Software Engineering Project Report

Library Information Management System

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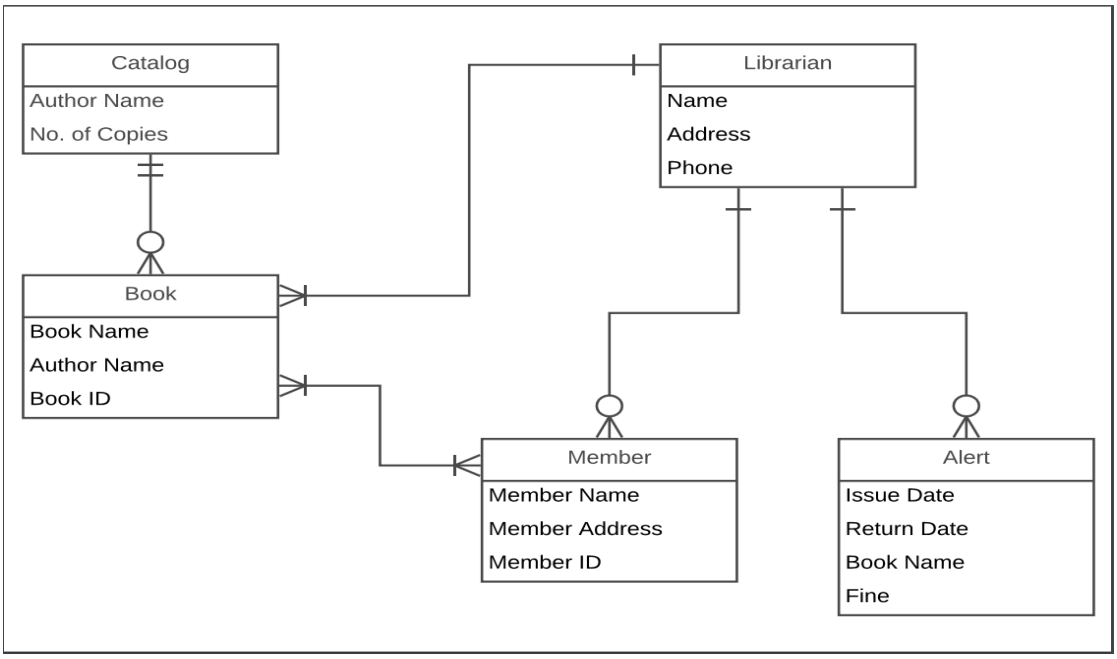
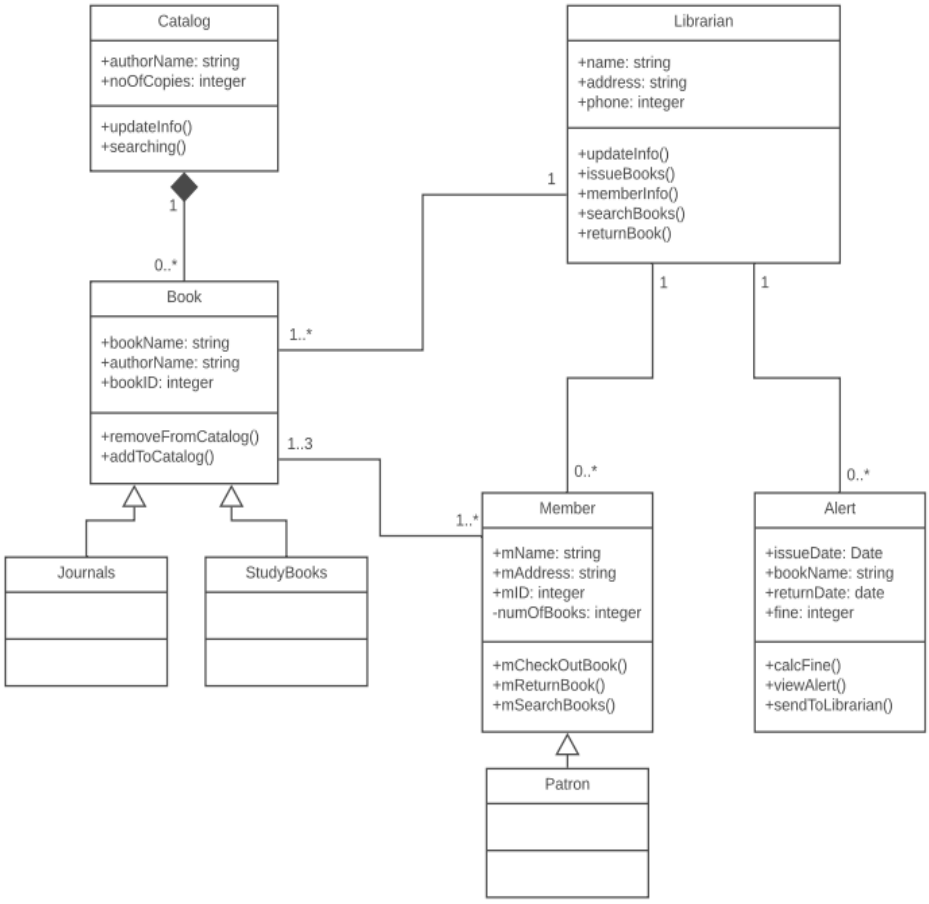
Preface

Our Program is Library Information Management System, which is for helping people to find, store and manage books and users' information.

