

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
JNANA SANGAMA, BELAGAVI-590018



**A DBMS MINI PROJECT REPORT
ON**

“E-LIBRARY MANAGEMENT”

**A PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE DEGREE OF**

**BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE & ENGINEERING**

SUBMITTED BY

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**RAJIV GANDHI INSTITUTE OF TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**Cholanagar, R.T.Nagar Post, Bengaluru-560032
2020-2021**

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

(Affiliated To Visvesvaraya
Technological University) Cholanagar,
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Department of Computer Science Engineering



CERTIFICATE

This is to certify that the DBMS Mini Project Report entitled “**E-LIBRARY MANAGEMENT**” is a bonafide work carried out by **Ms. ANUSHA K BHAT (1RG18CS003)** & **Ms. FAIQUA RAHMAN (1RG18CS017)** in partial fulfillment for the award of **Bachelor of Engineering in Computer Science Engineering** under **Visvesvaraya Technological University, Belgavi**, during the year **2020-2021**. It is certified that all corrections/suggestions given for Internal Assessment have been incorporated in the report. This Mini Project report has been approved as it satisfies the academic requirements in respect of seminar work.

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY
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**RAJIV GANDHI INSTITUTE OF
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**DEPARTMENT OF COMPUTER SCIENCE &
ENGINEERING**



DECLARATION

I hereby declare that the mini project work entitled **“E-LIBRARY MANAGEMENT”** submitted to the Visvesvaraya Technological University, Belagavi during the academic year **2020-2021**, is record of an original work done by us under the guidance of **Mrs. Pushplata Dubey** , Assistant Professor, Department of Computer Science and Engineering, Rajiv Gandhi Institute of Technology, Bengaluru and this project work is submitted in the partial fulfillment of requirements for the award of the degree of **Bachelor of Engineering in Computer Science & Engineering**. The results embodied in this thesis have not been submitted to any other University or Institute for award of any degree or diploma.

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ABSTRACT

Online Library Management System is a system which maintains the information about the books present in the library, their authors, the members of library to whom books are issued, library staff and all. This is very difficult to organize manually. Maintenance of all this information manually is a very complex task. Owing to the advancement of technology, organization of an Online Library becomes much simple. The Online Library Management has been designed to computerize and automate the operations performed over the information about the members, book issues and returns and all other operations. This computerization of library helps in many instances of its maintenances. It reduces the workload of management as most of the manual work done is reduced

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CHAPTER1

INTRODUCTION

1.1 Project Overview

The project “E-Library Management System” is developed in php, which mainly focuses on basic operations in a library like adding new books, and updating new information, searching books and members and return books.

This project of “LIBRARY MANAGEMENT” of gives us the complete information about the library. We can enter the record of new books and retrieve the details of books available in the library. We can issue the books to the students and maintain their records and can also check how many books are issued in the library

Throughout the project the focus has been on presenting information and comments in an easy and intelligible manner.

1.2 Background of Project

E-Library Management System is an application which refers to library systems which are generally small or medium in size. It is used by librarian to manage the library using a computerized system where he/she can add new books, update balance of members and manages member sign-up and books borrowed Books and student maintenance modules are also included in this system which would keep track of the students using the library and also a detailed description about the books a library contains. With this computerized system there will be no loss of book record or member record which generally happens when a non computerized system is used. All these modules are able to help librarian to manage the library with more convenience and in a more efficient way as compared to library systems which are not computerized.

1.3 Scope Of The Project

Any education institute can make use of it for providing information about author, content of the available books. It can be used in offices and modifications can be easily done according to requirements. This application can be easily implemented under various situations. We can add new features as and when we require. Reusability is possible as and when require in this application. There is flexibility in all the modules

There is a future scope of this facility that many more features such as online lectures video tutorials can be added by teachers as well as online assignments submission facility, a feature Of group chat where students can discuss various issues of engineering can be added to this project thus making it more interactive more user friendly and project which fulfills each users need in the best way possible

1.4 Aim and Objective of the Project

The project aims and objectives that will be achieved after completion of this project are mentioned below:

- Online book reading.
- A librarian login page where librarian can add books, update balance.
- A librarian login page where librarian can grant and reject member and book request

CHAPTER2

REQUIREMENT SPECIFICATIONS

2.1 Details of Software and Languages

2.1.1 Introduction to PHP

PHP is a recursive acronym for "PHP: Hypertext Preprocessor". PHP is a server side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites. It is integrated with a number of popular databases, including MySQL, PostgreSQL, Oracle, Sybase, Informix, and Microsoft SQL Server. PHP is pleasingly zippy in its execution, especially when compiled as an Apache module on the Unix side. The MySQL server, once started, executes even very complex queries with huge result sets in record-setting time. PHP supports a large number of major protocols such as POP3, IMAP, and LDAP. PHP4 added support for Java and distributed object architectures (COM and CORBA), making n-tier development a possibility for the first time. PHP is forgiving: PHP language tries to be as forgiving as possible.

2.1.2 Introduction to MYSQL

MySQL Workbench simplifies database design and maintenance, automates time-consuming and error-prone tasks, and improves communication among DBA and developer teams. It enables data architects to visualize requirements, communicate with stakeholders, and resolve design issues before a major investment of time and resources is made. It enables model-driven database design, which is the most efficient methodology for creating valid and well-performing databases, while providing the flexibility to respond to evolving business requirements. Model and Schema Validation utilities enforce best practice standards for data modeling, also enforce MySQL-specific physical design standards so no mistakes are made when building new ER diagrams or generating physical MySQL databases. MySQL database connection with JavaScript is simple and easy with Node.js.

2.1.3 Introduction to CSS

Cascading Style Sheets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable. CSS handles the look and feel part of a web page. Using CSS, we can control the color of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background images or colors are used, layout designs, variations in display for different devices and screen sizes as well as a variety of other effects. CSS is easy to learn and understand but it provides powerful control over the presentation of an HTML document. Most commonly, CSS is combined with the markup languages HTML or XHTML.

2.2 System Requirements

2.2.1 Hardware Interface

- A Visual Display unit such as a Monitor
- Intel Pentium or AMD-64 instruction set supporting processor such as AMD A series
- APUs or Intel Core Processor having a clock speed of at least 2.0 GHz
- At least 100 MB of additional free memory or RAM
- At least 80 GB Hard Disk Drive

2.2.2 Software Interface

- Client on Internet: Web Browser,
- Operating System (any)
- Web Server: XAAMP Server and PHPmyadmin
- Data Base Server: MySQL
- Front End: HTML, CSS, PHP
- Back End: MYSQL

2.2.3 Tools Used

❖ **Xampp:**

○ **Apache:**

- (Application Server) Apache , often referred to as Server, is an open- source Java Servlet Container developed by the Apache Software Foundation.

○ **My SqlServer:**

- It handles large databases much faster than existing solutions.
- It consists of multi-threaded SQL server that supports different back ends, several different client programs and libraries, administrative tools, and application programming interfaces (APIs)
- Its connectivity, speed, and security make MySQL Server highly suited for accessing databases on the Internet.

❖ **Visual studio code:** is a streamlined code editor with support for development operations like debugging, task running, and version control. It aims to provide just the tools a developer needs for a quick code-build-debug cycle and leaves more complex workflows to fuller featured IDEs, such as Visual Studio IDE.

❖ **Web browsers:** Google Chrome, Mozilla Firefox, Opera and Internet Explorer.

❖ **Phpmy Admin:** phpMyAdmin is an open-source software tool which is written in PHP. Basically, it is a third-party tool to manage the tables and data inside the database. phpMyAdmin supports various type of operations on **MariaDB** and **MySQL**. The main purpose of phpMyAdmin is to handle the administration of MySQL over the web.

