TELECOM CHURN ANALYSIS

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Agenda

About the project: A detailed description of the project.

About the Data: Introduction to a dataset that has been used for the project.

Insights to find: What are the objectives & insights that are to be found out?

Steps for EDA & Cleaning Data: Various steps are used for data cleaning & EDA process.

Visual Analytics: Different visuals & summaries to understand data well.

Key Findings: Insights we find out according to various questions.

Dashboard View: The view of a dashboard that has been created.

ABOUT PROJECT

- The telecom company provides telecom services to many clients. But due to many reasons. customers switch from one service provider to other. Telecom churn has emerged as the single largest cause of revenue erosion for telecom operators.

- Now telecom company manager wants to know actionable insights to retain customers and increase customers' lifetime values.

- Here in this project we have to analyse a huge dataset from which we are going to extract actionable insights & make a Dashboard that can be useful for a Sales manager to work on and see how our business is doing. Also, he can make data-driven decisions & which will help him to retain customers and increase customers' lifetime values.

- We have extracted many different insights which we will see further in this report.

ABOUT DATA SET

- Each row represents a customer and each column contains the customer attributes described in the column metadata.

- The dataset shows the customer's account details like customer id, gender, senior citizen, partner and whether dependent on someone or not.

- It shows various services that each customer has signed up like phone service, tenure, Multiple lines, internet service, online security & backup, device protection, streaming TV & movies and tech support.

- It also shows customer account information like a contract, payment method, paperless billing, monthly charges and total charges.

- Customer who left this column is called Churn.

INSIGHTS TO BE FOUND

- What are the number of male & female customers in the entire customer and churner profile?

- What is the number of senior citizens & non-senior citizens in the entire customer and churner profile?

- What are monthly charges & total charges for the entire customer and churner profile?

- What are the percentages of churn and retain customers?

- What are demographic-wise gender-by-tenure bins for the entire customer and churner profile?

- What is the percentage of gender by tenure & connection with and without a partner?

INSIGHTS TO BE FOUND

- What is the percentage of male & female customers by contract in customer and churner profile?

- What is the percentage of senior & non-senior citizens for entire customers and churner profiles?

- What is gender distribution and how is gender related to churn?

- What is the percentage of contracts by gender in entire customers and churner profiles?

- What is the distribution of the contract by monthly charges and total charges?

- What is the distribution of tenure bins by monthly charges and total charges?
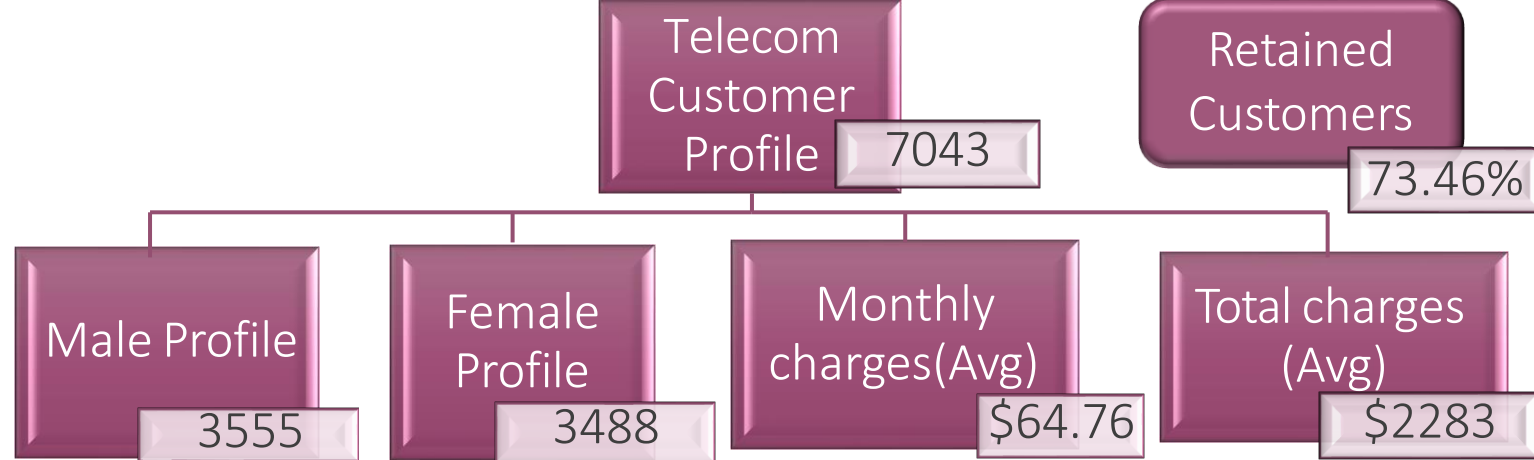
INSIGHTS TO BE FOUND

- What is the percentage of customers with department and partner in customers and churner profile.?

