
Project Documentation

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1. Problem Description

Design, develop, and test **Hospital Management System** to maintain the records of various departments, rooms, and doctors in the hospital based on combined database. The project is in four parts: conceptual database design (Phase I), logical database design (Phase II), Oracle relational database implementation (Phase III), and final report & demo (Phase IV).

2. Questions

2.1 1. Is the ability to model super-class / subclass relationships likely to be important in such environment?

Why or why not?

Yes, superclass and subclass relationships are important in this database environment. We have several examples of subclasses in our model, such as all the different types of employees (Doctor, Nurse, Receptionist, Accountant, etc) that are derived from the Employee relation. Inpatient and Outpatient are also both subclasses of Patient. Superclasses and subclasses will always be important in any miniworld where entities can be categorized and broken down. It is an efficient designing method and greatly helps the database keep a simple structure and avoid redundancy with similar entities.

2.2 2. Can you think of 5 more rules (other than the one explicitly described above) that are likely to be used in this environment? Add your rules to the above requirement to be implemented.

(We assume the “school environment” phrase is incorrect, and is supposed to refer to our hospital database.)

1. Create an entity D_N, a union of Doctor and Nurse, which connects to the relations Works_in and Treats_in. This reduces the degree of the relationship, making it easier to work with.
2. Have a bill accumulator that can take monetary values from appointments, medicine, tests, etc. The Accountant handles the Bill which can store these values, and it is connected to Account as well.
3. The Hospital may have relationships with outside companies, such as one that handles maintenance and repairs or one that provides them with hospital equipment.
4. We can further expand this by adding an Equipment entity. This keeps track of how much of what types of equipment the hospital has stored, who they buy it from, its cost, date of purchase, and so on.
5. A Visitor entity that keeps track of who visits the hospital, the date, and which inpatient they sign in to see.

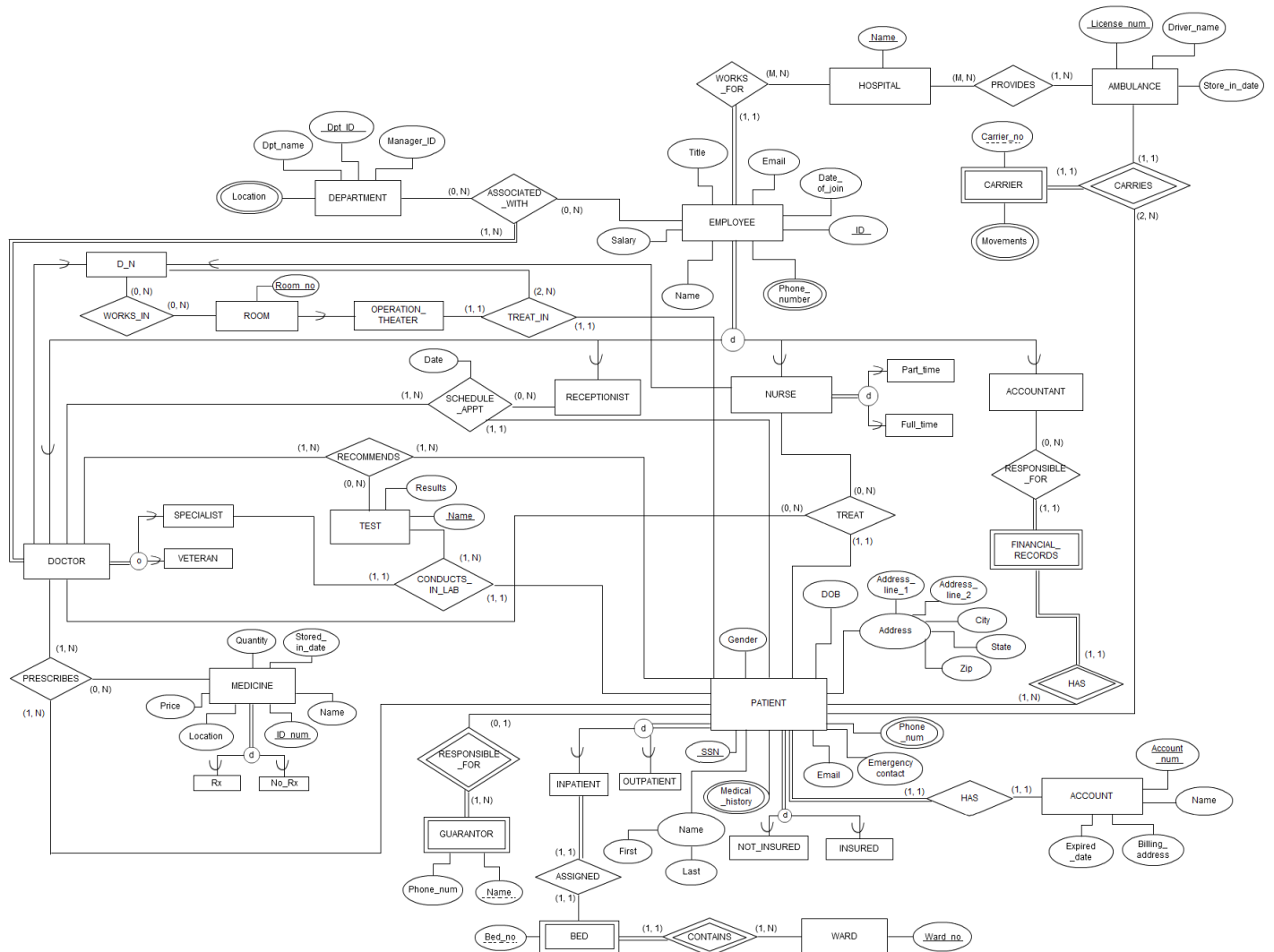
2.3 Justify using a Relational DBMS like Oracle for this project.

