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Medical Facility

Entities

Certification
Medical Address
Service Department
Service
Medical Facility
Staff
Medical
Non-Medical
Patient
Symptoms
Body Part
Patient Address
Check-in
Experience
Reasons

Relationships -

Relation Name	**Arity**	**Constraints**
Medical Certification	Binary	
Located (Medical Facility)	Binary	Each medical facility will have exactly one address
Facility Departments	Binary	
Primary	Binary	Each staff member will have exactly one Primary Department
Secondary	Binary	
Service_Dept services	Binary	

ISA – Medical, non-medical staff	Hierarchical	
Specializes	Binary	
Log_IN	Binary	Patient participates at least once
Symptom Metadata	Binary	Patient has total participation. Each patient will have at least one symptom metadata
Sym_related	Binary	Symptom has total participation. Each symptom will have at least one body part associated
Located_P (Patient)	Binary	Each patient will have exactly one address
Process	Binary	
Referral_reasons	Binary	
Patient Experience	Binary	
Works	Binary	Each staff member will work at exactly one medical facility. Also, Medical facility will have total participation.

Entities and Relationships Description

Medical Facility

This table stores the data for the medical facility. This will have the Facility ID which is the primary key.

For the classification field, we will have 3 pre-defined codes 01,02,03 for primary, secondary and tertiary respectively.

Classification	INTEGER	{01,02,03}
Facility_ID	INTEGER	NOT NULL primary key
name	VARCHAR(15)	NOT NULL
# of Service departments	INTEGER	
Capacity	INTEGER	

Primary Key: Facility_ID

Functional Dependencies:

- Facility_ID -> {Classification, Name, # of service departments, Capacity}

Normal Form: BCNF

Medical Address

This table stores the address for each medical facility in the Medical Facility Table.

Number	INTEGER	NOT NULL
Street Name	VARCHAR (15)	NOT NULL
City	VARCHAR (10)	NOT NULL
State	VARCHAR (15)	NOT NULL
Country	VARCHAR (15)	NOT NULL
Facility_ID	INTEGER	NOT NULL Foreign Key

Partial Key: Number Street Name,City, State, Country

Primary Key: Number Street Name, City, State, Country, Facilty_ID

Functional Dependencies:

- Primary Key -> {Number, Street Name, City, State, Country, Facilty_ID}

Normal Form: BCNF

Certifications

This table will store the data of currently active certifications that the medical facility possesses.

Name	VARCHAR (15)	NOT NULL
Certification_Id	VARCHAR (10)	primary key

Primary Key: Certification_Id

Functional Dependencies:

- Certification_Id → {Name, Certification_Id }

Normal Form: BCNF

Medical Certifications

This table represents the relationship between the facility ID and the certifications.

Facility_Id	INTEGER	NOT NULL Foreign Key
Certification_Id	VARCHAR (10)	NOT NULL Foreign Key
Expiry date	DATE	
Certification date	DATE	NOT NULL

Primary key : {Facility_ID , Certification_Id, expiry date, Certification Date }

Functional Dependencies:

- {Facility_ID , Certification_Id} -> {expiry date, Certification Date }

Normal Form: BCNF

Staff_primary Service department

This table will have data for the medical facility staff along with the details of their Primary Service Department since it is fully participating.

StaffName	VARCHAR (15)	NOT NULL
Employee_ID	VARCHAR (15)	NOT NULL Primary Key
Hire Date	DATE (10)	NOT NULL
Dept_ID	VARCHAR (5)	NOT NULL Foreign Key

Primary Key: Employee_ID

Functional Dependencies:

- Employee_ID -> {Staff Name, Hire Date,Dept_ID}

Normal Form: BCNF

Works

Has the employee_id's of staff who work in a particular facility

Employee_ID	VARCHAR (15)	NOT NULL Foreign Key
Facilty_ID	INTEGER	NOT NULL Foreign Key

Primary key : Facility_ID, Employee_ID}

No partial key dependencies.

Normal Form: BCNF

Medical Staff

Has the details of all medical staff and the primary department in which they work.

