

CITIZEN COLLEGE

(Affiliated To Pokhara University)

A PROJECT REPORT On “LIBRARY MANAGEMENT SYSTEM” Is Submitted in partial fulfillment of BACHELOR OF COMPUTER APPLICATION.

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Library Management System

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ABSTRACTS

The main goal of this project is to build a web service that uses HTML, CSS and PHP for the management of libraries. The system gives users, especially students, the possibility of adding, editing and removing books, book categories and authors. The students have access to books and can check the state of missing books, find out what they've already returned as well as see a list of published books. The implementation of the booking feature for reservations will be part of future improvements. The system will improve the efficiency of managing library resources and provide users with an easily accessible interface. CSS, HTML, PHP and MySQL are included in the stack of technologies suggested. Minor limitations were met in completing the project which allowed for future enhancements, e.g. to introduce a rating and review system, integration of external databases, facilitating re-appointments via an electronic book renewal or integrated recommendation engine. Overall, the project provides a comprehensive solution for library management, empowering students and optimising resource management.

Keywords:

Admin, Liberian, Library Management System, Login, Students, User, Web-based.

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LIST OF ABBREVIATIONS

AJAX	Asynchronous JavaScript And XML
API	Application Programming Interface
CAMP	Cloud Application Management for Platforms
CSS	Cascading Style Sheets
CURD	Creat, Update, Read, and Delete
DFD	Data Flow Diagram
DOM	Document Object Model
ERD	Entity Relationship Diagram
HTML	Hypertext Markup Language
ISBN	International Standard Book Number
LMS	Library Management System
MYSQL	My Structured Query Language
PBL	Project Based Learning
PHP	Hypertext Preprocessor
QA	Quality Analysis
RDBMS	Relational Database Management System
SDLC	Software Development Life Cycle
XML	Extensible Markup Language

1 INTRODUCTION

Library management systems (LMS) have revolutionized the way libraries operate, transforming traditional manual processes into streamlined and efficient digital workflows. Libraries must make it their business to manage large collections of resources in an era when they are becoming more and more available electronically, while maintaining a consistent user experience. To tackle these challenges and to improve the experience of both librarians and visitors, a library management system shall provide necessary tools and functions. A library management system provides a complete software package, which includes cataloguing, circulations, resource management and user services, that is intended to simplify and enhance the operation of libraries. This is a central platform for the management of library resources, membership, book borrowings, reservations and administrative tasks. An LMS makes it easier and faster for daily library activities, improves the operational efficiency of librarianship so that they can concentrate on serving more advanced services to Library users through digitisation and automation. Librarians will be able to catalogue and organize the books, eBooks, Journals, multimedia content or any other library resources easily using the Library Management System. Each item may be assigned an exclusive identifier, such as ISBN so that it can be easily tracked and retrieved. In addition, the system facilitates the efficient management of the circulation, allowing the Librarians to track book loans, issue reminders of due dates, manage reservations and manage returns in a seamless manner. This will ensure accurate inventory control and minimise the risk of lost or delayed goods. A range of advantages are offered to library patrons by the user friendly LMS. It will allow them to easily search for books, gain access to detailed information about available resources, check their borrowing history and renew or reserve items via the internet. It enables users to access library services 24 hours a day from any location, thanks to the convenient self service platform. In addition, as a way of fostering engagement and enhancing the user experience at libraries, many learning management systems also include features such as individual recommendations, book reviews or Internet based platforms for interaction among users. Finally, the useful tool for today's libraries to manage resources effectively, streamline operations and enhance user services is a library management system. Librarians can devote themselves to offering personalised assistance and expanding the range of Internet services that they offer by automatically performing their everyday tasks. The Library

becomes a dynamic, interactive centre of knowledge and information in the Digital Age as patrons are provided with enhanced accessibility, convenience and personalised experiences.

1.1 Background

The background of the project, a web-based LMS with multi-user and single admin login, lies in the need for an efficient and streamlined solution to manage library resources and operations. Libraries have a vital role to play in facilitating access to information and learning materials, which can be complicated by the manual control of these resources that may result in high error rates. Libraries could be automated in various tasks such as books catalog, membership management and book lending if they develop a web based Library Management System. To search the books, to ask for book reservations and to take care of your accounts, this system provides library members with a comfortable user interface. In addition, the Administrative Panel will be accessible to one administrator who is in charge of all aspects of this system, managing user accounts, tracking books that have been imported and performing administrative tasks. Compatibility with different platforms, as well as easy access through web browsers is achieved by the deployment of LMS using PHP, HTML and CSS. This is an approach which ensures user scalability and flexibility without requiring the installation of specific software. A wide range of skills and perspectives can be gathered together, as part of a team working on this project, in order to find an overall solution which will satisfy all stakeholders. A Library Management System that makes the library's operations easier, enhances member experiences and ultimately encourages a culture of knowledge sharing and learning will be developed by team members.

1.2 Motivation

The development of the library management system with multi-user access and single admin login is motivated to meet the challenges libraries face in effectively managing their resources. Inefficiencies, e.g. difficulty with the cataloging of books, tracing library borrowings and administering members' accounts, often result from outdated manual systems for management of libraries. Librarians can simplify their jobs, increase access to information and enhance overall user experience through the creation of a Digital Library Management System. The aim of the program-me is to provide a user friendly

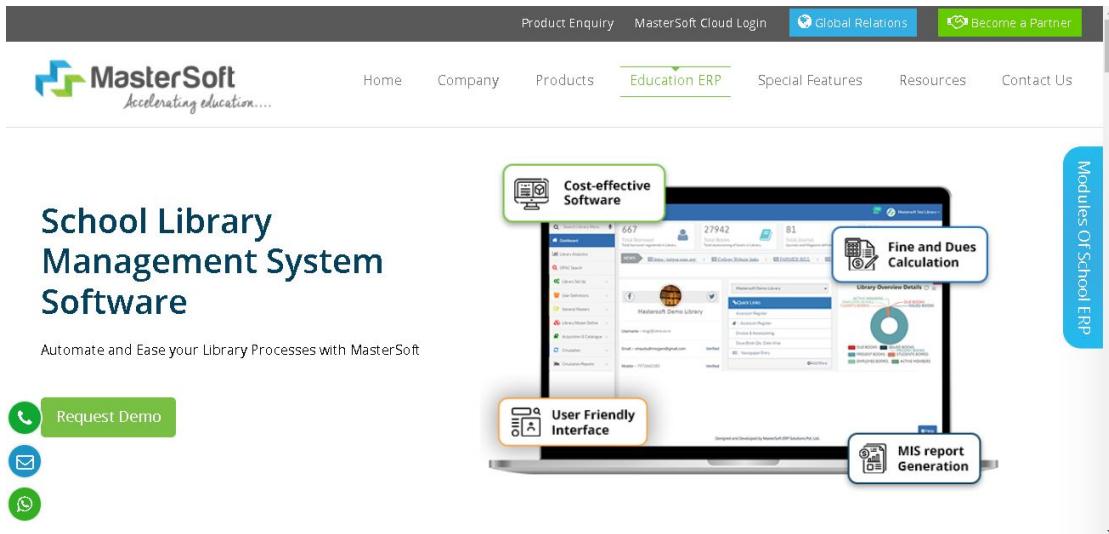


Figure 1.1: Motivation

[6]

interface for members that enables them to easily search and borrow books, so as to allow Library administrators to effectively manage their inventory, monitor book availability and ensure good interactions between users and libraries.

1.3 Problem of Statement

Effective management of their resources and providing members with secure services is a major challenge for libraries. Inefficiencies, including time consuming tasks, errors in the cataloguing and tracking of books, and difficulties in the management of members' accounts, are often caused by traditional manual library management systems. These difficulties hinder the Library's ability to provide a pleasant and useful experience for its users.

In addition, administrators are having trouble keeping records of borrowed books, managing the reservations and dealing with fines for overdue goods without a centralised system. Members are confronted with the difficulties in finding books, requesting a reservation and maintaining an account of their borrowings.

A Web Based Library Management System with Multi User and Single Administrator Access is needed to solve these problems and give you a complete solution. Various library processes, e.g. book cataloguing, management of members, borrowing and return tracking, are being automated and streamlined by the Library Management System. The system should make it easy to find books, request reservations, control accounts and

perform administrative tasks for members and administrators.

This project aims at developing a Library Management System that will simplify library operation, enhance the members' experience, improve resource management and make it more user friendly for all stakeholders involved in managing libraries.

1.4 Project Objectives

The project objectives for the web-based Library Management System with multi-user and single admin login can be summarized as follows:

1. To reduce the administrative workload:

The library management system is aimed at reducing administration tasks by automation of repetitive tasks until the completion of the project. This objective will be measured by tracking the time saved in book cataloging, member management, transaction processing, and report generation. In order to enable administrators to concentrate more on providing personal services and enhancing library offering, a 30 percentage reduction in the amount of time they spend on administration should be achieved.

2. To enhance system security:

In order to protect member data against unauthorised access, the library management system will aim for an increase in systems security before the end of the project. In order to identify and remedy all vulnerabilities, this objective will be measured by carrying out security audits and penetration tests. The objective shall be to achieve a security rating of at least 90 percentage on the basis of Industry Standard Security Criteria, with guarantees for confidentiality, integrity and availability of systems and their data.

1.5 Scope of Project

The scope of the Library Management System Project is to develop, with a view to facilitating library operations and making them more user friendly, a Complete Web Based solution. The aim of this project is to provide Library Members with a comfortable and intuitive web interface for accessing and using the system, which enables them to research books, manage their accounts, carry out loans and return operations. In order to ensure that Administrators are given exclusive access to manage the functionalities of LMS, it will include a single administrator's login. In order to keep and manage library resources, member information, borrowing history or further relevant data, a database shall be included. In order to guarantee compatibility with various device and

web browsers, this project also includes the deployment of features like search functions, book availability tracking, precise calculations or responsive design. In order to help people, understand and use the system, a comprehensive set of documentation and user training materials will be made available.

In the context of this project, there are limits and considerations to be borne in mind. First, the project will address the development of a Library Management System and core functionalities but can be more limited when it comes to customization for particular library requirements. This project shall cover the following areas:

- Enhancing the user-friendliness of the library members' Web interface
- For exclusive administration access, the implementation of a single administrator login
- Integration of library resources and members information into a database for storage and management
- Further optimization of larger scale libraries or more frequent use can be required for solubility.
- Privacy and data protection are important aspects, but the library is responsible for them.
- In order to minimize the risks, appropriate safety measures, backup and user policies should be in place.

1.6 Limitations of Project

- Due to the implementation of predetermined technologies and frameworks, limited options for customization have been available.
- If certain requirements in libraries are not perfectly aligned with the predefined functions of a system, then there may be problems to accommodate them.
- In order to meet the particular needs of each library or institution, a system may require additional modifications.
- Scalability may be limited in very wide libraries with huge collections as well as high user traffic.
- The limitation of the system's ability to be integrated with existing Library Systems or External Platforms.
- In order to address the new technology trends and evolving needs of users, continuous maintenance and updates may be required.
- Factors such as Device's screen and database server capability may influence the system's

performance.

- Only one administrator role is supported in the system and there are limits to how many users can have administrative privileges.
- This is a project for teaching purposes and it must not have been subjected to substantial testing or refinement in real life.
- Currently the system does not enable students to book books direct from the site, they only see availability and apply for loans via different means.
- The system should be used within the enterprise network environment, and may not be appropriate to host on the Internet for a wider range of access.

1.7 Potential Project Applications

- Public libraries: Improve the governance of book lending, reservation and membership accounts in public libraries with a range of sizes.
- Education institutions: Simplify the operations of libraries at school, college or university and improve resource management and facilitate access to books for students.
- Corporate libraries: to simplify the cataloguing and tracking of information in corporate libraries, making it easier for your employees to access and reuse books.
- Research Institutes: ensure an efficient system of accessing and borrowing reference materials and educational resources that will be beneficial to researchers and scholars.
- Community libraries: Automate the process of cataloguing, member management and book borrowing in support of community libraries.
- Special libraries: help specialised libraries, e.g. health and law libraries, in the management of their own collections and serve their particular user base.
- Public libraries: improve the management of library resources, making it easy for government officials and researchers to access information.
- Nongovernmental organisations: Support the management of libraries in not for profit organizations by promoting their education and community initiatives.
- Personal libraries: allow people to manage their own collection of books and keep track of what they've borrowed from the library system.

1.8 Feasibility Analysis

The feasibility study for the LMS project shall take into account an assessment of its technically, economically and operational viability.

1.8.1 Economic Feasibility

It also makes economic sense to carry out this project. The initial investments required for hardware, software and development resources are reasonable and can be budgeted accordingly. It is in the long term that the advantages of the Library Management System, e.g. a better operational efficiency, an increased user experience and streamlined library services are more than outweighed by costs. Moreover, the project is economically viable given its potential to save costs through automation and simplification of manual processes.

1.8.2 Technical Feasibility

The project is feasible from a technological point of view, because the technologies required to create websites such as PHP, HTML, CSS are already well known and widespread. In addition, the ability to access libraries, frameworks and Internet resources is making it possible to perform necessary functionalities like user registrations, search for books or borrowing management.

1.8.3 Operational Feasibility

On the operational level, due to its increasing reliance on digital solutions in libraries, this project can be carried out. The implementation of the Library and Management System is aligned with industry trends, addressing rising needs for effective resource management as well as better user access. The scope and objectives of the project, together with a clear road-map for its development and deployment, are well defined. The feasibility study concludes that the project for a system of library management has technical, economic and operational viability. It is a valuable investment, with an immediate impact on the overall functionality and efficiency of libraries, due to its ability to improve library functions, user experience as well as resource management.s

1.9 System Requirements

1.9.1 Software Requirements

- HTML and CSS: The elements of the content are defined in HTML, and CSS is applied to make it look and feel.
- PHP: The PHP programming language is a very useful tool for website development, making it easy to use in creating dynamic websites.

- MySQL: Because of the high performance, it's one of the most widely used Open Source RDBMS. Effectiveness and ease of use.
- JavaScript: It's a dynamic computer programming language called JavaScript. It's usually used as part of a web browser.
- Bootstrap: For faster and easier web, Bootstrap is a free front end framework development.
- AJAX: AJAX enables the Web pages to be updated asynchronously by exchanging data Data on a Web server that's behind the scenes.
- jQuery: jQuery's JavaScript library is intended to simplify your HTML DOM tree traversal and manipulation, as well as event handling, CSS animation or Ajax.

1.9.2 Hardware Requirements

- A computer or a machine with support for the database management system, and you can run PHP.
- A computer or a machine that has enough storage capacity to hold the library's digital resources and database files.

1.9.3 Tools Requirements

- Xampp: It's necessary for the creation of a Local Development Environment. XAMPP is a cross-platform software package that includes Apache web server, MySQL database, and PHP, providing a complete stack for running PHP applications.
- Web Browser: Testing and accessing a Web Based Library Management System can be done with any current browser such as Chrome, Firefox, Safari or Edge. Most commonly used web browsers should be compatible with the system.
- Notepad: We can write and edit code files in any of the text editors such as Notepad, notepad++, Sublime Text or Visual Studio Code. It allows you to work with PHP, HTML, CSS and Javascript code in a simple and lightweight environment.

