# CSCI 4333
# Design of Database Systems
# Fall 2020
# Homework #5

## Relational Algebra and Relational Calculus

Use the relation schema for the Clear Lake Youth Swimming Team Management System (SWIM) project as the basis of this homework. Create SWIM DB in MySQL by using the following scripts: createSwimDB.sql.txt and PopulateSwim.sql.txt.

(1) Use relational algebra to answer the following queries.

(a) Provide the id and name of every swimmer who has achieved a level of Id 3, as recorded in the level history of the database.

```
+-----------+---------+-------+
| swimmerId | LName   | FName |
+-----------+---------+-------+
|         4 | Johnson | Clara |
|         1 | Khan    | Bobby |
+-----------+---------+-------+
2 rows in set
```

(b) Provide the meet name, venue name and the coach name of all meets offered in the year 2016 in the following manner. Note that the function YEAR(d) returns the year of the date d.

```
+-------------+------+-------+-------+
| title       | Name | FName | LName |
+-------------+------+-------+-------+
| UHCL Open   | UHCL | Joe   | Smith |
| Shell Trial | CLHS | Joe   | Smith |
+-------------+------+-------+-------+
2 rows in set
```

(c) Provide the names of all other care takers (but not the main care taker) of a swimmer with currentLevelId of 2.

```
+--------+-------+
| FName  | LName |
+--------+-------+
| Jim    | Khan  |
| Azalea | Khan  |
+--------+-------+
2 rows in set
```

(d) Provide the meet names task names and the caretaker ids and names committed to the tasks of a meet on the year 2016 in the following manner.

| title | Name | FName | LName |
|---|---|---|---|
| UHCL Open | Officiating | Azalea | Khan |
| UHCL Open | Diecting traffic | Azalea | Khan |
| UHCL Open | Recording | Joseph | Khan |
| UHCL Open | Recording | Jim | Khan |
| UHCL Open | Officiating | Katie | Johnson |
| UHCL Open | Recording | Elizabeth | Johnson |
| Shell Trial | Officiating | Azalea | Khan |
| Shell Trial | Recording | Azalea | Khan |
| Shell Trial | Recording | Joseph | Khan |
| Shell Trial | Officiating | Katie | Johnson |
| Shell Trial | Recording | Katie | Johnson |
| Shell Trial | Officiating | Elizabeth | Johnson |
| Shell Trial | Diecting traffic | Elizabeth | Johnson |

13 rows in set

(e) Provide the names of all swimmers with two or more 'other caretakers' in the following format.

| fname | lname |
|---|---|
| Bobby | Khan |
| Nina | Khan |

2 rows in set

(2) Use Domain Relational Calculus (DRC) to answer the same queries of question (1).

You may use temporary tables to store intermediate results.

Turn in CSCI4333_<<Section #>>_H5_<<Your name>>_<<Your Student ID>>.docx and submit your homework through Blackboard. It must be done in MS Words. No handwriting solutions will be accepted.