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COMP 421 Database Systems

Delivery Restaurant Management System and Database

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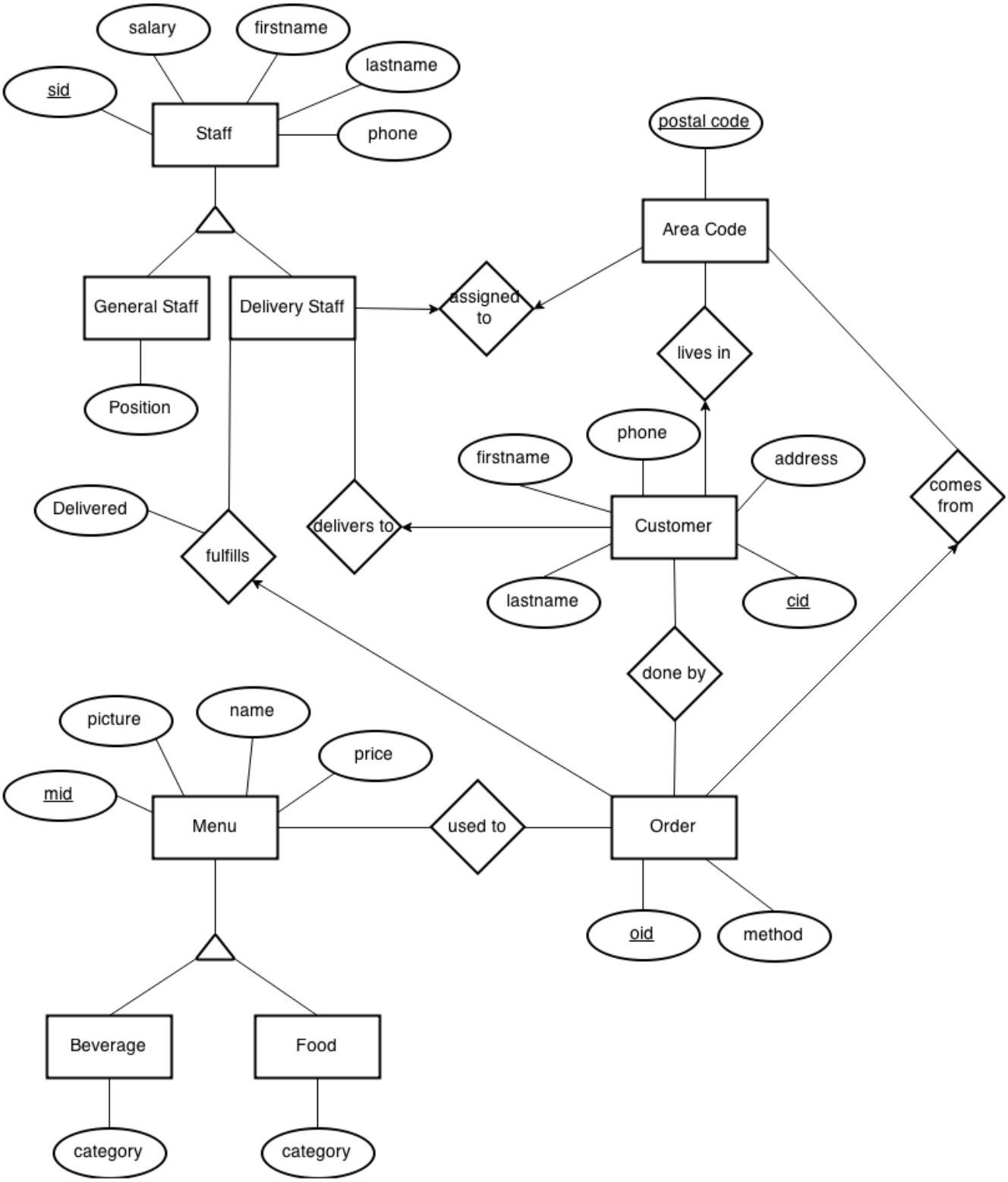
1. Relational Schema of Assignment #1



Entities

- Staff (sid, phone, salary, firstname, lastname)
- General Staff (sid, position)
- Delivery Staff (sid)
- AreaCode (postalCode)
- Customers (cid, phone, firstname, lastname, address)
- Order (oid, method)
- Menu (mid, name, description, price)
- Beverage (mid, category)
- Food (mid, category)

Relationships

- assigned_to (sid, postalCode)
- delivers_to (sid, cid)
- done_by (oid, cid)
- used_to (oid, mid)
- lives_in (cid, area code)
- comes_from (oid, postalCode)
- fulfills (sid, oid, delivered)

