

Software Requirements Specification Document

IS2106_System Analysis & Design



Group No: 41

Group Name: APEX

Department of Computing & Information Systems

Faculty of Computing

Sabaragamuwa University of Sri Lanka

APPROVAL OF SRS

Team Details:

Index	Name	Email	Mobile No
21CIS0059	PC AMARASINGHA	pcamarasingha@std.foc.sab.ac.lk	076-4685680
21CIS0137	GB NIMTHERA	gbnimthera@std.foc.sab.ac.lk	077-9513850
21CIS0209	LNGY AVISHKI	lngyavishki@std.foc.sab.ac.lk	076-8761217

- **Title of the Project: Online System for National School Libraries**
- **Document: Software Requirements Specification**
- **Name of the Mentor: Mr. HMKT Gunawardhana**
- **Group Name: APEX**
- **Published on: 08/04/2024**

For office use only:

- Approved/Not approved
- Signature of the Mentor:
- Date:
- Suggestions if any:

Contents

1. Introduction.....	6
1.1. Purpose:.....	6
1.2. Scope:.....	6
1.3. Intended Audience and Reading Suggestions:.....	6
1.4. References:.....	6
2. Overall Description.....	7
2.1. Product Perspective:.....	7
2.2. Product Features:.....	7
• Catalog Management-	7
• User Management-	7
• Search and Request-.....	7
• Borrowing and Returns-	7
• Reporting-.....	7
2.3. User Classes and Characteristics:.....	8
• Librarians –	8
• Teachers –	8
• Students –	8
2.4. Operating Environment:.....	9
2.5. Design and Implementation Constraints:.....	9
2.6. Assumptions and Dependencies:.....	10
2.7. System Features:	10
I. User Registration and Authentication	10
II. User Roles and Permissions	10
III. Catalog Management	10
IV. Book Search and Discovery.....	10
V. Book Borrowing and Reservations	10
VI. Book Availability and Due Dates	10
VII. User Profile and History.....	10
VIII. Book Reviews and Ratings	11
IX. Notifications and Reminders	11

X. Reporting and Analytics	11
XI. Integration with external systems	11
XII. Accessibility and Multilingual Support.....	11
XIII. Security and privacy	11
XIV. System Administration	11
2.8. External Interface Requirements	12
I. User Interfaces.....	12
II. Hardware Interfaces	12
III. Software Interfaces	12
IV. Communications Interfaces	13
2.9. Other Nonfunctional Requirements:	14
I. Performance Requirements	14
II. Safety Requirements	14
III. Security Requirements.....	14
IV. Software Quality Attributes.....	14
3.System Design	15
3.1. User Cases Diagram	15
3.2 ER Diagram.....	16
3.3 Block Diagram	17
4. User Interfaces	18
4.1 Home Page	18
4.2 Login Page.....	19
4.3 Sign Up Page.....	20
4.4 Profile Page	21
4.5 Read and Get Page	22
4.6 About Us Page.....	23
4.7 Material Information Page	23
4.8 Services Page.....	24

Revision History

Name	Date	Reason For Changes	Version
Req. gathering	08/04/2024	Gathering & analyzing software requirements specification.	1
System analysis	17/04/2024	Inserting in depth analysis with necessary diagrams.	2
UI/ UX design	29/04/2024	User Interface	3

1. Introduction

1.1. Purpose:

Our main objective in providing this document is to develop an online system for government national school libraries and provide a detailed report on the same. It outlines the goals, features and constraints of the system.

1.2. Scope:

Here, the aim is to build a suitable environment for the management of physical resources (ex: books, journals, and other educational materials) in the library. There, all stakeholders from top to bottom (e.g., students, teachers and librarians) can access library catalogs to find and request materials, as well as manage borrowings and returns.

1.3. Intended Audience and Reading Suggestions:

Our team here specifically refers to project stakeholders as well as everyone involved in designing, building and implementing an online system for national school libraries.

We would recommend reading the entire document to get a comprehensive and thorough understanding of the online project.

1.4. References:

Non

2. Overall Description

2.1. Product Perspective:

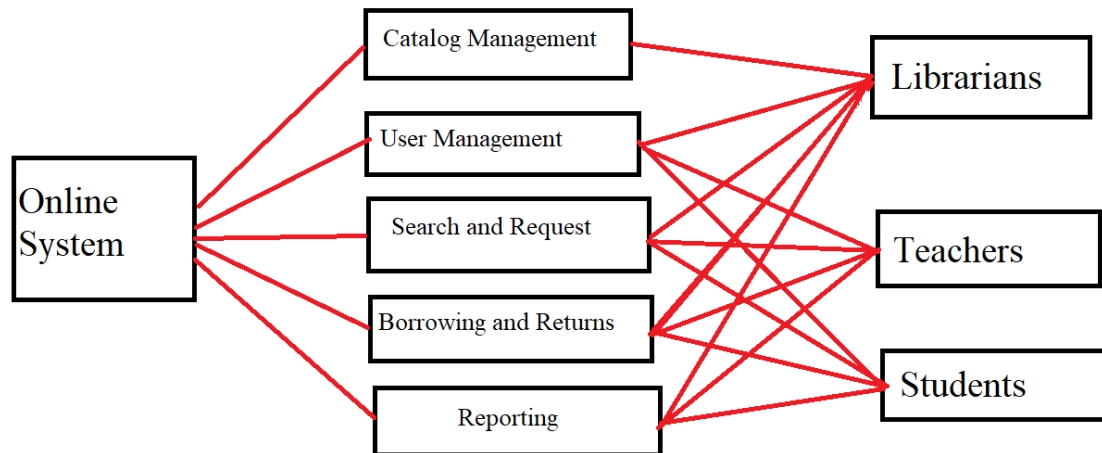
This online system will be an independent system related to the existing library management system as well as interconnected with the existing quality and information database in the National School Library.