For example, the Visitor entity can have the attributes First_name, Last_name, Patient_name, Phone_no, Date_of_visit. The Visits relationship is connected to Patient, Visitor, and Receptionist. The Equipment entity would be quite large and can have subclasses based on types of equipment. Attributes could include Name, Amount, Date_purchased, Price, Brand, Expire_date, Location. It could be employed in relationships such as Buy_from (connected to an outside company) and Used_on (connected to a Patient).

3. EER diagram with all assumptions

Assumptions:

- Not all nurses conduct tests for patients
- Employees include doctors, nurses, receptionists, accounts, and patient carriers. These are all disjoint entities.
- All doctors treat patients.
- The pay for part-time nurses is also depicted as 'salary'.
- A patient's Medical History can have multiple values.
- Other than where it is specifically depicted as a composite attribute, attributes are single value when the names are the same. Example: Guarantor[Name] = single value , but Patient[Name] = composite value.
- At any given time, a particular medicine cannot be in multiple locations. (Medicine[Location] is a single value)
- Patients take all medicine that the doctor prescribes.



4. Relational Schema in Third Normal Form

4.1 Relational Schema

EMPLOYEE

<u>Emp_ID</u>	Date_of_join	Email	Title	FName	LName	Salary	Hospital_name	DOB
---------------	--------------	-------	-------	-------	-------	--------	---------------	-----

NURSE

<u>Nurse_ID</u>	Emp_type
-----------------	----------

DOCTOR

<u>Doc_ID</u>	Sflag	Vflag
---------------	-------	-------

DEPARTMENT

Dpt_ID	Dpt_name	Manager_ID
---------------	----------	-------------------

MEDICINE

Med_ID	Name	Stored_in_date	Quantity	Price	Location	Rx_type
---------------	------	----------------	----------	-------	----------	---------

APPOINTMENT

Doc_ID	Act_ID	PSSN	Date	Time
---------------	--------	-------------	------	------

PATIENT

SSN	First_name	Last_name	DOB	Gender	Email	Insured_type	Guaran_name
	Address_line_1	Address_line_2	City	State	Zip	Emerg_contact	Account_no

INPATIENT

PSSN	Bed_no
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GUARANTOR

Guaran_name	PSSN	Guaran_phone
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ACCOUNT

Account_no	Name	Billing_address	Expired_date
-------------------	------	-----------------	--------------

AMBULANCE

Driver_ID	Store_in_date	License_no
-----------	---------------	-------------------

