ER Diagram

Team 10

Team
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Changes made to entities

1. We decided to add a new strong entity, Disease, to our existing list. It allows the users of the database to explicitly link treatments to specific diagnoses. This relationship clarifies **why** an animal is receiving treatment. It also allows us to build a detailed medical history for each animal, documenting which diseases they've had, and the treatments administered for each. This is especially valuable for animals with chronic or recurring conditions.

   Without this there is no structured way to record the **reason** for each treatment. Treatments would exist independently, without indicating whether they are for a diagnosed disease or a routine procedure.

   This makes it challenging for clinic staff and veterinarians to track recurring issues or understand the animal's medical history comprehensively.

2. We added the Disease attribute to the Treatment weak entity within an **identifying** ternary relationship among Animal, Disease, and Treatment to establish a comprehensive link between treatments administered and their specific purposes.

3. The attribute Age in the Animal strong entity was changed to DOB (Date of Birth of a pet). Consequently, the derived attribute is changed from Age_in_Months to Age. This change was made to make more sense of the current health of an animal. In medical records, it is more practical to store the DOB of an animal and derive its age from it. It is superficial to have Age as an attribute and to derive the age of the animal in months. Our change helps the vet and staff make better medical judgments.

4. The Street number element in the composite attribute Address in the Owner entity was changed to Street Name for relevance.

Strong Entities:

8)Disease

Attribute	Data Type	Domain (if applicable)	Description
Disease_ID	INT	Positive Integers	Primary Key; unique identifier for each disease in the system.

Disease_Name	VARCHAR (100)	Text	Name of the disease (e.g., "Canine Parvovirus").
Disease_Type	ENUM	{'Viral', 'Bacterial', 'Parasitic', 'Fungal', 'Genetic', 'Other'}	Type of disease; limited to specified categories like Viral, Bacterial, Parasitic, etc.
Species_Affected	VARCHAR (100)	Text	Species impacted by the disease, such as 'Dog', 'Cat', or multiple species separated by commas.
Symptoms	TEXT	List of symptoms as free text	Describes typical disease symptoms (e.g., "Fever, Lethargy, Vomiting").
Typical_Duration	INT	Positive Integers	Expected duration of the disease in days.
Contagious	BOOLEAN	{TRUE, FALSE}	Indicates if the disease is contagious (TRUE for yes, FALSE for no).
Zoonotic	BOOLEAN	{TRUE, FALSE}	Indicates if the disease can be transmitted to humans (TRUE if zoonotic, FALSE otherwise).

Weak Entities

1) Treatments:

Attribute	Data Type	Domain (if applicable)	Description
Treatment_Type	VARCHAR(50)	{'surgery', 'vaccination', etc.}	Partial key; type of treatment, such as surgery, vaccination, etc.
Medication_ID	INT	Valid date and time format	Foreign key referencing Medication table, identifying the

Dosage	VARCHAR(50)	Text	Dosage prescribed for the treatment, e.g., 50mg.
Duration	VARCHAR(50)	Text	Duration for which the medication needs to be taken, e.g., 7
Side_Effects	VARCHAR(100)	Text	Known side effects of the prescribed medication.
Animal_ID	INT	Positive integers	Foreign key referencing the Animal_ID in the
Disease_ID	INT	Positive integers	Foreign key referencing Disease
VetID	INT	Positive integers	Foreign key referencing Veterinarian table; veterinarian administering the
OwnerID	INT	Positive Integers	Foreign key referencing Owner table; owner owning a particular animal.
FollowUpNeeded	BOOLEAN	{TRUE, FALSE}	Indicates if a follow-up appointment is required.
DateAdministered	DATE	Valid dates	Date the treatment was

Changes made to Relationships

1. We decided to remove the previous ternary relationship AssistsInAppointment between Clinic Staff, Veterinarian, and Appointment as this relationship has been effectively captured in the quaternary relationship AdministersTreatment between Veterinarian, Animal, Clinic Staff, and Treatment. This quaternary relationship accurately tracks which veterinarian and staff members are associated with each animal's treatment and specifies the roles of staff members involved in administering treatments or performing lab tests for the animal.
   Instead, we introduce a new relationship DiseaseTreatment between Animal, Disease, and Treatment. We feel that this relationship is essential for capturing the context of each treatment, as it directly links the treatment administered to the specific disease affecting the animal. This addition allows us to record not just the fact that an animal received treatment, but also **why** it received that treatment—by explicitly associating it with a diagnosed disease. This enhances the clarity of our database and provides a comprehensive record of each animal's medical care,

2. Removed an additional attribute: availability under emergency veterinarian because it was not necessary

ER DIAGRAM

1) Subclass Representation: we are using a circle (connects the entity) under which we label two subclasses with their respective additional attributes

2) To represent the recursive relationship , we used the notation that was taught in class we mentioned cardinality ratio

3) Ignore the arrow marks , treat them as normal lines