**Animal Shelter Database System Project**

**Project Objective:**

Organizing tons of data in every organization is important to effectively manage operations and streamline processes. QUELIFE is an animal shelter organization for which we will be designing a database system. This organization has multiple branches spread across Wisconsin, Illinois, Missouri, Montana, California, Texas, and Nevada. This database will encompass primary details related to facilities, animal descriptions and transfer details, sponsor details and employee details.

**Requirement Analysis:**

We are analysing the requirements to setup a database for this organization. We have multiple entities to consider along with their relationships. Here we have multiple branches of shelter at multiple locations with various facilities. Animal related records including animal information, animal features, adoption records and surrender details are need as well as the history of each animal. We are enabling the option to transfer of animals from one branch to another. Employee details, sponsor details and payment details are required to track the working of the shelter.

**Assumptions:**

1. Animals can be transferred from one branch to another
2. Each shelter branch will have multiple employees
3. Each shelter branch will have a branch manager
4. Employees work only in one shelter branch only (no transfer of employees)
5. An animal can be adopted as well as surrendered to the shelter for various reasons multiple times
6. A vaccination is given each time an animal is detected with any disease
7. Sponsors can support multiple shelter branches
8. Full payment must be done in a single payment for adoption of an animal
9. Each medical condition of an animal is treated by only one veterinarian
10. Veterinarians can treat multiple conditions of multiple animals
11. Each transfer of an animal involves transfer from one branch to another

