

# Churn Analytics in Telecom Domain

## | ETL, Data Exploration, Cleaning, and Analysis:

```
-- Total number of customers
SELECT COUNT(*) AS Total_Customers
FROM Stg_Churn;
```

Results		Messages
Total_Customers		
1	6418	

```
-- Total number of churned customers
SELECT COUNT(*) AS Total_Churned
FROM stg_churn
WHERE Customer_Status = 'Churned';
```

Results		Messages
Total_Churned		
1	1732	

```
-- Churn Rate
SELECT
  FORMAT(
    (CAST(COUNT(CASE WHEN Customer_Status = 'Churned' THEN 1 END) AS FLOAT) * 100.0) / COUNT(*),
    'N2'
  ) + ' %' AS Churn_Rate
FROM stg_churn;
```

Results		Messages
Churn_Rate		
1	26.99 %	

---%ge distribution of Gender ---

```
select gender,
count(gender) as 'TotalCount' ,
count(gender)*100.0/(select count(*)
from stg_churn) as 'Percentage' from Stg_Churn
group by gender
```

---%ge distribution of Contract ---

```
select contract,
count(contract) as 'Total Count',
count(contract)*100.0/(select count(*) from stg_churn) as 'Percentage'
from Stg_Churn
group by contract
```

---%ge distribution of Customer\_status---

```
select Customer_Status,
count(Customer_status) as 'Total Count' ,
count(Customer_Status)*100.0/(select count(*) from Stg_Churn) as 'Percentage'
from stg_churn
group by Customer_Status
```

Results		Messages	
	gender	TotalCount	Percentage
1	Male	2370	36.927391710813
2	Female	4048	63.072608289186
	contract	Total Count	Percentage
1	Month-to-Month	3286	51.199750701153
2	One Year	1413	22.016204425054
3	Two Year	1719	26.784044873792
	Customer_Status	Total Count	Percentage
1	Joined	411	6.403864132128
2	Churned	1732	26.986600186974
3	Stayed	4275	66.609535680897

---Customer\_status contribution on REVENUE---

```
select customer_status,
count(customer_status) as 'Total Count',
count(customer_status)*100.0/(select count(*) from Stg_Churn) as 'customer status %ge' ,
sum(Total_Revenue) as 'Tot Rev',
sum(Total_Revenue)*100.0/ (select sum(Total_Revenue) from Stg_Churn) as 'rev %ge'
from Stg_Churn
group by Customer_Status
```

1 %					
Results Messages					
	customer_status	Total Count	customer status %ge	Tot Rev	rev %ge
1	Joined	411	6.403864132128	49281.5598697662	0.253097281975677
2	Churned	1732	26.986600186974	3411960.5796299	17.5229426827105
3	Stayed	4275	66.609535680897	16010148.2622757	82.2239600353138

--Which state has contributed Highest in revenue---

```
select state,
count(state) as 'Total_Count' ,
count(state)*100.0/(select count(state) from Stg_Churn) as 'state %ge',
sum(Total_Revenue) as 'TotalRevenue',
sum(Total_Revenue)*100.0/(select sum(Total_Revenue) from stg_churn) as 'rev %ge'
from Stg_Churn
group by state
order by [rev %ge] desc
```

