**Data Exploration – Check Distinct Values**

* select Gender, count(Gender) as TotalCount,

(count(Gender) \* 100.0 / (select count(\*) from customer\_data)) as Percentage

from customer\_data

group by Gender;

* select Contract, count(Contract) as TotalCount,

(count(Contract) \* 100.0 / (select count(\*) from customer\_data)) as Percentage

from customer\_data

group by Contract;

* select Customer\_Status, count(Customer\_Status) as TotalCount, sum(Total\_Revenue) as TotalRev,

(sum(Total\_Revenue) / (select sum(Total\_Revenue) from customer\_data)) as RevPercentage

from customer\_data

group by Customer\_Status;

* select State, count(State) as TotalCount,

(count(State) \* 100.0 / (select count(\*) from customer\_data)) as Percentage

from customer\_data

group by State

order by Percentage desc;

**Data Exploration – Check Nulls**

SELECT

SUM(CASE WHEN Customer\_ID IS NULL OR Customer\_ID = '' THEN 1 ELSE 0 END) AS Customer\_ID\_Null\_Count,

SUM(CASE WHEN Gender IS NULL OR Gender = '' THEN 1 ELSE 0 END) AS Gender\_Null\_Count,

SUM(CASE WHEN Age IS NULL OR Age = '' THEN 1 ELSE 0 END) AS Age\_Null\_Count,

SUM(CASE WHEN Married IS NULL OR Married = '' THEN 1 ELSE 0 END) AS Married\_Null\_Count,

SUM(CASE WHEN State IS NULL OR State = '' THEN 1 ELSE 0 END) AS State\_Null\_Count,

SUM(CASE WHEN Number\_of\_Referrals IS NULL OR Number\_of\_Referrals = '' THEN 1 ELSE 0 END) AS Number\_of\_Referrals\_Null\_Count,

SUM(CASE WHEN Tenure\_in\_Months IS NULL OR Tenure\_in\_Months = '' THEN 1 ELSE 0 END) AS Tenure\_in\_Months\_Null\_Count,

SUM(CASE WHEN Value\_Deal IS NULL OR Value\_Deal = '' THEN 1 ELSE 0 END) AS Value\_Deal\_Null\_Count,

SUM(CASE WHEN Phone\_Service IS NULL OR Phone\_Service = '' THEN 1 ELSE 0 END) AS Phone\_Service\_Null\_Count,

SUM(CASE WHEN Multiple\_Lines IS NULL OR Multiple\_Lines = '' THEN 1 ELSE 0 END) AS Multiple\_Lines\_Null\_Count,

SUM(CASE WHEN Internet\_Service IS NULL OR Internet\_Service = '' THEN 1 ELSE 0 END) AS Internet\_Service\_Null\_Count,

SUM(CASE WHEN Internet\_Type IS NULL OR Internet\_Type = '' THEN 1 ELSE 0 END) AS Internet\_Type\_Null\_Count,

SUM(CASE WHEN Online\_Security IS NULL OR Online\_Security = '' THEN 1 ELSE 0 END) AS Online\_Security\_Null\_Count,

SUM(CASE WHEN Online\_Backup IS NULL OR Online\_Backup = '' THEN 1 ELSE 0 END) AS Online\_Backup\_Null\_Count,

SUM(CASE WHEN Device\_Protection\_Plan IS NULL OR Device\_Protection\_Plan = '' THEN 1 ELSE 0 END) AS Device\_Protection\_Plan\_Null\_Count,

SUM(CASE WHEN Premium\_Support IS NULL OR Premium\_Support = '' THEN 1 ELSE 0 END) AS Premium\_Support\_Null\_Count,

SUM(CASE WHEN Streaming\_TV IS NULL OR Streaming\_TV = '' THEN 1 ELSE 0 END) AS Streaming\_TV\_Null\_Count,

SUM(CASE WHEN Streaming\_Movies IS NULL OR Streaming\_Movies = '' THEN 1 ELSE 0 END) AS Streaming\_Movies\_Null\_Count,

SUM(CASE WHEN Streaming\_Music IS NULL OR Streaming\_Music = '' THEN 1 ELSE 0 END) AS Streaming\_Music\_Null\_Count,

SUM(CASE WHEN Unlimited\_Data IS NULL OR Unlimited\_Data = '' THEN 1 ELSE 0 END) AS Unlimited\_Data\_Null\_Count,

SUM(CASE WHEN Contract IS NULL OR Contract = '' THEN 1 ELSE 0 END) AS Contract\_Null\_Count,

