BOOK BORROWING SYSTEM

Submitted By

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(INTEGRATED WITH TCS)

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CERTIFICATE

This is to certify that this project work entitled" **BOOK BORROWING SYSTEM"**, submitted to the Sri Ramakrishna College of Arts &Science for in partial fulfillment of the requirement for the completion of the mini project in IV Semester is the record of the original work done by **K. PRIYADHARSHINI (22124041)** during her period of study in Department of Computer Science with Cognitive systems, Sri Ramakrishna College of Arts and Science, Coimbatore under my supervision and guidance.

Forwarded by

DR.M. JAITHOON BIBI
Faculty Guide

DR. V. KRISHNAPRIYA
Head of the Department

Submitted for Viva-Voce held on _____

Internal Examiner

External Examiner

DECLARATION

I hereby declare that this mini project work entitled **"BOOK BORROWING SYSTEM"**, submitted to Sri Ramakrishna College of Arts & Science for in partial fulfillment of the requirement for the completion of the mini project in IV Semester is the record of the original work done by **PRIYADHARSHINI K (22124041),** under the supervision and guidance of **DR.M. JAITHOON BIBI, M.C.A., M.Phil., Ph.D., Assistant Professor**, Department of Computer Science with Cognitive Systems, Sri Ramakrishna College of Arts and Science, Coimbatore.

Place: Coimbatore K. PRIYADHARSHINI

Date:_____ (22124041)

Endorsed by

Place: Coimbatore DR.M. JAITHOON BIBI

Date:_____ (**Faculty Guide)**

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ABSTRACT

The proposed project is a Book Lending Website designed to facilitate the exchange and borrowing of books among users, aiming to create an online community where users can register, log in, and share their personal book collections with others. The platform's key functionalities include user registration and authentication, enabling users to securely create accounts and access the system; book uploading, allowing users to add details and images of books they wish to lend; and viewing available books, providing a catalog of books open for borrowing. Users can request to borrow books, initiating a streamlined process for book exchange, and manage their book requests to keep track of their lending and borrowing activities. Additionally, the website will feature an alert system to notify users of updates related to their uploaded books and pending requests, ensuring timely communication and smooth interactions. Leveraging advanced web development technologies, this project aims to offer a seamless and user-friendly experience for book enthusiasts, promoting the joy of reading and the sharing of resources within the community.

1. INTRODUCTION

1.1 Overview of the project

The Book Lending Website is an innovative online platform designed to facilitate the exchange and borrowing of books among users, fostering a vibrant community of book enthusiasts. This platform allows users to register and log in to create secure personal accounts, thereby gaining access to the various features of the site. Users can upload their personal book collections by adding detailed information and images, making these books available for others to view and borrow. Key functionalities of the website include secure user registration and authentication, enabling users to safely create and access their accounts, and an intuitive book uploading feature that allows users to add and manage their book listings with comprehensive details and images. Additionally, the platform offers a user-friendly interface for browsing and searching the catalog of available books, making it easy for users to discover new reads. The borrowing process is streamlined, with users able to initiate and manage book borrowing requests effortlessly, while also keeping track of incoming and outgoing book requests. An integrated alert system ensures timely notifications about updates related to uploaded books and pending requests, enhancing communication and interaction among users. By leveraging modern web development technologies, the Book Lending Website provides a seamless and enjoyable user experience, promoting the joy of reading and the sharing of resources within an engaging and interactive digital community. Through this project, users can not only exchange books and discover new literature but also connect with other readers, thus enriching their reading experience within a secure and well-organized environment.

2. SYSTEM SPECIFICATIONS:

2.1 Hardware and software requirements:

2.1.1 Hardware requirements

Processor : intel core i3

RAM : 8.00GB

Hard disk drive : 40 GB

2.1.2 Software requirements:

Operating system : windows 11

Front end : visual studio code

Back end : MySQL

Languages used : Html, CSS, java script, php, bootstrap

2.2 SOFTWARE DESCRIPTIONS:

2.2.1 Visual Studio Code

Visual studio code is a source-code editor that can be used with a variety of programming languages, including Java, JavaScript, Go, Node.js, Python and C++**.** Visual studio code can be extended via extensions, available through a central repository

2.2.2 Php

PHP is a widely-used open-source scripting language designed for web development, enablingdynamic content, server-side scripting, and database interaction, often embedded within HTML.

2.2.3 Bootstrap

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains HTML, CSS and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components.

2.2.4 Java Script

JavaScript is a light-weight object-oriented programming language which is used for several website for scripting the webpages. It is an interpreted full-fledged programming language that enables dynamic interactivity on website when applied to an HTML document.

2.2.5 HTML

The Hyper Text Mark-up Language or HTML is the standard mark-up language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.

