CS348 – Fall 2019 - Project 2

Procedures and JDBC

Fall 2019

Due on:

Note: There will be a 10% penalty for each late calendar day. After five calendar days, the homework will not be accepted.

In this project, you are asked to complete 3 procedures with MYSQL Procedures and 2 JDBC Questions.

Notes:

1. The schema definition of database tables and sample test data are provided in tables.sql and data.sql, respectively. You need to use tables.sql to clean your database before you start this project because test data may be different from the data used in Project 1. Study and acquaint yourself with the schema (in tables.sql) and the data in the tables (in data.sql). This will make it easier to understand the required procedures.
2. You should finish all your work in answer.sql. Skeleton code for procedures is already provided in answer.sql. MySQL will give error messages if you do not finish all of the procedures, so you can comment the unfinished ones during development.
3. Please do not change the names of procedures in answer.sql.
4. Submit your answer via Vocareum(**log in from Blackboard**).

1 Information about the Hospital schema

1.1 Table: Physician

Physician(**PhysicianID**,Name,SSN)

Physician contains the following attributes:

- PhysicianID: This attribute is a number and the primary key for this table. Used to identify a Physician.
- Name: This attribute is a string that has the name of the Physician.

- Position: This attribute specifies the position of the Physician,i.e, what kind of doctor: Cardiologist,Dermatologist,etc..
- SSN: This attribute specifies the Social Security Number of the Physician. This is a number.

1.2 Table: Department

Department(**DepartmentID**,Name,Head)

Department contains the following attributes:

- DepartmentID: This attribute is a number and the primary key for this table. Used to identify a Department.
- Name: This attribute is a string that specifies which Department it is, whether it is Cardiology,Psychiatry,etc..
- Head: This attribute specifies the Physician Id of the Doctor/Physician who is the head of the Department. This is a foreign key to Physician.

1.3 Table: Patient

Department(**SSN**,Name,Address,Phone,InsuranceID)

Patient contains the following attributes:

- SSN: This attribute is a number and the primary key for this table. It specifies the SSN of the Patient.
- Name: This attribute is a string that specifies the name of the Patient.
- Address: This attribute specifies the address of the Patient.
- Phone : This attribute specifies the phone number of the Patient. This is a string.
- InsuranceID: This attribute is the insurance of the Patient. This is unique.(NOT A PRIMARY KEY).

1.4 Table: Nurse

Nurse(**NurseID**,Name,Position,Registered,SSN)

Nurse contains the following attributes:

- NurseID: This attribute is a number and the primary key for this table. It specifies the NurseID of the Nurse.
- Name: This attribute is a string that specifies the name of the Nurse.
- Position: This attribute is a string that specifies the position of the Nurse. Position is either Nurse or Head Nurse.

- Registered: This attribute is BOOLEAN and it specifies whether the nurse is registered or not(registered means graduated from school of nursing or still studying).
- SSN: This attribute is a number that specifies the SSN of the Nurse.

1.5 Table: Affiliated_With

Affiliated_With(**Physician**,**Department**,PrimaryAffiliation)

Affiliated_With contains the following attributes:

- Physician: This attribute is a number which specifies the PhysicianId of the Physician. This is a foreign key to the Physician table.
- Department: This attribute is a number that specifies the DepartmentID of the Department. This is a foreign key to the Department table.
- PrimaryAffiliation: This attribute is BOOLEAN. It specifies for the given Physician whether it is it's his/her primary affiliation.(A Doctor/Physician who is not registered as a member for the Cardiology Department can still be involved in the department(For surgeries,etc..)).

1.6 Table: Appointment

Appointment(**AppointmentID**,Patient,PrepNurse,Physician,Start,End)

Appointment contains the following attributes:

- AppointmentID: This attribute is a number which specifies the AppointmentID.
- Patient: This attribute is a number that specifies the PatientID of the Patient for whom the appointment is booked. This is a foreign key to Patients.
- PrepNurse: This attribute is a number that specifies the NurseID of the Nurse assigned to this Appointment. It is a foreign key to Nurse.
- Physician: This attribute is a number that specifies the PhysicianID of the Physician assigned to this Appointment. It is a foreign key to Physician.
- Start: This attribute is of type datetime. It specifies the start time of the Appointment along with the date. To see how it looks, check data.sql.
- End: This attribute is of type datetime. It specifies the end time of the Appointment along with the date. The time for both the start and end is in 24 Hr format, so be careful while handling them.

2 Procedure and Functions

1. **DEPT_DETAIL**

   Create a function called DEPT_DETAIL that takes as a parameter a department id. For the id passed, retrieve the ID, name and position of the busiest doctor (the doctor who works the most during that week).

PhysicianID	Name	Position
id1	name1	pos1
id2	name2	pos2

Table 1: Sample output for Question 1

2. **DEPT_STATS**
   Create a procedure DEPT_STATS which does the following for each department:

   - Get the name of the department.
   - Get the name of the head of the dept.
   - Get the number of hours worked by the department.
   - Get the number of appointments in the department.

   Output your results sorted by DEPT.name.

Department	Dept head	Total hrs worked	Number of appointments
id1	name1	hrs1	napt1
id2	name2	hrs2	napt2

Table 2: Sample output for Question 2

3. **RETIRE**

   Assume that Doctor Brown has retired. Assign all the patients of Dr. Brown to different doctors(as assigning to the same doctor might be a problem because of time conflicts) in the same department as Dr.Brown and make sure that there are no time conflicts. Show all the appointments after assigning the patients.

Appointment	Patient	PrepNurse	Physician	Start	End
ID1	SSN1	NurseID1	PhysicianID 1	start1	end1
ID2	SSN2	NurseID2	PhysicianID 2	start2	end2

Table 3: Sample output for Question 3

3 JDBC

For the following questions you are expected to use JDBC to connect to the database and executing the queries. You will find the mysql jar connector file to connect to JDBC. Implement the following questions:

1. Find the name of the nurse who has the most number of patients. Display the details in the following format:

   Name is: *****
   Number of Patients is : *****

2. Find the SSN,name,address of the patient who has an appointment on Aug 24th.Also retrieve the name,position of the nurse and the physician. Display the details in the following format:

   Patient SSN is : ****
   Patient Name : ****
   Patient Address : ****
   Patient Phone : ****
   Physician Name : ****
   Physician Position : ****
   Nurse name : ****
   Nurse Position : ****