DBMS Project

Date: **16/04/2023** **Group:** **1_15**

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Objective:- **Relational Schema Diagram of Hospital Management System**

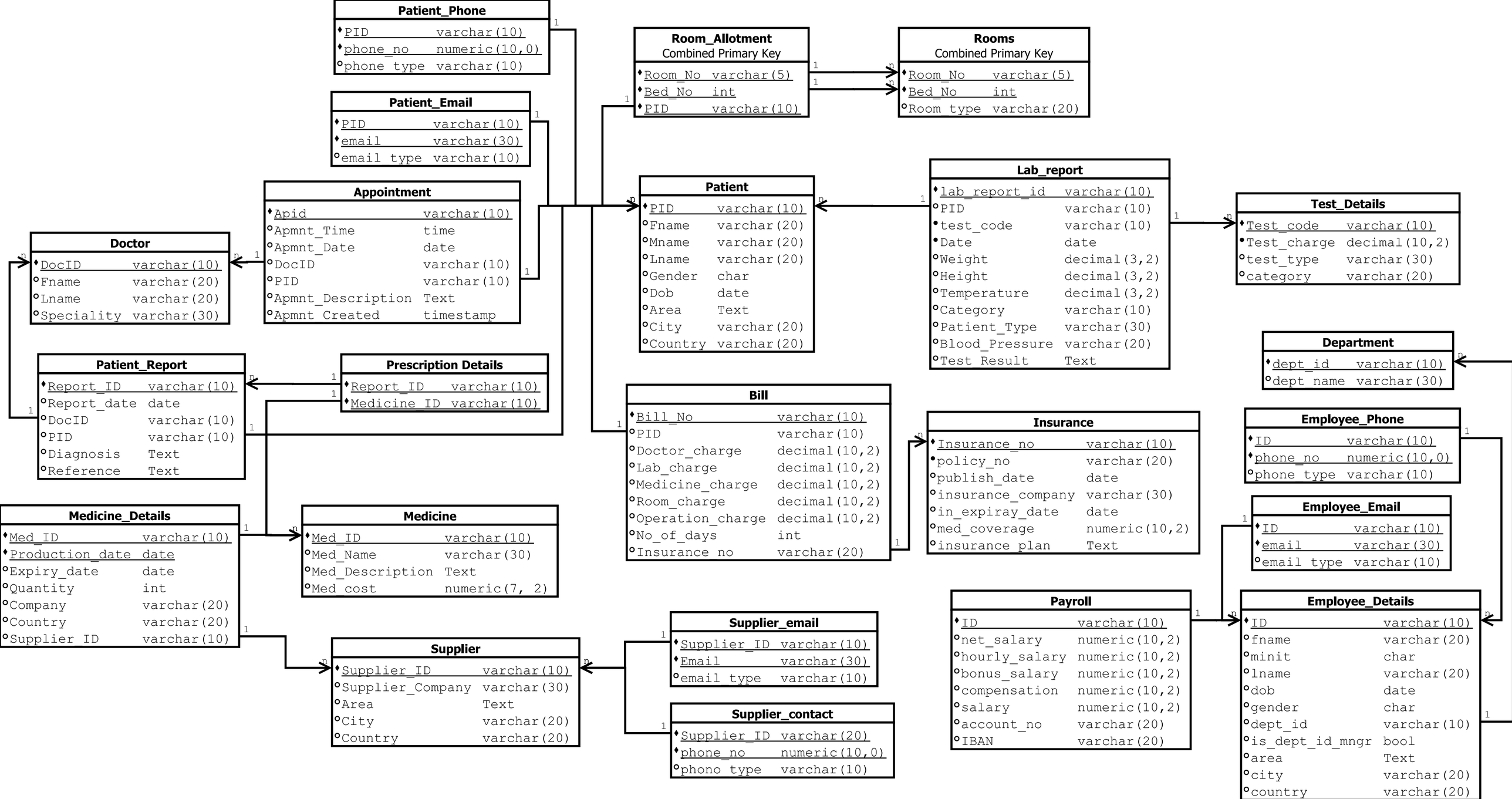
Submission should include following -

(1) Relational Schema

(2) Minimal FD Set

(3) Proof that relations are in BCNF.