CARRIER

Carrier_no	License_no	PSSN
-------------------	-------------------	-------------

CARRIER_MOVEMENTS

Carrier_mov	Carrier_no
-------------	-------------------

CARRIES

Carrier_no	License_no	PSSN
-------------------	-------------------	-------------

DPT_LOCATIONS

Dpt_loc	Dpt_ID
---------	---------------

ASSOCIATED_WITH

Emp_ID	Dpt_ID
---------------	---------------

EMP_PHONE_NO

Emp_phone	Emp_ID
------------------	---------------

RECEPTIONIST

Recep_ID

ACCOUNTANT

Act ID

DRIVER

Driver ID

D_N

Emp ID

TREATS

Doc ID Nurse ID PSSN

PRESCRIBES

Med ID Doc ID PSSN

TEST

Results Test name

RECCOMENDS

Doc ID Test name PSSN

CONDUCTS_IN_LAB

Doc ID Test name PSSN

FINANCIAL_RECORDS

PSSN Act ID

ROOM

Room no

OPERATION_THEATER

Room no

WORKS_IN

Emp ID Room no

TREAT_IN

Doc ID Nurse ID PSSN Room no Date

OUTPATIENT

PSSN

PAT_PHONE_NO

Pat phone PSSN

PAT_MEDICAL_HISTORY

Pat history PSSN

BED

Bed_no WardNo

WARD

Ward_no

BILL

Act_ID | **Account_No** | **Bill_amt**

4.2 Format for Every Relation

Relation Names	Attributes	Data Type
Department	Dpt_ID	XXX-XXXXX, string = 9 chars
	Dpt_name	string <= 20 chars
	Manager_ID	XXXXXXXXXX, string = 10 chars
Hospital	Hospital_name	string <= 20 chars
Ambulance	License_no	XXX-XXXX, string = 8 chars
	Driver_name	string <= 20 chars
	Store_in_date	MM-DD-YYYY, string = 10 chars
Employee	Emp_ID	XXXXXXXXXX, string = 10 chars
	Name	string <= 20 chars
	Title	string <= 20 chars
	Email	string <= 20 chars
	Date_of_join	MM-DD-YYYY, string = 10 chars
	Salary	double <= 10 digits
	Hospital_name	string <= 20 chars
Accountant	Act_ID	XXXXXXXXXX, string = 10 chars
Receptionist	Recep_ID	XXXXXXXXXX, string = 10 chars
Driver	Driver_ID	XXXXXXXXXX, string = 10 chars
Nurse	Nurse_ID	XXXXXXXXXX, string = 10 chars
	Emp_type	Boolean (true = full-time, false = part-time)
Doctor	Doc_ID	XXXXXXXXXX, string = 10 chars
	Sflag	Boolean
	Vflag	Boolean
D_N	Emp_ID	XXXXXXXXXX, string = 10 chars
Patient	SSN	XX-XX-XXXX, string = 10 chars
	First_name	string <= 20 chars
	Last_name	string <= 20 chars
	Gender	M F
	DOB	MM-DD-YYYY, string = 10 chars
	Address_line_1	string <= 20 chars
	Address_line_2	string <= 20 chars
	City	string <= 20 chars
	State	string <= 20 chars
	Zip	XXXXX, int = 5 digits
	Email	string <= 20 chars
	Emerg_contact	XXX-XXX-XXXX, string = 12 chars
	Insured_type	Boolean (true = insured, false = not)
	Account_no	XXXXXXXXXX, string = 10 chars
	Guarantor_name	string <= 20 chars
Inpatient	PSSN	XX-XX-XXXX, string = 10 chars

	Bed_no	XXXX, string = 4 chars
Outpatient	PSSN	XX-XX-XXXX, string = 10 chars
Room	Room_no	XXXX, string = 4 chars
Operation_Theater	Room_no	XXXX, string = 4 chars
Medicine	Med_ID	XXXX, string = 4 chars
	Quantity	int <= 10 digits
	Stored_in_date	MM-DD-YYYY, string = 10 chars
	Name	string <= 20 chars
	Location	string <= 20 chars
	Price	int <= 10 digits
	Rx_type	Boolean (true = Rx, false = not)
Account	Account_no	XXXXXXXXXX, string = 10 chars
	Name	string <= 20 chars
	Billing_address	string <= 20 chars
	Expired_date	MM-DD-YYYY, string = 10 chars
Ward	Ward_no	XXXX, string = 4 chars
Test	Test_name	string <= 20 chars
	Results	string <= 20 chars
Carrier	Carrier_no	XXX-XXXX, string = 8 chars
	License_no	XXX-XXXX, string = 8 chars
	PSSN	XX-XX-XXXX, string = 10 chars
Financial_records	PSSN	XX-XX-XXXX, string = 10 chars
	Act_ID	XXXXXXXXXX, string = 10 chars
Guarantor	Guarantor_name	string <= 20 chars
	PSSN	XX-XX-XXXX, string = 10 chars
	Guaran_phone	XXX-XXX-XXXX, string = 12 chars
Bed	Bed_no	XXXX, string = 4 chars
	Ward_no	XXXX, string = 4 chars
Dpt_locations	Dpt_loc	string <= 20 chars
	Dpt_ID	XXX-XXXXX, string = 9 chars
Emp_phone_no	Emp_phone	XXX-XXX-XXXX, string = 12 chars
	Emp_ID	XXXXXXXXXX, string = 10 chars
Carrier_movements	Carrier_no	XXX-XXXX, string = 8 chars
	Carrier_mov	string <= 20 chars
Pat_phone_no	Pat_phone	XXX-XXX-XXXX, string = 12 chars
	PSSN	XX-XX-XXXX, string = 10 chars
Pat_medical_history	Pat_history	string <= 20 chars
	PSSN	XX-XX-XXXX, string = 10 chars
Carries	Carrier_no	XXX-XXXX, string = 8 chars
	License_no	XXX-XXXX, string = 8 chars
	PSSN	XX-XX-XXXX, string = 10 chars
Treats	Nurse_ID	XXXXXXXXXX, string = 10 chars
	Doc_ID	XXXXXXXXXX, string = 10 chars
	PSSN	XX-XX-XXXX, string = 10 chars
Appointment	Doc_ID	XXXXXXXXXX, string = 10 chars
	Recep_ID	XXXXXXXXXX, string = 10 chars
	PSSN	XX-XX-XXXX, string = 10 chars
	Date	MM-DD-YYYY, string = 10 chars
Prescribes	Doc_ID	XXXXXXXXXX, string = 10 chars
	Med_ID	XXXXXXXXXX, string = 10 chars
	PSSN	XX-XX-XXXX, string = 10 chars

