

Practical-1

Aim: Develop the Software Requirements Specifications (SRS) document for a specific system.

LibRent Books

1.1 Introduction:

1.1.1 Purpose of the system:

This type of system facilitates the exchange of books between different readers, enabling users to access a wide range of titles without having to buy them outright.

It is right of all humans to have education. With the education we are providing support to the country. It will be helpful in government scheme "*Padega India tabhi badhega india*".

1.1.2 Scope of the system:

The pre-owned rental book system presents a promising scope in the ever-evolving landscape of reading and literature consumption. As technology continues to shape the way people access and engage with content, this system offers a unique and practical solution for avid readers and book enthusiasts.

The scope of the pre-owned rental book system extends beyond the economic and environmental aspects. It fosters a vibrant community of readers who can interact, share recommendations, and engage in literary discussions. This sense of belonging and shared passion for books enhances the overall user experience, making the system not just a transactional service but also a social platform.

1.2 General description of the system:

1.2.1 Overall description:

The general functionality of a pre-owned rental book system encompasses a range of features and processes that facilitate the seamless rental and exchange of pre-owned books among users. Here are the key functionalities of the system:

1. **User Registration and Profiles:** Users can create accounts on the platform, providing essential details such as name, contact information, and reading preferences. Each user has a profile that showcases their rented books, reviews, and interactions within the community.

2. **Book Search and Discovery:** The system allows users to search for books they are interested in renting. They can use filters based on genres, authors, keywords, or ratings to discover relevant titles.

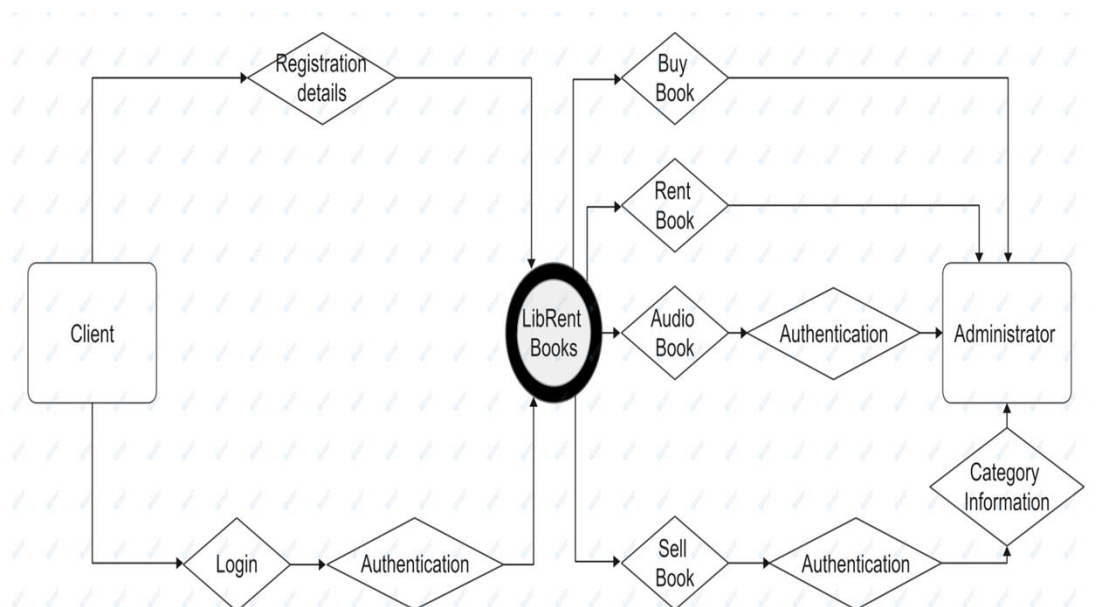
3. **Book Rental and Checkout:** When a user finds a book they want to rent, they can initiate the rental process. The system calculates the rental fees based on the duration and displays the total cost. Users proceed to checkout to finalize the transaction.

