Book Management System

The Book Management System is a software application that is designed to manage the functions of a library. It provides various functionalities to manage the books, borrowers, and the library as a whole.

Functionalities

Book Management - This functionality deals with the management of books. It includes:

**Adding a new book**

Updating an existing book

Deleting a book

Searching for a book by its title, author, or ISBN

Displaying a list of all the books in the library

Checking the availability of a book

Reserving a book for a borrower

Borrower Management - This functionality deals with the management of borrowers. It includes:

**Adding a new borrower- in progress**

Updating an existing borrower

Deleting a borrower

Searching for a borrower by name or ID

Displaying a list of all the borrowers in the library

Checking the borrower's borrowing history

Loan Management - This functionality deals with the management of loans. It includes:

Issuing a book to a borrower

Returning a book from a borrower

Displaying a list of all the loans in the library

Checking the status of a loan

Fine Management - This functionality deals with the management of fines. It includes:

Calculating and charging a fine for overdue books

Displaying a list of all the fines in the library

Accepting payment for fines

User Management - This functionality deals with the management of library staff. It includes:

**Adding a new user**

Updating an existing user

Deleting a user

Searching for a user by name or ID

Displaying a list of all the users in the library

**Database Schema- in progress**

The Library Management System uses a relational database to store the information. The following is an example of the schema for the database:

Book table: ISBN (primary key), Title, Author, Publisher, Publish Date, Total Quantity, Available Quantity.

Borrower table: ID (primary key), Name, Address, Phone Number, Email.

Loan table: Loan ID (primary key), ISBN (foreign key), ID (foreign key), Issue Date, Due Date, Return Date, Fine.

Fine table: Fine ID (primary key), Loan ID (foreign key), Amount, Payment Date.

User table: ID (primary key), Name, Email, Password, Role.

Technologies Used

The Library Management System is a web-based application that can be accessed using a web browser. The following technologies are used to develop the system:

Programming Language: Java

Web Framework: Flask

Database: H2 Database

Front-end: Console

**Conclusion**

In conclusion, a Library Management System is a powerful tool that can help manage a library's functions effectively. The system provides various functionalities such as book management, borrower management, loan management, fine management, and user management. With a well-designed database schema and the right technologies, the system can be built to meet the needs of any library.