Software Requirements Specification
for
Libary Managment System

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August 24, 2023

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Chapter 1

Introduction

1.1 Purpose

The purpose of this document is to outline the requirements for the development of a Library Management System (LMS). The LMS aims to provide an efficient and user-friendly platform for managing library resources, members, and administrative tasks.

1.2 Intended Audience

The intended audience for this document includes the development team, stakeholders, project managers, and anyone involved in the design, development, and implementation of the LMS.

1.3 Intended Use

The Library Management System will be used to facilitate the automation and centralization of library processes, including book management, member registration, borrowing and returning of books, and administrative tasks.

1.4 Product Scope

The LMS will encompass functionalities related to book cataloging, member management, circulation, reservations, overdue management, reporting, and administrative privileges for library staff.

Chapter 2

Overall Description

2.1 User Classes and Characteristics

The LMS will serve the following user classes:

- Librarians: Responsible for managing books, members, and administrative tasks.

- Library Members: Users who can borrow books and access library resources.

2.2 User Needs

- Librarians need an intuitive interface to manage books, members, and library operations efficiently.

- Library members seek a seamless experience for book search, borrowing, and returning, as well as a convenient reservation system.

2.3 Operating Environment

The LMS will be a web-based application accessible through standard web browsers (e.g., Chrome, Firefox, Safari) and mobile devices (responsive design). The system will be hosted on a web server with a secure database to store user information.

2.4 Constraints

- Budget constraints may impact the selection of third-party tools and services.

- The project must be completed within a specified timeframe to meet user requirements.

2.5 Assumptions

- The LMS development team possesses the required technical skills and expertise.

- Adequate hardware and network infrastructure are available to host the application.

- Users have basic computer literacy for using the LMS effectively.
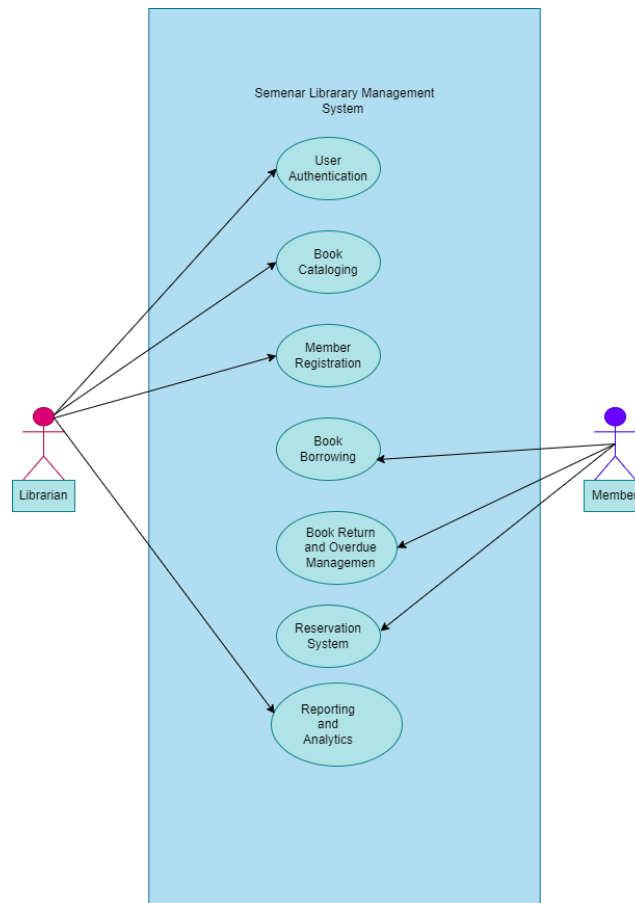
2.6 Use Case Diagram

Figure 2.1: use case diagram

Chapter 3

Requirements

3.1   Functional Requirements

1. **[REQ01]: User Authentication**

   As a library member, I want to log in with my unique credentials, So that I can access my account securely and perform library-related activities.

   - Description: The user authentication functionality should allow library members to enter their registered username and password. Upon successful login, they should have access to their personalized account, which includes their borrowing history, reserved books, and any fines incurred.

   - Acceptance Criteria: Users must enter valid login credentials to access the system. Passwords must be securely encrypted and stored.

2. **[REQ02]: Book Cataloging**

   - As a librarian, I want to add, modify, and delete book records in the catalog, So that the library's collection is up-to-date and well-organized.

   - Description: Librarians should have the ability to add new books to the library catalog, including essential details such as title, author, ISBN, genre, and publication information. They should also be able to update book information and delete records for books that are no longer part of the library's collection.

3. **[REQ03]: Member Registration**

   - As a librarian, I want to register new library members, So that they can borrow books and enjoy the library's services.

   - Description: The system shall enable librarians to register new library members.

   - Acceptance Criteria: Librarians can create member accounts with required information, and new members should receive login credentials.

4. **[REQ04]: Book Borrowing**

   - As a library member, I want to borrow books from the library, So that I can read them at home and return them later.

   - Description: Library members should be able to search for available books in the catalog and select the ones they wish to borrow. Upon selecting a book, the system should display the due date for the borrowed item. Members should receive a confirmation of the successful borrowing transaction.

   - Acceptance Criteria: Members can search for available books, borrow them, and receive due date information.

5. **[REQ05]: Book Return and Overdue Management**

- As a library member, I want to return borrowed books on time, So that I can avoid overdue fines and maintain a good borrowing record.

- Description: The system should provide library members with clear information on the due date of their borrowed items. Members should receive timely reminders about upcoming due dates to avoid overdue fines. In the case of overdue books, the system should calculate and display the accrued fines based on the library's fine policy.

- Acceptance Criteria: The system will display the return date and calculate overdue fines based on the library's fine policy.

6. **[REQ06]: Reservation System**

   - As a library member, I want to reserve books that are currently unavailable, So that I can ensure I get the books when they become available.

     Description: Library members should be able to view the availability status of a book and, if the book is currently unavailable, have the option to place a reservation. Once a reserved book becomes available, the system should notify the member, and the book should be held for the member for a specified pickup period.

   - Description: The system shall enable members to reserve books that are currently unavailable.

   - Acceptance Criteria: Members can view book availability and place reservations. Reserved books should be held for the member upon availability.

7. **[REQ07]: Reporting and Analytics**

   - Description: The system shall provide comprehensive reports and analytics for library administrators.

   - Acceptance Criteria: Librarians can access reports on book circulation, popular books, and member statistics.

3.2   Non Functional Requirements

1. **Performance**

   - Description: The system shall respond to user actions within a maximum of 2 seconds under normal load conditions.

   - Acceptance Criteria: The system should maintain acceptable response times even during peak usage.

2. **Usability**

   - Description: The user interface shall be intuitive and easy to navigate for both librarians and library members.

   - Acceptance Criteria: User feedback and usability testing should confirm the user-friendliness of the system.

3. **Security**

   - Description: The system shall implement industry-standard security measures to protect user data and prevent unauthorized access.

   - Acceptance Criteria: Security audits and penetration testing should ensure the system's security.

4. **Scalability**

   - Description: The system shall be designed to handle a growing number of books, members, and transactions without significant performance degradation.

   - Acceptance Criteria: The system should demonstrate scalability during load testing.

5. **Reliability**

- Description: The system shall be available 24/7, with a maximum allowable downtime of 1 hour per month for maintenance purposes.
- Acceptance Criteria :System uptime and reliability should meet the specified requirements.

6. **Documentation**

- Description: The system shall have comprehensive documentation to assist users and administrators in understanding and using the LMS effectively.
- Acceptance Criteria: Documentation should be complete, up-to-date, and easily accessible.