**Assignment-1(Week-7)**

1)Answer:

Table 1: Sample Rows for the Big Patient Table

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **VisitNo** | **VisitDate** | **PatNo** | **PatAge** | **PatCity** | **PatZip** | **ProvNo** | **ProvSpecialty** | **Diagnosis** |
| V10021 | 2/13/2018 | P1 | 36 | Denver | 80217 | D1 | internist | Ear Infection |
| V10021 | 2/13/2018 | P1 | 36 | Denver | 80217 | D2 | NURSE PractiTIoner | INFLUENZA |
| V93030 | 2/20/2018 | P3 | 17 | Englewood | 80113 | D2 | NURSE PRACTITIONER | pregnancy |
| V82110 | 2/18/2018 | P2 | 60 | Boulder | 85932 | D3 | cardiologist | murmur |

a)Insertion anomalies: Cannot Insert another patient as it required ProvNo is provided.

b)Updation anomalies: if we update ProvNo then we have to update many rows.

c)deletion anomalies: Deleting row-4 ,we have lost the details of ProvNo-D4 and D-4 speciality.

2)Answer:

|  |
| --- |
| PatNo  PatAge |
| PatZip9  PatCity |
| VisitNo  VisitDate  PatNo  PatZip9  ProvNo  ProvSpecialty |
| VisitNo  PatNo |
| VisitNo, ProvNo  Diagnosis  ProvNo  ProvEmail  ProvEmail  ProvNo |

To convert into BCNF table:

Step-1) Group Fds.

Step-2)Define tables

Step-3)Merge Tables

Step:1)

PatNo PatAge PatZip

PatZip PatCity

ProvNo ProvSpeciality ProvEmail

ProvEmail ProvNo

VisitNo VisitDate PatNo

VisitNo ProvNo Diagnosis

Step-2) For each FD group, make a table with the determinant as the primary key. In the table list, the primary keys are underlined.

Patient(PatNo , PatAGe, PatZip).

Foreign key(PatZip) Refrences PatAddress.

PatAddress(PatZip,PatCity)

ProvDetails(ProvNo,ProvSpeciality,ProvEmail)

Foreign key(ProvEmail) Refrences ProvEmail.

ProvEmail(ProvEmail,ProvNo)

Foreign key(ProvNo) Refrences ProvDetails.

Visit(VisitNo, VisitDate, PatNo)

Foreign key(PatNo) Refrences Patient.

VisitDetails(VisitNo,ProvNo,Diagnosis)

Foreign key(VisitNo) Refrences Visit,

Foreign key(ProvNo) Refrences ProvDetails.

Step-3) Merge tables with the same columns.

Merge ProvDetails and ProvEmail.Declare Unique Constrains ProvEmail.

Patient(PatNo , PatAGe, PatZip).

Foreign key(PatZip) Refrences PatAddress.

PatAddress(PatZip,PatCity)

ProvDetails(ProvNo,ProvSpeciality,ProvEmail)

UNIQUE(ProvEmail).

Visit(VisitNo, VisitDate, PatNo)

Foreign key(PatNo) Refrences Patient.

VisitDetails(VisitNo,ProvNo,Diagnosis)

Foreign key(VisitNo) Refrences Visit,

Foreign key(ProvNo) Refrences ProvDetails.

3)Answer: This reelations already in BCNF form , so no need to change anything.

Student (StdNo, StdName, StdEmail, StdAddress, StdCity, StdState, StdZip )

Lender(LenderNo, LenderName)

Institution(InstNo, InstName, InstMascot)

4)Answer:

Table 3: Sample Rows for the Big Order Database Table

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **OrdNo** | **ItemNo** | **QtyOrd** | **CustNo** | **CustBal** | **CustDisc** | **ItemPrice** | **OrdDate** |
| O1 | I1 | 10 | C1 | 100 | 0.10 | 10 | 1/15/2018 |
| O1 | I2 | 10 | C1 | 100 | 0.10 | 20 | 1/15/2018 |
| O2 | I3 | 5 | C2 | 200 | 0.05 | 30 | 1/16/2018 |
| O2 | I4 | 10 | C2 | 200 | 0.05 | 40 | 1/16/2018 |
| o3 | I1 | 10 | C1 | 100 | 0.10 | 10 | 1/17/2018 |

FD ----------------------- Falsifications(Row number)

a)OrdNo --> ItemNo (1,2),(3,4)

b)OrdNo ---> QtyOrd (3,4)

c)OrdNo --> CustNo None

d)OrdNo --> CustBal None

e)OrdNo --> CustDisc None

f)OrdNo -->ItemPrice (1,2),(3,4)

g)OrdNo --->OrdDate None