SQL PROJECT ON

HEALTH CARE ANALYTICS
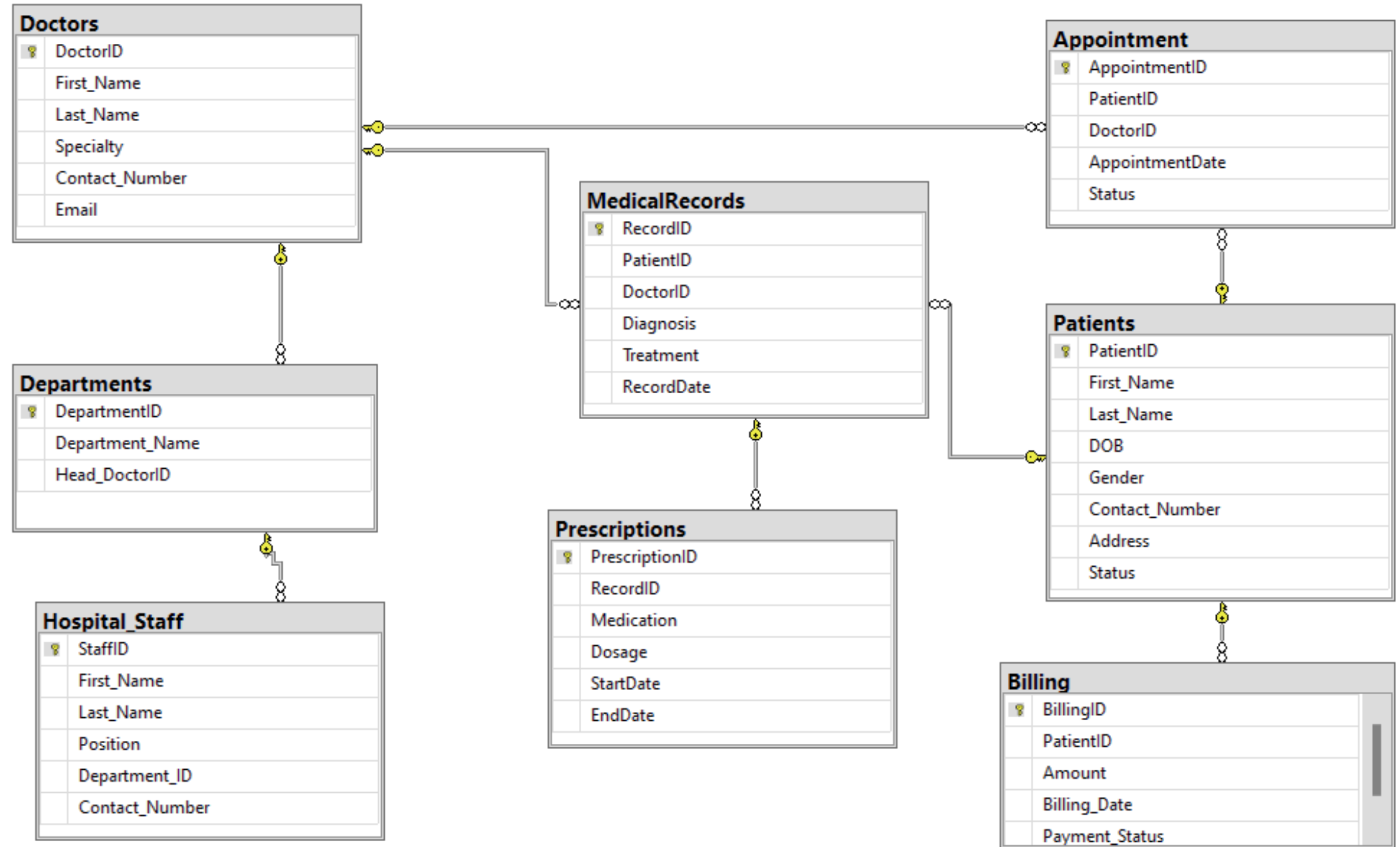
PART II

DEEPTI CHAND

ABOUT PROJECT

PROJECT OVERVIEW

The Healthcare Analytics System is designed to manage and analyze data within a healthcare facility, providing a comprehensive view of patient care, doctor performance, billing, and staff management. This