Medical Staff		
Medical_Designation	VARCHAR(10)	Not Null
StaffName	VARCHAR (15)	NOT NULL
Employee_ID	VARCHAR (15)	NOT NULL Primary Key
Hire Date	DATE (10)	NOT NULL
Dept_ID	VARCHAR (5)	NOT NULL Foreign Key

Non_Medical Staff

Has the details of all Non medical staff and the primary department in which they work.

Non_Medical Staff		
Non_Medical_Designation	VARCHAR(15)	Not Null
StaffName	VARCHAR (15)	NOT NULL
Employee_ID	VARCHAR (15)	NOT NULL Primary Key
Hire Date	DATE (10)	NOT NULL
Dept_ID	VARCHAR (5)	NOT NULL Foreign Key

Service department

This table stores data of all the Service Department in the medical facility. Each service department will have a unique code, name and a director.

Dept_Id	VARCHAR (5)	Primary Key
Director	VARCHAR (15)	NOT NULL UNIQUE
Department Name	VARCHAR (15)	NOT NULL

Primary Key : Dept_Id

Functional Dependencies:

- Dept_Id -> {Director, Department Name}

Normal Form: BCNF

Secondary department

This table stores the list of secondary service departments that a staff can have.

Emp_ID	VARCHAR (15)	Foreign Key
Dept_Id	VARCHAR (5)	Foreign Key

Primary Key :{Emp_ID, Dept_Id}

No partial key dependency

Normal Form: BCNF

Facility_Departments

This table will store the data of the departments that the medical facility has.

Facility_ID	INTEGER	Primary key
Dept_Id	VARCHAR (5)	primary key

Primary Key: Facility_Id, Dept_Id

No partial key Dependencies

Normal Form: BCNF

Services

This table will have data for Services offered by Service Department. This will store information about the services and equipment owned by Services.

Service_code	VARCHAR (5)	Primary Key
Service_Name	VARCHAR (15)	Not NULL
Equip_Name	VARCHAR (15)	

Primary Key: Service_code

Functional Dependencies:

- Service_code->{ServiceName, Equip_Name}

Normal Form: BCNF

Service_Dept_Services

This table represents the relation between Service Department and the Services that the department offers.

Service_code	VARCHAR (5)	Foreign Key
Dept_Id	VARCHAR (5)	Foreign Key

Primary Key: {Service_code, Dept_Id}

No partial key dependencies.

Normal Form: BCNF

Body Part

This table contains the list of body parts that are a service department's specialty. The columns present in the table are name and code.

Name	VARCHAR(20)	NOT NULL
BodyPartCode	VARCHAR(5)	NOT NULL Primary Key

Primary Key: BodyPartCode

Functional Dependencies:

- BodyPartCode->Name

Normal Form: BCNF

Specializes

This is a binary relationship between service department, body part.

Service_Dept_code	VARCHAR(5)	Foreign Key- Service Department
BodyPartCode	VARCHAR(5)	Foreign Key- Body Part

Primary Key - {Service_Dept_code,BodyPartCode}

No Partial Key Dependencies

Normal Form: BCNF

LOG_IN

This table will store the data of the departments that the medical facility has.

Facility_ID	INTEGER	Primary key
Patient_ID	INTEGER	primary key

Primary Key: Facility_Id, Facility_Id

No partial key Dependencies

Normal Form: BCNF

Patient

This table will have all patient information. Once the patient starts the check-in process, this table will be used to validate the patient data (already existing or new user). Based on the validation, if the patient is found to be new, then we'll add the patient data to this table.

Patient_ID	INTEGER	Identity Primary Key
FirstName	VARCHAR(30)	NOT NULL
LastName	VARCHAR(30)	NOT NULL
DOB	DATE	NOT NULL
PhoneNumber	VARCHAR(10)	NOT NULL

Primary key: Patient_ID

Functional Dependencies:

- Patient_ID -> {FirstName, LastName, DOB, PhoneNumber}

Normal Form: BCNF

PatientAddress

This table stores the address of patients identified by patient ID. City along with last name and dob will be used for the patient existence validation.

