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Database Management System

For a Hospital

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SCENARIO

The Sepulveda VA hospital, located in Northridge, California, provides health services to active duty veterans and retired military personnel, including their families. Recently, the hospital began to experience an increasing wave of patients. The overwhelming number of incoming patients highlighted the faults within their current system, most noticeably in the following areas:

1. **Efficiency:**

   The hospital currently uses a mix of different applications to access various information, including personal patient information, medication list, and finding out who is the patient primary care provider. The data processing among different departments decreases the hospital's efficiency in providing services during the hospital peak time.

2. **Exchange of information:**

   As of now, each department uses its version of software to record the patient's data. This has led to many departments often struggling to gather medical records for patients. By closing off access to different patient files, a department will often request a file transfer to treat their patients accurately.

3. **Tracking patient records and keeping the information up to date:**

   Often some information such as patient's insurance coverage and address comes up outdated, which results in high costs for either the hospital or the patient. As a result of having an outdated address on file, patients who are subscribed to mail-in prescriptions often do not receive their medications on time.

4. **Diagnosis and monitoring of patient health:**

   Since all diagnoses and prescriptions are not stored in one central location, doctors from different departments often cannot quickly identify the illness's root cause and become delayed in tracking patients' health.

5. **Safety of patients information**

Patients and employee records hold sensitive information, such as social security numbers, addresses, family members, and diagnosis. If the information leak into the wrong hands, it could physically and financially cause catastrophic consequences for the patients and employees. Therefore, all departments had to take extreme measures and allocate the budget to ensure the complete and total security of information, which has resulted in overspending of the hospital budget.

VA hospital has reached out to the WSFG (Warrior Software Development Group) to develop a DBMS (Database Management Software) to overcome the above challenges.

Entities

Entities are the people, objects, places, and equipment of an organization. As per the VA Hospital operation and requirements, WSDG identifies the hospital's core entities are persons, departments, and services. All core entities are consist of sub-entities such as doctors, nurses, patients, treatments, and more.

Persons	Departments	Services

• Patients
  ○ Residents
  ○ Outpatients
• Doctors
• Nurses
	• Care Center
	  o Beds
	• Pharmacy
	  o *Medicine*
		• Treatments

Table 1 List of VA Hospital DBMS Entities

Business Needs – Purpose of Database Development

With the increasing number of patients coming into the VA Hospital. The staff has found it challenging to organize all the patient's data, which has made it very time consuming when retrieving data. Nurses and doctors have often lost the patient's records, forcing the

hospital staff to rebuild & rewrite files by revisiting patients. Consequently, VA Hospital is looking at creating a central database software to help organize and store this data and keep track of the patient's diagnosis as well as treatments. The DBMS will also make it efficient for staff to transfer the patient's records from one department to another. Ultimately making communications and data exchange effortlessly across various departments, resulting in faster intake and outpatient results.

Requirements

Since the new DBMS would be a new environment for hospital employees, WSDG will train the staff and supports the DBMS based on the contract terms. WSDG recommends VA Hospital employ skilled administrator(s) with a degree in Information Systems with work experience in database management. DBMS administrator duties are:

- Support the hospital staff after WSDG training

1. Monitor the DBMS's health and applying the necessary changes instructed by WSDG

Since the DBMS will incorporate a lot of sensitive data from patients, it is imperative to implement multi-level data security and encryption on the databases. Upon VA hospital request, WSDG can provide additional plans and policies for the database recovery for incidents such as natural disasters, cyber-attacks, and hardware failure.

Functions and Activities

The doctors will be in charge of patients and be associated with nurses. The nurses will be in touch with the doctors and will be assigned to different departments. The care center will house the beds, which in turn will accommodate the patients.

The Care Center will be addressing incoming patients. Activities include treating various injuries and illnesses depending on the diagnosis and issue out beds to those that need it.

Patients will be classified under two different categories, residents and outpatients. A Resident is a patient who will be required to spend one or multiple nights at a care center. The outpatients are classified as entities of the same-day visit or dismissed residents.

Pharmaceutical activities include preparing medications by pharmacy nurses based on the treatment assigned to the patient.

Business Rules

2. A person can be a Patient, Doctor, Nurse, or a combination of two or none.
3. A doctor must be assigned to at least one patient, and a patient may have more than one doctor.
4. A doctor must provide at least a service to a patient by at least one treatment.
5. A patient can have more than one treatment serviced by a doctor.
6. Each treatment must be prescribed to at least one patient by a doctor.
7. A doctor must have at least one specialty and a specialty must belong to only one doctor
8. A nurse must be assigned to only one Department and each department must have at least one nurse.
9. A department must be either a pharmacy or care center but not both.
10. A patient must be either a resident or outpatient and can not be both.
11. Each residents must have one bed and a bed must belong to only one resident.
12. A pharmacy must have at least one medicine, and each medicine must belong to only one pharmacy.
13. A care center can have at least one bed and a bed must belong to a care center.
14. A medicine must belong to one treatment and a treatment may have many medicines.

Relationship Matrix

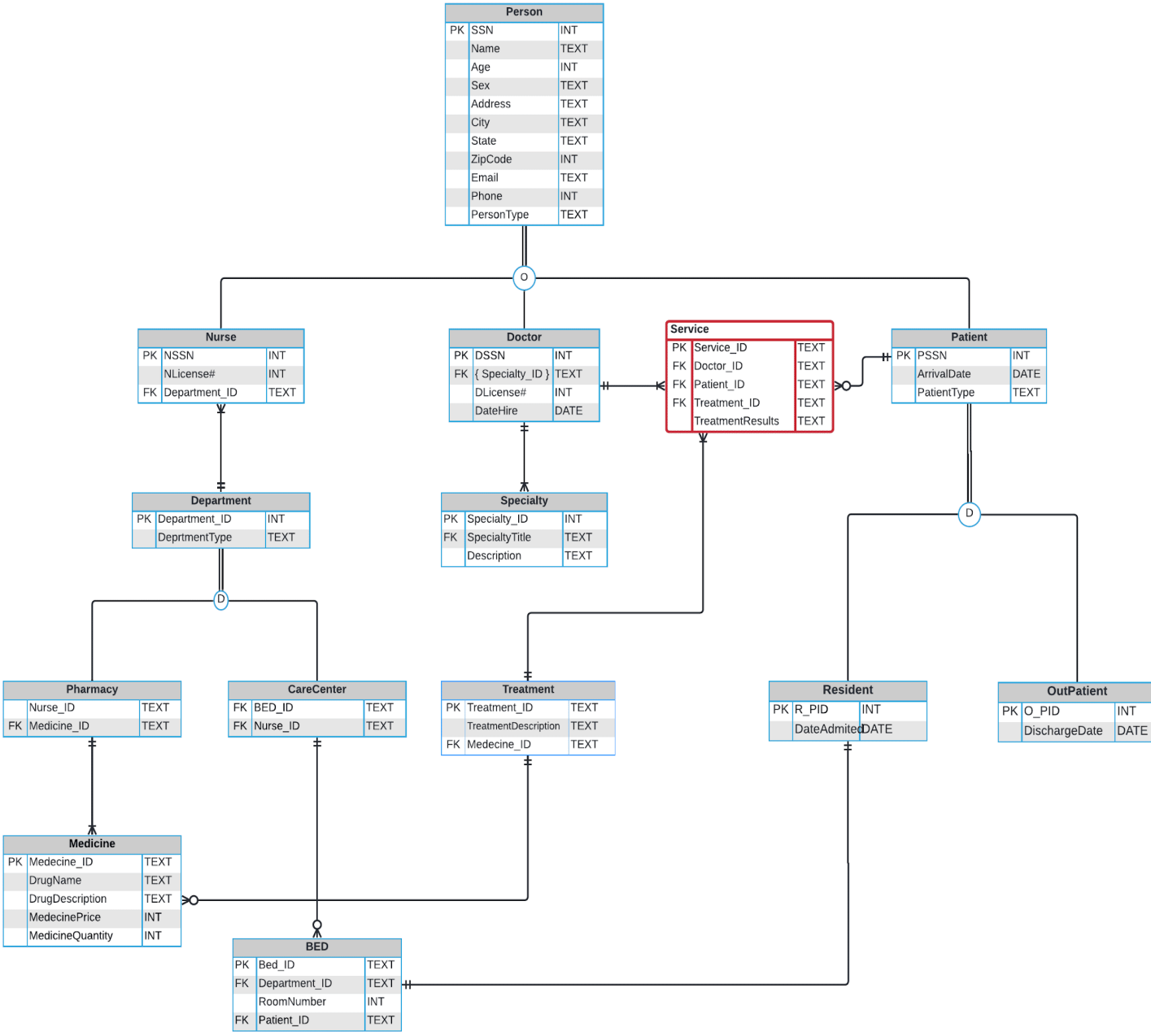
	Person	Nurse	Doctor	Patient	Resident	Outpatient	Specialty	Services	Treatment	Department	Pharmacy	Care Center	Medicine	Bed
Person		Can be	Can be	Can be										
Nurse								provide		assigne				
Doctor							hav	provide						
Patient								receives						
Resident														assigne

Outpatient													
Specialty													
Services									provid				
Treatment												contain	
Department											contain	contain	
Pharmacy												stores	

