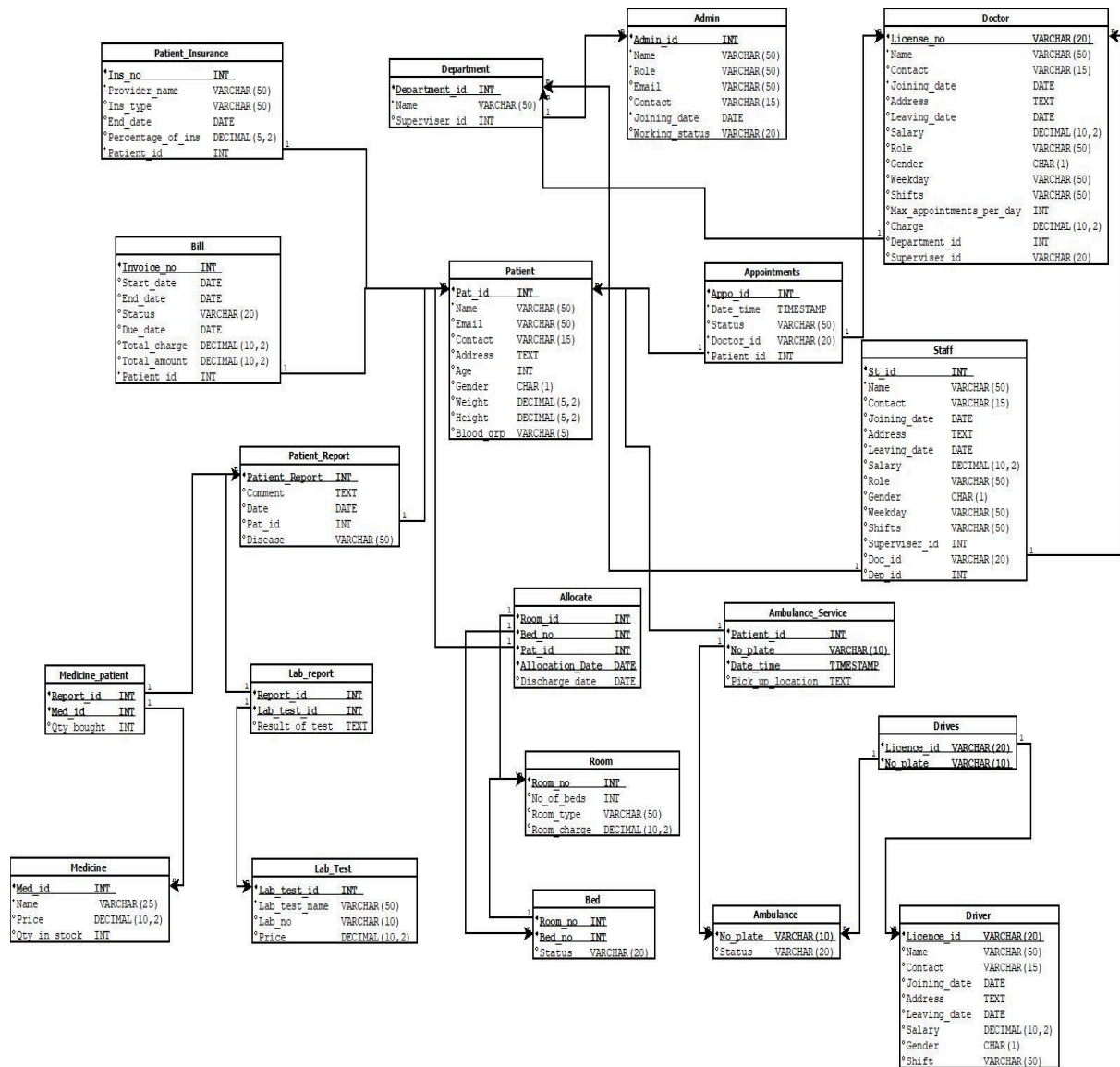


- **Relational Schema :-**



- **Minimal FD set for all relation and Proof that Relations are in BCNF:-**

1) **Admin** (Admin_id, name, role, email, contact, joining_date, working_status)

Admin_id -> {Name, Role, Email, contact, Joining_date, Working_status}

This is the Minimal FD set for the Relation Admin.

Key:- Admin_id

As, Admin_id, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set.

Thus, it is in the **BCNF** Form.

2) **Doctor** (License_no, Name, Contact, Joining_date, Address, Leaving_date, Salary, Role, Gender, Weekday, Shifts, Max_appointments_per_day, Charge, Supervisor_id)

License_no -> {Name, Contact, Joining_date, Address, Leaving_date, Salary, Role, Gender, Weekday, Shifts, Max_appointments_per_day, Charge, Supervisor_id}

This is the Minimal FD set for the Relation Doctor.

Key:- License_no

As, License_no, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set. Thus, it is in the **BCNF** Form.

3) **Staff** (St_id, Name, Contact, Joining_date, Address, Leaving_date, Salary, Role, Gender, Weekday, Shifts, Supervisor_id, Doc_id, Dep_id)

St_id -> {Name, Contact, Joining_date, Address, Leaving_date, Salary, Role, Gender, Weekday, Shifts, Supervisor_id, Doc_id, Dep_id}

This is the Minimal FD set for the Relation Doctor.

Key:- St_id

As, St_id, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set.

