Project 2
COMP421
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Revised ER model can be found at the end of this document.

Relational Model

Patient(patid, hcardid, name, phone, address, DOB, bloodType)
birthingParent(patid, email, profession)
    Foreign Key:
        patid is foreign key referencing Patient, representing ISA hierarchy

Child (patid, gender, pregid)
    Foreign Key:
        patid is foreign key referencing Patient, representing ISA hierarchy
        pregid is foreign key referencing Pregnancy, representing bornOf relationship

nonBirthingParent(parentid, hcardid, name, phone, address, DOB, bloodType, email, profession)

Couple(cid, programInterest, patid, parid)
    Foreign Key:
    Patid references birthingParent, representing In relationship
    Parid references nonBirthingParent, representing In relationship

Lab Technician (techid, name, phone)

Midwife (mid, name, phone, email, instid)
    Foreign Keys:
        instid references MidwifeServiceClinic, representing belongs relationship

HealthCare Institution (instid, name, phone, email, address, website)

Birthing Clinic (instid)
    Foreign Keys:
        instid references HealthCareInstitution
Community Clinic (instid)
    Foreign Keys:
        instid references HealthCareInstitution

InfoSession(sessionid, date, time, language, mid)
    Foreign Keys:
        sessionid references InfoSession
        mid references Midwife, representing the MidwifeHost relation

parentsInvited(sessionid,cid, attendanceStatus)
    Foreign Keys:
        cid references Couple
        sessionid references InfoSession

Pregnancy(pregid, ithPregnancy, numberBabies, homebirth, regRoughDueDate, uSoundDueDate, lastMenstDueDate, finalEstDueDate, cid, primaryPracid, secondPracid, instid)

Foreign keys:
cid references Couple, representing belongs relationship
primaryPracid references Midwife(mid), representing the primarilyAssigned relationship
secondPracid references Midwife, representing the secondarilyAssigned relationship
instid references HealthCareInstitution, representing the clinicBirthLocation relationship

Appointment (aptid, date, time, mid, pregid)
Foreign Keys:
mid references Midwife, representing participantsApt
pregid references Pregnancy, representing participantsApt

AppointmentNote(noteid, notedate, notetime, observations, aptid)
Foreign Key:
Aptid references Appointment, representing notesOf relationship

Test (testid, type, sample, result, dateSampleTaken, dateLabWorkCompleted, pregid, techid, patid, midid)
Foreign keys:
pregId references Pregnancy, representing pertainingTo relationship
techid references Lab Technician, representing processes relationship
patid references birthingParent or Child, representing prescribedFor relationship
midif references Midwife, representing prescribedBy relationship

3. Pending Constraints

- Consistency between appointment's associated pregnancy and midwife, and the pregnancy's actually associated primary or secondary midwives is not ensured (eg, we can have an appointment with a pregid associating a pregnancy, and an mid associating a midwife, however the actual pregnancy's primary or secondary midwife is not guaranteed to be the one associated in the appointment).
  - The same consistency issues remain for Tests.
- Difficult to handle the instance of a column attribute having a less specific value, as seen with the single less specific date problem: When a birthing parent (mother) registers, a less specific date is supplied than we need for a date type in db2 SQL. We could specify a default date where the 'day' is automatically set to '01', however this would be at the expense of ensuring the attribute is updated as required (constraining that it is not null).
- We can assume the Quebec health card will come in the same format, the first four numbers of a person's name in addition to another 8 numbers, however this format has changed over time (but remained 12 characters) and it may not be wise to add this as a constraint directly in the database (handle more complicated cases at application layer).
- For actual utilization of addresses, it would be wise to separate street number, name, city, etc into separate attributes for easier parsing, but in this context would considerably increase the complexity of the database.
- Database limits insertion of phone numbers to 10 numeric characters only, assuming all program participants must be located in Quebec (as you must be to receive care), however limits the supply of non-Canadian phone numbers.
- Date consistency is not ensured: Eg is a pregnancy has a number of due dates, there is no guarantee that there will be lab tests or appointments within a range of that date (eg a pregnancy due in March 2022 could have tests dated in January 2020).
  - A similar problem arises for InfoSessions, Tests and Appointments, though specifying a range may create more problems (eg if a couple loses a pregnancy).
- As with the model in project 1, all ISA hierarchies are covering and disjoint, though this is not captured in implementation.
- The BirthingParent (mother) who registers will still have to give the couple's cid (primary key) to nonBirthingParent to ensure registration if nonBirthingParent to correct couple (as the cid is the unique identifier). This could be done in the form of a confirmation code at the application layer, and also ensure the BirthingParent registers first.

