CSCI 466 - Assignment 2 - Section 2

Primary Key Forigne Key

# Question 1

The orginal relation: PetStore(storeBranchName, storeAddr, storeManager,(customerName, customerAddr, customerPhone, ( petName, petBreed, petSex, price) ) ).

a. This relation isn’t in first normal form yet because it had that inner parenthesie group. I put question one in first normal form by just removing the parentheses and underlining the primary keys.

1NF:

PetCompany ( storeBranchName, storeAddr, storeManager, customerName, customerAddr, customerPhone, petName, petSex, petBreed, petPrice).

b. This relation is not yet in second normal form. Here, I’ll put it in second normal form. I think Pet-to-Customer is many-to-many relationship. I think Store-to-Pet is one-to-many and I think Store-to-Customer is one-to-many assuming we’re not dealing with a franchise type buissness.

2NF

Store ( storeBranchName(pk), storeAddr, storeManager ).

Customer ( customerName(pk), petName(fk), storeBranchName(fk), customerAddr, customerPhone ).

Pet ( petName(pk), storeBranchName(fk), customerName(fk), petBreed, petSex, petBreed(pk), price ).

c. This relation above isn’t in third normal form yet. Also, we have a many-to-many relationship that doesn’t have it’s own function yet.

Store ( storeBranchName(pk), storeAddr, storeManager ).

Customer ( customerName(pk), customerAddr, customerPhone ).

Adopts ( customerName(fk), storeBranchName(fk), petName).

Pet ( petName(pk), storeBranchName(fk), petBreed(fk), petSex ).

Price ( petBreed(pk), price ).

# Question 2

a. This relation is not in 1NF only because the keys are not underlined yet. Here, I’ll put it in 1NF.

The orginal relation: R ( A, B, C , D, E ).

b. This relation is not in 2NF yet because we can make a separate relations from this still. Here, I’ll put it in NF2.

rA ( A(pk), B, C).

rC( C(pk), D ).

rAC ( A(fk), C(fk), E ).

c. This relation above is also in third normal form because no non-key field depends on another non-key field. I only removed the element ‘C’ from ‘rA’.

rA ( A(pk), B).

rC ( C(pk), D ).

rAC ( A(fk), C(fk), E )

# Question 3

The original relation : price(product,sName,uPrice,qty,storeLocation,unitWeight)

a. This relation would be in first normal form if the keys were underlined. Here, I’ll put the relational in first normal form.

Price ( product, sName, uPrice, qty, storeLocation, unitWeight ).

b. This relation is not in second normal for yet. Here, I’ll put it in second normal form. I think StockSheet-to-Store is one-to-many because each store has one stock sheet but one StockSheet can encompass many stores, so I brought a key from StockSheet into Store. I think Product-to-StockSheet is one-to-many because each product get’s a spot on the stock sheet, so I brought a primary key from Product into StockSheet.

StockSheet ( product(fk), sName(fk), qty ). // The left side of the FD are twfori

Store ( sName(pk), product(fk), storeLocation ).

Product (product(pk), uprice, unitWeight).

c. This relation above is in fact already in third normal form because no non-key field depends on another non-key field.

# Question 4

The relation: person(personID, name, country,(phone, type))

a. This relation is not in 1NF because it has those inner patenteses in the function, that’s called a repeating group. Here, I’ll put it in first normal form by removing those parentese and underlining the dependencies.

person ( personID, name, country, phone, type ).

b. This relation is not in second normal for yet. Here, I’ll put it in second normal form. I think all the entites in this relation are one-to-one.

Person ( personID(pk), name(fk), phone(fk), country).

AboutPerson ( Name(pk), country ).

Personal ( phone(pk), type ).

c. This relation above is already in third normal form because no non-key field is dependent on another non-key field and there are no transative dependices.

Person ( personID(pk), name(fk), country).

AboutPerson ( Name(pk), country ).

Personal ( phone(pk), type ).

# Question 5

The relation: carTheft ( VID, vehicleType, ( ownerID, ownerName ) , ( suspectId, suspectName ) )

a. This relation is not in 1NF because it has those inner patenteses in the function, that’s called a repeating group. Here, I’ll put it in first normal form by removing those parentese and underlining the dependencies.

carTheft ( VID, vehicleType, ownerID, ownerName, suspectId, suspectName ).

b. This relation is not in second normal for yet. Here, I’ll put it in second normal form.

Car ( VID(pk), ownerID(fk), suspectID(fk), vehicleType ).

Owner ( ownerID(pk), ownerName ).

Suspect ( suspectId(pk), suspectName ).

c. This relation above is definatly in third normal form right away.

Car ( VID(pk), ownerID(fk), suspectID(fk), vehicleType ).

Owner ( ownerID(pk), ownerName ).

Suspect ( suspectId(pk), suspectName )