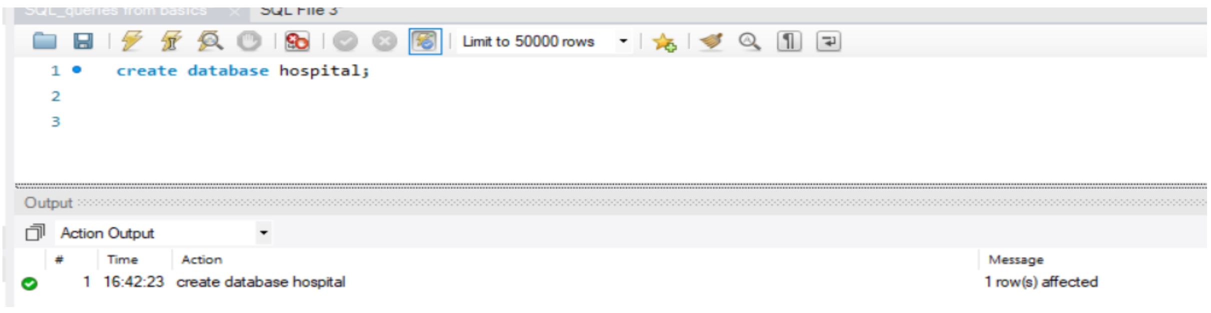
Hospital Management -Case Study

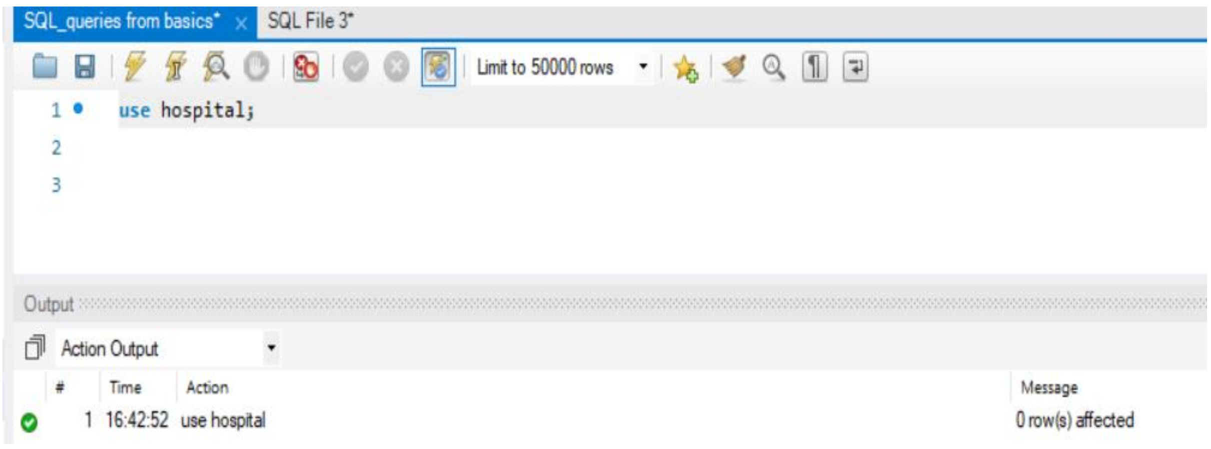
1.The first step is to create the database which we are going to use



```
create database hospital;
```

```
#  Time      Action                    Message
1  16:42:23  create database hospital  1 row(s) affected
```

2.We must use the database we have created

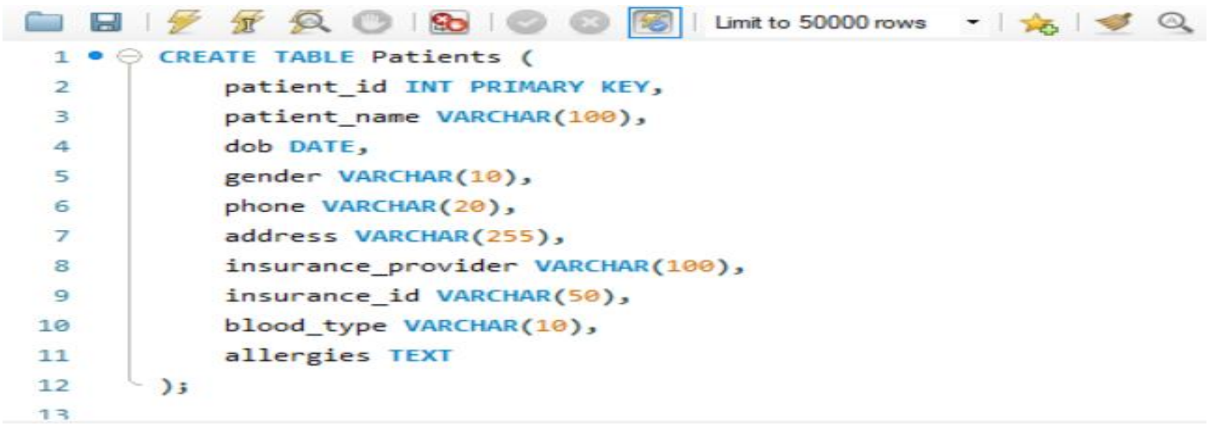


```
use hospital;
```

```
#  Time      Action        Message
1  16:42:52  use hospital  0 row(s) affected
```

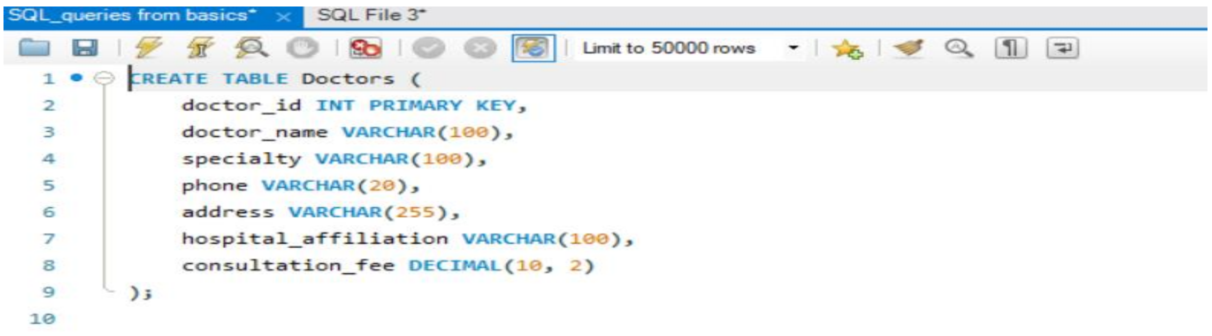
3.Next we have to create the tables and then we are going to insert values on it .so we are going to create three tables namely patients, doctors and appointments.

