PHASE 3 PROJECT

Title: Customer Churn Analysis

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BUSINESS UNDERSTANDING

In the current modern world and competitive landscape, understanding and effectively managing customer churn in paramount for business aiming to sustain growth, customer retention and profitability. A churn predictive model serves as a valuable tool in the endeavor by providing insights into customer behavior and predicting which customers are likely to discontinue their relationship with the company. Some of the key variable features that will be used to creative a business churn predictive model include: factors that contribute to customer churn, allocation of resources, intervention needed and lifetime of a customer in the business.

PROBLEM STATEMENT

Customer churn remains a challenge for most business in different sectors that contributes not only to decline in customer base but also in revenue loss. Therefore, to enable business mitigate and take control of their customers, it is crucial to create a predictive churn model that gives businesses a heads up and allows them to intervene before losing a customer. The objective of this project is to give insights for strategizing and forecasting for growth of business through retention and acquisition of customers.

DATA VISUALIZATION

- Some of the key features we will looking at are:

1.Churn rate and distribution in different areas and a few selected estate.

2. Customer service calls distribution.

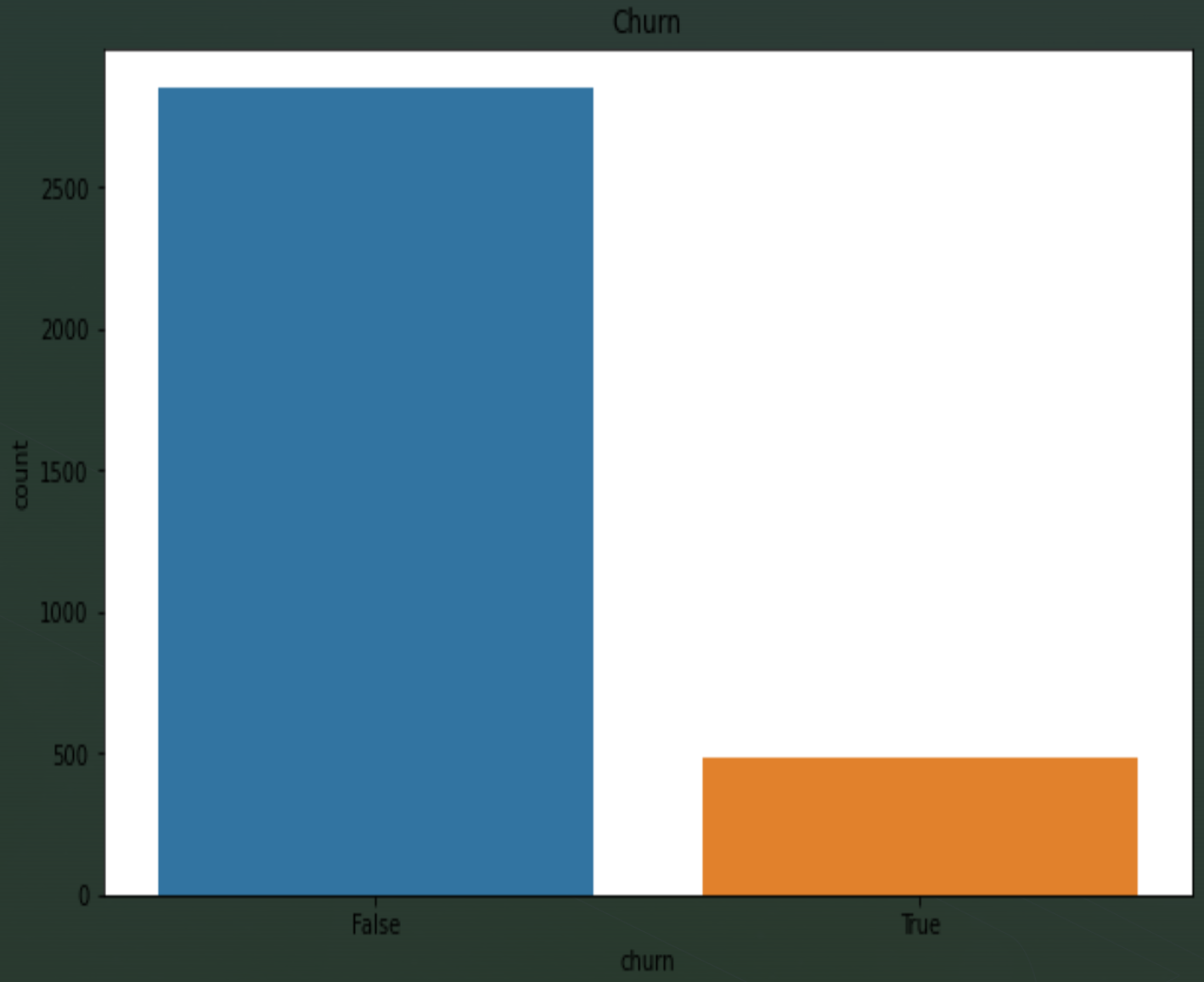
3. Charge Distribution.

