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Database Project

Business Model:

In this project, we chose a hospital database to make it easy for doctors to search up patient details and allow them to know their upcoming appointments. It allows patient, doctor, prescription, medication, medical records, appointments, and room management.

Our entities included in the database are:

- Appointment
- Department
- Doctor
- Medical Records
- Medication
- Nurse
- Patient
- Prescription
- Rooms

Database Design Documentation:

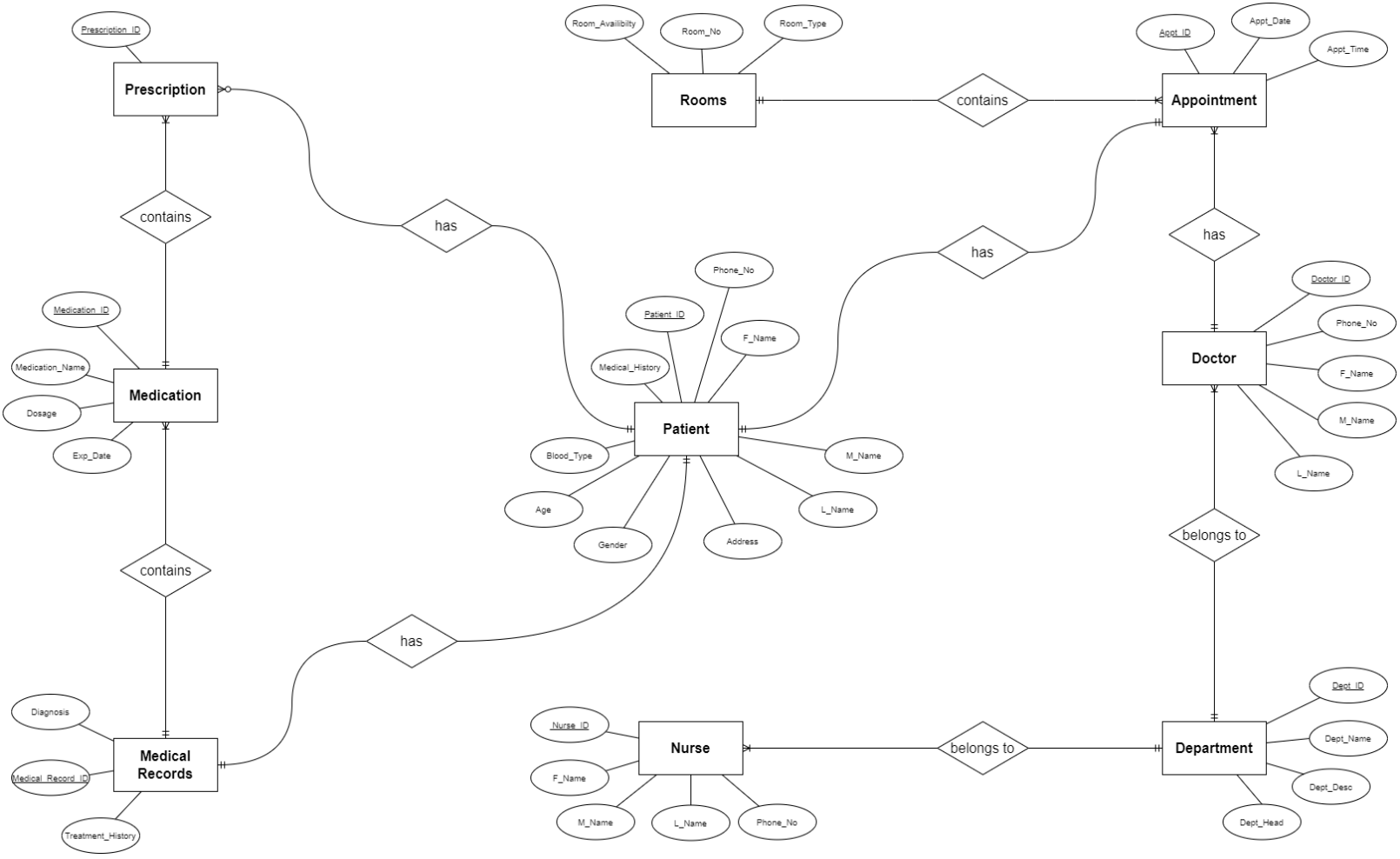
- **Department**: One to many relationship with **Doctor**. A doctor is only allowed to be in one department and a department can have many doctors. It also has a one to many relationship with **Nurse**. A nurse is only allowed to be in one department while a department can have many nurses. *Dept_ID* will be used as a NOT NULL PRIMARY KEY. It also auto increments (AUTO_INCREMENT) the ID so no user input required.
- **Doctor**: Has *Doctor_ID* which is a NOT NULL (constraint that enforces a column to not accept NULL values) PRIMARY KEY that auto increments. *Dept_ID* FOREIGN KEY ties the department and doctor relationship.
- **Nurse**: Has a *Nurse_ID* PRIMARY KEY with constraints NOT NULL which is also on first and last names.
- **Appointment**: One to one relationship with **Patient** as a patient can only have one appointment at a time and an appointment is only for one patient. It has *Appt_ID* as an auto incremented NOT NULL PRIMARY KEY. It is also a link between patients and doctors and shares their primary keys. It has a one to many relationship with **Doctor**.
- **Patient**: Has a *Patient_ID* which is an auto increment NOT NULL PRIMARY KEY. **Patient** has a one to many relationship with **Prescription**. A patient can have many prescriptions but a prescription is only for one patient.
- **Prescription**: Has a *Prescription_ID* which is an auto incremented NOT NULL PRIMARY KEY. It has *Medication_ID* and *Patient_ID* as FOREIGN KEYS. Here we assume each prescription only has one medication making the relationship between **Medication** and **Prescription** one to many.
- **Medication**: Has a *Medication_ID* which is an auto incremented NOT NULL PRIMARY KEY. It also includes medication name, dosage and expiration date with their expected data types.
- **Medical Records**: Has the *Patient_ID* and *Medication_ID* as a FOREIGN KEY from table **Patient** and **Medication**. IT also has a *Diagnosis* and *Treatment_History* attribute for any health issues they experienced in the past.
- **Rooms**: Has a *Room_Number* as a PRIMARY KEY and other attributes like *Room_Type*, and *Room_Availibilty* stored in a TINYINT to save space. It has a one to many relationship with **Appointments** because an appointment will only have one room and a certain room can have many appointments.

SQL Script:

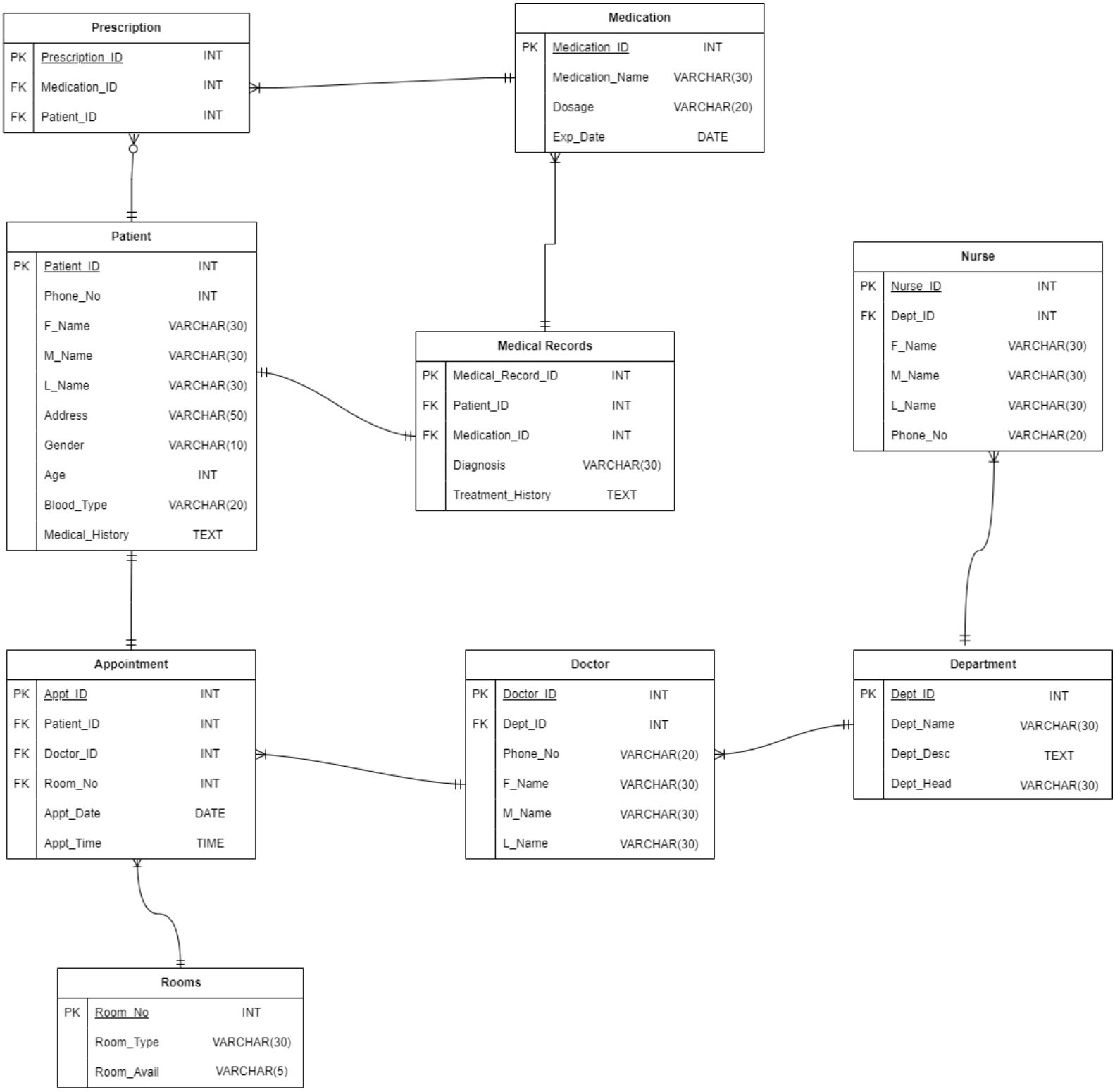
```sql
create database hospital;

use hospital;

CREATE TABLE Medication (
    Medication_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT,
    Medication_Name VARCHAR(30) NOT NULL,
    Dosage VARCHAR(20) NOT NULL,
    Exp_Date DATE NOT NULL
);
CREATE TABLE Patient (
    Patient_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT,
    Phone_No VARCHAR(20),
    F_Name VARCHAR(30) NOT NULL,
    M_Name VARCHAR(30),
    L_Name VARCHAR(30) NOT NULL,
    Address VARCHAR(50),
    Gender VARCHAR(10),
    Age INT,
    Blood_Type VARCHAR(20),
    Medical_History TEXT
);
CREATE TABLE Prescription (
    Prescription_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT,
    Medication_ID INT,
    FOREIGN KEY (Medication_ID)
        REFERENCES Medication (Medication_ID),
    Patient_ID INT,
    FOREIGN KEY (Patient_Id)
        REFERENCES Patient (Patient_ID)
);
CREATE TABLE Medical_Records (
    Patient_ID INT,
    FOREIGN KEY (Patient_Id)
        REFERENCES Patient (Patient_ID),
    Medication_ID INT,
    FOREIGN KEY (Medication_ID)
        REFERENCES Medication (Medication_ID),
    Diagnosis VARCHAR(30),
    Treatment_History TEXT
);
CREATE TABLE Department (
    Dept_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT,
    Dept_Name VARCHAR(30) NOT NULL,
    Dept_Desc TEXT,
    Dept_Head VARCHAR(30) NOT NULL
);
CREATE TABLE Doctor (
    Doctor_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT,
    Dept_ID INT,
    FOREIGN KEY (Dept_ID)
        REFERENCES Department (Dept_ID),
    Phone_No VARCHAR(20),
    F_Name VARCHAR(30) NOT NULL,
    M_Name VARCHAR(30),
    L_Name VARCHAR(30) NOT NULL
);
CREATE TABLE Nurse (
    Nurse_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT,
    Dept_ID INT,
    FOREIGN KEY (Dept_ID)
        REFERENCES Department (Dept_ID),
    Phone_No VARCHAR(20),
    F_Name VARCHAR(30) NOT NULL,
    M_Name VARCHAR(30),
    L_Name VARCHAR(30) NOT NULL
);
CREATE TABLE Rooms (
    Room_No INT PRIMARY KEY NOT NULL AUTO_INCREMENT,
    Room_Type VARCHAR(30),
    Room_Avail VARCHAR(5) NOT NULL
);
CREATE TABLE Appointment (
    Appt_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT,
    Patient_ID INT,
    FOREIGN KEY (Patient_Id)
        REFERENCES Patient (Patient_ID),
    Doctor_ID INT,
    FOREIGN KEY (Doctor_ID)
        REFERENCES Doctor (Doctor_ID),
    Room_No INT,
    FOREIGN KEY (Room_NO)
        REFERENCES Rooms (Room_No),
    Appt_date DATE,
    Appt_time TIME
);


# Insert Data:
INSERT INTO Medication (Medication_Name, Dosage, Exp_Date) VALUES
('Aspirin', '10mg', '2023-12-31'),
('Ibuprofen', '20mg', '2023-12-31'),
('Paracetamol', '15mg', '2023-12-31'),
('Amoxicillin', '250mg', '2023-12-31'),
('Loratadine', '5mg', '2023-12-31'),
('Insulin', '15 units', '2023-12-31'),
('Aspirin', '10mg', '2023-12-31'),
('Ibuprofen', '20mg', '2023-12-31'),
('Paracetamol', '15mg', '2023-12-31'),
('Amoxicillin', '250mg', '2023-12-31'),
('Loratadine', '5mg', '2023-12-31'),
('Insulin', '15 units', '2023-12-31'),
('Morphine', '5mg', '2023-12-31'),
('Penicillin', '500mg', '2023-12-31'),
('Prednisone', '10mg', '2023-12-31'),
('Omeprazole', '20mg', '2023-12-31')
;

INSERT INTO Patient (Phone_No, F_Name, M_Name, L_Name, Address, Gender, Age, Blood_Type,
Medical_History) VALUES
('123-456-7890', 'John', 'M', 'Doe', '123 Main St', 'Male', 30, 'O+', 'No significant
history'),
('987-654-3210', 'Jane', 'A', 'Smith', '456 Oak St', 'Female', 25, 'A-', 'Allergic to
penicillin'),
('555-123-4567', 'Michael', 'J', 'Johnson', '789 Pine St', 'Male', 45, 'B+', 'Diabetes'),
('555-789-0123', 'Sarah', 'K', 'Williams', '101 Maple St', 'Female', 35, 'AB-', 'None'),
('555-123-4567', 'Michael', 'J', 'Johnson', '789 Pine St', 'Male', 45, 'B+', 'Diabetes'),
('555-789-0123', 'Sarah', 'K', 'Williams', '101 Maple St', 'Female', 35, 'AB-', 'None'),
('555-234-5678', 'David', 'R', 'Davis', '456 Birch St', 'Male', 28, 'O-', 'Asthma'),

