Project Report On

E-commerce (Book Shop)

Submitted in partial fulfillment for the award of

Post Graduate Diploma in Advanced Computing

from

C-DAC ACTS (Pune)

Guided by

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Centre of Development of Advanced Computing (C-DAC), Pune

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that

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have successfully completed their project titled

"E-commerce (Book Shop)"

Under the Guidance of Mr. Vinu Josy

Project Guide **HOD ACTS**

ACKNOWLEDGEMENT

This project **"E-commerce(Book Shop)"** was a great learning experience for us and we are submitting this work to Advanced Computing Training School (CDAC ACTS).

We all are very glad to mention the name of **Mr. Vinu Josy** for his valuable guidance to work on this project. His guidance and support helped us to overcome various obstacles and intricacies during the course of project work.

Our most heartfelt thank goes to Ms **Namrata mam** (Course Coordinator, PG-DAC) who gave all the required support and kind coordination to provide all thenecessities like required hardware, internet facility and extra Lab hours to complete the project and throughout the course up to the last day here in C-DAC ACTS, Pune.

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1. Introduction

Book Charm is an innovative e-commerce web application tailored for a delightful book shopping experience. This platform caters to book enthusiasts, offering a wide array of genres and titles. Users can seamlessly browse, search, and purchase books, creating an engaging and user-friendly environment..

Powered by a blend of cutting-edge technologies, Book-charm redefines the way users engage with books content online. Leveraging the robustness and versatility of Spring Boot, **Spring Data JPA**, and RESTful Web Services, we have engineered a backend infrastructure that ensures reliable user authentication and efficient data retrieval. This foundation enables seamless integration of diverse data sources and smooth communication between the server and client components of the application. The application leverages a robust technology stack, including **Spring Boot** and **Node.js** on the backend, **Express** for server-side scripting, **React.js** for the frontend, and standard web technologies like HTML and CSS. Data is efficiently managed using the **MySQL Aiven cloud database** along with various libraries to enhance functionality and performance.

Ensuring a comprehensive service, Book Charm integrates secure **payment gateways** like Razor-pay for seamless end-to-end transactions. Users can confidently make purchases with a variety of payment options, enhancing the overall convenience of the shopping process.

Furthermore, the project's frontend is meticulously crafted using React and CSS, resulting in an immersive and visually appealing user interface. The login and registration functionalities, prominently featured at the outset, empower users to personalize their experience and access exclusive features seamlessly.

Book Charm prioritizes a user-responsive design, ensuring an optimal experience across devices. The website dynamically adjusts its layout and features to provide an intuitive and visually appealing interface.

The responsiveness of Book Charm extends beyond mere adaptability. The website employs a fluid design that not only scales seamlessly but also optimizes content presentation. Touch-friendly buttons, intuitive navigation, and efficient loading times contribute to a smooth and immersive user experience. Leveraging React.js for dynamic content rendering, Book Charm ensures real-time updates and a personalized touch, enhancing user satisfaction and fostering a strong connection with the platform. The commitment to responsiveness underscores Book Charm's dedication to delivering a modern, accessible, and enjoyable online bookstore experience for all users.

2.Software/Hardware Requirement

Server:

Processor: Intel Core i5 or equivalent AMD processor.

RAM: Minimum 8GB RAM.

Storage: SSD storage for improved performance.

Network: Ethernet or Wi-Fi connectivity.

Operating System: Linux distribution (Ubuntu, CentOS) preferred for server deployment.

Client Devices:

Processor: Dual-core processor or higher.

RAM: Minimum 4GB RAM.

Storage: Sufficient storage for caching and local data.

Network: Ethernet or Wi-Fi connectivity.

Browser: Compatible with latest versions of popular browsers like Google Chrome, Mozilla Firefox, and Safari.

3. Tools and technologies used

- SpringBoot
- SpringDataJPA
- RESTful Web
- Node JS
- Express JS
- SpringWeb
- MYSQL Aiven Cloud Database
- JWT
- Git
- Spring Security
- React JS
- HTML and CSS
- Axios
- Razor-pay payment integration
- Material UI

1. Spring Boot: Utilized to develop the backend of the application, providing a robust framework for building Java-based web applications with ease.

2. Spring Data JPA: Implemented for data access, allowing seamless interaction with the MySQL database to store and retrieve sports data efficiently.

3. RESTful Web Services: In the context of an e-commerce web application like Book Charm, RESTful web services play a crucial role in facilitating communication between the frontend and backend components. These services adhere to the principles of Representational State Transfer (REST), which emphasizes a stateless, standardized approach for building web services

4. Node JS: Employed for web scraping, enabling the application to extract live scores andmatch details from various sports websites and APIs.

5. Express JS: Express.js is a web application framework for Node.js that simplifies the creation of robust, scalable APIs and web applications by providing a set of middleware and routing mechanisms. It streamlines the process of handling HTTP requests, making it efficient for building server-side components in a Node.js application.

6. Spring Web: Used for handling web requests and responses, managing controllers, and serving static resources to the frontend.

7. Aiven cloud database MySQL: Chosen as the relational database management system to store book data on cloud ,including user detail ,seller detail, book information and admin details.

8. JWT (JSON Web Tokens): Implemented for secure user authentication and authorization, ensuring that only authenticated users can access into account and buy books and seller can add books .

9. Axios: In the context of a web application like Book Charm, Axios is likely used as a client-side HTTP library. Axios simplifies the process of making asynchronous HTTP requests from the frontend (React.js) to the backend (Node.js/Express.js). It is instrumental in fetching data from the server, handling API calls, and facilitating smooth communication between the frontend and backend components, ensuring efficient data retrieval and seamless user interactions in the e-commerce application

10. React: Employed to build the frontend of the application, offering a component-based architecture for creating dynamic and interactive user interfaces.

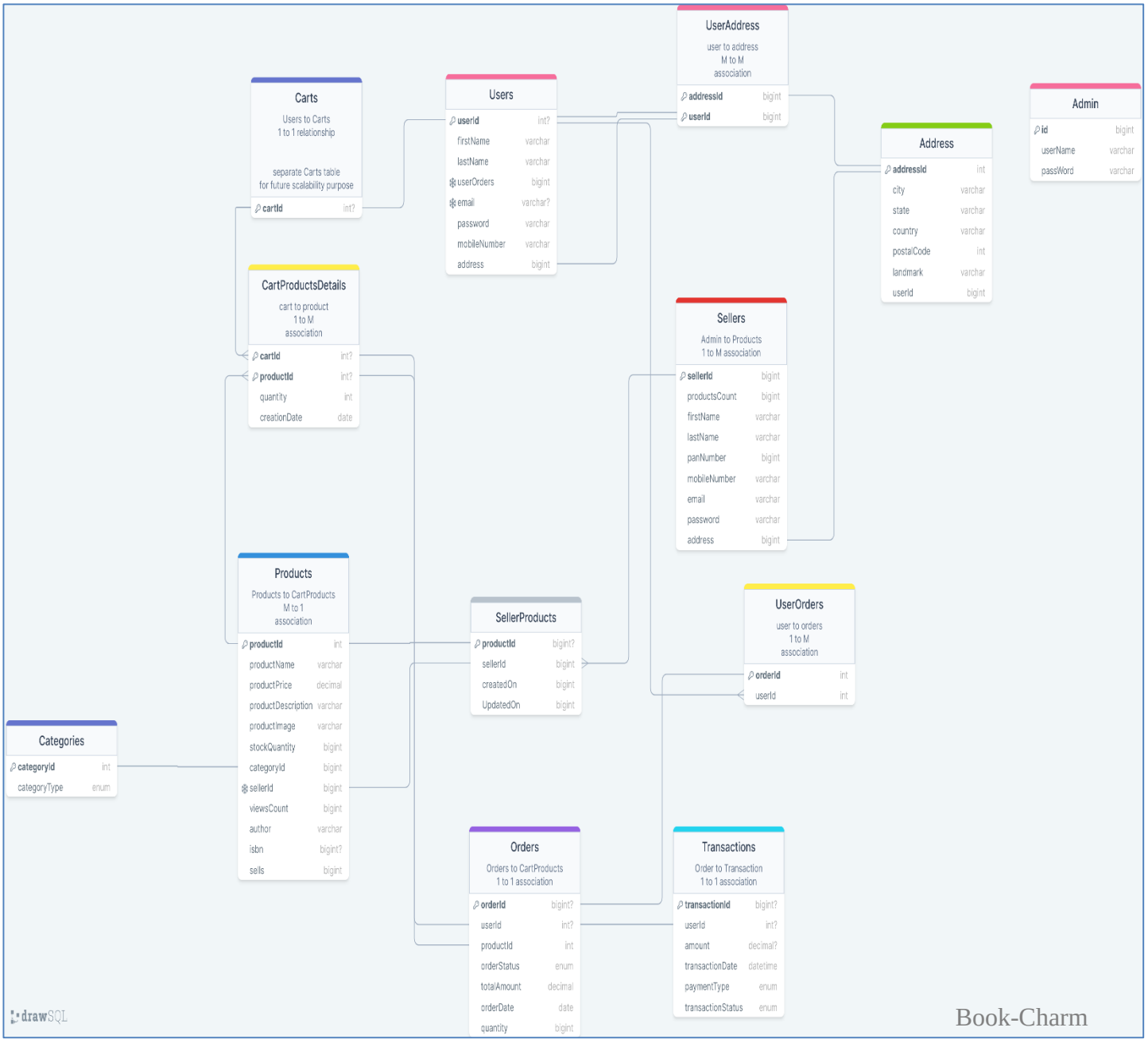
11. CSS: Used for styling the frontend components with utility-first CSS classes,allowing for rapid prototyping and customization of the user interface.

