Project Requirements Document

1. Introduction

- **Project Name:** Expedia-like Travel Booking System
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- **Purpose:** This document outlines the functional and non-functional requirements of the travel booking system (SkyWay) to ensure clarity and alignment among all stakeholders.

2. Functional Requirements

Here is the definition of the specific features and functionalities of the application. These include:

2.1 User Authentication & Profile Management

- The system shall allow users to sign up using their SSN and an optional profile image.
- The system shall provide secure login functionality for returning users.
- The application shall enable users to update their profiles and manage their account settings.

2.2 Flight Search & Booking

- The system shall allow users to enter their departure and destination locations.
- The system shall allow users to specify their travel dates.

- The application shall search through the backend for matching flights based on user input.
- The system shall display a list of available flights with details such as airline, price, departure time, arrival time, and duration.
- The application shall provide filtering and sorting options (e.g., price, airline, shortest duration).

2.3 Flight Booking & Payment

- The system shall allow users to select a flight and proceed with booking.
- The application shall provide multiple payment options (credit/debit cards, PayPal, etc.).
- The system shall generate an electronic ticket upon successful booking.
- Users shall receive a booking confirmation email with flight details.

2.4 User Dashboard & Trip Management

- The system shall provide a dashboard for users to view and manage their upcoming and past bookings.
- Users shall be able to cancel or modify their bookings based on airline policies.
- The application shall provide flight reminders and notifications.

2.5 Admin Management

- The system shall allow administrators to manage available flights (add, update, remove flights).
- The application shall provide an analytics dashboard for monitoring bookings and trends.

3. Non-Functional Requirements

Here I will define the system attributes such as performance, security, scalability, and maintainability.

3.1 Performance

- The system shall support at least a good number of concurrent users without degradation in performance.
- The system shall respond to flight search queries within efficient time and with high performance using efficient algorithms and data structures

3.2 Security

- The application shall use encrypted connections (HTTPS) for data transmission.
- The system shall securely store user SSN and payment details using encryption.
- The system shall implement role-based access control (RBAC) for user and admin functionalities.

3.3 Scalability

- The system shall be designed to handle an increase in user base and flight data.

3.4 Maintainability

- The codebase shall follow clean coding standards and best practices.
- The codebase shall follow the OOP concepts and the OOP principles and the needed design patterns for better performance and cleaner architecture

3.5 Usability

- The application shall have an intuitive and user-friendly interface.
- The system shall be accessible on different screen sizes and devices.

3.6 Extensibility

- The system shall be designed in a modular fashion to allow easy integration of additional features such as hotel booking or car rentals.
- The application shall support API-based interactions to enable third-party services to connect.

4. Conclusion

- This document serves as a reference for developers, stakeholders, and testers to ensure a clear understanding of project requirements.
- Any changes to the requirements must be documented and approved by relevant stakeholders.

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