```

```
('555-876-5432', 'Emily', 'D', 'Anderson', '789 Oak St', 'Female', 42, 'A+',
'Hypertension'),
('555-345-6789', 'Andrew', 'T', 'Clark', '654 Elm St', 'Male', 55, 'AB+', 'Arthritis'),
('555-987-6543', 'Jessica', 'M', 'Smith', '987 Cedar St', 'Female', 31, 'B-', 'None'),
('555-456-7890', 'Daniel', 'M', 'Taylor', '321 Pine St', 'Male', 38, 'O+', 'Migraines'),
('555-567-8901', 'Olivia', 'S', 'Miller', '876 Maple St', 'Female', 29, 'A-', 'None'),
('555-678-9012', 'Matthew', 'S', 'Wilson', '543 Birch St', 'Male', 48, 'B+', 'Heart
Disease'),
('555-789-0123', 'Sophia', 'T', 'Doe', '210 Oak St', 'Female', 25, 'A-', 'Allergic to
penicillin')
;

INSERT INTO Prescription (Medication_ID, Patient_ID) VALUES
(1, 1),
(2, 2),
(3, 1),
(4, 3),
(5, 4),
(6, 3),
(1, 1),
(2, 2),
(3, 1),
(4, 3),
(5, 4),
(6, 3),
(7, 5),
(8, 6),
(9, 5),
(10, 7)
;

INSERT INTO Medical_Records (Patient_ID, Medication_ID, Diagnosis, Treatment_History)
VALUES
(1, 1, 'Headache', 'Prescribed Aspirin'),
(2, 2, 'Fever', 'Prescribed Ibuprofen'),
(3, 4, 'Type 2 Diabetes', 'Prescribed Insulin'),
(4, 5, 'Allergies', 'Prescribed Loratadine'),
(1, 1, 'Headache', 'Prescribed Aspirin'),
(2, 2, 'Fever', 'Prescribed Ibuprofen'),
(3, 3, 'Infection', 'Prescribed Paracetamol'),
(4, 4, 'Type 2 Diabetes', 'Prescribed Insulin'),
(5, 5, 'Allergies', 'Prescribed Loratadine'),
(6, 6, 'Chronic Pain', 'Prescribed Morphine'),
(7, 7, 'Infection', 'Prescribed Penicillin'),
(8, 8, 'Inflammation', 'Prescribed Prednisone'),
(9, 9, 'Acid Reflux', 'Prescribed Omeprazole'),
(10, 10, 'Headache', 'Prescribed Aspirin')
;

INSERT INTO Department (Dept_Name, Dept_Desc, Dept_Head) VALUES
('Cardiology', 'Deals with heart-related issues', 'Dr. Johnson'),
('Orthopedics', 'Deals with bone and joint issues', 'Dr. Smith'),
('Pediatrics', 'Specialized in child healthcare', 'Dr. Anderson'),
('Neurology', 'Deals with nervous system disorders', 'Dr. Williams'),
('Cardiology', 'Deals with heart-related issues', 'Dr. Johnson'),
('Orthopedics', 'Deals with bone and joint issues', 'Dr. Smith'),
('Pediatrics', 'Specialized in child healthcare', 'Dr. Anderson'),
('Neurology', 'Deals with nervous system disorders', 'Dr. Williams')
;

INSERT INTO Doctor (Dept_ID, Phone_No, F_Name, M_Name, L_Name) VALUES
(1, '555-111-2222', 'Mark', 'A', 'Jones'),
(2, '555-333-4444', 'Emily', 'B', 'Taylor'),
(3, '555-999-1111', 'Christopher', 'E', 'Moore'),
(4, '555-222-3333', 'Sophia', 'F', 'Davis'),
(1, '555-111-2222', 'Mark', 'A', 'Jones'),
(2, '555-333-4444', 'Emily', 'B', 'Taylor'),
(3, '555-999-1111', 'Christopher', 'E', 'Moore'),
(4, '555-222-3333', 'Sophia', 'F', 'Davis')
;

INSERT INTO Nurse (Dept_ID, Phone_No, F_Name, M_Name, L_Name) VALUES
(1, '555-555-6666', 'Susan', 'C', 'Miller'),
(2, '555-777-8888', 'Michael', 'D', 'Wilson'),
(3, '555-444-5555', 'Jessica', 'G', 'Brown'),
(4, '555-666-7777', 'Andrew', 'H', 'Anderson'),
(1, '555-555-6666', 'Susan', 'C', 'Miller'),
(2, '555-777-8888', 'Michael', 'D', 'Wilson'),
(3, '555-444-5555', 'Jessica', 'G', 'Brown'),
(4, '555-666-7777', 'Andrew', 'H', 'Anderson')
;

INSERT INTO Rooms (Room_Type, Room_Avail) VALUES
('Standard', 'Yes'),
('VIP', 'Yes'),
('General', 'Yes'),
('ICU', 'Yes'),
('Maternity', 'Yes'),
('Emergency', 'Yes'),
('Standard', 'Yes'),
('VIP', 'Yes'),
('General', 'Yes'),
('ICU', 'Yes'),
('Maternity', 'Yes'),
('Emergency', 'Yes'),
('Isolation', 'Yes'),
('Pediatric', 'Yes'),
('Surgery', 'Yes'),
('Private', 'Yes'),
('Isolation', 'No'),
('Pediatric', 'No'),
('Surgery', 'No')
;

INSERT INTO Appointment (Patient_ID, Doctor_ID, Room_No, Appt_date, Appt_time) VALUES
(1, 1, 1, '2023-01-15', '10:00:00'),
(2, 2, 2, '2023-01-20', '14:30:00'),
(1, 3, 3, '2023-02-05', '11:15:00'),
(2, 4, 4, '2023-02-10', '15:45:00'),
(1, 1, 1, '2023-01-15', '10:00:00'),
(2, 2, 2, '2023-01-20', '14:30:00'),
(3, 3, 3, '2023-02-05', '11:15:00'),
(4, 4, 4, '2023-02-10', '15:45:00'),
(5, 1, 5, '2023-03-15', '09:30:00'),
(6, 2, 6, '2023-03-20', '13:00:00'),
(7, 3, 7, '2023-04-01', '10:45:00'),
(8, 4, 8, '2023-04-10', '16:30:00'),
(9, 1, 9, '2023-05-05', '12:15:00'),
(10, 2, 10, '2023-05-10', '14:00:00'),
(3, 3, 5, '2023-03-15', '09:30:00'),
(4, 4, 6, '2023-03-20', '13:00:00')
;
```

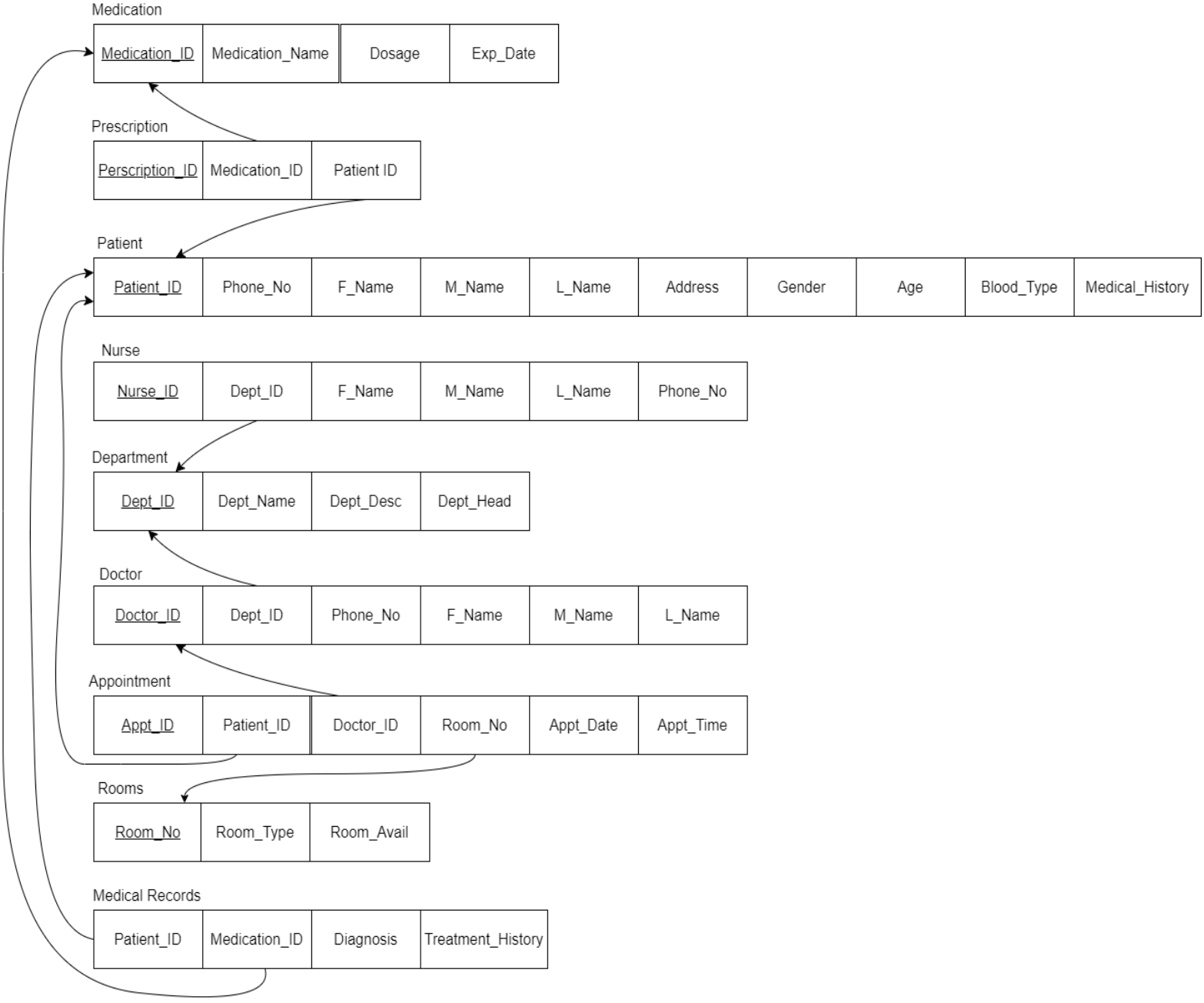
ERD Model:


Prescription_ID
Prescription
contains
Medication_ID
Medication_Name
Medication
Dosage
Exp_Date
contains
Diagnosis
Medical_Record_ID
Medical Records
Treatment_History
has
has
has
Room_Availibity
Room_No
Room_Type
Rooms
contains
Phone_No
Patient_ID
F_Name
Medical_History
Patient
Blood_Type
M_Name
Age
L_Name
Gender
Address
Appt_ID
Appt_Date
Appt_Time
Appointment
has
Doctor_ID
Phone_No
Doctor
F_Name
M_Name
L_Name
belongs to
Nurse_ID
F_Name
Nurse
M_Name
L_Name
Phone_No
belongs to
Dept_ID
Dept_Name
Dept_Desc
Department
Dept_Head

Logical Database Scheme:



Mapping:


Medication
Medication_ID
Medication_Name
Dosage
Exp_Date
Prescription
Perscription_ID
Medication_ID
Patient ID
Patient
Patient_ID
Phone_No
F_Name
M_Name
L_Name
Address
Gender
Age
Blood_Type
Medical_History
Nurse
Nurse_ID
Dept_ID
F_Name
M_Name
L_Name
Phone_No
Department
Dept_ID
Dept_Name
Dept_Desc
Dept_Head
Doctor
Doctor_ID
Dept_ID
Phone_No
F_Name
M_Name
L_Name
Appointment
Appt_ID
Patient_ID
Doctor_ID
Room_No
Appt_Date
Appt_Time
Rooms
Room_No
Room_Type
Room_Avail
Medical Records
Patient_ID
Medication_ID
Diagnosis
Treatment_History

Normalization:

Let's assume the Medication table is not in 1NF:

```
CREATE TABLE Medication (
    Medication_ID INT,
    Patient_ID INT,
    Dosage VARCHAR(20),    -- Breaking 1NF
    Medication_Name VARCHAR(30),
    Dosage VARCHAR(20),
    Exp_Date DATE
);
```

Fixing to 1NF:

```
CREATE TABLE Medication (
    Medication_ID INT PRIMARY KEY,
    Patient_ID INT,      -- Breaking 2NF
    Medication_Name VARCHAR(30),
    Dosage VARCHAR(20),
    Exp_Date DATE
);
```

Fixing to 2NF:

```
CREATE TABLE Medication (
    Medication_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT,
    Patient_ID INT,     -- Breaking 3NF
    FOREIGN KEY (Patient_Id)
        REFERENCES Patient (Patient_ID),
    Medication_Name VARCHAR(30) NOT NULL,
    Dosage VARCHAR(20) NOT NULL,
    Exp_Date DATE NOT NULL
);
```

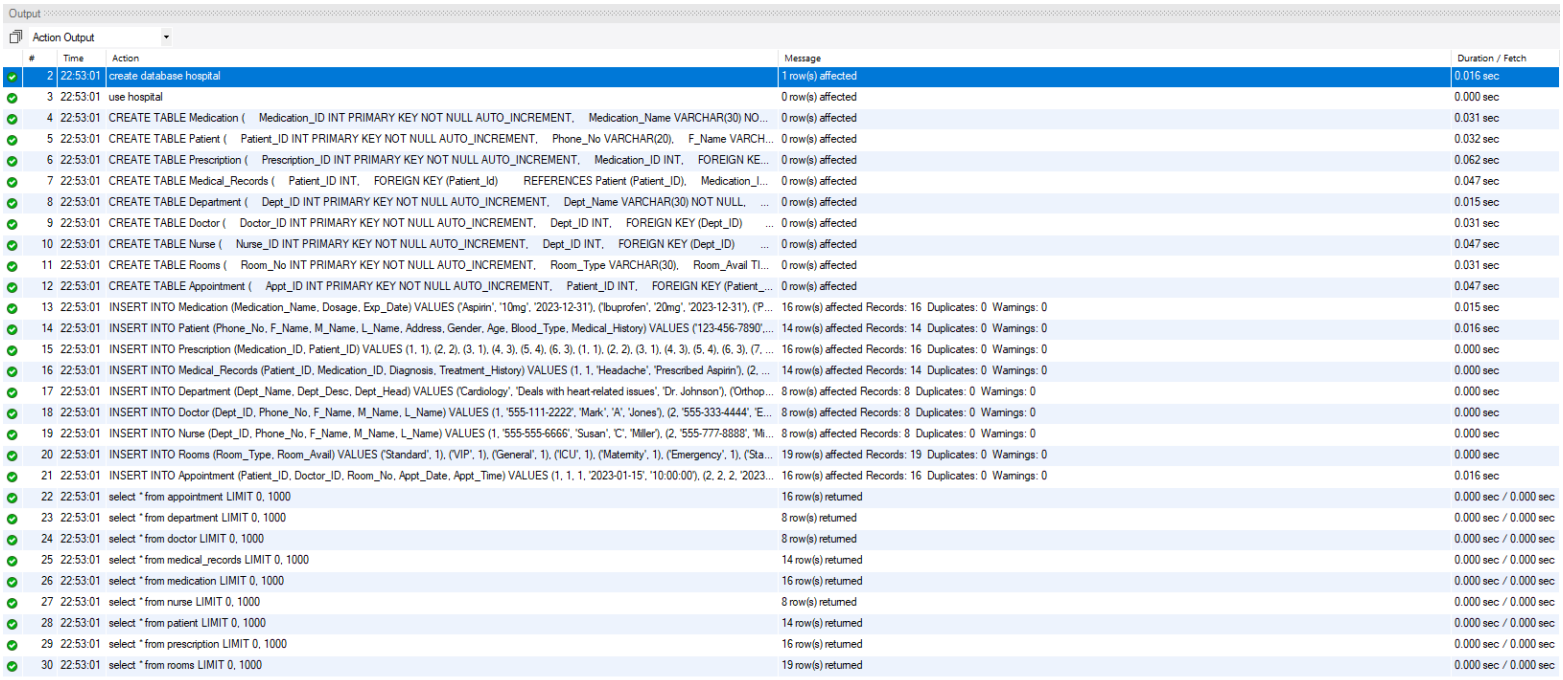
Fixing to 3NF:

```
CREATE TABLE Medication (
    Medication_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT,
    Medication_Name VARCHAR(30) NOT NULL,
    Dosage VARCHAR(20) NOT NULL,
    Exp_Date DATE NOT NULL
);

CREATE TABLE Prescription (
    Prescription_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT,
    Medication_ID INT,
    FOREIGN KEY (Medication_ID)
        REFERENCES Medication (Medication_ID),
    Patient_ID INT,
    FOREIGN KEY (Patient_Id)
        REFERENCES Patient (Patient_ID)
);
```

- All tables in the database are already in 1NF, 2NF, and 3NF. The database is well-structured and normalized.

Screenshots

Output:

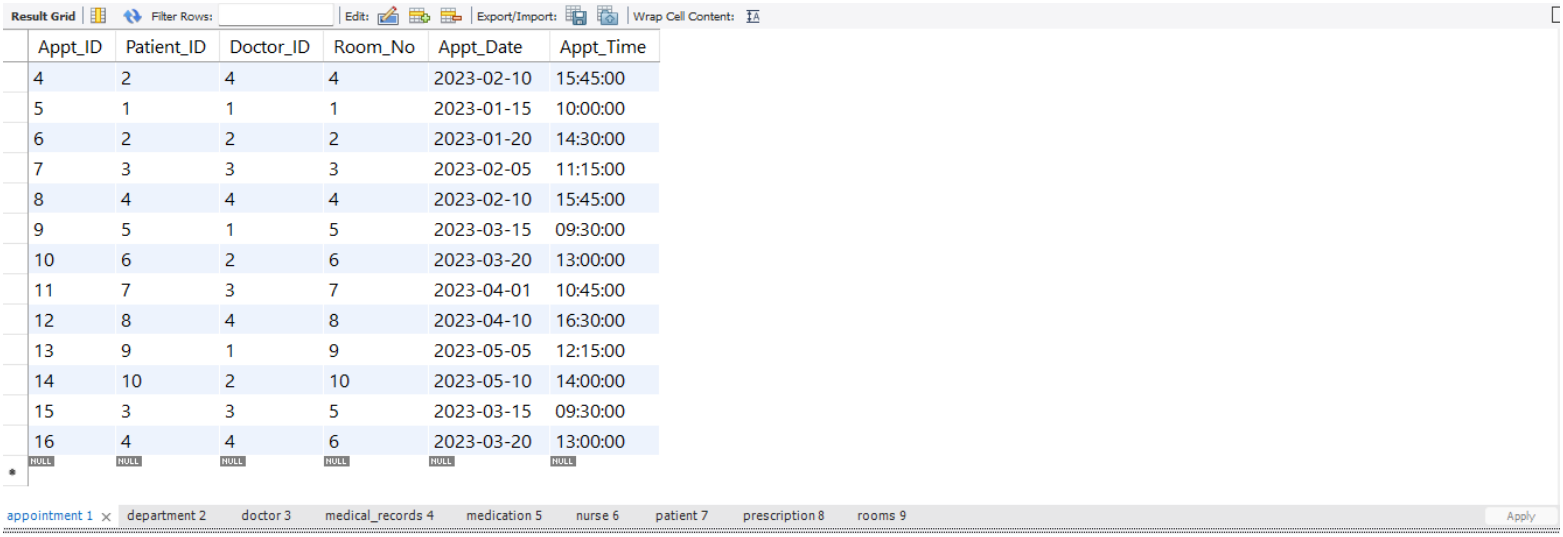


Output

Action Output

#	Time	Action	Message	Duration / Fetch
2	22:53:01	create database hospital	1 row(s) affected	0.016 sec
3	22:53:01	use hospital	0 row(s) affected	0.000 sec
4	22:53:01	CREATE TABLE Medication (Medication_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT, Medication_Name VARCHAR(30) NO...	0 row(s) affected	0.031 sec
5	22:53:01	CREATE TABLE Patient (Patient_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT, Phone_No VARCHAR(20), F_Name VARCH...	0 row(s) affected	0.032 sec
6	22:53:01	CREATE TABLE Prescription (Prescription_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT, Medication_ID INT, FOREIGN KE...	0 row(s) affected	0.062 sec
7	22:53:01	CREATE TABLE Medical_Records (Patient_ID INT, FOREIGN KEY (Patient_Id) REFERENCES Patient (Patient_ID), Medication_I...	0 row(s) affected	0.047 sec
8	22:53:01	CREATE TABLE Department (Dept_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT, Dept_Name VARCHAR(30) NOT NULL, ...	0 row(s) affected	0.015 sec
9	22:53:01	CREATE TABLE Doctor (Doctor_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT, Dept_ID INT, FOREIGN KEY (Dept_ID) ...	0 row(s) affected	0.031 sec
10	22:53:01	CREATE TABLE Nurse (Nurse_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT, Dept_ID INT, FOREIGN KEY (Dept_ID) ...	0 row(s) affected	0.047 sec
11	22:53:01	CREATE TABLE Rooms (Room_No INT PRIMARY KEY NOT NULL AUTO_INCREMENT, Room_Type VARCHAR(30), Room_Avail TI...	0 row(s) affected	0.031 sec
12	22:53:01	CREATE TABLE Appointment (Appt_ID INT PRIMARY KEY NOT NULL AUTO_INCREMENT, Patient_ID INT, FOREIGN KEY (Patient_...	0 row(s) affected	0.047 sec
13	22:53:01	INSERT INTO Medication (Medication_Name, Dosage, Exp_Date) VALUES ('Aspirin', '10mg', '2023-12-31'), ('Ibuprofen', '20mg', '2023-12-31'), ('P...	16 row(s) affected Records: 16 Duplicates: 0 Warnings: 0	0.015 sec
14	22:53:01	INSERT INTO Patient (Phone_No, F_Name, M_Name, L_Name, Address, Gender, Age, Blood_Type, Medical_History) VALUES ('123-456-7890',...	14 row(s) affected Records: 14 Duplicates: 0 Warnings: 0	0.016 sec
15	22:53:01	INSERT INTO Prescription (Medication_ID, Patient_ID) VALUES (1, 1), (2, 2), (3, 1), (4, 3), (5, 4), (6, 3), (1, 1), (2, 2), (3, 1), (4, 3), (5, 4), (6, 3), (7, ...	16 row(s) affected Records: 16 Duplicates: 0 Warnings: 0	0.000 sec
16	22:53:01	INSERT INTO Medical_Records (Patient_ID, Medication_ID, Diagnosis, Treatment_History) VALUES (1, 1, 'Headache', 'Prescribed Aspirin'), (2, ...	14 row(s) affected Records: 14 Duplicates: 0 Warnings: 0	0.000 sec
17	22:53:01	INSERT INTO Department (Dept_Name, Dept_Desc, Dept_Head) VALUES ('Cardiology', 'Deals with heart-related issues', 'Dr. Johnson'), ('Orthop...	8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0	0.000 sec
18	22:53:01	INSERT INTO Doctor (Dept_ID, Phone_No, F_Name, M_Name, L_Name) VALUES (1, '555-111-2222', 'Mark', 'A', 'Jones'), (2, '555-333-4444', 'E...	8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0	0.000 sec
19	22:53:01	INSERT INTO Nurse (Dept_ID, Phone_No, F_Name, M_Name, L_Name) VALUES (1, '555-555-6666', 'Susan', 'C', 'Miller'), (2, '555-777-8888', 'Mi...	8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0	0.000 sec
20	22:53:01	INSERT INTO Rooms (Room_Type, Room_Avail) VALUES ('Standard', 1), ('VIP', 1), ('General', 1), ('ICU', 1), ('Maternity', 1), ('Emergency', 1), ('Sta...	19 row(s) affected Records: 19 Duplicates: 0 Warnings: 0	0.000 sec
21	22:53:01	INSERT INTO Appointment (Patient_ID, Doctor_ID, Room_No, Appt_Date, Appt_Time) VALUES (1, 1, 1, '2023-01-15', '10:00:00'), (2, 2, 2, '2023...	16 row(s) affected Records: 16 Duplicates: 0 Warnings: 0	0.016 sec
22	22:53:01	select * from appointment LIMIT 0, 1000	16 row(s) returned	0.000 sec / 0.000 sec
23	22:53:01	select * from department LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
24	22:53:01	select * from doctor LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
25	22:53:01	select * from medical_records LIMIT 0, 1000	14 row(s) returned	0.000 sec / 0.000 sec
26	22:53:01	select * from medication LIMIT 0, 1000	16 row(s) returned	0.000 sec / 0.000 sec
27	22:53:01	select * from nurse LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
28	22:53:01	select * from patient LIMIT 0, 1000	14 row(s) returned	0.000 sec / 0.000 sec
29	22:53:01	select * from prescription LIMIT 0, 1000	16 row(s) returned	0.000 sec / 0.000 sec
30	22:53:01	select * from rooms LIMIT 0, 1000	19 row(s) returned	0.000 sec / 0.000 sec