(4) DDL Scripts


Patient_Phone
PID varchar(10)
phone_no numeric(10,0)
phone type varchar(10)
Patient_Email
PID varchar(10)
email varchar(30)
email type varchar(10)
Room_Allotment
Combined Primary Key
Room_No varchar(5)
Bed_No int
PID varchar(10)
Rooms
Combined Primary Key
Room_No varchar(5)
Bed_No int
Room type varchar(20)
Appointment
Apid varchar(10)
Apmnt_Time time
Apmnt_Date date
DocID varchar(10)
PID varchar(10)
Apmnt_Description Text
Apmnt_Created timestamp
Patient
PID varchar(10)
Fname varchar(20)
Mname varchar(20)
Lname varchar(20)
Gender char
Dob date
Area Text
City varchar(20)
Country varchar(20)
Lab_report
lab_report_id varchar(10)
PID varchar(10)
test_code varchar(10)
Date date
Weight decimal(3,2)
Height decimal(3,2)
Temperature decimal(3,2)
Category varchar(10)
Patient_Type varchar(30)
Blood_Pressure varchar(20)
Test Result Text
Test_Details
Test_code varchar(10)
Test_charge decimal(10,2)
test_type varchar(30)
category varchar(20)
Doctor
DocID varchar(10)
Fname varchar(20)
Lname varchar(20)
Speciality varchar(30)
Patient_Report
Report_ID varchar(10)
Report_date date
DocID varchar(10)
PID varchar(10)
Diagnosis Text
Reference Text
Prescription Details
Report_ID varchar(10)
Medicine_ID varchar(10)
Department
dept_id varchar(10)
dept_name varchar(30)
Bill
Bill_No varchar(10)
PID varchar(10)
Doctor_charge decimal(10,2)
Lab_charge decimal(10,2)
Medicine_charge decimal(10,2)
Room_charge decimal(10,2)
Operation_charge decimal(10,2)
No_of_days int
Insurance_no varchar(20)
Insurance
Insurance_no varchar(10)
policy_no varchar(20)
publish_date date
insurance_company varchar(30)
in_expiray_date date
med_coverage numeric(10,2)
insurance plan Text
Employee_Phone
ID varchar(10)
phone_no numeric(10,0)
phone type varchar(10)
Employee_Email
ID varchar(10)
email varchar(30)
email type varchar(10)
Medicine_Details
Med_ID varchar(10)
Production_date date
Expiry_date date
Quantity int
Company varchar(20)
Country varchar(20)
Supplier ID varchar(10)
Medicine
Med_ID varchar(10)
Med_Name varchar(30)
Med_Description Text
Med cost numeric(7, 2)
Supplier_email
Supplier_ID varchar(10)
Email varchar(30)
email type varchar(10)
Supplier_contact
Supplier_ID varchar(20)
phone_no numeric(10,0)
phono type varchar(10)
Supplier
Supplier_ID varchar(10)
Supplier_Company varchar(30)
Area Text
City varchar(20)
Country varchar(20)
Payroll
ID varchar(10)
net_salary numeric(10,2)
hourly_salary numeric(10,2)
bonus_salary numeric(10,2)
compensation numeric(10,2)
salary numeric(10,2)
account_no varchar(20)
IBAN varchar(20)
Employee_Details
ID varchar(10)
fname varchar(20)
minit char
lname varchar(20)
dob date
gender char
dept_id varchar(10)
is_dept_id_mngr bool
area Text
city varchar(20)
country varchar(20)