2. CREATE TABLE Statements

```
CREATE TABLE Staff
(
   sid INT NOT NULL,
   phone CHAR(12) UNIQUE NOT NULL,
   salary INT,
   firstName VARCHAR(30),
   lastName VARCHAR(30),
   PRIMARY KEY (sid)
);
db2 => DESCRIBE TABLE Staff

Column                         Type      Type
name                           schema    name                Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
SID                            SYSIBM    INTEGER                    4     0 No
PHONE                          SYSIBM    CHARACTER                 12     0 No
SALARY                         SYSIBM    INTEGER                    4     0 Yes
FIRSTNAME                      SYSIBM    VARCHAR                   30     0 Yes
LASTNAME                       SYSIBM    VARCHAR                   30     0 Yes

  5 record(s) selected.

CREATE TABLE GeneralStaff
(
   sid INT NOT NULL,
   position VARCHAR(10),
   PRIMARY KEY (sid),
   FOREIGN KEY (sid) REFERENCES Staff
);
db2 => DESCRIBE TABLE GeneralStaff

Column                         Type      Type
name                           schema    name                Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
SID                            SYSIBM    INTEGER                    4     0 No
POSITION                       SYSIBM    VARCHAR                   10     0 Yes

  2 record(s) selected.
```

```
CREATE TABLE DeliveryStaff
(
   sid INT NOT NULL,
   PRIMARY KEY (sid),
   FOREIGN KEY (sid) REFERENCES Staff
);
db2 => DESCRIBE TABLE DeliveryStaff

Column                         Type      Type
name                           schema    name               Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
SID                            SYSIBM    INTEGER                 4     0 No

  1 record(s) selected.

CREATE TABLE AreaCode
(
   postalCode CHAR(6) NOT NULL,
   PRIMARY KEY (postalCode)
);
db2 => DESCRIBE TABLE AreaCode

Column                         Type      Type
name                           schema    name               Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
POSTALCODE                     SYSIBM    CHARACTER               6     0 No

  1 record(s) selected.

CREATE TABLE Customers
(
   cid INT NOT NULL,
   firstName VARCHAR(30),
   lastName VARCHAR(30),
   address VARCHAR(30),
   phone CHAR(12),
   PRIMARY KEY (cid)
);
db2 => DESCRIBE TABLE Customers

Column                         Type      Type
name                           schema    name               Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
CID                            SYSIBM    INTEGER                 4     0 No
FIRSTNAME                      SYSIBM    VARCHAR                30     0 Yes
LASTNAME                       SYSIBM    VARCHAR                30     0 Yes
ADDRESS                        SYSIBM    VARCHAR                30     0 Yes
```

```
PHONE                          SYSIBM    CHARACTER                12     0 Yes

  5 record(s) selected.
```

```
CREATE TABLE Order
(
   oid INT NOT NULL,
   method VARCHAR(30) NOT NULL,
   PRIMARY KEY (oid)
);
db2 => DESCRIBE TAble Order

Column                         Type      Type
name                           schema    name                Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
OID                            SYSIBM    INTEGER                    4     0 No
METHOD                         SYSIBM    VARCHAR                   30     0 No

  2 record(s) selected.
```

```
CREATE TABLE Menu
(
   mid INT NOT NULL,
   name VARCHAR(30) NOT NULL,
   description VARCHAR(50),
   price DECIMAL(5, 2) NOT NULL,
   PRIMARY KEY (mid)
);
db2 => DESCRIBE TAble Menu

Column                         Type      Type
name                           schema    name                Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
MID                            SYSIBM    INTEGER                    4     0 No
NAME                           SYSIBM    VARCHAR                   30     0 No
DESCRIPTION                    SYSIBM    VARCHAR                   50     0 Yes
PRICE                          SYSIBM    DECIMAL                    5     2 No

  4 record(s) selected.
```

```
CREATE TABLE Beverage
(
   mid INT NOT NULL,
   category VARCHAR(30) NOT NULL,
   PRIMARY KEY (mid),
   FOREIGN KEY (mid) REFERENCES Menu
);
```

```
db2 => DESCRIBE TABLE Beverage

Column                         Type      Type
name                           schema    name                Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
MID                            SYSIBM    INTEGER                  4     0 No
CATEGORY                       SYSIBM    VARCHAR                 30     0 No

  2 record(s) selected.
```

```
CREATE TABLE Food
(
   mid INT NOT NULL,
   category VARCHAR(30) NOT NULL,
   PRIMARY KEY (mid),
   FOREIGN KEY (mid) REFERENCES Menu
);
db2 => DESCRIBE TABLE Food

Column                         Type      Type
name                           schema    name                Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
MID                            SYSIBM    INTEGER                  4     0 No
CATEGORY                       SYSIBM    VARCHAR                 30     0 No

  2 record(s) selected.
```

```
CREATE TABLE Assigned_to
(
   sid INT NOT NULL,
   postalCode CHAR(6) NOT NULL,
   PRIMARY KEY (sid, postalCode),
   FOREIGN KEY (sid) REFERENCES DeliveryStaff,
   FOREIGN KEY (postalCode) REFERENCES AreaCode
);
db2 => DESCRIBE TABLE Assigned_to

Column                         Type      Type
name                           schema    name                Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
SID                            SYSIBM    INTEGER                  4     0 No
POSTALCODE                     SYSIBM    CHARACTER                6     0 No

  2 record(s) selected.
```

```
CREATE TABLE Delivers_to
(
   sid INT NOT NULL,
   cid INT NOT NULL,
   PRIMARY KEY (sid, cid),
   FOREIGN KEY (sid) REFERENCES DeliveryStaff,
   FOREIGN KEY (cid) REFERENCES Customers
);
db2 => DESCRIBE TABLE Delivers_to

Column                         Type      Type
name                           schema    name                Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
SID                            SYSIBM    INTEGER                    4     0 No
CID                            SYSIBM    INTEGER                    4     0 No

  2 record(s) selected.

CREATE TABLE Done_by (
   oid INT NOT NULL,
   cid INT NOT NULL,
   PRIMARY KEY (oid, cid),
   FOREIGN KEY (oid) REFERENCES Order
   ON DELETE CASCADE,
   FOREIGN KEY (cid) REFERENCES Customers
);

db2 => DESCRIBE TABLE Done_by

Column                         Type      Type
name                           schema    name                Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
OID                            SYSIBM    INTEGER                    4     0 No
CID                            SYSIBM    INTEGER                    4     0 No

  2 record(s) selected.

CREATE TABLE Used_to
(
   oid INT NOT NULL,
   mid INT NOT NULL,
   PRIMARY KEY (oid, mid),
   FOREIGN KEY (oid) REFERENCES Order
   ON DELETE CASCADE,
   FOREIGN KEY (mid) REFERENCES Menu
);
```

```
db2 => DESCRIBE TABLE Used_to

Column                         Type      Type
name                           schema    name                Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
OID                            SYSIBM    INTEGER                    4     0 No
MID                            SYSIBM    INTEGER                    4     0 No

  2 record(s) selected.
```

```
CREATE TABLE Lives_in
(
   cid INT NOT NULL,
   postalCode CHAR(6) NOT NULL,
   PRIMARY KEY (cid, postalCode),
   FOREIGN KEY (cid) REFERENCES Customers,
   FOREIGN KEY (postalCode) REFERENCES AreaCode
);
db2 => DESCRIBE TABLE Lives_in

Column                         Type      Type
name                           schema    name                Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
CID                            SYSIBM    INTEGER                    4     0 No
POSTALCODE                     SYSIBM    CHARACTER                  6     0 No

  2 record(s) selected.
```

```
CREATE TABLE Comes_from
(
   oid INT NOT NULL,
   postalCode CHAR(6) NOT NULL,
   PRIMARY KEY (oid, postalCode),
   FOREIGN KEY (oid) REFERENCES Order
   ON DELETE CASCADE,
   FOREIGN KEY (postalCode) REFERENCES AreaCode
);
db2 => DESCRIBE TABLE Comes_from

Column                         Type      Type
name                           schema    name                Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
OID                            SYSIBM    INTEGER                    4     0 No
POSTALCODE                     SYSIBM    CHARACTER                  6     0 No

  2 record(s) selected.
```

```
CREATE TABLE Fulfills
(
   sid INT NOT NULL,
   oid INT NOT NULL,
   delivered CHAR(1) DEFAULT ‘N’,
   PRIMARY KEY (sid, oid),
   FOREIGN KEY (sid) REFERENCES DeliveryStaff,
   FOREIGN KEY (oid) REFERENCES Order
   ON DELETE CASCADE
);
db2 => DESCRIBE TABLE Fulfills

Column                         Type      Type
name                           schema    name               Length   Scale Nulls
------------------------------ --------- ------------------ -------- ----- ------
SID                            SYSIBM    INTEGER                 4     0 No
OID                            SYSIBM    INTEGER                 4     0 No
DELIVERED                      SYSIBM    CHARACTER               1     0 Yes

  3 record(s) selected.
```