- What is the chance of churn based on payment method?

- What is the percentage of internet services by gender?

- What is the percentage of customers who deposit online security?

- What is the percentage of multiple lines connected by gender?

- What is the chance of churn based on the bil delivery method?

- What is the percentage of technical support by gender?

- What is the chance of churn based on dependents?

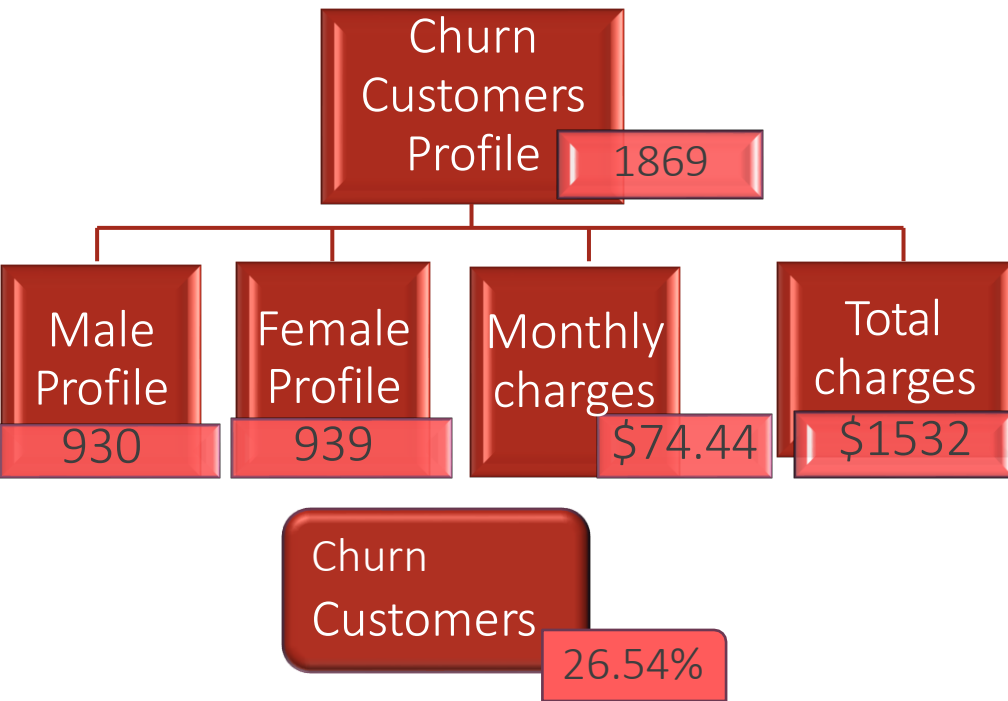- What is the chance of churn based on device protection?

STEPS FOR CLEANING DATA AND EDA

- Import data from Excel into Power BI.

- There are null values in the monthly charges column, replace them with 0 values using replace options in Power BI.

- In total charge replace the null value with zero.

- Change value data type in decimal to fixed decimal number format in the monthly & total charges column.

- Using derived metrics to create tenure bins.

- Add a conditional column option in Power BI. Then name this column as tenure bins and add a clause like If column name tenure Operator greater than or equal to Value 61 Output 61-100.

- Else if Column name tenure greater than or equal to Value 41 Output 41-60.

- Else if Column name tenure greater than or equal to Value 21 Output 21-40.

- Else if Column name tenure greater than or equal to Value 0 Output 0-20.

- Duplicate the data of telco customer churn and rename the data as Churn.

