



Faculty of Computers and Data Science
Intelligent Systems Department
Software Engineering Project
School Library Management System
(SLMS)
Team 8



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1 INTRODUCTION

1.1 Project Domain

Efficient Library Management System for students and teachers.

1.2 Primary Description For Project

Library management system is a project which aims in developing a computer system to maintain the work of library

1.2.1 Objectives:

- Develop a Library Management System for improved library operations.
- Enhance book search.

1.2.2 Key Features:

- Book catalog with search functionality.
- User account management for students and teachers.
- User-friendly interface for easy access.

1.3 The Delivery Service For The Customer

This software system will serve as a tool for managing library activities in educational institutions, specifically for school students and librarians with the goal of improving the efficiency and accuracy of library services within the school it will include features like:-

- Student login page, where students may view books published.
- A search function to look for available books.
- The teacher has the option of publishing his own book in the library.

2 SOFTWARE REQUIREMENT SPECIFICATION

2.1 GENERAL PRODUCT DESCRIPTION

This school library management system helps students and librarians in managing library activities.

This technique tends to increase the accuracy of book searches

2.2 PROBLEM STATEMENT

The following issues happened before the setting up of a computerized system:

2.2.1 Search difficulty

There is always a difficulty in searching of records if the records are large in number before using computer system

2.2.2 Time consuming

Libraries often faced time-consuming challenges. Manual processes, such as checking out books requires significant staff time and effort. These manual tasks not only consumed resources but also increased the errors and inefficiencies.

2.3 SYSTEM REQUIREMENTS

2.3.1 FUNCTIONAL REQUIREMENTS

2.3.1.1 USER LOGIN:-

- The user uses this functionality to log into the system.
- Before they can access the system, users must first input their user id and password.
- The user id and password will be validated, and if an invalid id is present or is not approved yet by the admin, the user will be denied access to the system.
- The system must determine if the login is for an teacher or student or admin.

2.3.1.2 REGISTER NEW USER:-

- This function is available to all teachers and students in order to register new users and create accounts.

- System must be able to verify information like Id ,Name ,password ,phone and Email

2.3.1.3 Publish NEW BOOK:-

This feature enables teacher

- add new books.
- verify information

2.3.1.4 Book Search:-

- We can search for books using this tool by book id, book name, publisher.

2.3.1.5 Manage Members and Manage Books :-

- The admin only uses this functions on students, teachers and book to unblock or block them.
-

2.3.2 NON-FUNCTIONAL REQUIREMENTS

2.3.2.1 EFFICIENCY REQUIREMENT:-

When a library management system will be implemented, user will easily access library as searching will be very fast.

2.3.2.2 RELIABILITY REQUIREMENT:-

The system should accurately perform member registration, member validation and book search.

2.3.2.3 USABILITY REQUIREMENT :-

The system is designed for a user friendly environment so that student and staff of library can perform the various tasks easily and in an effective way.

