Database Systems
Spring Semester 2022
Assignment #2

Due Date: 18th March, 2022 (No extension will be given)

Instructions:
- *Submit on* *GOOGLE CLASSROOM* *in form of a zip file with your ROLLNUMBER*
- *Do not copy the work of your peers. In case cheating is detected, then your case will be referred to DC.*

Question: The Faisal hospital in Lahore has developed new ICU units for covid patients. They need a new database software for managing the updated latest ICU mechanism.

The following tables form part of the ICU database held in a relational DBMS:
Patient(patientID, patientName, patientAddress, patientDoB)
ICU(ICUNo, ICUName, ICUType, noOfBeds)
Contains (patientID, ICUNo, admissionDate)
Drug (drugNo, drugName, costPerUnit)
Prescribed (patientID, drugNo, startDate, unitsPerDay, finishDate)

Patient contains patient details, and patientID is the primary key, and patientDoB is the date of Birth.

ICU contains hospital ICU details and ICUNo is the primary key;

Contains relation details the assignment of patients to ICU and (patientNo, wardNo) forms the primary key;

Drug contains details of drugs administered to patients, and drugNo is the primary key;

Prescribed details the assignment of drugs to patients and (patientID, drugNo,startDate) forms the primary key.

a) **Write appropriate SQL DDL statements for declaring the above relational schema. Specify the appropriate keys and referential integrity constraints and actions.**
b) **Insert 5 or more tuples in each of the above table**

c) **Write down SQL statement for the following queries:**

1. Find the names of all the patients being prescribed 'Morphine'.
2. For each patient, list the patientID, patient name, and the name of the ICU he is admitted to.
3. Print names of all ICUs with Beds less than 10.
4. List the Number and name of the ICUs that have some patients on 10-January-2022.
5. List the Number and name of the ICUs that have some patients on 10-January-2022 and 10-January-2021.
6. List the Number and name of the ICUs that have patients on 10-January-2022 but have no patients on 10-January-2021.
7. List the name of the patients who are not prescribed any drugs.
8. Find the name o the patients who have been prescribed the drug Morphine as well as the drug Azomax.
9. List the ids of patients who have been admitted to 'Covid ICU' before 5-Jan-2021 or who were never admitted to ICU.

10. List the names of the drugs that were never prescribed to any patients.

Aggregate and grouping queries
11. How many Patients are there?
12. How many patients are there in each ICU?
13. Find out maximum, minimum and average age of the patients?
14. List the maximum, minimum and average age of the patients in the ICU with greater than 2 patients?
15. How many different patients with age less than 20 are prescribed the drug named 'Panadol'?