Comp1168-Database Management-Group Project

Group Size: Maximum **Five (5)** students (belonging to the same CRN)

Due Date: Sunday Apr 11, 2021 (Submission through Blackboard)

Project Synopsis:

ABC Walk-in Clinic is located in a large metropolitan city in Canada. The clinic staff consists of ten doctors, six nurses, five office secretaries, two administrative assistants and one manager. First time Patients have to visit the clinic personally and fill a registration form that contains their personal and health related information. An office secretary would then enter that information in the computer based information system.

Patients may become a permanent patient (at any time) for one of the doctors at the clinic by filling up necessary forms (they are called enrolled patients) or they may choose to come walk-in for every visit. (They usually called walk-in patients) Enrolled Patients may book their appointments online or by calling, the office and one of the secretaries would then book their appointment with their doctor on a particular day/time. Any booked appointment may be cancelled up to 24 hours in advance after which the clinic charges a fifty-dollar fine.

During a visit to the clinic, a patient reports to the secretary and she either puts him in the walk-in queue or in case of patients with existing appointments, checks them in. A Nurse then takes the patient to an examination room and writes down

about her symptoms and other medical issues and then based on each individual patient's needs may take their blood pressure, temperature, height, and weight and then enters all this information in the computer system.

The clinic system should keep a track of patients' appointments and change the status accordingly: booked, cancelled, arrived, checked in, checked out, LWT(left without treatment), No show etc. Healthcare is free in Canada and most people are not charged any fee (clinic is paid by the government), however sometime a small fee is charged for items not covered by the government such as Sick notes or fee is charged from the patients who are not covered under the government health coverage (visitors etc.)

Next, the doctor examines the patient and may order some diagnostic tests for the patient (blood work, XRAY, Ultrasound etc). The doctor will enter patient symptoms, her diagnosis and treatment (prescription medicines). The system should have the capability to store all of the above information entered by the doctor for a patient's visit. The doctor may also refer the patient to a specialist doctor and store this information in the system.

When the results come back from the Laboratory, one of the nurses will review all the reports and enter them in each patients file (electronic file within the clinic system). She may also call a patient to book a follow up appointment with a doctor in case of adverse results.

The clinic runs in two six hour shifts (7a.m to 2p.m) and (2p.m to 8p.m). Manager should be able to schedule doctors, nurses, and secretaries for shifts. Doctors are paid by the government but the Manager is supposed to pay salary to all other employees based on their hours worked. The system should be able to store this information and the manager should be able to generate a bi weekly report for the hours worked by the nurses and secretaries and therefore calculate their salaries (assume reasonable hourly rates for nurses and secretaries).

Project Requirements:

Please make reasonable and educated assumptions about missing/ ambiguous information and properly document (in a few words/sentences only) your assumptions and the rationale behind those assumptions.

1. Please create a **Conceptual Data Model (using Draw.io)**, containing entities and their relationships as they exist in the problem domain (including any M:M relationships)

2. Please create a **Physical (Logical) Data Model** using MySQL Workbench® based on the conceptual model. Create a new schema named **GroupxxSchema** (xx is your group number, i.e; Group21Schema) and then create a physical EER model in it containing the tables with appropriate columns and relationships among these tables (resolved as 1:M only). Assign proper data types to columns and add appropriate keys & constraints. Make sure that all relations are in t3NF.

3. Now Forward Engineer this EER model to create tables and relationships and INSERT 10-15 records per table.

4. Create the following **TEN queries** (take a screenshot of each SQL statement and its result set and add it in the project report, as described later in this document)

a. Create a query that returns Patients' full names, addresses, phone numbers and email addresses. (Ten results minimum).

b. Create a query that lists all patients who have not had any appointment in the clinic in the last 2 years (at least one patient)

c. Create a query that returns the all appointment by a particular patient in the year of 2020 (should return 5 appointments at least) the result set would include patient names, examining doctors' and nurses' names, dates and times of the appointments, any tests ordered by the doctors for the patient.

d. Create a query that returns all appointments that were either cancelled, or patients were No Show in the month of December 2020. (five results minimum)

e. Create a query that that returns staff members' names (excluding doctors), their hourly rates, number of hours worked and Salary

(calculated column; there are 13 employees in the clinic) for the two weeks period (

f. The Clinic Manager has decided to send “Happy holidays” greeting cards in December and needs the full names and complete addresses (street address, city, province, Postal Code) for all the staff at the clinic (Doctors, nurses, patients, secretaries) so create a query that returns this information (usually called a mailing label)

g. Create a query that returns all patients enrolled permanently with one of the doctors

h. Create a query that returns a list of all patients and their family member (add a column primary member id in the patient table; make one patient as the primary member and then create another column called relationship and add husband, wife, son, daughter etc.)

i. Create a query that would create a list of all patients that were seen by a particular doctor on a given date (i.e. 12 December, 2020)

j. Create a query that would return name of a patient who paid some sort of a fee to the clinic, also retrieve the service for which he paid and the doctor’s name (for example Dr Smith, Sick Note)

Project Submission Requirements:

Each group will submit two(2) separate files through Blackboard Submission Link before the deadline.

