| PAAKA |
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| Library Management System |
| Software Requirement Specification |
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**Introduction**

**Scope**

This software can be used to access and modify a library database. The software can be used by library members and library faculty to conduct certain functions that were otherwise being done manually. This software represents a basic implementation to automate these functions.

**Definition**

A Library Management System (LMS) consists of a database that stores all the data associated with a library. The tables in the database can contain a variety of information ranging from the assets of the library to the user information. It can be used to track the working and assets of a library in an efficient and effective way. It helps to reduce operational costs and administrative load.

**Reference**

To create this system, we have used reference code from online resource material and code provided by our professor.

Websites used:

* Geeks for Geeks
* OpenAI
* W3Schools
* Stack Overflow

**Software Functionality  
Software Information**

We have one database named “Library\_DBMS” containing the following tables:

* Books
* Author
* Department
* Users
* Issuers Record
* Member Publications
* Feedback
* Remarks

For implementing this project we chose to use PostgreSQL Database Servers. The code was executed using VS Code IDE using Python notebooks. **Software Functions  
Search Books**This function is used to create searches for books using title, author, publisher, or department. The function will take input from the user and return records related to the input given.

**Login Options**

This function contains several smaller functions to create and update a user’s login credentials. The user can sign up and create an account in the system or can update an existing account by changing the username, password, or email.

**Library Membership**

This function has two functionalities. One allows members to enter their own publications, papers, or articles in the database and the other allows users to issue books from the library and store related information regarding the issued book in a table.

**Feedback and Remarks**

This function is used for users to give reviews and feedback about a book available in the library. The function also allows library faculty to update book issues and return status in the required table. If a book is being returned late, the librarian can update the status in the table to keep a track of all the books being issued by the library.

**Users**

This software can be used by two specific groups namely Members and Librarians. The library members can access their own private records and update their information. The library faculty can access records related to all assets of the library, keep track of book issues, and manage user information.

**Prerequisites**

A PGAdmin server with the database must be running on the computer as a local host. Since the program does not have a user interface as of now, the program runs in the terminal of the IDE it is running in.

**Functional and Non-Functional Requirements  
Scope of the Software**

The main purpose of this code is to reduce administrative load. The work can be managed in a less time-consuming way using this software. Most of the work can be automated with the help of this code and with more development.

**Functional Requirements**

The main requirements are:

1. The database should store all the relevant data.
2. The data should be accessible easily.
3. The data should be modifiable depending upon the user’s choice.
4. The data should help librarians keep a good track record of all the library assets.

**Non-Functional Requirements**

The main requirements are:

1. The data is stored in a secure and safe manner.
2. Unless the connection is closed the database can be accessed at any time.
3. The system can be used by various users.
4. The system will execute the given function within 5 seconds of being prompted.

**Test Cases**

| **Test**  **Label** | **Test**  **Steps** | **Test Input** | **Expected Result** | **Actual Result** | **Status** | **Comments** |
| --- | --- | --- | --- | --- | --- | --- |
| Sign-up,  Login | Enter your usn  Enter your username  Enter your password  Enter your email | 1RVU22BSC068  Phalgunisp  123@#$  phalgunisp.bsc22  @rvu.edu.in | 1RVU22BSC068  Phalgunisp  **••••••**  phalgunisp.bsc22  @rvu.edu.in | 1RVU22BSC068  Phalgunisp  284hbdfsfwy8  phalgunisp.bsc22  @rvu.edu.in | Pass  Pass  Pass  Pass | No issues found.  No issues found.  Integrate Password Recovery.  No issues found. |
| Update | Update email  Update password  Update username | phalgunispalmur.bsc22  @rvu.edu.in  Newpass  phalgunisplamur | phalgunispalmur.bsc22  @rvu.edu.in  **••••••**  phalgunisplamur | phalgunispalmur.  bsc22  @rvu.edu.in  6y6yhrkr  phalgunisplamur | Pass  Pass  Pass | Values updated in database.  Values updated in database.  Values updated in database. |
| Search | Search by title  Search by author  Search by Publisher  Search by Subject | Photo  R  R  C | Introduction to photography  Raja Ravi Verma  Routledge, London  Computer | Introduction to photography  List of books published by the author  List of books by the Publisher.  List of books by Subject | Pass  Pass  Pass  Pass | No issues found.  No issues found.  No issues found.  No issues found. |
| Feedback | Enter the ISBN  Enter the rating  Enter your feedback  comment | 330  5  Informative. | The system will display the existing feedback for the book, if it is present. After it is updated, it displays the new feedback. | Same as expected result. | Pass  Pass  Pass | No issues found.  No issues found.  No issues found. |
| Member  publication | Enter the member ID  Enter the Author Name  Enter the Publication Title  Enter the Subject of the publication | 314256  Raja Ravi Verma  Introduction to  Photography  Arts | The input is updated in the database. | Same as expected output. | Pass  Pass  Pass  Pass | No issues found.  No issues found.  No issues found.  No issues found. |
| Issue a Book | Enter the member ID  Enter the member name  Enter the Book issued  Enter the date issued(yyyy-mm-dd)  Enter the return date(yyyy-mm-dd) | 315656  Apoorva H  Introduction to  Photography  2023-06-25  2023-07-10 | The input is updated in the database.  The input is updated in the database. | Same as expected output.  Same as expected output. | Pass  Pass  Pass  Pass  Pass | No issues found.  No issues found.  No issues found.  No issues found.  No issues found. |

**Features to be Implemented**

* Initially we wanted to implement a trigger that would update the remarks table passed on the book status of the issued records table. This function was not able to be implemented and raised a lot of errors.
* We wanted to create a JSON file for users which will contain all the books issued by the user. Due to time constraints we were unable to implement this feature.
* In a larger database for a library containing more assets, we can implement an assets table that will act as a super table. Tables like books, papers, journals, articles and magazines can inherit the behaviour of the main assets table.