**Library Management System**

The Library Management System is an application that I created for librarians to manage the workings of the library including managing the books, authors, patrons, book borrowing and returning. This document will provide an overview of the application, explanation of each class and their functions as well instructions on how to use the application.

**Main Components:**

**Book Management:** Allows the librarians to add, edit or delete the books from the system which would include their titles, authors, ISBN, publisher, and the number of copies they have in the library of each book.

**Author Management:** Allows them to add, edit or delete the authors from the library system which includes the author’s name, date of birth and books that they have written in the library.

**Patron Management:** Makes it so the librarian can add, edit, or delete the patrons that utilize the library which includes each patron’s name, phone number, address and the books they have borrowed

**Book Borrowing and Returning:** This function allows the user to search books by title, author, ISBN and borrow the books depending on if there are any number of copied available. It also allows the librarian to record when the books are returned and shows them the status of the book (i.e. if the book is overdue).

**Classes**

Book Class: represents each book that is offered in this library including the title, author, ISBN, publisher, and number of copies.

Author Class: represents the authors of the books each in the library including their date of birth and the list of books they have written

Patron Class: represents a patron, who is someone who has a library card at the library including their name, address, phone number and the books they have borrowed

Library Class: manages all the information from the above classes and allows the performance of the search(by title, author, and ISBN), borrowing and returning of the books.

Main Class: used as a test to show the application works, includes workings for a menu, options associated with numbers, actions based on the number chosen from the menu including borrowing, searching, editing, adding, deleting, and returning books.

**Instructions**

**Step 1:** Ensure you have Java installed

**Step 2:** Download the .rar file called “KylaLeaman\_JavaSprint1” and extract it so that you can access all the files

**Step 3:** Run the application using VS Code or a code editor of your choice

**Step 4:** In the Main.java file, click “Run” or in the terminal you can enter “java Main” and a menu will appear

**Step 5:** Read the list of menu options provided

**Step 6:** Enter the number between 1-6 corresponding to the action you wish to perform

**Step 7:** Follow the prompts being sure to enter the correct information

**Step 8:** When you are finished using the system, press 0 to exit

**Class Diagram**

**A screenshot of a computer

Description automatically generated**

This diagram illustrates the relation between each class(Book, Author, and Patron) and the Library class. The library class contains all the functions that allow the editing, deleting and adding of books, authors, and patrons.