CHAPTER 3

SYSTEM DESIGN

3.1 Schema Diagram

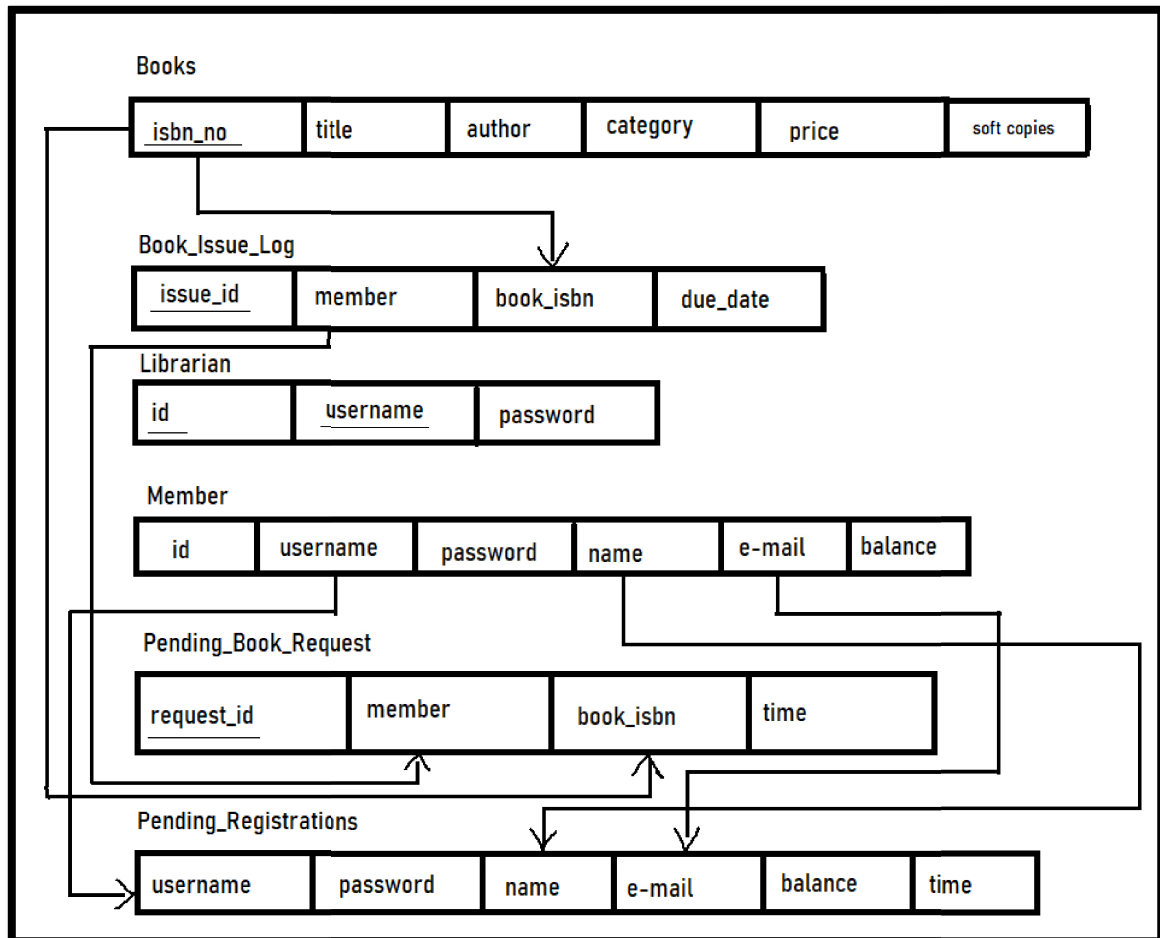


figure 3.1 schema diagram: A database schema is the skeleton that represents the logical view of the entire database. It defines how the data is organized and how the relation among them are associated. It formulates all the constraints that are to be applied on the data. A database schema defines its entities are relationship among them. It contains a descriptive detail of the database, which can be depicted by means of schema diagrams. It's the database designer who design the schema to help programmer understand the database and make it useful.

Table 3.1.1:BOOKS

In BOOKS table there are six attributes namely: isbn, title, author, category, price, and copies. Among them isbn is the Primary Key

NAME	NULL	TYPE
Isbn	NOT NULL	CHAR(13)
Title		VARCHAR(80)
Author		VARCHAR(80)
Category		VARCHAR(80)
Price		INT(4)

Table 3.1.2 BOOK_ISSUE_LOG

In BOOK_ISSUE_LOG table there are four attributes namely: issue_id, member, book_isbn, due_date. Among them issue_id is the Primary Key and book_isbn is the foreign key

NAME	NULL	TYPES
Issue_id	NOT NULL	INT(11)
Member		VARCHAR(20)
Book_isbn		VARCHAR(13)
Due_date		DATE

Table3.1.3 LIBRARIAN

In LIBRARIAN table there are three attributes namely: ID, USERNAME and PASSWORD . Among them ID is the Primary Key and username is the foreign key.

NAME	NULL	TYPE
Id	NOT NULL	INT(11)
Username		VARCHAR(20)
password		CHAR(40)

Table 3.4 MEMBER

In MEMBER table there are six attributes namely: ID, USERNAME, PASSWORD, name, EMAIL and balance. Among them ID is the Primary Key and username the foreign key.

NAME	NULL	TYPE
Id	NOT NULL	INT(11)
Username		VARCHAR(20)
Password		CHAR(40)
Name		VARCHAR(80)
Email		VARCHAR(80)
balance		INT(4)

Table 3.5 PENDING_BOOK_REQUEST

In PENDING_BOOK_REQUEST table there are four attributes namely: request_id, member, book_isbn and time. Among them request id is the Primary Key.

NAME	NULL	TYPE
Request_id	NOT NULL	INT(11)
Member		VARCHAR(20)
Book_isbn		VARCHAR(13)
Time		TIMESTAMP

TABLE 3.6 PENDING_REGISTRATIONS

In PENDING_REGISTRATION table six are four attributes namely: username, password, name, email, balance and time. Among them username is the Primary Key. And name and email are the foreign keys.

NAME	NULL	TYPE
Username	NOT NULL	VARCHAR(20)
Password		CHAR(40)
Name		VARCHAR(80)
Email		VARCHAR(80)
Balance		INT(4)
Time		TIMESTAMP

