SQL Queries

1. Identify the total number of customers and the churn rate

```
SELECT
    COUNT(CASE WHEN customer_status = 'Churned' THEN customer_ID END) / COUNT(Customer_ID) AS Churn_Rate,
    COUNT(customer_ID)'Total_Customers'
FROM customerstatus;
```

	Churn_Rate	Total_Customers
▶	0.2654	7043

2. Find the average age of churned customers

```
SELECT AVG(Age) AS Avg_Churned_Customer_Age FROM customer c, customerstatus s
WHERE c.customer_id = s.customer_id AND s.customer_status = 'Churned';
```

	Avg_Churned_Customer_Age
▶	49.7357

3. Discover the most common contract types among churned customers

```
SELECT c.contract FROM contract c, customerstatus s
WHERE c.customer_id = s.customer_id AND s.customer_status = 'Churned'
GROUP BY c.Contract Order by Count(c.customer_id) DESC Limit 1;
```

	contract
▶	Month-to-Month

4. Analyze the distribution of monthly charges among churned customers

```
SELECT cs.customer_status,
    MIN(Monthly_Charge) AS Min_Monthly_Charge,
    Max(Monthly_Charge) AS Max_Monthly_Charge,
    Avg(Monthly_charge) AS Avg_Monthly_Charge
FROM Charges c
JOIN CustomerStatus cs ON c.Customer_ID = cs.Customer_ID
WHERE cs.customer_status ='Churned'
GROUP BY Customer_Status;
```

	customer_status	Min_Monthly_Charge	Max_Monthly_Charge	Avg_Monthly_Charge
▶	Churned	-10.00	118.35	73.347592

5. Create a query to identify the contract types that are most prone to churn

```
SELECT
    c.Contract,
```

```
    COUNT(cs.Customer_ID) AS Number_of_Churned_Customers,
    (COUNT(cs.Customer_ID) / (SELECT COUNT(*) FROM CustomerStatus)) AS Churn_Rate
FROM Contract c
JOIN CustomerStatus cs ON c.Customer_ID = cs.Customer_ID
WHERE cs.Customer_Status = 'Churned'
GROUP BY c.Contract
ORDER BY Churn_Rate DESC;
```

Contract	Number_of_Churned_Customers	Churn_Rate
Month-to-Month	1655	0.2350
One Year	166	0.0236
Two Year	48	0.0068

6. Identify customers with high total charges who have churned (Top 5)

```
SELECT c.customer_id, total_charges FROM Charges C, Customerstatus Cs
WHERE c.customer_id = cs.customer_id
AND cs.Customer_Status = 'Churned' order by total_charges desc LIMIT 5;
```

customer_id	total_charges
2889-FPWRM	8684.80
0201-OAMXR	8127.60
3886-CERTZ	8109.80
1444-VVSGW	7968.85
5271-YNWVR	7856.00

7. Calculate the total charges distribution for churned and non-churned customers

```
SELECT
    CASE
        WHEN cs.Customer_Status = 'Churned' THEN 'Churned'
        ELSE 'Non-Churned'
    END AS Customer_Status,
    COUNT(*) AS Number_of_Customers,
    AVG(c.Total_Charges) AS Avg_Total_Charges
FROM Charges c
JOIN CustomerStatus cs ON c.Customer_ID = cs.Customer_ID
GROUP BY Customer_Status;
```

Customer_Status	Number_of_Customers	Avg_Total_Charges
Non-Churned	4720	2788.516831
Churned	1869	1531.796094
Non-Churned	454	79.292731

8. Calculate the average monthly charges for different contract types among churned customers

```
SELECT ct.contract, AVG(ch.Monthly_Charge) AS Avg_Monthly_Charge FROM Charges ch
JOIN Customer c ON ch.Customer_ID = c.Customer_ID
JOIN CustomerStatus cs ON ch.Customer_ID = cs.Customer_ID
JOIN Contract ct ON ct.Customer_ID = c.Customer_ID
```

```
WHERE cs.Customer_Status = 'Churned'
GROUP BY ct.Contract;
```

contract	Avg_Monthly_Charge
Month-to-Month	71.784230
One Year	85.050904
Two Year	86.777083

9. Identify customers who have both online security and online backup services and have not churned

```
SELECT
    c.Customer_ID,
    c.Gender,
    c.Age,
    c.Zip_Code,
    cs.Customer_Status
FROM Customer c
JOIN CustomerStatus cs ON c.Customer_ID = cs.Customer_ID
JOIN Service s ON c.Customer_ID = s.Customer_ID
WHERE
    s.Online_Security = 'Yes'
    AND s.Online_Backup = 'Yes'
    AND cs.Customer_Status <> 'Churned';
```

Customer_ID	Gender	Age	Zip_Code	Customer_Status
0013-SMEOE	Female	67	93437	Stayed
0016-QLJIS	Female	43	95681	Stayed
0017-IUDMW	Female	25	94086	Stayed
0019-EFAEP	Female	32	91942	Stayed
0019-GFNTW	Female	39	93441	Stayed
0052-DCKON	Male	28	90063	Stayed
0060-FUALY	Female	60	90003	Stayed

