

# COMP 421: Project 2

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## Relational Model

- Parent(person\_id, phone\_num, name, blood\_type, date\_of\_birth, profession, email, quebec\_health\_id, address)
- Midwife(practitioner\_id, phone\_num, name, email, institution\_email)  
institution\_email references HC\_Institution
- Lab\_Tech(person\_id, phone\_num, name)
- Couple(couple\_id, num\_pregnancy, mother\_id)  
mother\_id references Parent (via mother)
- Father(couple\_id, num\_pregnancy, person\_id)  
person\_id references Parent, couple\_id, num\_pregnancy references Couple
- Info\_Session(session\_id, session\_date, session\_time, language, host\_id)  
host\_id references Midwife
- Invitation(couple\_id, num\_pregnancy, session\_id, did\_register, did\_attend)  
couple\_id, num\_pregnancy references Couple, session\_id references Info\_Session
- Pregnancy(preg\_id, birth\_time\_frame, due\_date\_period, due\_date\_ultrasound, due\_date\_final, is\_home\_birth, couple\_id, num\_pregnancy, primary\_mw\_id, secondary\_mw\_id, birthing\_center\_email)  
couple\_id, num\_pregnancy references Couple, primary\_mw\_id references Midwife, secondary\_mw\_id references Midwife, birthing\_center\_email References Birthing\_Center
- Baby(baby\_id, blood\_type, name, birth\_date, birth\_time, sex, preg\_id)  
preg\_id references Pregnancy
- Appointment(appt\_id, appt\_date, appt\_time, preg\_id, mw\_id)  
preg\_id references Pregnancy, mw\_id references Midwife
- Appt\_Note(note\_id, timestamp, observations, appt\_id)  
appt\_id references Appointment

- Medical\_Test(test\_id, appt\_id, test\_type, prescription\_date, sample\_date, lab\_work\_date, test\_result, lt\_id, mother\_id, baby\_id)  
appt\_id references Appointment, lt\_id references Lab\_Tech, mother\_id references Person, baby\_id references Baby
- HC\_Institution(email, address, website, name, phone\_num)
- Birthing\_Center(email, address, website, name, phone\_num)
- Community\_Clinic(email, address, website, name, phone\_num)

## Pending Constraints

- The HC\_Institution ISA hierarchy has a covering constraint and an overlap constraint as well (an institution must be either a Birthing\_Center or a Community\_Clinic).
- For a Pregnancy to be assigned a primary Midwife, they must have attended an Info\_Session.
- For a Pregnancy to be assigned a secondary Midwife, they must have a primary Midwife.
- If the attribute is\_home\_birth (Pregnancy) is true, then a Pregnancy cannot have the location\_of\_birth association with a Birthing\_Center. Conversely, if that association does exist, then is\_home\_birth must be false.
- If is\_home\_birth is true, then we assume the birth will take place at the home address of the mother (in case the mother and father have different addresses).
- A medical test must be associated with either a baby or a mother.

## SQL Queries

5(a):

```
SELECT ap.appt_date, ap.appt_time, pa.quebec_health_id, pa.name, pa.phone_num
FROM Appointment ap
JOIN Midwife mw ON ap.mw_id = mw.practitioner_id
JOIN Pregnancy p ON ap.preg_id = p.preg_id
JOIN Couple c ON p.couple_id = c.couple_id
JOIN Parent pa ON c.mother_id = pa.person_id
WHERE mw.name = 'Marion Girard'
      AND ap.appt_date >= DATE '2022-03-21'
      AND ap.appt_date <= DATE '2022-03-25'
;
```

```

db2 => SELECT ap.appt_date, ap.appt_time, pa.quebec_health_id, pa.name, pa.phone_num
FROM Appointment ap
JOIN Midwife mw ON ap.mw_id = mw.practitioner_id
JOIN Pregnancy p ON ap.preg_id = p.preg_id
JOIN Couple c ON p.couple_id = c.couple_id
JOIN Parent pa ON c.mother_id = pa.person_id
WHERE mw.name = 'Marion Girard' AND ap.appt_date >= DATE '2022-03-21' AND ap.appt_date <= DATE '2022-03-25'
;
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>
APPT_DATE  APPT_TIME  QUEBEC_HEALTH_ID  NAME  PHONE_NUM
-----
03/21/2022  11:00:00  ABC123456789      Alison Dilaurentis  111-111-1111
03/23/2022  12:00:00  ZYX987654321      Victoria Gutierrez  111-111-1114
03/23/2022  12:00:00  ZYX987654321      Victoria Gutierrez  111-111-1114

3 record(s) selected.

