**Project Design Phase-II**

**Technology Stack (Architecture & Stack)**

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| Date | 26-05-2025 |
| Team ID | LTVIP2025TMID46195 |
| 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](https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d)