

## System Design Document

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## CRC Cards

Class Name: Main	
Parent Class (if any): Subclasses (if any):	
Responsibilities: <ul style="list-style-type: none"><li>- Main class of the project</li><li>- Main method runs upon application execution to instantiate LoginView for user to interact with the application</li></ul>	Collaborators: <ul style="list-style-type: none"><li>- Instantiates LoginView</li></ul>

## View

Class Name: LoginView	
Parent Class (if any): Subclasses (if any):  Uses: LoginController	
Responsibilities: <ul style="list-style-type: none"><li>- Presents user with interface to Login to application</li><li>- Listens for Register button clicks to send user to Register View</li><li>- Listens to Login button clicks, retrieves login information from text fields upon button click and passes it to LoginController for login validation</li><li>- Sends user to Application class (Homepage) if login successful</li></ul>	Collaborators: <ul style="list-style-type: none"><li>- Creates an instance RegisterView upon Register Button Click</li><li>- Uses LoginController to listen to button clicks</li><li>- Instantiates Application class upon successful login</li></ul>

Class Name: RegisterView	
Parent Class (if any): Subclasses (if any):	
Responsibilities: - Presents user with interface to Register as a new user - Upon Register button click, sends text information from text fields (first name, last name, username, password) to LoginController to handle User Registration - View closes upon successful registration, stays open if login fails	Collaborators: - Uses LoginController to listen to button clicks

Class Name: Application	
Parent Class (if any): Subclasses (if any):	
Responsibilities: - Presents user with homepage interface to search for books (clients), and view book inventory (Librarians) - Displays list of books that library owns and if they are checked out or not upon click of show database button - Displays list of books whose title matches text field entry upon click of search button	Collaborators: - Uses DatabaseManager class to listen to the search button and show database button clicks. DatabaseManager retrieves all books from database while Application parses books

### Controllers

Class Name: LoginController
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Parent Class (if any): Subclasses (if any):	
Responsibilities: - Receive username and password text entry from user - Redirect user to home page if login is successful - Redirect user to registration page if they click to register button	Collaborators: - Login Controller sends requests to UserService class validate user logins and handle user registrations

Class Name: User Service	
Parent Class (if any): Subclasses (if any):	
Responsibilities: - Adapter class that handles requests from other classes that require information from the user Repository database - handles UserLogin requests by calling on userRepository.validateUser - handles user registration by adding new users to database and checking to see if users already exist, making sure no required entries are missing for user creation	Collaborators: - Receives requests from LoginController for user login and registration - Sends requests to UserRepository class for User database manipulation

## Models

Class Name: UserRepository
Parent Class (if any): Subclasses (if any):

Responsibilities: <ul style="list-style-type: none"> <li>- Executes SQL statements to handle manipulation of user database</li> <li>- Adds users to database</li> <li>- Gets users from database by their ID, username</li> <li>- Searches through user database to validate username and password entry</li> <li>- Removes users from user database</li> </ul>	Collaborators: <ul style="list-style-type: none"> <li>- Executes SQL queries on behalf of UserService Class</li> <li>- Retrieves information from database User Table for UserService Class</li> </ul>
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Class Name: BookRepository	
Parent Class (if any): Subclasses (if any):	
Responsibilities: <ul style="list-style-type: none"> <li>- Executes SQL statements to handle manipulation of book database</li> <li>- Updates book and user tables when book is checked out</li> <li>- Updates book and user tables when book is returned</li> <li>- Adds new books to databases when added by user</li> </ul>	Collaborators: <ul style="list-style-type: none"> <li>- Will eventually be used by a controller class</li> </ul>

Class Name: User	
Parent Class (if any): Subclasses (if any):	

Responsibilities: - Represents a user - Holds first name, last name, username, and password of user	Collaborators: - Used by UserService and UserRepository to communicate User information
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Class Name: DatabaseManager	
Parent Class (if any): Subclasses (if any):	
Responsibilities: - Retrieves book from libraryTest database	Collaborators:

## Software Architecture Diagram