Thus, it is in the **BCNF** Form.

4) **Patient** (Pat_id, Name, Email, Contact, Address, Age, Gender, Weight, Height, Blood_grp)

Pat_id -> {Name, Email, Contact, Address, Age, Gender, Weight, Height, Blood_grp}

This is the Minimal FD set for the Relation Patient.

Key:- Pat_id

As, Pat_id, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set. Thus, it is in the **BCNF** Form.

5) **Appointments** (Appo_id, Date_time, Status, Doctor_id, Patient_id)

Appo_id -> {Date_time, Status, Doctor_id, Patient_id}

This is the Minimal FD set for the Relation Appointment.

Key:- Appo_id

As, Appo_id, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set. Thus, it is in the **BCNF** Form.

6) **Patient_Report** (Report_id, Comment, Date, Pat_id, Diseases)

Report_id -> {Comment, Date, Pat_id, Diseases}

This is the Minimal FD set for the Relation Patient_Report.

Key:- Report_id

As, Report_id, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set. Thus, it is in the **BCNF** Form.

7) **Lab_report** (Report_id, Lab_test_id, Result_of_test)

{Report_id, Lab_test_id} -> {Result_of_test}

This is the Minimal FD set for the Relation Lab_report .

Key:- {Report_id, Lab_test_id}

As, {Report_id, Lab_test_id}, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set. Thus, it is in the **BCNF** Form.

8) **Medicine_patient** (Report_id, Med_id, Qty_bought)

{Report_id, Med_id} -> {Qty_bought}

This is the Minimal FD set for the Relation Medicine_patient.

Key:- {Report_id, Med_id}

As, {Report_id, Med_id}, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set.

Thus, it in the **BCNF** Form.

9) **Medicine** (Med_id, Name, Price, Qty_in_stock)

Med_id -> {Name, Price, Qty_in_stock}

This is the Minimal FD set for the Relation Medicine.

Key:- Med_id

As, Med_id, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set.

Thus, it in the **BCNF** Form.

10) **Lab_Test** (Lab_test_id, Lab_test_name, Lab_no, price)

Lab_test_id -> {Lab_test_name, Lab_no, price}

This is the Minimal FD set for the Relation Lab_Test .

Key:- Lab_test_id

As, Lab_test_id, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set.

Thus, it in the **BCNF** Form.

11) **Room** (Room_no, No_of_beds, Room_type, Room_charge)

Room_no -> {No_of_beds, Room_type, Room_charge}

This is the Minimal FD set for the Relation Room.

Key:- Room_no

As, Room_no, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set.

Thus, it in the **BCNF** Form.

12) **Bed** (Room_no ,Bed_no, Status (Available/Not Available))

{Room_no,Bed_no}-> { Status }

This is the Minimal FD set for the Relation Bed.

Key:- Room_no ,Bed_no

As,Room_no ,Bed_no, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set. Thus, it in the **BCNF** Form.

13) **Allocate** (Room_id,Bed_no,Pat_id,Allocation_Date,Discharge_date)

{Room_no,Bed_no,Pat_id,Allocation_date} -> {Discharge_date}

This is the Minimal FD set for the Relation Allocate.

Key:- Room_id,Bed_no,Pat_id,Allocation_Date

As,Room_id,Bed_no,Pat_id,Allocation_Date, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set. Thus, it in the **BCNF** Form.

14) **Bill** (Invoice_no, Start_date,End_date, Status, Due_date, Total_charge, Total_amount,Patient_id)

Invoice_no -> {Start_date,End_date, Status, Due_date, Total_charge, Total_amount,Patient_id}

This is the Minimal FD set for the Relation Bill.

Key:- Invoice_no

As,Invoice_no, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set. Thus, it in the **BCNF** Form.

15) **Patient_Insurance** (Ins_no, Provider_name, Ins_type, End_date, Percentage_of_ins, Patient_id)

Ins_no -> {Provider_name, Ins_type, End_date, Percentage_of_ins}

This is the Minimal FD set for the Relation Patient_Insurance .

Key:- Ins_no

As, Ins_no, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set. Thus, it is in the **BCNF** Form.

- 16) **Driver** (Licence_id, Name, Contact, Joining_date, Address, Leaving_date, Salary, Gender, Shift)

Licence_id -> {Name, Contact, Joining_date, Address, Leaving_date, Salary, Gender, Shift}

This is the Minimal FD set for the Relation Driver.

Key:- Licence_id

As, Licence_id, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set. Thus, it is in the **BCNF** Form.

- 17) **Ambulance** (No_plate, status)

No_plate -> {status}

This is the Minimal FD set for the Relation Ambulance.

Key:- No_plate

As, No_plate, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set. Thus, it is in the **BCNF** Form.

- 18) **Ambulance-Service** (Patient_id, No_plate, Date-time, Pick-up-location)

{Pat_id, no_plate} -> {Date-time, Pick-up-location}

This is the Minimal FD set for the Relation Ambulance-Service.

Key:- Pat_id, No_plate

As, Pat_id, No_plate, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set. Thus, it is in the **BCNF** Form.

- 19) **Department** (Department_id, name, Supervisor_id)

Department_id -> {name}

This is the Minimal FD set for the Relation Department.

Key:- Department_id

As, Department_id, being the key determines every attribute in the relation, it is on the left side of all FDs in Minimal FD set. Thus, it is in the **BCNF** Form.