

Akhuwat Pearl's of Wisdom Library Management System

Final Year Project

Session 2020-2024

A project submitted in partial fulfilment of the
Punjab's University Degree
of
BS Information Technology(IT)



AKHUWAT

Department of Information technology(IT)
Akhuwat College University Kasur Campus

20 August 2024

Project Detail

Type (Nature of project)	<input checked="" type="checkbox"/> Development [] Research [] R&D			
Area of specialization				
Project Group Members				
Sr. #	Reg. #	Student Name	Email ID	*Signature
(i)	2020-AMK-04	Kashif Mehmood Jilani	kashifjilani38@gmail.com	
(ii)	2020-AMK-17	M.Asamullah Ulfat	bazmeulfat786@gmail.com	

Plagiarism Free Certificate

This is to certify that, I am kashif mehmood jilani S/o Ghulam jilani, group leader of FYP under registration no 20-amk-04 at Information technology(IT) Department, Akhuwat College Kasur Campus. I declare that my FYP report is checked by my supervisor and the similarity index is 16% that is less than 20%, an acceptable limit by HEC. Report is attached herewith as Appendix A.

Date: _18 Jun 2024_ Name of Group Leader: kashif mehmood jilani: _____

Name of Supervisor: Dr. Adnan Iqbal Sahib

Designation: Assistance Professor

Signature: _____

Acknowledgement

We express our total submission and eternal gratitude to Almighty ALLAH. The Most Merciful, without whose mercy and grace, this endeavour could not be possible even its slightest. We bow before our compassionate endowments. Peace Be Upon Holy Prophet MUHAMMAD (S.A.W.W) who is ever a torch of guidance and knowledge for humanity as whole.

We truly acknowledge the cooperation and help made by our project primary advisor Dr. Adnan Iqbal for this guidance, advice and continuous encouragement and inspiration, especially during the hard and desperate phase of our work. We are very thankful to our friends and parents with their prayers, sacrifices and their silent support encourage us to complete the project.

Also, we would like to thank the “Akhawat college Kasur” and other faculty members of information technology for providing necessary help and guidance during this project.

May Allah bless them with more successful life!

Date:

Abstract

Library management systems (LMS) are generally designed to digitalize the operations of library. It also handles the students accounts, book purchasing, archives handling, budgeting, and auditing. In Akhuwat institute, a purpose build library has been established in cooperation with the chughtai lab since 2020. In this particular library, an open source Koha software is working. This software has some drawbacks like limited integration options, lack of commercial support or customization, budgeting records, complexity issues, no admin and audit accounts, limited archives management, accessibility issue without internet, limited vendor support. There is a dire need of Library management system for the Akhuwat institute Kasur. So, in order to cope up this particular need we should develop a web-based application named as “Akhuwat Library management system.” This project will be ensured efficient management of library operation such as user authentication, fine management, auditing capabilities, vendor, and archive management. It consists of book inventory in Portable Document Format upload option as well as provide user-friendly interface with different dashboard such as administration, librarian, and user(students/Teachers). We need to enhance library operations, improve user experience, and increase the efficiency of resource management.

Table of Contents

1	Introduction.....	7
	Problem Statement.....	8
	Time lines.....	8
	Tools and techniques.....	10
2	Requirements Analysis and Background	13
	Literature Review.....	14
	Requirements.....	15
	• Functional Requirement.....	15
	• Functional Requirement.....	16
	Existing Systems.....	17
	Technologies used.....	18
3	System Design	19
	System Architecture	19
	Use Case Diagrams.....	21
	Database design.....	22
	Activity Diagram.....	24
	Sequence Diagrams	25
	User Interface Design.....	27
4	Implementation	33
	Development Tools.....	33
	Program Code.....	33

	Integration.....	34
5	Testing	34
	Test Cases.....	34
	Testing Strategy.....	39
6	Future Work	50
	Additional Features.....	50
7	Conclusion\ Summary of work	51
8	References.....	52

Chapter 1

1 .Introduction:

The Library Management System (LMS) is a web application for increasing the efficiency of library operations. The system includes various features to meet the needs of administrators, librarians, and users. The home page serves as an entrance to the system and allows easy navigation to important sections. The "About Us" page provides detailed information about the library's mission.

Uploading digital PDF books to the system creates a large and accessible collection. The "Contacts" page ensure smooth communication. The login page is divided into three sections: Administrator Login, Librarian Login, and User Login. Admin dashboard features include librarian and student management, book inventory management, book tracking, fine management, digital book management, book recommendations, audits management, and password reset requests. The admin dashboard allows administrators to add and manage librarian and student accounts, categorize, and manage books, monitor book operations, manage fines, manage digital books, and conduct audits. Librarians, on the other hand, have a customized dashboard for student and book management, book operations, fine management, digital books, book recommendations, audits, and password reset requests.

The user dashboard provides users with a personalized area to view and update their profiles, request new book editions, manage fines, access an online PDF book library, and view reports. The college uses a traditional system which has limitations in managing resources efficiently. The purpose of this project is to provide an introducing digital solution to these problems. The significance/meaning of this problem lies in the need to improve and further develop library operations/activities and provide better services and assistance to students and staff. By developing this system, we aim to make easier resource management, make processes more efficient, and ultimately improve the overall make a better experience for library users.

1.1 Problem Statement:

There are some problems faced by the AIK librarian while using KOHA like limited integration options, lack of commercial support or customization, budgeting records, complexity issues, no admin and audit accounts, limited archives management, accessibility issue without internet, limited vendor support. In our system all the above-mentioned problems will be managed properly in consultation of the librarian.

1.2 Time Lines:

Time line of EMS includes time required to complete the process of initialization to the deployment of web application. First we have to define the project scope and identify the objective and goals of our project. Literature review helps to understand the existing work area and knowledge in order to determine the gap between the exiting work and actual work which is needed. Project planning and requirement gathering is the first important step of EMS. System architecture, data flow diagram, database schema plays a crucial role in the design phase of our project. It is necessary for developing the project we need a good design. Gantt chart provides a complete overview of our time lines:

Deliverables / Work Breakdown Structure

1. Planning & Analysis (Jan 1, 2024 - Feb 28, 2024):

- Gather requirements from stakeholders.
- Analyses existing systems and identify necessary features.
- Define project scope and objectives.

2. Design (March 1, 2024 - April 30, 2024):

- Design user interface for Home Page, About Us, Contact Us, and Login Page.
- Design database schema for storing user accounts, book information, and transaction records.

3. Development (May 1, - August 24, 2024):

- Implement Home Page, About Us, Contact Us, and Login Page functionalities.
- Develop Admin dashboard for managing librarians, students, and book inventory.
- Develop Librarian dashboard for managing students, books, and operations.
- Develop User dashboard for profile management, book requests, fines, and online library access.

4. Testing (August 25, 2024 - September 30, 2024):

- Perform unit testing for each module.
- Perform user acceptance testing with stakeholders.

5. Deployment & Training (October 1, 2024 - October 30, 2024):

- Deploy the system in the college environment.

Provide training sessions for administrators, librarians, and users on how to use the system effectively.

Duration in the tabular form:

We can understand our schedule of projects duration.

Phase	Duration	Start Date	End Date
Planning & Analysis	8 weeks	Jan 1, 2024	Feb 28, 2024
Design	8 weeks	March 1, 2024	April 30, 2024
Development	16 weeks	May 1, 2024	August 24, 2024
Testing	9 weeks	August 25, 2024	September 30, 2024
Deployment & Training	4 weeks	October 1, 2024	September 30, 2024
Maintenance & Support	8 weeks	October 1 2024	September 30, 2024
.	.	.	.

Project Gantt Chart

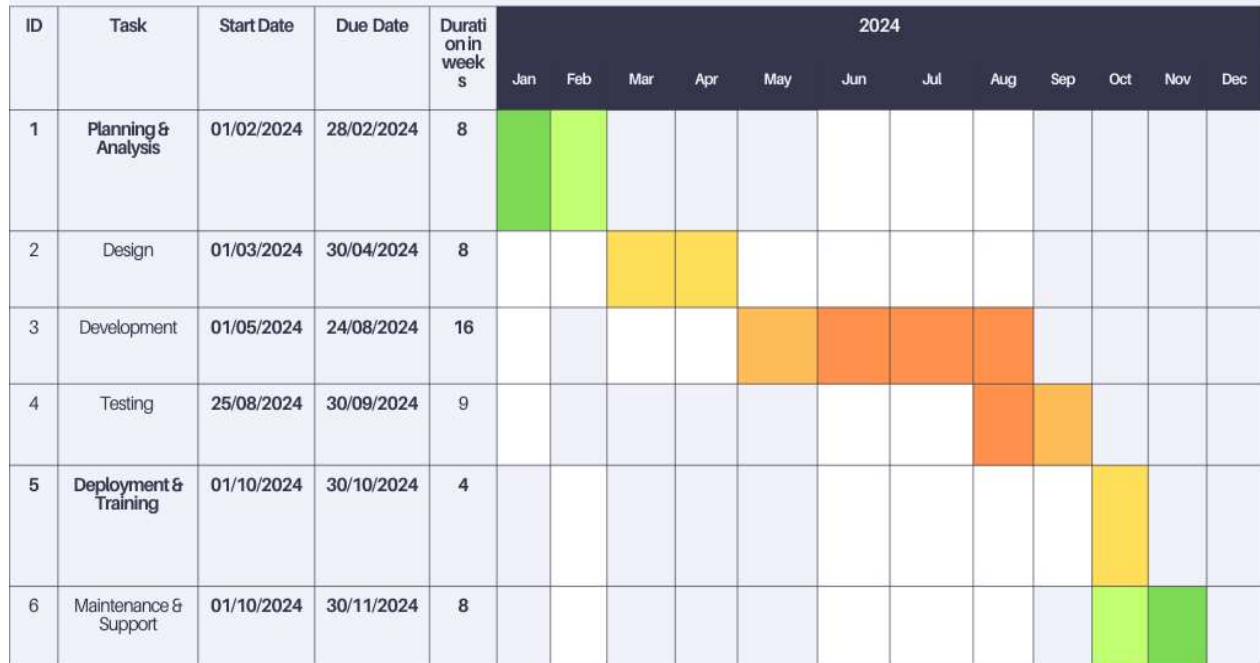


Figure 1 Gantt chart

1.3 Tools and techniques:

We will use some tools and techniques for this project development who's write below with details:

Integrated Development Environments (IDEs):

Visual Studio: Visual Studio will serve as the primary Integrated Development Environment (IDE) for software development. It offers a comprehensive set of tools for coding, debugging, and deploying applications. Its versatility and user-friendly interface make it suitable for managing the complexity of the project.