4. Length or duration of time the client stayed with the business.

5. Plans that the business has with the customers.

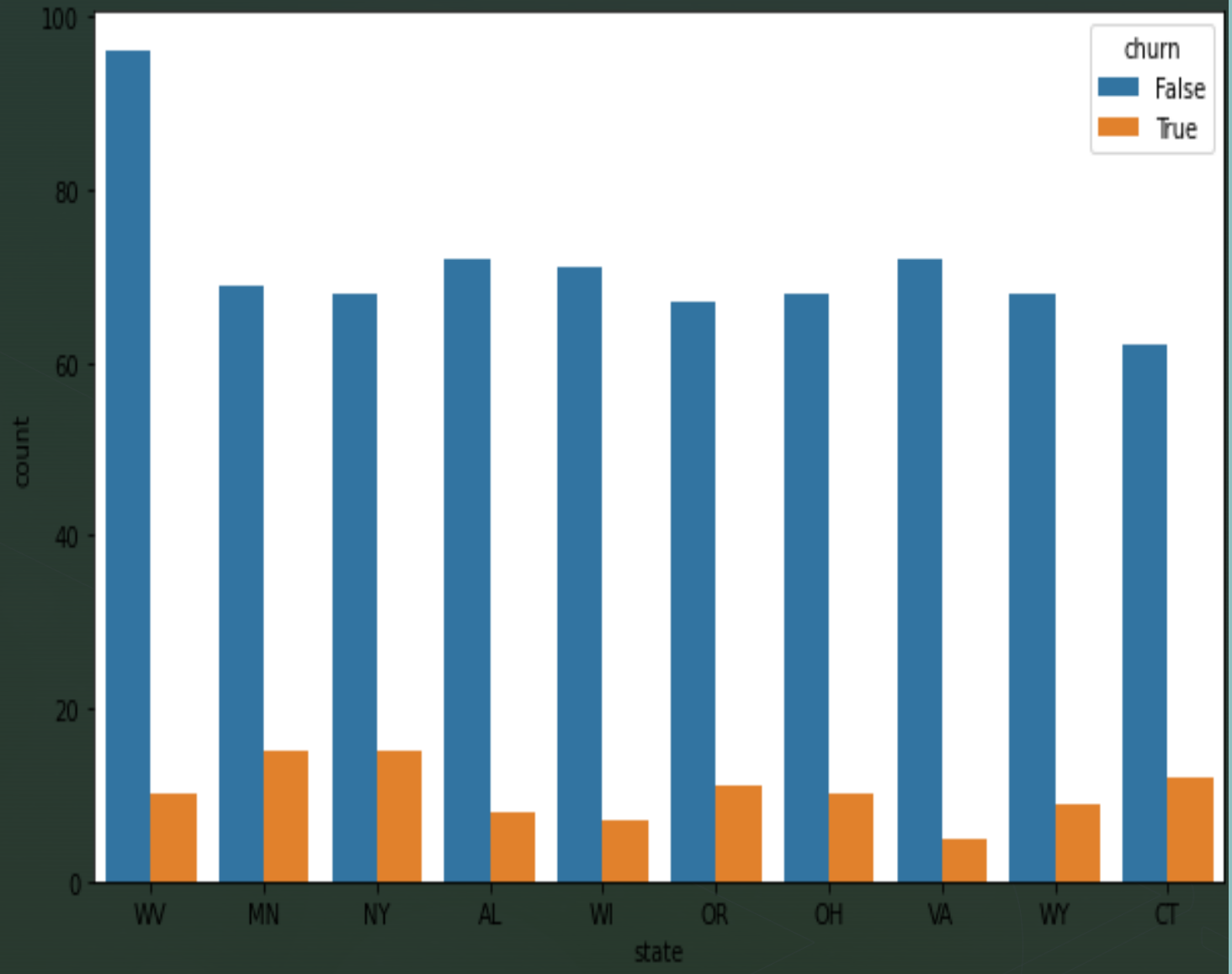
Churn Distribution

