FUNCTIONAL SPECIFICATION

Project Code:	FRS-01
Project Name:	Flight Reservation System

Revision History

Version (x.yy)	Date of Revision	Description of Change	Reason for Change	Affected Sections	Approved By
1.00	19-Sep-2011	Initial Draft			
2.10	Sept-2013	Revision	Mapping with CPC Tool		
2.20	Nov-2013	Revision	Aligning with UCF		

Affected Groups

Development Engineering
Quality Assurance
XYZ Air Travels Ltd.

List of Reference Documents

Name	Version No.
1. Request For Proposal	1.1
2.	
3.	
4.	

Prepared by/Date **Reviewed by/Date** **Approved by/Date**

Table of Contents

1 Introduction

XYZ Air Travels Ltd. provides air travel services to users (Customers) across the globe.

XYZ Air Travels Ltd plans to develop "Flight Reservation System" - standalone/web application [Core Java Batches - Swing Application; J2EE Batches - Web Application], where users (Customers) can reserve Domestic/International Flight Tickets and manage their reservations.

Scope and Overview:

The scope of the Flight Reservation System (FRS) will be to provide the functionality as described below. The system will be developed on a Windows operating system using Java/J2EE.

2 System Overview

The Flight Reservation System should support basic functionalities (explained in section 2.1) for all below listed users.

- Administrator (A)
- Customer (C)

2.1 Authentication & Authorization

2.1.1 Authentication:

Any end-user should be authenticated using a unique login ID and password.

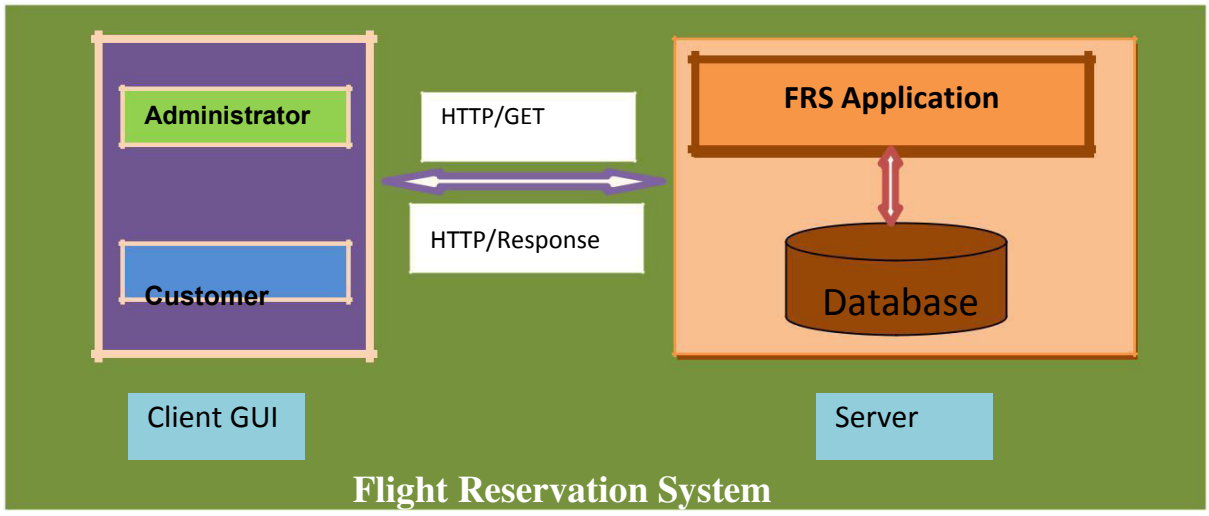
2.1.2 Authorization

The operations supported and allowed would be based on the user type. For example, Administrator has the rights to add/modify/delete and view flight details. He can also view passenger details traveling on a particular date.

2.2 Functional Flow

The functional flow of the messages across different application components is shown below.

Ex. - Web Application.



2.3 Environment

The system will be developed on a Windows XP machine using J2EE, JSP/HTML, and JDBC.

- Intel hardware machine (PC P4-2.26 GHz, 512 MB RAM, 40 GB HDD)
- Server – Apache Tomcat 6 or higher
- Database – Oracle 9i or higher
- JRE
- Eclipse IDE

3 Sub-system Details

The Flight Reservation System (FRS) is defined with two types of users (Administrator & Customer), wherein all users need to login successfully before performing any of their respective operations.

Find below (section 3.1 & 3.2) tables that provides functionality descriptions for each type of user / sub-system. Against each requirement, indicative data is listed in column 'Data to include'. Further, suggested to add/modify more details wherever required with an approval from customer/faculty.

3.1 Administrator

The administrator as a user is defined to perform below listed operations after successful login.