3. Five INSERT Statements

```
INSERT INTO Staff VALUES(1, '438-046-1796', 3030, 'Jerry', 'Sanchez');
INSERT INTO Staff VALUES(2, '514-792-8340', 3390, 'Susan', 'Perez');
INSERT INTO Staff VALUES(3, '514-590-2898', 3190, 'Chris', 'Flores');
INSERT INTO Staff VALUES(4, '514-317-7526', 2890, 'Joe', 'Kelly');
INSERT INTO Staff VALUES(5, '438-637-4331', 2370, 'Jacqueline', 'Carter');
```

- **SELECT * FROM Staff;**

```
db2 => SELECT * FROM Staff

SID         PHONE        SALARY      FIRSTNAME                      LASTNAME
----------- ------------ ----------- ------------------------------ ------------------------------
          1 438-046-1796        3030 Jerry                          Sanchez
          2 514-792-8340        3390 Susan                          Perez
          3 514-590-2898        3190 Chris                          Flores
          4 514-317-7526        2890 Joe                            Kelly
          5 438-637-4331        2370 Jacqueline                     Carter

  5 record(s) selected.
```

4. INSERT Statements for all tables

```
INSERT INTO Staff VALUES(6, '514-743-7636', 3370, 'Walter', 'Hill');
INSERT INTO Staff VALUES(7, '514-134-9922', 2100, 'Virginia', 'Mitchell');
INSERT INTO Staff VALUES(8, '438-294-1394', 2210, 'Louise', 'Thompson');
INSERT INTO Staff VALUES(9, '514-331-7527', 2760, 'Eric', 'Long');
INSERT INTO Staff VALUES(10, '438-610-3574', 2500, 'Paul', 'Peterson');

INSERT INTO GeneralStaff VALUES(2, 'Manager');
INSERT INTO GeneralStaff VALUES(5, 'Cook');
INSERT INTO GeneralStaff VALUES(7, 'Waitress');
INSERT INTO GeneralStaff VALUES(8, 'Waitress');
INSERT INTO GeneralStaff VALUES(10, 'Cook');

INSERT INTO DeliveryStaff VALUES(1);
INSERT INTO DeliveryStaff VALUES(3);
INSERT INTO DeliveryStaff VALUES(4);
INSERT INTO DeliveryStaff VALUES(6);
INSERT INTO DeliveryStaff VALUES(9);

INSERT INTO AreaCode VALUES('H4M2C3');
INSERT INTO AreaCode VALUES('H4M2G9');
INSERT INTO AreaCode VALUES('H4M2H3');
INSERT INTO AreaCode VALUES('H4M2K3');
INSERT INTO AreaCode VALUES('H4M2K4');

INSERT INTO Customers VALUES(1, 'Emanuel', 'Moody', '123 Front street',
'514-212-6366');
INSERT INTO Customers VALUES(2, 'Vanessa', 'Hampton', '12 Grand street',
'438-783-2583');
INSERT INTO Customers VALUES(3, 'Rose', 'Rhodes', '1232 Parc street',
'514-271-0615');
INSERT INTO Customers VALUES(4, 'Tina', 'Morris', '989 Juliette street',
'514-439-1412');
INSERT INTO Customers VALUES(5, 'Louise', 'Nelson', '223 Cordner street',
'438-253-6201');

INSERT INTO Order VALUES(1, 'online');
INSERT INTO Order VALUES(2, 'phone');
INSERT INTO Order VALUES(3, 'online');
INSERT INTO Order VALUES(4, 'online');
INSERT INTO Order VALUES(5, 'phone');
INSERT INTO Order VALUES(6, 'phone');
```

```
INSERT INTO Order VALUES(7, 'phone');

INSERT INTO Menu VALUES(1, 'Cheese', 'Tomato sauce, mozzarella', 11.99);
INSERT INTO Menu VALUES(2, 'All Dressed', 'Pepperoni, mushrooms, green peppers,
mozzarella', 12.99);
INSERT INTO Menu VALUES(3, 'Pepperoni', 'Pepperoni, mozzarella', 12.99);
INSERT INTO Menu VALUES(4, 'Bacon', 'Mozzarella, bacon, mushrooms', 12.99);
INSERT INTO Menu VALUES(5, 'Smoked Meat', 'Mozzarella, smoked meat', 12.99);
INSERT INTO Menu VALUES(6, 'Mexican Beef', 'Onions, hot peppers, beef,
mozzarella', 12.99);
