PREDICTING CUSTOMER CHURN IN TELECOM INDUSTRY

By using SQL Queries the data extraction and preprocessing based on our needs for getting desire output for finding churned customer in telecom industry.

Data preprocessing SQL queries and output of the queries has been explained further

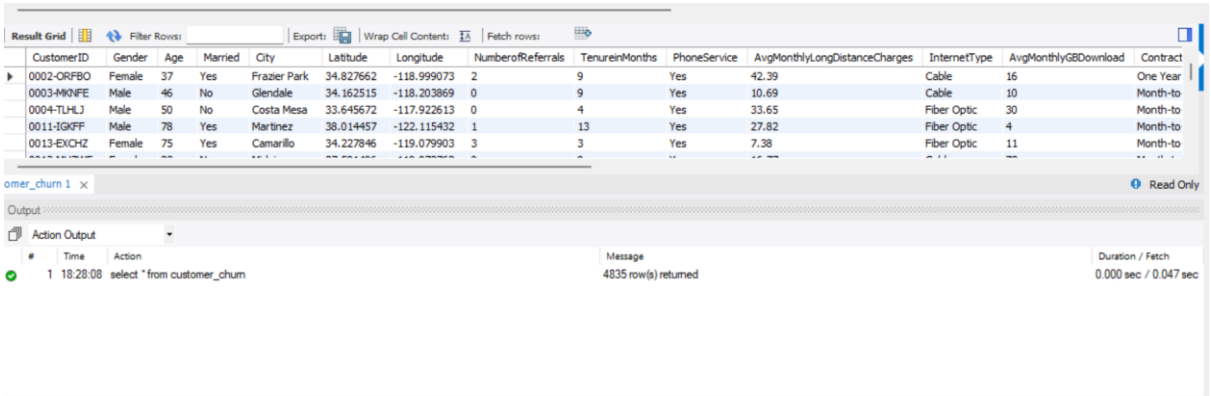
By using,

SQL CODE

SELECT * FROM CUSTOMER_CHURN;

We can able to view the uploaded data in the SQL Workbench Schema- Table

OUTPUT



Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

CustomerID	Gender	Age	Married	City	Latitude	Longitude	NumberofReferrals	TenureinMonths	PhoneService	AvgMonthlyLongDistanceCharges	InternetType	AvgMonthlyGBDownload	Contract
0002-ORFBO	Female	37	Yes	Frazier Park	34.827662	-118.999073	2	9	Yes	42.39	Cable	16	One Year
0003-MKNFE	Male	46	No	Glendale	34.162515	-118.203869	0	9	Yes	10.69	Cable	10	Month-to
0004-TLHLJ	Male	50	No	Costa Mesa	33.645672	-117.922613	0	4	Yes	33.65	Fiber Optic	30	Month-to
0011-IGKFF	Male	78	Yes	Martinez	38.014457	-122.115432	1	13	Yes	27.82	Fiber Optic	4	Month-to
0013-EXCHZ	Female	75	Yes	Camarillo	34.227846	-119.079903	3	3	Yes	7.38	Fiber Optic	11	Month-to

omer_churn 1 | Read Only

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	18:28:08	select * from customer_churn	4835 row(s) returned	0.000 sec / 0.047 sec

SQL CODE

alter table customer_churn

drop column NumberofDependents,

drop column ZipCode,

drop column offer,

drop column MultipleLines,

drop column InternetService,

drop column OnlineSecurity,

drop column OnlineBackup,

drop column DeviceProtectionPlan,

drop column premiumtechsupport,

drop column streamingtv,

drop column streamingmovies,

drop column streamingmusic,

drop column unlimiteddata,

drop column paperlessbilling;

By using this SQL code for clean and preprocessing the telecom data.

The purpose of this code is dropping the column in the uploaded table.