- Filter the "churn" column and then keep Yes only. So we get only the churn dataset.
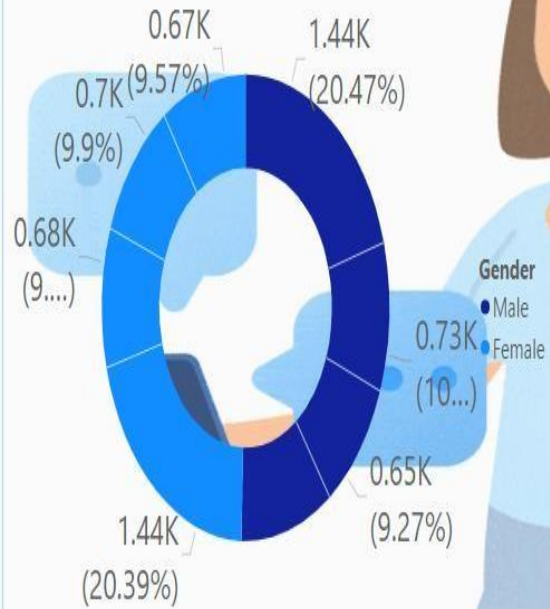
VISUAL ANALYTICS AND FINDINGS

Telecom Customer Profile 7043

Retained Customers 73.46%

Male Profile 3555

Female Profile 3488

Monthly charges(Avg) $64.76
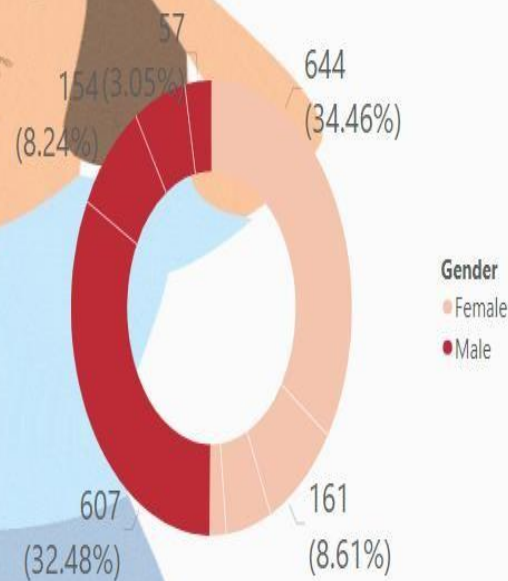
Total charges (Avg) $2283

- Here we can see the entire telecom customers profile for males, and females profile, monthly charges (average) & total charges (average).

- In the entire telecom customer profile about 7043 customers are there. Out of that 1869 customers are churning.

- In the entire customer profile about 3555 male customers are there. Out of that, 930 customers are churned.

- In customer profile. monthly charges (average) were $64.76. But in the churner profile. monthly charges (average) were $74.44.

- In customer profile. total charges (average) was $2283. But in the churner profile. monthly charges (average) were $1522.

- In telecom analysis 73.46% of retained customers are there & 26.54% of churn customers are there.

Churn Customers Profile 1869

Male Profile 930

Female Profile 939

Monthly charges $74.44

Total charges $1532

Churn Customers 26.54%

- From this graph we can observe the entire customer's telecom dataset & churner profile demographic in detail.

- In the entire customer profile 0-20 age male contribution is 1.44k (20.47%) but in the churner profile it's 607(32.48%).

- So compared with percentage wise it's more number of churners there.

- In the entire customer profile 21-40 age male contribution is 0.73k (10.32%) but in the churner profile it's 154(8.24%).

- So compared with percentage wise it's less than no of churner are there.

- In the entire customer profile 41-60 age male contribution is 0.67k (9.27%) but in the churner profile it's 112(5.99%).

- In the entire customer profile 61-100 age male contribution is 0.74k (10.41%) but in the churner profile it's 57(3.05%).

# DEMOGRAPHIC WISE GENDER BY TENURE BINS

- In telco profile 0-20 age female contribution is 1.44k (20.39%) but in churner profile its 644(34.46%).

- So compared with percentage wise it's more churner there.

- In the entire customer profile 21-40 age male contribution is 0.68k (9.6%) but in the churner profile it's 161(8.61%).

- So compared with percentage wise its less no of churner is there.

- In the entire customer profile 41-60 age male contribution is 0.7k (9.9%) but in the churner profile it's 98(5.24%).

- In the entire customer profile 61-100 age male contribution is 0.67k (9.57%) but in the churner profile it's 36(1.93%).

- So compared with percentage wise it's less no churners are there.

- Compared with males. 0-20 age female contribution is of churner is more.

