

School of Electrical Engineering & Computing
University of Newcastle
COMP1010 –Computing Fundamentals
Workshop Week 6

Software Development

System Requirements

- System requirements are characteristics or features that must be included in an information system to satisfy business requirements and be acceptable to users.
- System requirements serve as benchmarks to measure the overall acceptability of the finished system.
- Fact-finding to describe the current system and identify requirements for the new system.

System Requirements – Categories

- Outputs
 - ✧ Electronic or printed information produced by the system
- Inputs
 - ✧ Necessary data that enters the system, either manually or in an automated manner
- Processes
 - ✧ Logical rules that are applied to transform the data into meaningful information
- Performance
 - ✧ System characteristics, such as speed, volume, capacity, availability, and reliability
- Controls
 - ✧ Safeguard and protect the system and its data from internal and external threats

Case Study

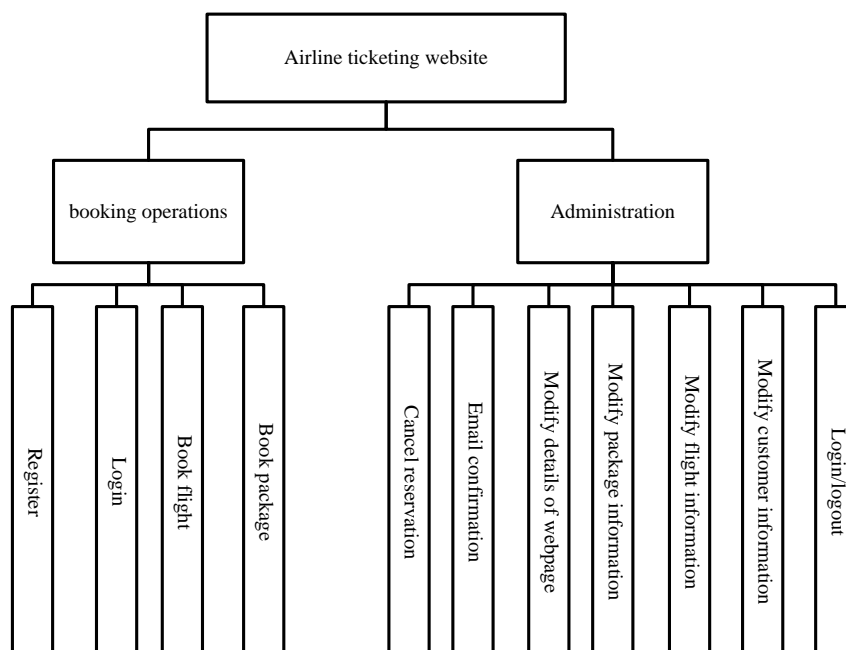
Background:

The Airline Reservation System project is an implementation of a general Airline Ticketing website, which helps the customers to search the availability and prices of various airline tickets, along with the different packages available with the reservations. This project also covers various features like online registration of the users, modifying the details of the website by the management staff or administrator of the website, by adding, deleting or modifying the customer details, flights or packages information.

Functional Requirements:

Users: Customer and the administrator

Functional Decomposition Diagrams



Define Use Case:

Use Case name: Register a customer

Description: This use case describes the scenario where the user registers with the application by providing all the necessary details, in order to make reservations or bookings for flights, motels, special packages.

Actor: Customer

Input: The customer will have to provide all the necessary details present in the customer registration form of the application.

Output: All the details entered in the customer registration page will be verified and accepted by the system into the database.

Process: The system must add this customer registration information into the database and update the database automatically.

Performance Requirements:

The system shall accommodate 400 users during the peak usage time window of 2:00am to 4:00am local time.

All web pages generated by the system shall be fully downloadable in no more than 10 seconds.

Responses to queries shall take no longer than 10 seconds to load onto the screen after the user submits the query.

The system shall display confirmation messages to users within 4 seconds after the user submits information to the system.

Security Requirements:

Customers shall be required to log in to the system for their own reservation information and modification with an e-mail address and password.

The system shall permit only authorized members who are on the list of authorized Menu Managers to do the administrator's task.

The system shall permit customers to view only their own previously placed orders, not orders placed by other customers.

Define Information Requirements:

Customer: Customer personal information, Application, Reservation

Administrator: Administrator information

Flight: Flight information, Instruction

Package: Package information

Webpage: Webpage

To help the system smoothly carry out its intended purpose to meet the hotel management needs, we need to create tables to store data:

Customer table, Application table, Reservation table, administrator table, flight table, package table, instruction table, and webpage table

Customer table

Field name	Data type	Description
Regno	Number	Registration number
Password	Text	Password
Fname	Text	First name
Lname	Text	Last name
ID card no	Number	National id card number
Gender	Number	Guest gender
Contacts	Number	Telephone number
Address	Memo	Address
Email	Hyperlink	Email account

Requirements checklist

Check Box	Checklist	Description	Actor	Authority
	Functional requirements			
	Customer registration	User registers with the application by providing all the necessary details, in order to make reservations or bookings for flights, motels, special packages.	Customer	Edit

Input	The customer will have to provide all the necessary details present in the customer registration form of the application.	Customer
Output	All the details entered in the customer registration page will be verified and accepted by the system into the database.	
Processes	The system must add this customer registration information into database and update database automatically.	
Customer table	Record one customer's information.	Customer Edit

Performance Requirements

	The system shall accommodate 400 users during the peak usage time window of 2:00am to 4:00am local time.
	All web pages generated by the system shall be fully downloadable in no more than 10 seconds.
	Responses to queries shall take no longer than 10 seconds to load onto the screen after the user submits the query.
	The system shall display confirmation messages to users within 4 seconds after the user submits information to the system.

Discussion Questions

- What are JAD and RAD, and how do they differ from traditional fact-finding methods? What are the main advantages of team-based methods?
- What is a functional decomposition diagram (FDD) and why would you use one? Explain how to create an FDD?
- What are three types of sampling? Which one would you use to analyze data input errors?
- What are agile methods? Are they better than traditional methods? Why or why not?
- A group meeting sometimes is suggested as a useful compromise between interviews and questionnaires. In a group meeting, a system analyst meets with a number of users at one time. Discuss the advantages and disadvantages of group meetings.