Complex Database
++++++++++++++

our complex database:
employee

| employees_id | name | gender | salary | supervisor_id | branch_id |
|--------------|------|--------|--------|---------------|-----------|
| 100          | Rim  | F      | 54,000 | 101           | 1         |
| 101          | Tim  | M      | 25,000 | 102           | 1         |
| 102          | Jim  | M      | 63,000 | 103           | 2         |
| 103          | Kim  | M      | 63,000 | 100           | 3         |

branch

| branch_id | branch_name | manager_id |
|-----------|-------------|------------|
| 1         | Ranford     | 100        |
| 2         | Manford     | 102        |
| 3         | Canford     | 103        |

client

| cliend_id | client_name | branch_id |
|-----------|-------------|-----------|
| 1         | Sam         | 3         |
| 2         | Kam         | 2         |
| 3         | Ram         | 3         |
| 4         | Jam         | 1         |
| 5         | Nam         | 2         |

works_with

| empolyee_id | client_id | total_sales |
|-------------|-----------|-------------|
| 100         | 1         | 12,000      |
| 103         | 4         | 15,000      |
| 100         | 2         | 14,000      |
| 102         | 5         | 13,000      |
| 101         | 3         | 20,000      |

branch_supplier

| branch_id | supplier_name | supply_type     |
|-----------|---------------|-----------------|
| 2         | Ron           | paper           |
| 2         | Ton           | writing utensils |
| 3         | Don           | paper           |
| 2         | Lon           | paper           |
| 1         | Zon           | custom forms    |

+++++++++++++++++++++++

two notes:
1- in the table schema you can't set a column as a foreign key to a refrence that does not exist yet
2- in a row you you can't set the forgien key attribute if the table that contains the foreign key column has no data inserted to it yet

+++++++++++++++++++++++

ON DELETE SET NULL means set the foreign key attribute to null when you delete that attribute in the root column

ON DELETE SET CASCADE means delete the foreign key row when you delete that attribute in the root column

+++++++++++++++++++++++

lets create our complex database:

creating table schemas:

```sql
CREATE TABLE employee(
    employee_id INT PRIMARY KEY,
    name VARCHAR(20),
    gender  VARCHAR(1),
    salary INT,
    supervisor_id INT,
    branch_id INT
);

CREATE TABLE branch(
    branch_id INT PRIMARY KEY,
    branch_name VARCHAR(20),
    manager_id INT,
    FOREIGN KEY(manager_id) REFERENCES employee(employee_id) ON DELETE
SET NULL
);

ALTER TABLE employee
ADD FOREIGN KEY(branch_id)
REFERENCES branch(branch_id)
ON DELETE SET NULL;

ALTER TABLE employee
ADD FOREIGN KEY(supervisor_id)
REFERENCES employee(employee_id)
ON DELETE SET NULL;

CREATE TABLE client (
  client_id INT PRIMARY KEY,
  client_name VARCHAR(20),
  branch_id INT,
  FOREIGN KEY(branch_id) REFERENCES branch(branch_id) ON DELETE SET NULL
);

CREATE TABLE works_with (
  employee_id INT,
  client_id INT,
  total_sales INT,
  PRIMARY KEY(employee_id, client_id),
  FOREIGN KEY(employee_id) REFERENCES employee(employee_id) ON DELETE
CASCADE,
  FOREIGN KEY(client_id) REFERENCES client(client_id) ON DELETE CASCADE
);

CREATE TABLE branch_supplier (
  branch_id INT,
  supplier_name VARCHAR(20),
```

```
    supply_type VARCHAR(40),
    PRIMARY KEY(branch_id, supplier_name),
    FOREIGN KEY(branch_id) REFERENCES branch(branch_id) ON DELETE CASCADE
);

inserting values:

INSERT INTO employee VALUES(100, 'Rim', 'F', '54', NULL, NULL);
INSERT INTO employee VALUES(101, 'Tim', 'M', '25', NULL, NULL);
INSERT INTO employee VALUES(102, 'Jim', 'M', '63', NULL, NULL);
INSERT INTO employee VALUES(103, 'Kim', 'M', '63', NULL, NULL);

INSERT INTO branch VALUES(1, 'Ranford', 100);
INSERT INTO branch VALUES(2, 'Manford', 102);
INSERT INTO branch VALUES(3, 'Canford', 103);

UPDATE employee
SET supervisor_id = 101, branch_id = 1
WHERE employee_id = 100;
UPDATE employee
SET supervisor_id = 102, branch_id = 1
WHERE employee_id = 101;
UPDATE employee
SET supervisor_id = 103, branch_id = 2
WHERE employee_id = 102;
UPDATE employee
SET supervisor_id = 100, branch_id = 3
WHERE employee_id = 103;

INSERT INTO client values(1, 'Sam', 3);
INSERT INTO client values(2, 'Kam', 2);
INSERT INTO client values(3, 'Ram', 3);
INSERT INTO client values(4, 'Jam', 1);
INSERT INTO client values(5, 'Nam', 2);

INSERT INTO works_with values(100, 1, 12);
INSERT INTO works_with values(103, 4, 15);
INSERT INTO works_with values(100, 2, 14);
INSERT INTO works_with values(102, 5, 13);
INSERT INTO works_with values(101, 3, 20);

INSERT INTO branch_supplier values(2, 'Ron', 'paper');
INSERT INTO branch_supplier values(2, 'Ton', 'writing utensils');
INSERT INTO branch_supplier values(3, 'Don', 'paper');
INSERT INTO branch_supplier values(2, 'Lon', 'paper');
INSERT INTO branch_supplier values(1, 'Zon', 'custom forms');
```