CSE 3330 FALL 2016

PROJECT #2 EER-relational mapping DOCUMENTATION

Below are the car rental relational mapping assumptions made and explanations to the design

(specifications that seem obvious are not documented):

* 1. For the issue regarding OWNER and OWNS they are represented by their own tables as was done in class textbook which allows for efficiency in both tables. OWNER is the superclass category with a surrogate key of Owner\_id that is a foreign key for the three subclasses of RENTAL\_CO, INDIVIDUAL, and BANK.
  2. The table OWNS is a table representing a Binary M:N relationship type which utilizes the contributing entities primary keys as it’s composite key.
  3. In regards to the RENT table it is composed of the ternary relationship between RATES, CUSTOMER, and VEHICLE. There are several reasons to implement this relationship in this manner:
     + 1. Separation between VEHICLES and their associated rental rates according to their type, by having this separation there can be changes made to the rates of the only six vehicle types without having to do updates to the potentially larger table of VEHICLE.
       2. In the instance that a customer has rented a vehicle of type X and the rental company decides to make a change to rate of vehicle type X, the company can do so without changing the rates to vehicles that had already been or were being rented.
       3. Each record in RENT will be unique based on the property of the table using as a primary key the aggregation of the foreign keys of the parent entities : RATE, CUSTOMER, and VEHICLE in addition to adding a date attribute as a member of the primary key.
       4. The derived attribute of Total deems a point to itself. For a RENT record the Total will be calculated at the instantiation of a rental, this is executed in this manner for several reasons: in order to maintain a simple rates table, to maintain point B (from earlier), in our rental company database we assume the customer will get the rate they agreed to initially and will maintain the period of rental also initially agreed to.

Because RENT is a ternary relationship type it’s primary key is a composite key of the participating entities’ primary keys VEHICLE, CUSTOMER, RATES and the additional attribute of Start\_date.