# DEMOGRAPHIC WISE GENDER BY TENURE BINS
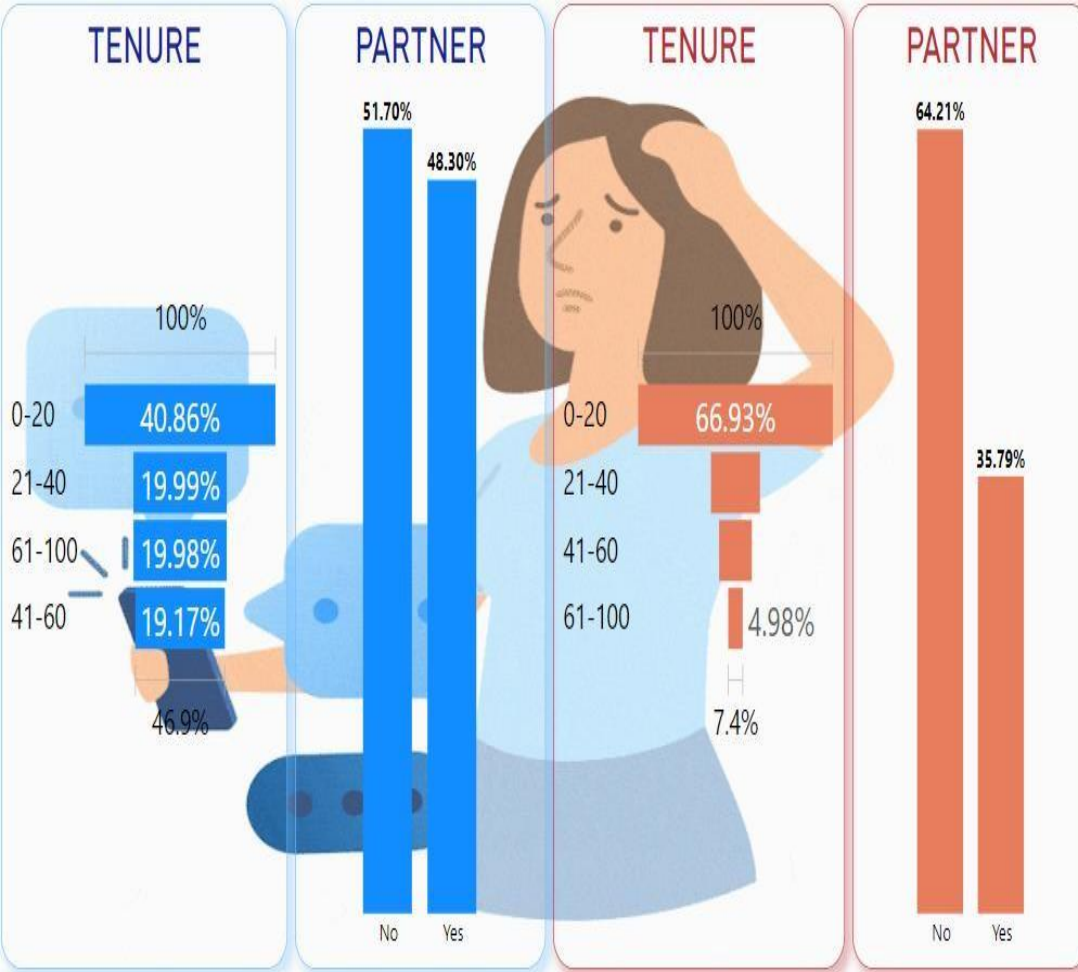
- From this graph we can observe the entire customer data Tenure, Partner of customer & churner profile in detail.

- In the entire customer profile, the 0-20 age group are 2878 (40.86%). Whereas in the churner profile, it's 1251 (66.93%).

- So this age group tends to churn more than others groups.   In customer profiles, 21-40 age males & females are 1408 (19.99%). Whereas in the churner profile, it's 315 (16.85%).

- In telco customer profiles, 41-60 age male & female are 1350 (19.17%). Whereas in the churner profile, it's 210(11.24%).
  In customer profiles, 61-100 aged male & female are 1407 (19.98%). Whereas in the churner profile, it's 93 (4.98%).

- In telco customer profile, 3402(51.70%)customers connection are with partner & 3641(51.70%) are without partner. Whereas in the churner profile, 669(35.79%) customers connected are with a partner & 1200(64.21%) customers connected are without a partner.

- So without partner customers or living alone tend to churn more.