- Couples expressing interest in their program after the InfoSession is a boolean value, but as db2 sql cannot store boolean values we use a bit variable, where 0 is default set to not interested, 1 is interested. This is also true for the homebirth attribute in Pregnancy.
- Due to the fact that Patients can be the BirthingParent or the Child, we can't ensure that the BirthingParent's hcardid won't be null, because a Child may not be assigned one until after birth. (The same is true for DOB). This would best be enforced on the application layer registration form, demanding the parent registering provide these values, otherwise we could have a value representing a pending value (though this disallows the null constraint).
- To ensure the BirthingParent will have to input a phone number and address, we make this column NOT NULL for Patient. However, to ensure a Child has a phone number or address (necessary for reporting medical test results if a test pertains to the child), we'll have to copy this information from one of the parents when the Child is created.
- We allow flexibility to create a Child entity during the pregnancy, when the parents or midwife decide it's time to aggregate collected information. However, this means that to actually search for current pregnancies, we must allow a Child node to exist while not yet being born and account for this in our searches.

5. SQL Queries

5a)

```
WITH MidwifeMatch (mid) AS
(
    SELECT mid
    FROM Midwife
    WHERE name = 'Marion Girard'
)
, PregMatch (pregid, cid) AS
(
    SELECT pregid, cid
    FROM Pregnancy
    WHERE primMid IN (SELECT mid FROM MidwifeMatch)
    UNION
    SELECT pregid, cid
    FROM Pregnancy
    WHERE secondMid IN (SELECT mid FROM MidwifeMatch)
)
, PregMatchMotherId (pregid, patid) AS
(
    SELECT pregid, patid
    FROM Couple C, PregMatch PM
    WHERE C.cid = PM.cid
)
, MotherInfo (patid , hcardid, name, phone, pregid) AS
(
    SELECT P.patid, hcardid, name, phone, PM.pregid
    FROM Patient P, PregMatchMotherId PM
    WHERE P.patid = PM.patid
)
, AptMatch (date, time, pregid) AS
(
    SELECT date, time, pregid
    FROM Appointment A
    WHERE A.pregid IN (SELECT pregid FROM PregMatch)
      AND A.date BETWEEN '2022-03-21' AND '2022-03-25'
)
SELECT date, time, hcardid, name, phone
FROM MotherInfo M, AptMatch A
WHERE M.pregid = A.pregid
;
```

Screenshot 5 a):

```
db2 => WITH MidwifeMatch (mid) AS
db2 (cont.) => (    SELECT mid
    FROM Midwife
    WHERE name = 'Marion Girard')
, PregMatch (pregid, cid) AS
(   SELECT pregid, cid
    FROM Pregnancy
    WHERE primMid IN (SELECT mid FROM MidwifeMatch)
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>
   UNION
    SELECT pregid, cid
    FROM Pregnancy
    WHERE secondMid IN (SELECT mid FROM MidwifeMatch))
, PregMatchMotherId (pregid, patid) AS
(   SELECT pregid, patid
    FROM Couple C, PregMatch PM
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>     WHERE C.cid = PM.cid)
, MotherInfo (patid , hcardid, name, phone, pregid) AS
(   SELECT P.patid, hcardid, name, phone, PM.pregid
    FROM Patient P, PregMatchMotherId PM
    WHERE P.patid = PM.patid)
, AptMatch (date, time, pregid) AS
(   SELECT date, time, pregid
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => d
b2 (cont.) => db2 (cont.) =>     FROM Appointment A
    WHERE A.pregid IN (SELECT pregid FROM PregMatch)
      AND A.date BETWEEN '2022-03-21' AND '2022-03-25')
SELECT date, time, hcardid, name, phone
FROM MotherInfo M, AptMatch A
WHERE M.pregid = A.pregid
;
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>
DATE       TIME     HCARDID      NAME                                               PHONE
---------- -------- ------------ -------------------------------------------------- --------------------
03/25/2022 12:00:00 BRPC98246328 Marlow McGifford                                   6993451748
03/21/2022 16:00:00 FFAF64947881 Lilias Burgill                                     3794909835
03/25/2022 16:00:00 FFAF64947881 Lilias Burgill                                     3794909835
03/24/2022 16:00:00 ZACB94851070 Carlina Tisor                                      8056306241
03/23/2022 16:00:00 ZIRR89843855 Cornela Rumgay                                     4217686412

  5 record(s) selected.
```

