



A
PROJECT REPORT
ON

Bookstore Management System

SUBMITTED BY
Miss. Wagh Ashwini Niranjana

SUBMITTED TO
**K.S.K.W. Arts, Science and Commerce College,
Cidco, Nashik**

FOR
PARTIAL FULFILLMENT OF
M.Sc. Computer Science (Sem – IV)
2023-2024

UNDER THE GUIDANCE OF
Smt. V. S. Shirore



Maratha Vidya Prasarak Samaj's

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Affiliated to Savitribai Phule Pune University

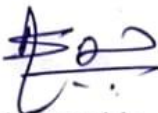
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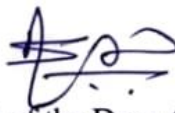
CERTIFICATE

This is to certify that the Project entitled
Bookstore Management System
has been successfully completed by
Miss. Wagh Ashwini Niranjn

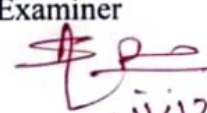
in partial fulfilment of the requirements for Industrial Training Project (CS – 401) Sem. – IV
of M. Sc. (Computer Science), post graduate degree to Savitribai Phule Pune University for the
academic year 2023-2024.


Project Guide


11-06-24


Head of the Department
Head,
Dept. of Computer Sci.
K.S.K.W. College, Cidco,
Nashik


External Examiner 11/6/2024

Internal Examiner

11/6/2024

Certificate of Experience

To whom it may concern

This is to certify that **Ms Ashwini Niranjn Wagh R/o Nashik** was working at Geneka Technologies Private Limited as a **PHP Developer Intern** from **Jan 15th, 2024 to Jun 6th 2024**.


We found her hardworking, sincere, excellent performer and great team player.

We wish her a great success ahead.

In case of any additional information regarding this letter if needed, kindly reach out to us.

Regards,

For Geneka Technologies Private Limited


Kashmira Kulkarni
Director HR & Admin

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Company Profile

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We mastered ourselves to deliver the best in class solution within given time and budget. With offices in USA – New Jersey, Europe – Frankfurt and India – Aurangabad we combine the cost effectiveness with the security of the local legal agreement partner to clients in USA and Europe.

Our journey till date highlights our commitment to delivery, personalized service and our integrity to our work. For more details, please feel free to reach out to us.

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b. Commitment - We value our words and commitments. At Geneka Technologies we use different techniques to follow our commitments to 100%.

c. People first Approach - We believe in people first approach. We treat our employees as our biggest strategic advantage and nurture them for long term association with our company.

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1. Technology Consulting

We work with our clients hand in hand in order to identify and implement the best possible IT solutions to achieve their business objectives. Our consulting approach is Turnkey and is unique for each client as per business size, objective and allowable time frame.

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b. Open Source Customizations & Upgradations – Geneka Technologies puts full trust on the open-source community. The open source code based products and tools are regularly studied, used, implemented and deployed by us. We have developed e-Commerce frameworks based on the software environments like PHP and PostgreSQL.

c. Application Development – We at Geneka Technologies provide following services in application development. Web Applications and Support, Windows Applications and Support, Database Design, Installation, Upgradation & Management and Middleware application development.

d. Support Contracts – Our company offers affordable maintenance, back-up and service redesign, content updates, support via telephone, e-mail, repair and alteration of existing web pages to keep your website updated.

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I am so greatly indebted to Mr. Kashmira Abhijeet Kulkarni sir and other faculty for their kind help and cooperation in my project work.

I also like to thank for giving us much information needed to complete this project. He helped me to think in right direction.

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Abstract

The Bookstore Management System project is designed to streamline the management of book inventories and sales records for an online bookstore. By incorporating real-world bookstore management scenarios, the system offers a practical and efficient solution. It features a clean, user-friendly interface supported by modern web technologies such as Bootstrap, ensuring a seamless user experience.

Here are some key features of Bookstore Management System :

- Admin Panel: Offers comprehensive control over all aspects of bookstore operations.
- Employee Panel: Allows employees to manage sales transactions with restricted system access.
- Book Category Management: Facilitates the addition, updating, and organization of book categories.
- Book Management: Enables detailed management of book inventories, including adding, updating, and deleting book records.
- Sales Management: Allows for the recording and tracking of book sales transactions.
- Transaction History: Maintains a detailed history of all sales transactions, providing a comprehensive record for reference and analysis.
- User Management: Admins can manage user roles and access levels, ensuring appropriate access and security.
- Earnings Overview: Displays total earnings and sales metrics, offering valuable financial insights.

The Bookstore Management System provides a robust and practical solution for managing the operations of an online bookstore. By offering distinct roles for admins and employees, the system ensures effective and secure management of book inventories and sales records. The intuitive interface ensures that both admins and employees can navigate and utilize the system effectively, promoting ease of use and efficiency in managing bookstore operations. The system's comprehensive features and user-friendly design make it an ideal tool for modern bookstore management.

Introduction

The Bookstore Management System aims to address the key challenges faced by traditional bookstore management by automating and streamlining core processes. This system enhances operational efficiency, accuracy, and user experience. This project is designed to streamline the management of book inventories and sales records for an online bookstore.

The development of the Bookstore Management System is driven by the need to modernize and streamline bookstore operations. Traditional methods of managing bookstores often involve manual processes that can be time-consuming, error-prone, and inefficient. By leveraging modern web technologies, this system aims to automate and enhance various aspects of bookstore management, thereby improving accuracy, efficiency, and overall user experience.

The primary objective of the Bookstore Management System is to provide a seamless and efficient platform for managing the various aspects of an online bookstore. The motivation behind developing the Online Bookstore System stems from the need for an efficient, user-friendly, and comprehensive system to manage bookstore operations.

This project aims to digitalize and streamline these processes, providing a seamless experience for both the administrators and employees. The design ensures a comprehensive and user-friendly platform, meeting the needs of both administrators and employees while providing a scalable foundation for future growth.

Problem Statement

Bookstores face several challenges in their daily operations, including inventory management, sales processing, customer service and financial reporting. The manual handling of these tasks can lead to inefficiencies, errors, and difficulty in tracking the bookstore's performance. Therefore, there is a need for an integrated system that can automate and simplify these processes. Manual handling of these tasks can result in data inconsistencies, delays in processing, and difficulty in tracking real-time sales and inventory. There is a clear need for an integrated and automated system that can address these challenges and provide real-time insights into the bookstore's operations.

Purpose/Objective and Goals

The primary purpose of this project is to develop a robust, comprehensive and user-friendly Bookstore Management System. The primary objective is to provide a seamless and efficient platform for managing the various aspects of an online bookstore. This design ensures a comprehensive and user-friendly platform, meeting the needs of both administrators and employees while providing a scalable foundation for future growth.

The primary objectives and goals include:

- **Automating Inventory Management:** Maintaining detailed records of books, including their categories, authors, publishers, prices, and stock levels.
- **Sales Management:** Recording and tracking sales transactions, ensuring accurate sales data, and providing insights into sales performance.
- **User Management:** Defining roles and access levels for different users (admin and employees) to ensure secure and efficient operation.
- **Financial Reporting:** Providing comprehensive financial insights, including total earnings and sales within specified periods.
- **User-Friendly Interface:** Design an intuitive and clean user interface for a better user experience.

Literature Survey

The literature survey review of this project was conducted from summer of 2023. Existing systems often fall short in terms of user-friendliness and comprehensiveness. Many traditional bookstore systems are either too simplistic, lacking necessary features, or too complex, making them difficult to use without extensive training. The Bookstore Management System addresses these gaps by offering a balanced, feature-rich solution that is easy to navigate.

