November 30th, 2021

Exercises for Programming Practice 1

The submitted program will be evaluated as described in “Lesson Plan (2021)”.

Note:

- ✓ Do not create “module-info.java”, when you create a Java Project.
- ✓ Do not set Package name in the window “New Java Class”.
- ✓ The following information must be included as a comment at the first part of the program.
  - ➢ Contents of the program
    - ✧ Do not use the title of exercise for “contents of the program”
      Think about “contents of the program” yourself.
  - ➢ Submission date
  - ➢ Program creator
- ✓ Wrong file name (including case sensitivity) is not accepted.

The deadline for submitting the programs is 17:50 on November 30th, 2021.

Download “data11.txt” and “data200.txt” from “Week 10” page Resource of “Programming Practice 1”, manaba+R.

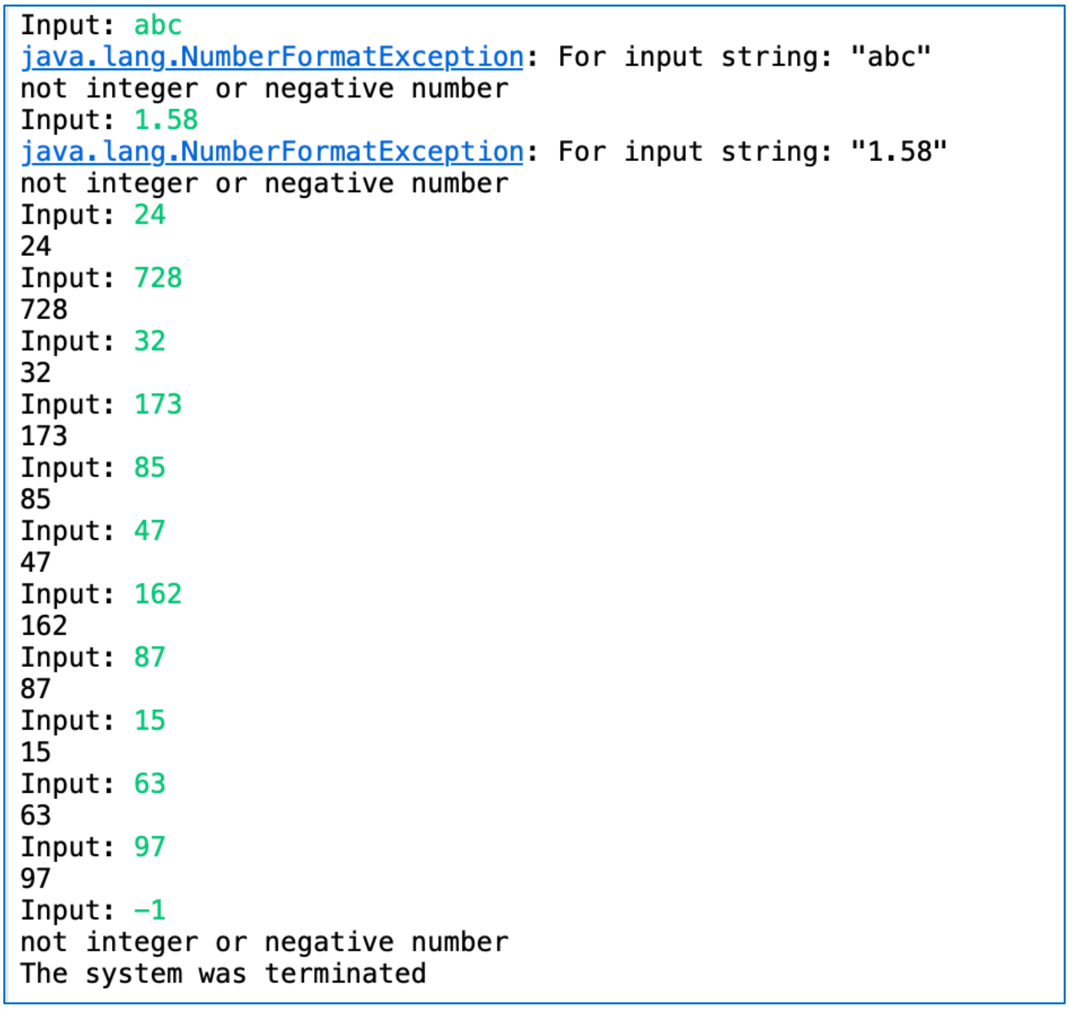
Exercise 20 (file name “Exercise20.java”)

Create a Java program "Exercise 20.java" that accepts only positive integers and does not accept 0, negative integers, real numbers and other characters. The accepted positive integers will be recorded in the file "numbers.txt".

The string “input: “ is printed to indicate the position of the input to the user so that the user can input to the right of the string “input: “. The input processing is terminated by entering negative number from the user.

An example of execution is shown in Figure 1.