3 Diagrams

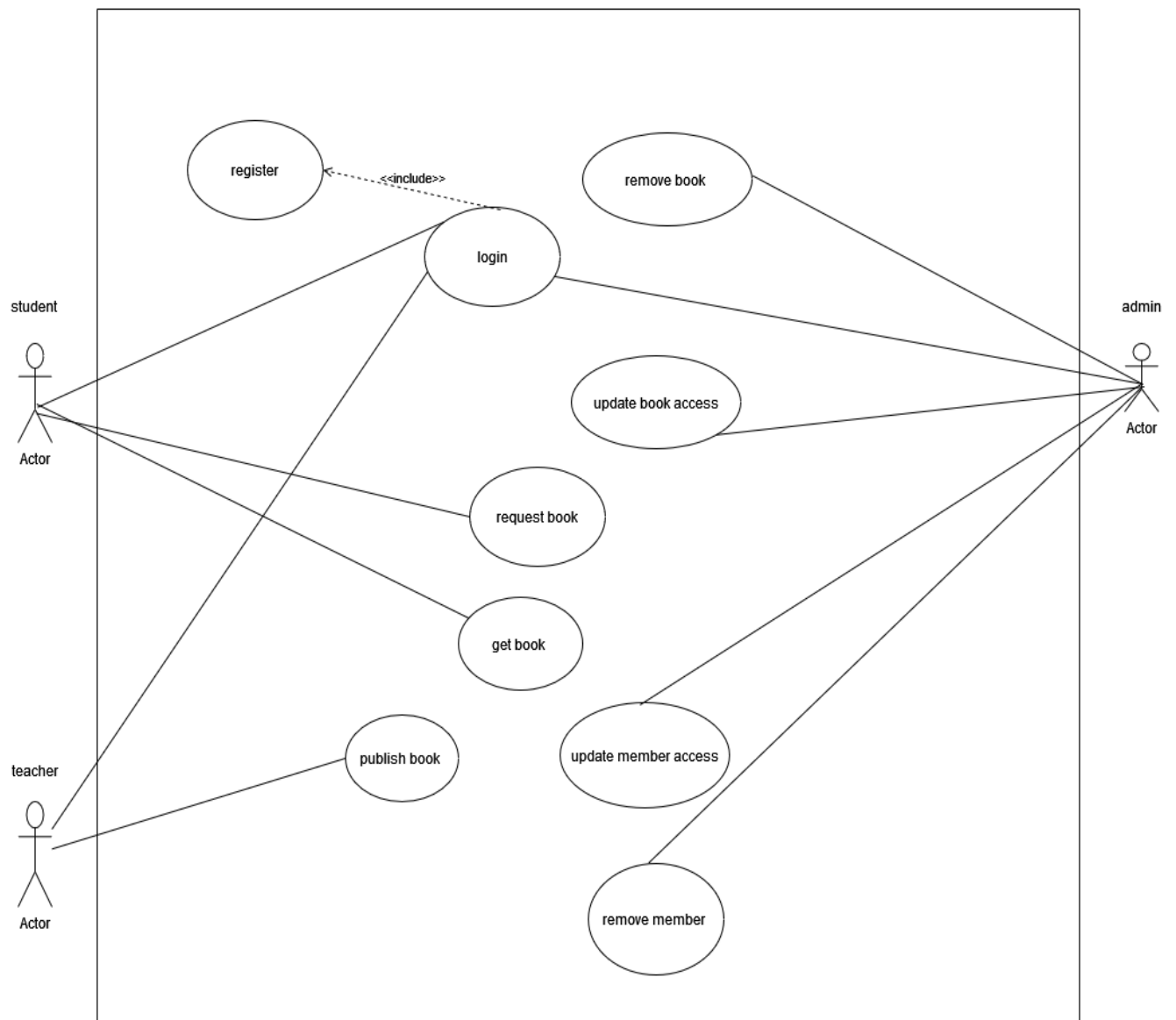


Figure 1: Usecase Diagram

