

**Department of Information and Communications Technology
(Tsing Yi)**

Higher Diploma in Software Engineering (IT114105)

Module Name : Internet & Multimedia Applications Development
Module Code : ITP4513
Submission Deadline : Week 46, **before 11:30pm, 11 Jul 2016, Monday**
Hand in Methods : *To be announced by the lecturer*
This Group Project : 30% of total module marks (*also it is part of EA components*)

The result of EA will not be counted if you do not meet the minimum 70% attendance requirement (if any) governed by the general academic regulations of your programme/course unless approval of the campus principal has been granted.

1. Objectives

In this project you are asked to :

- build a web application which provides different functions for *customers, travel agent, hotel owners and airline companies*
- apply software development skills to develop a web site which is user-friendly, interactive, robust and easy to maintain
- apply the knowledge you learned in this module to solve tasks which require your skills in HTML, CSS, JavaScript, PHP and simple SQL commands

2. Problem Statements

- More people are willing to spend their money in travel, however, their requirements are becoming more complicated and not easy to find a feasible travel plan by the travel agents.
- Hotel owners and airline companies can not quickly and easily analyse who are their potential customers and create promotion campaign.

3. A simplified scenario to show how the web application will be used

- a. There are four user roles for this Online Travel Information system : *customers, travel agent, hotel owners and airline companies.*
- b. Customers can view their bookings and search flights based on their earned bonus points.
- c. Travel agent staff can search flight and hotel information to satisfy a customer's travel plan.
- d. Hotel owners can maintain room information, check availability and produce statistics report.
- e. Airline companies can add flight data and analyze the revenue from bookings.

In the following table, the functions designed for each user role are only accessible by a logged in user of the correct user role, unless it is specified in the described function.

4. Functions for the Customers (25 marks)

	<u>Done By</u>
a. can select/deselect booked flights which should display a reminder message when a selected flight will depart within 7 days, and cookie may be useful to implement this function;	<hr/>
b. can view and update his/her personal data <i>except</i> the customer ID and bonus point;	<hr/>
c. can view all his/her <i>air ticket</i> and <i>hotel bookings</i> , and additional related information from the "flightschedule" and "hotel" tables;	<hr/>
d. can view his/her bonus points and search the flights of which the <i>bonus points can be used to redeem a free ticket</i> (5 bonus points = \$1 in ticket price). Sufficient flight information should be displayed for easy reference;	<hr/>

5. Functions for the Travel Agent (Staff) (25 marks)

	<u>Done by</u>
a. can search and display data of a selected <i>airline company</i> , the display data should include [1] flight no., [2] flight schedule (departure airport and time; arrival airport and time),	<hr/>

[3] flight class, [4] prices and tax;

- b. can search and display data of a selected *hotel*, the display data should include [1] hotel address & contact tel., [2] room type, [3] prices, [4] services listed in "RoomDesc" (e.g. smoking area, Wi-Fi, breakfast ...), [5] room size, [6] number of rooms available (only when a *stay period* is also specified in the search criteria);
- c. can add, update or delete any customer record, and the updatable data should include [1] surname and given name, [2] passport no., [3] customer ID in hotel or flight bookings;
- d. based on the *travel plan* provided by a walk-in customer, the travel agent staff can search and display *matching* air ticket information *or/and* the hotel information and *automatically calculate* the total amount for the air ticket(s) and hotel room(s) finally selected by the customer;

6. Functions for Hotel Owners (25 marks)

Done by

- a. can search a customer's check-in and check-out records *by surname or mobile number*;
- b. can search the room availability *by check-in date* (e.g. 28 May 2016), *no. of nights to stay* (e.g. 3 nights), and *room type* (e.g. single room, double room, superior room);
- c. can update the *information of rooms* such as price, room size, non-smoking code, and description (e.g. Wifi facility, coffee table, 2 chairs);
- d. can generate a room statistics report from hotel bookings by selecting the *date period* (e.g. from 01 Apr 2016 to 30 Apr 2016). The report data should be *properly organized* and it should *at least contain* the information such as room type, number of rooms booked and total revenue;

7. Functions for Airline Companies (25 marks)

Done by

- a. can add new *flight classes* and new *flight schedules* to the database and the "FlyMinute" value should be *automatically* calculated;
- b. can delete any *flight schedule* and display the personal details of *all affected passengers* who have these *related bookings*;
- c. can search a passenger *by surname or mobile no.*, then display all flight bookings of this passenger, *automatically calculate the bonus points* will be earned by this passenger (\$1 in "TotalAmt" of "flightbooking" record = 1 bonus point), then *accumulate* the calculated bonus points to the current value of "BonusPoint";
- d. can create an analysis report by providing different options for the user to choose :
 - * Grouping option : group the data *by flight no. or by flight class*
 - * Period filter : select flights which departs *within a date period*
 - * Output option : output the *total number of passengers* or the *total revenue*
 - * Format option : output in the form of *text or graphical chart*

8. Form your project group

Each student needs to form a project group, **the maximum number of students in each group is 4 (preferably not less than 3)**. I strongly recommend you to form a group to complete this project as you can benefit from sharing skills/codes amongst your members, and you can learn to plan, coordinate, and integrate work done by each member.

