

ĐẠI HỌC BÁCH KHOA HÀ NỘI
TRƯỜNG CÔNG NGHỆ THÔNG TIN VÀ TRUYỀN THÔNG

BÁO CÁO THỰC HÀNH

IT3103-744527-2024.1

BÀI THỰC HÀNH - LAB01

Họ và tên sv: Trần Cao Bảo Phúc

MSSV: 20225756

Lớp: IT-E6 01-K67

GVHD: Lê Thị Hoa

HTGD: Đặng Mạnh Cường

Hà Nội 9/2024

Table of Contents

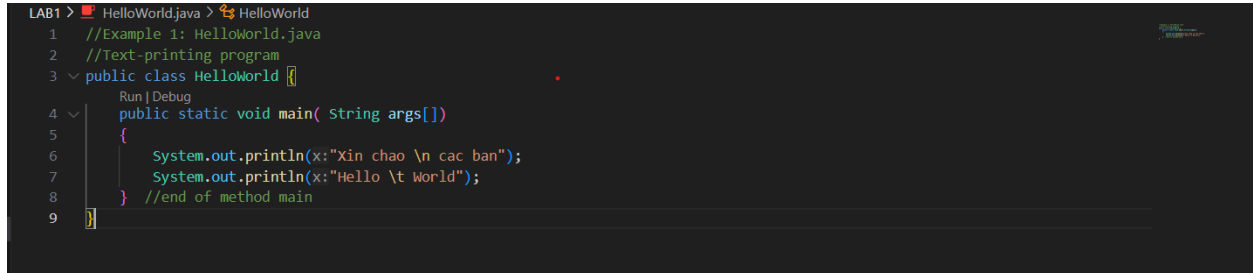
BÁO CÁO THỰC HÀNH LAP 1	4
The Very First Java Programs	4
2.2.1 Write, compile the first Java application:	4
Figure1 Source code of 2.2.1	4
Figure2 Result of running code.....	4
2.2.2 Write, compile the first dialog Java program.....	4
Figure3 Source code of 2.2.2	5
Figure4 Result of running code	5
2.2.3 Write, compile the first input dialog Java application	5
Figure5 Source code of 2.2.3	5
Figure6 Input dialog.....	6
Figure7 Message displaying message	6
2.2.4 Write, compile, and run the following example:	7
Figure8 Source code of 2.2.4	7
Figure9 Input the first number	8
Figure10 Input the second number.....	8
Figure11 Show two numbers	8
BÀI TẬP.....	9
2.2.5 Write a program to calculate sum, difference, product, and quotient of 2 double numbers which are entered by users.	9
Figure12 Source code of 2.2.5	9
Figure13 Input the first number	10
Figure14 Input the second number.....	10
Figure 15 Show calculation results of two numbers	10
2.2.6. Find the coefficients of three types of equations	10
Figure16 Source code 1 of 3 of 2.2.6.....	11
Figure 17 Source code 2 of 3 of 2.2.6.....	12
Figure18 Source code 3 of 3 of 2.2.6.....	12
Figure19 Second-degree equation case.....	12
Figure20 Linear equation case	12
Figure21 System-equation case	13

6.1 Write, compile and run the ChoosingOption program:.....	13
Figure22 Source code of 6.1	13
Figure23 Select an Option dialog box.....	14
Figure24 Choosing “Yes” option.....	14
Figure25 Choosing “No” or “Cancel” option	14
Figure26 Developing source code of 6.1	15
Figure27 Developing option dialog box	16
Figure28 Result of developing code	16
6.2 Write a program for input/output from keyboard	16
Figure29 Source code of 6.2	16
Figure30 Result of running code 6.2.....	17
6.3 Write a program to display a triangle with a height of n stars (*), n is entered by users.	17
Figure31 Source code of 6.3	17
Figure32 Create a triangle with heights you want	17
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.....	17
Figure33 Source code 1 of 4 of 6.4.....	18
Figure34 Source code 2 of 4 of 6.4.....	19
Figure35 Source code 3 of 4 of 6.4.....	19
Figure36 Source code 4 of 4 of 6.4.....	20
Figure37 Day of month in non-leap year	20
Figure38 Day of month in leap year	20
6.5 Write a Java program to sort a numeric array, and calculate the sum and average value of array elements	20
Figure39 Source code of 6.5	20
Figure40 Sort array and calculate sum, average of array	21
6.6 Write a Java program to add two matrices of the same size	21
Figure41 Source code of 6.6	22
Figure42 Add two matrices of the same size	22

BÁO CÁO THỰC HÀNH LAP 1

The Very First Java Programs

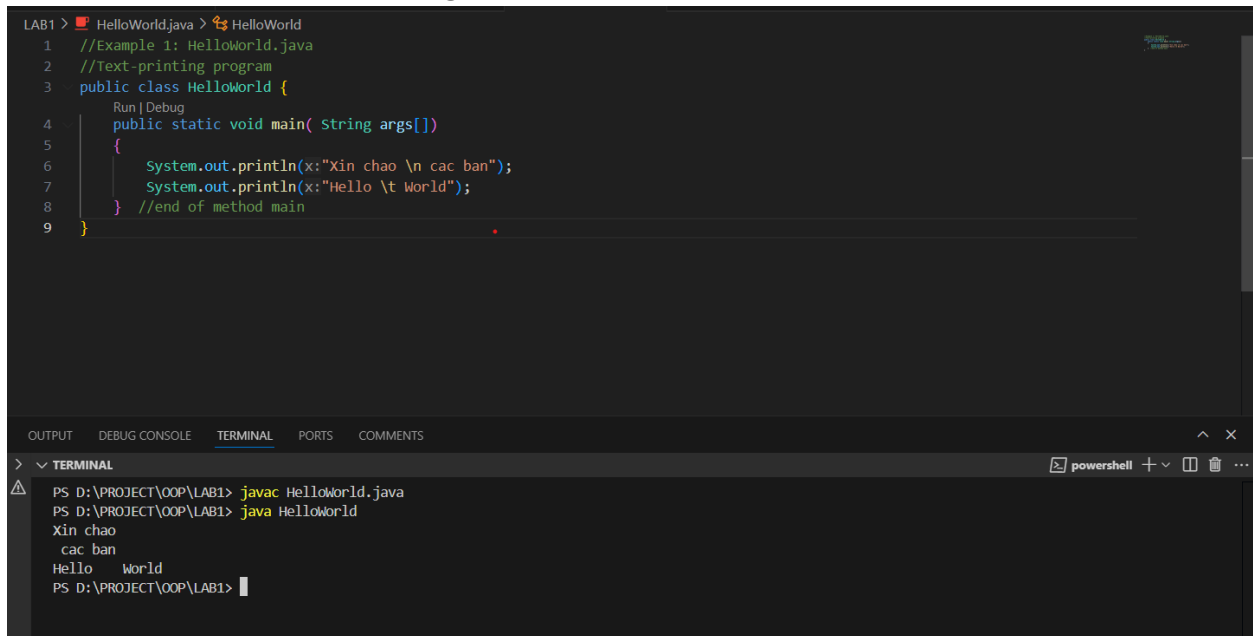
2.2.1 Write, compile the first Java application:



```

LAB1 > HelloWorld.java > HelloWorld
1 //Example 1: HelloWorld.java
2 //Text-printing program
3 public class HelloWorld {
4     public static void main( String args[])
5     {
6         System.out.println(x:"Xin chao \n cac ban");
7         System.out.println(x:"Hello \t World");
8     } //end of method main
9 }
  
```

Figure1 Source code of 2.2.1



```

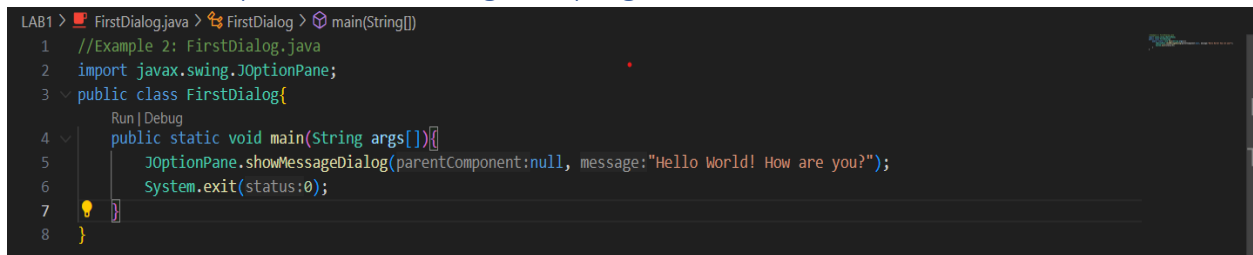
LAB1 > HelloWorld.java > HelloWorld
1 //Example 1: HelloWorld.java
2 //Text-printing program
3 public class HelloWorld {
4     public static void main( String args[])
5     {
6         System.out.println(x:"Xin chao \n cac ban");
7         System.out.println(x:"Hello \t World");
8     } //end of method main
9 }
  
```

```

PS D:\PROJECT\OOP\LAB1> javac HelloWorld.java
PS D:\PROJECT\OOP\LAB1> java HelloWorld
Xin chao
cac ban
Hello World
PS D:\PROJECT\OOP\LAB1>
  
```

Figure2 Result of running code

2.2.2 Write, compile the first dialog Java program



```

LAB1 > FirstDialog.java > FirstDialog > main(String[])
1 //Example 2: FirstDialog.java
2 import javax.swing.JOptionPane;
3 public class FirstDialog{
4     public static void main(String args[])
5     {
6         JOptionPane.showMessageDialog(parentComponent:null, message:"Hello World! How are you?");
7         System.exit(status:0);
8     }
  
