Relational Model

- Fathers(<u>fatherID</u>, name, dateofbirth, phonenum, curOccupation, QCHealthCardNum, addr, email)
- Mothers(<u>QCHealthCardNum</u>, name, email, dateofbirth, curOccupation, phonenum, addr, expectTimeofBirth)
- Couple(<u>cid</u>, QCHealthCardNum, fatherID)
  - o fatherID foreign key references Fathers, QCHealthCardNum foreign key references Mothers
  - o QCHealthCardNum participation + key constraint
- HealthcareInstitutions(<u>HIemail</u>, name, addr, phonenum, website)
  - o Covering Constraint: healthcare institution must belong to either birthing center or community clinic
  - o Overlapping constraint: healthcare institution cannot be in both subclasses
- BirthingCenter(<u>HIemail</u>)
  - o HIemail foreign key references HealthcareInstitutions
- CommunityClinic(<u>HIemail</u>)
  - o HIemail foreign key references HealthcareInstitutions
- signUps(<u>signUpID,</u> QCHealthCardNum, HIemail, sessionID, did_Attend, is_Interested)
  - o HIemail foreign key references HeathcareInstitutions
  - o Participation + key constraint QCHealthCardNum, HIemail
- InfoSessions(<u>sessionID</u>, time, date, language, practitionerID)
  - o practitionerID foreign key references MidWives
  - o participation + key constraint practitionerID
- Invited(<u>signUpID, QCHealthCardNum</u>, sessionID, did_Attend, is_Interested)
  - o signUpID foreign key references signUps, foreign key QCHealthCardNum references Mothers, foreign key sessionID references InfoSessions
- MidWives(<u>practitionerID</u>, email, name, phonenum, HIemail)
  - o HIemail foreign key references HealthcareInstitutions
  - o Participation + key constraint HIemail
- Pregnancies(<u>nthPreg, cID</u>, lastMenstPer, datingUltraRes, finalExpBirth, motherBT, fatherBT)
  - o cID foreign key references Couple
- AssignedMW(<u>practitionerID, nthPreg, cID</u>, is_primary)
  - o PractitionerID foreign key references Midwives, (nthPreg, cID) foreign key references Pregnancies
- Babies(<u>babyID</u>, nthPreg, cID, name, birth_Home, dateOB, timeOB, gender,HIemail)
  - o (nthPreg, cID) foreign key references Pregnancies, HIemail foreign key references BirthingCenter
  - o Participation + key constraint (nthPreg, cID)
- Appointments(<u>appointmentID</u>, nthPreg, cID, date, time)
  - o (nthPreg, cID) foreign key references Pregnancies
- Notes(<u>time, appointmentID</u>, observation)
  - o Foreign key appointmentID references Appointments

- SetsAppoint(practitionerID, appointmentID)
  - practitionerID foreign key references MidWives, appointmentID foreign key references Appointments
- Tests(testID, datePrescr, dateSampTaken, testType, dateLabWorkDone, result, id, appointmentID)
  - id foreign key references Technicians, appointmentID foreign key references Appointments
  - participation+ key constraint appointmentID
- Technicians(id, name, phonenum)

Application Interaction

Qa(i)

```
db2 => db2 => SELECT pracID FROM MIDWIVES WHERE pracID = 'mw11'

PRACID
-----------

  0 record(s) selected.


db2 => syang70@winter2022-comp421:~/p3$
```

Qa(ii)

```
syang70@winter2022-comp421:~/p3$ java goBabbyApp
Enter practitioner ID [E] to exit: mw11
Practitioner ID not found
Enter practitioner ID [E] to exit: E
syang70@winter2022-comp421:~/p3$
```