WHAT IS THE % OF GENDER BY TENURE & TELECOM CONNECTION WITH & WITHOUT A PARTNER
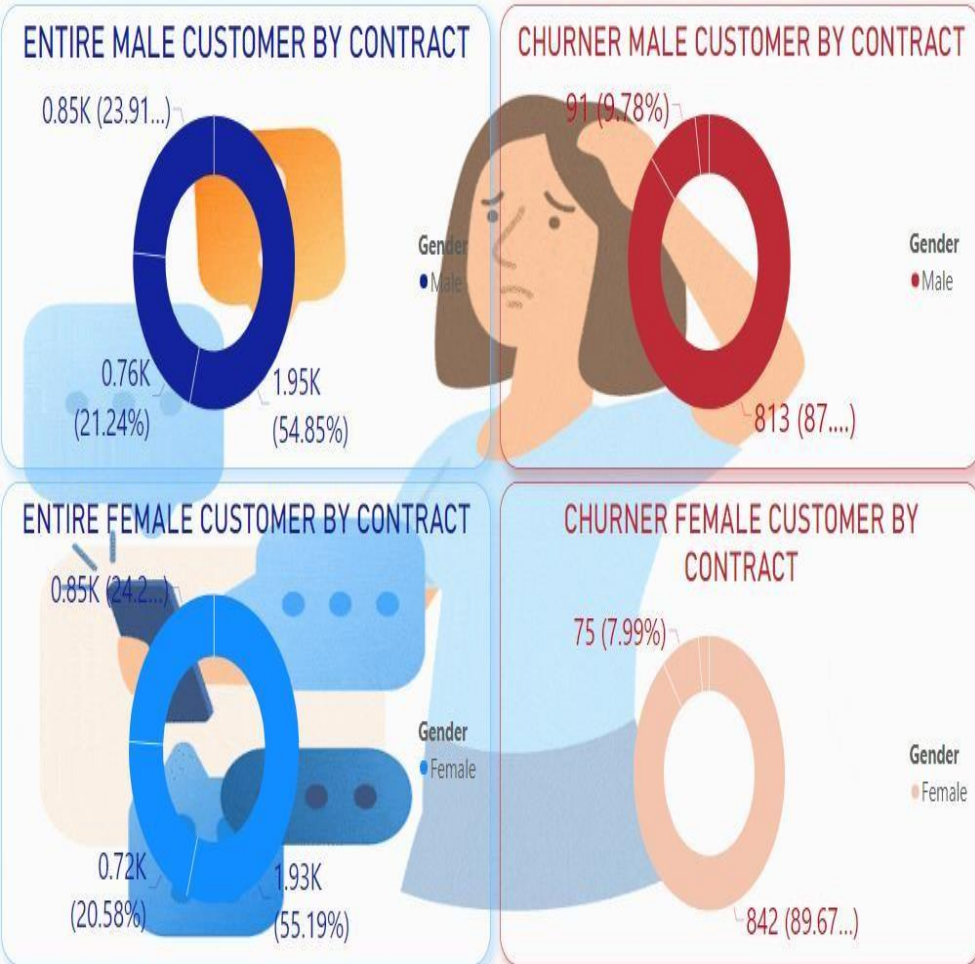
- From this graph we can observe. The dataset has an almost equal distribution of male and female customers.

- In the entire customer profile, male age group MOM customers are 1.95k (54.85%). Whereas in the churner profile, it's 813 (87.42%).

- So MOM contract male customers tend to churn more than others contracts. In the customer profile, Yearly are 0.76k (21.24%). Whereas in the churner profile, it's 91 (9.78%).In the entire customer profile, 41-60 age male age group 2 Year customers are 0.85k (23.91%). Whereas in the churner profile, it's 26(2.8%).

- In the entire customer profile, female age group MOM customers are 1.93k (55.19%). Whereas in the churner profile, it's 842 (89.67%).

- So MOM contract female customers tend to churn more than male customers and other contracts.

- In customer profile, Yearly are 0.72k (20.58%). Whereas in the churner profile, it's 75 (7.99%).In the entire customer profile, 41-60 age female age group 2 Year customers are 0.85k (24.23%). Whereas in the churner profile, it's 2(0.31%).