The business had retained 2,850 and lost 483 Customers



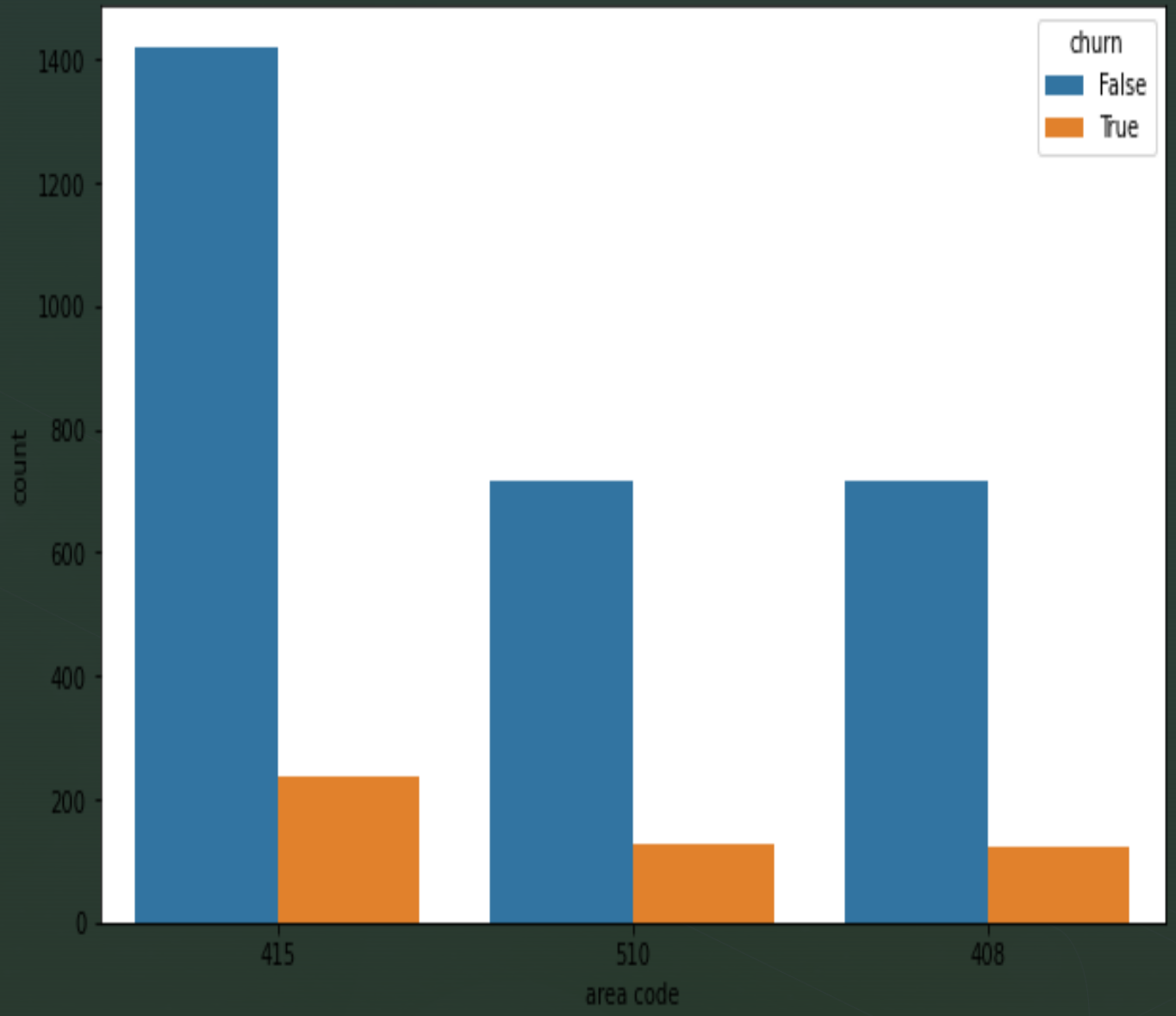
Churn Distribution per state

This represent the top ten state that had customer churn the with leading state being MN and NY