❖ first, we create table for patients:



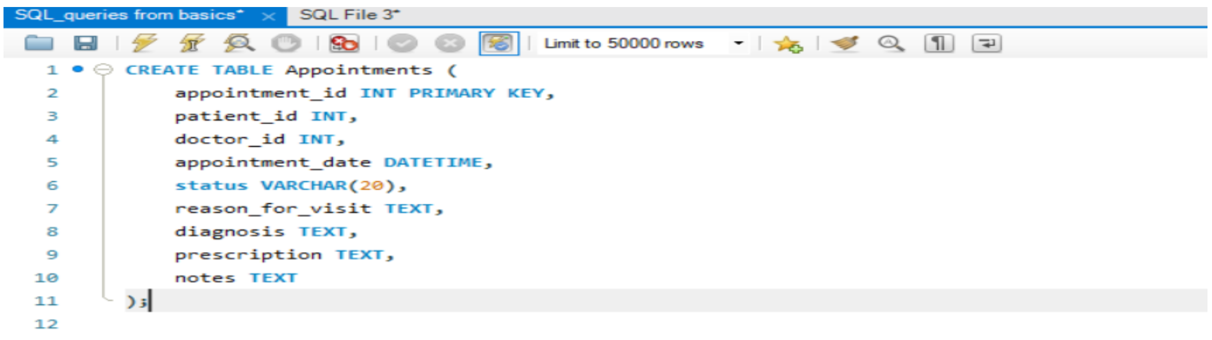
```
CREATE TABLE Patients (
        patient_id INT PRIMARY KEY,
        patient_name VARCHAR(100),
        dob DATE,
        gender VARCHAR(10),
        phone VARCHAR(20),
        address VARCHAR(255),
        insurance_provider VARCHAR(100),
        insurance_id VARCHAR(50),
        blood_type VARCHAR(10),
        allergies TEXT
);
```

❖ Next create table for the doctors:



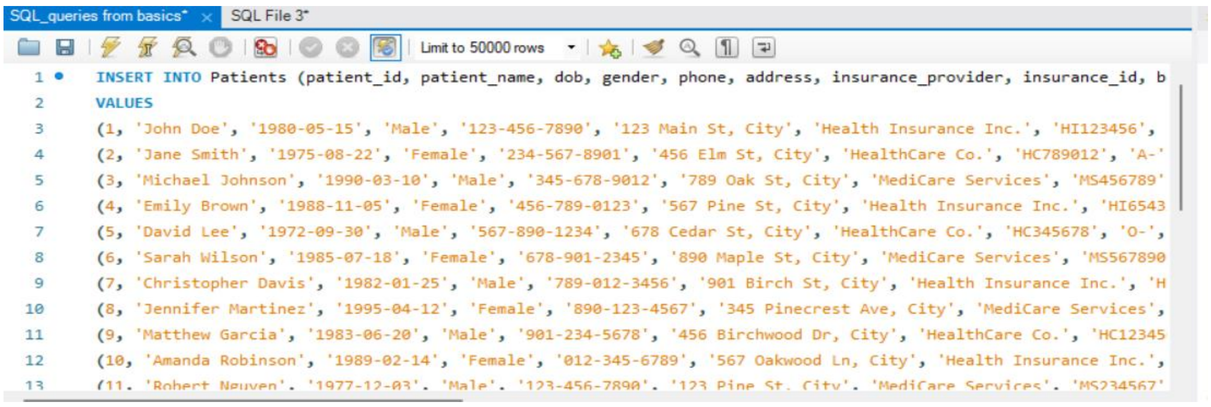
```
CREATE TABLE Doctors (
        doctor_id INT PRIMARY KEY,
        doctor_name VARCHAR(100),
        specialty VARCHAR(100),
        phone VARCHAR(20),
        address VARCHAR(255),
        hospital_affiliation VARCHAR(100),
        consultation_fee DECIMAL(10, 2)
);
```

❖ Next create table for Appointments:



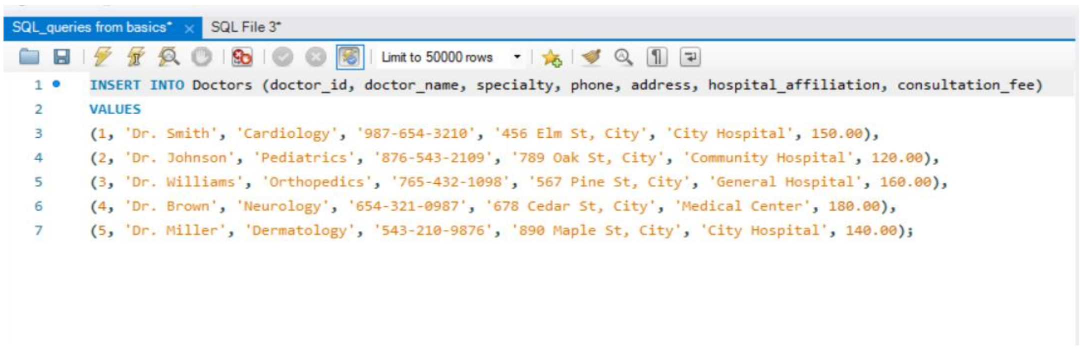
```
CREATE TABLE Appointments (
        appointment_id INT PRIMARY KEY,
        patient_id INT,
        doctor_id INT,
        appointment_date DATETIME,
        status VARCHAR(20),
        reason_for_visit TEXT,
        diagnosis TEXT,
        prescription TEXT,
        notes TEXT
);
```

➢ Now we can start inserting the data on the table patients:



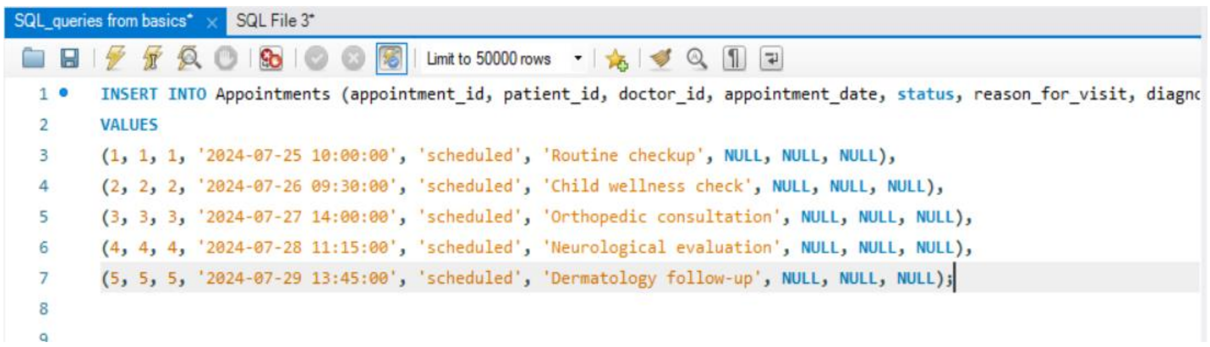
```sql
INSERT INTO Patients (patient_id, patient_name, dob, gender, phone, address, insurance_provider, insurance_id, b
VALUES
(1, 'John Doe', '1980-05-15', 'Male', '123-456-7890', '123 Main St, City', 'Health Insurance Inc.', 'HI123456',
(2, 'Jane Smith', '1975-08-22', 'Female', '234-567-8901', '456 Elm St, City', 'HealthCare Co.', 'HC789012', 'A-'
(3, 'Michael Johnson', '1990-03-10', 'Male', '345-678-9012', '789 Oak St, City', 'MediCare Services', 'MS456789'
(4, 'Emily Brown', '1988-11-05', 'Female', '456-789-0123', '567 Pine St, City', 'Health Insurance Inc.', 'HI6543
(5, 'David Lee', '1972-09-30', 'Male', '567-890-1234', '678 Cedar St, City', 'HealthCare Co.', 'HC345678', 'O-',
(6, 'Sarah Wilson', '1985-07-18', 'Female', '678-901-2345', '890 Maple St, City', 'MediCare Services', 'MS567890
(7, 'Christopher Davis', '1982-01-25', 'Male', '789-012-3456', '901 Birch St, City', 'Health Insurance Inc.', 'H
(8, 'Jennifer Martinez', '1995-04-12', 'Female', '890-123-4567', '345 Pinecrest Ave, City', 'MediCare Services',
(9, 'Matthew Garcia', '1983-06-20', 'Male', '901-234-5678', '456 Birchwood Dr, City', 'HealthCare Co.', 'HC12345
(10, 'Amanda Robinson', '1989-02-14', 'Female', '012-345-6789', '567 Oakwood Ln, City', 'Health Insurance Inc.',
(11, 'Robert Nguyen', '1977-12-03', 'Male', '123-456-7890', '123 Pine St, City', 'MediCare Services', 'MS234567'
```

❖ Now the values to doctor's table:



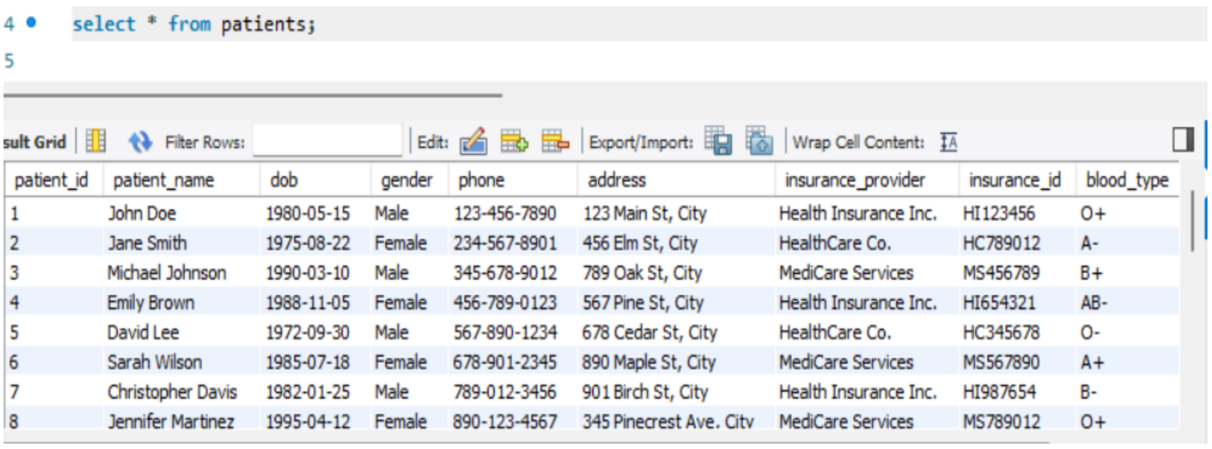
```sql
INSERT INTO Doctors (doctor_id, doctor_name, specialty, phone, address, hospital_affiliation, consultation_fee)
VALUES
(1, 'Dr. Smith', 'Cardiology', '987-654-3210', '456 Elm St, City', 'City Hospital', 150.00),
(2, 'Dr. Johnson', 'Pediatrics', '876-543-2109', '789 Oak St, City', 'Community Hospital', 120.00),
(3, 'Dr. Williams', 'Orthopedics', '765-432-1098', '567 Pine St, City', 'General Hospital', 160.00),
(4, 'Dr. Brown', 'Neurology', '654-321-0987', '678 Cedar St, City', 'Medical Center', 180.00),
(5, 'Dr. Miller', 'Dermatology', '543-210-9876', '890 Maple St, City', 'City Hospital', 140.00);
```

❖ Now for the appointment table:



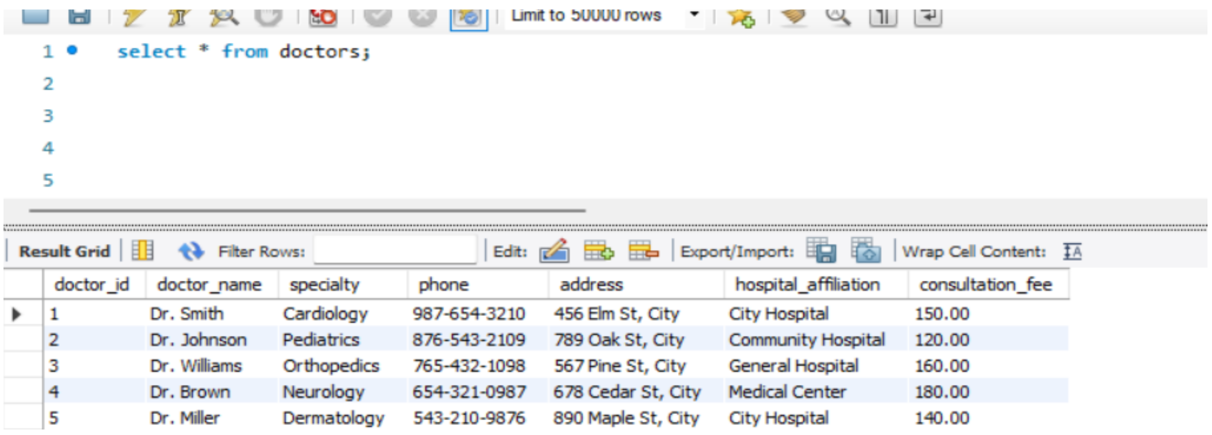
```sql
INSERT INTO Appointments (appointment_id, patient_id, doctor_id, appointment_date, status, reason_for_visit, diagnc
VALUES
(1, 1, 1, '2024-07-25 10:00:00', 'scheduled', 'Routine checkup', NULL, NULL, NULL),
(2, 2, 2, '2024-07-26 09:30:00', 'scheduled', 'Child wellness check', NULL, NULL, NULL),
(3, 3, 3, '2024-07-27 14:00:00', 'scheduled', 'Orthopedic consultation', NULL, NULL, NULL),
(4, 4, 4, '2024-07-28 11:15:00', 'scheduled', 'Neurological evaluation', NULL, NULL, NULL),
(5, 5, 5, '2024-07-29 13:45:00', 'scheduled', 'Dermatology follow-up', NULL, NULL, NULL);
```

❖ After successfully creating and inserting the value into the tables. We can verify whether tables are created or not using the select which display whole table.