Database Management System:

MySQL: MySQL will be employed as the database management system for storing user accounts, book information, and transaction records. Its reliability, scalability, and ease of use make it a popular choice for web applications.

Web Development Technologies:

HTML/CSS: HTML and CSS will be used for front-end development to create the user interface of the library management system. They provide the structure and styling necessary for designing web pages.

JavaScript: JavaScript will complement HTML and CSS by adding interactivity and dynamic functionality to the user interface. It enables features like form validation, client-side scripting, and asynchronous communication.

PHP: PHP will be utilized for back-end development to handle server-side logic, database interactions, and user authentication. Its integration with MySQL and compatibility with web servers make it suitable for building dynamic web applications.

Version Control System:

Version Control System (VCS): While not explicitly mentioned in the proposal, a version control system such as GitHub may be utilized to manage the project's source code. GitHub provides collaboration features, facilitates code review, and helps track changes, ensuring project stability and integrity.

Localhost Server:

XAMPP: XAMPP will be used to set up a localhost server environment for testing and development purposes. It provides an integrated solution that includes Apache, MySQL, PHP, allowing for easy configuration and deployment of web applications locally.

Reasoning:

The chosen tools and technologies align with the project requirements and objectives outlined in the proposal:

Visual Studio: offers a fast development environment for creating the web application's components, ensuring efficient coding and debugging processes.

MySQL: is well-suited for managing the system's database, providing reliable data storage and retrieval capabilities.

HTML/CSS, JavaScript, and PHP: form a powerful stack for building dynamic and interactive web applications, fulfilling the project's requirement for a user-friendly interface with various functionalities.

GitHub: enables collaborative development and version control, ensuring project codebase integrity and facilitating team coordination.

XAMPP: simplifies the setup of a local server environment, allowing developers to test and debug the application locally before deployment.

These tools and technologies form a comprehensive stack that addresses the project's technical needs and objectives, enabling the successful development and implementation of the Library Management System at Akhuwat Institute of Kasur.

Chapter 2

Requirements Analysis and Background

The Library Management System (LMS) is a web application for increasing the efficiency of library operations. The system includes various features to meet the needs of administrators, librarians, and users. The home page serves as an entrance to the system and allows easy navigation to important sections. The "About Us" page provides detailed information about the library's mission.

Uploading digital PDF books to the system creates a large and accessible collection. The "Contacts" page ensure smooth communication. The login page is divided into three sections: Administrator Login, Librarian Login, and User Login. Admin dashboard features include librarian and student management, book inventory management, book tracking, fine management, digital book management, book recommendations, audits management, and password reset requests. The admin dashboard allows administrators to add and manage librarian and student accounts, categorize, and manage books, monitor book operations, manage fines, manage digital books, and conduct audits. Librarians, on the other hand, have a customized dashboard for student and book management, book operations, fine management, digital books, book recommendations, audits, and password reset requests.

The user dashboard provides users with a personalized area to view and update their profiles, request new book editions, manage fines, access an online PDF book library, and view reports. The college uses a traditional system which has limitations in managing resources efficiently. The purpose of this project is to provide an introducing digital solution to these problems. The significance/meaning of this problem lies in the need to improve and further develop library operations/activities and provide better services and assistance to students and staff. By developing this system, we aim to make easier resource management, make processes more efficient, and ultimately improve the overall make a better experience for library users.

2.1 Literature Review

The concept of academic information services emphasizes the potential of networked information resources for scholarly communication, necessitating collaboration among libraries, scholars, computing centres, and university presses.

Barriers to collaboration, including clashes of organizational cultures, personal incompatibilities, and differing approaches to change, highlight challenges in this endeavour. Library managers can mitigate these barriers by developing suitable organizational structures, selecting collaborative-minded staff, and demonstrating leadership in fostering organizational flexibility, thereby facilitating successful collaboration in academic information systems [1].

while exploring factors influencing the adoption of digital library systems in developing countries, applying the Technology Acceptance Model (TAM). Analysis of data from 16 institutions across Africa, Asia, and Central/Latin America reveals perceived ease of use significantly impacts perceived usefulness, influencing behavioural intention to use. It emphasizes the need to consider external variables in system design to align with local contexts, crucial for successful adoption in developing countries [2].

By the use of open-source integrated library systems in Nigerian academic libraries, focusing on Koha software's capabilities and global relevance. Conducted with a descriptive survey design, it sampled 25 institutions, revealing a growing adoption of free and open-source software amidst challenges like funding and managerial support. The findings underscore the practical benefits of open-source solutions for academic libraries globally, highlighting their flexibility and user-friendly nature in information retrieval [3].

By implementing Koha Integrated Library Management Software at Babcock University Library, Nigeria. Utilizing a survey design with questionnaires, experiences of 17 librarians and 24 technical staff were gathered, focusing on data migration strategies and challenges faced. Findings highlight the need for adequate training, addressing challenges like erratic power supply and insufficient man power. Recommendations include incorporating ILS courses and organizing seminars, emphasizing effective collaboration between ICT units and libraries. The study serves as a practical guide for libraries, especially in Nigeria, seeking to implement automation software like Koha [4]. University of Guyana Library's adopted Koha, an open-source software, in 2007

marked its first implementation in Guyana, driven by the need to modernize its automation approach. Koha, renowned for its worldwide use, was selected after thorough research, highlighting its role in shaping library automation regionally. The study discusses the selection process and outcomes of implementing Koha 3.8 LMS, displaying its benefits such as flexibility and collaboration promotion, alongside challenges like ongoing expenses. [5].

2.2 Functional Requirements:

1. User Management:

- Admin: Add, delete, update librarian and student accounts.
- Librarian: Manage student accounts, including adding, deleting, and updating records.
- User (Students/Teachers): Register, log in, update profiles, and manage personal information.

2.Book Inventory Management:

- Admin: Add, delete, and categorize books; manage book operations (issue, return, lost, etc.); manage digital book uploads (PDFs).
- Librarian: Assist in managing book inventory and operations; update book statuses.

3. Fine Management:

- Admin: Set and manage fine rules; track and generate fine reports.
- Librarian: Apply fines to users and manage fine payments.
- User: View and pay fines (subject to system integration for online payments).

4. Book Tracking and Auditing:

- Admin: Track issued and returned books; manage book audits and generate audit reports.
- Librarian: Assist in tracking and auditing processes.

5.Digital Library links:

- Admin & Librarian: Upload and manage PDF books; link to external digital libraries.
- User: Access, read, and download PDF books.

6. Reporting and Generating:

- Admin: Generate usage statistics, inventory reports, and fine reports.
- Librarian: Assist in generating and analysing reports.

7. Role-Based Access Control:

- Admin: Full access to all system features.
- Librarian: Access to student and book management, fine management, and report generation.
- User: Access to personal profiles, book requests, fines, and digital library resources.

2.3 Non Functional Requirements:

1. Performance Requirements:

- System Response Time: The system should respond to user requests (e.g., login, search, book issue) within 2 seconds.
- Scalability: The system should handle up to 500 concurrent users without performance degradation.

2. Security Requirements:

- Authentication: Secure login for admin, librarian, and users with role-based access.
- Data Encryption: Sensitive data such as passwords and personal information should be encrypted.
- Audit Trails: Log all significant actions by users (e.g., book issues, returns, fines).

3. Usability Requirements:

- User Interface: The system should have an intuitive, user-friendly interface that is easy to navigate.
- Accessibility: The system should be accessible on common web browsers and mobile devices.

4. Reliability Requirements:

- Availability: The system should be available 99.9% of the time during operational hours.
- Fault Tolerance: The system should recover from unexpected failures with minimal data loss.

5. Maintainability Requirements:

- Modular Design: The system should be designed in a modular manner to allow easy updates and maintenance.

6. Data Integrity Requirements:

- Database Consistency: Ensure all transactions are correctly processed, and data remains consistent across the database.

These functional and non-functional requirements provide a comprehensive foundation for the development and implementation of the "Akhuwat Pearls of Wisdom Library Management System."

2.4Existing study:

There are some problems faced by the AIK librarian while using KOHA like limited integration options, lack of commercial support or customization, budgeting records, complexity issues, no admin and audit accounts, limited archives management, accessibility issue without internet, limited vendor support. In our system all the above-mentioned problems will be managed properly in consultation of the librarian.

Challenges

Complete liaison with the library is essential for the project. Additionally, software authentication may be necessary, potentially requiring the latest paid version for database integration. A stable local network within the campus, especially in the library, is crucial for implementation. Moreover, a payment channel might be required for handling online orders.

- Complete liaison with the library.
- Software authentication (Latest paid version might be required for database integration)
- Stable local network required within campus/specially within library for implementation.
- Payment channel may be required for online order.
- Security issues.

Technological solutions

The project aims to create an essential platform for managing library resources digitally and online. It will feature a user-friendly interface to ensure ease of use. Users will have the capability to download digital PDF books at no cost. The system will provide authentication with different roles, including admin, librarian, and users (students and teachers). Additionally, it will display information about librarians, students, book inventory, and book transactions. The platform will also manage fines and facilitate email communication for alert notifications.

