

Capstone Project

Telecom Churn Analysis

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Business Problem Overview

- Customer churn prediction is **extremely important** for any business as it recognizes the clients who are likely to stop using their services.
- In the telecom industry, customers are able to choose from multiple service providers and actively switch from one operator to another. In this highly competitive market, the telecommunications industry experiences an average of **15-25% annual churn rate**.
- For many incumbent operators, **retaining high profitable customers** is the number one business goal.
- To reduce customer churn, telecom companies **need to predict** which customers are at **high risk of churn**.
- In this project, we will **analyze customer-level data** of a leading telecom firm, to identify customers at high risk of churn and identify the main indicators of churn.

Objective

- Finding factors which influence customers to churn.
- Retain churn customers by applying strategy.
- Providing offers based on influencing factors.
- Control churn rate and improve the image in the market.

Data Summary

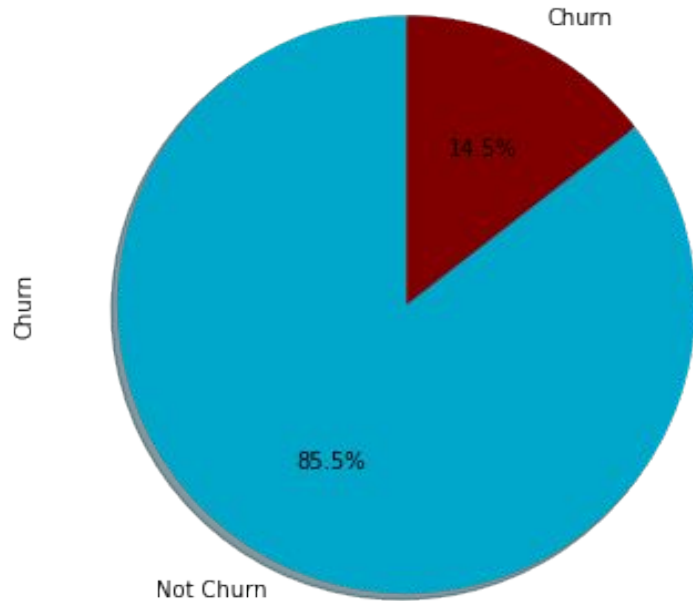
Data set : Telecom Churn dataset of Orange S.A., formerly France Télécom S.A.

Shape:

- Rows - 3333
- Columns – 20

Important Columns: State, Area code, International plan, Voice mail plan, Churn, Customer service calls, Total eve calls, Total day calls, Total night calls, Total intl calls.(Probably all columns are important).

Churn Information

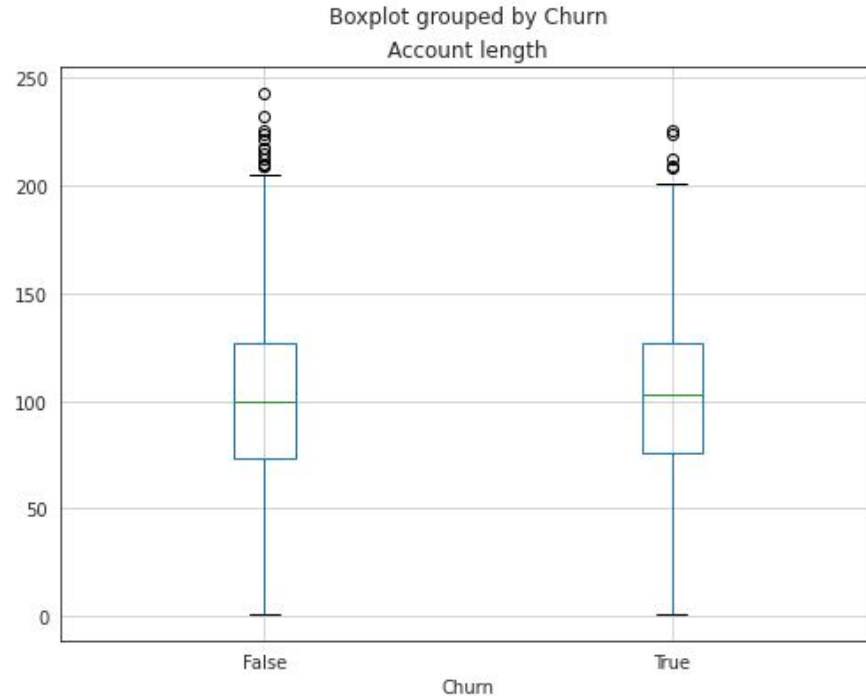


Total Users were **3333**.
2850 - Non churn (85.5%)
483 - Churn(14.5%)

