

Project Design Phase-II

Technology Stack (Architecture & Stack)

Date	17 Feb 2026
Team ID	LTVIP2026TMIDS42169
Project Name	BookNest
Maximum Marks	4 Marks

Technical Architecture:

BookNest is built using a modular and scalable 3-tier architecture suitable for an online book rental and purchasing platform. The layers are:

- **Presentation Layer (Frontend):**
Intuitive web interface for users to browse, search, rent, or purchase books.
- **Business Logic Layer (Backend):**
Manages inventory, user orders, book tracking, rental durations, payments, and user authentication.
- **Data Storage Layer:**
Stores book metadata, user details, transaction history, and rental records securely.

The system includes integration with third-party APIs for online payments, notifications (email/SMS), and possibly logistics tracking services for delivery.

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1	User Interface	Responsive UI for users to browse and manage books	HTML, CSS, JavaScript, React.js
2	Application Logic-1	Book catalog, rental/purchase process, cart system	Node.js, Express.js
3	Application Logic-2	Admin panel, inventory management, analytics	React.js, Node.js
4	Database	Stores books, users, transactions, rental logs	MongoDB

Table-2: Application Characteristics

S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	Lightweight UI/UX and server-side frameworks	React.js, Node.js, Bootstrap, Tailwind CSS
2	Scalable Architecture	RESTful microservices ensuring scalability and performance	Microservices architecture

References:

- React.js Documentation
- Node.js Best Practices
- MongoDB Schema Design
- [How to Draw Useful Technical Architecture Diagrams](#)