- Create a very important platform to manage library resources digitally online.
- Design a user-friendly interface.
- Enable users to download digital PDF books easily without any charges.
- Provide authentication with different roles: admin, librarian, and users (student & teachers).
- Display information about librarians, students, book inventory, and book transactions.
- Manage fines and email communication for alert notifications.

2.5 Technologies used

Visual Studio is the development platform. Visual studio provides a rich web application framework that allows us to build innovative web apps for desktop and mobile devices in a HTML, CSS, JavaScript and PHP language environment.

- **HTML/CSS:** HTML and CSS will be used for front-end development to create the user interface of the library management system. They provide the structure and styling necessary for designing web pages.
- **JavaScript:** JavaScript will complement HTML and CSS by adding interactivity and dynamic functionality to the user interface. It enables features like form validation, client-side scripting, and asynchronous communication.
- **PHP:** PHP will be utilized for back-end development to handle server-side logic, database interactions, and user authentication. Its integration with MySQL and compatibility with web servers make it suitable for building dynamic web applications.

Chapter 3

3. System Design:

3.1 System Architecture:

There are three-tier Architecture who is divided into 3 layers:

- Presentation layer
- Business layer
- Database layer

The Three-tier Architecture for the Library Management System is structured as follows:

1. Presentation Layer (Client Layer):

This layer serves as the topmost layer of the application, also known as the Client layer. Its main functionality is to interact with the Application layer.

Example: The user interface of the library management system where admin librarian and users interact with features such as login pages, book search interfaces, and user profile pages. It is responsible for presenting the view or interface of the application to the end users.

2 Business Layer (Business Logic Layer or Logical Layer):

Also known as the Business Logic layer or Logical layer. This layer mediates between the Presentation and Database layers.

Example: When a librarian or admin and users interacts with the system to search for books, request book issues, or pay fines, the Business layer processes these requests, interacts with the Database layer to retrieve or update data, and sends the required information back to the Presentation layer. It controls the application's functionality by performing detailed processing and implementing the respectively business logic.

3 Data Layer (Database Layer):

This layer stores all the data required by the application. It communicates with the Business layer to retrieve or manipulate data as needed.

Example: The Database layer stores information about books, admin, librarian and as well as users, transactions, fines, and other relevant data. It contains methods to connect to the database and perform actions such as inserting new data, updating existing data, deleting records, etc.



Figure 1: Three tier of Library management system

Workflow Steps:

1. Request Submission:

- When a user interacts with the library management system such as searches for a book, requests and issues, the request is submitted to the Presentation layer.

2. Controller Processing:

- The Presentation layer passes the request to the appropriate controller in the Business layer.
- The Business layer processes the request, interacts with the Database layer if necessary, and performs the required actions.
- It acts as a mediator and middle layer between the Presentation and Database layers, controlling the application's functionality.

3. Interaction with Database:

- If data retrieval or manipulation is required, the Business layer interacts with the Database layer to perform the necessary operations.

4. Response Generation:

- Once the processing is complete, the Business layer sends the response back to the Presentation layer.
- The Presentation layer presents the response to the user, displaying the requested information or performing the requested action.

This architecture ensures a clear separation of concerns, with each layer responsible for specific functionalities, promoting modularity, scalability, and maintainability of the Library Management System.

Step 1: Whenever we submitting the request from client (Browser) to Server component then controller receives the request from Browser.

Step 2: The controller receives the request from Browser Then Controller has to identify a particular model. Then it will execute business logic.

Step 3: After executing model part if it is required to interact with database then model part interact with database.

Step 4: Then view layer displays of the model to the end user. Then generate the required dynamic web page return to Browser. Finally view part sends to the response to the client. (Browser)

3.2 Use Case Diagram:

Use Case Diagram Description:

The use case diagram for the Akhuwat Pearls of Wisdom Library Management System is showing interactions between different types of users such as student and staff and the system's functionalities. There is some element of use case diagram with brief description and use cases represented in the diagram below:

Actors:

1. Admin:

Admin manages the overall system, including user and librarian roles and system settings.

2. Librarian:

Librarian manages the book inventory and handles and control the loan and return processes, and lookup fine management.

3. User:

Users can borrow and returns the books and receives notifications. User can view the reports.

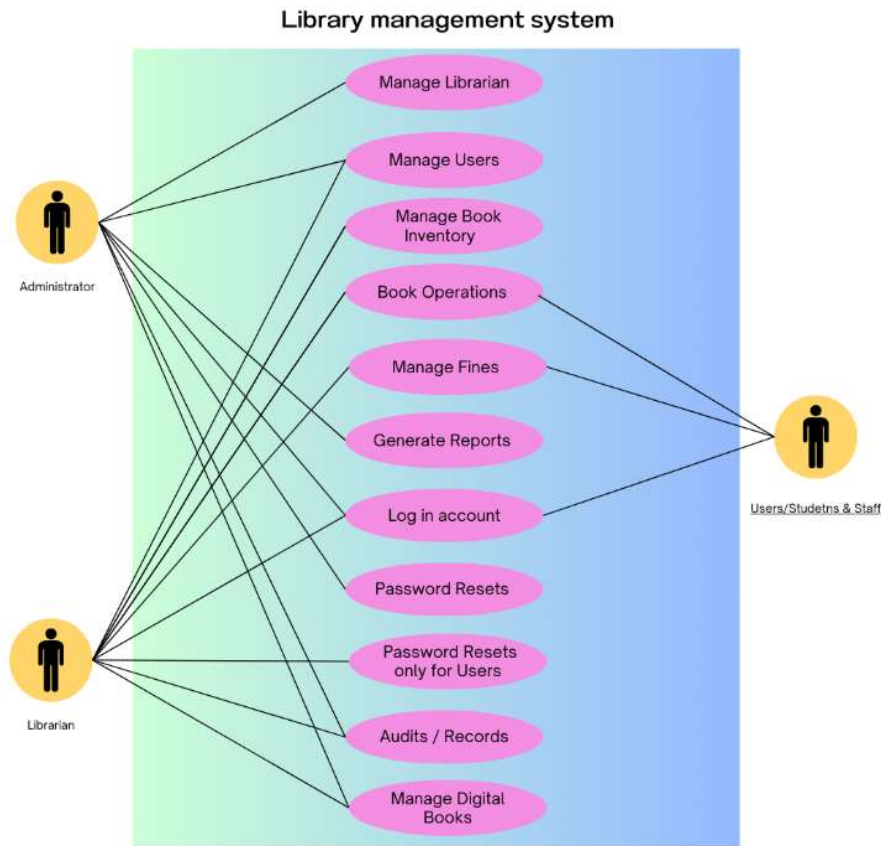


Figure 3 Use case diagram

3.3 Database Schema Description:

The database schema for the Akhuwat Pearls of Wisdom Library Management System is showing to support the core functionalities and operations required for managing a library management system. This schema consistent many key entities that will represent the various components of the system that along with their attributes and relationships. There are some points who's write below with each entity and its role within the system.

User:

The User entity represents the individuals who interact with the library management system. Each user has unique credentials and personal information store in it.

Attributes:

- user id (pk): A unique identifier for each user.
- username: The login name for the user.
- password: The password for the user's account.
- fullname: The full name of the user.
- email: The user's email address.
- phoneNumber: The user's contact number.

Book:

The book entity contains information about the books available in the library.

Attributes:

- bookid (pk): A unique identifier for each book.
- isbn: The international standard book number.
- title: The title of the book.
- author: The author of the book.
- publisher: The publisher of the book.
- categoryid (fk): A reference to the category of the book.

Category:

The Category entity classifies books into different categories.

Attributes:

- categoryid (pk): A unique identifier for each category.
- categoryname: The name of the category.

Fine:

The Fine entity records fines incurred by users for late returns or other violations.

Attributes:

- fineid(pk): A unique identifier for each fine.
- amount: The amount of the fine.
- paiddate: The date the fine was paid.

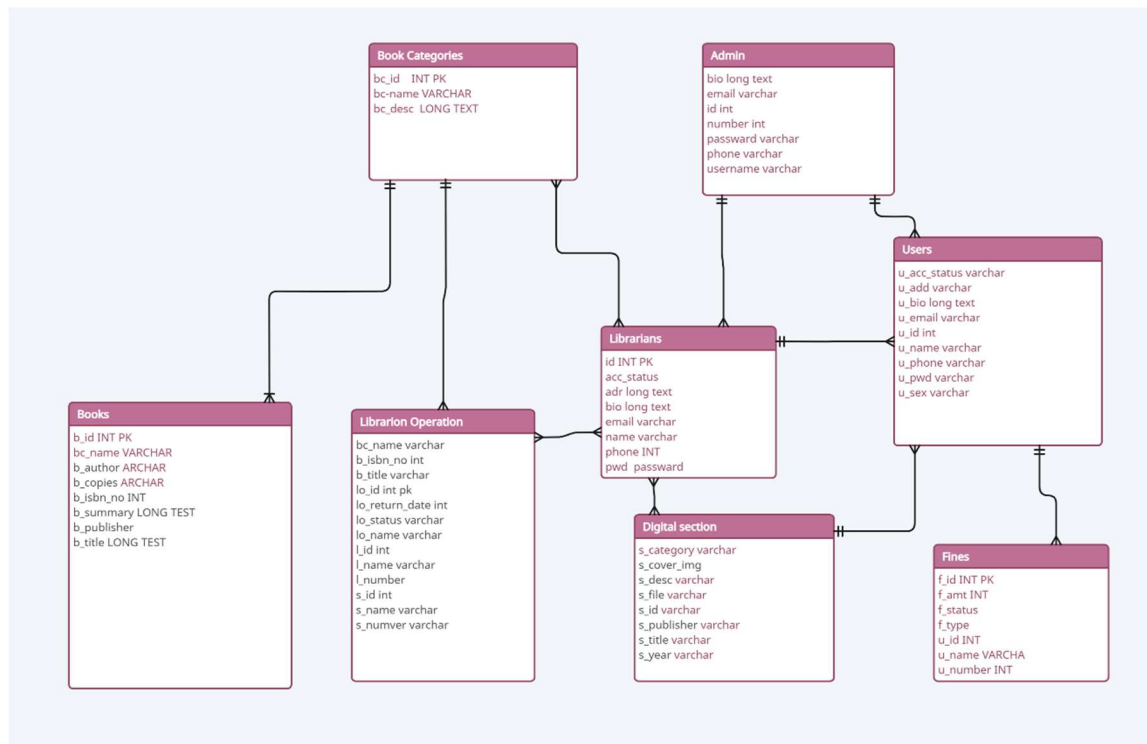


Figure 4 Database schema

3.4 Activity diagram description:

The activity diagram for the Akhuwat Pearls of Wisdom Library Management System is showing visually represents the flow of activities and actions such as user management, book management and issued books. There are some points of activity diagram who's write below:

User Login:

User can create account. If account already exist, then can login account etc.