4. Communication and Negotiation: Users may communicate with each other through messaging systems to negotiate rental terms, discuss book conditions, or coordinate book exchanges.

5. Delivery and Returns: For physical books, the system may facilitate the shipping process, generating shipping labels, and tracking information. Users return the books to the owner at the end of the rental period.

6. User Ratings and Reviews: After a rental is completed, users can rate and leave reviews for the book and the renting experience. These reviews contribute to the reputation of the book owner and help other users make informed decisions.

7. Book Verification and Quality Control: The system may implement measures to verify the accuracy of book listings and ensure that books' conditions match their descriptions.



1.2.2 Feasibility study:

A feasibility study is a critical step in evaluating the viability and potential success of a project. In the case of the pre-owned rental book system, conducting a feasibility study helps assess its economic, technical, operational, and scheduling aspects.

1. Technical Feasibility:

The technical feasibility of the pre-owned rental book system is highly achievable, leveraging mature technologies. Implementing user registration, book listing, search, and secure payment processing ensures a smooth experience. Cloud infrastructure and scalable databases manage a growing user base and inventory. AI-powered recommendation engines and analytics tools optimize efficiency. With available technologies and development resources, creating the system is within reach.

For the sake of new we can allow users to trade books directly with one another instead of only renting. This feature promotes book exchange within the community and reduces rental fees.

2. Operational Feasibility:

Operational feasibility refers to the practicality and viability of implementing and maintaining a system within an organization or business. In the case of a pre-owned rental book system, the operational feasibility is quite high. The concept of sharing pre-owned books is simple and straightforward, requiring a user-friendly platform with essential features like book listings, search, checkout, and communication. With modern technologies, such as AI-driven recommendations and secure payment processing, the system can be efficiently managed and scaled. Moreover, the growing interest in sustainability and the increasing popularity of shared economy models further support the viability of this system. The key challenge lies in establishing trust and quality control mechanisms to ensure a positive user experience and build a thriving community of book enthusiasts.

3. Economic Feasibility:

pre-owned rental book system appears promising due to its potential to attract a large user base seeking cost-effective solutions for accessing a diverse selection of books. By encouraging the reuse of pre-owned books, the platform reduces the need for users to purchase new books, thus saving them money in the long run. Additionally, partnerships with local libraries and bookstores can expand the book collection without incurring high acquisition costs. With a sustainable business model and a growing community of users, the system is well-positioned to generate revenue through rental fees and attract potential investors.

This type of rental book system is highly favourable for the company. By facilitating the exchange of pre-owned books, the system can attract a large user base, including cost-conscious readers and environmentally conscious individuals. The revenue model, based on rental fees and possible commissions, generates a steady income stream. Additionally, partnerships with local libraries and bookstores can expand the book collection, attracting more users. With low overhead costs and the potential for scalable growth, the system has the potential to be financially sustainable and profitable for the company.

1.3 Functional Requirements:

1.3.1 Module description:

1. Desktop/Laptop Computers:

- For system administrators, customer support, and backend operations, desktop or laptop computers are needed to manage the platform efficiently.

2. Barcode/QR Code Scanners:

- Physical books can be equipped with barcode or QR code stickers, and scanners are required to efficiently read these codes during the rental process.

3. Shipping and Tracking Devices:

- If the system involves physical book rentals, shipping and tracking devices are required to manage book deliveries and returns.

4. Payment Processing Hardware:

- Hardware components that facilitate secure payment processing, such as card readers and point-of-sale (POS) terminals, are necessary to handle rental fees.

5. Barcode/QR Code Scanners:

- Physical books can be equipped with barcode or QR code stickers, and scanners are required to efficiently read these codes during the rental process.

6. Networking Equipment:

- Routers, switches, and firewalls are needed to establish a reliable and secure network infrastructure for data transfer and communication.

7. Mobile Devices:

- If the system includes a mobile application, mobile devices like smartphones and tablets become essential for users to access the platform on the go.

