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Problem Statement:

The Library Management System is a software application designed to manage and organize the day-to-day operations of a library. The manual system of managing library activities is time-consuming and error-prone. It can result in inefficiencies such as lost books, late returns, and difficulty in tracking book circulation. The Library Management System aims to address these problems by automating the library management process.

Software Requirement Specification(SRS)

1. Introduction:

1.1. **Purpose of this Document:** The purpose of this document is to define the requirements and specifications for the development of a Library Management System. The system should enable library staff to perform their duties efficiently and effectively, as well as provide library users with a user-friendly interface for borrowing, returning, and searching for books.

1.2. **Scope of this document** – The Library Management System will include the following features:

- User registration and authentication
- Cataloging of books, CDs, DVDs, and other library materials
- Borrowing and returning of library materials
- Search functionality for library materials
- Record keeping of library materials and transactions
- Reporting and analytics
- System administration functionality

1.3. **Overview** – The Library Management System is an online application that allows library staff to manage and organize the day-to-day operations of the library. It provides a user-friendly interface for library users to browse the catalog, search for books, and borrow and return items. The system will also generate reports and analytics to help library staff make informed decisions.

2 General description:

The Library Management System will consist of a web-based user interface for library staff and a separate user interface for library users. The system will be built using modern web development technologies such as HTML, CSS, JavaScript, and a backend language such as Python or PHP. The system will be hosted on a web server and accessed through a web browser.

3 Functional Requirements:

Book Management:

- Add new books to the library's collection
- Edit existing book information
- Delete books from the library's collection
- Search for books using various criteria (e.g., title, author, genre)

Member Management:

- Add new members to the library's database
- Edit member information
- Delete members from the database
- Search for members using various criteria (e.g., name, address, membership ID)

Circulation

- Check out books to members
- Record book returns
- Record book renewals
- Track book due dates and send reminders
- Calculate and record fines for overdue books

Search Functionality

- Search for books using various criteria (e.g., title, author, genre)
- Search for members using various criteria (e.g., name, address, membership ID)

Reporting

- Generate reports on book circulation
- Generate reports on overdue books
- Generate reports on fines

Security

- Control access to the system using login credentials
- Protect user data by encrypting sensitive information

4 **Interface Requirements:**

The Library Management System will have two interfaces:

- A web-based user interface for library staff
- A separate user interface for library users

5 **Performance Requirements:**

- System Availability
  - The system should be available 24/7
  - The system should have a minimum downtime of 99%
- Response Time
  - The system should respond to user requests within 3 seconds
  - The system should handle 100 simultaneous users

6 **Design Constraints:**

- Technology: The library management system will be designed using modern web technologies, including HTML, CSS, JavaScript, and PHP.
- Database: The system will use a relational database management system to store book and member information and track circulation data.
- Security: The system will be designed to ensure the security of user data by encrypting sensitive information and controlling access to the system using login credentials.

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7 **Non-Functional Attributes:**

- Usability: The system should be easy to use, with an intuitive user interface that is easy to navigate.
- Reliability: The system should be reliable and available at all times, with minimal downtime and maximum uptime.
- Performance: The system should be responsive, with fast loading times and minimal lag or delay.
- Scalability: The system should be scalable, with the ability to handle increased user loads and data volumes.

- Security: The system should be secure, with measures in place to protect user data and prevent unauthorized access or breaches.
- Accessibility: The system should be accessible, with support for assistive technologies and compliance with accessibility guidelines.
- Compatibility: The system should be compatible with a range of web browsers and devices to ensure maximum accessibility and usability.
- Maintainability: The system should be maintainable, with a clear and well-documented codebase and easy-to-use tools for maintenance and updates.
- Portability: The system should be portable, with the ability to run on a range of platforms and environments.
- Interoperability: The system should be interoperable, with the ability to integrate with other systems and tools used by the library staff

8 **Preliminary Schedule and Budget:**

Requirement Gathering and Analysis: 2 weeks
System Design: 4 weeks
Development and Testing: 12 weeks
Deployment and User Acceptance Testing: 2 weeks
Training and Documentation: 1 week
Total Estimated Time: 21 weeks

Budget:

Salaries: $150,000
Hardware and Software: $50,000
Database License: $10,000
Miscellaneous Expenses: $10,000
Total Estimated Budget: $220,00