University of Calgary
Department of Computer Science
CPSC 471 Database Management Systems
CPSC 471 Short Exam/Quiz #4

03/04/2024 **Time : 50 Minutes (40 Minutes + 10 Minutes for logistics)**

Please read these carefully before you start:

- CLOSED BOOK-NOTES-SLIDES- you are not allowed to access any source, book, notes, Web, etc.
- **Solve the 5 queries Q1, Q2, Q3, Q4, and Q5**; write your solutions on your own white papers in clean and well-organized manner. Scan each sheet which contains your answers. You can also write on an electronic device.
- You CANNOT use an editor/tool to produce your solutions, it must be all handwritten.
- Combine your answers in one PDF file and upload on D2L. The dropbox folder will accept only one file and will keep only the latest one.
- Late submission is not allowed. The dropbox will close exactly after 50 minutes. You must submit before the D2L closes, to be fair to all students.
- Only students who have special permission issued by the accommodation center are allowed to take the extra time allowed and to send their solutions as attachment by email to alhajj@ucalgary.ca in case the D2L system will close for submissions because the D2L may close by the end of the time permitted for the general quiz.
- Each student must submit by the end of the time period allowed as per the document issued by the center.

Q1	Q2	Q3	Q4	Q5	Total
10 points	10 points	10 points	10 points	10 points	50 points

Consider the following tables that contain information about GPs who work in clinics which are visited by patients on certain day and time. A patient has location, a GP has location, and a clinic has location; a patient may visit clinics which are not in his/her location; however, some patients may visit only clinics in their locations. Patients may receive prescriptions from patients inside and outside their location.

Clinic(cname, location)
visit(phno, cname, day, time)
Schedule(gid, clinic-name, day)
GP(gid, name, m-phone, location) //general practitioners
patient(phno, name, age, gender, location)
Prescription(phno, gid, medication)

Code the following five queries in tuple relational calculus (TRC): : (for queries with colored alternatives between paratheses, like (**ALL /NO**) choose only one of the two alternatives and solve accordingly)

a) Find names of clinics visited by Saif or Annette at 10:00 AM on Monday.
b) Find location of every clinic which has been visited by at least two patients on the same day and at the same time.
c) Find every GP who wrote prescriptions for all patients located (**INSIDE/OUTSIDE**) his/her location.
d) Find phno's of patients who (**ONLY/NEVER**) visited clinics located outside Brentwood.
e) Find id's of GP's who wrote prescriptions for (**ALL / NO**) female patients.