|  |  |  |  |
| --- | --- | --- | --- |
| Project  Work | Municipal Corporation | |  | | --- | | Functional  Dependencies | |
| IT214 Database Management System, Autumn-2019;  Group : 3.15 | | |

* **Functional Dependencies (Minimal Set):**

CitizenID F\_Name

CitizenID M\_Name

CitizenID L\_Name

CitizenID Gender

CitizenID DoB

CitizenID House\_No

CitizenID Society

CitizenID PINcode

CitizenID Income

{CitizenA, CitizenB} Relation

Penalty\_ID Amount

Penalty\_ID Pro\_ID

Penalty\_ID Description

SchemeNo SchemeName

SchemeNo Family\_Income\_Limit

SchemeNo lowerage

SchemeNo upperage

SchemeNo Description

Pro\_ID Type

Pro\_ID Owner

Pro\_ID span

Pro\_ID Tax

Pro\_ID PaidStatus

Payment\_ID pDate

Payment\_ID Method

Payment\_ID Amount

Payment\_ID PaidBy

Payment\_ID ForService

Complaint\_ID Service\_ID

Complaint\_ID Description

Complaint\_ID cDate

Complaint\_ID c\_status

Service\_ID Name

Service\_ID Service\_Charge

Service\_ID Description

Service\_ID DepartmentID

{Pro\_ID, Service\_ID} Unit

Resource\_ID Type/Name

Resource\_ID Description

Resource\_ID Quantity

Construction\_ID C\_Name

Construction\_ID S\_Date

Construction\_ID E\_Date

Construction\_ID Company\_Name

Construction\_ID DepartmentID

Construction\_ID PhaseNo

{P\_ID, Year} Cost

PhaseNo PhaseName

{Resource\_ID, Year} Cost

{Construction\_ID, Year} Cost

Year Amount

SSN Salary

SSN Joining\_Date

SSN Supervisor

SSN CitizenID

SSN D\_ID

{ESSN, Name} Gender

{ESSN, Name} Relation

{ESSN, Name} DoB

{PName} Description

PPID PPName

PPID Type

PPID Street

PPID Landmark

PPID Pincode

PPID Construction\_ID

D\_ID D\_Name

* **Projection of functional Dependencies:** 
  + **Citizen :**

CitizenID F\_Name

CitizenID M\_Name

CitizenID L\_Name

CitizenID Gender

CitizenID DoB

CitizenID House\_No

CitizenID Society

CitizenID PINcode

CitizenID Income

Key is **{CitizenID}**, BCNF

* + **RelatedTo :**

{CitizenA, CitizenB} Relation

Key is **{CitizenA, CitizenB}**, BCNF

* + **Contacts :**

Key is **{CitizenID, ContactNo}**, BCNF

* + **Penalty :**

Penalty\_ID Amount

Penalty\_ID Pro\_ID

Penalty\_ID CitizenID

Penalty\_ID Description

Key is **{Penalty\_ID}**, BCNF

* + **Welfare\_scheme :**

SchemeNo SchemeName

SchemeNo Family\_Income\_Limit

SchemeNo lowerage

SchemeNo upperage

SchemeNo Description

Key is **{SchemeNo}**, BCNF

* + **Taken :**

Key is **{Citizen\_ID, SchemeID}**, BCNF

* + **Property :**

Pro\_ID Type

Pro\_ID Owner

Pro\_ID span

Pro\_ID Tax

Pro\_ID PaidStatus

Key is **{PropertyID}**, BCNF

* + **PeopleHaveComplain :**

Key is **{CitizenID, Complaint\_ID}**, BCNF

* + **Payment :**

Payment\_ID pDate

Payment\_ID Method

Payment\_ID Amount

Payment\_ID PaidBy

Payment\_ID ForService

Key is **{Payment\_ID}**, BCNF

* + **Complain :**

Complaint\_ID Service\_ID

Complaint\_ID Description

Complaint\_ID cDate

Complaint\_ID c\_status

Key is **{Complaint\_ID}**, BCNF

* + **Services :**

Service\_ID Name

Service\_ID Service\_Charge

Service\_ID Description

Service\_ID DepartmentID

Key is **{Service\_ID}**, BCNF

* + **PropertyUSESservices :**

{Pro\_ID, Service\_ID} Unit

Key is **{Pro\_ID, Service\_ID}**, BCNF

* + **Resources :**

Resource\_ID Type/Name

Resource\_ID Description

Resource\_ID Quantity

Key is **{Resource\_ID}**, BCNF

* + **ResourcesUSED :**

Key is **{Resource\_ID, Service\_ID}**, BCNF

* + **Construction:**

Construction\_ID C\_Name

Construction\_ID S\_Date

Construction\_ID E\_Date

Construction\_ID Company\_Name

Construction\_ID DepartmentID

Construction\_ID PhaseNo

Key is **{Construction\_ID}**, BCNF

* + **CostonProject :**

{P\_ID, Year} Cost

Key is **{P\_ID, Year}**, BCNF

* + **Phase :**

PhaseNo PhaseName

Key is **{PhaseNo}**, BCNF

* + **CostonResource :**

{Resource\_ID, Year} Cost

Key is **{Resource\_ID, Year}**, BCNF

* + **CostonConst :**

{Construction\_ID, Year} Cost

Key is **{Construction\_ID, Year}**, BCNF

* + **Expenses :**

Year Amount

Key is **{Year}**, BCNF

* + **Employee :**

SSN Salary

SSN Joining\_Date

SSN Supervisor

SSN CitizenID

SSN D\_ID

Key is **{SSN}**, BCNF

* + **Dependents :**

{ESSN, Name} Gender

{ESSN, Name} Relation

{ESSN, Name} DoB

Key is **{ESSN, Name}**, BCNF

* + **Privilege :**

{PName} Description

Key is **{PName}**, BCNF

* + **DependentsHave :**

Key is **{ESSN, Name, PName}**, BCNF

* + **PPmaintain :**

Key is **{PPID, D\_ID}**, BCNF

* + **PublicProperty :**

PPID PPName

PPID Type

PPID Street

PPID Landmark

PPID Pincode

PPID Construction\_ID

Key is **{PropertyID}**, BCNF

* + **Renovation/Rebuild :**

Key is **{PPID, ConstructionID}**, BCNF

* + **Department :**

D\_ID D\_Name

Key is **{D\_ID}**, BCNF

**=== X ===**