Labs

Lab 2.1: Sorting Three Integers

What is the purpose?

In this lab, you will write a program that sorts three integers. The integers are entered from the input dialogs and stored in the variables num1, num2, and num3, respectively. The program sorts the numbers such that num1 ≤ num2 ≤ num3.

What are the steps?

- Task 1:

Procedure

1. Create a Java class and name the java file with .java extension.
2. Import the javax.swing.JOptionPane package to create dialog boxes.
3. Assign a string variable1 that gets the input value from an input dialog box.
4. Assign an integer variable2 that converts the first number from string to integer from variable1.
5. Assign an integer variable3 that converts the second number from string to integer from variable1.
6. Assign an integer variable4 that converts the third number from string to integer from variable1.
7. Use multiple if statements to compare the value of the three numbers.
8. Assign a string variable5 to capture the three numbers in ascending order.
9. Express the result either to the console or into a dialog message box.
10. Compile the java file by the javac command.
11. Execute the java class by the java command.
12. Save screen shots of the output similar to Figures 2-1-1 through 2-1-5.

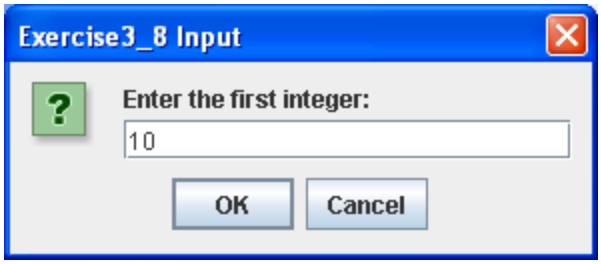

Figure 2-1-1

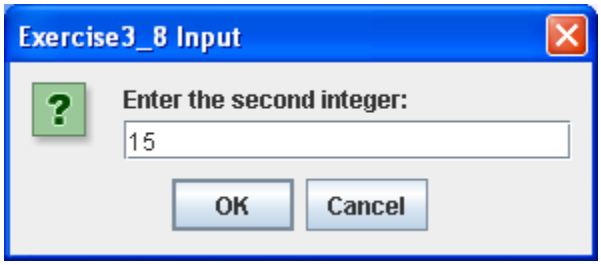

Figure 2-1-2

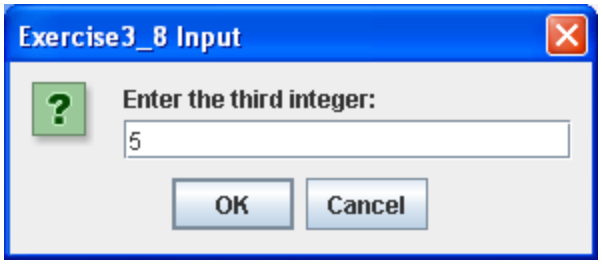

Figure 2-1-3

Output in the console:

```
The sorted numbers are 5 10 15.
```

Figure 2-1-4

Output in a dialog box:

Figure 2-1-5

Did it work?

Were you able to—

- Capture three integers by dialog boxes?
- Display all the three integers in ascending order in the console?
- Display all the three integers in ascending order with a dialog message box?

Lab 2.2: Displaying Calendars

What is the purpose?

In this lab, you will write a program that prompts the user to enter the year and first day of the year and then displays the calendar table for the year on the console. For example, if the user entered the year 2009 and 4 for Thursday—the day of the week that January 1, 2009, falls on—your program should display the calendar for each month of the year 2009.

What are the steps?

- Task 1:

Procedure

1. Create a Java class and name the java file with .java extension.
2. Import javax.swing.JOptionPane package to create dialog boxes.
3. Assign a string variable1 that gets the Year value from an input dialog box.
4. Assign an integer variable2 that converts the Year value from string to integer from variable1.
5. Assign a string variable3 that gets the Start Day value from an input dialog box.
6. Assign an integer variable4 that converts the Start Day value from string to integer from variable3.
7. Assign an integer variable5 that figures out the number of days in a month.
8. Use a for loop and multiple case statements to determine the value of the number of days in 12 months. Don't forget that every four years, February has 29 days.
9. Compute variable4 based on Start Day = (Start Day + Number Of Days In Month) % 7;
10. Use nested for loops to manage the spacing and appearance of the monthly calendar.
11. Express the result either to the console or dialog box.
12. Compile the java file using the javac command.
13. Execute the java class using the java command.
14. Save screen shots of your output similar to Figures 2-2-1 through 2-2-3.