3 SYSTEM ANALYSIS

3.1 Existing System

In many communities, book lending and borrowing thrive through physical libraries and informal exchanges among friends and family. Online platforms and forums also exist where people discuss books and arrange exchanges. These systems encompass traditional libraries with membership benefits, social media groups for book recommendations and lending arrangements, and online marketplaces for listing books for exchange or borrowing. These existing systems offer unique ways to connect with books and fellow readers. Physical libraries provide curated collections and professional librarians for assistance. Social media groups foster a sense of community and allow for personalized recommendations. Online marketplaces offer a wider selection and potentially lower costs.

Drawbacks

 Limited accessibility: Physical libraries are restricted by location and hours, while informal exchanges lack structure and organization.

 Management issues: Manual tracking of borrowed/lent books increases the risk of loss and makes browsing difficult due to the lack of a centralized catalog.

 Communication challenges: Delays and miscommunication are common in informal arrangements. Additionally, the absence of automated alerts can lead to missed opportunities and missed deadlines.

 Security **and trust concerns:** Without a formal system, there's a higher risk of books not being returned or commitments not being fulfilled.

 Limited community features: Existing platforms may not have features that encourage interaction and engagement among book lovers**.**

3.2 Proposed System:

The proposed system is a Book Lending Website designed to revolutionize book exchanges byproviding a centralized online platform where users can easily register, upload their personal book collections, browse available books, and request to borrow from others. This system aims to overcomethe limitations of existing methods by offering a convenient and structured approach to book sharing, complete with user authentication, intuitive book management features, and an alert system for timely notifications. By leveraging web development technologies, the website strives to create a seamless anduser-friendly experience, fostering a vibrant community of book enthusiasts while promoting reading and resource-sharing in the landscape.

Advantages:

- Book lending and borrowing systems offer a wider selection of books than personal collections, allowing exploration of new genres and authors.
- Physical libraries provide curated collections and professional librarian assistance, while online platforms can offer potentially lower costs.
- Social media groups foster a sense of community and allow for personalized recommendations.
- Borrowing books saves money compared to buying them all.
- These systems promote sustainability by reducing the need to print and purchase new books.
- Connecting with like-minded individuals through book clubs or online forums builds a sense of belonging.

4. SYSTEM DESIGN AND DEVELOPMENT

4.1 Module Description

4.1.1 Module 1: User Registration and Authentication:

This module enables users to create accounts securely and log in to the platform. It includes functionalities for user authentication, password management, and account verification.

4.1.2 Module 2: Uploading PDF and Uploader Details

This module enables users to upload PDF files of books to the platform, capturing essential details about the uploader. Users utilize a form to submit PDF files, along with metadata like book title, author, and genre. Upon submission, the system securely stores the PDF and extracts relevant metadata. Uploader details, including username and email, are recorded for identification and communication.

4.1.3 Module 3: Book Listing and Download

Users can browse a comprehensive list of available books, view their details, and download PDF copies. This module streamlines the process of discovering and accessing a diverse range of literature, enhancing the user's reading experience.

4.1.4 Module 4: Book Request

Users can request to borrow books from other users through a streamlined process. This module facilitates efficient communication and coordination between borrowers and lenders, promoting seamless book exchanges within the community.

4.1.5 Module 5: Requested Books

This module allows users to view and manage their requested books, providing transparency and control over borrowing activities. Users can track the status of their requests and communicate with lenders, ensuring smooth and accountable book lending transactions.

4.2. Data Flow Diagram

A Data flow diagram is a graphical representation of data movement, processes, and files (data stores) used in support of an information system. Data flow diagram models are used to a system by external entities from which data flows to a process, which go to other processes or external entities or files.

- Data flow is represented by an arrow.
- People, procedures or devices that use or produce will be represented in circle.
- External sources or destinations of data, which may be people, programs, organizations, or other entities that interact with the system but are outside its boundary are represented in rectangle.
- Data are stored or referenced by a process in the system. The data store may be representing with the open rectangle

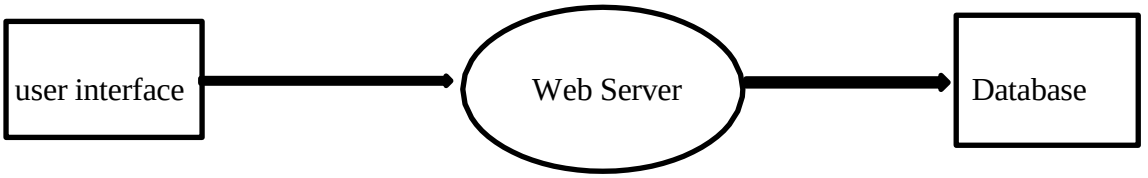
In normal DFD can be completed using only three notations.