5b)

```
WITH CouplesMotherMatch (cid, patid) AS
(
    SELECT C.cid, C.patid
    FROM Couple C, Patient P
    WHERE P.name = 'Victoria Gutierrez' AND C.patid = P.patid
)
, PregMatch (pregid) AS
(
    SELECT pregid
    FROM Pregnancy P
    WHERE P.cid IN (SELECT cid FROM CouplesMotherMatch)
        AND P.ithPregnancy = 2
)
SELECT dateLabWorkCompleted, result
FROM Test T
WHERE T.testType = 'blood iron'
    AND T.patid IN (SELECT patid FROM CouplesMotherMatch)
    AND T.pregid IN (SELECT pregid FROM PregMatch)
;
```

Screenshot 5 b):

```
db2 => WITH CouplesMotherMatch (cid, patid) AS
(
    SELECT C.cid, C.patid
    FROM Couple C, Patient P
    WHERE P.name = 'Victoria Gutierrez' AND C.patid = P.patid
)
, PregMatch (pregid) AS
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => (
    SELECT pregid
    FROM Pregnancy P
    WHERE P.cid IN (SELECT cid FROM CouplesMotherMatch)
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>
   AND P.ithPregnancy = 2
)
SELECT dateLabWorkCompleted, result
FROM Test T
WHERE T.testType = 'blood iron'
    AND T.patid IN (SELECT patid FROM CouplesMotherMatch)
    AND T.pregid IN (SELECT pregid FROM PregMatch) ;db2 (cont.) => db2 (cont.) => db2 (cont.) =
> db2 (cont.) => db2 (cont.) => db2 (cont.) => ;

DATELABWORKCOMPLETED RESULT


-------------------- ----------------------------------------------------------------------------
----------------------------------------------------------------------------------------------------
------------------------------
06/30/2021           too high


09/15/2021           just right


07/19/2021           too low



  3 record(s) selected.
```

5c)

Assumptions: All hierarchies are disjoint as mentioned in ER notes for project 1. Assume we are to count health care institutions registered in the program even if they have been assigned no midwives yet.

```
WITH PregDueDateMatch (pregid, primMid) AS
(
    --case where we take final est due date
    SELECT pregid, primMid
    FROM Pregnancy P
    WHERE P.finalEstDueDate IS NOT NULL AND (YEAR(P.finalEstDueDate) = 2022) AND
(MONTH(P.finalEstDueDate) = 07)
    UNION
    --take the initial due date bc no final est due date yet
    SELECT pregid, primMid
    FROM Pregnancy P
    WHERE P.finalEstDueDate IS NULL AND (YEAR(P.regRoughDueDate) = 2022) AND
(MONTH(P.regRoughDueDate) = 07)
)
, MidwifePregCountsJuly(mid, instid, countPreg) AS
(
    SELECT M.mid, M.instid, count(P.pregid)
    FROM Midwife M, PregDueDateMatch P
    WHERE P.primMid = M.mid
    GROUP BY M.mid, M.instid
)
,MidwifePregCountsAll(mid, instid, countPreg) AS
(
    SELECT mid, instid, countPreg
    FROM MidwifePregCountsJuly
    UNION
    SELECT M.mid, M.instid, 0 AS count
    FROM Midwife M
    WHERE M.mid NOT IN (SELECT mid FROM MidwifePregCountsJuly)
)
--also include HCI with no assigned midwives
SELECT HCI.name, sum(countPreg) AS PregnanciesDueInJuly2022
FROM HealthCareInst HCI, MidwifePregCountsAll MC
WHERE MC.instid = HCI.instid
GROUP BY HCI.name
UNION
SELECT HCI.name, 0 AS PregnanciesDueInJuly2022
FROM HealthCareInst HCI
WHERE HCI.instid NOT IN (SELECT instid FROM MidwifePregCountsAll)
;
```

