CSE 3330 FALL 2016

PROJECT #2 EER-DIAGRAM DOCUMENTATION

Below are the car rental design diagram assumptions made and explanations to the design:

* 1. In regards to the entity CAR in the diagram it is titled VEHICLE and has an attribute of “V\_type” which will of an enumerated type consisting of only 6 options, those options being: COMPACT, MEDIUM, LARGE, TRUCK, VAN, and SUV.
  2. Entity RATE represents the 6 different Vehicle types stated above and therefore uses “V\_type” as it’s primary key indicating that it will only allow for there to be 6 rates per vehicle type to ever keep track of.
  3. As far as what Regular entity types and weak entity types there are simply no weak entity types. We took the approach of the example in figure 7.17(a), where they explain approaches to “Ternary or Higher-Degree Relationships”, to connect VEHICLE, RATES, and CUSTOMER where all three are joined by an instance of a RENTAL (Elmasri).
  4. Constraints:
     + - * RATE - Has the participation constraint of 6 placed on it because for this entity according to the requirements there will only ever be 6 different VEHICLE types in existence to have a specific RATE for, thus no more than 6 rates will ever exist.
         * VEHICLE - Has the participation in two different relationships. For the first relationship between OWNER it’s participation is placed to be N because many VEHICLEs can be owned. Then it yet again has a many participation in the RENT relationship because many VEHICLEs will be rented.
         * CUSTOMER - Has a many participation in the RENT relationship because many customers will be able to rent VEHICLEs.
         * OWNER - Has a many participation because there can be many OWNERs that own VEHICLEs.
  5. In displaying what VEHICLE is being rented whether that is currently rented or scheduled to be rented at a date in the future those records are all kept under the relation of RENT, this is because there are flag attributes informing whether the rental was actually Picked\_up and thus stating if the VEHICLE is out or this was a failed scheduled rental. To address the point concerning what VEHICLEs are AVAILABLE and the approach taken in this diagram is that there does not need to be an actual table displaying which are available or not because it can simply be derived by joining the RENTS table and VEHICLE table in addition to the dates being inquired about thus revealing what vehicles are available for specified dates.
  6. For the entities of BANK, RENTAL\_CO, and INDIVIDUAL they were unified into an OWNER CATEGORY adding a surrogate key of Owner\_id to all members.
  7. To address requirement #3 we have assumed that the earnings can only be included on the week pertaining to that specific rentals return date with the requirement that the customer has “Dropped\_off” their specific vehicle. This requirement is represented by the Dropped\_off attribute which will have the binary option of Y/N.

Works Cited

Elsmari, Ramez. (2011). Fundamentals of Database Systems 6th ed.

Boston, MA : Addison-Wesley.