

CSC-240 Lesson 7: Exception Handling

Assignment 7

There are supporting files that contain a complete set of classes from which to start this exercise. These classes are essentially as will be published for the Demonstration for the Lesson 6 Assignment, so they will not be available until after the close of the Assignment Submission Folder for Assignment 6. Watch the Lesson 7 topics list for the appearance of "Assignment Materials."

Your task is to create the following four files, either by creating new files, or modifying existing files. **Only these four files should be submitted.**

- **CourseException.java**

An **Exception** class for reporting an error arising within a **Course** constructor. The message within any use of the exception should indicate a failure in the constructor.

- **Course.java**

The requirements for the constructor and methods of the **Course** class are the same as for Lesson 6. Additionally:

- if an error occurs in constructing the class, a **CourseException** is thrown. If the error in the constructor is caused by an **Exception** thrown from another method, that **Exception** is included in the **CourseException** as a cause. No additional message is written to any print or output file.
- if an error occurs in the values passed to the *setCredits* method a **ValidationException** is thrown. The **ValidationException** should contain a message indicating the nature of the error. (The **ValidationException** class has been provided.) No additional message is written to any print or output file.

- **SectionException.java**

An **Exception** class for reporting an error arising within a **Section** constructor. The message within any use of the exception should indicate a failure in the constructor.

- **Section.java**

The requirements for the constructor and methods of the **Section** class are the same as for Lesson 6. Additionally:

- if an error occurs in constructing the class, a **SectionException** is thrown. If the error in the constructor is caused by an **Exception** thrown from another method, that **Exception** is included in the **SectionException** as a cause. No additional message is written to any print or output file.
- the method *addStudent* should throw an **IllegalArgumentException** if the parameter value is **null**, and an **IllegalStateException** if the class is full (cannot accept any more students). Each exception should contain a message indicating the nature of the error. These exceptions are present in the JDK. No additional message is written to any print or output file.
- The methods *setDates* and *setTimes* have as preconditions that none of their arguments are **null**. These preconditions are to be checked by means of one or more assertions. (This means that if the precondition is not met, the program will fail at the assertion, and an **AssertionError** will be thrown.) The **AssertionError** should contain a message indicating the nature of the error.

You will write or modify the four classes (**Course** and **Section** and the corresponding **Exception** classes). All these should be compiled into the `edu.frontrange.csc240.a7` package, along with other classes in that package that are provided with this assignment (**Time2**, **Date**, **Prefix**, **Degree**, **StudentException**, **Student**).

There is also provided in the zipfile is a file, `Assignment7Test.java`, which is intended to test for the throwing of exceptions from the **Course** and the **Section** classes. The `Assignment7Test.java` file contains the test program for what you have written. It can be run at any time, but it not be until after you have enhanced the **Course** and **Section** classes to throw the appropriate exceptions that it will not produce some error messages. With the modifications you have made as requested above, it should produce the output that you see shown in the “About the Assignment” topic.

Counting Objects

The code for counting the objects from the **Student**, **Course** and **Section** classes is already implemented in these classes.

Running the Tests

The test program depends upon **assert** statements throwing the appropriate **Error** when its assertion expression is not satisfied (*i.e.*, when it is not **true**). However, the JVM default is that assertions are ignored. In order to have these processed, the statement that executes the program (the `java.exe` program) must have the “-ea” option set on the command line. This option is shown in the documentation of the “Test” classes.

If you are using NetBeans, this option can be set by right-clicking on the project name, and then selecting “Properties” at the bottom of the menu. When the “Project Properties” window appears, click on “Run” in the tree at the left. In the textfield “VM Options,” type the option, “-ea”.

A sample of the expected output can be found in the “About the Assignment” topic.

The following *About the Assignment* topic contains further explanation, directions, and hints about this assignment. Please read that topic before starting this assignment.

Important

Please follow the directions of [Programming Assignment Identification](#) in submitting your programming solutions.

If you have any questions or concerns about the Assignment or the *About the Assignment* topic, please use the Lesson Question discussion topic, or send a message by the D2L Internal Messaging system if you prefer.

Note: you may submit to the Assignment Submission Folders as many times and as often as you wish, up to the deadline time. Each submission is tagged with the date/time, and so each submission remains separate and distinct. Unless you leave instructions to the contrary, only the most recent of each file with the same name will be viewed for the purposes of grading. Details may be found in the topic *How To Submit and Get Feedback on Assignments* in the *How To* module.

Messages that accompany Assignment Submissions are read, and responded to, **only** when assignment submissions are graded (which is after the Assignment Submission Folder closing date/time). If you have a comment or question about an assignment, or a request for assistance, that needs an earlier response, then that comment, question or request should be made or asked *via* an Internal Message or the Discussion board, as these are usually read and answered every day.