Develop a logical data model based on the following requirements:
  a. Derive relations from the conceptual model.
     ● Examination(<u>examNo</u>, chiefComplaint, description, dateSeen, actions, staffNo, petNo)
     ● Pet(<u>petNo</u>, name, DOB, species, breed, color, ownerNo, clinicNo)
     ● Clinic(<u>clinicNo</u>, name, telephonenumber, address)
     ● Owner(<u>ownerNo</u>, address, telephonenumber, name)
     ● Staff(<u>staffNo</u>, address, name, telephonenumber, position, clinicNo, DOB)
  b. Validate the logical model using normalization to 3NF.
     To 3NF: remove transitive dependencies

     Clinic: clinicNo → address, phoneNo, position, <u>telephoneNumber</u>

     Staff: staffNo → staffName, address, DOB, telephoneNumber, position, <u>salary</u>

     PetOwner: ownerNo → name, address, <u>telephoneNumber</u>

     Examination: examinationNo → chiefComplaint, dateSeen, actions, staffNo, description, <u>petNo</u>

     Pet: petNo→ name,color, ownerNo, breed, species, <u>clinicNo</u>

  c. Validate the logical model against user transactions.

  ● List all exams done on golden retrievers and the staff name for the staffNo (a23) who performed the examination
              ■ Join the Staff, Pet, and Staff tables to list examNo, petNo, staffNo, clinicNo, where Examination.staffNo = a23, Examination.petNo = Pet.petNo, Pet.breed = 'Golden Retriever'
  ●
  ● List all the owners going to a specific clinic
       ○ Join Pet Owner and clinic tables and display all owners on the record.
  ● List all the pets that are owned by the same person
       ○ Join Pet and Owner and print all pets where PetOwner is the same
  ● List all clinics and all staff registered in them
       ○ Display all records in Clinic and staff tables
  ● List all staff in 'secretary' position
       ○ Display all records on Staff table with position = 'vet tech'

Define integrity constraints:
         i.   Primary key constraints
                 1. Must be unique
                 2. Can't be null
         ii.  Referential integrity/Foreign key constraints.

1. All values of all foreign keys are valid
2. Must reference an existing value
3. Some component of the foreign key is null

   iii.     Alternate key constraints (if any). → defined using SQL constraint unique

   iv.     Required data →  All required data must not be null

   v.     Attribute domain constraints. → All attributes must have a domain

   vi.     General constraints (if any) → no null constraints

  d.  Generate the E-R diagram for the logical level (contains FKs as attributes)

## Vet

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| Examination | |
|---|---|
| **examinationNo** | varchar |
| Chief complaint | varchar |
| Description | varchar |
| Date seen | Date |
| Actions taken | varchar |
| petNo | FK |
| staffNo | FK |

| Pet | |
|---|---|
| **petNo** | varchar |
| name | varchar |
| DOB | date |
| Animal Species | varchar |
| Breed | varchar |
| color | varchar |
| clinicNo | Foreign Key |
| ownerNo | Foreign Key |

| Pet Owner | |
|---|---|
| **ownerNo** | varchar |
| name | varchar |
| address | varchar |
| telephone number | int |

| Clinic | |
|---|---|
| **clinicNo** | varchar |
| Name | varchar |
| Address | varchar |
| Telephone number | int |

| Staff | |
|---|---|
| **staffNo** | varchar |
| Staff name | varchar |
| Address | address |
| Telephone number | int |
| DOB | date |
| position | varchar |
| salary | int |
| clinicNo | FK |

Relationships shown: undergoes (1...1, 1...1), performs (0...*, 1...1), owns (1...*, 1...1), registers (1...*, 1...1), manages (0...1, 1...1), employs (1...*, 1...1)