12. Material UI: Leveraged to enhance the visual appeal and user experience of the application by incorporating pre-designed React components following Google's Material Design principles.

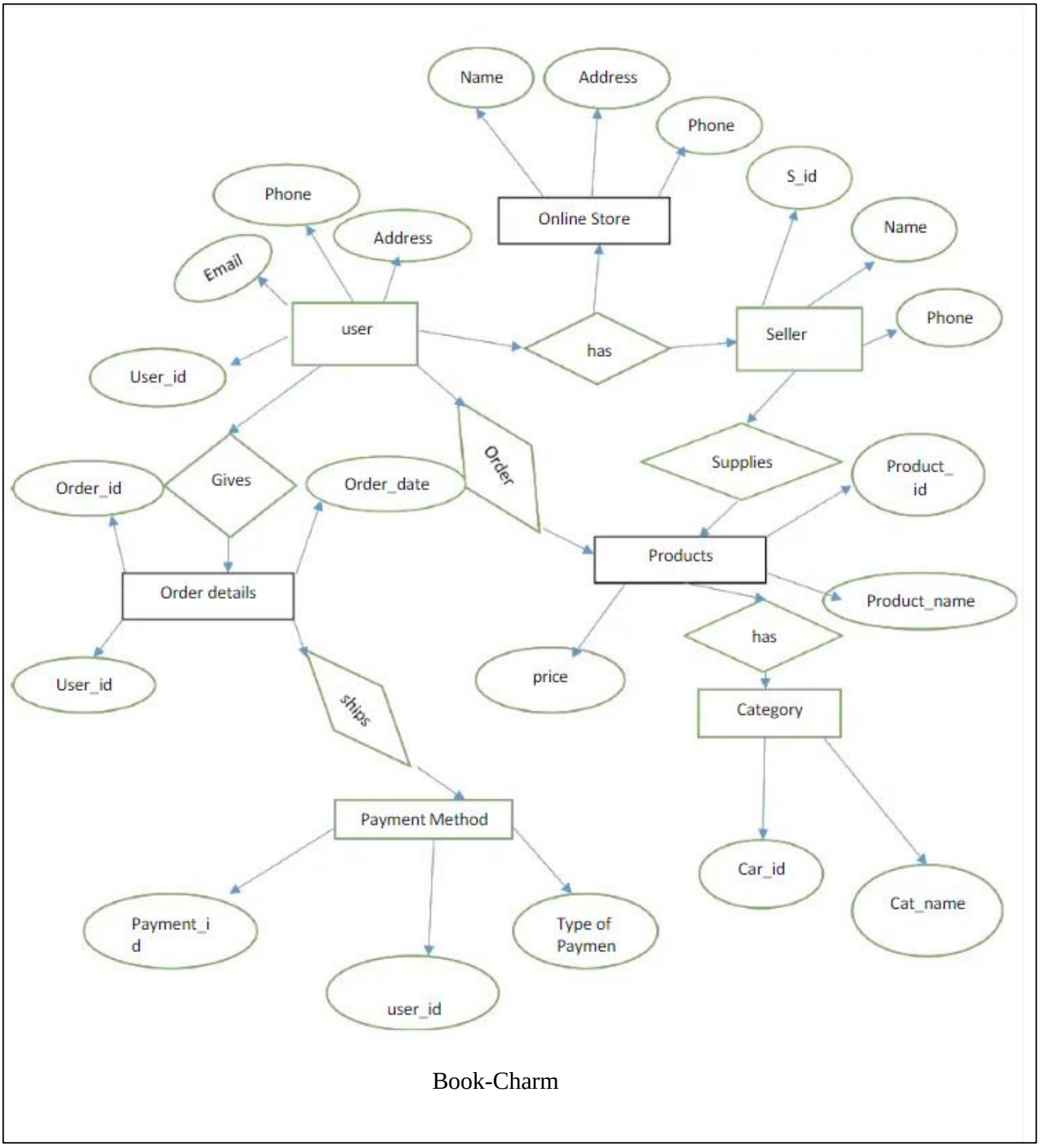
13. Git: Implemented as a version control system to track changes in the source code, enabling collaboration among developers, and facilitating code management and deployment workflows.

14. Razor-pay Payment Integration: In the Book Charm project, Razorpay is integrated as the payment gateway, enabling secure and streamlined online transactions. Razorpay provides a developer-friendly API, allowing seamless integration for processing payments, managing subscriptions, and ensuring a reliable end-to-end payment experience for users in the e-commerce web application

4. Project Database Diagram



5.Project E-R(Entity relationship) Diagram



Book-Charm

6. Advantages

- Use of MySQL Cloud Database(aiven)
    - The Book Charm project utilizes the Aiven cloud-based MySQL database for efficient and scalable data management. Here are key points about its integration:
    - 1. Reliability: Aiven offers a reliable database solution with high availability, ensuring uninterrupted service for Book Charm users.
    - 2.Scalability: The cloud-based nature of Aiven allows seamless scalability, accommodating the growing data needs of the e-commerce application.
    - 3.Managed Services: Aiven provides managed MySQL services, handling administrative tasks such as backups and maintenance, reducing the operational burden on the development team.
    - 4.Security: The Aiven platform prioritizes data security, implementing encryption and access controls to safeguard sensitive information stored in the MySQL database.
    - 5.Automatic Backups: Book Charm benefits from automatic backups provided by Aiven, ensuring data integrity and easy recovery in case of unexpected issues.
    - 6.API Compatibility: Aiven supports standard MySQL APIs, facilitating seamless integration with the backend components of the Book Charm web application.
    - 7.Developer-Friendly: The Aiven platform offers a developer-friendly environment, making it straightforward for the development team to configure and manage the MySQL database for Book Charm.
    - 8.Cost-Effective: Aiven's cloud-based model allows cost-effective utilization, enabling Book Charm to pay for the resources it consumes without the need for extensive infrastructure management.

