

# BÁO CÁO THỰC HÀNH LAB 1

## LẬP TRÌNH HƯỚNG ĐỐI TƯỢNG

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

Code:

```

1  /*2.2.5.1-Vu Thuong Dat 20215031*/
2  package lab01;
3  import java.util.Scanner;
4  public class Ex2_2_5 {
5      public static void main(String[] args) {
6          Scanner input = new Scanner(System.in);
7          System.out.print("Enter the first number: ");
8          double num1 = input.nextDouble();
9          System.out.print("Enter the second number: ");
10         double num2 = input.nextDouble();
11         double sum = num1 + num2;
12         double difference = num1 - num2;
13         double product = num1 * num2;
14         double quotient = num1 / num2;
15         System.out.printf("Sum: %.2f\nDifference: %.2f\nProduct: %.2f\nQuotient: %.2f", sum, difference, product, quotient);
16     }
17 }
18
19

```

Kết quả:

```

<terminated> Ex2_2_5 [Java Application] C:\Program Files\Java\jdk-1.8\bin\javaw.exe (21:40:03, 16 thg 10, 2023 - 21:40:11) [pid: 8484]
Enter the first number: 8
Enter the second number: 5
Sum: 13.00
Difference: 3.00
Product: 40.00
Quotient: 1.60

```

## 2.2.6 Write a program to solve:

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

Code:

```

1  /*2.2.6.1-solve the first-degree equation (linear equation) with one variable
2  package lab01;
3
4
5  import java.util.Scanner;
6
7  public class Ex2_2_6_1 {
8      public static void main(String[] args) {
9          Scanner input = new Scanner(System.in);
10         System.out.print("Enter the value of a: ");
11         double a = input.nextDouble();
12         System.out.print("Enter the value of b: ");
13         double b = input.nextDouble();
14         if (a == 0) {
15             if (b == 0) {
16                 System.out.println("The equation has infinitely many solutions.");
17             } else {
18                 System.out.println("The equation has no solution");
19             }
20         } else {
21             double x = -b / a;
22             System.out.println("The solution of equation is: " + x);
23         }
24     }
25 }

```

Kết quả:

```
Console x
<terminated> Ex2_2_6_1 [Java Application] C:\Program Files\Java\jdk-1.8\bin\javaw.exe (21:46:45, 16 thg 10, 2023 - 21:46:51) [pid: 10064]
Enter the value of a: 5
Enter the value of b: 6
The solution of equation is: -1.2
```

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

Code:

```
1/*2.2.6.2-solve the system of first-degree equations (linear system) with two variables
2 * Vu Thuong Dat-20215031*/
3 package lab01;
4 import java.util.Scanner;
5 public class Ex2_2_6_2 {
6     public static void main(String[] args) {
7         Scanner scanner = new Scanner(System.in);
8         System.out.print("Enter the value of a11: ");
9         double a11 = scanner.nextDouble();
10        System.out.print("Enter the value of a12: ");
11        double a12 = scanner.nextDouble();
12        System.out.print("Enter the value of b1: ");
13        double b1 = scanner.nextDouble();
14        System.out.print("Enter the value of a21: ");
15        double a21 = scanner.nextDouble();
16        System.out.print("Enter the value of a22: ");
17        double a22 = scanner.nextDouble();
18        System.out.print("Enter the value of b2: ");
19        double b2 = scanner.nextDouble();
20        double D = a11 * a22 - a21 * a12;
21        double D1 = b1 * a22 - b2 * a12;
22        double D2 = a11 * b2 - a21 * b1;
23        if (D != 0) {
24            double x1 = D1 / D;
25            double x2 = D2 / D;
26            System.out.println("The solution to the system of equations is: x1 = " + x1 + ", x2 = " + x2);
27        } else {
28            if (D1 == 0 && D2 == 0) {
29                System.out.println("The system of equations has infinitely many solutions.");
30            } else {
31                System.out.println("The system of equations has no solution.");
32            }
33        }
34    }
35 }
36 }
```

Kết quả:

```
Enter the value of a11: 3
Enter the value of a12: 5
Enter the value of b1: 1
Enter the value of a21: -2
Enter the value of a22: 3
Enter the value of b2: 5
The solution to the system of equations is: x1 = -1.1578947368421053, x2 = 0.8947368421052632
```