Represent the source and destination

represent the data flow lines

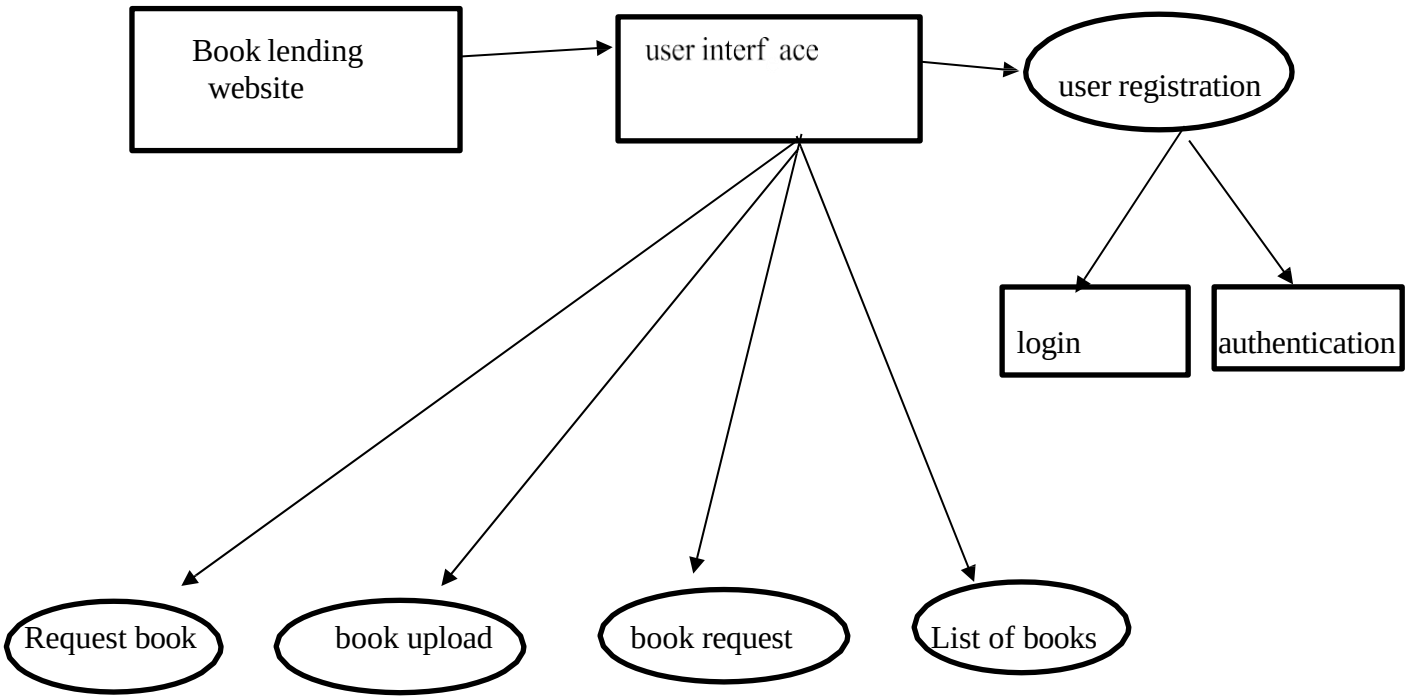
represent a process that transform incoming data outgoing flow.

