Software Requirements Specification (SRS) for Library Management System

1. Introduction

The Library Management System (LMS) is a software application designed to streamline library operations, including book inventory management, maintaining customer records, and borrowing activities. This document provides a detailed specification of the LMS to ensure precise development according to customer requirements.

2. General Description

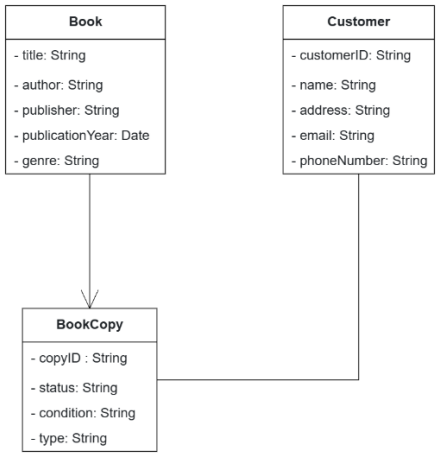
The Library Management System (LMS) serves as a centralized platform for library staff to efficiently manage library resources and provide seamless services to customer. The system supports functionalities such as adding, editing, and deleting books from the inventory, managing customer information, facilitating borrowing, and returning of book copies, generating reports, and more. It aims to enhance the overall efficiency and effectiveness of library operations.

2.1. Domain Model

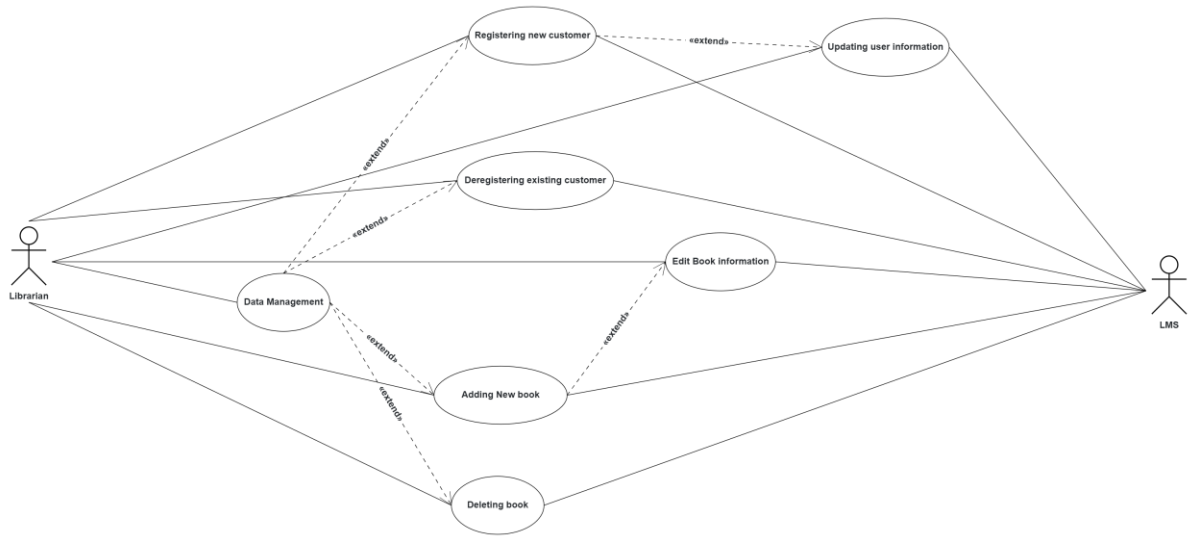
The domain model of the Library Management System comprises three core entities:

- **Customer**: Represents library patrons who interact with the system to borrow and return books.
    - Attributes: Customer ID, Name, Address, Email, Phone Number.
- **Book**: Represents individual books available in the library.
    - Attributes: Title, Author, Publisher, Publication Year, Genre.
- **Book Copy**: Represents physical copies of books available for borrowing.
    - Attributes: Copy ID, Status, Type, Condition.

- **Class Diagram of Domain Model:**



2.2 Use Case Diagram



3. Specific Requirements

Functional Requirements:

1. Importing CSV Files: The system should support the bulk import of book and customer data from CSV files.

2. Reporting: The system should generate reports on book inventory, borrowing activities, overdue books, etc.

3. Searching: Users should be able to search for books and customers based on various criteria such as title, author, name, or ID.

4. Borrowing Book Copies: Customers should be able to borrow available book copies from the library.

5. Returning Book Copies: Customers should be able to return borrowed book copies to the library.

Non-Functional Requirements:

1. Language/Platform: The system should be developed using Java programming language.

2. Efficiency: The system should perform efficiently, even with a large database of books and patrons.

3. User-friendliness: The user interface should be intuitive and easy to navigate for both library staff and customers.

4. System Maintainability: The system should be designed with modularity and extensibility in mind, allowing for easy maintenance and future updates.

4. Use Case Tables:

Borrowing a book copy

Goal	Borrowing a copy of book.
Actors	Customer, Staff and library management system
Precondition	• Customer should be register in library • A book copy is available for borrowing • Customer should not exceed the borrowing limit (5 books)
Postcondition	• Book copy is marked as borrowed and a due date is set • Book availability is updated
Standard procedure	1. Customer selects a desired book copy to borrowed. 2. System verifies availability and customers eligibility. 3. System updates book copy status and customer borrowing record. 4. System notifies customer of successful borrowing
Handling particular cases	• Customer exceeds borrowing limits • Desired Book copies are unavailable • System Error.

Returning a borrowed Book Copy

Goal	Returning a borrowed Book copy.
Actor	Customer, Staff and library management system
Preconditions	• Customer should be register in library. • Customer has borrowed the selected Book copy. • Book copy is not damaged.
Postconditions	• Book copy is again available for borrowing. • Customer borrowing record is Updated.
Standard Procedure	1. Customer brings the borrowed book to return. 2. System verifies the books status and customers eligibility. 3. System updates book copy status and customer borrowing record. 4. System notifies customer of successful Return.
Handling Particular Cases	• Customer tries to return a book copy which is not borrowed by them. • Book copy is damaged or missing. • Customer tries to return the Book after the Due date. • System Error.