2nd Semester 2024-25

CSF 212 (Database Systems)

Mini-Project (Home Assignment); Total marks:20

Focus: In this activity the focus will be on ER/EER Modeling, Relational schema design and refinement (Normalization), implementing database (creating tables with constraints and inserting initial data necessary) and writing SQL/PL-SQL code for data entry, updates, generating reports, manipulation and enforcing certain complex constraints or rules.

Domain description:

We assume a scenario where "NOVA" is a chain of pharmacies that sells drugs produced by different Pharmaceutical Companies. We are to design and implement a Relational database for Nova to capture the following information related to- Pharmacies under Nova, Pharmaceutical Companies that supply drugs to pharmacies of Nova, Patients, Doctors, Drugs at different pharmacies of Nova, Prescriptions from doctors to patients etc., as detailed below.

1. For each patient we store details- AadharID (unique), name, address, and age.

2. For doctors we need to store- AadharID (unique), name, specialty and years of experience.

3. Each pharmaceutical company is identified by name and has a phone-number.

4. For each drug we need to store the trade name and the formula. Each drug is sold by a given pharmaceutical company. The trade name identifies the drug uniquely among the drugs produced by that company. If a pharmaceutical company is deleted we don't have to keep the details of the drugs of the company.

5. Each pharmacy has name, address and phone.

6. Each patient has a primary physician and every doctor has at least one patient.

7. each pharmacy sells several drugs (at least 10) and has price for each drug. A drug could be sold at several pharmacies, and the price of the same drug may vary from one pharmacy to other.

8. Doctors prescribe drugs for patients. A doctor could prescribe one or more drugs, for several patients. A patient can get prescription from several doctors. Each prescription has a date and quantity for each drug prescribed in it. If a doctor gives more than one prescription to a single patient, latest one need to be stored. Doctors give max one prescription to a given patient, on a given date.

9. Pharmaceutical companies have contracts with pharmacies. We store contract start date and end date and contract content, in database. Each pharmacy assigns a supervisor for each contract. And for a contract, supervisor can be changed.

What is expected for Mid-sem evaluation (10 marks; 5%)?

ER / EER diagram with full details and constraints as discussed in the lectures. (on paper). Then ER to relational mapping and identifying relational constraints. (on paper)

Note: We will not look at the implementation. Viva will carry 4 marks. Clarity and cleanliness of your presentation on paper will carry some weightage please keep this in mind.

Tentative timelines for mid-sem evaluation: between 17th and 21st March (any three consecutive days and will be announced later).

What is expected for End-sem evaluation (10 marks; 5%)?

We look at implementation- table creation, data entry, report generation, enforcing the constraints, SQL/PL-SQL code etc. Viva will carry 4 marks. Groups will be demonstrating all these on their Laptop.

Tentative timelines for End-sem evaluation: between 21st and 26th April.

Functionality Expected for End-sem evaluation:

1. Adding new pharmacies, pharmaceutical companies, patients, doctors, prescription, contract, drug etc., and deleting the existing ones, updates to existing details.

2. Generate a report on prescriptions of a patient in a given period.
3. Print details of a prescription for given patient for a given date.
4. Get the details of drugs produced by a pharmaceutical company.
5. Print the stock position of a pharmacy.
6. Print the contact details of a pharmacy-pharmaceutical company.
7. Print the list of patients for a given doctor.

All the above should happen using PLSQL stored procedure, functions etc, (or similar process) but not by direct SQL commands.
You may assume dummy data as meaningful.

Note: students can assume other necessary constraints, and attributes if missing.

Note:

1. GUI is not mandatory. The entire work (data, functionality like data entry, report generation etc.) can be demonstrated at command prompt. Hence GUI does not carry any weightage. Still you can use GUI to make your application more elegant and impressive.
2. Any act of plagiarism will be taken to the Disciplinary Committee.
3. You may use any RDBMS (Oracle, MySQL, SQL Server etc.)
4. Any additions/changes/corrections to the specifications or requirements will be announced in the class and/or on CMS as required.
5. All the members of the group are expected to take part in presentation/demo. We can randomly ask any member to explain are demonstrate. Hence all must be prepared with all parts/activities.

Prof R Gururaj,
IC CSF212; Dt: 27-Feb-2025.