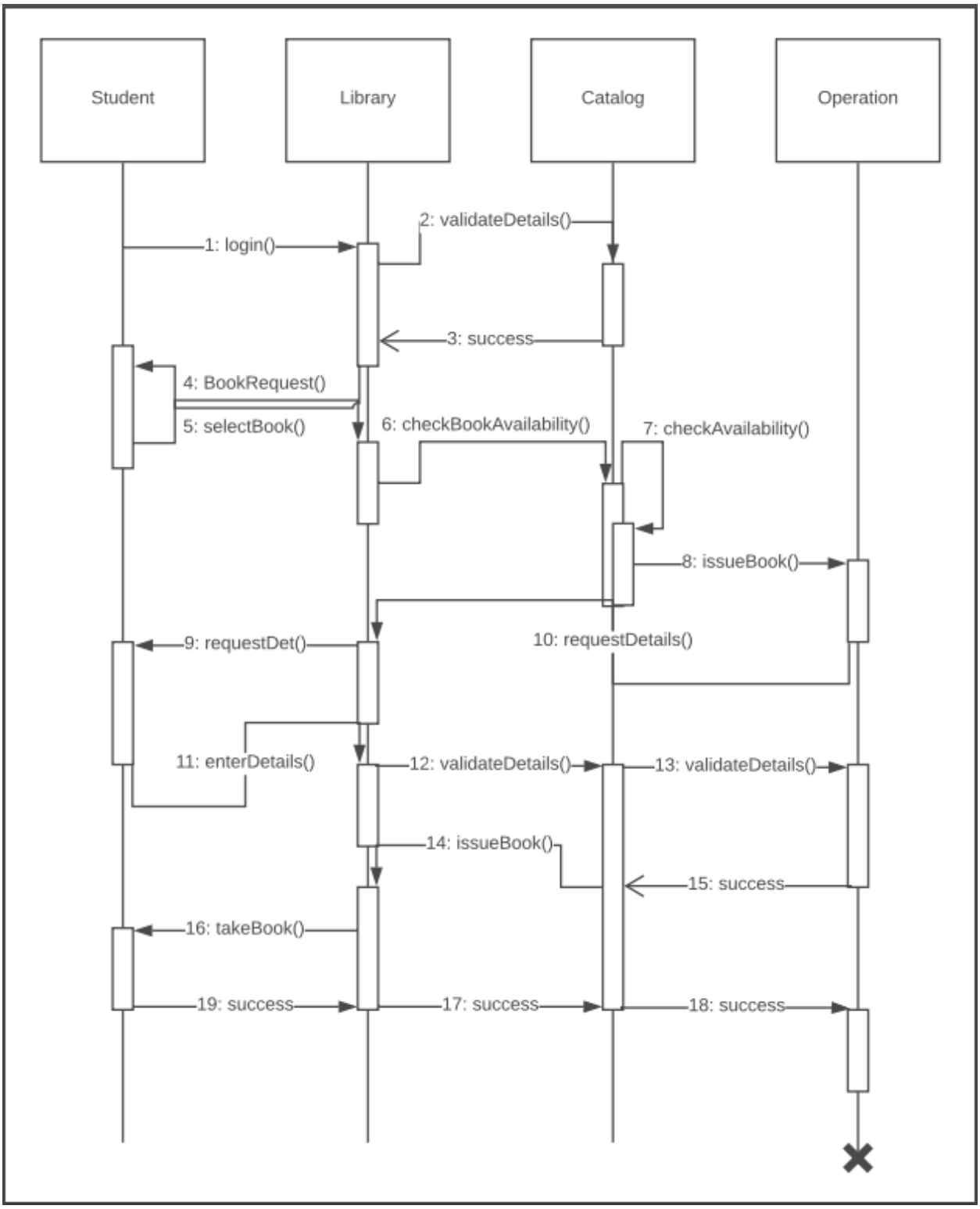
ER Diagram:



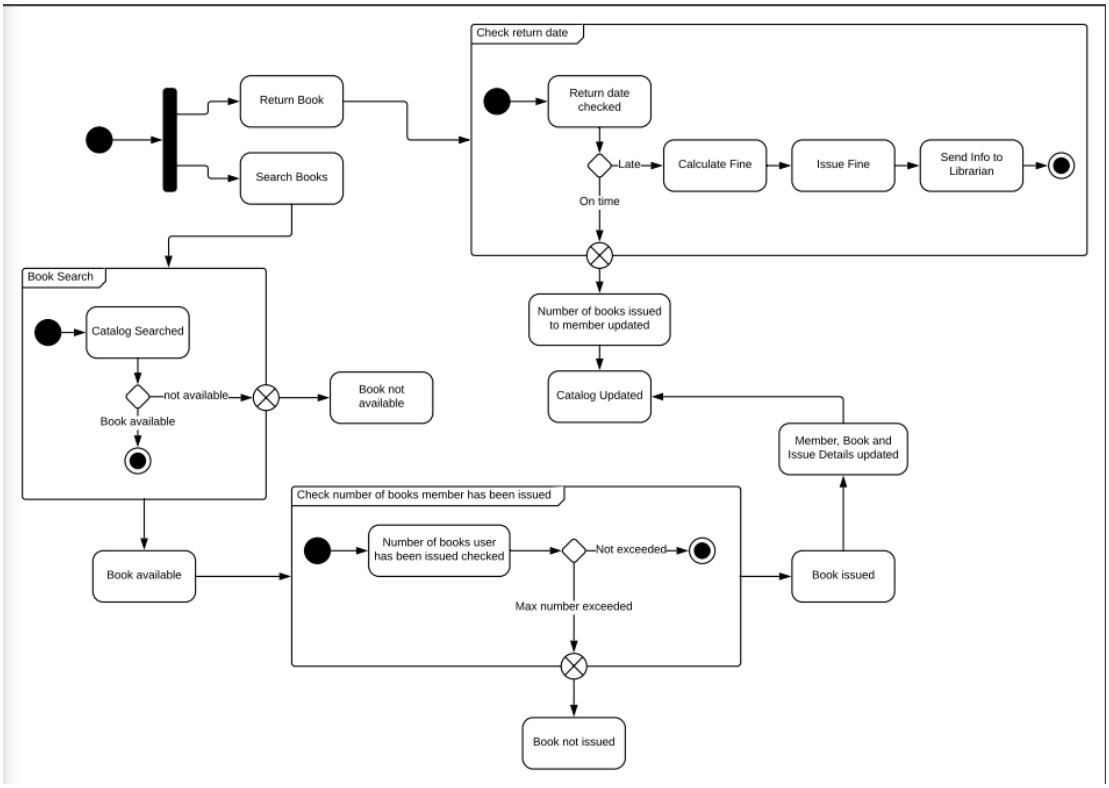
Class Diagram:



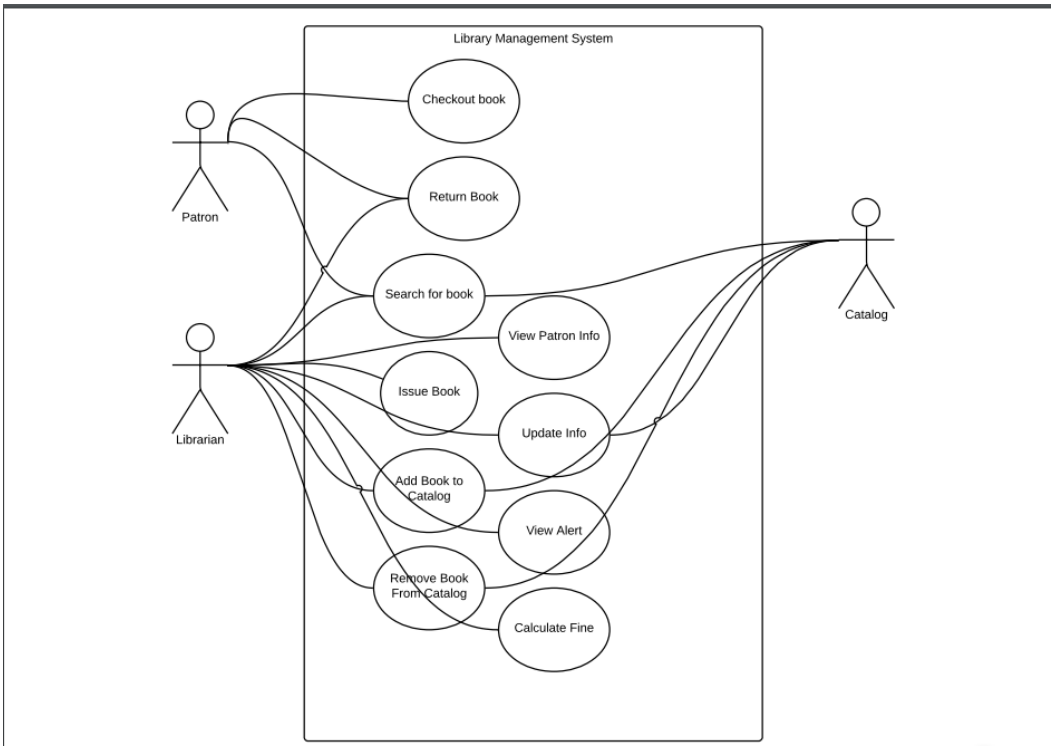
Sequence Diagram:



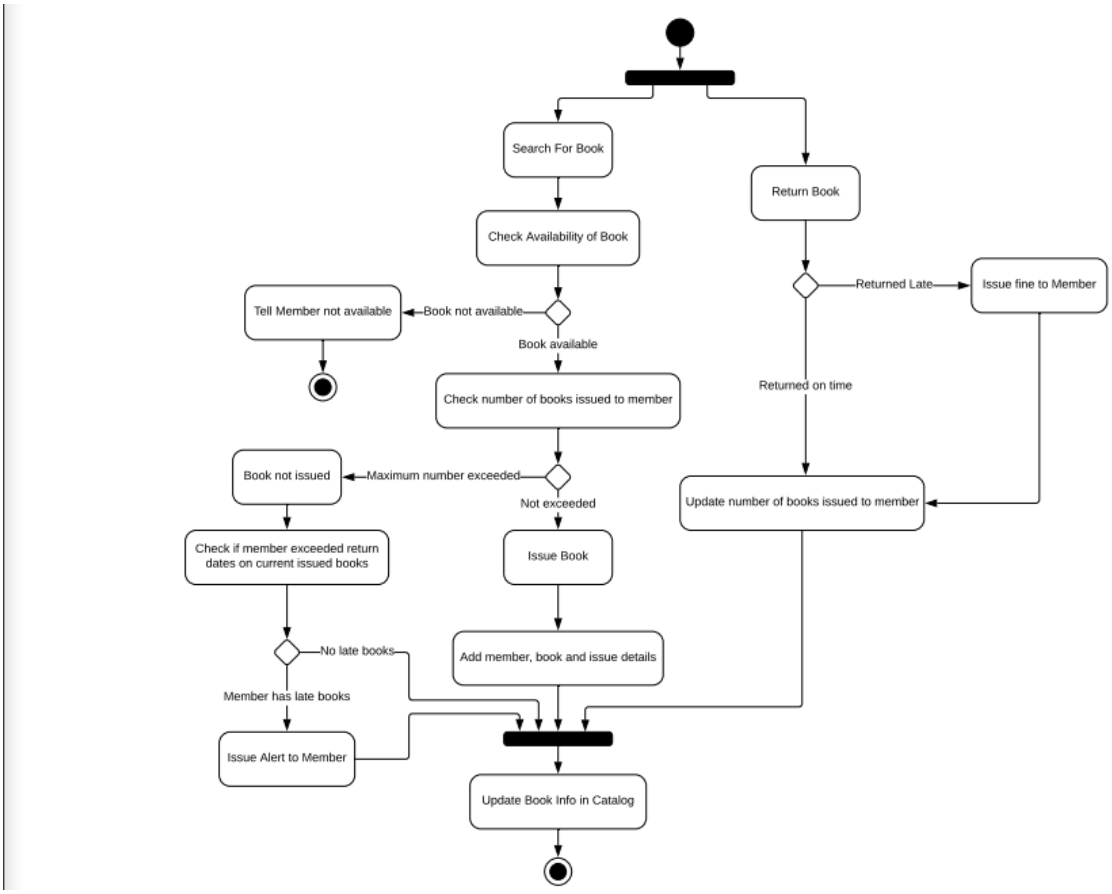
State Diagram:



Use Case Diagram:

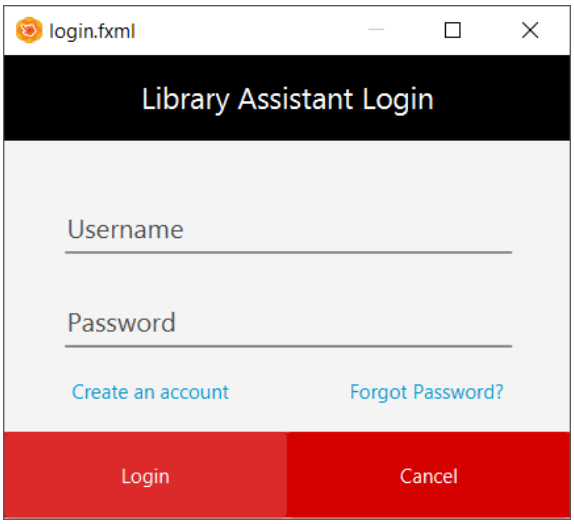


Activity Diagram:

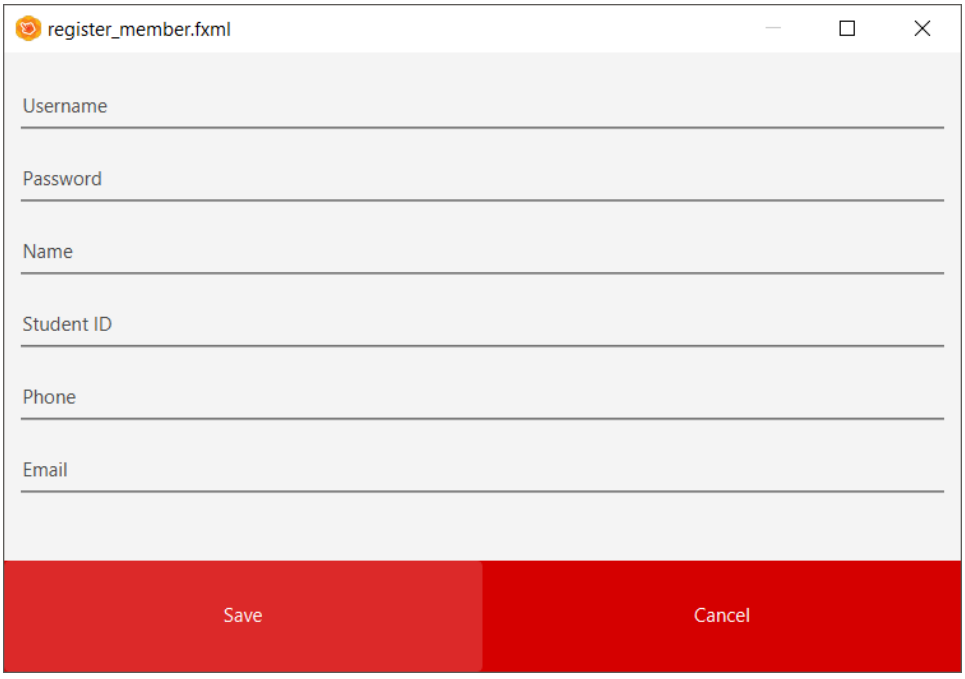


What we did previously was missing lots of important things, so we decided to add more actions/states into the diagram and makes it easier to understand and clear to see what is happening in each state and the relationships between each object.

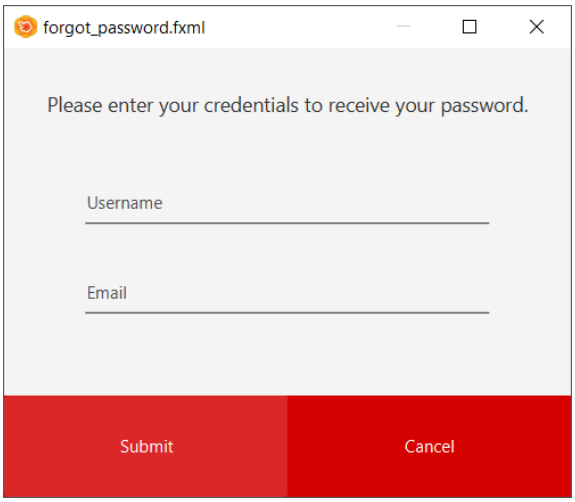
Here are screenshots of our GUI:



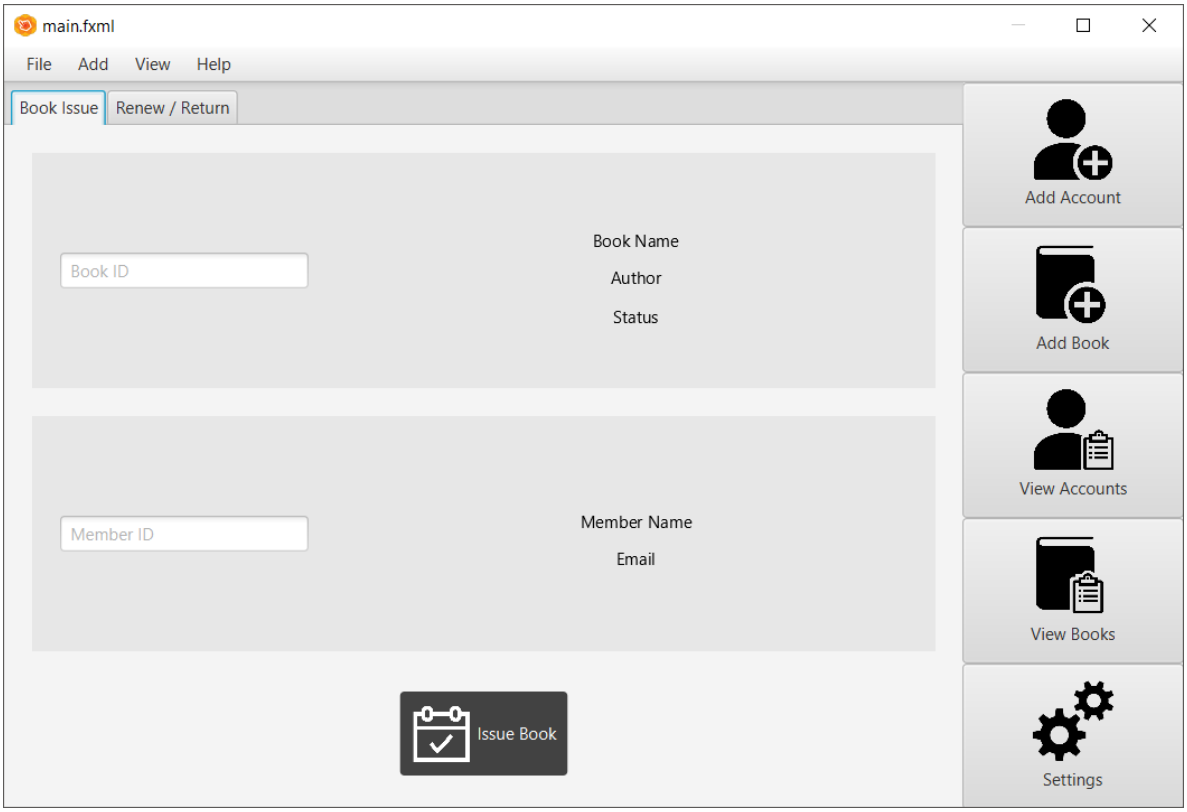
Here is a login window to login into your own account. On it you can login to a member account, or an admin account. You also have the ability to create an account, and to retrieve your password if you forgot it.



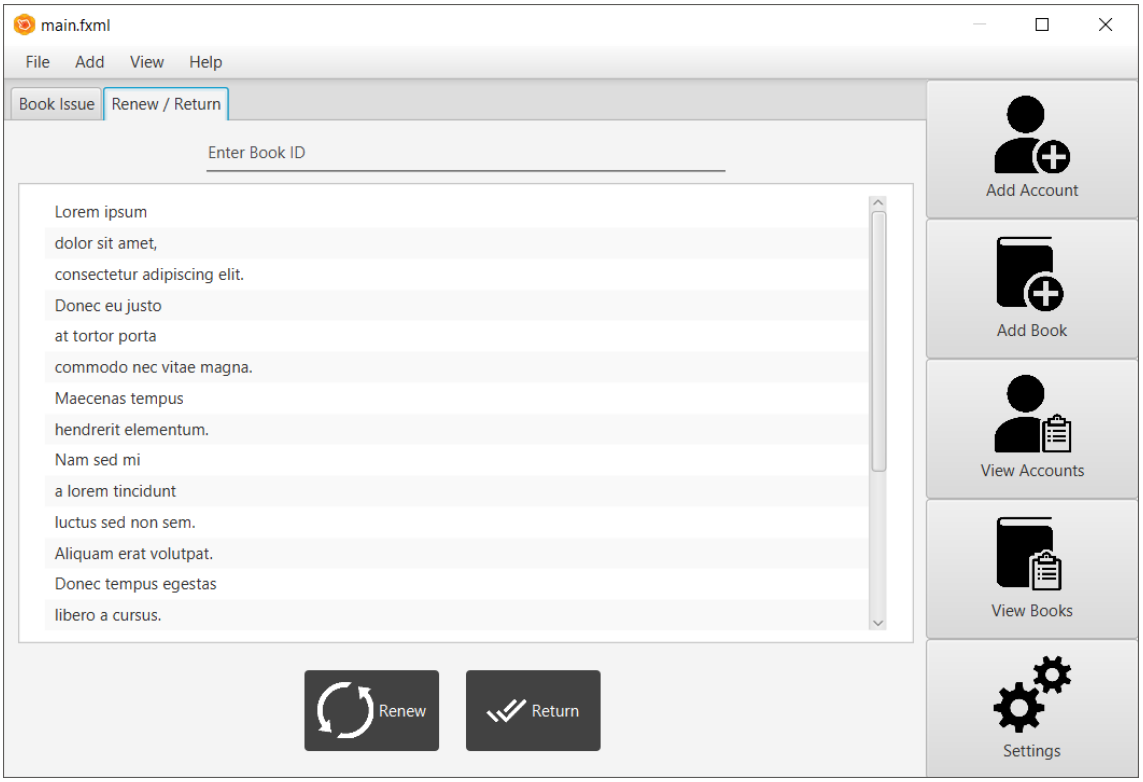
This is the window that appears when you click on “create an account”. You can enter your information and it will add it to the database as an account.



