

## LAB01 REPORT – 20235684 – NGUYỄN NGỌC DUNG

### Exercise 2.2.5:

<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">i</div> <div> <b>Please input the first number:</b>  <input style="width: 100%;" type="text" value="2"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">i</div> <div> <b>Please input the second number:</b>  <input style="width: 100%;" type="text" value="0"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">i</div> <div> <b>Sum: 2.0</b>  <b>Difference: 2.0</b>  <b>Product: 0.0</b>  <b>Quotient: Invalid</b> </div> </div> <div style="text-align: right; margin-top: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> </div> </div>
<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">i</div> <div> <b>Please input the first number:</b>  <input style="width: 100%;" type="text" value="12"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">i</div> <div> <b>Please input the second number:</b>  <input style="width: 100%;" type="text" value="5"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">i</div> <div> <b>Sum: 17.0</b>  <b>Difference: 7.0</b>  <b>Product: 60.0</b>  <b>Quotient: 2.4</b> </div> </div> <div style="text-align: right; margin-top: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> </div> </div>

### Exercise 2.2.6:

<div style="border: 1px solid #ccc; padding: 10px; background-color: #f9f9f9; text-align: center;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">i</div> <div> <b>1.Linear Equation</b>  <b>2.System Of Equations</b>  <b>3.Quadratic Equation</b>  <b>4.Exit</b>  Choose your option:  <input style="width: 100%;" type="text"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div>				
Option 1	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">?</div> <div> <b>Input a:</b>  <input style="width: 100%;" type="text" value="0"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">?</div> <div> <b>Input b:</b>  <input style="width: 100%;" type="text" value="5"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">i</div> <div> <b>The equation has no solution.</b> </div> </div> <div style="text-align: right; margin-top: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> </div> </div>	
Option 2	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">?</div> <div> <b>Input a1:</b>  <input style="width: 100%;" type="text" value="3"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">?</div> <div> <b>Input a2:</b>  <input style="width: 100%;" type="text" value="4"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">?</div> <div> <b>Input b1:</b>  <input style="width: 100%;" type="text" value="5"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">?</div> <div> <b>Input a21:</b>  <input style="width: 100%;" type="text" value="2"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">?</div> <div> <b>Input a22:</b>  <input style="width: 100%;" type="text" value="3"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">?</div> <div> <b>Input b2:</b>  <input style="width: 100%;" type="text" value="4"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">i</div> <div> <b>Solution of the system: x = -1.0 and y = 2.0</b> </div> </div> <div style="text-align: right; margin-top: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> </div> </div>	
Option 3	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">?</div> <div> <b>Input a:</b>  <input style="width: 100%;" type="text" value="2"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">?</div> <div> <b>Input b:</b>  <input style="width: 100%;" type="text" value="1"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">?</div> <div> <b>Input c:</b>  <input style="width: 100%;" type="text" value="-5"/> </div> </div> <div style="display: flex; justify-content: flex-end; gap: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f57c67; color: white;">Cancel</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"> <div style="text-align: right; font-size: 0.8em; color: #757575;">✕</div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">i</div> <div> <b>The equation has two solutions: x1 = 1.3507810593582121 and x2 = -1.8507810593582121</b> </div> </div> <div style="text-align: right; margin-top: 10px;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #2196f3; color: white;">OK</div> </div> </div>

### Exercise 6.1:

1. What happens if users choose “Cancel”?

➔ The message dialog displays “You’ve chosen: No”

(Because the ‘option’ variable is set to JoptionPane.CANCEL\_OPTION, which has a value of 2. However the source code (JoptionPane.YES\_OPTION) just check for value 0 (“Yes”), and for other values (1- No, 2-Cancel) the program defaults to showing “No”. )

2. How to customize the options to users, e.g., only two options: “Yes” and “No”, OR “I do” and “I don’t”?

➔ Using JoptionPane.showOptionDialog().

✕

?

**Do you want to change to the first class ticket?**

Yes

No

Cancel

✕

i

**You’ve chosen: No**

OK

### **Exercise 6.2:** Program for input from keyboard.

```
<terminated> B6_2_InputFromKeyBoard [Java Application]
What's your name?
Dung
How old are you?
20
How tall are you (m)?
1.5
Mrs/Ms. Dung, 20 years old.
Your height is 1.5 m.
|
```

### **Exercise 6.3:** Star Triangle

```
Please enter the height of the triangle:
7
      *
     ***
    *****
   ********
  **********
 **********
 **********
 **********
|

Please enter the height of the triangle:
5
      *
     ***
    *****
   *****
  *****
|
```

### **Exercise 6.4:** Display the number of days of a month

```
C:\OOP\OOP.Lab.20242.20235684.NguyenNgocDung\Lab01>java B6_4
Enter a month: Feb.
Enter a year: 2000
Number of days of the month: 29
```

```
C:\OOP\OOP.Lab.20242.20235684.NguyenNgocDung\Lab01>java B6_4
Enter a month: September
Enter a year: 99
Invalid input! Please enter again.
Enter a year: 1999
Number of days of the month: 30
```

### **Exercise 6.5:** Sort a numeric array, and calculate the sum and average value of array elements.

```
C:\OOP\OOP.Lab.20242.20235684.NguyenNgocDung\Lab01>java B6_5
Enter n: 5
Enter array: 1789 2035 1899 1456 2013
Sorted array: 1456 1789 1899 2013 2035
Sum: 9192
Average: 1838.4
```

### **Exercise 6.6:** Add two matrices of the same size

```
C:\OOP\OOP.Lab.20242.20235684.NguyenNgocDung\Lab01>java B6_6
Enter the number of rows: 4
Enter the number of columns: 5
Enter matrix 1:
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
Enter matrix 2:
-2 9 4 5 0
3 5 -6 2 -1
8 -1 -6 2 4
-8 3 0 1 1
Result:
-1 11 7 9 5
9 12 2 11 9
19 11 7 16 19
8 20 18 20 21
```