Correlation



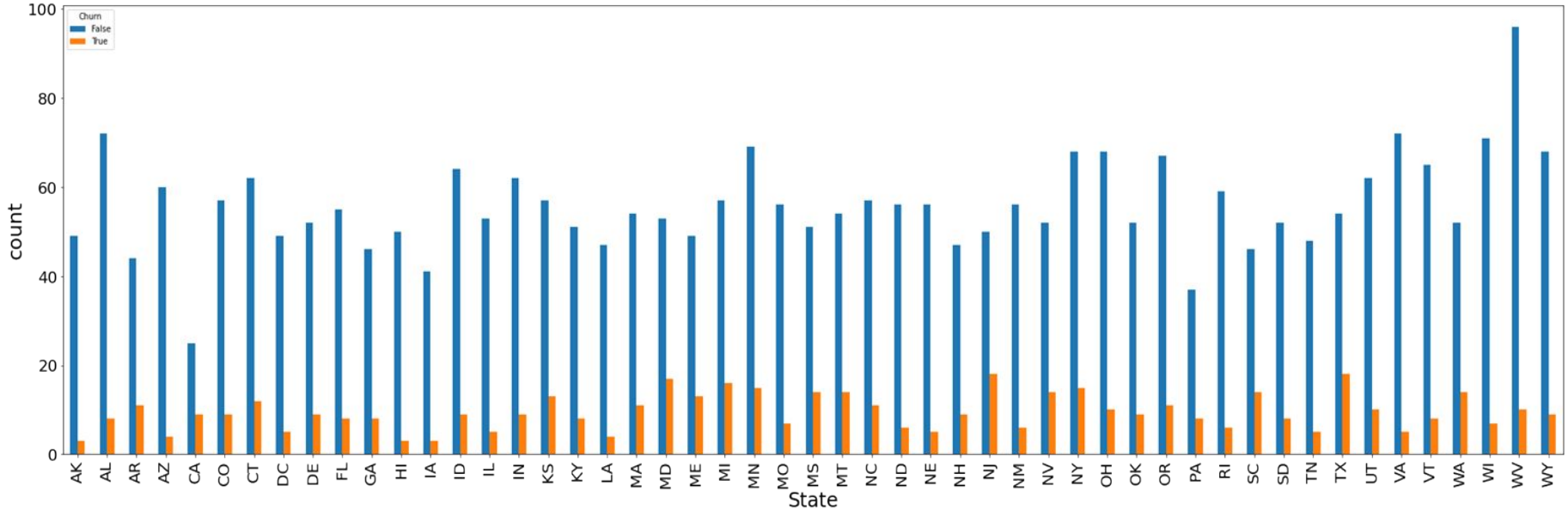
Analysis based on Account Length



The mean of Account length is almost **similar** for both churn groups.

