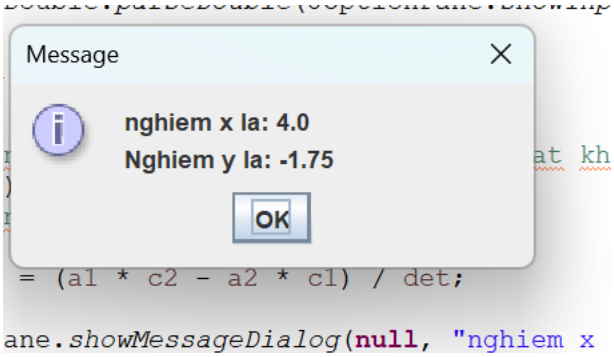
Cac he so nhap tu ban phim



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

```java
package lab01_java;
import javax.swing.JOptionPane;
//su dung phuong phap dinh thuc Cramer de giai he phuong trinh bac 1
public class HeptBac1 {
    public static void main(String[] args) {
        // nhap he so phuong trinh 1
        double a1 = Double.parseDouble(JOptionPane.showInputDialog("Nhap he so a cua phuong trinh 1"));
        double b1 = Double.parseDouble(JOptionPane.showInputDialog("Nhap he so b cua phuong trinh 1"));
        double c1 = Double.parseDouble(JOptionPane.showInputDialog("Nhap he so c cua phuong trinh 1"));

        // nhap he so phuong trinh 2
        double a2 = Double.parseDouble(JOptionPane.showInputDialog("Nhap he so a cua phuong trinh 2"));
        double b2 = Double.parseDouble(JOptionPane.showInputDialog("Nhap he so b cua phuong trinh 2"));
        double c2 = Double.parseDouble(JOptionPane.showInputDialog("Nhap he so c cua phuong trinh 2"));

        // tinh dinh thuc
        double det = a1 * b2 - a2 * b1;

        // kiem tra neu phuong trinh co nghiem duy nhat khong
        if (det != 0) {
            // tinh nghiem
            double x = (c1 * b2 - c2 * b1) / det;
            double y = (a1 * c2 - a2 * c1) / det;

            JOptionPane.showMessageDialog(null, "nghiem x la: " + x + "\nNghiem y la: " + y);
        } else {
            // kiem tra xem co vo so nghiem khong
            if (a1 / a2 == b1 / b2 && b1 / b2 == c1 / c2) {
                JOptionPane.showMessageDialog(null, "He vo so nghiem");
            } else {
                // vo nghiem
                JOptionPane.showMessageDialog(null, "He vo nghiem");
            }
        }
    }

```

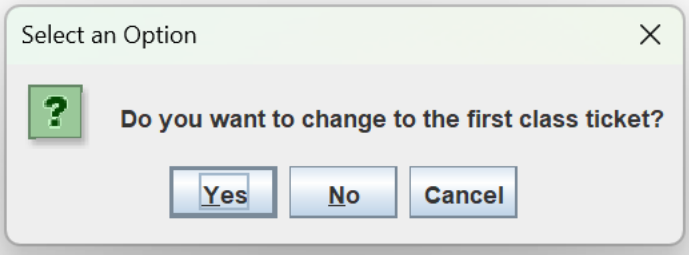
Cac he so moi ban tu nhap tu ban phim:

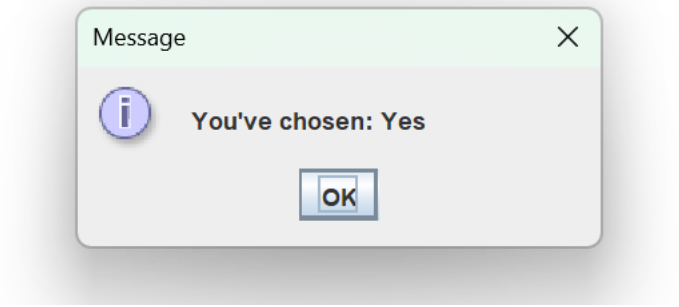


Exercises:

2.6.1 Write, compile and run the ChoosingOption program:

```java
//Le Quoc Viet 215165
package lab01_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"));
    }

}
```





Để trả lời cho câu hỏi này chỉ cần sửa chỗ “Yes”:”No” thành “I do”:”I don’t”

2.6.2 Write a program for input/output from keyboard:

```java
//Le Quoc Viet
package lab01_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 yort 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();
        System.out.println("Mrs/Ms. " + strName +", " + iAge + " years old." + "Your height is "+ dHeight + ".")
    }


}
```

```
Console ×
<terminated> InputFromKeyboard (1) [Java Application] C:\Users\QUOC VIET\.p2\pool\pl
What's yort name?
Le Viet
How old are you?
21
How tall are you (m)?
1.78
Mrs/Ms. Le Viet, 21 years old.Your height is 1.78.
```

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

```java
//LeQuocViet20215165
package lab01_java;

import java.util.Scanner;

public class TamGiac {
    public static void main(String[] args) {
        //NHapp n
        Scanner keyboard = new Scanner(System.in);
        System.out.println("Nhap n:  ");
        int n= keyboard.nextInt();
        //print * && " "
        for(int i=1;i<=n;i++) {

            for(int k=1;k<=n-i;k++) {
                System.out.print(" ");
            }
            for(int j=1;j<=2*i-1;j++) {
                System.out.print("*");
            }
            System.out.println();
        }
        keyboard.close();
    }


}

```

```
Console ×
<terminated> TamGiac (1) [Java Application] C:\
Nhap n:
5
    *
   ***
  *****
 *******
*********
```

2.6.4 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:

ShowTwoNumb... Divide.java PtBac1.java HeptBac1.java CheckNgay.java ChoosingOpt... InputFromKey... TamGiac.java

```java
//LeQuocViet20215165
package lab01_java;

import java.util.Scanner;

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

        int year = 0;
        int month = 0;
        int daysInMonth = 0;
        boolean validInput = false;
        //        checkYear

        while (!validInput) {
            System.out.print("Enter a year (non-negative number): ");
            year = input.nextInt();

            if (year >= 1000&&year<10000) {
                validInput = true;
            } else {
                System.out.println("Invalid year. Please enter a non-negative number.");
            }
        }

        validInput = false;

        //        checkMonth

        while (!validInput) {
            System.out.print("Enter a month (full name, abbreviation, 3 letters, or number): ");
            String monthInput = input.next();

            switch (monthInput) {
                case "january":
```

... Divide.java PtBacI.java HeptBac1.java CheckNgay.java × ChoosingOpt... Inpu

```
switch (monthInput) {
    case "january":
    case "jan.":
    case "jan":
    case "1":
        month = 1;
        validInput = true;
        break;
    case "february":
    case "feb.":
    case "feb":
    case "2":
        month = 2;
        validInput = true;
        break;
    case "march":
    case "mar.":
    case "mar":
    case "3":
        month = 3;
        validInput = true;
        break;
    case "april":
    case "apr.":
    case "apr":
    case "4":
        month = 4;
        validInput = true;
        break;
    case "may":
    case "5":
        month = 5;
        validInput = true;
        break;
    case "june":
    case "jun":
```

```
                validInput = true;
                break;
            case "november":
            case "nov.":
            case "nov":
            case "11":
                month = 11;
                validInput = true;
                break;
            case "december":
            case "dec.":
            case "dec":
            case "12":
                month = 12;
                validInput = true;
                break;
            default:
                System.out.println("Invalid month. Please enter a valid month.");
        }
    }

    if ((year % 4 == 0 && year % 100 != 0) || year % 400 == 0) {
        // Leap year
        int[] daysInLeapYear = {0, 31, 29, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31};
        daysInMonth = daysInLeapYear[month];
    } else {
        // Common year
        int[] daysInCommonYear = {0, 31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31};
        daysInMonth = daysInCommonYear[month];
    }

    System.out.println("There are " + daysInMonth + " days in the selected month and year.");
    input.close();
}
```

```
<terminated> CheckNgay (1) [Java Application] C:\Users\QUOC VIET\.p2\pool\plugins\org.eclipse.
Enter a year (non-negative number): 2000
Enter a month (full name, abbreviation, 3 letters, or number): 2
There are 29 days in the selected month and year.
```

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

```java
//Le Quoc Viet 20215165
package lab01_java;

import java.util.Arrays;
public class Array {
    public static void main(String[] args) {
        int[] numbers = new int[] {1,5,3,6,7,9,3,4,12,11};
        int sum = 0;

        // sap xep mang
        Arrays.sort(numbers);

        // tinh tong cac phan tu trong mang
        for (int number : numbers) {
            sum += number;
        }

        // hien thi ket qua
        System.out.println("Mang da sap xep: " + Arrays.toString(numbers));
        System.out.println("Gia tri trung binh cua mang la: " + (double) sum / numbers.length);

}
}
```

```
<terminated> Array (2) [Java Application] C:\Users\QUOC VIET\.p2\pool\plugins\org.e
Mang da sap xep: [1, 3, 3, 4, 5, 6, 7, 9, 11, 12]
Gia tri trung binh cua mang la: 6.1
```

2.6.6 Write a Java program to add two matrices of the same size:

```java
//Le Quoc Viet 20215165
package lab01_java;

public class Matrix {
    public static void main(String[] args) {
        // khoi tao 2 ma tran
        int[][] matrix1 = {
            {1, 2, 3},
            {4, 5, 6},
            {7, 8, 9}
        };

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

        // kiem tra xem 2 ma tran co cung kich thuoc
        if (areMatricesSameSize(matrix1, matrix2)) {
            // cong 2 ma tran
            int[][] resultMatrix = addMatrices(matrix1, matrix2);

            // hien thi ket qua
            System.out.println("Ma tran 1:");
            printMatrix(matrix1);

            System.out.println("\nMa tran 2:");
            printMatrix(matrix2);

            System.out.println("\nKet qua cong 2 ma tran:");
            printMatrix(resultMatrix);
        } else {
            System.out.println("Ma tran khong cung kich thuoc nen khong cong duoc!");
        }
    }
```

```java
// Function check 2 ma tran co cung kich thuoc khong?
private static boolean areMatricesSameSize(int[][] matrix1, int[][] matrix2) {
    return matrix1.length == matrix2.length && matrix1[0].length == matrix2[0].length;
}

// Function cong 2 ma tran
private static int[][] addMatrices(int[][] matrix1, int[][] matrix2) {
    int rows = matrix1.length;
    int columns = matrix1[0].length;
    int[][] resultMatrix = new int[rows][columns];

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

    return resultMatrix;
}

// Function de in ra ma tran
private static void printMatrix(int[][] matrix) {
    for (int[] row : matrix) {
        for (int value : row) {
            System.out.print(value + " ");
        }
        System.out.println();
    }
}
```

```
<terminated> Matrix (1) [Java Application] C:\Users\QUOC VIET\.p2\pool\plugins\org.eclipse.justj.openjdk.hot
Ma tran 1:
1 2 3
4 5 6
7 8 9

Ma tran 2:
1 4 7
2 5 8
3 6 9

Ket qua cong 2 ma tran:
2 6 10
6 10 14
10 14 18
```