

INFS3204/7204 Practical 6 – Travel Reservation System: Part 2

The aim of this practical is to create the next part of your prototype of the travel reservation system. This is the second party of the system: airline booking integrated with hotel booking. Practicals provide an opportunity for students to gain practical knowledge taught in this course, including C# programming, business systems integration and technical concepts in web services. This practical contributes 10% to your overall grade. You must present this practical to your lab tutor during your scheduled lab session in week 12.

This practical is divided into 4 tasks:

1. Search (3 Marks)
 - a. Search function (2 mark)
 - b. Review function (1 mark)
2. Booking (4 Marks)
 - a. Booking function (2 marks)
 - b. Error checking function (2 marks)
3. Payment (2 Marks)
 - a. Database update function (1 mark)
 - b. Receipt function (1 mark)
4. Integration with airline booking (1 Mark)

Preparation

For this practical, you are allowed to choose between Web Forms and MVC as well as having the choice to choose between traditional ADO.NET and LINQ 2 SQL for your database query. You are to complete practical 5 before attempting to do this practical. Some of the Web Services implemented in practical 5 can be reused in practical 6.

A hotel database had been given to you. You are required to use this database in this practical. Refer to Figure 1 for the schema of the database. This sample database only covers some hotels of the countries listed in the airline database. There will only be one hotel associated to each country. Download the database from [here](#) and attach it to SQL server in Visual Studio. This database is meant for SQL Server 2008 version or higher. **Please read the whole specification before attempting to do this practical.**

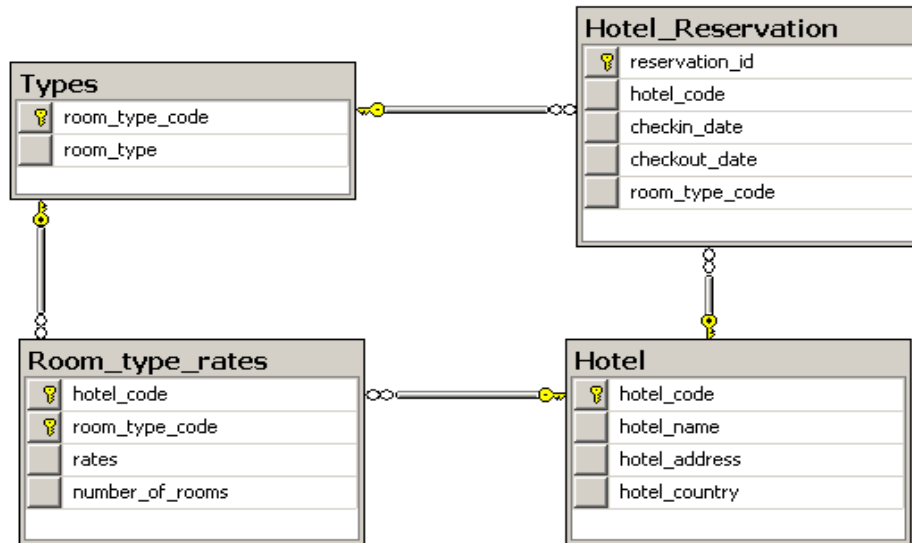


Figure 1: Schema for Hotel database

Hotel Table holds the information of hotel in the countries listed in airline database.

- Hotel_code – unique code assigned to each hotel (Primary Key)
- Hotel_name – name of the hotel
- Hotel_address – exact location of the hotel
- Hotel_country – country of where this hotel is located

Types

- Room_type_code – A unique code to identify different types of rooms
- Room_type – name of the type of room. E.g Presential Suite, Twin Bedroom, Single bedroom

Room_type_rates

- hotel_code – foreign key to Hotel Table
- room_type_code – foreign key to Types Table
- rates – Cost of each type of room for different hotel
- number_of_rooms – the total amount of rooms for each type in each hotel
- Both hotel_code and room_type_code are primary key for this table.

Hotel_Reservation

- Reservation_id – Unique code to identify the booking. (Primary key)
- Hotel_code – foreign key to Hotel Table
- checkin_date – the check in date
- checkout_date – the checkout date
- Room_type_code – foreign key to Types table.

In the Hotel_Reservation table, it has been populated with some existing hotel bookings. You are required to check the vacancies left based on the start and end date, for the different types of rooms.

Hotel Booking

You are to extend the prototype system from practical 5 to include a hotel booking functionality that will allow users to make hotel reservation through your system. You will need to extend your booking database so that it can now store information about hotel booking. Each hotel booking must be associated to at least one user. A user can be identified by their passport number. Each hotel booking has a booking reference number to it. A user can have multiple hotel bookings.

The system includes the following functions:

Search

The System will allow users to search for hotels based on the country and their check in and checkout dates. In the hotel database, Hotel_Reservation Table keeps track of all hotel reservations made. In order for you to search correctly, you have to search the Hotel_Reservation Table for existing bookings on the same hotel based on the check in and checkout dates.

For example, Hotel A has 5 Single Bedrooms. If 2 reservations have been made for Hotel A from 19 Sept to 29 Sept, and both have reserved the Single Bedroom type, you are required to do a "count" on any overlapping dates based on the check in and checkout dates for each room type. The number of available Single Bedrooms for Hotel A from 19 Sept to 29 Sept will be 3 (5-2). The total number of rooms for each room type can be found in the Room_type_rates Table.

Upon searching, a list of available rooms for that particular hotel will be displayed to the user. Displayed information must include the rate for each type of room per night and the number of available room for each type of room between the check in and checkout dates.

After the result is displayed to the user, the user will have the option to search with another set of dates or proceed on with the reservation. If the user proceeds on with the reservation, he/she will select the room type and be redirected to a review page that shows all the information with regards to the reservation like check in and checkout dates, the room type, the number of available room for the type, hotel name, hotel address, and country.

Booking

After reviewing the selection, the user can go back to the result lists or confirm the selection to proceed to the booking process. Upon booking, the user will be redirected to a booking page, where he/she will enter the details of the hotel booking, including the number of rooms and all passengers' details.

The user is required to enter the following details for each passenger, same as the airline booking:

- Passenger Details
 - Title
 - First Name
 - Last Name
 - Date of Birth
 - Passport Number
 - Address
 - Phone
 - E-mail

You are to have validations for all the above fields. Furthermore, the system must be able to handle errors and exceptions. For example, the total number of rooms in the booking should not be greater than the number of room available. The same passenger should not be booked more than once for the same hotel at the same date. After the user has finished entering the information with no errors, he/she can then proceed to the payment page.

Payment

In the payment page, the user will only be able to pay through the use of credit card. The detailed hotel booking information with total amount of fee will be displayed to the user. You are to make use of the credit card web service that you have created in practical 5. All payment details are the same as practical 5.

After entering the payment details with no errors, a receipt is to be sent to the user via email. Otherwise, the user is requested to input the payment details again.

Once the payment is done and an email is sent to the customer, you are required to have a record for this hotel reservation in your booking database as well as inserting a new record into the Hotel_Reservation Table in the hotel database.

Integration with Airline Booking

In practical 5, after booking of airline, the passenger has the option to choose to continue with the booking of a hotel or end the booking process. If the passenger chooses the former choice, he/she will be redirected to the hotel booking page. The selection of country will be automatically set to the passenger's destination country and the check in date will be automatically set to the arrival date of your booked flight.