Department of Computer Science and Engineering

Faculty of Engineering

University of North Texas

Assignment 2 CSCE5350 Spring 2024

Due on or before April 6th

You are tasked with designing a simple Library Management System (LMS) database. The system should allow librarians to manage books, borrowers, and borrowing transactions. Each book can have multiple copies, and borrowers can borrow multiple books. You must implement this system using a programming language of your choice. Java is recommended.

Database requirements:

1. **Books 5 points**
   * Each book has a unique ISBN, title, author, genre, and publication year.
   * Books can have multiple copies with different serial numbers.
   * The system should keep track of the availability status of each book copy.
2. **Borrowers 5 points**
   * Each borrower has a unique ID, name, email, and contact number.
   * The system should maintain a record of the borrowing history for each borrower.
3. **Borrowing Transactions 5 points**
   * Each borrowing transaction should have a unique ID, borrower ID, book ISBN, and borrowing date.
   * The system should track the return date for each borrowed book.

Functionalities (implemented using a programming language):

1. **Add Book 10 points**
   * Librarians should be able to add new books to the system, specifying details such as ISBN, title, author, genre, and publication year.
   * They should also be able to add multiple copies of the same book with different serial numbers.
2. **Add Borrower 10 points**
   * Librarians should be able to add new borrowers to the system, providing details like name, email, and contact number.
3. **Borrow Book 15 points**
   * Librarians should be able to process borrowing transactions, recording the borrower ID, book ISBN, and borrowing date.
   * The system should update the availability status of the book copy accordingly.
4. **Return Book 15 points**
   * Librarians should be able to process return transactions, updating the return date for the borrowed book.
   * The availability status of the book copy should be updated accordingly.
5. **Search Books 15 points**
   * Users should be able to search for books by ISBN, title, author, genre, or publication year.
   * The system should display all copies of the book along with their availability status.
6. **View Borrowing History 5 points**
   * Users should be able to view the borrowing history of a specific borrower, listing all borrowed books along with their borrowing and return dates.

Submission guidelines:

1. You must submit the SQL dump file for your database (this must include sample data). **5 points**
2. Your code must be submitted as a compressed file.
3. You need to include a readme file where you describe on how to run your system.
4. You also need to submit a documentation including screenshots for each operation that you implemented with the programming language. This file must be outside of any compressed files**. 10 points**

Note: You must have at least two files submitted. Documentation as a word or similar word processing file and compressed code or all the other files. **Failing to meet this requirement will result in 10 points reduction from the final grade of the assignment.**