



Hospital Database Management

Functional Dependencies

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Patient

- **Patient**(pid, Fname, Lname, Gender, DoB, Blood_group, Hno, Street, City, State, Email, DOC_Id)
 - pid-->Fname
 - pid-->Lname
 - pid-->Gender
 - pid-->DoB
 - pid-->Blood_group
 - pid-->Hno
 - pid-->Street
 - pid-->City
 - pid-->State
 - pid-->Email
 - pid-->DOC_Id

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

- **InPatient**(pid, ArrivalDate, DischargeDate, Disease, RID, NID)
 - {pid, ArrivalDate} --> DischargeDate
 - {pid, ArrivalDate} --> Disease
 - {pid, ArrivalDate} --> RID
 - {pid, ArrivalDate} --> NID

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

- **OutPatient**(pid, ArrivalDate, Disease)

-{pid, ArrivalDate} --> Disease

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

- **Patient_phNo**(pid, phone-no)

-{pid, phone-no} --> pid

-{pid, phone-no} --> phone-no

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

- **Relative**(pid, rname, rtype, phone-no)

-{pid, rname} --> rtype

-{pid, rname} \rightarrow phone-no

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

- **Room**(rid, roomtype)

-{rid} \rightarrow roomtype

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

Employee

- **Employee**(Empid, fname, mname, lname, gender, Emptype, hno., street, city, state, Doj, Email, deptid, DoB)

-{Empid} \rightarrow fname

-{Empid} \rightarrow mname

-{Empid} \rightarrow lname

-{Empid} → gender
-{Empid} → Emptype
-{Empid} → Hno.
-{Empid} → street
-{Empid} → city
-{Empid} → state
-{Empid} → Doj
-{Empid} → Email
-{Empid} → deptid
-{Empid} → DoB

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

- **Doctor**(doc_id, qualification)

-{doc_id} → qualification

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

- **Nurse**(nid, countpatient)

-{nid} → countpatient

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

- **Department**(Dept-id, dname)

-{Dept-id} → dname

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

- **Emp-phone**(Emp-id, Phone_no.)

$\rightarrow \{Emp-id, Phone-no\} \twoheadrightarrow Emp-id$

$\rightarrow \{Emp-id, Phone-no\} \twoheadrightarrow Phone-no$

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

Facilities

- **Bill**(pid, billdate, mcost, tcost, roomcost, other)

$\rightarrow \{pid, billdate\} \rightarrow mcost$

$\rightarrow \{pid, billdate\} \rightarrow tcost$

$\rightarrow \{pid, billdate\} \rightarrow roomcost$

$\rightarrow \{pid, billdate\} \rightarrow other$

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

- **Medicine**(mid, mname, m_cost)

$\rightarrow \{mid\} \rightarrow mname$

$\rightarrow \{mid\} \rightarrow m_cost$

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

- **Had_medicine**(pid, mid, med_date, quantity)

$\rightarrow \{pid, mid, med_date\} \rightarrow quantity$

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

- **Test**(tid, tname, tcost)

$\rightarrow \{tid\} \rightarrow tname$

$\rightarrow \{tid\} \rightarrow tcost$

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.

- **Had_test**(pid, tid, test_date)

$\rightarrow \{pid, tid, test_date\} \rightarrow pid$

$\rightarrow \{pid, tid, test_date\} \rightarrow tid$

$\rightarrow \{pid, tid, test_date\} \rightarrow test_date$

Normal Form: BCNF

Proof: Because if there is a dependency like $x \rightarrow y$ and if x is a key than fd is in BCNF.