```

Figure3 Source code of 2.2.2

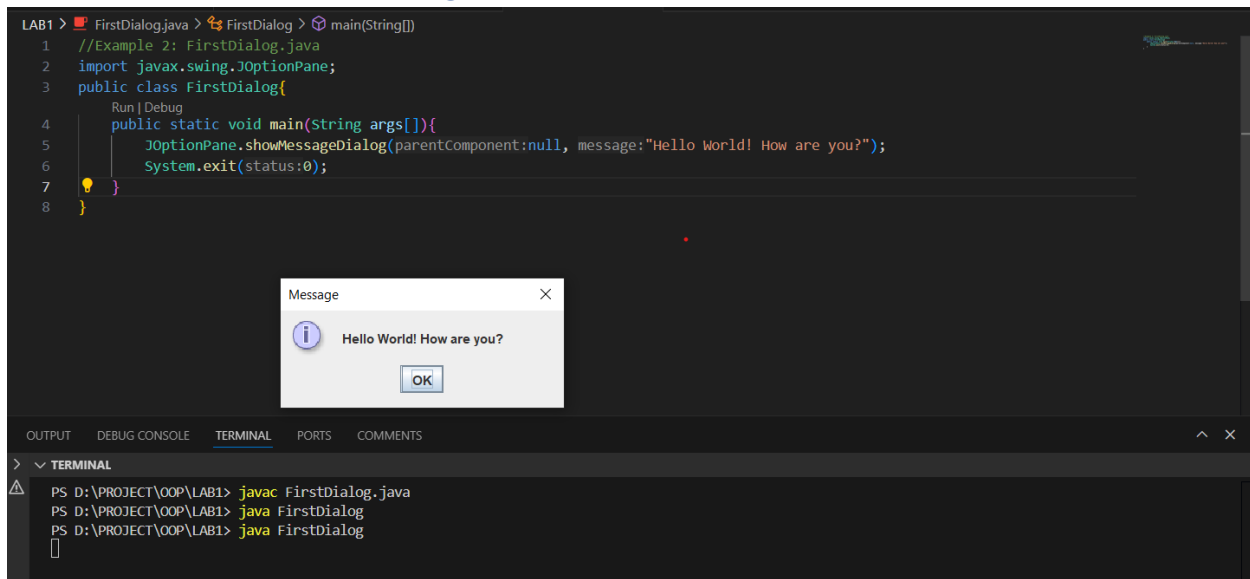


Figure4 Result of running code

2.2.3 Write, compile the first input dialog Java application

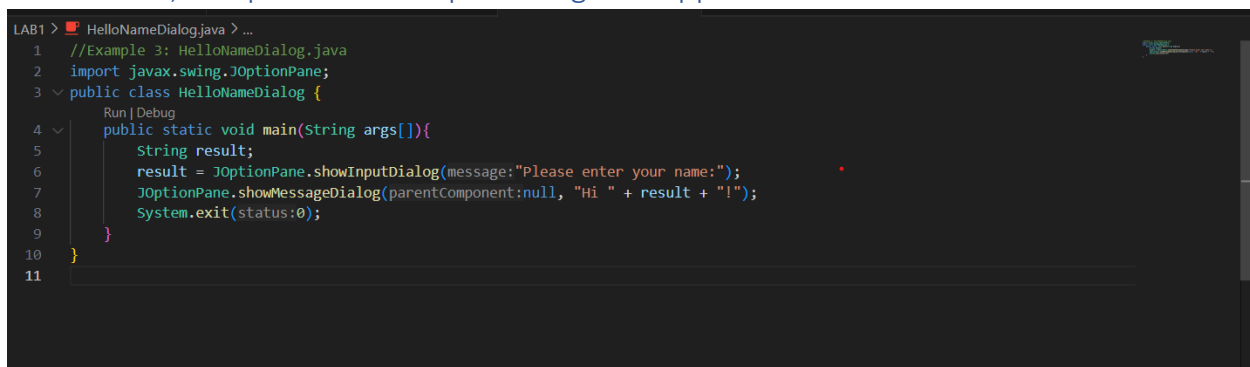


Figure5 Source code of 2.2.3

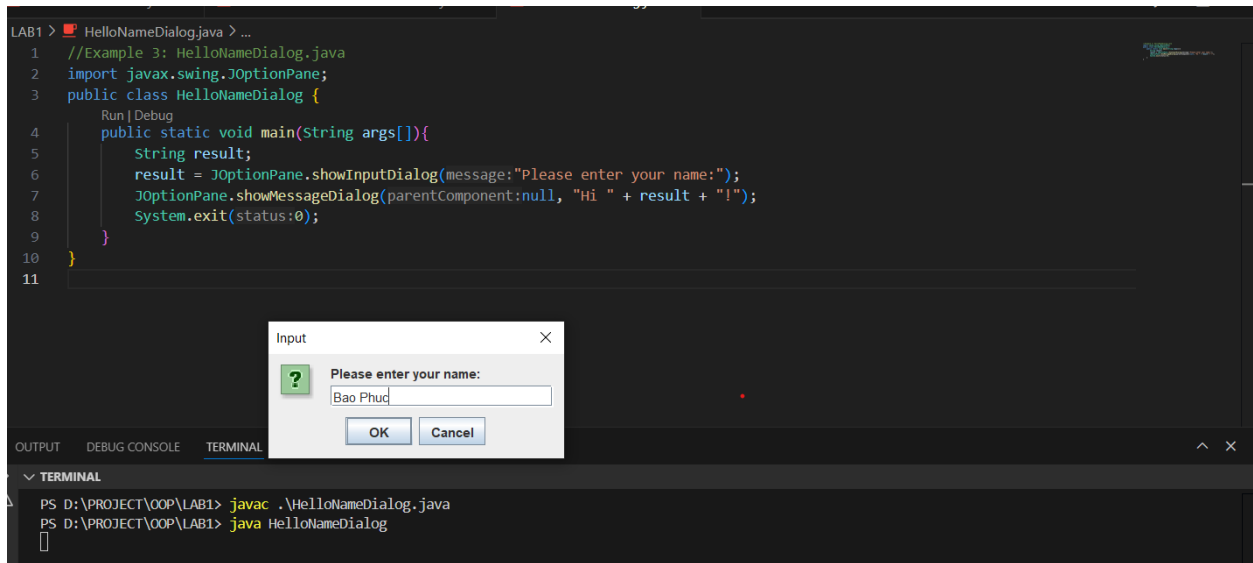


Figure6 Input dialog

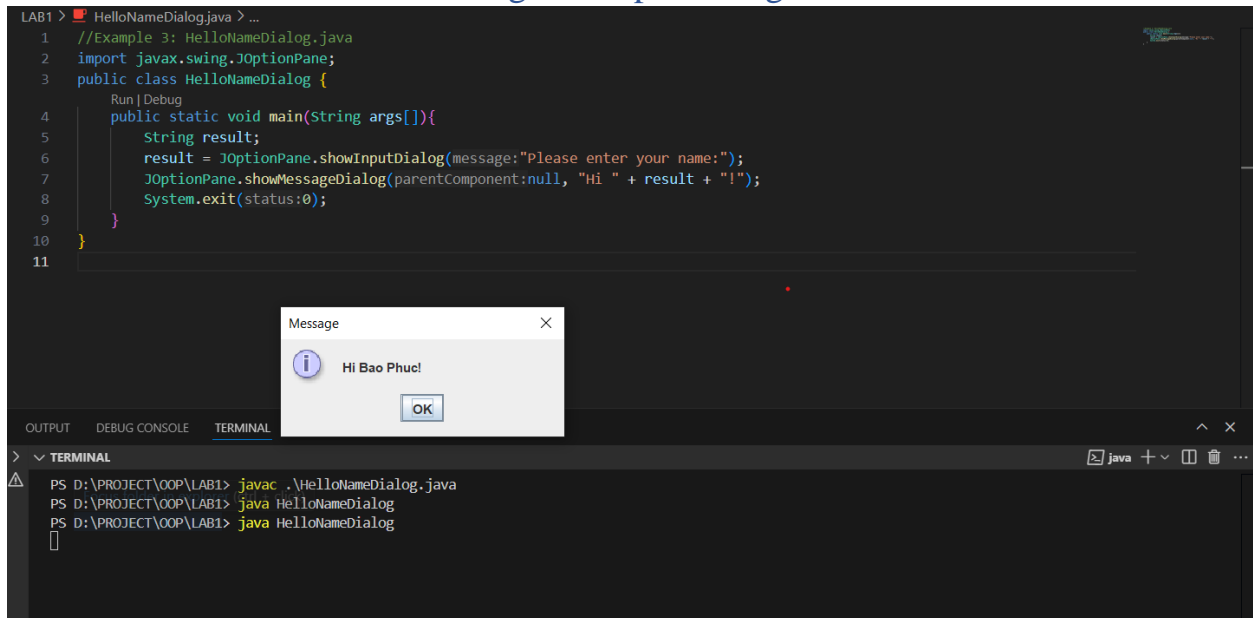


Figure7 Message displaying message

2.2.4 Write, compile, and run the following example:

```

LAB1 > ShowTwoNumbers.java > ShowTwoNumbers > main(String[])
1 //Example 5: ShowTwoNumbers.java
2 import javax.swing.JOptionPane;
3 public class ShowTwoNumbers {
4     public static void main(String args[]){
5         String strNum1, strNum2;
6         String strNotification = "You've just entered: ";
7         strNum1 = JOptionPane.showInputDialog(parentComponent:null,
8             message:"Bao Phuc - Please input the first number: ",
9             title:"Input the first number",
10            JOptionPane.INFORMATION_MESSAGE);
11         strNotification += strNum1 + " and ";
12         strNum2 = JOptionPane.showInputDialog(parentComponent:null,
13             message:"Bao Phuc - Please input the second number: ",
14             title:"Input the second number",
15            JOptionPane.INFORMATION_MESSAGE);
16         strNotification += strNum2;
17
18         JOptionPane.showMessageDialog(parentComponent:null, strNotification,
19             title:"Show two numbers", JOptionPane.INFORMATION_MESSAGE);
20         System.exit(status:0);
21     }
22 }
23