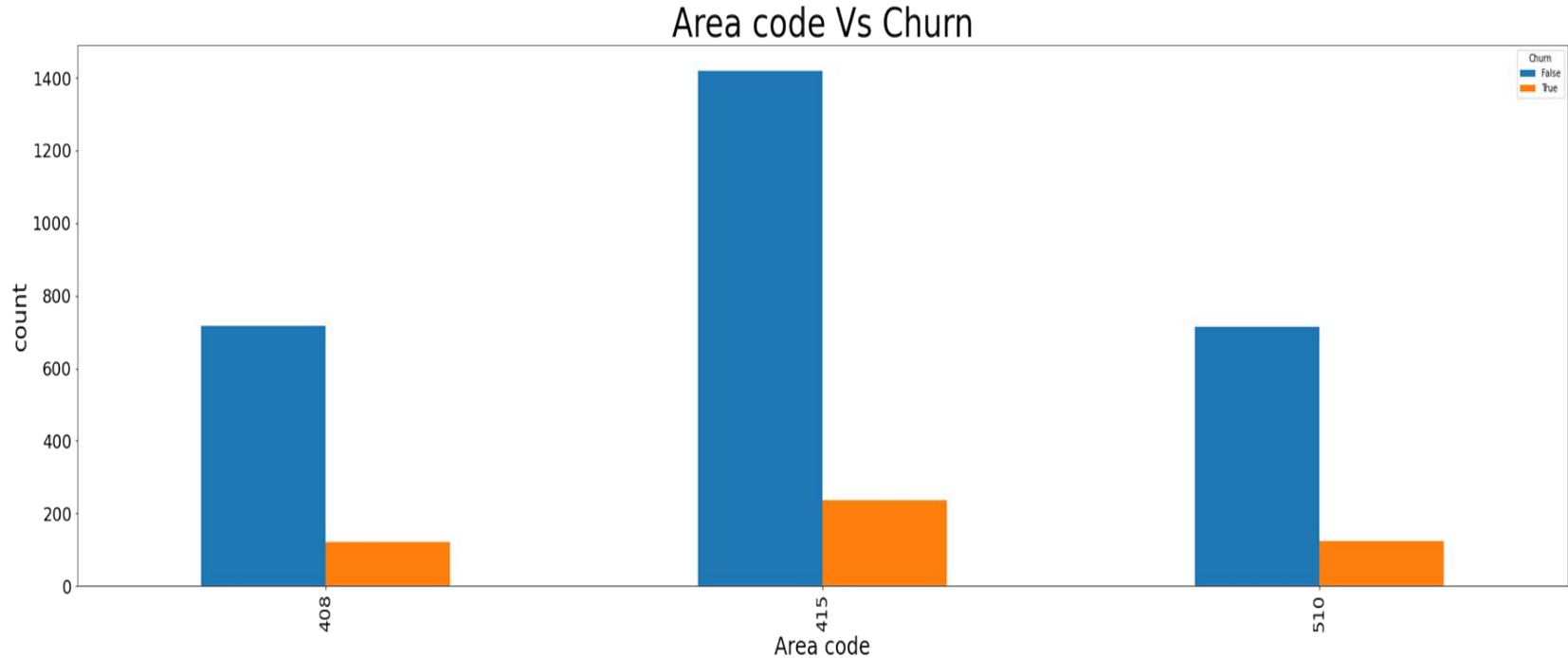
Analysis based on States

State Vs Churn



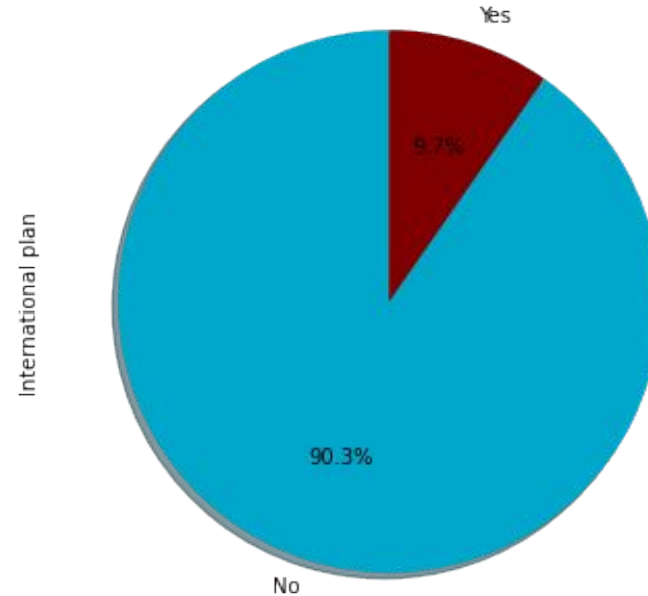
There are 51 state who have different churn rate. **CA, NJ ,TX , MD ,SC ,MI** are the ones who have higher churn rate more than **21.74%** which is more than **50%** of average churn rate.

