-- Hospital Database Schema and Queries

-- Table Creation

CREATE TABLE Patients (

PatientID INTEGER PRIMARY KEY AUTOINCREMENT,

FirstName TEXT NOT NULL,

LastName TEXT NOT NULL,

DOB DATE NOT NULL,

Phone TEXT UNIQUE,

Address TEXT,

DateRegistered DATE DEFAULT CURRENT\_DATE

);

CREATE TABLE Doctors (

DoctorID INTEGER PRIMARY KEY AUTOINCREMENT,

FirstName TEXT NOT NULL,

LastName TEXT NOT NULL,

Specialty TEXT NOT NULL,

Phone TEXT UNIQUE

);

CREATE TABLE Appointments (

AppointmentID INTEGER PRIMARY KEY AUTOINCREMENT,

PatientID INTEGER NOT NULL,

DoctorID INTEGER NOT NULL,

AppointmentDate DATE NOT NULL,

TimeSlot TIME NOT NULL,

Status TEXT DEFAULT 'Scheduled' CHECK (Status IN ('Scheduled', 'Completed', 'Cancelled')),

FOREIGN KEY (PatientID) REFERENCES Patients(PatientID),

FOREIGN KEY (DoctorID) REFERENCES Doctors(DoctorID)

);

CREATE TABLE Rooms (

RoomID INTEGER PRIMARY KEY AUTOINCREMENT,

RoomType TEXT NOT NULL CHECK (RoomType IN ('General', 'ICU', 'Private')),

AvailabilityStatus TEXT DEFAULT 'Available' CHECK (AvailabilityStatus IN ('Available', 'Occupied'))

);

CREATE TABLE Billing (

BillID INTEGER PRIMARY KEY AUTOINCREMENT,

PatientID INTEGER NOT NULL,

AppointmentID INTEGER,

TotalAmount DECIMAL(10, 2) NOT NULL,

PaymentStatus TEXT DEFAULT 'Pending' CHECK (PaymentStatus IN ('Pending', 'Paid', 'Failed')),

FOREIGN KEY (PatientID) REFERENCES Patients(PatientID),

FOREIGN KEY (AppointmentID) REFERENCES Appointments(AppointmentID)

);

-- Insert Sample Data

INSERT INTO Patients (FirstName, LastName, DOB, Phone, Address)

VALUES

('John', 'Doe', '1990-05-15', '1234567890', '123 Elm Street'),

('Emily', 'Clark', '1985-07-20', '9876543210', '456 Pine Road');

INSERT INTO Doctors (FirstName, LastName, Specialty, Phone)

VALUES

('Jane', 'Smith', 'Cardiologist', '1122334455'),

('Michael', 'Brown', 'Neurologist', '2233445566');

INSERT INTO Appointments (PatientID, DoctorID, AppointmentDate, TimeSlot)

VALUES

(1, 1, '2024-11-25', '10:30:00'),

(2, 2, '2024-11-26', '14:00:00');

INSERT INTO Rooms (RoomType, AvailabilityStatus)

VALUES

('General', 'Available'),

('ICU', 'Available'),

('Private', 'Available');

INSERT INTO Billing (PatientID, AppointmentID, TotalAmount, PaymentStatus)

VALUES

(1, 1, 1500.00, 'Pending'),

(2, 2, 2000.00, 'Pending');

-- Common Queries

-- 1. Retrieve all patients

SELECT \* FROM Patients;

-- 2. Schedule an appointment

INSERT INTO Appointments (PatientID, DoctorID, AppointmentDate, TimeSlot)

VALUES (1, 2, '2024-11-30', '09:00:00');

-- 3. Update room status to Occupied

UPDATE Rooms

SET AvailabilityStatus = 'Occupied'

WHERE RoomID = 1;

-- 4. Generate a bill for an appointment

INSERT INTO Billing (PatientID, AppointmentID, TotalAmount, PaymentStatus)

VALUES (1, 3, 1800.00, 'Pending');

-- 5. Retrieve upcoming appointments for a doctor

SELECT A.AppointmentID, P.FirstName, P.LastName, A.AppointmentDate, A.TimeSlot, A.Status

FROM Appointments A

JOIN Patients P ON A.PatientID = P.PatientID

WHERE A.DoctorID = 1 AND A.AppointmentDate >= DATE('now')

ORDER BY A.AppointmentDate, A.TimeSlot;

-- 6. Mark a bill as paid

UPDATE Billing

SET PaymentStatus = 'Paid'

WHERE BillID = 1;

-- 7. Check room availability

SELECT RoomID, RoomType

FROM Rooms

WHERE AvailabilityStatus = 'Available';

OUTPUTS

