

Academic Internship Project report
On

Bits & Books

In partial fulfilment of the requirements for the award of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING(IOT)

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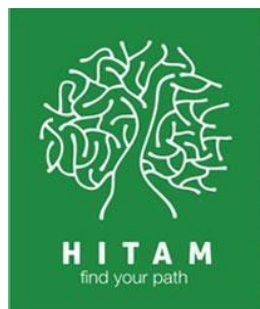
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HYDERABAD INSTITUTE OF TECHNOLOGY AND MANAGEMENT

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HYDERABAD INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(Affiliated to JNTUH, Approved by AICTE, Accredited by NAAC, NBA – TS 501401)

DEPARTMENT OF EMERGING TECHNOLOGY(IOT)



CERTIFICATE

This is to certify that the internship project work entitled “**BITS AND BOOKS**” is being submitted by **VISWESH,KOUSHIK,MOHITH** bearing Roll No.**22E151A6947, 22E51A6906, 22E51A6945** in partial fulfilment of the academic requirement, at Hyderabad Institute of Technology and Management, Hyderabad is a record of bonafied work carried out by them under our guidance. The matter contained in this document has not been submitted to any other University or institute.

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DECLARATION

We here by declare that the internship project entitled **“BITS AND BOOKS”** submitted to **Hyderabad Institute of Technology and Management** affiliated to **Jawaharlal Nehru Technological University Hyderabad** (JNTUH) as part of academic requirement, is a result of original research work and done by us. It is further declared that the internship project report or any part thereof has not been previously submitted to any other university or institute.

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ABSTRACT

BITS and BOOKS is an innovative project that redefines the concept of a college library, seamlessly blending a digital repository and an efficient management system. This integrated platform not only offers a diverse collection of e-books for online reading or download but also serves as a comprehensive library management system. Beyond conventional features, **BITS and BOOKS** stands out by providing access to previous question papers, empowering students to enhance their exam preparedness. The system streamlines administrative processes, including catalog management and real-time tracking of physical book availability. With personalized user accounts, notifications, and integration with the Learning Management System, **BITS and BOOKS** represents a cutting-edge solution that addresses the evolving educational landscape, ensuring a holistic and technologically advanced library experience for the college community.

As the project advances toward deployment, considerations for future-ready cloud deployment and a robust maintenance plan underscore its commitment to sustained innovation and efficiency. In essence, the **BITS and BOOKS** project not only fulfills its initial objectives of creating a digital library and management system but also sets a precedent for technology-driven, user-centric library solutions in the academic landscape.

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CHAPTER 1

INTRODUCTION

CHAPTER 1

1.1 INTRODUCTION

In the age of digital transformation, educational institutions are navigating an ever-evolving landscape, seeking innovative solutions to enrich the learning experience. Within this context, the "BITS and BOOKS" project emerges as a transformative initiative, redefining the traditional role of a college library. Far beyond a conventional digital library, BITS and BOOKS integrates a dynamic digital repository with a robust library management system, creating a versatile platform that caters to the diverse needs of students, faculty, and administrators. By offering seamless access to a vast collection of e-books and efficiently managing physical book resources, the project aims to bridge the gap between traditional and digital libraries. Notably, BITS and BOOKS goes beyond the ordinary, providing students with access to an invaluable resource — a repository of previous question papers — fostering a culture of academic excellence. This introduction sets the stage for exploring the multifaceted features of BITS and BOOKS, showcasing its potential to revolutionize the college library experience and contribute to the academic success of its users.

There are mainly 2 modules in this software:

- Admin module
- Student Module

In the Software we can register as a user and user has of two types, student and administrator. Administrator has the power to add new books and can edit and delete a book. A student can register as user and can access the digital library. The administrator can give the data regarding the availability of hard copies of books.

