**Title: Detailed Project Report - Library Management System**

**1. Introduction** The Library Management System is a web-based application developed to streamline the management of books and student records in a library. This report provides a comprehensive overview of the project, including its objectives, scope, methodology, and implementation details.

**2. Project Objectives** The main objectives of the Library Management System project are:

* To automate the process of managing books and student records in a library.
* To provide an easy-to-use interface for students to search for books and view their details.
* To enable administrators to efficiently manage book inventory, issue books to students, and collect fines.
* To improve the overall efficiency and effectiveness of library operations.

**3. Scope of the Project** The scope of the Library Management System project includes the following key features:

* Student registration and login functionality.
* Book search and viewing functionality.
* Admin functionality for managing books, students, and fines.
* Calculation and collection of fines for overdue books.
* Integration with a MySQL database for data storage.
* Implementation of a layered architecture using Spring MVC, Spring Boot, and Data JPA.

**4. Methodology** The project follows an Agile methodology to ensure iterative development and continuous feedback. The development process includes the following steps:

* Requirement gathering and analysis.
* Designing the system architecture and database schema.
* Implementing the frontend using JSP for user interaction.
* Implementing the backend using Spring Boot for business logic and database access.
* Testing and debugging to ensure the system is functioning as expected.
* Deployment and user acceptance testing.

**5. System Architecture** The Library Management System follows a layered architecture approach, consisting of the following layers:

* Presentation Layer: Handles user interactions and serves as the interface between users and the system. It includes JSP for frontend development.
* Business Layer: Contains the business logic and rules of the application. It includes Spring MVC Controllers and Service classes.
* Data Access Layer: Manages the communication with the MySQL database. It includes Data JPA for data persistence.

**6. Implementation Details** The Library Management System is implemented using the following technologies and tools:

* Frontend: JSP for user interface development.
* Backend: Spring Boot framework for handling business logic and database operations.
* Persistence: Spring Data JPA for accessing the MySQL database.
* Database: MySQL for storing book and student records.

**7. User Roles and Functionality** The system supports two user roles:

* Student: Can register, login, search for books, view book details, and pay fines.
* Admin: Has full control over the system, including adding, deleting, and updating books, issuing books to students, managing fines, and managing student records.

**8. Conclusion** The Library Management System project successfully achieves its objectives of automating and streamlining library operations. The system provides an efficient and user-friendly interface for students to search for books and for administrators to manage book inventory and student records. The implementation of a layered architecture using Spring MVC, Spring Boot, and Data JPA ensures a robust and scalable solution.

This detailed project report provides a comprehensive overview of the Library Management System project, its objectives, scope, methodology, and implementation details. It serves as a reference for understanding the project and its key features.