Book Management:

User can manage the books and do all most all operation of books such as issued book, return books etc.

Fine Management:

User can manage the fine such as showing the fine status and check the fine such as how much pay or not pay fine etc.

Generate Reports:

User can also generate the reports about user details etc.

Logout:

After all that user can also logout form the library management system.

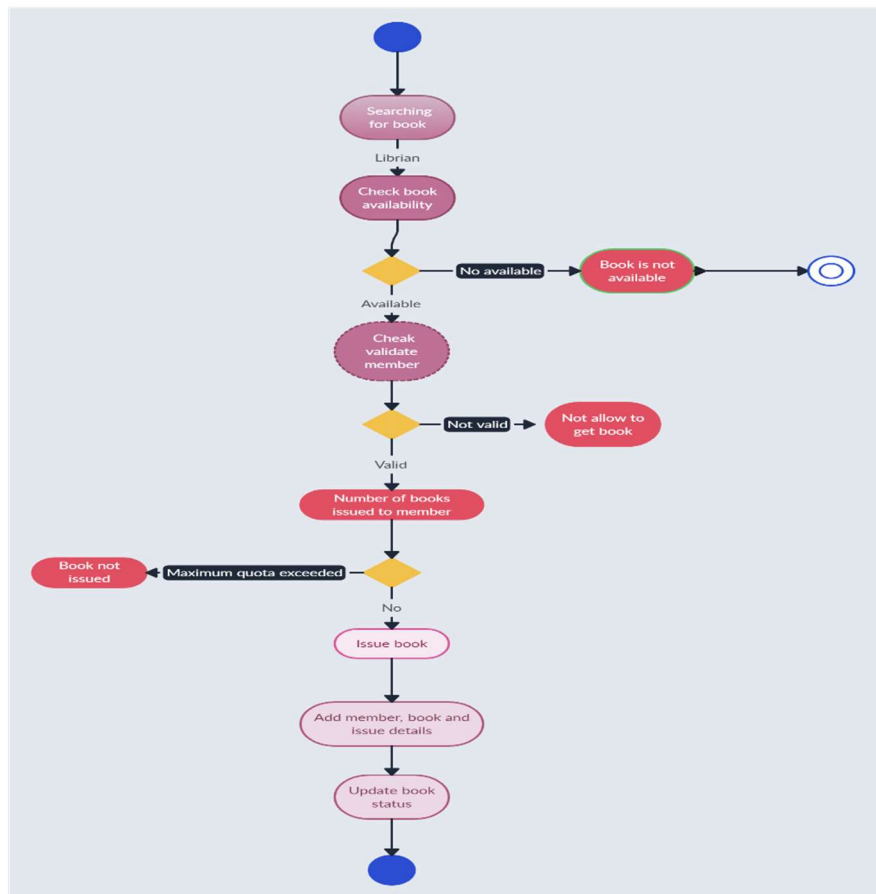


Figure 5 Activity diagram

3.5 Sequence Diagram description:

The sequence diagram for the Akhuwat Pearls of Wisdom Library Management System is showing that the interactions between different actors such as librarian, members and the system components such as user management, book management, fine management. There are some points who's write below:

- Members (Users).
- Transaction.

- Books.
- Librarian.

We can understand the mechanism of it in this diagram:

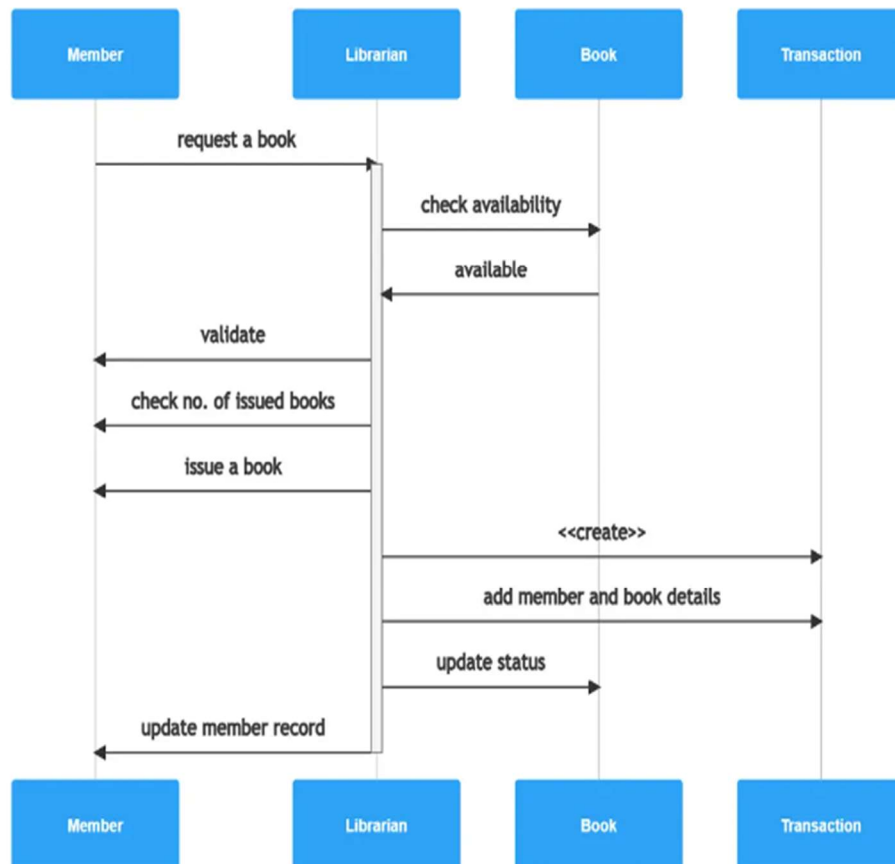


Figure 6 Sequence diagram

3.6 User Interface Design:

The front Screen or home page of Library management system contains many other pages and dashboard who's write and attached below:

Home Page

The home page of the Akhuwat Pearls of Wisdom Library Management System is showing as the primary or main interface for users to access and interact with the library system. It is designed to provide an intuitive and user-friendly experience, it may be offering important and necessary features and functionalities that facilitate to do an efficient way library management. There are some main features and functions who's write below in the points:

Navigation Menu

There are some basic features and functions of home page who's write below:

- **Login page:**

The login page is showing as the primary access point for users and administrators. This page will ensure secure authentication and validation and allowing only registered users such as students and others staff and administrators to access the Library management system.

- **Dashboard:**

There are three dashboard involve in home page such as Admin dashboard, Librarian dashboard and Users dashboard

- **Book Management:**

System will be providing the facility to manage the books such as add book delete book etc.

- **Fine Management**

System will be providing the facility to manage the fines such as view book fines and pay the fines record etc.

- **Reports**

System will be providing the facility to generate and manage the reports etc.



Figure 7 Home page

Login Page

The login page for the Akhuwat Pearls of Wisdom Library Management System is showing the primary and initial access way for users and administrators. This page ensures secure authentication and validation allowing only registered users and administrators to access the system. The are some points who's write below:

User Input Fields:

Users will be providing the valid emails and passwords.

Authentication Process:

After the enter the valid email and password, system will do authentication process to confirm the valid users.

User-Friendly Elements:

System will be providing the facility the remember the password and feedback.

Security Measures:

System will be providing the facility the encryption of the password and multiple time the wrong password entered system will lock for authentication. Sometime system will be providing the captcha for verification.

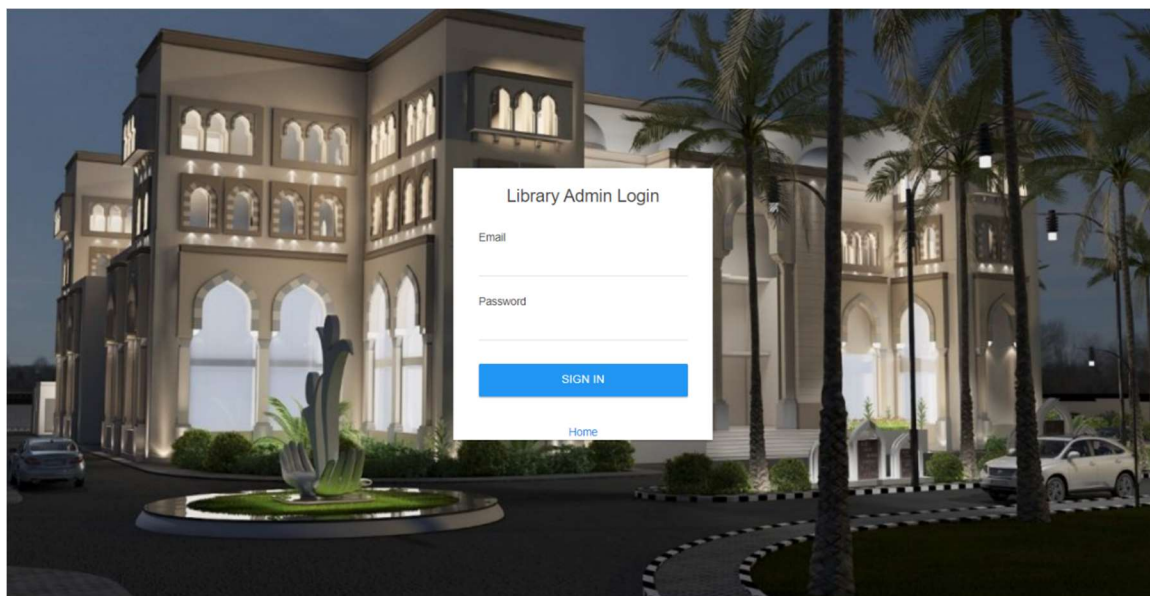


Figure 8 Library login

Admin Dashboard:

The admin dashboard for the Akhuwat Pearls of Wisdom Library Management System is showing the central interface for administrators, librarians and users to manage the library's operations efficiently and effectively. This dashboard is designed to provide a comprehensive very important information and user-friendly experience that will an ensuring that all critical tasks can be performed effectively and effectively. There are some features and functions who's write bellow:

Librarian Management:

Admin can manage the librarian and check all the details about librarian and as well as all the details about users such as student and staff.