Analysis Based on Area Code



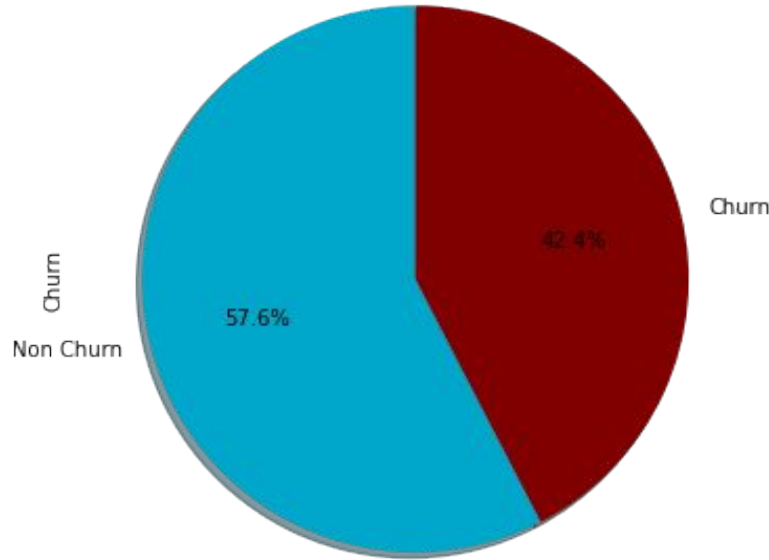
All the Area codes have almost **equal (.14%)** percentage of Churners.

Analysis Based on International Plan



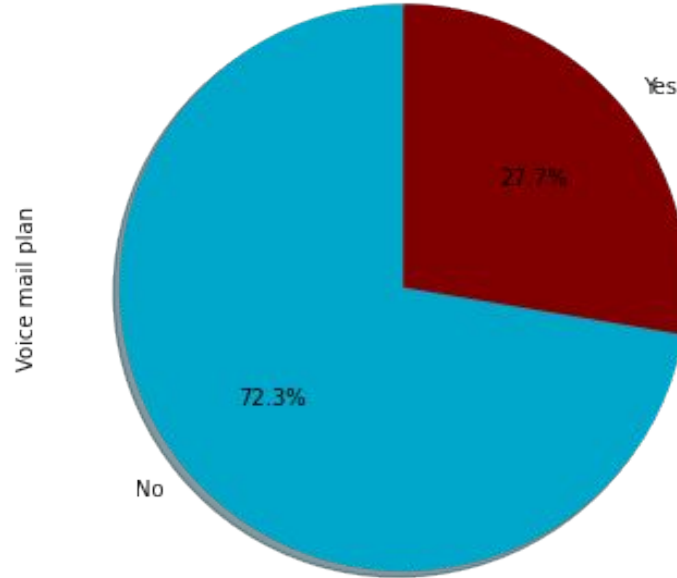
Out of 3333 people only **323** have a International Plan , rest **3010**
do not
have International Plan

International Plan vs Churn



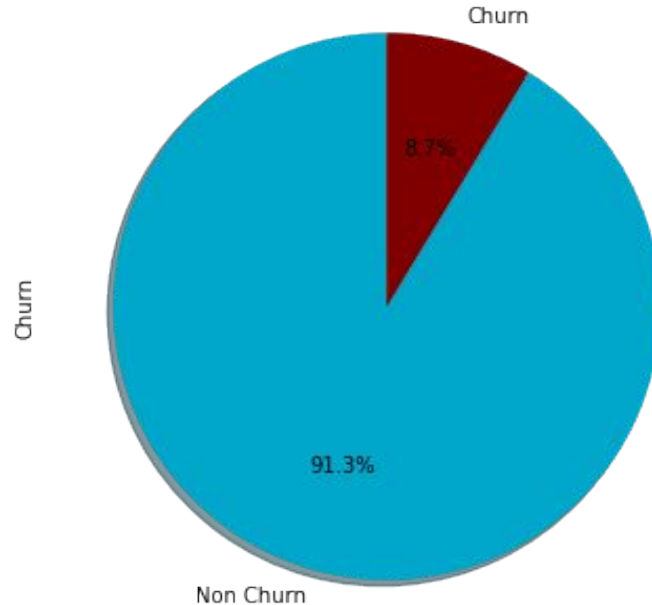
323 people having International plan about
42.4% are Churn.