INSERT INTO Menu VALUES(7, 'Vegetarian', 'Mushrooms, onions, green peppers,
mozzarella', 12.99);
INSERT INTO Menu VALUES(8, 'Hawaiian', 'Ham, pineapple, mozzarella', 12.99);
INSERT INTO Menu VALUES(9, 'Philly', 'Mushrooms, steak, onions, green peppers,
mozzarella', 13.99);
INSERT INTO Menu VALUES(10, 'Soft Drinks 355ml', NULL, 1.25);
INSERT INTO Menu VALUES(11, 'Soft Drinks 2L', NULL, 2.99);
INSERT INTO Menu VALUES(12, 'Garden Salad', NULL, 3.99);
INSERT INTO Menu VALUES(13, 'Cheese Bread', NULL, 4.99);
INSERT INTO Menu VALUES(14, 'Fries Small', NULL, 1.49);
INSERT INTO Menu VALUES(15, 'Fries Large', NULL, 1.99);
INSERT INTO Menu VALUES(16, 'Chicken Wings 10pcs', NULL, 7.99);
INSERT INTO Menu VALUES(17, 'Chicken Wings 20pcs', NULL, 13.99);

INSERT INTO Beverage VALUES(10, 'Non-alcohol');
INSERT INTO Beverage VALUES(11, 'Non-alcohol');

INSERT INTO Food VALUES(1, 'Pizza');
INSERT INTO Food VALUES(2, 'Pizza');
INSERT INTO Food VALUES(3, 'Pizza');
INSERT INTO Food VALUES(4, 'Pizza');
INSERT INTO Food VALUES(5, 'Pizza');
INSERT INTO Food VALUES(6, 'Pizza');
INSERT INTO Food VALUES(7, 'Pizza');
INSERT INTO Food VALUES(8, 'Pizza');
INSERT INTO Food VALUES(9, 'Pizza');
INSERT INTO Food VALUES(12, 'Sides');
INSERT INTO Food VALUES(13, 'Sides');
INSERT INTO Food VALUES(14, 'Sides');
INSERT INTO Food VALUES(15, 'Sides');
INSERT INTO Food VALUES(16, 'Sides');
INSERT INTO Food VALUES(17, 'Sides');

INSERT INTO Assigned_to VALUES(1, 'H4M2C3');
INSERT INTO Assigned_to VALUES(3, 'H4M2G9');
```

```
INSERT INTO Assigned_to VALUES(4, 'H4M2H3');
INSERT INTO Assigned_to VALUES(6, 'H4M2K3');
INSERT INTO Assigned_to VALUES(9, 'H4M2K4');

INSERT INTO Delivers_to VALUES(6, 1);
INSERT INTO Delivers_to VALUES(6, 2);
INSERT INTO Delivers_to VALUES(1, 3);
INSERT INTO Delivers_to VALUES(3, 4);
INSERT INTO Delivers_to VALUES(4, 5);

INSERT INTO Done_by VALUES(1, 1);
INSERT INTO Done_by VALUES(2, 2);
INSERT INTO Done_by VALUES(3, 3);
INSERT INTO Done_by VALUES(4, 4);
INSERT INTO Done_by VALUES(5, 5);
INSERT INTO Done_by VALUES(6, 1);
INSERT INTO Done_by VALUES(7, 3);

INSERT INTO Used_to VALUES(1, 13);
INSERT INTO Used_to VALUES(1, 2);
INSERT INTO Used_to VALUES(2, 14);
INSERT INTO Used_to VALUES(3, 15);
INSERT INTO Used_to VALUES(4, 16);
INSERT INTO Used_to VALUES(5, 17);
INSERT INTO Used_to VALUES(6, 3);
INSERT INTO Used_to VALUES(6, 11);
INSERT INTO Used_to VALUES(7, 5);
INSERT INTO Used_to VALUES(7, 10);
INSERT INTO Used_to VALUES(7, 12);
INSERT INTO Used_to VALUES(7, 16);

INSERT INTO Lives_in VALUES(1, 'H4M2K3');
INSERT INTO Lives_in VALUES(2, 'H4M2K3');
INSERT INTO Lives_in VALUES(3, 'H4M2C3');
INSERT INTO Lives_in VALUES(4, 'H4M2G9');
INSERT INTO Lives_in VALUES(5, 'H4M2H3');

INSERT INTO Comes_from VALUES(1, 'H4M2K3');
INSERT INTO Comes_from VALUES(2, 'H4M2K3');
INSERT INTO Comes_from VALUES(3, 'H4M2C3');
INSERT INTO Comes_from VALUES(4, 'H4M2G9');
INSERT INTO Comes_from VALUES(5, 'H4M2H3');
INSERT INTO Comes_from VALUES(6, 'H4M2K3');
INSERT INTO Comes_from VALUES(7, 'H4M2C3');
```

```
INSERT INTO Fulfills VALUES(6, 1, 'Y');
INSERT INTO Fulfills VALUES(6, 2, 'N');
INSERT INTO Fulfills VALUES(1, 3, 'Y');
INSERT INTO Fulfills VALUES(3, 4, 'N');
INSERT INTO Fulfills VALUES(4, 5, 'N');
INSERT INTO Fulfills VALUES(6, 6, 'N');
INSERT INTO Fulfills VALUES(1, 7, 'N');
```