Study carefully the given ERD and table structures before you start the implementation.

9. Additional requirements of your project

- a. Your web site should only use PHP as the server-side programming language (i.e. not ASP, ASP.NET, JSP, servlet etc.), however, you may use JavaScript and CSS for specific purposes. The database server used must be MySQL (version 5.0 or above).
- b. In your PHP code, you must ensure to use the following *parameter values* for the following MySQL database functions :
 - \$conn = *mysqli_connect*(\$hostname, \$username, \$password, \$database);
 - set to the values below in a PHP script which is *shared by* the web pages :
 - \$hostname = "127.0.0.1";

```
$database = "projectDB";
$username = "root";
$password = "";
```

10. Items to submit

- A **CD-ROM** or **DVD-ROM** which stores a *softcopy of all files* for the whole web site. All files must be stored in **non-compressed format** (no .zip or .rar files please !)
- provide a SQL script file **CreateProjectDB.sql** to let the lecturer to re-create the database and test data
- for the SQL script file **CreateProjectDB.sql**, it must contain **CREATE TABLE** commands to setup the database tables in **projectDB** database. Include necessary **INSERT** statements to add additional sample records you want to provide. The following is a sample SQL script :

```
drop database IF EXISTS projectDB;
create database projectDB character set utf8;
use projectDB;

drop table IF EXISTS Users;

Create table Users (
    userName Varchar(30) NOT NULL,
    userPswd Varchar(10),
    Primary Key (userName)) ENGINE = InnoDB;

INSERT INTO Users (userName, userPswd) VALUES
('admin1', 'secret1'),
('admin2', 'secret2');
```

You must specify the **InnoDB** engine for a database table :
ENGINE = **InnoDB**
Full explanation of different **mySQL database engines** :
<http://dev.mysql.com/doc/refman/5.0/en/storage-engines.html>

- a **demonstration** of your completed web site should be recorded by a **30-day free-trial software Camtasia Studio 8** (<http://discover.techsmith.com/try-camtasia/clkn/https/www.techsmith.com/download/camtasia/>). You should save different parts of your demonstration into different **.mp4** files. In a **Word** document named **video_list.docx**, briefly describe the main content of each demo video file you have created. The video files will facilitate the lecturer to have in-depth evaluation of your web application. Here are some online tutorials for **Camtasia Studio 8**
<http://www.techsmith.com/tutorial-camtasia-current.html> :
Getting Started: 1 - Record Full Screen :
<http://www.techsmith.com/tutorial-camtasia-record-full-screen.html>
Produce and Share an MP4 Video :
<http://www.techsmith.com/tutorial-camtasia-produce-and-share-mp4-video.html>

11. Assessment criteria of your project

- The functions implemented can perform correctly in *general* and *special* situations
- Enough detail* of database records and extensive *data validation*
- Techniques used to promote *code reusability* (e.g. share common PHP/JavaScript/CSS files amongst different web pages) and *standardize the user-interface* of the web pages
- Coding style (e.g. indentation, meaningful variable names, modularity by user-defined functions etc.) and meaningful *comment* is added to program codes
- Creativity* to enhance implemented functions so that they become easy to use, more interactive to the users or can handle some problems in real life situation
- Screen design and overall *quality of the integration* of different functions in the web site

12. A guideline for web development

It is a step-by-step approach I suggested for inexperienced web developers to develop the web site easily :

- decide what information to be displayed and design a number of web pages in HTML code (not PHP code at this stage) to display the information
- think about the site structure by creating different sub-folders to store files of different purposes (e.g. **images** folder to store image files, **style** folder to store CSS files, **Connections** folder to store files which define the settings for database connection) and design the linkages between the pages. You can easily view the site structure using DW8's site map view
- create HTML web pages (don't add JavaScript so soon) and design the layout with HTML codes and CSS rules. It is a good practice to check your .html files can pass the XHTML validation after you complete a .html file
- when using CSS, it is preferred to create *external CSS files* (stylesheets) which can be reused in other web pages, so that other pages can have consistent formatting

- use DW CS6's template features which can help you to create a new page with a standard layout and also it provides common editable regions for web pages created from the same template.
- define frameset(s) and navigation bar or menu to link up different pages
- add JavaScript code to produce more interactive behaviours (such as validate data in the form, highlight a table row with different background colour when the mouse move over a table row). It is preferred to use *external JavaScript file* which will be reused in other web pages
- replace hyperlink text with image / button to beautify the links. Dreamweaver can help you to create nice Flash buttons easily
- finally, it comes to the hardest work, that is to convert some of the HTML codes into PHP codes in order to generate dynamic contents from data extracted from database, cookie and PHP pre-defined arrays (\$_POST, \$_GET, \$_COOKIE, \$_SESSION, \$_FILES, \$_SERVER etc.)

13. Penalty for plagiarism

- Each student has to submit his/her own work. Plagiarism (抄襲) will be treated seriously.
- All group projects that have been found involved wholly or partly in plagiarism (no matter these projects are from the original authors or from the plagiarists) will score ZERO marks. Furthermore, disciplinary action will be followed.

Late submission will receive ZERO marks