File no 1-Project Report (MS word/Pdf) document containing:

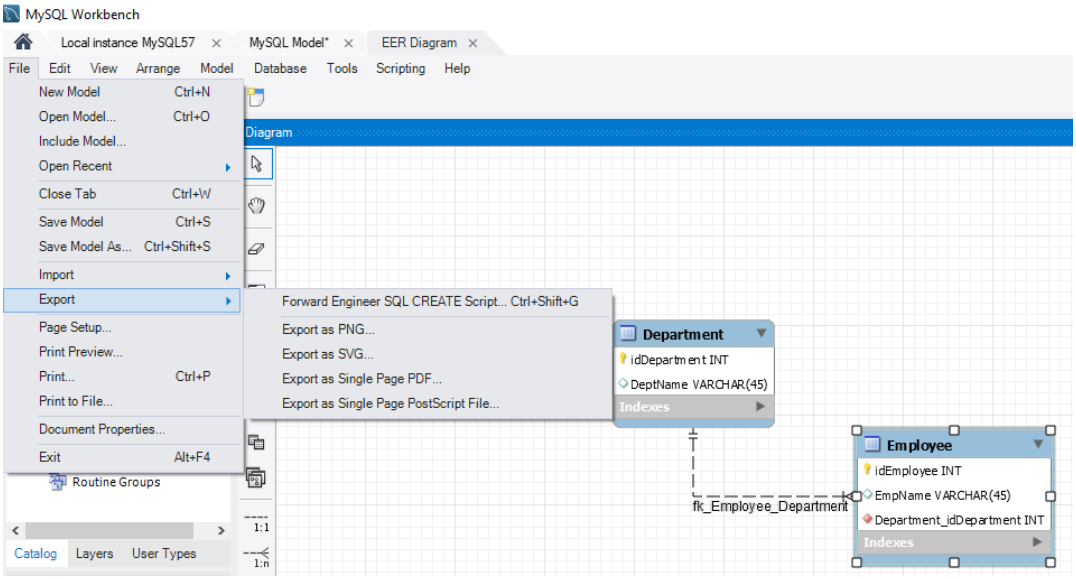
1. A cover page containing all members' Last names, First names, Student Ids and **CRN**.
2. Second page will contain the **Conceptual Data model** (created in Draw.io or similar software and then imported as Image in MS Word/pdf).
3. Third Page will contain **Logical/Physical ER model** (created in MySQL Workbench or similar software and then imported as Image in MS Word/pdf). **(See Appendix A of this document for instructions)**
4. Fourth Page will have (any) assumptions or clarifications.

File No2- The SQL Script file that will create the GroupxxSchema containing the required tables and data (See Appendix B of this document for instructions)

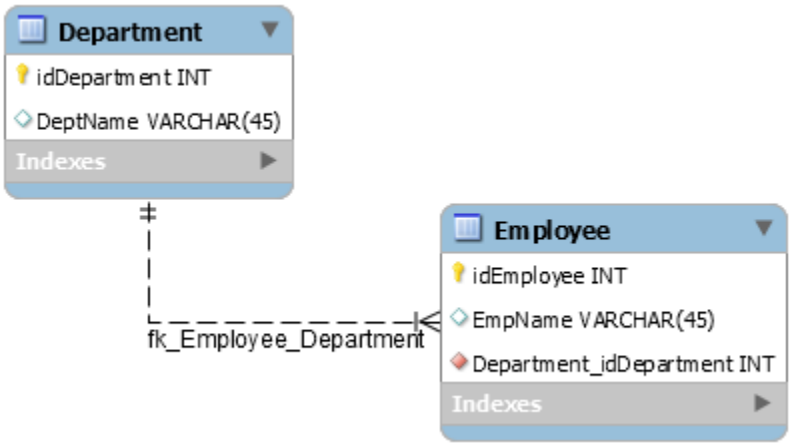
Five percent (5%) marks are reserved for proper submission and organization, formatting of your report according to the specifications provided above.

Appendix A: How to Export Models My SQL workbench as Image

File Export-Export as PNG

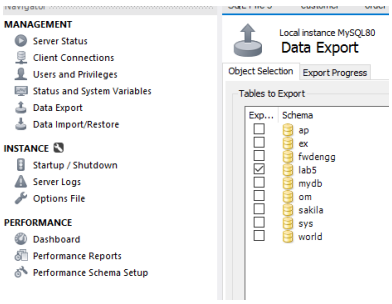


Now Insert that PNG file in Word and will look like this



Appendix B: How to Script a Schema (Table structure and Data)

1. Main Server Instance Page--- click on Administration--- Management- Data Export



2. Pick the Schema and check the following options
3. Dump Structure and Data
4. Provide a script file name **(GroupxxSchema)** with its path selected.
5. Create Dump in a single Transaction
6. Include Create Schema