**Entities and Relationships:**

1. **shelter\_branch:**
   * Entity Description: This entity contains details about the geographic location and details of each branch
   * Attributes: shelter\_id, shelter\_name, address, pin code, shelter\_contact
   * Relationships:
     + One-to-one relationship with facilities
     + Many-to-many relationship with animal\_info
     + One-to-many relationship with employees\_staff\_details
     + Many-to-many relationship with animal\_transfer\_records
     + Many-to-many relationship with sponsor
2. **facilities:**
   * Entity Description: This entity represents amenities operated by each branch.
   * Attributes: fid, f\_capacity, f\_ani\_count, f\_area, play\_areas, temp\_control, outdoor\_space
   * Relationships:
     + One-to-one relationship with shelter\_branch
3. **animal\_info:**
   * Entity Description: This entity contains information about the animal.
   * Attributes: animal\_id, a\_type, a\_breed, a\_dob, date\_of\_acquisition, a\_vaccine\_status.
   * Relationships:
     + Many-to-many relationship with shelter\_branch (as we have transfer facility)
     + One-to-one relationship with animal\_features
     + Many-to-many relationship with surrender\_details
     + Many-to-many relationship with adoption\_details
     + One-to-many relationship with animal\_transfer\_records
     + Many-to-many relationship with nutrition
     + Ternary relationship with history of the animal which includes: grooming history, training history and medical history
4. **animal\_features:**
   * Entity Description: This entity contains physical attributes of the animal.
   * Attributes: animal\_id, a\_color, a\_weight, a\_height, a\_eye\_color, a\_condition
   * Relationships:
     + One-to-one relationship with animal\_info
5. **adoption\_details:**
   * Entity Description: This entity contains information about the adoption of an animal
   * Attributes: ad\_ID, animal\_id, ad\_name, ad\_contact, ad\_date, ad\_fee, ad\_criminal\_record.
   * Relationships:
     + Many-to-many relationship with animal\_info
     + One-to-one relationship with payment\_details
6. **surrender\_details:**
   * Entity Description: This entity contains details about returning of the animal to the shelter
   * Attributes: s\_id, s\_date, s\_name (person who brings animals), s\_reason.
   * Relationships:
     + Many-to-many relationship with animal\_info
7. **nutrition:**
   * Entity Description: This contains information about diet and nutrition of each animal
   * Attributes: food\_id, food\_type, food\_quantity
   * Relationships:
     + Many-to-many relationship with animal\_info
8. **training\_history:**
   * Entity Description: This entity contains details about training the animals
   * Attributes: training\_ID, trainer\_name, training\_date, training\_type, training\_stage.
   * Relationships:
     + Many-to-many relationship with animal\_info
     + Many-to-many relationship with employees\_staff\_details
9. **grooming\_history:**
   * Entity Description: This entity contains details about grooming the animals
   * Attributes: grooming\_id, groomer\_name, grooming\_date, grooming\_type.
   * Relationships:
     + Many-to-one relationship with animal\_info
     + Many-to-many relationship with employees\_staff\_details
10. **medical\_history:**
    * Entity Description: This entity contains details about the medical history of each animal
    * Attributes: medical\_id, animal\_id, disease, vet\_id, treatment\_date, vaccination\_id
    * Relationships:
      + Many-to-one relationship with animal\_info
      + Many-to-many relationship with vet\_id
      + One-to-one relationship between medical\_history and vaccination
11. **vaccination:**
    * Entity Description: This entity contains details about the vaccination of each animal
    * Attributes: vaccination\_id, vaccination\_name, vaccination\_date, vaccination\_dosage
    * Relationships:
      + One-to-one relationship between medical\_history and vaccination
12. **employees\_staff\_details:**
    * Entity Description: This entity contains details about each worker or employee at the animal shelter QUELIFE
    * Attributes: emp\_id, emp\_name, emp\_level, emp\_contact, emp\_department, emp\_training, emp\_education, emp\_criminal\_record, emp\_salary
    * Relationships:
      + Many-to-one relationship with shelter\_branch
      + Many-to-many relationship with grooming\_history
      + Many-to-many relationship with training\_history
      + Unary relationship – manages – branch manager
13. **sponsor:**
    * Entity Description: This entity contains details about sponsors given to shelter\_branch
    * Attributes: sponsor\_id, sponsor\_name, sponsor\_contact, sponsorship\_type.
    * Relationships:
      + Many-to-many relationship with shelter\_branch
      + One-to-many relationship with payment\_details
14. **payment\_details:**
    * Attributes: payment\_ID, amount, payment\_Date, payment\_type.
    * Relationships:
      + One-to-one relationship with adoption\_details
      + Many-to-one relationship with sponsor
15. **veterinary:**
    * Entity Description: This entity contains details of the veterinarian
    * Attributes: vet\_id, vet\_name, vet\_contact, education, specialization, work\_exp
    * Relationships:
      + Many-to-many relationship with medical\_history
16. **animal\_transfer\_records:**
    * Entity Description: This entity contains details of transfer of animals from one branch to another
    * Attributes: transfer\_id, transfer\_date, transfer\_from, transfer\_to, animal\_id.
    * Relationships:
      + Many-to-one relationship with animal\_info
      + Many-to-many relationship with shelter\_branch

**Relationship Summary:**

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| **Entities** | **Relationship type** | **Degree of Relationship** |
| animal\_info - animal\_features | Binary | One-to-one |
| animal\_transfer\_records - animal\_info | Binary | Many-to-one |
| grooming\_history - employees\_staff\_details | Binary | Many-to-many |
| nutrition - animal\_info | Binary | Many-to-many |
| shelter\_branch - facilities | Binary | One-to-one |
| shelter\_branch - animal\_info | Binary | Many-to-many |
| shelter\_branch - employees\_staff\_details | Binary | One-to-many |
| shelter\_branch - animal\_transfer\_records | Binary | Many-to-many |
| sponsor - shelter\_branch | Binary | Many-to-many |
| sponsor - payment\_details | Binary | One-to-many |
| surrender\_details - animal\_info | Binary | Many-to-many |
| training\_history - employees\_staff\_details | Binary | Many-to-many |
| veterinary - medical\_history | Binary | Many-to-many |
| animal\_info - adoption\_details | Binary | Many-to-many |
| medical\_history - vaccination | Binary | One-to-one |
| payment\_details - adoption\_details | Binary | One-to-one |
| animal\_info - training\_history | Ternary | Many-to-many |
| animal\_info - grooming\_history | Ternary | One-to-many |
| animal\_info - medical\_history | Ternary | One-to-many |
| employees\_staff\_details | Unary | One-to-many |