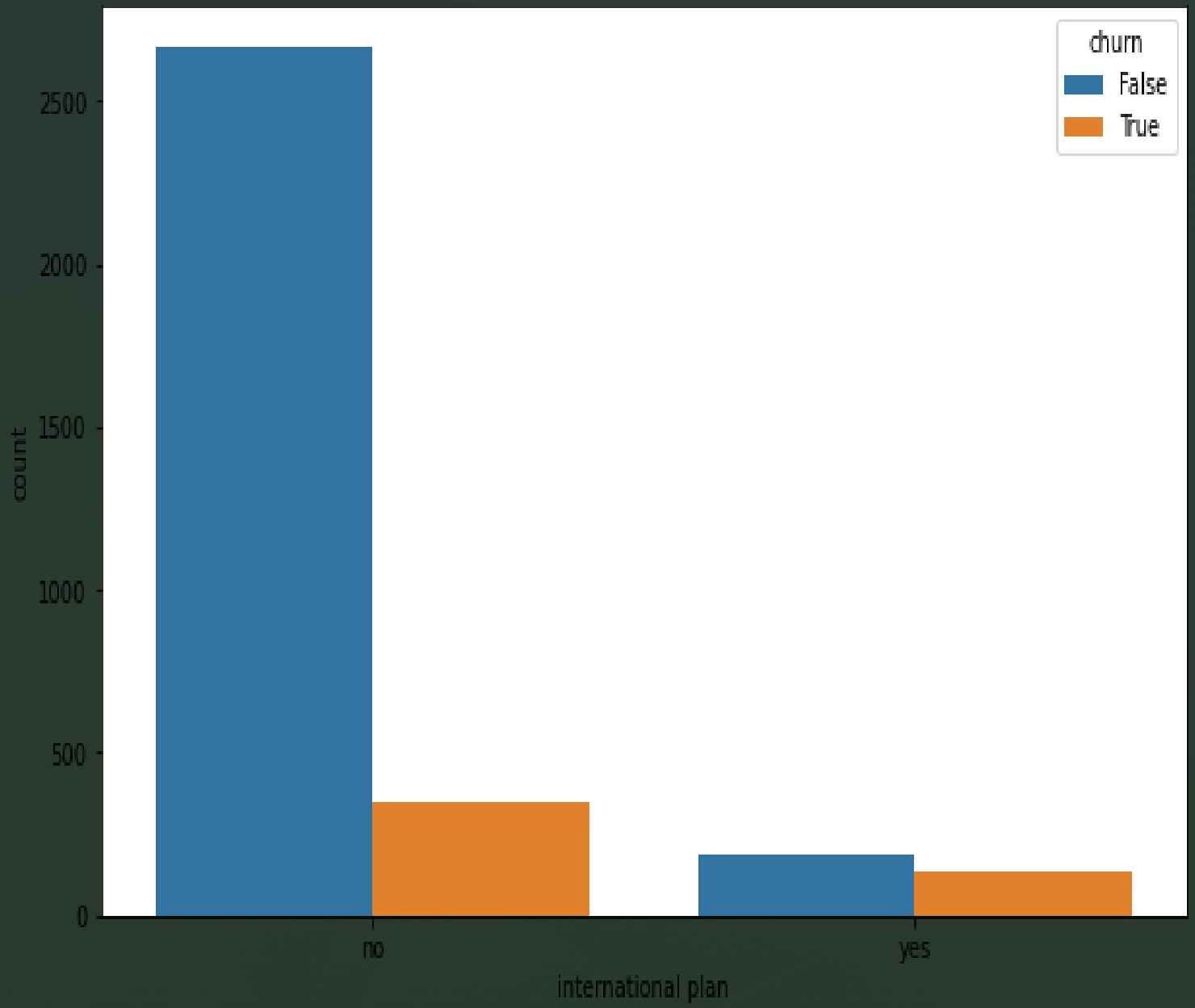
Customer Churn per area code

The area code with the biggest churn is 415 followed by 510 and 408.



