**Project Design Phase-II**

**Technology Stack (Architecture & Stack)**

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| Date | 20 June 2025 |
| Team ID | LTVIP2025TMID53930 |
| Project Name | BookNest: Where Stories Nestle |
| Maximum Marks | 4 Marks |

**Technical Architecture:**

**1. Overview**

BookNest is a role-based full-stack web application designed to facilitate an interactive online bookstore experience. It allows users to browse and purchase books, sellers to upload and manage products, and admins to monitor activity. The project integrates React.js for the frontend and Node.js with Express for the backend, supported by MongoDB for data storage.

**2. Components and Technologies Used**

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| Component | Technology Used | Description |
| Frontend | React.js, Tailwind CSS | User interface and page routing |
| Backend | Node.js, Express.js | Server-side logic and API handling |
| Database | MongoDB (Mongoose) | Storing users, books, and orders |
| Authentication | JWT (JSON Web Token) | Secure user login and route protection |
| Version Control | Git & GitHub | Codebase management and collaboration |
| Package Management | npm (Node Package Manager) | Dependency management |
| Charting Library | Recharts.js | Charts for dashboards (admin/seller) |
| Hosting (Optional) | Render / Vercel / MongoDB Atlas | Hosting frontend/backend and database |

**3. Application Characteristics**

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| Characteristic | Details |
| Architecture | MERN Stack (MongoDB, Express.js, React.js, Node.js) |
| Design Pattern | Modular MVC pattern (Separation of concerns) |
| API Communication | Axios with RESTful endpoints |
| Security | JWT Authentication, input validation |
| Scalability | Modular folder structure and route-based role access |
| UI Framework | Tailwind CSS for consistent responsive design |