3.2: ER Diagram

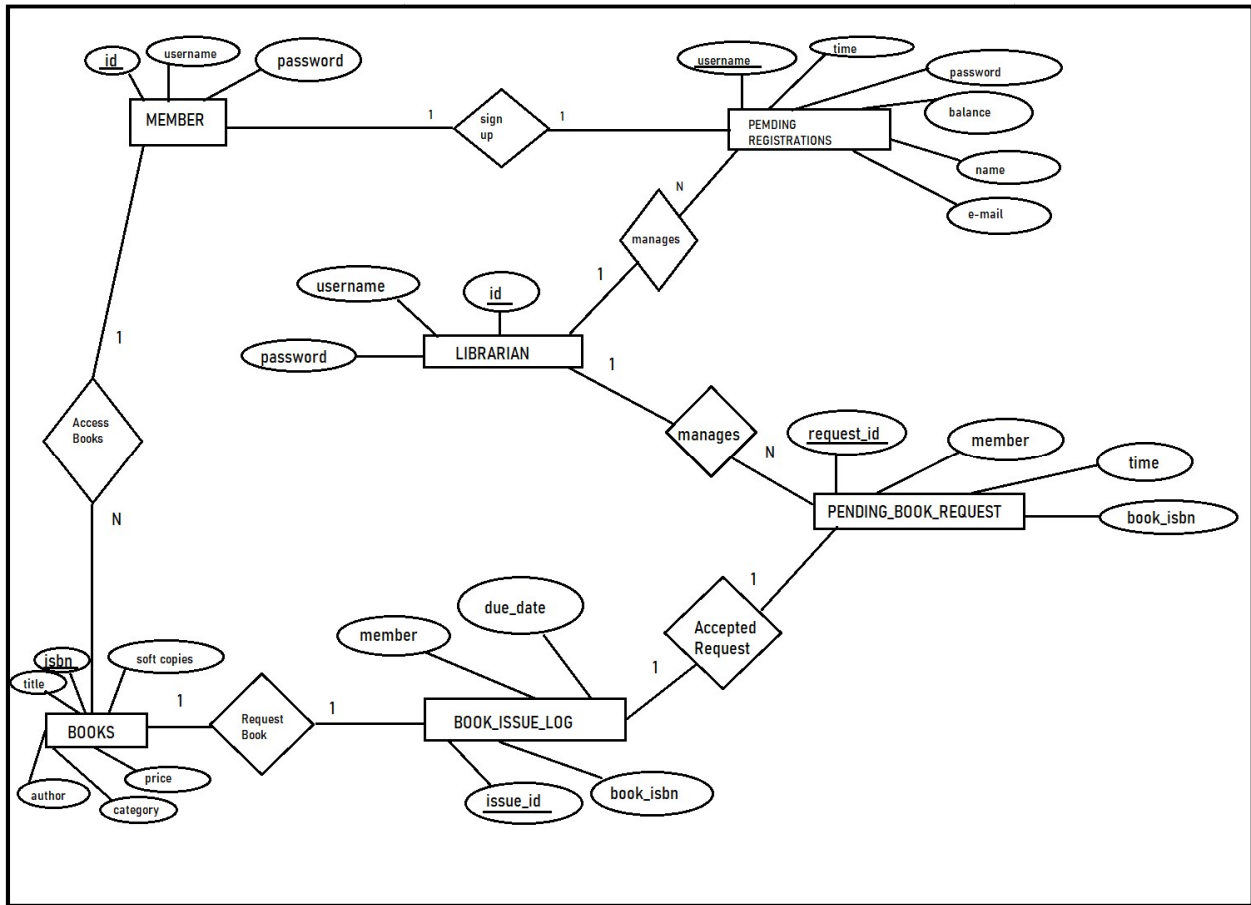


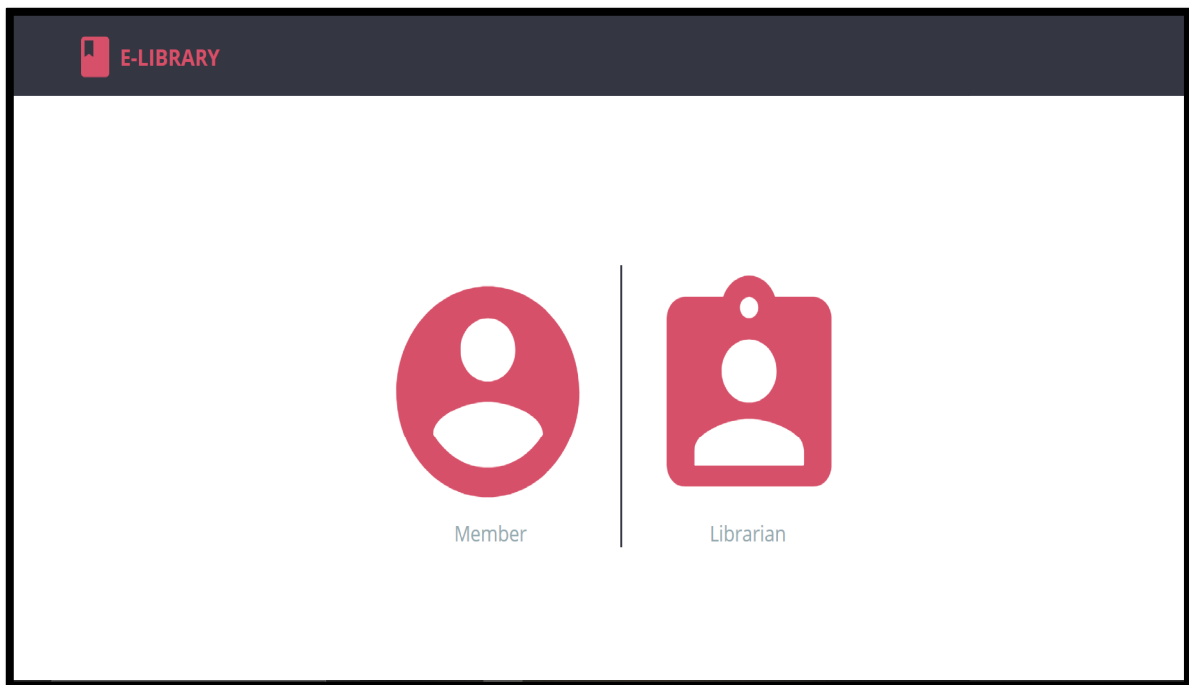
Figure 3.2 ER diagram: it show all the relationships between entity sets stored in the database. In the above ER diagram E-LIBRARY MANAGEMENT we can see six entities: **BOOKS**, **BOOK_ISSUE_LOG**, **LIBRARIAN**, **MEMBER**, **PENDING_BOOK_REQUEST**, **PENDING_REGISTRATION**.

CHAPTER 4

APPLICATION'S OUTPUT (FRONT END)

4.1 Home Page

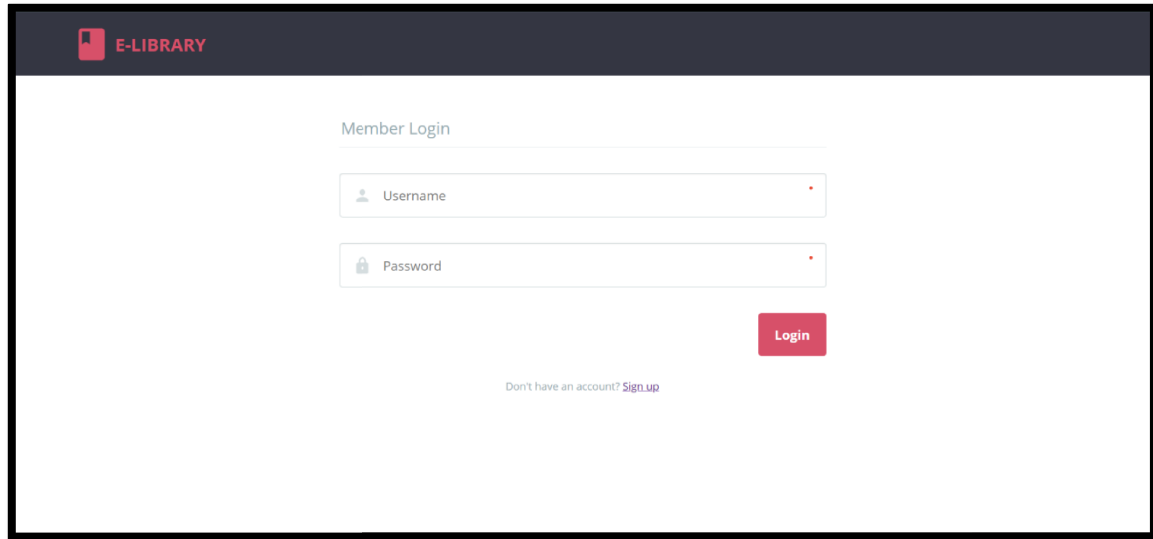
The user can choose between member and librarian depending upon who they are.



Snapshot 4.1: home page

4.2 Member Login Page

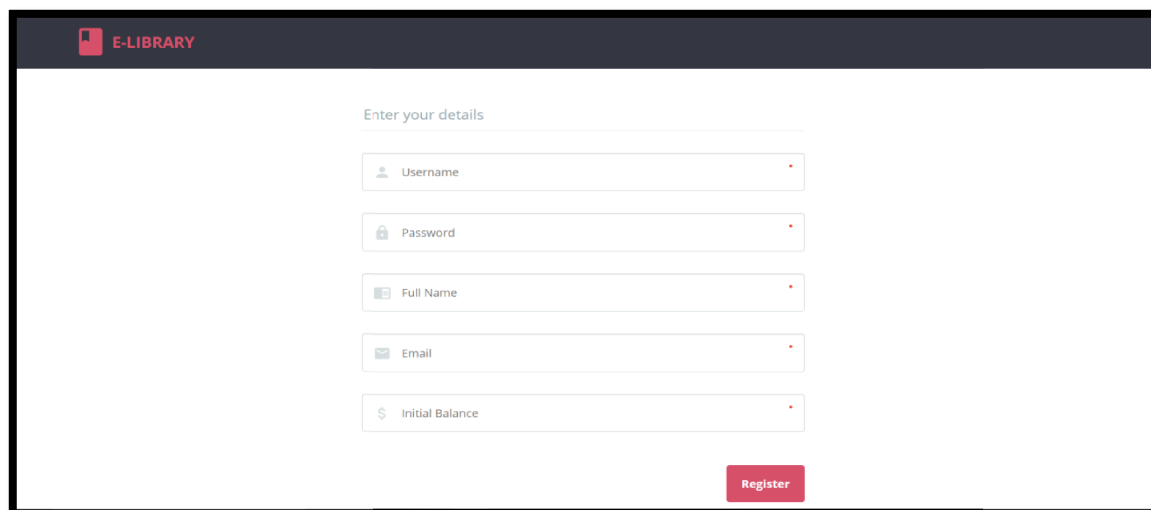
Member is asked to enter username and password only when the username and password matches, the member is logged in.

The screenshot shows the 'Member Login' page of an 'E-LIBRARY' system. The header is dark blue with the 'E-LIBRARY' logo in red. The main content area is white and contains the title 'Member Login'. Below the title are two input fields: 'Username' with a person icon and 'Password' with a lock icon. Both fields have a red asterisk on the right. A red 'Login' button is positioned to the right of the password field. At the bottom, there is a link that says 'Don't have an account? Sign up'.

Snapshot 4.2: member login page

4.3 Member Sign-up Page

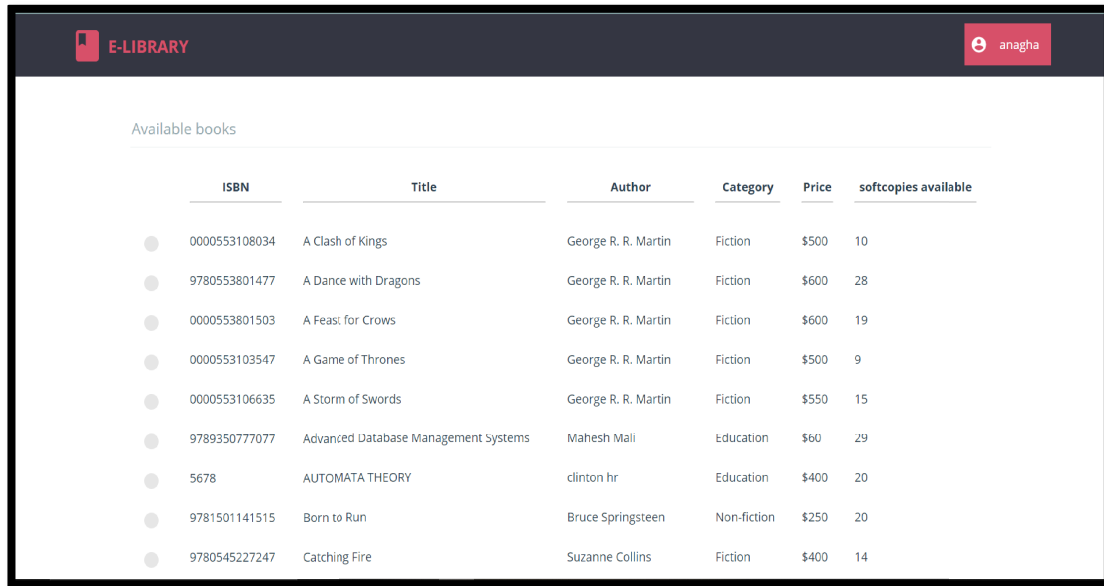
If the user is new then they have to register by signing-up and entering the required details.

The screenshot shows the 'Member Sign-up' page of an 'E-LIBRARY' system. The header is dark blue with the 'E-LIBRARY' logo in red. The main content area is white and contains the title 'Enter your details'. Below the title are five input fields: 'Username' with a person icon, 'Password' with a lock icon, 'Full Name' with a document icon, 'Email' with an envelope icon, and 'Initial Balance' with a dollar sign icon. Each field has a red asterisk on the right. A red 'Register' button is positioned to the right of the 'Initial Balance' field.

Snapshot4.3: member sign-up page

4.4 Member Home Page

When the member logs in to their page they can see the list of all the available e-books from which they can select and request a e-book which they prefer.



The screenshot shows a web interface for an E-Library. At the top, there is a dark header with the 'E-LIBRARY' logo on the left and a user profile icon labeled 'anagha' on the right. Below the header, the page title 'Available books' is centered. A table lists various books with columns for ISBN, Title, Author, Category, Price, and softcopies available. Each row in the table is preceded by a small circular icon.