Recommends	Doc_ID	XXXXXXXXXX, string = 10 chars
	Test_name	string <= 20 chars
	PSSN	XX-XX-XXXX, string = 10 chars
Conducts_in_lab	Doc_ID	XXXXXXXXXX, string = 10 chars
	Test_name	string <= 20 chars
	PSSN	XX-XX-XXXX, string = 10 chars
Treat_in	Doc_ID	XXXXXXXXXX, string = 10 chars
	Nurse_ID	XXXXXXXXXX, string = 10 chars
	PSSN	XX-XX-XXXX, string = 10 chars
	Room_no	XXXX, string = 4 chars
Bill	Act_ID	XXXXXXXXXX, string = 10 chars
	Account_no	XXXXXXXXXX, string = 10 chars
	Bill_amt	double <= 10 digits

5. All Requested SQL Statements

5.1 Creation of Database with SQL Statements

5.1.1 Table Creation

- Department:**

CREATE TABLE Department

```
( Dpt_ID          char(9)          not null,
  Dpt_name        varchar(20)       not null,
  Manager_ID      char(10)
PRIMARY KEY (Dpt_ID),
UNIQUE (Dpt_name));
```

- Hospital:**

CREATE TABLE Hospital

```
( Hospital_name    varchar(20)      not null,
PRIMARY KEY (Hospital_name));
```

- Ambulance:**

CREATE TABLE Ambulance

```
( License_No       char(8)          not null,
  Driver_ID        char(10)         Not null,
  Store_in_date    Date
PRIMARY KEY (License_No));
FOREIGN KEY (Driver_ID) REFERENCESS Employee(Emp_ID));
```

- **Employee:**

CREATE TABLE Employee

```
( Emp_ID          char(10)          not null,
  FName           varchar(20)        not null,
  LName           varchar(20)        not null,
  Title           varchar(20)        not null,
  Date_of_join    Date
  Salary          binary_double
  DOB             Date
  Hospital_name   varchar(20)
PRIMARY KEY (Emp_ID),
UNIQUE (Email));
```

- **Accountant:**

CREATE TABLE Accountant

```
( Act_ID          char(10)          not null,
FOREIGN KEY (Act_ID) REFERENCES Employee(Emp_ID));
```

- **Receptionist:**

CREATE TABLE Receptionist

```
( Recep_ID        char(10)          not null,
FOREIGN KEY (Recep_ID) REFERENCES Employee(Emp_ID));
```

- **Nurse:**

CREATE TABLE Nurse

```
( Nurse_ID        char(10)          not null,
  Emp_type        Boolean
FOREIGN KEY (Nurse_ID) REFERENCES Employee(Emp_ID));
```

- **Doctor:**

CREATE TABLE Doctor

```
( Doc_ID          char(10)          not null,
  Sflag           Boolean
  Vflag           Boolean
FOREIGN KEY (Doc_ID) REFERENCES Employee(Emp_ID));
```

- **Patient:**

CREATE TABLE Patient

(SSN	char(10)	not null,
First_name	varchar(20)	not null,
Last_name	varchar(20)	not null,
Gender	char(1)	
DOB	Date	
Address_line_1	varchar(20)	
Address_line_2	varchar(20)	
City	varchar(20)	
State	varchar(20)	
Zip	int	
Email	varchar(20)	
Emerg_contact	char(12)	
Insured_type	Boolean	
Account_no	char(10)	
Guaran_name	varchar(20)	

PRIMARY KEY (SSN),

UNIQUE (Address_line_1),

UNIQUE (Email),

UNIQUE (Account_no),

FOREIGN KEY (Guaran_name) REFERENCES Guarantor(Guaran_name)