## - The second-degree equation with one variable

Code:

```
1/*2.2.6.3-solve the second-degree equation with one variable
3 package lab01;
4 import java.util.Scanner;
5 public class Ex2_2_6_3 {
6     public static void main(String[] args) {
7         Scanner scanner = new Scanner(System.in);
8         System.out.print("Enter the value of a: ");
9         double a = scanner.nextDouble();
10        System.out.print("Enter the value of b: ");
11        double b = scanner.nextDouble();
12        System.out.print("Enter the value of c: ");
13        double c = scanner.nextDouble();
14        double delta = b * b - 4 * a * c;
15        if (a == 0) {
16            System.out.println("This is not a quadratic equation.");
17        } else if (delta > 0) {
18            double x1 = (-b + Math.sqrt(delta)) / (2 * a);
19            double x2 = (-b - Math.sqrt(delta)) / (2 * a);
20            System.out.println("The solutions of the equation are: x1 = " + x1 + ", x2 = " + x2);
21        } else if (delta == 0) {
22            double x = -b / (2 * a);
23            System.out.println("The equation has a double root: x = " + x);
24        } else {
25            System.out.println("The equation has no real roots.");
26        }
27    }
28 }
```

Kết quả:

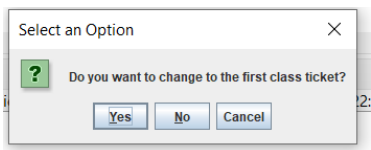
```
Console x
<terminated> Ex2_2_6_3 [Java Application] C:\Program Files\Java\jdk-1.8\bin\javaw.exe (21:57:21, 16 thg 10, 2023 - 21:57:30) [pid: 12532]
Enter the value of a: 1
Enter the value of b: -3
Enter the value of c: 2
The solutions of the equation are: x1 = 2.0, x2 = 1.0
```

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

Code:

```
1/*6.1-ChoosingOption
2 * Vu Thuong Dat-20215031*/
3 package lab01;
4 import javax.swing.JOptionPane;
5 public class Ex6_1_ChoosingOption{
6     public static void main(String[] args) {
7         int option = JOptionPane.showConfirmDialog(null, "Do you want to change to the first class ticket?");
8         JOptionPane.showMessageDialog(null, "You're chosen:"+(option==JOptionPane.YES_OPTION?"Yes":"NO"));
9         System.exit(0);
10    }
11 }
```

Kết quả:



Trả lời câu hỏi:

```

12 /*QA:
13 * Nếu người dùng chọn hủy chương trình sẽ in ra You're chosen:NO
14 * Để chỉ có 2 lựa chọn Yes và No hoặc I do và I don't ta có thể thay câu lệnh thứ 7 và 8 thành
15 * Object[] options = {"I do", "I don't"};
16 * int option = JOptionPane.showOptionDialog(null, "Do you want to change to the first class ticket?","Confirm",
17 * JOptionPane.YES_NO_OPTION, JOptionPane.QUESTION_MESSAGE, null, options, options[0]);
18 * JOptionPane.showMessageDialog(null,"You're chosen:"+ (option==JOptionPane.YES_OPTION?"I do":"I don't"));
19 */

```

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

Code:

```

1 /*6.2-InputFromKeyboard
2 * Vu Thuong Dat-20215031*/
3 package lab01;
4 import java.util.Scanner;
5 public class Ex6_2_InputFromKeyboard {
6     public static void main(String args[]) {
7         Scanner keyboard = new Scanner(System.in);
8         System.out.println("What's your name?");
9         String strName = keyboard.nextLine();
10        System.out.println("How old are you?");
11        int iAge = keyboard.nextInt();
12        System.out.println("How tall are you(m)?");
13        double dHeight= keyboard.nextDouble();
14        System.out.println("Mrs/Ms."+strName+", "+iAge+" years old. "
15            + "Your height is "+dHeight+" ");
16    }
17 }
18

```

Kết quả:

```

Console x
<terminated> Ex6_2_InputFromKeyboard [Java Application] C:\Program Files\Java\jdk-1.8\bin\javaw.exe (
What's your name?
Dat
How old are you?
20
How tall are you(m)?
1,65
Mrs/Ms.Dat, 20 years old. Your height is 1.65.

