CSCI 466/566 Assignment 2 Spring 2017

Normalization

100 points

For each of the following relations, convert them into 3NF by the

steps we used in class.

(1) price(product, sName, uPrice, qty, storeLocation, unitWeight)

Fds:

product, sname -> qty

sName -> storeLocation

product -> uprice, unitWeight

Is this relation in 1NF? If not, why isn't it? Then put it in

1NF.

Yes. This relation is in 1NF.

Is this relation in 2NF? If not, why isn't it? Then put it in

2NF.

No. Because there are non-keys which do not depend on the entire primary key.

ProductInfo( product, uprice , unitWeight )

Store ( sName , storeLocation )

Order ( product , sName , qty )

Is this relation in 3NF? If not, why isn't it? Then put it in

3NF.

Yes. This relation in 2NF is already in 3NF.

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

FDs:

personID -> name, country, phone

name -> country

phone -> type

Is this relation in 1NF? If not, why isn't it? Then put it in

1NF.

No. Because there are repeating groups.

Person ( personID, name, country, phone, type )

Is this relation in 2NF? If not, why isn't it? Then put it in

2NF.

No. Because there are non-keys which do not depend on the entire primary key.

PersonInfo ( personID, name, country, phone )

PhoneInfo ( phone, type )

Is this relation in 3NF? If not, why isn't it? Then put it in

3NF.

No because there some non-key fields depend on another non-key fields, and some relations are transtive.

PersonInfo ( personID , name , phone )

PersonCountry ( name, country )

PhoneInfo ( phone, type )

(3) PetStore(storeBranchName, storeAddr, storeManager,

(customerName, customerAddr, customerPhone, (petName, petBreed,

petSex, price) ) )

FDs:

storeBranchName -> storeAddr, storeManager

customerName -> customerAddr, customerPhone

customerName, petName -> petBreed, petSex

customerName, storeBranchName -> petName

petBreed -> price

Is this relation in 1NF? If not, why isn't it? Then put it in

1NF.

No. There are repeating groups.

PetStore ( storeBranchName, storeAddr, storeManager, customerName, customerAddr, customerPhone, petName, petBreed, petSex, price )

Is this relation in 2NF? If not, why isn't it? Then put it in

2NF.

No. Because there are non-keys which do not depend on the entire primary key.

StoreInfo ( storeBranchName, storeAddr, storeManager )

CustomerInfo ( customerName, customerAddr, customerPhone )

PetInfo ( customerName, petName, petBreed, petSex )

PetPrice ( petBreed, price )

PetPurchase ( customerName, storeBranchName, petName )

Is this relation in 3NF? If not, why isn't it? Then put it in

3NF.

Yes, this relation is in both 2NF and 3NF.

(4) StockExchange(company, symbol, headquarters, date,

close\_price)

FDs:

symbol, date -> company, headquarters, close\_price

symbol -> company, headquarters

Is this relation in 1NF? If not, why isn't it? Then put it in

1NF.

Yes.

Is this relation in 2NF? If not, why isn't it? Then put it in

2NF.

No. Because there are non-keys which do not depend on the entire primary key.

CompanyLogo ( symbol, company, headquarters )

StockPrice ( symbol, date, close\_price )

Is this relation in 3NF? If not, why isn't it? Then put it in

3NF.

Yes.

CSCI 466/566 Assignment 2b Spring 2017 E/R Diagram Conversion to 3NF

25 points

ERD on the next page to relations/tables in 3NF and use the notation

as we discussed in class. Underline the primary key:

TableName(field1,field2,field3,...)

listing any foreign keys and the relation they are fks into.

Turn your list of tables in on Blackboard.

BankInfo ( BankCode, Name, Addr )

BranchInfo ( BranchNum, Addr )

AccountInfo ( AcctNo, Type, Balance )

LoanInfo ( LoanNo, Type, Amount )

BankAccountR1 ( BankCode, AcctNo )

BankBranchR2 ( BankCode, BranchNum )

BankLoanR3 ( BankCode, LoanNo )

*Foreign Keys*

BankCode,

AcctNo

BranchNum

LoanNo