Preliminary Constraints for PCS ER diagram. [Team #10]

TABLE Pet

petType VARCHAR(10)

breed VARCHAR(30)

name VARCHAR(20)

weight NUMERIC(4,2)

ageYear INTEGER

ageMonths INTEGER

sex CHAR(1)

specialRequirements TEXT

Pet is a weak enitity set with identity depedency on Pet Owner entity. Pet is weakly identified by its name. The weight ranges from 1 to a maximum of 99 and has two decimal points. This is to maintain a suitable level of accuracy when tracking the pet’s weight across time. ageYear and ageMonths are Integers, and the sex of the pet is a 1 length char, either ‘M’ or ‘F’. specialRequirements tend to be more in-depth information about the pet, hence a variable length string domain is used to accommodate lengthier descriptions.

TABLE Owns

name VARCHAR(10)

emailAddr VARCHAR(20)

FOREIGN KEY(name, emailAddr)

The Owns table is a relationship set that holds records of the weak entity set Pet and the entity set PetOwner. Hence its idenity is a combination of the idenities of Pet and PetOwner. The relatinship set is also made into an aggregation to connect it to the Bids table, since Owns contains all the records of Pet and PetOwner.

TABLE User

emailAddr VARCHAR(20) PRIMARY KEY

password VARCHAR(30)

firstName VARCHAR(10)

LastName VARCHAR(10)

DOB DATE

homeAddr VARCHAR (50)

A user is identified by emailAddr. The password attribute is max 30 characters in length to allow for a stronger password combination. Date of birth is logically represented as a date.

Constraint of User ISA hierarchy: covering and no overlap.

TABLE PetOwner

emailAddr VARCHAR(20) REFERENCES User(emailAddr) PRIMARY KEY

creditCardDetails VARCHAR(50)

A pet owner is a user identified by their user email address which references emailAddr in the User table. A Pet owner may also have credit card details of length 50, which can record the card name, number, and other card specific information.

TABLE CareTaker

emailAddr VARCHAR(10) REFERENCES User(emailAddr) PRIMARY KEY

avgRating NUMERIC(2,1)

petDays INTEGER

availLeave INTEGER

employmentType INTEGER

baseSalary NUMERIC(6,2)

A caretaker is identified by their user email which references emailAddr in the User table. The avgRating attribute is constrained between the range [0.0 - 9.9]. The baseSalary is between the range [0.0-9999.99]. All other attributes are integer data type. employmentType is either “part-time” or “full-time”, which is 1 and 2 respectively for the integer domain.

TABLE Availability

ServiceType VARCHAR (30)

ServiceDescription VARCHAR (30)

Cost INTEGER

petSlotsLeft INTEGER

startDate DATE

endDate DATE

emailAddr VARCHAR (30) REFERENCES User(emailAddr)

PRIMARY KEY(petSlotsLeft, startDate, endDate, emailAddr)

Each Availability entry has start date and end date, petSlotsLeft to indicate how many pets the caretaker can still take on in that period, serviceType and serviceDescription for the service that the caretaker is able to provide.

TABLE PCSAdmin

username VARCHAR(20)

password VARCHAR(30)

PRIMARY KEY (username)

PCSAdmin is identified by (username) atttribute, where the username is an appropriate length of 20 characters, and the password attribute is max 30 characters in length to allow for a stronger password combination.

TABLE BaseDailyPrice

price INTEGER

priceType INTEGER PRIMARY KEY

The base daily price is an integer. PriceType is restricted to 3 INTEGER values: 1,2,3 where 1 is a dog daily price, 2 is cat daily price, and 3 is a rabbit daily price. The base daily price is identified by it’s priceType.

TABLE Bids

rating INTEGER

review VARCHAR (100)

transportMethod INTEGER

success INTEGER

paymentTYPE INTEGER

(POemail, petName) REFERENCES owns (emailAddr,name)

(CTemail, startDate, endDate) REFERENCES Avaibility (emailAddr, startDate, endDate)

PRIMARY KEY (POemail, CTemail, startDate, endDate, petName)

The comment is of TEXT data type to accomodate more characters for the review. The rating attribute is constrained between the range [0.0 - 10.0]. Success Attribute is constrained to (0,1) with 0 representing a failed bid and 1 a successful bid. The paymentMethod is either ‘Cash’ or ‘CreditCard’, which translates to either 1 or 2 in the integer domain. transportMethod is restricted to 3 INTEGER values: 1,2,3 where 1 is Pet Owner deliver, 2 is Caretaker pick up, and 3 is Transfer through the physical building of PCS.

General Constraints:

1. Constraint maximum value of ‘petSlotsLeft’ based on avgRating of each CareTaker.
2. PetOwner can only bid for the service that their pet corresponds to, i.e. can only bid for DogSittingService only if PetOwner owns a dog.
3. For a pet that is involved in an accepted service, the pet owner cannot accept another service for the same pet in the same time period.
4. All ISA hierarchy: covering and no overlap.

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