Software Requirements Specification

for

Airline Reservation System

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1 Introduction

Problem Statement

The Airline Reservation System (ARS) provides an interface to schedule flights and reservations for an airline that services. It is responsibility is to keep track of system users, customers, Airbus information, flight information and cancellation. The functionality of the ARS is broken into various primary groups. Customer reservation information and user were added, deleted and updated in the implementation phase to account for the way we decide to implement security. User keeps track of the username, password information and customer reservation information link provides a link between the customers reservation information and user table.

1.1 Document Purpose

- This SRS document presents a detailed description of the Airline Reservation system.
- It represents the client requirements analysis that defines the functional and non-functional requirements of the airline website and its different functionalities.
- The system provides a solution to allow the user to search for flights satisfying the user criteria, to reserve seats, to manage the user account, and to book a flight.

1.2 Product Scope

- The product is titled Airline Reservation system (ARS).
- The product will perform the following tasks -
  1. The purpose of the website is to resolve the client to allow website users to perform tasks related to booking an airline flight.
  2. Non-member users are only allowed to search for available flights; non member users are required to create an account in order to reserve a seat or to book a flight.
  3. Member users have the right to search for available flights, to reserve a seat, to book a flight, cancel a flight. Member users are required to login into their account prior to flight booking.

1.3 Intended Audience and Document Overview

- This document will be used for design purposes by the developers and the design team.
- This document deals about all the main features of this software each with its purpose and main functions. It also gives details about the interface with other product and related functionality of each product.

1.4 Definitions, Acronyms and Abbreviations

- ARS – Airline Reservation System
- PNR – Passenger Name Record
- DFD – Data Flow Diagram
- IEEE – Institute of Electrical and Electronics Engineers

1.5 Document Conventions

The document follows the IEEE format standard

1.6 References and Acknowledgments

Pressman, Roger S. Software Engineering: A Practitioner's Approach. New York, NY: McGraw-Hill, 2005.

2 Overall Description

2.1 Product Perspective

This project represents the initial version of the Airline Booking system. All requirements listed herein describe a self-contained system. At a high level, this project will allow a user to book flights, check flights, do account maintenance, and query flight information. The goal is to allow customers greater and easier access to the airline's booking system, twenty-four hours a day.

2.2 Product Functionality

- Viewing Flight Details

  The user must have the access up-to-date information about the flights. It allows a user to query flight schedules based upon simple input criteria. The user will provide departure and arrival cities, and a departure/return date. If any flights match the criteria, the system will display the following information

  1. Flight number
  2. Flight Name
  3. Flight route (Start and Destination stations)
  4. Flight timings
  5. Seat availability.

- Reserving Tickets

  The user must be able to reserve tickets after selecting

1. Flight number
2. Fight Route

- Cancelling Tickets
  The user must be able to cancel tickets that he has earlier reserved.

2.3 Users and Characteristics

- The intended users of this software need not have specific knowledge as to what is the internal operation of the system. Thus, the end user is at a high level of abstraction that allows easier, faster operation and reduces the knowledge requirement of end user.
- The Product is absolutely user friendly, so the intended users can be the naïve users.
- The product does not expect the user to possess any technical background. Any person who knows to use the mouse and the keyboard can successfully use this product.
- Manager is other user who will be able to modify flight details, add a flight or cancel a flight.

2.4 Operating Environment

The system will work on Windows as well as Linux operating system. Server used is Xampp. It will run on any browser.

2.5 Design and Implementation Constraints

- Passenger Name Record (PNR)
  At the time of reservation, each user is provided a unique ticket number that must be used for further operation like cancellation. Hence the user is required to remember or store this number carefully.
- Regulatory policies
  It is a mandatory that no text must be left empty or contains insufficient data
- Control functions
  The software must be very user-friendly and display appropriate error message.
- Safety/security considerations
  The application must be exited always normally.
- Reliability Requirements
  Data redundancy and use of special/blank characters must be avoided.

2.6 User Documentation

It is designed to explain to the average person how to properly install and use the software or service. User documentation can include everything from how to download and install software to how to use each aspect of the software or system. This includes

- User manuals

- Frequently asked questions sections
- Video tutorials
- Flash cards
- Web pages to visit for help
- On-screen help text along with step-by-step illustrations or screenshots on how to perform all the different functions of the software.

2.7 Assumptions and Dependencies

- The user must have the ability to use the internet.
- The user must have connected to the internet to use the system.
- There are two classes of tickets as listed below.
    1. Economy class.
    2. Business class.
- The accuracy of the information of the users is the responsibility of all users.