SUM(CASE WHEN Paperless\_Billing IS NULL OR Paperless\_Billing = '' THEN 1 ELSE 0 END) AS Paperless\_Billing\_Null\_Count,

SUM(CASE WHEN Payment\_Method IS NULL OR Payment\_Method = '' THEN 1 ELSE 0 END) AS Payment\_Method\_Null\_Count,

SUM(CASE WHEN Monthly\_Charge IS NULL OR Monthly\_Charge = '' THEN 1 ELSE 0 END) AS Monthly\_Charge\_Null\_Count,

SUM(CASE WHEN Total\_Charges IS NULL OR Total\_Charges = '' THEN 1 ELSE 0 END) AS Total\_Charges\_Null\_Count,

SUM(CASE WHEN Total\_Refunds IS NULL OR Total\_Refunds = '' THEN 1 ELSE 0 END) AS Total\_Refunds\_Null\_Count,

SUM(CASE WHEN Total\_Extra\_Data\_Charges IS NULL OR Total\_Extra\_Data\_Charges = '' THEN 1 ELSE 0 END) AS Total\_Extra\_Data\_Charges\_Null\_Count,

SUM(CASE WHEN Total\_Long\_Distance\_Charges IS NULL OR Total\_Long\_Distance\_Charges = '' THEN 1 ELSE 0 END) AS Total\_Long\_Distance\_Charges\_Null\_Count,

SUM(CASE WHEN Total\_Revenue IS NULL OR Total\_Revenue = '' THEN 1 ELSE 0 END) AS Total\_Revenue\_Null\_Count,

SUM(CASE WHEN Customer\_Status IS NULL OR Customer\_Status = '' THEN 1 ELSE 0 END) AS Customer\_Status\_Null\_Count,

SUM(CASE WHEN Churn\_Category IS NULL OR Churn\_Category = '' THEN 1 ELSE 0 END) AS Churn\_Category\_Null\_Count,

SUM(CASE WHEN Churn\_Reason IS NULL OR Churn\_Reason = '' THEN 1 ELSE 0 END) AS Churn\_Reason\_Null\_Count

FROM customer\_data;

**Remove null and insert the new data into Prod table**

CREATE TABLE prod\_churn AS

SELECT

Customer\_ID,

Gender,

Age,

Married,

State,

Number\_of\_Referrals,

Tenure\_in\_Months,

IF(Value\_Deal IS NULL OR Value\_Deal = '', 'None', Value\_Deal) AS Value\_Deal,

Phone\_Service,

IF(Multiple\_Lines IS NULL OR Multiple\_Lines = '', 'No', Multiple\_Lines) AS Multiple\_Lines,

Internet\_Service,

IF(Internet\_Type IS NULL OR Internet\_Type = '', 'None', Internet\_Type) AS Internet\_Type,

IF(Online\_Security IS NULL OR Online\_Security = '', 'No', Online\_Security) AS Online\_Security,

IF(Online\_Backup IS NULL OR Online\_Backup = '', 'No', Online\_Backup) AS Online\_Backup,

IF(Device\_Protection\_Plan IS NULL OR Device\_Protection\_Plan = '', 'No', Device\_Protection\_Plan) AS Device\_Protection\_Plan,

IF(Premium\_Support IS NULL OR Premium\_Support = '', 'No', Premium\_Support) AS Premium\_Support,

IF(Streaming\_TV IS NULL OR Streaming\_TV = '', 'No', Streaming\_TV) AS Streaming\_TV,

IF(Streaming\_Movies IS NULL OR Streaming\_Movies = '', 'No', Streaming\_Movies) AS Streaming\_Movies,

IF(Streaming\_Music IS NULL OR Streaming\_Music = '', 'No', Streaming\_Music) AS Streaming\_Music,

IF(Unlimited\_Data IS NULL OR Unlimited\_Data = '', 'No', Unlimited\_Data) 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,

IF(Churn\_Category IS NULL OR Churn\_Category = '', 'Others', Churn\_Category) AS Churn\_Category,

IF(Churn\_Reason IS NULL OR Churn\_Reason = '', 'Others', Churn\_Reason) AS Churn\_Reason

FROM customer\_data;

**Create View for Power BI**

* Create View vw\_Churn\_Data as

select \* from prod\_churn where Customer\_Status In ('Churned', 'Stayed');

* Create View vw\_Join\_Data as

select \* from prod\_churn where Customer\_Status = 'Joined';