Basic Beginner Questions

Question 1: How many telehealth visits were conducted by gender?

SELECT Gender, COUNT(*) AS VisitCount
FROM TelehealthServicesUsage
GROUP BY Gender;

	gender character varying (10) 🔒	visitcount 🔒 bigint
1	Other	29
2	Male	35
3	Female	36

Question 2: What is the average satisfaction score for each service type?

SELECT ServiceType, ROUND(AVG(SatisfactionScore), 2) AS AverageSatisfaction
FROM TelehealthServicesUsage
GROUP BY ServiceType;

	servicetype character varying (100) 🔒	averagesatisfaction 🔒 numeric
1	General Consultation	2.94
2	Mental Health	2.86
3	Chronic Disease Management	3.18
4	Follow-up Visit	2.62

Question 3: What is the total healthcare cost for each type of insurance?

SELECT InsuranceType,
    to_char(SUM(HealthcareCost), 'FM$999,999,999.00') AS TotalCost
FROM TelehealthServicesUsage
GROUP BY InsuranceType;

	insurancetype character varying (50) 🔒	totalcost text 🔒
1	Uninsured	$4,750.00
2	Medicare	$3,020.00
3	Private	$3,800.00
4	Medicaid	$3,540.00

Intermediate Level Questionnaire

Question - 1: What is the average duration of visits for each gender and socioeconomic status, only for visits where the satisfaction score is greater than 3?

SELECT Gender, SocioeconomicStatus, ROUND(AVG(DurationOfVisit), 2) AS AverageDuration
FROM TelehealthServicesUsage
WHERE SatisfactionScore > 3
GROUP BY Gender, SocioeconomicStatus
ORDER BY Gender, SocioeconomicStatus;

	gender character varying (10) 🔒	socioeconomicstatus character varying (50) 🔒	averageduration numeric 🔒
1	Female	High	41.20
2	Female	Low	29.25
3	Female	Medium	25.00
4	Male	High	25.00
5	Male	Low	29.17
6	Male	Medium	31.20
7	Other	High	32.71
8	Other	Low	38.00
9	Other	Medium	23.00

Question - 2: How many patients had technical issues during their telehealth visits, grouped by primary diagnosis and insurance type?

SELECT

```
    PrimaryDiagnosis,
    InsuranceType,
    COUNT(*) AS NumPatientsWithTechnicalIssues
FROM
    TelehealthServicesUsage
WHERE
    TechnicalIssues = 'Yes'
GROUP BY
    PrimaryDiagnosis,
    InsuranceType
ORDER BY
    PrimaryDiagnosis,
    InsuranceType;
```

	primarydiagnosis character varying (100) 🔒	insurancetype character varying (50) 🔒	patientswithtechnicalissues 🔒 bigint
1	Anxiety	Medicaid	4
2	Anxiety	Medicare	2
3	Anxiety	Private	4
4	Anxiety	Uninsured	2
5	Asthma	Medicaid	2
6	Asthma	Medicare	2
7	Asthma	Uninsured	2
8	Depression	Medicaid	2
9	Depression	Medicare	2
10	Depression	Private	5
11	Depression	Uninsured	2
12	Diabetes	Medicaid	1
13	Diabetes	Medicare	1
14	Diabetes	Private	2
15	Diabetes	Uninsured	4
16	Hypertension	Medicare	1
17	Hypertension	Private	2
18	Hypertension	Uninsured	3

Question - 3) What is the total healthcare cost and the number of follow-up visits for each ethnicity, only for patients with 'Medicaid' insurance?

```
SELECT Ethnicity,
    to_char(SUM(HealthcareCost), 'FM$999,999,999.00') AS TotalHealthcareCost,
    COUNT(*) AS FollowUpVisits
FROM TelehealthServicesUsage
WHERE InsuranceType = 'Medicaid' AND FollowUpRequired = 'Yes'
GROUP BY Ethnicity
ORDER BY TotalHealthcareCost DESC;
```

	ethnicity character varying (50) 🔒	totalhealthcarecost 🔒 text	followupvisits 🔒 bigint
1	White	$380.00	3
2	Hispanic	$350.00	2
3	Asian	$250.00	2
4	Other	$180.00	1
5	Black	$150.00	1

