2. Apply the simple BCNF procedure to define BCNF tables using the FD list Table 2. Show the result of each step in your analysis. For the final result, you should show the tables, columns, primary key of each table, foreign keys, and unique constraints. You do not need to provide CREATE TABLE statements.

Table 2: FDs for the Big Patient Table

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

Solution:

List of FDs:

PatNo → PatAge, PatZip9

PatZip9 → PatCity

VisitNo → VisitDate, PatNo

VisitNo, ProvNo → Diagnosis

ProvNo → ProvSpecialty, ProvEmail

ProvEmail → ProvNo

BCNF Tables:

* Patient(PatNo,PatAge, PatZip9)

FOREIGN KEY (PatZip9) REFRENCES PatientEmail

- PatientEmail(PatZip9 , PatCity)

- Visit(VisitNo ,VisitDate, PatNo)

FOREIGN KEY (PatNo) REFRENCES Patient

* Provision(ProvNo , ProvSpecialty, ProvEmail)

UNIQUE ProvEMail

* ProvEmailNo(ProvEmail,ProvNo)

FOREIGN KEY (ProvNo) REFERENCES Provison

* ProvVisit(VisitNo, ProvNo ,Diagnosis)

FOREIGN KEY (VisitNo) REFRENCES Visit

FOREIGN KEY (ProvNo) REFRENCES Provision

**Step 3: Merge tables with the same columns**

* Patient(PatNo, PatAge, PatZip9)

FOREIGN KEY (PatZip9) REFERENCES PatientEmail

* PatientEmail(PatZip9 , PatCity)
* Visit(VisitNo,VisitDate , PatNo)

FOREIGN KEY (PatNo) REFERENCES Patient

* Provision(ProvNo, ProvSpecialty, ProvEmail)

FOREIGN KEY (ProvEmail) REFERENCES ProvEmailNo

Unique ProvEmail

* ProVisit(VisitNo, ProvNo, Diagnosis)

FOREIGN KEY (ProvNo) REFERENCES Provision

FOREIGN KEY (VisitNo) REFERENCES Visit