

Constraints

- *Pet Owner* or *CareTaker* is a *User*. (ISA Relationship)
The ISA relationship has covering and overlap constraints.
Covering constraint as there can only be 2 types of users.
Overlap constraint as the user can use the same account as a Pet Owner and CareTaker.
- *Pet* has a key+participation constraint with *Owns*.
A pet must be owned by some pet owner, else, it won't be added to the database.
We are also assuming there is no co-own pet feature in our implementation so we added the key constraint.
- *Pet* has a key+participation constraint with *Categorise*.
The pet must be categorised as one of the types of pet when added to the database, and each pet is in exactly one category.
This is such that we can match the base price of the caretaker with the pet when the pet owner is bidding.
- The *Bid* entity has a key+total participation constraint with the *BidsFor* relation.
A pet owner can submit the same bid (same *CareTaker*, and same *Pet*) multiple times. A *PetOwner* must make payment for a specific bid. Hence, we would like each bid to be uniquely identified by a bid id. To attach a unique big id to every entry in the *BidsFor* relation, we make bid id the primary key for *Bid* and use the key+total participation relationship with *BidsFor*.
- *Transactions* has a key+participation constraint with *PaymentFor*.
The transaction must be a one time payment for the successful bid. We are assuming that the payment cannot be done partially and the full amount has to be paid upfront.
- *Transactions* has a key+participation constraint with *CaringFor*.
An entry in *CaringFor* must be identified by the pet, caretaker and the transaction.
This is such that there can be multiple times the caretaker can take care of the same pet on different transactions.
If a pet was taken care of by a caretaker, there must be a corresponding transaction used to identify the entry in *CaringFor*.
- *Review* and *ReviewFor* is a weak entity set.
Additionally, *Review* has an identity dependency.
A review can only exist with a corresponding transaction. As we are not adding a review ID, we want the reviews to be identified by the transaction.
- A *Review* for a *Transaction* can only be created by the *PetOwner* involved in that transaction. (Cannot be captured by ER diagram)

- The rating attribute of a *CareTaker* is determined by the average rating he/she received from all the *Reviews* written about him. (Cannot be captured by ER diagram)

Justification for using serial types

Serial types will be used to create various identification numbers for entities as it will be self-incrementing and has to be used to uniquely identify the entities. These entities include: PCS Administrator, User, Pet, Bid and Transaction.

- PCS Administrator
 - Admin ID
- User
 - User ID
- Pet
 - Pet ID
- Bid
 - Bid ID
- Transaction
 - Transaction ID