ISBN	Title	Author	Category	Price	softcopies available
0000553108034	A Clash of Kings	George R. R. Martin	Fiction	\$500	10
9780553801477	A Dance with Dragons	George R. R. Martin	Fiction	\$600	28
0000553801503	A Feast for Crows	George R. R. Martin	Fiction	\$600	19
0000553103547	A Game of Thrones	George R. R. Martin	Fiction	\$500	9
0000553106635	A Storm of Swords	George R. R. Martin	Fiction	\$550	15
9789350777077	Advanced Database Management systems	Mahesh Mali	Education	\$60	29
5678	AUTOMATA THEORY	clinton hr	Education	\$400	20
9781501141515	Born to Run	Bruce Springsteen	Non-fiction	\$250	20
9780545227247	Catching Fire	Suzanne Collins	Fiction	\$400	14

Snapshot 4.4.1: member home page(1)



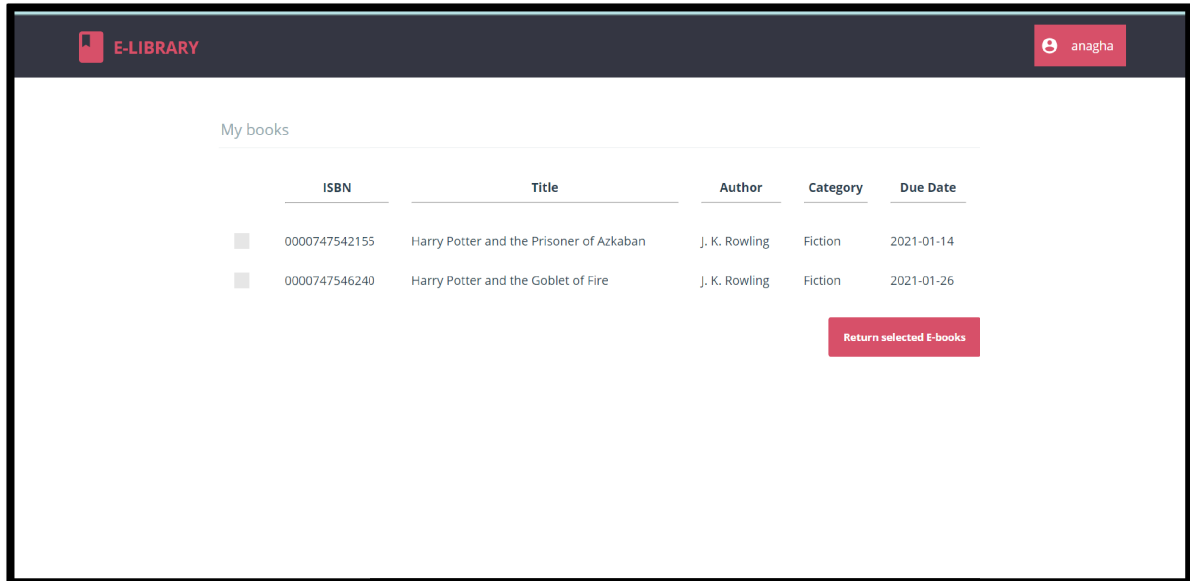
This screenshot shows the continuation of the book list from the previous snapshot. It features the same table structure with columns for ISBN, Title, Author, Category, Price, and softcopies available. A 'Request Ebook' button is visible in the bottom right corner of the table area.

999999999	Looking For Alaska	John Green	Fiction	\$250	15
9789350776773	Microcontroller and Embedded Systems	Harish G. Narula	Education	\$80	15
9780439023511	Mockingjay	Suzanne Collins	Fiction	\$500	20
9789351194545	Open Source Technologies	Dayanand Ambawade	Education	\$100	19
9789350777121	Operating Systems	Rajesh Kadu	Education	\$50	24
1234	python development	R S jones	Education	\$500	20
9780967752808	Sandbox Wisdom	Tom Asacker	Non-fiction	\$250	5
9789381626719	Stay Hungry Stay Foolish	Rashmi Bansal	Non-fiction	\$100	5
101010101	the alchemist	paulo coelho	Non-fiction	\$200	20
9780439023528	The Hunger Games	Suzanne Collins	Fiction	\$400	10
9780241257555	The Pigeon Tunnel	John le CarrÃ©	Non-fiction	\$200	24
4444444	THINK LIKE A MONK	Jay Shetty	Non-fiction	\$500	10

Snapshot 4.4.2: member home page(2)

4.5 My Books Page

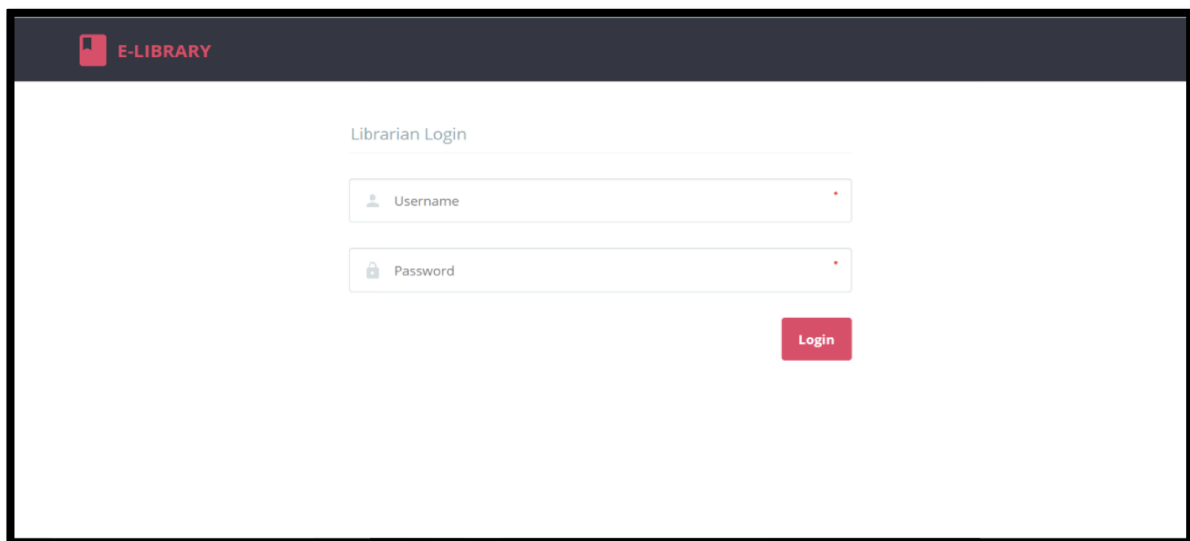
In this page the member can see the e-books they have borrowed. if they want to return a e-book then they have to select one and click on “return selected e-book”



Snapshot4.5 My books page

4.6 Librarian Login Page

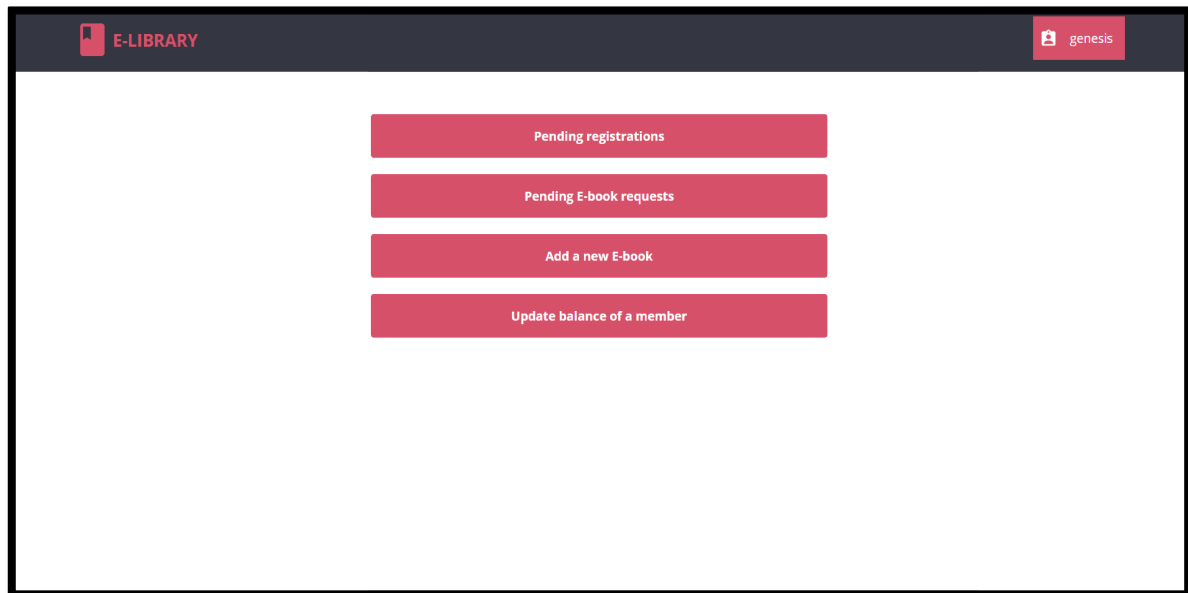
Librarian is asked to enter username and password only when the username and password matches, the librarian can logged in.