10. Determine the most common combinations of services among churned customers

```
SELECT
    c.Customer_ID,
    c.Gender,
    c.Age,
    c.Zip_Code,
    cs.Customer_Status
FROM Customer c
JOIN CustomerStatus cs ON c.Customer_ID = cs.Customer_ID
JOIN Service s ON c.Customer_ID = s.Customer_ID
WHERE
    s.Online_Security = 'Yes'
    AND s.Online_Backup = 'Yes'
    AND cs.Customer_Status <> 'Churned';

    SELECT
    Phone_Service,
```

```
    Internet_Service,
    Internet_Type,
    Online_Security,
    Online_Backup,
    Device_Protection_Plan,
    Premium_Tech_Support,
    Streaming_TV,
    Streaming_Movies,
    Streaming_Music,
    Unlimited_Data,
    COUNT(*) AS Combination_Count
FROM Service s
JOIN CustomerStatus cs ON s.Customer_ID = cs.Customer_ID
WHERE cs.Customer_Status = 'Churned'
GROUP BY
    Phone_Service,
    Internet_Service,
    Internet_Type,
    Online_Security,
    Online_Backup,
    Device_Protection_Plan,
    Premium_Tech_Support,
    Streaming_TV,
    Streaming_Movies,
    Streaming_Music,
    Unlimited_Data
ORDER BY Combination_Count DESC LIMIT 1;
```

Online_Backup	Device_Protection_Plan	Premium_Tech_Support	Streaming_TV	Streaming_Movies	Streaming_Music	Unlimited_Data	Combination_Count
No	No	No	No	No	No	Yes	193

11. . Identify the average total charges for customers grouped by gender and marital status

```
SELECT
    c.Gender,
    c.Married,
    AVG(ch.Total_Charges) AS Avg_Total_Charges
FROM Customer c
JOIN Charges ch ON c.Customer_ID = ch.Customer_ID
GROUP BY
    c.Gender,
    c.Married
ORDER BY
    c.Gender,
    c.Married;
```

Gender	Married	Avg_Total_Charges
Female	No	1627.546056
Female	Yes	2977.250770
Male	No	1542.047583
Male	Yes	3072.714959

12. Calculate the average monthly charges for different age groups among churned customers

```
SELECT
    CASE
        WHEN Age < 20 THEN 'Under 20'
        WHEN Age BETWEEN 20 AND 29 THEN '20-29'
        WHEN Age BETWEEN 30 AND 39 THEN '30-39'
        WHEN Age BETWEEN 40 AND 49 THEN '40-49'
        WHEN Age BETWEEN 50 AND 59 THEN '50-59'
        WHEN Age >= 60 THEN '60 and Over'
    END AS Age_Group,
    AVG(ch.Monthly_Charge) AS Avg_Monthly_Charge
FROM Customer c
JOIN CustomerStatus cs ON c.Customer_ID = cs.Customer_ID
JOIN Charges ch ON c.Customer_ID = ch.Customer_ID
WHERE cs.Customer_Status = 'Churned'
GROUP BY Age_Group
ORDER BY
    MIN(c.Age);
```

Age_Group	Avg_Monthly_Charge
Under 20	52.716667
20-29	72.886189
30-39	71.005016
40-49	70.234119
50-59	72.584202
60 and Over	77.232884

13. Determine the average age and total charges for customers with multiple lines and online backup

```
SELECT
    AVG(c.Age) AS Avg_Age,
    SUM(ch.Total_Charges) AS Total_Charges
FROM Customer c
JOIN Charges ch ON c.Customer_ID = ch.Customer_ID
JOIN Service s ON c.Customer_ID = s.Customer_ID
WHERE
    s.Multiple_Lines = 'Yes'
    AND s.Online_Backup = 'Yes';
```

Avg_Age	Total_Charges
48.6115	6612503.85

14. Identify the contract types with the highest churn rate among senior citizens (age 65 and over)

```
WITH Senior_Citizen_Status AS (
    SELECT
    ct.Contract,
    cs.Customer_Status,
    COUNT(*) AS Customer_Count
FROM Customer c
```

```
JOIN Contract ct ON c.Customer_ID = ct.Customer_ID
JOIN CustomerStatus cs ON c.Customer_ID = cs.Customer_ID
WHERE c.Age >= 65
GROUP BY
    ct.Contract,
    cs.Customer_Status
),

Churn_Rate AS (
    SELECT
        Contract,
        SUM(CASE WHEN Customer_Status = 'Churned' THEN Customer_Count ELSE 0 END) AS Churned_Customers,
        SUM(Customer_Count) AS Total_Customers
    FROM Senior_Citizen_Status
    GROUP BY Contract
)

SELECT
    Contract,
    Churned_Customers,
    Total_Customers,
    (Churned_Customers / Total_Customers) * 100 AS Churn_Rate
FROM Churn_Rate
ORDER BY Churn_Rate DESC;
```

Contract	Churned_Customers	Total_Customers	Churn_Rate
Month-to-Month	441	542	81.3653
One Year	29	267	10.8614
Two Year	6	333	1.8018