CHECK (Gender in('M', 'F')));

- **Inpatient:**

CREATE TABLE Inpatient

(PSSN	char(10)	not null,
Bed_no	char(4)	not null,
Date_admitted	Date	

FOERIGN KEY (PSSN) REFERENCES Patient (SSN),

FOREIGN KEY (Bed_no) REFERENCES Bed(BedNo));

- **Outpatient:**

CREATE TABLE Outpatient

(PSSN	char(10)	not null,
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FOERIGN KEY (PSSN) REFERENCES Patient(SSN));

- **Room:**

CREATE TABLE Room

(RoomNo	char(4)	not null,
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PRIMARY KEY (RoomNo));

- **Operation_Theater:**

CREATE TABLE Operation_Theater

(Room_no char(4) not null,
FOERIGN KEY (Room_no) REFERENCES Room(RoomNo));

- **Medicine:**

CREATE TABLE Medicine

(Med_ID char(4) not null,
Quantity int
Stored_in_date Date
Name varchar(20)
Location varchar(20)
Price int
Rx_type Boolean
PRIMARY KEY (Med_ID),
UNIQUE (Name));

- **Account:**

CREATE TABLE Account

(Account_no char(10) not null,
Name varchar(20) not null,
Billing_address varchar(20) not null,
Expired_date Date not null,
PRIMARY KEY (Account_no));

- **Ward:**

CREATE TABLE Ward

(Ward_no char(4) not null,
PRIMARY KEY (Ward_no));

- **Test:**

CREATE TABLE Test

(Test_name varchar(20) not null,
Results varchar(20)
PRIMARY KEY (Test_name));

- **Carrier:**

CREATE TABLE Carrier

```
( Carrier_no          char(8)          not null,
  License_no          char(8)          not null,
  PSSN                char(10)         not null,
PRIMARY KEY (Carrier_no, License_no, PSSN),
FOREIGN KEY (License_no) REFERENCES Ambulance(License_No),
FOREIGN KEY (PSSN) REFERENCES Patient (SSN));
```

- **Financial_records:**

CREATE TABLE Financial_records

```
( PSSN                char(10)         not null,
  Act_ID              char(10)         not null,
  Record_date         Date
PRIMARY KEY (ActID, PSSN),
FOREIGN KEY (PSSN) REFERENCES Patient (SSN),
FOREIGN KEY (ActID) REFERNCE Accountant(Act_ID));
```

- **Guarantor:**

CREATE TABLE Guarantor

```
( Guaran_name         varchar(20)       not null,
  PSSN                char(10)         not null,
  Guaran_phone        char(12)
PRIMARY KEY (Guaran_name, PSSN),
FOREIGN KEY (PSSN) REFERENCES Patient (SSN));
```

- **Bed:**

CREATE TABLE Bed

```
( BedNo              char(4)          not null,
  WardNo             char(4)          not null
PRIMARY KEY (BedNo, WardNo),
FOREIGN KEY (WardNo) REFERENCES Ward(Ward_no));
```

- **Dpt_locations:**

CREATE TABLE Dpt_locations

```
( Dpt_loc            varchar(20)       not null,
  DptID              char(9)          not null,
PRIMARY KEY (Dpt_ID),
FOREIGN KEY (DptID) REFERENCES Department(Dpt_ID)
```

- **Emp_phone_no:**

CREATE TABLE Emp_phone_no

```
( Emp_phone          char(12)          not null,
  EmpID              char(10)          not null,
 PRIMARY KEY (Emp_phone, EmpID),
 FOREIGN KEY (EmpID) REFERENCES Employee(Emp_ID),
 UNIQUE (Emp_phone));
```

- **Carrier_movements:**

CREATE TABLE Carrier_movements

```
( CarrierNo          char(8)          not null,
  Carrier_mov        varchar(20)       not null,
 PRIMARY KEY (CarrierNo),
 FOREIGN KEY (CarrierNo) REFERENCES Carrier(Carrier_no));
```

- **Pat_phone_no:**

CREATE TABLE Pat_phone_no

```
( Pat_phone          char(12)
  PSSN               char(10)          not null,
 PRIMARY KEY (PSSN),
 FOREIGN KEY (PSSN) REFERENCES Patient (SSN));
```

- **Pat_medical_history:**

CREATE TABLE Pat_medical_history

```
( Pat_history        varchar(20)
  PSSN               char(10)          not null,
 PRIMARY KEY (PSSN),
 FOREIGN KEY (PSSN) REFERENCES Patient (SSN));
```