1.10 Organisation of Project Report

In order to provide detailed findings and progress, this project is structured into an organisational structure with seven chapters. The first section shall serve as an introduction, providing a succinct overview of the project objectives and problem that it seeks to address. A comprehensive review of literature, as well as an analysis of existing works

and studies on the project's area of interest shall be carried out under Chapter 2. The review is a starting point for the following chapters. The methodology used in this project, as well as explanations of the approach and methods that have been adopted to achieve its objectives are presented in Chapter 3. The results and analyses are presented in Chapter 4, indicating the data which have been gathered, as well as the specific findings to be objectively assessed and dealt with. The testing is the focus of Chapter 5, which describes how an exhaustive evaluation process has been used to validate project results and guarantee their reliability. The potential for further improvements and growth is being explored in Chapter 6 with a view to suggesting the way forward. The Project Report is completed in Chapter 7, which summarises the main findings, reiterates the importance of the project and provides meaningful comments. In order to provide readers with a clear and effective understanding of the essence of this project, it is ensured by its organisation in such a way that research, development and future prospects are presented clearly and systematically.

2 LITERATURE REVIEW

A literature review for a library management system project typically involves exploring existing research, articles, and papers related to library management systems, web-based technologies, SDLC, and user interfaces. It aims to gather insights into best practices, challenges, and innovative approaches in developing such systems.

The main areas to be taken into account in a literature review for library management systems are as follows:

2.1 Review on Base Paper I

In the study conducted by Ankrah, Agbodza and Atuase entitled “Library Management Systems of Public Academic Libraries in Ghana: Situations and Challenges” it was noted that LMS is a very important system to manage public academic libraries in Ghana. They point out that the Integrated Library System, also known as LMS, has a pivotal role to play in providing libraries with enterprise resource planning. This system will allow libraries to track items, orders, invoices and borrower information in an efficient manner. The need for libraries to gain knowledge on LMS through the study of other libraries which already use similar types of systems that they are planning to apply is an important point stressed in this study. This implies that best practices and challenges associated with the implementation and use of a Learning Management System need to be understood. Furthermore, the authors state that while OSS provides a number of benefits such as cost savings, it can require greater technical sophistication compared to proprietary software due to initial labor costs for customization and implementation, which may lead to higher levels of technical complexity when used in Learning Support Systems. The study is concluded with a focus on the novel impact of Learning Management System on Library operations and services delivery, which has resulted in increased efficiency and an extensive range of benefits. The results show that training, system effectiveness, support and implementation of the Microsoft Learning Management System are correlated positively. In order to make maximum use of the potential of Learning and Management Systems, authors suggest that there is an urgent need for a rigorous learning programme including seminars and refresher courses. Overall, the study is contributing to an existing knowledge base of LSM in Ghana’s public academic libraries. The purpose is to highlight the importance of Library Management Systems

for improving library management, making members' experience more advantageous and simplifying administration tasks. These findings show a need to ensure that learning management systems are successfully implemented and used in libraries by providing appropriate training and support. [3]

2.2 Review on Base Paper II

Different software development methods and their suitability to final year projects are examined in a paper by DP Deraniyagala and RMM Pradeep entitled "Identifying the Software Development Methodology for Final Year Projects". In particular, their main features and uses are covered by the authors who talk about Waterfall models, Prototyping models or Agile models. The traditional method for designing and analysing systems is regarded as the waterfall model, which was first described by Winston W. Royce in 1970. This is in line with the sequential order where each phase depends on completion of the preceding one. Although this approach has been widely used, projects where it is not known at a very early stage about all of the requirements may be unsuitable. The prototyping model, on the other hand, emphasizes an iterative and trial-and-error approach. In order to achieve an acceptable result, a prototype shall be developed, tested and modified on the basis of user feedback. This model facilitates flexibility and continuous improvement in situations where project requirements are not well defined from the beginning. Collaboration and adaptation are promoted by the agile methodology, which is characterised by fragmentation of projects between several iterations or sprints. That means ongoing communication and cooperation with stakeholders, allowing for planning, implementation and evaluation at all stages of the project. According to this analysis, the authors propose that a prototype model with its iterative nature and focused on continuous customer feedback should be preferred over waterfall and agile models. Better project results are made possible by the ability to gather feedback and make improvements during the development process. Overall, the paper concludes that a prototype model with its iterative nature and focus on customer feedback has been shown to be an effective method of software development for final year projects. The prototype model allows for improved project outcome and better collaboration with user requirements, through continuous use of feedback from users. It provides valuable insight into the choice of appropriate methodologies for software development projects, especially for final year projects in the academic setting. [4]

2.3 Review on Base Paper III

A research article by E. Ogala and A.O. Sylvester entitled “The concept of Web Programming, An overview of the 1st edition of PHP” was used in the literature review. An overview of PHP as a server side scripting language and applications to be used in the management of interactive content, databases, session monitoring or building e commerce sites is provided in this article. The authors highlight PHP’s embedded nature within HTML and its versatility in handling various types of applications, from web-based to standalone. They note that the PHP is capable of being converted to an installation-able format similar to other windows applications such as Microsoft Office. PHP is an excellent tool for Web site development, due to its flexibility and ease of deployment. The performance capabilities of a pure LAMP based PHP system have also been mentioned in the research article, indicating that it will be able to handle enterprise traffic and load. This shows that PHP based applications can handle difficult workloads, which is a positive sign for their scalability and efficiency. With the growing impact that PHP is having on both professional software developers and business information technology departments, its importance and popularity can be noted in the Software Development Market. The article claims that the growing popularity of PHP has a bearing on the business software market. In total, the article goes on to say that PHP is a powerful and flexible programming language for website development. It gives you the ability to manage dynamic content, databases, session monitoring and building e commerce sites. PHP can be used to create complex and efficient Web applications, with the availability of a variety of frameworks. The article stresses the importance of PHP in building websites and its potential for delivering high quality, end products. Finally, the importance and impact of PHP on the software development market is highlighted in this literature review as a server-side scripting language, its applications to Web programming, and its influence on Software Development. An excellent summary of the abilities and benefits of PHP web development is presented in this research article. [5]

2.4 Review on Base Paper IV

The problems facing the software industry to develop applications that satisfy quality standards while being within budget constraints are explored by Ahmed Mateen, Muhammad Jahanzaib and Nayyar Iqbal in a study called “The role of Quality Assurance as

part of Software Development Projects: Project Failures and Business Performance". The researchers point out that to reduce the number of software projects which have failed, it is important to integrate quality assurance within the Software Development Life Cycle SDLC. The fact that difficulties related to business and IT management have been associated with software project failures is an important finding of the study. There has been a reduction in the allocation of resources and attention paid to quality assurance processes as a result of management focus on Economic Development and Technological Progress. Consequently, it led to higher costs and negative effects on business performance. In order to gather essential data and confirm that performance and quality assurance play a key role in mitigating software project failures, researchers stress the need for an effective survey of effectiveness. They draw attention to the significant financial impact of software problems on the US economy, which is spending around \$60 million a year because of issues with software. The paper considers the key background factors to be the complexity of software development and programming with no errors. The study acknowledges that there are continuing difficulties for the software industry with regard to compliance with quality standards, while addressing budgetary constraints. The study concludes that the importance of including Quality Assurance throughout the SDLC phases has been highlighted. The study aims at reducing the failure rate of projects and helping them meet their business objectives through the inclusion of quality assurance processes throughout the development process. In order to obtain information from software companies and industry experts, the researchers applied a methodology based on Quantitative Surveys. The data analysis and evaluation of changes in the performance parameters was performed using statistics as well as estimation methods. The importance of quality assurance for the development of software is also underlined by this study. This report sets out the challenges faced by industry in meeting quality standards, while at the same time dealing with budget constraints. It offers insights on the need to integrate quality assurance processes across the SDLC for mitigating project risks and enhancing business performance. [1]

2.5 Review on Base Paper V

This study paper focused on the theme of project based learning, which looked at its use as a teaching strategy to help students learn more deeply through active problem solving in real world contexts. A number of essential elements have been assessed in view of

this:

- Context Specific knowledge acquisition: PBL points out the importance of acquiring knowledge in a particular context, which allows students to apply their learning into actual world situations and allow them to use it during practical tasks.Peterson 2012,Pelogrino & Hilton, 2012).
- Active student involvement and social interactions: PBL requires students to actively participate in the learning process and collaborate with others, fostering teamwork and social engagement (Cocco, 2007).
- Sharing knowledge and understanding: PBL encourages students to share their knowledge and understanding with their peers, promoting a collaborative learning environment, Cocco 2007,

The review also identified six key characteristics of PBL, including posing interesting questions, emphasizing learning objectives, active involvement in instructional activities, teamwork, the use of scaffolding technologies, and the creation of substantial products (Sawyer, 2005). Of these characteristics, the creation of authentic products distinguishes PBL from other student-focused learning activities, such as problem-based training (Blumenfeld et al., 1991; Helle & Tynjälä, 2006).

Further, the distinction between problem based learning and project based learning has been highlighted in literature. PBL promotes active creation of knowledge and understanding through the learning process rather than using existing knowledge, as with problem based learning;Sawyer 2005,2005.

In the context of higher education, the literature emphasized the importance of providing an advanced and innovative learning environment, addressing skills gaps, and preparing graduates with transferable skills in addition to technical knowledge (Crosling, Nair, & Vaithilingam, 2015; Male, Bush, & Chapman, 2010). The study also showed the importance for addressing these challenges through a student led approach like PBL, Sadinski et al., 2017. Furthermore, the literature underscored the shift towards outcome-based approaches in higher education, integrating technical knowledge and professional skills into the curriculum. PBL emerged as a potential educational approach to develop these attributes and skills in university graduates (Jollands, 2013; Jollands, Jolly, & Molyneaux, 2012)[2]. The review of books provided the basis on which to be able to gain an insight into PBL principles, its benefits and possible application within the

College of Applied Studies and Community Service. It led the investigation into student and faculty satisfaction, the effectiveness of implementing PBL, and the acquisition of academic skills through this approach, in order to answer the study's research questions and hypotheses.

2.6 Reviews on Technologies for Web-Based Library Management Systems

To develop Web Based Library Management Systems, there is a need to make use of certain technologies for the development of efficient and user-friendly interfaces. An examination of suitable technologies for projects, including PHP, HTML, CSS and related technologies is carried out in the literature review.

- PHP: PHP is an open source HTTP scripting language which has been largely adopted due to its ease of use and the wide range of web development capabilities. It allows you to create dynamic content, connect to databases, and integrate easily with HTML and CSS.
- HTML: For the purpose of constructing web pages, HTML is considered as a standard formatting language. It provides a framework for presenting content and setting up the layout and structure of an LMS user interface.
- CSS: CSS is a style language to complement HTML in the way it controls web page visual presentation. It makes it easy for you to change and uniformise the style of your LMS, ensuring an appealing and user friendly design.
- JavaScript: JavaScript is a flexible script language for enhancing interactivity and dynamic functionality of web applications. This module may be used to implement features such as form validation, real time updates and responsive elements within the Library Management System.
- MySQL: MySQL is one of the most popular RDBMSs that stores and retrieves data in a LMS effectively. It allows you to securely and efficiently manage library materials, user's accounts as well as borrowing records.

3 METHODOLOGY

3.1 System Designs and Block Diagrams

3.1.1 Activity Diagram

An activity diagram shows the flows from activity to activity within a system. An activity shows a set of activities, the sequential or branching flow activity to activity, and object that act and acted upon. Activity diagram shows what activities can be done in parallel, and any alternate paths through the flow. Activity diagrams contain activities, transitions between the activities, decision points, and synchronization bars. Activities diagrams emphasize the flow of control among object.

