

ACCELERATED CS 1& 2 - CSC250 (FALL 2021)

PROJECT-2 (E-Library)

Due Date: Oct 30,2021;11:59 pm

Goal: ELibrary Management - An automatic library management system to reduce human intervention. It manages all the information about students, books, duration, course etc. All user requests are requested to the server and performs updation as per the request. The entire project should implement at administrator end and only the administrator is guaranteed the access. The ELibrary server serves n number of users request and respond accordingly.

Feel free to apply your own thoughts and ideas for design and development

Structure

1. Create book list and student list which contains the category of book details and student details.
2. For each category in the list create Category List as ArrayList which stores
3. For student category
 - a. Book ID
 - b. Name of the book
 - c. Author Name
 - d. No of quantity available
4. Using Java Swing create the user interface, each user who wants book, need to register in the ELibrary Interface
5. Elements in ELibrary Interface:
 - a. Name of the student
 - b. Email ID
 - c. Password

Functions

1. Store the attributes of each user in separated list
2. Provided the searching facilities based on various factors. Such as students, schedules, course, book etc.
3. Checks the user with his attributes from the list (Using Exceptions)
4. For each user request, the book list and Category List of the specified category should be updated.

5. Editing, adding and updating of records are improved which results in proper resource management of student data.
6. Display for each updation (Both Category list and Book List)

The Software system should be developed implementing the following:

1. Java Collections API
2. Collections Algorithms
Use appropriate algorithms provided in the Collections API for providing specific functionalities of the software. You can also develop your own algorithm if it is not found in the Collections API.
3. Object Oriented Principles
The software should employ the Object-Oriented Principles i.e. polymorphism, encapsulation and inheritance.

Software Functionalities (Not limited to):

1. User login
Provide specific access to specific user
2. Data Manipulation
Allow specific users to add, delete, search, and modify data. User should also be able to edit a specific detail in a specific (row) data entry.
3. Data Display
The developed application should allow flexibility in displaying the data (ascending or descending order with respect to a specific column, duplicates, non-duplicates, swapping/interchanging data). Implement any of the sorting algorithms which provided in the Collection API.
4. Data Backup
The developed application should allow the user to provide a data backup. The user should also be able to copy certain entries from one database to another database (example: copy certain row entries from list1 and add to list2)

Instructions:

- 10 points would be deducted for each day if submitting past the deadline.
Total Points for Project-2: 100 points
- All students are expected to use appropriate number of comments to explain their program.