SQL CODE

delete from customer_churn

where AvgMonthlyLongDistanceCharges is null

delete from customer_churn

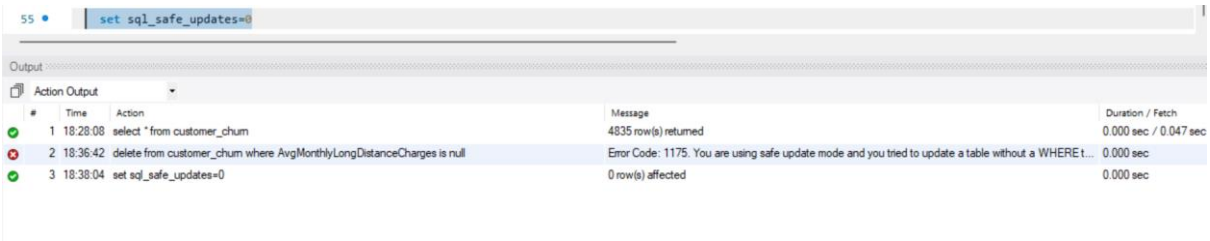
where internettype is null

By using the SQL code for removing the null values in the table.

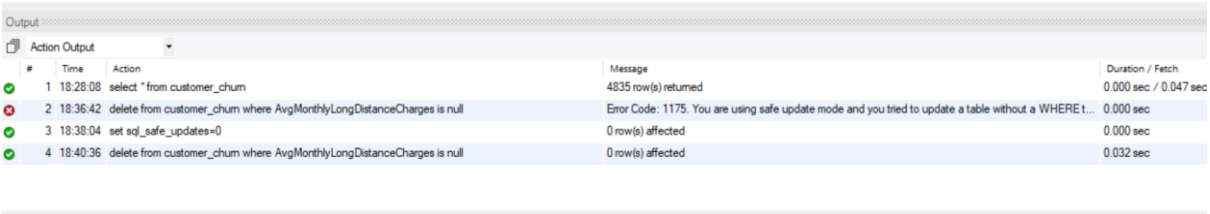
In these two codes are removing the null values in the column name “Avg monthly long-distance charges” and “internet type”.

While running the null query safety error will get pop-up for that need to run safe code in SQL

set sql_safe_updates=0



After the execution of safe mode query, we will get the output for NULL values removing query



Adding column,

SQL CODE

ALTER TABLE customer_churn ADD churn_flag INT;

UPDATE customer_churn

SET churn_flag = CASE

WHEN customerstatus = 'Churned' THEN 1

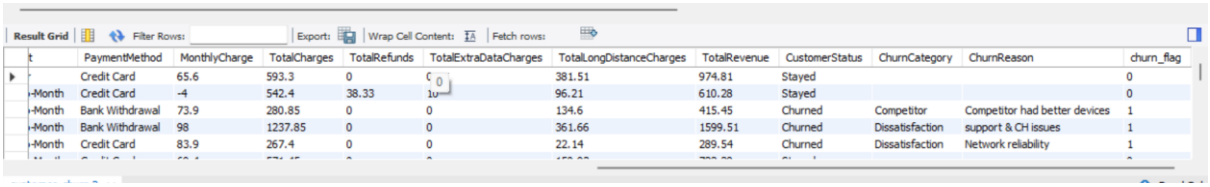
WHEN customerstatus = 'Stayed' THEN 0

when customerstatus= 'joined' then 0

ELSE NULL -- Handle any unexpected or missing statuses

END;

By using this query create a new column in the table for predicting the churned customer in the telecom industry



Finding the Total customer count by using SQL query,

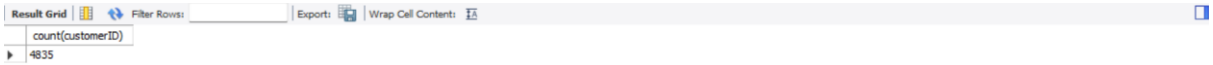
select count(customerID)

from customer_churn;

After the cleaning and preprocessing the data finding out the total count of the customer in the telecom data.

In this data count is includes the stayed, joined, churned customer in the telecom services.