```

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

Code:

```

1 1/*6.3-Write a program to display a triangle with a height of n stars (*), n is entered by users.
2 2 * Vu Thuong Dat-20215031*/
3 3 package lab01;
4 4 import java.util.Scanner;
5 5 public class Ex6_3 {
6 6     public static void main(String[] args) {
7 7         Scanner input= new Scanner(System.in);
8 8         System.out.println("Enter n: ");
9 9         int n = input.nextInt();
10 10        for (int i=1;i<=n;i++) {
11 11            for(int j = 1; j<=n-i;j++) {
12 12                System.out.print(" ");
13 13            }
14 14            for(int j=1;j<=2*i-1;j++) {
15 15                System.out.print("*");
16 16            }
17 17            System.out.println();
18 18        }
19 19    }
20 20 }
21 21

```

## Kết quả

```

Console X
<terminated> Ex6_3 [Java Application] C:\Program Files\Java\jdk-1.8\bin\javaw.exe (22:23:13, 16 thg 10, 2023 – 22:23:18) [pid: 12100]
Enter n:
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.

## Code:

```

1 1/*6.4-Write a program to display the number of days of a month
2 2 package lab01;
3 3 import java.util.Scanner;
4 4 public class Ex6_4 {
5 5     public static void main(String[] args) {
6 6         Scanner scanner= new Scanner(System.in);
7 7         // Nhập tháng và năm từ người dùng
8 8         System.out.print("Month: ");
9 9         String monthInput = scanner.nextLine();
10 10        System.out.print("Year: ");
11 11        int year = scanner.nextInt();
12 12        // Chuyển đổi tháng thành số
13 13        int month;
14 14        if (monthInput.equalsIgnoreCase("January") || monthInput.equalsIgnoreCase("Jan.") || monthInput.equalsIgnoreCase("Jan") || monthInput.equals("1")) {
15 15            month = 1;
16 16        } else if (monthInput.equalsIgnoreCase("February") || monthInput.equalsIgnoreCase("Feb.") || monthInput.equalsIgnoreCase("Feb") || monthInput.equals("2")) {
17 17            month = 2;
18 18        } else if (monthInput.equalsIgnoreCase("March") || monthInput.equalsIgnoreCase("Mar.") || monthInput.equalsIgnoreCase("Mar") || monthInput.equals("3")) {
19 19            month = 3;
20 20        } else if (monthInput.equalsIgnoreCase("April") || monthInput.equalsIgnoreCase("Apr.") || monthInput.equalsIgnoreCase("Apr") || monthInput.equals("4")) {
21 21            month = 4;
22 22        } else if (monthInput.equalsIgnoreCase("May") || monthInput.equals("5")) {
23 23            month = 5;
24 24        } else if (monthInput.equalsIgnoreCase("June") || monthInput.equalsIgnoreCase("Jun") || monthInput.equals("6")) {
25 25            month = 6;
26 26        } else if (monthInput.equalsIgnoreCase("July") || monthInput.equalsIgnoreCase("Jul") || monthInput.equals("7")) {
27 27            month = 7;
28 28        } else if (monthInput.equalsIgnoreCase("August") || monthInput.equalsIgnoreCase("Aug.") || monthInput.equalsIgnoreCase("Aug") || monthInput.equals("8")) {
29 29            month = 8;
30 30        } else if (monthInput.equalsIgnoreCase("September") || monthInput.equalsIgnoreCase("Sept.") || monthInput.equalsIgnoreCase("Sep") || monthInput.equals("9")) {
31 31            month = 9;
32 32        } else if (monthInput.equalsIgnoreCase("October") || monthInput.equalsIgnoreCase("Oct.") || monthInput.equalsIgnoreCase("Oct") || monthInput.equals("10")) {
33 33            month = 10;
34 34        } else if (monthInput.equalsIgnoreCase("November") || monthInput.equalsIgnoreCase("Nov.") || monthInput.equalsIgnoreCase("Nov") || monthInput.equals("11")) {
35 35            month = 11;
36 36        } else if (monthInput.equalsIgnoreCase("December") || monthInput.equalsIgnoreCase("Dec.") || monthInput.equalsIgnoreCase("Dec") || monthInput.equals("12")) {
37 37            month = 12;
38 38        }

```