Book Management:

Admin can manage the books such as add book, delete book from library. Admin can allow to librarian to do all the books operations such as add book delete book and issue the books to users etc.

Fine Management:

Admin can manage the fine such as which user has fine and how much and all the details of fine.

Reports Generation:

Admin can generate all the details such as reports like books issue details and fines details from the users. Admin can generate the report of librarian etc.

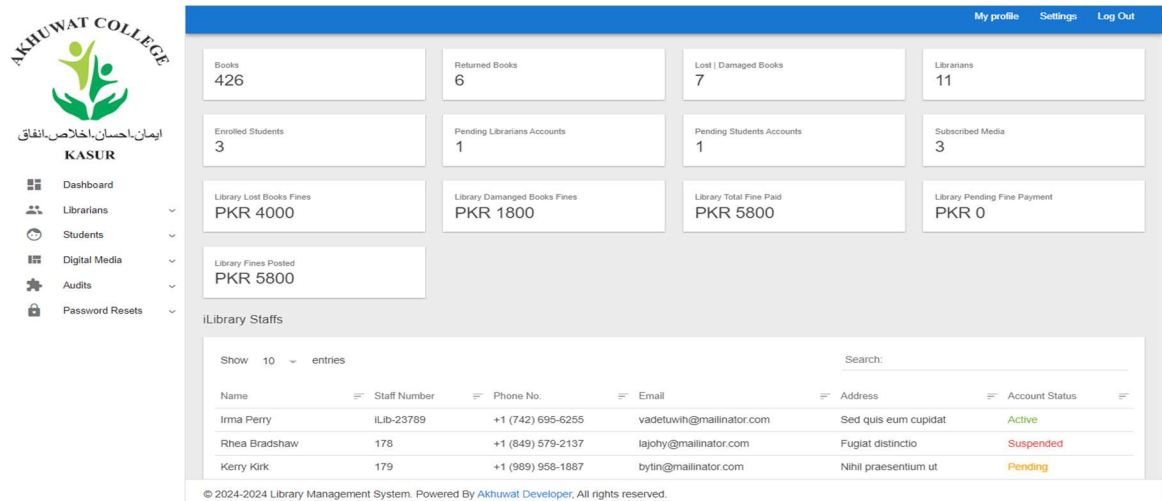


Figure 9 Admin dashboard

Librarian Dashboard:

The Librarian Dashboard is an important interface designed to facilitate the management of the library's operations efficiently and effectively. It will provide librarians with a suite of tools such as all operation and functionalities to handle and control various aspects of library management, such as user management, book management, fine management and reporting. There are some points whose write below:

User Management:

Librarian can manage the users and check all the details about users such as the register the users etc.

Book Management:

Librarian can also manage the books. Librarian to do all the books operations such as add book delete book and issue the books to users etc.

Fine Management:

Librarian can also manage the fine such as which user has fine and how much and all the details of fine such as pay or not pay fine etc.

Reports Generation:

Librarian can also generate all the details such as reports like books issue details and fines details from the users.

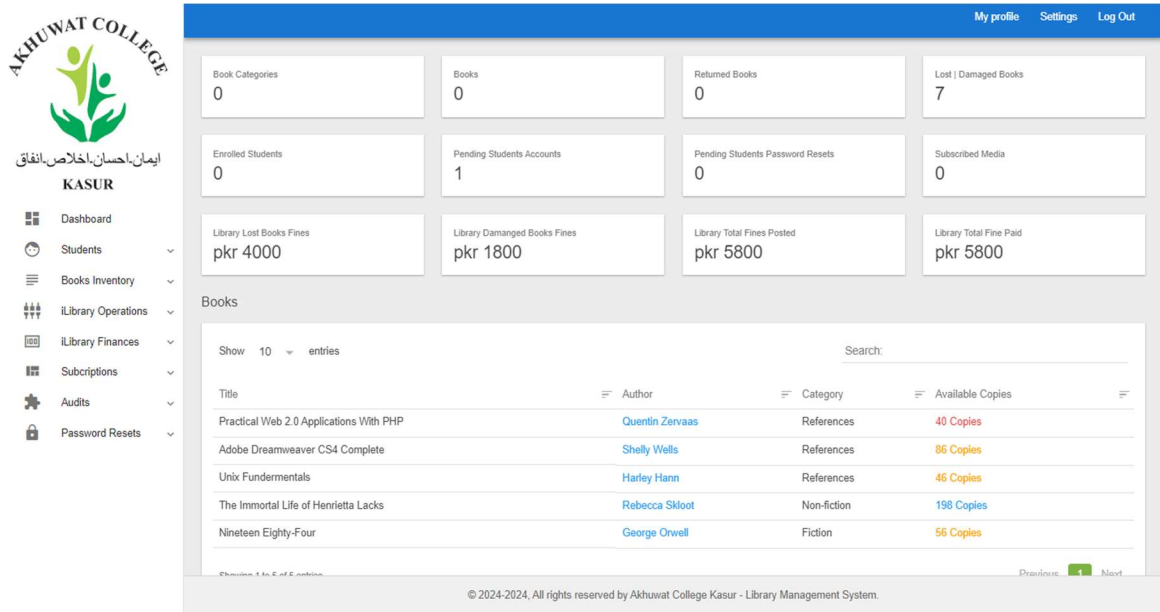


Figure 10 Librarian dashboard

Users dashboard:

The User Dashboard for the Akhuwat Pearls of Wisdom Library Management System is showing the primary and an important interface for both library users such as students, faculty and administrators and librarians. It will be providing a core platform to access and manage various library-related functionalities and operation. There are some basic features and operation who's write below:

User Profile Management:

Users can manage profile such as modifying the data like name username and also add picture etc.

Book Management:

User can manage the books such as showing the issued books and returned the books. User can also download the digital books such as PDF files etc.

Fine Management:

Users can check the fine such as how much fine are left and how much fine payed.

Report Generation:

Users can also generate the own report of all the details like issued books details and re-turned books and as well as fine details etc.

Logout:

User can logout from the Library management system.

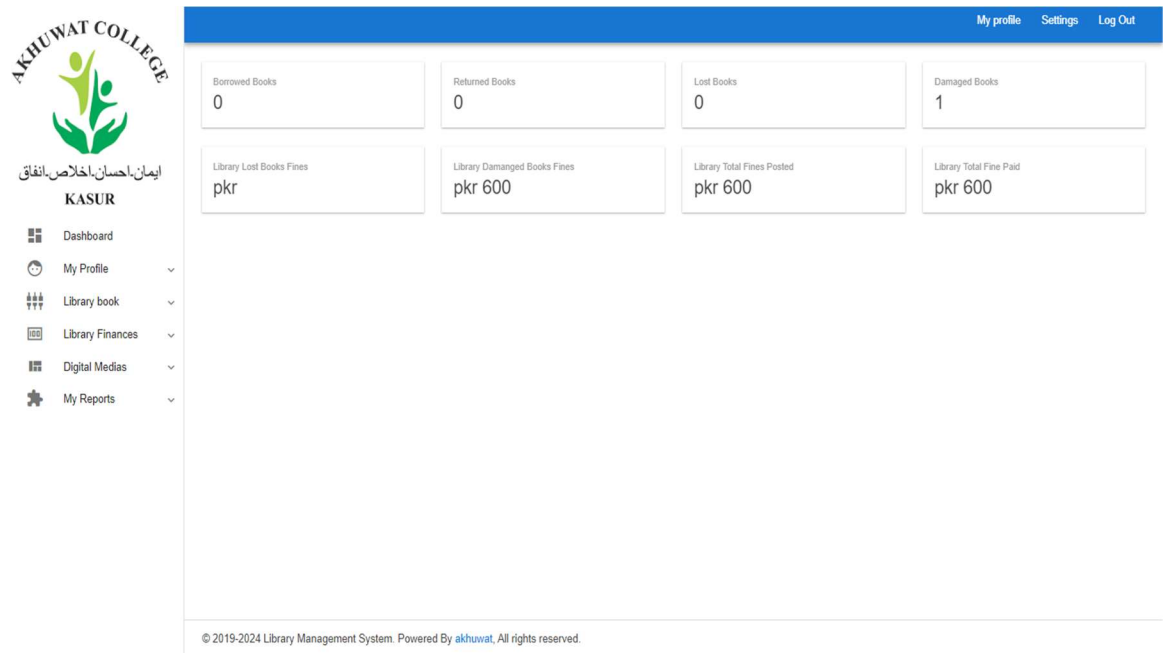


Figure 11 Student dashboard

Chapter 4

4.Implementation

4.1 Development Tools:

There are some development tools who's use during the development:

- Visual Studio
- XAMP
- MySQL

Visual Studio:

Visual Studio is the development platform. Visual studio provides a rich web application framework that allows us to build innovative web apps for desktop and mobile devices in a HTML, CSS, JavaScript and PHP language environment.