Analysis Based on Voice mail



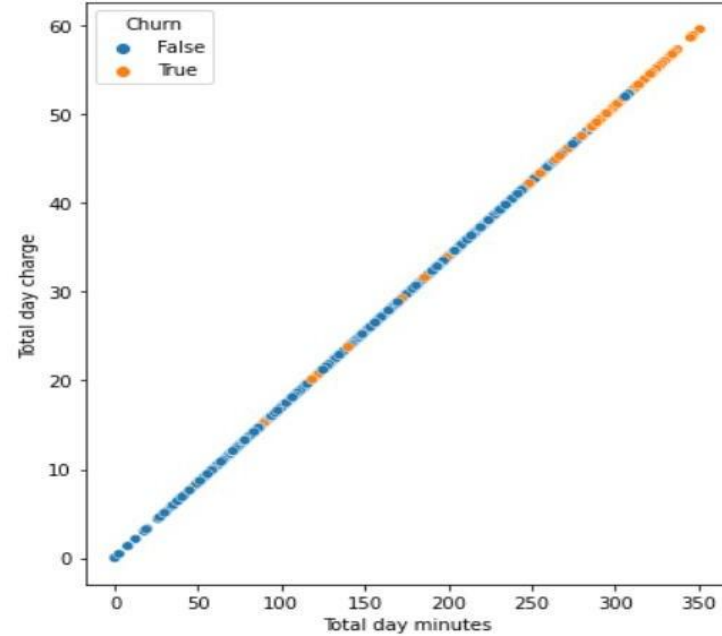
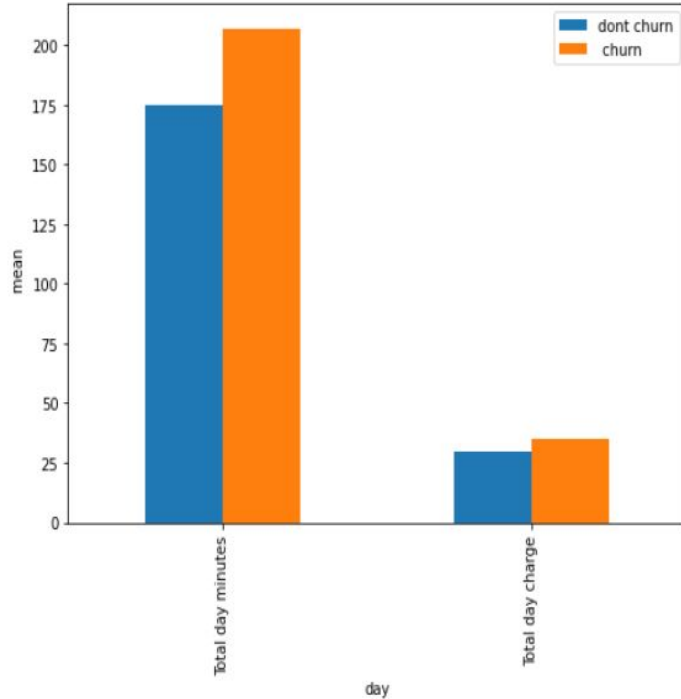
Out of 3333 people **922** having Voice mail plan, rest **2411** do not have any Voice mail plan.