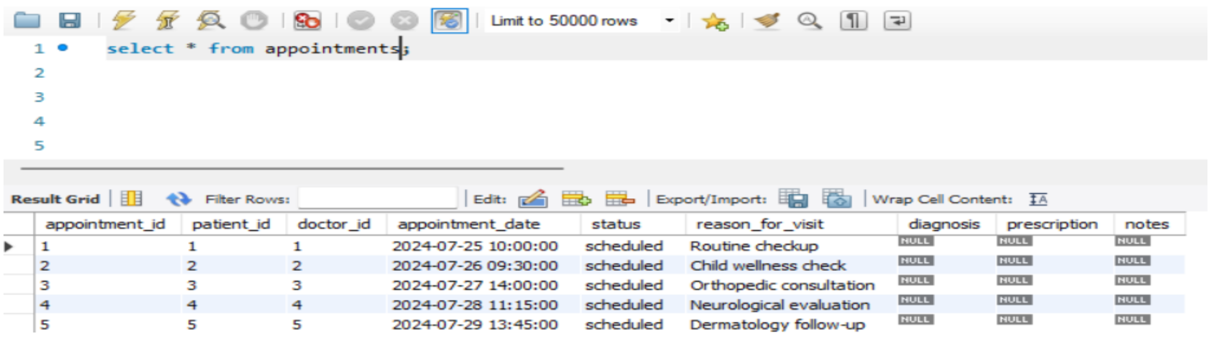
```
select * from patients;
```

patient_id	patient_name	dob	gender	phone	address	insurance_provider	insurance_id	blood_type
1	John Doe	1980-05-15	Male	123-456-7890	123 Main St, City	Health Insurance Inc.	HI123456	O+
2	Jane Smith	1975-08-22	Female	234-567-8901	456 Elm St, City	HealthCare Co.	HC789012	A-
3	Michael Johnson	1990-03-10	Male	345-678-9012	789 Oak St, City	MediCare Services	MS456789	B+
4	Emily Brown	1988-11-05	Female	456-789-0123	567 Pine St, City	Health Insurance Inc.	HI654321	AB-
5	David Lee	1972-09-30	Male	567-890-1234	678 Cedar St, City	HealthCare Co.	HC345678	O-
6	Sarah Wilson	1985-07-18	Female	678-901-2345	890 Maple St, City	MediCare Services	MS567890	A+
7	Christopher Davis	1982-01-25	Male	789-012-3456	901 Birch St, City	Health Insurance Inc.	HI987654	B-
8	Jennifer Martinez	1995-04-12	Female	890-123-4567	345 Pinecrest Ave, City	MediCare Services	MS789012	O+



```
select * from doctors;
```

doctor_id	doctor_name	specialty	phone	address	hospital_affiliation	consultation_fee
1	Dr. Smith	Cardiology	987-654-3210	456 Elm St, City	City Hospital	150.00
2	Dr. Johnson	Pediatrics	876-543-2109	789 Oak St, City	Community Hospital	120.00
3	Dr. Williams	Orthopedics	765-432-1098	567 Pine St, City	General Hospital	160.00
4	Dr. Brown	Neurology	654-321-0987	678 Cedar St, City	Medical Center	180.00
5	Dr. Miller	Dermatology	543-210-9876	890 Maple St, City	City Hospital	140.00

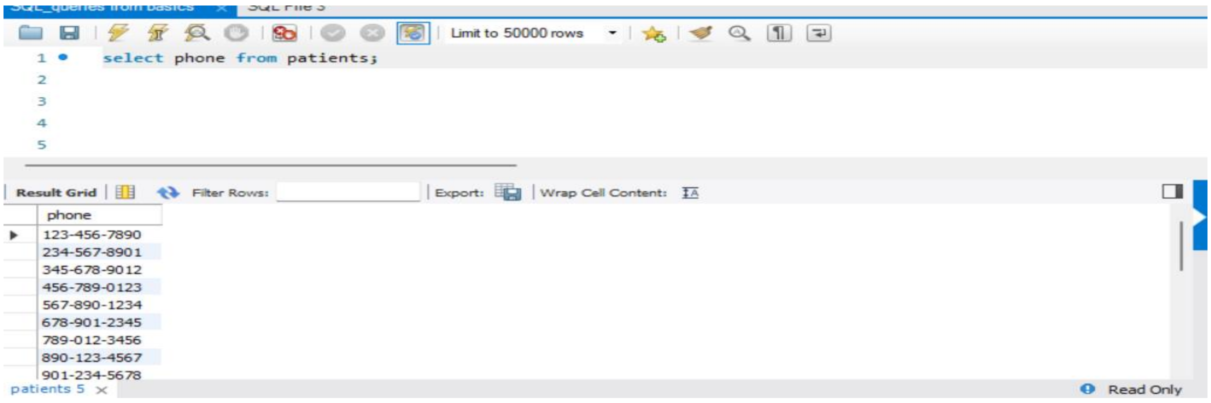


```
select * from appointments;
```

appointment_id	patient_id	doctor_id	appointment_date	status	reason_for_visit	diagnosis	prescription	notes
1	1	1	2024-07-25 10:00:00	scheduled	Routine checkup	NULL	NULL	NULL
2	2	2	2024-07-26 09:30:00	scheduled	Child wellness check	NULL	NULL	NULL
3	3	3	2024-07-27 14:00:00	scheduled	Orthopedic consultation	NULL	NULL	NULL
4	4	4	2024-07-28 11:15:00	scheduled	Neurological evaluation	NULL	NULL	NULL
5	5	5	2024-07-29 13:45:00	scheduled	Dermatology follow-up	NULL	NULL	NULL

