**CSCI 4125/5125 Course Project**

**Data Models and Database Systems**

**Fall 2021**

**Course Project**

**Phase 4: Intermediate SQL**

**Due: Sunday, 10/31 @ 11:59pm**

**Reading:** Silberschatz Chapters 3.5, 3.7, 4.1, and 4.2

**Submission Guidelines:**

1. This assignment is worth 100 points for all students.

2. It is your responsibility to make sure all files are readable and submitted on time.

**Submission:**

Answer the 16 queries for your respective database. Submit your answers in a single .sql file named [last name]\_phase4.sql. Label each answer with its respective number as a comment (i.e., -- or /\* \*/). It is unnecessary to submit any output scripts. Note that some of your queries may not always return output depending on the data you added; this will not be a point deduction.

Real Estate DB

**Intermediate Retrieval Queries (91 points, 7 pts each)**

1. Retrieve the street address for houses with an agent in the New Orleans office.

2. Retrieve the street address for house which have a seller name that is the same as the listing agent’s name.

3. Find names of all agents who represent a buyer with a minimum price range greater than $80K and a maximum price range less than $225K.

4. For each agent, list their name, office, and the total number of buyers they represent.

5. Retrieve the street address for all houses that have an agent who is representing at least one buyer.

6. Retrieve the street address for all houses that have an agent who is not representing any buyers.

7. For each agent, retrieve the agent’s name and the average commission of all houses they are listing.

8. Retrieve the average price for all houses in the state of Louisiana.

9. List the names of all agents and the number of phone numbers they have.

10. Find the names of all agents who represent exactly two buyers.

11. For each agent whose average commission is greater than $10K, retrieve the agent’s name and the number houses they represent.

12. Retrieve the names of all buyers who are represented by the agent who is listing the lowest priced house.

13. Retrieve the agent’s name and the buyer’s name for all agents who are listing a house within the buyer’s price range (i.e., house price is between minimum and maximum price range).

**Retrieval Queries Requiring Regular Expressions (9 points, 3 pts each)**

14. Find sellers whose SSN number has a pattern 321 repeated twice (sequentially). For example, the query should return sellers with the SSN’s ‘321-32-145’ and ‘983-21-3219’, but not ‘321-99-3218’.

15. Find agents whose office consists of exactly 2 words. For example, the query should return records for “Metairie Office” and “Downtown Office”, but not “University of New Orleans Office”.

16. Find all houses that include a street number in the street address. For example, the query should return records for “2000 Lakeshore Drive” and “1500 Sugar Bowl Drive” but not “Canal Street”.

Mountain Valley Community Hospital

**Intermediate Retrieval Queries (91 points, 7 pts each)**

1. Retrieve the names of all patients with referred by the physician with ID 1 and are assigned a bed in the “Intensive Care Unit” unit.

2. List all room numbers for beds that have a patient assigned to that room number whose name is the same as the nurse monitoring that bed.

3. Find the names of all nurses that are supervised by “Chris Summa”. Do not hardcode an SSN.

4. For each physician, list their name, specialty, and total hours worked.

5. Retrieve the names of all patients who are assigned to a bed that is monitored by a nurse.

6. Retrieve the names of all patients who are assigned to a bed that is not monitored by a nurse.

7. For each unit that beds can be located, retrieve the unit and the average salary of nurses assigned to beds in that unit.

8. Retrieve the average of all hours worked by physicians with “General Practice” specialty.

9. List the names of all physicians who have not submitted a timecard.

10. Find the average salary of nurses who monitor exactly 2 beds.

11. For each nurse whose salary is greater than $70K, list the nurse’s name and the number of beds they monitor.

12. Retrieve the names of a nurses whose supervisor has a salary greater than $90K.

13. For each specialty, find the total number of physicians and the total hours worked by those physicians.

**Retrieval Queries Requiring Regular Expressions (9 points, 3 pts each)**

14. Find physicians whose specialty consists of exactly 2 words. For example, the query should return records for “General Practice”, but not “Oncology”.

15. Assume patient name stores a first and last name (it is fine if you do not have these values). Find all patients whose name is properly capitalized (both first and last name start from an upper-case letter, rest of the name is lower-case). For example, the query should return results for “Ben Samuel” but not “ben Samuel”.

16. Find all beds in room numbers that end in odd numbers.