BSc. (Hons) in Software Engineering
Faculty of Computing

Architectural Diagram Documentation

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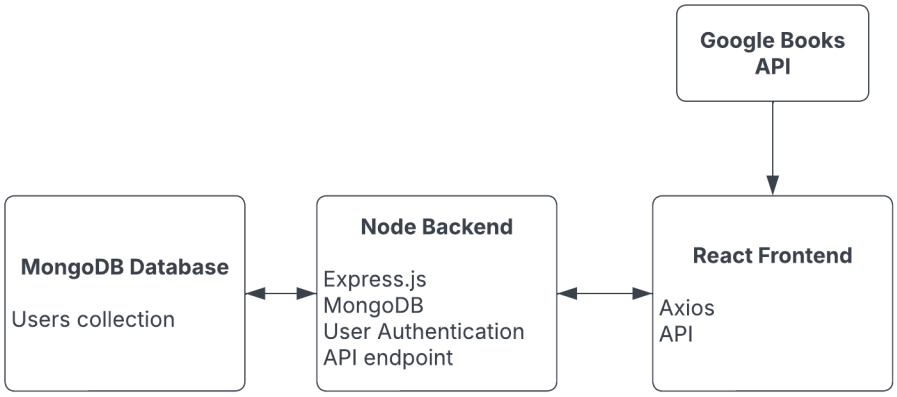
Online Bookshop System - Architectural Diagram

This document presents the architectural design of the Online Bookshop System. The system integrates a frontend built with React.js, a backend with Node.js and Express.js, a MongoDB database for storage, and external APIs for book information retrieval. The architecture also includes simulated or test payment gateway integration.

System Architecture Diagram



1. Google Books API

- External API used to fetch book data (titles, authors, descriptions, cover images, etc.)
- Accessed by the React frontend to retrieve book information for the application.

2. MongoDB Database

- **Users Collection**:
    - Stores user-related data (e.g., profiles, authentication details, shopping carts).
    - Managed by the Node.js backend via CRUD operations (Create, Read, Update, Delete).

3. Node Backend (Express.js)

- **Core Functions**:
    - **Express.js**: Framework for building RESTful APIs.
    - **MongoDB Integration**: Connects to the database to store/retrieve user data.

- **User Authentication**: Handles login, registration, and session management (e.g., JWT/cookies).
- **API Endpoints**: Exposes routes for frontend interactions

  /api/users/

4. React Frontend

- **Axios**: HTTP client for making requests to the Node backend (e.g., fetching books, submitting user data).
- **API Consumption**: Displays data from the backend (e.g., book listings, user profiles) and sends user inputs (e.g., search queries, cart updates).