Number	Integer	NOT NULL
Street_Name	VARCHAR(15)	NOT NULL
City	VARCHAR(10)	NOT NULL
State	VARCHAR(15)	NOT NULL
Country	VARCHAR(15)	NOT NULL

Patient_ID	Integer	Foreign Key

Partial Key: Number Street Name,City, State, Country

Primary Key: Number Street Name, City, State, Country, Patient_ID

Foreign Key - PatientID

Functional Dependencies:

- Primary Key→ {Number, Street Name, City, State, Country, Patient_ID}

Normal Form: BCNF

Symptoms

We store the list of symptoms in the system in this table. We have a unique Symptom Code associated with each symptom name.

Sym_Code	VARCHAR(8)	Primary Key
Name	VARCHAR(20)	NOT NULL

Primary Key : Sym_Code

Functional Dependencies:

- Sym_Code -> Name

Normal Form: BCNF

SymptomMetaData

This table stores the metadata for the symptoms entered by the patient. It has a body Part code associated with the symptom. We Store FirstTimeOccurence as a boolean field and record if this is the first time the symptom has occurred.

Sym_code	VARCHAR(8)	Foreign Key NOT NULL
Patient_ID	INTEGER	Foreign Key NOT NULL
Duration	REAL	NOT NULL
StartDate	DATE	NOT NULL
Severity	INTEGER	Identity
FirstTimeOccurence	BOOLEAN	NOT NULL DEFAULT(0)
Start Incident	VARCHAR(15)	

Primary Key: {Sym_code, Patient_ID}

Functional Dependencies:

- {Sym_code, Patient_ID} -> {BodyPartCode, Duration,Start Incident,FirstTimeOccurence ,Severity,Start Date}

Normal Form: BCNF

Experience

This table will store the feedback given by the patients after their treatment is completed.

DischargeStatus	VARCHAR(50)	NOT NULL
Treatment Given	VARCHAR(200)	NOT NULL
Referrer_ID	VARCHAR(15)	
Patient_ID	INTEGER	Foreign Key (Patient)
Exp_ID	INTEGER	Identity
Exp_description	VARCHAR(100)	
Exp_code	VARCHAR(5)	
Referral_Facility_ID	INTEGER	

Primary Key: Patient_ID, Exp_ID

Foreign Key: Patient ID references Patient

Functional Dependencies:

- Patient_ID, Exp_ID - >{DischargeStatus, Referrer_ID , Referral_Facility_ID, TreatmentGiven, Exp_description, Exp_Code}

Normal Form: BCNF

Reasons

This tables has the reason for referral of the patient.

Reason Code	INTEGER	Not NULL
Service_Name	INTEGER	NOT NULL
Description	VARCHAR(30)	
Exp_ID	INTEGER	Foreign Key

Partial Key: Reason Code, Service_Name,Description

Primary Key: Exp_ID, Partial Key

Process:

This table represents the relation between checkin and patient.

CheckinID	INTEGER	Foreign Key (Checkin)
Patient_ID	INTEGER	Foreign Key (Patient)

Primary Key – CheckinID , PatientID

Foreign Key – CheckinID references Checkin, Patient_ID references Patient

Normal Form: BCNF

Sym_Related

This table represents the relation between symptoms and body parts. Each symptom will have one body part associated.

Sym_Code	VARCHAR(8)	Foreign Key (Symptoms)
Body_Part_Code	VARCHAR(5)	Foreign Key (Body Parts)

Primary Key – Sym_Code, Body_Part_Code

Foreign Key – Sym_Code references Symptoms (Code), Body_Parts_Code references Body Parts (Code)

Normal Form: BCNF

CheckIn

This table will store the check-in information of the patients coming to the medical facility. The vitals will be stored in this table and the priority determined by the assessment rules will also be stored in this table.

CheckinID	Integer	NOT NULL Primary Key
Priority	VARCHAR(15)	NOT NULL
Temperature	INTEGER	NOT NULL
Start_time	VARCHAR(15)	NOT NULL
End_time	VARCHAR(15)	
Systolic	INTEGER	NOT NULL
Diastolic	INTEGER	NOT NULL

Primary Key- CheckinID

functional Dependencies:

- CheckinID -> {Priority, Temperature, Start_time, End_time, Systolic, Diastolic}

Normal Form: BCNF

ACKNOWLEDGEMENT:

We have asked all the questions that we needed to clarify any ambiguities in the project description.