	Fmin, Key and isBCNF	
1	**R(Patient)** PID→{First_name,Middle_name,Last_name,Gender,Dob,Area,City,Country}	Key = PID isBCNF = True
2	**R(Bill)** Bill_no→{PID,Doctor_charge,Lab_charge,Medicine_charge,Room_charge,Operation_charge,No_of_days,Insurance_no}	Key = Bill_no isBCNF = True
3	**R(Insurance)** insurance_no→{policy_no,publish_date,insurance_company,expiry_date,med_coverage,insurance_plan}	Key = insurance_no isBCNF = True
4	**R(Test_Details)** Test_code→{Test_charge,test_type,category}	Key = Test_code isBCNF = True
5	**R(Lab_report)** Lab_report_id→{PID,test_code,Date,Weight,Height,Category,Temperature,Patient_Type,Blood_Pressure,Test_Result}	Key = Lab_report_id isBCNF = True
6	**R(Appointment)** Apid→{Apmnt_time, Apmnt_date, Doc_ID, PID, Apmnt_Description, Apmnt_created}	Key = Apid isBCNF = True
7	**R(Doctor)** DocID→{Fname, Lname, Speciality}	Key = DocID isBCNF = True
8	**R(Patient_report)** Report_id→{Report_date, DocID, PID, Diagnosis, Reference}	Key = Report_id isBCNF = True
9	**R(Prescription_details)** {Report_id, Medicine_id} → {Report_id, Medicince_id}	Key = {Report_id, Medicine_id} isBCNF = True
10	**R(Patient_phone)** {PID,phone_no}→{phone_type}	Key = {PID,phone_no} isBCNF = True
11	**R(Patient_email)** {PID,Email}→{email_type}	Key = {PID,Email} isBCNF = True
12	**R(Room_allotment)** **N/A**	Key = {Room_no, Bed_no, PID} isBCNF = N/A
13	**R(Rooms)** {Room_no, Bed_no} → {Room_type}	Key = {Room_no, Bed_no} isBCNF = True
14	**R(Medicine)** Med_id →{Med_name, med_Description, Med_cost}	Key = Med_id isBCNF = True
15	**R(Medicine Details)** {Med_id, Production_date}→{Expiry_id, Quantity, Company, Country}	Key = {Med_id, Production_date} isBCNF = True
16	**R(Supplier)** Supplier_id →{Supplier_company, City, Area, Country}	Key = Supplier_id isBCNF = True
17	**R(Supplier_email)** {Supplier_id,email} → {email_type}	Key = {Supplier_id,email} isBCNF = True
18	**R(Supplier_contact)** {Supplier_id,phone} → {phone_type}	Key = {Supplier_id,phone} isBCNF = True

19	**R(Payroll)** ID→ {net_salary,hourly_salary,bonus_salary,compensation,salary,account_no,IBAN}	Key = ID isBCNF = True
20	**R(Employee_details)** ID→ {fname, minit, lname,dob, gender, dept_id,is_dept_id_mngr, area, city, country}	Key = ID isBCNF = True
21	**R(Department)** dept_id → {dept_name}	Key = dept_id isBCNF = True
22	**R(Employee_phone)** {ID,phone_no} → {phone_type}	Key = {ID,phone_no} isBCNF = True
23	**R(Employee_email)** {ID, email} → {email_type}	Key = {ID, email} isBCNF = True