```

5(b):

```

SELECT lab_work_date, test_result
FROM Medical_Test mt
JOIN Parent p ON mt.mother_id = p.person_id
JOIN Couple c ON c.mother_id = mt.mother_id
WHERE p.name = 'Victoria Gutierrez'
      AND c.num_pregnancy = 2
      AND test_type = 'blood iron'
;

```

```

db2 => SELECT lab_work_date, test_result
FROM Medical_Test mt
JOIN Parent p ON mt.mother_id = p.person_id
JOIN Couple c ON c.mother_id = mt.mother_id
WHERE p.name = 'Victoria Gutierrez' AND c.num_pregnancy = 2 AND test_type = 'blood iron'
;
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>
LAB_WORK_DATE  TEST_RESULT
-----
06/03/2022     below average
06/05/2022     average

2 record(s) selected.

```

5(c):

```

WITH Counts AS (
  SELECT hc.email, COUNT(*) counts
  FROM HC_Institution hc
  JOIN Midwife mw ON mw.institution_email = hc.email
  JOIN Pregnancy pr ON pr.primary_mw_id = mw.practitioner_id
  WHERE pr.due_date_final >= DATE '2022-07-01'
        AND pr.due_date_final <= '2022-07-31'
        OR (pr.due_date_final IS NULL AND pr.birth_time_frame = '202207')
  GROUP BY hc.email
)

```

```

SELECT hc.name, ct.counts
FROM Counts ct
JOIN HC_Institution hc ON ct.email = hc.email
;

```

```

db2 => WITH Counts AS (
    SELECT hc.email, COUNT(*) counts
    FROM HC_Institution hc
    JOIN Midwife mw ON mw.institution_email = hc.email
    JOIN Pregnancy pr ON pr.primary_mw_id = mw.practitioner_id
    WHERE pr.due_date_fndb2 (cont.) => al >= DATE '2022-07-01' AND pr.due_date_final <= '2022-07-31'
    OR (pr.due_date_final IS NULL AND pr.birth_time_frame = '202207')
    GROUP BY hc.email
)
SELECT hc.name, ct.counts
FROM Counts ct
JOIN HC_Institution hc ON ct.email = hcd2 (cont.) => .email
;
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>
NAME                                COUNTS
-----
Plateau Mont Royal                  2
1 record(s) selected.

```

5(d):

```

SELECT p.quebec_health_id, p.name, p.phone_num
FROM Parent p
JOIN Couple c ON p.person_id = c.mother_id
JOIN Pregnancy pr ON c.couple_id = pr.preg_id
    AND c.num_pregnancy = pr.num_pregnancy
JOIN Midwife m ON m.practitioner_id = pr.primary_mw_id
    OR m.practitioner_id = pr.secondary_mw_id
JOIN HC_Institution hc ON m.institution_email = hc.email
JOIN Baby b ON b.preg_id = pr.preg_id
WHERE hc.name = 'Lac-Saint-Louis'
    AND b.birth_date IS NULL
    OR b.birth_date < DATE '2022-02-24'
;

```

```

db2 => SELECT p.quebec_health_id, p.name, p.phone_num
FROM Parent p
JOIN Couple c ON p.person_id = c.mother_id
JOIN Pregnancy pr ON c.couple_id = pr.preg_id AND c.num_pregnancy = pr.num_pregnancy
JOIN Midwife m ON m.practitioner_id = pr.primary_mw_id OR m.practitioner_id = pr.secondary_mw_id
JOIN HC_Institution hc ON m.institution_email = hc.email
JOIN Baby b ON b.preg_id = pr.preg_id
WHERE hc.name = 'Lac-Saint-Louis' AND b.birth_date IS NULL OR b.birth_date < DATE '2022-02-24'
;
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>
QUEBEC_HEALTH_ID NAME                                PHONE_NUM
-----
ABC123456789      Alison Dilaurentis                111-111-1111
ABC000000000      Hanna Marin                      111-111-1112
ABC000000000      Hanna Marin                      111-111-1112
ZXY987654321      Victoria Gutierrez              111-111-1114
4 record(s) selected.