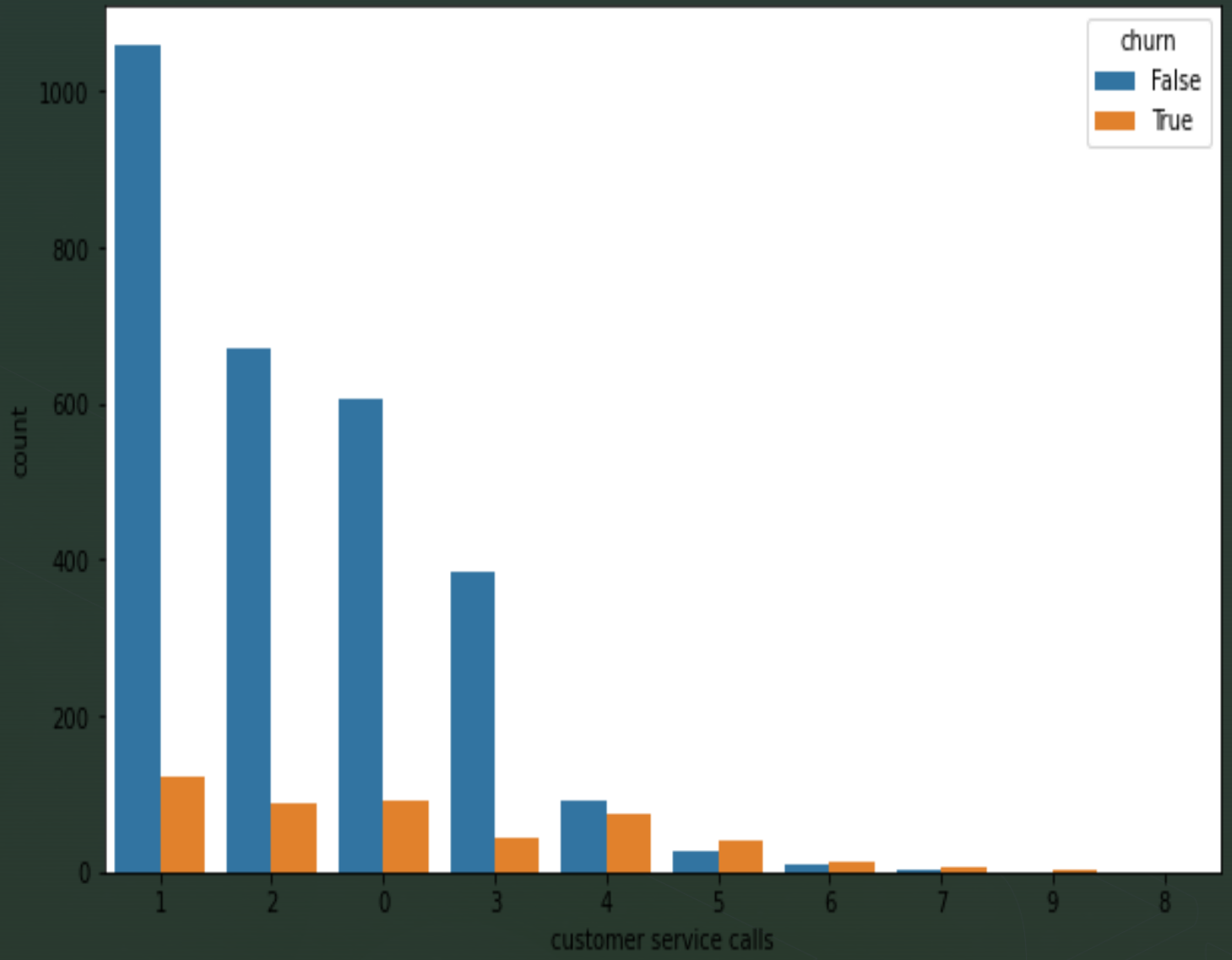
Internation Plan to Churn Distribution

This shows the churn distribution among those customers that had international plan