Activity diagram for Admin

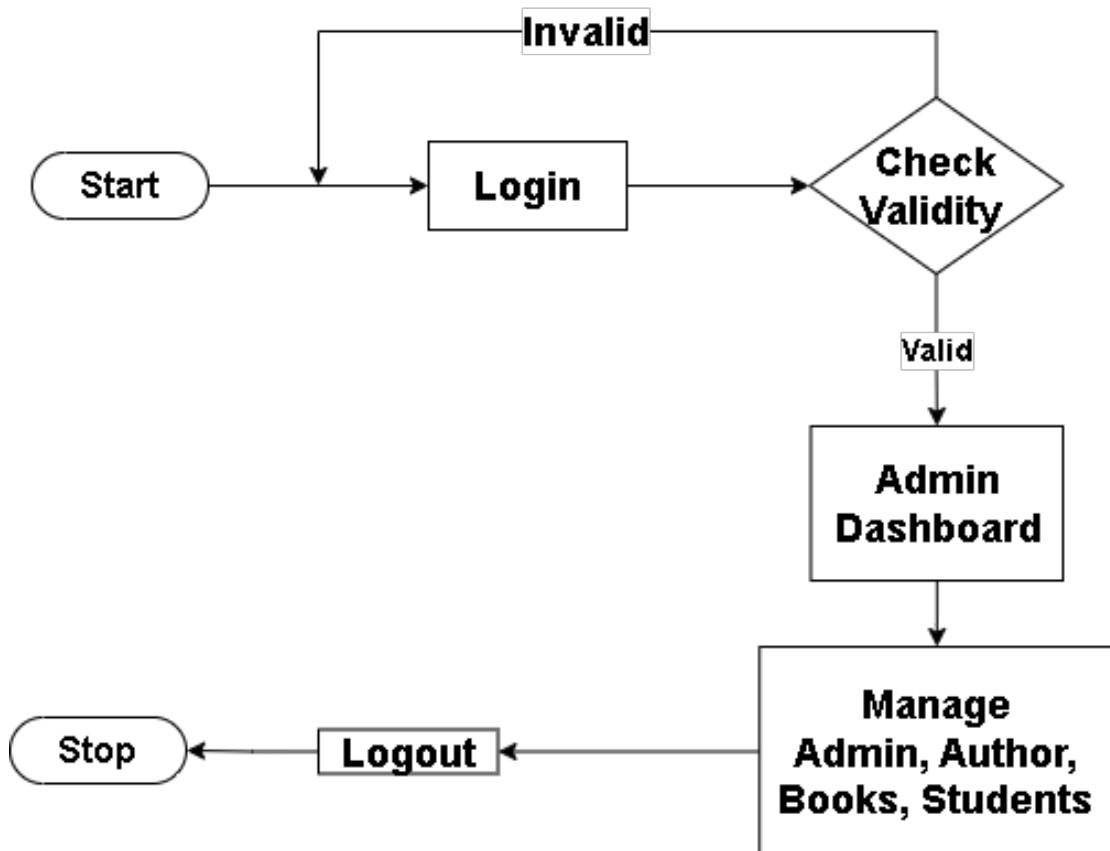


Figure 3.1: Flow Diagram

Activity diagram for Users

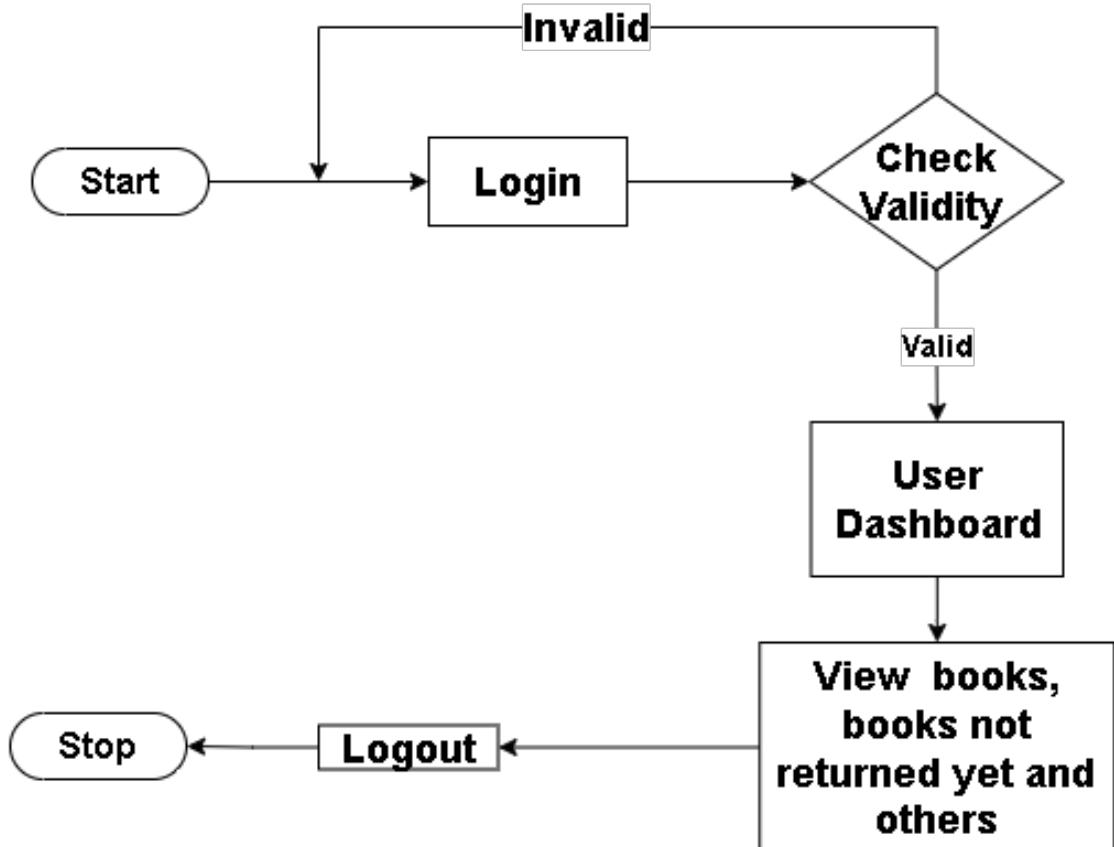


Figure 3.2: Flow Diagram

3.1.2 Data Flow Diagram

A graphical representation of the flow of data within the system is the Data Flow Diagram. We can create a Data Flow Diagram to visualize the movement of data between different components of the system, in the context of the Web Based Library Management System project.

DFD Level 0

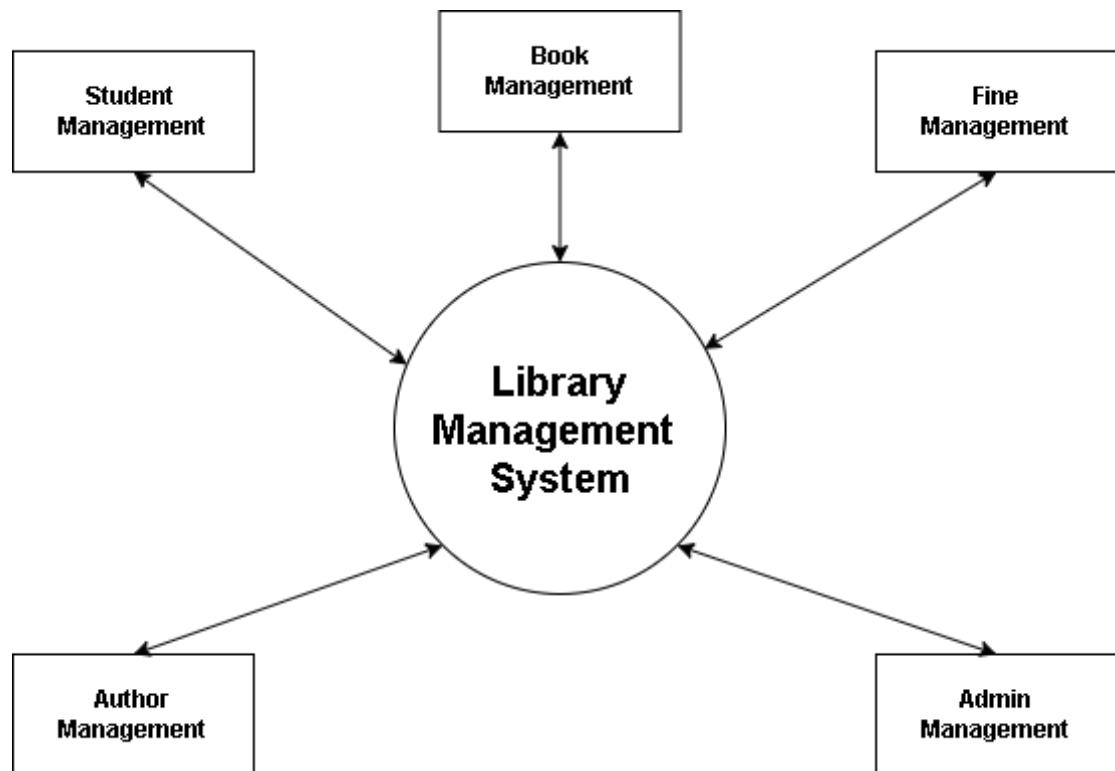


Figure 3.3: DFD Level 0

DFD Level 1

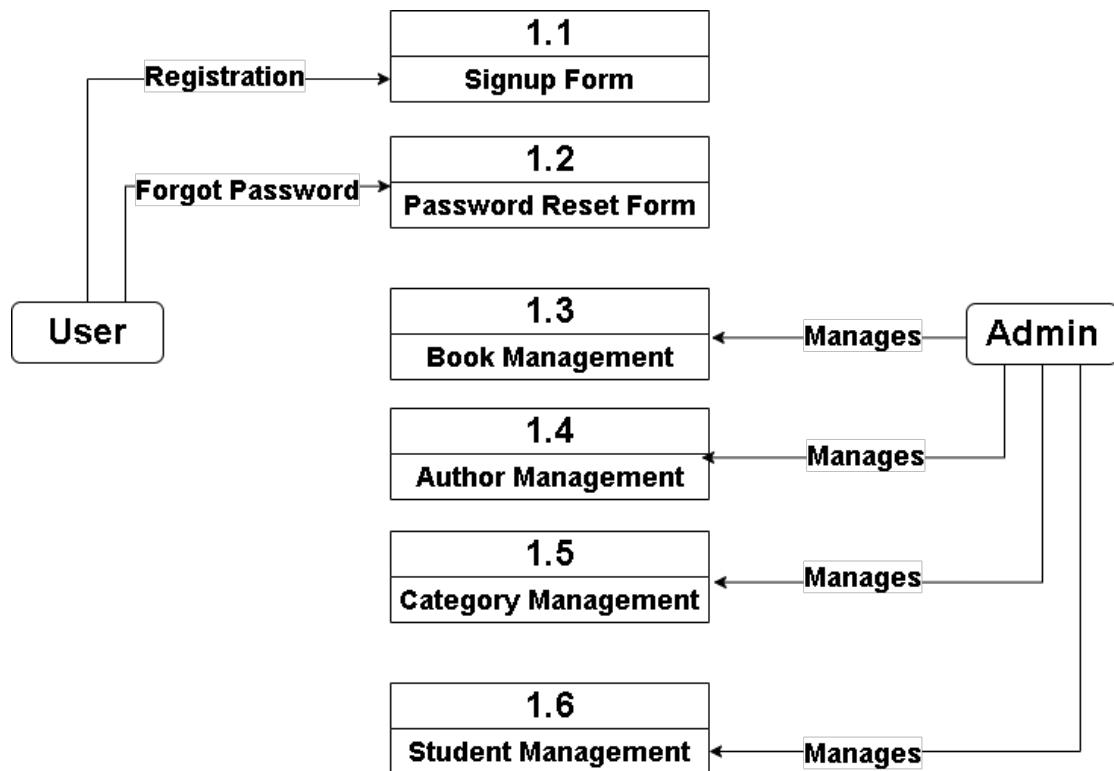


Figure 3.4: DFD Level 1

DFD Level 2

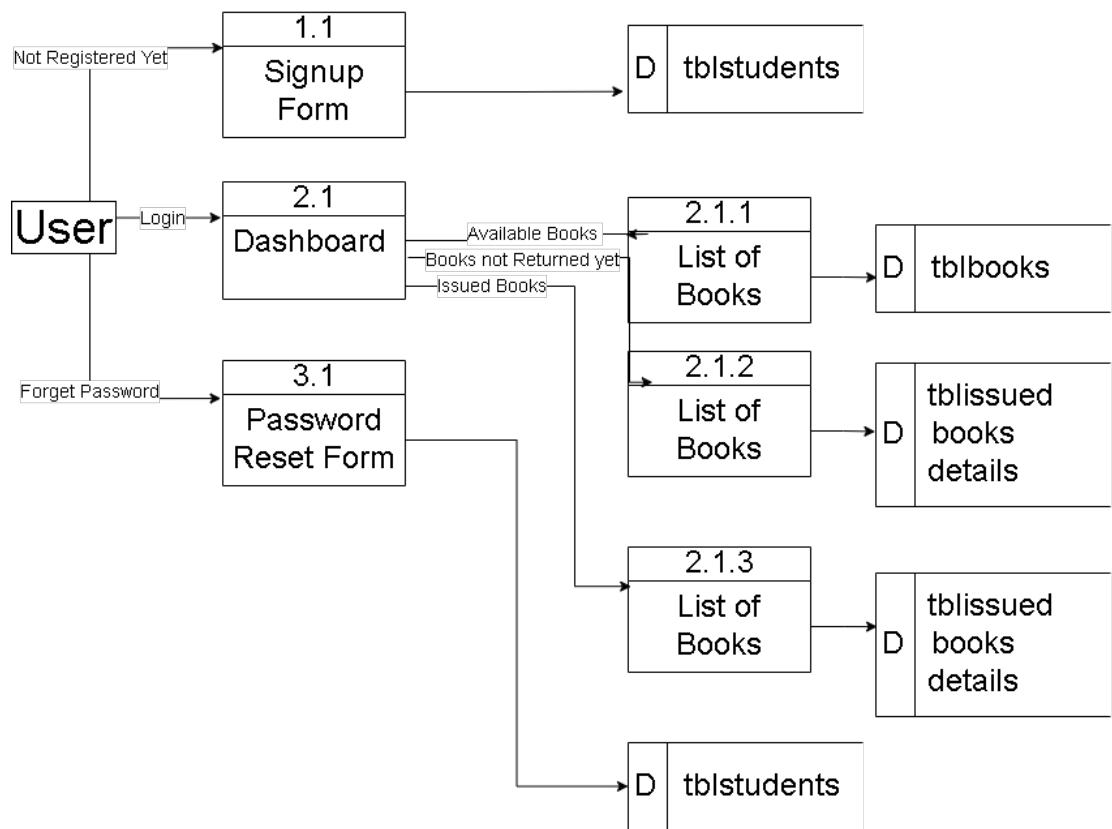


Figure 3.5: DFD Level 2 Part A

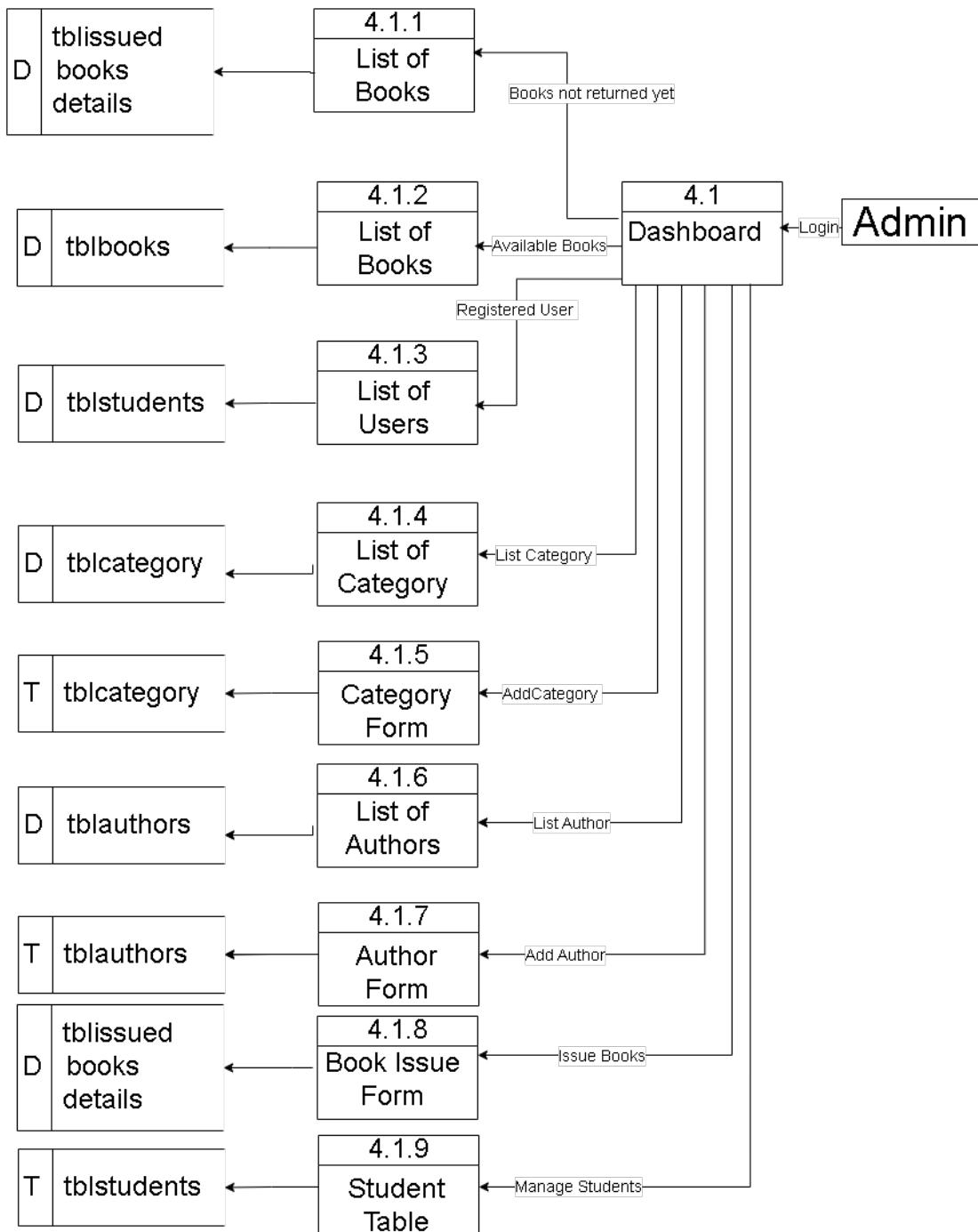


Figure 3.6: DFD Level 2 Part B

3.1.3 Entity Relationship Diagram

The Entity Relationship Diagram is a graphical representation of objects, attributes, relationships and limitations in the system. We can develop an ERD to show how database structure and relationships between entities differ within the framework of a web based library management system project.

