Product Requirements Document

SWEN90007 SM2 2021 Project
Submission 1 Specification

Team: Four Aces

My Tien Hinh - 923427 - mhinh@student.unimelb.edu.au
Xueqi Guan - 1098403 - xueqig@student.unimelb.edu.au
Yiyuan Wei - 793213 - yiyuanw1@student.unimelb.edu.au
Yuxiang Wu - 1006014 - yuxiang2@student.unimelb.edu.au

Revision History

Date	Version	Description	Author
21/08/09	01.00-D01	Complete use cases for customer	Xueqi Guan
21/08/12	01.00-D02	Complete use cases for airline	Xueqi Guan
21/08/12	01.00-D03	Complete use cases for administrator	My Tien Hinh
21/08/12	01.00-D04	Domain model description	Yiyuan Wei
21/08/12	01.00-D05	Update the format of use cases for customer	Xueqi Guan
21/08/13	01.00-D06	Update the format of use cases for airline and admin	My Tien Hinh
21/08/14	01.00-D07	Domain Model Diagram	Yiyuan Wei, Yuxiang Wu
21/08/14	01.00-D08	Update Domain Model	Team
21/08/14	01.00-D09	Assumption Added	Yiyuan Wei
21/08/15	01.00-D10	Update Domain Model Description	Yuxiang Wu
21/08/15	01.00-D11	Add Proposal and Target Users	My Tien Hinh
21/08/15	01.00-D12	Add Use Case Diagram	Xueqi Guan, My Tien Hinh
21/08/15	01.00-D13	Proofread and finalise document	Xueqi Guan, My Tien Hinh

Contents

Introduction

1.1 Proposal

This project simulates a Travel Reservation System, a commercial platform for customers to search for and book flights across Australia or internationally. Customers can easily find information about their bookings from the system. The system also allows airlines to manage their flights, ticket options and reservations from their customers. All users and activities are managed by an administrator to ensure the system is working correctly.

The purpose of this document is to provide an overview of the system. High level design and architecture is captured in the use cases (Section 3), domain model description and diagram (Section 4). This serves as a common ground of communication among the development team members, as well as among the team, SWEN90007 teaching team and clients.

1.2 Target Users

The target users of this document are the development team for this project, SWEN90007 teaching team, potential clients and end users of the system.

1.3 Conventions, terms and abbreviations

This section explains the concept of some important terms that will be used throughout this document. These terms are detailed alphabetically in the following table.

Term	Description
Airplane	The class encapsulating details of the airplane used in the flight
Flight	The trip on the airplane
Reservation	When a customer books a flight with the TRS, a reservation will be generated.
Ticket	A ticket contains a passenger's information and seat number.
TRS	Travel Reservation System

1.4 Assumptions

1.4.1 The customer using this system is able to book a flight for multiple people that may not be registered in the system. The customer needs to provide the name, identification type and number (e.g. passport number) of each person. Each person holds a ticket with their information and seat number.

1.4.2 The airplane used in one flight with stopovers will not be changed after any stopover.

1.4.3 Returning travel is equivalent to two separate flights.

1.4.4 The system does not keep track of individual physical airplanes but only focuses on encapsulating details of the airplane used for the flight, e.g. type of airplane and available seats.

