

User Manual for Library Management System

Group 3

Project Overview

The **Library Management System** is a console-based Java application designed to manage the borrowing and returning of books, and manage the borrowing and returning of books, along with patron registration and book searching. The system reads and saves data from text files, ensuring persistence across sessions.

Users

This system is intended for **library staff or administrators** responsible for managing books and library patrons.

Project Files

File Name	Description
main.java	Entry point of the application.
UI.java	Handles the user interface and user inputs via console.
Library.java	Manages the core logic for books and patrons using linked lists.
CheckOut.java	Contains logic for checking out and returning books.
Search.java	Implements searching functionality for books.
FileHandler.java	Handles reading and writing data to text files.
Password.java	Manages password authentication and hashing.
books.txt	Stores the current list of books.
patrons.txt	Stores registered patrons and their check-out books.
passwords.txt	Stores credentials for logging into the system.
User Manual.pdf	This user guide.
README.md	Developer instructions and project overview.

Login Instructions

1. Run the application.
2. You will be prompted for a **username** and **password**.
3. Enter credentials from passwords.txt (e.g., admin, password123).
4. Upon successful login, the main menu will appear.

Main Menu Options

==== Library Menu ====
1. View All
2. Add New Book
3. Register Patron
4. Check Out Book
5. Return Book
6. Search for a Book
7. View All Patrons
8. Save and Exit

1. View All Books

Displays a list of all books in the library along with their status (available or checked out).

2. Add New Book

Prompts the user to enter the book's:

- Title
- Author
- ISBN

The book is then added to the system and saved.

3. Register Patron

Prompts for:

- Patron's name
- Library card number

Creates a new patron profile and stores it.

4. Check Out Book

Prompts the librarian to:

- Enter patron name and card number
- Enter book title

If available, the book is marked as checked out to patron.

5. Return Book

Allows a patron to return a previously checked-out book. The book becomes available again.

6. Search for a Book

Searches for books by title or keyword. Returns a list of matching books.

7. View All Patrons

Displays a list of all patrons and the books they have currently checked out.

8. Save and Exit

Saves all data to books.txt and patrons.txt and exits the program.

File Format Notes

books.txt – Title, Author, ISBN, Available

patrons.txt – Name, CardNumber, BookISBN

passwords.txt – username, hashedPassword

Error Handling

- Invalid inputs are handled with error messages and re-prompts.
- Book not found or unavailable? You'll get a message.
- Duplicate patrons or books are prevented.

Requirements

- Java 8 or higher
- Text-based terminal