

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

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

CitizenID \longrightarrow F_Name
 CitizenID \longrightarrow M_Name
 CitizenID \longrightarrow L_Name
 CitizenID \longrightarrow Gender
 CitizenID \longrightarrow DoB
 CitizenID \longrightarrow House_No
 CitizenID \longrightarrow Society
 CitizenID \longrightarrow PINcode
 CitizenID \longrightarrow Income
 { CitizenA, CitizenB } \longrightarrow Relation
 Penalty_ID \longrightarrow Amount
 Penalty_ID \longrightarrow Pro_ID
 Penalty_ID \longrightarrow CitizenID
 Penalty_ID \longrightarrow Description
 SchemeNo \longrightarrow SchemeName
 SchemeNo \longrightarrow Family_Income_Limit
 SchemeNo \longrightarrow lowerage
 SchemeNo \longrightarrow upperage
 SchemeNo \longrightarrow Description
 Pro_ID \longrightarrow Type
 Pro_ID \longrightarrow Owner
 Pro_ID \longrightarrow span
 Pro_ID \longrightarrow Tax
 Pro_ID \longrightarrow 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} \longrightarrow Gender
 {ESSN, Name} \longrightarrow Relation
 {ESSN, Name} \longrightarrow DoB
 {PName} \longrightarrow Description
 PPID \longrightarrow PPName
 PPID \longrightarrow Type
 PPID \longrightarrow Street
 PPID \longrightarrow Landmark
 PPID \longrightarrow Pincode
 PPID \longrightarrow Construction_ID
 D_ID \longrightarrow D_Name

- **Projection of functional Dependencies:**

- **Citizen :**

CitizenID \longrightarrow F_Name
 CitizenID \longrightarrow M_Name
 CitizenID \longrightarrow L_Name
 CitizenID \longrightarrow Gender
 CitizenID \longrightarrow DoB
 CitizenID \longrightarrow House_No
 CitizenID \longrightarrow Society
 CitizenID \longrightarrow PINcode
 CitizenID \longrightarrow Income

Key is {**CitizenID**}, BCNF

- **RelatedTo :**

{CitizenA, CitizenB} \longrightarrow 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 \longrightarrow Type/Name

Resource_ID \longrightarrow Description

Resource_ID \longrightarrow Quantity

Key is **{Resource_ID}**, BCNF

- **ResourcesUSED :**

Key is **{Resource_ID, Service_ID}**, BCNF

- **Construction:**

Construction_ID \longrightarrow C_Name

Construction_ID \longrightarrow S_Date

Construction_ID \longrightarrow E_Date

Construction_ID \longrightarrow Company_Name

Construction_ID \longrightarrow DepartmentID

Construction_ID \longrightarrow PhaseNo

Key is **{Construction_ID}**, BCNF

- **CostonProject :**

{P_ID, Year} \longrightarrow Cost

Key is **{P_ID, Year}**, BCNF

- **Phase :**

PhaseNo \longrightarrow PhaseName

Key is **{PhaseNo}**, BCNF

- **CostonResource :**

{Resource_ID, Year} \longrightarrow Cost

Key is **{Resource_ID, Year}**, BCNF

- **CostonConst :**

{ Construction_ID, Year } \longrightarrow Cost

Key is { **Construction_ID, Year** }, BCNF

- **Expenses :**

Year \longrightarrow Amount

Key is { **Year** }, BCNF

- **Employee :**

SSN \longrightarrow Salary

SSN \longrightarrow Joining_Date

SSN \longrightarrow Supervisor

SSN \longrightarrow CitizenID

SSN \longrightarrow D_ID

Key is { **SSN** }, BCNF

- **Dependents :**

{ ESSN, Name } \longrightarrow Gender

{ ESSN, Name } \longrightarrow Relation

{ ESSN, Name } \longrightarrow DoB

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

- **Privilege :**

{ PName } \longrightarrow 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

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