Appointment Table:



Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Appt_ID	Patient_ID	Doctor_ID	Room_No	Appt_Date	Appt_Time
4	2	4	4	2023-02-10	15:45:00
5	1	1	1	2023-01-15	10:00:00
6	2	2	2	2023-01-20	14:30:00
7	3	3	3	2023-02-05	11:15:00
8	4	4	4	2023-02-10	15:45:00
9	5	1	5	2023-03-15	09:30:00
10	6	2	6	2023-03-20	13:00:00
11	7	3	7	2023-04-01	10:45:00
12	8	4	8	2023-04-10	16:30:00
13	9	1	9	2023-05-05	12:15:00
14	10	2	10	2023-05-10	14:00:00
15	3	3	5	2023-03-15	09:30:00
16	4	4	6	2023-03-20	13:00:00
NULL	NULL	NULL	NULL	NULL	NULL

appointment 1 | department 2 | doctor 3 | medical_records 4 | medication 5 | nurse 6 | patient 7 | prescription 8 | rooms 9 | Apply

Department Table:

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Dept_ID	Dept_Name	Dept_Desc	Dept_Head
1	Cardiology	Deals with heart-related issues	Dr. Johnson
2	Orthopedics	Deals with bone and joint issues	Dr. Smith
3	Pediatrics	Specialized in child healthcare	Dr. Anderson
4	Neurology	Deals with nervous system disor...	Dr. Williams
5	Cardiology	Deals with heart-related issues	Dr. Johnson
6	Orthopedics	Deals with bone and joint issues	Dr. Smith
7	Pediatrics	Specialized in child healthcare	Dr. Anderson
8	Neurology	Deals with nervous system disor...	Dr. Williams
NULL	NULL	NULL	NULL

appointment 1 | department 2 × | doctor 3 | medical_records 4 | medication 5 | nurse 6 | patient 7 | prescription 8 | rooms 9

Doctor Table:

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Doctor_ID	Dept_ID	Phone_No	F_Name	M_Name	L_Name
1	1	555-111-2222	Mark	A	Jones
2	2	555-333-4444	Emily	B	Taylor
3	3	555-999-1111	Christopher	E	Moore
4	4	555-222-3333	Sophia	F	Davis
5	1	555-111-2222	Mark	A	Jones
6	2	555-333-4444	Emily	B	Taylor
7	3	555-999-1111	Christopher	E	Moore
8	4	555-222-3333	Sophia	F	Davis
NULL	NULL	NULL	NULL	NULL	NULL

appointment 1 | department 2 | doctor 3 × | medical_records 4 | medication 5 | nurse 6 | patient 7 | prescription 8 | rooms 9

Medical_Record Table:

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Patient_ID	Medication_ID	Diagnosis	Treatment_History
1	1	Headache	Prescribed Aspirin
2	2	Fever	Prescribed Ibuprofen
3	4	Type 2 Diabetes	Prescribed Insulin
4	5	Allergies	Prescribed Loratadine
1	1	Headache	Prescribed Aspirin
2	2	Fever	Prescribed Ibuprofen
3	3	Infection	Prescribed Paracetamol
4	4	Type 2 Diabetes	Prescribed Insulin
5	5	Allergies	Prescribed Loratadine
6	6	Chronic Pain	Prescribed Morphine
7	7	Infection	Prescribed Penicillin
8	8	Inflammation	Prescribed Prednisone
9	9	Acid Reflux	Prescribed Omeprazole
10	10	Headache	Prescribed Aspirin

appointment 1 | department 2 | doctor 3 | medical_records 4 | medication 5 | nurse 6 | patient 7 | prescription 8 | rooms 9

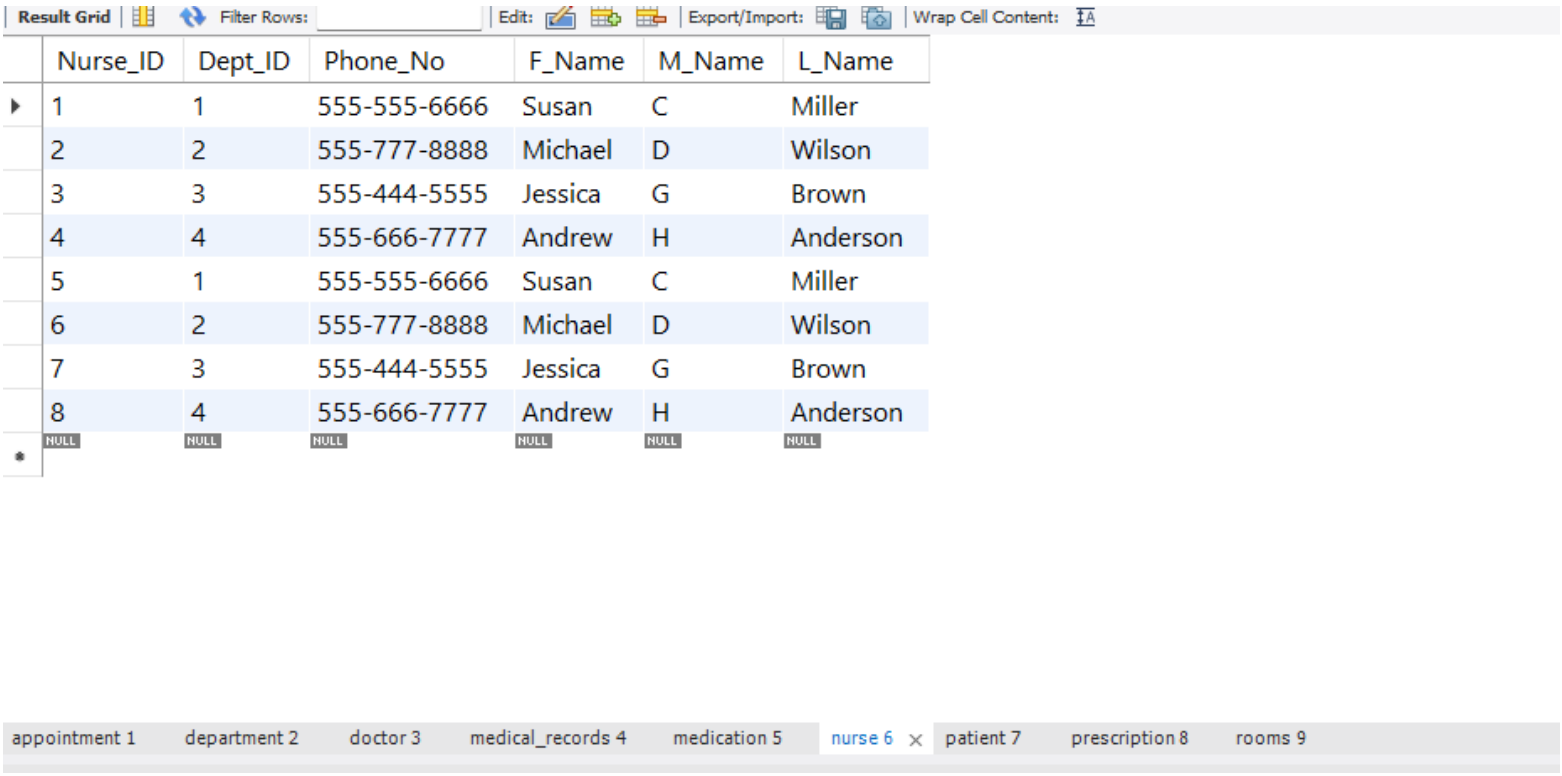
Medication Table:

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Medication_ID	Medication_Name	Dosage	Exp_Date
1	Aspirin	10mg	2023-12-31
2	Ibuprofen	20mg	2023-12-31
3	Paracetamol	15mg	2023-12-31
4	Amoxicillin	250mg	2023-12-31
5	Loratadine	5mg	2023-12-31
6	Insulin	15 units	2023-12-31
7	Aspirin	10mg	2023-12-31
8	Ibuprofen	20mg	2023-12-31
9	Paracetamol	15mg	2023-12-31
10	Amoxicillin	250mg	2023-12-31
11	Loratadine	5mg	2023-12-31
12	Insulin	15 units	2023-12-31
13	Morphine	5mg	2023-12-31
14	Penicillin	500mg	2023-12-31
15	Prednisone	10mg	2023-12-31

appointment 1 | department 2 | doctor 3 | medical_records 4 | medication 5 | nurse 6 | patient 7 | prescription 8 | rooms 9

Nurse Table:

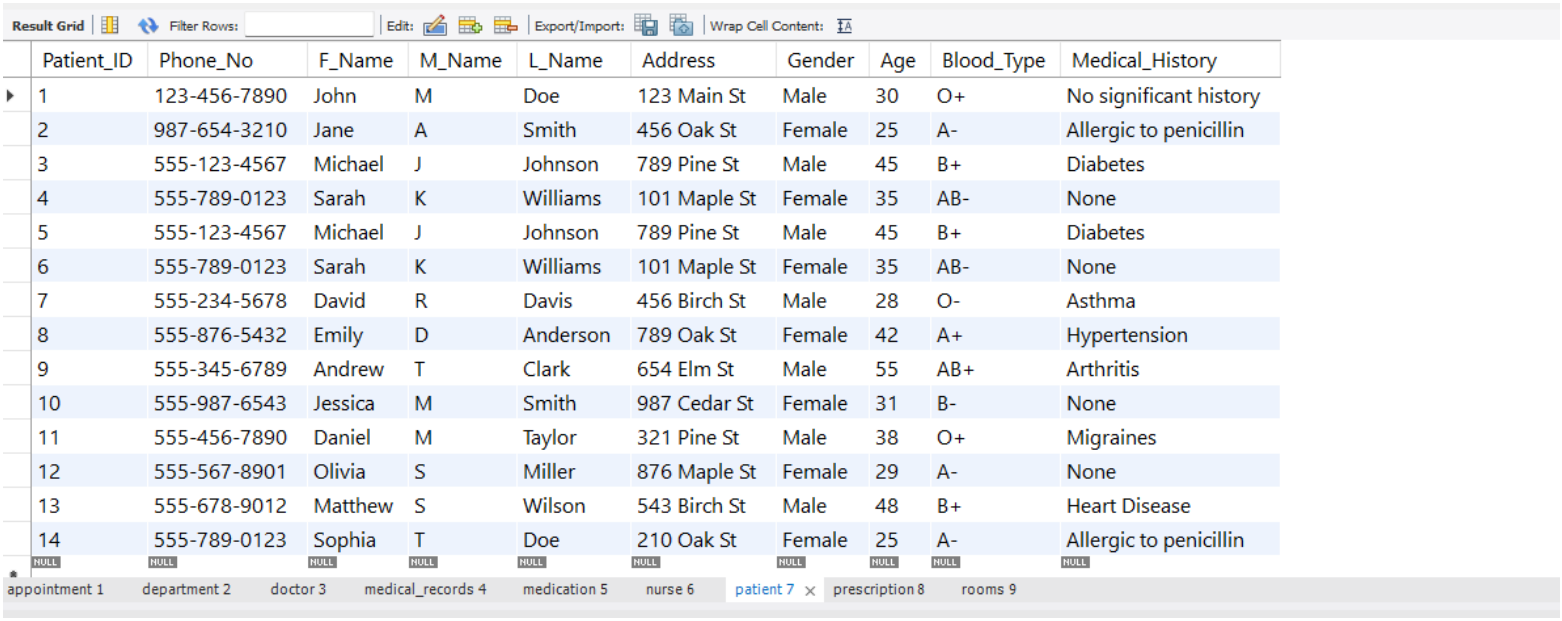


Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Nurse_ID	Dept_ID	Phone_No	F_Name	M_Name	L_Name
1	1	555-555-6666	Susan	C	Miller
2	2	555-777-8888	Michael	D	Wilson
3	3	555-444-5555	Jessica	G	Brown
4	4	555-666-7777	Andrew	H	Anderson
5	1	555-555-6666	Susan	C	Miller
6	2	555-777-8888	Michael	D	Wilson
7	3	555-444-5555	Jessica	G	Brown
8	4	555-666-7777	Andrew	H	Anderson
NULL	NULL	NULL	NULL	NULL	NULL

appointment 1 | department 2 | doctor 3 | medical_records 4 | medication 5 | nurse 6 | patient 7 | prescription 8 | rooms 9

Patient Table:

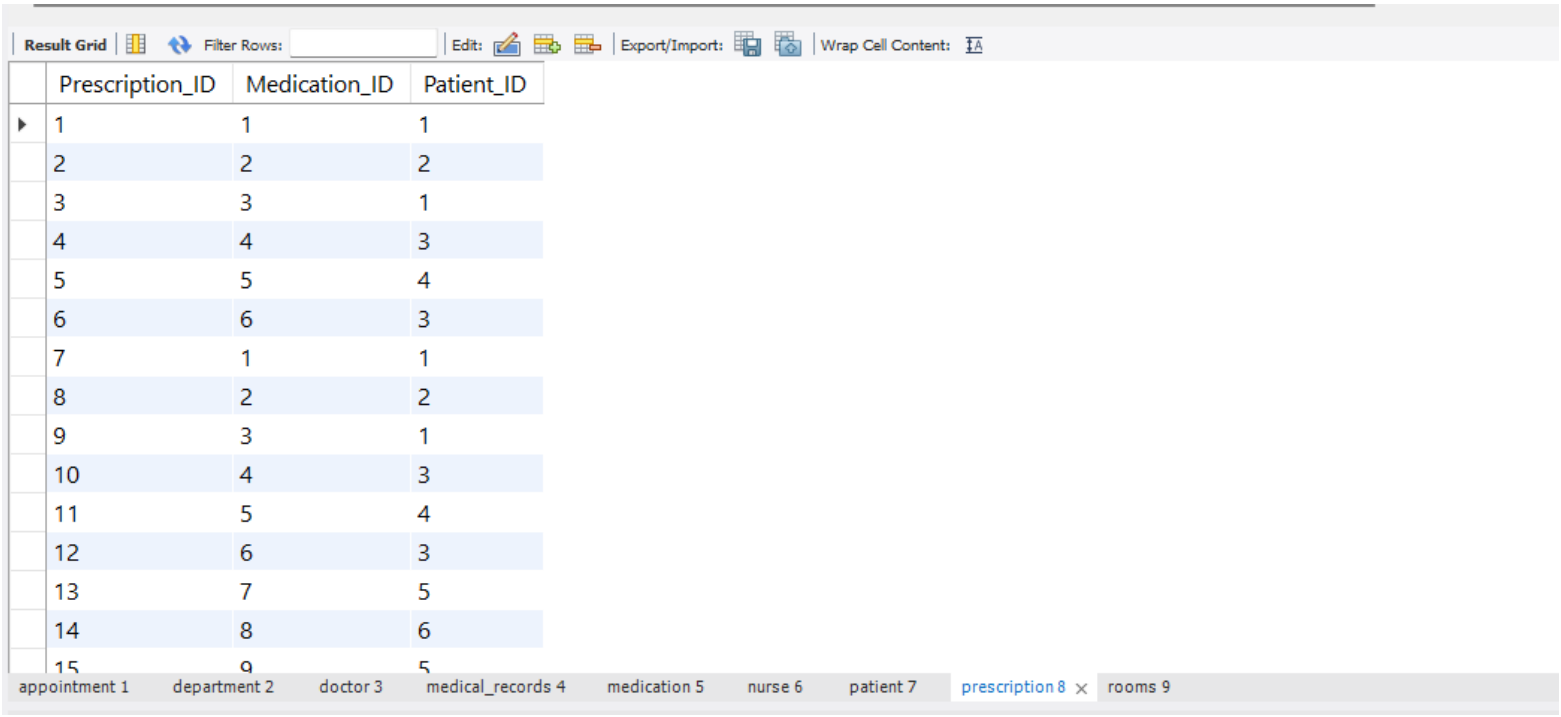


Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Patient_ID	Phone_No	F_Name	M_Name	L_Name	Address	Gender	Age	Blood_Type	Medical_History
1	123-456-7890	John	M	Doe	123 Main St	Male	30	O+	No significant history
2	987-654-3210	Jane	A	Smith	456 Oak St	Female	25	A-	Allergic to penicillin
3	555-123-4567	Michael	J	Johnson	789 Pine St	Male	45	B+	Diabetes
4	555-789-0123	Sarah	K	Williams	101 Maple St	Female	35	AB-	None
5	555-123-4567	Michael	J	Johnson	789 Pine St	Male	45	B+	Diabetes
6	555-789-0123	Sarah	K	Williams	101 Maple St	Female	35	AB-	None
7	555-234-5678	David	R	Davis	456 Birch St	Male	28	O-	Asthma
8	555-876-5432	Emily	D	Anderson	789 Oak St	Female	42	A+	Hypertension
9	555-345-6789	Andrew	T	Clark	654 Elm St	Male	55	AB+	Arthritis
10	555-987-6543	Jessica	M	Smith	987 Cedar St	Female	31	B-	None
11	555-456-7890	Daniel	M	Taylor	321 Pine St	Male	38	O+	Migraines
12	555-567-8901	Olivia	S	Miller	876 Maple St	Female	29	A-	None
13	555-678-9012	Matthew	S	Wilson	543 Birch St	Male	48	B+	Heart Disease
14	555-789-0123	Sophia	T	Doe	210 Oak St	Female	25	A-	Allergic to penicillin
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

appointment 1 | department 2 | doctor 3 | medical_records 4 | medication 5 | nurse 6 | patient 7 | prescription 8 | rooms 9

Prescription Table:

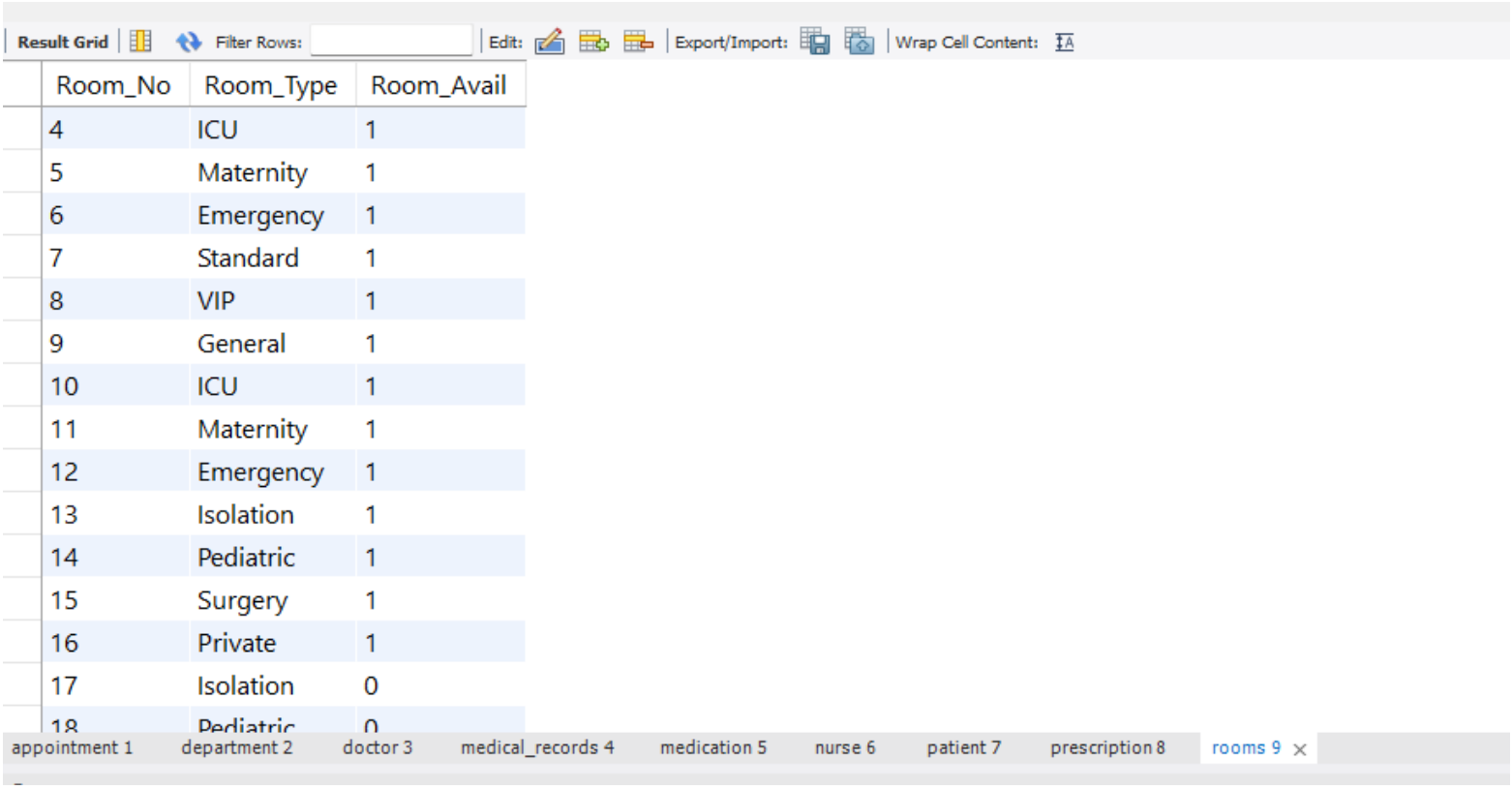


Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Prescription_ID	Medication_ID	Patient_ID
1	1	1
2	2	2
3	3	1
4	4	3
5	5	4
6	6	3
7	1	1
8	2	2
9	3	1
10	4	3
11	5	4
12	6	3
13	7	5
14	8	6
15	9	5

appointment 1 | department 2 | doctor 3 | medical_records 4 | medication 5 | nurse 6 | patient 7 | prescription 8 | rooms 9

Rooms Table:

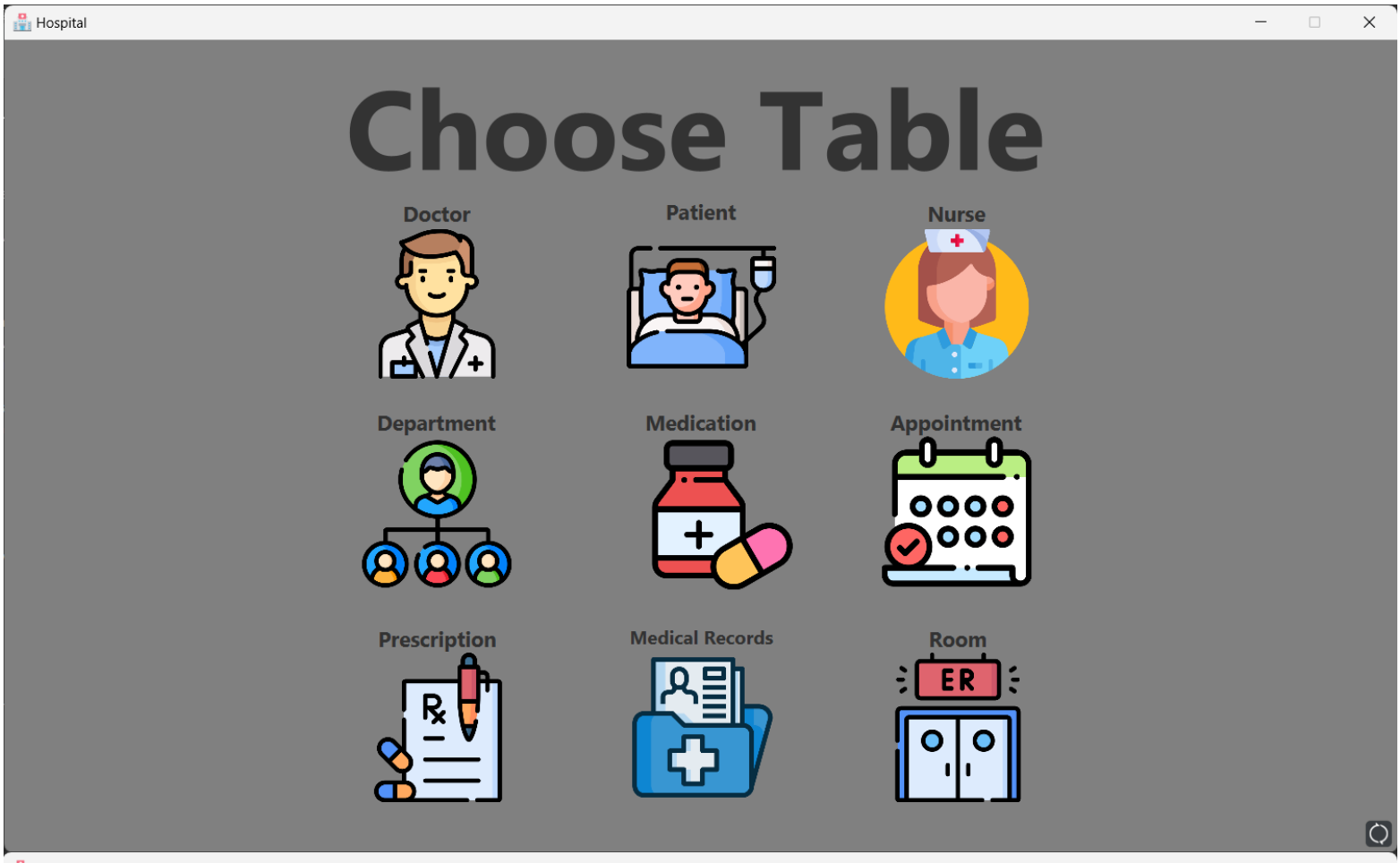


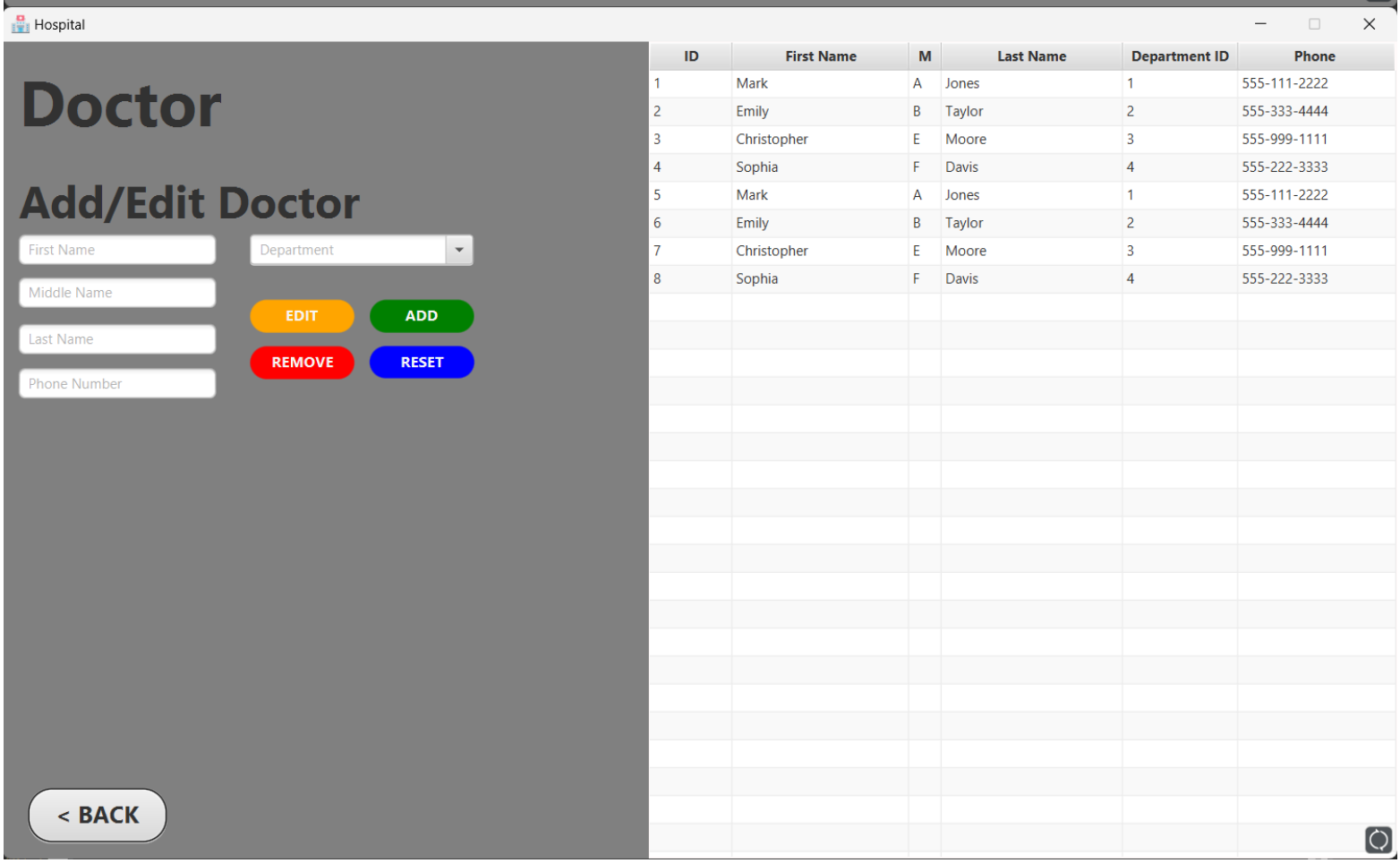
Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

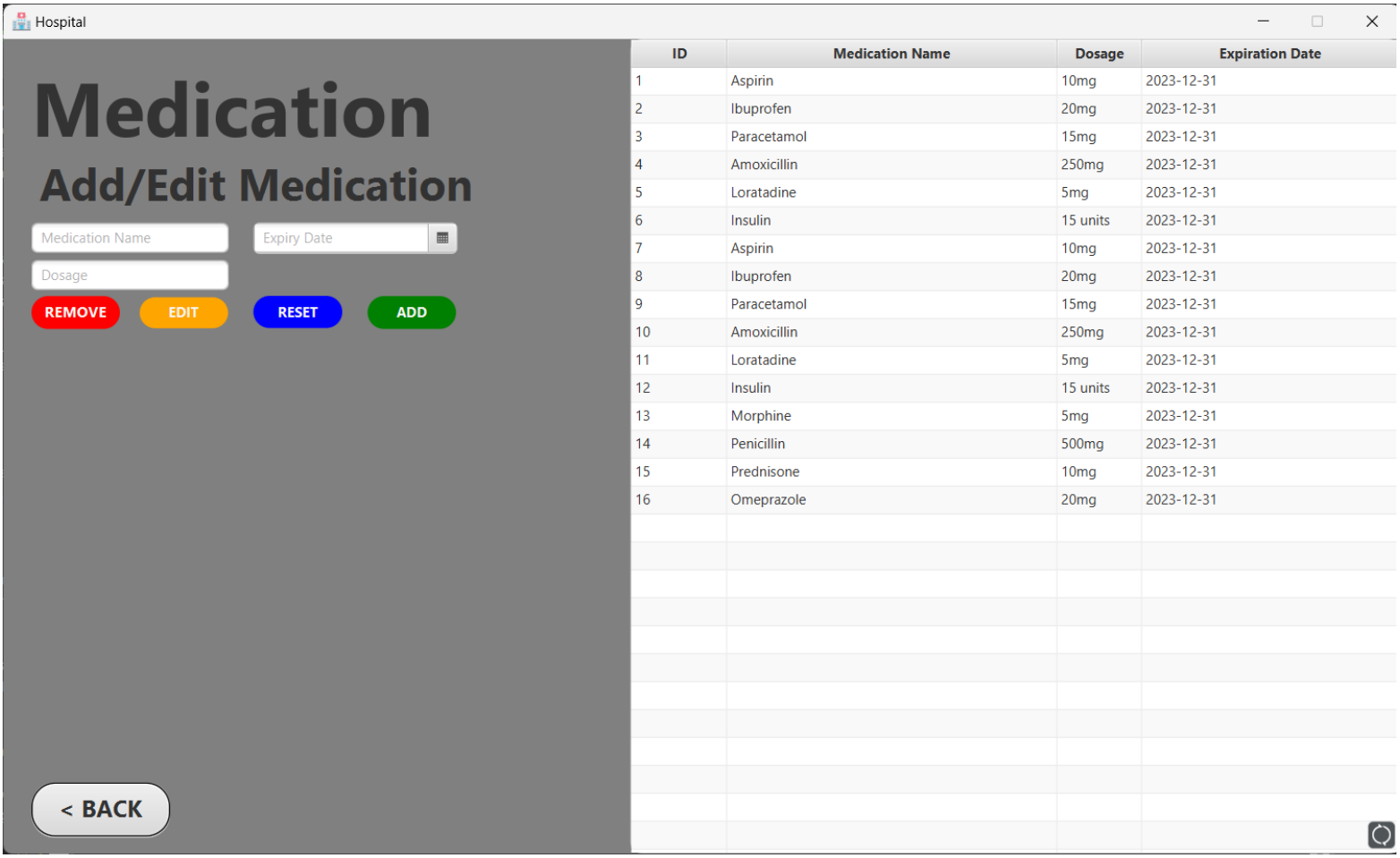
Room_No	Room_Type	Room_Avail
4	ICU	1
5	Maternity	1
6	Emergency	1
7	Standard	1
8	VIP	1
9	General	1
10	ICU	1
11	Maternity	1
12	Emergency	1
13	Isolation	1
14	Pediatric	1
15	Surgery	1
16	Private	1
17	Isolation	0
18	Pediatric	0