WHAT IS THE % OF MALE & FEMALE CUSTOMERS BY CONTRACT
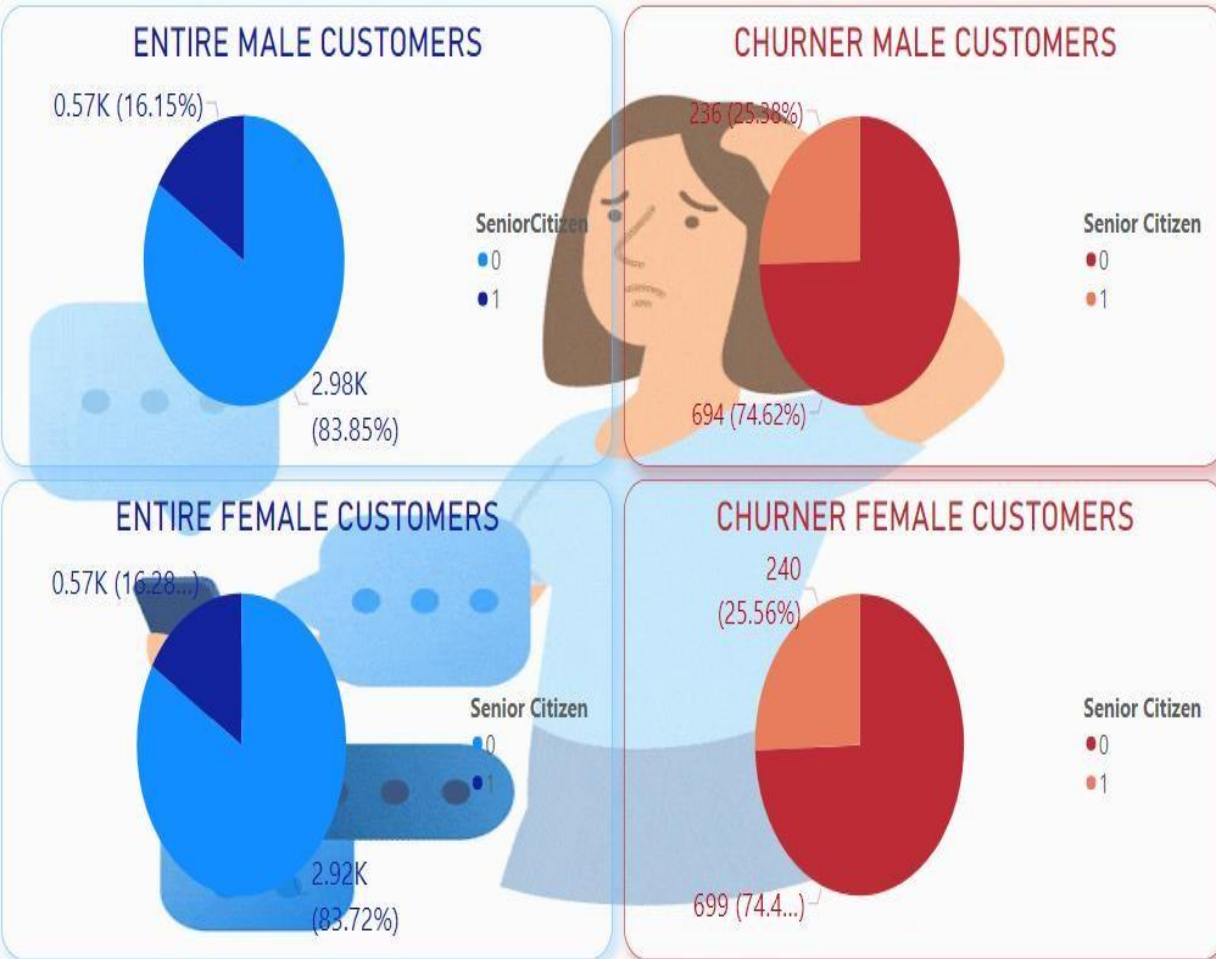
- From this graph we can observe. The dataset has an almost equal distribution of male and female young & old customers.

- In the entire customer profile, male young group customers are 2.98k (54.85%). Whereas in the churner profile, it's 694 (74.62%).old group customers are 0.57k (16.15%). Whereas in the churner profile, it's 236 (25.38%).

- In the entire customer profile, female young group customers are 2.92k (83.72%). Whereas in the churner profile, it's 699 (74.44%).old group customers are 0.57k (16.28%). Whereas in the churner profile, it's 240 (25.56%).

- Majority of the customers in the dataset are Non-Senior Citizens.

