Jordan University of Science and Technology

CIS 221 – Database Systems **Winter 2018**

Deadlines:
Phase 1 – ER Diagram (manual + software): February 28, 2018
Phase 2 – Mapping: March 20, 2018
Phase 3 – SQL: April 10, 2018

Final Project

In this project you are to create a 'simple' database system for a Hospital Management System. For such system, you are to work in groups of 3-4 people, as planned with the T.A (no exceptions).

Getting started

For this project, I recommend that you visit any website for a hospital that can help you get an idea of what requirements you will have to have in mind before you start.

A competition!

Please try to do your best in this project. Your grades will be determined based on your rank in accomplishing all the required tasks, discussion, and any extra executed tasks that can support your system, within the scope of our requirements!

Project description

Below is the description and it is been segmented for your convenience while reading:

- There are two types of patients, recognized at this hospital, Inpatients and Outpatients. We keep track of the dates of receiving and discharging patients. The day before you are discharged is your last inpatient day. You are an outpatient if you are getting emergency department services, observation services, outpatient surgery, lab tests, X-rays, or any other hospital services, and the doctor has not written an order to admit you to the hospital.
- For every type of patient, it is important to record their status and disease.
- Inpatients are allocated a certain room, with a certain type and cost.
- Patients should register themselves at the reception desk upon arrival. This includes information concerning their name, phone number, address, D.O.B, Email, gender, blood group. We also store information about the emergency contact for each inpatient, and their relationship to them.
- A bill will be issued to these patients based on the type of service they obtained. It should enlist all services details. There is a report that can be issued for each bill that contains all the details of this bill, when asked for~.
- Patients will be asked to take some tests that have clear type, name and cost as well.
- The hospital should record any type of medicine that the patient is getting or should be getting, with all its necessary details that are needed about dosage, and for the bill later.

- For simplicity, we will assume that there are two types of employees at the hospital. A doctor with a certain qualification will be assigned to each patient as soon as they are admitted to the hospital, and there is a limit to the number of patients a doctor will manage. Also a nurse will be assigned to the patient, and we keep track of the number of patients a nurse is assigned to.
- We keep track of each employee type, name, D.O.B, hire date, and any other necessary information for integrity constraints.
- The hospital keeps track of active employees and passive employees. Passive employees are those that worked in a certain department, and we record their date of leaving and their corresponding department. Those active ones are those that are currently working in a certain department since a certain time, as accepted by the department head.

Deliverables

- You will be asked to deliver the different components of the system, depending on the phase (as convenient). Only one member of your group need to submit these deliverables. At the deadline of each phase, you will have to submit the following:
- Requirements and design documents:
    - You need to make a title page,
    - Summary describing how your design was carried out.
    - Also you need to list the data requirements for such a phase.
    - You will also need to provide the kind of functionality your work is providing and
    - What limitations the current part has in terms of functionality compared to similar systems
- Phase one is about conceptual design: ER diagram. Use the (min, max) notation for specifying the cardinality for the whole diagram
- Phase two is about logical design: Map your ER diagram to a relational schema.
- Phase 3 is about:
    - Physical database design – A description of all tables and attributes in your database. Your physical database design may closely match your logical design (i.e., your relational schema), or you may have made fairly significant design changes based on what you've learned since then. Your relations should be normalized to a degree that makes sense based on your database and intended applications. For this deliverable, specify all functional dependencies, constraints, keys (primary and foreign) and normalization issues for your database. More details are given below.
    - SQL file (containing sections of command that are needed to do all requirements)
    - Insert data into the database (all tables)
    - Your queries should be showing all DDL/DML operations that you will learn in this course.
- *Team Member Contribution – Describe the contributions of each team member to the project. Include how many hours each team member put into the project! Remember, marks and status depend on your contribution and accomplishment in the competition*.
- Failure to show at the discussion times will get you a ZERO no matter what your solution is!
- **Any plagiarism case will be reported to the department to be treated according to the university code.**

Good luck!

Rubric	
Conceptual Design	
Entities and their attributes	30
Relationships	40
Cardinality	30
Logical design	
Covers all the rules	100
Captures all the logic	-5 for every missing component
Physical design + SQL	
Constraints	-5 for evey missing constraint
Main components of tables	-5 for every missing component
DDL	50
DML	50
Total	300