Java Programming I: Exercise 13

The deadline for submissions is one week after the exercise.

In this exercise, you will study how to write Java code for exceptions, and define your own Exception classes.

Source code of the lecture examples

- AgeTest.java
- Divider.java
- ExceptionSubclass.java
- ThrowDemo.java

[Core Set, Problem 1] Write a Program Dealing with Exceptions

(4 points)

Add a *readList* method to ListOfNumbers.java. This method should read in *int* values from a file, print each value, and add them to the array. You should catch all appropriate errors. You can refer to the template file with the main method.

[Core Set, Problem 2] Wrapping Exception

(6 points)

Add *ResourceNotFoundException* class for wrapping to throw FileNotFoundException in Line 7. Also, add codes for throwing *ResourceNotFoundException* there.
Please explain how to throw exceptions in this code.

```
1: import java.io.FileNotFoundException;
2: class ResourcesManager {
3: void getResource() {
4:           try {
5:                   getFileResource();
6:           } catch (FileNotFoundException e) {
7:
8:               }
9:       }
10:
11:     void getFileResource() throws FileNotFoundException {
12:             throw new FileNotFoundException();
13:       }
14:}
15:
16: public class ChainTest {
17:
18:     public static void main(String[] args) {
19:                 ResourcesManager obj = new ResourcesManager();
20:                 obj.getResource();
21:       }
```

[Advanced Set, Problem 3] Define your own Exception Classes and Handling

(8 points)

Basic Knowledge
1.   How to define your own Exception class: lecture slides #26-27, and the text book: pp. 281, 293 (Japanese version: pp. 245, 254)
2.   When you raise your own Exception, you can do the next:
     throw new YourOwnException (somearg);

Request:
Download the template for the main program. In the program, the main routine first try to replace a user's license plate number(LPN) with new one using the "replaceLPN(String owner, String lpn)". When the method cannot replace the user's LPN, the "CannotReplaceException" will be occurred.

  1) Define classes (**Names: "NoSuchOwnerException.java"** and **"CannotReplaceException.java"**) for the exceptions.
  2) Write proper codes in the template code according to the directions in the template code to show the result below. The name of your answer file is "ExceptionsTest.java".

Run:
% java ExceptionsTest

Program Running Result:
In main, Exceptions: Owner not found: Owner4, Cannot Replace: LPN4-2

Reference URL:
1. The Exception class (In Japanese)

References:
You can refer to the following link for initCause and getCause .
Java API:
 - getCause() method:
     Throwable.html#getCause()
 - initCause(Throwable) method:
     Throwable.html#initCause(java.lang.Throwable)