DDL Script:

```
create schema G1_15;
set search_path to G1_15;

-- 1
create table patient(
    PID varchar(10) Primary Key,
    Fname varchar(20),
    Mname varchar(20),
    Lname varchar(20),
    Gender char,
    Dob date,
    Area Text,
    City varchar(20),
    Country varchar(20)
);
```

```
-- 2
create table Test_Details(
    Test_code varchar(10) Primary Key,
    Test_charge decimal(10, 2),
    Test_type varchar(30),
    Category varchar(20)
);
```

```
-- 3
create table Lab_report(
    Lab_Report_id varchar(10) Primary Key,
    PID varchar(10) references patient(PID) on update cascade on delete cascade,
    Test_code varchar(10) references Test_Details(Test_code) on update cascade on delete cascade,
    Report_date timestamp,
    weight decimal(3,2),
    height decimal(3,2),
    Temperature decimal(3,2),
    Category varchar(10),
    Patient_Type varchar(30),
    Blood_Pressure varchar(20),
    Test_result Text
);
```

```
-- 4
create table Rooms(
    Room_no varchar(5),
    Bed_no int,
    Room_type varchar(20),
    Primary key(Room_no, Bed_no)
);
```

```sql
-- 5
create table Room_Allotment(
    Room_no varchar(5),
    Bed_no int,
    PID varchar(10),
    Primary key(Room_no, Bed_no),
    Unique(PID),
    Foreign key(PID) references patient(PID),
    Foreign key(Room_no,Bed_no) references Rooms(Room_no,Bed_no)
);
```

```sql
-- 6
create table Patient_Phone(
    PID varchar(10) references patient(PID),
    phone_no numeric(10, 0),
    phone_type varchar(10),
    Primary key(PID, phone_no)
);
```

```sql
-- 7
create table Patient_Email(
    PID varchar(10) references patient(PID),
    email varchar(30),
    email_type varchar(10),
    Primary key(PID, email)
);
```

```sql
-- 8
create table Doctor(
    DocID varchar(10) Primary Key,
    Fname varchar(20),
    Lname varchar(20),
    Speciality varchar(30)
);
```

```sql
-- 9
create table Appointment(
    Apid varchar(10) Primary Key,
    Apmnt_time time,
    Apmnt_date date,
    DocID varchar(10) references Doctor(DocID),
    PID varchar(10) references patient(PID),
    Apmnt_description Text,
    Apmnt_created timestamp DEFAULT CURRENT_TIMESTAMP
);
```

```sql
-- 10
create table Patient_Report(
    Report_id varchar(10) Primary Key,
    Report_date date,
    DocID varchar(10) references Doctor(DocID),
    PID varchar(10) references patient(PID),
    Diagnosis text,
    Reference text
);
```

```sql
-- 11
Create table Medicine(
    Med_ID varchar(10) Primary key,
    Med_name varchar(30),
    Med_description Text,
    Med_cost numeric(5,2)
);
```

```sql
-- 12
create table Prescription_Details(
    Report_id varchar(10) references Patient_Report(Report_id),
    Med_ID varchar(10) references Medicine(Med_ID),
    Primary key(Report_id, Med_ID)
);
```

```sql
-- 13
Create table supplier (
    Supplier_ID varchar(10) Primary Key,
    Supplier_company varchar(30),
    Area Text,
    City varchar(20),
    Country varchar(20)
);
```

```sql
-- 14
Create table Medicine_Details (
    Med_ID varchar(10) References medicine(Med_ID),
    Production_date date ,
    Expiry_date date,
    Quantity int,
    Company varchar(20),
    Country varchar(20),
    supplier_id varchar(10) references supplier(supplier_id),
    Primary key(Med_ID,Production_date)
);
```

```sql
-- 15
Create table supplier_email (
    Supplier_ID varchar(10) References supplier(supplier_id),
    Email varchar(30),
    Email_type varchar(10),
    Primary key(Email,supplier_id)
);
```

```sql
-- 16
Create table supplier_contact (
    Supplier_ID varchar(10) References supplier(supplier_id),
    phone_no numeric(10,0),
    phone_type varchar(10),
    Primary key(phone_no,supplier_id)
);
```

```sql
-- 17
create table Insurance(
    Insurance_no varchar(10) Primary Key,
    policy_no varchar(20),
    publish_date date,
    Insurance_company varchar(30),
    in_expiry_date date,
    med_coverage numeric(10, 2),
    insurance_plan text
);
```

```sql
-- 18
create table Bill(
    Bill_no varchar(10) Primary key,
    PID varchar(10) references patient(PID),
    Doctor_charge decimal(10, 2),
    Lab_charge decimal(10, 2),
    Medicine_charge decimal(10, 2),
    Room_charge decimal(10, 2),
    Operation_charge decimal(10, 2),
    No_of_days int,
```

```
    Insurance_no varchar(20) references Insurance(Insurance_no)
);
```

```
-- 19
Create table Department(
    dept_id varchar(10) Primary key,
    dept_name varchar(30)
);
```

```
-- 20
Create table Employee_details(
    ID varchar(10) Primary key,
    fname varchar(20),
    minit char,
    lname varchar(20),
    dob date,
    gender char,
    dept_id varchar(10) References Department(dept_id),
    is_dept_id_mngr bool,
    area Text,
    city varchar(20),
    country varchar(20)
);
```

```
-- 21
Create table Payroll (
    ID  varchar(20) Primary key References Employee_Details(ID),
    Account_no varchar(20),
    IBAN varchar(20),
    net_salary numeric(10,2),
    hourly_salary numeric(10,2),
    compensation numeric(10,2),
    salary numeric(10,2)
);
```

```
-- 22
Create table Employee_Phone(
    ID varchar(10) References Employee_Details(ID),
    phone_no numeric(10,0),
    phone_type varchar(10),
    Primary key(ID,phone_no)
);
```

```
-- 23
Create table Employee_Email(
    ID varchar(10) References Employee_Details(ID),
    email varchar(30),
    email_type varchar(10),
    Primary key(ID,email)
);
```