**Project Design Phase**

**Solution Architecture**

| Date | 26 -052025 |
| --- | --- |
| Team ID | LTVIP2025TMID55498 |
| Project Name | BookNest |
| Maximum Marks | 4 Marks |

**Solution Architecture:**

To provide a user-friendly, secure, and scalable online bookstore application that enhances the book discovery and purchasing experience for readers worldwide.

* Effortless Book Browsing and Discovery
* End-to-End User and Order Management
* Scalable User Authentication and Authorization
* Secure and Trackable Purchase Process
* Real-Time Notifications and Order Updates

**Proposed Architecture for BookNest:**

1. **Frontend (Client Side)**

* Developed using **React.js**
* Provides a responsive, interactive, and intuitive user interface
* users to browse books, search, apply filters, view details, add to cart, and place orders

**2. Backend (Server Side)**

* Built with **Node.js** and **Express.js**
* Handles API requests for user registration, login, book listings, cart management, orders, etc.
* Implements business logic, authorization, and data processing

**3. Database**

* **MongoDB** (NoSQL database)
* Stores book details, user accounts, orders, purchase history, reviews, and more
* Supports scalable data management for large book collections

**4. Authentication & Authorization**

* Implemented using **JWT (JSON Web Tokens)**
* Ensures secure user login, role-based access (user/admin), and session management

**5. Payment Integration (Optional for Phase 1)**

* Future-ready structure for secure payment gateways (e.g., Stripe, Razorpay)
* Supports secure and trackable transactions for book purchases

**6. Notifications**

* Real-time order confirmations and updates via email or in-app notifications
* Alerts for new book arrivals and recommendations

**7. Admin Panel**

* Accessible to platform admins for managing book listings, orders, users, and resolving disputes
* Provides system monitoring and analytics tools

