Software Requirements Specification

for

Airline Reservation System

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.1 Purpose

Online Air Ticket Booking system is to provide an option to customers to book the tickets online and to check the confirmation online. This system will help the company to sell the flight tickets online. Unless like in the previous stage people as to walk into travel agency or this company ticket counter to buy the tickets .And also to check the flight timings. This problem is overcome by introducing this problem solution "The Online Airline Reservation System". Before there were manual systems people come to the airport reserve seats, find timing by asking from the agents. While in propose system the main purpose is to provide alternatives and convenient way to passengers to reserve a seat.

The main purpose of this project is to reduce the manual errors involved in the airline reservation process and make it convenient for the customers to book the flights as when they require such that they can utilize this project to make reservations, modify reservations or cancel a particular reservation. The project is to construct a specification, refinement and implementation of an airline reservation system.

1.2 Document Conventions

The document is prepared using Google Docs and has used the font type “Times New Roman”. The fixed font size has been used to type this document is 12pt with 1.5 line spacing. It has used the bold property to set the headings of the document.

1.3 Intended Audience and Reading Suggestions

This Software Requirements document is intended for:

- Developers who can review project’s capabilities and more easily understand where their efforts should be targeted to improve or add more features to it (design and code the application – it sets the guidelines for future development).

- Project testers can use this document as a base for their testing strategy as some bugs are easier to find using a requirements document. This way testing becomes more methodically organized.

- This project is a prototype for the flight management system and is useful for the flight management team and as well as to the passengers.

1.4 Product Scope

The name of the software is “Airline Reservation System”. This software provides options for viewing different flights available with different timings for a particular date and provides customers with the facility to book a ticket, modify or cancel a particular reservation but it does not provide the customers with details of cost of the ticket and it does not allow the customer to modify a particular part of his reservation and he/she can modify all his details.

1.5 References

<List any other documents or Web addresses to which this SRS refers. These may include user interface style guides, contracts, standards, system requirements specifications, use case documents, or a vision and scope document. Provide enough information so that the reader could access a copy of each reference, including title, author, version number, date, and source or location.>

2. Overall Description

2.1 Product Perspective

Technology has transformed many aspects of life in the 21st century, including the way many of us make airline reservations. For example, to make ticketing more convenient for travelers, an online reservation system helps us in booking tickets from the comfort of our homes or offices. While this is convenient for most people, it has made things particularly easier for people residing in remote locations. It enables us to maintain the railway train details like their timings, number of seat available and reservation billing and cancelling the tickets. Before the automation, the system suffered from the following drawbacks :

- The existing system is highly manual involving a lot of paperwork and calculation and therefore may be erroneous.This has lead to inconsistency and inaccuracy in the maintenance of data.
- The data, which is stored on the paper only, maybe lost, stolen or destroyed due to natural calamity like fire and water.
- The existing system is sluggish and consumes a lot if time causing inconvenience to customers and railway staff.
- Due to manual nature, it is difficult to update, delete, add or view the data.
- Since the number of passengers have drastically increased therefore maintaining and retrieving detailed record of passenger is extremely difficult.
- An railways has many office around the world, an absence of a link between these office lead to lack of coordination and communication.

Hence the Airline Reservation system is proposed with the following:

- The computerization of the reservation system will reduce a lot of paperwork and hence the load on the airline administrative staff.

- The machine performs all calculations. Hence chances of error are nil.

- The passenger, reservation, cancellation list can easily be retrieved and any required addition, deletion or updation can be performed.

- The system provides for user-ID validation, hence unauthorized access is prevented.

A distributed airline database system stores the following information.

- **Flight details:**
  It includes the originating flight terminal and destination terminal, along with the stops in between, the number of seats booked/available seats between two destinations etc.
- **Customer description:**
  It includes customer code, name, address and phone number. This information may be used for keeping the records of the customer for any emergency or for any other kind of information.
- **Reservation description:**
  It includes customer details, code number, flight number, date of booking, date of travel.

2.2 Product Functions

The major functions include
• Providing flight details
• Flight bookings for a particular destination, date and time and also providing with a pin code.
• Allowing the customer to modify or cancel his reservation provided the correct pin code is given.
• Displaying a report of the number of people flying in a particular flight.

2.3 User Classes and Characteristics

<Identify the various user classes that you anticipate will use this product. User classes may be differentiated based on frequency of use, subset of product functions used, technical expertise, security or privilege levels, educational level, or experience. Describe the pertinent characteristics of each user class. Certain requirements may pertain only to certain user classes. Distinguish the most important user classes for this product from those who are less important to satisfy.>

2.4 Operating Environment

Operating environment for the airline management system is as listed below.

- distributed database
- client/server system
- Operating system: Windows / Linux.
- database: sql database
- platform: Java/PHP

2.5 Design and Implementation Constraints

- Control functions: The software must be very user-friendly and display appropriate error messages.
- Interfaces to other applications: Not applicable.
- Parallel operations: It must support many users simultaneously.
- Reliability requirements: Data redundancy and use of special/blank characters must be avoided.
- Safety/security considerations: The application must be excited always normally.
- Higher order language requirements: php, flask, python, html, css, javascript and jquery.
- The software should be portable and must be inaccessible to unauthorized users.

2.6 User Documentation

<List the user documentation components (such as user manuals, on-line help, and tutorials) that will be delivered along with the software. Identify any known user documentation delivery formats or standards.>

2.7 Assumptions and Dependencies

1. The user must have the ability to use the internet.
2. The user must have connected to the internet to use the system.
3. The users must have Window XP installed on system or later version platforms and browser should be Google chrome.
4. There are two classes of tickets as listed below
    - Economy class.
    - Business class.
5. The flights will be assumed to be of a constant size that accommodates 150 passengers at a time. They will consist of :
    - 50 Business class seats.
    - 100 Economy class seats.
6. The accuracy of the information of the users is the responsibility of all users.

3. External Interface Requirements

3.1 User Interfaces

A help link will appear on every screen that describes the function of each page to the user. The interface must be easy to understand. The user interface includes

- SCREEN FORMATS/ORGANIZATION: The introductory screen will be the first to be displayed which will allow the users to choose either of the two options, viewing flight detail or booking a ticket.

- WINDOW FORMAT/ORGANIZATION: When the user chooses some other option, then the information pertaining to that choice will be displayed in a new window which ensures multiple windows to be visible on the screen and the users can switch between them.

- DATA FORMAT: The data entered by the users will be alphanumeric.

- END MESSAGES: When there are some exceptions raising error likeentering invalid details, then error messages will be displayed prompting the users to re-enter the details.

3.2 Hardware Interfaces

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

Name of Item	Description of Purpose	Source of Input / Description of output
Key board	To accept data from user like pin code, personal details, flight details	Source of Input
Printer	To print the bookings mode Eg: Destination chosen with date and timings.	Destination of Output

3.3 Software Interfaces

Not applicable since the product under considerations is an independent one.

3.4 Communications Interfaces

The system must utilize the standard HyperText Transfer Protocol (HTTP) to ensure maximum inter-browser compatibility. The client accesses the system through a web browser.

4. System Features

This section provides detailed requirements for the website design, including functional requirements.

4.1 General Requirements

4.1.1 Login Description and Priority:

This function allows a registered user to login his accountusing his frequent flyer number with the airline and password.If a user is not registered, the website should allow the user to enroll first. The system will check both the frequent flight number and password, when a user attempts to login.In most case, the frequent flight number is convenient for both the user and system performance. The user easily memorizes his or her flight numbers but not a dull string. For the system,when provided the flight number, flight information will be delivered at the same time. Therefore, such operation reduces the second query chance.Theoretically, more than one record can retrieve by user's frequent flight number and password. Two or more users may have chosen the same password and same flight number. The way to break a tie is that system will go further to ask user's email confirmation to identify.

Inputs:

Frequent flyer number and password

Source:

All inputs are provided by user.

Outputs:

Indication that user is logged in to the system.

Destination:

The outputs are displayed on the screen as well as stored in the system.

Requires:

The user provides login information including frequent flyer number and password.

Pre-Conditions:

User is not logged in to system. User has previously enrolled in system.

Post-Conditions:

User is logged in to system, OR user is not logged in because he/she entered unrecognized information.

Side-Effects:

None

4.1.2 Enrollment

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. 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. After all required information is provided, the system auto-generates a unique frequent flyer number that the user must use as username for future authentications. The system shall auto-generate this number in less than five seconds.

Inputs:

Required: First name, last name, email address and frequent flyer number
Optional: phone number, credit card information and mailing address.

Source:

All data except the frequent flyer number are inputs from the user. The frequent flyer number is from the system store.

Outputs:

Frequent Flyer Number

Destination:

The changes are committed on the completion of the"enrollment" function to account information. All information also displays to the user via the screen.

Pre-Conditions:

The user must not have an existing account with the website.

Post-Conditions:

A user account is created and the user is able to access all functionalities provided by the function "My Account" (refer to 4.1.7)

Side-Effects:

None

4.1.3 Book Flights

Description and Priority:

The user can use the *Book Flights* function to purchase seats for an airplane flight. The system shall present the user within formation 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.

Inputs:

User information – the user must already be logged in.

Source:

Inputs are from the user except flight information, which is retrieved from the system.

Output:

The purchased seats are tied to the user's account, so he/she can reserve seats later.

Destination:

The booked flights will be stored in the user's account information when the user finishes payment. The flight information shall also display on the screen.

Pre-Conditions:

The user must have an account with the website and must be logged in.

Post-Conditions:

Completion of this function guarantees that the user has seats on a specific flight. However, if the user wants particular seats, he/she must also complete the reserve seats function.Any successfully-booked flight from this function is assumed to have completed payment already.

Side-Effects:

User's account is charged. Flight is associated with user's account.

4.1.4 Reserve Seats

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.

Inputs:

User information used to determine previously booked flights.Selected seats will be reserved by user.

Source:

Inputs are from the user except flight information, which is retrieved by the system.

Outputs:

Selected Seats

Destination:

The changes are committed on completion of the *ReserveSeats* function to the user's account information. The selected seats are also displayed to the screen.

Pre-Conditions:

The user must have an account with the website and must be logged in. The user must also have previously booked flights without seats reserved, either by user or system.

Post-Conditions:

All selections of seats must be applied to the user's account.

Side-Effects:

The selected seats are no longer available to any other customer.

4.1.5 Flight Status

Description & Priority:
This section shall allow the user – whether enrolled or not – to view flight information that matches input criteria. The user will provide:

a. A flight number and Date

OR

b. Departing/Arriving Cities and Date.

The system will display matching flight information including the following fields:
o Flight Number
o Departure City
o Arrival City
o Status (one of the following)

- In Flight
- At the Gate
- Delayed
- On Time

Inputs:
Departing city, Destination city, Departure date/time
Source:
All inputs are provided by the user.
Outputs:
Flight information including Flight Number, Departure City,Arrival City, and Flight Status.
Destination:
All outputs should display on the screen.
Pre-Conditions:
None.
Post-Conditions:
User has flight status for any matching flight.
Side-Effects:
None

4.1.6 Flight Schedule

Description & Priority:
This section of the system shall allow 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:

o Flight Number
o Departing City & Date/Time

o Arriving City & Date/Time
o Number of Available Seats

The system shall define a “matching” flight as one that uses the departure/arrival cities at a flight time greater or equal to the time provided by the user. Otherwise, the system shall alert the user that no matching flights can be found.

Inputs:
Departing City, Destination City, Departure Date/Time
Source:
All inputs provided by user.
Outputs:
Flight Information including Flight Number, Departing City & Date/Time, Arriving City and Date/Time, Number of Available Seats.
Destination:
All output should display to the screen.
Pre-Conditions:
None
Post-Conditions:
User has flight information for any matching flight.

4.1.7 My Account

Description & Priority:
This section gives the user the power to view, save, edit or delete the information stored in his/her account. The user can check his/her accumulated points, look at the status of a flight that was booked, cancel a flight that was already booked(optional) and change his/her address, phone number, email or password. This feature is not available for non-registered user.
Inputs:
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.
Source:
All data are inputs from user.
Output:
None.
Destination:
The changes are committed on completion of the *My Account* function to account information.
Pre-Conditions:

The user must have an account with the website and must be logged in prior to access his/her account.

Post-Conditions:

All changes submitted by the user are applied to the user account on completion of the function.

4.1.8 Account Log out

Description & Priority:

The *Logout* section provides a way for the user to securely logout 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.

Inputs:

None.

Source:

N/A

Outputs:

Notification that the user is logged out.

Destination:

User is notified by display to screen.

Pre-Conditions:

User is logged in to the system.

Post-Conditions:

User is logged out of the system.

Side-Effects:

The system clears the session state for the user once logout is complete.

5. Other Nonfunctional Requirements

5.1 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.

- The system shall send out verification request immediately (within 100ms) after it receives a user submitted form.
- The system shall update all flight status information every 5 minutes.

5.2 Safety Requirements

Nil.

5.3 Security Requirements

- Passwords must be a minimum of eight 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).

5.4 Software Quality Attributes

- **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, V10 UNIX and later.
- **Robustness:** The system design shall include recovery scenarios allowing the ability to restore astate no older than one business day old.
- **Correctness** : It should satisfy the normal regular HMS operations to fulfil end user objectives.
- **Efficiency***:* Resources should be implemented to achieve the particular task efficiency without hassle.
- **Flexibility**: We should be able to add new features and handle them conveniently.
- **Integrity**: System should focus on securing customer information and avoid data loss as much as possible.
- **Portability**: System should run in any Windows or Linux system.
- **Maintainability**: System should be maintainable.

5.5 Business Rules

Nil.

6. Other Requirements

Nil.

Appendix A: Glossary

<Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.>

Appendix B: Analysis Models

<Optionally, include any pertinent analysis models, such as data flow diagrams, class diagrams, state-transition diagrams, or entity-relationship diagrams.>

Appendix C: To Be Determined List

<Collect a numbered list of the TBD (to be determined) references that remain in the SRS so they can be tracked to closure.>