In the rapidly evolving landscape of higher education, the BITS and BOOKS project emerges as a groundbreaking solution, poised to revolutionize the traditional concept of college libraries. Acknowledging the transformative power of technology, this initiative takes inspiration from the changing needs of the academic community. At its core, BITS and BOOKS aspires to create a digital ecosystem that seamlessly integrates technological advancements with the essence of a conventional library. By leveraging the robust XAMPP stack, the project architects a dynamic three-tiered architecture, fusing a user-centric web interface with powerful backend functionalities. This amalgamation not only adapts to the digital age but propels the college library into a realm of unprecedented accessibility, efficiency, and innovation.

In an era where information is increasingly consumed in digital formats, the BITS and BOOKS project stands as a beacon, offering a comprehensive digital library with an extensive collection of e-books. Beyond the digital frontier, the initiative addresses the tangible needs of library management through a sophisticated system that orchestrates the cataloging of physical books, real-time tracking of their availability, and the streamlining of traditional check-out/check-in processes. This dual approach ensures that the project caters to the diverse preferences and requirements of students and faculty alike.

Moreover, the user experience is meticulously crafted to transcend beyond conventional expectations. Personalized user accounts, individualized profiles, and an automated notification system are woven into the fabric of the project, enhancing engagement and responsiveness. The integration with the Learning Management System further cements BITS and BOOKS as not just a repository of resources but an integral part of the broader educational journey, fostering a seamless transition between academic materials and coursework.

As the academic community grapples with the challenges of an increasingly digital future, BITS and BOOKS positions itself at the forefront of this transformative wave. It not only envisions a modernized library experience but enacts it through a strategic combination of technology, user-centric design, and forward-thinking methodology. This introduction sets the stage for an exploration into a project that goes beyond mere adaptation; it stands as a testament to the proactive evolution of educational resources in an era of constant technological evolution.

1.2 Objective of the project

The BITS and BOOKS project is driven by a set of overarching objectives designed to redefine the conventional role of a college library. At its core, the project aims to enhance accessibility to educational resources by establishing a comprehensive digital library with a diverse collection of e-books, providing students and faculty with the flexibility of online reading or downloads. Simultaneously, the implementation of a robust library management system, powered by PHP and MySQL, seeks to optimize administrative tasks, including catalog management and real-time tracking of physical book availability. The user-centric approach is emphasized through the development of a seamless and intuitive interface, personalized user accounts, and an automated notification system. Notably, the inclusion of a repository for previous question papers aims to empower students in their exam preparation. By integrating with the Learning Management System and providing administrators with analytical tools, BITS and BOOKS not only ensures interoperability but also contributes to a thriving academic culture, reflecting the institution's commitment to technological advancement and the evolving needs of its academic community.

Objectives:

- **Digital Transformation:** Implement a comprehensive digital transformation of the college library, transitioning from traditional book-centric models to a technologically advanced hub that caters to the evolving needs of students and faculty.
- **Enhanced Accessibility:** Facilitate broader and more convenient access to educational resources by establishing a user-friendly digital library, ensuring seamless retrieval and exploration of a diverse collection of e-books.
- **Efficient Library Management:** Streamline and modernize library management processes by introducing a sophisticated system for cataloging physical books, tracking their real-time availability, and optimizing check-out/check-in procedures.
- **User-Centric Experience:** Prioritize the user experience by creating personalized user accounts, individualized profiles, and an automated notification system to enhance engagement and responsiveness, fostering a sense of ownership among users.
- **Integration with Learning Management System (LMS):** Integrate seamlessly with the existing Learning Management System to create a unified educational

ecosystem, facilitating easy navigation between academic resources and coursework materials.

