**How to use the**

**Library Management System**

1. **Database Setup**

This system is built using Java using JDBC with MySQL. Thus, you need a local MySQL server running on the system. The system initially assumes the database server to be running on localhost port 3306 with the default username of root without any password. These credentials are stored in an ENV file located inside project root folder. You may edit this env file as needed. The default contents are as follows:

MYSQL\_HOST=localhost

MYSQL\_PORT=3306

MYSQL\_DATABASE=library

MYSQL\_USERNAME=root

MYSQL\_PASSWORD=

**MYQL\_HOST** is the IP or host name of the MySQL server. This is localhost or 127.0.0.1 if MySQL is running on your local machine.

**MYSQL\_PORT** is the port on which the MySQL server is listening. 3306 is the MySQL default port. You will only need to change this if you edited the default settings during MySQL setup.

**MYSQL\_DATABASE** is the name of the database you want to use for the library management system. You will need to create this database in your MySQL server and populate it with default data by imoorting the included library\_db.sql file.

**MYSQL\_USERNAME** is the name of the database user. The default user is “root”. This user will need to have permissions granted to the database you are using.

**MYSQL\_PASSWORD** is the password of the database user. By default it is left blank as the root user has no password.

Use the included library\_db.sql file, located inside the project folder along with this document, to create a database. The database has to be first created, and using the contents of the file it has to be populated with content.

Once you have successfully set up the database server and database you can run the included **JUnit Tests** to check whether everything is working correctly. You should also be able to log in using the default login credentials:

**Username**: admin

**Password**: admin

**Username**: user

**Password**: user

Graphical user interface, application

Description automatically generated

Once logged in, you will be presented with the administrator dashboard if you used the admin account.

Graphical user interface, application

Description automatically generated

1. Issue Book

Graphical user interface, application

Description automatically generated

You have to write down the barcode for a membership card and a copy of a book to issue a book. Here is some sample data that would work if you imported the content from my database dump.

Membership Card: 7501488386714

Book Barcode : 2824961200136

You will be able to issue a book if the member has a active account, with a unexpired membership card and has not borrowed up to 4 books.

In case the copy you want to issue is not available, you have to first Return the book or issue another copy of the same book. Another copy can be found using the Find Book screen.

1. Return Book

Graphical user interface, application

Description automatically generated

You can return a book by entering the borrowed book item’s barcode.

As user’s can only keep borrowed books for up to 20 days, any returns after 20 days will result in a MVR 2.50 fine per day exceeding 20 days. Overdue days and fine will be calculated and entered automatically upon confirming return.

1. All Books

Text, table

Description automatically generated

This screen lets use search the entire book catalog of the library by Title, Author, Subject or publication year. It will also let you reserve or delete books.

1. Add Book

Graphical user interface, application

Description automatically generated

This screen is used to add new books to the catalog. For each copy of the same book, you have to entire a barcode. This barcode can be entered line by line in the given text area. For each book added, a book item is added per barcode.

I have included a button to Fill in Dummy Data for convenient testing.

1. View Issued Books

Graphical user interface, text, application

Description automatically generated

This screen lets you search issued books that have not been returned, or the history of all book issues, and you can search all this by member names.

1. Manage Members

Graphical user interface

Description automatically generated

This is the screen that lets administartors and librarians add new members and issue and cancel membership cards. Note that a user without a membership card will not be able to borrow books. You can also deactivate or activate users in this screen. You can edit users, promote users to admin or librarian roles as well.

1. Fines

Graphical user interface, text

Description automatically generated

This screen will let you find and settle fine payments.

**Alternatively, you may also log in using a normal user account. In this case you are presented with a smaller set of features which is intended for members only.**

Graphical user interface, application

Description automatically generated

Member Functions

1. All Books

Text, table

Description automatically generatedThis is the same as administrator’s all books feature. The difference is you are not able to delete books as a regular user. However you can search and reserve books from here. Note that you will not be able to reserve a book if there are copies available of the title.

1. My Books

A picture containing square

Description automatically generated

This screen lets the user see their borrowed book history.

1. My Fines

A picture containing square

Description automatically generated

This screen lets the user see pending fines for their account.

1. My Reservations

Graphical user interface, text

Description automatically generated

This screen lets users view their own reservations and cancel them.