system integrates various aspects of healthcare data to facilitate better decision-making, streamline operations, and improve patient outcomes.
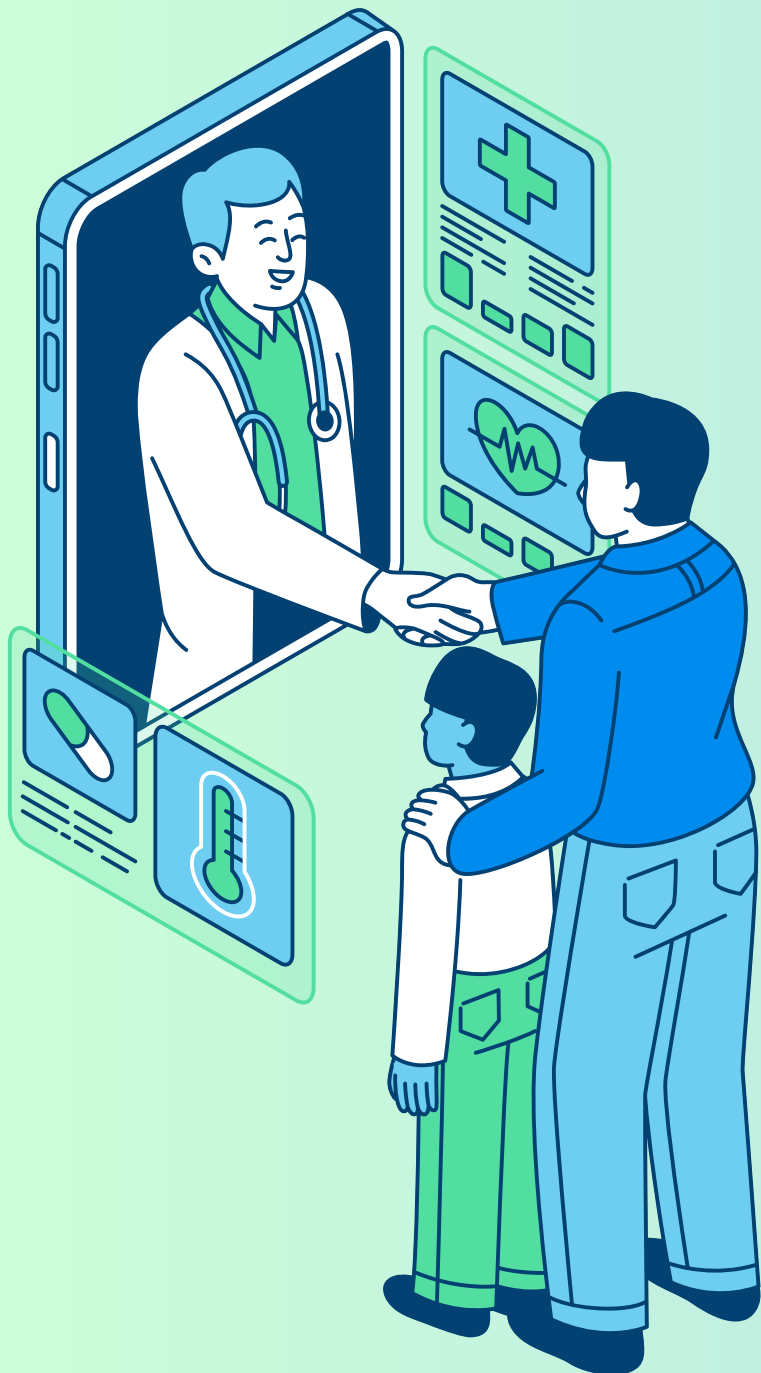
DATABASE SCHEMA

We've explored nearly all the essential SQL topics and here are some practice questions to apply them in the Health System Project.

