COMP5111 DATABASE SYSTEM AND MANAGEMENT

Group Assignment
Restaurant Management System

Deadline

Part 1: **Oct 24, 2016 (23:59pm)**

Part 2: **Dec 1, 2016 (23:59pm)**

Size of Group: 2/3 students per group

(Remark*: We strongly encourage each group to include 2 or 3 students. The abilities of communication and group cooperation are also considered as an evaluation criteria for the whole project.)

Project Objectives:

In this group project, you need to complete the development of a Restaurant Management System (RMS). The main purpose to develop this system is to help restaurant managers to manage their restaurant business.

Previous manual ordering method is difficult for waiters to keep the correct information. Besides, it is also difficult for managers to understand the total income for a certain period of time. The RMS offers the function of menu management, order placement, checking out automatically and so on.

System Scenarios:

1. Manu and table management

The restaurant menu is organized by categories (appetizers, soups, salads, entrees, sides and drinks) of menu items**.** Each menu item has a name (e.g., fried rice), price, quantity, code and the other information needed. The manager could add a new menu item or menu category, and he could also delete existing ones. Besides, the information of the menu item and menu category could be edited. The system also records the table information of the restaurant and the manager could add or delete the tables.

2. Order placement

Placing order is one of the most common functions in RMS. When new customers come, a waiter assigns a new table to them and takes orders using RMS. RMS should provide some functions for the ease of waiters, e.g., allowing waiters to search the menu items by using simplified code (e.g., FR for Fired Rice). In addition, the waiter could easily see all of menu items and quantities of the items that customers have already ordered.

3. Check out automatically

When a waiter selects a table number, the system will automatically calculate how much money customers need to pay. After the waiter input the actual payment amount of customers, the system will calculate the change automatically.

4. Report generation

RMS could generate the daily report according to all bills within a day. Besides, the monthly and yearly report could also be generated. The report at least needs to include the total number of bills, the total income, and the number of the times that each menu item is ordered.

5. User management

The system must have the ability to manage the information of system users. It should at least include their name, age, contact number, and their roles). Each user has individual account and password to login the systems. Users with different roles have different permissions to use the system. For example, the waiter cannot change the menu information, but the manager can.

Part 2 Requirements:

Basic Requirements

- Design and implement the SQL statements to accomplish the functions required in the project scenarios.

- The functions you need to implement by using SQL Statements (at least) including:

  1. Add/ delete menu items/menu categories/tables (Manager)
  2. Edit/revise the details about menu items/ menu categories/ tables.
  3. Search menu item according to simplified code or id
  4. Search the table/menu item/menu category information according to their table id/ menu item id/ menu category id.
  5. Insert the order information into the database.
  6. Search the order according to table number, and calculate the total price.
  7. Search all bills according to different period of time (Day, Week, Month).
  8. Generate Report with different time scale (daily report, monthly report or yearly report)
  9. Add/ delete users considering their roles (with different privileges)
  10. Find the password of the user according to their user name

- After you design the MySQL queries for the above questions, use the **stored procedures** (will be instructed in the Lab 4) to facilitate the data manipulation.

Advanced Requirements (Two directions)

- **User interface**: Develop a user-friendly interface of the system.

  o The functions you need to implement are not limited in the basic requirements. Other functions should also be provided, e.g., allowing the waiter to select available table number.

- **Database Design:** The scenarios provided in Part 1 is the basic ones. You could add more functions to the system, like recording customer information, etc. You

could further improve your database design according to the functions you add. Bonus points will also be awarded for advanced database functions, such as **index**, **views** and **database backup and recovery**.

<u>Submission</u>

You need to submit a report file which includes the following three things. Please name the file as "<u>yourStudentID_final.pdf</u>".

- A detailed written report (at least) summarizing the following

  o The first three parts are the same as Part 1. If you don't revise your database design, just copy the information of the part 1 report to the final report.

  o All SQL Statements you design to satisfy the basic requirements, including the Search query, Add/Delete Query, and so on.

  o The functions of all the components (classes if you use Java) in your system

  o If you design some functions that makes the system easier to use, please list them. E.g., to implement the function of searching menu items, you can use the "KeyListener" to search the menu items faster.

- Source code of the program

- The database file (.sql)

Grading Scheme:

At last, you will give us a 10 minute demo of your project, and we will grade your project according to the following schemes:

1. 30% Database modeling in Part 1

2. 40% System Evaluation in Part 2

3. 20% Report

4. 10% Group cooperation and presentation