# Software Requirements Specification

**For**

## AIRLINE RESERVATION SYSTEM


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# Revisions

| Version | Primary Author(s) | Description of Version | Date Completed |
|---|---|---|---|
| 1.0 | Aishwarya<br>Almas<br>Anusha<br>Brinda | The initial version of the SRS document has been drafted with all the requirements being incorporated into the document. | 9/9/2022 |

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# 1.Introduction

## 1.1 Document Purpose

This SRS document presents a detailed description of the Airline Flight Booking system, version 1.0.It represents the client requirements analysis that defines the functional and non functional requirements of the airline website and its different functionalities. It defines the abilities, reactions from stimuli, guidelines and limitations of the system. This document will be complete in its scope of the system and the functions required.

## 1.2 Product Scope

The product is similar to a web-based login system before flight boarding. The purpose of the online flight management system is to ease flight management and to create a convenient and easy-to-use application for passengers, trying to buy airline tickets. The system is based on a relational database with its flight management and reservation functions. Above all, we hope to provide a comfortable user experience along with the best pricing available. Non-member users are required to create an account in order to reserve a seat or to book a flight. Member users have the right to search for available seats, to reserve a seat, to book seats, to edit their member information. Member users are required to login into their account prior to flight booking. Airport agents are entitled to view passenger details for a particular flight, verify their booking and also update their profiles.

## 1.3 Intended Audience and Document Overview

### 1.3.1 Intended Audience:

This document is primarily intended for the:

- The professors who would review the document
- Clients interested in knowing the design, implementation, usage and purpose of the software
- Anyone who has interest in software engineering.

### 1.3.2 Document Overview:

- The SRS contains an analysis of the requirements necessary to help easy design.

- The overall description provides interface requirements for the ARS, product perspective, hardware and software interfaces, communication interface, product functions, user characteristics and other constraints.

## 1.4 Definitions, Acronyms and Abbreviations

ARS-Airline Reservation System

## 1.5 Document Conventions

Formatting Conventions:

- The font style for the headings of each section is Arial Bold and the font size is 14.
- For the remainder of the document, the font style is Arial and the font size is maintained at 12.

## 1.6 References

### 1.6.1 References:


- https://krazytech.com/projects
- Software Engineering: A Practitioner's Approach by Roger S Pressman
- Lecture slides


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# *2.* Overall Description

## 2.1 Product Perspective

A user, if not registered, has to create an account by providing the necessary documents.
A registered user will be able to view previous bookings, reserve a seat and also print a boarding pass issued that would contain required payment and passenger contact info along with the QR code of their PNR number.
The system also gives user agents the interface to obtain the passenger details boarding a particular flight and verify their details by scanning the QR code .
Both the user agents and the customers can update their respective profiles as per needs by providing the required information.
There are also additional features provided by the airline side such as promotional codes and travel tips that help enhance user interaction.

## 2.2 Product Functionality

These are the major functionalities that the airline reservation system will achieve:

- Creation of new account for passenger/airport agent.
- Booking of available seats.
- View Booking history/ present Booking details.
- Displaying a report of the number of people flying in a particular flight.
- Boarding pass Issuance and verification.
- Profile updation.

## 2.3 Users and Characteristics

The system will support two types of user privileges: Passenger and Airport Agents. Passenger will have access to customer functions, and the agents will have access to both customer and flight management functions.

- ✓ The airport agents are required to have specific knowledge as to what is the internal operation of the system. The passengers are at a high level of abstraction that allows easier, faster operation and reduces knowledge requirement of the passengers.
- ✓ At least user of the system should be comfortable with English Language
- ✓ User should be comfortable using general pupose applications on the computer system.

## 2.4 Operating Environment

The software will be designed to work on any version of Windows, Linux (kernel 2.7 and above) and Mac platform. The software is completely web based and runs on popular web browsers namely firefox, chrome, internet explorer. These web browsers are preferred since they support HTML.

## 2.5 Design and Implementation Constraints

- Requires 256 MB on-board memory.
- Based completely on Windows functionality platform.
- The software should be portable and must be inaccessible to unauthorized users

## 2.6 Assumptions and Dependencies

- Airport agents/Passengers will be having a valid user name and password to access the system.
- The software needs airport agents to have complete knowledge of ARS.
- Software is dependent on access to internet

# 3.Specific Requirements

## 3.1. External Interface Requirements

### 3.1.1. User Interfaces

The screen formats and menu structure is in such a way that even naive users will find it easy to use. The product is user-friendly and very inter-active. The interface is very easy to understand.

