Case Study: Pharmacy Prescription Management System

The "Prescriptions-R-X" chain of pharmacies has offered to give you a free life-time supply of medicine if you design its database. Given the rising cost of health care, you agree. The following requirements are provided to you to design the database. Please specify the assumptions that are used in your design, if there is any.

- Patients are identified by an SSN, and their names, addresses, and ages must be recorded.

- Doctors are identified by an SSN. For each doctor, the name, speciality, and years of experience must be recorded.

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

- For each drug, the trade name and formula must be recorded. Each drug is sold by a given pharmaceutical company, and the trade name identifies a drug uniquely from among the products of that company. If a pharmaceutical company is deleted, you need not keep track of its products any longer.

- Each pharmacy has a name, address, and phone number.

- Each patient has a primary physician. Every doctor has at least one patient.

- Each pharmacy sells several drugs and has a price for each. A drug could be sold at several pharmacies, and the price could vary from one pharmacy to another.

- Doctors prescribe drugs for patients. A doctor could prescribe one or more drugs for several patients, and a patient could obtain prescriptions from several doctors. Each prescription has a date and a quantity associated with it. You can assume that, if a doctor prescribes the same drug for the same patient more than once, only the last such prescription needs to be stored.

- Pharmaceutical companies have long-term contracts with pharmacies. A pharmaceutical company can contract with several pharmacies, and a pharmacy can contract with several pharmaceutical companies. For each contract, you have to store a start date, an end date, and the text of the contract.

- Pharmacies appoint a supervisor for each contract. There must always be a supervisor for each contract, but the contract supervisor can change over the lifetime of the contract.

Sample Queries

1. List the prescriptions (date, quantity, trade name, formula, and pharmaceutical company) as well as the information for the doctors (SSN, name, speciality, and years of experience) who prescribed each prescription for a given patient in the month of September 2023.

2. List the details of all the drugs that a given pharmacy sells.

3. List the details of all the drugs that a given pharmaceutical company sells.

4. List the details of all the pharmacies in the database, in descending alphabetic order of their names.

5. For each doctor with more than 2 patients, find the total number of patients that he/she has and sort by the doctor's SSN.

6. List the pharmaceutical company name and phone number, start date, end date, and supervisor information for all the contracts of a given pharmacy.

7. List total number of contracts that each pharmaceutical company has, sorted by the pharmaceutical company names.

8. Insert a new drug sold by a given pharmaceutical company into the database.

9. Delete a particular pharmaceutical company from the database. The drug products sold by this pharmaceutical company should also be deleted from the database.

10. Update the address information for a particular pharmacy.