- 9.Data Durability: With Aiven, data durability is enhanced through redundant storage and backup mechanisms, ensuring that critical information is safeguarded against data loss scenarios.

- Use of JWT for authorization
  - Stateless Authentication: JWT allows for stateless authentication, meaning server-side sessions or database lookups for authentication are not required, resulting in reduced server load and improved scalability.
  - Enhanced Security: JWTs are digitally signed, ensuring data integrity and preventing tampering or unauthorized access to user data. Additionally, since JWTs do not store sensitive information, they mitigate the risk of data exposure in case of a breach.
  - Cross-Domain Compatibility: JWTs can be easily transmitted over HTTP headers or URLs, making them suitable for use in cross-domain communication and enabling seamless integration with various frontend and backend technologies.

7. Screenshots

A) User Related Functionalities

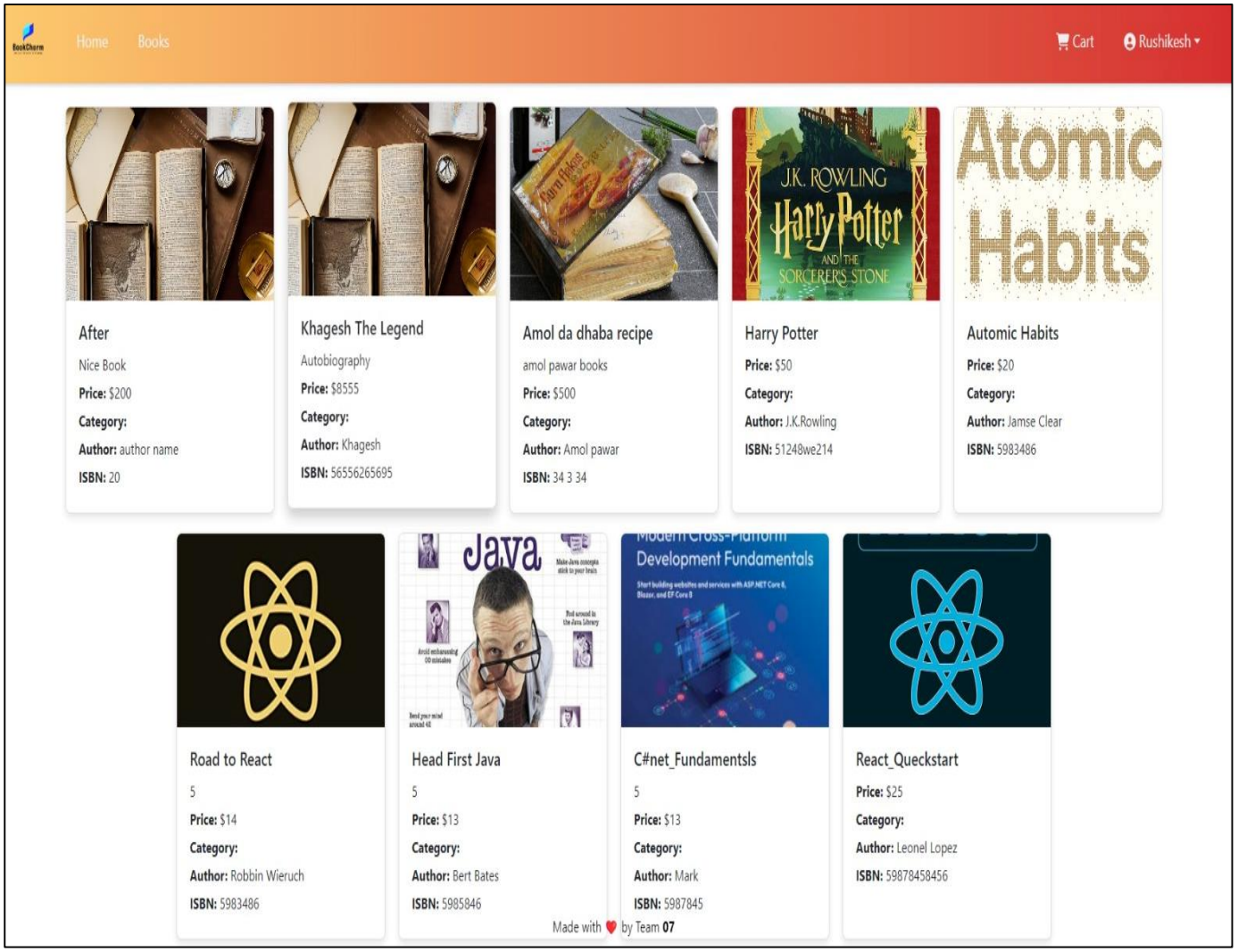


Fig-1: Home Page

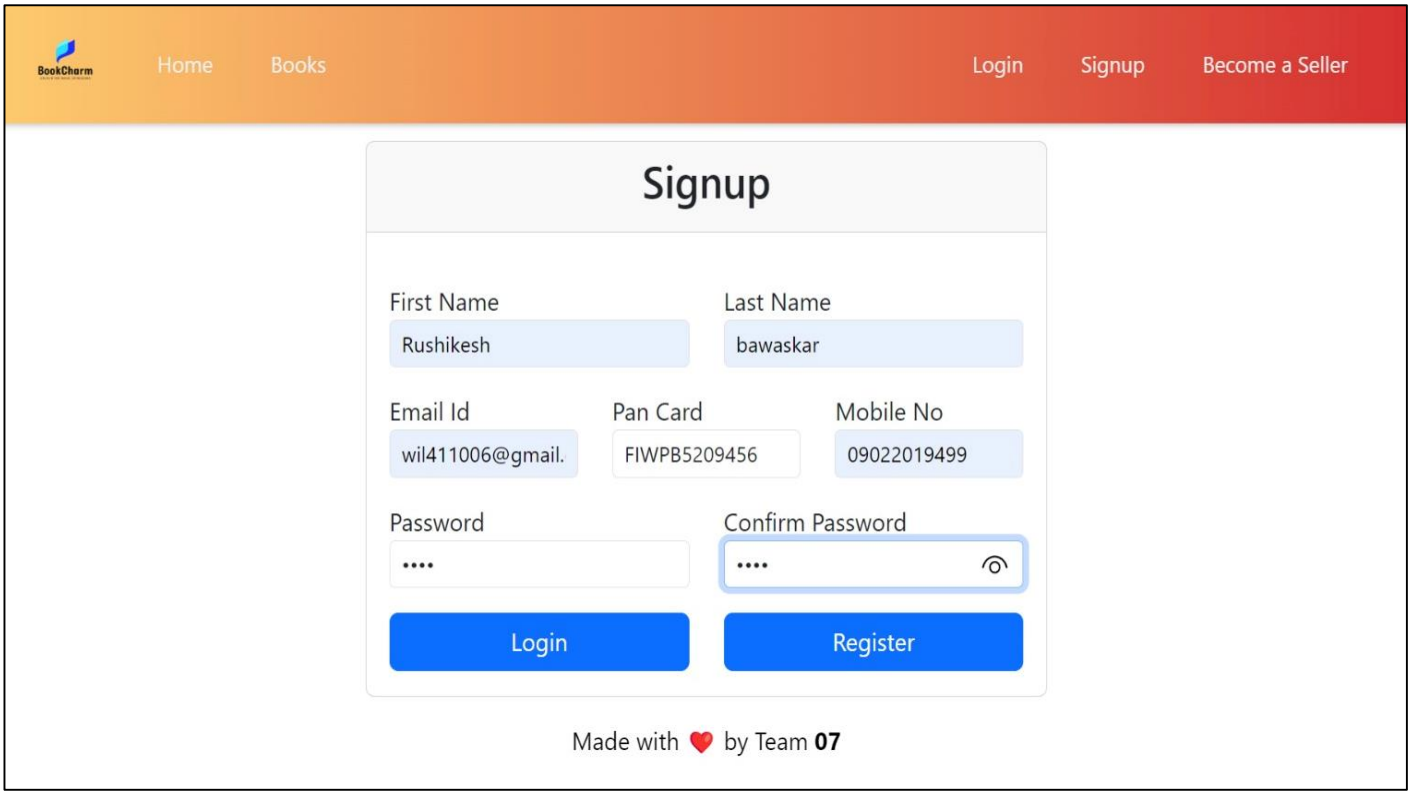