- **SELECT * FROM Staff;**

```
db2 => SELECT * FROM Staff

SID         PHONE        SALARY      FIRSTNAME                       LASTNAME
----------- ------------ ----------- ------------------------------- -------------------------------
          1 438-046-1796        3030 Jerry                           Sanchez
          2 514-792-8340        3390 Susan                           Perez
          3 514-590-2898        3190 Chris                           Flores
          4 514-317-7526        2890 Joe                             Kelly
          5 438-637-4331        2370 Jacqueline                      Carter
          6 514-743-7636        3370 Walter                          Hill
          7 514-134-9922        2100 Virginia                        Mitchell
          8 438-294-1394        2210 Louise                          Thompson
          9 514-331-7527        2760 Eric                            Long
         10 438-610-3574        2500 Paul                            Peterson

  10 record(s) selected.
```

- **SELECT * FROM GeneralStaff;**

```
db2 => SELECT * FROM GeneralStaff

SID         POSITION
----------- ----------
          2 Manager
          5 Cook
          7 Waitress
          8 Waitress
         10 Cook

  5 record(s) selected.
```

- **SELECT * FROM DeliveryStaff;**

```
db2 => SELECT * FROM DeliveryStaff

SID
-----------
          1
          3
          4
          6
          9
```

5 record(s) selected.