- **Carries:**

CREATE TABLE Carries

```
( CarrierNo          char(8)          not null,
  LicenseNo          char(8)          not null,
  PSSN               char(10)          not null,
 PRIMARY KEY (CarrierNo, LicenseNo, PSSN),
 FOREIGN KEY (LicenseNo) REFERENCES Ambulance(License_no),
```

FOREIGN KEY (CarrierNo) REFERENCES Carrier(Carrier_no),
FOREIGN KEY (PSSN) REFERENCES Patient (SSN));

- **Treats:**

CREATE TABLE Treats

(Nurse_ID char(10) not null,
Doc_ID char(10) not null,
PSSN char(10) not null
PRIMARY KEY (Nurse_ID, Doc_ID, PSSN),
FOREIGN KEY (Nurse_ID) REFERENCES Employee(Emp_ID),
FOREIGN KEY (Doc_ID) REFERENCES Employee(Emp_ID),
FOREIGN KEY (PSSN) REFERENCES Patient (SSN));

- **Appointment:**

CREATE TABLE Appointment

(Doc_ID char(10) not null,
RecepID char(10)
PSSN char(10) not null,
Date Date not null,
Time Time not null
PRIMARY KEY (Doc_ID, RecepID, PSSN),
FOREIGN KEY (Doc_ID) REFERENCES Employee(Emp_ID),
FOREIGN KEY (RecepID) REFERENCES Employee(Emp_ID),
FOREIGN KEY (PSSN) REFERENCES Patient (SSN));

- **Prescribes:**

CREATE TABLE Prescribes

(Doc_ID char(10) not null,
MedID char(10) not null,
PSSN char(10)
PRIMARY KEY (Doc_ID, MedID, PSSN),
FOREIGN KEY (Doc_ID) REFERENCES Employee (Emp_ID),
FOREIGN KEY (MedID) REFERENCES Employee (Med_ID),
FOREIGN KEY (PSSN) REFERENCES Patient (SSN));

- **Conducts_in_lab:**

CREATE TABLE Conducts_in_lab

```
( Doc_ID          char(10)          not null,
  TestName        varchar(20)       not null,
  PSSN            char(10)          not null,
```

```
PRIMARY KEY (Doc_ID, TestName, PSSN),
FOREIGN KEY (Doc_ID) REFERENCES Employee (Emp_ID),
FOREIGN KEY (PSSN) REFERENCES Patient(SSN),
FOREIGN KEY (TestName) REFERENCES Test(Test_name));
```

- **Treat_in:**

CREATE TABLE Treat_in

```
( Doc_ID          char(10)          not null,
  Nurse_ID        char(10)          not null,
  PSSN            char(10)          not null,
  Room_no         char(4)           not null,
  Treat_date      Date
```

```
PRIMARY KEY (Doc_ID, Nurse_ID, Room_no, PSSN),
FOREIGN KEY (Doc_ID) REFERENCES Employee (Emp_ID),
FOREIGN KEY (Nurse_ID) REFERENCES Employee (Emp_ID),
FOREIGN KEY (PSSN) REFERENCES Patient(SSN),
FOREIGN KEY (Room_no) REFERENCES Room(RoomNo));
```

- **Bill:**

CREATE TABLE Bill

```
( Act_ID          char(10)
  Account_no      char(10)          not null,
  Bill_amt        double            not null,
```

```
PRIMARY KEY (Act_ID, Account_no),
FOREIGN KEY (Act_ID) REFERENCES Employee (Emp_ID),
FOREIGN KEY (Account_no) REFERENCES Account (Account_no));
```

- **Recommends:**

CREATE TABLE Recommends

```
( Doc_ID          char(10)          not null,
  TestName        varchar(20)       not null,
  PSSN            char(10)          not null,
```


PRIMARY KEY (Doc_ID, TestName, PSSN),
FOREIGN KEY (Doc_ID) REFERENCES Employee (Emp_ID),
FOREIGN KEY (PSSN) REFERENCES Patient (SSN),
FOREIGN KEY (TestName) REFERENCES Test(Test_name));

5.1.2 A Database State

Employee

Emp_ID	FName	LName	Title	Email	Date_of_join	Salary
000000000	Emily	Navathe	Doctor	EN000000@DB.com	1999-04-30	120000
111111111	Tom	Brown	Doctor	TB111111@DB.com	2002-09-12	115000
222222222	Jimmy	Johnson	Accountant	JJ222222@DB.com	2009-06-19	41000
333333333	Sally	Smith	Receptionist	SS333333@DB.com	2010-07-09	20000
444444444	Jeniffer	Smack	Accountant	JS444444@DB.com	2002-10-11	39000
555555555	Samuel	Sunder	Doctor	SS555555@DB.com	2000-01-24	118000
666666666	Raja	Farage	Doctor	RF666666@DB.com	1996-05-05	122000
777777777	Kenneth	Chenault	Receptionist	KC777777@DB.com	2008-09-13	22000
888888888	Brett	Cotton	Nurse	BC888888@DB.com	2002-06-21	85000
999999999	Adam	Daley	Nurse	AD999999@DB.com	2010-09-17	80000