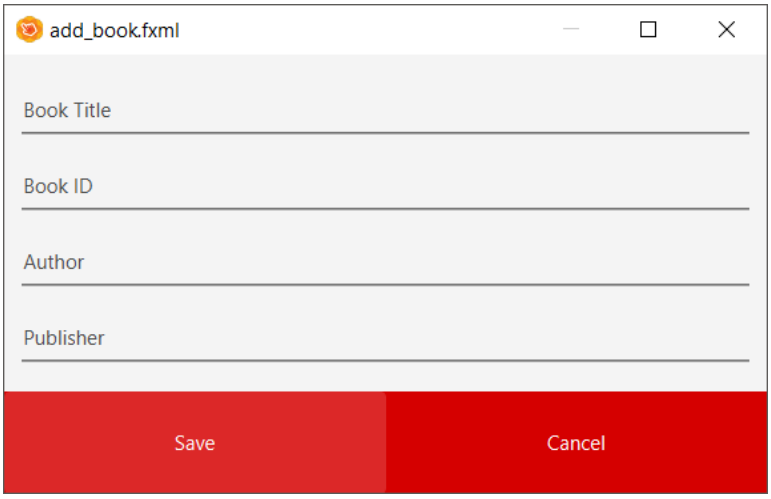
This window appears when you click “Forgot Password”. It is very basic right now and all you must do is enter your email and username and it will have an alert appear telling you your password.



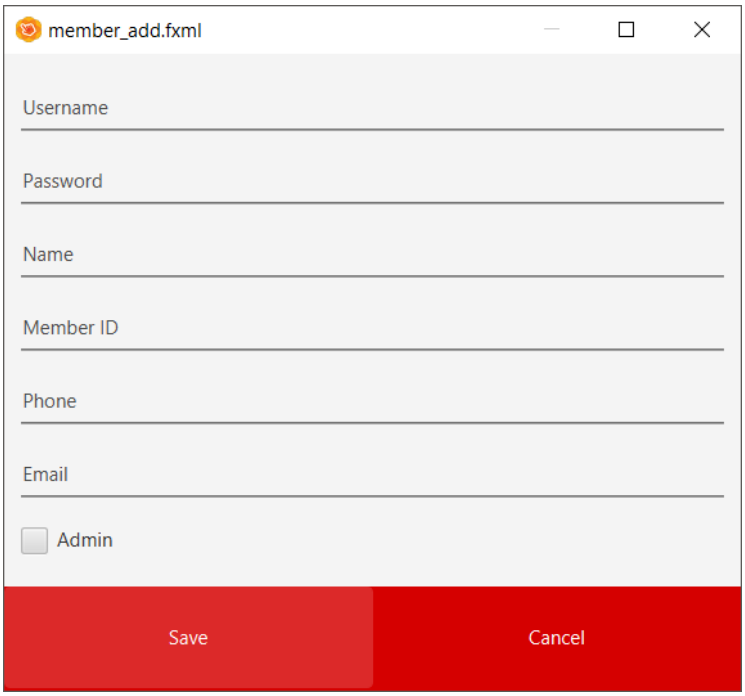
This one above is the main menu for admins. Admins can add accounts, add books, view a list of accounts, view a list of books and view settings. The first tab is for issuing books to members. The admin just has to enter a book ID and a member ID, and the info will appear in the labels. Status shows if the book is available or not.



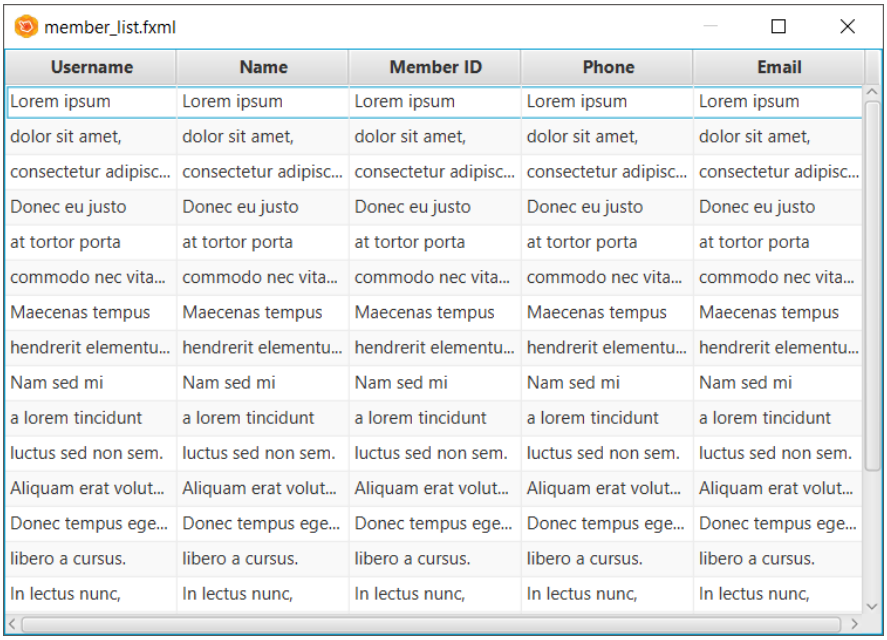
This is the renew/return tab of the main window. (It is just showing random sample data in the screenshot). In this tab you can enter a book ID to view information about the book borrowed, which user borrowed it, and at what time. Then they can click the renew button to borrow the book again, or to return the book, which makes the book available in the database to be borrowed again.



