COMP 3421 Database Organization & Mgmt I

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Assignment 1

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Step 1 of Your PDA (Personal Database Application)

Note: this assignment is a slight modification of material developed by the Stanford Database Group

As the course progresses you will be building a non-trivial database application for a real-world scenario of your choosing. You will design schemas for the database, then using mysql: create your database, create synthetic data, load the data, query the system, and write complete interactive packages that use the database.

Your first step is to identify the domain you would like to manage with your database, and to construct an entity-relationship design for the data. We suggest that you pick an application that you will enjoy working with, since you'll be stuck with it for the whole quarter! For example, pick something you are interested in--a hobby, material from another course, a research project, etc. Get the most out of this part of COMP 3421.

Try to pick an application that is relatively substantial, but not too enormous. For example, when expressed in the entity-relationship model, you might want your design to have in the range of four or more entity sets, and a similar number of relationships. Note that this is a ballpark figure only! You should certainly include different kinds of relationships (e.g., many-one, many-many) and different kinds of data (strings, integers, etc.), but your application need not necessarily require advanced features such as weak entity sets or roles in E/R.

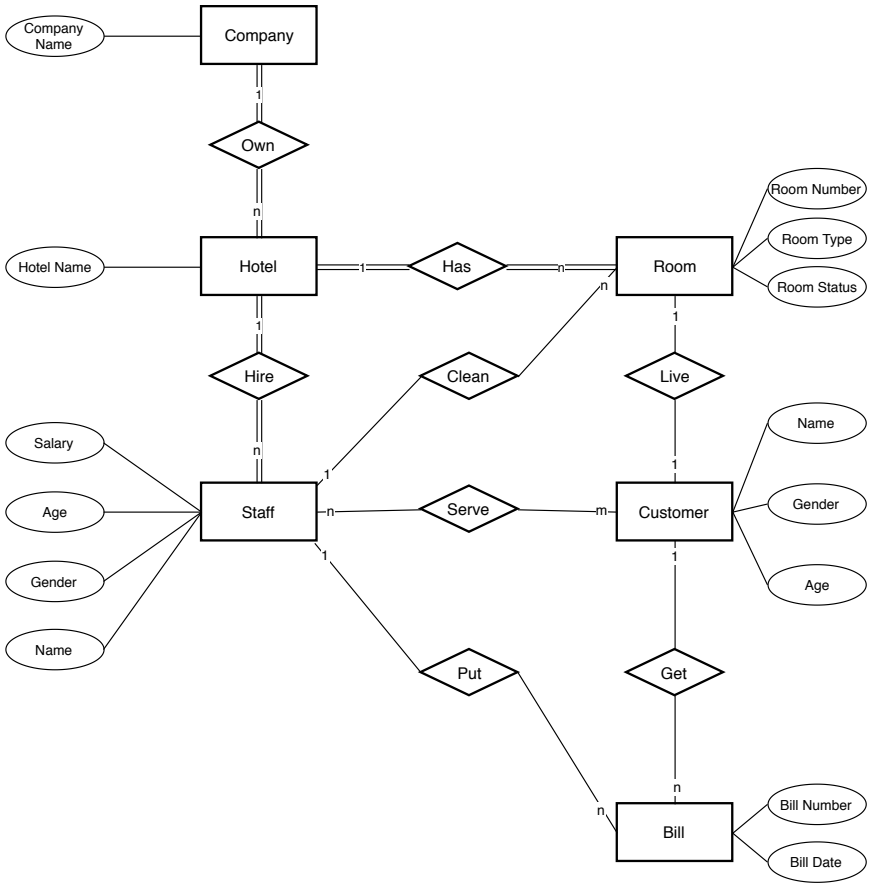
(a) (10 pts.) Write a short (approximately one paragraph) description of the database application you propose to work with throughout the course. Your description should be brief and relatively informal. If there are any unique or particularly difficult aspects of your proposed application, please point them out. Your description will be graded only on suitability and conciseness.

Answer:

My database is about the Hotel management. There are some tables in my database. These are Company, Hotel, Customer, Staff, Room, Bill.

Company must own the many Hotels.
Hotel must have many rooms and hire many staffs.
Customer live in rooms and they will get bill. Customers table can keep track of customers' information in the hotel.
Staff should serve the customers, clean the room and put some bill to customers. Also, Staff table can save all staff's information. Such as, name, age, gender, salary.
Room is a table to keep track all types of room in this hotel.
Bill record all payment made by the customers when guest check out in this hotel.

(b) (20 pts.) Specify an entity-relationship diagram for your proposed database. Don't forget to underline key attributes and specify the arity of relationships using numeric (1:1, N:1, 1:N, N:M) designations. (double line mean must. For example, company must own hotel, and hotel must has rooms.)



(c) (10 pts.) Describe two high level interactions (involving 2 or more relations) your database should support. For each describe which relations are touched and how. For example, in the University database example in class I may want to have a withdraw student function. The withdraw student function will delete all currently enrolled classes for that student from the Enrolled relation. Another example might be a add class function which given a student id and a course number would add a tuple to the Enrolled relation.

Answer:

The first high level Function is about Customer. When the Customer check in to the Hotel, My function can add his information to Customer table such as name age gender. Also function will add the customer's bill to Bill table, and add his/her room number and change the Room Status.

The secondly high level Function is about the Staff. When the Staff away from the Hotel, the function can help hotel delete the staff's information from Staff table such as name, age and salary. Also function delete the staff from Hotel table, and from Room table, if the staff have any work plan to clean some room.