- Out of all senior citizen customers, more than 40% churn. While among younger customers, the churn percentage is less than 25%. Hence, senior citizens tend to churn more than younger customers

WHAT IS THE % OF SENIOR & NON SENIOR CITIZEN CUSTOMERS

- From this graph we can observe. The dataset has an almost equal distribution of male and female customers.

- In gender distribution. entire customer profile, male customers are 3555 (50.48%) & female customers are 3488 (49.52%). Whereas in the churner profile, it's 3488 (49.52%). Whereas in the churner profile, male customers are 930 (49.76%) & female customers are 939 (50.24%).

- In contract distribution. entire customer profile, MOM total customers are 3.88k (55.02%) & retained customers are 19.41 %. Whereas in the churner profile, it's 1.66k (88.55%) %) & churn customers are 23.5 %.

- So MOM contract customers tend to churn more than other contracts.

- Yearly contract are 1.47k (20.91%) & retained customers are 22.9 %. Whereas in the churner profile, it's 0.17k (8.88%) & churn customers are 2.36 %. 2 Year contract customers are 1.7k (24.07%) & retained customers are 31.15 %.
  Whereas in the churner profile, it's 48(2.57%) & churn customers are 0.68 %.

- We observe that the churn rate is a bit thinner for very long-tenure customers.

WHAT IS THE % OF GENDER & CONTRACT DISTRIBUTION AND HOW IS GENDER RELATED TO CHURN

- In the entire customer profile. MOM contract monthly charges are 56.41%, total charges are 33.05% and total customers are 55.02%. Whereas in churner profile. MOM monthly charges are 86.86%, total charges are 67.32% and total customer churn is 23%.

- The MOM contract monthly charges contribution is high among yearly & 2 yearly customers and also total customers are higher.

- In the yearly contract monthly charges are 21.01%, total charges are 27.82% and total customers are 20.91%. Whereas in churner profile. Monthly charges are 10.15%, total charges are 23.58% and total customer churn is 2.36%.

- In 2 yearly contracts monthly charges are 22.58%, total charges are 39.13% and total customers are 24.07%. Whereas in churner profile. Monthly charges are 2.99%, total charges are 9.11% and total customer churn is 0.68%.

- This shows that the customers taking a longer contract are more loyal to the company and tend to stay with it for a longer period of time.

WHAT IS THE DISTRIBUTION OF CONTRACT BY MONTHLY AND TOTAL CHARGES

- In the entire customer profile. 0-20 age monthly charges are 36.11%, total charges are 8.01% and total customers are 40.86%. Whereas in churner profile. 0-20 age monthly charges are 61.49%, total charges are 19.70% and churn customers ratio is 17.76%.

- So 0-20 age group customers contribution has more monthly charges and also churn ratio are more.

- In the 21-40 age monthly charges are 19.96%, total charges are 17% and total customers are 19.99%. Whereas in churner profile. 21-40 age monthly charges are 18.77%, total charges are 27.04% and churn customers ratio is 4.47%.

- In 41-60 age monthly charges are 20.5%, total charges are 29.59% and total customers are 19.17%. Whereas in churner profile. 41-60 age monthly charges are 13.23%, total charges are 32.1% churn customers ratio is 2.98%.

WHAT IS THE DISTRIBUTION OF TENURE BINS BY MONTHLY AND TOTAL CHARGES

- In 61-100 age monthly charges are 23.43%, total charges are

  45.4% and total customers are 19.98%.

- Whereas in churner profile. 61-100 age monthly charges are 6.51%, total charges are 21.17% churn customer ratio is 1.32%.

- So 61-100 age customers contribution of total charges are more than others age group.

- Majority of customers have lower total charges. The highest churn rate is observed among such customers.

- This shows that the customers taking a longer contract are more loyal to the company and tend to stay with it for a longer period of time.

WHAT IS THE DISTRIBUTION OF TENURE BINS BY MONTHLY AND TOTAL CHARGES

SUMMARY

From the overall graph, we can observe that monthly dataset contract-type customers are more likely to be churned.

Tenure bins wise, the 0-20 age group customer has more possibility to churn.

Gender-wise, female customers, who have adopted monthly contracts have more possibility to be churned as compared to male customers.

Those who have not taken any kind of tech support, that type of customers have more possibility to be churned.

For those who use fiber optic connections, that type of customer's churned percentage was high.

Those who have not deposited online security, that type of customers have more possibility to churn.

THANK YOU