Case Study: Pawsome Pets

A company called Pawsome Pets runs multiple clinics. The company would like for their data to be stored in a database. The following description was obtained during the analysis phase: "Each of the Pawsome Pets clinics has several staff members and a member of staff manages at most one clinic (not all staff manage clinics). Each clinic has a unique clinic number (clinicNo) and each member of staff has a unique staff number (staffNo). Additionally, the company would like to store each clinic's name, address and telephone number, as well as the staff's name, address, telephone number, DOB, position and salary.

When a pet owner contacts a clinic, the owner's pet is registered with the clinic. An owner can own one or more pets, but a pet can only be registered at one clinic. Each owner has a unique owner number (ownerNo), a name, an address and a telephone number. Each pet has a unique pet number (petNo), name, DOB, animal species, breed and color.

When the pet comes to the clinic, it undergoes an examination by a member of the consulting staff. The database should store the following information for each examination: chief complaint (i.e., the main cause for the visit), description (i.e., what was done during the examination), date seen and actions taken (e.g., a treatment was prescribed, tests were ordered). A unique examination number (examNo) is assigned to each examination."

1. Develop a conceptual data model reflecting the following requirements: (11/01/22)
      a. Identify the main entity types.
      b. Identify the main relationship types between the entity types identified in "a".
      c. Determine the multiplicity constraints for each relationship identified in "b".
      d. Identify attributes and associate them with entity or relationship types.
      e. Determine candidate and primary key attributes for each (strong) entity type.
      f. Generate the E-R diagram for the conceptual level (no FKs as attributes).

Main entities:
- Clinic
- Staff
- Owner
- Pet
- Examination

Schema:

Clinic (**clinicNo**, cName, cAddress, cPhone)

Staff (**staffNo**, sName, sAddress, sPhone, sDOB, sPosition, salary)

Owner (**ownerNo**, oName, oAddress, oPhone)

Pet (**petNo**, pname, pDOB, pSpecies, pBreed and pColor)

Examination (**examNo**, complaint, description, date, action)

Entity 1	Relationship	Entity 2	Participation	Cardinality	Multiplicity	Type of Rel
Clinic	Employs	Staff	1	*	1..*	1:*
Staff	Is employed by	Clinic	1	1	1..1	
Owner	Owns	Pet	1	*	1..*	1:*
Pet	Is owned by	Owner	1	1	1..1	
Pet	Visits	Clinic	0	1	0..1	0:1
Clinic	Is visited by	Pet	1	1	1..1	
Pet	Has	Examination	0	*	0..*	0:*
Examination	Is conducted on	Pet	1	1	1..1	

Assumptions: Each staff member works at only one clinic.

Original E-R diagram:

Clinic
clinicNo {PK}
cName
cAddress
cPhone

Employs ▶

1..*   1..1

Staff
staffNo {PK}
sName
sAddress
sPhone
sDOB
sPosition
salary

1..1

▲
Visits

0..1

Pet
petNo {PK}
pname
pDOB
pSpecies
pBreed
pColor

1..*   ◀ Owns   1..1

Owner
ownerNo {PK}
oName
oAddress
oPhone

0..*
Has
▼

1..1

Exam
examNo {PK}
complaint
description
date
action
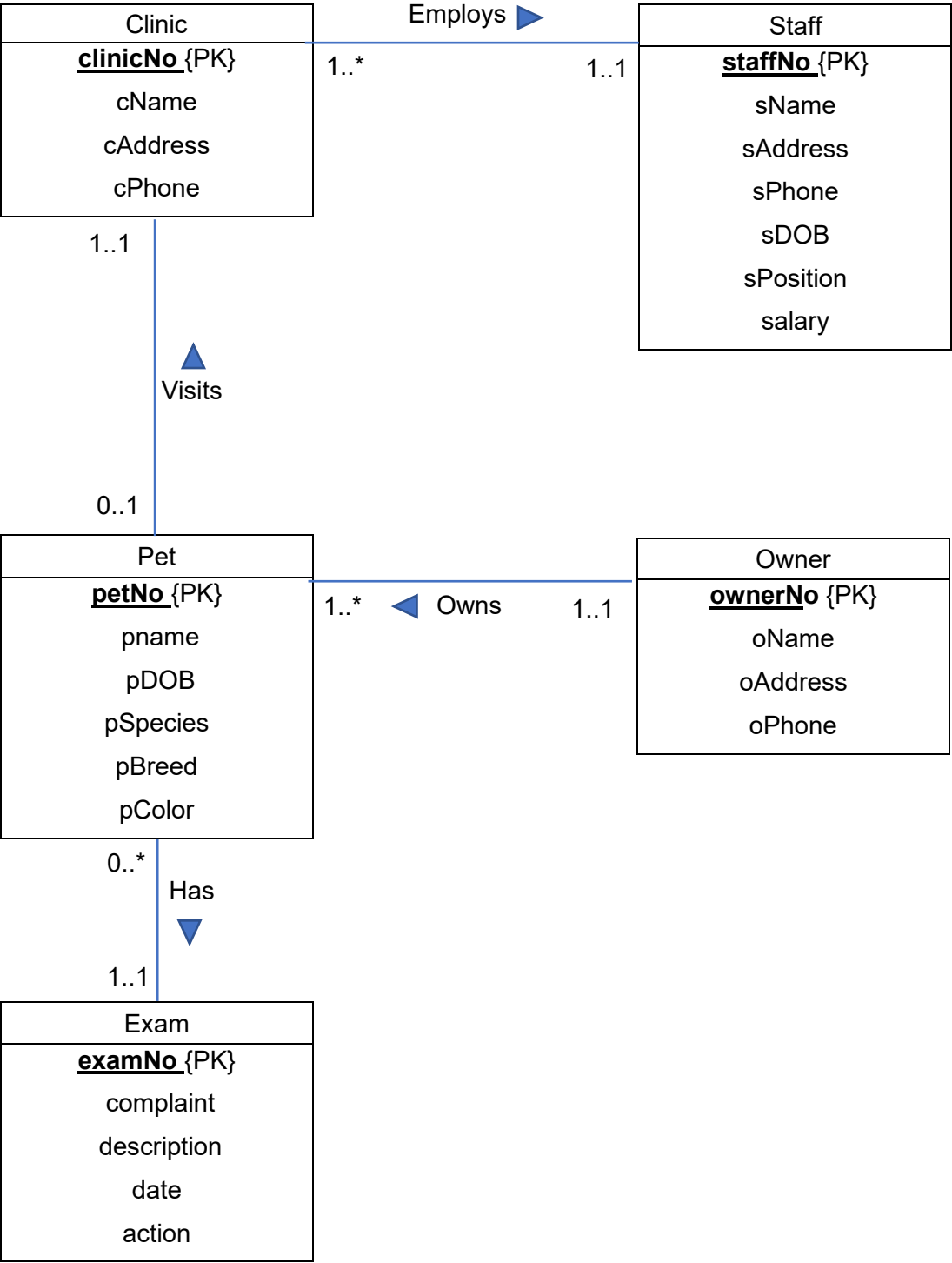
Case study: Pawsome Pets

CORRECTED Conceptual level E-R diagram:

PetOwner
ownerNo {PK}
oName
oAddress
oPhone

1..* Contacts   1..1

Clinic
clinicNo {PK}
cName
cAddress
cPhone

Has ▶   1..1   1..*

◀ Manages   0..1   1..1

Staff
staffNo {PK}
sName
sAddress
sPhone
sDOB
sPosition
salary

1..1

Owns ▼

1..1

Registers ▼   1..1   1..*

Pet
petNo {PK}
pname
pDOB
pSpecies
pBreed
pColor

1..*   1..1

1..1

Performs ▼

Has ▼

1..*

Examination
examNo {PK}
complaint
description
date
action

0..*