A review of existing literature and systems reveals that many bookstores still rely on manual methods or outdated software for management, leading to inefficiencies and errors. Research indicates that digitalizing bookstore operations can significantly improve accuracy, efficiency, and customer satisfaction. Current systems often lack the integration and scalability needed for comprehensive bookstore management, highlighting the necessity for a solution like the proposed Bookstore Management System.

Project Scope and Limitations

Scope

The scope of the Bookstore Management System includes:

- Development of both an admin and employee panel.
- Features for managing book categories and individual book records.
- Sales management capabilities, including transaction history and daily sales tracking.
- User management to control access and roles within the system.
- Implementation of a clean and simple user interface for a better user experience.

Limitations

While the Bookstore Management System aims to cover all major aspects of bookstore management, it does have limitations:

- It requires an internet connection to function, as it is a web-based application.
- Initial setup and data entry can be time-consuming for larger bookstores.
- It may require periodic updates and maintenance to keep up with changing technology and user needs.

System Analysis

Existing System

In traditional bookstore management systems, operations are often handled manually, leading to numerous inefficiencies and challenges. These existing systems rely heavily on human intervention for maintaining book inventories, tracking sales, and managing transactions. The primary drawbacks of these manual systems include:

1. **Manual Inventory Management:** In traditional bookstores, the inventory management process is typically done manually. Employees have to count stock, update records, and track sales by hand, which is time-consuming and prone to errors. This can lead to inaccuracies in stock levels, resulting in either overstocking or stockouts.
2. **Sales Record Maintenance:** Sales transactions are often recorded manually, which can lead to errors in data entry and difficulties in tracking sales trends. Manual record-keeping can also be inefficient, making it hard to quickly retrieve sales data for analysis or reporting purposes.
3. **Inefficient Book Categorization:** Categorizing books manually can be a cumbersome process. Employees need to update records and ensure that books are correctly categorized, which can be difficult to manage, especially in larger bookstores with extensive inventories.
4. **Limited Accessibility:** Traditional systems often lack the ability to provide real-time access to data. Employees and administrators must be physically present in the store to access records and perform necessary tasks. This limitation reduces flexibility and can hinder timely decision-making.
5. **Error-Prone Processes:** Manual processes are inherently prone to human error. Mistakes in data entry, misplacing records, or miscommunication between staff can all contribute to inaccuracies and inefficiencies in bookstore operations.

The traditional approach to managing bookstores is not only labor-intensive but also inefficient in handling the complexities of modern bookstore operations. These shortcomings underscore the need for a more efficient, automated solution that can handle the various tasks associated with running a bookstore seamlessly. This is where the Bookstore Management System comes into play, offering a comprehensive solution to streamline and automate these processes, ultimately improving efficiency and accuracy in bookstore management.

Proposed System

The proposed Bookstore Management System aims to address the inefficiencies and limitations of traditional bookstore management through automation and digital solutions. This system will streamline book inventory management and sales processes, providing a seamless and efficient user experience.

Below are the key improvements and functionalities introduced by the proposed system:

- **Automated Inventory Management:** Automates the inventory management process, significantly reducing the need for manual counting and updating of stock. This ensures real-time accuracy of stock levels, preventing overstocking and stockouts.
- **Efficient Sales Record Maintenance:** Automates sales transactions and record-keeping, reducing the likelihood of errors in data entry. Provides easy access to sales data, making it simpler to track sales trends.
- **Streamlined Book Categorization:** Simplifies the process of categorizing books, allowing admins to create, update, and delete book categories with ease. This is particularly beneficial for larger bookstores with extensive inventories.
- **Enhanced Accessibility:** Provides real-time access to data from any location, allowing employees and administrators to perform tasks and access records remotely. This flexibility facilitates timely decision-making and efficient operations. Supports remote management, enabling bookstore operations to continue smoothly even when staff are not physically present.
- **Error Reduction:** Minimizes human error by automating key processes such as inventory management, sales transactions, and record-keeping. Improves data accuracy, reducing the chances of mistakes that can lead to inefficiencies and operational issues.
- **User-Friendly Interface:** Features a clean and intuitive interface designed for ease of use by both administrators and employees. This improves the overall user experience.

The proposed Bookstore Management System provides a comprehensive, efficient, and user-friendly solution for managing an online bookstore, addressing the challenges of traditional systems while offering robust features and scalability.

Project Perspective

The Bookstore Management System is a comprehensive web-based application, designed to streamline the management of an online bookstore. It provides administrators and employees with the necessary tools to manage book inventories, sales transactions, user accounts, and overall bookstore operations efficiently. With its intuitive user interface and robust functionality, the system aims to improve operational efficiency, accuracy, and user experience.

Requirement Analysis

Functional Requirements

1. Admin Panel:

- **Book Category Management:** Admins can add, update, and delete book categories, each identified by unique names and code numbers.
- **Book Management:** Admins can add, update, and remove book records, including details such as title, category, year, price, stock, author, publisher, and cover photo.
- **Sales Management:** Admins can manage sales transactions by selecting books, specifying quantities, and entering customer details.
- **Transaction History:** Admins can view detailed histories of all past transactions, including book details, quantities sold, customer information, and timestamps.
- **User Management:** Admins can manage system users, including employees, by adding, updating, or removing user records.
- **Earnings and Sales Overview:** Admins can view total earnings and sales data within the past 24 hours and overall statistics.

2. Employee Panel:

- **Sales Transactions:** Employees can process sales transactions by selecting books, specifying quantities, and entering customer information.
- **View Sales Overview:** Employees can view their total sales within a 24-hour period and overall sales statistics.

Performance Requirements

1. **Efficiency:** The system should execute tasks such as inventory management, sales processing, and data retrieval efficiently to minimize response times and maximize user productivity.
2. **Scalability:** The system should be able to handle a growing number of users, books, and transactions without significant degradation in performance.
3. **Reliability:** The system should be reliable, with minimal downtime and data loss, ensuring uninterrupted access to critical functions and information.

Security Requirements

1. **Authentication:** The system should implement secure authentication mechanisms to ensure that only authorized users can access the admin and employee panels.
2. **Authorization:** Role-based access control should be enforced, allowing admins full access to system functionalities while restricting employees to their designated tasks.
3. **Data Protection:** User passwords and sensitive data should be encrypted to prevent unauthorized access and ensure data confidentiality.
4. **Data Integrity:** Measures should be in place to prevent data tampering and ensure the integrity of sales records, transaction history, and user accounts.

Feasibility Study

A feasibility study evaluates the practicality and potential success of a project, considering various factors such as technical, economic, and operational feasibility. This study aims to ensure that the proposed Bookstore Management System, is viable and likely to achieve its objectives.

1. Technical Feasibility

The project's technical feasibility assesses whether the required technology, infrastructure, and resources are available to develop and implement the system. It considers factors such as software development tools, hardware requirements, database management systems, and integration capabilities. There is a wide availability of developer proficient, this ensures that development, maintenance, and future upgrades can be handled efficiently.