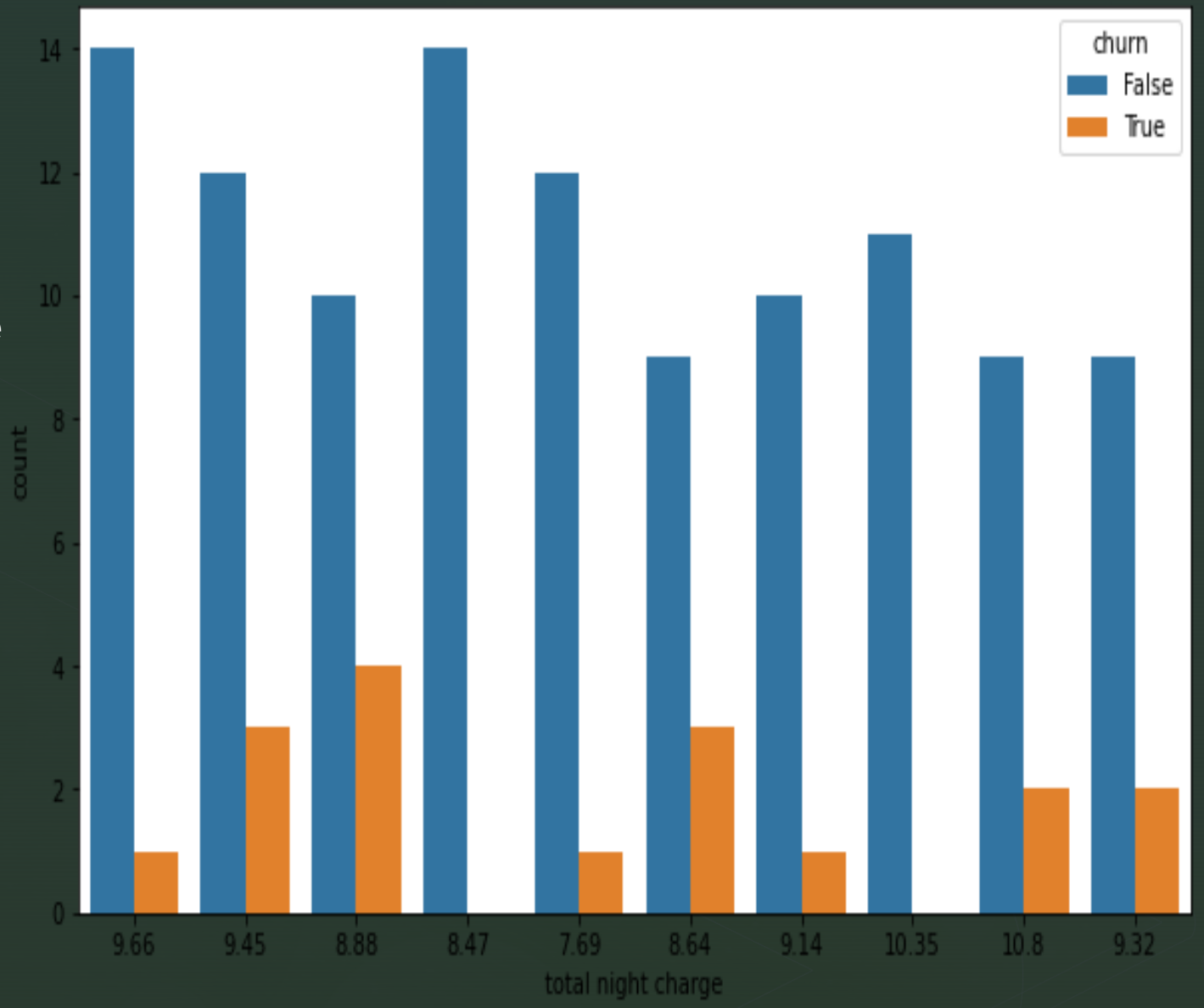
Customer Service Calls

This is number of customers made with the highest churn being at one call.



