LIBRARY MANAGEMENT SYSTEM

PROBLEM STATEMENT:

Inefficient library management systems create challenges for librarians and staff, library users, administrators, IT staff, vendors and suppliers, and regulatory bodies. These stakeholders require a reliable and effective library management system that can streamline operations, ensure proper management of library resources, improve user experience, and comply with regulations.

Librarians and library staff face difficulties in managing the library's vast collection of books and resources, maintaining accurate records of transactions, and providing timely assistance to library users. Library users face issues such as difficulty in finding books, inadequate access to library resources, and limited search options. Administrators need to ensure that the library system is efficiently managed, the library's resources are being utilized effectively, and user satisfaction is being maintained.

IT staff need to ensure that the library management system is up-to-date, secure, and scalable to meet future demands. Vendors and suppliers need to be able to effectively collaborate with the library management system to provide timely support and maintenance. Regulatory bodies require compliance with various standards and regulations, such as data privacy and security, which can be challenging for library management systems.

Therefore, a robust and efficient library management system is required to address these challenges and meet the needs of all stakeholders. The system should be user-friendly, secure, scalable, and compliant with all regulatory standards. It should provide effective management of library resources, streamline operations, and improve user experience, ensuring that the library remains a valuable resource for the community it serves.

Software Requirement Specification(SRS)

1 Introduction:

1.1 Purpose of this Document: The purpose of this project is to develop an application that will automate the whole procedure of a library. The software that would be developed should have facilities like Add / Delete Members, Add / Delete Books, Issue & Return. The application should be secured, as well as with limited access. The main requirement of the project will be the ease of use, besides being the most efficient and effective tool for the purpose. The application should be user friendly. It should be robust and scalable. An automated solution would be very beneficial to the organization, as it would bring structure to the whole process so that it can be traced for any kind of query. Also, an automated solution will lead to optimal utilization of the available resources, reducing duplication of effort, increasing efficiency and minimizing time-delays.

1.2 Scope of this document – For members:Facility for search of books on access number,title,author,subject,keyword.FacilityforISSUE/RETURNbooks.Facility for RENEWAL of

books.For Library Staff:automatic installation,simple and intuitive GUI for performing all functions,short-cut keys and point-and-click operation,security features like access control using passwords and login-i.d,automatic calculation of late fee,facility to ADD/DELETE members,library staff and books and maintain an easy record of all these.

1.3 Overview – The rest of the document deals with all the main features of this software. It not only describes various functions but also gives details about how these functions are related to each other. Apart from the data flow diagrams, the document also contains cost estimates for developing this system. Various risks associated with the system have also been mentioned along with the ways to mitigate them.The timeline chart describing how the entire project was scheduled has been attached. At the end a pseudo code for the customer management module" has been provided. A flow graph has been generated corresponding to this module and test cases that were used to test the system have also been mentioned.

2.General description: Any update regarding the book from the library is to be recorded to have update and correct values and any fine on a member should be notified as soon as possible and should be calculated correctly.

3. Functional Requirements: Login:Description: Staff member will login to the system. The user must be registered in the system before login.Input: Enter the username and password.Output: Staff will be able to use the features of software.Processing: Username and password will be checked by the system. If they are incorrect a message will be displayed.

Add/Remove books:Description: The staff can add or remove book by entering details.Input: Enter the book detail you want to remove or add within the stock.Output: Confirmation of addition or deletion and update list of books available

.Processing: The details of books must be right in order to add them else there will be problems in future. Search:Description: The users can search a book by entering book details such as author's name, book name etc.Input: Enter the details you know about the book.Output: The list of available books is displayed.

Processing: A message is displayed if the book related to the entered details is not available

.Issues book:Description: The staff member checks the availability of book which the member want to get issued.Input: Enter book code.Output: Confirmation for book issue or apology for failure in issue.Processing: If selected book is available then the book will be issued and the record is updated else error will be displayed.

Return book:Description: The member wants to return the book.Input: return the book to the library.Output: The record will be updated.Processing: If book is not returned on the time then fine is calculated. Fine:Description: If book is not returned on the time by member then fine is charged on per day basis.Input: check for the fines.Output: Details about fines on the book issued by the staff.Processing: The fine will be calculated, if it crossed the date of return.

4. Interface Requirements:

User-friendly interface: The interface should be user-friendly and easy to navigate, with clear and intuitive menus and buttons.

Search functionality: The interface should allow users to search for books, documents, or other materials in the library system quickly and easily, using various search parameters such as author, title, subject, or keyword.

Easy borrowing and returning: The interface should allow users to borrow and return materials with ease, and display any overdue materials or fines.

Reservation system: The interface should enable users to reserve materials that are currently on loan or not available for immediate borrowing.

Account management: The interface should allow users to manage their library accounts, including checking their borrowing history, renewing items, and updating personal information.

Customization: The interface should allow users to customize their experience, such as choosing their preferred language or interface layout.

Integration with other systems: The interface should be designed to integrate with other library systems and resources, such as electronic databases, online journals, and e-books.

Security: The interface should be secure, with appropriate access controls and authentication mechanisms, to protect user data and library resources.

Responsive design: The interface should be designed to be responsive, adapting to different screen sizes and devices, such as desktops, tablets, and smartphones.

5. Performance Requirements:

Speed: The LMS should be fast in responding to user requests such as searching for books, borrowing books, and returning books. The system should be able to handle a large number of users simultaneously without slowing down.

Reliability: The LMS should be reliable and available 24/7. It should be able to recover quickly in case of system failure or power outage.

Security: The LMS should have robust security measures in place to protect user data and prevent unauthorized access. The system should also be able to identify and prevent security breaches.

Scalability: The LMS should be able to scale to accommodate an increasing number of users and books without affecting system performance.

Usability: The LMS should be user-friendly and easy to use. The system should have a simple and intuitive interface that enables users to navigate easily and perform tasks quickly.

Customizability: The LMS should be customizable to meet the specific needs of the library. The system should be able to accommodate changes in library policies and procedures.

Integration: The LMS should be able to integrate with other library systems such as electronic databases, online catalogs, and circulation systems.

Reporting: The LMS should be able to generate reports such as circulation statistics, overdue books, and fines owed.
Maintenance: The LMS should be easy to maintain and upgrade. The system should be designed in such a way that updates and upgrades can be installed without affecting system performance.

6. Design Constraints:
Software Constraints: The application shall meet the general standards of web applications.
Hardware Constraints: There is no hardware constraints identified at this point.
Acceptance Constraints:
To validate the system, the developers must complete the following:
1. Demo the working system and any features upon request.
2. Prove that all the significant functional requirements are met.
3. Provide sufficient test cases to show that the system is complete and correct.

7.Non-Functional Attributes:
Reliability: The application would efficiently store all the information related to the various processes in the system and output the relevant information.
Availability:The application would be available to all the employees of the organizations with authorized access to the workstations and those who are subject to the authorization permissions.
Security:The system would have adequate security checking through the authentication of the users. The reports would only be available to the employees of the library as per their specific requirements.
Maintainability: The software should not require any additional maintenance. If any errors occur, the user should be able to login again with his credentials. The system shall be flexible enough to add new modules and upgrade the existing modules.

8 Preliminary Schedule and Budget:
Schedule:
Requirements gathering……. 2 weeks
System design…… 5 weeks
Implementation…….. 4 weeks
Unit testing…… 2 weeks
Final testing…….. 3 weeks
Budget:
The budget for whole project is : Rs.30,000