CASE STUDY

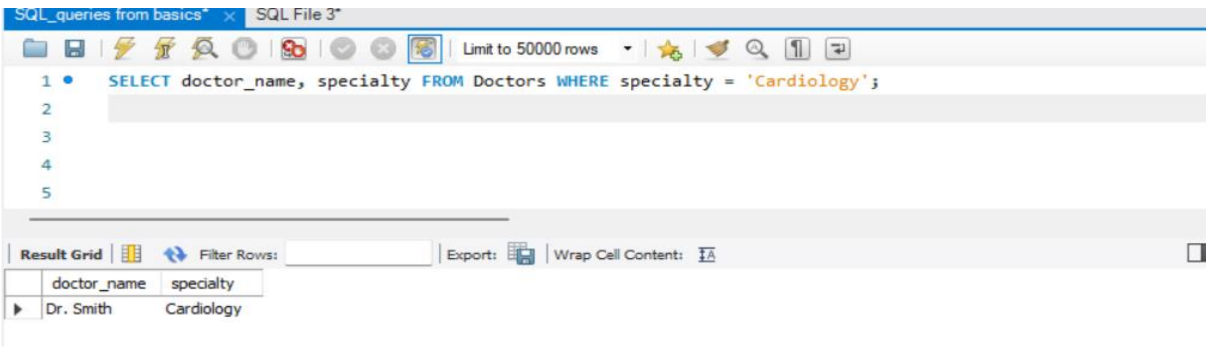
1. Retrieve all patients' names and their phone numbers.



```sql
select phone from patients;
```

```
phone
123-456-7890
234-567-8901
345-678-9012
456-789-0123
567-890-1234
678-901-2345
789-012-3456
890-123-4567
901-234-5678
```

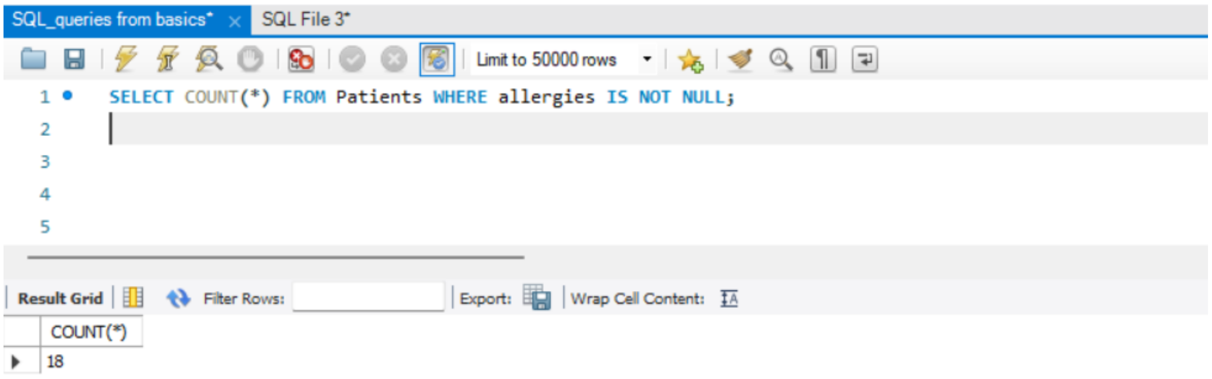
2. Find all doctors specializing in Cardiology.



```sql
SELECT doctor_name, specialty FROM Doctors WHERE specialty = 'Cardiology';
```

```
doctor_name   specialty
Dr. Smith     Cardiology
```

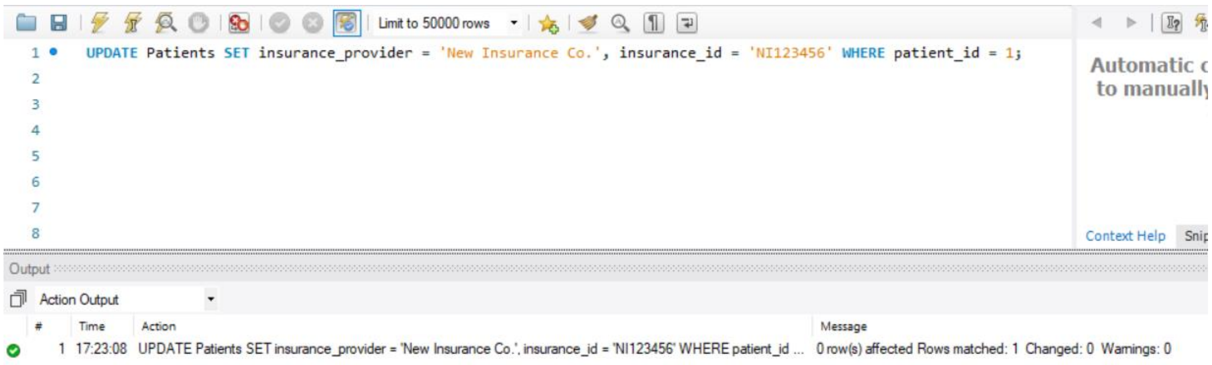
3. Count the number of patients with allergies



```sql
SELECT COUNT(*) FROM Patients WHERE allergies IS NOT NULL;
```

```
COUNT(*)
18
```

4. Update a patient's insurance provider and ID based on their ID.

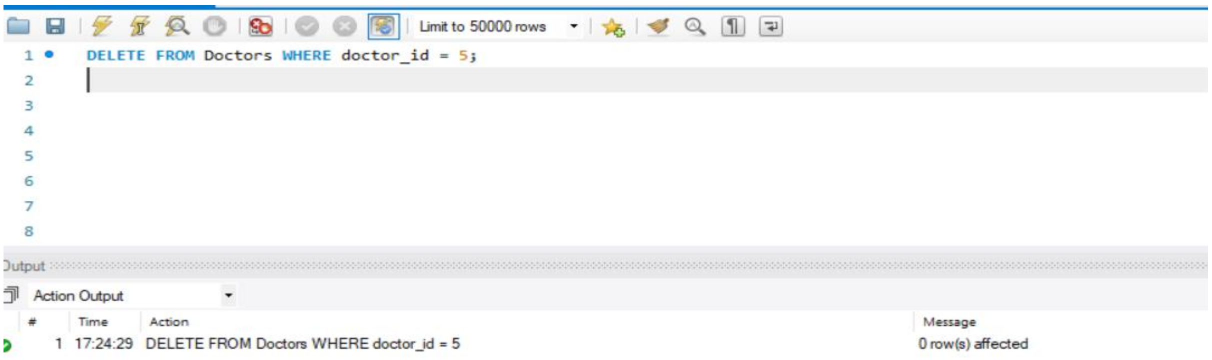


```
UPDATE Patients SET insurance_provider = 'New Insurance Co.', insurance_id = 'NI123456' WHERE patient_id = 1;
```

Automatic c
to manually

```
#  Time      Action                                                                                      Message
1  17:23:08  UPDATE Patients SET insurance_provider = 'New Insurance Co.', insurance_id = 'NI123456' WHERE patient_id ...  0 row(s) affected Rows matched: 1  Changed: 0  Warnings: 0
```