- ✓ SCREEN FORMATS/ORGANIZATION: The introductory screen will be the first to be displayed which will present the users/agents with the various options like register/login, promo codes, about and contact.
- ✓ DATA FORMAT: The data entered by the users will be alphanumeric.
- ✓ END MESSAGES: When there are some exceptions raising error like entering invalid details, then error messages will be displayed prompting the users to re-enter the details

### 3.1.2. Hardware Interfaces

The system must basically support certain input and output devices. Their descriptions are as follows.

| Name | Purpose |
|---|---|
| Keyboard | Enter details of the passenger/airport agent |
| Printer | Print the boarding pass for the passenger |

The database connectivity requires a hardware configuration with a fast database system running on high rpm hard disk

### 3.1.3. Software Interfaces

- Operating system: We have chosen Windows operating system for its best support and user-friendliness.

- Operating system: To save the flight records, passengers records we have chosen SQL database

### 3.1.4. Communications Interfaces

This project supports all types of web browsers. The system must utilize the standard HTTP to ensure maximum inter-browser compatibility. The client accesses the system through a web browser. Every client system connected through LAN establishes a communication with the server.

## 3.2. Functional Requirements

The functional requirements of the Airline Reservation System are divided among the customer and the airport agent.
These functional requirements can be explained in detail as follows:

### 3.2.1 Use Case name: Registration

•Description: This use case describes the scenario where the user/agent registers with the application by providing all the necessary details, in order to make reservations or bookings for flights or details viewing and verification
•Actor: Passenger or the Airport Agent
•Input: The user or the airport agent will have to provide all the necessary details present in the customer registration form of the application.
•Output: All the details entered in the registration page will be verified and accepted by the system into the database

### 3.2.2 Use Case name: Login

•Description: This use case describes the scenario where the user/agent logs into the application, with the username and password he has provided while registering with the system.
•Actor: Passenger or the Airport Agent
•Input: The user or the agent creates a username and password at the time of registering with the system. He then uses them to logon to the system and make reservations or view any information.
•Output: The application then verifies the authenticity of the username and password that the user/agent as provided and allows the user/agent to view the information available on the system, if the username and password are valid.

### 3.2.3 Use Case name: Book Flights

•Description: This use case describes the scenario where the user books airline tickets.
•Actor: Passenger
•Input: After logging into the application, the customer looks up the information related to various airlines and checks the availability of seats on flights. If he finds that there are any available tickets, he then purchases them.
•Output: The application issues the boarding pass to the user with all necessary payment and flight related info

### 3.2.4 Use Case name: Reserve Seats

•Description: The user can use the Reserve Seat function to reserve seats for an airplane flight.
•Actor: Passenger
•Input: The seats to be reserved are initially found through the user's previous bookings.These bookings were previously completed through the Book Flight function
•Output: The system shall display available seats for flights booked by the user

### 3.2.5 Use Case name: My Account

•Description: This section gives the user the power to view, save, edit or delete the information stored in his/her account.
•Actor: Passenger/ Airport Agent
•Input: New details entered by the user
•Output: The system shall store the updated details in the database and reflect the same in the users account

### 3.2.6 Use Case name: Report on the passengers in a particular flight

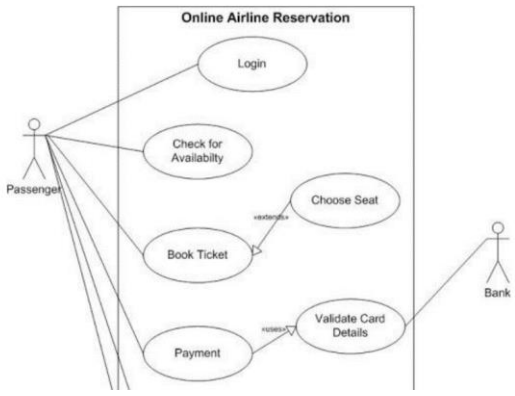
•Description: This use case describes the scenario where the agent wants to view the number of people in a particular flight

•Actor: Airport Agent

•Input: The agent must enter the password so that access is given only to him to view the details of all the customers.

•Output: Once the agent requests for this option, all the details of the passengers who have made bookings/reservations will be displayed.

# 4. Analysis Model




# 5. System Features

### 5.1 Login

**5.1.1 Description and Priority**: This function allows a registered user to login his account using his email and password. If a user is not registered, the website should allow the user to enroll first. The system will authenticate both the email and password, when a user attempts to login.

**5.1.2 Stimulus/Responses:**

- User Action: The user provides login information previously used to register himself with the system.
- System Response: User is logged in to system, OR user is not logged in because he/she entered unrecognized information

### 5.2 Register

**5.2.1 Description and Priority**: This function allows unregistered user to enroll and to create a new account with the website. In order to create a new account, the user has to provide required information such as first name, last name, email address and password. The system checks if all required data are provided after the user uploads a pdf of any identity.