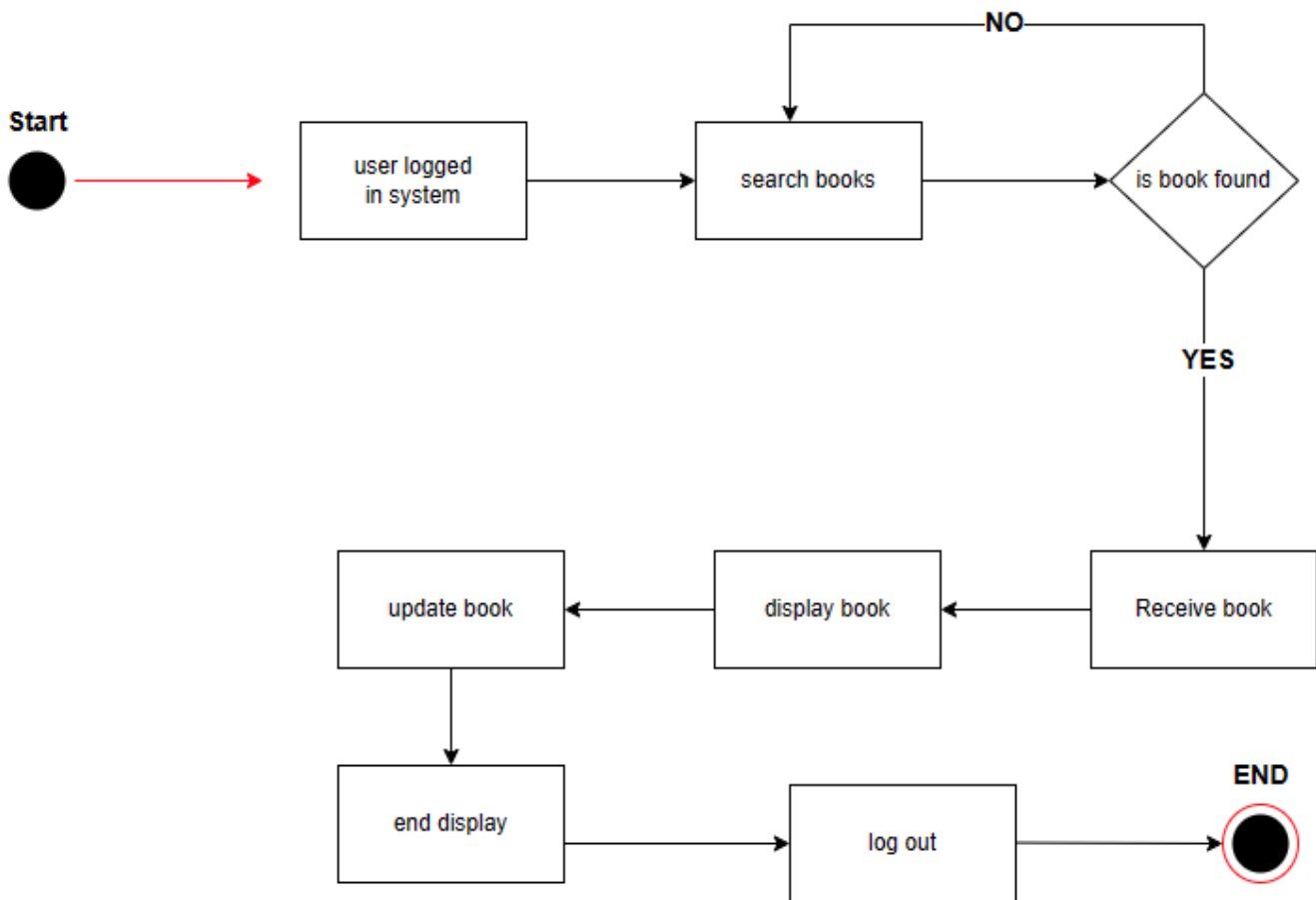


Figure 2: Activity diagram