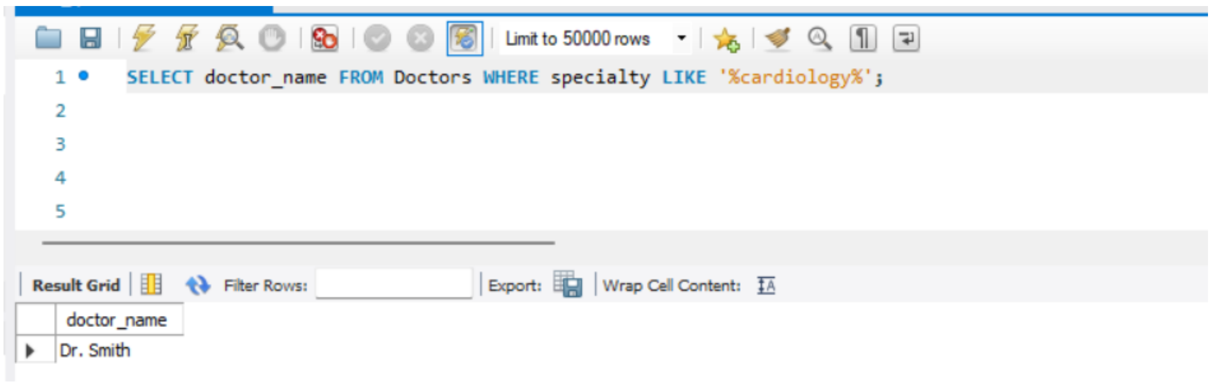
5. Delete a doctor from the database.



```
DELETE FROM Doctors WHERE doctor_id = 5;
```

```
#  Time      Action                                  Message
1  17:24:29  DELETE FROM Doctors WHERE doctor_id = 5  0 row(s) affected
```

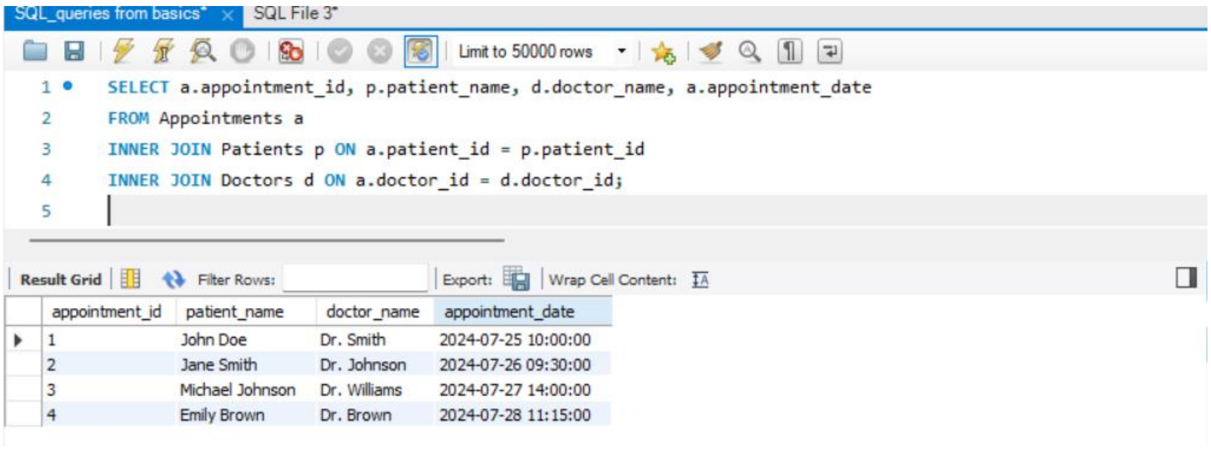
6. Find doctors who is Cardiologist.



```
SELECT doctor_name FROM Doctors WHERE specialty LIKE '%cardiology%';
```

doctor_name
Dr. Smith

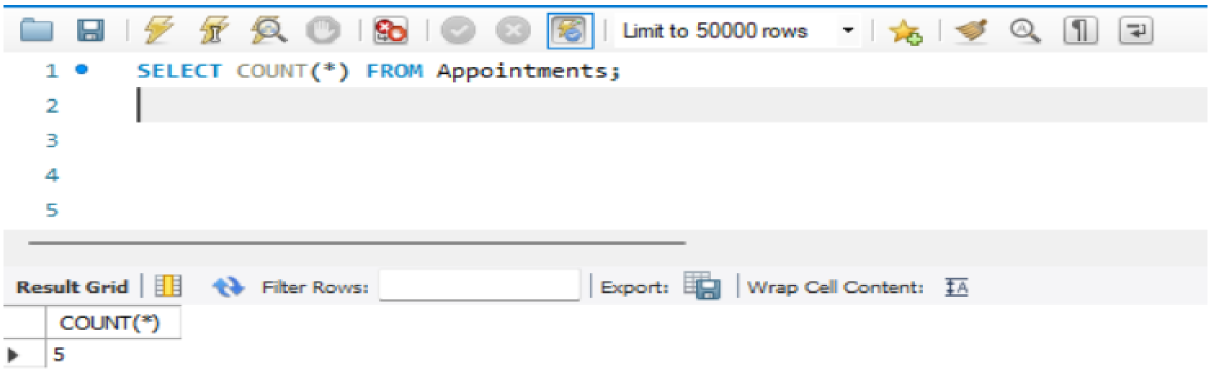
7. List all appointments with their associated patient and doctor names.



```sql
SELECT a.appointment_id, p.patient_name, d.doctor_name, a.appointment_date
FROM Appointments a
INNER JOIN Patients p ON a.patient_id = p.patient_id
INNER JOIN Doctors d ON a.doctor_id = d.doctor_id;
```

```
appointment_id  patient_name     doctor_name    appointment_date
1               John Doe         Dr. Smith      2024-07-25 10:00:00
2               Jane Smith       Dr. Johnson    2024-07-26 09:30:00
3               Michael Johnson  Dr. Williams   2024-07-27 14:00:00
4               Emily Brown      Dr. Brown      2024-07-28 11:15:00
```

