

<b>BookNest: Where Stories Nestle</b>	Team ID: LTVIP2026TMIDS24289
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## Requirement Analysis - Technology Stack

This document describes the technical architecture and technology stack used in building the BookNest platform.

### Technical Architecture Overview

BookNest follows a 3-tier MERN stack architecture consisting of a React frontend, an Express.js backend, and a MongoDB database. The frontend communicates with the backend via RESTful APIs using Axios.

Frontend	Backend	Database
React.js (Vite)	Node.js + Express.js	MongoDB (Mongoose)
React Router DOM	REST API	MongoDB Atlas (Cloud)
Bootstrap + CSS	bcrypt (Auth)	Mongoose ODM
Axios (HTTP Client)	CORS + dotenv	Collections: Users, Sellers, Books, Orders, Wishlist

**Table 1: Components & Technologies**

Component	Technology	Version	Purpose
Frontend	React.js (Vite)	v18+	UI Rendering
Routing	React Router DOM	v6+	Page Navigation
Styling	Bootstrap + CSS	v5+	Responsive Design
HTTP Client	Axios	v1+	API Calls
Backend	Node.js + Express.js	v18+	REST API Server
Authentication	bcrypt	v5+	Password Hashing
Database	MongoDB + Mongoose	v7+	Data Storage
Cloud DB	MongoDB Atlas	Latest	Cloud Hosting
Dev Tool	Vite	v5+	Fast Dev Server

Environment	dotenv	v16+	Config Variables
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**Table 2: Application Characteristics**

Characteristic	Description
Application Type	Full-Stack Single Page Application (SPA)
Architecture	3-Tier: Client (React) → Server (Express) → Database (MongoDB)
API Style	RESTful API over HTTP
Authentication	Session-based with localStorage and bcrypt password hashing
User Roles	3 Roles: User (Buyer), Seller, Admin
Frontend Port	<a href="http://localhost:5173">http://localhost:5173</a> (Vite Dev Server)
Backend Port	<a href="http://localhost:4000">http://localhost:4000</a> (Express Server)
Database	MongoDB Atlas (Cloud) with Mongoose ODM
Deployment	Local development; deployable to cloud platforms

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