Group Project

GitHub link: https://github.com/Hugo0818/CS401-Project.git

Software Requirements Specification

Revision History

Date	Revision	Description	Author
09/11/2025	1.0	External + Internal requirements	Nathan S. & Anonymous User
09/15/2025	1.1	Common + module requirements	Ralph D.
09/15/2025	1.2	Non-Functional requirements	Salvador B.
09/19/2025	1.3	Edited Purpose Section	Salvador B.
09/22/2025	1.4	Filled in the rest of Section 2: Overall Description	Salvador B.
09/22/2025	1.5	Common + Media module requirements	Hugo H.
09/23/2025	1.6	Catalog Module 3.1.3.2 + Member Module	Nathan S.
09/28/2025	1.7	Modified index	Hugo H.

Table of Contents

1. Purpose

This document outlines the requirements for the Public Library System (PL)

1.1. Scope

The system will track the loan and return of library resources, maintain records of library members and staff, operate across a network of public libraries, provide a Graphical User Interface (GUI) for user interaction, and operate on a client-server model with a central server handling requests and multiple clients connecting via TCP/IP.

1.2. Definitions, Acronyms, Abbreviations

PL - Public Library

GUI - Graphical user interface

TCP/IP - Transmission Control Protocol/Internet Protocol

1.3. References

Use Case Specification Document

UML Use Case Diagrams Document

Class Diagrams

Sequence Diagrams

1.4. Overview

The Public Library System (PL) is designed for library staff to monitor data and media usage of multiple libraries.

2. Overall Description

2.1. Product Perspective

The System is a distributed application based on a client-server model. The central server maintains a database of resources, loans, and member records. The clients access the server via a GUI over TCP/IP.

2.2. Product Architecture

The system will be organized into 5 major modules: the Media module, the Catalog module, the Transactions module, the Logs module, and the Member module.

2.3. Product Functionality/Features

The high-level features of the system are as follows:

- Loan Management: Record when a member borrows an item.
- Return Management: Record when a member returns an item.
- Member Management: Add, update, and view member information.
- Staff-Support: Provide staff with tools to manage resources and members.
- Resource Availability: Check the availability status of library resources.
- Networking: Allow clients from different library branches to connect to the server.

2.4. Constraints

2.4.1. Must be implemented in Java.

2.4.2. Must use TCP/IP for client-server communication.

2.4.3. GUI required for client interface.

2.5. Assumptions and Dependencies

2.5.1. Each public library will have access to a stable network connection.

2.5.2. Server will be hosted on a machine with persistent storage

3. Specific Requirements

3.1. Functional Requirements

3.1.1. Common Requirements:

3.1.1.1 Staff should be allowed to log in using a username and password

3.1.1.2 System will support a catalog search to retrieve media information (title, author, or ID)

3.1.1.3 System will record the status and check out logs of library media

3.1.1.4 System should display error messages

3.1.1.5 System should validate user log in information

3.1.1.6 Profile tracking to assigned previous media

3.1.2. Media Module Requirements:

3.1.2.1 Books must have their title, author, ISBN, and copy count

3.1.2.2 System should support all types of accepted media

3.1.3. Catalog Module Requirements:

3.1.3.1 The system must have an indexable catalog for media of any type

3.1.3.2 The system should allow staff to update and add catalog contents

3.1.4. Transactions Module Requirements:

3.1.4.1 Staff must be able to return media

3.1.4.2 Staff must be able to borrow media

3.1.5. Logs Module Requirements:

The system must keep logs of the following operations

3.1.5.1 Media is checked in / out

3.1.5.2 Who checks in / out media

3.1.5.3 When media is checked in / out

3.1.6. Member Module Requirements:

3.1.6.1 The system should allow staff to add, update, and delete a member account.

3.2. External Interface Requirements

3.2.1 The system will provide a staff interface for staff browsing, searching, and filtering of the catalog.

3.3. Internal Interface Requirements

3.3.1 The system will process check-in and check-out data to the logging system in the

3.3.2 The system will process check-in and check-out data to the logging system in the form of a table list with provided book IDs, user info, and date.

3.3.3 The system will provide a sorted catalog allowing different types of media.

Non-Functional Requirements

3.4. Security & Privacy Requirements

3.4.1 Ensures stored data contains minimal personal information

3.5. Usability Requirements

3.5.1 System has an intuitive user interface that is easy to navigate and is accessible for people with disabilities

3.6. Performance & Maintainability Requirements

3.6.1 Supports thousands to potentially hundreds of thousands of resources in the catalog
3.6.2 System has a modular design to allow for new features to be implemented without impacting the existing functionality
3.6.3 System is available 24/7