15. Calculate the average monthly charges for customers who have multiple lines and streaming TV

```
SELECT
    AVG(ch.Monthly_Charge) AS Avg_Monthly_Charge
FROM Customer c
JOIN Charges ch ON c.Customer_ID = ch.Customer_ID
JOIN Service s ON c.Customer_ID = s.Customer_ID
WHERE
    s.Multiple_lines = 'Yes'
    AND s.Streaming_TV = 'Yes';
```

Avg_Monthly_Charge
95.634432

16. Identify the customers who have churned and used the most online services

```
SELECT
    count(c.Customer_ID) AS Online_Service_Count,
    cs.Customer_Status
```

```
FROM Customer c
JOIN CustomerStatus cs ON c.Customer_ID = cs.Customer_ID
JOIN Service s ON c.Customer_ID = s.Customer_ID
WHERE cs.Customer_Status = 'Churned'
AND s.Internet_Service = 'Yes'
AND (s.Online_Security = 'Yes'
         AND s.Online_Backup = 'Yes'
         AND s.Device_Protection_Plan = 'Yes'
         AND s.Premium_Tech_Support = 'Yes'
         AND s.Streaming_TV = 'Yes'
         AND s.Streaming_Movies = 'Yes'
         AND s.Streaming_Music = 'Yes'
         AND s.Unlimited_Data = 'Yes')
GROUP BY cs.Customer_Status
ORDER BY Online_Service_Count DESC;
```

Online_Service_Count	Customer_Status
11	Churned

17. Calculate the average age and total charges for customers with different combinations of streaming services

```
SELECT
    s.Streaming_TV,
    s.Streaming_Movies,
    s.Streaming_Music,
    AVG(c.Age) AS Avg_Age,
    SUM(ch.Total_Charges) AS Total_Charges
FROM Customer c
JOIN Charges ch ON c.Customer_ID = ch.Customer_ID
JOIN Service s ON c.Customer_ID = s.Customer_ID
GROUP BY
    s.Streaming_TV,
    s.Streaming_Movies,
    s.Streaming_Music
ORDER BY
    s.Streaming_TV,
    s.Streaming_Movies,
    s.Streaming_Music;
```

Streaming_TV	Streaming_Movies	Streaming_Music	Avg_Age	Total_Charges
NULL	NULL	NULL	42.7726	1012444.44
No	No	No	48.2022	2763243.30
No	No	Yes	24.1818	95925.30
No	Yes	No	73.0476	257638.05
No	Yes	Yes	44.2533	1758572.85
Yes	No	No	48.1252	1851488.20
Yes	No	Yes	23.2500	62676.10
Yes	Yes	No	73.3370	1142243.00

18. Identify the gender distribution among customers who have churned and are on yearly contracts

```
SELECT
    c.Gender,
    COUNT(*) AS Number_of_Customers
FROM Customer c
JOIN CustomerStatus cs ON c.Customer_ID = cs.Customer_ID
JOIN Contract ct ON c.Customer_ID = ct.Customer_ID
WHERE
    cs.Customer_Status = 'Churned'
    AND ct.Contract = 'One Year'
GROUP BY c.Gender
ORDER BY Number_of_Customers DESC;
```

Result Grid | Filter Rows:

Gender	Number_of_Customers
Male	91
Female	75

21. Calculate the average monthly charges and total charges for customers who have churned, grouped by the number of dependents

```
SELECT
    c.Number_of_Dependents,
    AVG(ch.Monthly_Charge) AS Avg_Monthly_Charge,
    SUM(ch.Total_Charges) AS Total_Charges
FROM Customer c
JOIN CustomerStatus cs ON c.Customer_ID = cs.Customer_ID
JOIN Charges ch ON c.Customer_ID = ch.Customer_ID
WHERE cs.Customer_Status = 'Churned'
GROUP BY c.Number_of_Dependents
ORDER BY c.Number_of_Dependents;
```

Result Grid | Filter Rows: | Export:

Number_of_Dependents	Avg_Monthly_Charge	Total_Charges
0	74.216875	2780711.60
1	64.096053	44301.95
2	60.975758	20114.40
3	51.698333	16312.20
4	95.000000	655.50
5	47.375000	532.75
6	34.500000	279.25
7	19.250000	19.25

22. Identify the customers who have churned, and their contract duration in months (for monthly contracts)

```
SELECT
    c.Customer_ID,
    ct.Contract
FROM hr.Customer c
```

```
JOIN hr.CustomerStatus cs ON c.Customer_ID = cs.Customer_ID
JOIN hr.Contract ct ON c.Customer_ID = ct.Customer_ID
WHERE cs.Customer_Status = 'Churned'
AND ct.Contract = 'Month-to-Month';
```

Customer_ID	Contract
0516-WJVXC	Month-to-Month
0519-XUZJU	Month-to-Month
0524-IAVZO	Month-to-Month
0529-ONKER	Month-to-Month
0533-BNWKF	Month-to-Month
0564-JJHGS	Month-to-Month
0568-ONFPC	Month-to-Month
0576-WNXXC	Month-to-Month