ADVANCE QUERIES

1. Find the total number of appointments, grouped by doctor and their respective department, for appointments that are either 'Completed' or 'Pending'.

WITH CTE_App AS (

      SELECT a.Doctor_id,a.App_Status,d.Dept_id

      FROM Appointments a

      JOIN

      Doctors d

      ON a.Doctor_id=d.Doctor_id

      WHERE a.App_Status IN('Completed','Pending'))

SELECT d.First_name,d.Last_name,dpt.Dept_name,COUNT(c.App_Status) AS Total_Appointments

FROM CTE_App c

JOIN Doctors d ON c.Doctor_id=d.Doctor_id

JOIN Deapartments dpt ON c.Dept_id=dpt.Dept_id

GROUP BY d.First_name,d.Last_name,dpt.Dept_name

	First_name	Last_name	Dept_name	Total_Appointments
1	Alice	Taylor	Cardiology	1
2	James	Moore	Pediatrics	1
3	Olivia	Martin	Dermatology	1
4	Sophia	Lee	Orthopedics	1

2. List all doctors with their specializations, and the average bill amount generated from their completed appointments.

WITH CTE_Doc AS(

      SELECT d.Doctor_id,d.First_name,d.Last_name,d.Specialization,b.Total_amount

      FROM Doctors d

      JOIN Appointments a ON d.Doctor_id=a.Doctor_id

      JOIN Billing b ON a.App_id=b.App_id

      WHERE a.App_Status='Completed' AND b.Payment_status='Paid')

SELECT First_name, Last_name, Specialization, AVG(Total_amount) AS Total_Bill

FROM CTE_Doc

GROUP BY First_name, Last_name, Specialization

100 %

▤ Results ▦ Messages

	First_name	Last_name	Specialization	Total_Bill
1	Alice	Taylor	Cardiologist	200
2	Olivia	Martin	Dermatologist	250

3. Find patients who have seen doctors in more than one department.
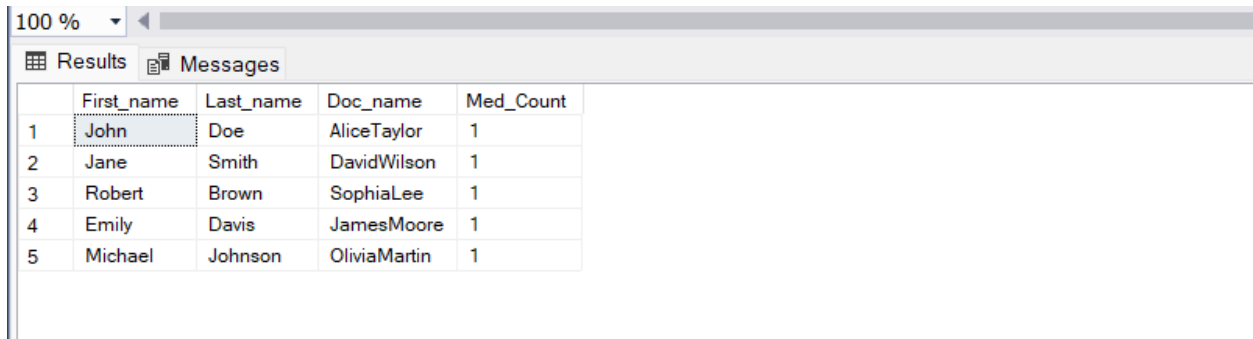
WITH CTE_pat AS (

       SELECT d.Dept_id,a.Patient_id

       FROM Appointments a

       JOIN Doctors d ON a.Doctor_id=d.Doctor_id

       GROUP BY d.Dept_id,a.Patient_id)

SELECT p.First_name,p.Last_name

FROM Patients p

JOIN CTE_pat cp ON p.Patient_id=cp.Patient_id

GROUP BY p.First_name,p.Last_name

HAVING COUNT(DISTINCT cp.Dept_id)>1

4. List the most frequent diagnosis given by each doctor along with the count.

WITH CTE_Fre_Dia AS (

       SELECT mr.Doctor_id,mr.Diagnosis, COUNT(*) AS Diagnosis_Count

       FROM Medical_records mr

       GROUP BY mr.Doctor_id,mr.Diagnosis)

SELECT d.First_name,d.Last_name,cfd.Diagnosis,MAX(cfd.Diagnosis_Count) AS Diagnosis_Count

FROM Doctors d

JOIN CTE_Fre_Dia cfd ON d.Doctor_id=cfd.Doctor_id

GROUP BY d.First_name,d.Last_name,cfd.Diagnosis

ORDER BY Diagnosis_Count DESC

5. For each patient, list their doctors and how many different medications were prescribed by each doctor.

WITH CTE_Med_Pre AS (

      SELECT m.Patient_id,m.Doctor_id,COUNT(DISTINCT m.Med_id) as Med_Count

      FROM Medications m

      GROUP BY m.Patient_id,m.Doctor_id)

SELECT p.First_name,p.Last_name,CONCAT(d.First_name,d.Last_name) AS Doc_name, mp.Med_Count

FROM Patients p

JOIN CTE_Med_Pre mp ON p.Patient_id=mp.Patient_id

JOIN Doctors d ON mp.Doctor_id=d.Doctor_id

100 % ▾ ◀

⊞ Results ▨ Messages

	First_name	Last_name	Doc_name	Med_Count
1	John	Doe	AliceTaylor	1
2	Jane	Smith	DavidWilson	1
3	Robert	Brown	SophiaLee	1
4	Emily	Davis	JamesMoore	1
5	Michael	Johnson	OliviaMartin	1

6. Find doctors who have treated patients from every department (i.e., doctors who have treated at least one patient from each department).

WITH CTE_Tre_Pat AS (

      SELECT d.Doctor_id,dpt.Dept_id

      FROM Doctors d

      JOIN Appointments a ON d.Doctor_id=a.Doctor_id

      JOIN Patients p ON a.Patient_id=p.Patient_id

      JOIN Deapartments dpt ON d.Dept_id=dpt.Dept_id

      GROUP BY d.Doctor_id,dpt.Dept_id)

SELECT CONCAT (d.First_name,d.Last_name) AS Doc_name,d.Doctor_id

FROM Doctors d

JOIN CTE_Tre_Pat ctp ON d.Doctor_id=ctp.Doctor_id

GROUP BY d.First_name,d.Last_name,d.Doctor_id

HAVING COUNT(DISTINCT ctp.Dept_id) = (SELECT COUNT(*) FROM Deapartments)

7. Find the patient with the highest total bill amount across all departments, and the department where they spent the most.

WITH Patient_Bills_CTE AS (

   SELECT B.Patient_id, D.Dept_id, SUM(B.Total_amount) AS Total_Bill

   FROM Billing B

   JOIN Appointments A ON B.App_id = A.App_id

   JOIN Doctors D ON A.Doctor_id = D.Doctor_id

   WHERE B.Payment_status = 'Paid'

   GROUP BY B.Patient_id, D.Dept_id)

SELECT TOP 1 CONCAT (P.First_name, P.Last_name) AS Patient_name, Dep.Dept_name, PB.Total_Bill

FROM Patient_Bills_CTE PB

JOIN Patients P ON PB.Patient_id = P.Patient_id

JOIN Deapartments Dep ON PB.Dept_id = Dep.Dept_id

ORDER BY PB.Total_Bill DESC

	Patient_name	Dept_name	Total_Bill
1	MichaelJohnson	Dermatology	250