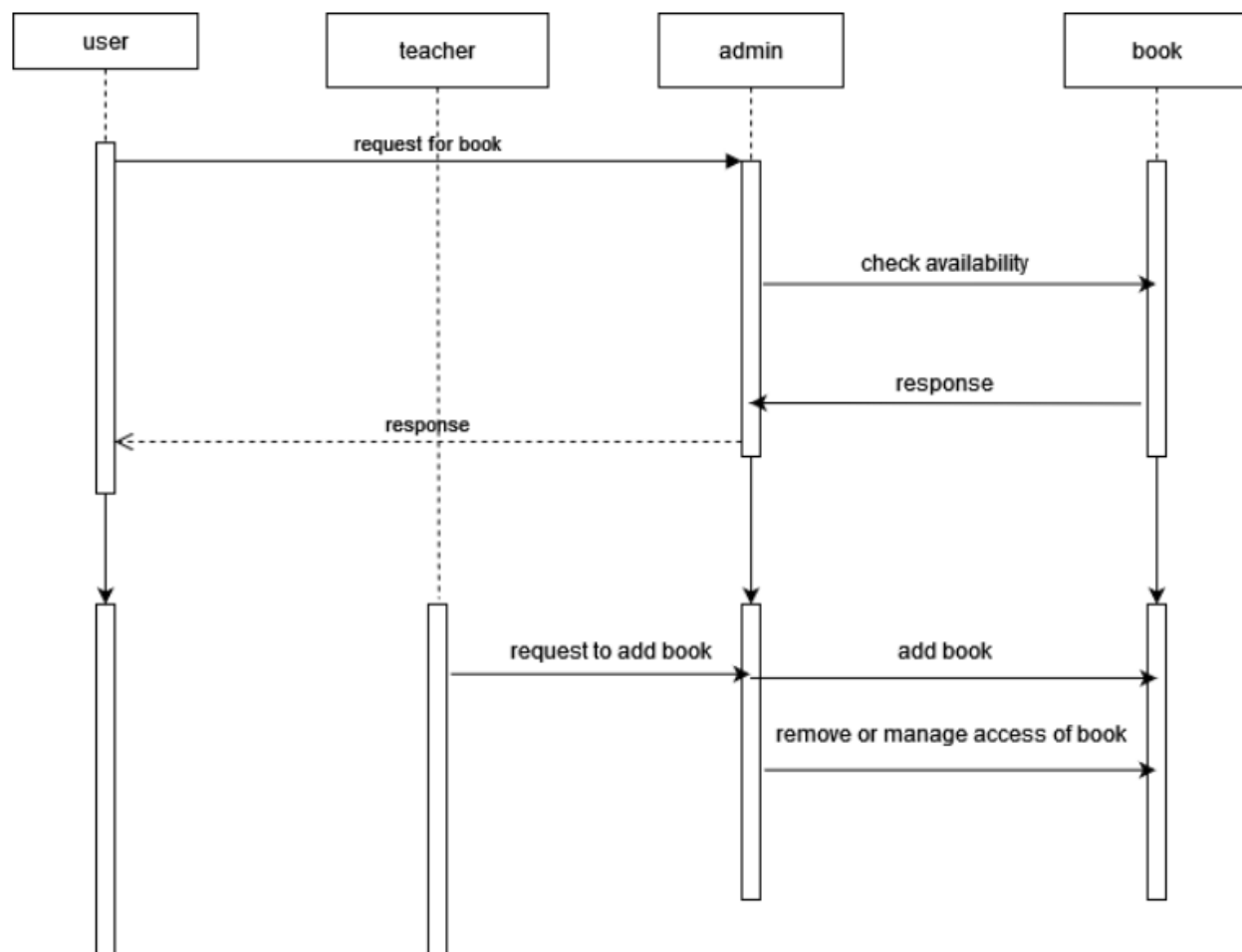


Figure 3: Sequence diagram