OUTPUT

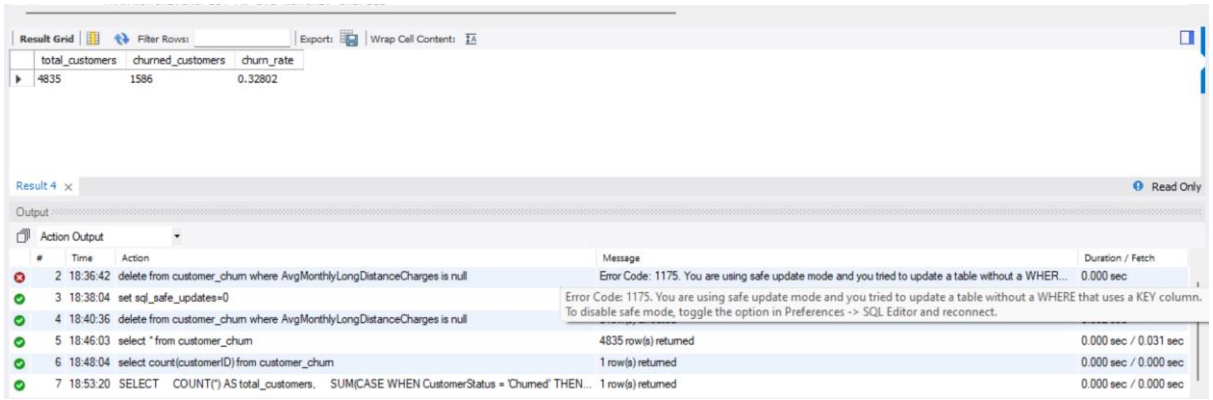


Identify the total number of customers and the churn rates

SQL CODE

```
SELECT
    COUNT(*) AS total_customers,
    SUM(CASE WHEN CustomerStatus = 'Churned' THEN 1 ELSE 0 END) AS churned_customers,
    AVG(CASE WHEN CustomerStatus = 'Churned' THEN 1.0 ELSE 0.0 END) AS churn_rate
FROM
    customer_churn;
```

OUTPUT:



By using this code we can able to identify the total number of customers in the telecom database in that, total churned customer data also find out and get the churn rate too.

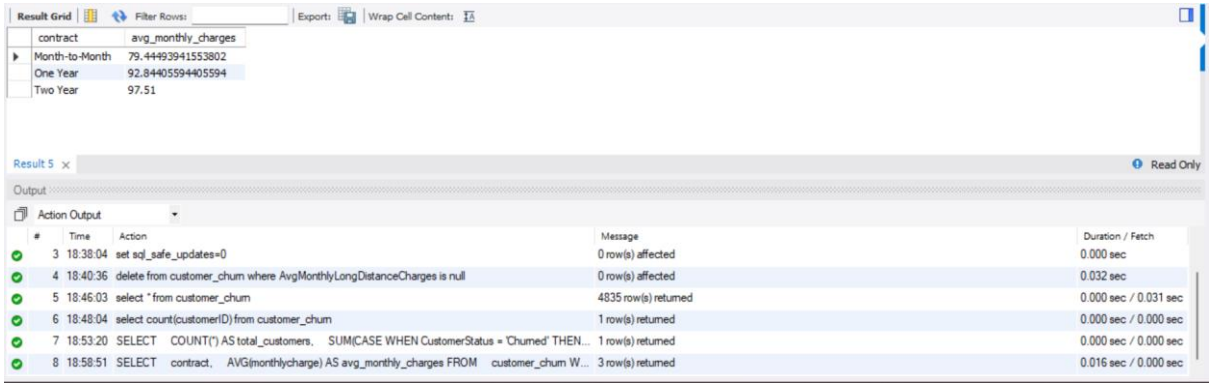
- Total Customer = 4835
- Churned Customer = 1586
- Churned Rate = .032802

Identify the Churned customers avg monthly charges

SQL CODE

```
SELECT
    contract,
    AVG(monthlycharge) AS avg_monthly_charges
FROM
    customer_churn
WHERE
   CustomerStatus = 'Churned'
GROUP BY
    contract;
```

OUTPUT:



By this code we can able to identify the avg monthly charges of churned customer for all types of contracts

- Month to Month
- One Year
- Two Year