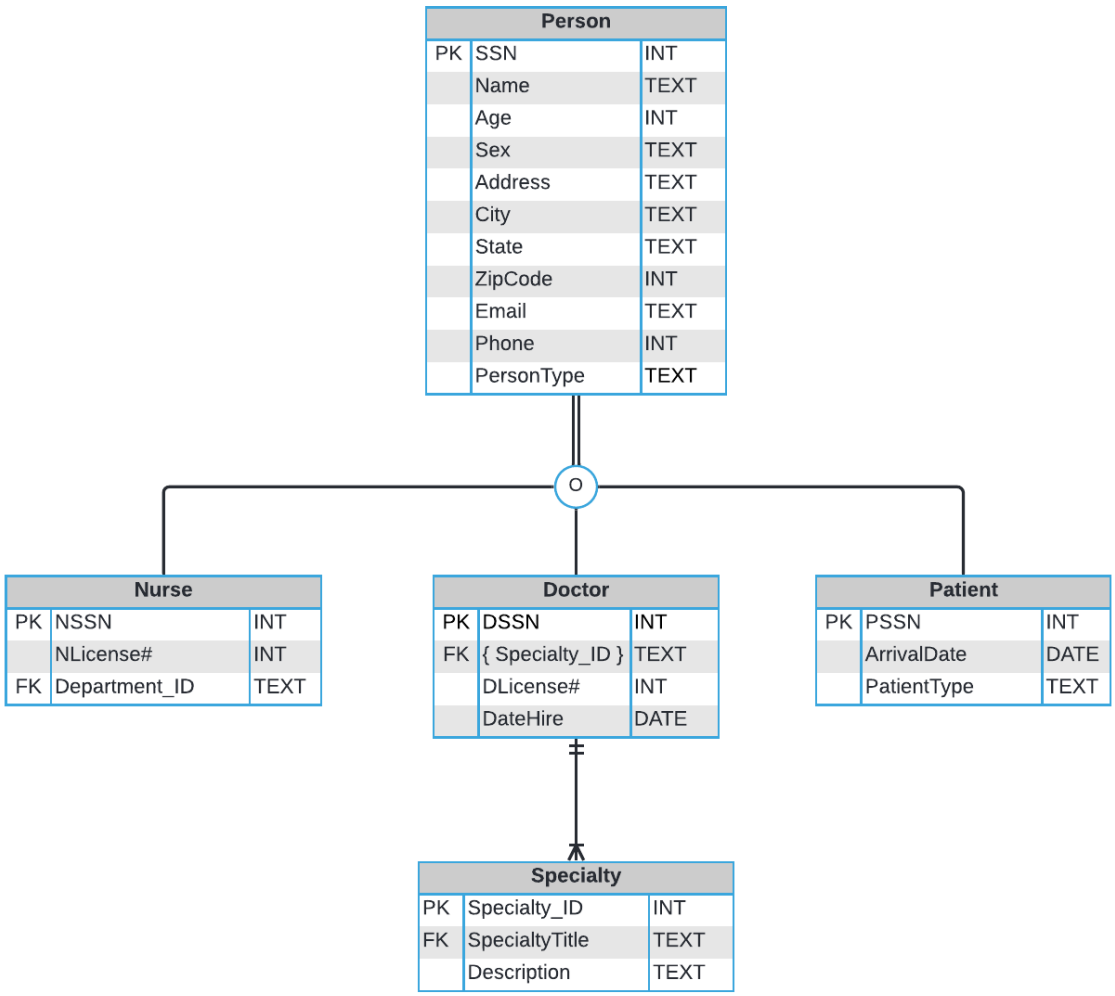
Care Center														have
Medicine									Used					
Bed					assigne									

Conceptual Design Diagram

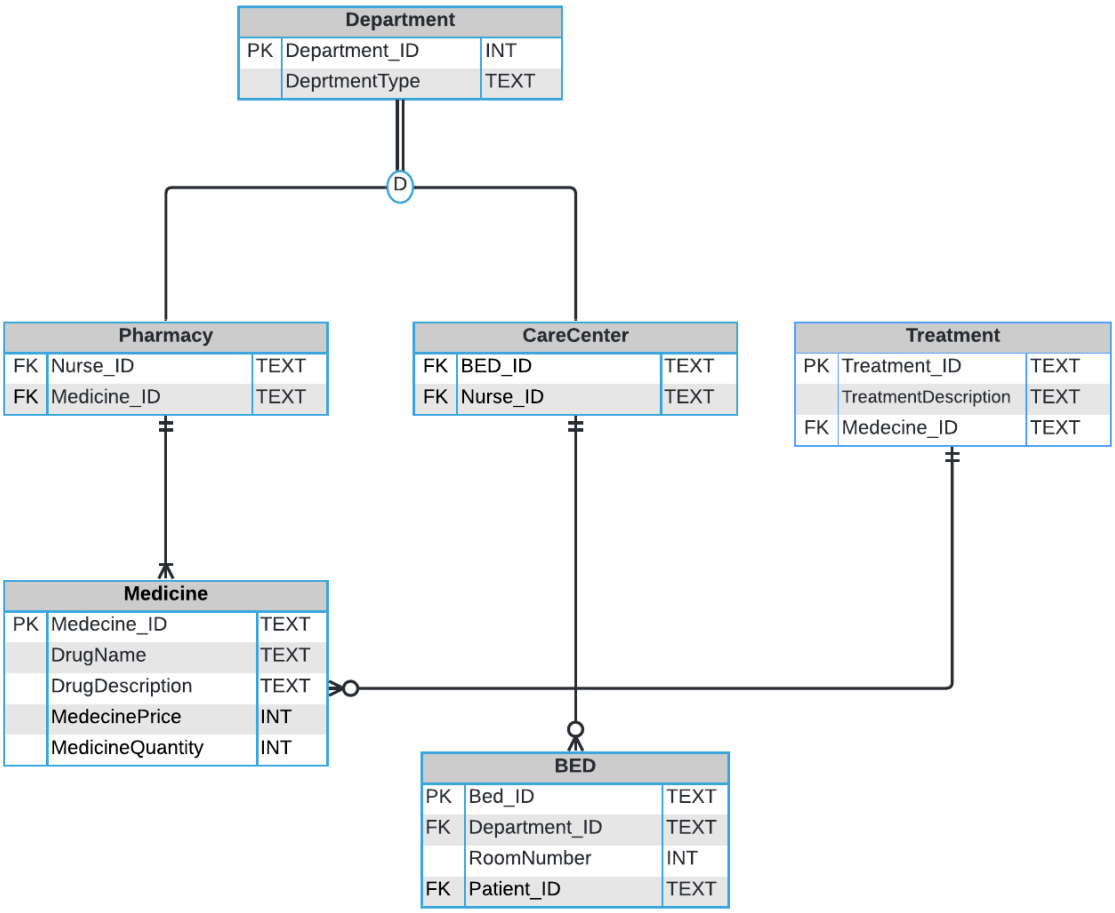
ENHANCED ENTITY RELATIONSHIP DIAGRAM (EER)