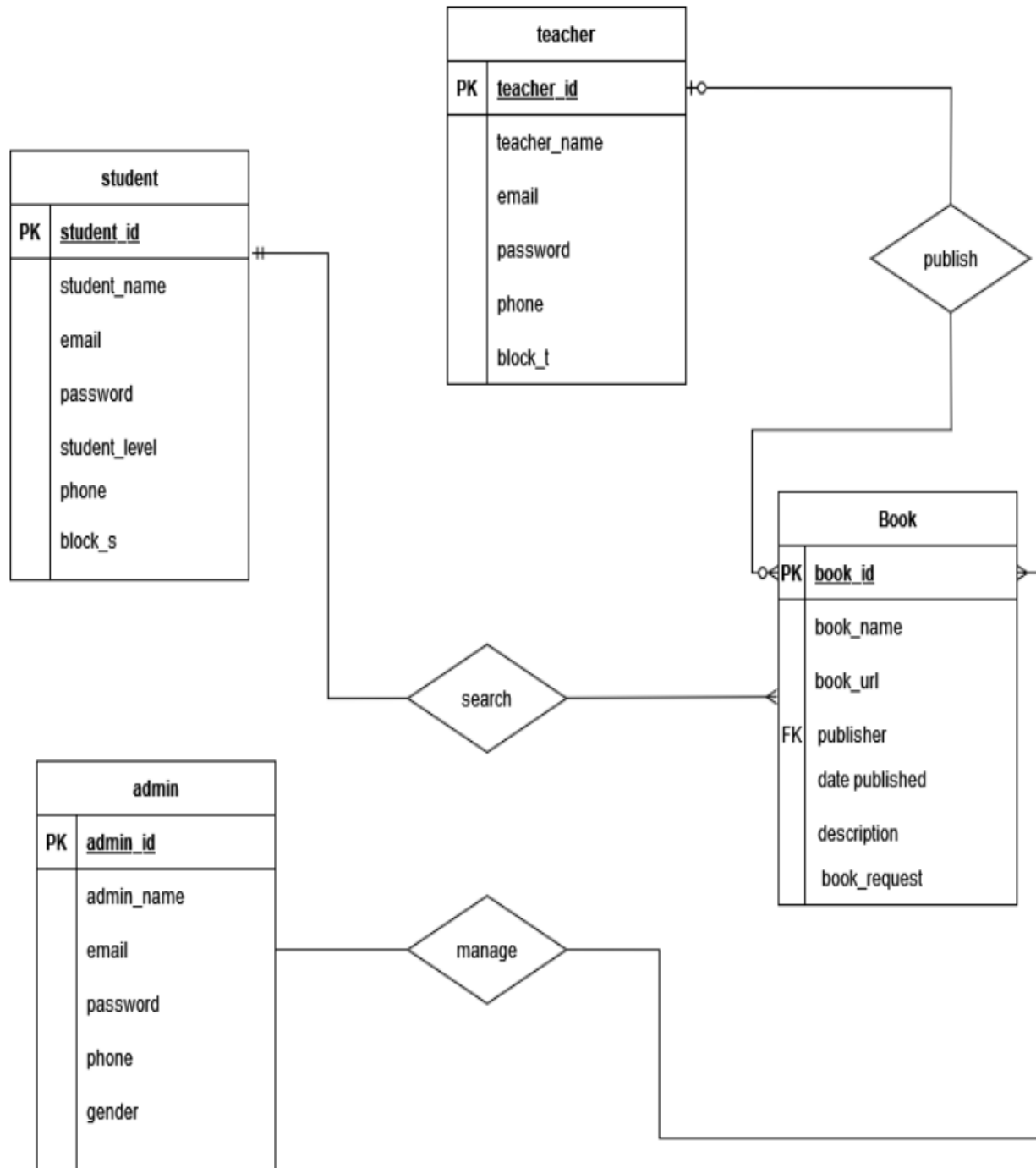
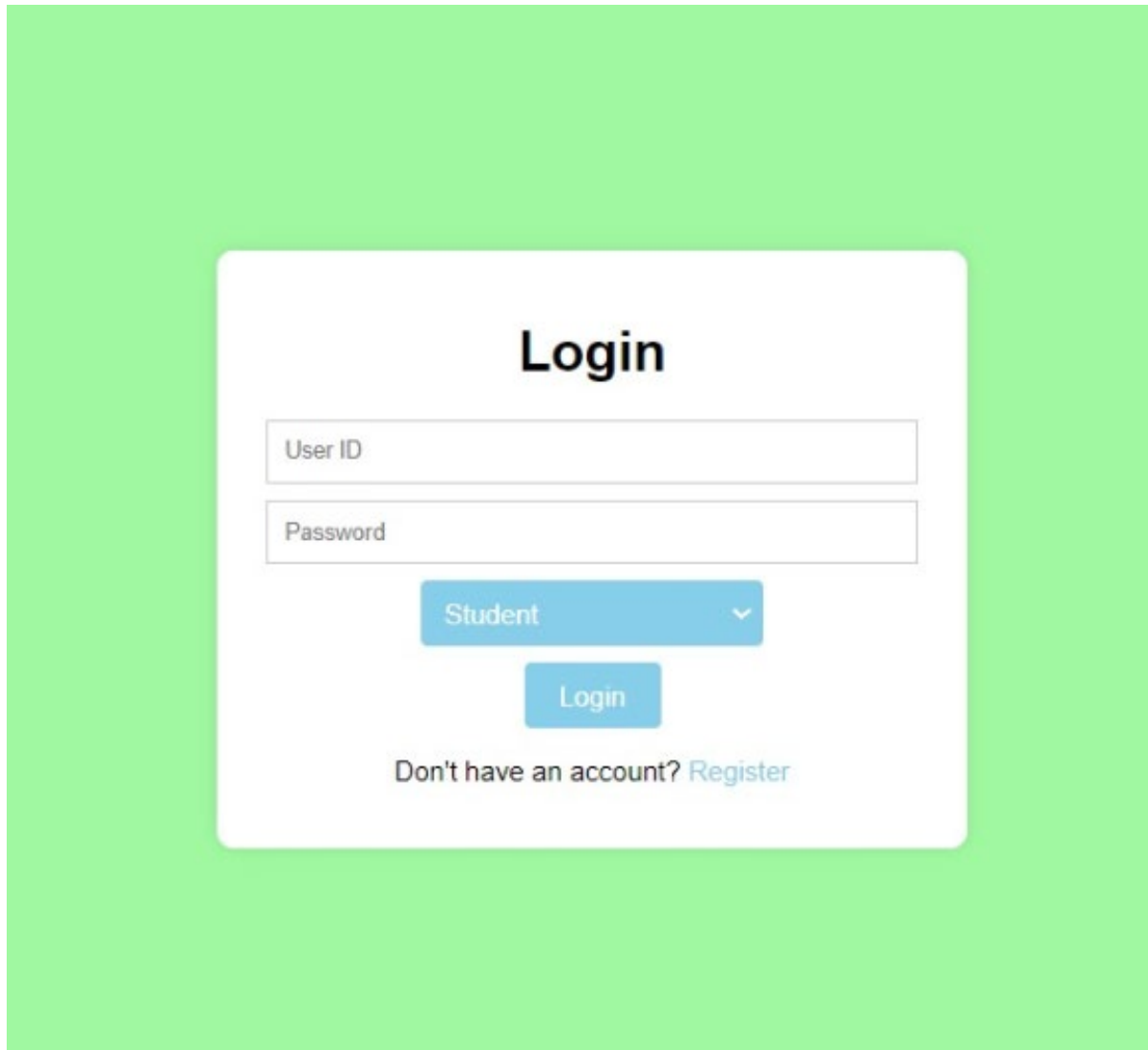