```

Figure8 Source code of 2.2.4

```

LAB1 > ShowTwoNumbers.java > ShowTwoNumbers > main(String[])
1 //Example 5: ShowTwoNumbers.java
2 import javax.swing.JOptionPane;
3 public class ShowTwoNumbers {
4     public static void main(String args[]){
5         String strNum1, strNum2;
6         String strNotification = "You've just entered: ";
7         strNum1 = JOptionPane.showInputDialog(parentComponent:null,
8             message:"Bao Phuc - Please input the first number: ",
9             title:"Input the first number",
10            JOptionPane.INFORMATION_MESSAGE);
11         strNotification += strNum1 + " and ";
12         strNum2 = JOptionPane.showInputDialog(parentComponent:null,
13             message:"Bao Phuc - Please input the second number: ",
14             title:"Input the second number",
15            JOptionPane.INFORMATION_MESSAGE);
16         strNotification += strNum2;
17
18         JOptionPane.showMessageDialog(parentComponent:null, strNotification,
19             title:"Show two numbers", JOptionPane.INFORMATION_MESSAGE);
20         System.exit(status:0);
21     }
22 }
23

```

Input the first number

Bao Phuc - Please input the first number:

10

OK Cancel

OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS

TERMINAL

```

PS D:\PROJECT\OOP\LAB1> javac .\ShowTwoNumbers.java
PS D:\PROJECT\OOP\LAB1> java ShowTwoNumbers
PS D:\PROJECT\OOP\LAB1> java ShowTwoNumbers

```

Figure9 Input the first number

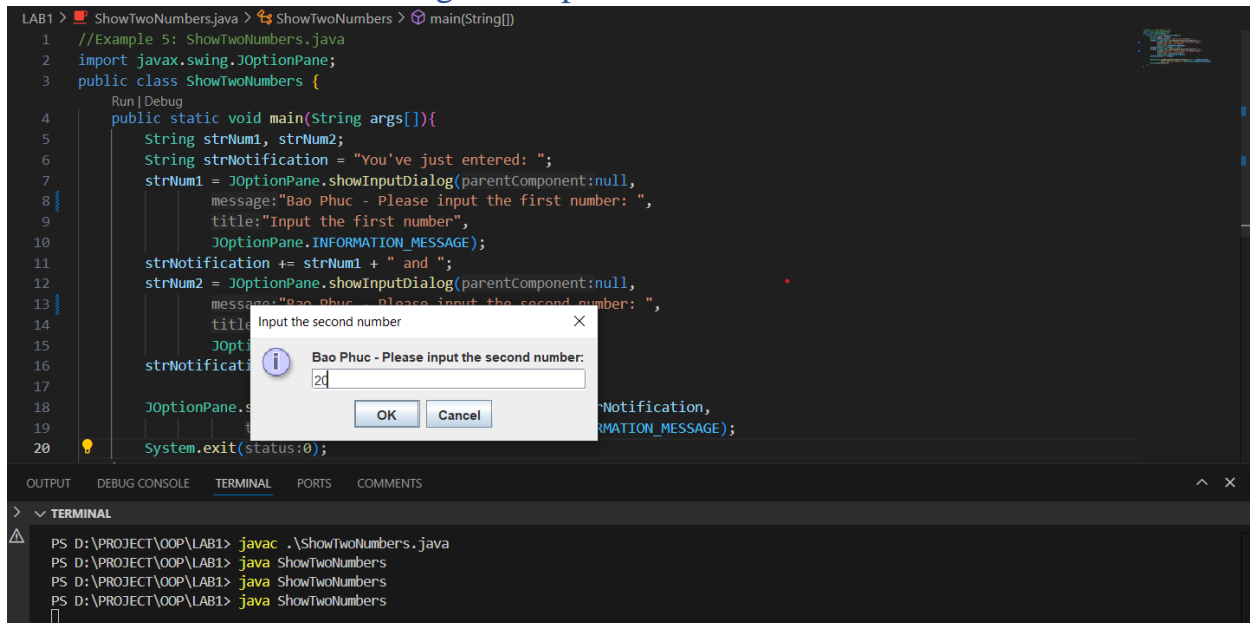


Figure10 Input the second number

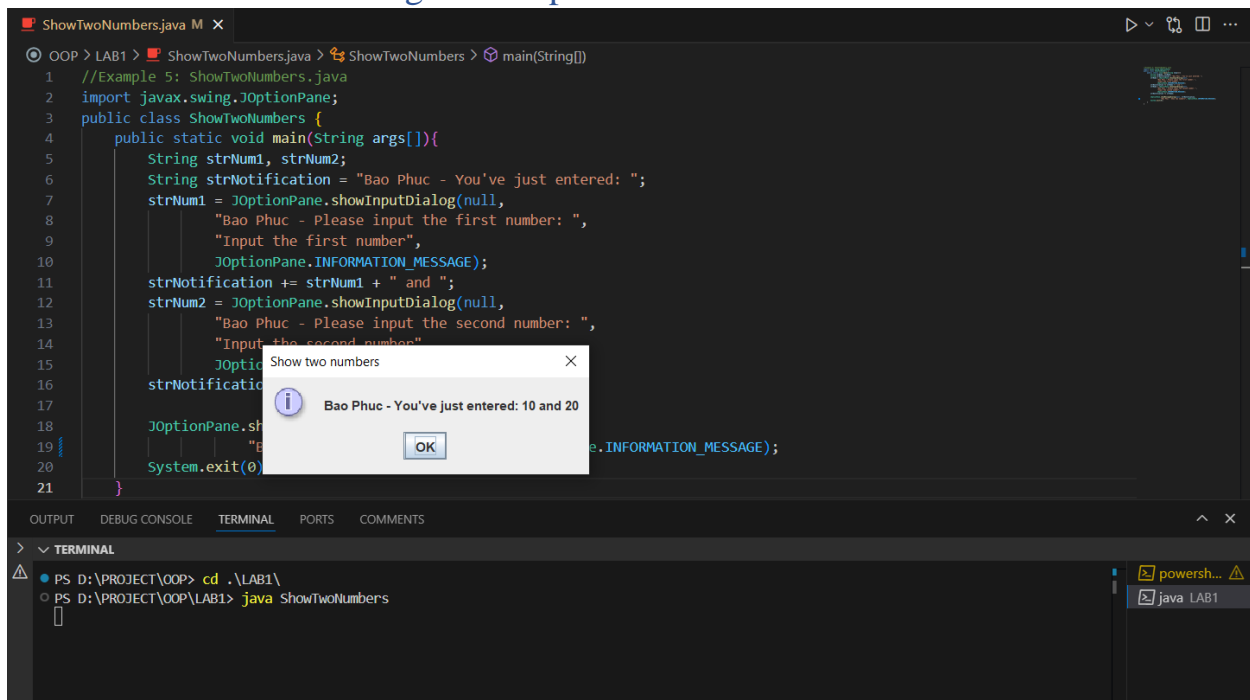


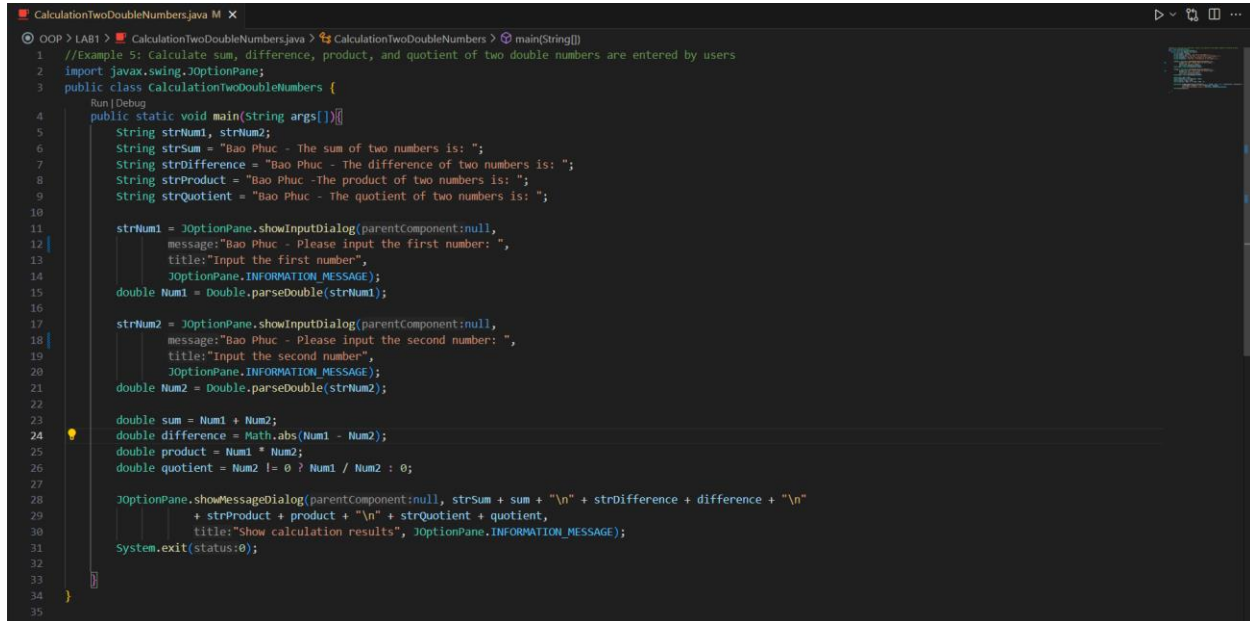
Figure11 Show two numbers

BÀI TẬP

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

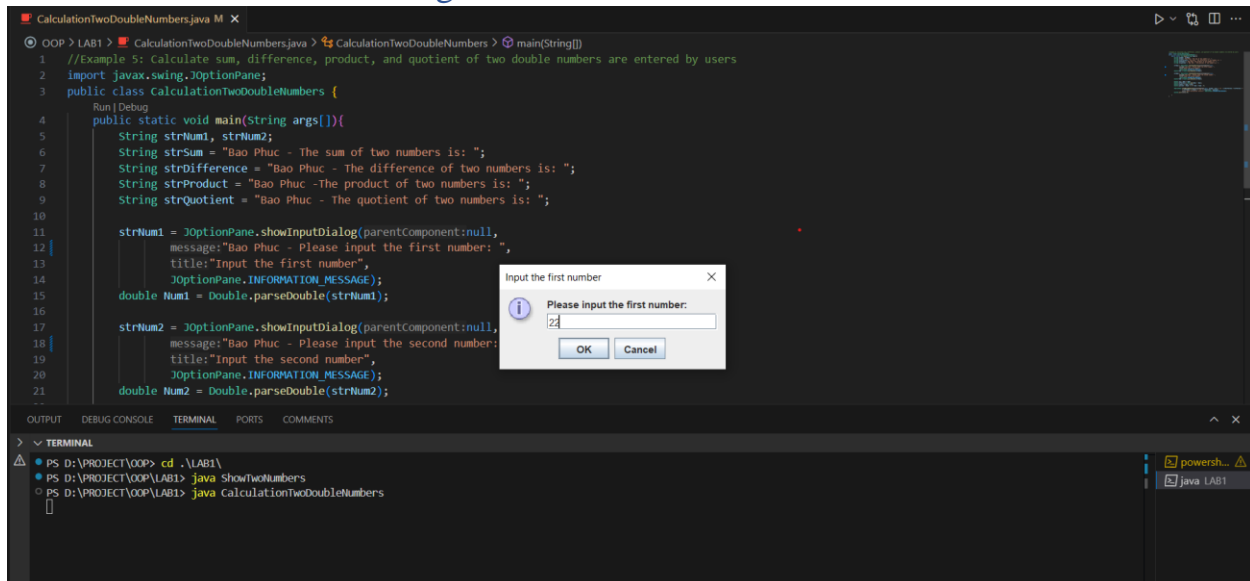


```

1 //Example 5: Calculate sum, difference, product, and quotient of two double numbers are entered by users
2 import javax.swing.JOptionPane;
3 public class CalculationTwoDoubleNumbers {
4     public static void main(String args[]) {
5         String strNum1, strNum2;
6         String strSum = "Bao Phuc - The sum of two numbers is: ";
7         String strDifference = "Bao Phuc - The difference of two numbers is: ";
8         String strProduct = "Bao Phuc -The product of two numbers is: ";
9         String strQuotient = "Bao Phuc - The quotient of two numbers is: ";
10
11         strNum1 = JOptionPane.showInputDialog(parentComponent:null,
12             message:"Bao Phuc - Please input the first number: ",
13             title:"Input the first number",
14             JOptionPane.INFORMATION_MESSAGE);
15         double Num1 = Double.parseDouble(strNum1);
16
17         strNum2 = JOptionPane.showInputDialog(parentComponent:null,
18             message:"Bao Phuc - Please input the second number: ",
19             title:"Input the second number",
20             JOptionPane.INFORMATION_MESSAGE);
21         double Num2 = Double.parseDouble(strNum2);
22
23         double sum = Num1 + Num2;
24         double difference = Math.abs(Num1 - Num2);
25         double product = Num1 * Num2;
26         double quotient = Num2 != 0 ? Num1 / Num2 : 0;
27
28         JOptionPane.showMessageDialog(parentComponent:null, strSum + sum + "\n" + strDifference + difference + "\n"
29             + strProduct + product + "\n" + strQuotient + quotient,
30             title:"Show calculation results", JOptionPane.INFORMATION_MESSAGE);
31         System.exit(status:0);
32     }
33 }
34
35

```

Figure12 Source code of 2.2.5



```

1 //Example 5: Calculate sum, difference, product, and quotient of two double numbers are entered by users
2 import javax.swing.JOptionPane;
3 public class CalculationTwoDoubleNumbers {
4     public static void main(String args[]) {
5         String strNum1, strNum2;
6         String strSum = "Bao Phuc - The sum of two numbers is: ";
7         String strDifference = "Bao Phuc - The difference of two numbers is: ";
8         String strProduct = "Bao Phuc -The product of two numbers is: ";
9         String strQuotient = "Bao Phuc - The quotient of two numbers is: ";
10
11         strNum1 = JOptionPane.showInputDialog(parentComponent:null,
12             message:"Bao Phuc - Please input the first number: ",
13             title:"Input the first number",
14             JOptionPane.INFORMATION_MESSAGE);
15         double Num1 = Double.parseDouble(strNum1);
16
17         strNum2 = JOptionPane.showInputDialog(parentComponent:null,
18             message:"Bao Phuc - Please input the second number: ",
19             title:"Input the second number",
20             JOptionPane.INFORMATION_MESSAGE);
21         double Num2 = Double.parseDouble(strNum2);
22
23         double sum = Num1 + Num2;
24         double difference = Math.abs(Num1 - Num2);
25         double product = Num1 * Num2;
26         double quotient = Num2 != 0 ? Num1 / Num2 : 0;
27
28         JOptionPane.showMessageDialog(parentComponent:null, strSum + sum + "\n" + strDifference + difference + "\n"
29             + strProduct + product + "\n" + strQuotient + quotient,
30             title:"Show calculation results", JOptionPane.INFORMATION_MESSAGE);
31         System.exit(status:0);
32     }
33 }
34
35

```

Input the first number

Please input the first number:

24

OK Cancel

OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS

TERMINAL

PS D:\PROJECT\OOP> cd .\LAB1\

PS D:\PROJECT\OOP\LAB1> java ShowTwoNumbers

PS D:\PROJECT\OOP\LAB1> java CalculationTwoDoubleNumbers

Figure13 Input the first number

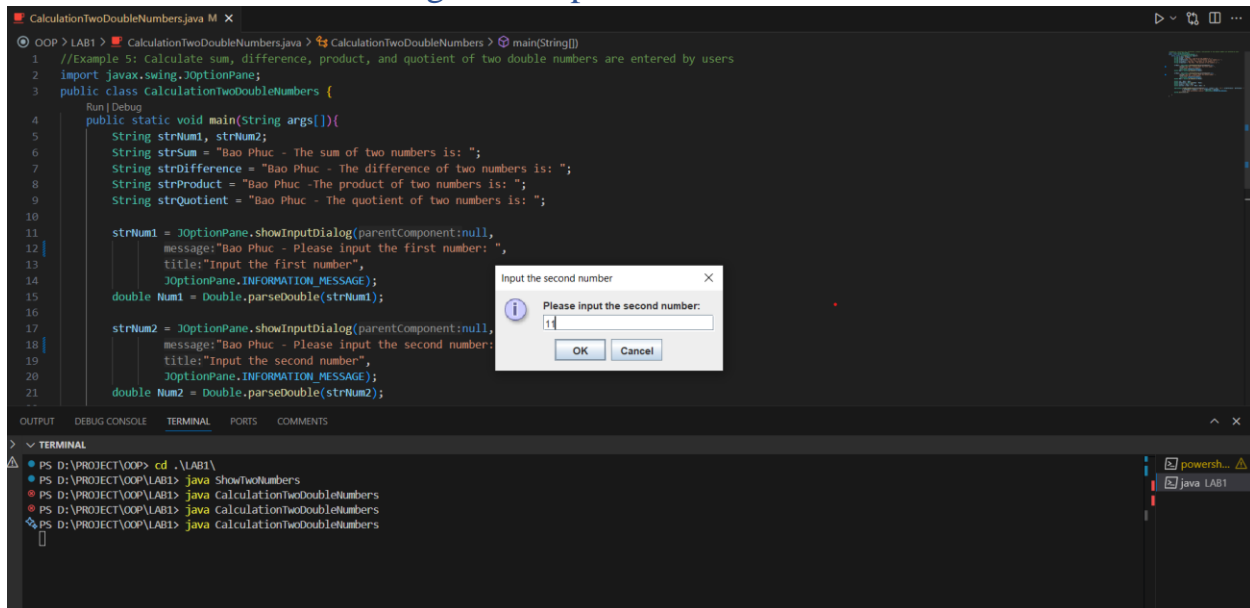


Figure14 Input the second number

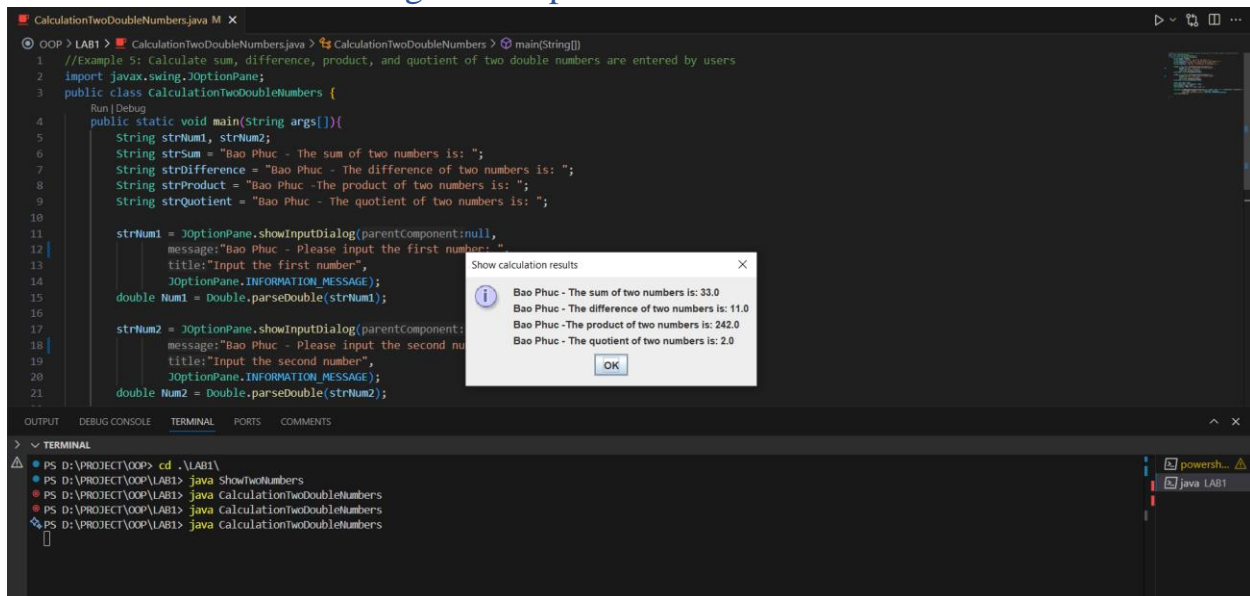


Figure 15 Show calculation results of two numbers

2.2.6. Find the coefficients of three types of equations

```

eclipse-workspace - JavaBasics/src/SolveEquation.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
SolveEquation.java x
1 import java.util.Scanner;
2 public class SolveEquation {
3     @SuppressWarnings("resource")
4     public static void main(String[] args) {
5         Scanner scanner = new Scanner(System.in);
6         int option;
7         while (true) {
8             System.out.println("Bao Phuc - Choose type of equation you wanna solve\n"
9                 + "1: Linear equation\n"
10                + "2: System equation\n"
11                + "3: Second-degree equation\n");
12             option = scanner.nextInt();
13             if(option == 1) {
14                 LinearEquation();
15                 break;
16             }else if(option == 2) {
17                 SystemEquation();
18                 break;
19             }else if (option == 3) {
20                 SecondDegreeEquation();
21                 break;
22             } else {
23                 System.out.println("Bao Phuc - Choose 1 from 3!");
24             }
25         }
26     }
27 }
28
29 @SuppressWarnings("resource")
30 private static void LinearEquation() {
31     Scanner scanner1 = new Scanner(System.in);
32     double A, B, C;
33     System.out.println("Bao Phuc-Enter coefficients:");
34     A = scanner1.nextDouble();
35     B = scanner1.nextDouble();
36     C = scanner1.nextDouble();
37 }

```

Figure16 Source code 1 of 3 of 2.2.6

```

38
39 if (A == 0) {
40     if (B==C) {
41         System.out.println("Phuong trinh co vo so nghiem.");
42     } else {
43         System.out.println("Phuong trinh vo nghiem.");
44     }
45 } else {
46     System.out.println("Phuong trinh co nghiem:" + (C-B)/A);
47 }
48
49 @SuppressWarnings("resource")
50 private static void SystemEquation() {
51     Scanner scanner2 = new Scanner(System.in);
52     double a11, a12, b1, b2, a21, a22;
53     System.out.println("Bao Phuc-Enter coefficients of the first equation:");
54     a11 = scanner2.nextDouble();
55     a12 = scanner2.nextDouble();
56     b1 = scanner2.nextDouble();
57     System.out.println("Bao Phuc-Enter coefficients of the second equation:");
58     a21 = scanner2.nextDouble();
59     a22 = scanner2.nextDouble();
60     b2 = scanner2.nextDouble();
61
62     // Tính định thức D
63     double d = a11 * a22 - a12 * a21;
64
65     if (d == 0) {
66         if (a11 * b2 - a21 * b1 == 0 && a12 * b2 - a22 * b1 == 0) { //D1=D2=0
67             System.out.println("He phuong trinh co vo so nghiem.");
68         } else {
69             System.out.println("He phuong trinh vo nghiem.");
70         }
71     } else {
72         // Sử dụng phương pháp thế để tìm nghiệm
73         double x = (b1 * a22 - b2 * a12) / d;
74         double y = (a11 * b2 - a21 * b1) / d;
75         System.out.println("Nghiem của hệ phương trình là: x = " + x + ", y = " + y);

```

Figure 17 Source code 2 of 3 of 2.2.6

```

75     System.out.println("Nghiem của hệ phương trình là: x = " + x + ", y = " + y);
76 }
77
78 }
79
80 @SuppressWarnings("resource")
81 private static void SecondDegreeEquation(){
82     Scanner scanner3 = new Scanner(System.in);
83     double a, b, c;
84     System.out.println("Bao Phuc-Enter coefficients of the second equation:");
85     a = scanner3.nextDouble();
86     b = scanner3.nextDouble();
87     c = scanner3.nextDouble();
88
89     double delta = b*b-4*a*c;
90     if ( delta == 0) {
91         System.out.println("Phuong trinh co 1 nghiem duy nhat: " + (-b)/(2*a));
92     } else if (delta < 0) {
93         System.out.println("Phuong trinh khong co nghiem thuc.");
94     } else {
95         System.out.println("Phuong trinh co 2 nghiem phan biet.\n"
96             + "Nghiem thu nhat: " + (-b - Math.sqrt(delta))/(2*a) + "\n"
97             + "Nghiem thu hai: " + (-b + Math.sqrt(delta))/(2*a) + "\n");
98     }
99 }
100
101 }
102 }
103

```

Figure18 Source code 3 of 3 of 2.2.6

```

Problems Javadoc Declaration Console
<terminated> SolveEquation [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Sep 29, 2024, 9:38:08 PM - 9:38:16 PM) [pid: 4196]
Bao Phuc - Choose type of equation you wanna solve
1: Linear equation
2: System equation
3: Second-degree equation
3
Bao Phuc-Enter coefficients of the second equation:
1 3 2
Phuong trinh co 2 nghiem phan biet.
Nghiem thu nhat: 1.0
Nghiem thu hai: 2.0

```

Figure19 Second-degree equation case

```

Problems Javadoc Declaration Console
<terminated> SolveEquation [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Sep 29, 2024, 9:41:33 PM - 9:41:39 PM) [pid: 3272]
Bao Phuc - Choose type of equation you wanna solve
1: Linear equation
2: System equation
3: Second-degree equation
3
Bao Phuc-Enter coefficients:
1 1 1
Phuong trinh co nghiem:0.0

```

Figure20 Linear equation case

```

Problems Javadoc Declaration Console
<terminated> SolveEquation [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Sep 29, 2024, 9:42:13 PM - 9:42:25 PM) [pid: 2636]
Bao Phuc - Choose type of equation you wanna solve
1: Linear equation
2: System equation
3: Second-degree equation
2
Bao Phuc-Enter coefficients of the first equation:
2 3 4
Bao Phuc-Enter coefficients of the second equation:
5 6 7
Nghiem của hệ phương trình là: x = -1.0, y = 2.0

```

Figure21 System-equation case

6.1 Write, compile and run the ChoosingOption program:

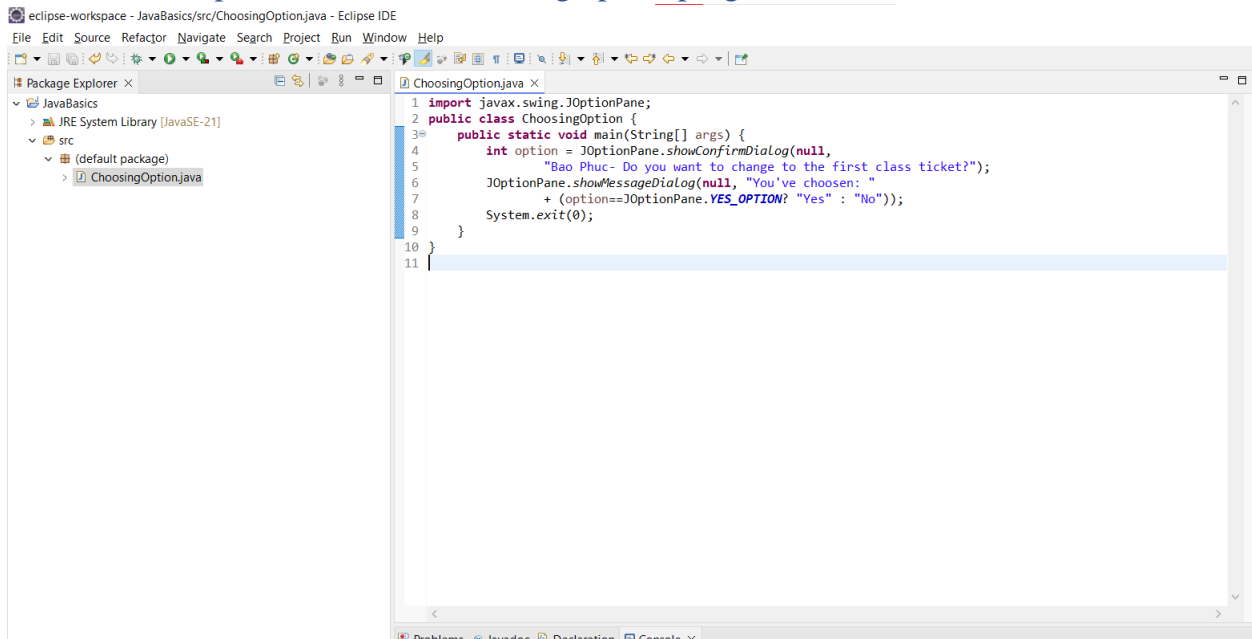


Figure22 Source code of 6.1

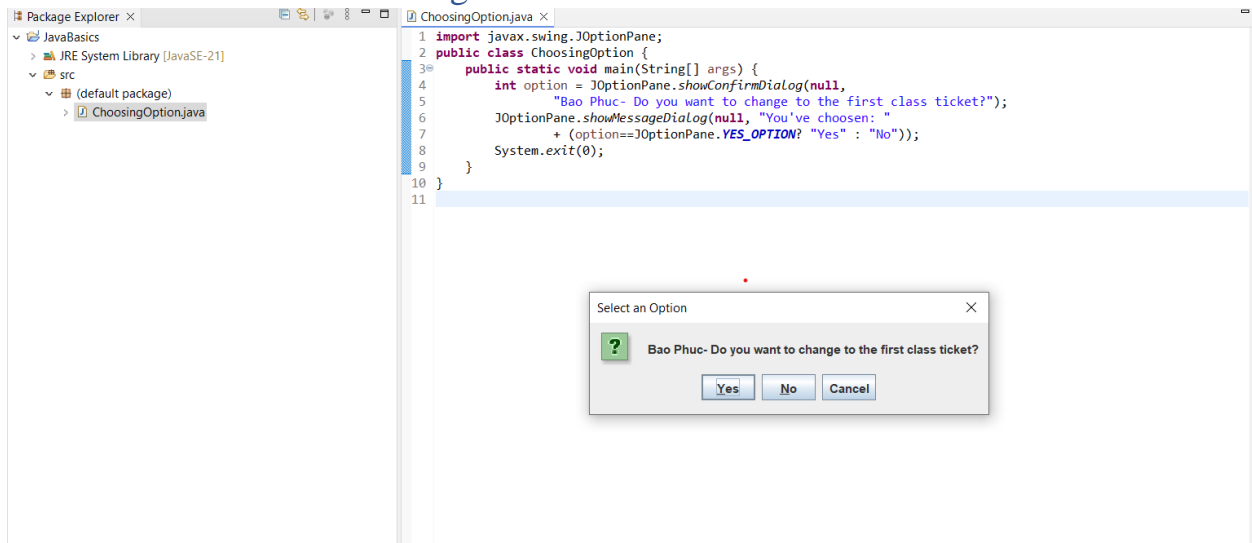


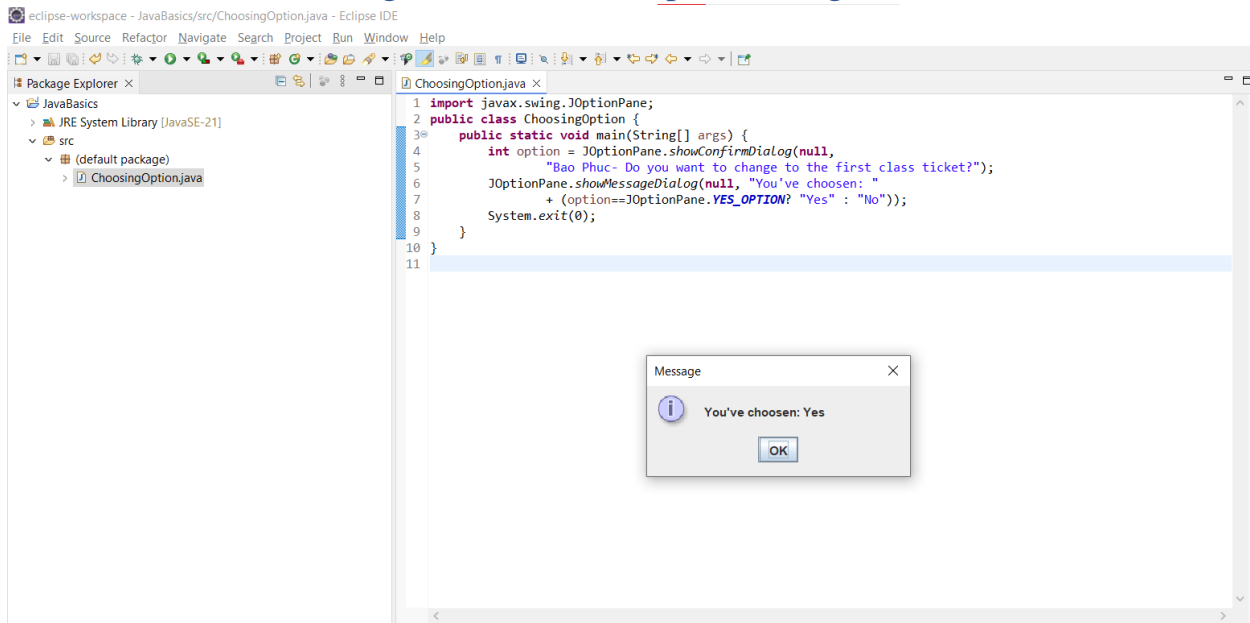
Figure23 Select an Option dialog box

Figure24 Choosing “Yes” option

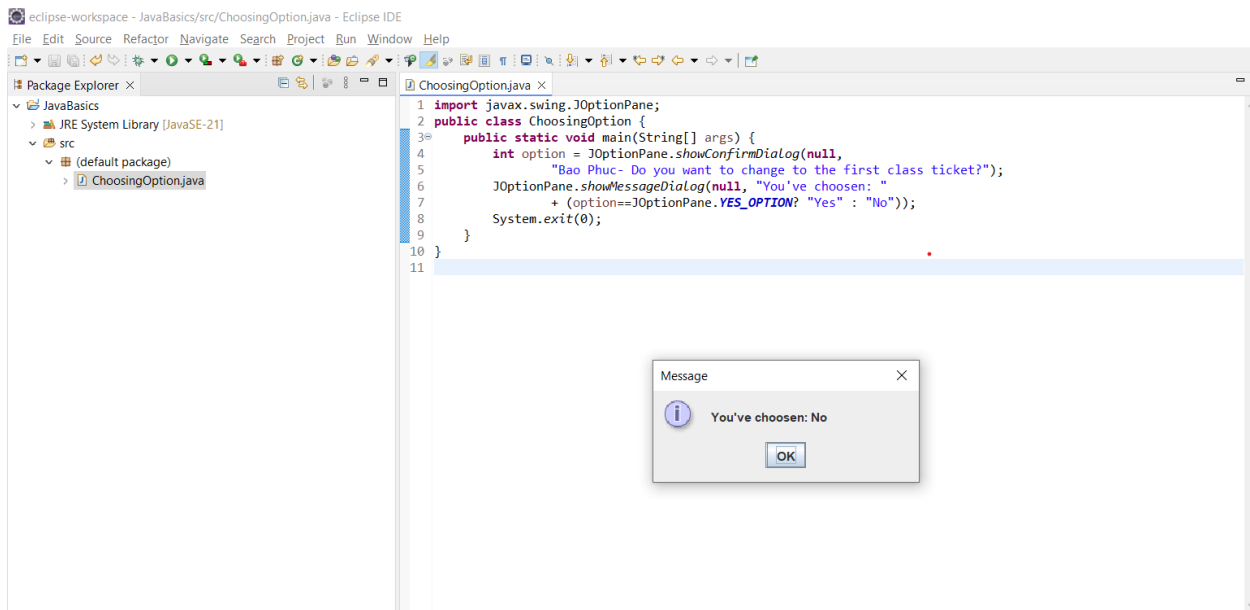


Figure25 Choosing “No” or “Cancel” option

Question:

- If user choose “Cancel”, the Message will appear “You’ve chosen: No” like choosing “No” option.
- To optimize the type of option, i can change some thing like that:

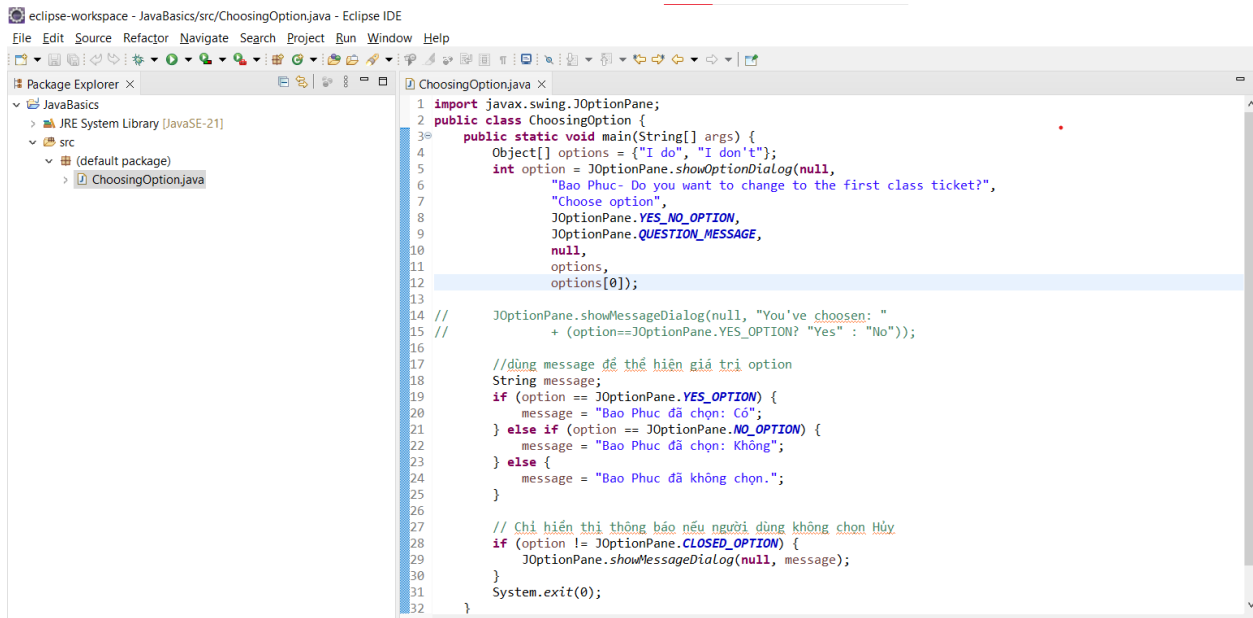


Figure26 Developing source code of 6.1

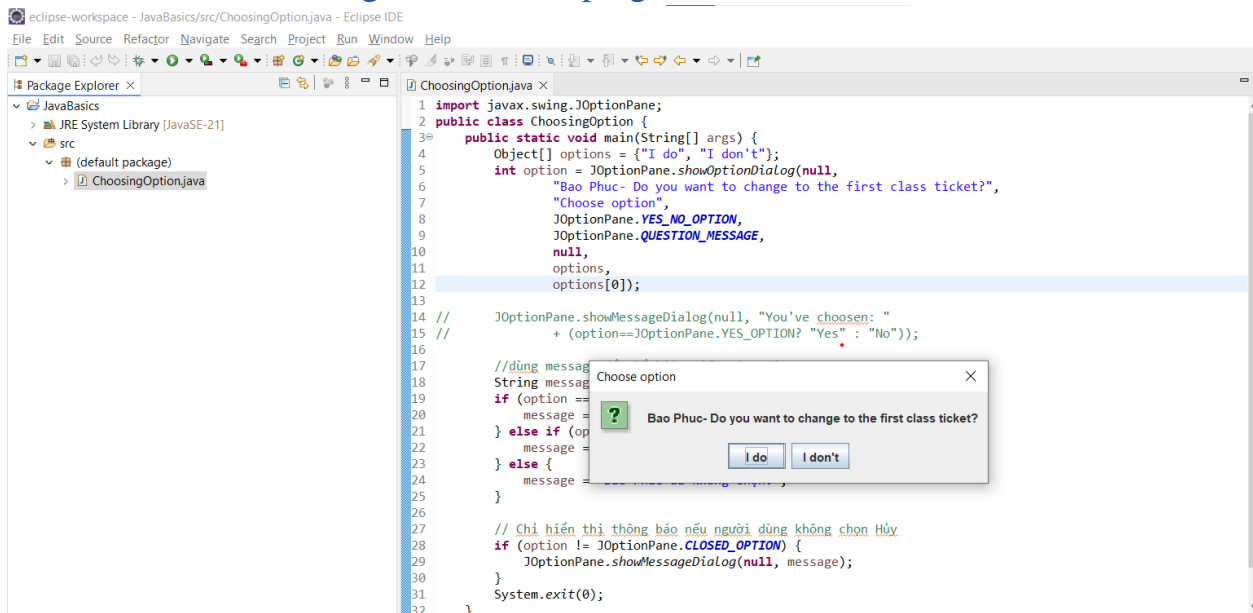


Figure27 Developing option dialog box

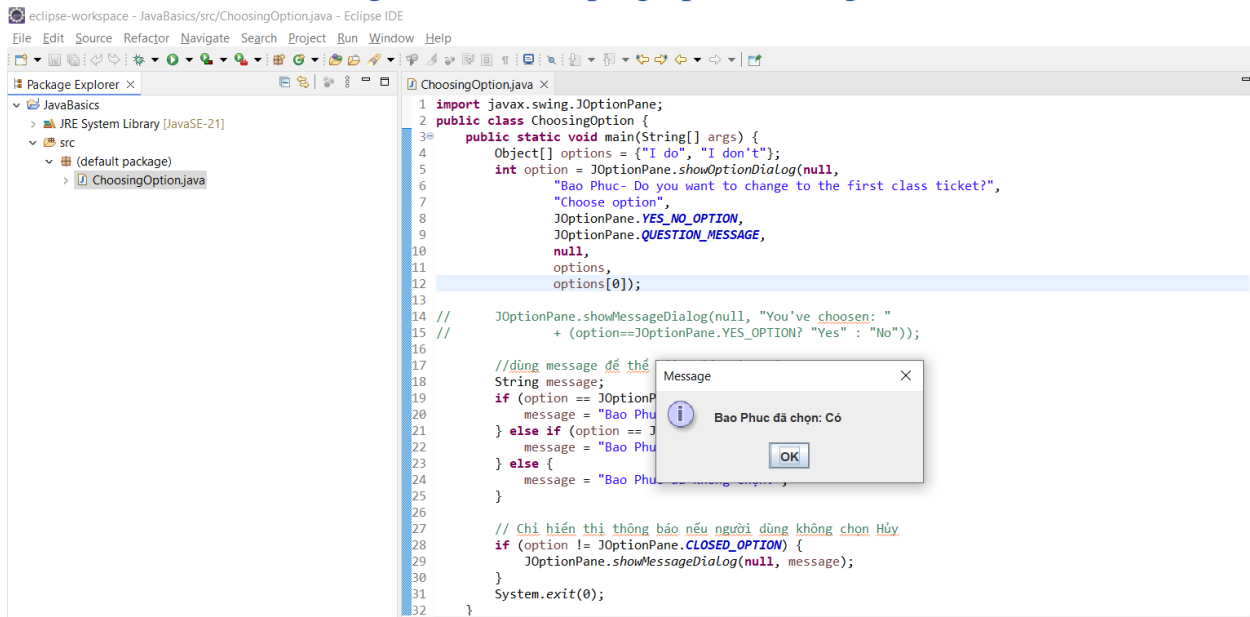


Figure28 Result of developing code

6.2 Write a program for input/output from keyboard

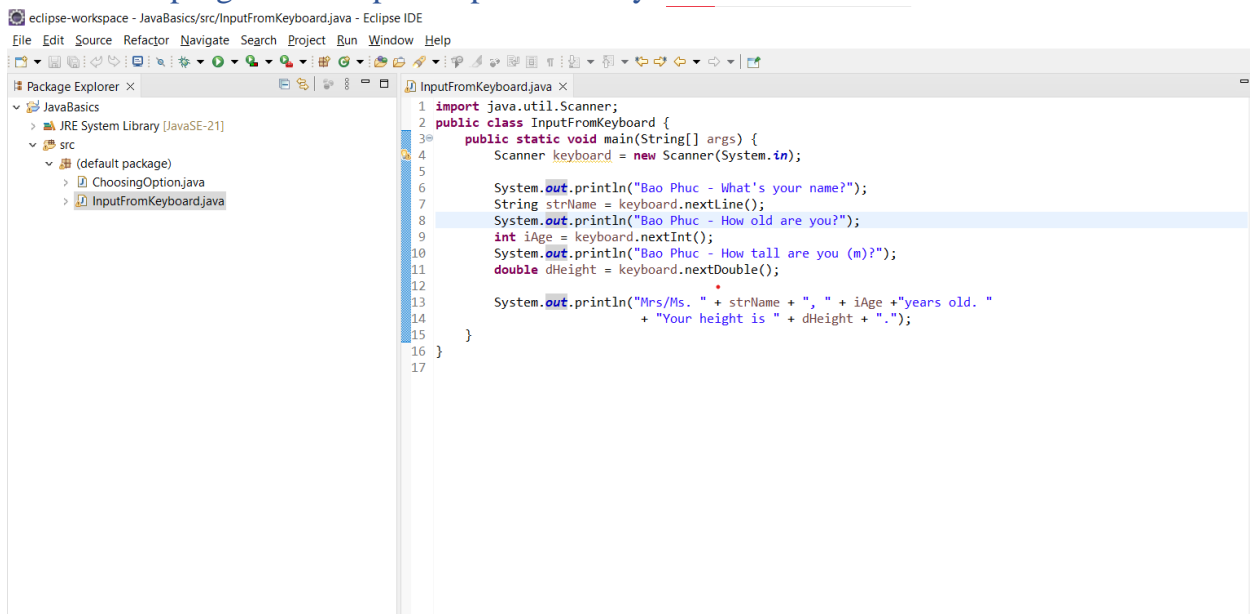


Figure29 Source code of 6.2


```

Problems Javadoc Declaration Console x
<terminated> InputFromKeyboard [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Sep 29, 2024, 9:32:52 AM - 9:33:15 AM) [pid: 2680]
Bao Phuc - What's your name?
Tran Phuc
Bao Phuc - How old are you?
21
Bao Phuc - How tall are you (m)?
1.7
Mrs/Ms. Tran Phuc, 21years old. Your height is 1.7.

```

Figure30 Result of running code 6.2

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

```

eclipse-workspace - JavaBasics/src/CreateTriangle.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer x
JavaBasics1
  JavaBasics
    JRE System Library [JavaSE-21]
    src
      (default package)
        ChoosingOption.java
        CreateTriangle.java
        InputFromKeyboard.java
CreateTriangle.java x
1
2 import java.util.Scanner;
3 public class CreateTriangle {
4     public static void main(String[] args) {
5         Scanner keyboard = new Scanner(System.in);
6
7         System.out.println("Bao Phuc - Enter the height of stars you wanna");
8         int n = keyboard.nextInt();
9         //draw triangle with n height
10        for (int i = 0; i < n; i++) {
11            for(int j = 0; j < n-i-1; j++) {
12                System.out.print(" ");
13            }
14            for (int j = 0; j < 2*i+1; j++) {
15                System.out.print("*");
16            }
17            System.out.print('\n');
18        }
19    }
20 }
21 }
22

```

Figure31 Source code of 6.3

```

Problems Javadoc Declaration Console x
<terminated> CreateTriangle [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Sep 29, 2024, 4:22:39 PM - 4:22:42 PM) [pid: 11972]
Bao Phuc - Enter the height of stars you wanna
6
 *
 ***
 *****
 *

```

Figure32 Create a triangle with heights you want

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.

```

1 import java.util.Scanner;
2
3 public class CalculateDayOfMonth {
4     public static void main(String[] args) {
5         Scanner scanner = new Scanner(System.in);
6         String monthInput;
7         String yearInput;
8         int year;
9
10        // Check valid month input
11        while (true) {
12            System.out.println("Bao Phuc - Enter month you wanna know (full, abbreviation, number): ");
13            monthInput = scanner.nextLine().trim();
14            if (checkValidMonth(monthInput)) {
15                break;
16            } else {
17                System.out.println("Bao Phuc - Invalid month. Enter again! ");
18            }
19        }
20
21        // Check valid year input
22        while (true) {
23            System.out.println("Bao Phuc - Enter year you wanna know (xxxx): ");
24            yearInput = scanner.nextLine().trim();
25            if (yearInput.matches("\\d{4}")) {
26                year = Integer.parseInt(yearInput);
27                break;
28            } else {
29                System.out.println("Bao Phuc - Invalid year. Enter again!");
30            }
31        }
32
33        // Get the number of days in the month
34        int dayOfMonth = getDaysOfMonth(monthInput, year);
35        System.out.println("Bao Phuc - The number of days in " + monthInput + " in " + year + " is: " + dayOfMonth);
36    }
37

```

Figure33 Source code 1 of 4 of 6.4

```

36    }
37
38    // Valid month check
39    private static boolean checkValidMonth(String month) {
40        String[] validMonths = {
41            "January", "Jan", "Jan.", "1",
42            "February", "Feb", "Feb.", "2",
43            "March", "Mar", "Mar.", "3",
44            "April", "Apr", "Apr.", "4",
45            "May", "5",
46            "June", "Jun", "Jun.", "6",
47            "July", "Jul", "Jul.", "7",
48            "August", "Aug", "Aug.", "8",
49            "September", "Sep", "Sep.", "9",
50            "October", "Oct", "Oct.", "10",
51            "November", "Nov", "Nov.", "11",
52            "December", "Dec", "Dec.", "12"
53        };
54        // Check if month input is in validMonths
55        for (String validMonth : validMonths) {
56            if (validMonth.equalsIgnoreCase(month)) {
57                return true;
58            }
59        }
60        return false;
61    }
62
63    // Check leap year
64    private static boolean checkLeapYear(int year) {
65        return (year % 4 == 0 && year % 100 != 0) || (year % 400 == 0);
66    }
67
68    // Get days of the month
69    private static int getDaysOfMonth(String month, int year) {
70        switch (month) {
71            case "January":
72            case "Jan":
73            case "Jan.":
74            case "1":

```

Figure34 Source code 2 of 4 of 6.4

```

68 // Get days of the month
69 private static int getDaysOfMonth(String month, int year) {
70     switch (month) {
71         case "January":
72         case "Jan":
73         case "Jan.":
74         case "1":
75             return 31;
76         case "February":
77         case "Feb":
78         case "Feb.":
79         case "2":
80             return checkLeapYear(year) ? 29 : 28;
81         case "March":
82         case "Mar":
83         case "Mar.":
84         case "3":
85             return 31;
86         case "April":
87         case "Apr":
88         case "Apr.":
89         case "4":
90             return 30;
91         case "May":
92         case "5":
93             return 31;
94         case "June":
95         case "Jun":
96         case "Jun.":
97         case "6":
98             return 30;
99         case "July":
100        case "Jul":
101        case "Jul.":
102        case "7":
103            return 31;
104        case "August":
105        case "Aug":
106        case "Aug.":

```

Figure35 Source code 3 of 4 of 6.4

```

102        case "7":
103            return 31;
104        case "August":
105        case "Aug":
106        case "Aug.":
107        case "8":
108            return 31;
109        case "September":
110        case "Sep":
111        case "Sep.":
112        case "9":
113            return 30;
114        case "October":
115        case "Oct":
116        case "Oct.":
117        case "10":
118            return 31;
119        case "November":
120        case "Nov":
121        case "Nov.":
122        case "11":
123            return 30;
124        case "December":
125        case "Dec":
126        case "Dec.":
127        case "12":
128            return 31;
129        default:
130            return 0;
131    }
132 }
133 }

```

Figure36 Source code 4 of 4 of 6.4

```

<terminated> CalculateDayOfMonth [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Sep 29, 2024, 5:14:50 PM - 5:14:56 PM) [pid: 2636]
Bao Phuc - Enter month you wanna know (full, abbreviation, number):
2
Bao Phuc - Enter year you wanna know (xxxx):
1800
Bao Phuc - The number of days in 2 in 1800 is: 28

```

Figure37 Day of month in non-leap year

```

<terminated> CalculateDayOfMonth [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Sep 29, 2024, 5:17:08 PM - 5:17:08 PM) [pid: 3728]
Bao Phuc - Enter month you wanna know (full, abbreviation, number):
2
Bao Phuc - Enter year you wanna know (xxxx):
2000
Bao Phuc - The number of days in 2 in 2000 is: 29

```

Figure38 Day of month in leap year

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

```

1 import java.util.Scanner;
2 import java.util.Arrays;
3
4 public class Array {
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7         //Nhập kích thước mảng
8         System.out.println("Bao Phuc-Enter size of array:");
9         int size = scanner.nextInt();
10        double sum = 0;
11        double[] array = new double[size];
12        //Nhập dữ liệu mảng
13        System.out.println("Bao Phuc-Enter elements of array:");
14        for (int i = 0; i < size; i++) {
15            array[i] = scanner.nextDouble();
16            sum += array[i];
17        }
18
19        Arrays.sort(array);
20        double average = sum / size;
21
22        System.out.println("Bao Phuc-The result of sorting array:");
23        for (int i = 0; i < size; i++) {
24            System.out.print(array[i] + " ");
25        }
26        System.out.println("\nBao Phuc-The sum of array: " + sum);
27        System.out.println("\nBao Phuc-The average of array: " + average);
28    }
29 }
30
31

```

Figure39 Source code of 6.5

```

Problems Javadoc Declaration Console
<terminated> Array [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Sep 29, 2024, 5:43:02 PM - 5:43:15 PM) [pid: 13512]
Bao Phuc-Enter size of array:
5
Bao Phuc-Enter elements of array:
99.0
99.1
99.2
99.3
99.4
Bao Phuc-The result of sorting array:
99.0 99.1 99.2 99.3 99.4
Bao Phuc-The sum of array: 496.0

Bao Phuc-The average of array: 99.2

```

Figure40 Sort array and calculate sum, average of array

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

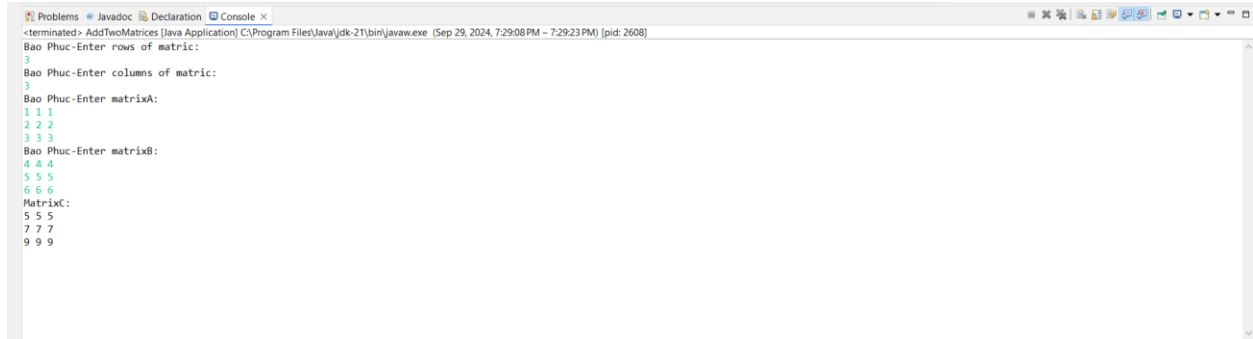
```

eclipse-workspace - JavaBasics/src/AddTwoMatrices.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help

Array.java AddTwoMatrices.java
1 import java.util.Scanner;
2 public class AddTwoMatrices {
3     public static void main(String[] args) {
4         Scanner scanner = new Scanner(System.in);
5         System.out.println("Bao Phuc-Enter rows of matrix:");
6         int row = scanner.nextInt();
7         System.out.println("Bao Phuc-Enter columns of matrix:");
8         int column = scanner.nextInt();
9
10        int[][] matrixA = new int[row][column];
11        int[][] matrixB = new int[row][column];
12        int[][] matrixC = new int[row][column];
13        //Nhap du lieu cho ma tran A
14        System.out.println("Bao Phuc-Enter matrixA:");
15        for(int i = 0; i < row; i++) {
16            for (int j = 0; j < column; j++) {
17                matrixA[i][j] = scanner.nextInt();
18            }
19        }
20        //Nhap du lieu cho ma tran B
21        System.out.println("Bao Phuc-Enter matrixB:");
22        for(int i = 0; i < row; i++) {
23            for (int j = 0; j < column; j++) {
24                matrixB[i][j] = scanner.nextInt();
25            }
26        }
27
28        //Cong tung phan tu 2 ma tran
29        for (int i = 0; i < row; i++) {
30            for (int j = 0; j < column; j++) {
31                matrixC[i][j] = matrixA[i][j] + matrixB[i][j];
32            }
33        }
34
35        //Hien thi ket qua ma tran C
36        System.out.println("MatrixC:");
37        for (int i = 0; i < row; i++) {
38            for (int j = 0; j < column; j++) {
39                System.out.print(matrixC[i][j] + " ");
40            }
41            System.out.print("\n");
42        }
43    }
44 }

```

Figure41 Source code of 6.6



```
<terminated> AddTwoMatrices [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Sep 29, 2024, 7:29:08 PM - 7:29:23 PM) [pid: 2608]
Bao Phuc-Enter rows of matrix:
3
Bao Phuc-Enter columns of matrix:
3
Bao Phuc-Enter matrixA:
1 1 1
2 2 2
3 3 3
Bao Phuc-Enter matrixB:
4 4 4
5 5 5
6 6 6
MatrixC:
5 5 5
7 7 7
9 9 9
```

Figure42 Add two matrices of the same size