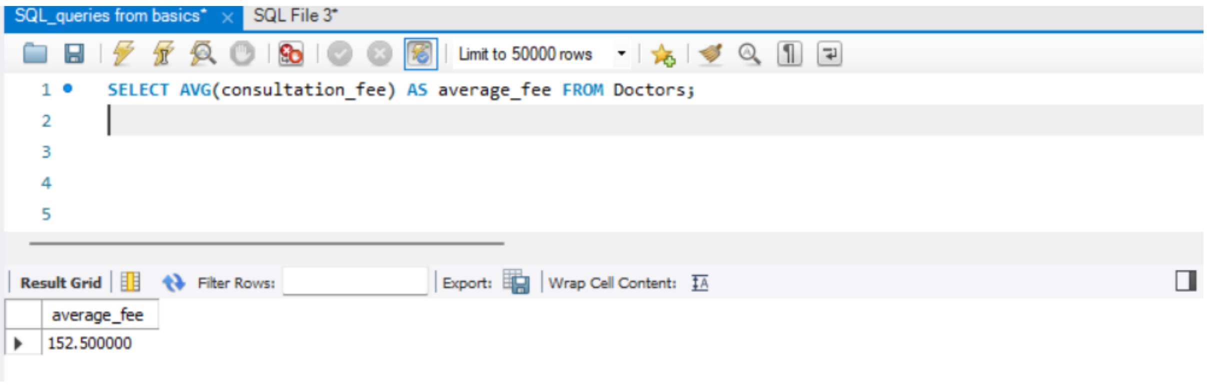
8. Calculate the total number of appointments.



```sql
SELECT COUNT(*) FROM Appointments;
```

```
COUNT(*)
5
```

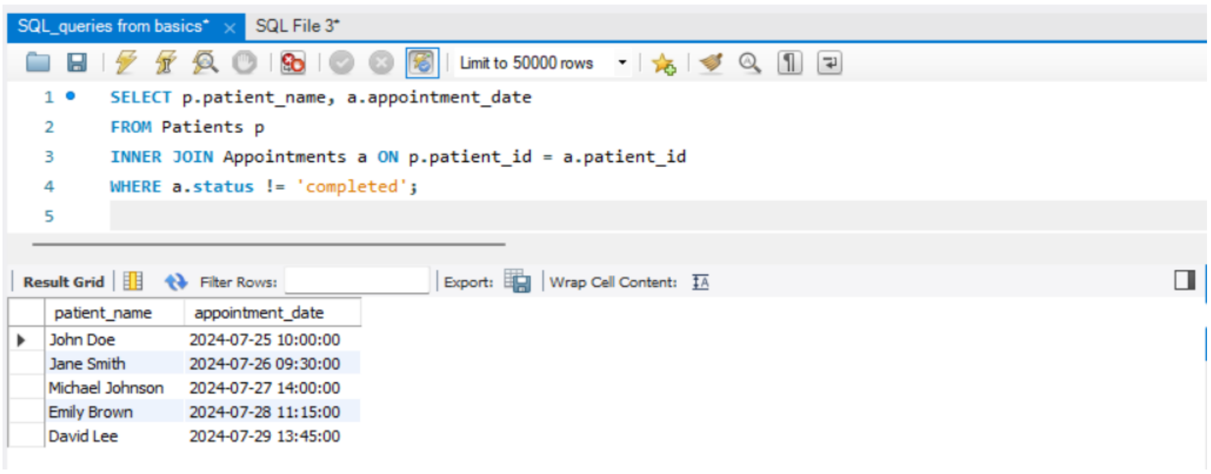
9. Find the average consultation fee of all doctors.



```sql
SELECT AVG(consultation_fee) AS average_fee FROM Doctors;
```

```
average_fee
152.500000
```

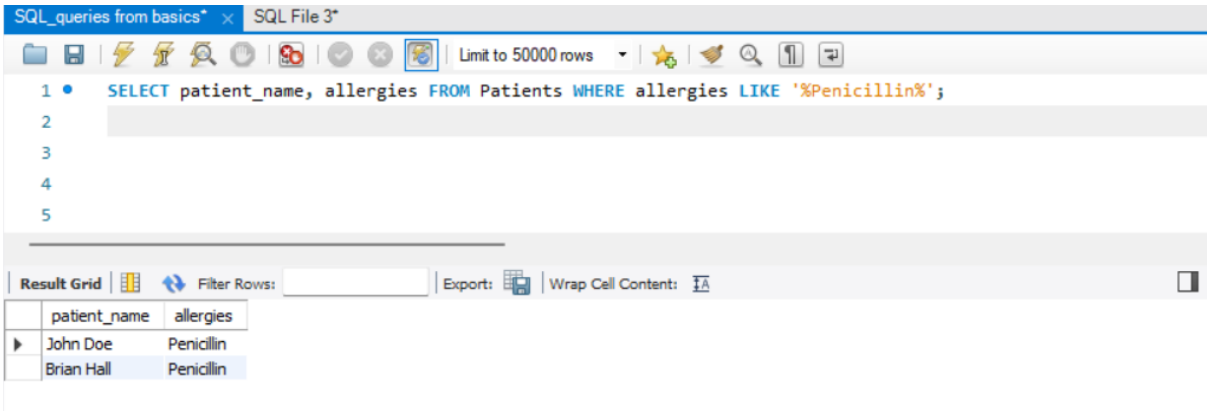
10.Identify patients who have appointments scheduled but have not been marked as complete.



```sql
SELECT p.patient_name, a.appointment_date
FROM Patients p
INNER JOIN Appointments a ON p.patient_id = a.patient_id
WHERE a.status != 'completed';
```

patient_name	appointment_date
John Doe	2024-07-25 10:00:00
Jane Smith	2024-07-26 09:30:00
Michael Johnson	2024-07-27 14:00:00
Emily Brown	2024-07-28 11:15:00
David Lee	2024-07-29 13:45:00

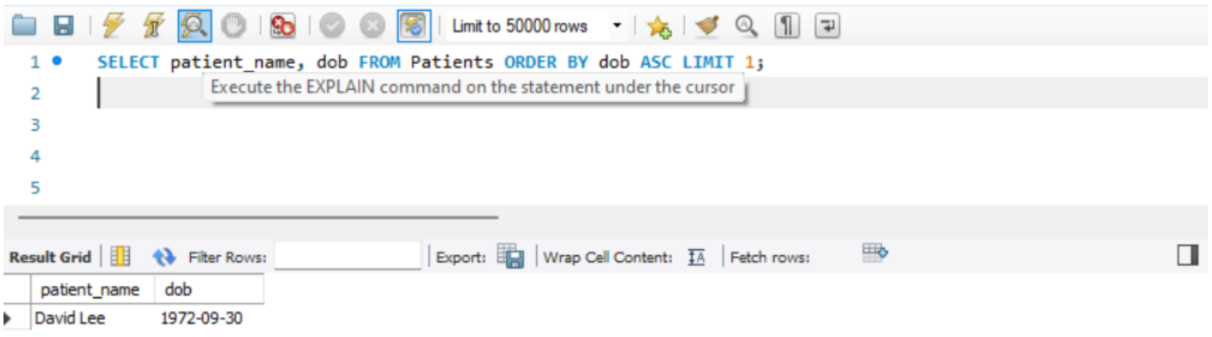
11. List patients who have a specific allergy (e.g., Penicillin).



```sql
SELECT patient_name, allergies FROM Patients WHERE allergies LIKE '%Penicillin%';
```