Figure 4: ERD



The image shows a login form centered on a solid green background. The form is a white rounded rectangle with the title "Login" in bold black text at the top. Below the title are two input fields: "User ID" and "Password". Under the "Password" field is a blue dropdown menu with "Student" selected and a downward arrow. Below the dropdown is a blue "Login" button. At the bottom of the form, it says "Don't have an account? [Register](#)".

Login

User ID

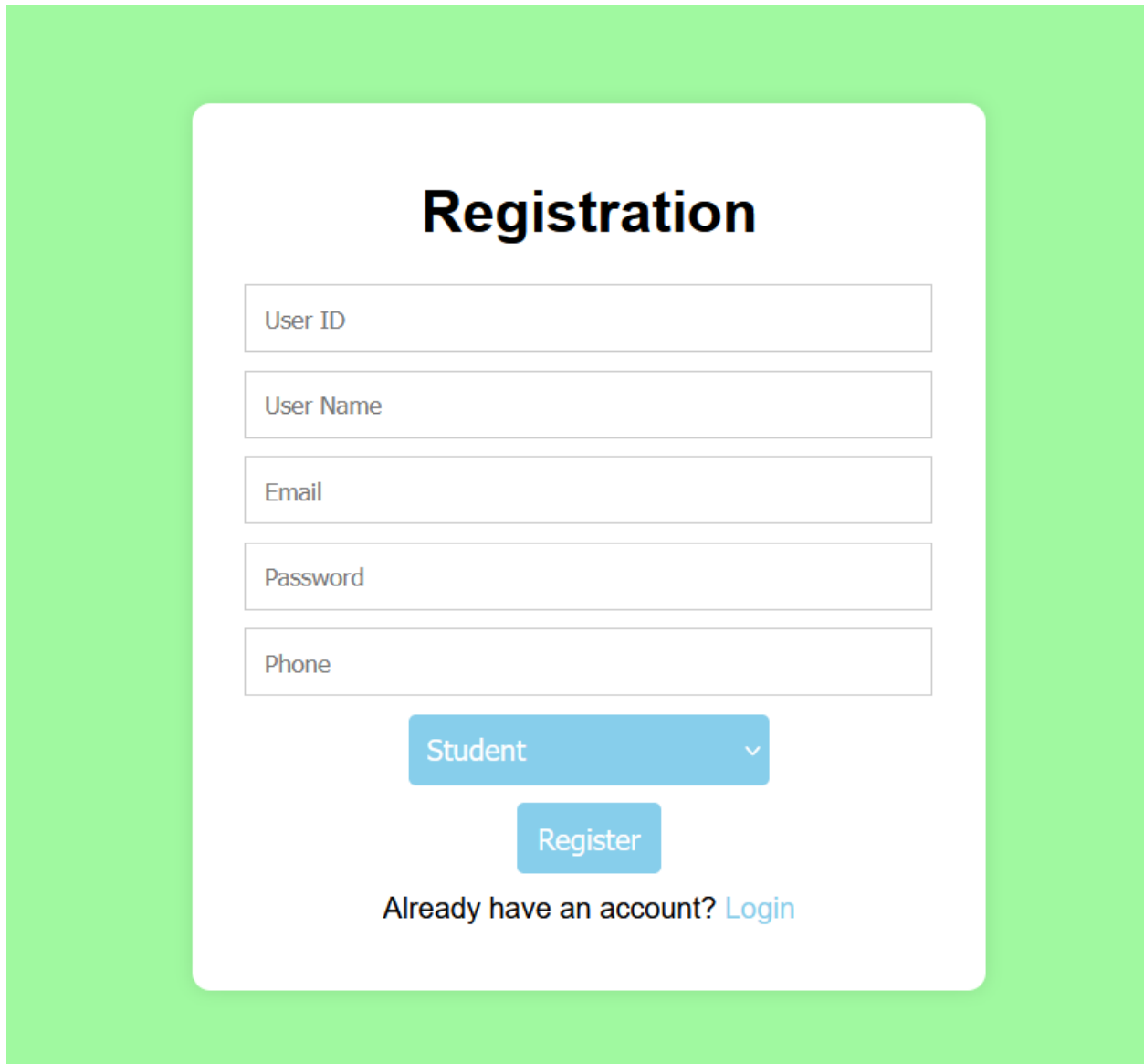
Password

Student ▼

Login

Don't have an account? [Register](#)

Figure 5: Login

A registration form is centered on a light green background. The form is a white rounded rectangle with the title "Registration" in bold black text at the top. Below the title are five input fields: "User ID", "User Name", "Email", "Password", and "Phone", each with its label inside the field. Below these fields is a blue dropdown menu showing "Student" with a downward arrow. Under the dropdown is a blue "Register" button. At the bottom of the form, the text "Already have an account?" is followed by a blue "Login" link.

Registration

Student ▾

Register

Already have an account? [Login](#)

Figure 6: Registration



Figure 7: Student Dashboard

Welcome, Teacher!

Publish New Book

Book Name

Publisher

Description

Book URL

Add Book

Search Books

Search...

Search

Search Results

Book ID	Book Name	Publisher	Description	Date Published	Book URL

Logout

Figure 8: Teacher Dashboard

Welcome, Admin!

Manage Books

Books

Book ID	Book Name	Teacher Name	Book URL	Book Request	Update Request	Remove Book
1	Book A	Teacher 1	http://bookurl.com	1	<input type="radio"/> Approve <input type="radio"/> Reject <button>Submit</button>	<button>Remove</button>

Manage Members

Manage Students

Student ID	Student Name	Access Status	Update Access	Remove Student