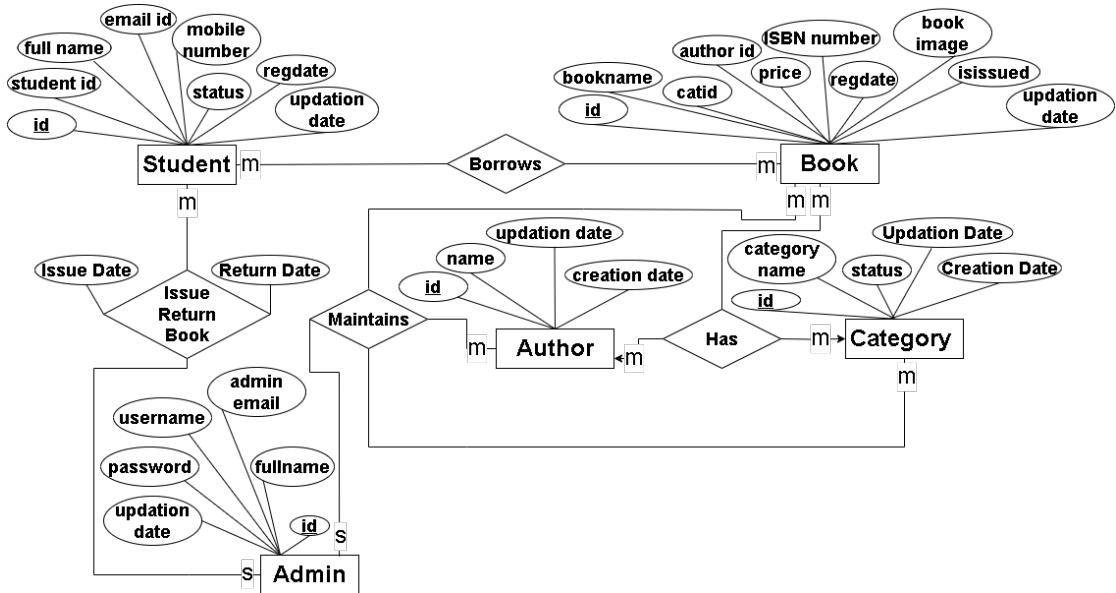


Figure 3.7: ERD

3.1.4 Use-case Diagram

The user case of the Web based Library Management System calls for a member to make use of the system and perform various tasks more efficiently while an administrator manages its operations. The member may search for books according to specific criteria, take a look at the details of each book and see whether it is available. By selecting available copies, and by receiving return arrival dates, they will be able to borrow books. The member shall also be entitled to return books, as well as updating the status of transactions and availability in the system. Furthermore, account data such as contact details or passwords may be managed by the member. By contrast, reports on usage of books, members' activities and system performance can be generated by the administrator. The essential functions of the lms are covered in these use cases, which support a smooth user experience and an efficient management of library resources.

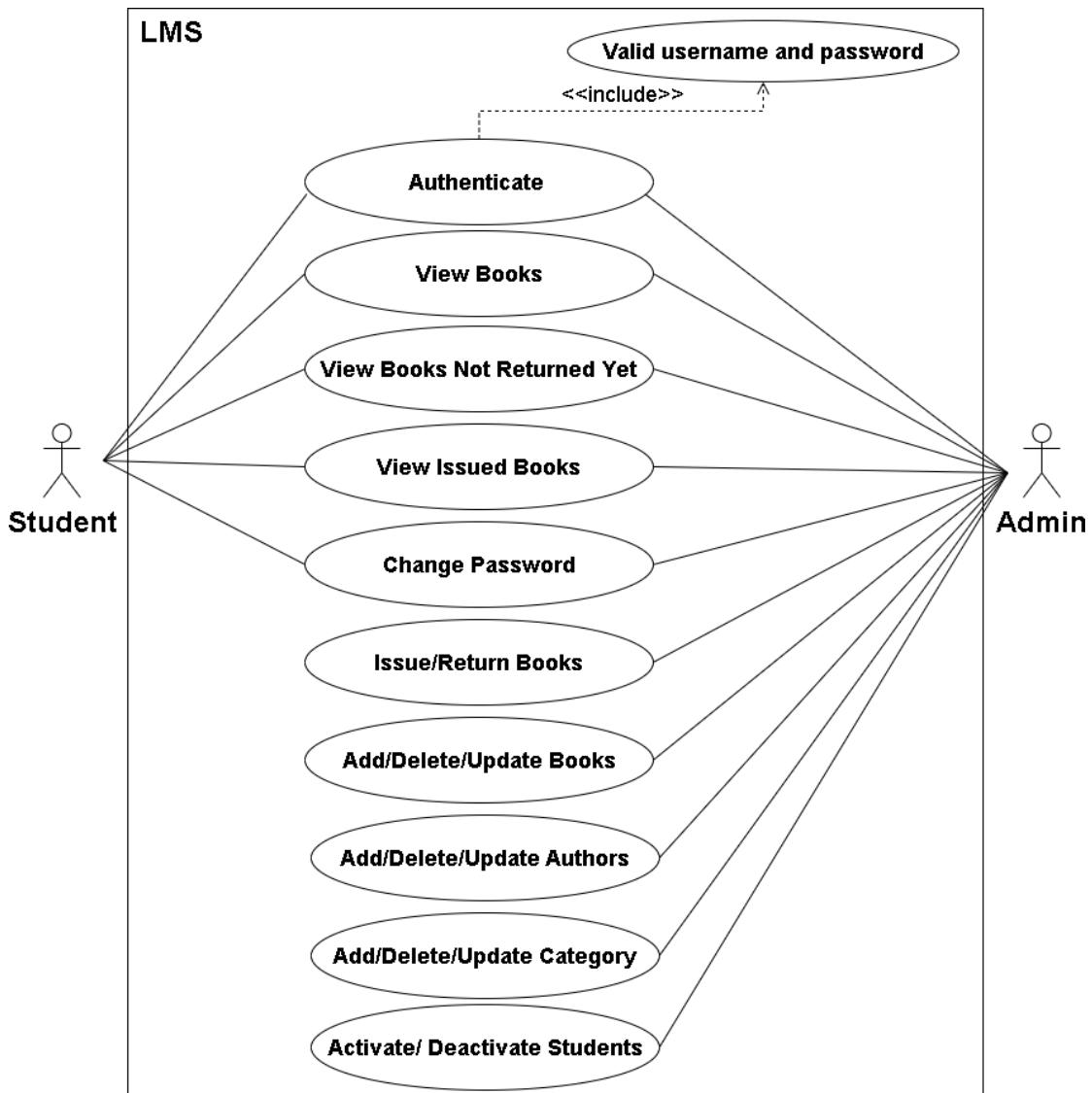


Figure 3.8: Use case

3.2 Software Development Model

Prototyping is a popular model for software development life-cycle models, SDLC Models. This model is used by customers who are unfamiliar with special project requirements in advance. In this system a prototype of the final product will be made first, tested and refined in accordance with customer feedback until it is able to attain an acceptable prototype that shall form the basis for its development.

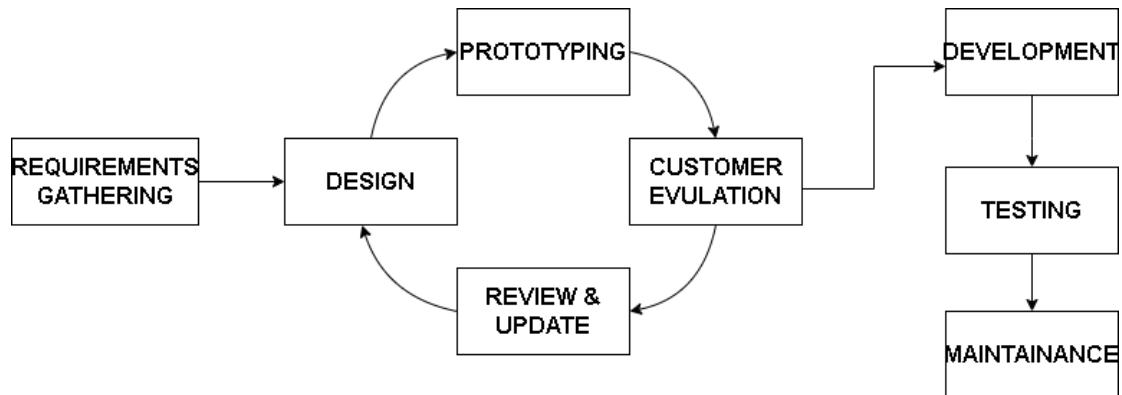


Figure 3.9: Prototype model

The prototype model has been applied for the development of a library management system. A prototype is a software development life cycle SDLC model that focuses on design and iterative improvement of the first prototype for final product in response to feedback and requirements.

The prototype model has been used for the Library Management System, namely:

- Requirements gathering: Requests were collected from interested parties such as library patrons and users of libraries in the first stage. The needs for functionality, e.g. book management, user accounts, borrowings and refunds have been identified in this phase.
 - Prototype design: The initial prototype of the library management system was the focus of the design phase. Basic features and functions, such as the ability of adding books, managing user accounts or tracking book loans have been part of this prototype.
 - Prototype development: In this stage, the prototype was developed with PHP, HTML, CSS and other appropriate technologies. The team has been working to prepare codes for the functionalities that have been defined during the design phase in order to make a prototype functioning and user-friendly.
 - Prototype testing: To look for any problems or flaws, the prototype was tested to a high

standard. In order to gain insights and make needed improvements, user feedback has been gathered from users, e.g. Librarians and students.

- Revisions to the prototype: The prototype has been revised and improved, based on feedback received during testing. In order to improve the usability, performance and user experience in general, incremental improvements have been made.

The iterative nature of the prototype model enabled it to be continuously improved and feedback integrated throughout the development process, when compared with a library management system. That approach ensured that the user's specific requirements have been met and are in line with their expectations as regards the final library management system.

In order to be appropriate for projects like the library management system in which user satisfaction and efficiency are critical, a prototype model was able to provide flexibility with regard to adaptation requirements and design elements based on feedback from users. This model gave the development team an opportunity to address any shortcomings and offer a system which is efficient in managing library resources, with user friendly interfaces for patrons of both libraries and librarians.

3.3 Testing Methodology

Manual testing techniques have been used to guarantee that the library management system is functional, usable and reliable as part of the test methodology employed for this project. Manual testing means the process of manually carrying out test cases in order to confirm a system's behavior against expected results. An overview of the manual test methodology used for this project is given below:

- Test planning: Test planning, where the test objectives, scope and test coverage have been defined, started the testing process. Depending on the functionalities of the system, e.g. user management, library management, borrowing and return, test scenarios and test cases have been identified.
- Design of the test cases: Different scenarios were to be covered in order to ensure comprehensive testing. A set of measures to be taken, expected results and all relevant test data were included in every test case. Test cases have been designed to support both good and bad scenarios.
- Test execution: The test cases that have been drawn up by the testers were manually executed. They connected to the system's user interface and verified its results against

expected outcomes, following the steps set out in each test case. Any observed defects or issues that occurred in the testing process have been documented by the testers.

- Defect reporting: The defectors reported all identified defects or problems in a structured manner including detailed descriptions, procedures for reproducing and supporting evidence. Defects were recorded in the defect tracking system or spreadsheet, which enabled them to be monitored, prioritised and resolved.
- Defect Verification: After defects were reported, developers addressed the identified issues and fixed the defects. In order to verify that the reported errors were corrected and validated, the testers carried out a retesting.
- Regression testing: A regression test has been conducted as new features or shortcomings are added or corrected. In order to prevent the change from introducing new problems or affecting current functionalities it was necessary to rerun test cases that were previously run.
- Usability Testing: In addition to manual testing, usability tests in which the system's user interface, ease of navigation and Overall User Experience were assessed have also been carried out. In order to improve the usability and user satisfaction of this system, feedback and comments have been gathered.
- Exploratory testing: To identify any unforeseen problems or scenarios which are not explicitly referred to in the test cases, exploratory testing has also been performed by the operators. This gave rise to a more comprehensive assessment of the system's behaviour and performance.

The project team performed a thorough review of the library management system to ensure that it complies with the required requirements, using Manual Testing techniques. The ease of adaptation to changing needs, identifying usability issues and assessing the functionality of a system via handson interaction has been facilitated by automated testing.

4 RESULT AND DISCUSSION

4.1 Gathered Requirements

- The user interface for accessing and using the system, accessible to library members via a web browser.
- In order to manage and control the functionalities of LMS, you need only one administrator login.
- Member registration and login system to enable users to create accounts and log in securely.
- An administrative panel to monitor and manage LMS operations, with a dashboard for the administrator.
- Integration of the library database to store and manage resources, members' information as well as borrowing history.
- Search functionality for members to easily search for books based on title, author, genre, or ISBN.
- Tracking of books' availability, including signs indicating they are available, loaned or reserved.
- Management of member accounts, including the ability to update personal information, view borrowed books, and check fine status.
- Administration of the book lending and return process, with administrative permission to manage returns.
- Fines relating to overdue books are automatically calculated and managed.
- Responsive design and compatibility with multiple devices and web browsers
- An extensive set of documents and user manuals to help understanding and use the system.

4.2 Prototype Description

A user friendly Web Interface made of HTML, CSS and JavaScript is expected to appear in the Library Management System LMS prototype. A search bar that allows users to search for books by title, author, genre, or ISBN will be displayed on the homepage. A list of appropriate books, including information such as availability, will be displayed on the system when a search is performed.

Users will be given the possibility of creating an account or logging in with their

credentials. Basic information, including names, email addresses and passwords, will be collected during the registration process. Users will be able to access their own dashboard after logging in, which allows them to view your book library, control accounts' details and monitor the status of fines as appropriate.

For the admin panel, there will be a separate login for the administrator. Access to a range of functionalities, such as the management of book inventories, addition or deletion of books, approval of borrowing applications and generating reports, will be provided by an administrative dashboard.

In addition, features such as notifications of due dates, automatic fines calculation for overdue books and a book reservation system will be included in the prototype.

4.3 Problems Faced

4.3.1 During Requirement Gathering

- Defining specific requirements and functionalities is not sufficiently clear.
- The difficulty of obtaining detailed information from stakeholders.
- Confusion and conflicting requirements from different stakeholders.
- Challenges in ensuring that the needs of different user groups are prioritised and balanced.

4.3.2 During Building Prototype

- The technical limitations and compatibility problems with the selected technologies.
- The complexity of designing and implementing a user interface.
- The integration of external systems and APIs is a challenge.
- Performance and scalability concerns with handling large amounts of data.
- Time constraints and tight project deadlines.
- In certain areas, the availability of resources or expertise is restricted.

4.3.3 During Testing

- Compatibility problems with a number of web browsers.
- Problems in system behaviour on different devices and screen sizes.
- It's hard to simulate in real life scenarios how books are borrowed and returned.
- In order to simulate a high volume library of resources and users, the challenge is to generate vast scale test data.

- Identification of edge cases and handling of exceptional scenarios.
- Verification of fine calculations and handling of complex fine scenarios.
- Identification and remedy of Intermittent or Hard to Reproduce Failures.
- Ensuring that data between the various systems modules are properly synchronized and consistent.
- In order to prevent data corruption or system vulnerabilities, the user input should be properly validated and handled.

