# Airline Ticketing Requirements Specification Version 1.0

# 2025

Use this Requirements Specification template to document the requirements for your product or service, including priority and approval. Tailor the specification to suit your project, organizing the applicable sections in a way that works best, and use the checklist to record the decisions about what is applicable and what isn't.

The format of the requirements depends on what works best for your project.

This document contains instructions and examples which are for the benefit of the person writing the document and should be removed before the document is finalized.

To regenerate the TOC, select all (CTL-A) and press F9.

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## Executive Summary

#### Project Overview

This project focuses on creating an all-in-one airline ticket booking software aimed at simplifying the flight reservation process for passengers while offering powerful management tools for airline staff. The software will feature a range of functionalities such as ensuring seamless booking, secure payment handling etc.

#### Purpose and Scope of this Specification

The purpose of this document is to outline the requirements for an airline ticketing system. This system aims to provide seamless booking, payment, and management of airline tickets for customers while allowing airline managers to oversee operations efficiently. Additionally, software maintenance technicians will be able to ensure the system runs smoothly by addressing any technical issues.

**Scope**

* The airline ticketing system will enable users to search for flights, book tickets, and manage their travel plans. Airline managers will be responsible for managing flight schedules, ticket availability, and customer bookings. The software maintenance technician will handle system maintenance, updates, and troubleshooting.

## Product/Service Description

This airline ticket booking software is tailored to meet the dynamic demands of the airline industry and its passengers. With the travel sector rapidly embracing digital transformation, there is an increasing need for streamlined, intuitive, and secure booking systems. The software seeks to improve passengers' travel experiences while equipping airline teams and departments with powerful management tools.

#### Product Context

The airline ticket booking software can function as an independent, self-contained system with its

primary purpose being to facilitate the booking of airline tickets for passengers.

#### User Characteristics

Customers: Individuals booking airline tickets online.

Airline Managers: Administrators managing flights, schedules, and bookings.

Software Maintenance Technicians: IT professionals ensuring system reliability and security.

#### Constraints

#### •⁠ ⁠Must comply with GDPR and IATA regulations.

#### •⁠ ⁠High availability with 99.99% uptime.

#### •⁠ ⁠Secure payment processing via PCI DSS-compliant gateways.

## Requirements

##### Priority Definitions

The following definitions are intended as a guideline to prioritize requirements.

* + Priority 1 – The requirement is a “must have” as outlined by policy/law
  + Priority 2 – The requirement is needed for improved processing, and the fulfillment of the requirement will create immediate benefits
  + Priority 3 – The requirement is a “nice to have” which may include new functionality

A good requirement is:

* + Correct
  + Unambiguous (all statements have exactly one interpretation)
  + Complete (where TBDs are absolutely necessary, document why the information is unknown, who is responsible for resolution, and the deadline)
  + Consistent
  + Ranked for importance and/or stability
  + Verifiable (avoid soft descriptions like “works well”, “is user friendly”; use concrete terms and specify measurable quantities)

#### Functional Requirements

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Requirement** | **Comments** | **Priority** |
| 1 | Users must be able to register and authenticate via email and password with MFA support. | Includes social media login (Google, Apple ID). | 1 |
| 2 | Users can search for flights based on departure/arrival cities, travel dates, class, and passengers. | Advanced filters include direct vs. layover, airline preferences, and baggage allowance. | 1 |
| 3 | Users can book flights, enter passenger details, and make secure payments. | Payment options include credit/debit cards, PayPal, Apple Pay, and Google Pay. | 1 |
| 4 | Seat selection must be available during booking. | Interactive seating map for seat preference. | 2 |
| 5 | Users should receive booking confirmations and e-tickets via email. | Includes ticket reference number and invoice. | 1 |
| 6 | Online check-in should be available within the airline’s check-in window. | Boarding passes generated with QR codes. | 2 |
| 7 | Admins must be able to manage flights, ticket prices, and seat availability. | Includes modifying flight schedules and processing refunds. | 1 |
| 8 | Notifications should be sent via email and SMS for booking confirmation and flight updates. | Users can opt in/out of promotional messages. | 2 |
| 9 | A customer support system with live chat and ticket submission must be integrated. | 24/7 chatbot and FAQ section included. | 2 |
| 10 | Loyalty program allowing users to earn and redeem points must be available. | Includes discount codes and membership tiers. | 3 |