Fig2 – User Registration page

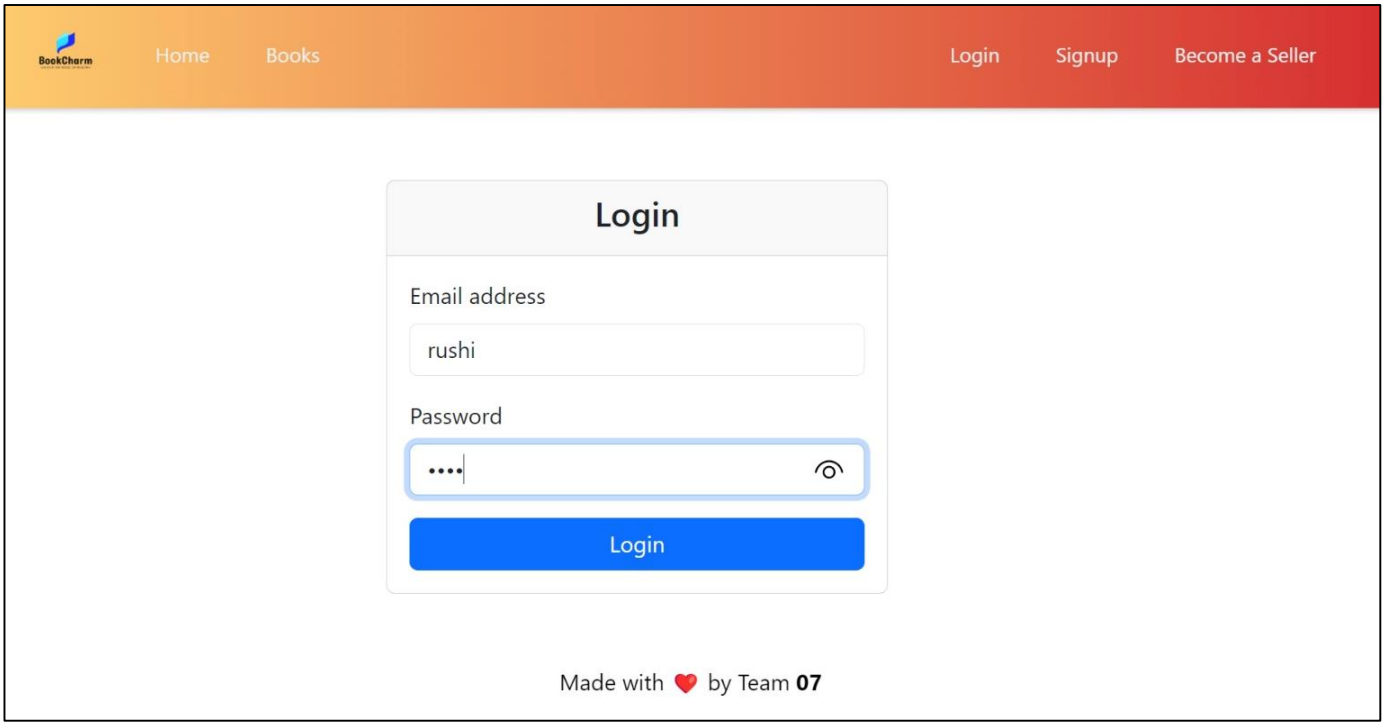


Fig 3 –User login page

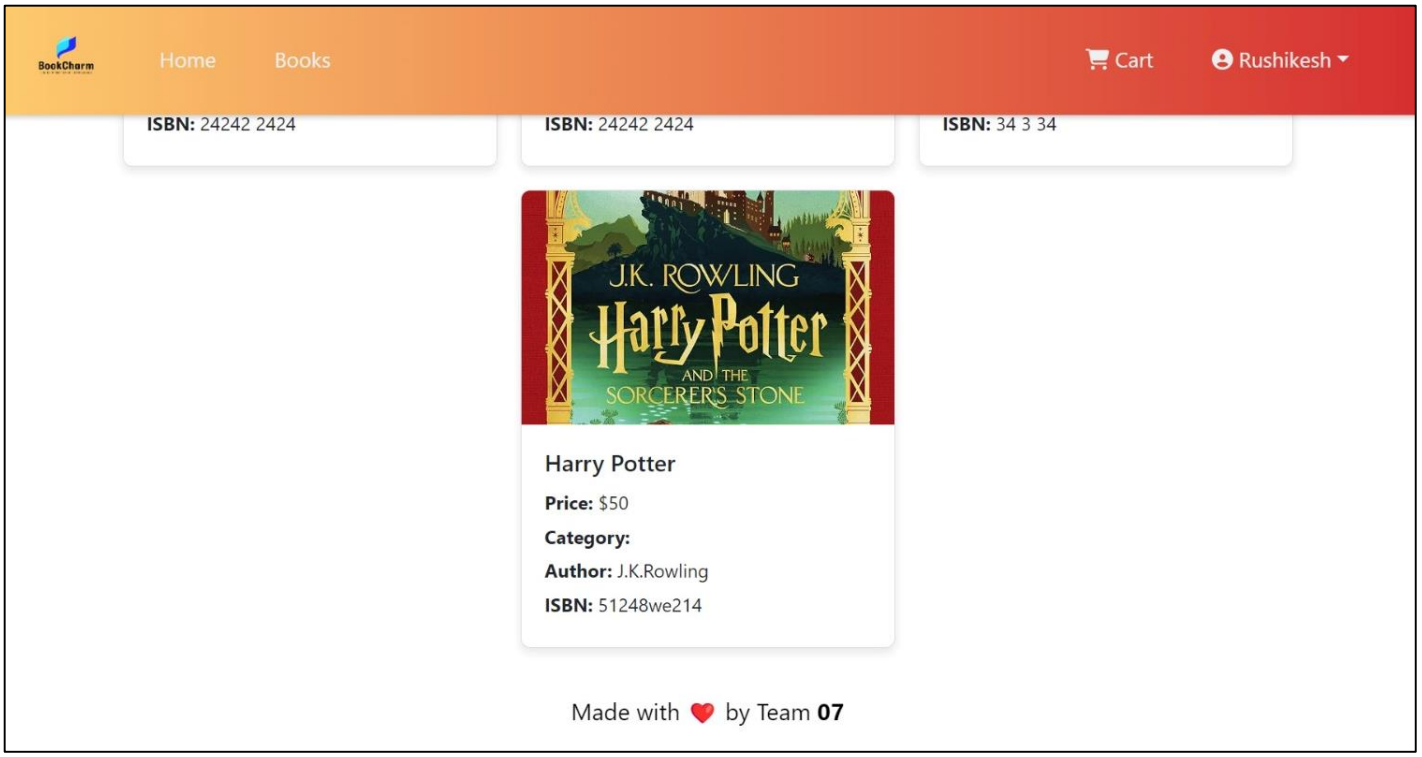


Fig 4 –User Authenticated page

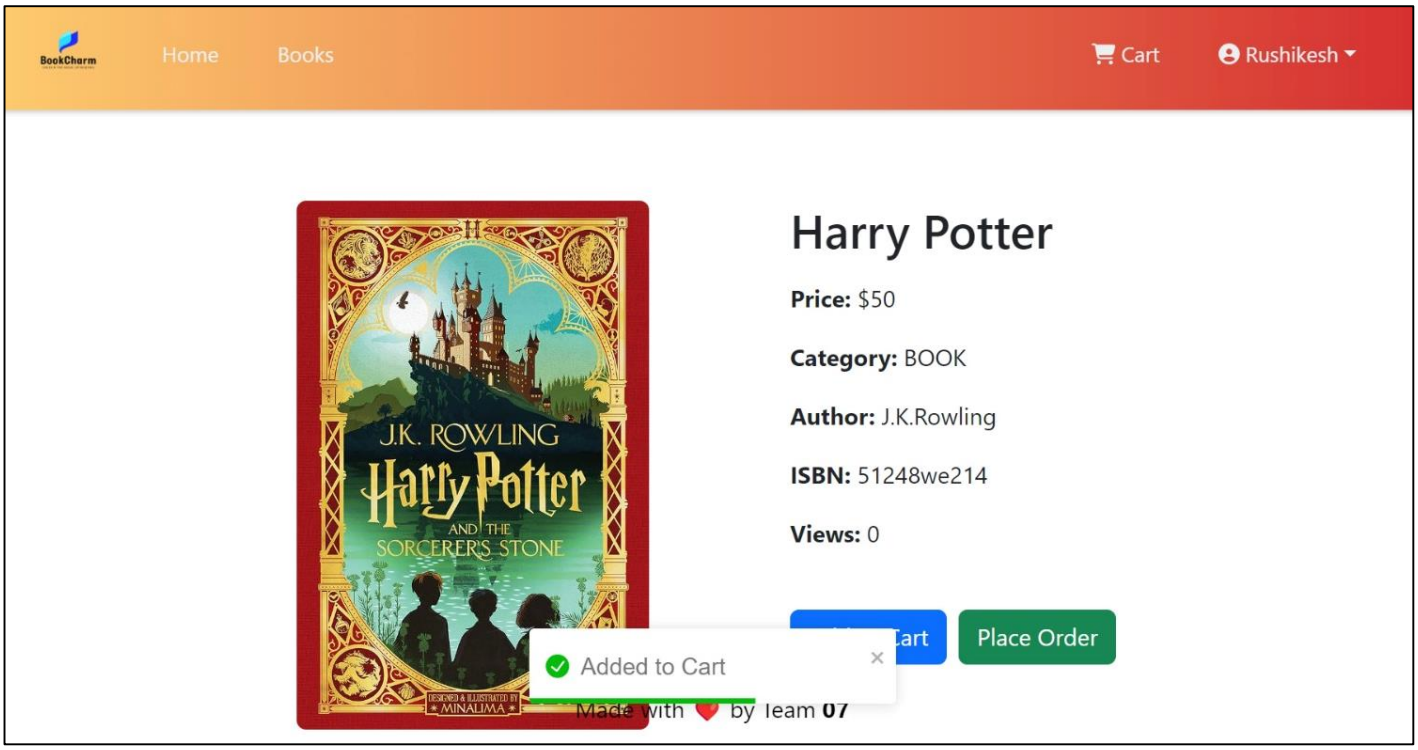


Fig 5 –Book added to cart by user

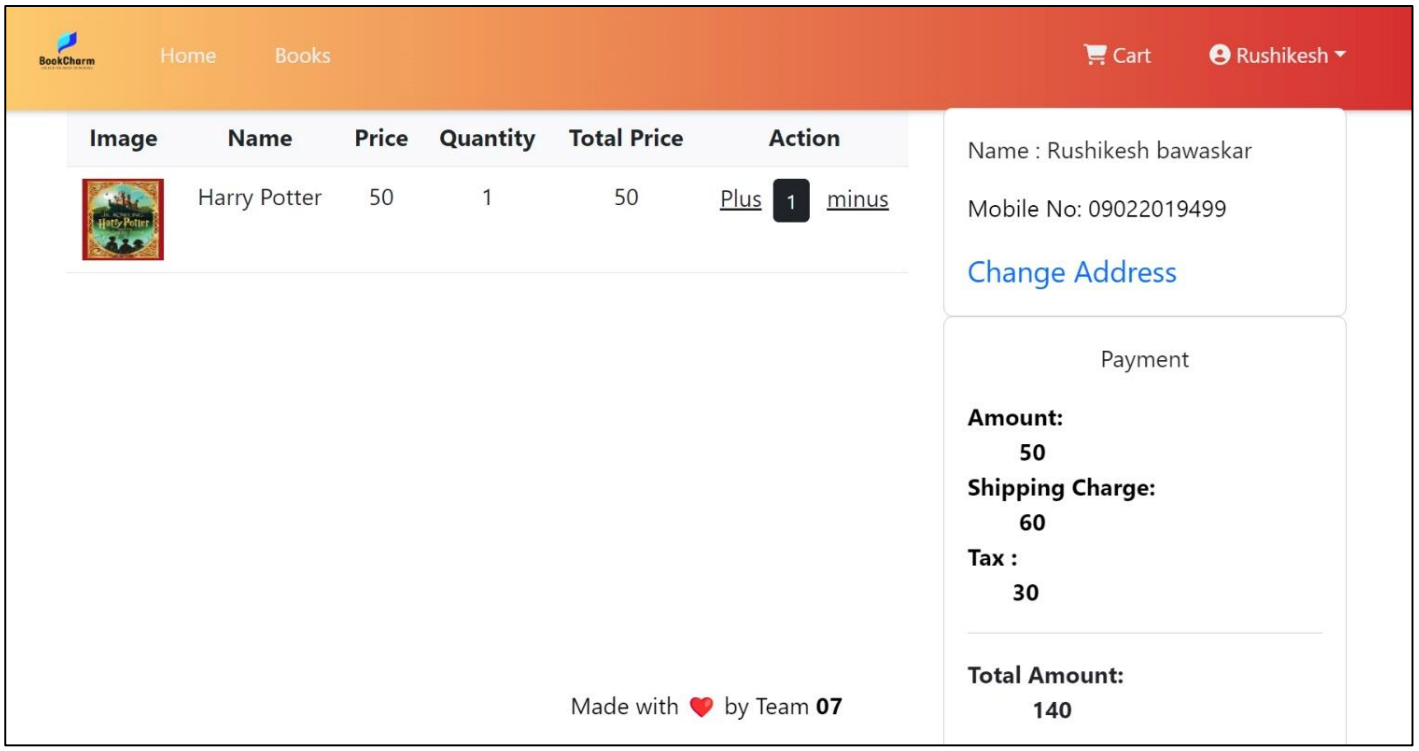

BookCharm
Home
Books
Cart
Rushikesh
Image
Name
Price
Quantity
Total Price
Action
Harry Potter
50
1
50
Plus
1
minus
Name : Rushikesh bawaskar
Mobile No: 09022019499
Change Address
Payment
Amount:
50
Shipping Charge:
60
Tax :
30
Total Amount:
140
Made with by Team 07

Fig 6 –Cart

B) Seller Related Functionalities

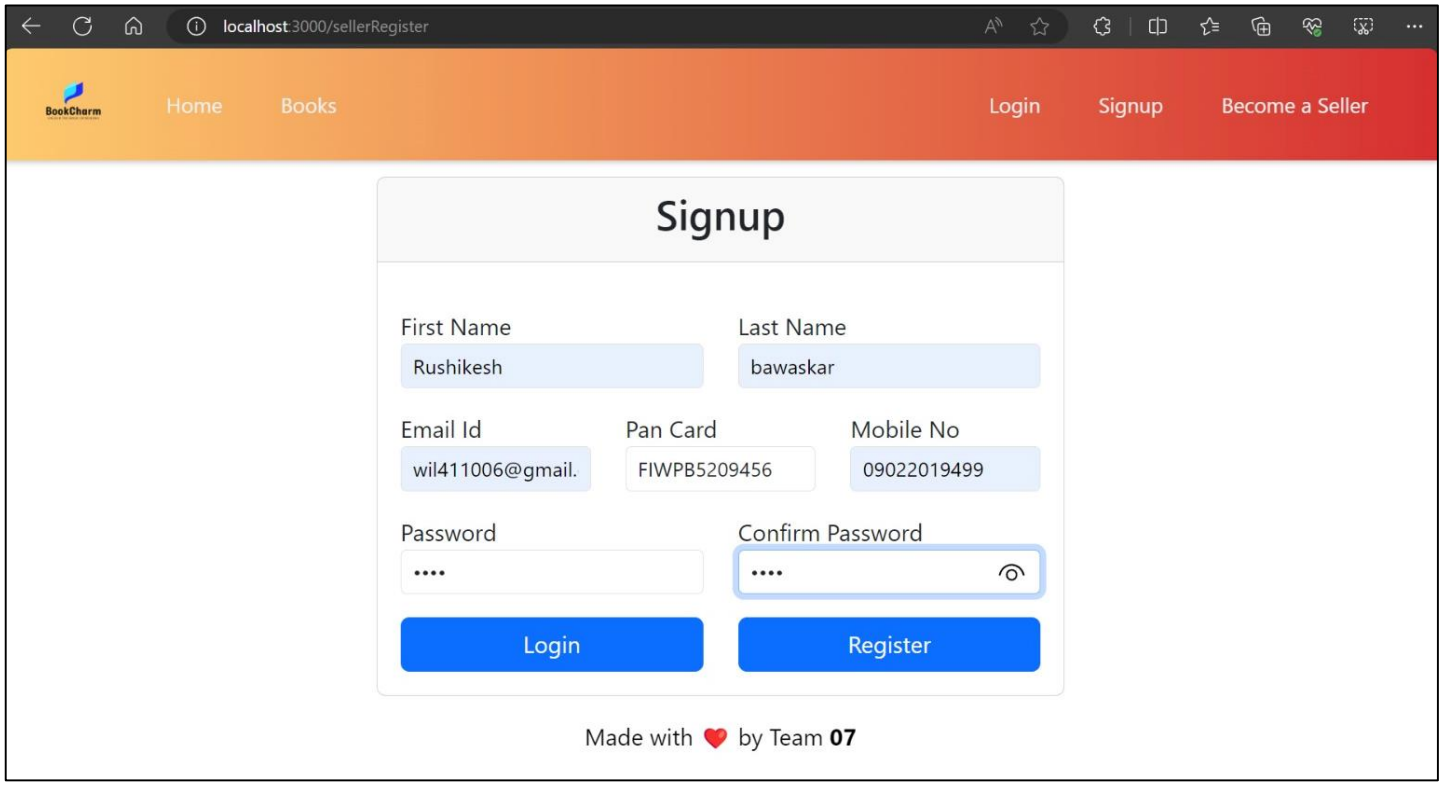


Fig 7 – Seller Registration Page

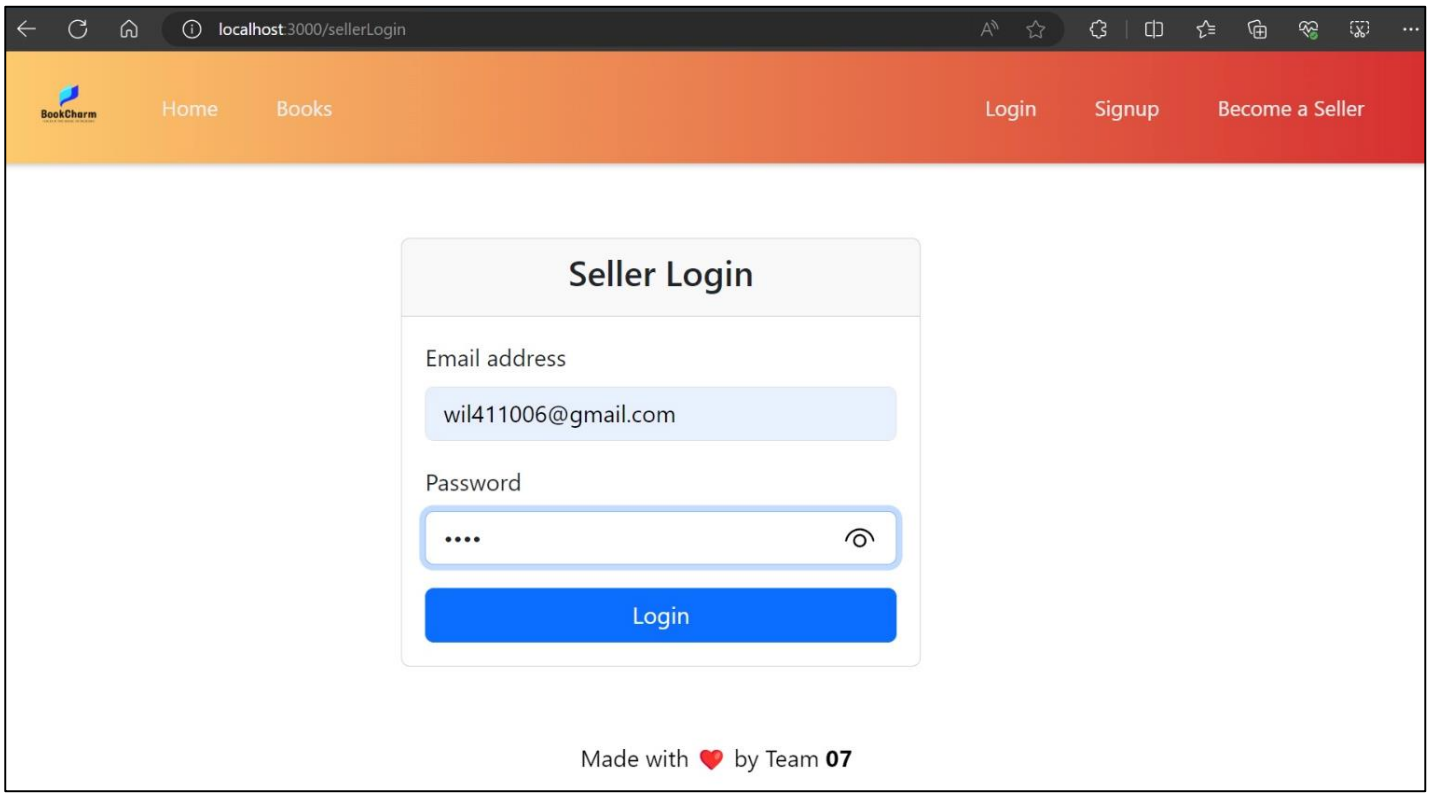


Fig 8 – Seller Login Page

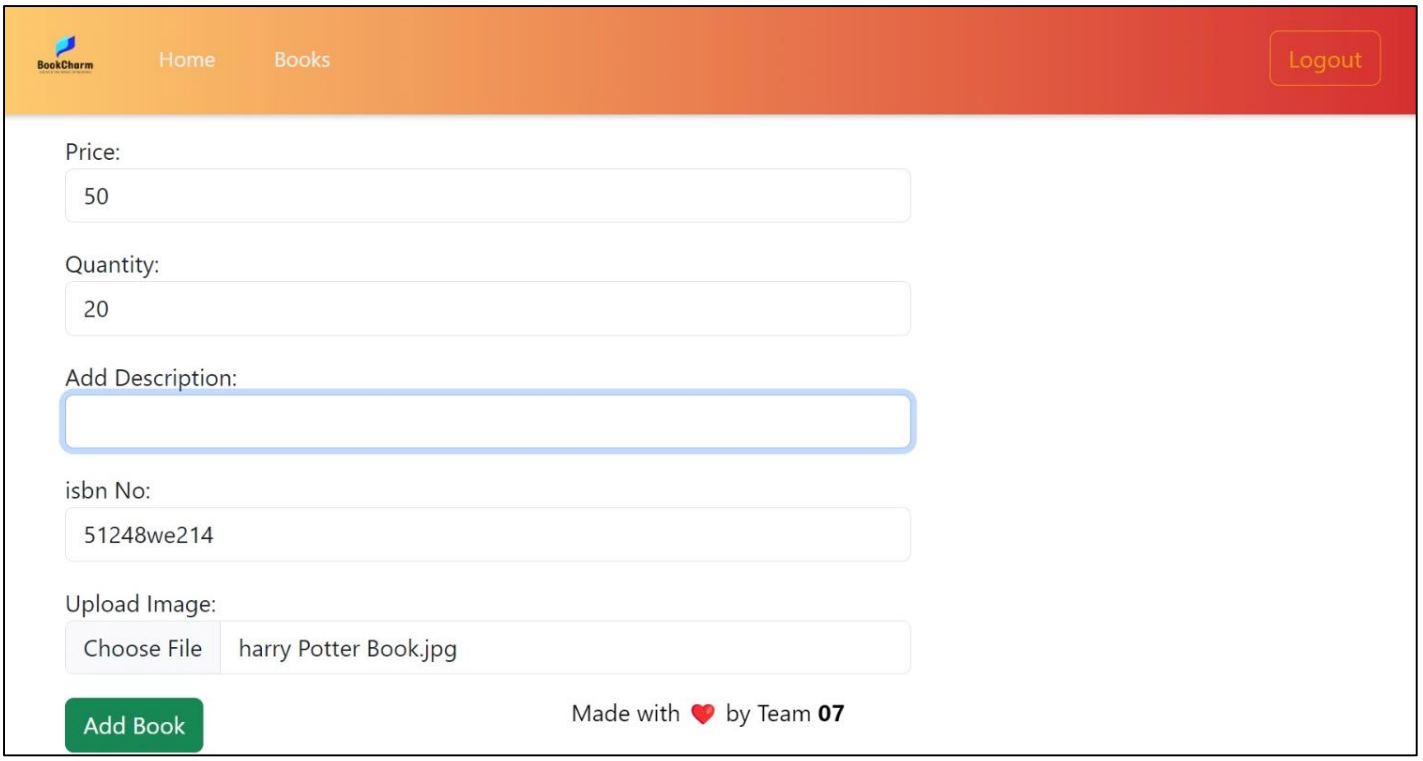


Fig 9 – Seller can add book

C)Admin Related Functionalities

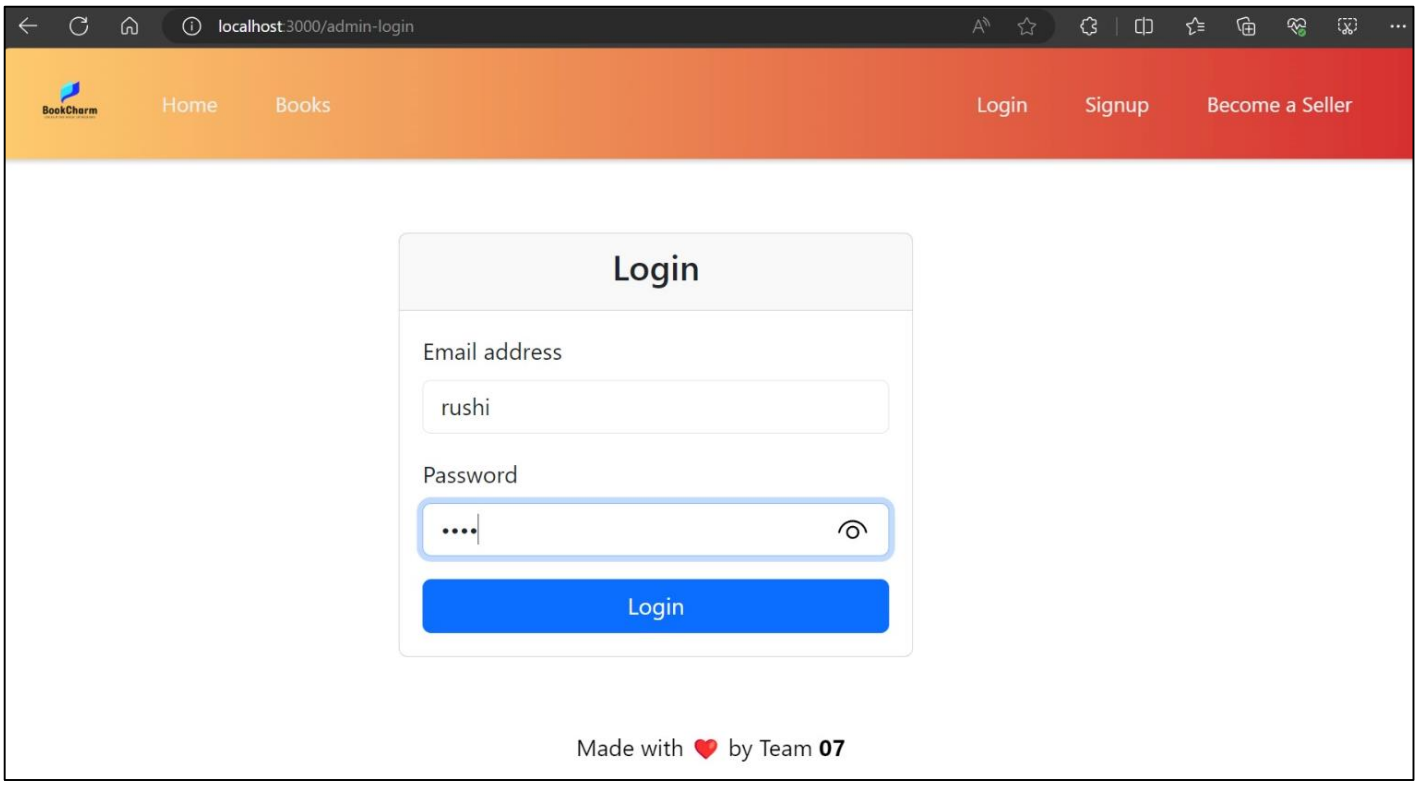


Fig 10 – Admin Login page

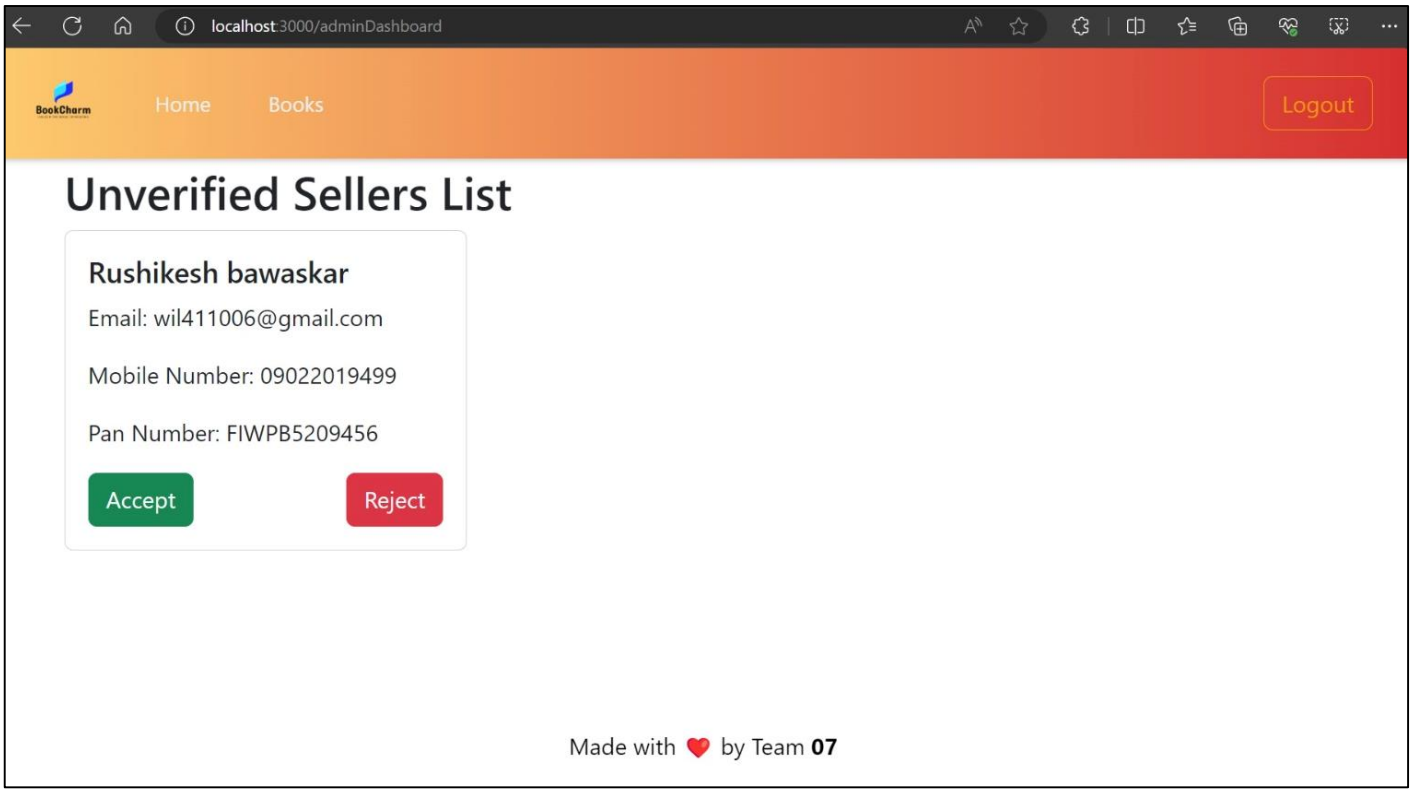
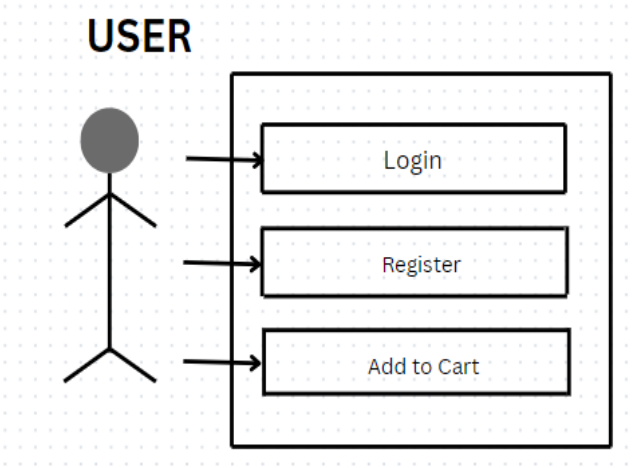
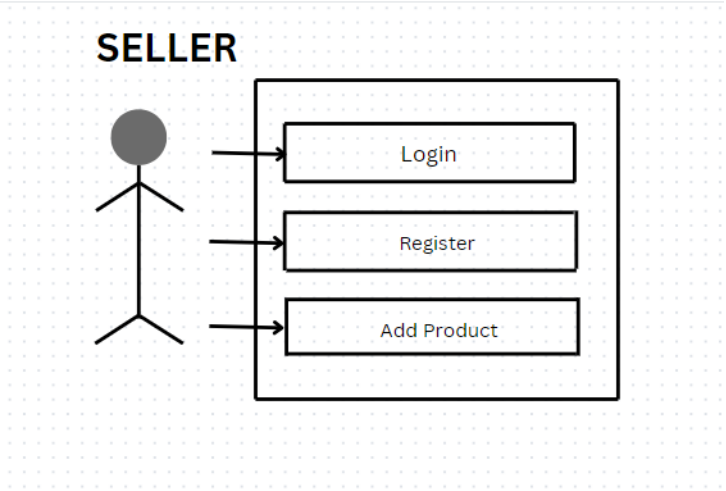
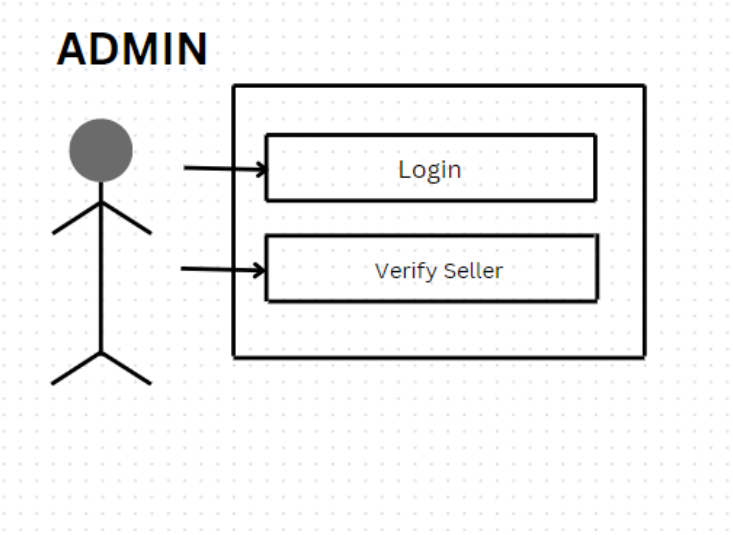


Fig 11 – Admin Dashboard(Admin can verify seller)

D) Use Case Diagram







8. FUTURE SCOPE:

- **Subscription based model**:

  Introduce a subscription-based model offering users exclusive benefits such as early access to new releases, discounts, and personalized book recommendations.

  Implement tiered subscription plans to cater to different user preferences and engagement levels.

- **Mobile App Development**:

  Expand the reach and accessibility of Book Charm by developing a dedicated mobile application for both iOS and Android platforms.
  Optimize the user interface for mobile devices to enhance the mobile shopping experience.

- **Enhance Personalization**:

  Implement advanced recommendation algorithms based on user preferences, purchase history, and browsing behavior to provide personalized book suggestions.
  Integrate user profiles across devices for a seamless and consistent experience.

- **Data Analytics and Reporting:** Incorporate data analytics capabilities to generate insightful reports and visualizations for users. This can include expense trends, income analysis, and financial goal tracking.

9. Conclusion

In conclusion, the "E-commerce(Book shop)" project successfully integrates a range of cutting-edge technologies to deliver a comprehensive platform. Leveraging Spring Boot, Spring Data JPA, and RESTful Web Services ensured robust backend functionality for user authentication and data retrieval.

The Book Charm project embodies a comprehensive and user-centric approach to online book retail. Leveraging technologies like Spring Boot, Node.js, React.js, and Aiven cloud-based MySQL database, it provides a robust and scalable e-commerce platform. With seamless payment integration through Razorpay, user-friendly interfaces, and a responsive design, Book Charm aims to deliver an immersive book shopping experience. The adoption of a subscription-based model in the future can enhance user engagement, while extending the project to include a mobile app will broaden accessibility. The project, poised for growth, showcases a commitment to innovation, user satisfaction, and adaptability in the dynamic landscape of e-commerce.

10. References

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6. https://reactjs.org/
7. https://nodejs.org/