- **Administrative Insights:** Provide administrators with powerful tools for analytics and reporting, offering valuable insights into library usage, resource popularity, and trends to support data-driven decision-making.
- **Security and Reliability:** Ensure the security and reliability of the BITS and BOOKS platform by implementing robust security measures, conducting regular vulnerability assessments, and maintaining a system that guarantees data integrity and confidentiality.
- **Version Control and Scalability:** Implement effective version control using Git to track changes, collaborate efficiently among the development team, and ensure the scalability of the project to accommodate future enhancements and growing user demands.
- **User Training and Adoption:** Develop training programs to familiarize users, including students, faculty, and administrators, with the new digital library platform, promoting widespread adoption and maximizing the benefits of the system.
- **Future-Ready Architecture:** Design the BITS and BOOKS system architecture with future considerations, ensuring compatibility for cloud deployment, scalability, and adaptability to emerging technologies in the continually evolving landscape of educational resources.
- These objectives collectively form the guiding principles for the BITS and BOOKS project, steering it towards the overarching goal of redefining the college library experience through innovation, user-centricity, and technological advancements.

CHAPTER 2

LITERATURE SURVEY

CHAPTER 2

2.1 Introduction to needs analysis in e-libraries:

Through extensive research, a robust foundation has been laid for the development of BITS & BOOKS. Insights gleaned from studies highlight the transformative influence of digital libraries on education, emphasizing the need for enhanced accessibility and resource availability. Collaborative learning platforms have emerged as pivotal in fostering community engagement and knowledge sharing, guiding BITS & BOOKS in creating a dynamic and interactive space for students.

The research underscores the importance of seamlessly integrating problem-solving elements into educational platforms, a principle BITS & BOOKS actively embraces. Additionally, the role of user-friendly interfaces in improving online learning experiences is acknowledged, influencing the platform's design to ensure ease of navigation. Furthermore, your investigation into the challenges posed by geographical and institutional boundaries in education informs BITS & BOOKS' mission to overcome these constraints and provide equitable access to educational resources for students from diverse backgrounds. In summary, your research serves as the compass steering BITS & BOOKS towards a transformative and inclusive educational experience.

CHAPTER 3

HARDWARE AND SOFTWARE REQUIREMENTS

CHAPTER 3

3.1 Hardware Requirements:

Processor : Quad-core processor (e.g., Intel Core i5 or equivalent)

RAM : 4 GB or higher

Storage : 256 GB HDD or SSD for local storage

Network Interface : Gigabit Ethernet/Wi-Fi for network connectivity

3.2 Software Requirements:

Operating System : Windows Server 2019 or Windows 10
Linux: Ubuntu Server, CentOS

Language : PHP

Database : MySQL

CHAPTER 4

DESIGN AND METHODOLOGY

CHAPTER 4

4.1 Architecture and methodology:

1. System Architecture:

XAMPP as Local Development Environment:

Utilize XAMPP (cross-platform, Apache, MySQL, PHP, Perl) as the local development environment to facilitate easy setup and testing during the development phase.

2. Frontend Design:

Web-Based Interface:

Develop a responsive web-based interface using HTML, CSS, and JavaScript for seamless user interactions.

Leverage XAMPP's Apache server to serve web pages locally during development.

3. Backend Development:

PHP Development with XAMPP:

Leverage PHP scripting language for server-side development, interacting with the Apache server provided by XAMPP.

Utilize XAMPP's MySQL database for storing and retrieving data efficiently.

4. Database Management:

MySQL Database with phpMyAdmin:

Use phpMyAdmin, included in XAMPP, for database administration tasks, including creating tables, managing data, and optimizing database performance.

5. Digital Library Functionality:

Integration with XAMPP Server:

Integrate the digital library functionality with the XAMPP server, allowing seamless testing and development on a local environment.

6. Library Management System:

Local Implementation:

Develop and test the library management system functionalities locally using the XAMPP server.

Ensure smooth integration with the MySQL database provided by XAMPP.

7. User Accounts and Profiles:

Authentication and Authorization with XAMPP:

Implement user authentication and authorization using PHP and XAMPP's MySQL database.

Develop user profile management features, utilizing XAMPP's local server for testing.