Qb(i)

```
db2 => db2 => db2 (cont.) => db2 (cont.) => SELECT QCHCN, NTHPREG, p.CID, FINALEXPTOB FROM COUPLE c, PREGNANCIES p
 WHERE c.QCHCN = 'hc1' AND c.CID = p.CID

QCHCN        NTHPREG      CID          FINALEXPTOB
------------ ----------- ------------ -----------
hc1                    1 c1           07/22/2022
hc1                    2 c1           07/30/2022
hc1                    1 c12          06/20/2022
hc1                    2 c12          06/20/2022

  4 record(s) selected.


syang70@winter2022-comp421:~/p3$
```

Qb(ii)

```
syang70@winter2022-comp421:~/p3$ java goBabbyApp
Enter practitioner ID [E] to exit: mw2
Enter the date (YYYY-MM-DD) for appointment list [E] to exit:
```

Qb(iii)

```
syang70@winter2022-comp421:~/p3$ java goBabbyApp
Enter practitioner ID [E] to exit: mw2
Enter the date (YYYY-MM-DD) for appointment list [E] to exit: 2022-03-21
1: 12:30:00 B Jennifer Lopez hc2
2: 13:30:00 P Victoria Guitierrez hc1

Enter the appointment number you'd like to work on.
        [E] to exit [D] to go back to another date: _
```

Qb(iv)

```
syang70@winter2022-comp421:~/p3$ java goBabbyApp
Enter practitioner ID [E] to exit: mw2
Enter the date (YYYY-MM-DD) for appointment list [E] to exit: 2022-03-21
1: 12:30:00 B Jennifer Lopez hc2
2: 13:30:00 P Victoria Guitierrez hc1

Enter the appointment number you'd like to work on.
        [E] to exit [D] to go back to another date: 2
For Victoria Guitierrez hc1

1. Review notes
2. Review tests
3. Add a note
4. Prescribe a test
5. Go back to the appointments.

Enter your choice: _
```

Qb(v)

```
Enter your choice: 1
2022-03-21 01:40:10 note taken at 1:40
2022-03-21 01:30:10 note taken at 1:30

For Victoria Guitierrez hc1

1. Review notes
2. Review tests
3. Add a note
4. Prescribe a test
5. Go back to the appointments.

Enter your choice: _
```

Qb(vi)

```
Enter your choice: 2
2021-07-01 [blood iron] BIResult
2021-06-25 [blood iron] BIResult

For Victoria Guitierrez hc1

1. Review notes
2. Review tests
3. Add a note
4. Prescribe a test
5. Go back to the appointments.

Enter your choice:
```

Qb(vii)

```
Enter your choice: 3
Type your observation: Observation for note N1 P3
For Victoria Guitierrez hc1

1. Review notes
2. Review tests
3. Add a note
4. Prescribe a test
5. Go back to the appointments.

Enter your choice:
```

Qb(viii)

```
db2 => db2 => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>
 SELECT a.CID, NTHPREG, OBSERV FROM NOTES n, APPOINTMENTS a WHERE n.APPOINTID IN ( SELECT APPOINTID FROM
 APPOINTMENTS a WHERE a.CID IN ( SELECT c.CID FROM COUPLE c, MOTHERS m WHERE m.QCHCN = 'hc1' AND c.QCHCN
 = m.QCHCN ) ) AND n.APPOINTID = a.APPOINTID

CID            NTHPREG     OBSERV
------------ ----------- ----------------------------------------------------------------------------
------------------------------------------------------------------------------------------------------
------------------------------------------------------------------------------------------------------
------------
c1                     1 note taken at 1:30
c1                     1 note taken at 1:40
c1                     2 note1
c1                     1 Observation for note N1 P3

  4 record(s) selected.


syang70@winter2022-comp421:~/p3$
```