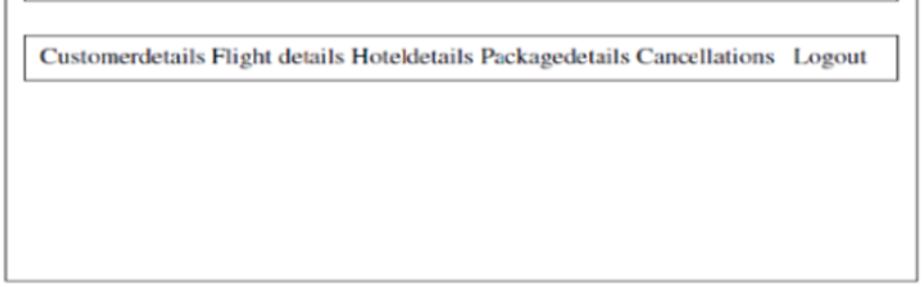
3 Specific Requirements

3.1 External Interface Requirements

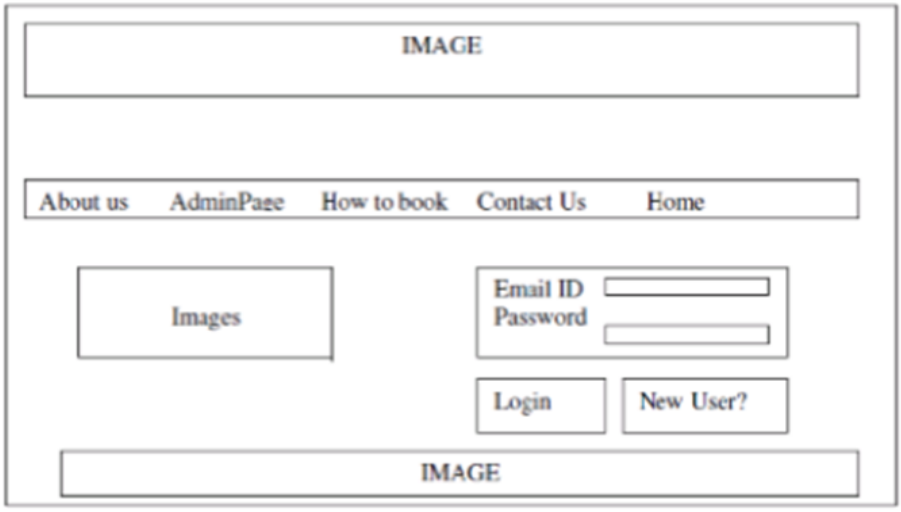
3.1.1 User Interfaces

- Screen Format: The introductory/home screen will be the first to be displayed which will allow the users (after login) to choose options like viewing flight detail or booking a ticket.
- Data Format: The data entered by the users will be alpha numeric.
- Error messages: When there are some exceptions raising error like entering invalid details, then error messages will be displayed prompting users to re-enter the details.
- There are two types of users for the Air Ticket Reservation System. One is the Customer and the other is the administrator. Both the customer and administrator user interface would be a Graphical User Interface.

  GUI for Administrator/Manager



GUI for Customer Homepage



3.1.2 Hardware Interfaces

The system must basically support certain input and output device such as

- Key board: It is a source of input. To accept data from user like pin-code, personal details, flight details.
- Printer: It is a source of output. To print the booked tickets.
- Scanner: To scan QR code.

3.1.3 Software Interfaces

- The software runs under Windows as well as Linux operating system. This software runs on any browser. Internet using facility is must.

- There will be **Airlines database** consisting of various tables:

Jet details: This table specifies various types of airplanes e.g.(Airbus ,Boieng)
Admin: Contains admin details.
Customer: Users who have registered.
Flight details: It has all records of airplane available from a source to a destination along with arrival and departure timing, class, available seats.
Passenger: It has records of all passenger travelling (those who have booked flight) Records consists of email, dob, phone no, gender, username, password
Ticket details: PNR, date of reservation, flight no, journey date, class, booking Status, lounge access no of passengers, payment id.
Payment details: payment id, PNR, payment date, payment amount, payment mode

3.1.4 Communications Interfaces

The system must utilize the standard Hyper Text Transfer Protocol (HTTP) to ensure maximum inter-browser compatibility. The client accesses the system through any web browser using xampp server.

3.2 Functional Requirements

1. Login

Description:

- This function allows a registered user to login his account using his frequent flyer number with the airline and password. If a user is not registered, the website should allow the user to enrol first. The system will check both the frequent flight number and password, when a user attempts to login.

Input:

- Username and password

Output:

- Indication that user is logged in to the system.

2. Register User

Description:

- This function allows unregistered user to enrol 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. Other optional information, such as phone number, credit card information and mailing address, can be provided during the registration process. The system checks if all required data are provided and then will prompt the user to enter additional information, if required.

Input:

- Username, First name, Middle name, Last name, email address and Phone no, gender, Date of birth and password.

Output:

- Indication that user is registered in to the system.

3. Book Flights

Description:

- The user can use the Book Flights function to purchase seats for an airplane flight. The system shall present the user with information on all current flights. The user may then select a pair (departure and return) of flights on which to purchase seats. The user can indicate the number of seats and placement of such. Finally, the system shall guide the user completely through the checkout process.

Input:

- User information – the user must already be logged in.

Output:

- The purchased seats are tied to the user's account, so he/she can reserve seats later. Passenger is provided with a PNR number for further cancellation of flights.

4. Check Status

Description:
- This section shall allow the enrolled user to view flight information that matches Input criteria.