LEVEL 0



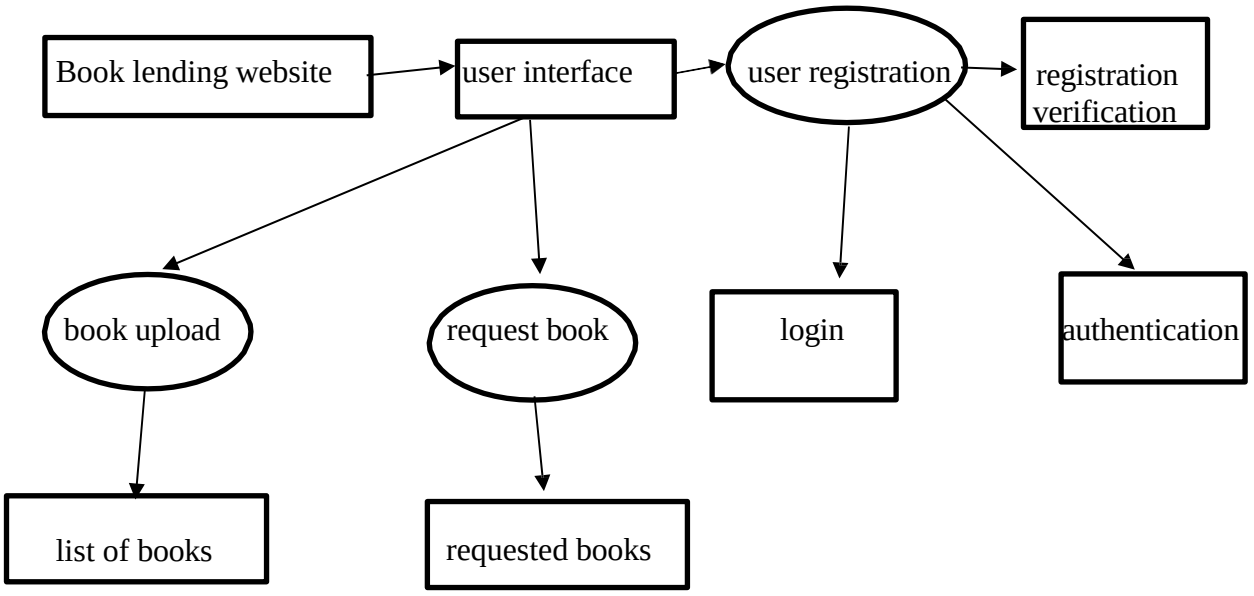
Dataflow diagram 4.2.1

LEVEL 1



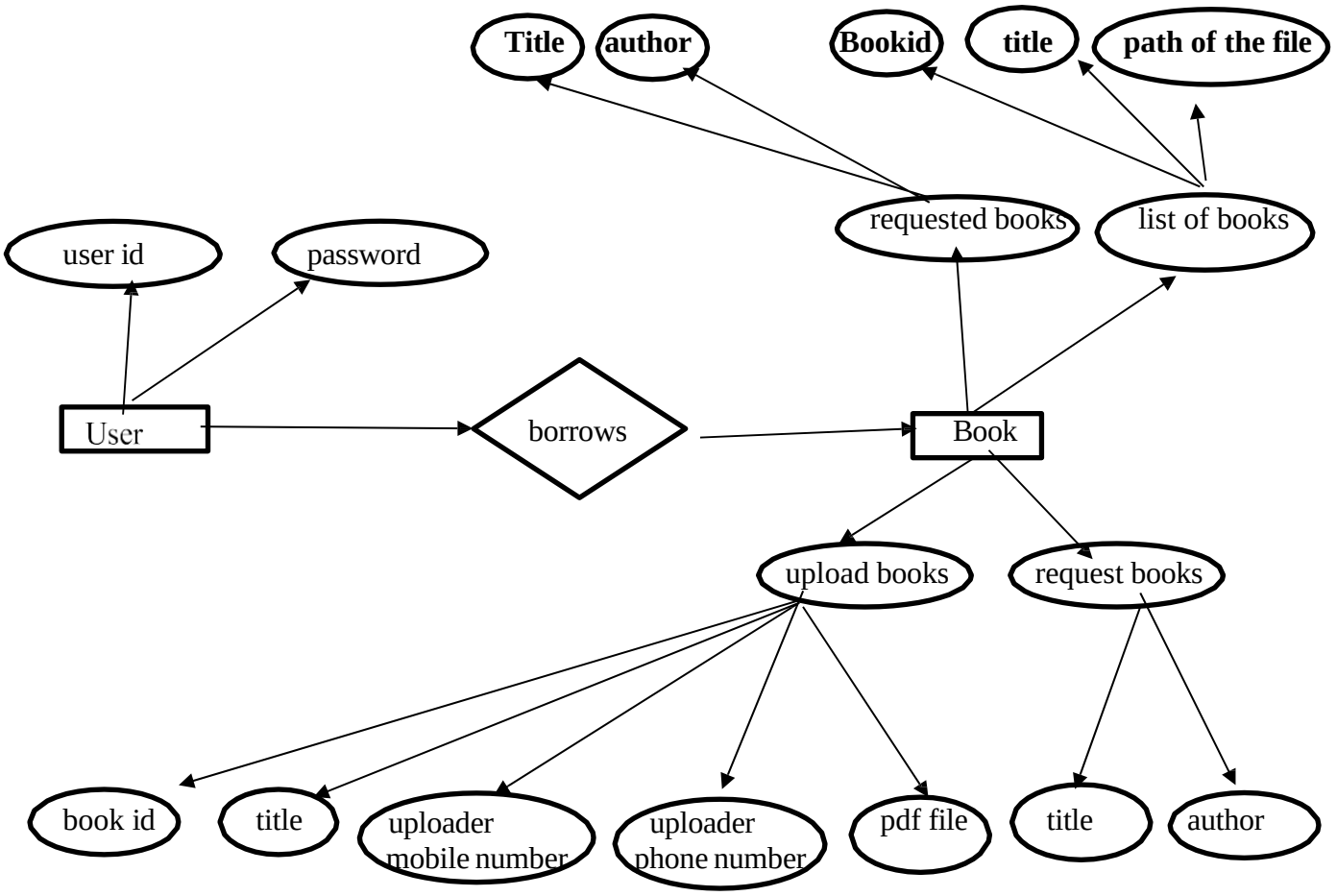
Dataflow diagram 4.2.2

LEVEL 2



Dataflow diagram4.2.3

4.3 Entity relationship Diagram



Entity relationship Diagram 4.3.1

4.4 Table Design

Table Name: Login page

Constraints: Userid

Input	Datatype	Description
Userid	VARCHAR	Unique identifier for each user
Password	VARCHAR (255)	Hashed password