4.3.4 During Documentation

- The difficulty is to organise and organize the documentation content in an efficient manner.
- In order to preserve consistency and coherence throughout the documentation.
- To ensure accurate representation of implemented features and functionalities in the documentation.
- This balance is based on a level of detail specified in the documentation, so as to satisfy both Technical and Other Users' needs.
- In order to satisfy both the technical and other users' needs, this balance shall be based upon a level of detail set out in the documentation.
- Managing the documentation process as well as carrying on development work, which may lead to delays in time.
- In order to address any ambiguity or gaps in the project requirements or specifications which have an impact on documentation.
- Ensure that the documentation is easy to access and convenient for all interested parties.
- To improve clarity and completeness of the documentation, it is necessary to incorporate feedback from stakeholders and reviewers.
- In accordance with any special document standards or guidelines laid down by the organisation or project stakeholders.
- Eliminating all language and communication barriers that can arise in the document processing process, especially when it concerns multiple languages or international contexts.

4.4 Work Division

Task	Done By
Database Management	Sudha Shrestha
Developer	Sudha Shrestha
Programmer	Sajal Rokka
System Analysis	Sajal Rokka
System Design	Sajal Rokka
System Testing	Sudha Shrestha

Table 4.1: Work Division

Approved by:

Project Supervisor

Er. Bikash Thapa Magar,
Lecturer/Researcher.

4.4.1 Role and Responsibility

- System Analyst: In order to provide a holistic understanding of the scope and objectives of this project, system analysts are involved in facilitating the process by which stakeholders can gather their requests for proposals and record them.
- Database Management: The management of the database is an area in which project data shall be managed, organised, retrieved and protected. It provides for the development, maintenance and revision of databases to facilitate data management in a way that allows them to be handled effectively and reliably; ensures their integrity, optimises performance and implements backup and recovery procedures.
- Designer Analyze: A detailed specification for the Software Requirement is a document that sets out both functional and nonfactual requirements of software projects. It's a guide to programmers that explains what software is supposed to do and how it should work, so they can understand clearly the scope of this project and its objectives.
- Developer and Programmer: A developer and programmer is an expert in the art of writing code, programming software applications as well as creating computer programs. They are proficient in using programming languages for the design, implementation and maintenance of Software solutions that solve specific problems or respond to user needs within the technology sector.
- Testing Peoples: Testing people: through a comprehensive assessment and analysis of human resources' performance, skills and capabilities, ensuring that the declared business objectives and objectives are met. This procedure aims to demonstrate that employees are in alignment with the organization's mission, and their contribution is being made towards a successful implementation of its objectives.

4.5 Database

Six tables: “admin”, “tblauthors”, “tblcategory”, “tblbooks”, “tblissuedbooks”, and “tblstudents” are included in the database for the library management system project. These tables store essential information related to the administrators, authors, book categories, library books, details about issued books and student records in order to form an integral part of the system. In order to organize and manage the enormous amount of data that is essential for seamless library operations as well as effective user interaction, each table will play an important role. With these tables the database ensures that relevant

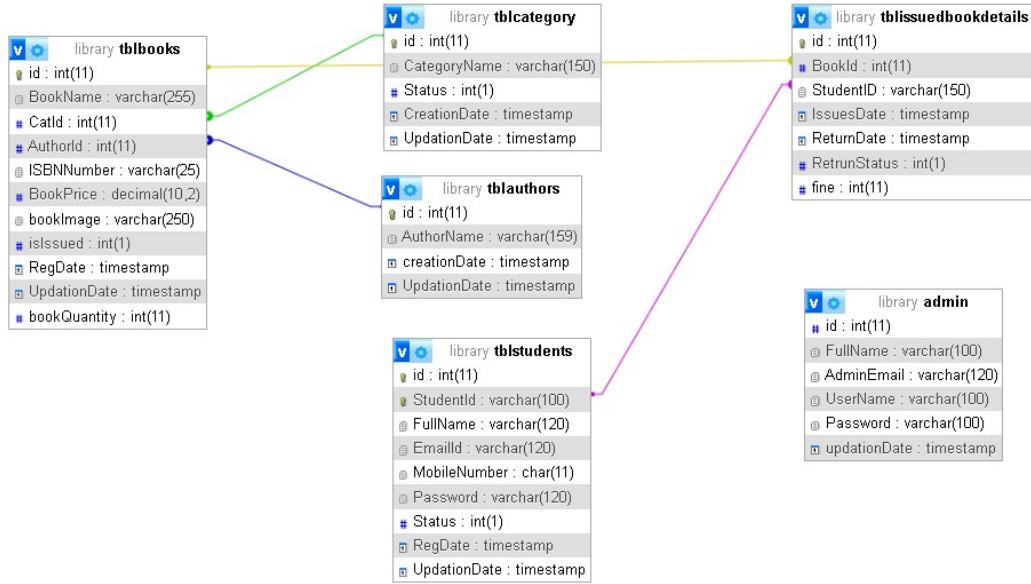


Figure 4.1: Schema

data are systematically stored and retrieved, facilitating a smooth user experience as well as easier management of library resources and activities.

5 TESTING

Test Scenario ID	Test Scenario Description	Test Case ID	Test Case Description	Steps	Test Steps	Pre-Condition	Expected Result	Actual Result	Status
TS_LM_01	Verify the login functionality of the user login of library management system	TC_LM_01	Check user can login with valid password and email	<p>1 Open Library Management System in any browser</p> <p>2 Click on the user login button</p> <p>3 Enter the valid email and password</p> <p>4 Click on the login button</p> <p>5 Click on the logout button to return back to home page</p>	<p>password = shrestha, email id = sudhashrestha@gmail.com</p>	User should able to login and see icon of the books listed,books not return yet,issued books	As Expected	PASS	
TS_LM_02	Verify the books listed icon functionality of the user view page	TC_LM_02	Check user can login with invalid password or email	<p>1 Open Library Management System in any browser</p> <p>2 Click on the user login button</p> <p>3 Enter the invalid password or email</p> <p>4 Click on the login button</p>	<p>password = psasdfi ,email id = sliid@gmail.com</p>	User should not able to login and popup box with invalid password or email appears	As Expected	PASS	
TS_LM_03	Verify the book not return yet functionality of user login page	TC_LM_04	check user can see the number of issued book	<p>1 Open Library Management System in any browser</p> <p>2 Click on the user login and Enter valid password and email</p> <p>3 see the book not return yet icon</p>	User should be loggedin	User can see the number of books not return yet.	As Expected	PASS	
TS_LM_04	Verify the book issued functionality of the user login page	TC_LM_05	Check user can see the history of book issued	<p>1 Click on the issued books icon</p> <p>2 See the manage issued books list</p>	User should be loggedin	User can see the history of issued books name,ISBN number,issued in return date if book is not return then there should appear 'not return yet', If user not return book before the deadline then fine will be also appear on fine column.	As Expected	PASS	

TS_LM_04	Verify the book issued functionality of the user login page	TC_LM_05	Check user can see the history of book issued	1 Click on the issued books icon 2 see the manage issued books list	User should be logged in User can see the history of issued books name,ISBN number,issued In return date if book is not return then there should appear 'not return yet', If user not return book before the deadline then fine will be also appear on fine column.	As Expected PASS
TS_LM_05	Verify the Account button functionality of user view page	TC_LM_06	Check the MY PROFILE functionality of use login	1 Click on the account button of the user page 2 Select my profile	User should be logged in User should able to see student id,reg date,last update date,profile status,enter full name box,enter mobile number box,enter email box Email can not be change	As Expected PASS
				3 Enter the full name,mobile number, that you want to update		
				4 Click on the update now button	After click on the update now button the box should be popup with message 'your profile has been updated	
				Return to the my profile page	click on the ok button should return to the my profile page Change name and mobile number should be appear	
					User should see the user change password form	
					After click on the change button user should see the popup box of update password appear	
					User should be return to the same page where they can see your 'password change successfully'	
					If user enter wrong password in current password then error with message' your current password is wrong' appears	
				4 Enter the new password 5 Again enter the new password to conform 6 click on the change button	As expected PASS	

TS_LM_06	Verify the Admin login functionality of the library management system	TC_LM_08	Check admin can login with valid password and email	1 Open Library Management System in any browser 2 Click on the admin login button 3 Enter the invalid password or email 4 Click on the login button	Valid URL Test Data	admin should able to login and see icon of the books listed ,books not return yet, registered users, author listed, listed categories	As Expected PASS
		TC_LM_09	Check admin can login with valid password and email	1 Open Library Management System in any browser 2 Click on the admin login button 3 Enter the valid password or email 4 Click on the login button	Valid URL Test Data	Admin should not able to login and popup box with invalid password or email appears	As Expected PASS
TS_LM_07	Verify the dashboard functionality of the library management system	TC_LM_10	Check book listed functionality of the admin page	1 login to the admin page 2 click on the books listed icon 3 See the manage books 4 Click on the dashboard button to return to the admin dashboard	Admin should be logged in	Admin should be able to see the book listing containing book name, categories,author, ISBN,price action Action also contail delete and edit options	As Expected PASS
		TC_LM_11	Check the delete functionality of the action element	1 Click on the books listed icon 2 Search for the book that you want to delet 3 Click on the delet button 4 Again click on the ok button of the popup box	Admin should be logged in	Admin should able to see the delete button on action column Clicking on the delete button should show the popbox containing 'OK' or 'cancel' button Clicking on the ok button should delete the selected book Clicking on the cancel button should not delet the selected book and return to the books manage page	As Expected PASS

TS_LM_10	Verify the Authors listed functionality of the Admin page	TC_LM_15	Check the Admin edit and delete the author name	1 Click on the author listed icon 2 Click on the edit button 3 Enter the new name 4 Click on the update button 5 Click on the delete button 6 click on the ok button of popup box	Admin should see the edit and delete button Clicking on the edit button admin should see authorn info form Entering new name and clicking on the update button should change the previous name of author Clicking on the delete button of the selected author should show popup box of 'ok' button Clicking kon the ok button shoul delete the author	As Expected PASS
TS_LM_11	Verify the listed categories functionality of the author page	TC_LM_16	Check admin can edit and delete the book categories	1 Click on the listed categories icon 2 Select the book that you want to edit 3 Enter the new name and select the active or inactive status 4 Click on the update button 5 Click on the delete button 6 Click on the 'ok' button too delete book	Admin should see the book categorie and edit and delet button Admin can able to change the book categories while clicking on edit button Admin should be logged in	As Expected PASS
TS_LM_12	Verify the add category functionality of the category button	TC_Lm_17	Check admin can add books	1 Click on the category button 2 Select add category	Admin should see the add category page Admin should able to write book name and clicking on the creat button should add book	As Expected PASS
					Added book should be shown in the categories listing	

TS_LM_13	Verify the add author functionality of the author button	TC_LM_18	Check the admin can add author	1 Click on the author button 2 Select the add author 3 Enter author name 4 Click on the add button 5 Repet steps 1,2,3,4 to add other authors	Admin should be logged in Admin should enter by admin Author name enter by admin should be added after clicking add button	As Expected PASS
TS_LM_14	Verify the add book functionality of the books button	TC_LM_19	Check admin can add books	1 Click on the books button 2 Select add book 3 Enter the book name, author, price, category, ISBN number, add book picture 4 Click on the submit button	Admin should be logged in Form should not be submitted until all the information is fill up After all information is fill up clicking on the submission button should add the book	As Expected PASS
TS_LM_15	Verify the issue new book functionality of the issue book button	TC_LM_20	Check Admin can issue new book	1 Click on the issue books button 2 Select issue new book	Admin should enter the valid student id and book ISBN number Issue book button should not be clickable until student id and ISBN number is correct Admin should be logged in After entering the correct information , clicking on the issue book button should successfully issue book	As Expected PASS

TS_LM_15	Verify the issue new book functionality of the issue book button	TC_LM_20	Check Admin can issue new book	<p>1 Click on the Issue books button</p> <p>2 Select issue new book</p> <p>3 Enter the valid student id, ISBN number or book title</p> <p>4 Click on the Issue books button</p> <p>5 Repeat the steps 1,2,3,4 to issue more books</p>	<p>Admin should enter the valid student id and book ISBN number</p> <p>Issue book button should not be clickable until student id and ISBN number is correct</p> <p>After entering the correct information , clicking on the issue book button should successfully issue book</p>
TS_LM_16	Verify the change password functionality of the admin page	TC_LM_21	Check the admin can change password	<p>1 Click on the change password button</p> <p>2 Enter the previous password</p> <p>3 Enter the new password</p> <p>4 Again enter the new password to conform</p> <p>5 Again click on the change button</p>	<p>Admin should see the user change password form</p> <p>After click on the change button admin should see the popup box of update password appear</p> <p>Admin should be return to the same page when they can see 'your password change successfully'</p> <p>If author enter wrong password in current password then error with message' your current password is wrong' appears</p>
TS_LM_17	Verify the user signup functionality of the library management system	TC_LM_22		<p>1 Click on the user signup button</p> <p>2 Enter full name , mobile number, email, password</p> <p>3 Click on the register now button</p> <p>4 Again click on the ok button of the popup box</p>	<p>User should able to enter their name, mobile number, unique email, password</p> <p>Full information should be fillup</p> <p>After clicking on register now button popup box with message 'your registration successful' and</p>

Project	Library Management System
Test Case No:	1
Title	Final test on project
Components	Functional test
Pre-Conditions	Valid URL Test Data
Test Environment	Windows :10, Browser: Edge, Tools: Xampp
Tested Browsers	Any browser
Application Version	Windows Version:1703, Edge Version: 110.0.1587.78, Xampp Version: 8.2.4
Created By	Sudha Shrestha
Created Date	4-Jul-23
Tested Date	8-Jul-23
Testedd By	Sudha Shrestha
Review By	Sajal Rokka
Approved By	Er. Bikash Thapa Magar
Test Result	PASS

Er. Bikash Thapa Magar

Supervisor

Sajal Rokka

Sudha Shrestha

July, 2023

6 FUTURE ENHANCEMENT

- System Improvements and Integrations:

The improvement of the entire library management system itself by means of different changes and integrating it with other sources is one of the key points. This includes multiadmin features, an enhanced user interface, simplified CRUD operations, online booking, availability of soft copies, complete library books list, integration with internet payment methods, email alerts, integrated external libraries and advanced searching capabilities. These improvements are aimed at enhancing the efficiency, user friendliness and completeness of the system in order to provide a seamless experience for users as they manage libraries' resources, access materials and perform administrative tasks. The system's capabilities and convenience are enhanced by its integration with external libraries as well as the use of Internet payment methods.

- User Engagement and Personalization:

Engaging users and personalizing their experience in a library management system are the other principal points of emphasis. To this end, the development of a recommendation system that reflects user's reading history and interests, creating applications for easy access on portable devices which incorporate features relating to community engagement, integration of information resources such as e.g. books or Digital Resources, implementation of data analysis and reporting capabilities, interoperability to educational management systems, enhancement of accessibility features and introduction of gamification elements. These initiatives shall aim at encouraging user engagement, fostering the sense of community, providing personalised recommendations, offering a seamless experience by allowing users to access applications and information resources on their cell phone as well as using gamification features in order to improve the overall user experience.

