Software Requirements Specification

for

Airline Company Booking System

Version 1.0 approved

Prepared by

Dimitris Zoumpakis [redacted]

Panayiotis Polydorou 20231024

Shaffer Patchias 20221728

Loukas Telemachou 20222594

11/04/2025

Table of Contents

1. Introduction

1.1 Purpose

This document outlines the software requirements for the Airline Company Booking System. It defines the purpose, scope, and functionalities of the system that enables customers to search, book, and manage flight reservations online.

1.2 Document Conventions

This SRS uses standard IEEE formatting. Requirements are labeled for traceability (e.g., REQ-1, REQ-2, etc.).

1.3 Intended Audience and Reading Suggestions

This document is intended for developers, project managers, stakeholders, quality assurance teams, and documentation writers. Start with the introduction and overall description for context before reviewing the system features and requirements.

1.4 Product Scope

The system aims to improve the customer booking experience by providing an online platform where users can search flights, make reservations, complete payments, and manage bookings. It supports operational efficiency and revenue growth for the airline company.

1.5 References

- Deliverable 1: Preliminary Investigation Report
- Deliverable 2: User Requirements and UML Diagrams
- IEEE SRS Template
- Sample Completed SRS v4.0

---

2. Overall Description

2.1 Product Perspective

This system is a new standalone web application that integrates with existing airline reservation and payment systems. It will offer a modern interface accessible via web browsers and possibly mobile apps in future extensions.

2.2 Product Functions

- Flight search and booking
- Availability display
- Secure payment integration
- User registration and account management
- Admin tools for managing schedules and bookings

2.3 User Classes and Characteristics

- **Customers:** Book flights, manage bookings, view history.
- **Admins:** Manage flight schedules, approve changes.
- **Support Staff:** Access customer records and assist with issues.

2.4 Operating Environment

- Web-based system
- Compatible with modern browsers
- Server-side deployment on cloud or dedicated airline infrastructure

2.5 Design and Implementation Constraints

- Must comply with GDPR and PCI-DSS
- Integration with existing payment and reservation systems

- Completed within 6 months, under $500,000 budget

2.6 User Documentation

- User manual
- Online help system
- FAQ and support section

2.7 Assumptions and Dependencies

- Airline provides API access to legacy systems
- Stable internet connection is available to users
- Training will be provided for admin users

---

3. External Interface Requirements

3.1 User Interfaces

- Clean, user-friendly interface for bookings
- Responsive design for accessibility
- Admin dashboard for internal use

3.2 Hardware Interfaces

- Standard desktop and mobile devices
- Internet access required

3.3 Software Interfaces

- Airline reservation system API
- Payment gateway integration (e.g., Stripe, PayPal)
- CRM and email systems for confirmation and support

3.4 Communications Interfaces

- HTTPS for secure data transmission
- TCP/IP protocols

---

4. System Features

4.1 Flight Search (REQ-1)

- Users can search flights by date, origin, and destination.
- Results display availability, fare, and duration.

4.2 Booking Management (REQ-2)

- Users can book available flights
- Confirmed bookings saved in user profile

4.3 Payment Integration (REQ-3)

- Secure payment options with confirmation email

4.4 User Accounts (REQ-4)

- Registration, login, profile management

4.5 Admin Controls (REQ-5)

- Add/remove flights
- View reports on bookings and trends

---

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- System must support at least 1000 concurrent users during peak hours

5.2 Safety Requirements

- Auto-logout after inactivity
- No sensitive data stored in browser

5.3 Security Requirements

- End-to-end encryption
- Role-based access control

5.4 Software Quality Attributes

- Availability: 99.9% uptime

- Usability: Accessible and multilingual support
- Maintainability: Modular design for future upgrades

5.5 Business Rules

- Users must agree to terms and conditions before booking
- Admin changes must be logged

---

6. Other Requirements

- Must provide audit logs
- Optional support for mobile push notifications in future

Appendix A: Glossary

- **UAT**: User Acceptance Testing
- **GDPR**: General Data Protection Regulation
- **CRM**: Customer Relationship Management

Appendix B: Analysis Models

- See Deliverable 2 (UML diagrams, decision trees, tables)

Appendix C: To Be Determined List

- Final hosting environment
- Payment gateway provider
- Third-party integrations

Part B: Identify Potential Vendors or Outsourcing Options

Here are three potential vendors/outsourcing options for the Airline Booking System:

1. Amadeus IT Group

- **Specialty**: Airline IT and Global Distribution Systems (GDS)
- **Why Consider**:
    - Offers full SaaS solutions for airline reservations, inventory, departure control, etc.
    - Trusted by major airlines worldwide.

- **Model**: Outsourced SaaS or subscription model.

2. Sabre Corporation

- **Specialty**: Airline and hospitality software
- **Why Consider**:
  - Provides booking engines, fare pricing, ancillary services.
  - Offers APIs for integration with existing or new systems.
- **Model**: ASP/Cloud-based, transactional pricing model.

3. Custom Offshore Development (e.g., Tata Consultancy Services or Infosys)

- **Specialty**: Custom enterprise system development and support
- **Why Consider**:
  - Flexible and tailored solutions.
  - Suitable for airlines wanting proprietary control.
- **Model**: Project-based contract or offshore outsourcing.
-

Section B - Part c: Evaluate the Alternatives

Alternative	Pros	Cons
Amadeus IT Group (SaaS)	- Proven, scalable system - Shorter deployment time - Regular updates & support	- Limited customization - Recurring subscription fees
Sabre Corporation (Cloud API)	- Advanced booking and pricing tools - Seamless integration options	- Moderate flexibility - Long-term vendor lock-in risk
Custom Offshore (Infosys/TCS)	- Full control & customization - Can match existing business process	- Higher development time - Needs strict project management