Table 4.4.1

Table Name: Book Uploading

Input	Datatype	Description
Book id	INT	Id of the book
Title	VARCHAR (255)	Title of the book
Author	VARCHAR (255)	Author of the book
Pdf file	VARCHAR (255)	URL to the uploaded PDF file
Uploader mobile number	INT	Phone number of the uploader
Uploader email id	VARCHAR (255)	Email ID of the uploader

Table 4.4.2

Table Name: Book Request

Input	Datatype	Description
Requested book	VARCHAR (255)	Requested book name
Author	VARCHAR (255)	Author of requested book

Table 4.4. 3

Table Name: List of books:

Input	Datatype	Description
Book id	VARCHAR (255)	Id of the book
Title	VARCHAR (255)	Title of the book

Table 4.4.4

Table Name: Requested books

Input	Datatype	Description
Author	VARCHAR (255)	Id of the book
Title	VARCHAR (255)	Title of the book

Table 4.4.5

4.5 Input Design

Input design refers to the process of creating the interface through which users interact with a system, software, or device to input data or commands. It involves designing forms, screens, dialogue boxes, and other elements that enable users to provide information or trigger actions within the system.

Form Name: Login page

Description: Enter Username and Password details

Figure 4.5.1

Form Name: Uploading page

Description: Enter the book's title, author, phone number, email ID, and PDF URL

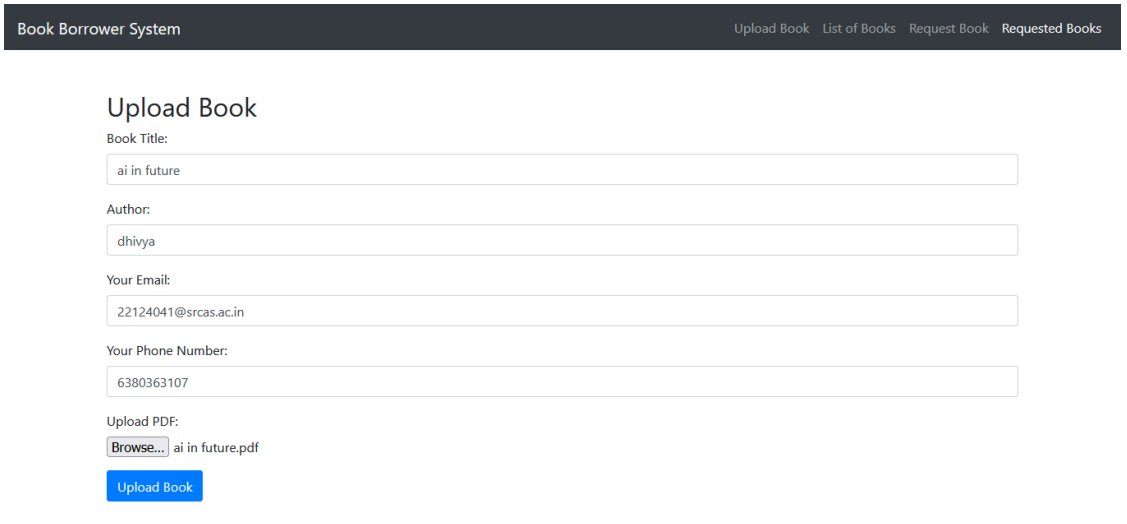


Figure 4.5.2

Form Name: Requesting Page

Description: Enter the book's title, book author.

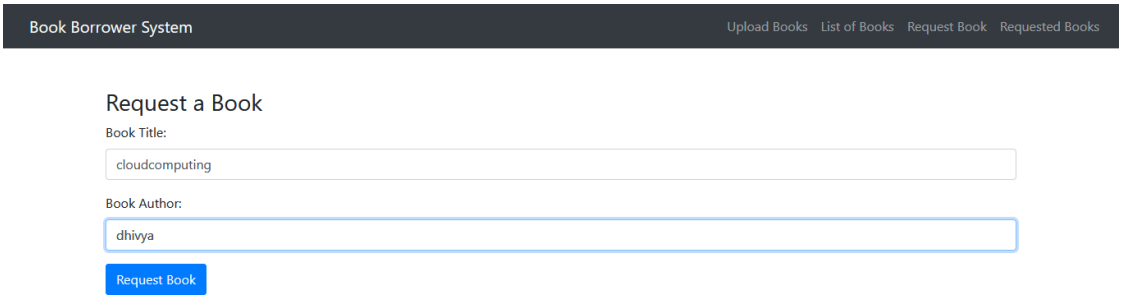


Figure 4.5.3

4.6 Output Design

Form Name: Home Page

Description: welcome message, navigate to other pages.

