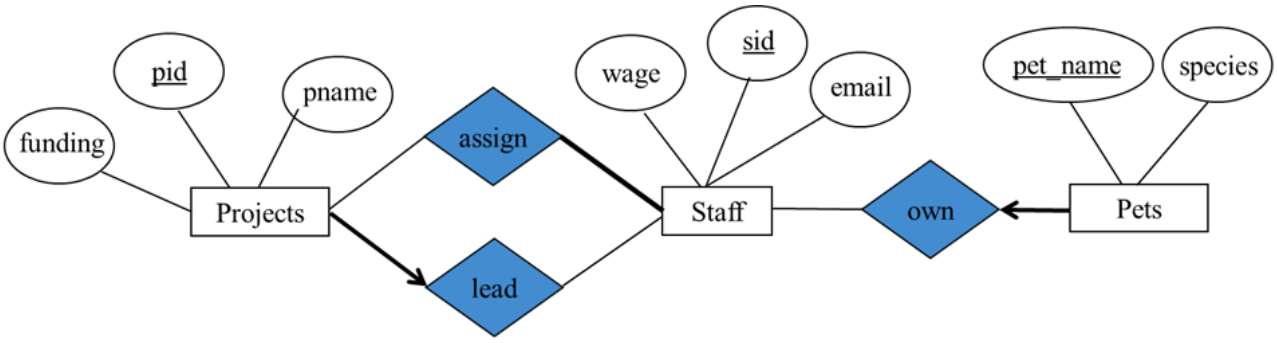
Sample Solutions to COMP 7640 - Assignment #1

1.



Note: 1) own relationship: **one-to-many**, total participation for pets (i.e., each pet has one owner).; 2) assign relationship: many-to-many, total participation for staff (i.e., each staff member is assigned to at least one project); 3) leader relationship: many-to-one, total participation for projects (i.e., each project has one leader).

2.

```
CREATE TABLE Staff (        sid             INTEGER,
                            wage            REAL,
                            email           CHAR(20),
                            PRIMARY KEY     (sid),
                            UNIQUE          (email))

CREATE TABLE Own_Pets (     pet_name        CHAR(20) NOT NULL,
                            species         CHAR(20),
                            sid             INTEGER NOT NULL,
                            PRIMARY KEY     (sid, pet_name),
                            FOREIGN KEY     (sid) REFERENCES Staff (sid)
                                            ON DELETE CASCADE)

CREATE TABLE Lead_Proj (    pid             INTEGER,
                            pname           CHAR(20),
                            funding         CHAR(20),
                            sid             INTEGER NOT NULL,
                            PRIMARY KEY     (pid),
                            FOREIGN KEY (sid) REFERENCES Staff (sid))

CREATE TABLE Assign (       pid             INTEGER,
                            sid             INTEGER,
                            PRIMARY KEY     (pid, sid),
                            FOREIGN KEY (sid) REFERENCES Staff (sid),
                            FOREIGN KEY (pid) REFERENCES Lead_Proj (pid))
```

Note: The total participant constraint of Staff in the Assign relationship is not captured.

3.

a) CREATE TABLE Works (
eid INTEGER,
did INTEGER,
pcttime REAL,
PRIMARY KEY (eid, did),
FOREIGN KEY (eid) REFERENCES Emp (eid)
ON DELETE CASCADE,
FOREIGN KEY (did) REFERENCES Dept (did)
ON DELETE NO ACTION)

Or

CREATE TABLE Works (
eid INTEGER,
did INTEGER,
pcttime REAL,
PRIMARY KEY (eid, did),
FOREIGN KEY (eid) REFERENCES Emp (eid)
ON DELETE CASCADE,
FOREIGN KEY (did) REFERENCES Dept (did))

b) CREATE TABLE Dept (
did INTEGER,
budget REAL,
managerid INTEGER NOT NULL,
PRIMARY KEY (did),
FOREIGN KEY (managerid) REFERENCES Emp(eid))

c) INSERT INTO Emp Values (‘200’, ‘Alice’, ‘20’, ‘15000’);
or
INSERT INTO Emp Values (200, ‘Alice’, 20, 15000);

d) Delete from Dept WHERE dname = ‘Toy’;