Efforts will be made to provide an efficient and user-friendly interface through which users can access library information.

2.2. Product Features:

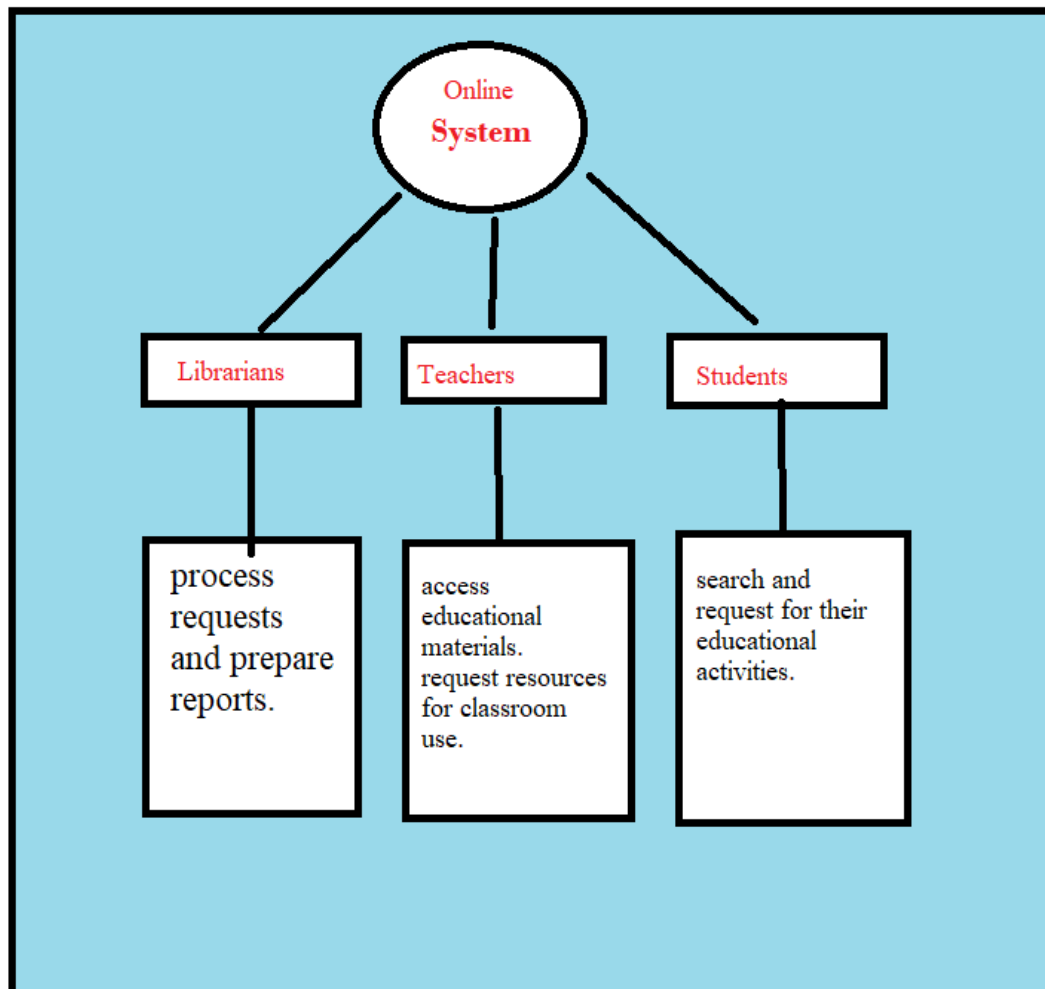
Here we have divided the product remove into several parts.

- **Catalog Management-**
This includes features for librarians to add, update ,and delete library resources including books, journals ,and other educational materials.
- **User Management-**
Registration and authentication activities for librarians, teachers and students can be done through this section.
- **Search and Request-**
Users can access the library catalog to search and request material for borrowing to see its availability.
- **Borrowing and Returns-**
The system will help not only in time management, notification of due dates but also in activities like borrowings and repayments.
- **Reporting-**
The system provides reports on the usage of the resources available in the library and the related statistics of expired items and others.



2.3. User Classes and Characteristics:

- **Librarians –**
Those involved in the basic operations of the library will use these systems to manage the catalog, process requests, and prepare reports.
- **Teachers –**
You can use this system to easily access educational materials and request resources for classroom use.
- **Students –**
Will use the system to search for and request library resources needed for their educational activities.



2.4. Operating Environment:

It is built web-based by us and can be accessed through standard web browsers. Likewise, a reliable Internet connection is essential for user access and interaction.

2.5. Design and Implementation Constraints:

- The system should be designed to handle a large number of users.
- The system should be adapted to be scalable over time and expand as future growth requires.
- The system should be compatible with the web browsers most commonly used by users

2.6. Assumptions and Dependencies:

It is assumed that there are appropriate devices and internet connections to access this system.