patient_name	allergies
John Doe	Penicillin
Brian Hall	Penicillin

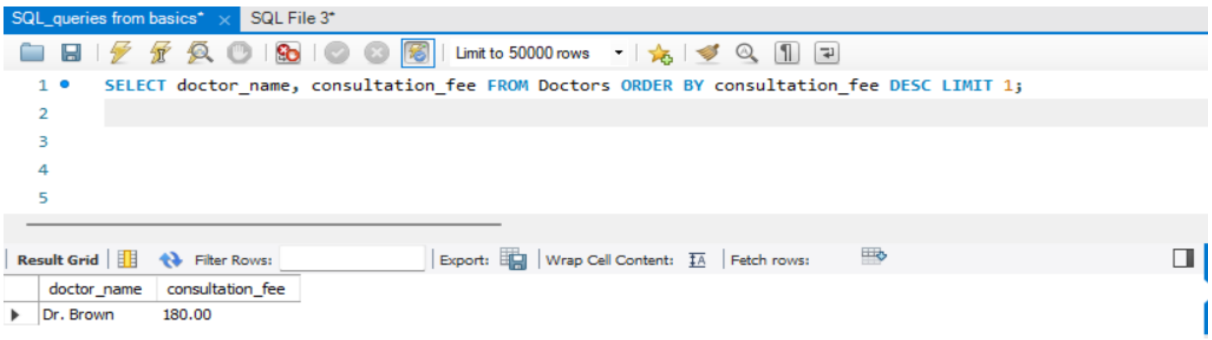
12. Find the oldest patient by age.



```sql
SELECT patient_name, dob FROM Patients ORDER BY dob ASC LIMIT 1;
```

patient_name	dob
David Lee	1972-09-30

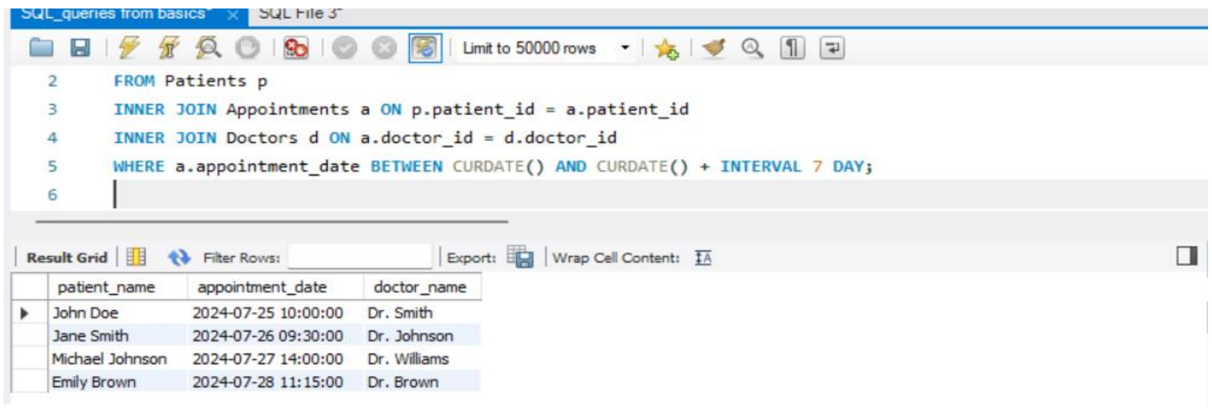
13. Determine the doctor with the highest consultation fee.



```sql
SELECT doctor_name, consultation_fee FROM Doctors ORDER BY consultation_fee DESC LIMIT 1;
```

doctor_name	consultation_fee
Dr. Brown	180.00

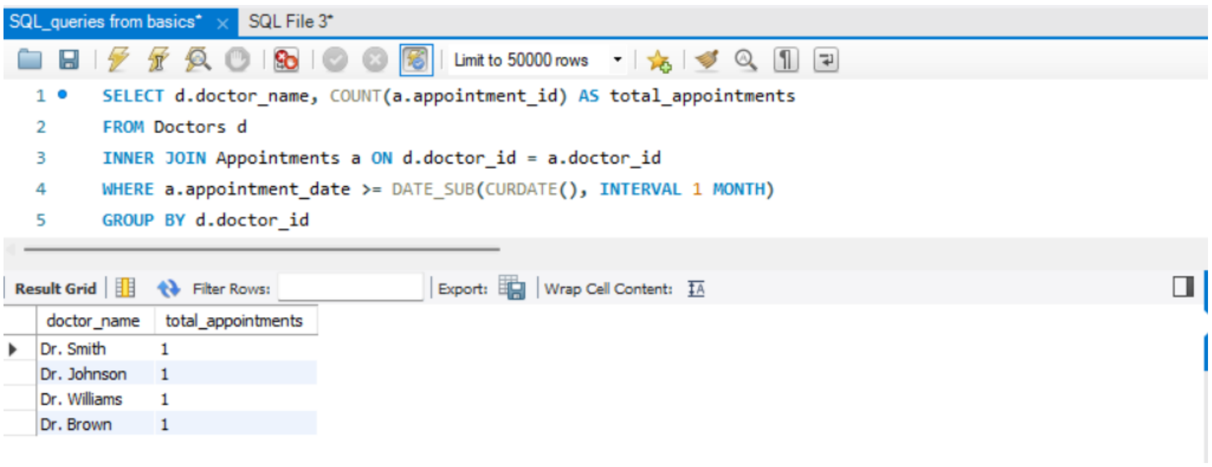
14.Identify Patients with Upcoming Appointments



```sql
FROM Patients p
INNER JOIN Appointments a ON p.patient_id = a.patient_id
INNER JOIN Doctors d ON a.doctor_id = d.doctor_id
WHERE a.appointment_date BETWEEN CURDATE() AND CURDATE() + INTERVAL 7 DAY;
```

patient_name	appointment_date	doctor_name
John Doe	2024-07-25 10:00:00	Dr. Smith
Jane Smith	2024-07-26 09:30:00	Dr. Johnson
Michael Johnson	2024-07-27 14:00:00	Dr. Williams
Emily Brown	2024-07-28 11:15:00	Dr. Brown

15. Identify Doctors with High Patient Volume



```sql
SELECT d.doctor_name, COUNT(a.appointment_id) AS total_appointments
FROM Doctors d
INNER JOIN Appointments a ON d.doctor_id = a.doctor_id
WHERE a.appointment_date >= DATE_SUB(CURDATE(), INTERVAL 1 MONTH)
GROUP BY d.doctor_id
```

doctor_name	total_appointments
Dr. Smith	1
Dr. Johnson	1
Dr. Williams	1
Dr. Brown	1