Voice Mail Plan vs Churn

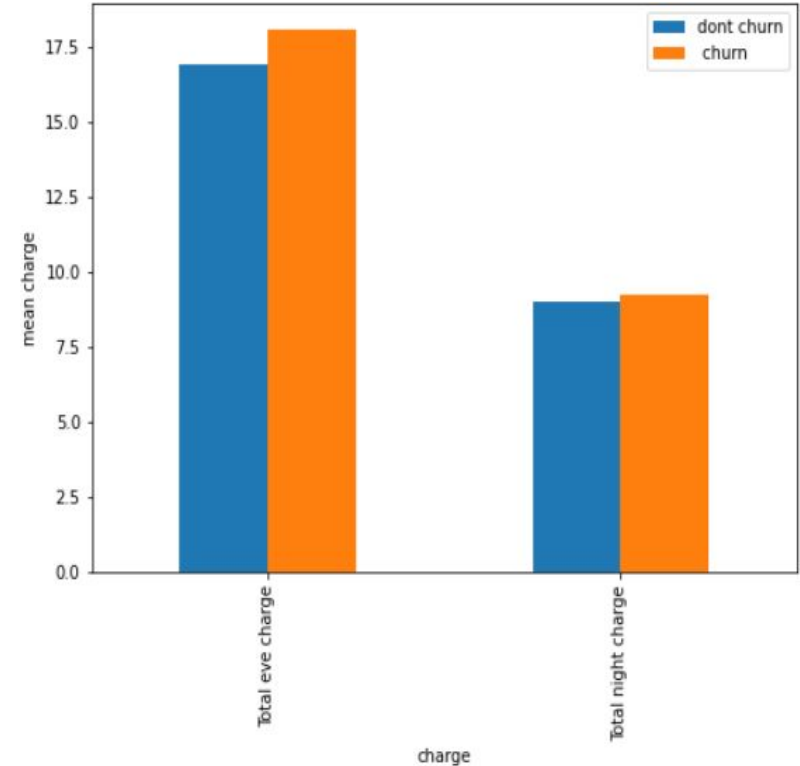
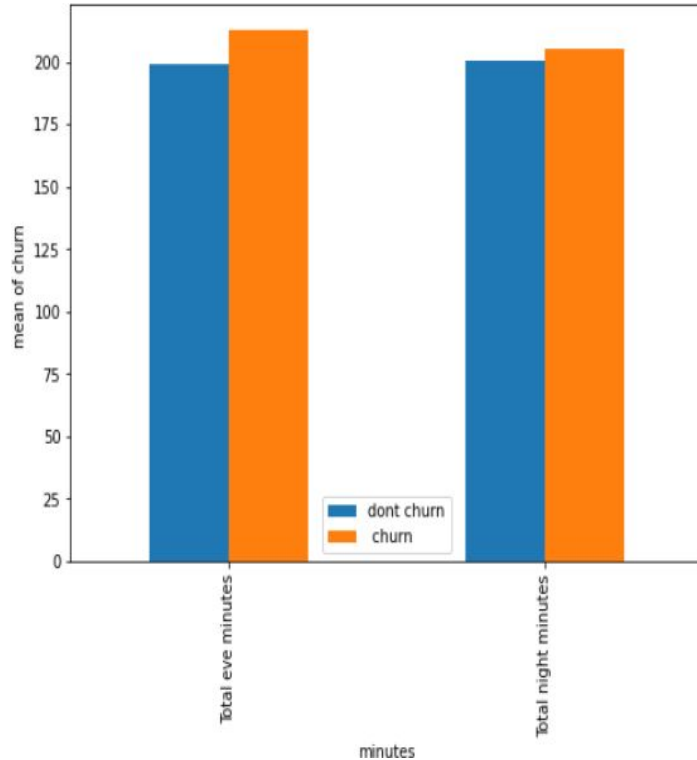


922 people having Voice mail plan about 8.7% are Churn.