Snapshot 4.6 librarian login page

4.7 Librarian Home Page

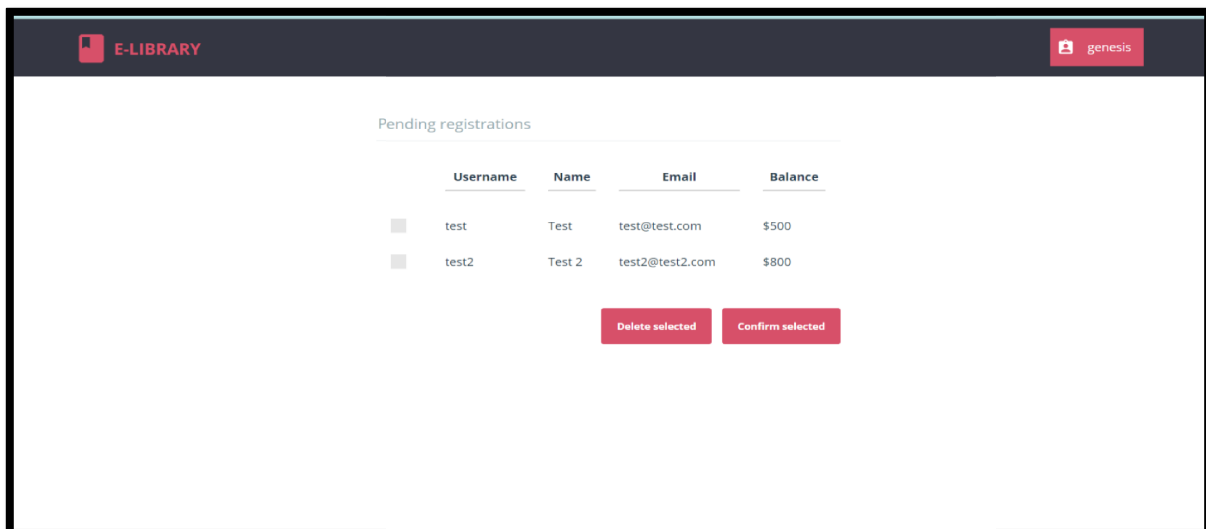
Here librarian can manage pending registrations, pending e-book requests, adding a e-book, and updating the members balance.



Snapshot4.7 librarian home page

4.8 Pending Registration Page

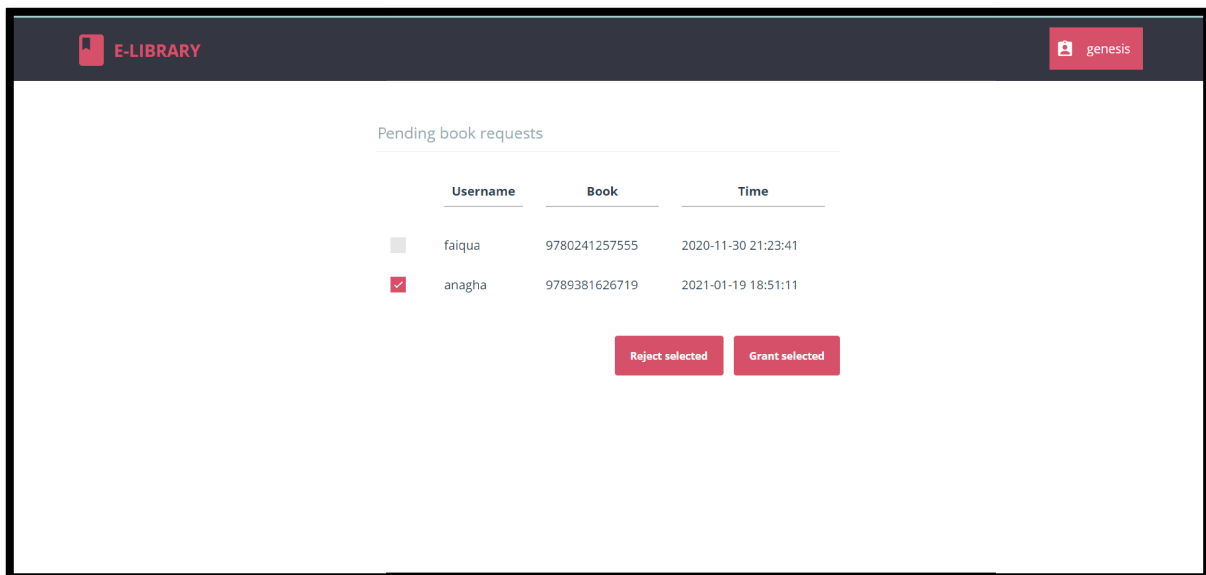
Here librarian can either grant or reject the member registration request.



Snapshot4.8 pending registration page

4.9 Pending e- book Request Page

Here librarian can either grant or reject the pending e- book request of member .



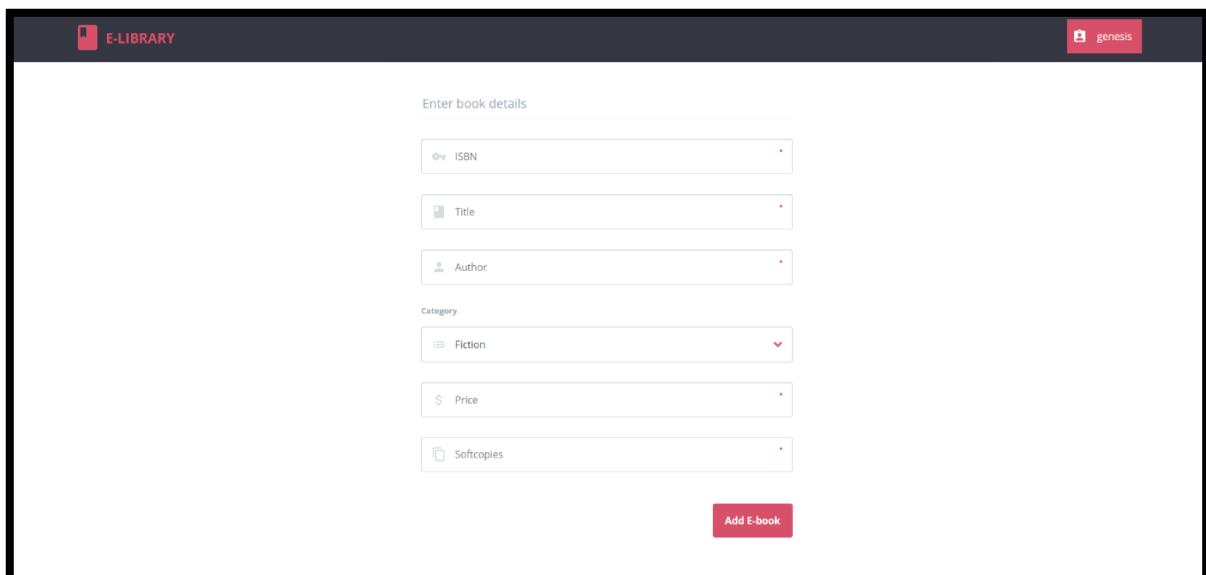
The screenshot shows the 'Pending book requests' page. At the top, there is a header with 'E-LIBRARY' on the left and 'genesis' on the right. The main content area has a title 'Pending book requests' and a table with three columns: 'Username', 'Book', and 'Time'. There are two rows of data. The first row has a grey square icon, 'faiqua', '9780241257555', and '2020-11-30 21:23:41'. The second row has a red checkmark icon, 'anagha', '9789381626719', and '2021-01-19 18:51:11'. Below the table, there are two buttons: 'Reject selected' and 'Grant selected'.

	Username	Book	Time
<input type="checkbox"/>	faiqua	9780241257555	2020-11-30 21:23:41
<input checked="" type="checkbox"/>	anagha	9789381626719	2021-01-19 18:51:11

Snapshot4.9 pending e-book request page

4.10 Insert e-book Page

Here the librarian can add a new e-book by entering the required details



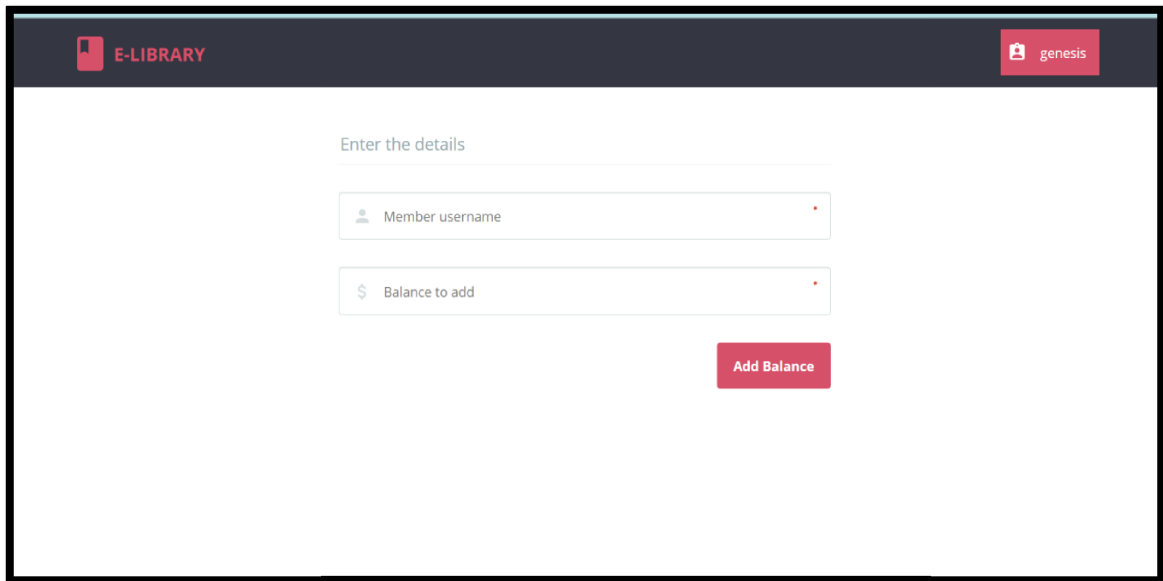
The screenshot shows the 'Enter book details' page. At the top, there is a header with 'E-LIBRARY' on the left and 'genesis' on the right. The main content area has a title 'Enter book details' and several input fields: 'ISBN', 'Title', 'Author', 'Category' (with a dropdown menu showing 'Fiction'), 'Price', and 'Softcopies'. Each field has a red asterisk indicating it is required. At the bottom right, there is a button labeled 'Add E-book'.

