CSC 423 Project Part 1

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A. Identify the main entity types.
   a. **Clinics**
   b. **Staff**
   c. **Owners**
   d. **Pets**
   e. **Examination**

B. Identify the main relationship types between the entity types defined in "a"
   a. **Owners & Pets: Owners own pets**
   b. **Clinics to Staff: Clinics employ staff**
   c. **Staff to Clinics (managerial): Staff members manage Clinics**
   d. **Clinics to Pets: Clinics register pets**
   e. **Staff to Examinations: Staff members administer Examinations**
   f. **Pets to Examination: Pets undergo Examination**

C. Determine the multiplicity constraints for each relationship identified in "b".
   a. Owners & Pets
      i. **Owners to pets 1..* (Each owner can own multiple pets)**
      ii. **Pets to Owners: 1..1 (Each pet is owned by one owner)**
   b. Clinics and Staff:
      i. **Clinics to Staff: 1..* (Each clinic employs multiple staff members)**
      ii. **Staff to Clinic: 1..1 (Each staff member can only work at one clinic)**
   c. Staff and Clinics (managerial)
      i. **Staff to clinics: 0..1 (Only one or no staff members may manage a clinic)**
      ii. **Clinics to Staff: 1..1 (One clinic can only be managed by one person)**
   d. Clinics & Pets
      i. **Clinics to Pets: 1..* (Many pets can be registered at one clinic)**
      ii. **Pets to Clinics: 1..1 (One pet can only be registered at one clinic)**
   e. Pets & Examinations
      i. **Pets to Examinations: 1..1 (A pet undergoes one Examination on a particular date)**
      ii. **Examinations to pets: 1..1 (One examination is performed on a pet on a particular date)**
   f. Staff & Examinations
      i. **Staff to Examinations: 1..* (A staff member can administer many examinations on a certain date)**
      ii. **Examinations to Staff: 1..1 (A particular examination on a certain date to a certain pet can only be administered by one staff Member)**

D. Identify the attributes and associate them with each entity or relationship types.
   a. **Owners: (ownerNo, name, address, ownerPhone)**
   b. **Clinics: (clinicNo, clinicName, address, phoneNum)**
   c. **Staff: (staffNo, name, address, staffPhone, DOB, position, salary)**
   d. **Pets: (petNo, name, DOB, species, breed, color)**
   e. **Examinations: (examNo,visitReason, date, actionTaken)**

E. Determine candidate and primary key attributes for each (strong) entity type.
   a. Owners:

i. Candidate keys: **ownerNo, ownerPhone** (ownerNo are uniquely assigned to owners and phone numbers are also unique, no two people can have the same phone number)
ii. Primary key: **ownerNo**

b. Clinics
i. Candidate keys: **clinicNo, address, phoneNum** (clinicNo are uniquely assigned to each clinic, address is unique to the clinic since no other business can have the same exact street address, phone number is also unique because another clinic or business can not have the same phone number)
ii. Primary key: **clinicNo**

c. Staff
i. Candidate keys: **staffNo, staffPhone** (staffNo are uniquely assigned to each staff member, with their phone numbers also being unique since no two staff members can have the same cell phone number)
ii. Primary key: **staffNo**

d. Pets
i. Candidate key: **petNo** (petNo are uniquely assigned to each pet, and this is the only candidate key as all other attributes for the pet entity are not unique)
ii. Primary key: **petNo**

e. Examinations
i. Candidate key: **examNo** (examNo are uniquely assigned to each examination, and this is the only candidate key as other attributes of examinations are not unique enough)
ii. Primary key: **examNo**

F. Generate the E-R diagram for the conceptual level (no FKs as attributes)