A Major Project Synopsis on

**AIRBNB**

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**MASTER OF COMPUTER APPLICATIONS**

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**1. Introduction**

The Airbnb web app is a **marketplace platform** that connects travellers with property owners willing to rent out their homes, apartments, or unique stays for short-term lodging. It provides a seamless experience for both **guests** (travellers) and **hosts** (property owners), offering features such as property listings, secure bookings, payments, reviews, and messaging.

**2. Why should you choose us? / Motivation**

Opting for Airbnb instead of conventional hotels or other lodging alternatives can bring numerous benefits, depending on your travel preferences. Here are some important reasons to choose Airbnb:

* **Range of Choices**

Airbnb offers a diverse selection of accommodations, from affordable rooms to high-end villas, as well as unique options such as treehouses, houseboats, and even castles. You can discover something that suits your travel style and budget.

* **Increased Space and Comfort**

In contrast to hotels, many Airbnb listings provide entire apartments or homes, offering additional space, multiple rooms, and home-like amenities such as kitchens, living areas, and sometimes even yards.

* **Budget-Friendly for Groups**

If you're traveling with family or friends, renting a whole house can frequently be more economical than reserving several hotel rooms. Additionally, you can save money by preparing your own meals.

* **Authentic Local Experience**

Many Airbnb hosts are locals who can offer tailored advice about the area. Staying in a residential neighborhood can also deliver a more genuine experience compared to tourist-centric hotel zones.

* **Distinctive and Themed Accommodations**

Airbnb features properties with unique characteristics—tiny houses, yurts, historical residences, or even stays themed around specific concepts, like film sets or eco-friendly getaways.

* **Versatile Options**

Certain Airbnb provide long-term stay discounts, making them an excellent choice for digital nomads, remote workers, or those on extended vacations.

* **Enhanced Privacy and Safety**

Unlike crowded hotels, an Airbnb can offer greater privacy. Many properties include self-check-in features, allowing you to arrive at your convenience without staff interaction.

* **Pet-Friendly Listings**

Numerous Airbnb options welcome pets, whereas hotels might impose hefty fees or have strict regulations.

* **Unique and Secluded Locations**

Airbnb enables you to stay in regions where hotels may not be present, such as country retreats, small communities, or distinctive hideaways.

* **Personal and Homely Touches**

Many Airbnb hosts provide thoughtful gestures like welcome gifts, local treats, or personalized recommendations, making your stay feel warm and welcoming.

**3. Problem Statement**

Although Airbnb offers a wide variety of lodging options and distinctive travel experiences, users frequently encounter problems including inconsistent quality, unexpected charges, last-minute host cancellations, and differing levels of customer service. Furthermore, local authorities enforce various regulations that affect availability and pricing, resulting in unpredictability for both hosts and guests. Tackling these challenges is essential for preserving trust, guaranteeing customer satisfaction, and fostering sustainable growth in the short-term rental industry.

**4. Key User Roles & Features**

**A. Guests (Travelers)**

* **Sign-up/Login** – Register using email, phone, or social media (Google, Facebook, Apple).
* **Search & Discovery** – Browse properties by location, price, amenities, and ratings.
* **Filters & Sorting** – Filter listings based on property type, price range, guest capacity, Wi-Fi, parking, etc.
* **Property Details** – View high-quality photos, descriptions, house rules, and pricing details.
* **Booking & Payment** – Securely book properties using credit/debit cards, PayPal, or digital wallets.
* **Messaging System** – Chat with hosts to ask questions before booking.
* **Reviews & Ratings** – Leave feedback based on their stay experience.
* **Booking Management** – View upcoming trips, cancel, or modify reservations.
* **Wishlist Feature** – Save favourite properties for future booking.

**B. Hosts (Property Owners)**

* **Sign-up/Login** – Create an account and verify identity.
* **Property Listing** – Add property details such as title, description, photos, amenities, and house rules.
* **Pricing & Availability** – Set pricing per night, discounts, and seasonal pricing.
* **Booking Requests** – Approve or reject guest booking requests.
* **Calendar Management** – Block out unavailable dates and sync with external calendars (Google Calendar).
* **Guest Communication** – Respond to guest inquiries and provide necessary details.
* **Earnings Dashboard** – Track income, payments, and transaction history.
* **Cancellation & Refund Policies** – Define cancellation terms and refund conditions.
* **Review System** –Rate and review guests after their stay.

**C. Admin (Platform Managers)**

* **User Management** – Monitor guest and host activities.
* **Listing Approval & Moderation** – Ensure properties meet community guidelines.
* **Payment & Commission Handling** – Manage transaction flow, service fees, and payouts.
* **Dispute Resolution** – Handle complaints, refund requests, and policy violations.
* **Analytics & Reports** – Generate insights on platform performance and user engagement.

**5. Core Functionalities**

**A. Booking & Payment System**

* Secure checkout with multiple payment options (Stripe, PayPal, Apple Pay).
* Automated invoice generation and tax calculations.
* Refund and cancellation process integrated with policies.

**B. Interactive Map Integration**

* Google Maps or Mapbox integration for property locations.
* Neighbourhood highlights and local attractions display.

**C. Security & Trust Features**

* User identity verification (KYC checks, government ID verification).
* Fraud detection and AI-powered risk assessments.
* Secure messaging to prevent off-platform transactions.

**D. Push Notifications & Alerts**

* Email and SMS alerts for booking confirmations, price drops, and host messages.
* Personalized recommendations based on past searches.

**E. Multi-Language & Currency Support**

* Automatic currency conversion and language localization for international users.

**6. Revenue Model**

* **Commission-Based** – Airbnb takes a percentage (e.g., 3%–15%) of each transaction.
* **Service Fees** – Guests pay additional service fees for platform maintenance.
* **Promoted Listings** – Hosts can pay to feature their properties in top search results.
* **Partnerships & Ads** – Collaborations with travel companies, tour operators, and experiences.

**7. Future Enhancements & Scalability**

* **AI-Powered Recommendations** – Personalized suggestions based on user preferences.
* **Smart Pricing Algorithm** – Dynamic pricing based on demand and seasonality.
* **VR/AR Tours** – Virtual property tours for better user experience.
* **Loyalty Programs** – Reward repeats guests with discounts or perks.

**8. Technology Used**

**Frontend (User Interface)**

* Framework: React.js (Next.js for SSR & SEO)/JDK
* Styling: Tailwind CSS / Bootstrap
* State Management: Redux / React Query
* Routing: React Router
* Maps Integration: Google Maps API / Map box
* Real-time Updates: WebSockets (Socket.io)

**Backend (Server & API)**

* Language & Framework: Apache Maven/Fast API
* Authentication: JWT / OAuth 2.0 (Google, Facebook, Apple)
* Caching: Redis
* File Storage: AWS S3 / Cloudinary

**Database (Storage & Search)**

* Primary Database: PostgreSQL / MySQL
* NoSQL (for flexible data): MongoDB
* Search Optimization: Elasticsearch

**Payments & Transactions**

* Gateway: Stripe / PayPal
* Fraud Detection: Stripe Radar

**Notifications & Messaging**

* Emails: SendGrid / Node mailer
* SMS & Push: Twilio / Firebase Cloud Messaging
* Real-time Chat: WebSockets / Firebase Fire store

**9. Bibliography**

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