Category:

Snapshot 4.10 Insert e-book page

4.11 Update Balance Page

Here the librarian can update the balance of any member



Enter the details

Member username

\$ Balance to add

Add Balance

Snapshot 4.11 Update balance page

CHAPTER 5

SYSTEM IMPLEMENTATION

5.1 home Page

Source code:

```
<?php
    require "db_connect.php";
    require "header.php";
    session_start();

    if(empty($_SESSION['type']));
    else if(strcmp($_SESSION['type'], "librarian") == 0)
        header("Location: librarian/home.php");
    else if(strcmp($_SESSION['type'], "member") == 0)
        header("Location: member/home.php");
?>

<html>
    <head>
        <title>Library</title>
        <link rel="stylesheet" type="text/css" href="css/index_style.css" />
    </head>
    <body>
        <div id="allTheThings">
            <div id="member">
                <a href="member">
                    <br />
                    &nbsp;Member
                </a>
            </div>
        </div>
    </body>
</html>
```

[illegible]

5.2 Member Home Page

Source code:

```
<?php
    require "../db_connect.php";
    require "../message_display.php";
    require "verify_member.php";
    require "header_member.php";
?>

<html>
    <head>
        <title>Welcome</title>
        <link rel="stylesheet" type="text/css" href="../css/global_styles.css">
        <link rel="stylesheet" type="text/css" href="css/home_style.css">
        <link rel="stylesheet" type="text/css" href="../css/custom_radio_button_style.css">
    </head>
```

```
<body>
    <?php
        $query = $con->prepare("SELECT * FROM book ORDER BY title");
        $query->execute();
        $result = $query->get_result();
        if(!$result)
            die("ERROR: Couldn't fetch E-books");
        $rows = mysqli_num_rows($result);
        if($rows == 0)
            echo "<h2 align='center'>No E-books available</h2>";
        else
        {
            echo "<form class='cd-form' method='POST' action='#'>";
            echo "<legend>Available books</legend>";
            echo "<div class='error-message' id='error-message'>
                <p id='error'></p>
            </div>";
            echo "<table width='100%' cellpadding=10 cellspacing=10>";
            echo "<tr>
                <th></th>
                <th>ISBN<hr></th>
                <th>Title<hr></th>
                <th>Author<hr></th>
                <th>Category<hr></th>
                <th>Price<hr></th>
                <th>softcopies available <hr></th>

                </tr>";
            for($i=0; $i<$rows; $i++)
            {
                $row = mysqli_fetch_array($result);
                echo "<tr>
```

```

        <td>
            <label class='control control--radio'>
                <input type='radio' name='rd_book' value=".$row[0]." />
            <div class='control__indicator'></div>
        </td>";
    for($j=0; $j<6; $j++)
        if($j == 4)
            echo "<td>".$row[$j]."</td>";
        else
            echo "<td>".$row[$j]."</td>";
        echo "</tr>";
    }
    echo "</table>";
    echo "<br /><br /><input type='submit' name='m_request' value='Request E-
book' />";
    echo "</form>";
}

if(isset($_POST['m_request']))
{
    if(empty($_POST['rd_book']))
        echo error_without_field("Please select a E-book to issue");
    else
    {
        $query = $con->prepare("SELECT copies FROM book WHERE isbn = ?;");
        $query->bind_param("s", $_POST['rd_book']);
        $query->execute();
        $copies = mysqli_fetch_array($query->get_result())[0];
        if($copies == 0)
            echo error_without_field("No softcopies of the selected E-book are available");
        else
        {
            $query = $con-

```

```

>prepare("SELECT request_id FROM pending_book_requests WHERE member = ?;");
    $query->bind_param("s", $_SESSION['username']);
    $query->execute();
    if(mysqli_num_rows($query->get_result()) == 1)
        echo error_without_field("You can only request one E-book at a time");
    else
    {
        $query = $con-
>prepare("SELECT book_isbn FROM book_issue_log WHERE member = ?;");
        $query->bind_param("s", $_SESSION['username']);
        $query->execute();
        $result = $query->get_result();
        if(mysqli_num_rows($result) >= 2)
            echo error_without_field("You cannot issue more than 2 E-
                                   books at a time");
        else
        {
            $rows = mysqli_num_rows($result);
            for($i=0; $i<$rows; $i++)
                if(strcmp(mysqli_fetch_array($result)[0], $_POST['rd_book']) == 0)
                    break;
            if($i < $rows)
                echo error_without_field("You have already issued a softcopy of this
                                   E-book");
            else
            {
                $query = $con-
>prepare("SELECT balance FROM member WHERE username = ?;");
                $query->bind_param("s", $_SESSION['username']);
                $query->execute();
                $memberBalance = mysqli_fetch_array($query->get_result())[0];

                $query = $con-

```

```

>prepare("SELECT price FROM book WHERE isbn = ?;");
    $query->bind_param("s", $_POST['rd_book']);
    $query->execute();
    $bookPrice = mysqli_fetch_array($query->get_result())[0];
    if($memberBalance < $bookPrice)
        echo error_without_field("You do not have sufficient balance to
                                issue this E-book");
    else
    {
        $query = $con-
>prepare("INSERT INTO pending_book_requests(member, book_isbn) VALUES(?, ?);");
        $query-
>bind_param("ss", $_SESSION['username'], $_POST['rd_book']);
        if(!$query->execute())
            echo error_without_field("ERROR: Couldn't request E-book");
        else
            echo success("E-
Book successfully requested. You will be notified by email when the E-book is issued
to your account. To access the E-book a link will be sent to your email");
    }
}
}
}
}
}
}
}
?>
</body>
</html>

```

5.3 My Book Page

Source code:

```
<?php
    require "../db_connect.php";
    require "../message_display.php";
    require "verify_member.php";
    require "header_member.php";
?>

<html>
    <head>
        <title>My books</title>
        <link rel="stylesheet" type="text/css" href="../css/global_styles.css">
        <link rel="stylesheet" type="text/css" href="../css/custom_checkbox_style.css">
        <link rel="stylesheet" type="text/css" href="css/my_books_style.css">
    </head>
    <body>

        <?php
            $query = $con-
>prepare("SELECT book_isbn FROM book_issue_log WHERE member = ?;");
            $query->bind_param("s", $_SESSION['username']);
            $query->execute();
            $result = $query->get_result();
            $rows = mysqli_num_rows($result);
            if($rows == 0)
                echo "<h2 align='center'>No E-books currently issued</h2>";
            else
            {
                echo "<form class='cd-form' method='POST' action='#'>";
                echo "<legend>My books</legend>";
```

```

echo "<div class='success-message' id='success-message'>
    <p id='success'></p>
</div>";

echo "<div class='error-message' id='error-message'>
    <p id='error'></p>
</div>";

echo "<table width='100%' cellpadding='10' cellspacing='10'>
    <tr>
        <th></th>
        <th>ISBN<hr></th>
        <th>Title<hr></th>
        <th>Author<hr></th>
        <th>Category<hr></th>
        <th>Due Date<hr></th>
    </tr>";

for($i=0; $i<$rows; $i++)
{
    $isbn = mysqli_fetch_array($result)[0];
    if($isbn != NULL)
    {
        $query = $con-
>prepare("SELECT title, author, category FROM book WHERE isbn = ?;");
        $query->bind_param("s", $isbn);
        $query->execute();
        $innerRow = mysqli_fetch_array($query->get_result());
        echo "<tr>
            <td>
                <label class='control control--checkbox'>
                    <input type='checkbox' name='cb_book'.".$i." value='".$isbn.">
                    <div class='control__indicator'></div>
                </label>
            </td>";

        echo "<td>".$isbn."</td>";
    }
}

```

```

        for($j=0; $j<3; $j++)
            echo "<td>".$sinnerRow[$j]."</td>";
        $query = $con-
>prepare("SELECT due_date FROM book_issue_log WHERE member = ? AND book_isbn
= ?;");

        $query->bind_param("ss", $_SESSION['username'], $isbn);
        $query->execute();
        echo "<td>".mysqli_fetch_array($query->get_result())[0]."</td>";
        echo "</tr>";
    }
}
echo "</table><br />";
echo "<input type='submit' name='b_return' value='Return selected E-books' />";
echo "</form>";
}

if(isset($_POST['b_return']))
{
    $books = 0;
    for($i=0; $i<$rows; $i++)
        if(isset($_POST['cb_book'.$i]))
        {
            $query = $con-
>prepare("SELECT due_date FROM book_issue_log WHERE member = ? AND book_isbn
= ?;");

            $query->bind_param("ss", $_SESSION['username'], $_POST['cb_book'.$i]);
            $query->execute();
            $due_date = mysqli_fetch_array($query->get_result())[0];

            $query = $con->prepare("SELECT DATEDIFF(CURRENT_DATE, ?);");
            $query->bind_param("s", $due_date);
            $query->execute();
            $days = (int)mysqli_fetch_array($query->get_result())[0];

