**Online Flight Booking System**

**1. Introduction**

An online flight booking application is a digital platform designed to facilitate the booking and management of airline tickets over the internet. These applications offer a range of features and functionalities to connect airlines, travel agents, and travellers. Here's an overview of the key components typically found in an online flight booking application:

* **Flight Listings**: The application allows airlines or agents to list available flights. Each listing includes details such as flight number, departure and arrival locations, dates, times, prices, and available classes.
* **Flight Search:** Users can search for flights based on their preferences like departure and arrival locations, dates, price range, and flight class. Advanced search filters enhance the user experience by providing accurate results.
* **User Registration**: Users can create accounts on the platform to save searches, favourite flights, and receive personalized flight recommendations.
* **Flight Details**: Detailed information about each flight listing, including descriptions, specifications, seat maps, and in-flight amenities, helps users make informed decisions.
* **Notifications:** Users receive alerts for new flight listings, price changes, and messages from agents or airlines regarding their bookings or inquiries.
* **Booking and Scheduling**: The application features booking systems for flight reservations, cancellations, and modifications, along with payment processing for ticket purchases.
* **Price Calculator**: Tools to estimate total trip costs based on ticket prices, taxes, and additional fees assist users in financial planning.
* **Reviews and Ratings**: Users can provide feedback, ratings, and reviews for flights they have taken, enhancing transparency and credibility in the travel market.
* **Admin Dashboard**: Backend tools for administrators to manage listings, users, payments, analytics, and overall application performance.

**2. Functional Requirements**

**User Management:**

User Registration: Allow users to register with personal information.

User Authentication: Implement secure login procedures.

User Profile: Users can view and update their profiles.

**Flight Listing:**

Flight Upload: Airlines or agents can add new flight listings.

Flight Details: Include fields for flight number, description, price, locations, dates, times, and images.

**Flight Search:**

Search Filters: Users can search flights using filters like departure/arrival locations, dates, price range, and class.

**Booking and Payments:**

Booking System: Allow users to book flights, modify or cancel reservations.

Payment Gateway: Integrate a secure payment system for ticket transactions.

**Feedback System**

User Reviews: Users can provide feedback, ratings, and reviews for flights they have taken.

**Notification System:**

Email Notifications: Send notifications for flight updates, bookings, and payments.

Real-time Alerts: Notify users about new flight listings or price changes.

**Admin Panel:**

Dashboard: Offer admin tools for managing users, flights, and transactions.

Reporting: Generate reports on user activity, flight performance, etc.

**3. Non-Functional Requirements**

**Response Time**: Ensure quick loading times for flight listings and search results.

**Data Encryption**: Secure user data and transactions with encryption protocols.

**Access Control**: Implement role-based access control for users and admins.

**User Interface**: Design an intuitive and visually appealing interface.

**4. System Architecture**

Frontend: React.js

Backend: Java, Spring Boot

Database: MySQL or MongoDB for data storage.