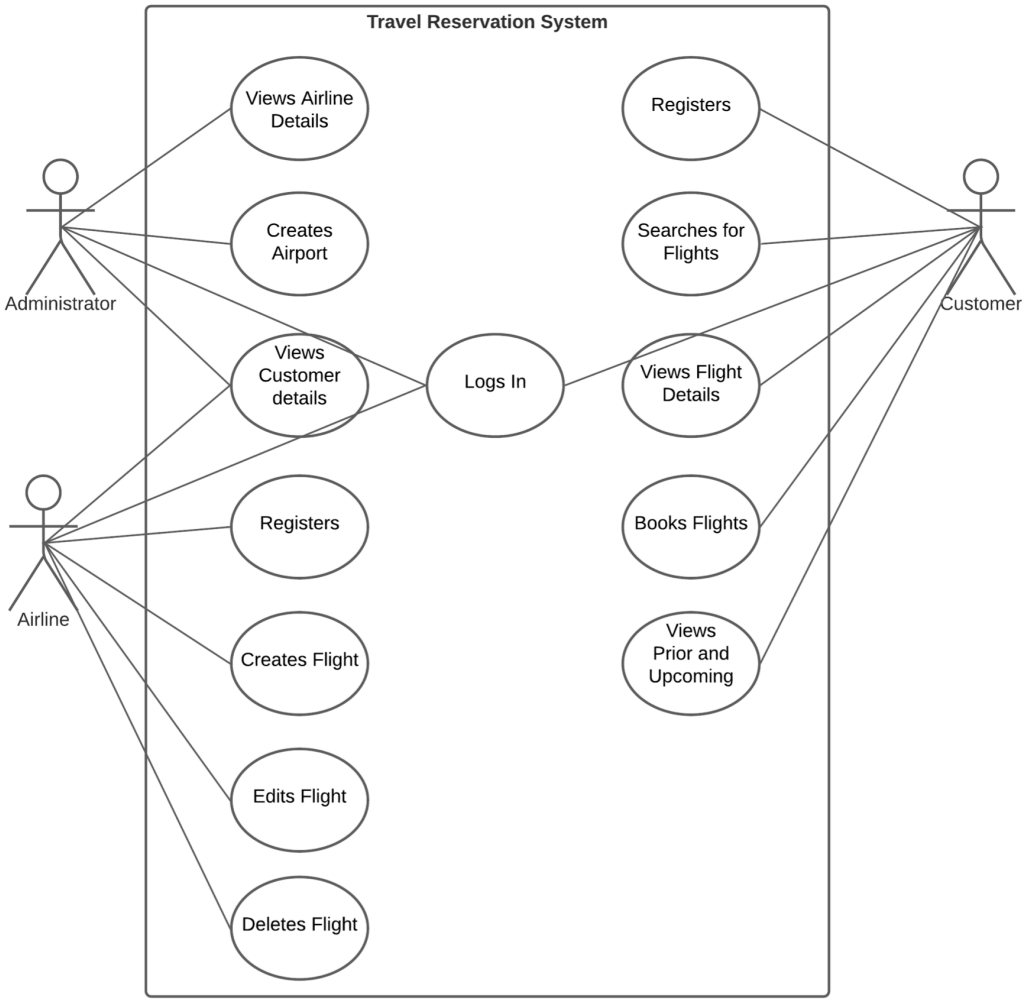
1.4.5 The registration process for the Airline and the Customer are different.

1.4.6 There is only one single Admin account, so it can be created by the development team. There will not be an option to register as an admin for the user.

2. Actors

Actor	Description
Administrator	A private company which is responsible for managing the system
Airline	A company which is able to manage its flights and customers
Customer	A person who is able to search for and book flights

3. Use Case Diagram



4. Use Cases

4.1 *<User Authentication>* Use Case 1: User Logs In

Actors

1. Customer
2. Airline
3. Administrator

Basic Flow

Users open the login page of the travel reservation system website. They enter their usernames and passwords to log into their account.

4.2 *<Customer Use Case>* Use Case 2: Customer Registers

Actors

Customer

Basic Flow

Customers open the customer registration page. They enter all the required information and submit the registration form.

4.3 *<Customer Use Case>* Use Case 3: Customer Searches for Flights

Actors

Customer

Basic Flow

Customers open the search flight page. They select the starting point, destination point, dates, number of passengers and either one-way or return flight. Then they click the 'Search' button to search for flights.

4.4 *<Customer Use Case>* Use Case 4: Customer Views Flight Details

Actors

Customer

Basic Flow

Customers select a flight from the list of flights presented. Then they view the details of that flight.

4.5 *<Customer Use Case>* Use Case 5: Customer Books Flights

Actors

Customer

Basic Flow

Customers enter the searching criteria to search for flights. Customers select a one-way flight or returning flights from the list of flights presented. Then they and the seats they wish to occupy for the flight. After selecting seats, they enter all the required information for each passenger. Finally, they submit the booking.