- **SELECT * FROM AreaCode;**

```
db2 => SELECT * FROM AreaCode

POSTALCODE
----------
H4M2C3
H4M2G9
H4M2H3
H4M2K3
H4M2K4

  5 record(s) selected.
```

- **SELECT * FROM Customers;**

```
db2 => SELECT * FROM Customers

CID         FIRSTNAME                     LASTNAME                      ADDRESS                       PHONE
----------- ----------------------------- ----------------------------- ----------------------------- ------------
          1 Emanuel                       Moody                         123 Front street              514-212-6366
          2 Vanessa                       Hampton                       12 Grand street               438-783-2583
          3 Rose                          Rhodes                        1232 Parc street              514-271-0615
          4 Tina                          Morris                        989 Juliette street           514-439-1412
          5 Louise                        Nelson                        223 Cordner street            438-253-6201

  5 record(s) selected.
```

- **SELECT * FROM Order;**

```
db2 => SELECT * FROM Order

OID         METHOD
----------- ------------------------------
          1 online
          2 phone
          3 online
          4 online
          5 phone
          6 phone
          7 phone

  7 record(s) selected.
```

- **SELECT * FROM Menu;**

```
db2 => SELECT * FROM Menu

MID         NAME                          DESCRIPTION                                        PRICE
----------- ----------------------------- -------------------------------------------------- -------
          1 Cheese                        Tomato sauce, mozzarella                             11.99
          2 All Dressed                   Pepperoni, mushrooms, green peppers, mozzarella      12.99
          3 Pepperoni                     Pepperoni, mozzarella                                12.99
          4 Bacon                         Mozzarella, bacon, mushrooms                         12.99
```

```
  5 Smoked Meat                  Mozzarella, smoked meat                          12.99
  6 Mexican Beef                 Onions, hot peppers, beef, mozzarella            12.99
  7 Vegetarian                   Mushrooms, onions, green peppers, mozzarella     12.99
  8 Hawaiian                     Ham, pineapple, mozzarella                       12.99
 10 Soft Drinks 355ml            -                                                 1.25
 11 Soft Drinks 2L               -                                                 2.99
 12 Garden Salad                 -                                                 3.99
 13 Cheese Bread                 -                                                 4.99
 14 Fries Small                  -                                                 1.49
 15 Fries Large                  -                                                 1.99
 16 Chicken Wings 10pcs          -                                                 7.99
 17 Chicken Wings 20pcs          -                                                13.99

16 record(s) selected.
```

- **SELECT * FROM Beverage;**

```
db2 => SELECT * FROM Beverage

MID         CATEGORY
----------- ------------------------------
         10 Non-alcohol
         11 Non-alcohol

  2 record(s) selected.
```

- **SELECT * FROM Food;**

```
db2 => SELECT * FROM Food

MID         CATEGORY
----------- ------------------------------
          1 Pizza
          2 Pizza
          3 Pizza
          4 Pizza
          5 Pizza
          6 Pizza
          7 Pizza
          8 Pizza
          9 Pizza
         12 Sides
         13 Sides
         14 Sides
         15 Sides
         16 Sides
         17 Sides

  15 record(s) selected.
```

- **SELECT * FROM Assigned_to;**

```
db2 => SELECT * FROM Assigned_to
```

```
SID         POSTALCODE
----------- ----------
          1 H4M2C3
          3 H4M2G9
          4 H4M2H3
          6 H4M2K3
          9 H4M2K4

  5 record(s) selected.
```

- **SELECT * FROM Delivers_to;**

```
db2 => SELECT * FROM Delivers_to

SID         CID
----------- -----------
          1           3
          3           4
          4           5
          6           1
          6           2

  5 record(s) selected.
```

- **SELECT * FROM Done_by;**

```
db2 => SELECT * FROM Done_by

OID         CID
----------- -----------
          1           1
          2           2
          3           3
          4           4
          5           5
          6           1
          7           3

  7 record(s) selected.
```

- **SELECT * FROM Used_to;**

```
db2 => SELECT * FROM Used_to

OID         MID
----------- -----------
          1           2
          1          13
          2          14
          3          15
          4          16
          5          17
```

```
          6           3
          6          11
          7           5
          7          10
          7          12
          7          16

  12 record(s) selected.
```

- **SELECT * FROM Lives_in;**

```
db2 => SELECT * FROM Lives_in

CID         POSTALCODE
----------- ----------
          1 H4M2K3
          2 H4M2K3
          3 H4M2C3
          4 H4M2G9
          5 H4M2H3

  5 record(s) selected.
```

- **SELECT * FROM Comes_from;**

```
db2 => SELECT * FROM Comes_from

OID         POSTALCODE
----------- ----------
          1 H4M2K3
          2 H4M2K3
          3 H4M2C3
          4 H4M2G9
          5 H4M2H3
          6 H4M2K3
          7 H4M2C3

  7 record(s) selected.
```

