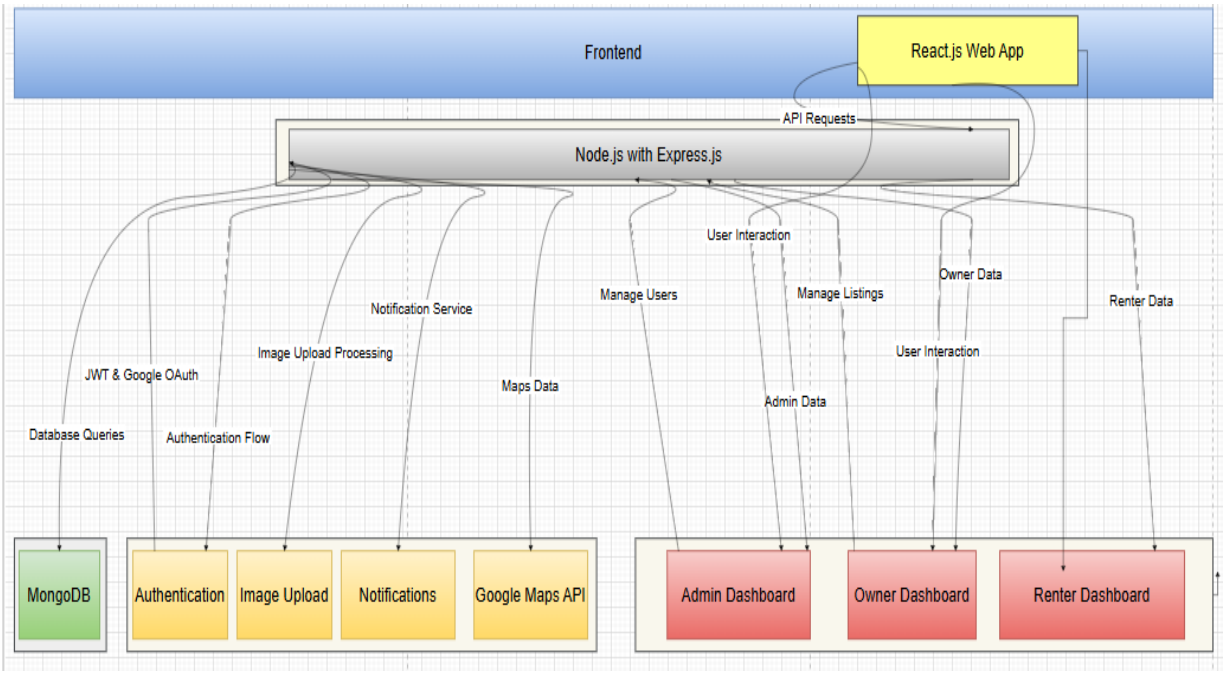
Project Design Phase
Solution Architecture

Date	26 June 2025
Team ID	LTVIP2025TMID55269
Project Name	HouseHunt: Finding Your Perfect Rental Home
Maximum Marks	2 Marks

Solution Architecture:



The architecture follows a client-server model enabling efficient data flow and secure interactions between users and the system.

1. **Client Layer (Frontend):**
   Users access the HouseHunt application through a web or mobile interface built with React.js and styled using Bootstrap and Material-UI. The frontend handles user input, search filters, property browsing, and messaging features.
2. **API Gateway & Backend Layer:**
   Requests from clients are routed to the backend API server implemented using Express.js on Node.js. This layer manages business logic, user authentication via JWT and OAuth, and validation of user requests.
3. **Database Layer:**
   MongoDB stores all application data including user profiles, property listings, booking details, and transaction records. It supports flexible, scalable document storage.
4. **Authentication Service:**
   Secure user login and registration are managed with JSON Web Tokens (JWT) and

OAuth providers (Google, Facebook). Email and OTP verification are handled via integrated email/SMS APIs (e.g., SendGrid, Twilio).

5. **File Storage Service:**
   Property images and documents are uploaded and stored in cloud storage services such as AWS S3 or alternatives, with secure access controlled by the backend.
6. **Notification Service:**
   Email and SMS notifications for confirmations, alerts, and status updates are sent using third-party APIs integrated into the backend.
7. **Admin Panel:**
   A separate dashboard for administrators to monitor, approve, and manage property owners, renters, and listings.