

Preliminary Constraints:

- 1) Each `User` is a `Pet Owner`, `Care Taker` or a `PCS Administrator`. This constraint is covering and overlapping as a pet owner can also be a care taker.
- 2) Each `User` can be identified by their username and has a password attribute.
- 3) Each `Pet Owner` has a credit card attribute.
- 4) Each `Pet` can be identified by their pid and has name and pet\_type attributes.
- 5) `Pet` is a weak entity set with identity dependency relationship with `Pet Owner` since the pet owner owns the pet.
- 6) Every `Pet` must be owned by one `Pet Owner`.
- 7) Each `Requirement` can be identified by their rid and has a description attribute.
- 8) `Requirement` is a weak entity set with identity dependency relationship with `Pet` since each pet can have special requirements related to how they need to be taken care of.
- 9) `Availability` is a weak entity set with identity dependency relationship with `Care Taker`.
- 10) Each `Care Taker's Availability` slot can be identified by their Days of Week, Pet Type and Advertised Price.
- 11) Each `Care Taker` is a `Full time` or a `Part Time` care taker. This constraint is covering and not overlapping as a care taker can either be a full-time or a part-time employee.
- 12) `Base Daily` is a weak entity set with identity dependency relationship with `Full Time Care Taker`.
- 13) Each `Base Daily` can be identified by the base price and pet type.
- 14) Each `Leave` can be identified by their lid and has start\_date, end\_date attributes.

- 15) Each `Pet Owner` can bid for an availability slot of a `Care Taker` for his/her pet of his/her choice. Every bid will have a `start_date`, `end date`, `transfer` (how to transfer a pet), as well as an `isSuccessful` attribute.
- 16) `Full Time Care taker` can apply for `Leave`.
- 17) `Pet Owner` may submit multiple review/rating for a `Care Taker` if the `Care Taker` has taken care of the `Pet Owner's` pet multiple times

Constraints not shown in ER diagram:

- 18) `Base Price` for the `Full Time Care Taker` must be lower than the `Advertised Price` in the `Availability`.
- 19) `Full Time Care Taker` has a limit of 5 pets at any time.
- 20) `Part Time Care Taker` cannot take care of more than 2 `Pets` unless they have good rating and overall has a limit of 5 `Pets` at any time.
- 21) The `Rating`, `Review` and `Transfer` attributes of the `Bid` relation can only be set if the `Bid` is successful.
- 22) `Care Taker` can only take care of a `Pet` that they can care for.
- 23) Successful bidder is chosen by `Care Taker`.
- 24) `Full Time Care Taker` must work for a minimum of 2 x 150 consecutive days a year.
- 25) `Full Time Care Taker` cannot apply for leave if there is at least one `Pet` under their care.
- 26) `Full Time Care Taker` will always accept a bid immediately if possible.
- 27) `Part Time Care Taker` can specify their availability for the current and next year.