```

5(e):

```
WITH Counts AS (  
    SELECT pr.preg_id, COUNT(*) counts  
    FROM Pregnancy pr  
    JOIN Baby b ON b.preg_id = pr.preg_id  
    GROUP BY pr.preg_id  
)  
  
SELECT DISTINCT p.quebec_health_id, p.name  
FROM Counts cts  
JOIN Pregnancy pr ON pr.preg_id = cts.preg_id  
JOIN Couple c ON pr.couple_id = c.couple_id  
    AND pr.num_pregnancy = c.num_pregnancy  
JOIN Parent p ON p.person_id = c.mother_id  
WHERE cts.counts >= 2  
;
```

```
db2 => WITH Counts AS (  
    SELECT pr.preg_id, COUNT(*) counts  
    FROM Pregnancy pr  
    JOIN Baby b ON b.preg_id = pr.preg_id  
    GROUP BY pr.preg_id  
)  
  
SELECT DISTINCT p.quebec_health_id, p.name  
FROM Counts cts  
JOIN Pregnancy pr ON pr.preg_id = cts.preg_id  
JOIN Couple c ON pr.couple_id = c.couple_id AND pr.num_pregnancy = c.num_pregnancy  
JOIN Parent p ON p.person_id = c.mother_id  
WHERE cts.counts >= 2  
;  
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (con  
t.) => db2 (cont.) => db2 (cont.) =>  
QUEBEC_HEALTH_ID NAME  
-----  
ZYX987654321      Victoria Gutierrez  
  
1 record(s) selected.
```

## Midwife Information

6(a):

```
CREATE VIEW midwifeinfo (mw_id, mw_name, mw_phone_num,  
    clinic_email, clinic_name, clinic_address) AS  
SELECT mw.practitioner_id, mw.name, mw.phone_num, mw.email, hc.name, hc.address  
FROM Midwife mw  
JOIN HC_Institution hc ON mw.institution_email = hc.email  
;
```

6(b):

```
db2 => CREATE VIEW midwifeinfo (mw_id, mw_name, mw_phone_num, clinic_email, clinic_name, clinic_address) AS
SELECT mw.practitioner_id, mw.name, mw.phone_num, mw.email, hc.name, hc.address
FROM Midwife mw
JOIN HC_Institution hc ON mw.institution_email = hc.email
;db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>
DB20000I The SQL command completed successfully.
```

6(c):

```
db2 => SELECT * FROM midwifeinfo
db2 (cont.) => FETCH FIRST 5 ROWS ONLY;
```

MW_ID	MW_NAME	MW_PHONE_NUM	CLINIC_EMAIL	CLINIC_NAME	CLINIC_ADDRESS
2	Marion Girard	514-765-7654	marion.girard@gmail.com	Lac-Saint-Louis	123 Lac St
4	Jonathan Doe	403-234-5678	jonathan1999@gmail.com	Rosewood	11 Rosewood Ave
5	Jamie Doe	999-918-9188	doe.jamie@gmail.com	Health 101	25 6th St
3	John Doe	403-222-2222	jdoe@gmail.com	Baby Center	888 88th Ave
1	Jane Doe	403-111-1111	jane.doe@gmail.com	Plateau Mont Royal	3000 Boul Saint Laurent

5 record(s) selected.

6(d):

```
db2 => SELECT * FROM midwifeinfo
WHERE clinic_name = 'Lac-Saint-Louis'
FETCH FIRST 5 ROWS ONLY;
db2 (cont.) => db2 (cont.) =>
```

MW_ID	MW_NAME	MW_PHONE_NUM	CLINIC_EMAIL	CLINIC_NAME	CLINIC_ADDRESS
2	Marion Girard	514-765-7654	marion.girard@gmail.com	Lac-Saint-Louis	123 Lac St

1 record(s) selected.

6(e):

```
db2 => INSERT INTO midwifeinfo(mw_id, mw_name, mw_phone_num, clinic_email, clinic_name, clinic_address)
VALUES (6, 'Emily Anderson', '918-918-9188', 'health@lacsaintlouis.com', 'Lac-Saint-Louis', '123 Lac St');
db2 (cont.) => DB21034E The command was processed as an SQL statement because it was not a
valid Command Line Processor command. During SQL processing it returned:
SQL0150N The target fullselect, view, typed table, materialized query table,
range-clustered table, or staging table in the INSERT, DELETE, UPDATE, MERGE,
or TRUNCATE statement is a target for which the requested operation is not
permitted. SQLSTATE=42807
```

The INSERT was blocked because you cannot insert a record into a view that contains a JOIN.

## Check Constraints

I added the constraint:

```
CHECK (prescription_date < lab_work_date)
```

into the Medical\_Test table, like so:

