King Saud University

College of Computer and Information Sciences

Department of Information System

IS 230

Introduction to Database Systems

Project phase# 1

**Private Health Care Institute Database**

In this project, you are asked to build a database for a health care institute to keep track of patients, their health information and any health claims issued by them (to check whether their insurance policy covers the treatment expenses). Also, to keep track of doctors and nurses.

Information such as patient name, set of addresses, phone, email etc. are required along with the patient health record that records every details about this patient. A patient can make several visits (appointments) to any doctor. We also want information on each doctor such as their specialty and what hospitals they are affiliated with as well as their phone, address etc. Note that doctors might work in more than one hospital and that some doctors (specialists) supervise other doctors. Regarding the hospitals, we need to know where they are located and how to contact them.

The prescriptions given to each patient by a health-care provider (doctor) also need to be tracked in this particular database to determine claim eligibility including some basic information on the drugs being prescribed to make sure there are no conflicts with a patient’s other prescriptions. We need to know each drug’s name, purpose/use and possible side effects.

Doctors often require patients to do lab tests in order to give accurate diagnosis. Lab tests are requested by doctors and given by nurses. Information needed for lab tests is type, name, reason, criticality (urgent, non-urgent), price also information such as who conducted the test is highly important for auditing.

In some cases, patients are admitted to the hospital and stay in a room that falls under one of the three room categories: (executive, standard, shared). Each category should have a description, area, and capacity. Information like the room number, floor, and price must be recorded. The admission date and discharge date should be recorded accordingly.

The database will be adopted in a private health care institute, so any payment information must be recorded. Patients are charged based on the visit, prescription, any lab tests they make and/or on the cost of staying at hospital (for inpatient). Some patients have insurance policy that covers some of the expenses for them or for any family member they support (i.e. son, daughter, wife). Therefore, for each family member we need to know the ID of the patient who supports them to know the type of the policy. Insurance policy is bought from any insurance company that exist in the market and thus the company must be stored as well in the hospital database for contact purposes. Insurance policy information must have the maximum cost allowed, category, expiry date, and a policy number that issued by the company.

**Phase 1 (*deadline: 23-03-2017*):**

Draw an ER diagram for the above problem using your analytical skills. Your ER diagram must include: entities, attributes, relationships, cardinality and multiplicity.

**Guidelines:**

* For ER diagrams use online drawing tools (hand-written diagrams won’t be accepted).
* Not all information about entities (attributes) were mentioned, it is your responsibility to analyze the problem and find most suitable solution.
* For any information you assume, write down your assumptions as clear points under your diagram.
* Cheating is prohibited and both groups will get (-10) if a cheating case is reported.

**Project Phases:**

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|  | **Phase 1: Conceptual Design** |
| 23-Mar-2017 | Draw the Entity Relationship Diagram (ER) for the complete system. |
| **Phase 2: ER Mapping and Specification** | |
| ***Due Date*** | ***Requirements*** |
| 13-Apr-2017 | * Map the ER diagram to a relational schema. * Identify the primary key and foreign keys for each entity type. * Choose two entity types and write the data dictionary for them. |
| **Phase 3: Relational Model & SQL** | |
| ***Due Date*** | ***Requirements*** |
| 04-May-2017 | * Start implementing your DB using a DBMS * Submit a report of queries. |
| **Phase 4: Database Application** | |
| ***Due Date*** | ***Requirements*** |
| 22-May-2017 | * Use your programming skills to develop a program that interacts with your database. |
| **Phase 5: Presentation** | |
| ***Due Date*** | ***Requirements*** |
| 24-May-2017 | * Present your entire work in an interesting formal way. |