2. Economic Feasibility

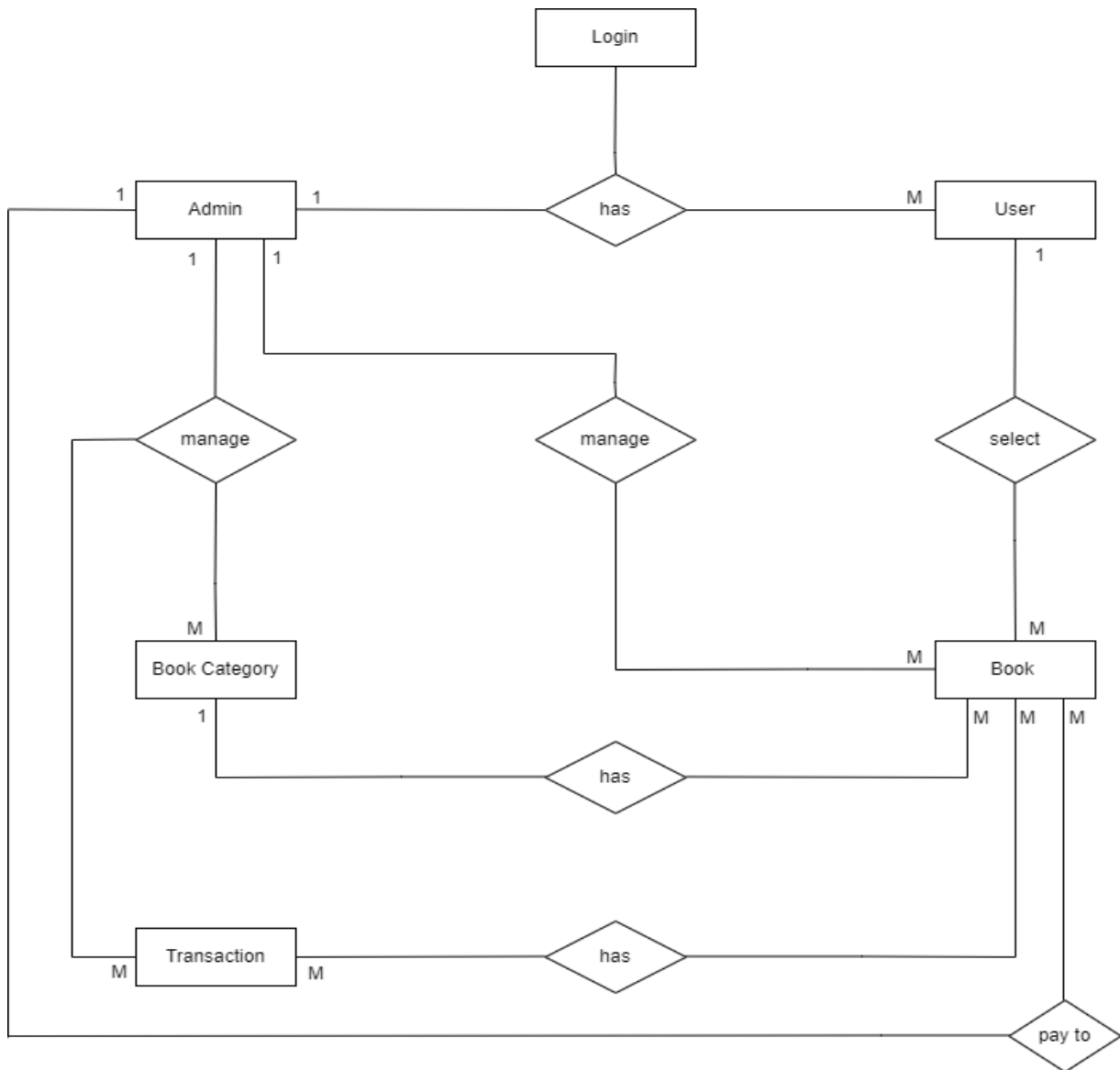
Economic feasibility evaluates the financial viability of the project. It includes cost estimation for development, implementation, training, and maintenance of the system. The study also considers potential cost savings, increased efficiency, and revenue generation opportunities resulting from the implementation of the Bookstore Management System. A detailed budget will account for all development, maintenance, and operational costs to ensure financial planning is robust.

3. Operational Feasibility

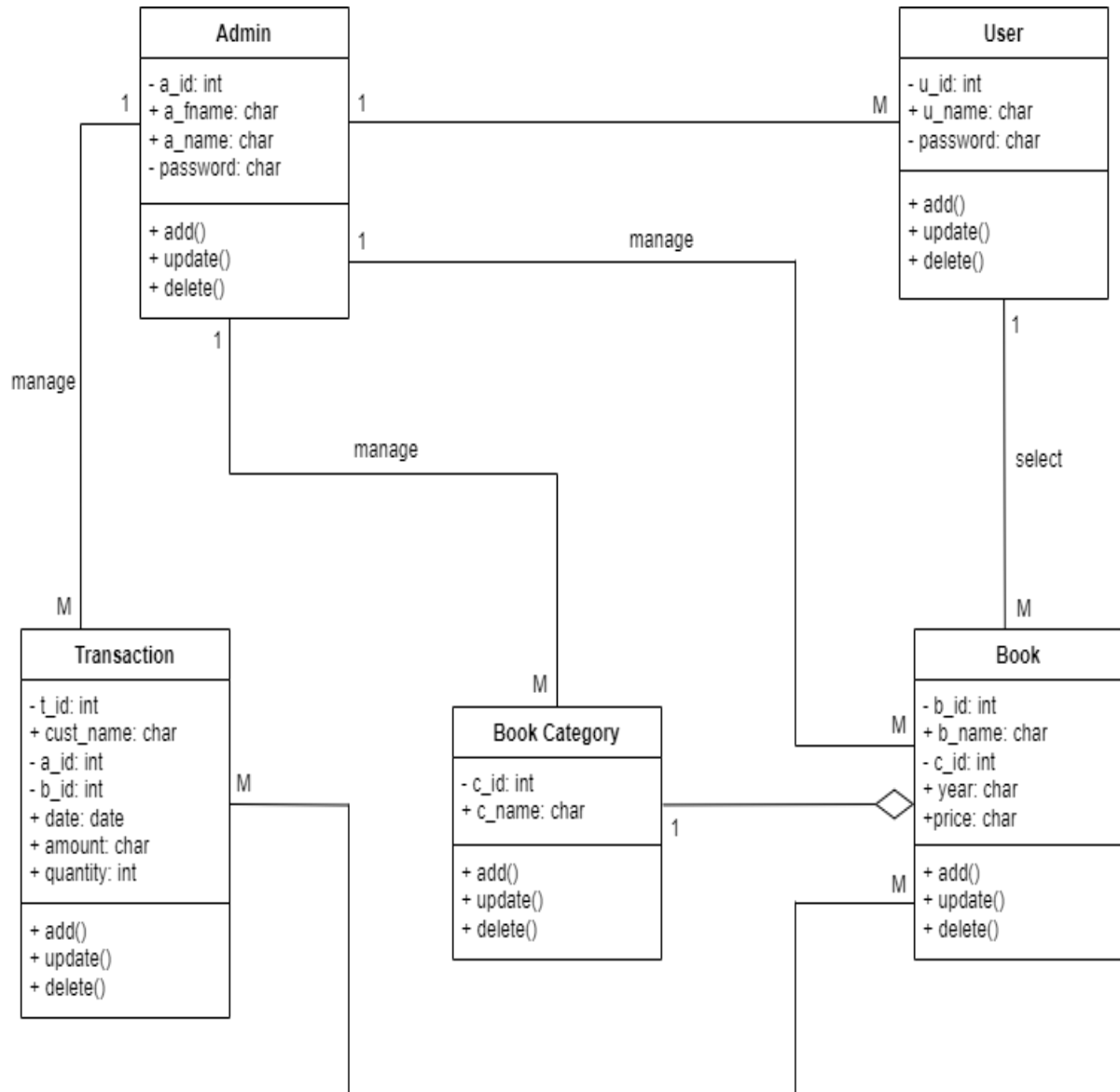
The system will have an intuitive design, ensuring ease of use for administrators and employees. The system will integrate seamlessly with existing bookstore operations with minimal disruption. It will replace manual processes with automated workflows to improve efficiency. The system will be designed to accommodate future growth and additional features. Its modular architecture allows easy updates and integration of new functionalities as the business expands.

