ICS111 Project 2 - GUI program that handles Java objects

Project Description

In this project, you will be provided with two Java classes Course and CourseList and a JSON file “courses.json”. You are to make use of these classes to support your creation of a GUI program that can open and display the contents of JSON files. The program will utilize a JTable to display the information in a table that can be sorted by any column. Your program should have the ability to add additional records into the JTable. In addition, your program must be able to save to JSON files that have the same format as the input files.

You will work in assigned groups for this project. Here are the groups for the project:

Group 1 : Marz, Christian, Karen, Joshua
Group 2 : Shogo, Luke, Brandon, Grant
Group 3 : Ellen, Matthew, Marshall, Jeremy
Group 4 : Elizabeth, Minh, Kerri, Raynald
Group 5 : Kasi, Renn, Chase, Jerome

Every group gets a common folder under Laulima>Resources to share code and make final submission.

Basic requirements

A completed project must be able to perform the following:

1. Use file dialog to obtain filename for the input JSON file and place the data into the JTable (10 points).
2. Use file dialog to open XML files to populate the JTable (10 points).
3. Use file dialog to get the filename for the output JSON file. The output file must be properly formatted. A correctly formatted output file should be readable by your application (10 points).
4. Use file dialog to get the filename for the output XML file. Make sure that it is written correctly so that it can be reused by your application (10 points).

5. Program must use a custom dialog that extends the JDialog class to obtain a new Course object which can then be appended to the JTable (10 points).
6. JTable must be correctly sortable by any of the columns including the credits (10 points).

Grading

- 60 points – the project implements all the requirements above. Ten points for each of the items working correctly. You will present each feature and also any extra credit features you incorporated. You will run your properly indented code during the presentation. You should also include an explanation of the most difficult problem the group encountered, as well as how the problem was dealt with.
- 20 points – Detailed algorithm for the program.
  1. All the steps in processing an input JSON file from the selection of a file to the update of the JTable.
  2. All the steps in writing to an output JSON file from the selection of the file to the closing of the output file.
  3. All the steps in adding data using a dialog box from the opening of the box to the update of the JTable.
- 10 points – Answers to the following questions:
  1. Give two reasons why JSON formatted files are useful.
  2. Give two advantages of a GUI program versus a console based program.
  3. Give two advantages of using JTable for storing tabular data.
- 10 points – based upon the instructor's evaluation of your contribution to the programming part of the project.

Extra Credit – Maximum extra credit is 10 points

- If the user opens an input file, the user has an option to append to current table data, or to start with new data (5 points).
- When files are saved to JSON format, the order shown in the JTable is the order of the data in the JSON file (3 points)

- The JTable uses a custom renderer to make the credits of the Course display with exactly one digit after the decimal point for all entries (2 points).
- If you use the new style of GUI programming that does your project in a thread-safe manner that keeps event handling code in the Event Dispatch Thread (EDT) (5 points).

Due Date

The project presentation will take place on December 7. The final version of the code must be uploaded by 8:45 am on that day. All other material (besides the code) must be submitted by 5:00 pm that day. All the items submitted should be in a folder called **Project 2 Final Version** inside your group folder.