1	Student A	0	<input type="radio"/> Blocked <input type="radio"/> Not Blocked <button>Update</button>	<button>Remove</button>

Manage Teachers

Teacher ID	Teacher Name	Access Status	Update Access	Remove Teacher
1	Teacher A	0	<input type="radio"/> Blocked <input type="radio"/> Not Blocked <button>Update</button>	<button>Remove</button>

Search Books

Search Results

Book ID	Book Name	Publisher	Description	Date Published	Book URL

Logout

Figure 9: Admin Dashboard

4 Test cases

Test case	Pre-condition	Test data	Steps to be executed	output	
1. Validate error message for an unregistered user	A user must be on the login page	Unregistered user id : 12222 Password – test00	1. Open log in page 2. Enter an unregistered user id 3. Enter password 4. Click on sign-in button	Expected result	Actual result
				An error message should display for user id and password fields and user should not be allowed to log in	user is not able to log in and the error message appears, so it is : success
2. new user cannot login to system until admin approve (unblock) him	A user must be on the login page A user register with any new id and password , example: user id : 888 Password – test01	user id : 888 Password – test01	1. Open log in page 2. Enter a newly registered user id 3. Enter password 4. Click on sign-in button	Expected result	Actual result
				An error message should display for user id and password fields and user should not be allowed to log in	user is not able to log in and the error message appears, so it is : success
3. new book cannot be added to system until admin approve (unblock) it	A user must be teacher dashboard	Book Id: 99 Book Name:99 Book URL:99 description :99 publisher:99	1. Open log in page 2. log in as a teacher	Expected result	Actual result
				When you search for Book it	Book doesnot appear on system

			3. Enter book details	doesnot appear	until admin approve	
			4. Click Add Book	until admin approve (unlock) it	(unlock) it, so it is : success	