Question - 4) What is the average satisfaction score and total number of visits for each combination of primary diagnosis and service type?

```
SELECT PrimaryDiagnosis, ServiceType,
    ROUND(AVG(SatisfactionScore), 2) AS AverageSatisfactionScore,
    COUNT(*) AS TotalNumberOfVisits
FROM TelehealthServicesUsage
GROUP BY PrimaryDiagnosis, ServiceType
ORDER BY PrimaryDiagnosis, ServiceType;
```

	primarydiagnosis character varying (100)	servicetype character varying (100)	averagesatisfactionscore numeric	totalnumberofvisits bigint
1	Anxiety	Chronic Disease Management	3.80	5
2	Anxiety	Follow-up Visit	1.00	2
3	Anxiety	General Consultation	2.89	9
4	Anxiety	Mental Health	2.63	8
5	Asthma	Chronic Disease Management	2.00	2
6	Asthma	Follow-up Visit	2.50	8
7	Asthma	General Consultation	2.63	8
8	Asthma	Mental Health	2.50	2
9	Depression	Chronic Disease Management	3.00	5
10	Depression	Follow-up Visit	2.57	7
11	Depression	General Consultation	2.88	8
12	Depression	Mental Health	3.33	6
13	Diabetes	Chronic Disease Management	1.00	2
14	Diabetes	Follow-up Visit	2.75	8
15	Diabetes	General Consultation	2.75	4
16	Diabetes	Mental Health	2.33	3
17	Hypertension	Chronic Disease Management	4.67	3
18	Hypertension	Follow-up Visit	3.50	4
19	Hypertension	General Consultation	4.00	4
20	Hypertension	Mental Health	3.50	2

Question -5) For each primary diagnosis, determine the average healthcare cost and satisfaction score for visits that required follow-up compared to those that did not?

```
SELECT
    PrimaryDiagnosis,
    TO_CHAR(AVG(CASE WHEN FollowUpRequired = 'Yes' THEN CAST(HealthcareCost AS
numeric) ELSE NULL END), 'FM$999,999,999.00') AS AvgCostWithFollowUp,
    TO_CHAR(AVG(CASE WHEN FollowUpRequired = 'No' THEN CAST(HealthcareCost AS
numeric) ELSE NULL END), 'FM$999,999,999.00') AS AvgCostWithoutFollowUp,
    ROUND(AVG(CASE WHEN FollowUpRequired = 'Yes' THEN SatisfactionScore ELSE NULL
END), 2) AS AvgSatisfactionWithFollowUp,
    ROUND(AVG(CASE WHEN FollowUpRequired = 'No' THEN SatisfactionScore ELSE NULL
END), 2) AS AvgSatisfactionWithoutFollowUp
FROM
    TelehealthServicesUsage
GROUP BY
    PrimaryDiagnosis
ORDER BY
```

PrimaryDiagnosis;

	primarydiagnosis character varying (100)	avgcostwithfollowup text	avgcostwithoutfollowup text	avgsatisfactionwithfollowup numeric	avgsatisfactionwithoutfollowup numeric
1	Anxiety	$167.27	$170.00	3.09	2.62
2	Asthma	$142.22	$134.55	2.33	2.64
3	Depression	$146.00	$158.75	3.30	2.69
4	Diabetes	$142.86	$136.00	1.86	2.90
5	Hypertension	$157.50	$145.56	3.75	4.00

Advanced Questionnaire

1) Determine the top 3 primary diagnoses based on total healthcare costs, and for each, provide the average satisfaction score and the number of visits?

```
WITH DiagnosisStats AS (
  SELECT
    PrimaryDiagnosis,
    SUM(CAST(HealthcareCost AS numeric)) AS TotalHealthcareCost,
    AVG(SatisfactionScore) AS AvgSatisfactionScore,
    COUNT(*) AS VisitCount
  FROM
    TelehealthServicesUsage
  GROUP BY
    PrimaryDiagnosis
)
SELECT
  PrimaryDiagnosis,
  TO_CHAR(TotalHealthcareCost, 'FM$999,999,999.00') AS TotalHealthcareCost,
  ROUND(AvgSatisfactionScore, 2) AS AvgSatisfactionScore,
  VisitCount
FROM
  DiagnosisStats
ORDER BY
  TotalHealthcareCost DESC
LIMIT 3;
```

	primarydiagnosis character varying (100)	totalhealthcarecost text	avgsatisfactionscore numeric	visitcount bigint
1	Anxiety	$4,050.00	2.83	24
2	Depression	$4,000.00	2.92	26
3	Asthma	$2,760.00	2.50	20