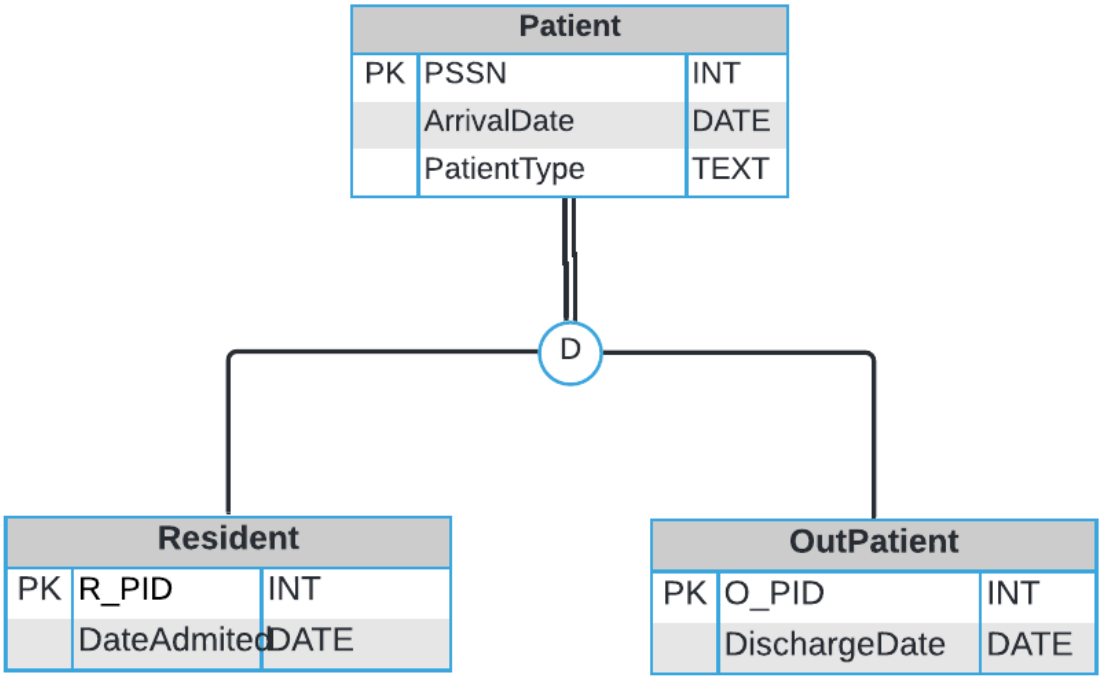
PERSON SUPERTYPE SUBTYPE



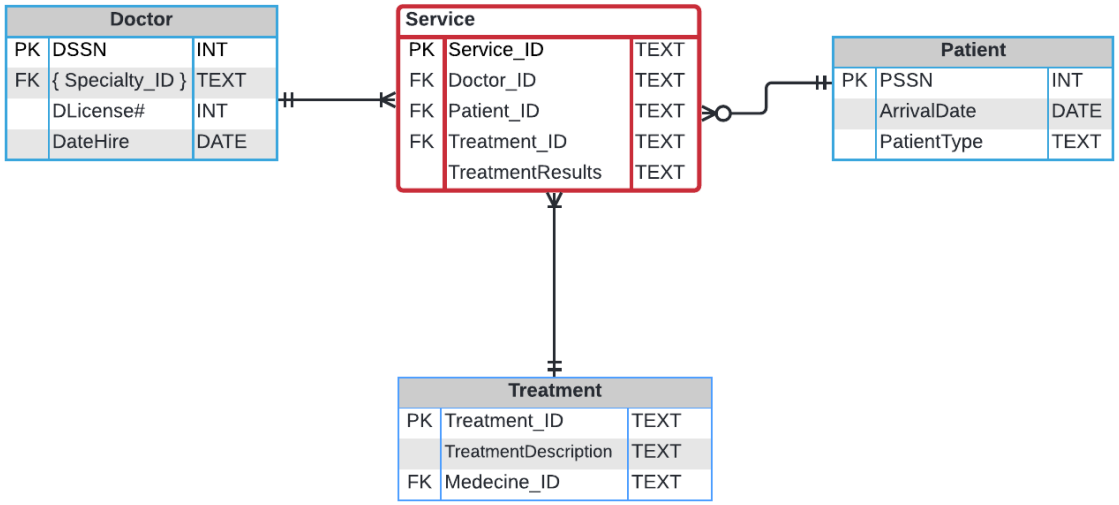
Department Supertype



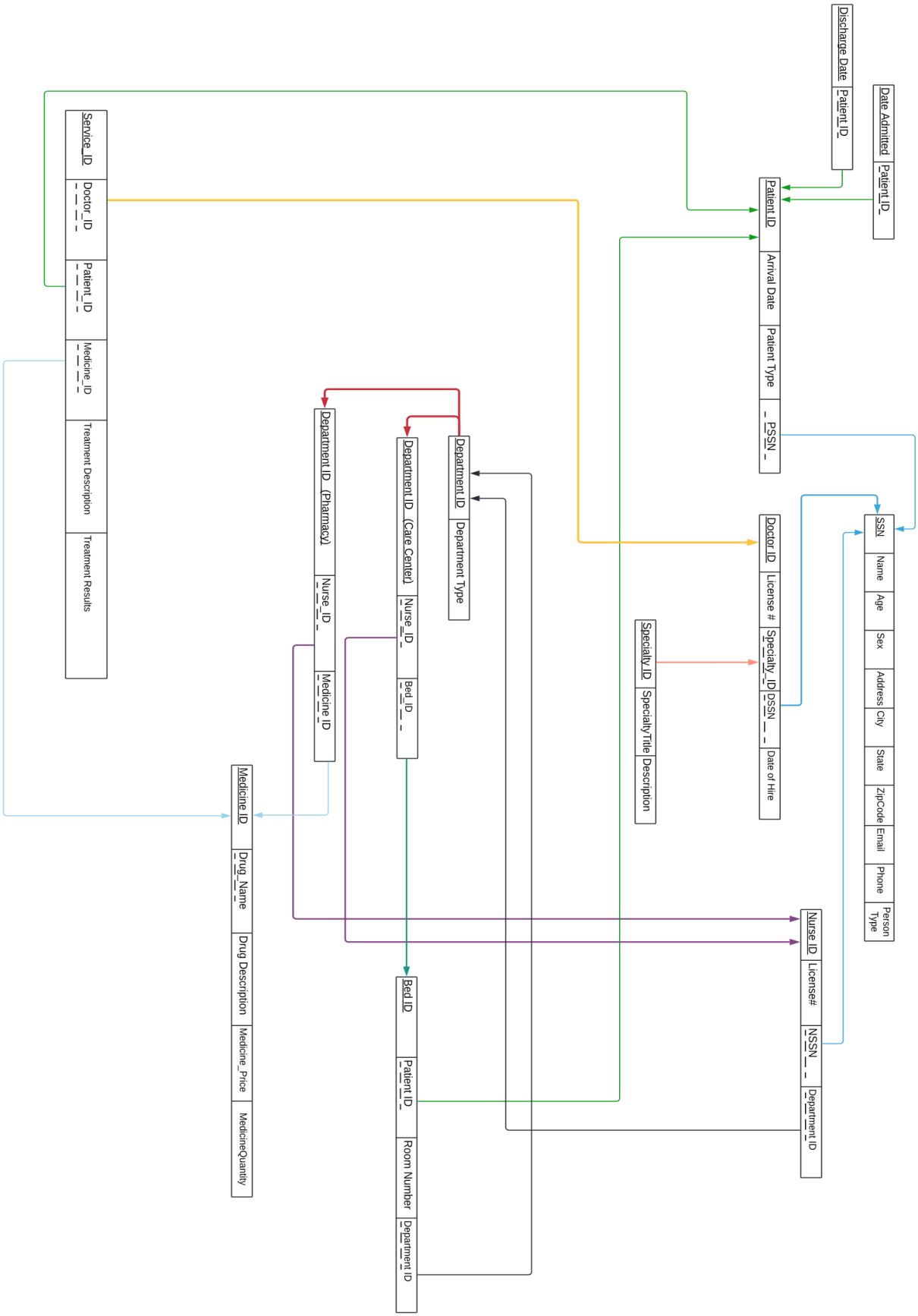
Patient SuperType



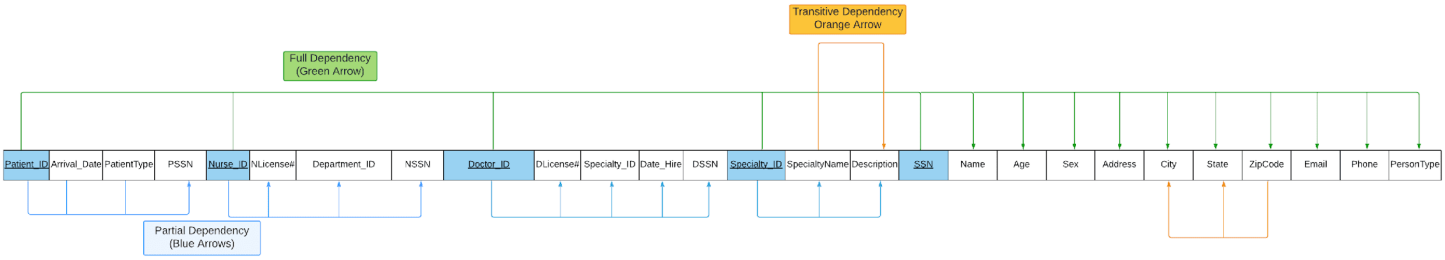
Assosiative Entity

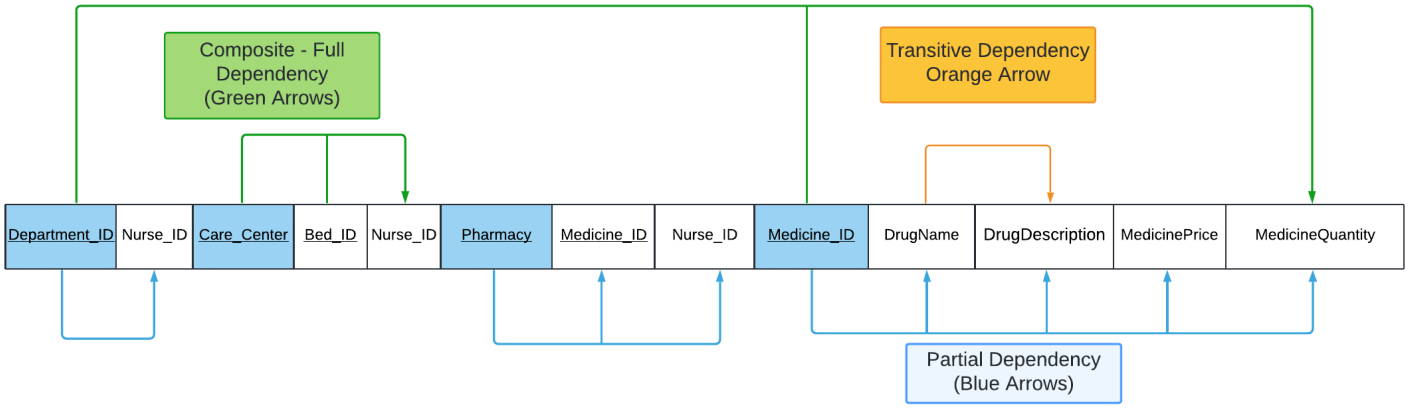


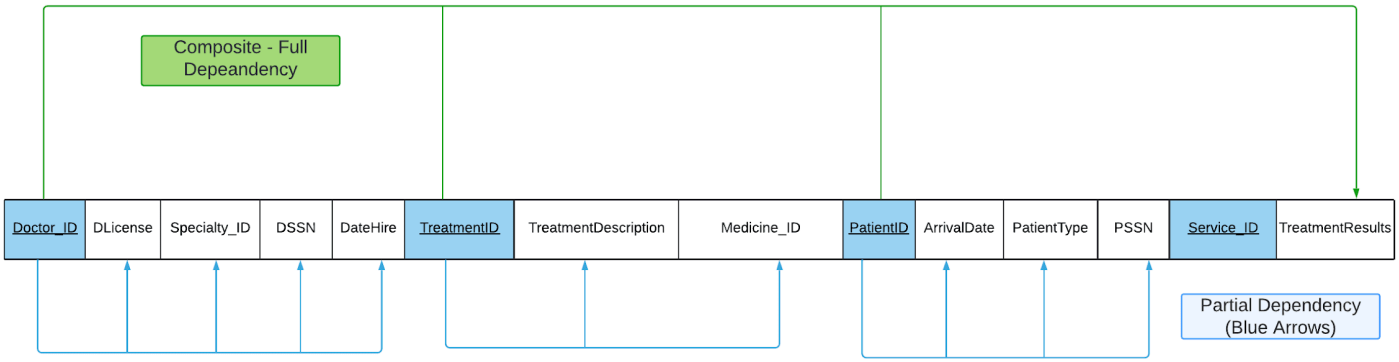
Referential integrity Constraints Diagram



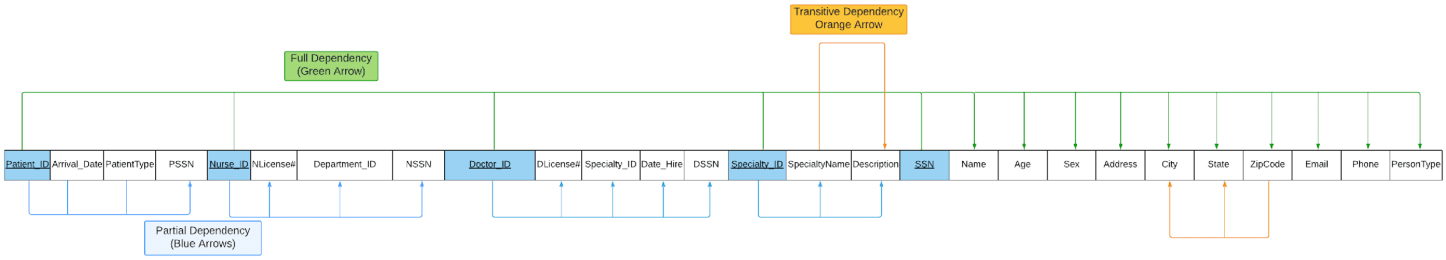
FUNCTIONAL DEPENDENCY DIAGRAM







NORMALIZATION OF TABLES



Patient_ID	Arrival_Date	PatientType	PSSN	SSN	Name	Age	Sex	Address	City	State	ZipCode	Email	Phone	PersonType