8. Notification System:

Local Testing with XAMPP:

Implement and test the notification system locally on the XAMPP server to ensure proper functionality.

9. Integration with Learning Management System (LMS):

Local Compatibility Testing:

Ensure seamless integration with the Learning Management System using XAMPP for local compatibility testing.

10. Administrative Tools:

phpMyAdmin for Database Management:

Leverage phpMyAdmin, included in XAMPP, for efficient database management and administration.

Develop administrative tools for analytics and reporting, utilizing XAMPP's local server for testing.

11. Version Control and Testing:

Git with XAMPP Environment:

Implement version control using Git, ensuring collaborative development and tracking changes within the XAMPP development environment.

Conduct thorough testing, including unit testing and integration testing, on the local XAMPP server.

4.2 DATA DIAGRAMS



Fig 4.1 FLOWCHART

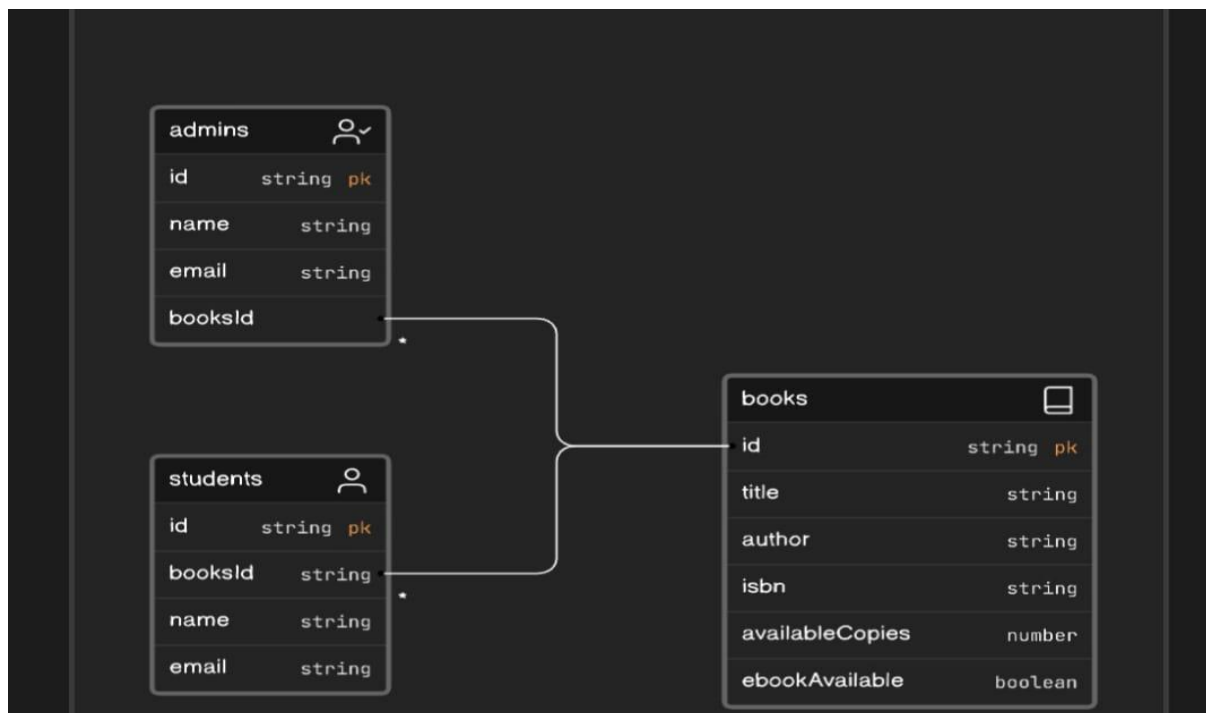


Fig 4.2 DATABASE FLOW

BITSandBOOKs Digital Library Interactions

