Software Requirements Specification (SRS) for ContosoAir

1. Introduction

1.1 Purpose

This document defines the software requirements for a web-based flight management system. The platform will allow users to search flights, book tickets, manage user accounts, and connect with customer service efficiently. It is intended for use by individual travelers, corporate clients, and system administrators, ensuring a secure and streamlined experience for reservations, booking, and support.

1.2 Intended Audience

- **Travelers**: Individuals searching and booking flights and managing their trips.
- **Airline Staff**: Personnel handling flight schedules, bookings, and customer inquiries.
- **Travel Agents**: Professionals assisting clients with bookings.
- **System Administrators**: Responsible for infrastructure and operational maintenance.
- **Flight & Reservation Managers**: Oversee flight schedules and customer reservations.

1.3 Scope

The system will offer the following core features:

- Flight search and ticket booking
- Reservation modification and cancellation
- User account creation and profile management
- Secure online payment options
- Integrated support for customer queries
- Admin dashboard for flight and user data management

The platform will be accessible on both desktop and mobile browsers to ensure broad usability.

1.4 References

- Best practices in airline reservation systems
- Travel website UX design principles
- Payment gateway integration guidelines (e.g., PayPal, Stripe)
- Flight data APIs (e.g., Amadeus, Sabre)
- Compliance standards (e.g., GDPR, PCI DSS)

1.5 Overview

The system will serve as the primary interface for travelers to search, book, and manage flights. On the backend, admins will handle scheduling, booking data, and user profiles. The platform will be integrated with third-party APIs for flight data, weather, and payments, ensuring real-time performance and seamless experience.

2. Overall Description

2.1 Product Perspective

- **User Experience**: Prioritizes intuitive and responsive design. Customers can efficiently handle bookings, reservations, and profiles. Admins have a streamlined interface for operational management.
- **Market Positioning**: Aimed at both individual and corporate users, offering a modern and user-friendly approach to online flight booking.

2.2 Product Functions

Key functionalities include:

1. User registration and login
2. Flight search with booking and seat selection
3. View, modify, or cancel bookings
4. Online payments via trusted gateways

5. Customer service through tickets or live chat
6. Admin interface for flight and user management

2.3 User Characteristics

- Users will register with personal information and preferences.
- They will perform searches based on criteria like destination, travel dates, and class.
- Users are expected to understand basic online booking and payment procedures.

2.4 Constraints

- Must support major browsers (Chrome, Firefox, Edge, Safari) and mobile devices (iOS, Android).
- Should scale to handle peak-time loads (e.g., holidays).
- Must comply with security standards like PCI DSS.

2.5 Assumptions and Dependencies

Assumptions:

- Users will have internet access and basic tech literacy.
- Accurate user information will be provided.
- Familiarity with digital payment methods is expected.

Dependencies:

- Third-party payment providers (e.g., PayPal, Stripe)
- External flight data APIs (e.g., Sabre, Amadeus)
- Weather and scheduling APIs for delay tracking

3. Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

- **Homepage**: Flight search, navigation, and promotions
- **Results Page**: List of available flights matching search criteria
- **Details Page**: Flight info, pricing, seat map, and amenities
- **User Dashboard**: Booking and reservation management
- **Checkout**: Payment and booking summary
- **Admin Panel**: Tools for managing schedules and customer service

3.1.2 Hardware Interfaces

- Supports mobile wallets like Apple Pay and Google Pay
- Optimized for touchscreen use on smartphones and tablets

3.1.3 Software Interfaces

- **Frontend**: JavaScript framework (e.g., React, Angular)
- **Backend**: Built with Spring Boot or Node.js
- **Database**: MySQL or PostgreSQL for storing flights, users, and bookings

3.1.4 Communication Interfaces

- Secure HTTP (HTTPS) communication
- RESTful APIs for frontend-backend interaction

3.2 Functional Requirements

3.2.1 User Registration

- Register with name, email, and contact info
- Email verification required

3.2.2 Flight Search and Booking

- Search by destination, date, and class
- View results with pricing and seat options
- Choose a flight and complete the booking

3.2.3 Reservation Management

- Users can modify or cancel reservations
- Automated email notifications for confirmation and updates

3.2.4 Payment Integration

- Secure payments via PayPal, Stripe
- Multi-currency support for international travelers

3.2.5 Admin Panel

- Admins manage flights, bookings, and support requests

3.3 Performance Requirements

- Must support thousands of concurrent users during peak times
- Webpages should load in under 3 seconds
- Payments should process within 5 seconds

3.4 Design Constraints

- Database: MySQL/PostgreSQL
- Compatibility with major browsers
- Fully responsive for mobile devices

3.5 System Attributes

- **Security**: SSL/TLS for encrypted communication
- **User-Friendly**: Clean and intuitive interface
- **Scalable**: Able to grow with user demand

3.6 Other Requirements

- Multilingual interface (English and Spanish)
- Customer support via chat, email, and phone