1 NF

Patient_ID	SSN	Name	Age	Sex	Address	City	State	ZipCode	Email	Phone	PersonType

2ND A+B --> C,D,E,F
IF A POINT TO X,Y,X AND B POINT TO X THEN THIS IS A VIOLATION

SSN	Name	Age	Sex	Address	City	State	ZipCode	Email	Phone	PersonType

2 NF
Due to Transitive Dependency

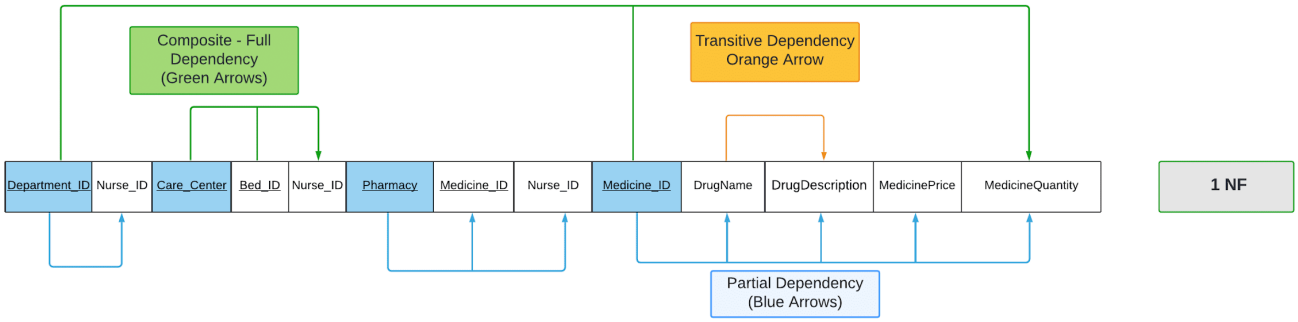
SSN	Name	Age	Sex	Address	ZipCode

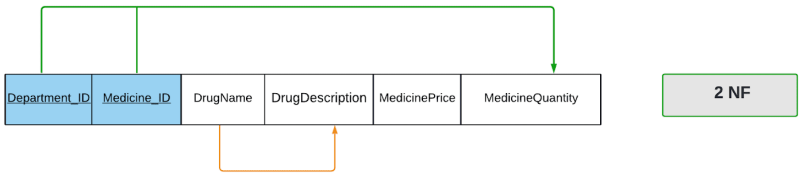
3 NF
- **Full Dependency to PK**

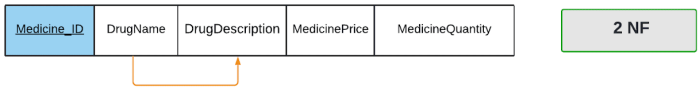
ZipCode	City	State

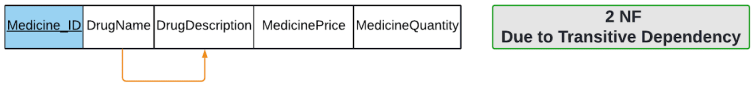
Patient_ID	Arrival_Date	PatientType	PSSN

3 NF
- **Full Dependency to PK**


Composite - Full Dependency (Green Arrows)
Transitive Dependency Orange Arrow
Department_ID
Nurse_ID
Care_Center
Bed_ID
Nurse_ID
Pharmacy
Medicine_ID
Nurse_ID
Medicine_ID
DrugName
DrugDescription
MedicinePrice
MedicineQuantity
1 NF
Partial Dependency (Blue Arrows)

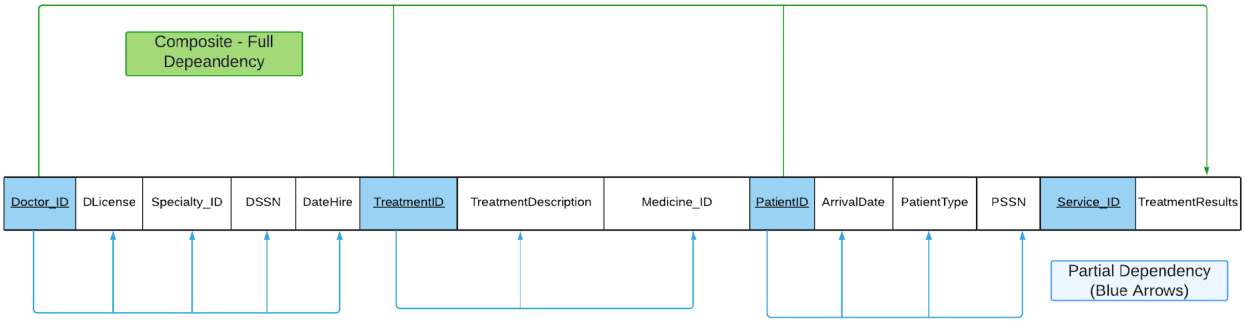

Department_ID
Medicine_ID
DrugName
DrugDescription
MedicinePrice
MedicineQuantity
2 NF

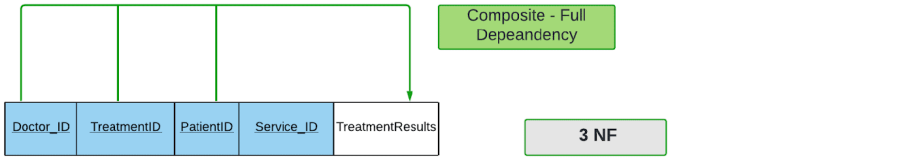

Medicine_ID
DrugName
DrugDescription
MedicinePrice
MedicineQuantity
2 NF

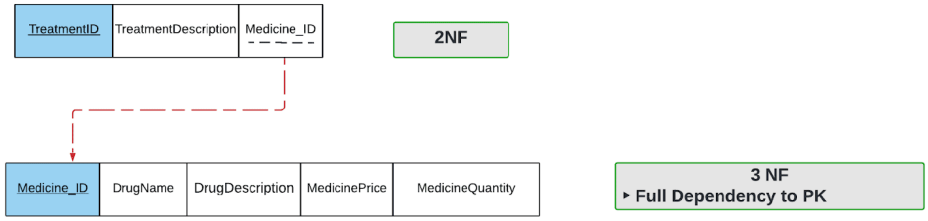

Medicine_ID
DrugName
DrugDescription
MedicinePrice
MedicineQuantity
2 NF
Due to Transitive Dependency

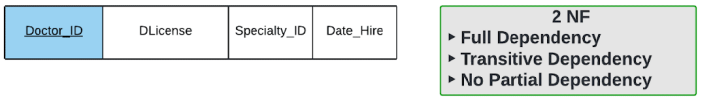

Medicine_ID
DrugName
DrugDescription
MedicinePrice
MedicineQuantity
3 NF
Everything is fully Dependent on PK
DrugName
DrugDescription
MedicinePrice
MedicineQuantity


Department_ID
Nurse_ID
3 NF


Composite - Full Depeandency
Doctor_ID
DLicense
Specialty_ID
DSSN
DateHire
TreatmentID
TreatmentDescription
Medicine_ID
PatientID
ArrivalDate
PatientType
PSSN
Service_ID
TreatmentResults
Partial Dependency (Blue Arrows)


Composite - Full Depeandency
Doctor_ID
TreatmentID
PatientID
Service_ID
TreatmentResults
3 NF


TreatmentID
TreatmentDescription
Medicine_ID
2NF
Medicine_ID
DrugName
DrugDescription
MedicinePrice
MedicineQuantity
3 NF
Full Dependency to PK


Doctor_ID
DLicense
Specialty_ID
Date_Hire
2 NF
Full Dependency
Transitive Dependency
No Partial Dependency

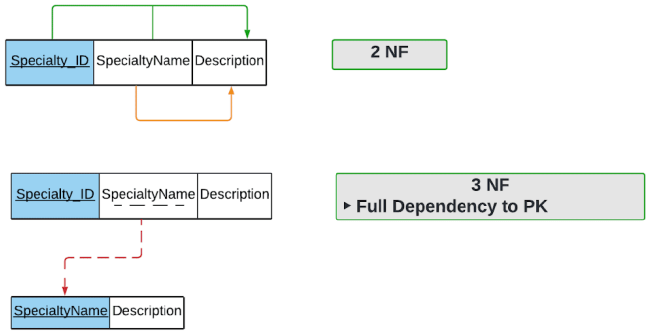

Specialty_ID
SpecialtyName
Description
2 NF
Specialty_ID
SpecialtyName
Description
3 NF
Full Dependency to PK
SpecialtyName
Description

Table Creation – Table Codes

Person

CREATE TABLE Person_T

(SSN	NUMERIC (9,0)	NOT NULL,
Name	VARCHAR (25)	NOT NULL,
Age	NUMERIC (3,0)	NOT NULL,
Sex	CHAR (1)	NOT NULL,
Address	VARCHAR (25)	NOT NULL,
City	VARCHAR (20)	NOT NULL,
State	CHAR (2)	NOT NULL,
Zip Code	NUMERIC (5,0)	NOT NULL,
Email	VARCHAR (40)	NOT NULL,
Phone	CHAR (10)	NOT NULL,
PersonType	VARCHAR (2)	NOT NULL,

CONSTRAINT Person_PK **PRIMARY KEY** (SSN));

Doctors

CREATE TABLE Doctor_T

(Doctor_ID	CHAR (4)	NOT NULL,
License	CHAR (5)	NOT NULL,
Specialty_ID	CHAR (4)	NOT NULL,
SSN	NUMERIC (9,0)	NOT NULL,
DateHire	DATE	NOT NULL,

CONSTRAINT Doctor_PK **PRIMARY KEY** (Doctor_ID),
CONSTRAINT Doctor_FK1 **FOREIGN KEY**1 (Specialty_ID) REFERENCES Specialty_T (Specialty ID),
CONSTRAINT Doctor_FK2 FOREIGN KEY2 (SSN) REFERENCES Person_T (SSN));

Specialty

CREATE TABLE Specialty_T

(Specialty_ID	CHAR (4)	NOT NULL,
SpecialtyTitle	VARCHAR (25)	NOT NULL,
Description	VARCHAR (200)	NOT NULL,

CONSTRAINT Specialty_PK PRIMARY KEY (Specialty_ID));

Nurse

CREATE TABLE Nurse_T

(Nurse_ID	CHAR (4)	NOT NULL,
License	CHAR (6)	NOT NULL,
SSN	NUMERIC (9,0)	NOT NULL,
Department_ID	CHAR (4)	NOT NULL,

CONSTRAINT Nurse_PK **PRIMARY KEY** (Nurse_ID),
CONSTRAINT Nurse_FK FOREIGN KEY (SSN) REFERENCES Person_T (SSN));

Patient

CREATE TABLE Patient_T

(Patient_ID	CHAR (4)	NOT NULL,
SSN	NUMERIC (9,0)	NOT NULL,
ArrivalDate	DATE	NOT NULL,
PatientType	CHAR (1)	NOT NULL,

CONSTRAINT Patient_PK **PRIMARY KEY** (Patient_ID),
CONSTRAINT Patient_FK FOREIGN KEY (SSN) REFERENCES Person_T (SSN));