- **HTML/CSS:** HTML and CSS will be used for front-end development to create the user interface of the library management system. They provide the structure and styling necessary for designing web pages.
- **JavaScript:** JavaScript will complement HTML and CSS by adding interactivity and dynamic functionality to the user interface. It enables features like form validation, client-side scripting, and asynchronous communication.
- **PHP:** PHP will be utilized for back-end development to handle server-side logic, database interactions, and user authentication. Its integration with MySQL and compatibility with web servers make it suitable for building dynamic web applications.

XAMP:

The XAMPP is a free and open-source platform where web server solution stack package developed by Apache Friends and consisting mainly of the Apache HTTP Server, In the Akhuwat Pearls of Wisdom Library Management System project, XAMPP is utilized.

MySQL

MySQL is a very useful and efficient relational database management system (RDBMS) that is normally used in library management systems (LMS) to effectively store, manage, and retrieve library data. We use it in our library management system for some purpose who's write bellow:

Data Storage:

This can store the data like user's id, name etc. This can also store the record the data of books such as id, name and other informative information etc.

Data Retrieval:

By this we can search books and generating the reports and also retrieve the real time information etc.

Data Management:

By this we can store data and manage it such as books operation and other things like manage the records etc.

Data Integrity:

By this tool we can adopt the integrity of our database etc.

4.2 Program Code:

This piece of codes belongs to admin dashboard for management of books inventory etc.

```
<?php
session_start(); // Start session management

include "assets/inc/config.php"; // Include configuration file
include "assets/inc/checklogin.php"; // Include login checking function
check_login(); // Check if user is logged in

// Query to get total number of copies of books
$result = "SELECT SUM(b_copies) FROM il_Books";
$stmt = $mysqli->prepare($result); // Prepare SQL statement
$stmt->execute(); // Execute SQL query
$stmt->bind_result($books); // Bind result to variable
$stmt->fetch(); // Fetch results
$stmt->close(); // Close statement
```

Figure Admin dashboard code for management of books

4.3 Integration:

In the Akhuwat Pearls of Wisdom Library Management System project that we combine all the modules of code in an integrated way using XAMPP which provides a comprehensive and an important local development environment without internet access. In XAMPP we integrate Apache MySQL and PHP forming the backbone and core for

developing and testing the system of management. Each module of this project such as user authentication, book management and also transaction processing. It is developed by using the PHP language for server-side scripting. The data storage and retrieval and play for all functionalities are efficiently and effectively handled using by MySQL. MySQL is used for database management. This integration allows the obstacle less merging of all modules that enabling wildly and fast development that thorough testing and efficient debugging in a local setting and environment. By using the XAMPP, we ensure that all components work perfectly and making the application reliable and ready for deployment.

Chapter 5

Testing:

5.1 Test Cases:

Tester Name : Naveed Ahmad (library cataloger at Akhuwat collage Kasur)	
Module Name : Login Module (Admin Login, Librarian Login, User (Student/Teacher) Login, Authentication and authorization)	
Expected Result:	<p>Incorrect username but correct password</p> <p>Error displayed</p>
Comments from Supervisor / Moderator :	

Tester Name : Naveed Ahmad (library cataloger at Akhuwat collage Kasur)	
Module Name : Login Module (Admin Login, Librarian Login, User (Student/Teacher) Login, Authentication and authorization)	

correct username but incorrect password
Expected Result: Error displayed
Comments from Supervisor / Moderator :

Tester Name : Naveed Ahmad (library cataloger at Akhuwat collage Kasur)
Module Name : Login Module (Admin Login, Librarian Login, User (Student/Teacher) Login, Authentication and authorization)
correct username and correct password
Expected Result: Success login to system
Comments from Supervisor / Moderator :

Tester Name : Naveed Ahmad (library cataloger at Akhuwat collage Kasur)
Module Name : admin(Add and manage librarian accounts)
Missed important data fields
Expected Result: Error displayed
Comments from Supervisor / Moderator :

Tester Name : Naveed Ahmad (library cataloger at Akhuwat collage Kasur)
Module Name : admin(Add and manage student accounts)
Filled important data fields
Expected Result: Successfully Added
Comments from Supervisor /Moderator:

Tester Name : Naveed Ahmad (library cataloger at Akhuwat collage Kasur)
Module Name : admin(Upload and manage PDF books)

Incorrect filed or missing the filed
Expected Result: Error displayed
Comments from Supervisor/Moderator:

Tester Name : Naveed Ahmad (library cataloger at Akhuwat collage Kasur)
Module Name : admin(Upload and manage PDF books)
correct filed or no missing the filed
Expected Result: Successfully Added
Comments from Supervisor/Moderator:

Tester Name : Naveed Ahmad (library cataloger at Akhuwat collage Kasur)
Module Name : admin(Audit Management)
Expected Result: Successfully preformed
Comments from Supervisor / Moderator:

Tester Name : Naveed Ahmad (library cataloger at Akhuwat collage Kasur)
Module Name : admin>Password Reset Requests)
Expected Result: Successfully preformed
Comments from Supervisor / Moderator:
Tester Name : Naveed Ahmad (library cataloger at Akhuwat collage Kasur)
Module Name : admin(Upload and manage books)

Incorrect filed or missing the filed
Expected Result: Error displayed
Comments from Supervisor/Moderator:

Tester Name : Naveed Ahmad (library cataloger at Akhuwat collage Kasur)
Module Name : admin(Upload and manage books)
correct filed or no missing the filed
Expected Result: Successfully Added
Comments from Supervisor/Moderator:

Tester Name : Naveed Ahmad (library cataloger at Akhuwat collage Kasur)
Module Name : Update Profile
All fields and filled with correct information
Expected Result Successfully Added
Comments from Supervisor / Moderator:

Tester Name : Naveed Ahmad (library cataloger at Akhuwat collage Kasur)
Module Name : Update Profile
Missing some fields or filled with incorrect information
Expected Result Error displayed
Comments from Supervisor / Moderator:

5.2 Testing Strategy:

The system testing process is intended to detect any deficiencies in Library Management System project. The program is executed several times with different test inputs, and some observations are reported. These have to be observed in order for the program, based on these observations will decide if it acts as expected. A two-stage testing of the project:

1. Unit testing
2. Integration testing

MODULE DESCRIPTION

For doing the testing in library we divide Library Management System into three modules:

1. Admin Module
2. Librarian Module
3. User (Student/Teacher) Module

UNIT TESTING

Unit testing is performed after the creation and review of a module commit. The most common environment provided for testing a single module:

- Calls to other procedures of a module which are called the under test Module
- Data structures accessed by module that are non-local
- A function to call the functions of the module under test with appropriate Arguments.

Each of them is I did unit testing on:

1. Test for the Admin Module:

- **Testing admin login form:** This is the form for login of system administrator. The test is to sign in with a specific username and password Here the conditional check if both are correct it opens administrator page else it redirects back to login and prompt for username password again.
- **Student account addition:** Admin - Admin verifies student details from academic info and add students detail in main library database admin monitor all the

sections for fine and pension. Form with Add and Delete Buttons When add button is clicked, the data will be added to that student database If delete click then student Data deleted.

- **Book addition:** Details of a book and add the detail in main table – Admin. Admin Can Direct View Book Request.

2. Test for Librarian Module:

Testing librarian login form:

Pictured below is the librarian login form. The username and password are prompted to enter for the test. Second one is, if both are true then open the Librarian log in page otherwise redirect to same login page and ask for username and password again.

Student account management:

The librarian can create student accounts, check details and update the main library database. This form includes buttons to add and remove student entries.

Book management:

Book Details Book Categories Fine Books Issue Return Reports on Book Operations Adding Operation of librarian Densahmission as a team member. This comprised recording broken and lost books.

3. Test for User (Student/Teacher) Module

- **Testing user login form:** this is the form to be used when user login. This is a test that you will type the library ID, username and password. If all are correct, the user login done otherwise, it redirects back to the login page and prompts to enter correct credentials. here Users can view and update their profiles, request new book editions, manage fines, and access the online PDF book library.
- **Account creation:** This form is for creating a new account. When the form is not filled in its entirety, it forces completion of the entire. After filling, transferred to the page where it is registered (registered as waiting for confirmation of adding by administrator).
- **Profile management:** Users profile, book edition request for SMS My Fines Online PDF book library.

Integration testing

Integration Testing - In this testing, the integration of one module is tested with another by interfacing input. The important point is to validate the module interfaces so there should be no error when one module calls another.

System testing

Black Box and White Box testing will be done in all of the interfaces, loops (System Test).

White Box Testing

White box testing, also known as glass-box-testing is a component-level design that derives test cases from the control structure. Key Takeaways White Box Testing Ensures,

Each independent path from the module is executed at least once.

- All of the logical decisions processed
- Loops are executed across their boundaries and within their functional limits
- Check that the internal data structures are valid.

Cyclomatic complexity is computed to specify a quantity of the logical complexity of an application such that it defines number independent paths within the basis set) i.e. graph based representation for program explanation collected from source code using McCabe as one-way algorithm.

Black Box Testing

Black Box Testing - If the test engineer doing testing without knowledge of actual workings (code being written). The tester only knows the possible "legal" inputs and what output should be produced, without knowing how the program comes to said outputs. In black box testing, you test against the specifications of a system without any knowledge on how it is created.

MODULE TEST CASES

1. Admin Module:

- Admin Login
- Student Account Addition
- Book Addition

2. Librarian Module:

- Librarian Login
- Student Account Management

- Book Management

3. User Module:

- User Login
- Account Creation
- Profile Management

5.3 Bug Reporting and fixing:

In the development process of the Akhuwat Pearls of Wisdom Library Management System. There are some bugs are occurring and reporting and fixing are crucial steps to ensure the system's functionality, reliability, and user satisfaction and other operations.