Screenshot 5 c):

```
db2 => WITH PregDueDateMatch (pregid, primMid) AS
(    SELECT pregid, primMid
    FROM Pregnancy P
db2 (cont.) => db2 (cont.) => db2 (cont.) =>     WHERE P.finalEstDueDate IS NOT NULL AND (YEAR(
P.finalEstDueDate) = 2022) AND (MONTH(P.finalEstDueDate) = 07)
    UNION
    SELECT pregid, primMid
    FROM Pregnancy P
    WHERE P.finalEstDueDate IS NULL AND (YEAR(P.regRoughDueDate) = 2022) AND (MONTH(P.regRoughD
ueDate) = 07))
, MidwifePregCountsJuly(mid, instid, countPreg) AS
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => (
SELECT M.mid, M.instid, count(P.pregid)
    FROM Midwife M, PregDueDateMatch P
    WHERE P.primMid = M.mid
    GROUP BY M.mid, M.instid)
,MidwifePregCountsAll(mid, instid, countPreg) AS
(   SELECT mid, instid, countPreg
    FROM MidwifePredb2 (cont.) => gCountsJuly
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>     U
NION
    SELECT M.mid, M.instid, 0 AS count
    FROM Midwife M
db2 (cont.) =>     WHERE M.mid NOT IN (SELECT mid FROM Midwifdb2 (cont.) => ePregCountsJuly))
SELECT HCI.name, sum(countPreg) AS PregnanciesDueInJuly2022
FROM HealthCareInst HCI, MidwifePregCountsAll MC
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => WHERE MC.instid = HCI.instid
GROUP BY HCI.name
db2 (cont.) => UNION
SELECT HCI.name, 0 AS PregnanciesDueInJuly2022
FROM HealthCareInst HCI
WHERE HCI.instid NOT IN (SELECT instid FROM MidwifePregCountsAll)
;db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => ;

NAME                                               PREGNANCIESDUEINJULY2022
-------------------------------------------------- ------------------------
Birth House Jeanne Mance                                                  0
CLSC Saint Catherine                                                      0
CLSC de Parc-Extension                                                    0
Clinique Medicale de lAlternative                                         0
Jean Talon Hospital                                                       0
Lac-Saint-Louis                                                           0
Maison de Naissance Cote-des-Neiges                                       0
Maison de Naissance de lEstrie                                            0
Verdun Hospital                                                           0
Maison de Naissance La Riviere                                            2
Clinique Communautaire de Pointe-Saint-Charles                            3

  11 record(s) selected.
```

5d)

Assumptions: You can assume that the backup and primary are from the same institution (Ed post #342). A child entity may be created before birth (to update things like gender) so we must check if a child exists AND if the date of birth has been entered (is not null), but also check if more than 11 months has elapsed since the initial due date (because the child entity may not be deleted if the pregnancy was lost, and 11 months leaves room for initial accuracy errors).

```
WITH MidwifeMatch (mid) AS
(
    SELECT mid
    FROM Midwife M
    WHERE M.instid IN (SELECT instid FROM HealthCareInst WHERE name = 'Lac-Saint-Louis')
)
, PregMatchMidwife (pregid) AS
(
    --ensure pregnancy current (and this is not a case where child did not result)
    SELECT pregid
    FROM Pregnancy
    WHERE primMid IN (SELECT mid FROM MidwifeMatch)
      AND MONTHS_BETWEEN((DATE (current timestamp)),regRoughDueDate) < 11
)
, PregMatch (pregid) AS
(
    --case where there is no child entity yet
    SELECT pregid
    FROM PregMatchMidwife
    WHERE pregid NOT IN (SELECT pregid FROM Child)
    UNION
    --case where the child entity created, but DOB null
    SELECT pregid
    FROM Patient P, (SELECT pregid, patid FROM Child WHERE pregid IN
        (SELECT pregid FROM PregMatchMidwife)) ChildMatch
    WHERE P.patid = ChildMatch.patid AND P.DOB IS NULL
)
, Mothers (patid) AS
(
    SELECT C.patid
    FROM (SELECT cid FROM Pregnancy WHERE pregid IN
        (SELECT pregid FROM PregMatch)) CoupleMatch, Couple C
    WHERE CoupleMatch.cid = C.cid
)
SELECT hcardid, name, phone
FROM Patient P, Mothers
WHERE P.patid = Mothers.patid
;
```