UML Diagrams

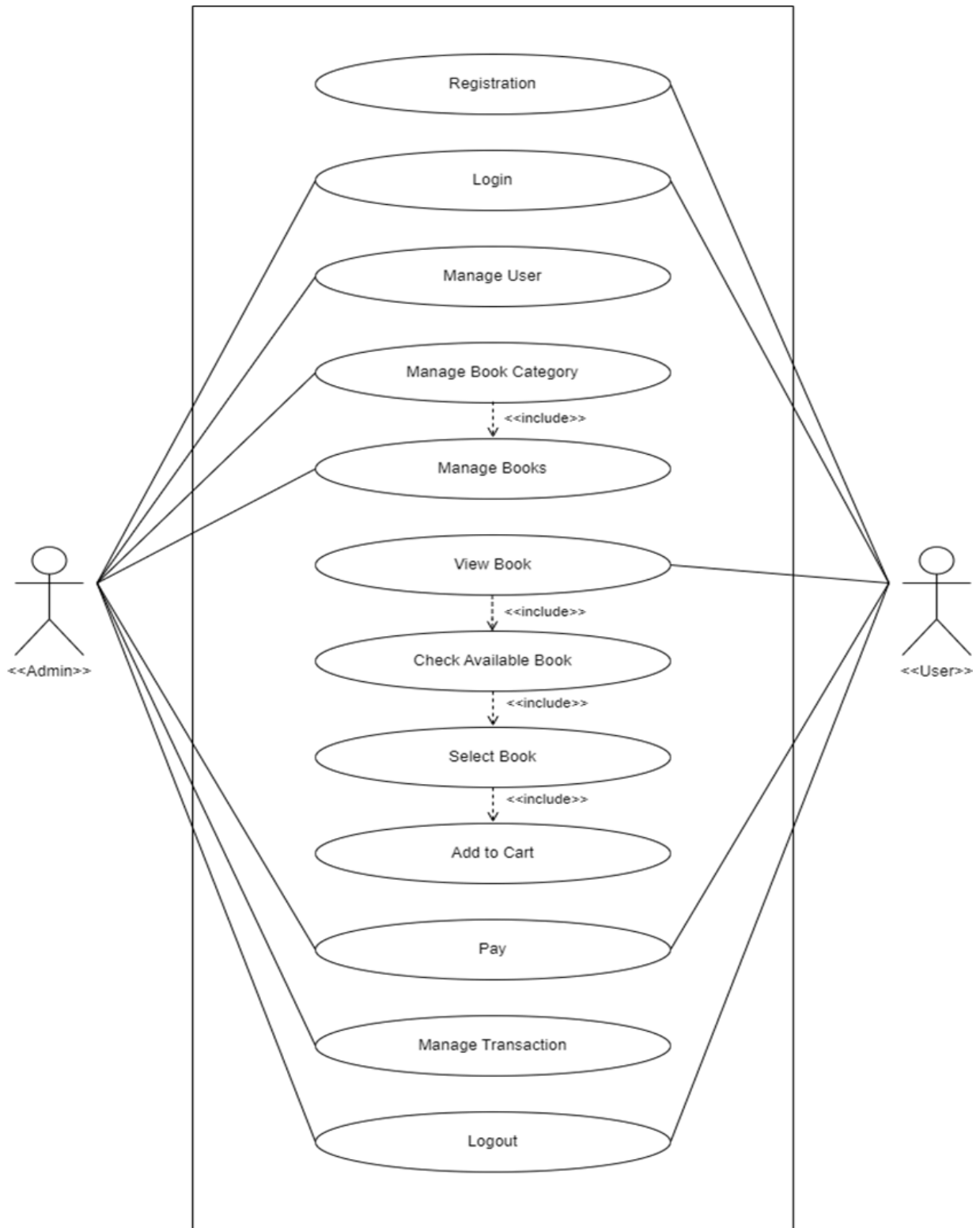
ER Diagram :



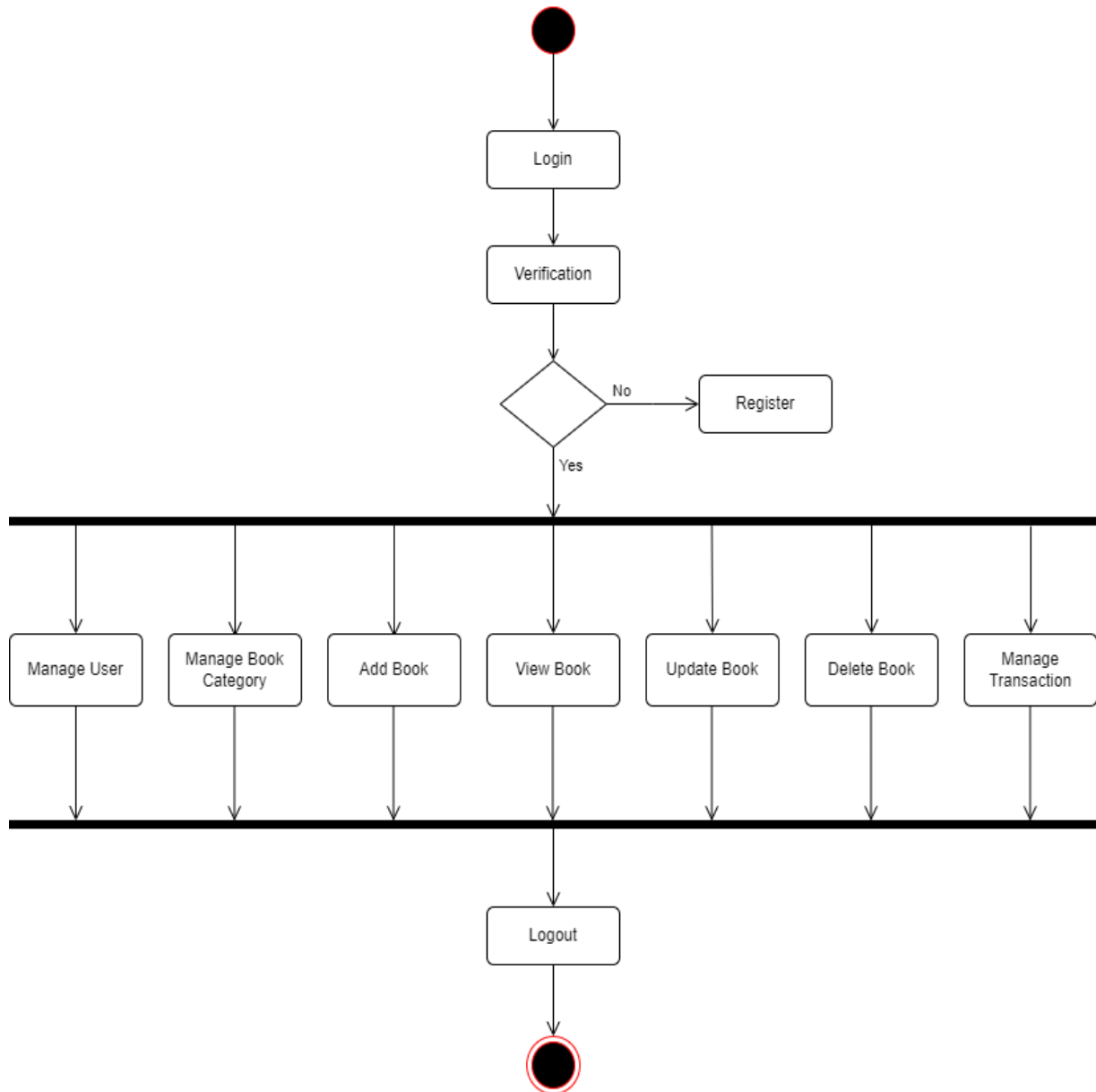
Class Diagram :