---Question 1: List all patients' names and their contact numbers---

Query : `SELECT First_Name,Last_Name,Contact_Number FROM Patients;`

Output :

	First_Name	Last_Name	Contact_Number
1	Arjun	Verma	9876543210
2	Neha	Sharma	9876543211
3	Rohan	Singh	9876543212
4	Priya	Mehta	9876543213
5	Amit	Kumar	9876543214
6	Sneha	Patel	9876543215
7	Vikram	Joshi	9876543216
8	Pooja	Rao	9876543217
9	Rahul	Nair	9876543218
10	Anita	Desai	9876543219

---Question 2-- Find the number of male and female Active patients-----

Query :

```sql
SELECT Gender, COUNT(*) AS Active_Patients
FROM Patients
WHERE Status = 'Active'
GROUP BY Gender;
```

Output :

	Gender	Active_Patients
1	Female	4
2	Male	5

Query :

```sql
---------------------
SELECT
    P.PatientID,
    P.First_Name,
    P.Last_Name,
    P.DOB,
    P.Gender,
    P.Contact_Number,
    P.Address,
    P.Status
FROM
    Patients P
JOIN
    Appointment A ON P.PatientID = A.PatientID
WHERE
    P.Status = 'Active'
AND AppointmentDate >= DATEADD(DAY, -7, GETDATE());
```

Output :

⊞ Results   ▤ Messages

PatientID	First_Name	Last_Name	DOB	Gender	Contact_Number	Address	Status

Note :

This means that no active patients had an appointment in the last 7 days, or the conditions specified in the query did not match any records in the database.

Query :

```sql
SELECT
    P.PatientID,
    P.First_Name,
    P.Last_Name,
    P.DOB,
    P.Gender,
    P.Contact_Number,
    P.Address,
    P.Status
FROM
    Patients P
JOIN
    Appointment A ON P.PatientID = A.PatientID
WHERE
    P.Status = 'Active'
AND AppointmentDate BETWEEN  GETDATE() AND DATEADD(DAY, 7, GETDATE());
```

Output :

Results	Messages

PatientID	First_Name	Last_Name	DOB	Gender	Contact_Number	Address	Status

Note :

This means that no active patients had an appointment in the next 7 days, or the conditions specified in the query did not match any records in the database.

----Question 5: List all doctors along with their specialties-----------

Query :

```sql
SELECT First_Name, Last_Name, Specialty
FROM Doctors;
```

Output :

Results | Messages

	First_Name	Last_Name	Specialty
1	Dr. Ravi	Patel	Cardiology
2	Dr. Deepthi	Desai	Neurology
3	Dr. Anil	Joshi	Orthopedics
4	Dr. Meera	Rao	Pediatrics
5	Dr. Vikram	Kapoor	Dermatology