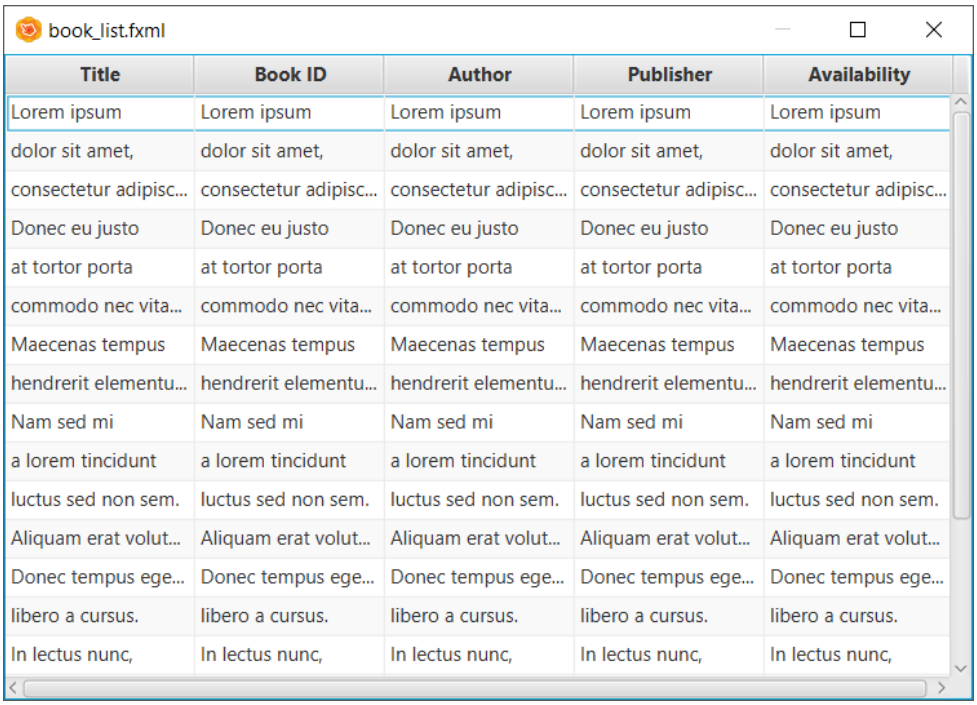
This window is for the add book button. The admin can enter any book they choose by filling out the information needed, and it will add the info to the database.



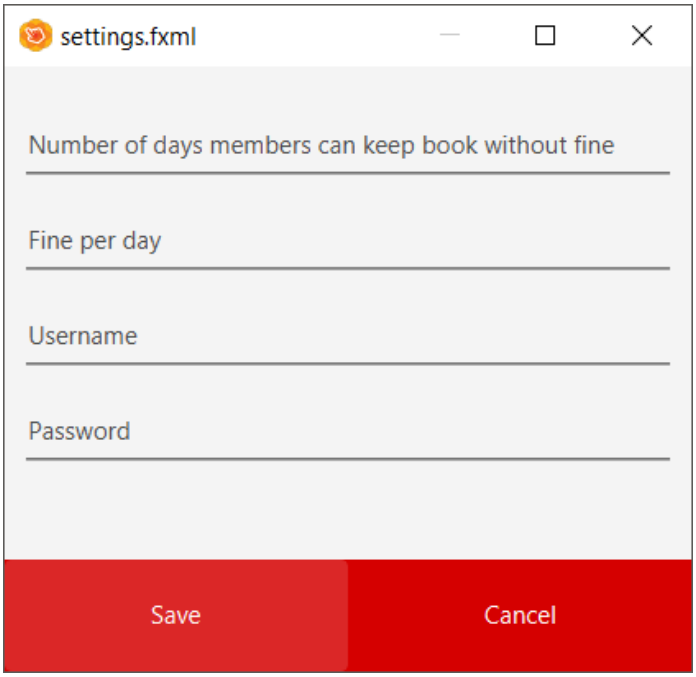
This window is for adding accounts to our system. Admins can a username, password, name, member ID, phone number and email address will create an account and store it in the database. There is also an option of the account being an admin if they checkbox is checked.



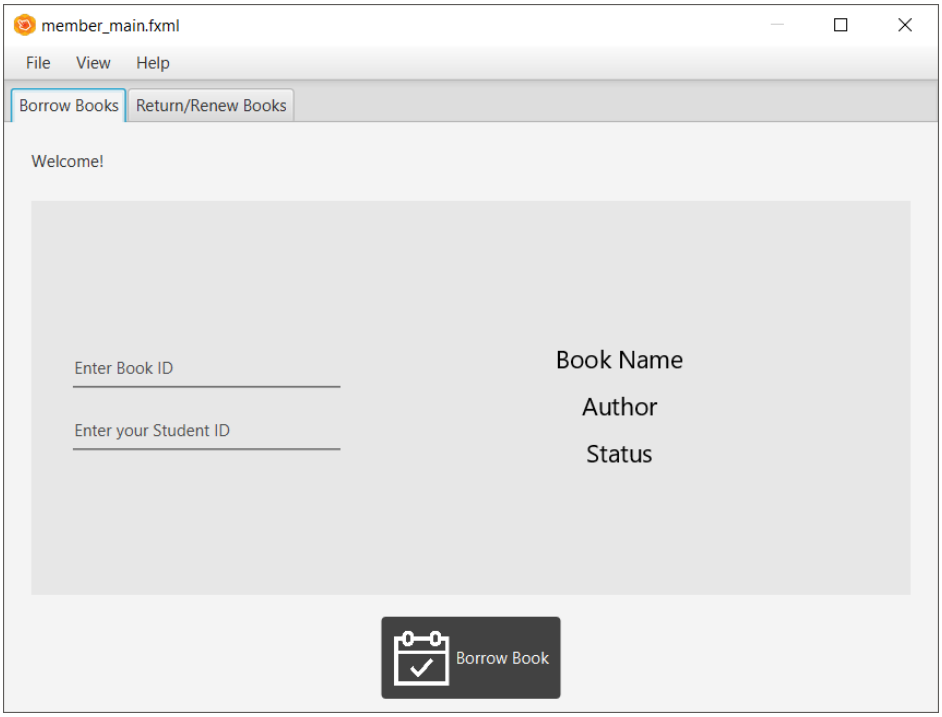
This window is the view account button. In it, the admin can view a list of accounts that are in the database. If you right clock on a row, you can also choose to edit or delete accounts. It is showing random sample data in the screen shot.



