Design Document

Assignment-1 CS-6360

Library Management

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(1) Front end: Java Swing for GUI

Backend: Java, MySQL

(2) Data used from the files provided:
   a. books.cvs
   b. borrowers.csv

(3) For easy manipulation
   a. ISBN13 chosen as key
   b. Presence of a book depicted by a Boolean variable.
   c. Full name used in place of FName and LName.

(4) Download MySQL from :
https://dev.mysql.com/downloads/

(5) All data manipulated and imported through MySQL

(6) Connect to the database using Link Class called in the Library_UI class.

(7) Library_UI.java contains the UI and query implementation.

(8) The GUI has 5 tabs:

   a. Find:
   Tab to find results by ISBN, Book Title or Author name, the field is case insensitive and has a button “Find” to generate results.

   b. Checkin:
   Enter the ISBN, Card ID, and member’s name to check the book loans. Select any row selected from the results to checkin the book.

c. Checkout:
Enter the member's card number and the book ISBN and then click the "Checkout" button to Checkout the book.

d. New Borrower:
Enter First Name, Last Name, SSN, Email, Phone and Address and click the "Add Borrower" button to add a new member to the library.

e. Fines:
Enter the card number and press "Get fines" button to get the list of fines due. Checkbox for including fine history of the user. Select any row among the generated ones to Pay the fine.

(9) book: ISBN13(primary key, CHAR), title(VARCHAR), availability(BOOL)

fines: loan_Id(primary key, INT), fine_amount(decimal), paid(BOOL)

book_authors: author_id(primary key, INT), ISBN13(primary key, VARCHAR)

authors: author_id(primary key, INT), author(VARCHAR)

borrowers: card_id(primary key), bname(VARCHAR), address(VARCHAR), email(VARCHAR), phone(VARCHAR)

book_loans: Loan_id(primary key), card_id(INT), ISBN13(CHAR), dateOut(DATE), dateIn(DATE), dueDate(DATE)