Qb(ix)

```
syang70@winter2022-comp421:~/p3$ java goBabbyApp
Enter practitioner ID [E] to exit: mw2
Enter the date (YYYY-MM-DD) for appointment list [E] to exit: 2022-03-21
1: 12:30:00 B Jennifer Lopez hc2
2: 13:30:00 P Victoria Guitierrez hc1

Enter the appointment number you'd like to work on.
        [E] to exit [D] to go back to another date: 2
For Victoria Guitierrez hc1

1. Review notes
2. Review tests
3. Add a note
4. Prescribe a test
5. Go back to the appointments.

Enter your choice: 1
2022-03-21 17:53:45 Observation for note N1 P3
2022-03-21 01:40:10 note taken at 1:40
2022-03-21 01:30:10 note taken at 1:30

For Victoria Guitierrez hc1

1. Review notes
2. Review tests
3. Add a note
4. Prescribe a test
5. Go back to the appointments.

Enter your choice:
```

Qb(x)

```
Enter your choice: 4
Enter the type of test: trisomy 21
Enter testID: testP3Qbx
Enter techID: tech2
For Victoria Guitierrez hc1

1. Review notes
2. Review tests
3. Add a note
4. Prescribe a test
5. Go back to the appointments.

Enter your choice:
```

Qb(xi)

```
db2 => db2 => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (c
ont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => SELECT QCHCN, a.CID, NTHPREG, TESTID, TES
TTYPE, RESULT FROM TESTS t, APPOINTMENTS a, COUPLE c WHERE t.APPOINTID IN ( SELECT APPOINTID FROM APPOINTMENTS a WHERE a.CID
IN ( SELECT c.CID FROM COUPLE c, MOTHERS m WHERE m.QCHCN = 'hc1' AND c.QCHCN = m.QCHCN ) ) AND t.APPOINTID = a.APPOINTID AND
a.CID = c.CID

QCHCN         CID          NTHPREG     TESTID      TESTTYPE                                                RESULT
-----------   ------------ ----------- ----------- --------------------------------------------------      ----------------------
-----------------------------------------------------------------------------------
hc1           c1                     1 test21      blood iron                                              BIResult
hc1           c1                     1 test25      blood iron                                              BIResult
hc1           c1                     2 test22      blood iron                                              BIResult
hc1           c12                    2 test4       blood iron                                              BIResult
hc1           c1                     1 testP3Qbx   trisomy 21                                              -

  5 record(s) selected.


syang70@winter2022-comp421:~/p3$
```

Qb(xii)

```
syang70@winter2022-comp421:~/p3$ java goBabbyApp
Enter practitioner ID [E] to exit: mw2
Enter the date (YYYY-MM-DD) for appointment list [E] to exit: 2022-03-21
1: 12:30:00 B Jennifer Lopez hc2
2: 13:30:00 P Victoria Guitierrez hc1

Enter the appointment number you'd like to work on.
        [E] to exit [D] to go back to another date: 2
For Victoria Guitierrez hc1

1. Review notes
2. Review tests
3. Add a note
4. Prescribe a test
5. Go back to the appointments.

Enter your choice: 5
1: 12:30:00 B Jennifer Lopez hc2
2: 13:30:00 P Victoria Guitierrez hc1

Enter the appointment number you'd like to work on.
        [E] to exit [D] to go back to another date:
```

Qc(i)

```
db2 => db2 => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (con
t.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => SELECT QCHCN, a
.CID, NTHPREG, TESTID, TESTTYPE, RESULT FROM TESTS t, APPOINTMENTS a, COUPLE c WHERE t.APPOINTID IN ( SELECT APP
OINTID FROM APPOINTMENTS a WHERE a.CID IN ( SELECT c.CID FROM COUPLE c, MOTHERS m WHERE m.QCHCN = 'hc2' AND c.QC
HCN = m.QCHCN ) ) AND t.APPOINTID = a.APPOINTID AND a.CID = c.CID

QCHCN         CID          NTHPREG     TESTID      TESTTYPE                                                RESULT
-----------   ------------ ----------- ----------- --------------------------------------------------      ----------
-----------------------------------------------------------------------------------
hc2           c2                     1 test11      ttype1                                                  -

  1 record(s) selected.


syang70@winter2022-comp421:~/p3$
```