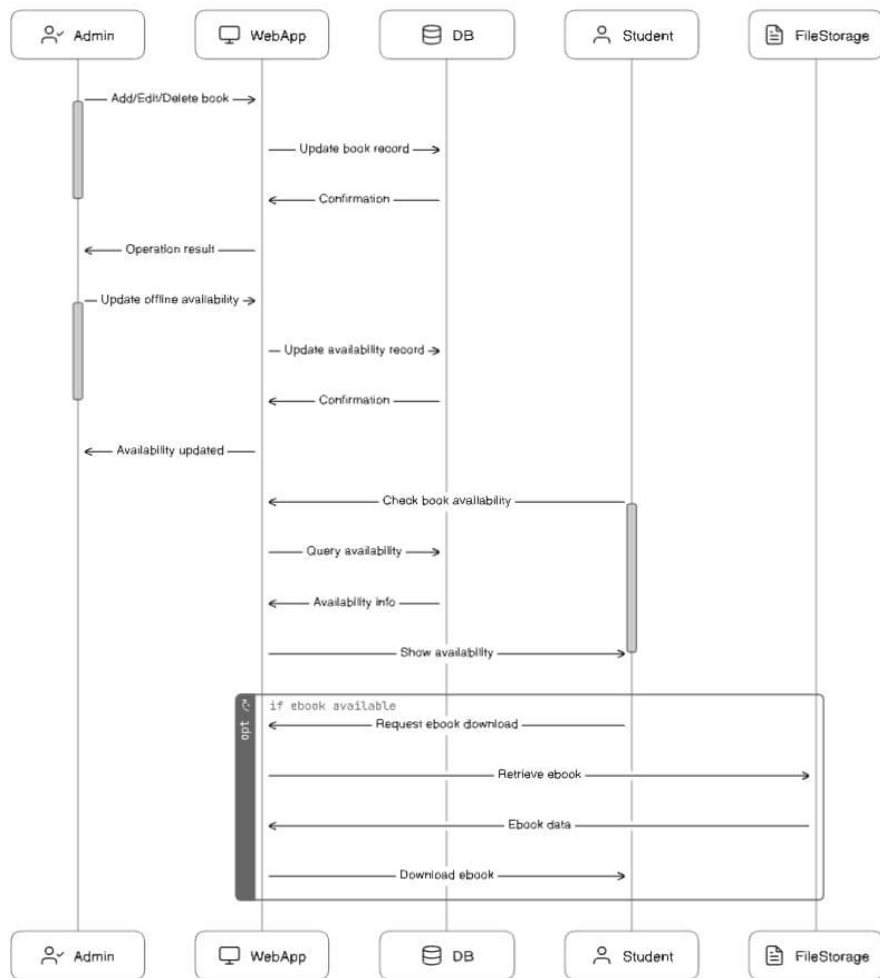


Fig 4.3 CONTEXT DIAGRAM

4.3 Working

The BITS and BOOKS project is designed to function as a comprehensive digital library and library management system. Leveraging the XAMPP stack, the system is structured with a three-tier architecture, encompassing a user-friendly web-based interface developed with HTML, CSS, and JavaScript. PHP scripts handle backend functionalities, ensuring seamless interaction with a MySQL database through phpMyAdmin. Users can access a vast repository of e-books, both online and through downloads, with features for borrowing and returning physical books. The system supports user accounts, authentication, and personalized profiles, complemented by an automated notification system. Integration with the Learning Management System enhances the educational ecosystem, while administrative tools provide insights into library usage. The entire project is tested rigorously before deployment, ensuring a reliable and secure digital library experience for students, faculty, and administrators.