It is also assumed that the necessary interfaces and APIs will be provided to integrate existing library management systems and databases with the designed system.

2.7. System Features:

I. User Registration and Authentication

- Permit users to register and create accounts, including instructors, librarians, and students.
- Give users access to safe authentication methods to safeguard their accounts.

II. User Roles and Permissions

- Many positions, including those of administrators, teachers, librarians, and students.
- Give each position the necessary rights to manage system operation and access.

III. Catalog Management

- Give librarians the ability to add, edit, and remove books from the library catalog.
- Encourage the grouping and arrangement of books according to different standards.

IV. Book Search and Discovery

- Give users the ability to search for books using keywords, authors, titles, and other criteria. To improve book discovery, provide sophisticated search features, including filters, sorting, and recommendations.

V. Book Borrowing and Reservations

- Permit patrons to check out books from the library, along with the length of the borrowing.
- Put in place a reserve mechanism for books that aren't available right now.

VI. Book Availability and Due Dates

- Show the current availability status of books in real-time, such as reserved, on loan, and available.
- Notify users when books are past due and about impending deadlines.

VII. User Profile and History

- Give users the ability to edit and modify their profiles, including their reading choices and personal data.

- Keep track of the books that users have borrowed in the past by keeping a borrowing history.

VIII. Book Reviews and Ratings

- Give people the option to rate and evaluate the books they have read.
- Show average reviews and ratings to assist consumers in making wise choices.

IX. Notifications and Reminders

- Notify users automatically when there are a variety of occurrences (e.g., a reserved book is available and the due date is nearing).

X. Reporting and Analytics

- Provide statistics and data about the use of books, popular genres, user preferences, etc. Guide on decision-making and library management.

XI. Integration with external systems

- Integrate with external systems to synchronize data, such as learning management systems or student information systems.

XII. Accessibility and Multilingual Support

- Make sure people with disabilities can access the system.
- Support several languages to serve a range of user demographics.

XIII. Security and privacy

- Put strong security measures in place to guard user information and stop illegal access.
- Respect applicable privacy and data protection laws.

XIV. System Administration

- Provide system settings, roles, and user account administration tools.
- Permit administrators to set up parameters and alter system behavior.

2.8. External Interface Requirements

I. User Interfaces

When you access the web page through a web browser, you can see two basic buttons called sign up and sign in. Accordingly, if you have not registered before, you can sign up, and if you are already registered, you can get access by visiting sign-in.

A sketch is given below to get a rough idea.

Welcome To E-library

Sign In **Sign Up**

User Name :
Enter your Name

Password :
Enter your password
[Forgot password ?](#)

- Sign in
- Sign up
- User name
- E-mail
- Password
- User Registration
- Book details

II. Hardware Interfaces

- Smart Phone/ Desktop or Laptop
- Wi-Fi Router

III. Software Interfaces

- OS- Android
- MS windows

IV. Communications Interfaces

- Wireless Communication Interface (Wi-Fi)

2.9. Other Nonfunctional Requirements:

I. Performance Requirements

- Creating the target load time for key pages like the homepage, book search results, and the online reader.
- Creating a specified response time for book searches based on key words, titles or authors.
- Considering large datasets by implementing efficient search algorithms.
- Defining acceptable download times for e-books or online reading resources.

II. Safety Requirements

- Showing, how to handle the system's errors during searches, booking or reading.
E.g. Display user-friendly errors and provide options to retry the previous page.
- Specifying book bookings, account creation, and search queries.