Department

Dpt_ID	Dpt_name	Manager_ID
000-00000	General Services	0000000000
111-11111	Emergency Department	5555555555
222-22222	Coronary Department	7777777777
333-33333	Pediatrics Department	8888888888
444-44444	On-call Department	2222222222
555-55555	Psychiatric Department	3333333333

Patient

SSN	FName	LName	Gender	DOB	Email	Insured_type
00-00-0000	Sam	Jaeger	M	1990-09-27	SaJa@gmail.com	T
11-11-1111	Kevin	Smith	M	1978-12-03	KeSm@gmail.com	T
22-22-2222	Sally	Johnson	F	1993-05-30	SaJo@gmail.com	F
33-33-3333	Christie	Hoover	F	1985-03-28	CrHo@gmail.com	T
44-44-4444	Jenny	Brown	F	1992-11-13	JeBr@gmail.com	F
55-55-5555	Mark	Springer	M	1979-02-18	MaSp@gmail.com	T

Patient (cont)

Address_line_1	Address_line_2	City	State	Zip	Account_no	Guaran_name
1836 Spring St.	null	Plano	TX	75025	3756295628	Erwin J
3856 Circle Dr.	APT 3641	Dallas	TX	75231	5835028564	Lance K
3232 Nada Ln.	null	Irving	TX	75327	4867264967	William R
2644 Phoenix Dr.	APT 2745	Frisco	TX	75028	4857620195	Jenny L
4624 Lane St.	null	Houston	TX	79261	2847105867	Lily H
3532 Rain Ln.	null	Dallas	TX	75282	2857361045	Mary V

5.2 Creation of Views

1. CREATE VIEW Inpatients10

AS SELECT PSSN, First_Name, Last_Name, Date_admitted

FROM Patient, Inpatient

WHERE Inpatient.PSSN=Patient.SSN AND Date_admitted LIKE '___-____-10';

2. CREATE VIEW Surgery10

AS SELECT Doc_ID, FName, LName, Treat_date

FROM Employee, Treat_in

WHERE Treat_date > '01-jan-10' AND Employee.Emp_ID=Treat_in.Doc_ID;

3. CREATE VIEW Bills10

AS SELECT Account_No, Bill_date, Bill_amt

FROM Bill

WHERE Bill_date LIKE '___-____-10';

4. CREATE VIEW PrescribedMeds

AS SELECT Medicine.Med_ID, Name, Doc_ID, PSSN

FROM Medicine, Prescribes W

WHERE Medicine.Med_ID=Prescribes.Med_ID;

5.3 Creation of Sample SQL Queries

1. Select Nurse_ID, FName, LName

FROM Employee, Nurse

WHERE NURSE_ID=Emp_ID AND City='Dallas';

2. SELECT First_name, Last_name, Address_line_1, Address_line_2, City, State,
ZIP, Ward_no

FROM Inpatient, Patient, Bed

WHERE Bedno=Bed_no AND PSSN=SSN AND Ward_no='20' AND
Date_admitted BETWEEN '01-jan-10' AND '31-mar-10';

3. SELECT Emp_ID, FName, LName
FROM Employee
WHERE Salary > (
 SELECT Avg(Salary)
 FROM Employee);

4. SELECT First_name, Last_name
FROM Patient, Treat_in, Operation_theater
WHERE Doc_ID='1234567890' AND PSSN=SSN AND Roomno='111';