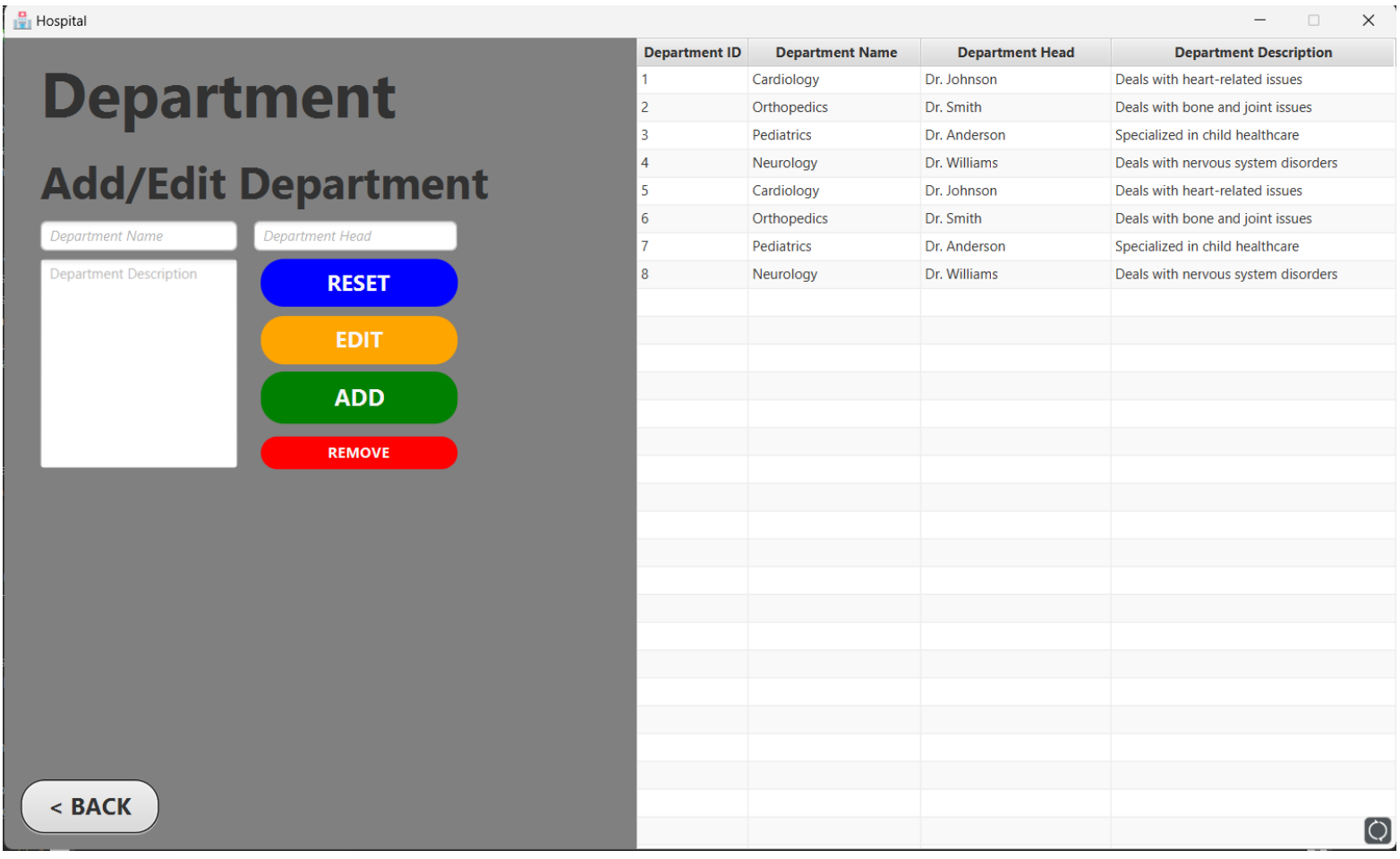
appointment 1 | department 2 | doctor 3 | medical_records 4 | medication 5 | nurse 6 | patient 7 | prescription 8 | rooms 9

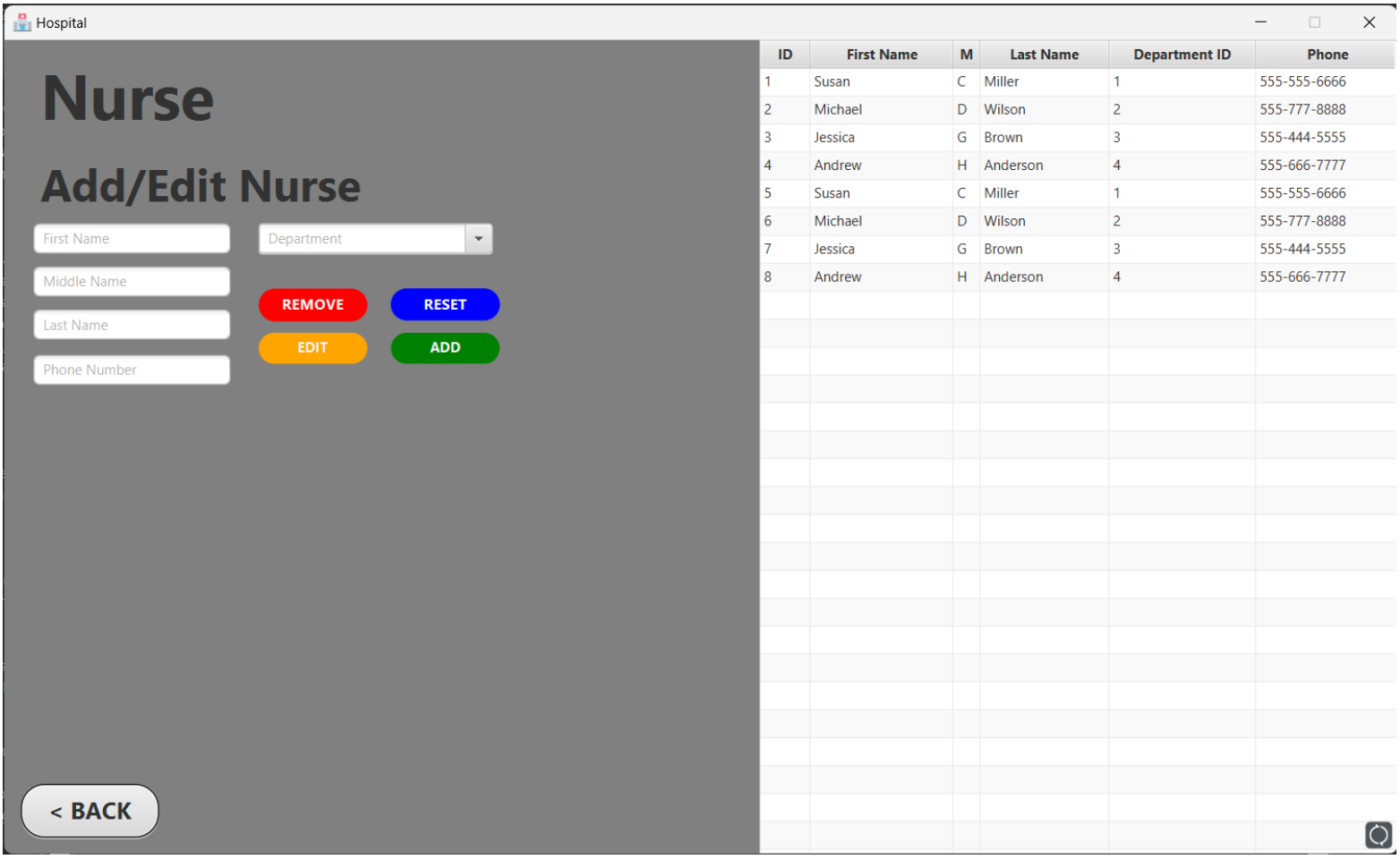
Bonus GUI:

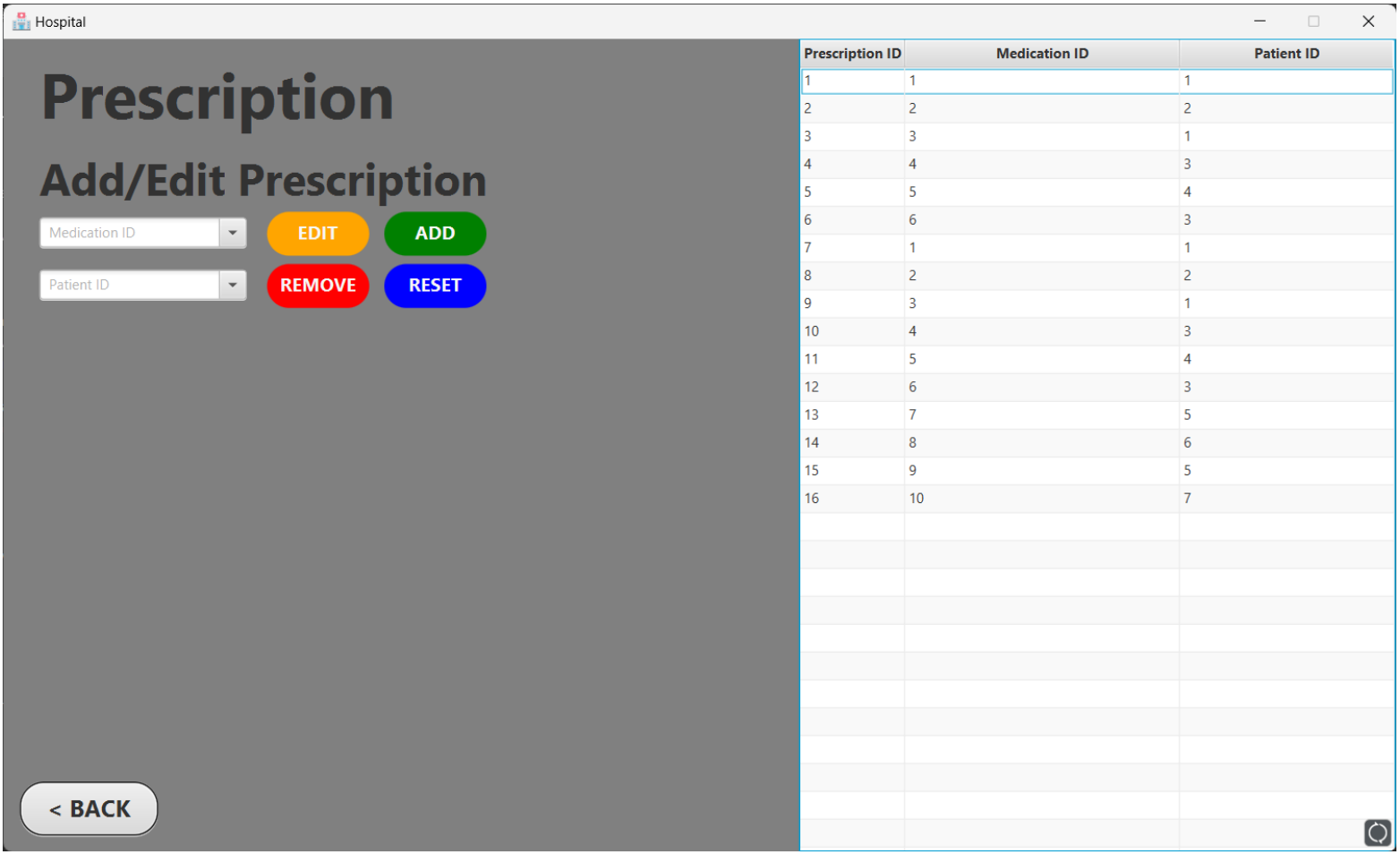

Hospital
Choose Table
Doctor
Patient
Nurse
Department
Medication
Appointment
Prescription
Medical Records
Room
ER