-------Question 6: Find the number of doctors in each specialty------------

Query :

```sql
SELECT Specialty, COUNT(*) AS NumberOfDoctors
FROM Doctors
GROUP BY Specialty;
```
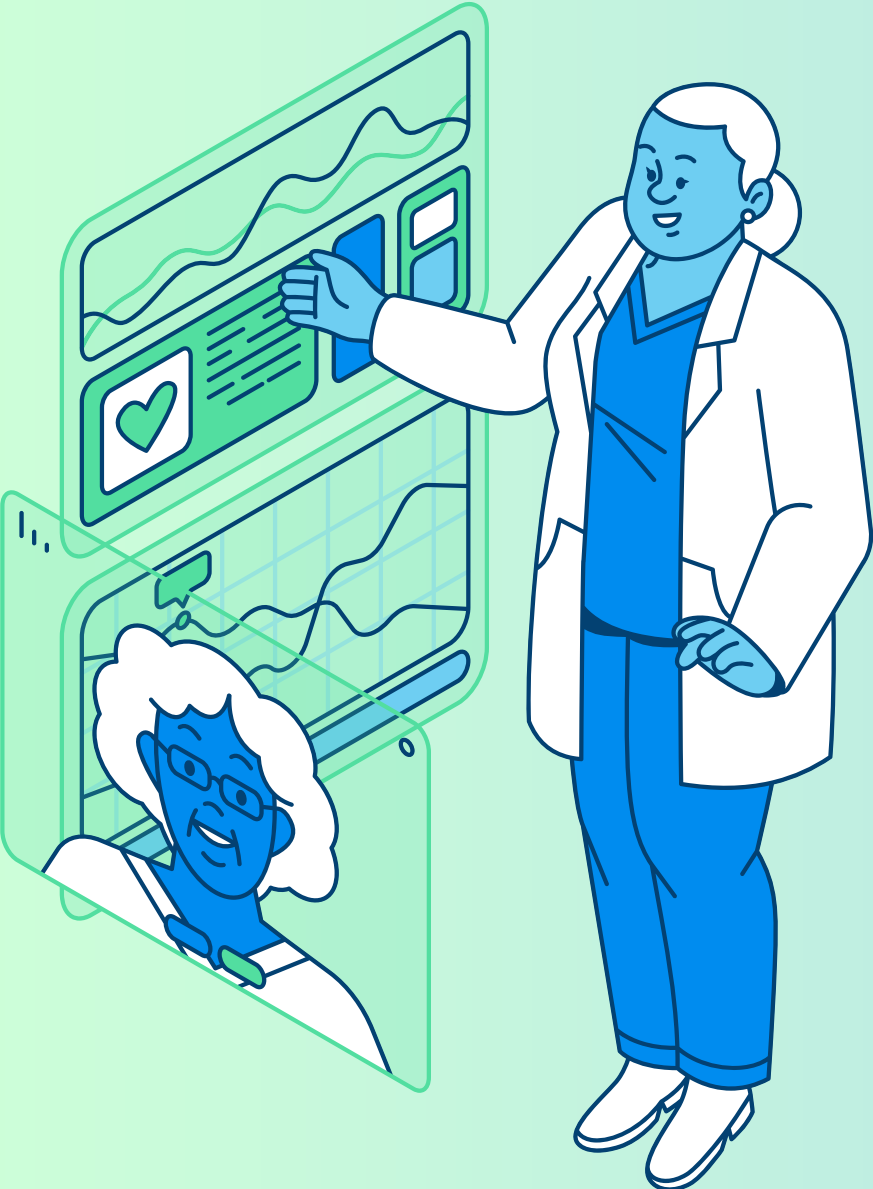
Output :

	First_Name	Last_Name	Specialty
1	Dr. Ravi	Patel	Cardiology
2	Dr. Deepthi	Desai	Neurology
3	Dr. Anil	Joshi	Orthopedics
4	Dr. Meera	Rao	Pediatrics
5	Dr. Vikram	Kapoor	Dermatology

Query :

```sql
SELECT D.First_Name, D.Last_Name, COUNT(A.AppointmentID) AS AppointmentCount
FROM Doctors D
JOIN Appointment A
ON D.DoctorID = A.DoctorID
WHERE MONTH(A.AppointmentDate) = MONTH(GETDATE())
   AND YEAR(A.AppointmentDate) = YEAR(GETDATE())
GROUP BY D.First_Name, D.Last_Name
HAVING COUNT(A.AppointmentID) > 1;
```

Output :

⊞ Results	🗗 Messages
First_Name	Last_Name	AppointmentCount

Note : This means that no Doctor had an appointment in the current month, or the conditions specified in the query did not match any records in the database.

Query :

```sql
SELECT Count(*) AS Total_Appointment FROM Appointment
WHERE
YEAR(AppointmentDate)= Year(GETDATE());
```

Output :

	Total_Appointment
1	10

Query :

```sql
SELECT * FROM Appointment
WHERE Status = 'Pending';
```

Output :

Results | Messages

	AppointmentID	PatientID	DoctorID	AppointmentDate	Status
1	8	8	2	2024-08-11 12:30:00.000	Pending
2	9	9	3	2024-08-16 09:30:00.000	Pending
3	10	10	3	2024-08-21 14:30:00.000	Pending

--Question10: Retrieve the details of appointments along with patient and doctor names---

Query :

```sql
SELECT A.AppointmentID, P.First_Name As Patients_First_Name,P.Last_Name As Patients_Last_Name,
D.First_Name As Doctors_First_Name,D.Last_Name As Doctors_Last_Name,A.AppointmentDate,A.Status
From Appointment A
JOIN Patients P ON  P.PatientID = A.PatientID
JOIN Doctors D On D.DoctorID = A.DoctorID;
```

Output :

