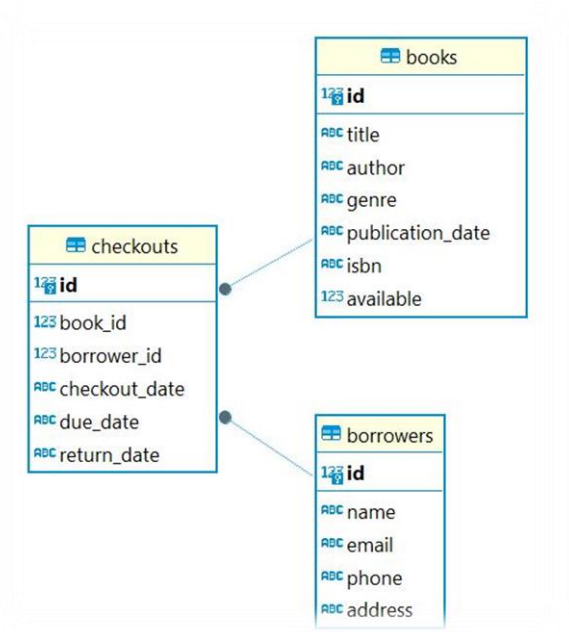
Practice Assignment 4

In this project, we will learn how to build a Library Management System. With the help of the Swing GUI toolkit for the user interface and Java. Three primary tables make up the system: Books, Borrowers, and Checkouts. The data is managed and stored by the system using SQLite database. An input panel will be included in each table so that users may input and update data. You will have a solid grasp of how to use Java and SQLite databases to create a fully working library management system by the time this project is finished.



I. Database and queries (60%)

a) **createDatabase**() – This method implements database schema creation. In the absence of a pre-existing database, it establishes one and populates it with three tables: "books" (stores book data), "borrowers" (stores borrower data), and "checkouts" (tracks book borrowing transactions).

b) **addBook**() – The function implements book record insertion. It accepts book information as parameters and utilizes a prepared statement for secure data insertion into the "books" table. This approach mitigates SQL injection risks.

c) **addBorrower**() – This program allows users to register new borrowers. It accepts borrower details as input and adds them securely to the "borrowers" table in the database.

d) **addCheckout**() – This program allows users to record new book checkouts. It accepts checkout information (who borrowed which book) and securely adds a new entry to the "checkouts" table in the database.

II. Implementing the Library Management class (40%)

Read the main class "**LibraryManagement.java"** and complete the rest of the project**.**

~The end~

Your project/ solution should be submitted to Moodle before the deadline.