Refer to “FromKeyBoard2” and “ToFile” shown in “Exception and I/O” of “Programming Language”.



```
Input: abc
java.lang.NumberFormatException: For input string: "abc"
not integer or negative number
Input: 1.58
java.lang.NumberFormatException: For input string: "1.58"
not integer or negative number
Input: 24
24
Input: 728
728
Input: 32
32
Input: 173
173
Input: 85
85
Input: 47
47
Input: 162
162
Input: 87
87
Input: 15
15
Input: 63
63
Input: 97
97
Input: -1
not integer or negative number
The system was terminated
```

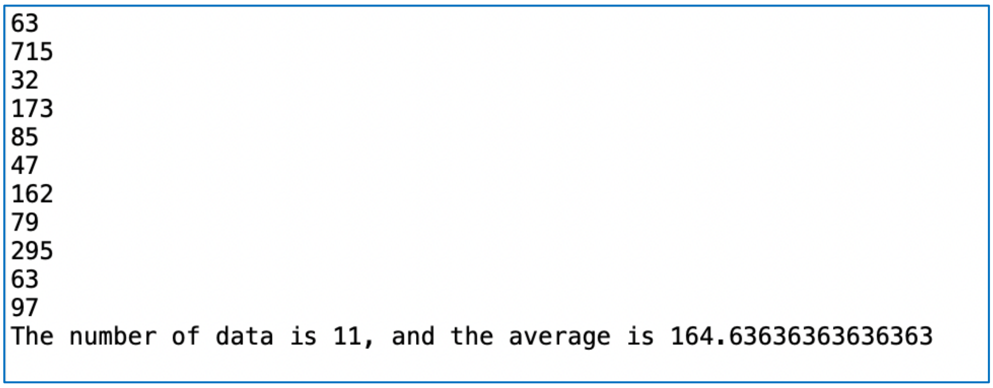
Figure 1. The execution example of Exercise20.java.

Exercise 21 (file name “Exercise21.java”)

Create Java program “Exercise21.java” which displays the contents of “data11.txt”, the number of positive numbers, and the average. The average is displayed as a real number.

An example of execution is shown in Figure 2.

Refer to “FromFile1” shown in “Exception and I/O” of “Programming Language”.



```
63
715
32
173
85
47
162
79
295
63
97
The number of data is 11, and the average is 164.63636363636363
```

Figure 2. The execution example of Exercise21.java.

Exercise 22 (file name “Exercise22.java”)

Create a Java program “Exercise22.java” that reads from the file “data200.txt” in which 200 integers from 0 to 9 are recorded. In addition, “Exercise 22.java” also displays the number of integers in the output and shows each integer in a bar graph.

Draw each bar graph using "fillRect" as follows.

```
g.fillRect (100, 50 + 40 * i, unit * record [i], 30);
```

The variable "i" is an integer from 0 to 9.

The value of the variable “unit” is the answer (integer) obtained by dividing 380 by the maximum number of the first 10 integers in the “buffer” (the integers in the array “record”). The maximum length of the bar graph is 380 pixes or less.

An example of executions is shown in Figure 3, Figure 4.

Refer to “FromFile2” shown in “Exception and I/O” of “Programming Language”.

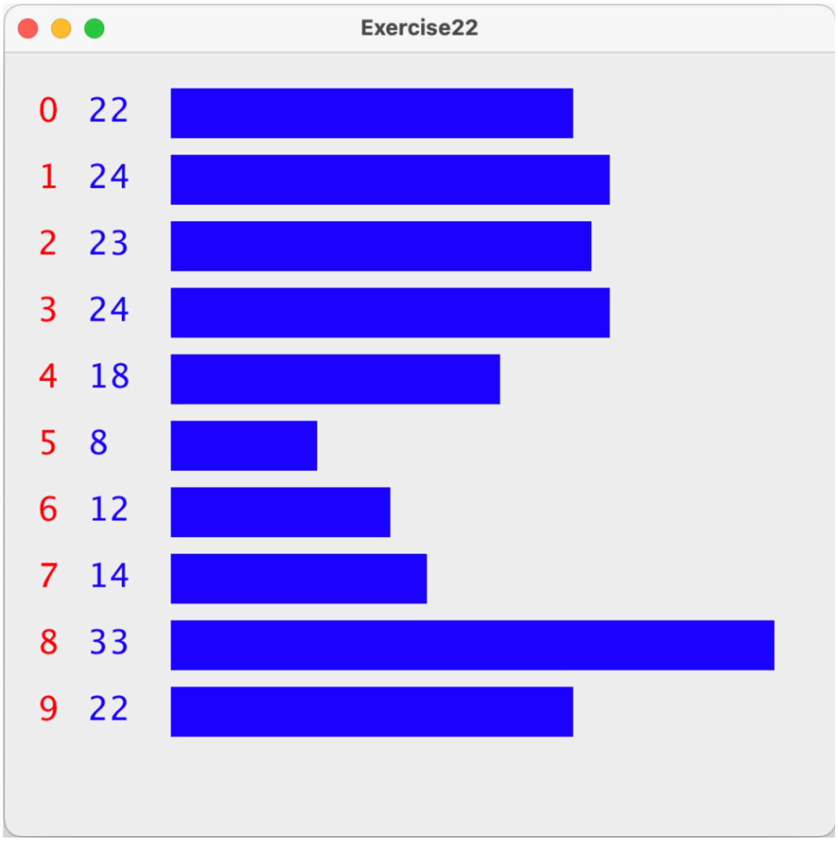
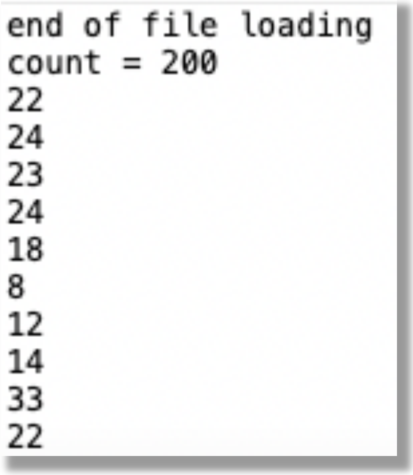


Figure 3. The execution example of Exercise22.java (Graphic bars).



```
end of file loading
count = 200
22
24
23
24
18
8
12
14
33
22
```

Figure 4. The execution example of Exercise22.java (Outputs in the terminal).