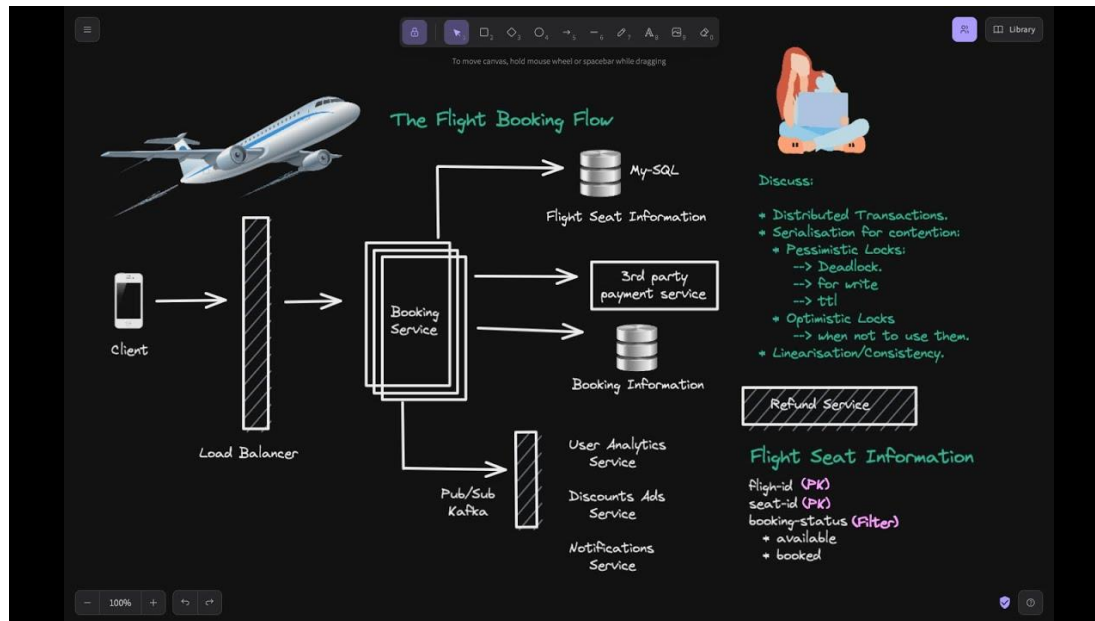


## Requirement Gathering and Analysis Phase Technology Stack (Architecture & Stack)

Date	8 July 2024
Team ID	SWTID1720170691
Project Name	Flight Booking APP
Maximum Marks	3

### Technical Architecture:



**Table-1: Components & Technologies**

S.No	Component	Description	Technology
1	Frontend Framework	The user-facing part of the application where users interact with the platform	React.js
2	Backend Framework	The server-side logic and APIs for handling requests and managing data	Node.js and Express.js
3	Database	Storage and retrieval of user data, bookings, preferences, and other related information	MongoDB
4	Authentication & Authorization	User login, registration, and access control	JWT (JSON Web Tokens), Passport.js
5	UI/UX Design	The design and layout of the user interface for a seamless experience	HTML, CSS, Material-UI/Bootstrap
6	State Management	Managing the state of the application and user interactions	Redux or Context API
7	Payment Gateway Integration	Handling payments for bookings and subscriptions	Stripe or PayPal API
8	Real-time Price Tracking	Providing up-to-date price alerts and tracking for flights	WebSockets, API integration
9	Expense Management Tools	Tools for corporate users to manage and track booking expenses	Custom-built features, MongoDB
10	Advanced Filtering Options	Filtering flights based on user preferences like family-friendly options, price, etc.	React.js, Custom-built filters
11	Multi-city Itinerary Support	Enabling users to book complex itineraries across multiple cities	Custom algorithms, MongoDB
12	AI Algorithms	Predictive analytics for price trends and personalized recommendations	Python (for AI models), TensorFlow or PyTorch
13	Cloud Infrastructure	Scalable infrastructure to support growing user base and transactions	AWS, Google Cloud, or Azure
14	Analytics and Reporting	Insights into user behavior, travel trends, and platform performance	Google Analytics, custom reports
15	Customer Support Integration	Providing robust support options for users	Chatbots (Dialogflow), Helpdesk software
16	Third-Party API Integration	Integrating with airline APIs, hotel booking services, and car rental companies	RESTful APIs, GraphQL

**Table-2: Application Characteristics**

S.No	Characteristics	Description	Technology
1	User Personalization	Tailoring the user experience based on individual preferences and past interactions	AI Algorithms, Machine Learning, MongoDB
2	Real-Time Updates	Providing live updates for flight prices, availability, and alerts	WebSockets, RESTful APIs
3	Secure Payment Processing	Ensuring secure and efficient handling of transactions	SSL, Payment Gateways (Stripe, PayPal)
4	Cross-Platform Compatibility	Ensuring seamless functionality across web and mobile devices	React.js, React Native
5	Scalability	Ability to handle increasing users and data without performance degradation	Cloud Infrastructure (AWS, Azure, Google Cloud)
6	User-Friendly Interface	Designing an intuitive and easy-to-navigate interface for all user demographics	HTML, CSS, Material-UI/Bootstrap

**References:**

<https://c4model.com/>