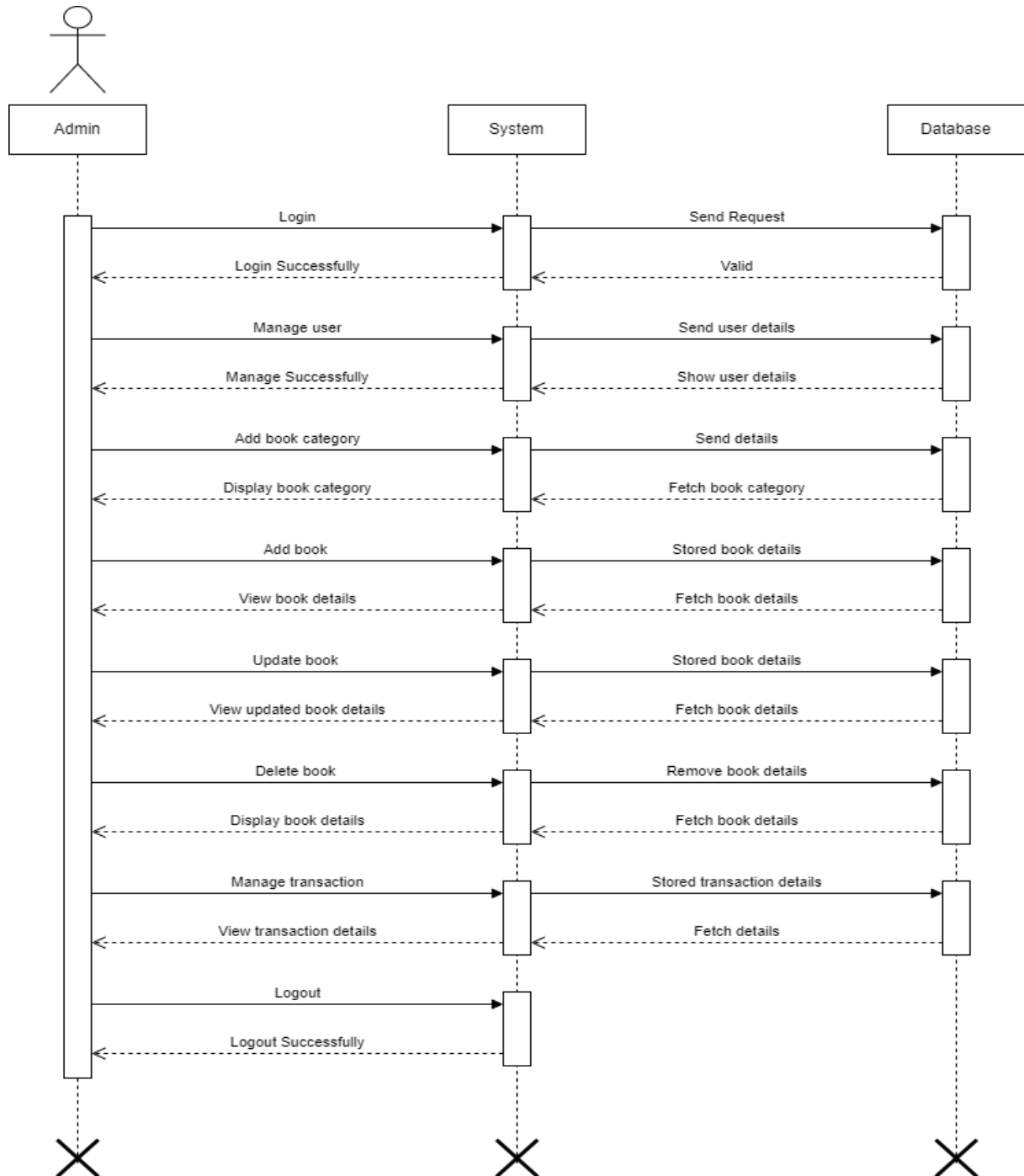
Use Case Diagram :



Activity Diagram :



Sequence Diagram :



Data Dictionary

Admin Table :

Field Name	Field Type	Description
a_id	Int	Primary Key
a_fname	Varchar(30)	Not Null
a_name	Varchar(30)	Not Null
password	Varchar(30)	Not Null

User Table :

Field Name	Field Type	Description
u_id	Int	Primary Key
u_name	Varchar(30)	Not Null
password	Varchar(30)	Not Null

Book Category Table :

Field Name	Field Type	Description
c_id	Int	Primary Key
c_name	Varchar(30)	Not Null

Book Table :

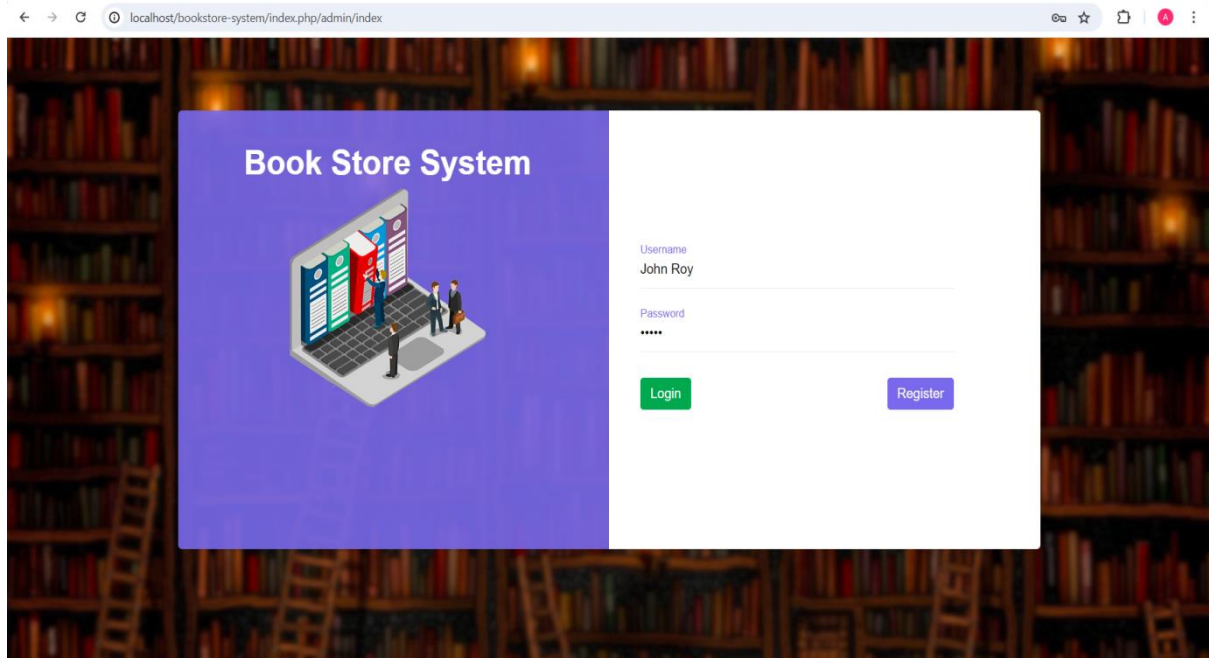
Field Name	Field Type	Description
b_id	Int	Primary Key
b_name	Varchar(30)	Not Null
year	Varchar(30)	Not Null
price	Varchar(30)	Not Null
c_id	Int	Foreign Key

Transaction Table :

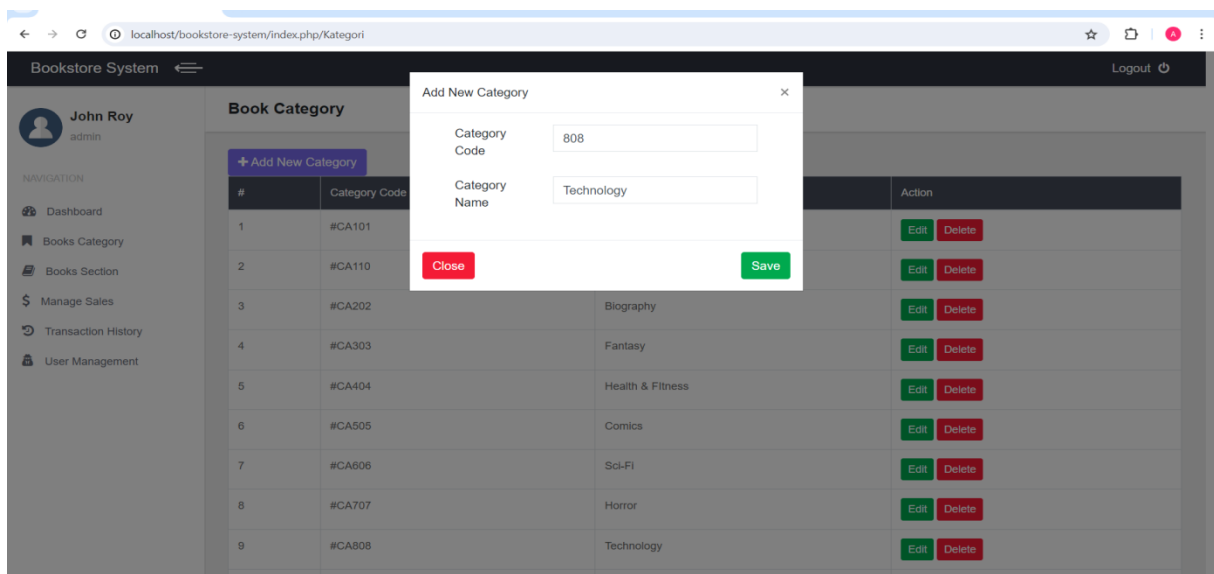
Field Name	Field Type	Description
t_id	Int	Primary Key
cust_name	Varchar(30)	Not Null
date	date	Not Null
amount	Varchar(30)	Not Null
quantity	Int	Not Null
a_id	Int	Foreign Key
b_id	Int	Foreign Key

Input/Output Screen

Admin Login :



Book Category :



Book Category List :

The screenshot shows the 'Book Category' management page in the Bookstore System. The page header includes the user name 'John Roy' (admin) and a 'Logout' button. A navigation sidebar on the left lists: Dashboard, Books Category, Books Section, Manage Sales, Transaction History, and User Management. The main content area features a table with the following data:

#	Category Code	Category Name	Action
1	#CA101	Novel	Edit Delete
2	#CA110	Historical Fiction	Edit Delete
3	#CA202	Biography	Edit Delete
4	#CA303	Fantasy	Edit Delete
5	#CA404	Health & Fitness	Edit Delete
6	#CA505	Comics	Edit Delete
7	#CA606	Sci-Fi	Edit Delete
8	#CA707	Horror	Edit Delete
9	#CA808	Technology	Edit Delete

Book :

The screenshot shows the 'Book Details' page with an 'Add New Book' modal form open. The background shows a table of books with columns for #, Book Title, Author, Stock, and Action. The modal form contains the following fields:

- Book Title:
- Year:
- Price:
- Category:
- Cover Photo: black.png
- Publisher:
- Author:
- Stock:

At the bottom of the modal, there are 'Close' and 'Save' buttons.

Book List :

Bookstore System

John Roy
admin

NAVIGATION

- Dashboard
- Books Category
- Books Section
- Manage Sales
- Transaction History
- User Management

Book Details

+ Add New Book

#	Book Title	Cover	Year	Price	Category	Publisher	Author	Stock	Action
1	A Game of Thrones		1996	\$46	Novel	Bantam Spectra	George R. R. Martin	169	
2	The Hobbit or There and Back Again		1937	\$22	Fantasy	Allen & Unwin	J. R. R. Tolkien	200	
3	A Promised Land		2020	\$19	Biography	Crown Publishing Group	Barack Obama	186	
4	X-Men: God Loves Man Kills		1982	\$21	Comics	Marvel Comics	Chris Claremont	116	
5	Dune		1965	\$23	Sci-Fi	Chilton Company	Frank Herbert	162	
6	The Exorcist		1971	\$18	Horror	Harper	William Peter Blatty	100	

Manage Sale :

Bookstore System

John Roy
admin

NAVIGATION

- Dashboard
- Books Category
- Books Section
- Manage Sales
- Transaction History
- User Management

Sales Transaction

#	Book Title	Category	Price	Stock	Act.
1	A Game of Thrones	Novel	\$46	168	
2	The Hobbit or There and Back Again	Fantasy	\$22	200	
3	A Promised Land	Biography	\$19	185	
4	X-Men: God Loves Man Kills	Comics	\$21	116	
5	Dune	Sci-Fi	\$23	162	
6	The Exorcist	Horror	\$18	100	
7	Invisible Man	Novel	\$19	113	
8	The Nightingale	Historical Fiction	\$17	123	
9	After the Quake	Novel	\$16	9	

Cashier :
John Roy

Customer's Name :
Rohan

#	Title	Qty	Price	Subtotal	Action
1	A Game of Thrones	1	\$46	\$46	
2	After the Quake	1	\$16	\$16	
Total Amount				\$62	

Update Quantity Pay Clear Cart

Total Earning/Sales (24 hrs) :

The screenshot shows the 'Dashboard' page of the 'Bookstore System'. The user is logged in as 'John Roy admin'. The dashboard features a navigation sidebar on the left and a main content area with several key performance indicators (KPIs) in a grid layout.

Metric	Value
Total Book	9
Earnings	\$837
Total Transaction	17
Categories	11
System Users	15
Stocks	1174
Sales (24hrs)	\$196

Transaction History :

The screenshot shows the 'Transaction History' page of the 'Bookstore System'. The user is logged in as 'John Roy admin'. The page displays a table with 12 transaction records.

#	Customer's Name	Date	Book	Qty	Amount	Cashier
1	Danny Lebowski	2021-06-11	Invisible Man	1	\$19	Liam Moore
2	Ralph Cooper	2021-06-13	Invisible Man	1	\$19	Liam Moore
3	James E. Vaught	2021-06-13	Dune	2	\$46	Liam Moore
4	Jeff Roberts	2021-06-21	The Exorcist	1	\$18	Liam Moore
5	Collin Stewart	2021-06-26	A Game of Thrones	1	\$46	Christine Moore
6	Victoria Wilkins	2021-06-26	A Promised Land	2	\$38	Liam Moore
7	Alex Hayes	2021-06-26	X-Men: God Loves Man Kills	1	\$21	John L Wardlow
8	William Wright	2021-06-26	The Hobbit or There and Back Again	1	\$22	Emily Smith
9	Diane Campbell	2021-06-26	The Nightingale	2	\$34	Liam Moore
10	Alyn Williams	2021-06-26	Dune	1	\$23	Liam Moore
11	Will Williams	2021-06-26	A Promised Land	1	\$19	Christine Moore
12	abc	2024-06-02	A Game of Thrones	2	\$92	xyz

User :

The screenshot shows the 'Add System User' modal form. The form fields are:

- Name: Rohan
- Username: rohan@gmail.com
- Password: ...
- Level: cashier

The modal has a 'Close' button (red) and a 'Save' button (green).