Resident

CREATE TABLE Resident_T

(DateAdmitted	DATE	NOT NULL,
Patient_ID	CHAR (4)	NOT NULL,

CONSTRAINT Resident_PK **PRIMARY KEY** (DateAdmitted),
CONSTRAINT Resident_FK FOREIGN KEY (Patient_ID) REFERENCES Patient_T (Patient_ID));

Outpatient

CREATE TABLE Out Patient_T

(DischargeDate	DATE,	
Patient_ID	CHAR (4)	NOT NULL,

CONSTRAINT Outpatient_PK **PRIMARY KEY** (DischargeDate),
CONSTRAINT Outpatient_FK FOREIGN KEY (Patient_ID) REFERENCES Patient_T (Patient_ID));

Department

CREATE TABLE Department_T

(Department_ID	CHAR (4)	NOT NULL,
DepartmentType	CHAR (2)	NOT NULL,

CONSTRAINT Department_PK PRIMARY KEY (Department_ID);

Care Center

CREATE TABLE Center_Center_T

(Department_ID	CHAR (3)	NOT NULL,
Bed_ID	CHAR (5)	NOT NULL,
Nurse_ID	CHAR (4)	NOT NULL,

CONSTRAINT Care_Center_PK **PRIMARY KEY** (Department_ID, Bed_ID),
CONSTRAINT Care_Center_FK1 **FOREIGN KEY**1 (Nurse_ID) REFERENCES Nurse_T (Nurse_ID),
CONSTRAINT Care_Center_FK2 FOREIGN KEY2 (Bed_ID) REFERENCES Bed_T (Bed_ID));

Pharmacy

CREATE TABLE Pharmacy_T

(Department_ID	CHAR (3)	NOT NULL,
Nurse_ID	CHAR (4)	NOT NULL,
Medicine_ID	VARCHAR (5)	NOT NULL,

CONSTRAINT Pharmacy_PK **PRIMARY KEY** (Department_ID, Medicine_ID),
CONSTRAINT Pharmacy_FK **FOREIGN KEY** (Medicine_ID) REFERENCES Medicine_T (Medicine_ID)
CONSTRAINT Pharmacy_FK FOREIGN KEY (Nurse_ID) REFERENCES Nurse_T (Nurse_ID));

Medicine

CREATE TABLE Medicine_T

(Medicine_ID	VARCHAR (5)	NOT NULL,
DrugName	VARCHAR (30)	NOT NULL,
DrugDescription	VARCHAR (100)	NOT NULL,
MedicinePrice	NUMERIC (3,0)	NOT NULL,
MedicineQuantity	NUMERIC (2,0)	NOT NULL,

CONSTRAINT Medicine_PK PRIMARY KEY (Medicine_ID));

Bed

CREATE TABLE Bed_T

(Bed_ID	CHAR (5)	NOT NULL,
Department_ID	CHAR (3)	NOT NULL,
RoomNumber	NUMERIC (1,0)	NOT NULL,
Patient_ID	CHAR (4),	

CONSTRAINT Bed_PK **PRIMARY KEY** (Bed_ID),
CONSTRAINT Bed_FK1 **FOREIGN KEY**1 (Department_ID) REFERENCES Department_T (Department_ID)
CONSTRAINT Bed_FK2 FOREIGN KEY2 (Department_ID) REFERENCES Patient_T (Patient_ID));

Service

CREATE TABLE Serivce_T

(Service_ID	CHAR (6)	NOT NULL,
Doctor_ID	CHAR (4)	NOT NULL,
Patient_ID	CHAR (4)	NOT NULL,
Treatment_ID	CHAR (5)	NOT NULL,
TreatmentResults	VARCHAR (30)	NOT NULL,

CONSTRAINT Service_PK **PRIMARY KEY** (Service_ID),
CONSTRAINT Service_FK1 **FOREIGN KEY**1 (Doctor_ID) REFERENCES Doctor_T (Doctor_ID),
CONSTRAINT Service_FK2 **FOREIGN KEY**2 (Patient_ID) REFERENCES Patient_T (Patient_ID),
CONSTRAINT Service_FK3 FOREIGN KEY3 (Treatment_ID) REFERENCES Treatment_T (Treatment_ID));

Treatment

CREATE TABLE Treatment_T

(Treatment_ID	CHAR (5)	NOT NULL,
TreatmentDescription	VARCHAR (200)	NOT NULL,
Medicine_ID	VARCHAR (5)	NOT NULL,

CONSTRAINT Treatment_PK **PRIMARY KEY** (Treatment_ID),
CONSTRAINT Treatment_FK FOREIGN KEY (Medicine_ID) REFERENCES Medicine_T (Medicine_ID));

Data Entry – Insert Codes

Person

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone, PersonType)
VALUES('123000001', 'Filip Adams', '52', M, '9483 Broad St.', 'Santa Ana', '92701', California', 'FilipAdams@VAHospital.Com', '6216385161', 'D');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone, PersonType)
VALUES('123000002', 'Luka Stark', '44', M, '379 SW. Somerset St.', 'Los Angeles', '90001', California', 'LukaStark@VAHospital.Com', '7904478372', 'D');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone, PersonType)
VALUES('123000003', 'Tasmin Daniels', '33', F, '7847 Marvon Drive', 'Corona', '92882', California', 'TasminDaniels@VAHospital.Com', '7591966460', 'D');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone, PersonType)
VALUES('123000004', 'Uma Mckinney', '27', F, '8341 W. Canal Road', 'Laguna Niguel', '92677', California', 'UmaMckinney@VAHospital.Com', '5002027345', 'D');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone, PersonType)
VALUES('123000005', 'Imaan Carney', '42', M, '53 Southside Lane', 'Los Angeles', '90017', California', 'ImaanCarney@VAHospital.Com', '6290052719', 'D');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone, PersonType)
VALUES('123000006', 'Shakeel Meyer', '35', F, '60 Garfield St.', 'Los Angeles', '90003', California', 'ShakeelMeyer@VAHospital.Com', '7065693978', 'D');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone, PersonType)
VALUES('123000007', 'Isa Hudson', '37', F, '497 Manor Station Avenue', 'San Diego', '92105', California', 'IsaHudson@VAHospital.Com', '5560990450', 'D');

```
INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000008', 'Aiysha Esquivel', '31', F, '8209 Oakwood St.', 'El Cajon', '92021',
    California', 'AiyshaEsquivel@VAHospital.Com', '7738336908', 'D');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000009', 'Maksim Cohen', '64', M, '94 East Catherine Dr. ', 'Burbank', '91522',
    California', 'MaksimCohen@VAHospital.Com', '7136632928', 'D');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000010', 'Ibrar Hough', '32', M, '165 Cherry Hill St.', 'San Diego', '92114',
    California', 'IbrarHough@VAHospital.Com', '4079719672', 'D');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000011', 'Douglas Milne', '61', M, '9532 Henry Street', 'Monterey Park', '91756',
    California', 'DouglasMilne@VAHospital.Com', '5488833133', 'N');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000012', 'Thelma Torres', '36', F, '793 Ohio St.', 'Rialto', '92376', California',
    'ThelmaTorres@VAHospital.Com', '6345157231', 'N');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000013', 'Sarah Wilks', '38', F, '662 Chapel St.', 'Los Angeles', '91605',
    California', 'SarahWilks@VAHospital.Com', '6590757608', 'N');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000014', 'Hamzah Zamora', '43', M, '7756 North St.', 'Azusa', '91702',
    California', 'HamzahZamora@VAHospital.Com', '3646895512', 'N');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000015', 'Kaya Dixon', '63', F, '7894 Forest Street', 'Los Angeles', '90066',
    California', 'KayaDixon@VAHospital.Com', '5396740942', 'N');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000016', 'Husnain Fox', '55', M, '157 East Nicolls Ave.', 'Huntington Beach',
    '92647', California', 'HusnainFox@VAHospital.Com', '4243828149', 'N');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000017', 'Sapphire Doyle', '47', F, '473 Union Court', 'Anaheim', '92804',
    California', 'SapphireDoyle@VAHospital.Com', '7409539305', 'N');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
```

```
    VALUES('123000018', 'Leonard Berg', '50', M, '9516 S. Hamilton Street', 'Los Angeles',
    '90037', California', 'LeonardBerg@VAHospital.Com', '4011854278', 'N');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000019', 'Eiliyah Harvey', '40', F, '510 Whitemarsh St.', 'Simi Valley', '93065',
    California', 'EiliyahHarvey@VAHospital.Com', '4660347863', 'N');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000020', 'Che Hale', '52', M, '46 Leatherwood St.', 'Van Nuys', '91406',
    California', 'CheHale@VAHospital.Com', '3809622655', 'N');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000021', 'Suzanne England', '56', F, '4 Anchor St. ', 'Culver City', '90232',
    California', 'SuzanneEngland@Gmail.Com', '5124213915', 'P');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000022', 'Fergus Brett', '56', M, '10 Virginia Avenue', 'Oxnard', '93030',
    California', 'FergusBrett@Gmail.Com', '7534557261', 'P');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000023', 'Aliesha Saunders', '33', F, '605 Main Court', 'Houston', '77080', Texas',
    'AlieshaSaunders@Gmail.Com', '4012013215', 'P');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000024', 'Pheobe Booker', '35', F, '8288 Fieldstone St.', 'San Antonio', '78216',
    Texas', 'PheobeBooker@Gmail.Com', '6698028353', 'P');

INSERT INTO Person_T(SSN, Name, Age, Sex, AddressCity, ZipCode, State, Email, Phone,
    PersonType)
    VALUES('123000025', 'Rhia Vasquez', '57', F, '9320 Coffee St.', 'Orlando', '32822', Florida',
    'RhiaVasquez@Gmail.Com', '3340389861', 'P');
```

