LIBRARY MANAGEMENT SYSTEM

1. Introduction

1.1 The Purpose of this Document

The purpose of this document is to outline the requirements and specifications for the development of a Library Management System. It will provide a clear understanding of the project objectives, scope and deliverables.

1.2 Scope of this Document

This document defines the overall working and main objectives of the library management system. It includes a description of the development cost and estimated time required for the project.

1.3 Overview

The Library Management System is a software solution designed to automate library operations, including book cataloging, member registration, borrowing and returning of books, fine management and reporting.

2. General Description

The Library Management System will serve librarians, administrators and members. It will handle book inventory, manage user accounts, track issued/returned books and generate reports.

3. Functional Requirements

3.1 Book Catalog Management
- Add, update and delete book records.
- Search books by title, author, genre or ISB

3.2 Member Management
- Register new members with personal details
- Track borrowing history of each member.

3.3 Borrowing and Returning
- Allow member to borrow available books.
- Track due dates and set reminders for return
- Record book returns and update availability.

3.4 Fine Management
- Calculate fines for overdue books
- Generate payment receipts for fines collected.

3.5 Reporting
- Generate reports on book circulation, popular titles and overdue accounts.
- Provide monthly and yearly summaries for administrators.

4. Interface Requirements

4.1 User Interface
- User-friendly interface for members and librarian
- Accessible via web browsers and mobile applications.

4.2 Integration Interfaces

- Integration with barcode scanners and RFID systems.
- Integration with online databases for book information retrieval.

5. Performance Requirements

5.1 Response Time: Search and borrowing requests should be processed within 2 seconds.

5.2 Scalability: Supports at least 5,000 concurrent users.

5.3 Data Integrity: Ensure consistency and accuracy of library records across all modules.

6. Design Constraints

6.1 Hardware Limitations: The system should be compatible with standard library hardware.

6.2 Software Dependencies
- Utilize a relational database management system.
- Use frameworks and programming languages suitable for library systems (eg. Java, spring boot)

7. Non-Functional Attributes

7.1 Security:
- Implement user authentication and access control
- Protect member and transaction data using encryption

7.2 Relaibility: Ensure minimal downtime backup and recovery mechanisms.

7.3 Scalability: Design to support growth in collection and user base.

7.4 Portability: Accessible across multiple platform (web, desktop, mobile)

7.5 Usability: Provide intuitive navigation for both staff and members.

7.6 Reusability: Modular design for future feature expansion.

7.7 Comptability: Compatible with common brows and operating systems.

7.8 Data Integrity: Maintain accurate and consisten transaction logs.

8. Preliminary Schedule and Budget
The development of the Library Management System is estimated to take 6 months with a budget of $120,000. This includes project planning, development, testing and deployment phases.