CS2102 Database Systems
AY 2014/2015 Semester I

Project: Online Booking System

DESCRIPTION

The manager of your company, ThinkCan Pte Ltd, a local software house, has asked your team to design and implement the prototype of an online booking system. The prototype should be realistic to convince a major customer to commission your company to develop the full system, but should also illustrate the use of relational database technology to serve as an in-house showcase application for engineers in your company.

For examples, in an online hotel booking system, the users can search the catalog of hotels and rooms based on location, price range, facilities (e.g., swimming pool, fitness club, etc.) and category of rooms (e.g. standard, superior, single and double bed, etc.). They can book rooms in a hotel for up to 30 days only subject to the availability of hotel rooms. They can cancel and modify their bookings before the check-in date. For an online movie ticket system, the users can search the movies based on cinema location, movie title, show time, etc. A single user can book for up to 10 movie tickets in a single movie session subject to the availability of tickets. They can cancel and modify their bookings by at least 10 minutes in advance of the show time. For an online flight ticket booking system, the users can search the flights based on departure and arrival locations and dates, flight classes, etc. A single user can only book one ticket for her/him from the selected flight subject to the availability of tickets. However, they can also book tickets for others if proper user information is provided. They can cancel and modify their bookings before the departure date.

The system should also have an interface for administrators to create, modify and delete bookings.

It is left to your creativity to design a realistic model for the description of the elements and ancillary information in the system. You should populate the database with sufficiently enough data to both make the demonstration realistic and to illustrate the use of interesting SQL and DBMS features. It is suggested that minimum 3 tables are needed and each table should contain at least 100 records.

For examples and data, you can refer to http://www.hotels.com/, http://www.movietickets.com, http://www.cheaptickets.com.sg/

OBJECTIVES

The objective of this project is to familiarize you with database technologies, to give you an opportunity to use the school's available software and infrastructure, and to apply the concepts and techniques learned in class for the design and programming of a database application. The project is to be carried out in teams of 3 students. Team members can be in different tutorial groups.

The evaluation of the project will consider the scope of concepts and techniques used and their relevance. For instance, you should try and appropriately use the simple and advanced SQL constructs that you have learned: simple queries, aggregate queries, integrity constraints, etc. Feel free to extend the application requirements and add features in order to demonstrate interesting use of the technology learned. The amount of data in the database should be sufficient for a complete and realistic demonstration of the system.

TECHNOLOGY

Figure 1 is an overview of the architecture of your application. The architecture consists of a user interface, a Web server, a server page language and, of course, a relational database management system. The DBMS and possibly the Web Server can be located on the Cloud.

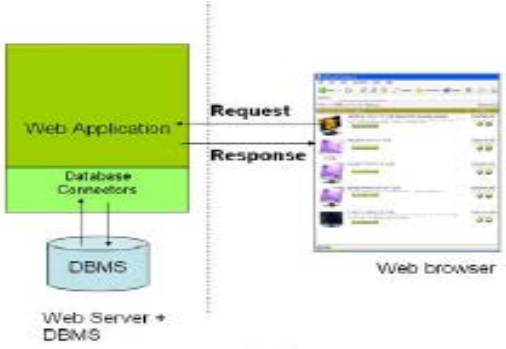

Figure 1: General Architecture

DELIVERABLES

The project deliverables are:

1. Two brief reports (2%+4%).
   a. The first report is due at the end of Week 6 and should contain the ER diagram for the application and the relational schema (in SQL DDL code).
   b. The second report is due at the end of Week 12 and should contain implementation details of the application (indication of the user interface, the web server, server page language and database management system used, whether you use the zone or else); sample and representative SQL code of the functions it helps to implement; 5 representative screen dumps of the Web interface.

   All reports must include team members' names and matric numbers on the front page.

2. A demonstration of your system (9%). The system should include, but is not limited to, the following features:
   a. User browsing and searching of items. Items can be searched using multiple attributes.
   b. Functions to rank and group items based on multiple attributes if there is more than one item satisfying the search condition (e.g., hotel results can be ranked and grouped by their star rating).
   c. User can create, delete, and modify his/her own booking when allowed, while administrators can create, delete and modify all the bookings.
   d. Error messages shown to users whenever data constraints are violated. For examples, when creating a booking, the date must be valid (e.g., the departure date should be later than the arrival date, the departure date cannot be later than the actual date). When modifying a booking, make sure there is no conflict; otherwise, the modification cannot be processed.