These new updates shall mainly aim to make the Library Management System more useful, accessible and active with a view to providing an improved user experience while taking due account of evolving requirements, technological progress and increased expectations for libraries. These enhancements are intended to create a more complete and effective environment for the management of library resources that meets user needs, while maintaining them at the forefront of new trends through improvements in functionality, accessibility and user experience. The system's capabilities will be enhanced with

the integration of External Library, Recommendations Systems, Mobile Applications, Advanced Search Capabilities and Data Analytic. Moreover, a more inclusive experience will be enhanced through features such as local interactions, integration of eBook and Digital Resources into the Library's inventory or accessibility improvements. In order to meet the increasing demands for modern libraries, and to provide an enhanced user experience in accordance with library patrons' expectations, these enhancements will further develop the Library Management System.

7 CONCLUSION

The development of a Library Management System with PHP, HTML and CSS has proven successful in addressing the challenges encountered by traditional libraries' operations which have been more efficient and simpler for users to manage library resources. It had been designed to create a broad platform that could be used by both library managers and users. We have made significant progress in the course of the project as regards completion of the draft proposal, review of literature, submission of proposals, slide preparation, requirement collection, production of prototypes, coding and documentation. The path to the successful implementation of library management systems has been set by these achievements. The project demonstrated that the system can be used to simplify different library tasks, e.g. book management, user accounts, borrowing and returns. In order to make it easier for Library Members to find information about available books, track their borrowings history and administer their accounts efficiently, this system offers a user friendly interface. An efficient administration and control of the system is ensured by a single administrative login feature. There are opportunities for further improvements, even though the project has already reached its main objectives. They include the online deployment of this system, integrating multi-admin features into it, improving user interface, enabling book reservations via an online booking service, including how fine payment methods and ensuring full and update inventory for books. In addition, these improvements will further enhance the functionality of this system and make it more user friendly. In total, the achievement of this project represents an important step forward with respect to library management systems. We have developed a robust and user friendly system that will improve the efficiency of Library operations and make library users' experiences better because of the power of web technologies. Valuable information about the development process and potential of future improvement on library governance has been provided by this project.

A Snapshots of the Outputs

A.1 Home Page

The screenshot shows the homepage of a Library Management System (LMS). At the top left is the LMS logo with a book icon and the text 'LMS LIBRARY MANAGEMENT SYSTEM'. At the top right are links for 'HOME', 'USER LOGIN', 'USER SIGNUP', and 'ADMIN LOGIN'. Below the header, there are two main content areas. On the left, under 'Introduction', there is a photograph of a modern, multi-story building with a sign that reads 'CITIZEN COLLEGE'. Below the photo is a section titled 'Introduction' with a brief description of the college's history and mission. On the right, under 'BBA (Bachelor of Business Administration)', there is a photograph of a group of students outdoors. Below the photo is a section titled 'BBA (Bachelor of Business Administration)' with a brief description of the program's focus on management and entrepreneurship.

Introduction
Citizen College, affiliated to Pokhara University, was established in 2008. Citizen is a center of learning for academic and professional courses. Citizen offers various undergraduate and postgraduate courses which are designed to prepare students for career and academic achievement. The college strives to meet the needs of the students by providing quality education and research facilities in all their endeavors. The college enjoys a truly ideal location for academic activities and research. The college has well equipped laboratories and spacious classrooms teaching learning environment in BBA, BBA-TT and BCA programs.

Vision
Our vision is to provide globally recognized education that instills a positive vision into students and encourages leadership growth through innovative education, teamwork, and critical and creative thinking.

Mission
Our mission is to develop globally employable and socially responsible business graduates who can effectively tackle the challenges and complexities of the 21st century business through innovation, leadership and creativity.

BBA
(Bachelor of Business Administration)
Career-Focused Management Degree
Our Bachelor of Business Administration (BBA) program, affiliated to Pokhara University, prepares you for the wider range of business possibilities, both for entrepreneurial and professional opportunities. The program is designed to develop your skills in entrepreneurship, leadership and change, financial systems, and information and technology management. The program also includes subjects such as marketing, accounting, finance, and other courses making up with all the entrepreneurial skills required for success. The program is designed to produce students, who can think and reason critically and creatively on the business of the country.

At a time when the business and economy of the world have been growing in both width and depth, the need for management professionals who can effectively tackle the challenges and complexities created by the rapidly changing environment. Besides, BBA is a practical and valuable degree that familiarizes you with business management concepts and theories and how they apply to real-life situations in a practical context. The program has wide conceptual inputs and has emphasis on practical application of management concepts and theories. It is a program that emphasizes organization and their interactions with the total environment within which they operate.

BBA-TT
(Bachelor of Business Administration- Travel & Tourism)
The world has experienced phenomenal growth in the realm of tourism during the last 20 years. Tourism is considered to be the largest industry in the world. It is also one of the most important sectors of the economy of Nepal. Tourism is the largest foreign exchange earner of the country and is the world's largest generator of jobs. The Nepalese government has accorded tourism as a priority sector and has taken several measures to encourage tourism development and foreign exchange earning potentials. Moreover, to be able to catch our deserving tourists, we must have qualified manpower. In order to make our manpower competitive enough, we require training institutions in the country at all levels. Courses are designed to build on the business core curriculum, with advanced courses in tourism and hospitality management. Students interested in tourism management may be advised to consider related courses in the social sciences and modern languages to complement their studies in the area.

USER LOGIN FORM

The screenshot shows the 'USER LOGIN FORM' section. It features a light blue header bar with the text 'LOGIN FORM'. Below it is a form with fields for 'Enter Email id' and 'Password', each with an associated input box. Below the password field is a link 'Forgot Password'. At the bottom of the form are two buttons: a blue 'LOGIN' button and a link 'Not Register Yet'.

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Figure A.1: Home Page

A.2 User Sing-up

The screenshot shows the User Signup page of a Library Management System. At the top, there is a header bar with the LMS logo on the left and navigation links for HOME, USER LOGIN, USER SIGNUP, and ADMIN LOGIN on the right. Below the header, the page title "USER SIGNUP" is displayed. The main content area is titled "SINGUP FORM" and contains five input fields: "Enter Full Name", "Mobile Number:", "Enter Email", "Enter Password", and "Confirm Password". A red "Register Now" button is located at the bottom of the form. At the bottom of the page, there is a copyright notice for the Head Department of Bachelor in Computer Applications, Pokhara University, Dhungepatan, Kaski, Nepal, and Citizen College, Kumaripati, Lalitpur, Nepal, along with a note about the system's purpose and rights information.

SINGUP FORM

Enter Full Name

Mobile Number :

Enter Email

Enter Password

Confirm Password

Register Now

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Figure A.2: User Sing-up

A.3 User Login

The screenshot shows the User Login page of the LMS. At the top, there is a logo for 'LMS LIBRARY' featuring a blue tree icon. Below the logo is a navigation bar with links for 'HOME', 'USER LOGIN', 'USER SIGNUP', and 'ADMIN LOGIN'. The main content area features a large image of bookshelves filled with books. Below the image, the text 'USER LOGIN FORM' is displayed. A modal window titled 'LOGIN FORM' contains fields for 'Enter Email Id' and 'Password', along with a 'Forgot Password' link and a 'LOGIN | Not Register Yet' button.

The Rules of the Library

- The booked Books should be returned within the 15 days.
- The fine amount is determined by the librarian as the rules of the library
- If the books are lost then the student who have issued the book is responsible to pay the amount of the book along with 15% extra.

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Figure A.3: User Login

A.4 User Dashboard

The screenshot shows the User Dashboard of the Library Management System. At the top, there is a header bar with the LMS logo on the left and a "LOG ME OUT" button on the right. Below the header, a navigation bar contains three items: "DASHBOARD", "ISSUED BOOKS", and "ACCOUNT". The main content area is titled "USER DASHBOARD" and features three cards. The first card, titled "Books Listed", shows a book icon and the number "11" below it, with the subtitle "Books Listed". The second card, titled "Books Not Returned Yet", shows a recycling bin icon and the number "1" below it, with the subtitle "Books Not Returned Yet". The third card, titled "Issued Books", shows a book icon and the subtitle "Issued Books". At the bottom of the dashboard, there is a section titled "The Rules of the Library" with a bulleted list of rules. Below this, there is a copyright notice and a disclaimer.

The Rules of the Library

- The booked Books should be returned within the 15 days,
- The fine amount is determined by the librarian as the rules of the library
- If the books are lost then the student who have issued the book is responsible to pay the amount of the book along with 15% extra.

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Figure A.4: User Dashboard

A.5 User Issued Books Details

The screenshot shows a web-based library management system interface. At the top, there is a header bar with the LMS logo, a "LOG ME OUT" button, and navigation links for "DASHBOARD", "ISSUED BOOKS", and "ACCOUNT". Below the header, a section titled "The Rules of the Library" contains a bulleted list of rules:

- The booked Books should be returned within the 15 days,
- The fine amount is determined by the librarian as the rules of the library
- If the books are lost then the student who have issued the book is responsible to pay the amount of the book along with 15% extra.

Below this, a section titled "MANAGE ISSUED BOOKS" displays a table of issued books. The table has columns for #, Book Name, ISBN, Issued Date, Return Date, and Fine in (Rs.). There are two entries:

#	Book Name	ISBN	Issued Date	Return Date	Fine in(Rs.)
1	Kamali Blues	9780143454397	2023-07-07 13:32:21	Not Return Yet	0
2	Data analysis modeling	9789937301411	2023-07-02 19:44:05	2023-07-02 19:44:50	0

At the bottom of the page, there is a footer with copyright information and a note about the system's purpose:

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Figure A.5: User Issued Books Details

A.6 User Books Details


LOG ME OUT

DASHBOARD
ISSUED BOOKS
ACCOUNT ▾

MANAGE ISSUED BOOKS

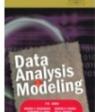
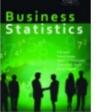
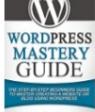
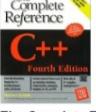
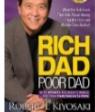
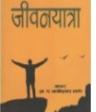
Issued Books		
 Data analysis modeling Computer-IT P.R. Joshi 9789937301411 <small>Book Already issued</small>	 Business Statistics Computer-IT Rajesh K. Thagurathi 9789937301237	 The Complete Reference PHP Computer-IT Steven Holzner 100071508546
 WordPress Mastery Guide Computer-IT Kale Hills 1523405627	 The Complete References C++ Computer-IT Herbert Schildt 9780078818543	 SDLC Computer-IT john 1234
 Rich Dad Poor Dad English Nobel Robert T Kiyosaki 978-1612680194	 The Girl Who Drank the Moon English Nobel Kelly Barnhill 13978-1616205676	 Karnali Blues Nepali Buddhi Sagar 9780143454397 <small>Book Already issued</small>
 Kumari ko Chandramas Chakra ko Sahasik Yatra Nepali Sophie Maliphant 9789937118101	 Jeevan Yatra Nepali Bhaskar 9789937312721	<small>© 2023 Head Department of Bachelor in Computer Applications, Pokhara University, Dhungepatan, Kaski, Nepal. Citizen College, Kumaripati, Lalitpur, Nepal. This Library Management System is developed solely for the purpose of fulfilling the requirements for the degree of Bachelor in Computer Applications and is not intended for real-time implementation. All Rights Reserved.</small>

Figure A.6: User Books Details

A.7 User Books Details

The screenshot shows a web application interface for a Library Management System (LMS). At the top, there is a header bar with the LMS logo on the left and a "LOG ME OUT" button on the right. Below the header, a navigation menu includes "DASHBOARD", "ISSUED BOOKS", and "ACCOUNT". The main content area is titled "USER CHANGE PASSWORD". It contains a "Change Password" form with three input fields: "Current Password", "Enter Password", and "Confirm Password". A blue "Change" button is located at the bottom of the form. At the bottom of the page, there is a footer section containing copyright information and a note about the system's purpose.

Change Password

Current Password

Enter Password

Confirm Password

Change

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Figure A.7: User Books Details

A.8 User Profile

The screenshot shows the 'User Profile' section of a web application. At the top, there is a header bar with the 'LMS' logo on the left and a 'LOG ME OUT' button on the right. Below the header, a navigation bar includes 'DASHBOARD', 'ISSUED BOOKS', and 'ACCOUNT'. The main content area is titled 'MY PROFILE' and contains a 'My Profile' section with the following details:

- Student ID :** SID002
- Reg Date :** 2023-07-11 12:32:13
- Last Updation Date :** 2023-07-11 12:33:16
- Profile Status :** Active

Below these details, there are input fields for updating personal information:

- Enter Full Name:** ram hari
- Mobile Number:** 9800000000
- Enter Email:** sa@12.com

At the bottom of the profile section is a blue 'Update Now' button.

At the very bottom of the page, there is a footer with copyright and disclaimer text:

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Figure A.8: User Profile

A.9 Admin Login

The screenshot shows the Admin Login page of a Library Management System. At the top left is the LMS logo with the text "LIBRARY MANAGEMENT SYSTEM". At the top right are links for "HOME", "USER LOGIN", "USER SIGNUP", and "ADMIN LOGIN". Below these links is a horizontal purple bar. The main content area has a light gray background. A centered "ADMIN LOGIN FORM" title is displayed above a light blue rectangular form. The form is titled "LOGIN FORM" and contains two input fields: "Enter Username" and "Password", each with a corresponding input box. Below the password field is a "LOGIN" button. At the bottom of the page, there is a footer section with a light gray background containing copyright information and a note about the system's purpose.

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Figure A.9: Admin Login

A.10 Admin Dashboard

The screenshot shows the Admin Dashboard of a Library Management System (LMS). At the top, there is a logo for 'LIBRARY MANAGEMENT SYSTEM' and a red 'LOG ME OUT' button. Below the header, a navigation bar includes links for DASHBOARD, CATEGORIES, AUTHORS, BOOKS, ISSUE BOOKS, REG STUDENTS, and CHANGE PASSWORD. The main area is titled 'ADMIN DASHBOARD' and features four large cards with statistics:

Icon	Count	Description
Book icon	11	Books Listed
Recycling bin icon	2	Books Not Returned Yet
User group icon	3	Registered Users
User profile icon	14	Authors Listed
Document icon	4	Listed Categories

At the bottom of the dashboard, there is a footer section containing copyright information and a note about the system's purpose:

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Figure A.10: Admin Dashboard

A.11 Admin Add Author

The screenshot shows a web-based library management system interface. At the top, there is a logo for 'LMS LIBRARY MANAGEMENT SYSTEM' and a red 'LOG ME OUT' button. Below the header, a navigation bar includes links for DASHBOARD, CATEGORIES, AUTHORS, BOOKS, ISSUE BOOKS, REG STUDENTS, and CHANGE PASSWORD. A sub-menu titled 'ADD AUTHOR' is displayed. The main content area has a light blue header labeled 'Author Info'. Below it, there is a form field for 'Author Name' with an input box and a blue 'Add' button. At the bottom of the page, there is a copyright notice for the year 2023, mentioning the Head Department of Bachelor in Computer Applications, Pokhara University, Kaski, Nepal, and Citizen College, Lalitpur, Nepal. It also states that the system is developed solely for degree requirements and is not intended for real-time implementation. The notice concludes with 'All Rights Reserved.'

Figure A.11: Admin Add Author

A.12 Admin Add Books

The screenshot shows the 'Admin Add Books' page of a Library Management System. At the top, there is a header with the LMS logo, a 'LOG ME OUT' button, and navigation links for DASHBOARD, CATEGORIES, AUTHORS, BOOKS, ISSUE BOOKS, REG STUDENTS, and CHANGE PASSWORD. Below the header, the title 'ADD BOOK' is displayed. The main form is titled 'Book Info' and contains the following fields:

- Book Name***: An input field for the book's name.
- Category***: A dropdown menu labeled 'Select Category'.
- Author***: A dropdown menu labeled 'Select Author'.
- ISBN Number***: An input field for the ISBN number, with a note below stating: 'An ISBN is an International Standard Book Number ISBN Must be unique'.
- Quantity***: An input field for the quantity of books.
- Price***: An input field for the price of the book.
- Book Picture***: A file upload input field with a placeholder 'Choose File No file chosen'.

A 'Submit' button is located at the bottom right of the form. At the bottom of the page, there is a footer with copyright information and a note about the system's purpose:

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Figure A.12: Admin Add Books

A.13 Admin Add Categories

The screenshot shows the 'Admin Add Categories' page of a Library Management System. At the top, there is a logo for 'LMS LIBRARY MANAGEMENT SYSTEM' and a red 'LOG ME OUT' button. Below the header, a navigation bar includes links for DASHBOARD, CATEGORIES, AUTHORS, BOOKS, ISSUE BOOKS, REG STUDENTS, and CHANGE PASSWORD. A sub-header 'ADD CATEGORY' is displayed above a form. The form has a light blue header 'Category Info'. It contains fields for 'Category Name' (an input box), 'Status' (radio buttons for Active or Inactive, with Active selected), and a 'Create' button at the bottom. At the bottom of the page, there is a copyright notice for © 2023 Head Department of Bachelor in Computer Applications, Pokhara University, Dhungepatan, Kaski, Nepal, and Citizen College, Kumaripati, Lalitpur, Nepal. It also states that the system is for educational purposes only and is not intended for real-time implementation.

Figure A.13: Admin Add Categories

A.14 Admin Change Password

The screenshot shows a web-based library management system interface. At the top, there is a header bar with the LMS logo on the left and a "LOG ME OUT" button on the right. Below the header, a navigation menu includes links for DASHBOARD, CATEGORIES, AUTHORS, BOOKS, ISSUE BOOKS, REG STUDENTS, and CHANGE PASSWORD. The main content area is titled "ADMIN CHANGE PASSWORD". It contains a form titled "Change Password" with three input fields: "Current Password", "Enter Password", and "Confirm Password". A blue "Change" button is located at the bottom of the form. At the bottom of the page, there is a footer section containing copyright information and a note about the system's purpose.

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Figure A.14: Admin Admin Change Password

A.15 Admin Issue Books

The screenshot shows the 'Admin Issue Books' page of a library management system. At the top, there is a header bar with the LMS logo, a 'LOG ME OUT' button, and navigation links for DASHBOARD, CATEGORIES, AUTHORS, BOOKS, ISSUE BOOKS, REG STUDENTS, and CHANGE PASSWORD. Below the header, a section titled 'The Rules of the Library' contains a bulleted list of rules:

- The booked Books should be returned within the 15 days,
- The fine amount is determined by the librarian as the rules of the library
- If the books are lost then the student who have issued the book is responsible to pay the amount of the book along with 15% extra.

Below this, there is a form titled 'Issue a New Book' with fields for 'Student id*' (containing '12345') and 'ISBN Number or Book Title*' (containing '978-9999999999'). A blue 'Issue Book' button is at the bottom of the form. At the very bottom of the page, there is a footer with copyright information and a note about the system's purpose:

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Figure A.15: Admin Issue Books

A.16 Admin Manage Author

The screenshot shows the 'MANAGE AUTHORS' section of the LMS. At the top, there is a navigation bar with links for DASHBOARD, CATEGORIES, AUTHORS, BOOKS, ISSUE BOOKS, REG STUDENTS, and CHANGE PASSWORD. A 'LOG ME OUT' button is also present. Below the navigation bar, the title 'MANAGE AUTHORS' is displayed. The main content area is titled 'Authors Listing'. It features a table with 10 entries, each showing the author's ID, name, creation date, updatation date, and action buttons for edit and delete. The table includes a dropdown for records per page (set to 10) and a search bar. At the bottom, it shows 'Showing 1 to 10 of 14 entries' and a navigation bar with buttons for Previous, 1, 2, and Next.

#	Author	Creation Date	Updation Date	Action
1	P.R. Joshi	2023-07-02 18:18:09	2023-07-02 19:23:02	<input checked="" type="button"/> Edit <input type="button"/> Delete
2	Rajesh K. Thagurathi	2023-07-02 18:18:32	2023-07-02 19:23:07	<input checked="" type="button"/> Edit <input type="button"/> Delete
3	Surendra R. Nepal	2023-07-02 18:18:46	2023-07-02 19:23:12	<input checked="" type="button"/> Edit <input type="button"/> Delete
4	Bal K. Khadka	2023-07-02 18:19:01	2023-07-02 19:23:18	<input checked="" type="button"/> Edit <input type="button"/> Delete
5	Er. Shankar N Adhikari	2023-07-02 19:27:40	2023-07-02 19:28:17	<input checked="" type="button"/> Edit <input type="button"/> Delete
6	Steven Holzner	2023-07-02 19:48:10		<input checked="" type="button"/> Edit <input type="button"/> Delete
7	Robert T Kiyosaki	2023-07-02 19:54:50		<input checked="" type="button"/> Edit <input type="button"/> Delete
8	Kelly Barnhill	2023-07-02 20:00:53		<input checked="" type="button"/> Edit <input type="button"/> Delete
9	Kale Hills	2023-07-02 20:07:01		<input checked="" type="button"/> Edit <input type="button"/> Delete
10	Herbert Schildt	2023-07-02 20:15:36		<input checked="" type="button"/> Edit <input type="button"/> Delete

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Figure A.16: Manage Author

A.17 Admin Manage Books


LOG ME OUT

[DASHBOARD](#)
[CATEGORIES](#)
[AUTHORS](#)
[BOOKS](#)
[ISSUE BOOKS](#)
[REG STUDENTS](#)
[CHANGE PASSWORD](#)

MANAGE BOOKS

Books Listing

10
records per page
Search:

#	Book Name	Category	Author	ISBN	Price	Quantity	Action
1	 Data analysis modeling	Computer IT	P.R. Joshi	9789997301411	495.00	20	Edit Delete
2	 Business Statistics	Computer IT	Rajesh K. Thagurathi	9789997301237	395.00	20	Edit Delete
3	 The Complete Reference PHP	Computer IT	Steven Holzner	100071508546	6885.00	20	Edit Delete
4	 WORDPRESS MASTERY GUIDE	Computer IT	Kale Hills	1523405627	2250.00	25	Edit Delete
5	 The Complete References C++	Computer IT	Herbert Schildt	9780078816543	2890.00	25	Edit Delete
6	 SDLC	Computer IT	john	1234	750.00	25	Edit Delete
7	 Rich Dad Poor Dad	English Nobel	Robert T Kiyosaki	978-161620194	480.00	20	Edit Delete
8	 The Girl Who Drank the Moon	English Nobel	Kelly Barnhill	137978-1616205676	2555.00	25	Edit Delete
9	 Karnali Blues	Nepali	Buddhi Sagar	9780143454397	698.00	25	Edit Delete
10	 Kumari ko Chandramas Chakra ko Sahasrik Yatra	Nepali	Sophie Maliphant	9789997118101	500.00	25	Edit Delete

Showing 1 to 10 of 11 entries

Previous
1
2
Next

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Implementation.

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Figure A.17: Manage Books

60

A.18 Admin Manage Category

The screenshot shows the 'MANAGE AUTHORS' section of the LMS. At the top, there's a navigation bar with links for DASHBOARD, CATEGORIES, AUTHORS, BOOKS, ISSUE BOOKS, REG STUDENTS, and CHANGE PASSWORD. A 'LOG ME OUT' button is also present. Below the navigation, a sub-header reads 'MANAGE AUTHORS'. The main content area is titled 'Authors Listing' and contains a table with 10 entries. The table columns are #, Author, Creation Date, Updation Date, and Action. Each row includes an 'Edit' button (blue with white icon) and a 'Delete' button (red with white icon). The table shows authors from P.R. Joshi to Herbert Schildt, all created on 2023-07-02 and updated on 2023-07-02. The footer of the page includes copyright information for © 2023 Head Department of Bachelor in Computer Applications, Pokhara University, Dhungepatan, Kaski, Nepal, Citizen College, Kumaripati, Lalitpur, Nepal, and All Rights Reserved.

#	Author	Creation Date	Updation Date	Action
1	P.R. Joshi	2023-07-02 18:18:09	2023-07-02 19:23:02	<input checked="" type="button"/> Edit <input type="button"/> Delete
2	Rajesh K. Thagurathi	2023-07-02 18:18:32	2023-07-02 19:23:07	<input checked="" type="button"/> Edit <input type="button"/> Delete
3	Surendra R. Nepal	2023-07-02 18:18:46	2023-07-02 19:23:12	<input checked="" type="button"/> Edit <input type="button"/> Delete
4	Bal K. Khadka	2023-07-02 18:19:01	2023-07-02 19:23:18	<input checked="" type="button"/> Edit <input type="button"/> Delete
5	Er. Shankar N Adhikari	2023-07-02 19:27:40	2023-07-02 19:28:17	<input checked="" type="button"/> Edit <input type="button"/> Delete
6	Steven Holzner	2023-07-02 19:48:10		<input checked="" type="button"/> Edit <input type="button"/> Delete
7	Robert T Kiyosaki	2023-07-02 19:54:50		<input checked="" type="button"/> Edit <input type="button"/> Delete
8	Kelly Barnhill	2023-07-02 20:00:53		<input checked="" type="button"/> Edit <input type="button"/> Delete
9	Kale Hills	2023-07-02 20:07:01		<input checked="" type="button"/> Edit <input type="button"/> Delete
10	Herbert Schildt	2023-07-02 20:15:36		<input checked="" type="button"/> Edit <input type="button"/> Delete

Showing 1 to 10 of 14 entries

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Figure A.18: Manage Category

A.19 Admin Manage Is-Issued? Books

The screenshot shows the 'Issued Books' section of the library management system. It includes a table with columns for #, Student Name, Book Name, ISBN, Issued Date, Return Date, and Action. The table contains four entries. Below the table, it says 'Showing 1 to 4 of 4 entries'. At the bottom, there is a footer with copyright information and a note about the system's purpose.

#	Student Name	Book Name	ISBN	Issued Date	Return Date	Action
1	ram hari	The Girl Who Drank the Moon	13978-1616205676	2023-07-11 12:49:32	2023-07-11 12:50:57	<button>Edit</button>
2	ram hari	Data analysis modeling	9789937301411	2023-07-11 12:35:06	Not Return Yet	<button>Edit</button>
3	Sajal Rokka	Karnali Blues	9780143454397	2023-07-07 13:32:21	Not Return Yet	<button>Edit</button>
4	Sajal Rokka	Data analysis modeling	9789937301411	2023-07-02 19:44:05	2023-07-02 19:44:50	<button>Edit</button>

Showing 1 to 4 of 4 entries

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Figure A.19: Manage Category

A.20 Admin Manage Registered Student

The screenshot shows the 'Reg Students' section of the LMS. At the top, there's a navigation bar with links for DASHBOARD, CATEGORIES, AUTHORS, BOOKS, ISSUE BOOKS, REG STUDENTS, and CHANGE PASSWORD. A 'LOG ME OUT' button is also present. Below the navigation is a sub-header 'MANAGE REG STUDENTS'. The main content area is titled 'Reg Students' and contains a table with three entries. The table columns are: #, Student ID, Student Name, Email id, Mobile Number, Reg Date, Status, and Action. The entries are:

#	Student ID	Student Name	Email id	Mobile Number	Reg Date	Status	Action
1	SID001	Sajal Rokka	sajalrokka321@gmail.com	9861192115	2023-05-15 18:57:27	Active	<button>Inactive</button> <button>Details</button>
2	SID002	ram hari	sa@12.com	9800000000	2023-07-11 12:32:13	Active	<button>Inactive</button> <button>Details</button>
3	SID003	sudha shrestha	sdjlk@gmail.com	adfhf365	2023-07-11 12:43:31	Active	<button>Inactive</button> <button>Details</button>

Below the table, it says 'Showing 1 to 3 of 3 entries' and has navigation buttons for Previous, Next, and a page number '1'. At the bottom of the page, there's a footer with copyright information and a note about the system's purpose.

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Figure A.20: Manage Category

B Estimated Project Schedule

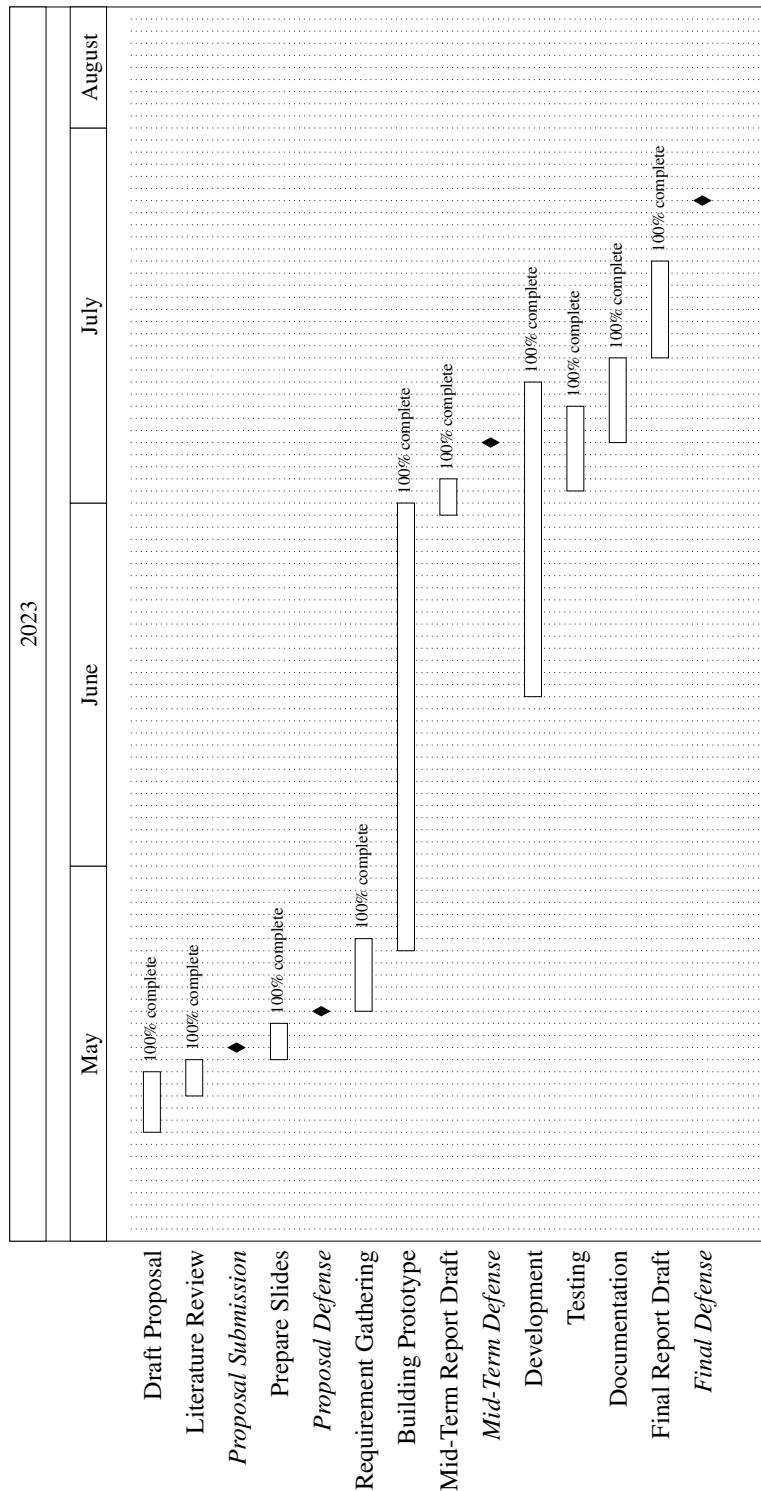


Figure B.1: Gantt Chart showing Expected Project Timeline.

