Group Design Document – LibCore

Design Document

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# Purpose

This document outlines the design for the LibCore Library Management System, a web-based system for managing library operations

1.1 Overview

This document defines the system’s designs regarding how key functionality will be handled, including the Graphic User Interface, Software Interface, and the designs of the requirements specified in the SRS Document

# Main Data Design

## 2.1 Data Storing and Retrieval

2.1.1 Data will be stored in a text file, formatted to show item attributes in a clear manner

2.1.2 Data will be retrieved from the text file and formatted to easily access attributes of items

2.2 Database Design

2.2.1 Data communication will be handled through a multithreaded client server

2.3 Data Interaction

2.3.1 A ClientHandler and Message class will handle communications of data between the Client and Server

# Component Design

3.1 User Management Module Design

3.1.1 The inputs to login will be name, address, contact number, and their membership ID

3.1.2 The module ensures that only members can loan items through authentication

3.1.3 A login GUI will appear on the screen to authenticate if the user is a member

## 3.2 Resource Management Module Design

3.2.1 Members can search for resources using the title, author, genre, and availability

3.2.2 Members can request to borrow resources if available

3.2.3 When a member requests a loan, the resouce ID, member ID, loan date, and return date should be recorded into the text file database

3.2.4 A GUI will be implemented to handle the resouce management and show available resources

## 3.3 Transaction Management Module Design

3.3.1 A GUI implementation will show all library resources available

3.3.2 When selected, the data of the resource will be displayed, including the title, author, publication date, category, and availability

3.3.3 There is a separate status that will show “Available” when the resource is available, and “Checked Out” when it is currently being loaned

# Software Interface Design

## 4.1 Module Interfaces

4.1.1 Each module will have its own GUI to show its functionality

4.1.2 Each module will have the necessary buttons relating to the functionality

## 4.2 System Communication

4.2.1 A GUI will be implemented to connect each module through a facade that will help simplify each interaction

## 4.3 Security Methods

4.3.1 User login will contain authentication through verifying in the text file database that the member is valid by comparing the authenticity of the input

# User Interface Design

5.1 UI Layout

5.1.1 The UI of the modules should be centered on the screen

5.1.2 A close button should be available for the user to close the program when they are done

5.1.3 The layout should display all relevant information of resources when on specified module

5.2 UI Functionality

5.2.1 Each module’s interface should support relevant actions connected to that module

5.3 UI Navigation

5.3.1 Transitioning between the GUI of each module should be done through buttons that connect each module, ex. A “loaning button” would connect the Resource module and Transaction module

5.3.2 There should be buttons that allow for members to navigate not only forwards to transactions, but backwards to see other resources

5.4 UI Usability

5.4.1 The UI for loaning items can only be used by library members and staff