2) Calculate the average healthcare cost and average satisfaction score for each telehealth platform, and identify the telehealth platform with the highest average satisfaction score?

```
WITH PlatformStats AS (
   SELECT
      TelehealthPlatform,
      AVG(CAST(HealthcareCost AS numeric)) AS AvgHealthcareCost,
      AVG(SatisfactionScore) AS AvgSatisfactionScore
   FROM
      TelehealthServicesUsage
   GROUP BY
      TelehealthPlatform
)
SELECT
   TelehealthPlatform,
   TO_CHAR(AvgHealthcareCost, 'FM$999,999,999.00') AS AvgHealthcareCost,
   ROUND(AvgSatisfactionScore, 2) AS AvgSatisfactionScore
FROM
   PlatformStats
ORDER BY
   AvgSatisfactionScore DESC
LIMIT 1;
```

	telehealthplatform character varying (50)	avghealthcarecost text	avgsatisfactionscore numeric
1	Teams	$144.40	3.24

3) Determine the top 3 primary diagnoses with the highest average healthcare costs for patients aged 60 and above, and calculate the average satisfaction score and the percentage of visits that required follow-up for each diagnosis?

```
WITH AgeFilteredData AS (
   SELECT
      PrimaryDiagnosis,
      SatisfactionScore,
      CAST(HealthcareCost AS numeric) AS HealthcareCost,
      FollowUpRequired,
      Age,
      PatientID
   FROM
```

```sql
            TelehealthServicesUsage
    WHERE
        Age >= 60
),
DiagnosisStats AS (
    SELECT
        PrimaryDiagnosis,
        AVG(HealthcareCost) AS AvgHealthcareCost,
        AVG(SatisfactionScore) AS AvgSatisfactionScore,
        SUM(CASE WHEN FollowUpRequired = 'Yes' THEN 1 ELSE 0 END) * 100.0 /
COUNT(*) AS FollowUpVisitPercentage
    FROM
        AgeFilteredData
    GROUP BY
        PrimaryDiagnosis
),
RankedDiagnoses AS (
    SELECT
        PrimaryDiagnosis,
        AvgHealthcareCost,
        AvgSatisfactionScore,
        FollowUpVisitPercentage,
        RANK() OVER (ORDER BY AvgHealthcareCost DESC) AS Rank
    FROM
        DiagnosisStats
)
SELECT
    PrimaryDiagnosis,
    TO_CHAR(AvgHealthcareCost, 'FM$999,999,999.00') AS AvgHealthcareCost,
    ROUND(AvgSatisfactionScore, 2) AS AvgSatisfactionScore,
    ROUND(FollowUpVisitPercentage, 2) AS FollowUpVisitPercentage
FROM
    RankedDiagnoses
WHERE
    Rank <= 3
ORDER BY
    AvgHealthcareCost DESC;
```

	primarydiagnosis character varying (100) 🔒	avghealthcarecost text 🔒	avgsatisfactionscore numeric 🔒	followupvisitpercentage numeric 🔒
1	Depression	$165.71	3.71	28.57
2	Anxiety	$154.29	1.71	42.86
3	Hypertension	$150.00	4.75	25.00

