Cesar Santiago

ID: 970403634

COP4710 Database Systems

Pf. J. Teichert

**Checkpoint 7.1:**

1) A strong entity is that which is not dependant on any other entity to exist. Meaning that a database does not require another entity to have data for this entity to allocate data.

2) A weak entity only exists after the existence of another entity is denoted. This entity depends on the data of another entity for its data.

3) A double line is required to lead up to a weak entity because there must be full participation from the part of that entity. If the owner entity doesn’t exist then the weak entity cannot exist.

4) A weak entity is forced to have mandatory or full participation in a relationship to its owner in a database. It may have any other relationships to any other entity in the database unless those are weak entities being owned by this entity. Then the relationship must be of ownership.

5) A partial key is an attribute that identifies the weak entity through the owner entity, assuming that the owner entity has already been identified. If an owner has not been identified then the partial key does not function as a partial key.

**Checkpoint 7.2:**

1) Yes, any weak entity can also be an owner to another weak entity.

2) Yes, a relationship can exist between a weak entity and one that is not weak however unless the relationship is of ownership, the relationship cannot have full participation.

3) A weak entity can have many relationships. However, it must follow certain restrictions; A relationship towards its owner must always have full participation, a relationship towards a dependent must receive full participation, and a relationship towards a strong entity must give partial participation.

**Checkpoint 7.3:**

1) Create a new table for each weak entity, and as with a strong entity include its atomic attributes and the atomic parts of its composite attributes. The weak entity must have two keys to relate to the owner, one towards its owner and a partial key to match its information. If another weak entity follows this one, then this one must be mapped before the following one.

Mapping of figure 7.5:

PERSON(SSN, name)

PET(SSN, name, animal-type)

TREAT(SSN, name, Vet\_ID)

VET(Vet\_ID, name)

PERSON

**SSN name**

082-12-4234 Roger

123-42-8822 Newman

PET

**SSN name animal-type**

082-12-4234 Jojo monkey

TREATS

**SSN name Vet\_ID**

082-12-4234 Jojo Ronald

VET

**Vet\_ID name**

0001 Ronald

0002 Luke

2) The primary key of the dependent entity must follow the primary key of its depending entity concatenated with the partial key.

3) A multivalued attribute would be mapped in a separate table as with a strong entity and would follow an attribute of the weak entity to which it belongs.

**Extra Exercise 1:**

EMPLOYEE(employee\_ID, name.fname, name.minit, name.lname)

DEPENDANT(employee\_ID, dname, birth\_date, insurance)

HOBBY(employee\_ID, dname, type, years\_involved)

**Extra Exercise 2:**

Figure 6.3 write-out:

A Student may drive one Automobile.

An Automobile must be driven by one Student

Figure 7.5 write-out:

A Person may own many (one or more) Pets.

A Pet must be owned by one Person.

A Pet may be treated by one or more Vets.

A Vet must treat one Pet.