Qc(ii)

```
syang70@winter2022-comp421:~/p3$ java goBabbyApp
Enter practitioner ID [E] to exit: mw2
Enter the date (YYYY-MM-DD) for appointment list [E] to exit: 2022-03-21
1: 12:30:00 B Jennifer Lopez hc2
2: 13:30:00 P Victoria Guitierrez hc1

Enter the appointment number you'd like to work on.
        [E] to exit [D] to go back to another date: 1
For Jennifer Lopez hc2

1. Review notes
2. Review tests
3. Add a note
4. Prescribe a test
5. Go back to the appointments.

Enter your choice:
```

Qc(iii)

```
Enter your choice: 1
2022-03-22 12:10:45 note121
2022-03-21 12:40:45 note12
2022-03-21 12:30:01 note11

For Jennifer Lopez hc2

1. Review notes
2. Review tests
3. Add a note
4. Prescribe a test
5. Go back to the appointments.

Enter your choice:
```

Qc(iv)

```
Enter your choice: 4
Enter the type of test: Group B Streptococcus
Enter testID: testP3Qciv
Enter techID: tech3
For Jennifer Lopez hc2

1. Review notes
2. Review tests
3. Add a note
4. Prescribe a test
5. Go back to the appointments.

Enter your choice:
```

Qc(v)

```
db2 => db2 => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (co
nt.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => SELECT QCHCN,
 a.CID, NTHPREG, TESTID, TESTTYPE, RESULT FROM TESTS t, APPOINTMENTS a, COUPLE c WHERE t.APPOINTID IN ( SELECT
APPOINTID FROM APPOINTMENTS a WHERE a.CID IN ( SELECT c.CID FROM COUPLE c, MOTHERS m WHERE m.QCHCN = 'hc2' AND
c.QCHCN = m.QCHCN ) ) AND t.APPOINTID = a.APPOINTID AND a.CID = c.CID

QCHCN         CID          NTHPREG     TESTID       TESTTYPE                                                  RESULT

------------ ------------ ----------- ------------ ------------------------------------------------- ---------
-----------------------------------------------------------------------------
hc2          c2                    1 test11       ttype1                                                    -

hc2          c2                    1 testP3Qciv   Group B Streptococcus                                     -


  2 record(s) selected.


syang70@winter2022-comp421:~/p3$
```

Qd(i, ii, iii)

```
Enter your choice: 5
1: 12:30:00 B Jennifer Lopez hc2
2: 13:30:00 P Victoria Guitierrez hc1

Enter the appointment number you'd like to work on.
        [E] to exit [D] to go back to another date: D
Enter the date (YYYY-MM-DD) for appointment list [E] to exit: 2021-06-30
1: 16:30:00 B Mila Kunis hc5
2: 18:30:00 P Megan Fox hc6
3: 21:30:00 P Megan Fox hc6

Enter the appointment number you'd like to work on.
        [E] to exit [D] to go back to another date:
```

Indexing

```
db2 => db2 => CREATE UNIQUE INDEX mPhoneNumInc ON MOTHERS(MPHONENUM) INCLUDE (ADDR)
DB20000I  The SQL command completed successfully.

db2 => syang70@winter2022-comp421:~/p3$
```

Data Analytics

```
db2 => db2 => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => EXPORT TO "result.xlsx" OF DEL
MODIFIED BY datesiso SELECT MONTH(DATEOB) as month, COUNT(*) as births FROM BABIES b WHERE b.DATEOB IS NOT NULL GROUP BY
 MONTH(DATEOB)
SQL3104N  The Export utility is beginning to export data to file
"result.xlsx".

SQL3105N  The Export utility has finished exporting "3" rows.


Number of rows exported: 3


db2 => syang70@winter2022-comp421:~/p3$ vi result.xlsx
syang70@winter2022-comp421:~/p3$ syang70@winter2022-comp421:~/p3$
```

Excel workbook: result.csv