▦ Results 📄 Messages 📄 Client Statistics

	AppointmentID	Patients_First_Name	Patients_Last_Name	Doctors_First_Name	Doctors_Last_Name	AppointmentDate	Status
1	1	Arjun	Verma	Dr. Ravi	Patel	2024-07-01 10:00:00.000	Completed
2	2	Neha	Sharma	Dr. Deepthi	Desai	2024-07-05 11:00:00.000	Completed
3	3	Rohan	Singh	Dr. Anil	Joshi	2024-07-10 12:00:00.000	Completed
4	4	Priya	Mehta	Dr. Meera	Rao	2024-07-15 09:00:00.000	Completed
5	5	Amit	Kumar	Dr. Vikram	Kapoor	2024-07-20 14:00:00.000	Completed
6	6	Sneha	Patel	Dr. Ravi	Patel	2024-08-01 10:30:00.000	Completed
7	7	Vikram	Joshi	Dr. Ravi	Patel	2024-08-06 11:30:00.000	Completed
8	8	Pooja	Rao	Dr. Deepthi	Desai	2024-08-11 12:30:00.000	Pending
9	9	Rahul	Nair	Dr. Anil	Joshi	2024-08-16 09:30:00.000	Pending
10	10	Anita	Desai	Dr. Anil	Joshi	2024-08-21 14:30:00.000	Pending

---Question 11: Find the most common Diagnosis given by Doctors--

Query :

```sql
SELECT Diagnosis,COUNT(*) AS Frequency
FROM MedicalRecords
GROUP BY Diagnosis
ORDER BY Frequency DESC
-----------------------------------------------------------------
```

Output :

	Diagnosis	Frequency
1	Diabetes	1
2	Epilepsy	1
3	Flu	1
4	Fracture	1
5	Hypertension	1
6	Migraine	1
7	Skin Allergy	1

--Question 12: Find the medications that have been prescribed the most--

Query :

```sql
SELECT Medication ,COUNT(*) AS PrescriptionCount
FROM Prescriptions
Group By Medication
Order By PrescriptionCount DESC;
----------
```

Output :