5. SELECT FName, LName
FROM Employee, Driver
WHERE (SYSDate - DOB) > 50 AND Driver_ID=Emp_ID;

6. SELECT count(*) AS NumAmbulances
From Ambulance
WHERE Dispatch_date LIKE '___-___-10';

7. Select Distinct SSN
FROM Patient, Guarantor
WHERE PSSN=SSN AND Insured_type='T';

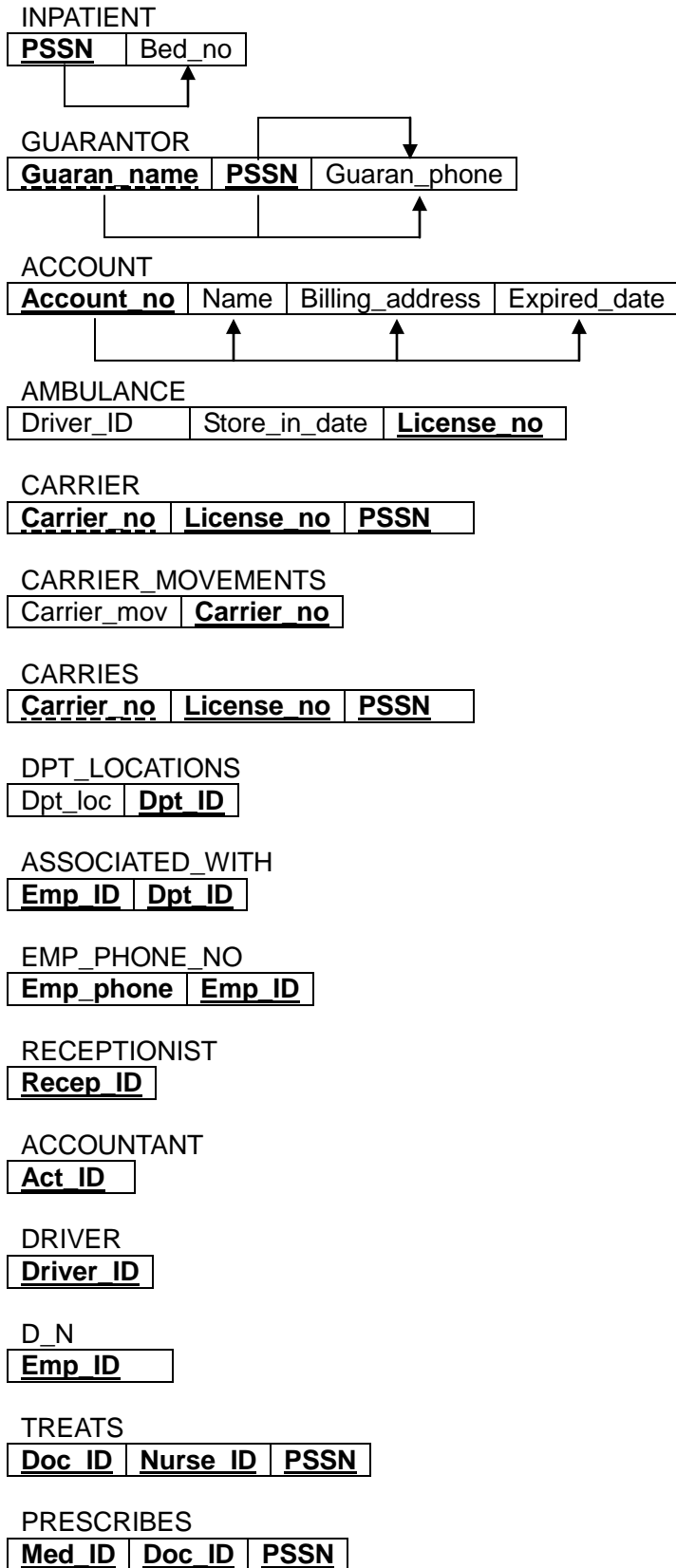
8. SELECT Name
FROM Medicine, Prescribes
WHERE Medicine.Med_id=Prescribes.Med_ID AND rownum <=1
ORDER BY Med_ID;

9. SELECT Distinct SSN, First_name, Last_name, Email

```
WHERE Patient.Account_no=Bill.account_no AND Bill.Account_no =
Account.Account_no AND Bill_amt>10000;
```

6. Dependency Diagram

<u>SSN</u>	First_name	Last_name	DOB	Gender	Email	Insured_type_	Guaran_name
	Address_line_1	Address_line_2	City	State	Zip	Emerg_contact	Account_no



TEST

Results	<u>Test name</u>
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RECCOMENDS

<u>Doc ID</u>	<u>Test name</u>	<u>PSSN</u>
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CONDUCTS_IN_LAB

<u>Doc ID</u>	<u>Test name</u>	<u>PSSN</u>
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FINANCIAL_RECORDS

<u>PSSN</u>	<u>Act ID</u>
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ROOM

<u>Room no</u>

OPERATION_THEATER

<u>Room no</u>

WORKS_IN

<u>Emp ID</u>	<u>Room no</u>
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TREAT_IN

<u>Doc ID</u>	<u>Nurse ID</u>	<u>PSSN</u>	<u>Room no</u>	Date
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OUTPATIENT

<u>PSSN</u>

PAT_PHONE_NO

<u>Pat_phone</u>	<u>PSSN</u>
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PAT_MEDICAL_HISTORY

<u>Pat_history</u>	<u>PSSN</u>
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BED

<u>Bed_no</u>	<u>WardNo</u>
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WARD

<u>Ward_no</u>

BILL

<u>Act ID</u>	<u>Account No</u>	Bill_amt
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