Project Design Phase
Solution Architecture

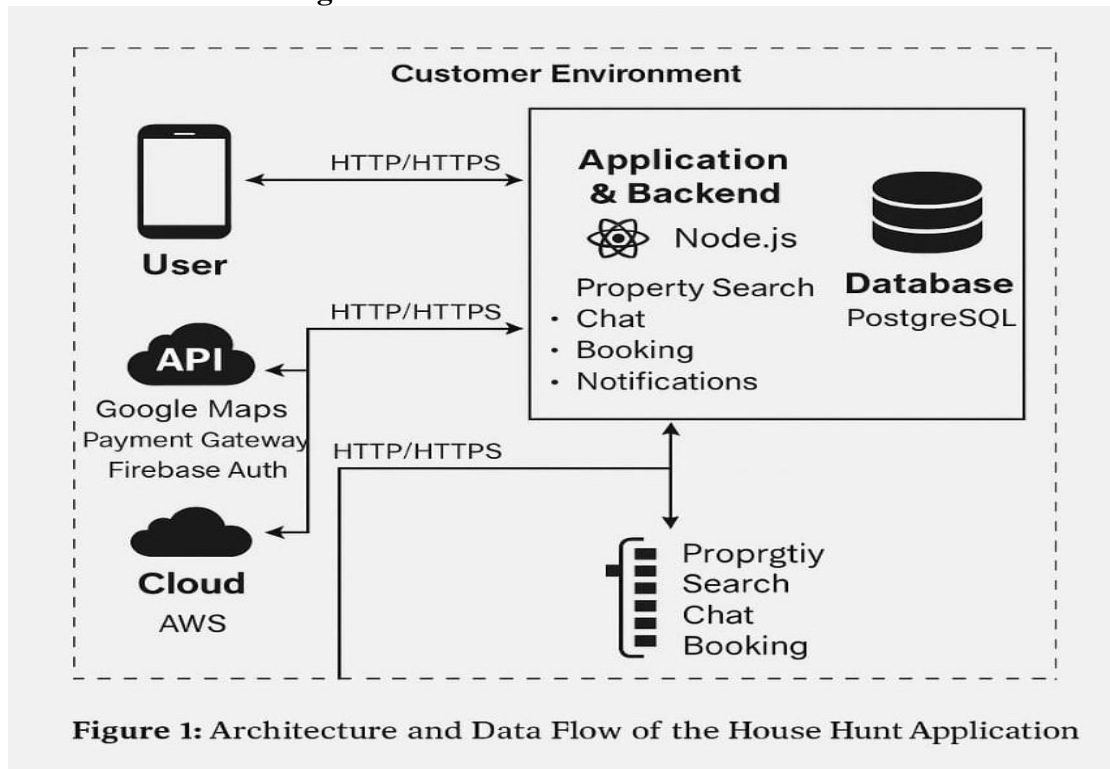|	
Date	26 June 2025
Team ID	LTVIP2025TMID20380.
Project Name	HouseHunt: Finding Your Perfect Rental Home
Maximum Marks	4 Marks

Solution Architecture – HouseHunt

HouseHunt follows a modern web-based architecture using the MERN stack (MongoDB, Express, React, Node.js). It ensures a scalable, secure, and real-time rental listing experience through a modular, API-driven design.

Goals of the Architecture:

- Ensure scalability as user base grows
- Provide fast and secure data access
- Maintain modular design for easy updates
- Enable real-time communication (chat/call)
- Ensure mobile-first responsiveness
- Offer clean separation between frontend, backend, and database

Solution Architecture Diagram:

Figure 1: Architecture and Data Flow of the House Hunt Application

Figure 1: Architecture and Data Flow of the HouseHunt Application

Key Architecture Components:

Layer	Technologies / Responsibilities
Frontend	Built using **React.js**, styled with **Material UI** and **Bootstrap** for responsive design.
Backend	Developed in **Node.js** with **Express.js**, responsible for APIs, routing, authentication, etc.
Database	**MongoDB** for storing users, bookings , properties, in structured collections.
Authentication	**JWT** based secure login for renters, owners, and admins.
Real-time Chat	Enabled via **Socket.IO** to allow users and agents to communicate on complaint threads.
Email/SMS Alerts	Uses **Nodemailer** and optionally **Twilio** for notifications and updates.
Hosting	Frontend and backend can be deployed on **Vercel**, **Render**, or **MongoDB Atlas** (cloud DB).

Reference

AWS Blog – Voice Applications in Clinical Research (Architecture and Design Considerations)
https://aws.amazon.com/blogs/industries/voice-applications-in-clinical-research-powered-by-ai-on-aws-part-1-architecture-and-design-considerations/