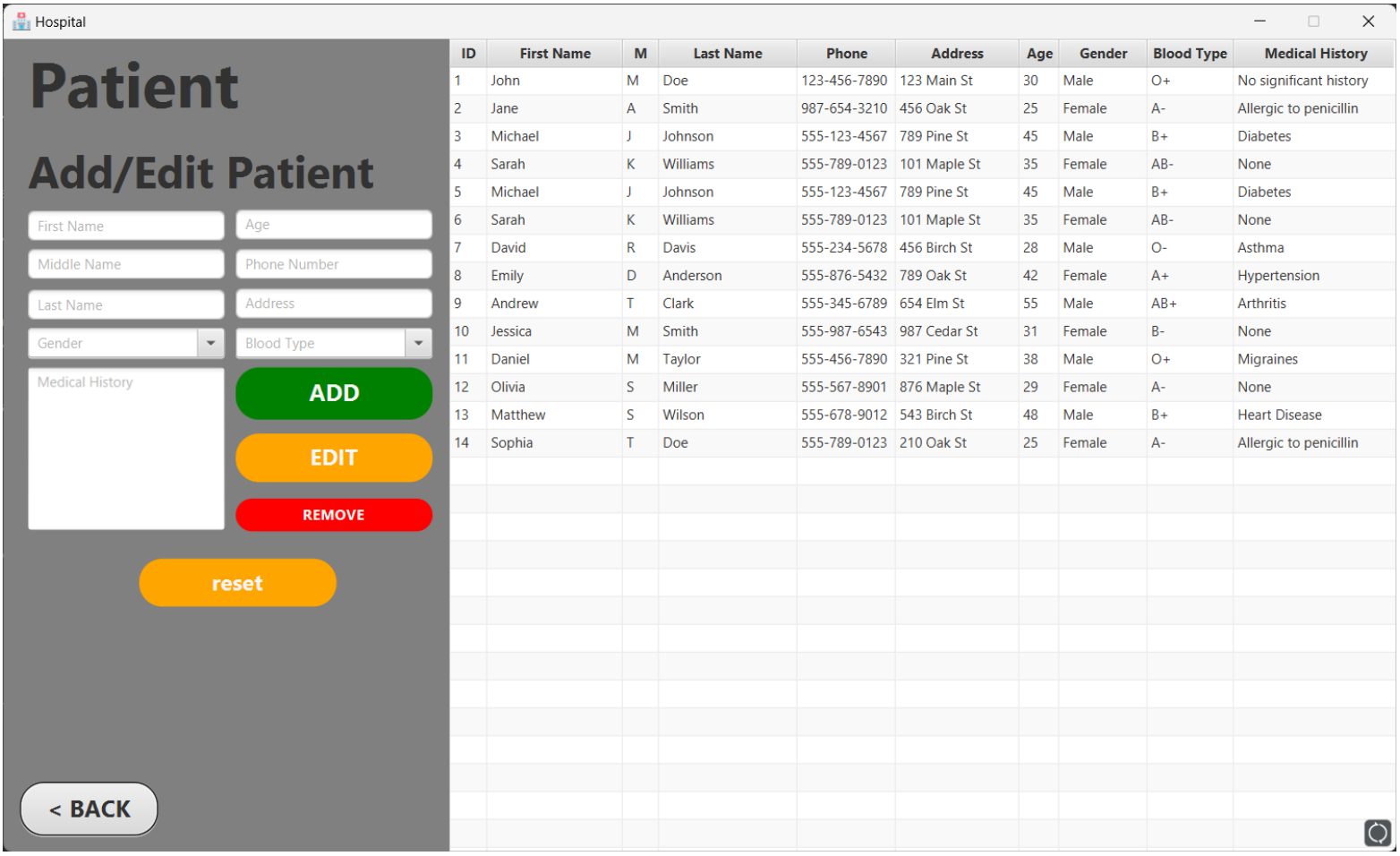

Hospital
Doctor
Add/Edit Doctor
First Name
Department
Middle Name
EDIT
ADD
Last Name
REMOVE
RESET
Phone Number
< BACK
ID
First Name
M
Last Name
Department ID
Phone
1 Mark A Jones 1 555-111-2222
2 Emily B Taylor 2 555-333-4444
3 Christopher E Moore 3 555-999-1111
4 Sophia F Davis 4 555-222-3333
5 Mark A Jones 1 555-111-2222
6 Emily B Taylor 2 555-333-4444
7 Christopher E Moore 3 555-999-1111
8 Sophia F Davis 4 555-222-3333

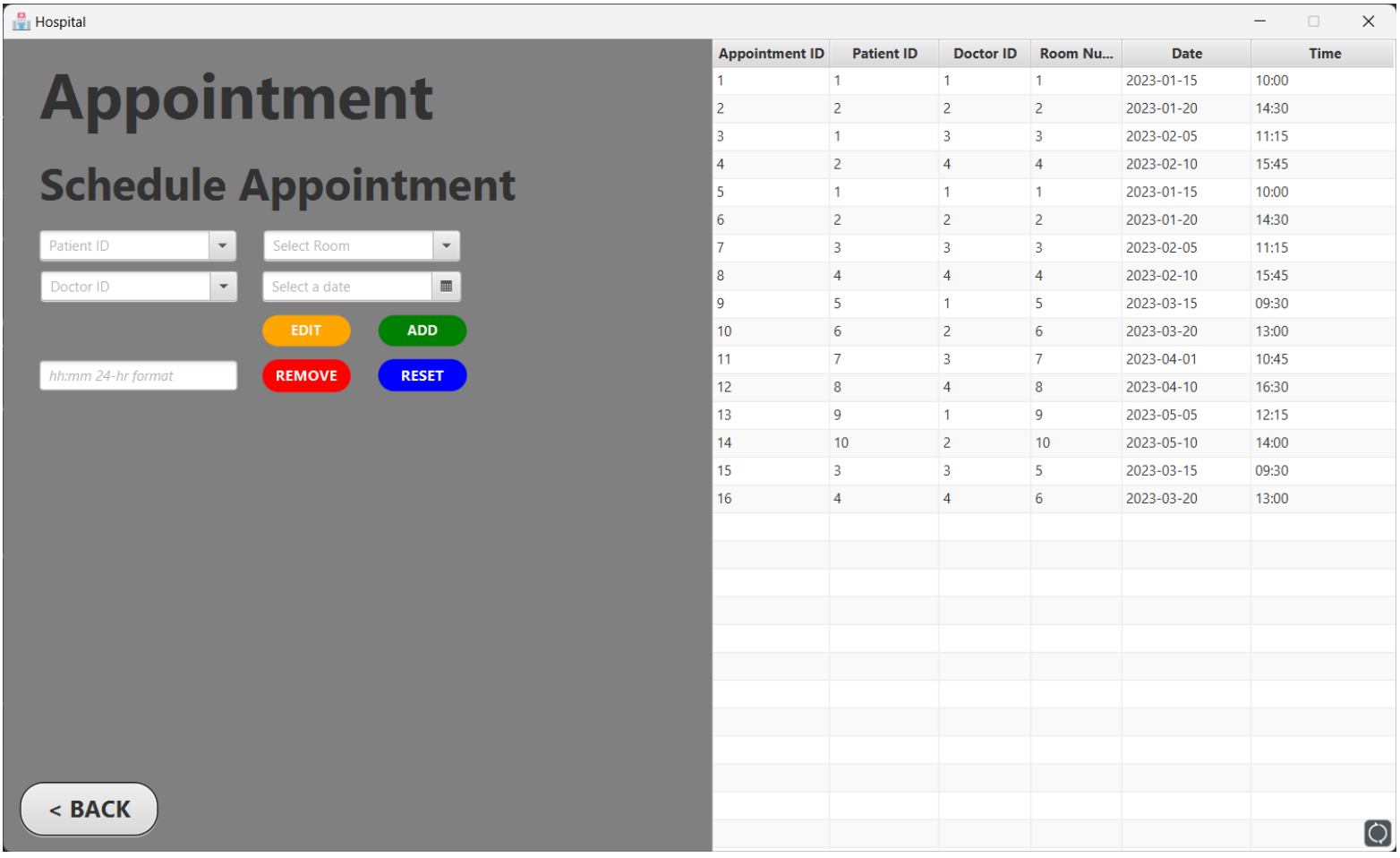

Hospital
Medication
Add/Edit Medication
Medication Name
Expiry Date
Dosage
REMOVE
EDIT
RESET
ADD
< BACK
ID
Medication Name
Dosage
Expiration Date
1 Aspirin 10mg 2023-12-31
2 Ibuprofen 20mg 2023-12-31
3 Paracetamol 15mg 2023-12-31
4 Amoxicillin 250mg 2023-12-31
5 Loratadine 5mg 2023-12-31
6 Insulin 15 units 2023-12-31
7 Aspirin 10mg 2023-12-31
8 Ibuprofen 20mg 2023-12-31
9 Paracetamol 15mg 2023-12-31
10 Amoxicillin 250mg 2023-12-31
11 Loratadine 5mg 2023-12-31
12 Insulin 15 units 2023-12-31
13 Morphine 5mg 2023-12-31
14 Penicillin 500mg 2023-12-31
15 Prednisone 10mg 2023-12-31
16 Omeprazole 20mg 2023-12-31


Hospital
Department
Add/Edit Department
Department Name
Department Head
Department Description
RESET
EDIT
ADD
REMOVE
< BACK
Department ID
Department Name
Department Head
Department Description
1 Cardiology Dr. Johnson Deals with heart-related issues
2 Orthopedics Dr. Smith Deals with bone and joint issues
3 Pediatrics Dr. Anderson Specialized in child healthcare
4 Neurology Dr. Williams Deals with nervous system disorders
5 Cardiology Dr. Johnson Deals with heart-related issues
6 Orthopedics Dr. Smith Deals with bone and joint issues
7 Pediatrics Dr. Anderson Specialized in child healthcare
8 Neurology Dr. Williams Deals with nervous system disorders


Hospital
Nurse
Add/Edit Nurse
First Name
Department
Middle Name
REMOVE
RESET
Last Name
EDIT
ADD
Phone Number
< BACK
ID First Name M Last Name Department ID Phone
1 Susan C Miller 1 555-555-6666
2 Michael D Wilson 2 555-777-8888
3 Jessica G Brown 3 555-444-5555
4 Andrew H Anderson 4 555-666-7777
5 Susan C Miller 1 555-555-6666
6 Michael D Wilson 2 555-777-8888
7 Jessica G Brown 3 555-444-5555
8 Andrew H Anderson 4 555-666-7777


Hospital
Prescription
Add/Edit Prescription
Medication ID
EDIT
ADD
Patient ID
REMOVE
RESET
< BACK
Prescription ID Medication ID Patient ID
1 1 1
2 2 2
3 3 1
4 4 3
5 5 4
6 6 3
7 1 1
8 2 2
9 3 1
10 4 3
11 5 4
12 6 3
13 7 5
14 8 6
15 9 5
16 10 7


Hospital
Patient
Add/Edit Patient
First Name
Age
Middle Name
Phone Number
Last Name
Address
Gender
Blood Type
Medical History
ADD
EDIT
REMOVE
reset
< BACK
ID First Name M Last Name Phone Address Age Gender Blood Type Medical History
1 John M Doe 123-456-7890 123 Main St 30 Male O+ No significant history
2 Jane A Smith 987-654-3210 456 Oak St 25 Female A- Allergic to penicillin
3 Michael J Johnson 555-123-4567 789 Pine St 45 Male B+ Diabetes
4 Sarah K Williams 555-789-0123 101 Maple St 35 Female AB- None
5 Michael J Johnson 555-123-4567 789 Pine St 45 Male B+ Diabetes
6 Sarah K Williams 555-789-0123 101 Maple St 35 Female AB- None
7 David R Davis 555-234-5678 456 Birch St 28 Male O- Asthma
8 Emily D Anderson 555-876-5432 789 Oak St 42 Female A+ Hypertension
9 Andrew T Clark 555-345-6789 654 Elm St 55 Male AB+ Arthritis
10 Jessica M Smith 555-987-6543 987 Cedar St 31 Female B- None
11 Daniel M Taylor 555-456-7890 321 Pine St 38 Male O+ Migraines
12 Olivia S Miller 555-567-8901 876 Maple St 29 Female A- None
13 Matthew S Wilson 555-678-9012 543 Birch St 48 Male B+ Heart Disease
14 Sophia T Doe 555-789-0123 210 Oak St 25 Female A- Allergic to penicillin


Hospital
Appointment
Schedule Appointment
Patient ID
Select Room
Doctor ID
Select a date
EDIT
ADD
hh:mm 24-hr format
REMOVE
RESET
< BACK
Appointment ID Patient ID Doctor ID Room Nu... Date Time
1 1 1 1 2023-01-15 10:00
2 2 2 2 2023-01-20 14:30
3 1 3 3 2023-02-05 11:15
4 2 4 4 2023-02-10 15:45
5 1 1 1 2023-01-15 10:00
6 2 2 2 2023-01-20 14:30
7 3 3 3 2023-02-05 11:15
8 4 4 4 2023-02-10 15:45
9 5 1 5 2023-03-15 09:30
10 6 2 6 2023-03-20 13:00
11 7 3 7 2023-04-01 10:45
12 8 4 8 2023-04-10 16:30
13 9 1 9 2023-05-05 12:15
14 10 2 10 2023-05-10 14:00
15 3 3 5 2023-03-15 09:30
16 4 4 6 2023-03-20 13:00

Hospital

Medical Records

Add/Edit Record

Patient ID

Medication ID

Diagnosis

Treatment History

REMOVE EDIT RESET ADD

< BACK

Record ID	Patient ID	Medication ID	Diagnosis	Treatment History
1	1	1	Headache	Prescribed Aspirin
2	2	2	Fever	Prescribed Ibuprofen
3	3	4	Type 2 Diabetes	Prescribed Insulin
4	4	5	Allergies	Prescribed Loratadine
5	1	1	Headache	Prescribed Aspirin
6	2	2	Fever	Prescribed Ibuprofen
7	3	3	Infection	Prescribed Paracetamol
8	4	4	Type 2 Diabetes	Prescribed Insulin
9	5	5	Allergies	Prescribed Loratadine
10	6	6	Chronic Pain	Prescribed Morphine
11	7	7	Infection	Prescribed Penicillin
12	8	8	Inflammation	Prescribed Prednisone
13	9	9	Acid Reflux	Prescribed Omeprazole
14	10	10	Headache	Prescribed Aspirin

Hospital

Room

Add/Edit Room

Room Type

Room Avaliablity

EDIT ADD

REMOVE RESET

< BACK

Room Number	Type	Availiblity
1	Standard	Yes
2	VIP	Yes
3	General	Yes
4	ICU	Yes
5	Maternity	Yes
6	Emergency	Yes
7	Standard	Yes
8	VIP	Yes
9	General	Yes
10	ICU	Yes
11	Maternity	Yes
12	Emergency	Yes
13	Isolation	Yes
14	Pediatric	Yes
15	Surgery	Yes
16	Private	Yes
17	Isolation	No
18	Pediatric	No
19	Surgery	No