```

```

$query = $con-
>prepare("DELETE FROM book_issue_log WHERE member = ? AND book_isbn = ?;");
$query->bind_param("ss", $_SESSION['username'], $_POST['cb_book'.$i]);
if(!$query->execute())
    die(error_without_field("ERROR: Couldn't return the E-books"));

if($days > 0)
{
    $penalty = 5*$days;
    $query = $con->prepare("SELECT price FROM book WHERE isbn = ?;");
    $query->bind_param("s", $_POST['cb_book'.$i]);
    $query->execute();
    $price = mysqli_fetch_array($query->get_result())[0];
    if($price < $penalty)
        $penalty = $price;
    $query = $con->prepare("UPDATE member SET balance = balance -
? WHERE username = ?;");
    $query->bind_param("ds", $penalty, $_SESSION['username']);
    $query->execute();
    echo '<script>
        document.getElementById("error").innerHTML += "A penalty of Rs. '
.$penalty.' was charged for keeping book '$_POST['cb_book'.$i].' for '.$days.' days after the
due date.<br />";
        document.getElementById("error-message").style.display = "block";
    </script>';
}
$books++;
}
if($books > 0)
{
    echo '<script>
        document.getElementById("success").innerHTML = "Successfully returned

```

```

'$.books.' E-books and the link will be disabled and you wont be able to access the E-book ";
        document.getElementById("success-message").style.display = "block";
    </script>';
    $query = $con-
>prepare("SELECT balance FROM member WHERE username = ?;");
    $query->bind_param("s", $_SESSION['username']);
    $query->execute();

    $balance = (int)mysqli_fetch_array($query->get_result())[0];
    if($balance < 0)
        header("Location: ../logout.php");
    }
    else
        echo error_without_field("Please select a E-book to return");
    }
?>
</body>
</html>

```

5.4 Librarian Home Page

source code:

```

<?php
    require "../db_connect.php";
    require "verify_librarian.php";
    require "header_librarian.php";
?>

<html>
    <head>
        <title>Welcome</title>

```

```
<link rel="stylesheet" type="text/css" href="css/home_style.css" />
</head>
<body>
  <div id="allTheThings">
    <a href="pending_registrations.php">
      <input type="button" value="Pending registrations" />
    </a><br />
    <a href="pending_book_requests.php">
      <input type="button" value="Pending E-book requests" />
    </a><br />
    <a href="insert_book.php">
      <input type="button" value="Add a new E-book" />
    </a><br />

    <a href="update_balance.php">
      <input type="button" value="Update balance of a member" />
    </a><br />

  </div>
</body>
</html>
```

5.5 Add E-book Page

Source code:

```
<?php
require "../db_connect.php";
require "../message_display.php";
require "verify_librarian.php";
require "header_librarian.php";
```

?>

<html>

<head>

<title>Add book</title>

<link rel="stylesheet" type="text/css" href="../css/global_styles.css" />

<link rel="stylesheet" type="text/css" href="../css/form_styles.css" />

<link rel="stylesheet" href="css/insert_book_style.css">

</head>

<body>

<form class="cd-form" method="POST" action="#">

<legend>Enter book details</legend>

<div class="error-message" id="error-message">

<p id="error"></p>

</div>

<div class="icon">

<input class="b-

isbn" id="b_isbn" type="number" name="b_isbn" placeholder="ISBN" required />

</div>

<div class="icon">

<input class="b-

title" type="text" name="b_title" placeholder="Title" required />

</div>

<div class="icon">

<input class="b-

author" type="text" name="b_author" placeholder="Author" required />

</div>

<div>

oooooooo

```

<h4>Category</h4>

    <p class="cd-select icon">
        <select class="b-category" name="b_category">
            <option>Fiction</option>
            <option>Non-fiction</option>
            <option>Education</option>
        </select>
    </p>
</div>

<div class="icon">
    <input class="b-
price" type="number" name="b_price" placeholder="Price" required />
</div>

<div class="icon">
    <input class="b-
copies" type="number" name="b_copies" placeholder="Softcopies" required />
</div>

<br />
<input class="b-isbn" type="submit" name="b_add" value="Add E-book" />
</form>
<body>

<?php
    if(isset($_POST['b_add']))
    {
        $query = $con->prepare("SELECT isbn FROM book WHERE isbn = ?;");
        $query->bind_param("s", $_POST['b_isbn']);
        $query->execute();
    }

```

```

        if(mysqli_num_rows($query->get_result()) != 0)
            echo error_with_field("A E-book with that ISBN already exists", "b_isbn");
        else
        {
            $query = $con->prepare("INSERT INTO book VALUES(?, ?, ?, ?, ?, ?);");
            $query->
            >bind_param("ssssdd", $_POST['b_isbn'], $_POST['b_title'], $_POST['b_author'], $_POST['
            b_category'], $_POST['b_price'], $_POST['b_copies']);

            if(!$query->execute())
                die(error_without_field("ERROR: Couldn't add a E-book"));
            echo success("Successfully added a E-book");
        }
    }
    ?>
</html>

```

5.6 Pending Book Request

Source code:

```

<?php
    require "../db_connect.php";
    require "../message_display.php";
    require "verify_librarian.php";
    require "header_librarian.php";
    ?>

<html>
    <head>
        <title>Pending Book Requests</title>

```

```

<link rel="stylesheet" type="text/css" href="../css/global_styles.css">
<link rel="stylesheet" type="text/css" href="../css/custom_checkbox_style.css">
<link rel="stylesheet" type="text/css" href="css/pending_book_requests_style.css">
</head>
<body>
<?php
    $query = $con->prepare("SELECT * FROM pending_book_requests;");
    $query->execute();
    $result = $query->get_result();
    $rows = mysqli_num_rows($result);
    if($rows == 0)
        echo "<h2 align='center'>No requests pending</h2>";
    else
    {
        echo "<form class='cd-form' method='POST' action='#'>";
        echo "<legend>Pending book requests</legend>";
        echo "<div class='error-message' id='error-message'>
            <p id='error'></p>
        </div>";
        echo "<table width='100%' cellpadding=10 cellspacing=10>
            <tr>
                <th></th>
                <th>Username<hr></th>
                <th>Book<hr></th>
                <th>Time<hr></th>
            </tr>";
        for($i=0; $i<$rows; $i++)
        {
            $row = mysqli_fetch_array($result);
            echo "<tr>";
            echo "<td>
                <label class='control control--checkbox'>
                    <input type='checkbox' name='cb_". $i ."' value='".$row[0]."' />

```

```

        <div class='control__indicator'></div>
    </label>
</td>";
for($j=1; $j<4; $j++)
    echo "<td>".$row[$j]."</td>";
echo "</tr>";
}
echo "</table>";
echo "<br /><br /><div style='float: right;'>";
echo "<input type='submit' value='Reject selected' name='l_reject' />&nbsp;&nbsp;&nbsp;";
&nbsp;&nbsp;&nbsp;";
echo "<input type='submit' value='Grant selected' name='l_grant' />";
echo "</div>";
echo "</form>";
}

$header = 'From: <noreply@library.com>' . "\r\n";

if(isset($_POST['l_grant']))
{
    $requests = 0;
    for($i=0; $i<$rows; $i++)
    {
        if(isset($_POST['cb_'.$i]))
        {
            $request_id = $_POST['cb_'.$i];
            $query = $con-
>prepare("SELECT member, book_isbn FROM pending_book_requests WHERE request_id
= ?;");

            $query->bind_param("d", $request_id);
            $query->execute();
            $resultRow = mysqli_fetch_array($query->get_result());
            $member = $resultRow[0];

```

```

        $isbn = $resultRow[1];
        $query = $con-
>prepare("INSERT INTO book_issue_log(member, book_isbn) VALUES(?, ?);");
        $query->bind_param("ss", $member, $isbn);
        if(!$query->execute())
            die(error_without_field("ERROR: Couldn't issue E-book"));
        $requests++;

        $query = $con-
>prepare("SELECT email FROM member WHERE username = ?;");
        $query->bind_param("s", $member);
        $query->execute();
        $to = mysqli_fetch_array($query->get_result())[0];
        $subject = "E-Book successfully issued";

        $query = $con->prepare("SELECT title FROM book WHERE isbn = ?;");
        $query->bind_param("s", $isbn);
        $query->execute();
        $title = mysqli_fetch_array($query->get_result())[0];

        $query = $con-
>prepare("SELECT due_date FROM book_issue_log WHERE member = ? AND book_isbn
= ?;");

        $query->bind_param("ss", $member, $isbn);
        $query->execute();
        $due_date = mysqli_fetch_array($query->get_result())[0];
        $message = "The E-
book ".$title." with ISBN ".$isbn." has been issued to your account. The due date to return
the E-book is ".$due_date."";

        mail($to, $subject, $message, $header);
    }
}