```

38     month = 12;
39 } else {
40     System.out.println("Invalid month. Please re-enter.");
41     return;
42 }
43
44 // Kiểm tra năm nhuận
45 boolean isLeapYear = false;
46 if (year % 4 == 0) {
47     if (year % 100 == 0) {
48         if (year % 400 == 0) {
49             isLeapYear = true;
50         }
51     } else {
52         isLeapYear = true;
53     }
54 }
55
56 // Tính số ngày của tháng
57 int numberOfDays;
58 if (month == 2) {
59     if (isLeapYear) {
60         numberOfDays = 29;
61     } else {
62         numberOfDays = 28;
63     }
64 } else if (month == 4 || month == 6 || month == 9 || month == 11) {
65     numberOfDays = 30;
66 } else {
67     numberOfDays = 31;
68 }
69
70 // Hiển thị kết quả
71 System.out.println("Number of days of " + monthInput + " " + year + " is: " + numberOfDays);
72 }
73 }
74

```

Kết quả:

```

Console ×
<terminated> Ex6_4 [Java Application] C:\Program Files\Java\jdk-1.8\bin\javaw.exe (22:24:49, 16 thg 10, 2023 – 22:24:56) [pid: 11932]
Month: 2
Year: 2020
Number of days of 2 2020 is: 29

```

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

Code:

```

EX6_5.java EX6_5_1.java EX6_5_2.java EX6_5_3.java EX6_1_ChoosingOption.java EX6_1_InputFromKeyboard.java
1 /*6.5-Write a Java program to sort a numeric array, and calculate the sum and average value of array elements.
2  * Vu Thuong Dat-20215031*/
3 package lab01;
4 import java.util.Arrays;
5 public class Ex6_5 {
6     public static void main(String[] args) {
7         int[] arr = {5, 2, 8, 1, 9};
8
9
10        Arrays.sort(arr);
11
12        // Calculate the sum of array elements
13        int sum = 0;
14        for (int i = 0; i < arr.length; i++) {
15            sum += arr[i];
16        }
17
18        // Calculate the average value of array elements
19        double average = (double) sum / arr.length;
20
21        // Print the results
22        System.out.println("Sorted array: " + Arrays.toString(arr));
23        System.out.println("Sum of array elements: " + sum);
24        System.out.println("Average value of array elements: " + average);
25    }
26 }

```

Kết quả:

```

Console ×
<terminated> Ex6_5 [Java Application] C:\Program Files\Java\jdk-1.8\bin\javaw.exe (22:28:59, 16 thg 10, 2023 – 22:28:59) [pid: 12852]
Sorted array: [1, 2, 5, 8, 9]
Sum of array elements: 25
Average value of array elements: 5.0

```

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



Code:

```
1 /*6.6-Write a Java program to add two matrices of the same size.
3 package lab01;
4
5 public class Ex6_6 {
6     public static void main(String[] args) {
7         int[][] matrix1 = {{1, 2, 3}, {4, 5, 6}, {7, 8, 9}};
8         int[][] matrix2 = {{9, 8, 7}, {6, 5, 4}, {3, 2, 1}};
9
10        int rows = matrix1.length;
11        int columns = matrix1[0].length;
12
13        int[][] sumMatrix = new int[rows][columns];
14
15        for (int i = 0; i < rows; i++) {
16            for (int j = 0; j < columns; j++) {
17                sumMatrix[i][j] = matrix1[i][j] + matrix2[i][j];
18            }
19        }
20
21        System.out.println("Sum of matrices:");
22        for (int i = 0; i < rows; i++) {
23            for (int j = 0; j < columns; j++) {
24                System.out.print(sumMatrix[i][j] + " ");
25            }
26            System.out.println();
27        }
28    }
29 }
```

Kết quả:

```
Console ×
<terminated> Ex6_6 [Java Application] C:\Program Files\Java\jdk-1.8\bin\javaw.exe (22:30:16, 16)
Sum of matrices:
10 10 10
10 10 10
10 10 10
```