III. Security Requirements

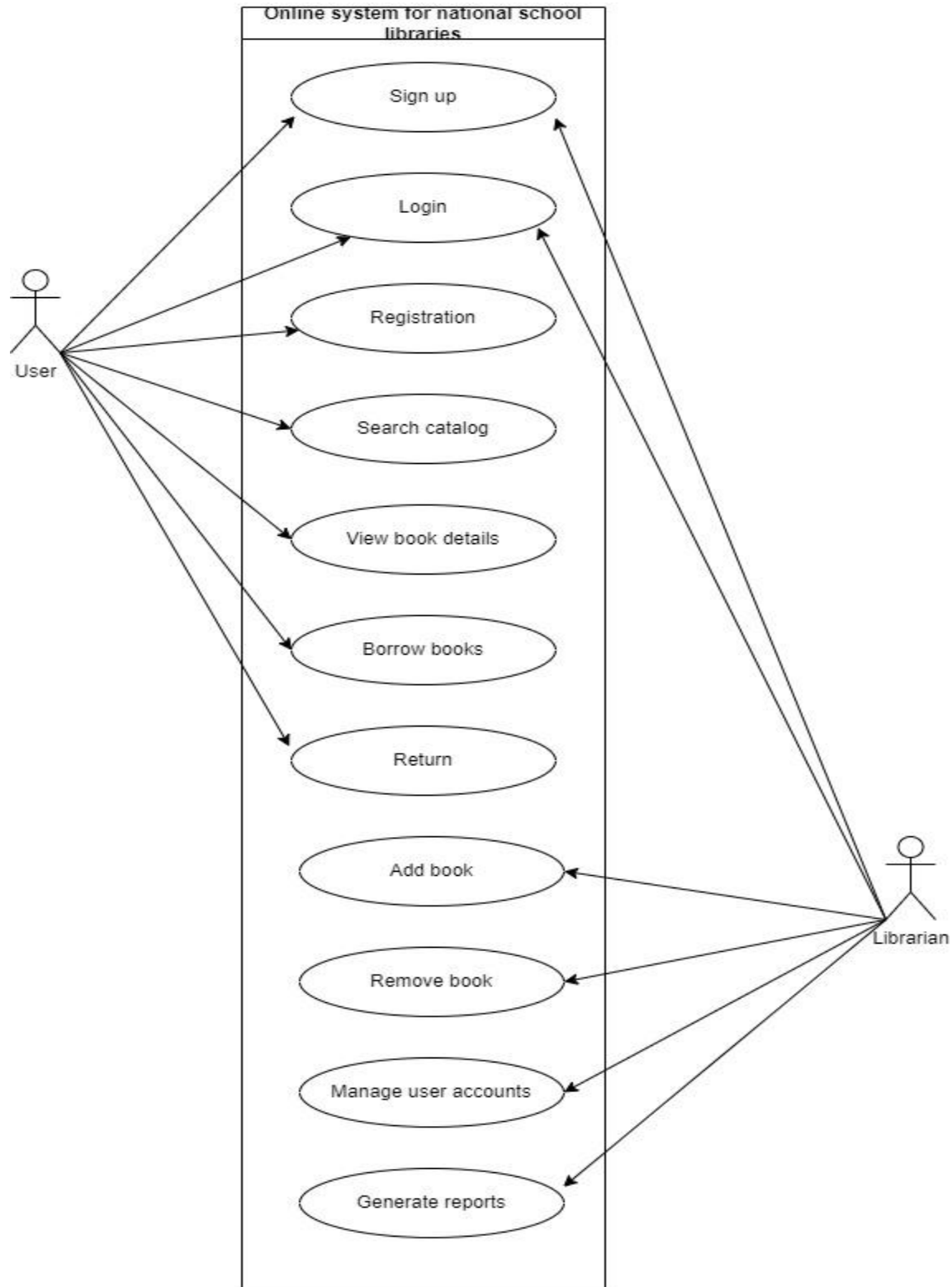
- Create security method for sensitive data like user information and book content is store , transmitted securely.
- Create user-authentication methods for teachers and students. Then create a login with username and password integration with school credentials.
- Specify access control levels for different user roles.

IV. Software Quality Attributes

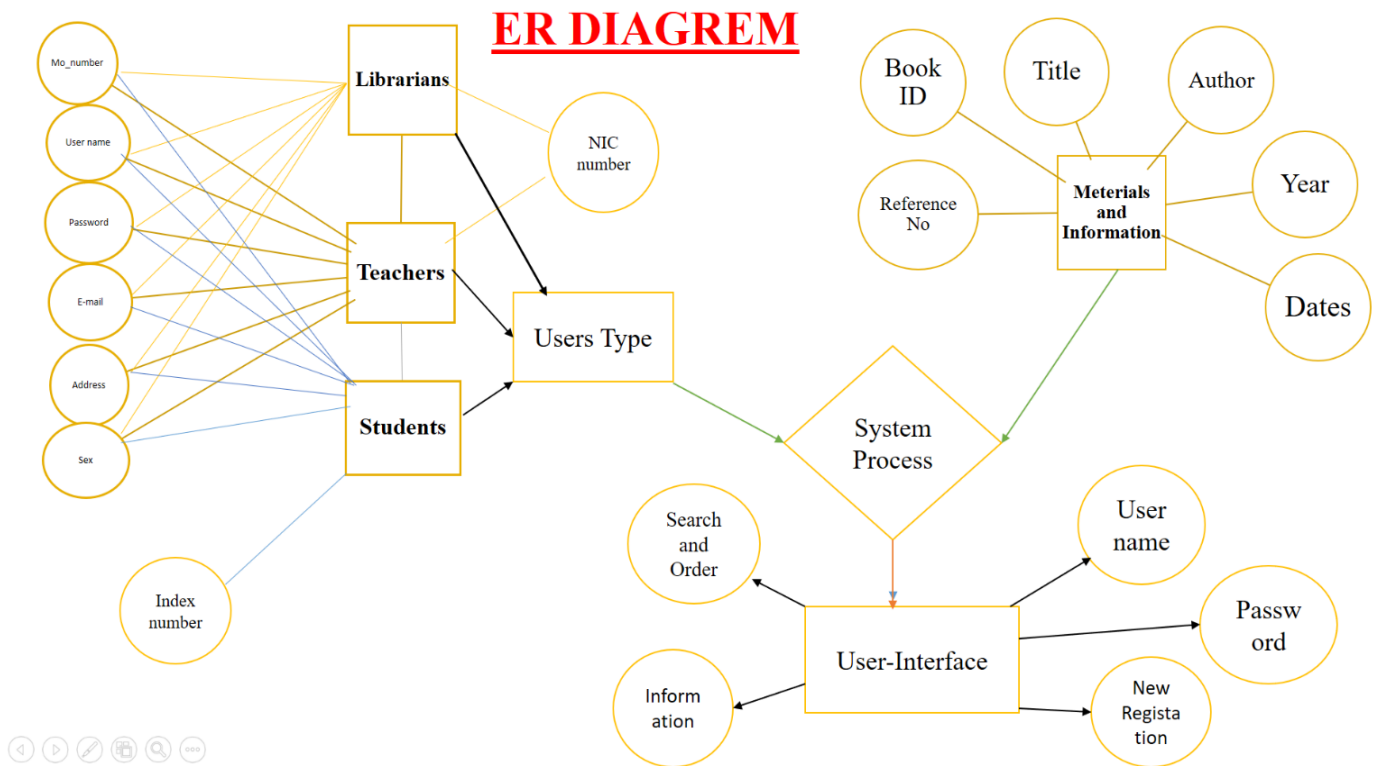
- Design a user-friendly interface for both teachers and students.
- Write clean, well-documented code. That's easy to understand and modify.
- Design the system to accommodate future growth in a number of users, books ,and online resources.