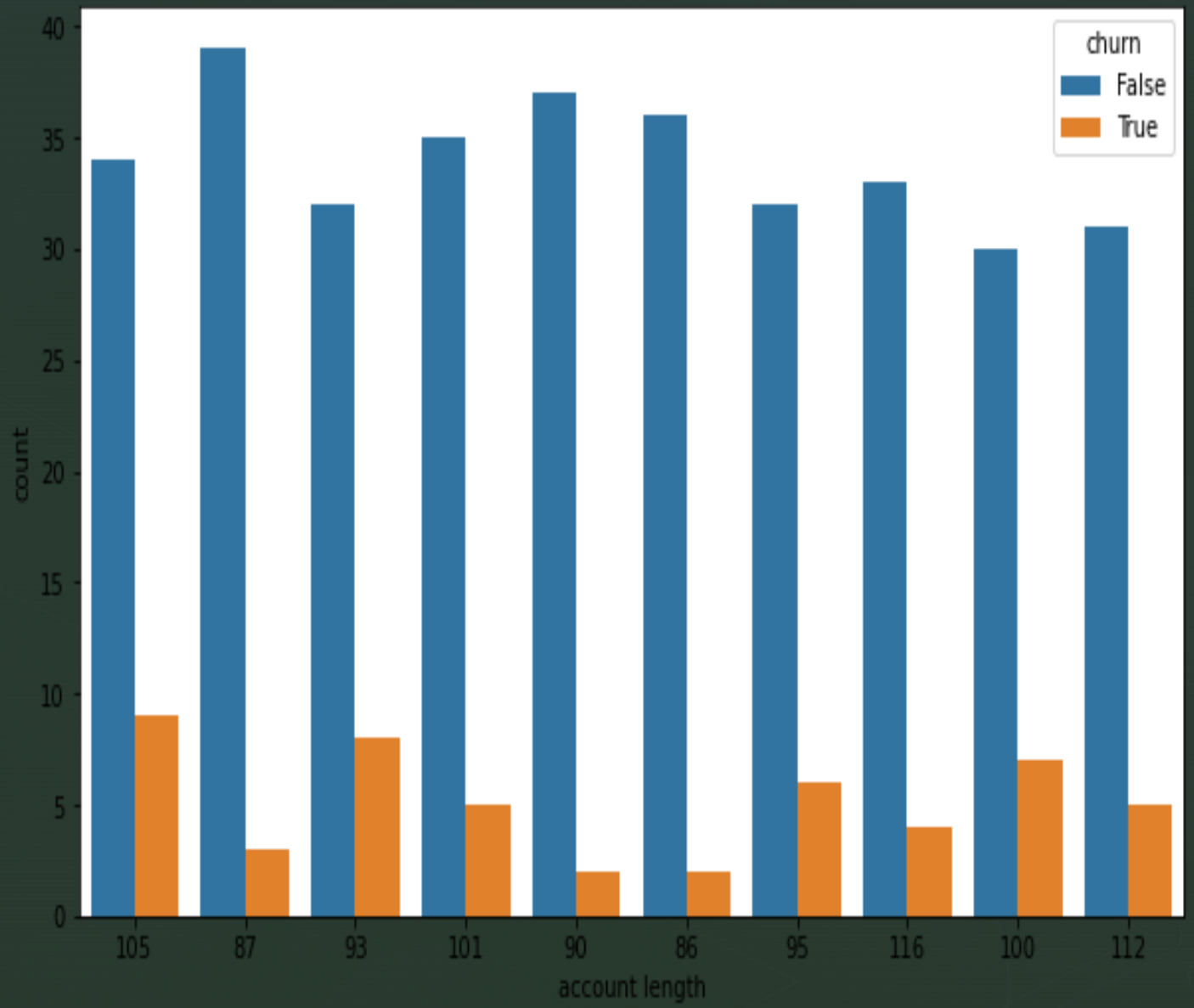
Charges

This is shows distribution of night charges and its effect on chur for the top ten customers with higher charges. From this it is clear that the rate of charge does not have much impact on churn rate.