4.6 *<Customer Use Case>* Use Case 6: Customer Views Prior and Upcoming Flights Details

Actors

Customer

Basic Flow

Customers log into the Travel Reservation System. After logging in, they navigate to the view flights page to view details of prior and upcoming flights.

4.7 *<Airline Use Case>* Use Case 7: Airline Registration

Actors

Airline

Basic Flow

The airline goes on to the TRS website and chooses to register. The airline enters all required information and submits any necessary document. After being verified, the airline can now use the TRS.

4.8 *<Airline Use Case>* Use Case 8: Airline Creates Flights

Actors

Airline

Basic Flow

The airline wishes to create a new flight. They log into the TRS and navigate to the create flight page. They select the origin airport and the destination airport, the number of stopovers, flight code, type of airplane, and price for each ticket class. Finally, the airline submits all information.

4.9 *<Airline Use Case>* Use Case 9: Airline Edits Flights

Actors

Airline

Basic Flow

The Airline goes to the page that displays all flights they have created and chooses the flight they wish to edit. Information about the selected flight is shown on the screen for the Airline to edit. After finishing editing, the airline submits the new version of the flight.

4.10 *<Airline Use Case>* Use Case 10: Airline Deletes Flights

Actors

Airline

Basic Flow

The Airline goes to the page that displays all flights they have created and chooses the flight they wish to delete. When prompted with a confirmation prompt, the Airline confirms delete, then the flight is deleted.

4.11 *<Administrator And Airline Use Case>* Use Case 11: Views Customer Details

Actors

1. Administrator
2. Airline

Basic Flow

The administrator or airline logs onto the TRS and navigates to the page that displays all of the customers. To view information about a specific customer, the administrator or airline selects a customer from the page.

4.12 *<Administrator Use Case>* Use Case 12: Administrator Views Airline Details

Actors

Administrator

Basic Flow

The administrator logs onto the TRS and navigates to the page that displays all of the airlines. To view information about a specific airline, the administrator selects an airline from the page.

4.13 *<Administrator Use Case>* Use Case 13: Administrator Creates Airport

Actors

Administrator

Basic Flow

The administrator wishes to create an airport, so they log onto the TRS and navigate to the create airport page. The administrator enters the information about the airport, including name and airport code. After filling in the information, the administrator submits it.

5. Domain Model

5.1 TRS Domain Model Description

Based on the specifications provided for the TRS, the system entities, attributes, and business rules can be summarised as:

- **Users** can be either an **Administrator**, **Airline** or **Customer**;
- Each **User** has id, email and password;
- **Customers** have first name and last name;
- **Customers** can create **Reservations;**
- Only **Administrators** can create **Airports**;
- Each **Airports** has exactly one reference code and address;
- **Airlines** can create **Flights** between **Airports**;
- Each **Airline** has a name;
- Each **Flight** has its id, code, time, date, availableSeats;
- **Flight** cannot be created without *one* origin **Airport** and *one* destination **Airport**;
- Each **Flight** has *one* unique code (different from the airport code);
- Each **Flight** has *zero, one or more* stopovers **Airport**;
- Each **Flight** has *one* **Airplane**;
- The **Airplane** has its type;
- The **Airplane** has *one or more* **Ticket**s available;
- The **Airplane** has *one or more* **Seats**;
- Each **Ticket** has its id, price, time, date, first name, last name, identificationType, identificationNumber;
- Each **Ticket** has *one* **Seat**;
- **Seat** can only have *one* **Ticket**;
- Each **Seat** has *one* **Class**;
- **Class** can be First, Business, or Economy;
- Each **seat** has its *one* unique seatNumber;
- Each **Flight** is associated with only *one* **Airline** company;
- Each **Reservation** has exactly *one* id;
- **ReservationType** can be either Oneway or Return;
- Each **Reservation** has *only one* **ReservationType**;
- Each **Reservation** has *one or two* **Flights**;
- Each **Reservation** has *one or more* **Tickets**;

- **Customers** have *zero to many* previous **Flights**;
- **Customers** have *zero to many* upcoming **Flights**;

Entities have been bolded; attributes have been underlined; and important *multiplicities* have been italicized.

5.2 TRS Domain Model Diagram