Input:
- Departing city, Destination city, Departure date/time

Output:
- Flight information including Flight Number, Departure City, Arrival City, and Flight Status.

5. Cancel Tickets

Description:
- The user must be able to cancel tickets that he has earlier reserved.

Input:
- PNR (Passenger Name Record) number

Output:
- Flight ticket is cancelled

6. Log Out Account

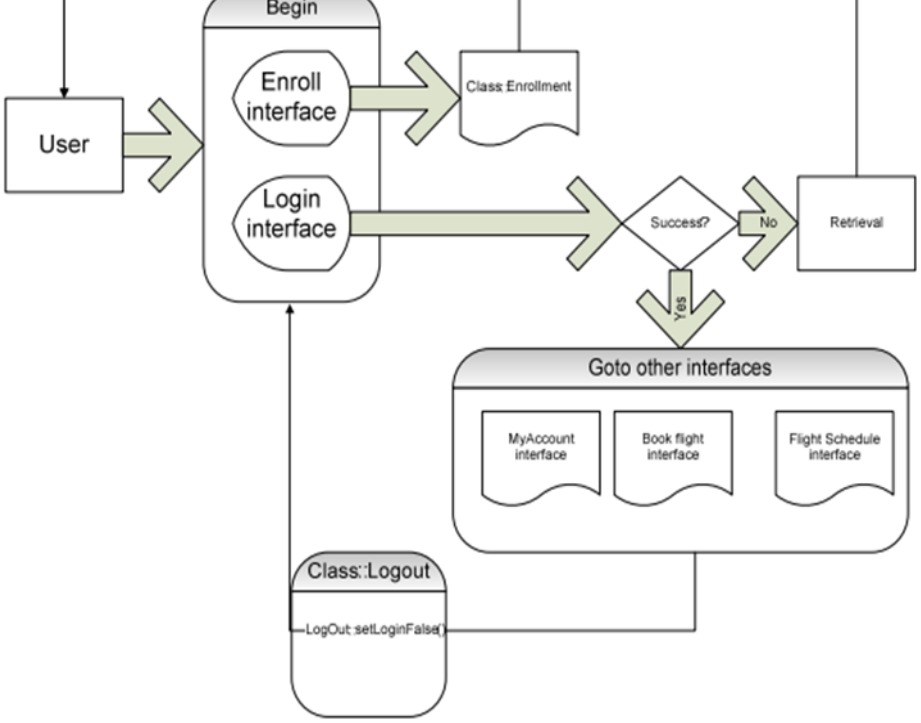
Description:
- Logout section provides a way for the user to securely log out of the system.
- This process will save all user operations when he/she exits the system. If a user wishes to continue accessing the website, he/she must log-in again to access user features.

Input:
- None

Output:
- Notification that the user is logged out.

3.3 Behaviour Requirements

3.3.1 Use Case View



This is a basic use case of ARS.

1. User use Cases:
   - Users sign up.
   - User login.
   - Search for flight.
   - Make Reservation.
   - Cancel flight.
   - Select no of seats.
   - Select class.
   - Logout.

2. Admin use Cases:
   - Admin login.
   - Add a flight.
   - Delete/cancel a flight.
   - Modify flight information

4 Other Non-functional Requirements

4.1 Performance Requirements

- The Airline Website shall have capabilities to accept 500 connections. For each session system shall guarantee the connection time 5 minutes from last input, after which the connection will be deemed expired. A close operation will be performed when expired. This design is to satisfy each user's usability and connection quality.
- Any transaction will not take more than 10 seconds.
- The system shall update all flight status information every 5 minutes.
- Response time of the Airline Reservation System should be less than 2 second most of the time. Response time refers to the waiting time while the system accesses, queries and retrieves the information from the databases.
- ARS shall show no visible deterioration in response time as the number of users or flight schedule data increases.

4.2 Safety and Security Requirements

- Passwords must be a minimum of 8 characters and must contain one to seven digits.
- Email addresses should be verified before the system grants user access. This verification shall be exercised by sending the prospective user a confirmation email after enrollment. This email must contain information specific to completing the enrollment process.

- All exchanges from client to server involving private data shall occur using the highest available level of secure connection (e.g., https).

4.3 Software Quality Attributes

- Reliability
  The user inputs should be valid and within the given range. There should be Normal Termination of the program.
- Security
  It must be ensured that access will be provided to the authorized persons through user ID and password.
- Portability
  The application is portable which ensures its adaptability for use on different computer terminals with different operating systems and standards.
- Robustness
  The system design shall include recovery scenarios allowing the ability to restore a state.

5 Other Requirements

*<This section is **Optional**. Define any other requirements not covered elsewhere in the SRS. This might include database requirements, internationalization requirements, legal requirements, reuse objectives for the project, and so on. Add any new sections that are pertinent to the project.>*

Appendix A – Data Dictionary

<Data dictionary is used to track all the different variables, states and functional requirements that you described in your document. Make sure to include the complete list of all constants, state variables (and their possible states), inputs and outputs in a table. In the table, include the description of these items as well as all related operations and requirements.>