Account Length

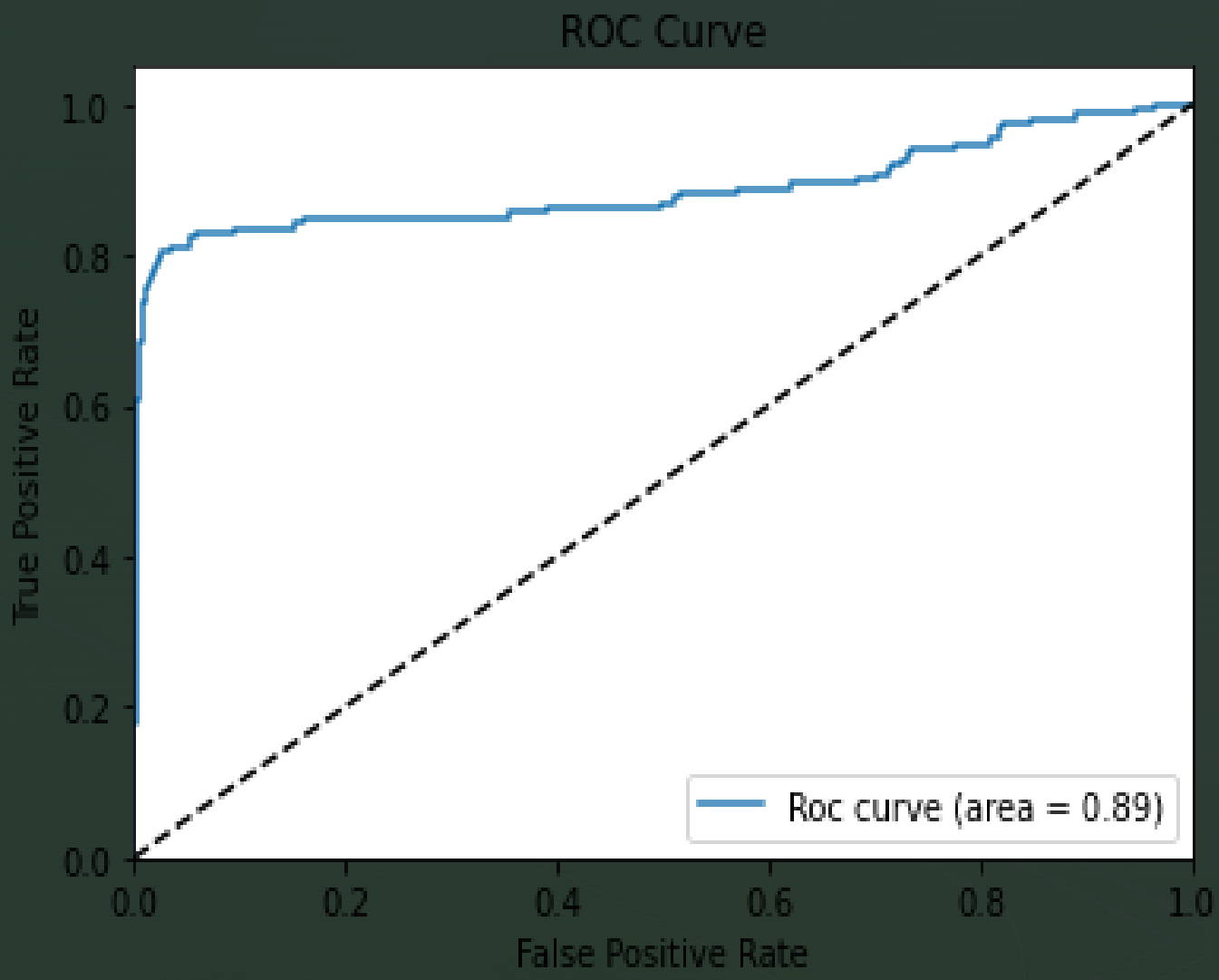
This is shows the amount of days customers stayed before ending their relationship the business. Most Customer churn is at day 105.



Model

Below is the model metrics for Gradient Boosting Classifier that was established to enable the business come up with better ways of predicting customer churn for planning and strategizing.

- Recall Score: Approx 79.39%
- Precision Score: Approx 85.52%
- Accuracy Score: Approx 95%
- F1 Score: Approx 82.99%
- ROC Score: Approx 88.74%



Model Conclusion

- From the ROC Curve, we can conclusively say that the model has a strong distinguishing power between positive and negative classes. The model performs very well on the training data; it correctly identifies all instances and correctly predicts all instances. However, on the testing data, the model metrics are still strong but lower than those of the training data.

- The model is easily overfitting to training data even after tuning the model. This is due to lack of enough data to enable the data generalize well and more accurately

Recommendations

- Collection of more data to reduce the overfitting by enabling the model perform better.
- Investigate and understand the ability of customer care staff on handling customer complains. This will enable the business to establish their contribution to customer churn and be able to mitigate the same through education and training of staff.
- Include more data from competitors to help the business improve on internal process and marketing strategies.
- Study on competitors charge rate, customer incentives, products and services offered to enable the business get a competitive edge.
- Investigate on signals and ability to communicate effectively in areas where there is high customer churn