- **SELECT * FROM Fulfills;**

```
db2 => SELECT * FROM Fulfills

SID         OID         DELIVERED
----------- ----------- ---------
          1           3 Y
          1           7 N
          3           4 N
          4           5 N
          6           1 Y
          6           2 N
          6           6 N
```

```
7 record(s) selected.
```

5. Five Queries

1. **List all orders which are fulfilled**

```
SELECT *
FROM Order
WHERE oid IN (SELECT oid
   FROM Fulfills
   WHERE delivered='Y');
```

```
db2 => SELECT * FROM Order WHERE oid IN (SELECT oid FROM Fulfills WHERE
delivered='Y')

OID         METHOD
----------- ------------------------------
          1 online
          3 online

  2 record(s) selected.
```

2. **Number of orders in each area code**

```
SELECT postalCode, COUNT(DISTINCT oid) AS NumberOfOrders
FROM Comes_from
GROUP BY postalCode;
```

```
db2 => SELECT postalCode, COUNT(DISTINCT oid) AS NumberOfOrders FROM Comes_from GROUP
BY postalCode

POSTALCODE NUMBEROFORDERS
---------- --------------
H4M2C3                  2
H4M2G9                  1
H4M2H3                  1
H4M2K3                  3

  4 record(s) selected.
```

3. **Number of orders for each customer**

```
SELECT c.firstName, c.lastName, t.NumberOfOrders
FROM Customers c, (SELECT cid,
   COUNT(DISTINCT oid) AS NumberOfOrders
   FROM Done_by
   GROUP BY cid) t
WHERE c.cid=t.cid;
```

```
db2 => SELECT c.firstName, c.lastName, t.NumberOfOrders FROM Customers c, (SELECT
cid, COUNT(DISTINCT oid) AS NumberOfOrders FROM Done_by GROUP BY cid) t WHERE
c.cid=t.cid

FIRSTNAME                       LASTNAME                        NUMBEROFORDERS
------------------------------- ------------------------------- --------------
Emanuel                         Moody                                        2
Vanessa                         Hampton                                      1
Rose                            Rhodes                                       2
Tina                            Morris                                       1
Louise                          Nelson                                       1

  5 record(s) selected.
```

4. **List all menu items with price range of 10-20 $**

```
SELECT *
FROM Menu
WHERE price >= 10.00
AND price <= 20.00;
```

```
db2 => SELECT * FROM Menu WHERE price >= 10.00 AND price <=20.00

MID         NAME                          DESCRIPTION                                          PRICE
----------- ----------------------------- ---------------------------------------------------- -------
          1 Cheese                        Tomato sauce, mozzarella                               11.99
          2 All Dressed                   Pepperoni, mushrooms, green peppers, mozzarella        12.99
          3 Pepperoni                     Pepperoni, mozzarella                                  12.99
          4 Bacon                         Mozzarella, bacon, mushrooms                           12.99
          5 Smoked Meat                   Mozzarella, smoked meat                                12.99
          6 Mexican Beef                  Onions, hot peppers, beef, mozzarella                  12.99
          7 Vegetarian                    Mushrooms, onions, green peppers, mozzarella           12.99
          8 Hawaiian                      Ham, pineapple, mozzarella                             12.99
         17 Chicken Wings 20pcs           -                                                      13.99

  9 record(s) selected.
```

5. **List staff members which are also customers**

```
SELECT s.firstName, s.lastName
FROM Staff s, Customers c
WHERE s.phone = c.phone
AND s.firstName = c.firstName
AND s.lastName = c.lastName;
```

```
db2 => SELECT s.firstName, s.lastName FROM Staff s, Customers c WHERE s.phone =
c.phone AND s.firstName = c.firstName AND s.lastName = c.lastName

FIRSTNAME                       LASTNAME
------------------------------- -------------------------------

  0 record(s) selected.
```

6. Four Data Modification Commands

1. **This raises the salary by $200 for staffs that originally has less than $2500 per month.**

```
Update Staff
SET salary=salary+200
WHERE salary<2500;
```

```
db2 => SELECT * FROM STAFF

SID         PHONE        SALARY      FIRSTNAME                      LASTNAME
----------- ------------ ----------- ------------------------------ ------------------------------
          1 438-046-1796        3030 Jerry                          Sanchez
          2 514-792-8340        3390 Susan                          Perez
          3 514-590-2898        3190 Chris                          Flores
          4 514-317-7526        2890 Joe                            Kelly
          5 438-637-4331        2570 Jacqueline                     Carter
          6 514-743-7636        3370 Walter                         Hill
          7 514-134-9922        2300 Virginia                       Mitchell
          8 438-294-1394        2410 Louise                         Thompson
          9 514-331-7527        2760 Eric                           Long
         10 438-610-3574        2500 Paul                           Peterson

  10 record(s) selected.
```

The ones marked in red used to have salary less than $2500, and their salary has been raised by $200.