4.4 CODE:

```
<html>
<head>
<title>About Us</title>
<style>
body{
    background: url("3.jpg");
}
.box{
    width:74%;
    height:160px;
    background-image: url("books.jpeg");
    background-size: cover;
    margin-left: 13%;
    opacity: .9;
    border:solid 1px #CF0403;
    border-radius: 12 px;
}
.boxtwo{
    background-image: url("lg3.jpg");
    background-size: cover;
    box-shadow:0px 0px 15px lightgreen;
    border-radius:12px;
}
ul{
    padding: 0 ;
    list-style: none;
}
ul li{
    float: left;
    width: 248px;
```

```

height: 40px;
background-color: purple;
opacity: .8;
line-height: 40px;
text-align: center;
font-size: 20px;
margin-right: 2px;
}
ul li a{
text-decoration: none;
color: white;
display: block;
}
ul li a:hover{
background-color: green;
}
ul li ul li{
display: none;
}
ul li:hover ul li{
display: block;
}
.nav{
padding-left: 13%;
}
.three{
margin-left: 60%;
margin-top: 5px;
box-shadow: 0px 0px 15px green;
}
td{
text-align: center;

```

```

    }
</style>
</head>
<body>
    <div class="box">
        <table style="font-size:16pt" align="center" width="100%" height="100%">
            <tr>
                <td style="color:white"><h1 align="center"><marquee><i>Bits And Books</i>
</marquee></h1></td>
            </tr>
            <tr>
                <td align="center"><b><i><mark style="color:white;background-
color:maroon";>ABOUT US</mark></i></b></td>
            </tr>
        </table>
    </div>
    <div class="nav">
        <ul>
            <li><a href="sdb.php">HOME</a></li>
            <li><a href="sbooks.php">YOUR ORDER INFO</a></li>
            <li><a style="background-color: green" href="aboutus.php">ABOUT US</a>
            </li>
            <li><a href="index.php">LOGOUT</a></li>
        </ul>
        <br><br>
    </div>
    <div class="boxtwo" style="border:solid 1px #CF0403;border-radius: 10px; width:84%;
height:850px; margin-left:10%;margin-top:10px;background-color:white">

        <h1 style="color:yellow;text-align:center;background:rgba(255, 255, 255, 0.24)">ABOUT
BITS AND BOOKS </h1>

        <P style="color:white;text-align:center;width:60%;font-weight:bold;margin-left

```


:20%;background:rgba(0, 0, 0, 0.5);box-shadow:0px 0px 20px white;border-radius:10px;padding:3%;font-size:15px">Welcome to BITS and BOOKS! We're dedicated to fostering a love for reading within the HITAM community. Our digital library offers a diverse collection of books, user-friendly navigation, and convenient access. Join us in embracing innovation in education and building a community of passionate readers. Happy Reading!

</P>

<h2 style="color:#1602b2;text-align:center;background:rgba(255, 255, 255, 0.82);">ACKNOWLEDGEMENT </h2>

<P style="color:white;text-align:center;width:60%;font-weight:bold;margin-left :20%;background:rgba(0, 0, 0, 0.5);box-shadow:0px 0px 20px red;border-radius:10px;padding:3%;font-size:15px">

We would like to express our special thanks of gratitude to our mentor <i>Dr.MVA.Naidu sir</i> who gave us the golden opportunity to do this wonderful project using PHP, which also helped us in doing a lot of Research and we came to know about so many new things. We are really thankful to him.

</P>

<h2 style="color:#000000;text-align:center;background:rgba(255, 255, 255, 0.82)"> Group Members </h2>

<div style="color:white;text-align:center;width:30%;font-weight:bold;margin-left :30%;background:rgba(0, 0, 0, 0.5);box-shadow:0px 0px 20px #fc7af7;border-radius:10px;padding:3%;font-size:15px;height:200px;"><marquee direction="up" scrolldelay="200" >

<tr><td>
</td><td>1. NARNI VENKATA VISWESH </td><td>
</td><td>Role = (UI Developer + Backend Developer)

Mail-ID : 2004viswa@gmail.com</td><td>
</td></tr>

<hr>

<tr><td>
</td><td>2. BADINENI KOUUSHIK</td><td>
</td><td>Role = (UI Developer)
Mail-ID : koushikbadineni@gmail.com</td><td>
</td></tr>