```

```
        if($requests > 0)
            echo success("Successfully granted ".$requests." requests");
        else
            echo error_without_field("No request selected");
    }

    if(isset($_POST['l_reject']))
    {
        $requests = 0;
        for($i=0; $i<$rows; $i++)
        {
            if(isset($_POST['cb_'.$i]))
            {
                $requests++;
                $request_id = $_POST['cb_'.$i];

                $query = $con-
>prepare("SELECT member, book_isbn FROM pending_book_requests WHERE request_id
= ?;");

                $query->bind_param("d", $request_id);
                $query->execute();
                $resultRow = mysqli_fetch_array($query->get_result());
                $member = $resultRow[0];
                $isbn = $resultRow[1];

                $query = $con-
>prepare("SELECT email FROM member WHERE username = ?;");
                $query->bind_param("s", $member);
                $query->execute();
                $to = mysqli_fetch_array($query->get_result())[0];
                $subject = "Book issue rejected";

                $query = $con->prepare("SELECT title FROM book WHERE isbn = ?;");
```

```

        $query->bind_param("s", $isbn);
        $query->execute();
        $title = mysqli_fetch_array($query->get_result())[0];
        $message = "Your request for issuing the E-
book '". $title.'" with ISBN ".$isbn." has been rejected. You can request the E-
book again or contact librarian for further information.";

        $query = $con-
>prepare("DELETE FROM pending_book_requests WHERE request_id = ?");
        $query->bind_param("d", $request_id);
        if(!$query->execute())
            die(error_without_field("ERROR: Couldn't delete values"));

        mail($to, $subject, $message, $header);
    }
}
if($requests > 0)
    echo success("Successfully deleted ".$requests." requests");
else
    echo error_without_field("No request selected");
}

```

5.7 PENDING REGISTRATION

Source code:

```

<?php
    require "../db_connect.php";
    require "../message_display.php";
    require "verify_librarian.php";
    require "header_librarian.php";

?>

```

```

<html>
  <head>
    <title>Pending Registrations</title>
    <link rel="stylesheet" type="text/css" href="../css/global_styles.css">
    <link rel="stylesheet" type="text/css" href="../css/custom_checkbox_style.css">
    <link rel="stylesheet" type="text/css" href="css/pending_registrations_style.css">
  </head>
  <body>
    <?php
      $query = $con-
>prepare("SELECT username, name, email, balance FROM pending_registrations");
      $query->execute();
      $result = $query->get_result();
      $rows = mysqli_num_rows($result);
      if($rows == 0)
        echo "<h2 align='center'>No registrations pending</h2>";
      else
      {
        echo "<form class='cd-form' method='POST' action='#'>";
        echo "<legend>Pending registrations</legend>";
        echo "<div class='error-message' id='error-message'>
          <p id='error'></p>
        </div>";
        echo "<table width='100%' cellpadding=10 cellspacing=10>
          <tr>
            <th></th>
            <th>Username<hr></th>
            <th>Name<hr></th>
            <th>Email<hr></th>
            <th>Balance<hr></th>
          </tr>";
        for($i=0; $i<$rows; $i++)

```

```
{
    $row = mysqli_fetch_array($result);
    echo "<tr>";
    echo "<td>"
        <label class='control control--checkbox'>
            <input type='checkbox' name='cb_".$i.'" value='".$row[0]."' />
            <div class='control__indicator'></div>
        </label>
    </td>";
    $j;
    for($j=0; $j<3; $j++)
        echo "<td>".$row[$j]."</td>";
    echo "<td>$".$row[$j]."</td>";
    echo "</tr>";
}
echo "</table><br /><br />";
echo "<div style='float: right;'>";
echo "<input type='submit' value='Delete selected' name='l_delete' />&nbsp;&nbsp;&nbsp;";
&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&~
echo "<input type='submit' value='Confirm selected' name='l_confirm' />";
echo "</div>";
echo "</form>";
}

$header = "From: <noreply@library.com> . "\r\n";

if(isset($_POST['l_confirm']))
{
    $members = 0;
    for($i=0; $i<$rows; $i++)
    {
        if(isset($_POST['cb_'.$i]))
        {
```

```

    $username = $_POST['cb_'.$i];
    $query = $con-
>prepare("SELECT * FROM pending_registrations WHERE username = ?;");
    $query->bind_param("s", $username);
    $query->execute();
    $row = mysqli_fetch_array($query->get_result());

    $query = $con-
>prepare("INSERT INTO member(username, password, name, email, balance) VALUES(?,
?, ?, ?, ?);");
    $query-
>bind_param("ssssd", $username, $row[1], $row[2], $row[3], $row[4]);
    if(!$query->execute())
        die(error_without_field("ERROR: Couldn't insert values"));
    $members++;

    $to = $row[3];
    $subject = "Library membership accepted";
    $message = "Your membership has been accepted by the library. You can no
w issue books using your account.";
    mail($to, $subject, $message, $header);
}
}
if($members > 0)
    echo success("Successfully added ".$members." members");
else
    echo error_without_field("No registration selected");
}

if(isset($_POST['l_delete']))
{
    $requests = 0;
    for($i=0; $i<$rows; $i++)

```

```

    {
        if(isset($_POST['cb_'.$i]))
        {
            $username = $_POST['cb_'.$i];
            $query = $con-
>prepare("SELECT email FROM pending_registrations WHERE username = ?;");
            $query->bind_param("s", $username);
            $query->execute();
            $email = mysqli_fetch_array($query->get_result())[0];

            $query = $con-
>prepare("DELETE FROM pending_registrations WHERE username = ?;");
            $query->bind_param("s", $username);
            if(!$query->execute())
                die(error_without_field("ERROR: Couldn't delete values"));
            $requests++;

            $to = $email;
            $subject = "Library membership rejected";
            $message = "Your membership has been rejected by the library. Please contac
t a librarian for further information.";
            mail($to, $subject, $message, $header);
        }
    }
    if($requests > 0)
        echo success("Successfully deleted ".$requests." requests");
    else
        echo error_without_field("No registration selected");
}
?>
</body>
</html>

```

5.8 Update Balance

Source code :

```
<?php
    require "../db_connect.php";
    require "../message_display.php";
    require "verify_librarian.php";
    require "header_librarian.php";
?>

<html>
    <head>
        <title>Update balance</title>
        <link rel="stylesheet" type="text/css" href="../css/global_styles.css" />
        <link rel="stylesheet" type="text/css" href="../css/form_styles.css" />
        <link rel="stylesheet" href="css/update_balance_style.css">
    </head>
    <body>
        <form class="cd-form" method="POST" action="#">
            <legend>Enter the details</legend>

            <div class="error-message" id="error-message">
                <p id="error"></p>
            </div>

            <div class="icon">
                <input class="m-
user" type='text' name='m_user' id="m_user" placeholder="Member username" required />
            </div>

            <div class="icon">
                <input class="m-
balance" type="number" name="m_balance" placeholder="Balance to add" required />
            </div>
        </form>
    </body>
</html>
```

```

</div>

    <input type="submit" name="m_add" value="Add Balance" />
</form>
</body>

<?php
    if(isset($_POST['m_add']))
    {
        $query = $con-
>prepare("SELECT username FROM member WHERE username = ?;");
        $query->bind_param("s", $_POST['m_user']);
        $query->execute();
        if(mysqli_num_rows($query->get_result()) != 1)
            echo error_with_field("Invalid username", "m_user");
        else
        {
            $query = $con-
>prepare("UPDATE member SET balance = balance + ? WHERE username = ?;");
            $query->bind_param("ds", $_POST['m_balance'], $_POST['m_user']);
            if(!$query->execute())
                die(error_without_field("ERROR: Couldn't add balance"));
            echo success("Balance successfully updated");
        }
    }
?>
</html>

```

5.9 Stored Procedure in MySQL

```
CREATE DEFINER='root'@'localhost' PROCEDURE `generate_due_list` () NO SQL
```

```


```

```
SELECT I.issue_id, M.email, B.isbn, B.title
FROM book_issue_log I INNER JOIN member M on I.member = M.username INNER JOIN
book B ON I.book_isbn = B.isbn
```

5.10 Triggers

```
DELIMITER $$
```

```
CREATE TRIGGER `issue_book` BEFORE INSERT ON `book_issue_log` FOR EACH
ROW BEGIN
```

```
    SET NEW.due_date = DATE_ADD(CURRENT_DATE, INTERVAL 7 DAY);
```

```
    UPDATE member SET balance = balance - (SELECT price FROM book WHERE isbn =
NEW.book_isbn) WHERE username = NEW.member;
```

```
    UPDATE book SET copies = copies - 1 WHERE isbn = NEW.book_isbn;
```

```
    DELETE FROM pending_book_requests WHERE member = NEW.member AND
book_isbn = NEW.book_isbn;
```

```
END
```

```
$$
```

```
DELIMITER ;
```

```
DELIMITER $$
```

```
CREATE TRIGGER `return_book` BEFORE DELETE ON `book_issue_log` FOR EACH
ROW BEGIN
```

```
    UPDATE member SET balance = balance + (SELECT price FROM book WHERE isbn =
OLD.book_isbn) WHERE username = OLD.member;
```

```
    UPDATE book SET copies = copies + 1 WHERE isbn = OLD.book_isbn;
```

```
END
```

```
$$
```

```
DELIMITER ;
```

```
oooooooooooo
```

Chapter 6

CONCLUSION

This website provides a computerized version of library management system which will benefit the students as well as the staff of the library. It makes entire process online where student can search books, staff can generate reports and do book transactions. It also has a facility for member login where member can login and can see status of books issued as well request for book. It has a facility for librarian to login and manage pending registration and e-book request also they can add a new e-book as well as update member's balance. From a proper analysis of positive points and constraints on the component, it can be safely concluded that the product is a highly efficient GUI based component. This application is working properly and meeting to all user requirements. This component can be easily plugged in many other systems.

6.1 Future Scope

Any education institute can make use of it for providing information about author, content of the available books. It can be used in offices and modifications can be easily done according to requirements. This application can be easily implemented under various situations. We can add new features as and when we require. Reusability is possible as and when require in this application. There is flexibility in all the modules. There is a future scope of this facility that many more features such as online lectures video tutorials can be added by librarian as well as online assignments submission facility, a feature of group chat where students can discuss various issues of engineering can be added to this project thus making it more interactive more user friendly and project which fulfills each users need in the best way possible.

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