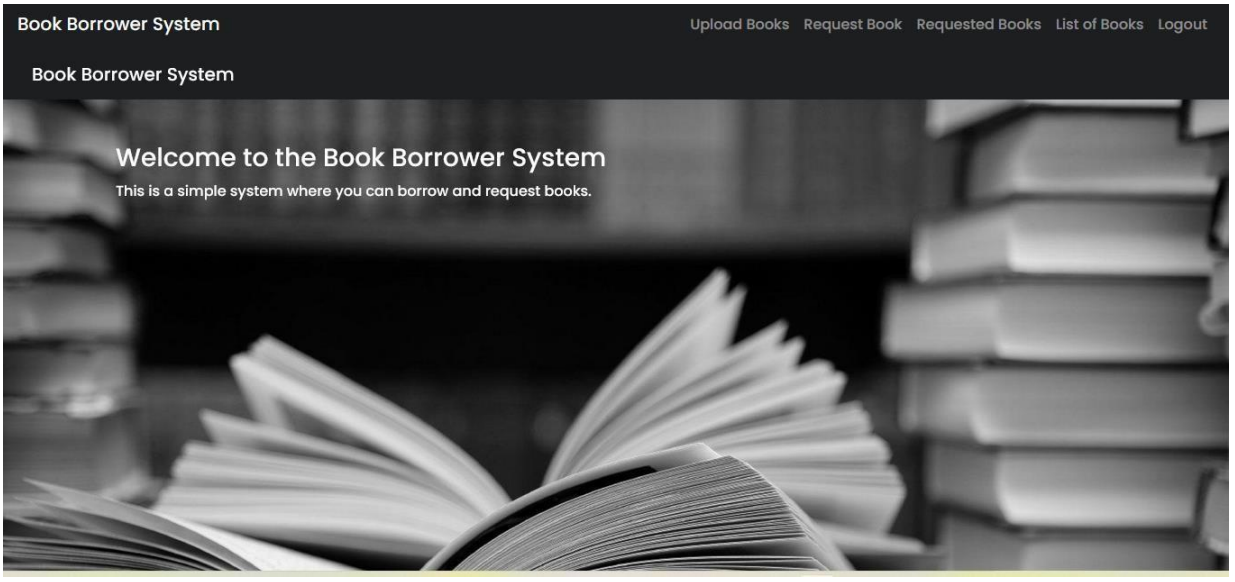


Figure 4.6.1

Form Name: Upload Successfully

Description: confirms that the book has been uploaded.