3.System Design

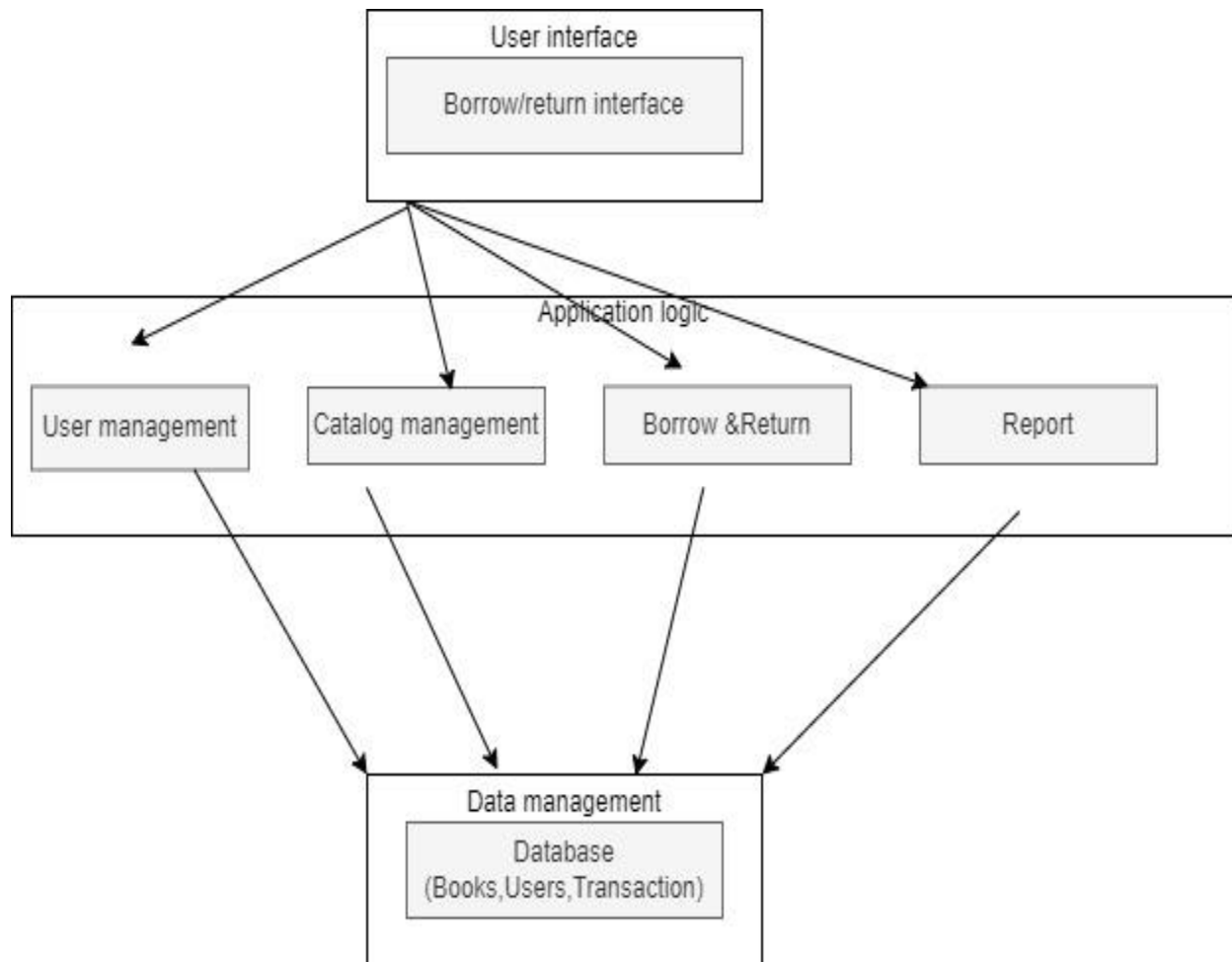
3.1. User Cases Diagram



3.2 ER Diagram

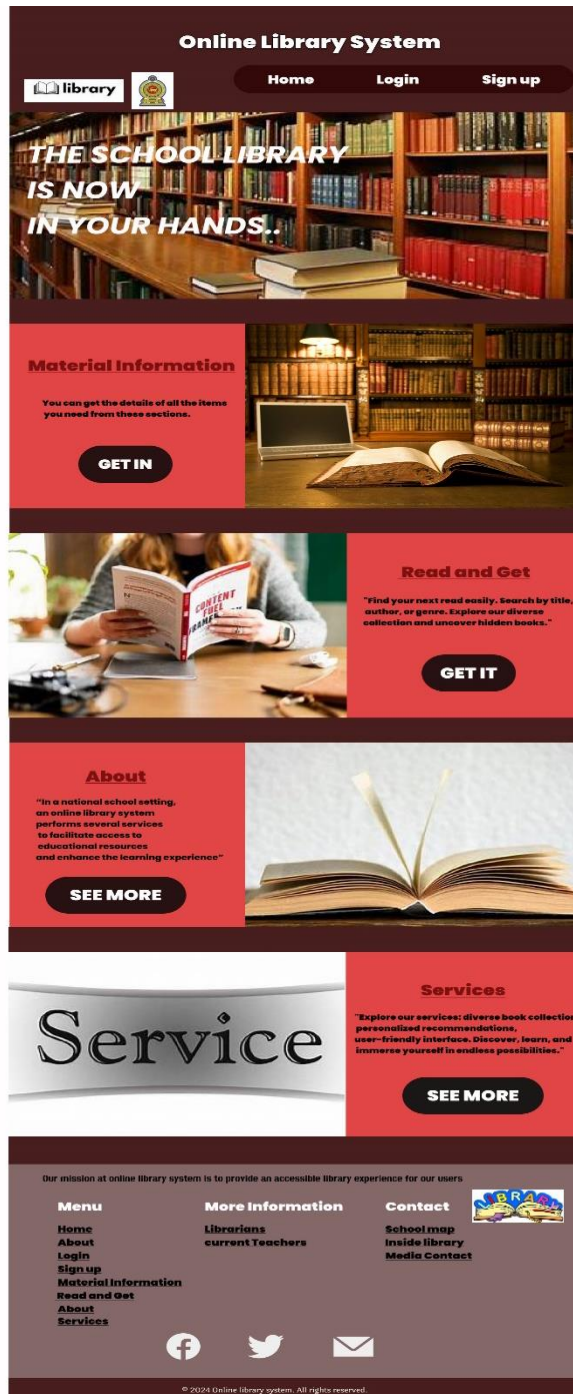


3.3 Block Diagram



4. User Interfaces

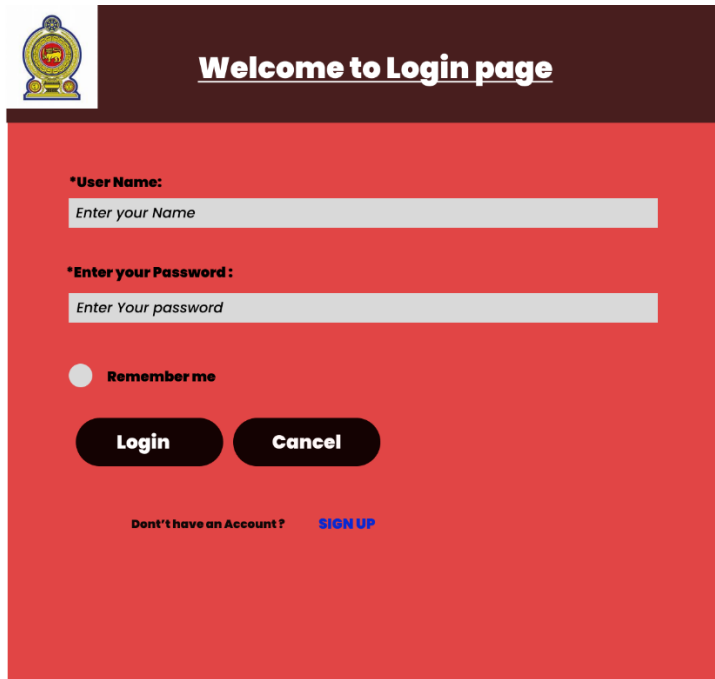
4.1 Home Page



This is our home page. Here, the user can select material and read it. Then user can get information about our website using "About" page. Users can take good knowledge about our website clicking "Services".