<hr>

<tr><td>
</td><td>3. MAREEDU MOHITH KRISHNA SAI</td><td>
</td><td>Role = (UI Developer + Backend Developer)
Mail-ID : mohithmareedu@gmail.com </td><td>
</td></tr>

<hr>

</marquee></div>

</div>

```
<div style="background-color:orange; border:solid 2px orange;border-radius: 10px;
width:84%; height:40px; margin-left:10%; margin-top:15px" >
```

```
<marquee behavior="alternate" direction="right" loop="1" style="margin-right:38% "
align="center"><h6 style="line-height:1px;">"Thank you for exploring BITS and BOOKS –
your digital gateway to knowledge and discovery. Happy reading!"</h6></marquee>
```

```
</div>
```

```
</body>
```

```
</html>
```

```
<?php
```

```
define("DBHOST","localhost");
```

```
define("DBUSERNAME","root");
```

```
define("DBPASSWORD","");
```

```
define("DB","lib");
```

```
$conn = mysqli_connect(DBHOST,DBUSERNAME,DBPASSWORD,DB);
```

```
?>
```

CHAPTER 5

SOLUTIONS

CHAPTER 5

5.1 Output Screenshots:

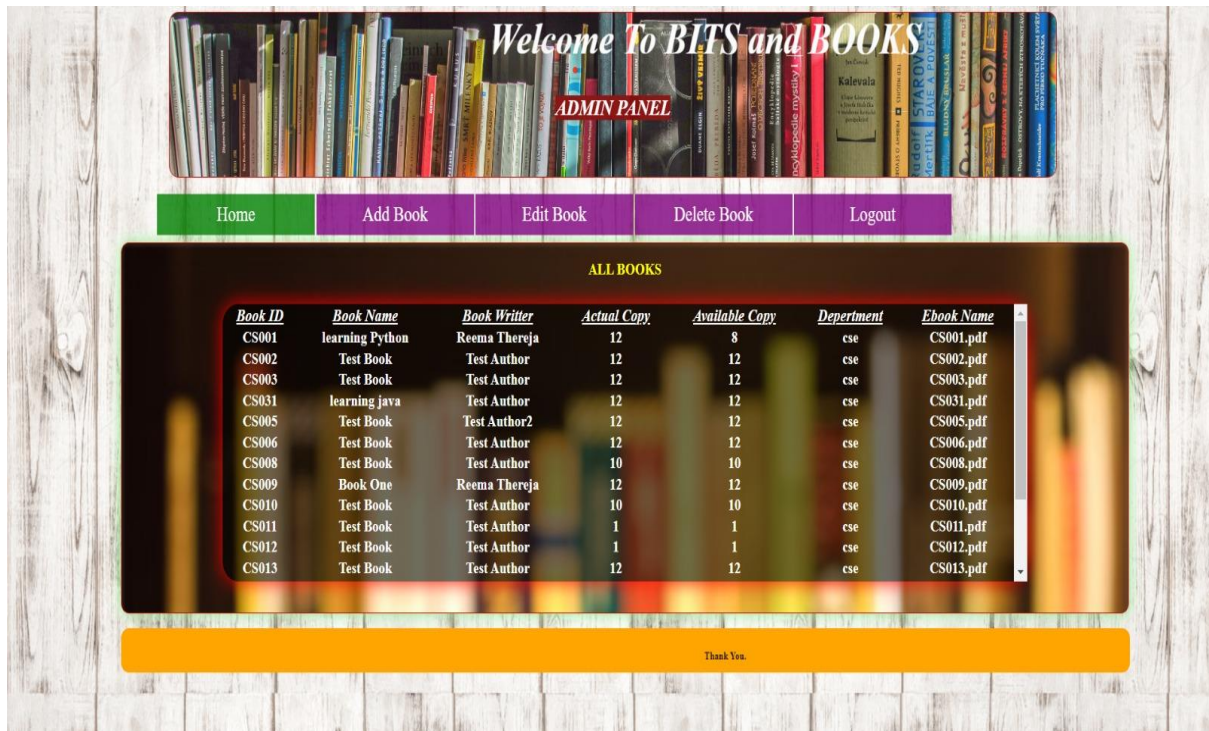


Fig. 5.1 ADMIN PAGE



Fig. 5.2 LOGIN PAGE



Fig. 5.3 HOME PAGE

5.2 Evaluation and Testing:

- The evaluation and testing phase of the BITS and BOOKS project is a crucial step to ensure the system's robustness, functionality, and security.
- Validate system alignment with initial requirements.
- Conduct functional, usability, and performance testing.
- Evaluate security measures through penetration testing.
- Verify seamless integration with external systems.
- Perform regression testing after code changes.
- Engage users in User Acceptance Testing (UAT).
- Evaluate system performance under varying workloads.
- Confirm compatibility across browsers and devices.
- Validate analytics and reporting tools for accuracy.
- Review effectiveness of version control (e.g., Git).
- Assess system's readiness for future enhancements.
- Review and update project documentation.

5.3 Discussion:

The BITS and BOOKS project is an innovative digital library and management system designed to revolutionize the conventional college library experience. With the XAMPP stack at its core, the project employs a three-tier architecture, combining a user-friendly web interface with robust backend functionalities powered by PHP and MySQL. This architecture facilitates seamless access to a diverse array of e-books, both online and for download, along with efficient management of physical book resources. The system's automated notification features, user accounts, and personalized profiles enhance the overall user experience, while integration with the Learning Management System contributes to a cohesive educational ecosystem. Admin tools provide valuable insights, and the entire project, guided by Git for version control, undergoes rigorous testing before deployment, ensuring a reliable and secure digital library experience.