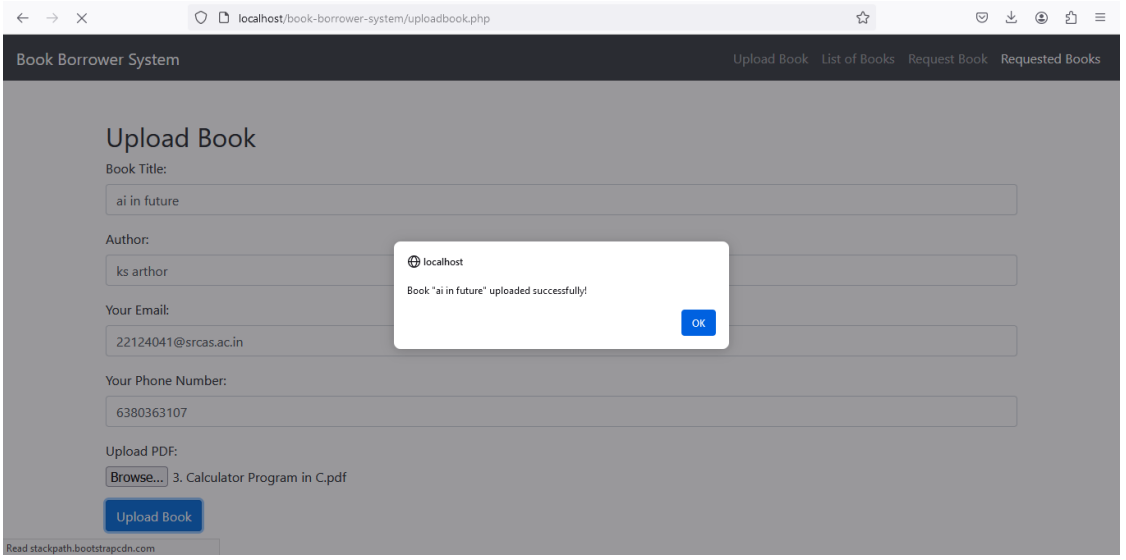


Figure 4.6.2

Form Name: Request successful

Description: confirms that the request has been submitted

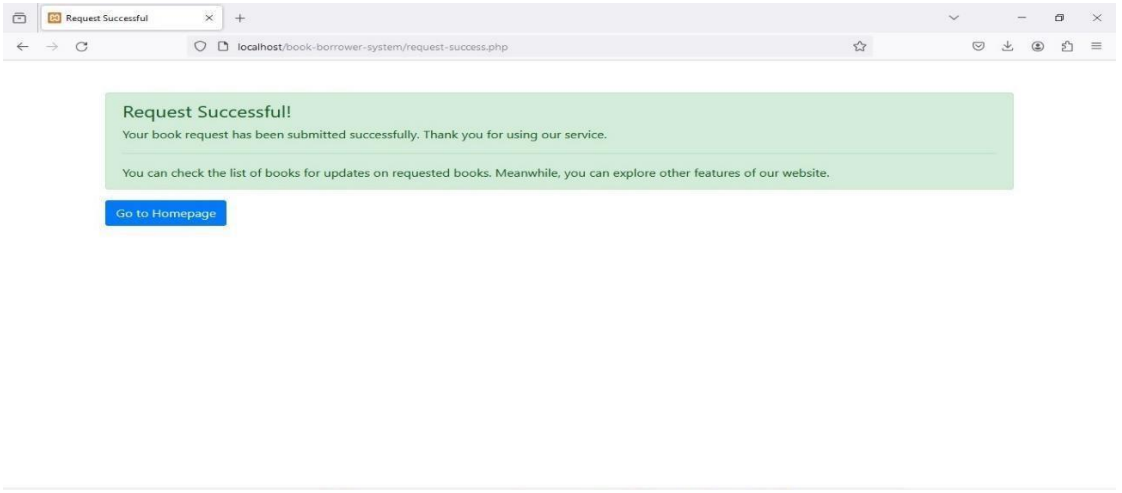


Figure 4.6.3

Form Name: Requested books successful

Description: listing the titles and authors of the books you've requested.