Figure 1 – Website

4.2 Login Page



Welcome to Login page

***User Name:**
Enter your Name

***Enter your Password :**
Enter Your password

☐ Remember me

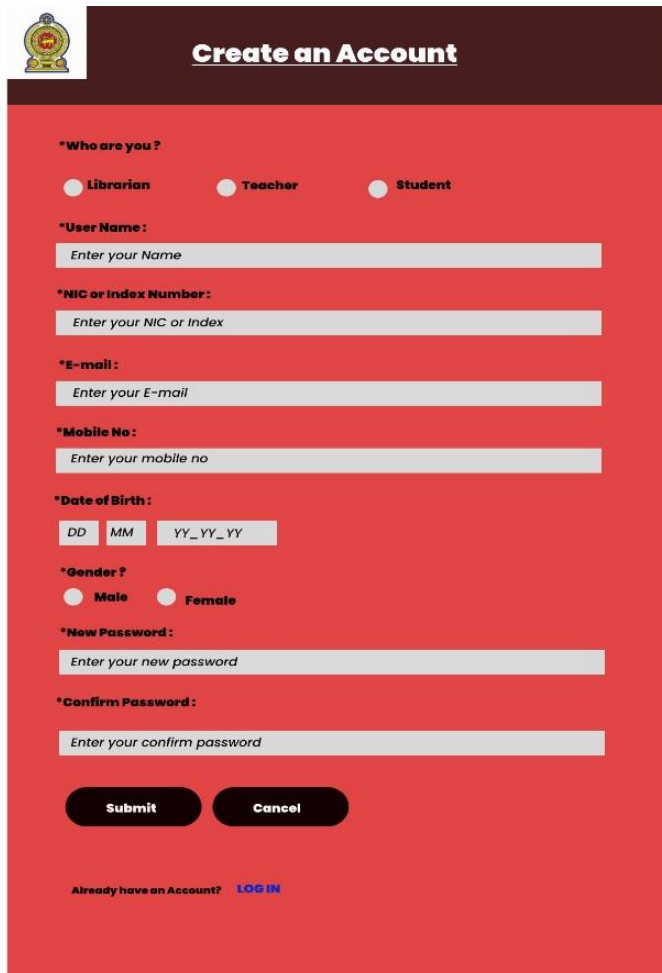
Login **Cancel**

Dont't have an Account ? [SIGN UP](#)

Here, the user (Teacher, Student or librarian) should enter his username/email and password, confirm password to enter the database from his end.