#### 

#### Non-Functional Requirements

1. **Performance:**

o System should handle up to 10,000 concurrent users without performance degradation.

o Flight search results should be displayed within 1-2 seconds.

o Response time for booking and payment processing should be within 3 seconds.

2. **Scalability:**

o The system should be scalable to support increased traffic and global expansion.

o Cloud-based hosting with auto-scaling capabilities should be implemented.

o Support for multiple airlines and additional service providers.

3. **Security:**

o All user data should be encrypted using AES-256 encryption.

o Compliance with PCI DSS for payment security and GDPR for data privacy.

o Implementation of role-based access control (RBAC) for different user levels.

o Two-factor authentication (2FA) for user and admin logins.

o Protection against SQL injection, cross-site scripting (XSS), and DDoS attacks.

4. **Usability:**

o The system should have an intuitive and user-friendly interface.

o Accessible on desktop, tablet, and mobile devices with responsive design.

o Multi-language support for international users.

o Dark mode and high-contrast modes for better accessibility.

5. **Reliability and Availability:**

o System uptime should be at least 99.99% with failover mechanisms.

o Automatic daily backups with a 30-day retention period.

o Disaster recovery plan in place with real-time data replication.

6. **Maintainability:**

o Modular architecture for easy updates, bug fixes, and feature enhancements.

o Detailed documentation for developers and administrators.

o Version control system (Git) for tracking changes.

o Automated testing and CI/CD pipeline for rapid deployments.

7. **Compliance:**

o GDPR compliance for handling user data and consent management.

o Adherence to airline industry regulations and IATA standards.

o Compliance with country-specific aviation policies.

***Use Case Diagram for Airline Ticketing System***

**Actors:**

1. User (Passenger)

2. Administrator (Airline Staff)

3. Payment Gateway

4. Customer Support Agent

**Use Cases:**

**1. User Registration & Authentication**

* Register a new account
* Login/logout
* Reset password
* Enable two-factor authentication (2FA)

**2. Flight Search & Filtering**

-Search flights by destination, date, and class

-Apply filters (direct flights, layover duration, baggage policy, etc.)

-Sort flight results (price, duration, departure time)

**3. Flight Booking & Payment**

-Select a flight and enter passenger details

-Choose seat and additional services (extra baggage, meals, insurance)

-Process payment via payment gateway

-Generate an e-ticket and send confirmation email

-View booking history

-Cancel or modify booking (if applicable)

**4. Seat Selection & Additional Services**

-Choose seat from seating map

-Add extra services (baggage, meals, lounge access, insurance)

**5. Online Check-in & Boarding Pass Generation**

-Check-in online before departure

-Generate digital boarding pass

-Add boarding pass to mobile wallet

**6. Loyalty Program & Discounts**

-Enroll in frequent flyer program

-Earn and redeem points for discounts

-Apply promotional codes

**7. Admin Panel for Flight Management**

-Add/update/delete flights

-Manage pricing and discounts

-View and modify bookings

-Process refunds and cancellations

-Generate sales and performance reports

**8. Notifications & Alerts**

-Send booking confirmations

-Flight delay or cancellation alerts

-Promotional offers

-Check-in reminders

**9. Customer Support System**

-Provide live chat support

-Submit and track support tickets

-Access FAQ and help center

**10. Security & Compliance**

-Encrypt sensitive user data

-Ensure GDPR & PCI DSS compliance

-Implement role-based access control (RBAC)