

ICT2106 – PROJECT DETAILS

TRAVEL PORTAL

Introduction

Air Travel for business and pleasure is an integral part of our modern existence. We want to develop a travel portal for Destinations Inc., which is one of the world's biggest travel and hospitality companies. This portal will allow customers to make **air travel** reservations, make payments, buy value-added services and retrieve their travel itineraries. In addition, the portal will communicate with customers and provide meaningful data for running analytics. Some of the key functional areas for the portal are as follows:

- Creating a user profile
- Reserving, modifying and cancelling flights
- Communication with customer

The non-customer facing (i.e. Admin) side of the portal will allow for

- Analytics
- Integration with a Payment Gateway
- Integration with an Airline Database

Once you have formed your teams, you should discuss with the other teams in your lab to agree on the various modules for the project and which module your team will be working on. Note that the boundaries of each module are not fixed and can be refined as you progress through your project. You will find that the module you are working on and its boundaries will become clearer as you progress through your project and with further analysis of the requirements.

Here are some suggested modules for this project to help you start.

Customer Profile: Backend

Customers can register at the portal by creating a user profile. At least one administrator with privileged access to the system must be present. All users will log in with a username and password. Each user will have a profile page that displays some basic information about him or her, which can be modified by the user that owns it. Every user can retrieve and modify reservations they have made (see paragraph below).

In addition to the abilities of normal users, the administrator should be able to:

- delete user accounts
- reset user passwords
- other actions appropriate to the application as determined by the team designing this module

A completed reservation (after successful payment) can be stored and retrieved through the customer's account or using the reservation Passenger Name Record (or PNR, which unique 6-character

alphanumeric code). The portal also allows a customer to purchase value-added services (insurance, foreign currency, meals-on-board etc.), while making a reservation.

Reserving, Modifying and Cancelling flights – User Interface + Backend

The primary user interface allows customers to book, modify and cancel flights from Singapore to 6 other cities. These flights are serviced by three airlines. The interface will allow for selecting origin and destination, travel category (business/economy), travel dates, travel times, number of stops and airline. The interface communicates with the airline gateway (see below). Once a customer makes a selection, he/she can enter the details of the travellers and choose the payment options (credit card, net banking and a wallet). The customer can also choose to purchase value-added services while completing his reservation. The customer can also VIEW the flight details in a currency of his/her choice (choose only two currencies, USD and SGD). Once a reservation is completed, a flight itinerary will be generated with a PNR (a unique 6-character alphanumeric code), and will include the list of passengers (name, sex, age), the origin and destination and the dates. Due to the complexity of this subsystem, it is recommended that two teams work on separate sections of this module. The suggested sub-modules are:

- Complete User Interface and integration with airline gateway and the analytics module
- Reservation process and integration with the payment and communication gateway

Communication Gateway with the customer via live chat, SMS messaging and email

The portal will allow for the interaction with customers using live chat, SMS messaging and email. This would include sending them their travel itineraries and reminders. The communication module allows a customer (or potential customer) to interact with a representative/AI via live chat. The portal should also be integrated with an SMS gateway and an email gateway. This module should include emailing the customers their invoice and travel itineraries after a reservation as well as sending SMS reminders 6 hours before the flight.

Payment Gateway

The payment gateway integrates with the portal. It should work with the external interfaces of 2 card companies (MasterCard; Visa) and with the net banking interfaces of 3 banks (DBS, UOB, OCBC). In addition, it should contain a sub-module for a mobile wallet that belongs to a customer (and is owned by/sub-module of the travel portal). The wallet can be recharged through a credit card or a bank account.

Analytics

There are 2 types of analytics to consider. One is based on a number of searches/purchases made by the customer: popular origins and destinations, daily, weekly and monthly sales, most popular airlines, most popular flights etc. Another set of analytics is for the website. How many visitors (per week, per month), how many searches for flights, popular days for searches, popular times for searches etc. Reports of the analytics should include visualisations in the form of charts and tables.

Airline Gateway & Data Integration

The portal uses the airline gateway for retrieving seat availability on-board flights for different airlines. There are three airline providers available: SQ, TR, and SLK. Each provider runs a search on their

individual database to collect the necessary information about flight availability and cost. Then, a final report is consolidated and sent back to the portal. The actual activity of making a flight reservation is performed through this gateway. The gateway then updates the database after the completion of a reservation.

Application data such as user account information, flight information and reservations are to be stored in a relational database. All of the non-database components of the system will access this database via a “data gateway” that is responsible for creating and managing connections to the database, such that other components do not need to concern themselves with matters such as database credentials and the database product in use.