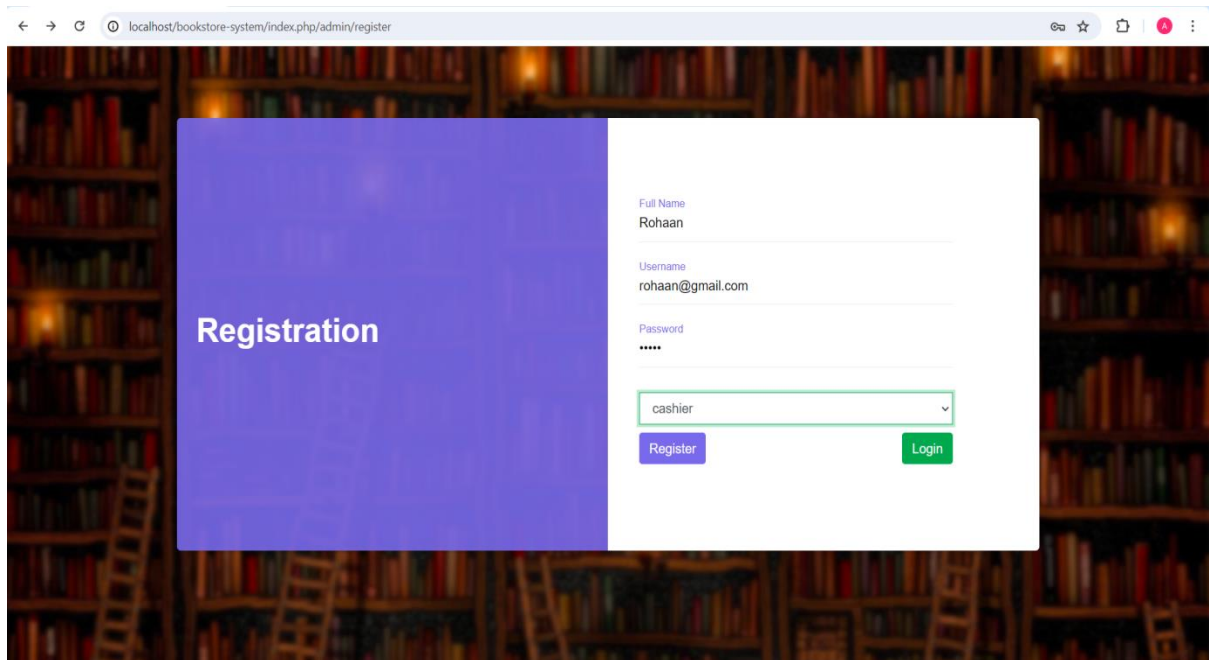
#	Full Name	Username	Level	Action
1	Liam Moore	admin	admin	Edit Delete
2	Emily Smith	emily	cashier	Edit Delete
3	Christine Moore	christine	cashier	Edit Delete
4	John L Wardlow	wardlow	cashier	Edit Delete
5	Curtis Garcia	curtis	cashier	Edit Delete
6	xyz	xyz@gmail.com	Cashier	Edit Delete
7	xyz	xyz@gmail.com	cashier	Edit Delete
8	xyz	xyz@gmail.com	admin	Edit Delete
9	Rohan	rohan@gmail.com	admin	Edit Delete

User List :

The screenshot shows the 'System Users' list. The table contains the following data:

#	Full Name	Username	Level	Action
1	Liam Moore	admin	admin	Edit Delete
2	Emily Smith	emily	cashier	Edit Delete
3	Christine Moore	christine	cashier	Edit Delete
4	John L Wardlow	wardlow	cashier	Edit Delete
5	Curtis Garcia	curtis	cashier	Edit Delete
6	xyz	xyz@gmail.com	Cashier	Edit Delete
7	xyz	xyz@gmail.com	cashier	Edit Delete
8	xyz	xyz@gmail.com	admin	Edit Delete
9	Rohan	rohan@gmail.com	admin	Edit Delete

Employee Registration :



localhost/bookstore-system/index.php/admin/register

Registration

Full Name
Rohaan

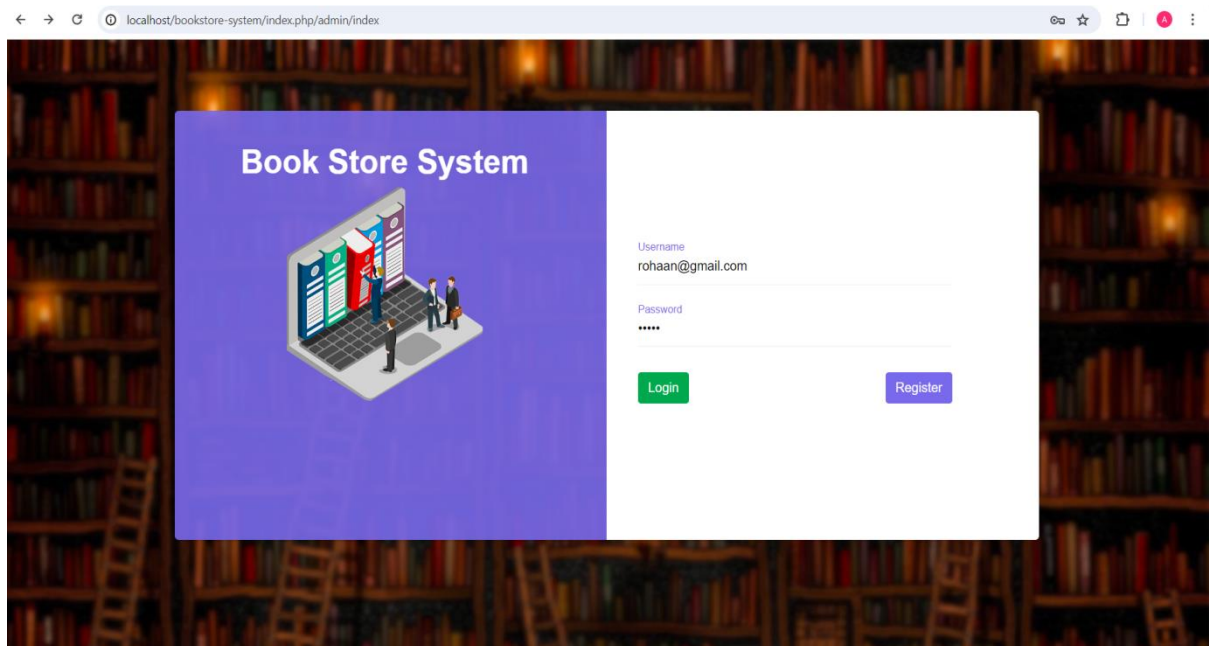
Username
rohaan@gmail.com

Password

cashier

Register Login

Employee Login :



localhost/bookstore-system/index.php/admin/index

Book Store System

Username
rohaan@gmail.com

Password

Login Register

Dashboard :

Bookstore System Logout

Rohaam
cashier

NAVIGATION

- Dashboard
- Manage Sales

Dashboard

- Total Book 9
- Earnings \$837
- Total Transaction 17
- Categories 11
- System Users 18
- Books Stock 1174
- Sales (24hrs) \$196

Sale Transaction :

Bookstore System Logout

Rohaam
cashier

NAVIGATION

- Dashboard
- Manage Sales

Sales Transaction

#	Book Title	Category	Price	Stock	Act.
1	A Game of Thrones	Novel	\$46	167	
2	The Hobbit or There and Back Again	Fantasy	\$22	200	
3	A Promised Land	Biography	\$19	185	
4	X-Men: God Loves Man Kills	Comics	\$21	116	
5	Dune	Sci-Fi	\$23	162	
6	The Exorcist	Horror	\$18	100	
7	Invisible Man	Novel	\$19	113	
8	The Nightingale	Historical Fiction	\$17	123	
9	After the Quake	Novel	\$16	8	

Cashier :
Rohaam

Customer's Name :
Tanmay

#	Title	Qty	Price	Subtotal	Action
1	X-Men: God Loves Man Kills	2	\$21	\$42	
2	A Game of Thrones	2	\$46	\$92	
3	Dune	1	\$23	\$23	
Total Amount				\$157	

[Update Quantity](#) [Pay](#) [Clear Cart](#)

Hardware and Software Requirements

Hardware Requirement :

- Processor : Intel CORE i5
- RAM : 4GB
- Hard Disk : 64GB

Software Support :

- Operating System : Windows 10
- XAMPP Server
- MYSQL

Technology :

- Front End : HTML, CSS, Bootstrap, JavaScript
- Back End : PHP, CodeIgniter, MYSQL

Test Case Design

Testing is the process of executing a program with the intent of finding errors. Software testing is a processor a series if processes, designed to make sure computer code does what if was designed to do and that it does not do anything unintended. Software should be predictable and consistent, offering no surprises to users. Purpose of testing can be quality assurance, verification, and validation, or reliability estimation. Software testing is to asses and evaluates the quality of work performed at each step of the software development process. The goal of testing is to ensure that the software perform as intended, and to improve software quality, reliability and maintainability.