Script for creating the ERD diagram

```
// Define the Patients table
Table Patients {
 PatientID INT [pk]
 Age INT
 Gender VARCHAR(10)
 Ethnicity VARCHAR(50)
 SocioeconomicStatus VARCHAR(50)
}

// Define the Visits table
Table Visits {
 VisitID INT [pk]
 PatientID INT [ref: > Patients.PatientID]
 TelehealthVisitDate DATE
 ServiceType VARCHAR(100)
 DurationOfVisit INT
 SatisfactionScore INT
 TechnicalIssueID INT [ref: > TechnicalIssueDetails.IssueID]
 FollowUpRequired BOOLEAN
 HealthcareCost NUMERIC
 InsuranceID INT [ref: > Insurance.InsuranceID]
 PrimaryDiagnosisID INT [ref: > Diagnoses.DiagnosisID]
 TelehealthPlatformID INT [ref: > TelehealthPlatforms.PlatformID]
}

// Define the Diagnoses table
Table Diagnoses {
 DiagnosisID INT [pk]
 PrimaryDiagnosis VARCHAR(100)
}

// Define the TelehealthPlatforms table
Table TelehealthPlatforms {
```
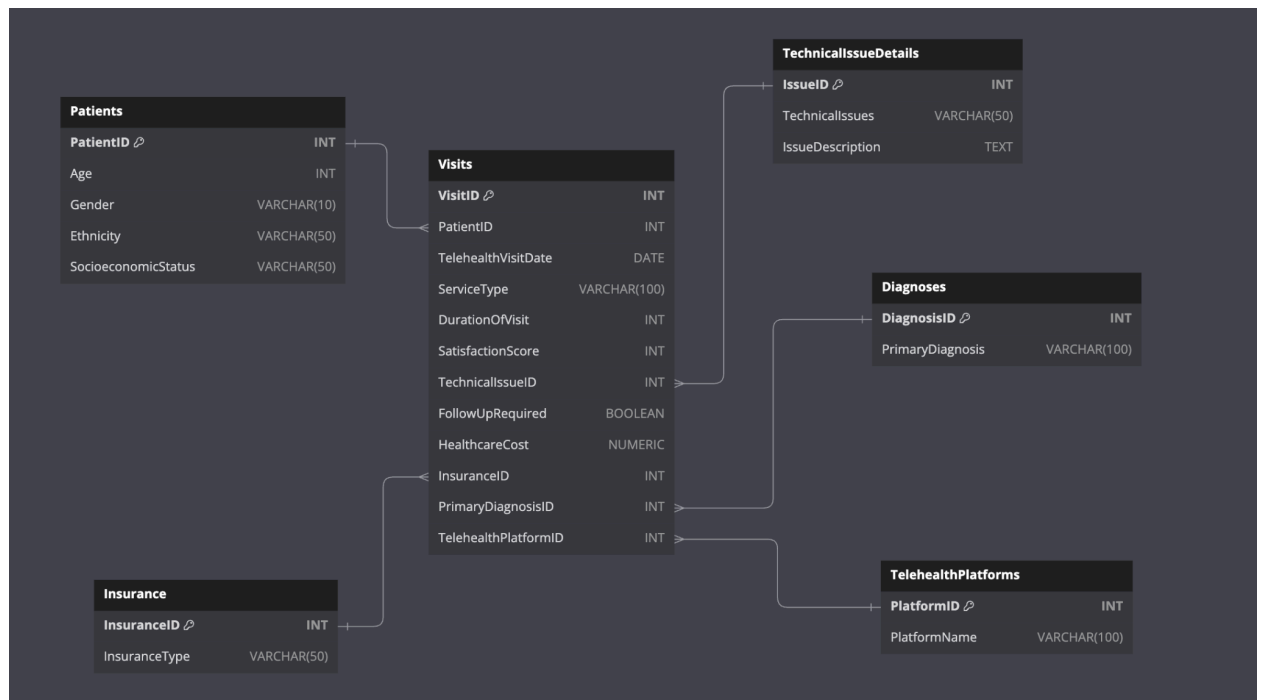
```
 PlatformID INT [pk]
 PlatformName VARCHAR(100)
}


// Define the Insurance table
Table Insurance {
 InsuranceID INT [pk]
 InsuranceType VARCHAR(50)
}


// Define the TechnicalIssueDetails table
Table TechnicalIssueDetails {
 IssueID INT [pk]
 TechnicalIssues VARCHAR(50)
 IssueDescription TEXT
}
```

Power BI dashboard

Tele-Health Analysis 2023

Total Healthcare Cost
$0K $15.11K $30.22K

Total Patients
100

Ethnicity	Gender	Age Group	Primary Diagnosis
All	All	All	All

Tele-Heath Platforms Used

Platform	Total Visits
Skype	29
Teams	25
Zoom	25
Custom	21

Total Visits: 0, 5, 10, 15, 20, 25, 30

Insurance Cost

Insurance Type: ● Uninsured ● Private ● Medicaid ● Medicare

Uninsured	Private	Medicaid	Medicare
$4.75K	$3.8K	$3.54K	$3.02K

Patient Reasons to Visit

- 33%
- 29%
- 21%
- 17%

Service Type
- ● General Consultation
- ● Follow-up Visit
- ● Mental Health
- ● Chronic Disease Management

Total Healthcare Cost by Month

Month	Cost
January	$4.6K
February	$4.2K
March	$4.9K
April	$1.5K

$5K, $4K, $3K, $2K, $1K