CSIT121/821 Lab Exercises

Lab 5

Deadline: 25 October 2020, 10 PM

Objectives

- Familiar with Java text file I/O and object serialization.

Background:

In Assignment 2, both the Bachelor and Master of Computer Science course structures are inputted manually inside the `main()` method. The students' enrolment records cannot be kept as well. In Lab 5, you are asked to modify the A2's solution by using the object serialization and file I/O to import/export course objects and export the students' enrolment records to a text file.

Tasks:

Task 1:

1. Modify the existing `Course`, `Subject` and `Major` classes by implementing the `serializable` interface;
2. Create a new primary class (`CreateCourse`) without any class field;
3. Use the `ObjectOutputStream` class in the `main()` method of `CreateCourse` class to output the Bachelor of Computer Science course object to a binary file named `bcs.ser` (within the same directory as the `CreateCourse.java)` and the Master of Computer Science course object to a binary file named `mcs.ser`. You shall re-use the hardcode in A2's solution to create all subject, major and course objects first. Then use the `writeObject()` method to export the two course objects to two binary files, respectively.

Task 2:

1. Update the `StudentSystem` class in A2's solution (you can use your or my A2 solution) with the exception handling process completed in Lab 4;
2. Update the `StudentSystem` class and use the `ObjectInputStream` class to import the Bachelor of Computer Science course object and the Master of Computer Science course object from the binary files *`bcs`*`.ser` and `mcs.ser` (created in Task 1), respectively;
3. Enrol two students to BCS and MCS course respectively (exactly same process as A2);
4. Export all students' enrolment record information (the exactly same information displayed on the screen after the completion of the two students' enrolment in A2) into a text-file named `students.txt` (within the same directory as the `StudentSystem.java)`. You must use the `Formatter` class and the `format`() method.

Submission:

- Please submit your solution to Moodle. Email submission is not accepted.
- Please submit an individual PDF document to contains all your solutions for all tasks.
- In the PDF document, for Task 1, please paste `CreateCourse` program and the snapshots which clearly shows the compilation and the execution of your program. You shall also have a snapshot to show the `bcs.ser` and `mcs.ser` files are created within the same directory of the `CreateCourse.java`.
- In the PDF document, for Task 2, please paste the updated `StudentSystem` program, the snapshots which clearly shows the compilation and the execution of your program, and the snapshot of the content of `student.txt`. You shall also have a snapshot to show the `student.txt` file is created within the same directory of the `StudentSystem.java`.

Note: Turnitin will be used to check similar submissions. Plagiarism will be reported to the school, and all involving students will receive the zero mark or other penalties based on the university's regulation.