Results Messages					
	state	Total_Count	state %ge	TotalRevenue	rev %ge
1	Uttar Pradesh	629	9.800560922405	1913136.87379646	9.82537371148404
2	Tamil Nadu	600	9.348706762231	1843746.40082359	9.46900227862251
3	Maharashtra	504	7.852913680274	1637789.35718918	8.41126043592577
4	Karnataka	470	7.323153630414	1435622.17978859	7.37298236112452
5	Haryana	398	6.201308818946	1200159.56918716	6.16370759572329
6	Andhra Pradesh	395	6.154565285135	1191457.33155823	6.11901516519125
7	West Bengal	368	5.733873480835	1182732.26086617	6.07420546998188
8	Gujarat	335	5.219694608912	1024139.34145164	5.25971345815277
9	Punjab	342	5.328762854471	1017664.25773621	5.2264591112272
10	Bihar	336	5.235275786849	937603.066900253	4.81528564500851
11	Madhya Pradesh	288	4.487379245870	890203.680335999	4.57185471590581
12	Jammu & Kashmir	320	4.985976939856	858171.380094528	4.40734514786516
13	Telangana	281	4.378311000311	840502.511610031	4.31660243191157
14	Rajasthan	259	4.035525085696	805180.451097488	4.13519751021002



```
--Explore and Clean--
--Find Null values in each column and remove null as per column values--

select
SUM(CASE WHEN Customer_ID IS NULL THEN 1 ELSE 0 END) AS Customer_ID_Null_Count,
SUM(CASE WHEN Gender IS NULL THEN 1 ELSE 0 END) AS Gender_Null_Count,
SUM(CASE WHEN Age IS NULL THEN 1 ELSE 0 END) AS Age_Null_Count,
SUM(CASE WHEN Married IS NULL THEN 1 ELSE 0 END) AS Married_Null_Count,
SUM(CASE WHEN State IS NULL THEN 1 ELSE 0 END) AS State_Null_Count,
SUM(CASE WHEN Number_of_Referrals IS NULL THEN 1 ELSE 0 END) AS Number_of_Referrals_Null_Count,
SUM(CASE WHEN Tenure_in_Months IS NULL THEN 1 ELSE 0 END) AS Tenure_in_Months_Null_Count,
SUM(CASE WHEN Value_Deal IS NULL THEN 1 ELSE 0 END) AS Value_Deal_Null_Count,
SUM(CASE WHEN Phone_Service IS NULL THEN 1 ELSE 0 END) AS Phone_Service_Null_Count,
SUM(CASE WHEN Multiple_Lines IS NULL THEN 1 ELSE 0 END) AS Multiple_Lines_Null_Count,
SUM(CASE WHEN Internet_Service IS NULL THEN 1 ELSE 0 END) AS Internet_Service_Null_Count,
SUM(CASE WHEN Internet_Type IS NULL THEN 1 ELSE 0 END) AS Internet_Type_Null_Count,
SUM(CASE WHEN Online_Security IS NULL THEN 1 ELSE 0 END) AS Online_Security_Null_Count,
SUM(CASE WHEN Online_Backup IS NULL THEN 1 ELSE 0 END) AS Online_Backup_Null_Count,
SUM(CASE WHEN Device_Protection_Plan IS NULL THEN 1 ELSE 0 END) AS Device_Protection_Plan_Null_Count,
SUM(CASE WHEN Premium_Support IS NULL THEN 1 ELSE 0 END) AS Premium_Support_Null_Count,
SUM(CASE WHEN Streaming_TV IS NULL THEN 1 ELSE 0 END) AS Streaming_TV_Null_Count,
SUM(CASE WHEN Streaming_Movies IS NULL THEN 1 ELSE 0 END) AS Streaming_Movies_Null_Count,
SUM(CASE WHEN Streaming_Music IS NULL THEN 1 ELSE 0 END) AS Streaming_Music_Null_Count,
SUM(CASE WHEN Contract IS NULL THEN 1 ELSE 0 END) AS Contract_Null_Count,
SUM(CASE WHEN Paperless_Billing IS NULL THEN 1 ELSE 0 END) AS Paperless_Billing_Null_Count,
SUM(CASE WHEN Payment_Method IS NULL THEN 1 ELSE 0 END) AS Payment_Method_Null_Count,
SUM(CASE WHEN Monthly_Charge IS NULL THEN 1 ELSE 0 END) AS Monthly_Charge_Null_Count,
SUM(CASE WHEN Total_Charges IS NULL THEN 1 ELSE 0 END) AS Total_Charges_Null_Count,
SUM(CASE WHEN Total_Refunds IS NULL THEN 1 ELSE 0 END) AS Total_Refunds_Null_Count,
SUM(CASE WHEN Total_Extra_Data_Charges IS NULL THEN 1 ELSE 0 END) AS Total_Extra_Data_Charges_Null_Count,
SUM(CASE WHEN Total_Long_Distance_Charges IS NULL THEN 1 ELSE 0 END) AS Total_Long_Distance_Charges_Null_Count,
SUM(CASE WHEN Total_Revenue IS NULL THEN 1 ELSE 0 END) AS Total_Revenue_Null_Count,
SUM(CASE WHEN Customer_Status IS NULL THEN 1 ELSE 0 END) AS Customer_Status_Null_Count,
SUM(CASE WHEN Churn_Category IS NULL THEN 1 ELSE 0 END) AS Churn_Category_Null_Count,
SUM(CASE WHEN Churn_Reason IS NULL THEN 1 ELSE 0 END) AS Churn_Reason_Null_Count
FROM stg_Churn;
```

[illegible]

Monthly_Charge_Null_Count	Total_Charges_Null_Count	Total_Refunds_Null_Count	Total_Extra_Data_Charges_Null_Count	Total_Long_Distance_Charges_Null_Count	Total_Revenue_Null_Count	Customer_Status_Null_Count	Churn_Category_Null_Count	Churn_Reason_Null_Count
0	0	0	0	0	0	0	4686	4686

```
--Replace null values and insert into new production table---
```

```
select * from stg_churn
```

```
SELECT
```

```
    Customer_ID,  
    Gender,  
    Age,  
    Married,  
    State,  
    Number_of_Referrals,  
    Tenure_in_Months,  
    ISNULL(Value_Deal, 'None') AS Value_Deal,  
    Phone_Service,  
    ISNULL(Multiple_Lines, 'No') AS Multiple_Lines,  
    Internet_Service,  
    ISNULL(Internet_Type, 'None') AS Internet_Type,  
    ISNULL(Online_Security, 'No') AS Online_Security,  
    ISNULL(Online_Backup, 'No') AS Online_Backup,  
    ISNULL(Device_Protection_Plan, 'No') AS Device_Protection_Plan,  
    ISNULL(Premium_Support, 'No') AS Premium_Support,  
    ISNULL(Streaming_TV, 'No') AS Streaming_TV,  
    ISNULL(Streaming_Movies, 'No') AS Streaming_Movies,  
    ISNULL(Streaming_Music, 'No') AS Streaming_Music,  
    ISNULL(Unlimited_Data, 'No') AS Unlimited_Data,  
    Contract,  
    Paperless_Billing,  
    Payment_Method,  
    Monthly_Charge,  
    Total_Charges,  
    Total_Refunds,  
    Total_Extra_Data_Charges,  
    Total_Long_Distance_Charges,  
    Total_Revenue,  
    Customer_Status,  
    ISNULL(Churn_Category, 'Others') AS Churn_Category,  
    ISNULL(Churn_Reason, 'Others') AS Churn_Reason
```

```
INTO [db_Churn].[dbo].[prod_Churn]
```

```
FROM [db_Churn].[dbo].[stg_Churn];
```