Testing is a critical phase in the development lifecycle of the Online Bookstore Management System. It ensures that the application functions correctly and meets all specified requirements. Below is a detailed breakdown of the testing process, including the test plan, black box testing, white box testing, and the results.

Test Plan

Testing is the major quality control measure employed during software development. In the project the first test considered is the unit testing. In this each module of the system tested separately. This is carried out during code level performed by developers.

Objectives:

- Verify that the system meets the functional and non-functional requirements.
- Identify and resolve defects.
- Ensure the system performs well under expected load conditions.

Scope:

- Functional Testing: Validate each function of the system against the requirements.
- Non-functional Testing: Test performance, usability, and security aspects.

Testing Types:

1. Black Box Testing:
 - Focuses on testing the functionality of the system without knowing the internal code structure.
 - Test cases are designed based on requirements and specifications.
2. White Box Testing:
 - Focuses on testing the internal structures or workings of an application.
 - Test cases are based on code coverage, including paths, branches, and conditions.

Black Box Testing :

Test Cases and Results:

1. Login Functionality:

- **Test Case:** Verify that admin and employee can log in with valid credentials.
- **Input:** Valid username and password.
- **Expected Result:** Successful login and redirection to the respective dashboard.
- **Actual Result:** Pass

2. Add Book Category:

- **Test Case:** Verify that the admin can add a new book category.
- **Input:** Category name and code.
- **Expected Result:** New category is added and listed.
- **Actual Result:** Pass

3. Add Book Record:

- **Test Case:** Verify that the admin can add a new book record.
- **Input:** Book title, category, year, price, stock, author, publisher, cover photo.
- **Expected Result:** New book is added to the inventory and displayed in the list.
- **Actual Result:** Pass

4. Sales Transaction:

- **Test Case:** Verify that a sales transaction can be processed by an employee.
- **Input:** Select book, enter quantity, customer name.
- **Expected Result:** Sale is recorded, inventory is updated, and transaction is logged.
- **Actual Result:** Pass

5. View Transaction History:

- **Test Case:** Verify that the admin can view the transaction history.
- **Input:** None
- **Expected Result:** Transaction history is displayed with correct details.
- **Actual Result:** Pass

6. User Management:

- **Test Case:** Verify that the admin can add, update, and remove users.
- **Input:** User details for add/update, user ID for delete.
- **Expected Result:** User is added/updated/removed successfully.
- **Actual Result:** Pass

7. View Total Earnings:

- Test Case: Verify that the admin can view total earnings within the last 24 hours.
- Input: None
- Expected Result: Earnings are displayed correctly.
- Actual Result: Pass

Results and Findings:

- **Functionality:** All functional requirements are met as per the test cases. No major functional defects were found.
- **Performance:** The system performs well under expected load conditions.
- **Usability:** The user interface is intuitive and user-friendly.
- **Security:** Basic security tests (such as input validation and user authentication) passed without issues.
- **Code Quality:** The code is well-structured and follows best practices. High coverage in white box testing indicates robust implementation.

The testing of the Bookstore Management System indicates that the system is stable, functional, and ready for deployment. The combination of black box and white box testing ensures that both the functional and structural aspects of the system are validated. Any minor issues found during testing have been resolved, and the system meets the specified requirements.

Unit Testing :

Unit testing is a level of software testing where individual units/components of the software are tested. The primary goal is to validate that each unit of the software performs as designed. Unit tests are typically automated and written by developers during the development phase.

Unit testing involves testing individual units or components of the software to ensure they work as intended. In the context of the Bookstore Management System, unit testing will focus on testing the smallest testable parts of the application, such as functions and methods within the modules.

Unit testing is performed in parallel with the coding phase. I have tested each view/module of the application individually. As the modules were built up testing was carried out simultaneously, tracking out each and every kind of input and checking the corresponding output until module is working correctly.

Validation Testing :

In validation testing we check the when the validation problems are created in the system. Means when login and registration are not performed correctly then we check using validation testing. There are some problems are occurred in when we need validation testing.

- Incorrect function
- Input condition errors
- Database error
- Initializing and interface error

Security Testing :

Security testing is essential for ensuring that the Online Bookstore System is protected against potential vulnerabilities and threats. It involves identifying weaknesses in the system's security mechanisms and ensuring that sensitive data is safeguarded from unauthorized access or malicious activities.

Functional Validation :

In this system we check first of all code is accurate with expected output or not. When our code is not accurate with our expected output then we have occur many problems due to our code. Then one by one we check all code and then solve all errors and then finally we have taken exactly output. Functional validation is same as black box testing. Here is only check the code. When code is not accurate the code writes correctly.

Conclusion

The Bookstore Management System is a well-rounded and highly functional application that addresses the core needs of managing a bookstore. It provides essential features for book and sales record management, categorized user access, and a user-friendly interface. By implementing this system, bookstores can achieve improved operational efficiency, accuracy in inventory and sales tracking, enhanced security, and real-time financial insights. This project not only meets the practical requirements of a bookstore but also serves as an excellent learning resource for those looking to understand and develop web-based management systems.

The Bookstore Management System is a comprehensive web-based application, designed to streamline the management of an online bookstore. It provides administrators and employees with the necessary tools to manage book inventories, sales transactions, user accounts, and overall bookstore operations efficiently. With its intuitive user interface and robust functionality, the system aims to improve operational efficiency, accuracy, and user experience.

The Bookstore Management System automates and streamlines various processes, such as inventory management, sales transactions, and user management, leading to significant time and cost savings. By centralizing and digitizing data entry and transaction recording, the system reduces the likelihood of human error and ensures that records are always up-to-date and accurate. Role-based access control ensures that sensitive data and functionalities are accessible only to authorized users, protecting the system from unauthorized access and potential security breaches. The system provides real-time insights into sales and earnings, enabling prompt decision-making and strategic planning.

Future Scope

The current system fulfills the essential requirements of a bookstore, there are several avenues for future enhancements and expansions:

- **Enhanced Reporting and Analytics:** Implement advanced reporting features to generate insights into sales trends, popular book categories, and customer preferences.
- **Customer Relationship Management (CRM):** Develop Customer Relationship Management functionalities to manage customer information, preferences, purchase history, and feedback.
- **Multi-channel Integration:** Integrate the bookstore system with online marketplaces and e-commerce platforms to expand the reach and distribution channels.
- **Mobile Application Development:** Develop a mobile application companion for the bookstore system to allow customers to browse, purchase, and track orders conveniently from their smartphones or tablets.
- **Inventory Optimization:** Introduce automated inventory forecasting algorithms to predict demand for books and optimize stock levels accordingly.

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