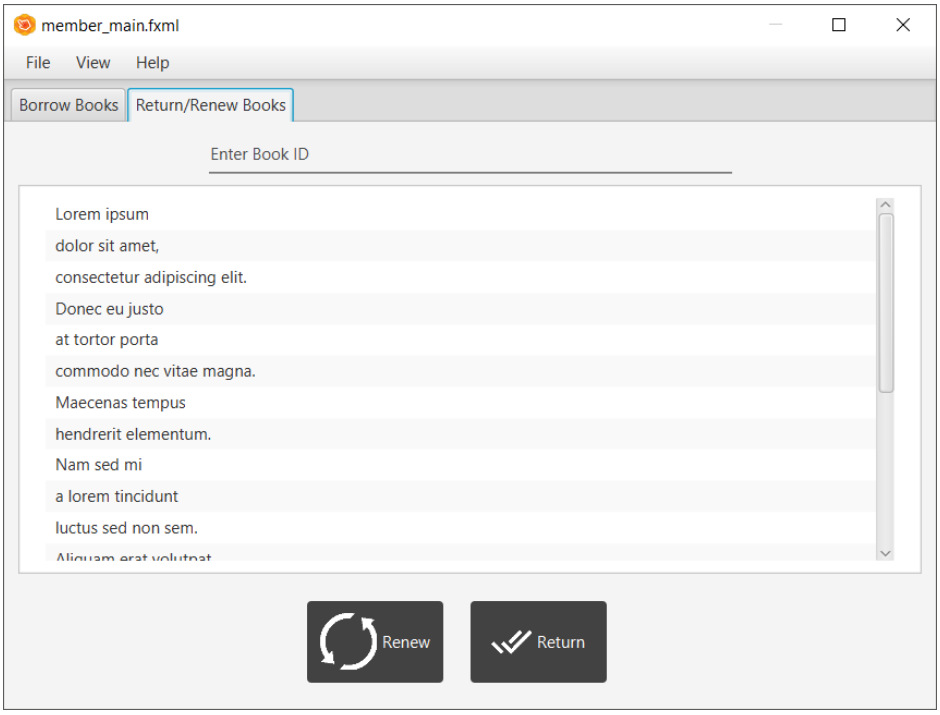
This window is for showing the books status, Title, ID, Author, Publisher and its availability to see if its available to be borrowed. An admin can also edit or delete books in the database by right clicking a row. This also is showing random sample data.



Above is the settings window. In it you can set the number of days all members can keep books without a fine and the amount for a fine per day being late. There also used to be a feature to change your username and password but changing the functionality of the program caused this to not be functional anymore.



This is the main window for when a member with regular abilities logs in. It shows a message at the top, below the tabs, and it says “Welcome” then their name after from the database. The first tab is where members can borrow books. A member can enter a book ID of the book they want to borrow and their own ID and click the borrow book button and the book will be issued to them in the database. The information of the book will be displayed in the labels.



This is the second tab of the main window. It functions the same way as the second tab of the admin main window.

For this project, we used following applications:

- NetBeans to write the code.
- SceneBuilder was the application used to design the GUI.
- Libraries used in our application are derby for the database, jfoenix for gui objects, gson, and commons codec for password security.

1.0 Overview

1.1 Purpose, Scope and Objectives

Our project is to build library information management system to help libraries track or store books, videos etc. information. Nowadays, lots of people are using libraries to study, to read etc. So, we are trying to build a product that can help Students, patrons, admins and librarian to track, search, store information, or help admins to manage accounts. The value of our product is making easier for people who use it, making them easier to find what they need, or store books, videos others' information.
So, our product will be used in libraries, we will use Java to develop, and it is will be used on PCs.

1.2 Project description(most important part)

We will be producing a library information management system. The system will support three different types of users: patrons, librarians and system administrators. Patrons are the standard user that will use the software. They will have to log in to use the services. Once they have logged in, they will be able to borrow library materials, return library materials and log out. They will also be able to search the library for the materials they would like to borrow. Librarians are users with more authority within the system than patrons. They will have to log in through a different path. They can update the library materials, adding or removing whatever material they choose. They also can view the patrons accounts and what materials they have borrowed from the system. System Administrators are the most powerful type of user. They will have to log in with a specific username and password to gain access. Once logged in, they can manage both patrons and librarian accounts. They can remove accounts of patrons and librarians.
The library system will allow users to search for different library materials (books, magazines, videos, etc.), keep track of the materials patrons have borrowed and their availability, and the amount of time patrons plan on having the materials. We will write the algorithms to perform these actions.

1.3 Team profile(if any)

Zhou Xin Strength: Design, presentation, management and organization.

Colin LeMesurier: Programming, documentation, organization.

1.4 Assumptions and Constraints

Some constraints we may have is the fact that we aren't very experienced programmers and may require help from online or from professors with our coding. We plan on programming most, if not all the features we plan on implementing so we shouldn't need to use software created by other people.

1.5 Project Schedule

Sept(I)	Project plan
Sept(II)	Project plan & project organization & information
Oct(I)	Finalize Results
Oct(II)	Finalize Results & Write Draft of Report
Nov(I)	Write Draft of Report
Nov(II)	Formulate Presentation
Dec(I)	Present Project Report

2.Project Organization

First, we are trying to make a plan of what to do for our project, then we will follow the schedule and do our given parts.

3.References

Text and Reference Format: IEEE

Design Help: Google / Youtube

Bug Fixes and Help: Stack Overflow