Screenshot 5 d):

```
db2 => WITH MidwifeMatch (mid) AS
(    SELECT mid
    FROM Midwife M
    WHERE M.instid IN (SELECT instid FROM HealthCareInst WHERE name = 'Lac-Saint-Louis'))
, PregMatchMidwife (pregid) AS
(   SELECT pregid
    FROM Pregnancy
    WHERE primMid IN (SELECT mid FROM MidwifeMatch)
      AND MONTHS_BETWEEN((DATE (current timestamp)),regRoughDueDate) < 11)
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.)
 => db2 (cont.) => db2 (cont.) => , PregMatch (pregid) AS
(   SELECT pregid
    FROM PregMatchMidwife
    WHERE pregid NOT IN (SELECT pregid FROM Child)
    UNION
    SELECT pregid
    FROM Patient P, (SELECT pregid, patid FROM Child WHERE pregid IN
db2 (cont.) =>         (SELECT pregid FROM PregMatchMidwife)) ChildMatch
    WHERE P.patid = ChildMatch.patid AND P.DOB IS NULL)
, Mothers (patid) AS
(   SELECT C.patid
    FROM (SELECT cid FROM Pregnancy WHERE pregid IN
        (SELECT pregid FROM PregMatch)) CoupleMatch, Couple C
    WHERE CoupleMatch.cid = C.cid)
db2 (cont.) => db2 (cont.) => db2 (cont.) => SELECT hcardid, name, phone
FROM Patient P, Mothers
WHERE P.patid = Mothers.patid;db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.)
 => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (co
nt.) => ;

HCARDID      NAME                                               PHONE
------------ -------------------------------------------------- --------------------
RTAF25860270 Domeniga Cotsford                                  8329914220
NDCB81758162 Dalila Pinckard                                    9094274122
YKRT92594573 Cyndi Shew                                         6364664097
JAVU29937585 Marylinda Btham                                    4425745303
ZJRM18283745 Ariane Price                                       3939490922

  5 record(s) selected.
```

5e)

```
WITH PregMultBabies (pregid, cid) AS
(
    SELECT pregid, cid
    FROM Pregnancy P
    WHERE P.numberBabies > 1
)
, MothersOfPregMult (patid) AS
(
    SELECT patid
    FROM Couple C
    WHERE C.cid IN (SELECT cid FROM PregMultBabies)
)
SELECT hcardid, name
FROM Patient P
WHERE P.patid IN (SELECT patid FROM MothersOfPregMult)
GROUP BY  hcardid, name
;
```

Screenshot 5 e):

```
db2 => ;
db2 => WITH PregMultBabies (pregid, cid) AS
(
db2 (cont.) => db2 (cont.) =>     SELECT pregid, cid
    FROM Pregnancy P
    WHERE P.numberBabies > 1
)
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => , MothersOfPregMult (patid)
AS
(
    SELECT patid
db2 (cont.) =>     FROM Couple C
    WHERE C.cid IN (SELECT cid FROM PregMultBabies)
)
SELECT hcardid, name
db2 (cont.) => FROM Patient P
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =
> WHERE P.patid IN (SELECT patid FROM MothersOfPregMult)
GROUP BY  hcardid, name
;
db2 (cont.) => db2 (cont.) =>
HCARDID      NAME
------------ --------------------------------------------------
MZTW24721463 Augusto McCullough
OFRO07408519 Riva Trail
PMPL95191362 Raff Yalden
UAIA41499249 Blondy Kennicott
XRCY05570611 Audrie Mergue
YQDB87551256 Gennie Chapman
YUQF23730883 Cathyleen MacGillivray

  7 record(s) selected.
```

