COMP518-Assignment 2

Question 1

STRONG ENTITIES

- UK Resident
- Tester
- Lab
- Procedure
- Medicine

WEAK ENTITIES

- Test Record
- Testee

ONE-ONE RELATIONSHIP

- <u>Tester</u>(Staff No, office address, Email)
- <u>Test Record</u> (NIN, Staff NO, Lab Id, Procedure ID, Date, Results)
- <u>Lab</u> (Lab_ID, name, address, Tel.no)
- <u>Procedure</u> (ID, Name)

ONE-ONE (BINARY)

No such relationship exists

ONE-ONE (Recurrsive)

No such relationship exists

SUPERCLASS/SUBCLASS

Mandatory, and

- Tester (StaffNO, NIN, address, office address, email)
- Testee (NIN, Address, gender, Age)

Mandatory, or

- Liquid (ID, name, Ingredients, ml, Added sugar)
- Pill (ID, Name, Ingredients, Count, Dissolvable)
- Drops (ID, Name, Ingredients, Count, Usage)
- Injection (ID, Name, Ingredients, ml, Usage)

MANY-MANY

- Is tested by (ProcedureID, Medicine ID, Dosage)
  ProcedureID references Procedure
  Medicine ID references medicine
- Is allergic to (NIN, Medicine Id)
  NIN references to Testee
  Medicine ID references to Medicine
- Can Conduct (Lab Id , procedure id)
  Lab Id references to Lab
  Procedure ID references to Procedure

COMPLEX RELATIONSHIP

No such relationship exists

OVERALL

- UKresident(NIN, Address, staffNo, officeaddress, email, gender, age, testerflag, testeeflag)
  - Primary key – NIN
  - Alternate Key – Email
  - Discriminators – Testerflag, Testeeflag

- Test record(StaffNO, NIN, LabID, ProcedureID, date, Results)
  - Primary Key – NIN, ProcedureID
  - Foreign Key – StaffNo
    StaffNo references to tester
  - Foreign Key – LabID
    LabID references to Lab
  - Foreign Key – Procedure ID
    ProcedureID references to Procedure
  - Foreign Key – NIN
    NIN references to Uk resident

- Lab(LabId, name, Address, telNo)
  - Primary key – LabID

- Procedure(ProcedureId, name)
  - Primary key - ProcedureID

- Medicine(MedicineID, Name, Ingredients)
  - Primary key - MedicineID

- Liquid(Medicine ID, ml, Added sugar, name, Ingredients)
  - Primary Key – medicine ID

- Pill(Medicine ID, Count, Dissolvable, Name, Ingredients)
  - Primary Key – Medicine ID

- Drops(Medicine ID, Count, Usage, Name, Ingredients)
  - Primary key – Medicine ID

- Injection(MedicineId, ml, Usage, Name, Ingredients)
  - Primary key – Medicine Id

- Is Tested by(ProcedureID, Medicine Id, Dosage)
  - Primary key - ProcedureID, Medicine ID)
  - Foreign key – ProcedureID
    Procedure Id references to Procedure
  - Foreign key – Medicine ID
    Medicine ID references to Medicine

- Can conduct(LabId, ProcedureId)
  - Primary key – LabID, ProcedureID
  - Foreign key – LabID
    LabID references to Lab
  - Foreign key – ProcedureID
    ProcedureID references to Procedure

- Is allergic to(NIN, MedicineID)
  - Primary key – NIN, MedicineID
  - Foreign key – NIN
    Nin references to UK resident
  - Foreign key – MedicineID
    MedicineID references to Medicine

Question 2

Paper Id ➡ paper title, Topic, SPCID, SPC Decision

AuthorID ➡ Author name, Authoremail, Topic

Topic ➡ SPCID, Discussion date, Discussion starttime

SPCID ➡ Topic, SPCname

Refree ID ➡ Topic, SPCID, Refreename

PaperID, RefreeID ➡ Refreescore

Primary Key – PaperID, AuthorID, RefreeID

Candidate Key – PaperID, AuthorID, Topic, SPCID, RefreeId,

Full dependency

Paper Id, RefreeId – Refreescore

PaperID, SPCID – SPC decision

Partial Functional dependency

PaperID – Papertitle, topic

RefreeID – Refreename

AuthorID – Authorname, Authoremail, Papertitle

SPCID – SPCname, Topic

Transitive functional dependency

PaperID – Topic -SPCID, Discussiondate, Discussionstarttime

NORMALIZATION

1NF

Reviewing Data - PaperId, Papertitle, AuthorID, Authorname, Authoremail, Topic, SPCID, SPCname, RefreeID, Refreename, refreescore, Discussiondate, Discussionstarttime, SPCdecision

2NF

Reviewing Data - PaperID, RefreeID, Refreescore, SPC decision

Paper-PaperID, Papertitle, Topic

Author – AuthorID, Authorname, Authoremail

Refree – RefreeId, SPCID, Refreename, SPCname

Topic – SPCID, RefreeID, Discussiondate, Discussion starttime

3NF

Reviewing data – PaperID, RefreeId, Refreescore, SPC decision

Paper – paperID, Papertitle, Topic

Author – AuthorID, Authorname, Authoremail

Refree – RefreeId, Refreename, SPCID

SPC – SpcId, SPCname

Topic – SPCID, RefreeID, Discussiondate, Discussionstarttime

PaperID	RefreeID	Refreescore	SPC decision

PaperID	PaperTitle	Topic

SPCID	RefreeID	Discussiondate	Discussionstarttime

RefreeId	Refreename	SPCID

SPCID	SPCname

AuthorID	Authorname	Authoremail