Figure 2 – Website

4.3 Sign Up Page



The screenshot shows a web form titled "Create an Account" with a red background. At the top left is a small logo. The form contains the following fields and options:

- *Who are you ?**: Three radio button options: ☐ Librarian, ☐ Teacher, and ☐ Student.
- *User Name :**: A text input field with the placeholder "Enter your Name".
- *NIC or Index Number :**: A text input field with the placeholder "Enter your NIC or Index".
- *E-mail :**: A text input field with the placeholder "Enter your E-mail".
- *Mobile No :**: A text input field with the placeholder "Enter your mobile no".
- *Date of Birth :**: Three separate input fields for "DD", "MM", and "YY_YY_YY".
- *Gender ?**: Two radio button options: ☐ Male and ☐ Female.
- *New Password :**: A text input field with the placeholder "Enter your new password".
- *Confirm Password :**: A text input field with the placeholder "Enter your confirm password".

At the bottom of the form are two buttons: "Submit" and "Cancel". Below the buttons, there is a link: "Already have an Account? [LOG IN](#)".

Here, the user can create an account. User should enter his/her information and enter password. Then she/he can create an account for our website.

Figure 3 – Website

4.4 Profile Page

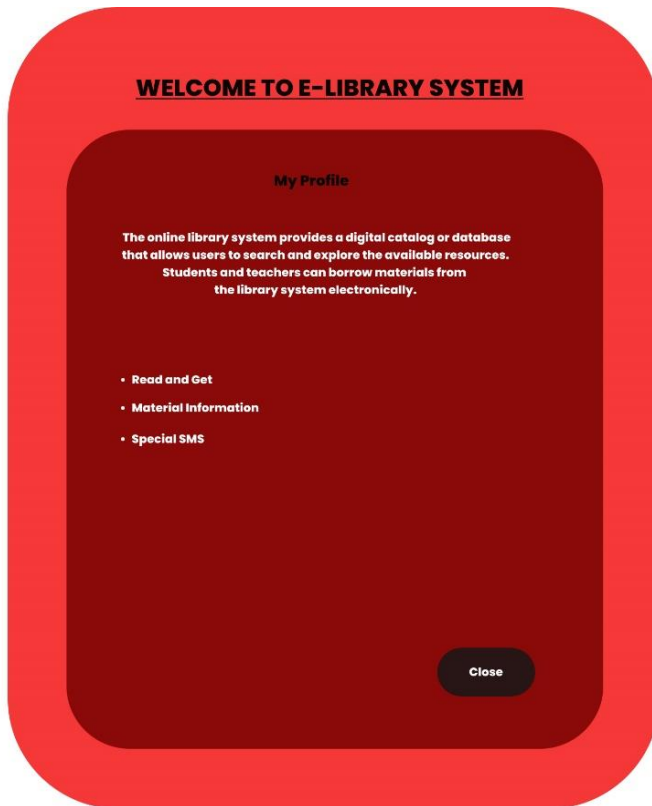
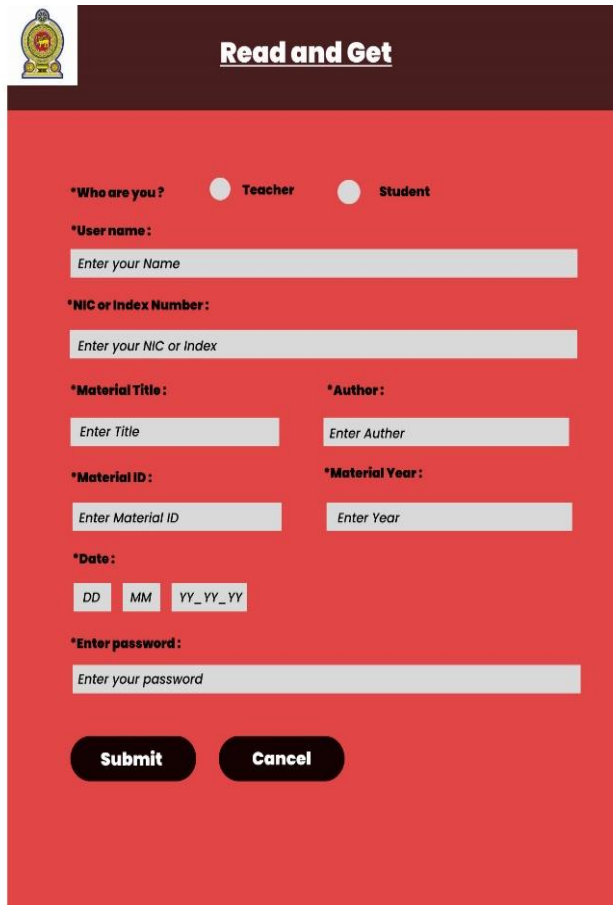