**5.2.2 Stimulus/Responses:**

- User Action: The user provides information such as firstname, last name, address, email address, credit card information and password by filling fields. Some data are optional, while others are required
- System Response: The system checks if all required information have been provided by the user. If a required data is missing, the system prompts the user to provide the specific data in order to process the account creation. When every required details provided, the system creates an account

### 5.3 Book Flights

**5.3.1 Description and Priority**: The user can use the Book Flights function to purchase seats for an airplane flight. The user can indicate the number of seats and placement of such.

**5.3.2 Stimulus/Responses:**

- User Action: The user selects individual seats from a list of flights.

  The user confirms the seat selections on the screen.
- System Response: The system shows the user a list of their already booked flights and the available seats for those flights. Once confirmed, the seats are removed from available seats and are applied to the user account. The user is shown a final confirmation screen which displays selected seats and account information .

### 5.4. Reserve Seats

**5.4.1 Description and Priority**: The user can use the reserve seat function to reserve seats for an airplane flight. The seats to be reserved are initially found through the user's previous bookings. These bookings were previously completed through the Book Flight function. The system shall display available seats for the departing and returning flights booked by the user. The user selects seats from each flight, where the number of selected seats from each flight is the number that the

user booked on that particular flight. Once the flight seats are selected, the user confirms the seat selection

**5.4.2 Stimulus/Responses:**

- User Action: The user selects a flight or a pair off lights (round-trip) that they wish to book. They choose a number of seats they wish to book
- System Response: The system checks if the selected flight(s) has their desired number of seats still available. If they are, the system indicates to the user that their flight is in the process of being booked and they must now complete payment. If there aren't enough seats, the system notifies the user which flights were full, and returns the user to the beginning of the function

### 5.5. My Account

**5.5.1 Description & Priority**: The user can check his/her flight details, look at the status of a flight that was booked, and change his/her address, phone number, email or password. This feature is not available for non-registered user.

**5.5.2 Stimulus/Responses:**

- User Action: Account changes, if any, made by the user. Account changes include updates on first name, last name, email address, mailing address, password or phone numbers.
- System Response: All changes submitted by the user are applied to the user account on completion of the function

### 5.6. Passenger Details

**5.6.1 Description & Priority:** The software must also give a report on the number of reservations made for a particular flight. The purpose is to enable the agent to view the number of people in a particular flight.

**5.6.2 Stimulus/Responses:**

- User Action: The agent must enter the password so that access is given only to him to view the details of all the customers.
- System Response: Once the agent requests for this option, all the details of the customers who have made reservation will be displayed

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# 6. Other Non-functional Requirements

## 6.1. Performance Requirements

- Response Time: The response of all operations is good.
- Error Handling: Response to user errors and undesired situation has been taken care of to ensure that the system operates without halting.
- Safety and Robustness: The system is able to avoid or tackle disastrous action. In other words it is foul proof.

- Portable: The software is not architecture specific. It is easily transferable to other platforms if needed.
- User Friendliness: The system is easy to learn and understand. A native user can also use the system effectively, without any difficulties

## 6.2. Safety and Security Requirements

- Passwords must be a minimum of six characters
- Email addresses should be verified before the system grants user access.
- All exchanges from client to server involving private data shall occur using the highest available level of secure connection (e.g., https).
- Network security will be provided by the use of firewalls

## 6.3. Software Quality Attributes

6.3.1 Usability:

- The airline website design shall allow deployment on both Windows and UNIX(Linux) servers. The design should support Windows Server 2003, Linux 2.6.x, V10UNIX and later.

6.3.2 Robustness:

- The system design shall include recovery scenarios allowing the ability to restore a state no older than one business day old

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# Appendix A – Data Dictionary

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| | | |
|---|---|---|
| 1 | Passenger | Employer is an individual who wants to book flight tickets after viewing available seats. |
| 2 | Airport Agent | Airport Agent behaves as administrator and is responsible for organizing and verifying the booking details |

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|---|---|---|
| 3 | HTTPS | HTTPS stands for Hypertext Transfer Protocol Secure.This protocol is a widely used communications protocol for secure communication over a computer network, with especially wide deployment on the Internet. |
| 4 | SRS | SRS stands for Software Requirement Specification. It is his used to refer to a document that completely describes all of the functions of a proposed system and the constraints under which it must operate |
| 5 | Authentication | The process of identifying an individual, usually based on username and password |
| 6 | KYC | Know your customer is mandatory process of identifying and verifying the client's identity when opening an account and periodically over time. |

# Appendix B– Field Layouts

| Field | Length | Data Type | Description | Mandatory |
|---|---|---|---|---|
| **Name** | **>=3** | **String** | **Name of the passenger/airport agent** | **Yes** |
| **Password** | **>= 6** | **Alphanumeric** | **Authentication of user** | **Yes** |
| **Email** | **>=13** | **Alphanumeric** | **Authentication of user** | **Yes** |
| **Phone Number** | **10** | **Numeric** | **Phone number of user** | **Yes** |
| **City** | **>=3** | **String** | **The city of residence of the user** | **Yes** |