In the deployment phase, the project is future-ready, considering cloud deployment for scalability and accessibility. Regular maintenance procedures, including security updates and backup strategies, are emphasized to sustain a secure and efficient digital library platform. In essence, BITS and BOOKS not only embraces technological advancements but also sets the stage for a transformative shift in the college library landscape, offering an inclusive, user-centric, and technologically advanced platform for the entire academic community.

CHAPTER 6

CONCLUSION

CHAPTER 6

6.1 Conclusion

In a transformative leap for college libraries, the BITS and BOOKS project heralds a new era by seamlessly blending a sophisticated digital interface with robust backend functionalities. At its core, the initiative is characterized by a rich e-book repository, strategically curated to encompass diverse academic disciplines and cater to the evolving needs of students and faculty. The meticulous implementation of efficient library management systems ensures a streamlined and responsive resource allocation process.

The user-centric features embedded in the project not only enhance accessibility but also facilitate a personalized learning experience. This includes intuitive search functionalities, customizable preferences, and collaborative tools that foster engagement within the academic community. The integration with the Learning Management System further solidifies its impact, creating a harmonious educational ecosystem where digital resources seamlessly complement traditional learning methods.

Administrative tools incorporated in the project provide invaluable insights, empowering decision-makers with data-driven perspectives on resource utilization and user behavior. The commitment to version control and rigorous testing underscores the project's dedication to maintaining a high standard of quality and reliability.

Looking towards the future, the project's considerations for cloud deployment demonstrate a forward-thinking approach, ensuring scalability, adaptability, and long-term sustainability. This commitment to innovation, reliability, and future-readiness positions the BITS and BOOKS project as a trailblazer in reshaping the landscape of academic resource management within college libraries.

REFERENCES

- <https://www.daitm.org.in/wp-content/uploads/2019/04/Gr.-06library-project-report.pdf>
- <https://github.com/topics/library-management-system?l=html>
- <https://github.com/topics/elibrary-project>
- <http://elibraryproject.org/>