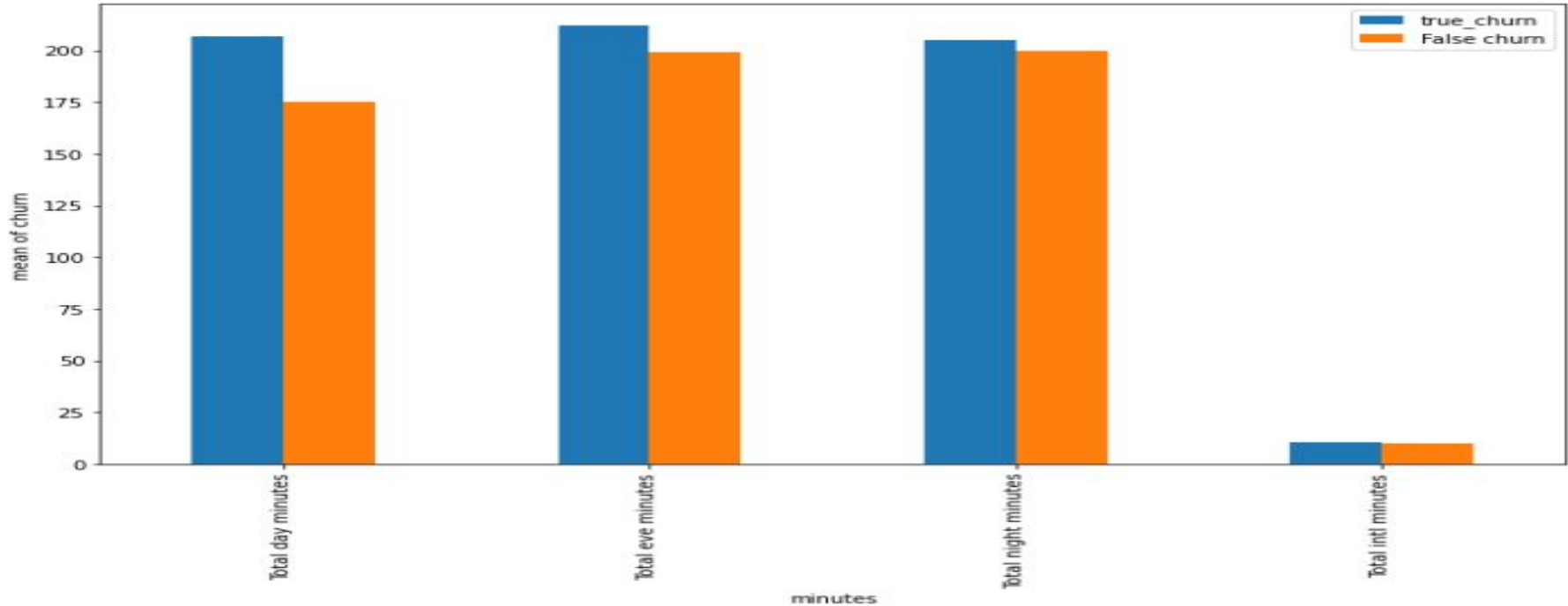
Analysis based on Day Calls



Analysis based on eve/night calls

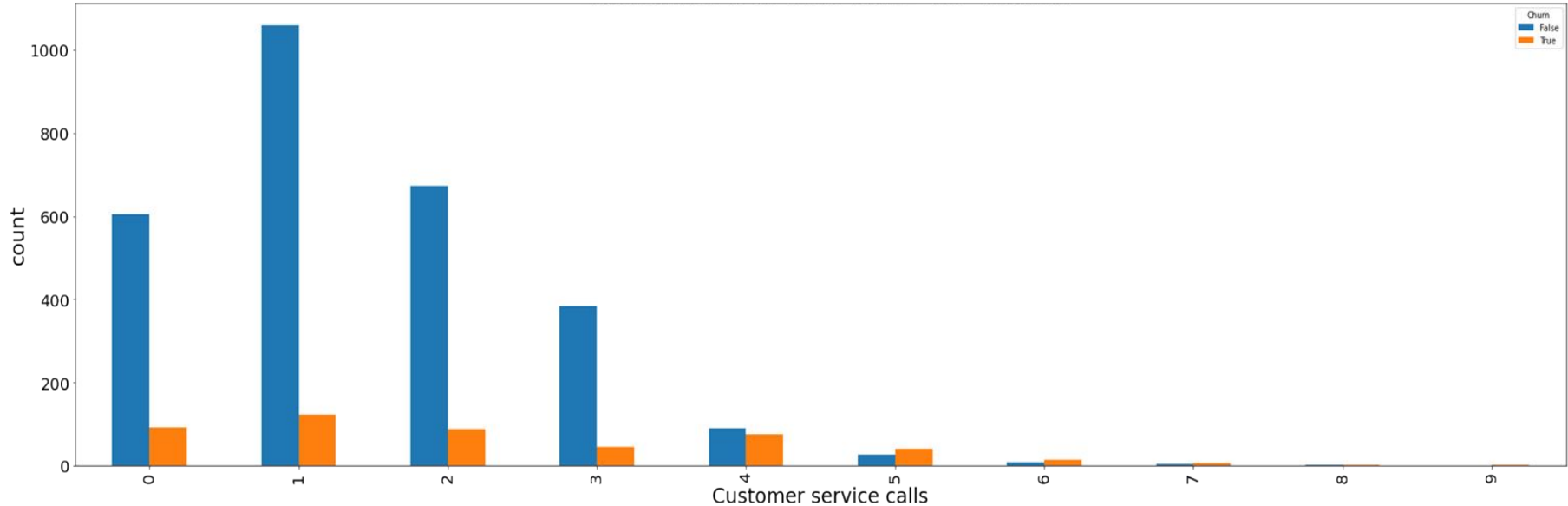


Analysis based on total calls



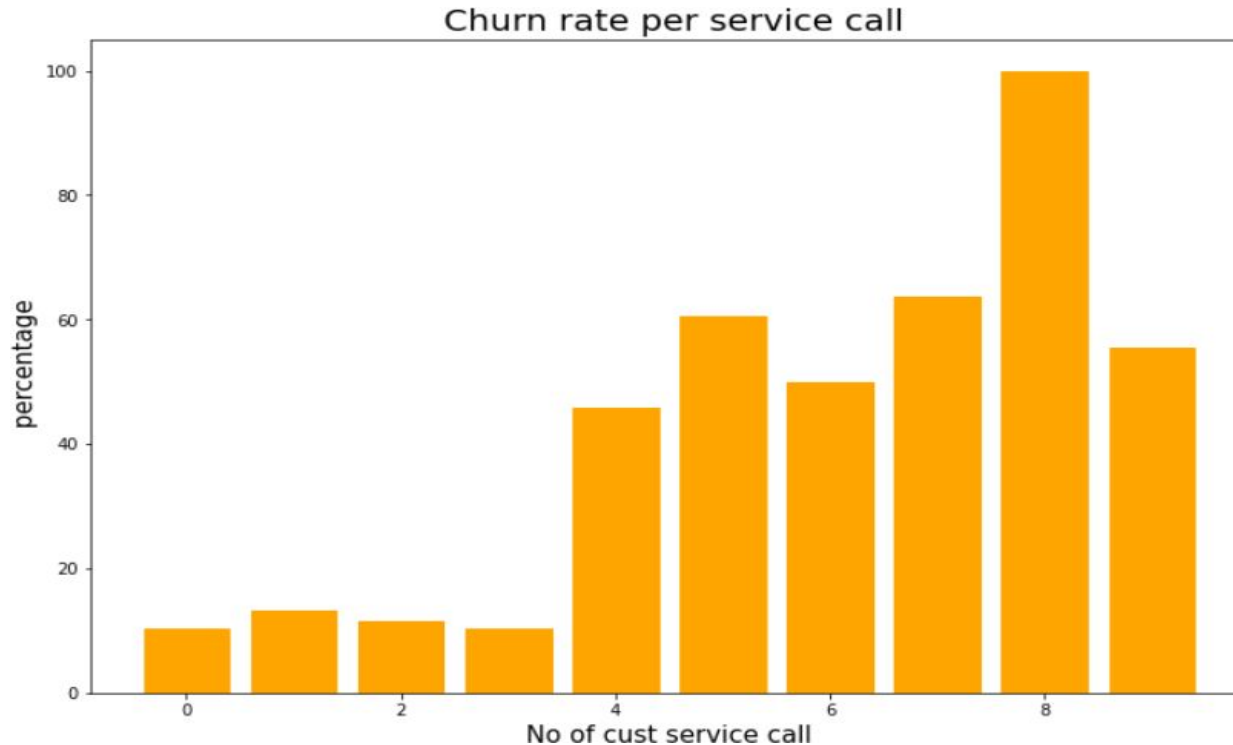
Analysis based on Customer Service Call

Customer service calls Vs Churn



Customers with more than 4 service calls their probability of leaving is more.

Churn Rate as per Service Call



Challenges

- Difficult to recognise columns like- (Account Length , Number vmail messages. Etc.) as while subset these we got lot of possibilities of true churn and have to work for each possibilities.
- Need to plot lot of Graph for different States as well as different Area codes to understand the data and handling the data.
- Need to subset for respective State having respective Area code till it reaches a dozen of customers.

Solution to Reduce Customer Churn

- **Modify International Plan as the charge is same as normal one.**
- **Be proactive with communication.**
- **Ask for feedback often.**
- **Periodically throw Offers to retain customers.**
- **Look at the customers facing problem in the most churning states.**
- **Lean into best customers.**
- **Regular Server Maintenance.**
- **Solving Poor Network Connectivity Issue.**
- **Define a roadmap for new customers.**
- **Analyze churn when it happens.**
- **Stay competitive.**

Conclusion

- The four charge fields are linear functions of the minute fields.
- The area code field and/or the state field are anomalous, and can be omitted.
- Customers with the International Plan tend to churn more frequently.
- Customers with four or more customer service calls churn more than four times as often as do the other customers.
- Customers with high day minutes and evening minutes tend to churn at a higher rate than do the other customers.

There is no obvious association of churn with the variables evening calls, night calls, international calls, night minutes, international minutes, account length.