

Assigned: Friday, 2/10/2012 @ 6:00pm

Due date: Wednesday 2/15/2012 @ 5:00pm

PART I: MYSQL

Assignment

Using the database relational schema provided below for the Hotel domain, as well as the text below the schema describing the domain further, generate a set of SQL statements that will create a database called “DBH” and create all the necessary relations, foreign key mappings, and integrity constraints. You should strive to make the relations as closely match the specifications given in the description below, so read carefully and map the text to what it means in database terms.

Database Relation Schema (primary keys underlined in white – red squiggly lines are meaningless).

Hotel

<u>hotelNumber</u>	<u>hotelName</u>	city
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Room

<u>roomNumber</u>	<u>hotelNumber</u>	type	price
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Guest

<u>guestNumber</u>	<u>guestName</u>	<u>guestAddress</u>
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Booking

<u>hotelNumber</u>	<u>guestNumber</u>	<u>dateFrom</u>	<u>dateTo</u>	<u>roomNumber</u>
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Extended Description

Assume that you are working for the Deacon Boutique Hotels (DBH) Corporation and have been asked to develop a database to manage the current and future bookings at the hotels the chain owns. You can assume, through some mechanism you don't have to worry about that any old bookings are expunged from the system when guests check out –so this database will only maintain information about current and future bookings.

DBH is focusing on the major metropolitan areas of North Carolina. Given that, DBH will not own more than 9 hotels at a time (because of the distribution of population in NC and because of their goal of staying exclusive), so hotel numbers can be lower bounded at 1 and upper bounded at 9. Every hotel owned by the company will be given a name and is located in a city.

Each hotel itself will be limited to 99 rooms. Room types are specified by the first letter of the word describing the room's bed size: (D)ouble, (Q)ueen, or (K)ing. Prices should be able to be set as reasonable monetary values less than \$10,000.00. Every room will be assigned a price and a type.

Guests are given a unique number when they make a booking and are asked to use that number in all future bookings. DBH would like the system to not have any pre-set limit on number of guests beyond the limits of the database management system itself. Because guests come from all over the world, guest names and addresses, which are stored in the system, can be arbitrarily long strings. Guests are required to provide a name, but for privacy reasons are not required to supply an address (DBH sometimes has movie stars stay at its hotels).

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When a booking is made, the hotel and room associated with the guest are recorded, as well as the planned check-in and check-out date. All of this information must be provided when a booking is made.

If a hotel is removed from the database (rare, but possible – for example, it might be sold to another company), all rooms and bookings associated with that hotel should be removed as well (as that info is no longer important to DBH). Rooms are sometimes removed from the database to allow renovations to occur, but that should only be allowed if there are no current or future bookings for the room. Finally, if a guest vandalizes or trashes a room, it is the policy of DBH to record the guest information in another “blacklist” database (that you don’t have to worry about) and then delete that guest from the guest list and to cancel all of their future bookings.

You can assume any strings (such as hotel names, addresses, people names, etc.) could be any length up to 200 characters long.

Helpful Resources

MySQL references for data types:

<http://dev.mysql.com/doc/refman/5.1/en/data-types.html>

Be sure to look at the constraints on the number of digits/decimal places/etc. the types allow.

MySQL references for data definition statements:

<http://dev.mysql.com/doc/refman/5.1/en/sql-syntax-data-definition.html>

MySQL references for foreign key constraints:

<http://dev.mysql.com/doc/refman/5.1/en/innodb-foreign-key-constraints.html>

The scripts, createParking.sql and deleteParking.sql, in the Sakai “Resources/Example SQL” folder provide examples of create and drop statements (drops are useful if you need to remove a table and start over), including examples of setting sizes on numerical attributes, setting foreign keys, setting integrity constraints, etc. To save these files to your machine, right-click on them in Sakai and choose “Save Link As:”.

Submission

Upload into Sakai (under the “Programming Exercise 1” link of the Assignments page) a file that contains the SQL statements needed, in an appropriate order, to make the database. Also, leave your database in place on your virtual machine after you feel you have successfully created it. The SQL file should create the database and create all of the tables of the database.

PART II: E/R MODEL

Assignment

Given your understanding of the tables and the domain description provided above, design, either on paper or electronically, an E/R model that is appropriate for this domain. [Usually one turns an E/R model into relations – we are going the other way, reverse engineering an E/R model from a relational model].

Your E/R model should include entities, relationships, entity and relationship attributes as appropriate, and multiplicity values on each end of the relationships.

Submission

Upload into Sakai (under the “Programming Exercise 1” link of the Assignments page) or turn in physically a copy of your E/R model as well as document with a brief (two-paragraph) justification of why you setup the E/R model as you did and why you set the multiplicity values as you did. Make sure any electronic documents submitted are in a format I can read (PDF preferably, Word, Powerpoint, text file).