Bug Reporting:

There are some bugs occurs in this projects and the reporting it with the snapshot or figures who's attached below one by one.

Bug Fixing:

In this project there are some bugs and errors are occurring who is showing in the form of figures in below one by one as well as we solve or fixed the bugs in the form of figures etc.

Snapshot /figures:

There are some figures that indicate the bugs as well as bugs solution respectively.

Home page:

This is the main or home page.



Figure 12 home page

Login page:

This is login page that is used to use for login. When we enter the right username and password then login page will be open but if we enter the wrong username and password then login page will not open.

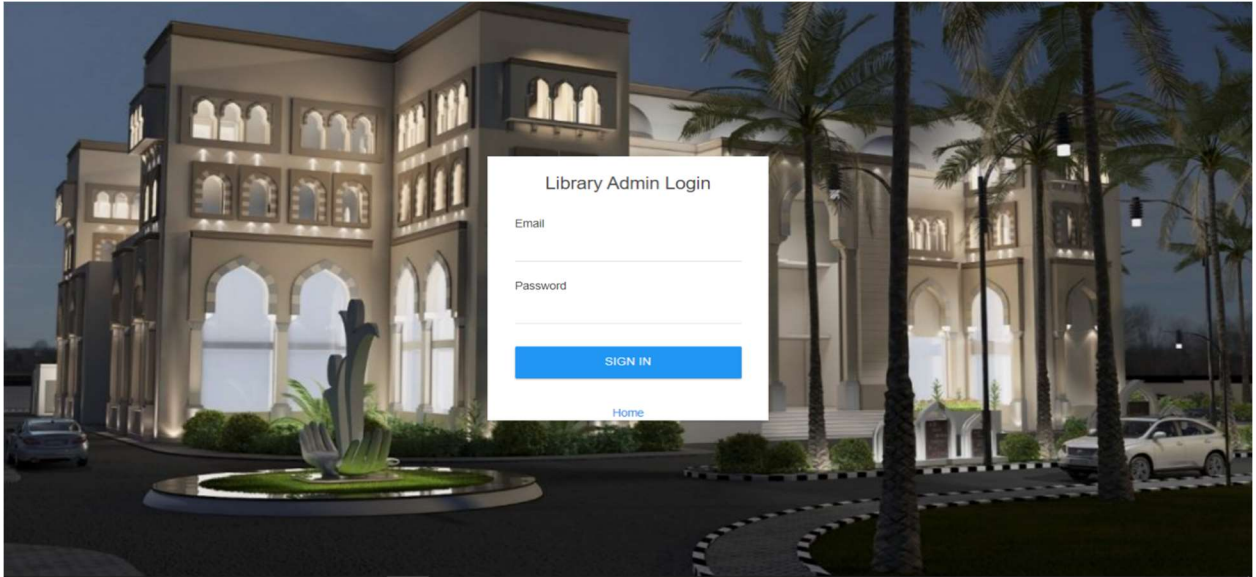


Figure 13 login page

Incorrect login:

When we enter the wrong username and password for testing then the login page did not open or execute etc.

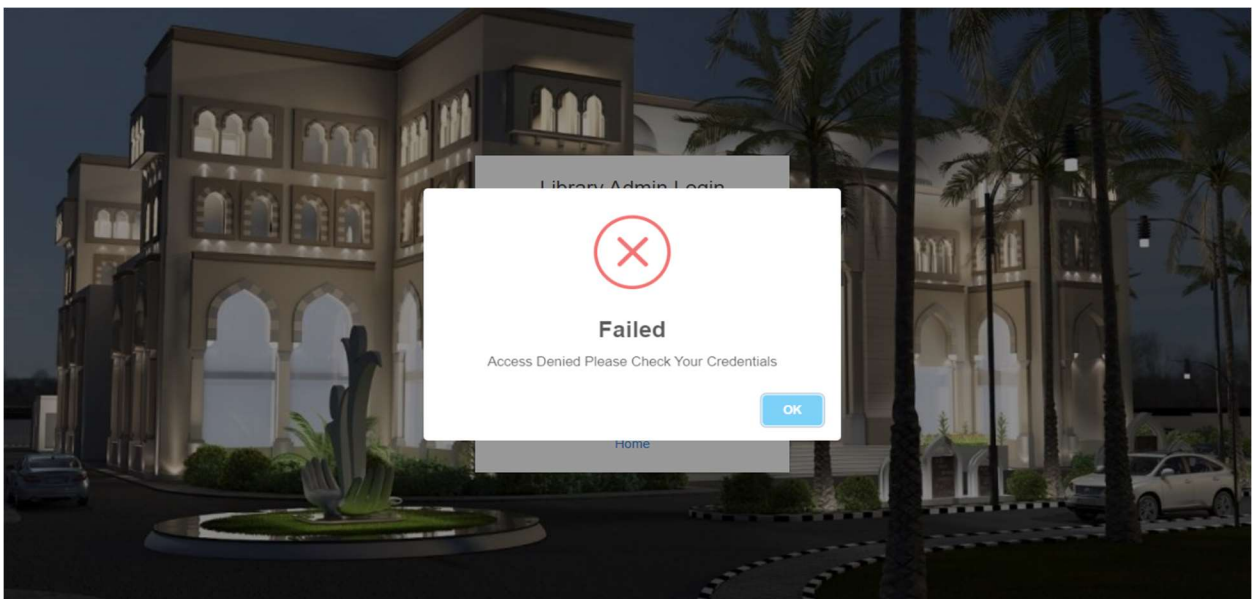


Figure 14 login page failed to login

Correct login:

When we login with correct username and password etc.

The screenshot displays the Akhuwat College Kasur Library Management System dashboard. On the left is a sidebar with the college's logo and a menu of options: Dashboard, Students, Books Inventory, iLibrary Operations, iLibrary Finances, Subscriptions, Audits, and Password Resets. The main content area features a top navigation bar with 'My profile', 'Settings', and 'Log Out' links. Below this is a grid of eight summary cards showing statistics such as Book Categories (0), Books (0), Returned Books (0), Lost/Damaged Books (7), Enrolled Students (0), Pending Students Accounts (1), Pending Students Password Resets (0), and Subscribed Media (0). Further down, another grid shows financial summaries: Library Lost Books Fines (pkr 4000), Library Damanged Books Fines (pkr 1800), Library Total Fines Posted (pkr 5800), and Library Total Fine Paid (pkr 5800). The 'Books' section contains a table with columns for Title, Author, Category, and Available Copies, listing five books with their respective authors and copy counts. A footer at the bottom states '© 2024-2024, All rights reserved by Akhuwat College Kasur - Library Management System.'

AKHUWAT COLLEGE
ایمان۔احسان۔اخلاص۔انفاق
KASUR

Dashboard
Students
Books Inventory
iLibrary Operations
iLibrary Finances
Subscriptions
Audits
Password Resets

My profile Settings Log Out

Book Categories: 0
Books: 0
Returned Books: 0
Lost | Damaged Books: 7
Enrolled Students: 0
Pending Students Accounts: 1
Pending Students Password Resets: 0
Subscribed Media: 0
Library Lost Books Fines: pkr 4000
Library Damanged Books Fines: pkr 1800
Library Total Fines Posted: pkr 5800
Library Total Fine Paid: pkr 5800

Books

Show 10 entries

Search:

Title	Author	Category	Available Copies
Practical Web 2.0 Applications With PHP	Quentin Zervaas	References	40 Copies
Adobe Dreamweaver CS4 Complete	Shelly Wells	References	86 Copies
Unix Fundementals	Harley Hann	References	46 Copies
The Immortal Life of Henrietta Lacks	Rebecca Skloot	Non-fiction	198 Copies
Nineteen Eighty-Four	George Orwell	Fiction	56 Copies

Showing 1 to 5 of 5 entries

Previous 1 Next

© 2024-2024, All rights reserved by Akhuwat College Kasur - Library Management System.

Figure 15 login page login correct

Add new user with blank data.

AKHUWAT COLLEGE

ایمان. احسان. اخلاص. انفاق

KASUR

Dashboard

Librarians

user

Digital Media

Audits

Password Resets

My profile Settings Log Out

Dashboard > user > New Student Account

Please Fill All Fields

Student Full Name
Rinah Emerson

Student Phone Number
+1 (981) 588-9683

Student Address
Consectetur volupta

Student Email
|

Student Gender
Male

Student Bio | About
Autem beatae nemo ma

CREATE STUDENT ACCOUNT

Please fill in this field.

© 2024-2024 Library Management System. Powered By Akhuwat Developer, All rights reserved.

Figure 16 add new use with blank data

Add new user with correct data such as username and password etc.

AKHUWAT COLLEGE

ایمان. احسان. اخلاص. انفاق

KASUR

Dashboard

Librarians

user

Digital Media

Audits

Password Resets

My profile Settings Log Out

Dashboard > user > New Student Account

Please Fill All Fields

Student Full Name
Rinah Emerson

Student Phone Number
+1 (981) 588-9683

Student Address
Consectetur volupta

Student Email
|

Student Gender
Male

Student Bio | About
Autem beatae nemo ma


CREATE STUDENT ACCOUNT

Success

Student Account Created


OK

Figure 17 add new user with correct data




ایمان، احسان، اخلاص، انفاق
KASUR

- Dashboard
- Librarians
- User
- Digital Media
- Audits
- Password Resets




Student 005
Student @Library




STUDENT 005 PROFILE

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean commodo ligula eget dolor. Aenean massa. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Donec quam felis, ultricies nec, pellentesque eu, pretium quis, sem. Nulla consequat massa quis enim. Donec pede justo, fringilla vel, aliquet nec, vulputate eget, arcu. In enim justo, rhoncus ut, imperdiet a, venenatis vitae, justo. Nullam dictum felis eu pede mollis pretium. Integer tincidunt. Cras dapibus. Vivamus elementum semper nisi. Aenean vulputate eleifend tellus. Aenean leo ligula, porttitor eu, consequat vitae, eleifend ac, enim. Aliquam lorem ante, dapibus in, viverra quis, feugiat a, tellus. Phasellus vulputate nulla ut metus varius laoreet. Quisque rutrum. Aenean imperdiet. Etiam ultricies nisi vel augue. Curabitur ullamcorper ultricies nisi. Nam eget dui. Etiam rhoncus. Maecenas tempus, tellus eget condimentum rhoncus, sem quam semper libero, sit amet adipiscing sem neque sed ipsum. Nam quam nunc, blandit vel, luctus pulvinar, hendrerit id, lorem. Maecenas nec odio et ante tincidunt tempus. Donec vitae sapien ut libero venenatis faucibus. Nullam quis ante. Etiam sit amet orci eget eros faucibus tincidunt. Duis leo. Sed fringilla mauris sit amet nibh. Donec sodales sagittis magna. Sed consequat, leo eget bibendum sodales, augue velit cursus nunc.