⊞ Results	🗈 Messages	🗈 Client Statistics

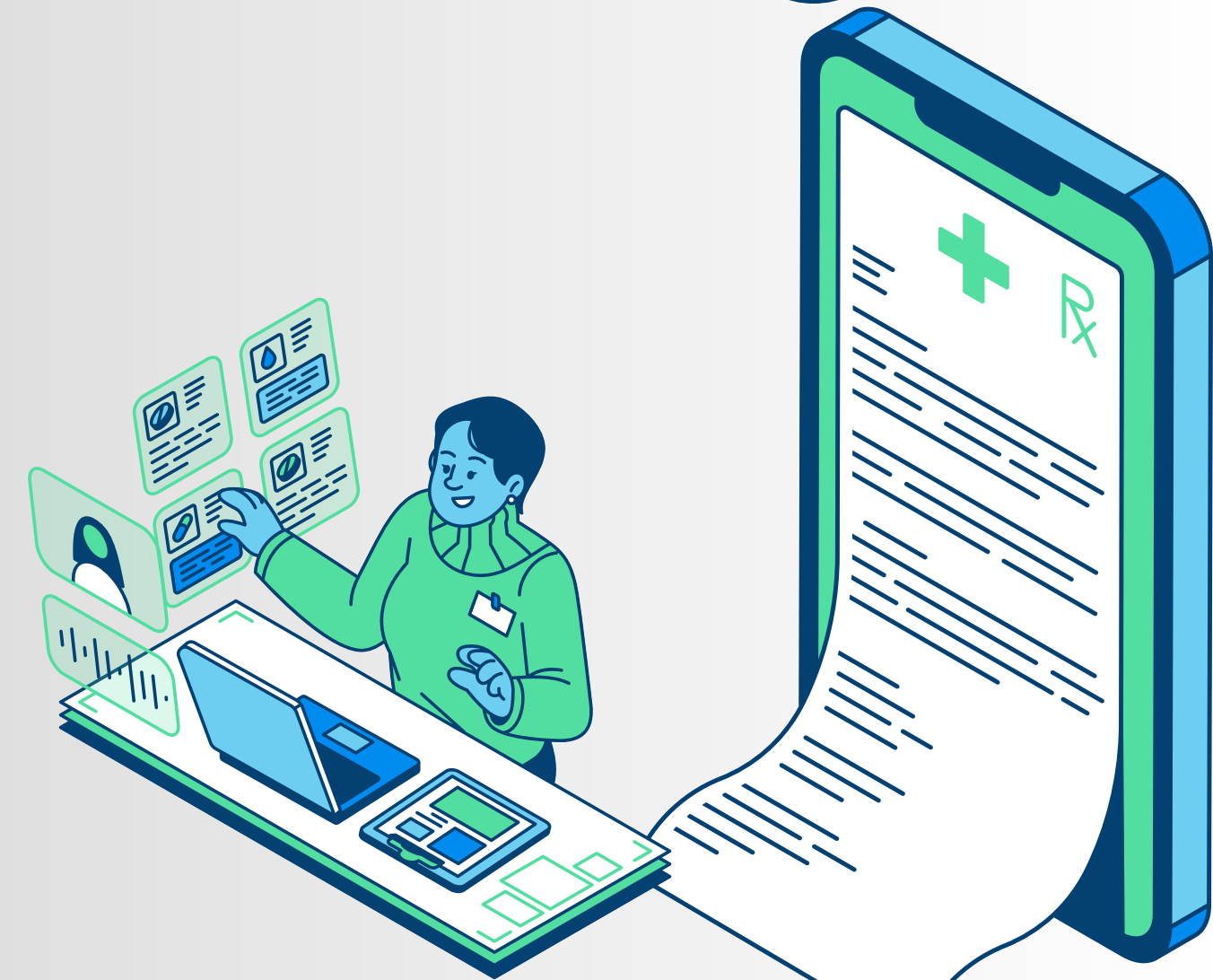|	Medication	PrescriptionCount
1	Amlodipine	1
2	Carbamazepine	1
3	Hydrocortisone	1
4	Ibuprofen	1
5	Metformin	1
6	Oseltamivir	1
7	Sumatriptan	1

---Question 13: Retrieve the details of unpaid bills---

Query :

```sql
SELECT * FROM Billing
WHERE Payment_Status = 'Pending';
```

Output :

	BillingID	PatientID	Amount	Billing_Date	Payment_Status
1	3	3	2000.00	2024-07-11	Pending
2	6	6	1800.00	2024-08-02	Pending

---Question 14: Find the total billing amount for the current month---

Query :

```sql
SELECT SUM(Amount) AS TotalBilling
FROM Billing
WHERE Month(Billing_Date)= Month(GetDate())
AND Year(Billing_Date)= Year(GetDate());
```

Output :

	Results	Messages
	TotalBilling	
1	NULL	

Query :

```sql
SELECT Department_Name,COUNT(StaffID) As Staff_Count
FROM Departments D
Join Hospital_Staff HS On D.DepartmentID = HS.Department_ID
Group By Department_Name;
```

Output :

	Department_Name	Staff_Count
1	Cardiology	1
2	Dermatology	1
3	Neurology	1
4	Orthopedics	1
5	Pediatrics	1

---Question 16: List the top 3 doctors with the highest number of appointments----

Query :

```sql
WITH DoctorAppointments AS (
    SELECT DoctorID, COUNT(*) AS NumberOfAppointments
    FROM Appointment
    GROUP BY DoctorID
)

SELECT TOP 3 DA.DoctorID,Concat(First_Name,' ',Last_Name) AS DoctorName, DA.NumberOfAppointments
FROM DoctorAppointments DA
INNER JOIN Doctors D ON DA.DoctorID = D.DoctorID
ORDER BY DA.NumberOfAppointments DESC
```

Output :

Results   Messages   Client Statistics

	DoctorID	DoctorName	NumberOfAppointments
1	1	Dr. Ravi Patel	3
2	3	Dr. Anil Joshi	3
3	2	Dr. Deepthi Desai	2

THANK YOU!

For reviewing this SQL Project in Advance.
Your support and insights are greatly
appreciated!