Doctor

```
INSERT INTO Doctor_T(Doctor_ID, SSN, License, Specialty_ID,
    DateHire)
    VALUES('D001', '123000001', 'L02848', 'S006', '10/03/2001');

INSERT INTO Doctor_T(Doctor_ID, SSN, License, Specialty_ID,
    DateHire)
    VALUES('D002', '123000002', 'L16846', 'S002', '04/23/1998');
```

```
INSERT INTO Doctor_T(Doctor_ID, SSN, License, Specialty_ID,
        DateHire)
        VALUES('D003', '123000003', 'L62953', 'S007', '08/07/2003');
INSERT INTO Doctor_T(Doctor_ID, SSN, License, Specialty_ID,
        DateHire)
        VALUES('D004', '123000004', 'L20493', 'S009', '05/16/2018');
INSERT INTO Doctor_T(Doctor_ID, SSN, License, Specialty_ID,
        DateHire)
        VALUES('D005', '123000005', 'L28563', 'S004', '11/19/1989');
INSERT INTO Doctor_T(Doctor_ID, SSN, License, Specialty_ID,
        DateHire)
        VALUES('D006', '123000006', 'L83047', 'S008', '03/30/2020');
INSERT INTO Doctor_T(Doctor_ID, SSN, License, Specialty_ID,
        DateHire)
        VALUES('D007', '123000007', 'L54879', 'S010', '02/26/2005');
INSERT INTO Doctor_T(Doctor_ID, SSN, License, Specialty_ID,
        DateHire)
        VALUES('D008', '123000008', 'L82565', 'S001', '01/01/2004');
INSERT INTO Doctor_T(Doctor_ID, SSN, License, Specialty_ID,
        DateHire)
        VALUES('D009', '123000009', 'L48264', 'S003', '10/03/2001');
INSERT INTO Doctor_T(Doctor_ID, SSN, License, Specialty_ID,
        DateHire)
        VALUES('D010', '123000010', 'L12846', 'S005', '09/22/2018');
```

Specialty

```
INSERT INTO Specialty_T(Specialty_ID, SpecialtyTitle, Description)
VALUES('S001', 'Orthopedic', 'Specializes in Muscle & Skelotal System');

INSERT INTO Specialty_T(Specialty_ID, SpecialtyTitle, Description)
VALUES('S002', 'Cardiology', 'Specializes in Cardioivascular Health');

INSERT INTO Specialty_T(Specialty_ID, SpecialtyTitle, Description)
VALUES('S003', 'Pediatric', 'Primary Care providor for Individuals under 21');

INSERT INTO Specialty_T(Specialty_ID, SpecialtyTitle, Description)
VALUES('S004', 'Phsycology', 'Mental Health Specialist');

INSERT INTO Specialty_T(Specialty_ID, SpecialtyTitle, Description)
VALUES('S005', 'Emergency Medicine', 'Focus on treating Illnesses/Injuries that require immediate
attention');

INSERT INTO Specialty_T(Specialty_ID, SpecialtyTitle, Description)
VALUES('S006', 'Radiologist', 'Treats Injuries, Illneses, Diseases by using Radiology (X-Rays)');
```

```
INSERT INTO Specialty_T(Specialty_ID, SpecialtyTitle, Description)
VALUES('S007', 'Neurologist', 'Specializes in Treating Brain & Nervous System');
```

```
INSERT INTO Specialty_T(Specialty_ID, SpecialtyTitle, Description)
VALUES('S008', 'Physical Therapist', 'Specializes in the physical functionality of the body');
```

```
INSERT INTO Specialty_T(Specialty_ID, SpecialtyTitle, Description)
VALUES('S009', 'Optomotrist', 'Provides care to the Vision of Patients');
```

```
INSERT INTO Specialty_T(Specialty_ID, SpecialtyTitle, Description)
VALUES('S010', 'Respiratory therapist', 'Provides care to the Respirotary System (Lungs, Nose, Mouth)');
```

Nurse

```
INSERT INTO Nurse_T(Nurse_ID, License, SSN,
        Department_ID)
        VALUES('N001', 'L90287', '123000011', 'DP01');
```

```
INSERT INTO Nurse_T(Nurse_ID, License, SSN,
        Department_ID)
        VALUES('N002', 'L54963', '123000012', 'DP01');
```

```
INSERT INTO Nurse_T(Nurse_ID, License, SSN,
        Department_ID)
        VALUES('N003', 'L45721', '123000013', 'DP01');
```

```
INSERT INTO Nurse_T(Nurse_ID, License, SSN,
        Department_ID)
        VALUES('N004', 'L69273', '123000014', 'DP01');
```

```
INSERT INTO Nurse_T(Nurse_ID, License, SSN,
        Department_ID)
        VALUES('N005', 'L87326', '123000015', 'DP01');
```

```
INSERT INTO Nurse_T(Nurse_ID, License, SSN,
        Department_ID)
        VALUES('N006', 'L55624', '123000016', 'DP01');
```

```
INSERT INTO Nurse_T(Nurse_ID, License, SSN,
        Department_ID)
        VALUES('N007', 'L49215', '123000017', 'DP01');
```

```
INSERT INTO Nurse_T(Nurse_ID, License, SSN,
        Department_ID)
        VALUES('N008', 'L78932', '123000018', 'DP01');
```

```
INSERT INTO Nurse_T(Nurse_ID, License, SSN,
        Department_ID)
        VALUES('N009', 'L54637', '123000019', 'DP02');
```

```
INSERT INTO Nurse_T(Nurse_ID, License, SSN,
        Department_ID)
        VALUES('N010', 'L78127', '123000020', 'DP02');
```

Patient

```
INSERT INTO Patient_T(Patient_ID, SSN, ArrivalDate,
        PatientType)
        VALUES('P001', '123000021', "10/01/2020", 'Resident');
INSERT INTO Patient_T(Patient_ID, SSN, ArrivalDate,
        PatientType)
        VALUES('P002', '123000022', "09/25/2020", 'Outpatient');
INSERT INTO Patient_T(Patient_ID, SSN, ArrivalDate,
        PatientType)
        VALUES('P003', '123000023', "10/07/2020", 'Outpatient');
INSERT INTO Patient_T(Patient_ID, SSN, ArrivalDate,
        PatientType)
        VALUES('P004', '123000024', "10/01/2020", 'Outpatient');
INSERT INTO Patient_T(Patient_ID, SSN, ArrivalDate,
        PatientType)
        VALUES('P005', '123000025', "10/15/2020", 'Resident');
INSERT INTO Patient_T(Patient_ID, SSN, ArrivalDate,
        PatientType)
        VALUES('P006', '123000010', "11/11/2020", 'Resident');
INSERT INTO Patient_T(Patient_ID, SSN, ArrivalDate,
        PatientType)
        VALUES('P007', '123000015', "10/30/2020", 'Resident');
INSERT INTO Patient_T(Patient_ID, SSN, ArrivalDate,
        PatientType)
        VALUES('P008', '123000019', "11/02/2020", 'Resident');
INSERT INTO Patient_T(Patient_ID, SSN, ArrivalDate,
        PatientType)
        VALUES('P009', '123000006', "11/05/2020", 'Resident');
INSERT INTO Patient_T(Patient_ID, SSN, ArrivalDate,
        PatientType)
        VALUES('P010', '123000013', "11/03/2020", 'Outpatient');
```

Resident

```
INSERT INTO Resident_T(DateAdmited, Patient_ID)
VALUES('10/01/2020', 'P001');
```

```
INSERT INTO Resident_T(DateAdmited, Patient_ID)
VALUES('09/25/2020', 'P002');
INSERT INTO Resident_T(DateAdmited, Patient_ID)
VALUES('10/07/2020', 'P003');
INSERT INTO Resident_T(DateAdmited, Patient_ID)
VALUES('10/01/2020', 'P004');
INSERT INTO Resident_T(DateAdmited, Patient_ID)
VALUES('10/15/2020', 'P005');
INSERT INTO Resident_T(DateAdmited, Patient_ID)
VALUES('11/11/2020', 'P006');
INSERT INTO Resident_T(DateAdmited, Patient_ID)
VALUES('10/30/2020', 'P007');
INSERT INTO Resident_T(DateAdmited, Patient_ID)
VALUES('11/02/2020', 'P008');
INSERT INTO Resident_T(DateAdmited, Patient_ID)
VALUES('11/05/2020', 'P009');
INSERT INTO Resident_T(DateAdmited, Patient_ID)
VALUES('11/03/2020', 'P010');
```

OUTPATIENT

```
INSERT INTO OutPatient_T(DischargeDate, Patient_ID)
VALUES('10/06/2020', 'P001');
INSERT INTO OutPatient_T(DischargeDate, Patient_ID)
VALUES('10/05/2020', 'P002');
INSERT INTO OutPatient_T(DischargeDate, Patient_ID)
VALUES('10/07/2020', 'P003');
INSERT INTO OutPatient_T(DischargeDate, Patient_ID)
VALUES('10/20/2020', 'P004');
INSERT INTO OutPatient_T(DischargeDate, Patient_ID)
VALUES('10/18/2020', 'P005');
INSERT INTO OutPatient_T(DischargeDate, Patient_ID)
VALUES('01/00/1900', 'P006');
INSERT INTO OutPatient_T(DischargeDate, Patient_ID)
VALUES('11/07/2020', 'P007');
```

```
INSERT INTO OutPatient_T(DischargeDate, Patient_ID)
VALUES('11/09/2020', 'P008');
INSERT INTO OutPatient_T(DischargeDate, Patient_ID)
VALUES('11/06/2020', 'P009');
INSERT INTO OutPatient_T(DischargeDate, Patient_ID)
VALUES('11/11/2020', 'P010');
```

Department

```
INSERT INTO Department_T(Department_ID, DepartmentType)
VALUES('DP01', 'CC');
INSERT INTO Department_T(Department_ID, DepartmentType)
VALUES('DP02', 'PH');
```

CareCenter

```
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD001', 'N001');
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD002', 'N002');
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD003', 'N003');
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD004', 'N004');
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD005', 'N005');
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD006', 'N006');
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD007', 'N007');
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD008', 'N008');
```

```
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD009', 'N003');
```

```
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD010', 'N004');
```

```
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD011', 'N005');
```

```
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD012', 'N006');
```

```
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD013', 'N007');
```

```
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD014', 'N002');
```

```
INSERT INTO CareCenter_T(Department_ID, Bed_ID, Nurse_ID)
VALUES('DP01', 'BD015', 'N008');
```