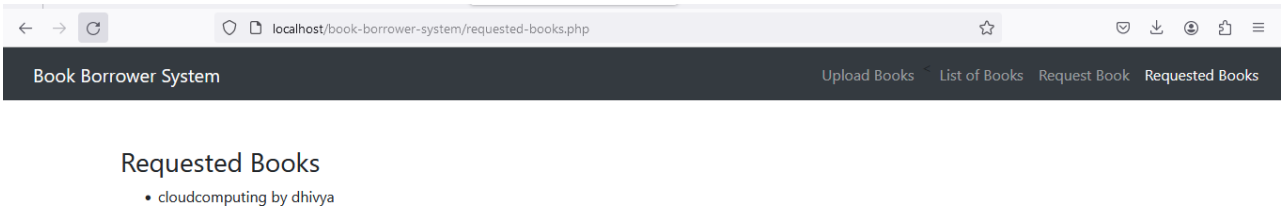


Figure 4.6.4

Form Name: Book list

Description: page displays a list of the books that are uploaded

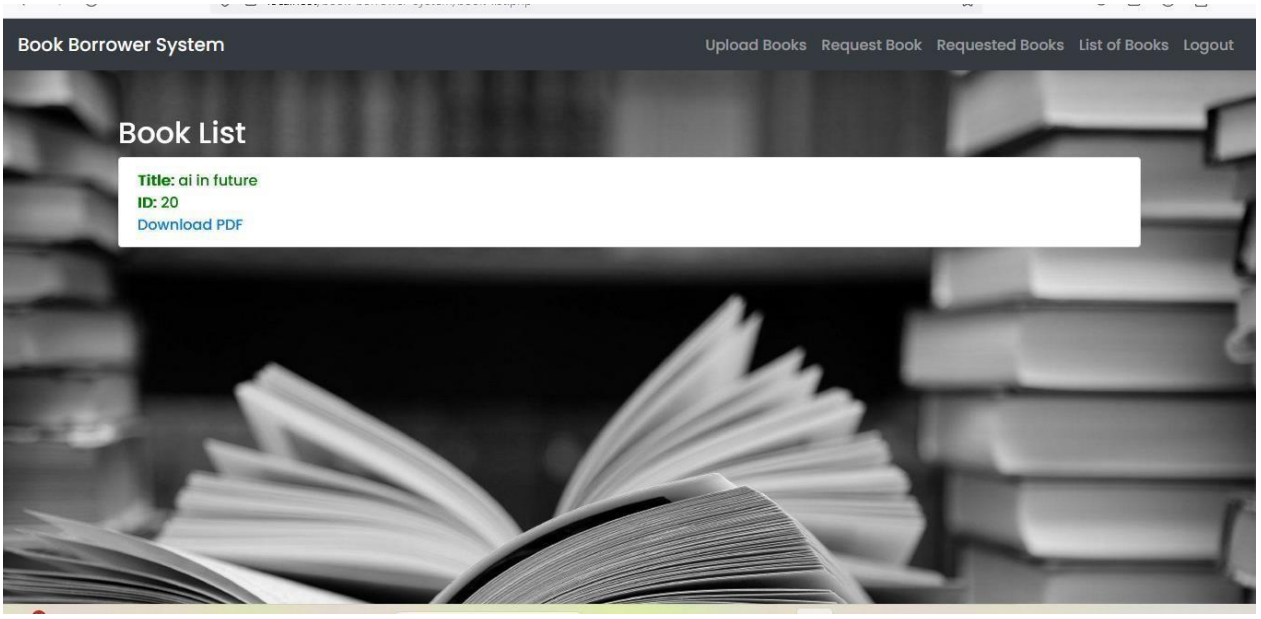


Figure 4.6.5

5. SYSTEM TESTING AND IMPLEMENTATION:

The system implementation and testing for the Book Lending Website involve setting up the environment, deploying the application, and ensuring it meets user requirements. Initially, the environment is set up by configuring the server (e.g., Apache or Nginx), database (e.g., MySQL), and necessary programming languages and frameworks, with XAMPP being used to create a local server environment. The application is then deployed by uploading the code to the server, setting up the database, and configuring necessary files. Preliminary testing, such as smoke testing, is conducted to ensure basic functionality, with any identified bugs being fixed. System testing involves unit testing, where individual components are tested using frameworks like PHPUnit; integration testing, where the interaction between different modules is verified; system testing, which ensures the complete application works as intended using tools like Selenium; and user acceptance testing (UAT), where real users validate the system against their requirements. Testing scenarios include user registration and login, book uploading, book requests, notifications, book catalog and search functionality, and error handling. Implementation and testing documentation encompass a detailed implementation plan, a test plan outlining objectives and resources, specific test cases with expected outcomes, and test reports summarizing test execution and defects found. This comprehensive approach ensures that the Book Lending Website is robust, reliable, and user-friendly.

6. CONCLUSION

The Book Lending Website project successfully establishes an online community for book enthusiasts to share and borrow books, promoting reading and resource sharing within the community. Through careful design and implementation, the website provides essential functionalities such as user registration and authentication, book uploading, viewing available books, requesting to borrow books, and managing book requests. The inclusion of an alert system ensures users stay informed about updates related to their books and requests. Rigorous system implementation and testing processes, including unit, integration, system, and user acceptance testing, guarantee the website's robustness, reliability, and user-friendliness. The project not only meets the specified requirements but also offers a seamless and engaging user experience, fostering a vibrant community of readers and book lovers.

Scope for Future Enhancement

The future scope of the Book Lending Website project includes several enhancements to improve user experience and engagement. One key enhancement is the implementation of an email notification system that sends notifications to users' email addresses when a requested book is uploaded, ensuring they are promptly informed of new availability. Additionally, introducing a chat feature will allow users to communicate within teams, facilitating discussions and coordination around book exchanges and related activities. Another valuable feature would be the integration of a ratings and reviews system, enabling users to rate and review the books they have borrowed or read. This system would help other users make informed decisions based on the experiences and opinions of their peers, further enhancing the community aspect of the platform. These future developments will significantly enrich the functionality and interactivity of the Book Lending Website, fostering a more dynamic and connected user community.

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APPENDICS

A. SAMPLE CODING:

```
<?php
include ('./conn/conn.php'); // Include your database connection file
include ('./partials/header.php'); // Include the header file with session management

// Ensure the user is logged in
if (!isset($_SESSION['user_id'])) {
    header('Location: login.php');
    exit;
}

try {
    // Retrieve books from the database
    $stmt = $conn->prepare("SELECT book_id, title, file_path FROM tbl_books");
    $stmt->execute();
    $books = $stmt->fetchAll(PDO::FETCH_ASSOC);
} catch (PDOException $e) {
    // Handle database errors
    echo "Error: " . $e->getMessage();
    exit;
}
?>

<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Book List</title>
    <!-- Bootstrap CSS for styling -->
    <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.2/dist/css/bootstrap.min.css">
</head>
<body>

<div class="container mt-5">
    <h2>Book List</h2>
    <ul class="list-group">
        <?php foreach ($books as $book): ?>
            <li class="list-group-item">
                <strong style="color: green;">Title:</strong> <span style="color: green;"><?=
htmlspecialchars($book['title']) ?></span><br>
                <strong style="color: green;">ID:</strong> <span style="color: green;"><?=
htmlspecialchars($book['book_id']) ?></span><br>
                <a href="<?= htmlspecialchars($book['file_path']) ?>" download>Download PDF</a>
            </li>
        <?php endforeach; ?>
```

```
    </ul>
</div>

<?php include ('./partials/footer.php'); ?>

<!-- Bootstrap JS for interactions (optional) -->
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.6.2/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```