6. Midwife Information

a)

```
CREATE VIEW midwifeinfo (mid, nameMid, phoneMid, emailMid, nameInst, addressInst)
AS
    SELECT M.mid, M.name, M.phone, M.email, HCI.name, HCI.address
    FROM Midwife M, HealthCareInst HCI
    WHERE M.instid = HCI.instid
;
```

b) View creation.

```
db2 => CREATE VIEW midwifeinfo (mid, nameMid, phoneMid, emailMid, nameInst, addressInst)
AS
    SELECT M.mid, M.name, M.phone, M.email, HCI.name, HCI.address
    FROM Midwife M, HealthCareInst HCI
    WHERE M.instid = HCI.instid
;db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => ;
DB20000I  The SQL command completed successfully.
db2 =>
```

c) 5 records with everything from view.

```
db2 => SELECT * FROM midwifeinfo ORDER BY mid LIMIT(5);

MID         NAMEMID                                            PHONEMID            EMAILMID                                           NAMEINST
            ADDRESSINST
----------- -------------------------------------------------- ------------------- -------------------------------------------------- ------------------------------
-------------------- ------------------------------------------------------------------------------------------
          1 Marion Girard                                      9522039860 eattew0@last.fm                                    CLSC de Parc-Extension
                      8 Bobwhite Park
          2 Oona Linthead                                      5831301227 olintheadl@earthlink.net                           CLSC de Parc-Extension
                      8 Bobwhite Park
          3 Troy Bergstram                                     5346369620 tbergstram2@simplemachines.org                     Maison de Naissance La Riviere
                      1653 Doe Crossing Street
          4 Peyton Leabeater                                   4634925190 pleabeater3@t-online.de                            Clinique Medicale de lAlternat
ive                   5 Harbort Lane
          5 Leslie Leimster                                    5954964198 lleimster4@twitpic.com                             CLSC Saint Catherine
                      9836 Bobwhite Avenue

  5 record(s) selected.
```

d) Midwives working for Lac-Saint-Louis

```
db2 => db2 => SELECT *
FROM midwifeinfo
WHERE nameInst = 'Lac-Saint-Louis'
LIMIT(5)
;

db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>
MID         NAMEMID                                            PHONEMID            EMAILMID                                           NAMEINST
            ADDRESSINST
----------- -------------------------------------------------- ------------------- -------------------------------------------------- ------------------------------
-------------------- ------------------------------------------------------------------------------------------
          9 Clarabelle Hart                                    7336764509 chartless8@gmpg.org                                Lac-Saint-Louis
                      19 Clyde Gallagher Park
         19 Kristal Akaster                                    4053707070 kakasteri@usgs.gov                                 Lac-Saint-Louis
                      19 Clyde Gallagher Park

  2 record(s) selected.
```

e) Insert

```
db2 =>
db2 => insert into midwifeinfo (mid, nameMid, phoneMid, emailMid, nameInst, addressInst) values (21,
'Katie Trinh', 5145694545, 'ktrinh@gmail.com', 'Maison de Naissance Cote-des-Neiges', '26567 Mandrake
 Way');

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
```