PHARMACY

```
INSERT INTO Pharmacy_T(Department_ID, Medicine_ID, Nurse_ID)
VALUES('DP2', 'MED1', 'N009');
```

```
INSERT INTO Pharmacy_T(Department_ID, Medicine_ID, Nurse_ID)
VALUES('DP2', 'MED2', 'N010');
```

```
INSERT INTO Pharmacy_T(Department_ID, Medicine_ID, Nurse_ID)
VALUES('DP2', 'MED3', 'N009');
```

```
INSERT INTO Pharmacy_T(Department_ID, Medicine_ID, Nurse_ID)
VALUES('DP2', 'MED4', 'N010');
```

```
INSERT INTO Pharmacy_T(Department_ID, Medicine_ID, Nurse_ID)
VALUES('DP2', 'MED5', 'N009');
```

```
INSERT INTO Pharmacy_T(Department_ID, Medicine_ID, Nurse_ID)
VALUES('DP2', 'MED6', 'N010');
```

```
INSERT INTO Pharmacy_T(Department_ID, Medicine_ID, Nurse_ID)
VALUES('DP2', 'MED7', 'N009');
```

```
INSERT INTO Pharmacy_T(Department_ID, Medicine_ID, Nurse_ID)
VALUES('DP2', 'MED8', 'N010');
```

```
INSERT INTO Pharmacy_T(Department_ID, Medicine_ID, Nurse_ID)
VALUES('DP2', 'MED9', 'N009');
```

```
INSERT INTO Pharmacy_T(Department_ID, Medicine_ID, Nurse_ID)
VALUES('DP2', 'MED10', 'N010');
```

MEDICINE

```
INSERT INTO Medicine_T(Medicine_ID, DrugName, DrugDescription, MedicinePrice,
MedicineQuantity )
VALUES('MED1', 'Levothyroxine', 'It can treat hypothyroidism. It can also treat an enlarged
thyroid gland
 and thyroid cancer.', 150, '8');
INSERT INTO Medicine_T(Medicine_ID, DrugName, DrugDescription, MedicinePrice,
MedicineQuantity )
VALUES('MED2', 'Lisinopril', 'It can treat high blood pressure and heart failure. It can also
reduce the
 risk of death after a heart attack.', 130, '1');
INSERT INTO Medicine_T(Medicine_ID, DrugName, DrugDescription, MedicinePrice,
MedicineQuantity )
VALUES('MED3', 'Atorvastatin', 'It can treat high cholesterol and triglyceride levels. This may
reduce the risk
 of angina, stroke, heart attack, and heart and blood vessel problems.', 110, '5');
INSERT INTO Medicine_T(Medicine_ID, DrugName, DrugDescription, MedicinePrice,
MedicineQuantity )
VALUES('MED4', 'Metformin', 'Anti-diabetic medication. It can treat type 2 diabetes.', 185, '2');
INSERT INTO Medicine_T(Medicine_ID, DrugName, DrugDescription, MedicinePrice,
MedicineQuantity )
VALUES('MED5', 'Amlodipine', 'Calcium channel blocker. It can treat high blood pressure and
 chest pain (angina).', 321, '7');
INSERT INTO Medicine_T(Medicine_ID, DrugName, DrugDescription, MedicinePrice,
MedicineQuantity )
VALUES('MED6', 'Metoprolol', 'Beta blocker. It can treat high blood pressure, chest pain
(angina), and
heart failure. This may lower the risk of death after a heart attack.', 100, '3');
INSERT INTO Medicine_T(Medicine_ID, DrugName, DrugDescription, MedicinePrice,
MedicineQuantity )
VALUES('MED7', 'Omeprazole', 'Proton-pump inhibitor. It can treat heartburn, a damaged
esophagus,
 stomach ulcers, and gastroesophageal reflux disease (GERD).', 723, '5');
INSERT INTO Medicine_T(Medicine_ID, DrugName, DrugDescription, MedicinePrice,
MedicineQuantity )
VALUES('MED8', 'Simvastatin', 'Statin. It can treat high cholesterol and triglyceride levels. This
```

```
may
reduce the risk of heart attack, stroke, and related health conditions.', 389, '9');
INSERT INTO Medicine_T(Medicine_ID, DrugName, DrugDescription, MedicinePrice,
MedicineQuantity )
VALUES('MED9', 'Losartan', 'Antihypertensive drug. It can treat high blood pressure. It can
reduce the
risk of stroke in patients with high blood pressure and an enlarged heart.
 It can also treat kidney disease in patients with diabetes.', 178, '6');
INSERT INTO Medicine_T(Medicine_ID, DrugName, DrugDescription, MedicinePrice,
MedicineQuantity )
VALUES('MED10', 'Albuterol', 'Bronchodilator. It can treat or prevent bronchospasm.', 506, '2');
```

BED

```
INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD001', 'CC1', '5', 'P004');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD002', 'CC1', '3', 'P010');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD003', 'CC1', '3', 'P001');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD004', 'CC1', '4', 'P005');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD005', 'CC1', '1', 'P006');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD006', 'CC1', '3', 'P003');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD007', 'CC1', '5', 'P002');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD008', 'CC1', '4', 'P007');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD009', 'CC1', '2', 'P008');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD010', 'CC1', '5', 'P009');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD011', 'CC1', '4', 'Null');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD012', 'CC1', '1', 'Null');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD013', 'CC1', '3', 'Null');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD014', 'CC1', '2', 'Null');

INSERT INTO BED_T(Bed_ID, Department_ID, Room, Patient_ID)
VALUES('BD015', 'CC1', '2', 'Null');
```

Service

```
INSERT INTO Service_T(Service_ID, Doctor_ID, Patient_ID, Nurse_ID, Treatment_ID, TreatmentResults)
VALUES('SER001', 'D001', 'P001', 'N001''TR001', 'InProgress');
INSERT INTO Service_T(Service_ID, Doctor_ID, Patient_ID, Nurse_ID, Treatment_ID, TreatmentResults, Notes)
VALUES('SER002', 'D002', 'P002', 'N002''TR002', 'InProgress', ');
INSERT INTO Service_T(Service_ID, Doctor_ID, Patient_ID, Nurse_ID, Treatment_ID, TreatmentResults, Notes)
VALUES('SER003', 'D003', 'P003', 'N003''TR003', 'Unsuccessfull', ');
INSERT INTO Service_T(Service_ID, Doctor_ID, Patient_ID, Nurse_ID, Treatment_ID, TreatmentResults, Notes)
VALUES('SER004', 'D004', 'P004', 'N004''TR004', 'Unsuccessfull', ');
INSERT INTO Service_T(Service_ID, Doctor_ID, Patient_ID, Nurse_ID, Treatment_ID, TreatmentResults, Notes)
VALUES('SER005', 'D005', 'P005', 'N005''TR005', 'Successful', ');
INSERT INTO Service_T(Service_ID, Doctor_ID, Patient_ID, Nurse_ID, Treatment_ID, TreatmentResults, Notes)
VALUES('SER006', 'D006', 'P006', 'N006''TR006', 'Successful', ');
INSERT INTO Service_T(Service_ID, Doctor_ID, Patient_ID, Nurse_ID, Treatment_ID, TreatmentResults, Notes)
VALUES('SER007', 'D007', 'P007', 'N007''TR007', 'Unsuccessfull', ');
INSERT INTO Service_T(Service_ID, Doctor_ID, Patient_ID, Nurse_ID, Treatment_ID, TreatmentResults, Notes)
VALUES('SER008', 'D008', 'P008', 'N008''TR008', 'Successful', ');
INSERT INTO Service_T(Service_ID, Doctor_ID, Patient_ID, Nurse_ID, Treatment_ID, TreatmentResults, Notes)
VALUES('SER009', 'D009', 'P009', 'N009''TR009', 'Unsuccessfull', ');
INSERT INTO Service_T(Service_ID, Doctor_ID, Patient_ID, Nurse_ID, Treatment_ID, TreatmentResults, Notes)
VALUES('SER010', 'D010', 'P010', 'N010''TR010', 'Successful', ');
```

Treatment

```
INSERT INTO (Treatment_ID, Medicine_ID)
VALUES('TR001', 'MED1', 'Current patient requires CT Scan');
INSERT INTO (Treatment_ID, Medicine_ID)
VALUES('TR002', 'MED2', 'Patient requires immediate heart transplant');
```

```
INSERT INTO (Treatment_ID, Medicine_ID)
VALUES('TR003', 'MED3', 'Electromyography test performed on patient. ');
```

```
INSERT INTO (Treatment_ID, Medicine_ID)
VALUES('TR004', 'MED4', 'Vision test for contact lenses');
```

```
INSERT INTO (Treatment_ID, Medicine_ID)
VALUES('TR005', 'MED5', 'Prescribed antidepressants to patient');
```

```
INSERT INTO (Treatment_ID, Medicine_ID)
VALUES('TR006', 'MED6', 'Another PT session to occur. Patient will attempt to
walk without assistance.');
```

```
INSERT INTO (Treatment_ID, Medicine_ID)
VALUES('TR007', 'MED7', 'Chest physiotherapy will be performed on patient.');
```

```
INSERT INTO (Treatment_ID, Medicine_ID)
VALUES('TR008', 'MED8', 'Patient will recieve cortisone injections to treat
a herniated disk.');
```

```
INSERT INTO (Treatment_ID, Medicine_ID)
VALUES('TR009', 'MED9', 'Patient with stomach infection, needs to be given antibiotics.');
```

```
INSERT INTO (Treatment_ID, Medicine_ID)
VALUES('TR010', 'MED10', 'Incoming patient with heart attack will recieve
clot-dissolving drugs ');
```

Generated Query Questions & Solutions

15. Show all names and cities of persons not living in Los Angeles, San Diego, or El Cajon

```
SELECT Name, City
From Person_T
Where City NOT IN ("Los Angeles", "San Diego", "El Cajon");
```

16. Display the medicine ID, drug name, drug description, and price of each medicine from lowest to highest value.

```
SELECT Medicine_T.Medicine_ID, DrugName, DrugDescription, MedicinePrice
FROM Medicine_T
ORDER BY MedicinePrice
```

17. List drug brand and medicine ID with more than average drug price

```
SELECT Medicine_T.DrugName, Medicine_ID, MedicinePrice
FROM Medicine_T
```

```
WHERE MedicinePrice > (SELECT AVG (MedicinePrice) FROM Medicine_T);
```

18. List all specialties of female doctors with the Specialty Title,Doctor Name, ID,Sex, and name,

```
SELECT DISTINCT SpecialtyTitle, Doctor_T.Doctor_ID,  Person_T.Name, Sex
FROM Specialty_T, Doctor_T, Person_T
WHERE Specialty_T.Specialty_ID = Doctor_T.Specialty_ID AND (Doctor_T.SSN = Person_T.SSN)
AND Person_T.Sex='F'
```

19. List all specialties of female doctors with the Specialty Title,Doctor Name, ID,Sex, and name,

```
SELECT DISTINCT SpecialtyTitle, Doctor_T.Doctor_ID,  Person_T.Name, Sex
FROM Specialty_T, Doctor_T, Person_T
WHERE Specialty_T.Specialty_ID = Doctor_T.Specialty_ID AND (Doctor_T.SSN = Person_T.SSN)
AND Person_T.Sex='F'
```