ID	Objects	Operations	Data to include	Remarks
AD-001 to AD-004	Flight	Add Delete View Modify	FlightName, SeatingCapacity and ReservationCapacity	
AD-005 to AD-008	Route	Add Delete View Modify	Source, Destination, Distance, Duration, cost/km	
AD-009 to AD-012	Schedule	Add Delete View Modify	Flight Details, Route Details and Schedule on selected Days	
AD-013	Passenger	View	Schedule details, Passenger Name, Age, Gender, Seat No. and booking Date	

3.2 Customer

The customer as a user is defined to perform below listed operations after successful login.

ID	Objects	Operations	Data to include	Remarks
US-001	UserProfile	Register	Name, DOB, Gender, Address, Mobile Number, Email ID etc	
US-002	Schedule	View	Journey Date, Source, Destination, ReservationType	
US-003	Ticket	Reserve Tickets	Schedule Details, Passenger Details and Payment info	
US-004 to US-006	Reservation	Manage Tickets /Reservation	UserID, Journey Date, No of Seats, etc	Cancellation to be allowed only before scheduled date.

[Swing Application - Core Java]

* US-002 : Allow user to view seat availability on multiple flights simultaneously
  - Hint: Use multithreading.
* US-006 : Allow user to generate ticket details in HTML format

[Web Application - J2EE]

* US-003 : Use | Create Web services for Payment process.
* US-006 : Allow user to generate ticket details in PDF format

NOTE:

* Total fare should be calculated on the basis of Route info and Seat info.
(Distance*FarePerKm) + (SeatFare*TravelDuration))

* Seat status should be efficiently handled upon reservation or cancellation of tickets for a flight on a specific day of journey.
* Fare for different types of seats are different.
* Reservations should be efficiently handled on deleting Flight/Schedule/Route details.

3.3 Login | Logout

[Swing Application - Core Java]

- Use System properties to enable the application to Startup with default/last user details for login.
- Enable the application to run from command prompt with user credentials.

[Web Application - J2EE]

- Implement Session tracking for all logged in users before allowing access to application features. Anonymous users should be checked, unless explicitly mentioned.

4 Data Organization

This section explains the data storage requirements of the Flight Reservation System and **indicative** data description along with suggested table (database) structure. The following section explains few of the tables (fields) with description. However in similar approach need to be considered for all other tables.

4.1 Table: UserProfile

The user specific details such as name, address, authentication and authorization / privileges should be kept in one or more tables, as necessary and applicable.

Field Name	Description
UserID	Customer ID is auto generated after registration and it is used as LoginID.
Name	Customer Name [first name & last name]
DOB	DOB of Customer
Gender	Gender of user [Male / Female]
PresentAddress	Present Address of Customer
PermanentAddress	Permanent Address of Customer
PhoneNumber	10 digit contact Number
Emailid	Email ID of the traveler

4.2 Table: UserCredentials

The table contains Authentication Information for Administrator and Customer

Field Name	Description
UserType	Administrator and Customer
UserID	User Identification, corresponding to UserProfile table
Password	Password
LoginStatus	Login status of the user

4.3 Table: PassengerDetails

This table contains information related to the passengers reserving the seats.

Field Name	Description
Full Name	Name of the passenger
Age	Age of the passenger in months
Gender	Gender of the passenger
SeatNo	Passenger seat no (numerical)

5 Assumptions

- User Interface: The type of client interface (front-end) to be supported– GUI based/Web based
- The administrator can set the schedule for the flights on a monthly basis.
- Reservation type for international flights to be of class Economy/Business/First Class
- Reservation type for domestic flights to be of class Economy/Business
- Booking of flights is done one way

6 General Expectations

- The server should be a concurrent server servicing multiple clients
- Database can be implemented using Oracle 9i or above
- To begin with, the application should support at least 1 admin and 2 customers.
- Compilation and Build should be done using Eclipse IDE
- Source-code and all documents must be maintained (checked-in) in configuration management system (subversion)
- Int's coding standards (for Java) should be followed,
- Deliverables should include compiled and tested source code, Unit Test Code (Using IntUT), IntStyle report and System test-plan / report documents.

NOTE:

1. **Validation of user Data**[1]
   - ✓ Struts 2 validation via XML or annotations or Spring MVC using JSR-303 annotations
   - ✓ AJAX validation without forcing the page to reload (Wherever applicable)
   - ✓ JavaScript validation (if necessary)
   - ✓ In case of Swing applications, use 'ClassInputVerifier' for validation
2. **UI Design –(for Web Application) Use DIV/CSS to control the style and layout**
3. **Create at least one SQL DML-statement inside PL/SQL blocks**

7 Acceptance Criteria

All P1 requirements have to be mandatorily implemented

8 Traceability to Requirements

Appropriate requirements from RS and FS are mapped here.

Document Reference ID & Description: (Doc ID from which this document is derived)		
Sl. No.	**Reference document: RS Requirement/Feature (Section ID/Name)**	**Current document: FS Location (Section ID/Name)**
1.		
2.		

9 Acronyms and Glossary

Acronym and glossary for this document mentioned in the below table.

Abbreviation	Remark
FRS	Flight Reservation System
RS	Requirement Specification
FS	Functional Specification

[1] Validations should be performed at all levels of application appropriately.