Group Assignment 1
CSC 343 - Fall 2019
University of Toronto Mississauga
Due: Monday October 21st, 2019 by 9:00am

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Disclaimer: if you have not completed Assignment 0, you do not have a MarkUs repository. Assignment 0 must be completed prior to Assignment 1; submissions of Assignment 1 without Assignment 0 will be awarded a grade of 0.

E-R Diagram Description

You have been recruited by the Ministry of Health (`MoH`) as a database architect to design a database schema which accurately records and efficiently retrieves information about health care entities and their interactions in certain hospital settings. The provincial government would like you to store information about persons, hospitals and their departments, drugs, as well as medical tests.

A person may be a patient, physician, or a nurse. A person has a unique identifier, first name, last name, gender, date of birth, and an address that consists of a street, city, province, and postal code. Every person has at least one phone number; possibly more. For each telephone number, the number is recorded along with its contact type (home, work, or mobile). A phone number can only be associated to exactly one person. Each patient is assumed to have some type of health insurance, with possible categories being: public, private, and self-funded. For each physician, the `MoH` would like to record his/her medical specialty, number of years in practice, and his/her yearly salary (in CAD). For nurses, the `MoH` would like to know their yearly salary (in CAD), and their number of years in practice too.

The `MoH` has requested hospital information in the province, including the hospital name (which serves as its identifier), street address, city, and annual budget (in CAD). Every hospital has at least one medical department that provides medical services. A department is identified by its name, and the hospital in which it belongs to. The `MoH` is also interested in recording each department's annual budget. Each physician belongs to exactly one department based on his/her specialty. Each department must have at least one, possibly more, affiliated physicians. Nurses, however, may work in one or more departments, and every department must have at least one affiliated nurse.

As patients arrive to a hospital, an admissions record is created indicating the admit date, and a priority (one of: immediate, urgent, standard, or non-urgent). Patients may be admitted to many hospitals (including zero), and a hospital may admit many patients (including none). Each patient is under the care of one nurse. However, a nurse may care for one or many patients. Every patient is associated with one physician, who makes a diagnosis of the patient's condition, recording details such as the diagnosed disease, the date of diagnosis, and the prognosis (one of: excellent, good, fair, poor, or very poor). Every physician treats at least one patient by providing a diagnosis. Patients may undergo a set of medical tests to confirm and treat a diagnosed disease. Each medical test is identified by a unique numeric identifier, the name of the test, and a fee (in CAD). Each time a patient undergoes a test, the test date, and test results (assumed to be in string format) are recorded. Physicians may provide a prescription to a patient to treat his/her illness. A prescription associates the prescribing physician to the intended patient, recording the date of the prescription. Lastly, every prescription must contain a prescribed drug, and the dosage for the intended patient. A drug is identified by its 8-digit drug code, generic name, drug category, and the unit cost. A drug may be prescribed to zero or many patients.

Question 1

Draw the ERD capturing the described requirements. You cannot add additional attributes or entity-sets not defined above. You must use either Chen's Notation or Crow's Foot Notation. You may use any electronic drawing tool of your choice, but please ensure your ERD is clearly readable. Hand-written models will not be accepted.

Question 2

Provide the corresponding MySQL "CREATE TABLE" statements describing the relational schema. You must enforce inter- and intra- relational constraints[1]. Please include all your statements in an executable script (`MOH.ddl`) that can be run on the CSC MySQL server. Scripts that do not execute on the server will not be marked.

[1] you cannot disable foreign key checks!

Grading

This is a group assignment to be completed in the pairs (i.e. a team of 2 people); selected in Assignment 0 unless advanced written approval has been given by the Course Instructor. This assignment is worth 10.0% of your final grade in this course and will be graded out of 100-points.

ERD: 65-points out of 100-points, plus an additional 5-points for aesthetics and style. Note that either Chen's Notation or Crow's Foot Notation must be abided by. Furthermore, handwritten models will receive a grade of 0.

DDL: 30-points out of 100-points. Scripts that do not execute on the MCS's server (i.e. your file should be able to be executed in its entirety) will receive a grade of 0.

Submission

All files are to be submitted using the MarkUs platform (https://mcsmark.utm.utoronto.ca/csc343f19/). Only one person from each group is required to submit the files. You may submit as many times as you like, this is a repository for you and your partner to work in. Please ensure your answers are typed and submissions are clearly legible.

Include your, and your partner's, full name and student ID number in all files (both PDF and DDL). Submit your ER diagram in one file called **`A1.pdf`** alongside your MySQL executable script in a file called **`MOH.ddl`**.

This means you will submit a total of two files: `A1.pdf` and `MOH.ddl`.

Please note that late assignments will be docked 20% per calendar day of lateness and after three (3) calendar days, the assignment will no longer be accepted.

Plagiarism

Please refer to the course outline and introduction slides. To serve as a reminder: Turnitin will be used for all written work and MOSS for all code submissions. UTM's policy on Academic Integrity: http://academicintegrity.utoronto.ca/