1.3.2 Functions of various user of the system:

In a pre-owned rental book system, there are different types of users, each with their unique functions and roles. Let's explore the functions of various users:

1. Registered Users / Renters:

- Search for Books: Renters can search for specific books or browse through the available collection based on genres, authors, or keywords.
- Rent Books: They can initiate the rental process, select rental durations, and proceed with payment to borrow books from other users.

2. Book Owners / Lenders:

- List Books: Book owners can list their pre-owned books on the platform, providing book details, rental terms, and availability.
- Manage Listings: They can update book listings, mark books as unavailable when already rented, and handle multiple rental requests.

3. System Administrators / Platform Owners:

- Manage Platform: Administrators oversee the overall functioning of the system, ensuring it runs smoothly and efficiently.
- User Support: They handle customer support, resolving issues, and addressing inquiries from users.
- Monitor Security: Administrators ensure the security of user data and payment information, implementing measures to protect against potential threats.

4. Moderators / Community Managers:

- Foster Community Engagement: Moderators facilitate discussions, book clubs, and events, encouraging users to interact and connect.
- Enforce Guidelines: They ensure users adhere to platform guidelines and policies, promoting a positive and respectful community environment.

5. Guest Users:

- Browse Books: Guest users can explore the available books and book listings without registering on the platform.
- Learn about the Service: They can access general information about the system, its features, and how it works.

1.4 Non- Functional Requirements:**1.4.1 Security:**

- Secure User Authentication: Implement robust user authentication mechanisms to protect user accounts and sensitive data.
- Data Encryption: Encrypt user data, payment information, and communication to ensure confidentiality and prevent unauthorized access.
- Secure Payment Processing: Use secure payment gateways to handle rental fees and financial transactions securely.
- Role-Based Access Control: Apply role-based access control to limit access to sensitive system functionalities based on user roles.
- Regular Security Audits: Conduct security audits and vulnerability assessments to identify and address potential security loopholes.

1.4.2 Reliability:

- System Uptime: Ensure high system availability to minimize downtime and provide uninterrupted access to users.
- Error Handling: Implement effective error handling and graceful degradation to manage errors without disrupting the entire system.
- Data Backup and Recovery: Regularly back up user data to prevent data loss and enable quick data recovery in case of system failures.

1.4.3 Availability:

- Scalability: Design the system to handle varying user loads and traffic, especially during peak usage periods.
- Load Balancing: Implement load balancing techniques to distribute the workload evenly across servers and ensure optimal performance.
- Redundancy: Employ redundant servers or failover mechanisms to ensure continuous service availability even if certain components fail.

1.4.4 Maintainability:

- Modular and Clean Code: Develop the system using a modular and clean code architecture to facilitate code maintenance and updates.
- Documentation: Provide comprehensive documentation to aid developers and system administrators in understanding and maintaining the system.
- Version Control: Use version control systems to track changes to the codebase and enable easy rollback if needed.

1.4.5 Portability:

- **Cross-Browser Compatibility:** Ensure that the system functions properly across different web browsers and devices.
- **Responsive Design:** Implement responsive design principles to ensure the system adapts to various screen sizes and resolutions.

1.4.6 Reusability:

- **Modular Components:** Design components with reusability in mind to maximize code reuse and reduce development efforts for future features.
- **API and Integration:** Provide well-documented APIs to allow external applications to integrate with the system and access certain functionalities.

1.5 Interface Requirements:

1.5.1 GUI

Home page display

- Dominating the central portion of the home page is a captivating carousel featuring a curated selection of pre-owned books. Each book listing includes a little image of the book cover, title, and author. Users can use the arrows on either side of the carousel to scroll through the book recommendations, enticing them to explore various genres and discover new reading possibilities.

Customer Profile

- The customer profile in the pre-owned rental book system is a comprehensive and personalized section that provides users with a snapshot of their activity and engagement on the platform. This dynamic and user-friendly interface showcases essential details about the customer, including their name, contact information, and reading preferences. Users can view their rental history, current book rentals, and a list of their favorite books. The profile also features personalized book recommendations based on the user's reading habits and past rentals. With an intuitive layout and easy-to-navigate sections, the customer profile enhances the user experience, fostering a sense of ownership and connection within the community of book enthusiasts.