7. Check Constraints

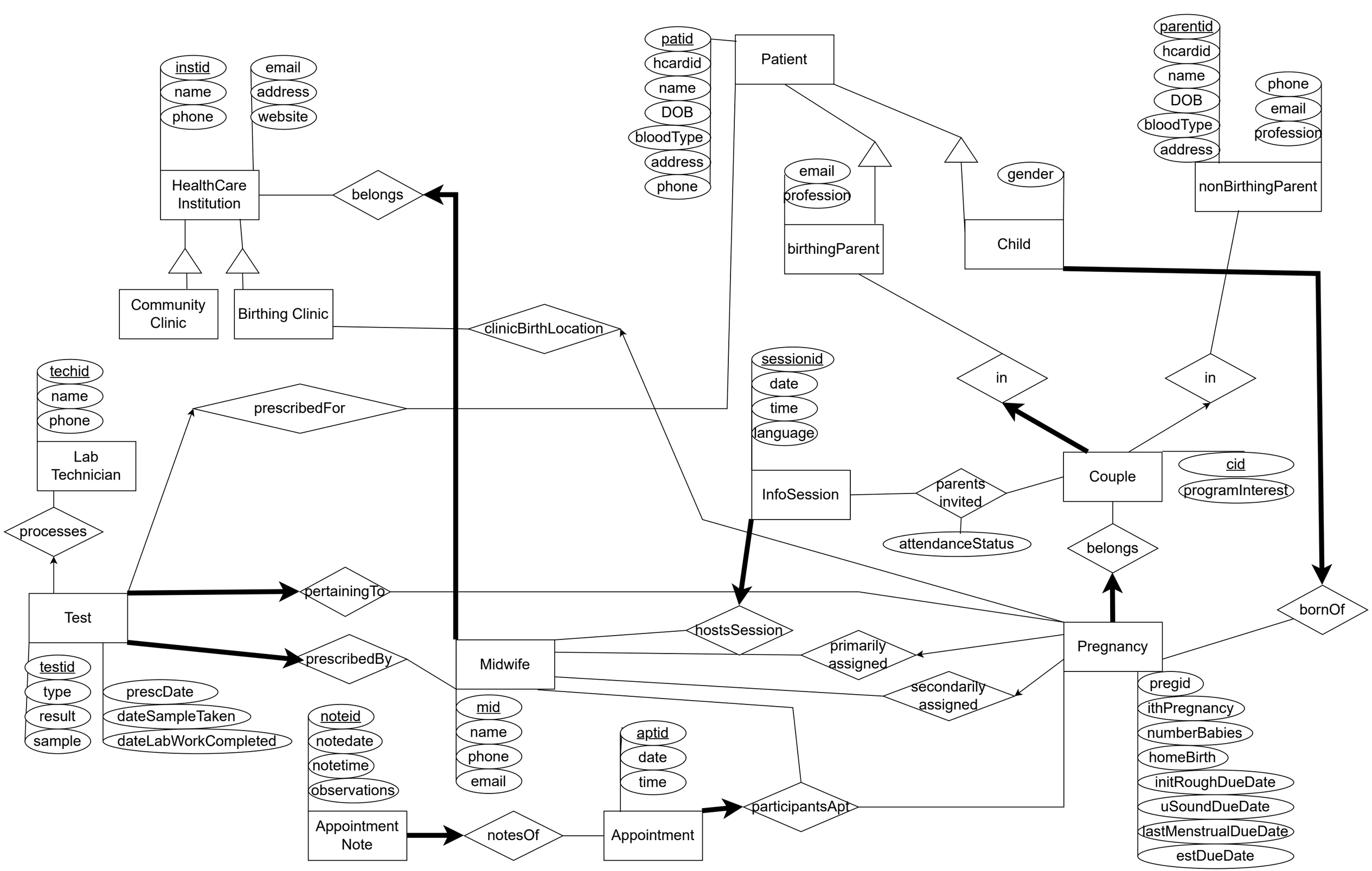
a) Create constraint:

```
db2 =>
db2 => ALTER TABLE Test ADD CONSTRAINT dateConsistent
    CHECK(dateSampleTaken < dateLabWorkCompleted)
;db2 (cont.) => db2 (cont.) => ;
DB20000I  The SQL command completed successfully.
db2 =>
```

b) Try to insert invalid record:

```
db2 =>
db2 => insert into Test (testid, testType, sample, result, dateSampleTaken, dateLabWorkComp
leted, pregid, techid, patid, mid) values (500021, 'routine ultrasound', 'a sample' , 'a re
sult', '2022-01-06', '2021-01-18', 1000012, 106, 3001, 17);

DB21034E  The command was processed as an SQL statement because it was not a
valid Command Line Processor command.  During SQL processing it returned:
SQL0545N  The requested operation is not allowed because a row does not
satisfy the check constraint "ANGUYE56.TEST.DATECONSISTENT".  SQLSTATE=23513
db2 => db2 =>
```


instid
name
phone
email
address
website
HealthCare Institution
belongs
Community Clinic
Birthing Clinic
clinicBirthLocation
patid
hcardid
name
DOB
bloodType
address
phone
Patient
email
profession
birthingParent
gender
Child
parentid
hcardid
name
DOB
bloodType
address
phone
email
profession
nonBirthingParent
techid
name
phone
Lab Technician
processes
prescribedFor
sessionid
date
time
language
InfoSession
parents invited
attendanceStatus
in
in
Couple
cid
programInterest
belongs
bornOf
Test
pertainingTo
prescribedBy
hostsSession
primarily assigned
secondarily assigned
Midwife
Pregnancy
testid
type
result
sample
prescDate
dateSampleTaken
dateLabWorkCompleted
noteid
notedate
notetime
observations
mid
name
phone
email
aptid
date
time
Appointment Note
notesOf
Appointment
participantsApt
pregid
ithPregnancy
numberBabies
homeBirth
initRoughDueDate
uSoundDueDate
lastMenstrualDueDate
estDueDate