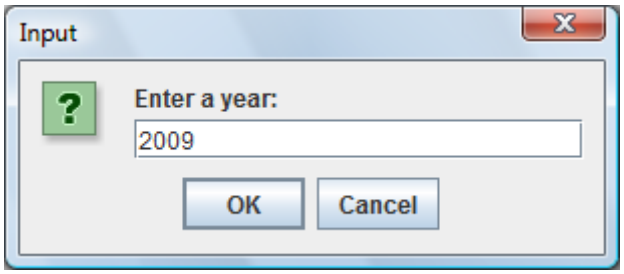

Figure 2-2-1: Sample Output 1

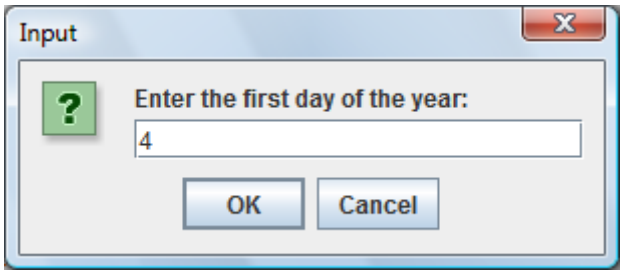

Figure 2-2-2: Sample Output 2

```
          January 2009
-----------------------------
 Sun Mon Tue Wed Thu Fri Sat
                   1   2   3
   4   5   6   7   8   9  10
  11  12  13  14  15  16  17
  18  19  20  21  22  23  24
  25  26  27  28  30  31


          February 2009
-----------------------------
 Sun Mon Tue Wed Thu Fri Sat
   1   2   3   4   5   6   7
   8   9  10  11  12  13  14
  15  16  17  18  19  20  21
  22  23  24  25  26  27  28


          March 2009
-----------------------------
 Sun Mon Tue Wed Thu Fri Sat
   1   2   3   4   5   6   7
   8   9  10  11  12  13  14
  15  16  17  18  19  20  21
  22  23  24  25  26  27  28
  29  30  31

          April 2009
-----------------------------
 Sun Mon Tue Wed Thu Fri Sat
               1   2   3   4
   5   6   7   8   9  10  11
  12  13  14  15  16  17  18
  19  20  21  22  23  24  25
  26  27  28  29  30
```

```
          May 2009
-----------------------------
 Sun Mon Tue Wed Thu Fri Sat
                       1   2
   3   4   5   6   7   8   9
  10  11  12  13  14  15  16
  17  18  19  20  21  22  23
  24  25  26  27  28  29  30
  31

          June 2009
-----------------------------
 Sun Mon Tue Wed Thu Fri Sat
       1   2   3   4   5   6
   7   8   9  10  11  12  13
  14  15  16  17  18  19  20
  21  22  23  24  25  26  27
  28  29  30

          July 2009
-----------------------------
 Sun Mon Tue Wed Thu Fri Sat
               1   2   3   4
   5   6   7   8   9  10  11
  12  13  14  15  16  17  18
  19  20  21  22  23  24  25
  26  27  28  29  30  31

          August 2009
-----------------------------
 Sun Mon Tue Wed Thu Fri Sat
                           1
   2   3   4   5   6   7   8
   9  10  11  12  13  14  15
  16  17  18  19  20  21  22
  23  24  25  26  27  28  29
  30  31

          September 2009
-----------------------------
 Sun Mon Tue Wed Thu Fri Sat
           1   2   3   4   5
   6   7   8   9  10  11  12
  13  14  15  16  17  18  19
  20  21  22  23  24  25  26
  27  28  29  30
```

```
          October 2009
-----------------------------
 Sun Mon Tue Wed Thu Fri Sat
                   1   2   3
   4   5   6   7   8   9  10
  11  12  13  14  15  16  17
  18  19  20  21  22  23  24
  25  26  27  28  29  30  31


          November 2009
-----------------------------
 Sun Mon Tue Wed Thu Fri Sat
   1   2   3   4   5   6   7
   8   9  10  11  12  13  14
  15  16  17  18  19  20  21
  22  23  24  25  26  27  28
  29  30

          December 2009
-----------------------------
 Sun Mon Tue Wed Thu Fri Sat
           1   2   3   4   5
   6   7   8   9  10  11  12
  13  14  15  16  17  18  19
  20  21  22  23  24  25  26
  27  28  29  30  31
```

Figure 2-2-3: Output in the Console

Did it work?

- Were you able to display the monthly calendar table for the year 2009 on the console?