Figure 4 – Website

4.5 Read and Get Page



The screenshot shows a web form titled "Read and Get" with a dark red header. The form is on a red background and includes the following fields and controls:

- *Who are you?**: Two radio buttons for "Teacher" and "Student".
- *User name:**: A text input field with placeholder "Enter your Name".
- *NIC or Index Number:**: A text input field with placeholder "Enter your NIC or Index".
- *Material Title:**: A text input field with placeholder "Enter Title".
- *Author:**: A text input field with placeholder "Enter Author".
- *Material ID:**: A text input field with placeholder "Enter Material ID".
- *Material Year:**: A text input field with placeholder "Enter Year".
- *Date:**: Three small input fields for "DD", "MM", and "YY_YY_YY".
- *Enter password:**: A text input field with placeholder "Enter your password".
- Submit** and **Cancel** buttons at the bottom.

Here, the user can order books. Before, user should enter username, index number, Material title are some details. Then user can submit and order books.

Figure 5 – Website

4.6 About Us Page

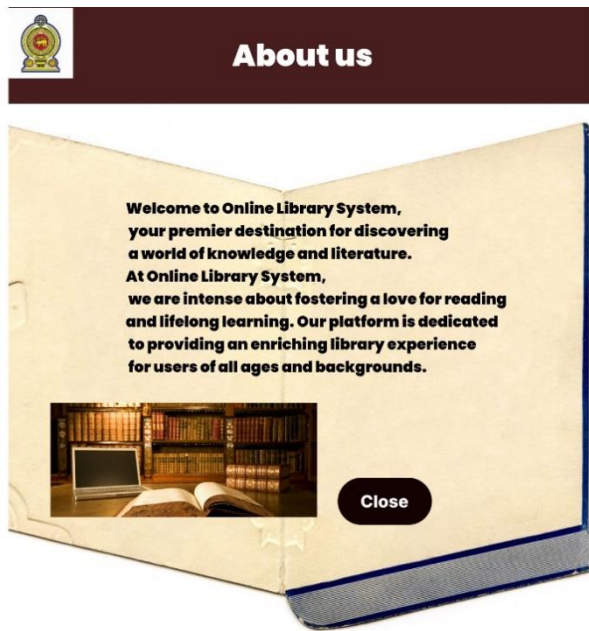


Figure 6 – Website

Here, the user can take good ideas about our website.

4.7 Material Information Page

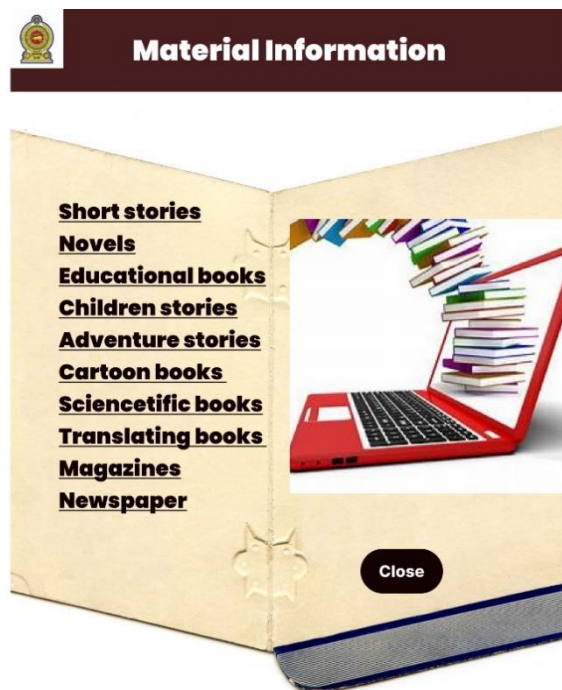
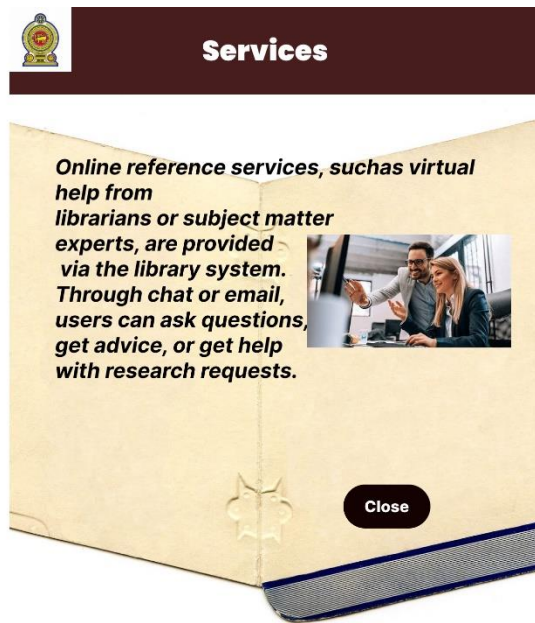


Figure 7 – Website

This page shows our book materials. The user can select their needs and talk knowledge about this contents of our website.

4.8 Services Page



In this page shows our services.

Figure 8 – Website

You can access to the Figma UI using this link –

<https://www.figma.com/file/YHxzGSG1W4FWOIRJ6Ip7wo/Untitled?type=design&node-id=0%3A1&mode=design&t=Ms3Yp62U8ZWtnTB3-1>