Contact And Personal Info




student005@gmail.com
Email




+4567890998
Phone




127001 Localhost
Address



ILIB-74291
Library Number



Female
Gender



Active
Account Status

Borrowed Books

Nineteen Eighty-Four

Returned

Date Borrowed : 28-Apr-2020

Practical Web 2.0 Applications With PHP

Returned


Date Borrowed : 28-Apr-2020

Practical Web 2.0 Applications With PHP

Lost

Date Borrowed : 28-Apr-2020

Update profile data of user.



KASUR

Dashboard
Librarians
user
Digital Media
Audits
Password Resets

My profile
Settings
Log Out

Dashboard > user > Manage Student Account > Update Yvonne Matthews

Please Fill All Fields

Student Full Name

Yvonne Matthews

Student Number

334

Student Email

maxovyfo@mailinator.com

Student Account Status

Active

Student Bio / About

Nostrum tenetur enim

Student Phone Number

+1 (246) 993-3527

Student Address

Aut delectus reicie

Student Password

Student Gender

Male

UPDATE YVONNE MATTHEWS ACCOUNT

© 2024-2024 Library Management System. Powered By [Akhawat Developer](#). All rights reserved.

Page 47 of 52

Manage profile data such as user or student.

AKHUWAT COLLEGE

ایمان احسان اخلاص اتفاق

KASUR

Dashboard

Librarians

user

Digital Media

Audits

Password Resets

My profile Settings Log Out

Dashboard > user > Manage user

iLibrary user Accounts

Copy Print CSV PDF

Show 10 entries

Search:

Name	iLib Student No	Phone No.	Email	Address	Gender	Acc Status	Actions
Student 001	iLib-37508	+906756432	student001@gmail.com	127001 Localhost	Male	Active	View Update Delete
Student 002	iLib-89325	+23498876547	student002@gmail.com	127001 Localhost	Female	Active	View Update Delete
Student 003	iLib-12487	+9007675438	student003@gmail.com	127001 Localhost	Male	Active	View Update Delete
Student 004	iLib-59213	+9007675460	student004@gmail.com	127001 Localhost	Male	Active	View Update Delete
Student 005	iLib-74291	+4567890998	student005@gmail.com	127001 Localhost	Female	Active	View Update Delete
Voldah Kyalo	iLib-93285	+4567890998	voldahkyalo@gmail.com	127001 Localhost	Female	Active	View Update Delete
Lev Mercado	iLib-03629	+1 (631) 734-8681	byfypisom@mailinator.com	Rem voluptatum ea no	Female	Suspended	View Update Delete
Margaret Smith	823	+1 (157) 239-6378	cyladowe@mailinator.com	Soluta ipsam modi si	Male	Active	View Update Delete
Yvonne Matthews	334	+1 (246) 993-3527	maxovyfo@mailinator.com	Aut delectus reicie	Male	Active	View Update Delete

Showing 1 to 9 of 9 entries

Previous 1 Next

© 2024-2024 Library Management System. Powered By Akhuwat Developer, All rights reserved.

Figure 20 manage profile data

Error in page where admin profile can update in this error variables will be undefined:

AKHUWAT COLLEGE

ایمان احسان اخلاص اتفاق

KASUR

Dashboard

Librarians

user

Digital Media

Audits

Password Resets

My profile Settings Log Out

Warning: Undefined variable \$row in D:\xampp\htdocs\Library\admin\settings.php on line 60

Warning: Attempt to read property "username" on null in D:\xampp\htdocs\Library\admin\settings.php on line 60

Admin

WARNING: UNDEFINED VARIABLE \$ROW IN D:\XAMPP\HTDOCS\LIBRARY\ADMIN\SETTINGS.PHP ON LINE 66

WARNING: ATTEMPT TO READ PROPERTY "USERNAME" ON NULL IN D:\XAMPP\HTDOCS\LIBRARY\ADMIN\SETTINGS.PHP ON LINE 66

UPDATE YOUR SUDO ACCOUNT

Profile info

User name

Warning: Undefined variable \$row in D:\xampp\htdocs\D:\xampp\htdocs\Library\admin\settings.php on line 78

Email

Warning: Undefined variable \$row in D:\xampp\htdocs\D:\xampp\htdocs\Library\admin\settings.php on line 82

Phone Number

Warning: Undefined variable \$row in D:\xampp\htdocs\D:\xampp\htdocs\Library\admin\settings.php on line 86

Old Password

New Password

Confirm New Password

UPDATE PROFILE

© 2024-2024 Library Management System. Powered By Akhuwat Developer, All rights reserved.

Figure 21 Error undefined variable

Correct the above Error in page by define variables:

The screenshot shows a web application interface for Akhuwat College. On the left is a sidebar with the college logo and a menu including Dashboard, Librarians, user, Digital Media, Audits, and Password Resets. The main content area is titled 'KASHIF JILANI UPDATE YOUR SUDO ACCOUNT'. It features a blue header with the user's name 'kashif jilani' and role 'Admin'. Below this is a 'Profile info' section with three input fields: 'User name' (kashif jilani), 'Email' (admin@lib.org), and 'Phone Number' (123456789). There are also fields for 'Old Password', 'New Password', and 'Confirm New Password'. A green 'UPDATE PROFILE' button is at the bottom. The footer contains copyright information for the Library Management System.

AKHUWAT COLLEGE

ایمان، احسان، اخلاص، اتفاق

KASUR

Dashboard

Librarians

user

Digital Media

Audits

Password Resets

My profile Settings Log Out

kashif jilani
Admin

KASHIF JILANI UPDATE YOUR SUDO ACCOUNT

Profile info

User name kashif jilani Email admin@lib.org Phone Number 123456789

Old Password New Password Confirm New Password

UPDATE PROFILE

© 2024-2024 Library Management System. Powered By Akhuwat Developer, All rights reserved.

Figure 22 correct error by define variable

Chapter 6

6.Future work:

6.1 Additional Features:

The Akhuwat Pearls of Wisdom Library Management System, in future we will add additional features to performance better its functionality and operations as well as user experience. In future we will integrate with external and other digital libraries and allowing users to access to huge amount of others resources such as journals and other book digests books. The system also includes a rapidly notification system that can alerts users about fines dead line due to its last dates and also the availability of reserved books which can user issue book. That books will be showing in the pending list. We will provide best approach to generate the reports. We will provide the system supports optional functionalities like online payment of fines integration with Akhuwat bank to enhance advanced security features to protect user data and librarian management system for efficient and effectiveness handling of book. We will provide better way to archive management ensures better historical records of books and users. We will also provide the offline access feature allows users to use the system even without an internet services. In last we will also provide more attractive interface for user, it is mean that it will be better user friendly interface.

There are some key points who's write below:

- Link with external digital libraries.
- Notification system for alerts on fines.
- Detailed reporting statistics and inventory reports.
- Online payment integration with Akhuwat bank account for fines.
- Advanced security features.
- Book management for efficient handling.
- Better archive management of historical records.
- Offline access without an internet services.

Chapter 7

7.Conclusion /Summary of work:

Library management systems (LMS) are generally designed and developed to digitalize the book operations of library. It also handles the students accounts, book borrow, archives handling and auditing. In Akhuwat institute, a purpose build library has been established in cooperation with the chughtai lab since 2020. In this particular library, an open source Koha software is working. This software has some drawbacks like limited integration options, lack of commercial support or customization, budgeting records, complexity issues, no admin and audit accounts, limited archives management, accessibility issue without internet, limited vendor support. There is a dire need of Library management system for the Akhuwat institute Kasur. So, in order to cope up this particular need we should develop a web-based application named as “Akhuwat Library management system.” This project will be ensured efficient management of library operation such as user authentication, fine management, auditing capabilities, vendor, and archive management. It consists of book inventory in Portable Document Format upload option as well as provide user-friendly interface with different dashboard such as administration, librarian, and user(students/Teachers). We need to enhance library operations, improve user experience, and increase the efficiency of resource management.

Chapter 8

8.References:

- 1: Allen, B. L. (1995). Academic information services: A library management perspective.
- 2: Park, N., Roman, R., Lee, S., & Chung, J. E. (2009). User acceptance of a digital library system in developing countries: An application of the Technology Acceptance Model. *International journal of information management*, 29(3), 196-209.
- 3: Uzomba, E. C., Oyebola, O. J., & Izuchukwu, A. C. (2015). The use and application of open source integrated library system in academic libraries in Nigeria: Koha example. *Library Philosophy and Practice*, 1.
- 4: Omeluzor, S. U., Adara, O., Ezinwayi, M., Bamidele, A. I., & Umahi, F. O. (2012). Implementation of Koha integrated library management software (ILMS): the Babcock University experience. *Canadian Social Science*, 8(4), 211-221.
- 5: George, G., Bernard, S., & Sayrange, S. (2021). Koha Open Source Library Management System: The University of Guyana Library Experience. *Caribbean Library Journal*,