C Literature Review of Base Paper

C.1 Base Paper- I

Author(s)/Source: Ankrah EA , Agbodza R, Atuase D									
Title: Library Management Systems in Public Academic Libraries in Ghana: Situations and Challenges									
Website: http://arcis.ui.edu.ng/jisst/upload/v3n2/JISST-Vol3[2]-22-41-ANKRAH-AGBODZA-ATUASE-Library%20Management%20Systems-in-Public-Academic-Libraries-in-Ghana.pdf									
Publication Date: November, 2019	Access Date: May, 2023								
Journal: Information Science, Systems and Technology	Place: Ghana								
Volume: 3[2]	Article Number: 22-41								
Author's position/theoretical position: Renowned researchers from multiple research labs at University of Ghana, Legon, Accra, Ghana, University of Cape Coast, Cape Coast, Ghana working on the intersection of Information, Information and Communication, education and Sam Jonah Library.									
Keywords: Library Management Systems, Public, Academic Libraries, Ghana (from related research)									
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 80%;">Important points, notes, quotations</th> <th style="text-align: right; width: 20%;">Page No.</th> </tr> </thead> <tbody> <tr> <td>1. An Integrated Library System (ILS), also known as a Library Management System (LMS), is an enterprise resource planning system for a library, used to track items owned, orders made, bills paid, and patrons who have borrowed.</td> <td style="text-align: right;">6</td> </tr> <tr> <td>2. Libraries should also acquire knowledge on LMS by studying what pertains in other libraries currently using the LMS type they also intend to use</td> <td style="text-align: right;">7</td> </tr> <tr> <td>3. OSS requires greater technical sophistication to use than proprietary software due to the higher initial labour cost of open source ILS</td> <td style="text-align: right;">7</td> </tr> </tbody> </table>		Important points, notes, quotations	Page No.	1. An Integrated Library System (ILS), also known as a Library Management System (LMS), is an enterprise resource planning system for a library, used to track items owned, orders made, bills paid, and patrons who have borrowed.	6	2. Libraries should also acquire knowledge on LMS by studying what pertains in other libraries currently using the LMS type they also intend to use	7	3. OSS requires greater technical sophistication to use than proprietary software due to the higher initial labour cost of open source ILS	7
Important points, notes, quotations	Page No.								
1. An Integrated Library System (ILS), also known as a Library Management System (LMS), is an enterprise resource planning system for a library, used to track items owned, orders made, bills paid, and patrons who have borrowed.	6								
2. Libraries should also acquire knowledge on LMS by studying what pertains in other libraries currently using the LMS type they also intend to use	7								
3. OSS requires greater technical sophistication to use than proprietary software due to the higher initial labour cost of open source ILS	7								
Essential Background Information: Library system with book catalog, member management, borrowing, return tracking, reservation, fines, and reporting functionalities for efficient library operations.									
Overall argument or hypothesis: The hypothesis is that the implementation of a web based library management system will improve the management of library resources, enhance the experience of the members, streamline administrative tasks.									
Conclusion: Library management systems have revolutionized operational and delivery of library services, offering a wide range of benefits and increased efficiency. A positive correlation between training, system usability, support and adoption of the Library Management System has been demonstrated in a study carried out by the University of Hertfordshire and the University of Cambridge. Intensive learning programmes are essential to ensure that the potential for Library Management System is maximised, including formal training as well as refresher courses.									

Table C.1: Literature Review Base Paper I

C.2 Base Paper- II

Author(s)/Source: DP Deraniyagala , RMM Pradeep	
Title: Identification of the Software Development Methodology for the Final Year Project	
Website: https://www.researchgate.net/publication/368841537_Identification_of_the_Software_Development_Methodology_for_the_Final_Year_Project	
Publication Date: February, 2023	Access Date: June, 2023
Journal: -	Place: Sri Lanka
Volume: -	Article Number: -
<p>Author's position/theoretical position: DP Deraniyagala is a Software Engineering undergraduate at the Department of Computer Science, Faculty of Computing, KDU. And, Major RMM Pradeep is a Senior Lecturer at the Department of Information Technology, Faculty of Computing, KDU.</p> <p>Keywords: Agile Model, Asthma, Breathing difficulties, Prototype Model, Software Methodologies, Waterfall Model, Wheeze Detection Systems</p>	
Important points, notes, quotations	Page No.
<ol style="list-style-type: none"> 1. The first recognized contemporary method for creating a system has been the waterfall method to systems design and analysis. Winston W. Royce first described this technique in 1970. 3 2. A prototype is produced, tested, and then modified accordingly until an acceptable result is obtained from which the full system or product may be created. This approach is known as the prototyping model. In situations where none of the project needs are recognized in detail beforehand, this model performs best. This is an incremental, trial-and-error process that occurs between both the developers and the users. 3 3. The Agile technique divides a project into many parts and uses these phases to manage the project. Progress at every stage and ongoing collaboration with stakeholders are required. Teams cycle throughout a method of planning, carrying out, and assessing once the job starts. Collaboration between team members and the project stakeholders must always be ongoing. 3 	
Essential Background Information: The prototype model, because of its agile nature and the capability to collect feedback from customers in order to continuously improve, has been selected as a best option compared to waterfall, prototypes or agile models.	
Overall argument or hypothesis: Overall, the hypothesis is that compared to waterfall and agile models, a prototype model with an iterative approach and continuous customer feedback would lead to better project outcomes.	
Conclusion: With its iterative nature and emphasis on customer feedback in order to improve project outcomes, a prototype model emerges as one of the most efficient process models. The prototype model has shown itself to be a well suited and efficient process model for the library management system project. The evolution of a more efficient user friendly and valuable library management system will be helped by its asynchronous approach, focus on customer feedback as well as the ability to respond to evolving requirements. Through this model, system, which responds to the needs of interested parties and substantially increases library operations, can be developed by a project team that will create a better user experience for all users.	

Table C.2: Literature Review Base Paper II

C.3 Base Paper- III

Author(s)/Source: E. Ogala, A.O. Sylvester	
Title: Concept of Web Programming, An Overview of PHP Vol. 1	
Website: https://www.ijser.org/onlineResearchPaperViewer.aspx?CONCEPT-OF-WEB-PROGRAMMING-AN-OVERVIEW-OF-PHP-VOL-1.pdf	
Publication Date: 12, December, 2019	Access Date: June, 2023
Journal: International Journal of Scientific and Engineering Research	Place: Anyigba, Nigeria
Volume: 10	Article Number: ISSN 2229-5518
Author's position/theoretical position: Department of Mathematical Sciences and Computer Science, Kogi State University, Anyigba	
Keywords: computer programming, computer science, database, host, overview, php, program, programming, science, server, server side scripting language, structure, web servers)	
Important points, notes, quotations	Page No.
1. 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.	2
2. This stack's performance numbers suggest what many who have been using PHP for some time now (including some of the busiest blogs on the Web) know to be true — that a pure LAMP-based PHP system can easily handle enterprise-class traffic and loads.	3
3. PHP can handle application, which ranges from web-based to standalone and this can be converted fully into an installable format just like every other window application like office application.	6
Essential Background Information: PHP is an important player in the software development market. Its popularity with both private software developers and corporate IT departments is having a growing impact on the market for commercial software as well.	
Overall argument or hypothesis: 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.	
Conclusion: The programming language is PHP, which can be very helpful in the development of websites. It has come to stay and with availability of so many frameworks out there, you do whole lot with this hand tool and the end product will be so great. The application, which may differ between Web based or standalone and is fully converted into an installable format as every other window application like the Office Application, can be managed by PHP. As with favorite desktop applications such as Office Suite, PHP is a great example of converting an application to installable formats. This enables easy installation on any device of the Library Management System, which in turn facilitates user convenience and allows for more easily accessible usage without compromise to functionality. With PHP's ability to interact easily with the databases, making it possible to store and retrieve data efficiently in order to ensure faster application performance, user experience is further enhanced. A unique product will be created, revolutionising the way in which libraries are operated and enriching the users' experience to students, researchers or active readers by integrating the strengths of PHP with the revolutionary characteristics of a library management system.	

Table C.3: Literature Review Base Paper III

C.4 Base Paper- IV

Author(s)/Source: Ahmed Mateen, Muhammad Jahanzaib, Nayyar Iqbal	
Title: The Role of Quality Assurance in Software Development projects: Project Failures and Business Performance	
Website: https://www.researchgate.net/publication/313212373_The_Role_of_Quality_Assurance_in_Software_Development_ProjectsProject_Failures_and_Business_Performance	
Publication Date: 2, February 2017	Access Date: July, 2023
Journal: International Journal of Management, IT and Engineering	Place: U.S.A.
Volume: 2	Article Number: 113-126
Author's position/theoretical position: Department of Computer Science, University of Agriculture, Faisalabad	
Keywords: Business performance, Project failure, Quality assurance, Software projects	
Important points, notes, quotations	Page No.
1. Software package venture breakdowns could possibly be attributed to that which was claimed because issues in between enterprise also it management. Moreover, the management of businesses has been allocating much less money while focusing on economic development as they devote their attention to technical progress and available technologies.	115
2. An efficient survey of effectiveness shall be conducted in order to collect primary data, Software project failures are reduced through performance and quality assurance validation of the SDLC process.	121
3. The U. Azines.financial system spent virtually \$ 60 thousand each year on account of computer software problems cost.	121
Essential Background Information: The complex task of developing programming applications that meet quality criteria and limits on expenditure remains a challenge for the product industry. The test for the IT industry has always been whether or not you can program without error.	
Overall argument or hypothesis: The test for the IT industry has always been whether or not you can program without error.	
Conclusion: The study has concluded that the software industry is still encountering problems in developing applications meeting quality standards while at the same time dealing with budgetary constraints. The study would aim at understanding why some decision makers have been reluctant to allocate resources into the quality assurance processes as part of the SLDC. The study will aim at reducing the number of software project failures by including quality assurance throughout the SDLC. The analysis of the data has been carried out using quantitative survey design and indeterminate methods. The results showed that it had been an important achievement to integrate quality assurance at all stages of the SDLC. The study used an effective survey involving various software companies and industry experts to gather data. A descriptive statistical analysis using statistical methods was carried out at the final stage, with Matlab programming used for estimation of changes in performance and comparison of performance parameters. It is expected that the results of this research will lower the risk of project failure during development and help projects to achieve their business objectives.	

Table C.4: Literature Review Base Paper IV

C.5 Base Paper- V

Author(s)/Source: Ali Amani Mohammed Alqurn, Ali Alwardany Ali Omar, Montasser M. A. Mahmoud, Rami Naim Atiyeh, Samah Ramzy Abdulghani, Walaa Saleh Megahed Saleh									
Title: The Role of Project-Based Learning in Helping University Students Gain Some Academic Skills and Developing Students' and Faculty Member's Attitudes Towards It									
Website: https://www.researchgate.net/publication/357016723_The_Role_of_Project-Based_Learning_in_Helping_University_Students_Gain_Some_Academic_Skills_and_Developing_Students%27_and_Faculty_Member%27s_Attitudes_Towards_It									
Publication Date: 13 December 2021	Access Date: July, 2023								
Journal: REVIEW OF INTERNATIONAL GEOGRAPHICAL EDUCATION	Place: Ali Alwardany Ali Omar – Imam Abdulrahman Bin Faisal University, Saudi Arabia								
Volume: REGO 11(5)	Article Number: 5091-5101								
Author's position/theoretical position: Department of Computer Science, Imam Abdulrahman Bin Faisal University, Saudi Arabia									
Keywords: Academic Skills and Developing Students, Project-Based Learning									
<p>Important points, notes, quotations</p> <table> <tr> <td>1. The quality of teaching at the College of Advanced Studies and Community Service was enhanced by Project Based Learning in Higher Education, with planned criteria being met.</td> <td style="text-align: right;">5093</td> </tr> <tr> <td>2. Both students and faculty members were highly satisfied with project-based learning, indicating its positive impact on teaching and learning.</td> <td style="text-align: right;">9096</td> </tr> <tr> <td>3. The Project Based Learning developed essential academic skills, such as cooperation, critical thought, creativity, project management and decision making in students.</td> <td style="text-align: right;">5098</td> </tr> <tr> <td>4. The study emphasizes the importance of student-centered approaches in higher education to address skills gaps and enhance graduates' competencies, with project-based learning being a promising strategy.</td> <td style="text-align: right;">5099</td> </tr> </table>		1. The quality of teaching at the College of Advanced Studies and Community Service was enhanced by Project Based Learning in Higher Education, with planned criteria being met.	5093	2. Both students and faculty members were highly satisfied with project-based learning, indicating its positive impact on teaching and learning.	9096	3. The Project Based Learning developed essential academic skills, such as cooperation, critical thought, creativity, project management and decision making in students.	5098	4. The study emphasizes the importance of student-centered approaches in higher education to address skills gaps and enhance graduates' competencies, with project-based learning being a promising strategy.	5099
1. The quality of teaching at the College of Advanced Studies and Community Service was enhanced by Project Based Learning in Higher Education, with planned criteria being met.	5093								
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4. The study emphasizes the importance of student-centered approaches in higher education to address skills gaps and enhance graduates' competencies, with project-based learning being a promising strategy.	5099								
<p>Essential Background Information: The creation and implementation of Project Based Learning in colleges is necessary to support deeper learning, the development of critical thinking skills as well as pupils' preparation for realistic world challenges which help them achieve higher grades and professional success.</p>									
<p>Overall argument or hypothesis: This study shows that, with the implementation of project based learning strategies within College of Applications and Community Services, a positive effect on student satisfaction, teacher satisfaction, commitment to Project Learning standards as well as academic skills development will be achieved.</p>									
<p>Conclusion: The Project Based Learning Initiative at the College of Applied Studies and Community Service has worked effectively to improve teacher quality, enhance students' ability to acquire essential practical learning skills as well as satisfying both student and faculty members by ensuring that projects meet educational standards.</p>									

Table C.5: Literature Review Base Paper V

D Log-Book of Supervisor Meet

SN	Date	Discussion Topics
1	02 May 2023	Project Topics Selection
2	26 May 2023	Technologies for Project and Design
3	21 June 2023	Mid-Report Discussion
4	10 July 2023	Review on the Project
5	14 July 2023	Changes on the Project
6	24 July 2023	Project Report and Testing Documents
7	26 July 2023	Final Review of the Project and Documents

Table D.1: Supervisor Meet Logbook

Project Supervisor

Er. Bikash Thapa Magar,
Lecturer/Researcher.

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