20. Count all patients that have the patient type “Outpatient”

```
SELECT PatientType, COUNT (*)
FROM Patient_T
GROUP BY PatientType
HAVING PatientType = "Outpatient"
```

21. If a nurse is assigned to a bed, and a bed is assigned to a patient in care center, show which nurse is assigned to which patient in terms of their IDs using joins. (If a nurse is not assigned to a patient, exclude it from the list)

```
SELECT Nurse_ID, Patient_ID
FROM BED_T
INNER JOIN CareCenter_T on BED_T.Bed_ID = CareCenter_T.Bed_ID
WHERE Patient_ID != "NULL"
```

22. What are the name, sex, address, and city of the person with the SSN of 123000005, also known as the best professor at CSUN.

```
SELECT name, age, sex, address, city
FROM Person_T
WHERE Person_T.SSN = (SELECT Person_T.SSN From Person_T WHERE Person_T.SSN =
123000005)
```

23. Do any nurses work in the pharmacy department “DP02?” If so, show their Nurse_IDs

```
SELECT Department_ID, Nurse_ID, Name, Sex
FROM Nurse_T,Person_T
WHERE EXISTS (select * from pharmacy_T where pharmacy_T.Nurse_ID = nurse_T.Nurse_ID
and Department_ID= "DP02") AND Nurse_T.SSN = Person_T.SSN
```

24. Display medicine_ID and the total amount >= 300 of each medicine

```
SELECT Medicine_ID, sum (MedicineQuantity*MedicinePrice) AS "Total Amount"
FROM Medicine_T
GROUP BY Medicine_ID
HAVING "Total Amount" >= 300
```

25. Combine the output to find the largest and smallest medicine quantity, label the column as “size”. Display their medicine_ID, medicine quantity, and drug description.

```
SELECT Medicine_ID, MedicineQuantity, DrugDescription, "largest quantity" AS Size
FROM Medicine_T
WHERE MedicineQuantity = (select max (MedicineQuantity) from Medicine_T)
UNION
SELECT Medicine_ID, MedicineQuantity, DrugDescription, "smallest quantity"
FROM Medicine_T
WHERE MedicineQuantity = (select min (MedicineQuantity) from Medicine_T)
```

26. Who are the people that live in Los Angeles and Simi Valley?

```
SELECT CASE
WHEN Person_T.City = "Los Angeles" THEN Name
WHEN Person_T.City = "Simi Valley" THEN Name
ELSE "###"
END AS "Name"
FROM Person_T
```

APPENDIX

APPENDIX A – DB BROWSER TABLE CODES

Name	Type	Schema
BED_T		CREATE TABLE "BED_T" ("Bed_ID" TEXT, "Department_ID" TEXT, "RoomNumber" INT, "Patient_ID" TEXT, PRIMARY KEY("Bed_ID"), FOREIGN KEY("Patient_ID") REFERENCES "Patient_T"("Patient_ID"), FOREIGN KEY("Department_ID") REFERENCES "Department_T"("Department_ID"))
Bed_ID	TEXT	"Bed_ID" TEXT
Department_ID	TEXT	"Department_ID" TEXT
RoomNumber	INT	"RoomNumber" INT
Patient_ID	TEXT	"Patient_ID" TEXT
CareCenter_T		CREATE TABLE "CareCenter_T" ("Department_ID" TEXT, "BED_ID" TEXT, "Nurse_ID" TEXT, PRIMARY KEY("Department_ID","BED_ID"), FOREIGN KEY("BED_ID") REFERENCES "BED_T"("Bed_ID"), FOREIGN KEY("Nurse_ID") REFERENCES "Nurse T"("Nurse ID"))
Department_ID	TEXT	"Department_ID" TEXT
BED_ID	TEXT	"BED_ID" TEXT
Nurse_ID	TEXT	"Nurse_ID" TEXT
Department_T		CREATE TABLE "Department_T" ("Department_ID" INT, "DeprtamentType" TEXT, PRIMARY KEY("Department_ID"))
Department_ID	INT	"Department_ID" INT
DeprtamentType	TEXT	"DeprtamentType" TEXT
Doctor_T		CREATE TABLE "Doctor_T" ("Doctor_ID" TEXT, "SSN" INT, "License" INT, "Specialty_ID" TEXT, "DateHire" DATE, PRIMARY KEY("Doctor_ID"), FOREIGN KEY("SSN") REFERENCES "Person_T"("SSN"), FOREIGN KEY("Specialty ID") REFERENCES "Specialty T"("Specialty ID"))
Doctor_ID	TEXT	"Doctor_ID" TEXT
SSN	INT	"SSN" INT
License	INT	"License" INT
Specialty_ID	TEXT	"Specialty_ID" TEXT
DateHire	DATE	"DateHire" DATE
Medicine_T		CREATE TABLE "Medicine_T" ("Medicine_ID" TEXT, "DrugName" TEXT, "DrugDescription" TEXT, "MedicinePrice" INT, "MedicineQuantity" INT, PRIMARY KEY("Medicine_ID"))
Medicine_ID	TEXT	"Medicine_ID" TEXT
DrugName	TEXT	"DrugName" TEXT
DrugDescription	TEXT	"DrugDescription" TEXT
MedicinePrice	INT	"MedicinePrice" INT
MedicineQuantity	INT	"MedicineQuantity" INT
Nurse_T		CREATE TABLE "Nurse_T" ("Nurse_ID" TEXT, "License" INT, "SSN" INT, "Department_ID" TEXT, PRIMARY KEY("Nurse_ID"), FOREIGN KEY("Department_ID") REFERENCES "Department_T"("Department_ID"), FOREIGN KEY("SSN") REFERENCES "Person_T"("SSN"))
Nurse_ID	TEXT	"Nurse_ID" TEXT
License	INT	"License" INT
SSN	INT	"SSN" INT
Department_ID	TEXT	"Department_ID" TEXT
OutPatient_T		CREATE TABLE "OutPatient_T" ("DischargeDate" DATE, "Patient_ID" TEXT, PRIMARY KEY("DischargeDate"), FOREIGN KEY("Patient_ID") REFERENCES "Patient_T"("Patient_ID"))
DischargeDate	DATE	"DischargeDate" DATE

Name	Type	Schema
Patient_ID	TEXT	"Patient_ID" TEXT
Patient_T		CREATE TABLE "Patient_T" ("Patient_ID" TEXT, "SSN" INT, "ArrivalDate" DATE, "PatientType" TEXT, PRIMARY KEY("Patient_ID"), FOREIGN KEY("SSN") REFERENCES "Person_T"("SSN"))
Patient_ID	TEXT	"Patient_ID" TEXT
SSN	INT	"SSN" INT
ArrivalDate	DATE	"ArrivalDate" DATE
PatientType	TEXT	"PatientType" TEXT
Person_T		CREATE TABLE "Person_T" ("SSN" INT, "Name" TEXT, "Age" INT, "Sex" TEXT, "Address" TEXT, "City" TEXT, "ZipCode" INT, "State" TEXT, "Email" TEXT, "Phone" INT, "PersonType" TEXT, PRIMARY KEY("SSN"))
SSN	INT	"SSN" INT
Name	TEXT	"Name" TEXT
Age	INT	"Age" INT
Sex	TEXT	"Sex" TEXT
Address	TEXT	"Address" TEXT
City	TEXT	"City" TEXT
ZipCode	INT	"ZipCode" INT
State	TEXT	"State" TEXT
Email	TEXT	"Email" TEXT
Phone	INT	"Phone" INT
PersonType	TEXT	"PersonType" TEXT
Pharmacy_T		CREATE TABLE "Pharmacy_T" ("Department_ID" TEXT, "Medicine_ID" TEXT, "Nurse_ID" TEXT, PRIMARY KEY("Department_ID","Medicine_ID"), FOREIGN KEY("Nurse_ID") REFERENCES "Nurse_T"("Nurse_ID"), FOREIGN KEY("Medicine ID") REFERENCES "Medicine T"("Medicine ID"))
Department_ID	TEXT	"Department_ID" TEXT
Medicine_ID	TEXT	"Medicine_ID" TEXT
Nurse_ID	TEXT	"Nurse_ID" TEXT
Resident_T		CREATE TABLE "Resident_T" ("DateAdmited" DATE, "Patient_ID" TEXT, PRIMARY KEY("DateAdmited"), FOREIGN KEY("Patient_ID") REFERENCES "Patient T"("Patient ID"))
DateAdmited	DATE	"DateAdmited" DATE
Patient_ID	TEXT	"Patient_ID" TEXT
Service_T		CREATE TABLE "Service_T" ("Service_ID" TEXT, "Doctor_ID" TEXT, "Patient_ID" TEXT, "Treatment_ID" TEXT, "TreatmentResults" TEXT, PRIMARY KEY("Service_ID"), FOREIGN KEY("Patient_ID") REFERENCES "Patient_T"("Patient_ID"), FOREIGN KEY("Doctor_ID") REFERENCES "Doctor_T"("Doctor_ID"), FOREIGN KEY("Treatment_ID") REFERENCES "Treatment T"("Treatment ID"))
Service_ID	TEXT	"Service_ID" TEXT
Doctor_ID	TEXT	"Doctor_ID" TEXT
Patient_ID	TEXT	"Patient_ID" TEXT
Treatment_ID	TEXT	"Treatment_ID" TEXT
TreatmentResults	TEXT	"TreatmentResults" TEXT
Specialty_T		CREATE TABLE "Specialty_T" ("Specialty_ID" INT, "SpecialtyTitle" TEXT, "Description" TEXT, PRIMARY KEY("Specialty_ID"))
Specialty_ID	INT	"Specialty_ID" INT

SpecialtyTitle	TEXT	"SpecialtyTitle" TEXT

Name	Type	Schema
Description	TEXT	"Description" TEXT
Treatment_T		CREATE TABLE "Treatment_T" ("Treatment_ID" TEXT, "TreatmentDescription" TEXT, "Medicine_ID" TEXT, "Service_ID" TEXT, PRIMARY KEY("Treatment_ID"), FOREIGN KEY("Service_ID") REFERENCES "Service_T"("Service_ID"), FOREIGN KEY("Medicine_ID") REFERENCES "Medicine_T"("Medicine_ID"))
Treatment_ID	TEXT	"Treatment_ID" TEXT
TreatmentDescription	TEXT	"TreatmentDescription" TEXT
Medicine_ID	TEXT	"Medicine_ID" TEXT
Service_ID	TEXT	"Service_ID" TEXT

APPENDIX B – DB BROWSER