2. **This increases the price of all menu items currently under $9 and classified as a food item by $1.**

```
Update Menu
SET Menu.price=Menu.price+1
WHERE Menu.mid IN (SELECT mid
   FROM Food)
AND Menu.price < 9;
```

```
db2 => SELECT * FROM Menu

MID         NAME                           DESCRIPTION                                        PRICE
----------- ------------------------------ -------------------------------------------------- -------
          1 Cheese                         Tomato sauce, mozzarella                             11.99
          2 All Dressed                    Pepperoni, mushrooms, green peppers, mozzarella      12.99
          3 Pepperoni                      Pepperoni, mozzarella                                12.99
          4 Bacon                          Mozzarella, bacon, mushrooms                         12.99
          5 Smoked Meat                    Mozzarella, smoked meat                              12.99
          6 Mexican Beef                   Onions, hot peppers, beef, mozzarella                12.99
          7 Vegetarian                     Mushrooms, onions, green peppers, mozzarella         12.99
          8 Hawaiian                       Ham, pineapple, mozzarella                           12.99
         10 Soft Drinks 355ml              -                                                     1.25
```

```
        11 Soft Drinks 2L               -                                          2.99
        12 Garden Salad                 -                                          4.99
        13 Cheese Bread                 -                                          5.99
        14 Fries Small                  -                                          2.49
        15 Fries Large                  -                                          2.99
        16 Chicken Wings 10pcs          -                                          8.99
        17 Chicken Wings 20pcs          -                                         13.99

  16 record(s) selected.
```

3. **This deletes items from the menu that have never been ordered by customers.**

```
Delete FROM Menu
WHERE Menu.mid NOT IN (Select mid
   FROM Used_to
   GROUP BY mid
   HAVING COUNT(*) >= 1);
```

The following menus have been ordered by customers.

```
db2 => Select mid FROM Used_to GROUP BY mid HAVING COUNT(*) >= 1

MID
-----------
          3
          5
         10
         11
         12
         14
         16
         17

  8 record(s) selected.
```

After the delete statement Menu table will consist only the items that have been ordered by the customers.

```
db2 => SELECT * FROM Menu

MID         NAME                          DESCRIPTION                                        PRICE
----------- ----------------------------- -------------------------------------------------- -------
          3 Pepperoni                     Pepperoni, mozzarella                                12.99
          5 Smoked Meat                   Mozzarella, smoked meat                              12.99
         10 Soft Drinks 355ml             -                                                     1.25
         11 Soft Drinks 2L                -                                                     2.99
         12 Garden Salad                  -                                                     4.99
         14 Fries Small                   -                                                     2.49
         16 Chicken Wings 10pcs           -                                                     8.99
         17 Chicken Wings 20pcs           -                                                    13.99

  8 record(s) selected.
```

4. **This deletes all orders that were fulfilled.**

```
DELETE FROM Order
```

```
WHERE Order.oid IN (Select oid
   FROM Fulfills
   WHERE delivered = 'Y');

db2 => SELECT o.*, f.* FROM Order o, Fulfills f WHERE o.oid=f.oid

OID         METHOD                         SID         OID         DELIVERED
----------- ------------------------------ ----------- ----------- ---------
          2 phone                                    6           2 N
          4 online                                   3           4 N
          5 phone                                    4           5 N
          6 phone                                    6           6 N
          7 phone                                    1           7 N

  5 record(s) selected.
```

Only the Not delivered ones remains.

7. Two Views

1. **This view displays the most popular dish in the restaurant.**

```
CREATE VIEW mostPopularDishes AS
SELECT name
FROM Menu
WHERE mid IN (SELECT mid
   FROM Used_To
   GROUP BY mid
   HAVING COUNT(mid) >= 2);

db2 => SELECT * FROM mostPopularDishes

NAME
------------------------------
Chicken Wings 10pcs

  1 record(s) selected.
```

2. **The view displays the total revenue for the day.**

```
CREATE VIEW dailyRevenue AS
SELECT SUM (price) AS Sum
FROM (SELECT name, price, mid
   FROM Menu
   WHERE mid IN (SELECT mid
      FROM Used_To)) AS OrderedDishes;

db2 => SELECT * FROM dailyRevenue
```

```
SUM
--------------------------------
                            77.65

  1 record(s) selected.
```

8. Two CHECK Constraints

1. **Checks if the salary is greater than $0**

```
ALTER TABLE Staff
ADD CHECK (salary > 0);
```

```
db2 => INSERT INTO Staff VALUES(11, '514-960-0730', -2500, 'Cynthia', 'Jones')
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 "CS421G07.STAFF.SQL150309205737430".
SQLSTATE=23513
```

2. **Checks if the price of the menu is greater than $0.**

```
ALTER TABLE Menu
ADD CHECK (price > 0);
```

```
db2 => INSERT INTO Menu VALUES(18, 'Chicken Wings 30pcs', NULL, -19.99)
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 "CS421G07.MENU.SQL150309210140840".
SQLSTATE=23513
```