SQL: TREATMENT AND SATISFACTION ANALYSIS

1. Calculate the average treatment cost per department.

```
SELECT Specialty AS DEPARTMENT, ROUND(AVG(CAST(Treatment_Cost AS Float)),2) AS
AVERAGE_TREATMENT_COST

FROM

DoctorDetails_Cleaned AS D INNER JOIN TreatmentRecords_Cleaned AS T

ON

D.Doctor_ID = T.Doctor_ID

GROUP BY D.Specialty

ORDER BY AVERAGE_TREATMENT_COST DESC
```

2. Find total number of patients treated by each doctor.

```
SELECT D.Doctor_ID, D.Name AS Doctor, count(Patient_ID) AS Patient_Count

FROM

DoctorDetails_Cleaned As D INNER JOIN TreatmentRecords_Cleaned AS T

ON

D.Doctor_ID = T.Doctor_ID

GROUP BY D.Doctor_ID, D.Name

ORDER BY Patient_Count DESC
```

3. Get conversion rate of successful treatments by department.

```
SELECT D.Specialty AS Department, Count(*) AS Total_Cases,

sum(Case when T.Outcome = 'Recovered' then 1 else 0 End) as Successful_count,

Round(1.0 * sum(Case when T.Outcome = 'Recovered' then 1 else 0 End)/Count(*),4) AS
Conversion_Rate

from

DoctorDetails_Cleaned as D INNER JOIN TreatmentRecords_Cleaned AS T

on

D.Doctor_ID = T.Doctor_ID

GROUP BY D.Specialty

ORDER BY Conversion_Rate DESC
```

4. Retrieve readmission count per condition.

```
With Visits As(

Select P.Disease, T.Patient_ID, T.Treatment_Date,

LAG(T.Treatment_Date) over (Partition by P.Disease, T.Patient_ID Order by T.Treatment_Date) As
Prev_Visit

from

TreatmentRecords_Cleaned As T INNER JOIN PatientInfo_Cleaned As P

on

T.Patient_ID = P.Patient_ID

)

Select Disease, Count(*) As Readmission_Count

from Visits

where

Prev_Visit IS NOT NULL AND DATEDIFF(Day, Prev_Visit , Treatment_Date)<=30

Group by Disease

Order by Readmission_Count Desc
```

5. List doctors with average satisfaction score above 4.5.

```
Select D.Name, Round(AVG(CAST(T.Satisfaction_Score As Float)),4) As Avg_Satisfaction_Score
from
DoctorDetails_Cleaned AS D INNER JOIN TreatmentRecords_Cleaned As T
on
D.Doctor_ID = T.Doctor_ID
Group by D.Name
Having AVG(T.Satisfaction_Score) > 4.5
Order by Avg_Satisfaction_Score
```

6. Find patients who were admitted more than once in 30 days.

```
Select T1.Patient_ID, count(*) As Visit_in_30days
from
TreatmentRecords_Cleaned T1 INNER JOIN TreatmentRecords_Cleaned T2
on
T1.Patient_ID = T2.Patient_ID AND
T2.Treatment_Date BETWEEN DATEADD(Day, -30, T1.Treatment_Date) AND T1.Treatment_Date
Where T1.Record_ID <> T2.Record_ID
GROUP BY T1.Patient_ID
HAVING COUNT(*) > 1
ORDER BY Visit_in_30days DESC;
```

--checking details of patient with Highest Readmission

```
select * from PatientInfo_Cleaned
where Patient_ID = 'P2672'
```

7. Compare treatment cost between two departments.

Between(Pulmonoligist & Cardiologist)

```
Select D.Specialty, Round(AVG(Cast(T.Treatment_Cost As Float)),3) As Avg_Treatment_Cost
from
DoctorDetails_Cleaned As D INNER JOIN TreatmentRecords_Cleaned As T on
D.Doctor_ID = T.Doctor_ID
where Specialty in ('Pulmonologist', 'Cardiologist')
Group By D.Specialty
Order By Avg_Treatment_Cost Desc
```

(Between Neurologist & Endocrinologist)

```
Select D.Specialty, Round(AVG(Cast(T.Treatment_Cost As Float)),3) As Avg_Treatment_Cost
from
DoctorDetails_Cleaned As D INNER JOIN TreatmentRecords_Cleaned As T on
D.Doctor_ID = T.Doctor_ID
where Specialty in ('Neurologist', 'Endocrinologist')
Group By D.Specialty
Order By Avg_Treatment_Cost Desc
```

8. Retrieve top 5 conditions with highest average treatment duration.

```
Select Top 5 P.Disease, AVG(Cast(T.Treatment_Duration_Days As Float)) AS
Avg_TreatmentDuration_Days
from
PatientInfo_Cleaned As P INNER JOIN TreatmentRecords_Cleaned As T
on
P.Patient_ID = T.Patient_ID
Group By P.Disease
Order BY Avg_TreatmentDuration_Days Desc
```

9. Find most common admission reason by age group.

```
With AgeGroup As(
Select Patient_ID,
Case
When Age < 18 Then 'Child'
When Age BETWEEN 18 AND 59 Then 'Adult'
Else 'Senior'
End As Age_Group
From PatientInfo_Cleaned
)

Select P.Disease, A.Age_Group,Count(T.Record_ID) As Admissions
from
AgeGroup As A INNER JOIN TreatmentRecords_Cleaned As T
on
A.Patient_ID = T.Patient_ID
INNER JOIN PatientInfo_Cleaned As P
on
P.Patient_ID = T.Patient_ID
Group By P.Disease, A.Age_Group
Order by Admissions Desc

--OR (USe Multiple CTE to find the most common reasons for Age groups)

With AgeGroup As(
Select Patient_ID,
Case
When Age < 18 Then 'Child'
When Age BETWEEN 18 AND 59 Then 'Adult'
```

```
Else 'Senior'
End As Age_Group
From PatientInfo_Cleaned
),
Admission As(
Select P.Disease, A.Age_Group,Count(T.Record_ID) As Admissions_Count
from
AgeGroup As A INNER JOIN TreatmentRecords_Cleaned As T
on
A.Patient_ID = T.Patient_ID
INNER JOIN PatientInfo_Cleaned As P
on
P.Patient_ID = T.Patient_ID
Group By P.Disease, A.Age_Group
)

Select Age_Group, Disease, Admissions_Count
from (
Select *,
ROW_NUMBER() OVER (Partition By Age_Group Order by Admissions_Count Desc) As RN
from Admission) TopAdm
where RN = 1
Order By Age_Group
```

10. Get doctors with more than 20 cases and recovery rate >80%.

```
Select D.Name, Count(*) As Total_Cases,

SUM(Case When T.Outcome = 'Recovered' Then 1 else 0 End) As Success_Count,

1.0 * SUM(Case When T.Outcome = 'Recovered' Then 1 else 0 End) / Count(*) As Success_Rate

From

DoctorDetails_Cleaned As D INNER JOIN TreatmentRecords_Cleaned As T

on

D.Doctor_ID = T.Doctor_ID

Group By D.Name

Having Count(*) > 1 AND 1.0 * SUM(Case When T.Outcome = 'Recovered' Then 1 else 0 End) / Count(*)
> 0.80

Order By Success_Rate Desc
```