Payment gateway

- The Payment gateway provides a secure and seamless transaction process for users. It enables users to pay rental fees for borrowed books through various payment methods, such as credit/debit cards or digital wallets. The payment gateway employs encryption and secure protocols to protect users' financial information and ensure safe transactions. By integrating a reliable and user-friendly payment gateway, the platform enhances user trust

and confidence, facilitating a smooth and convenient rental experience for both book owners and renters.

1.5.2 Hardware Interface

1. User Devices

- Users access the platform via smartphones, tablets, laptops, or desktop computers to browse books and interact with the user interface.

2. Barcode/QR Code Scanners

- For physical book rentals, barcode or QR code scanners are used to identify books and facilitate the rental process.

3. Payment Terminals

- Secure payment terminals allow users to make rental fee payments using credit/debit cards or digital wallets.

4. Shipping and Tracking Devices

- Devices manage book deliveries and provide real-time tracking information for physical book rentals.

5. Servers and Data Storage

- Powerful servers and data storage systems host the platform, handle user requests, and store essential data.

6. Networking Equipment

- Routers, switches, and firewalls facilitate data communication between user devices and servers.

1.5.3 Software Interface

1. User Interface:

- A user-friendly web-based or mobile application interface for users to browse books, search for rentals, initiate transactions, and manage their rental activities.

2. Book Listing Management:

- Software interface for book owners to list their pre-owned books, set rental terms, update availability status, and manage rental requests.

3. Payment Gateway Integration:

- A seamless integration with secure payment gateways to process rental fee payments from users using various payment methods.

4. Barcode/QR Code Scanning:

- Software interface for users to scan book barcodes or QR codes for physical book rentals, simplifying the rental process.

5. Database Management:

- Software interface to manage user data, book details, rental history, and other platform-related information securely.
6. **Communication and Messaging:**
 - Software interface for users to interact with each other, communicate rental terms, and resolve inquiries.
 7. **Rating and Review System:**
 - Interface for users to leave ratings and reviews for books and rental experiences, fostering community engagement.
 8. **Admin Panel:**
 - A comprehensive administrative interface for system administrators to manage users, book listings, analytics, and platform settings.
 9. **Search and Recommendation Engine:**
 - Software interface that enables users to search for books and receive personalized book recommendations based on their preferences.

1.6 Data Dictionary:

1.6.1 Table 1: admin_regis

Description: This table consists details of admin

Sr.No.	Column Name	Data Type	Size	Constraints	Description
1	A_Email	Varchar	20		This column consists details of admin's email
2	A_Password	Varchar	10		This column consists details of admin password
3	A_id	Int	5		This column consists details of admin id

1.6.2 Table 2: user details

Description: This table gives information of user

Sr.No.	Column Name	Data Type	Size	Constraints	Description
1	client_id	Varchar	10	Primary Key	This column consists details of complaint id
2	u_name	Text	15		This column consists details of user name
3	phoneno	Bigint	13		This column consists details of user phone number
4	address	Text	15		This column consists details of animal

Table 3: Book_registration

Description: This table gives details of books

Sr.No.	Column Name	Data Type	Size	Constraints	Description
1	b_id	Int	2	Primary key	This column consists details of book Id
2	b_name	Text	30	Not Null	This column consists details of book name
3	b_author	Text	10	Not Null	This column consists details of book author
4	b_cataglog	Varchar	50	Not Null	This column consists details of book category
5	b_price	Int	10	Not Null	This column consists details of book price

Table 4: Cart_details**Description:** This table gives details of carts

Sr.No.	Column Name	Data Type	Size	Constraints	Description
1	c_total	Text	15		This column consists of total price in cart.
2	Quantity	Text	50		This column consists number of books in cart
3	Title	Text	50		This column consists details of book titles