

# PHASE 3 PROJECT PRESENTATION

# SyriaTel customer churn

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- ▶ Student pace: PART TIME
- ▶ Scheduled project review date/time: 08/02/2023
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# Business background

- ▶ SyriaTel is a telecommunications company based in Syria that provides mobile and fixed-line services to its customers. The company was established in 2005 and has since then become one of the leading telecommunications companies in the country.
- ▶ Customer churn refers to the rate at which customers stop using a company's services or products. In the telecommunications industry, customer churn is a critical metric as it can have a significant impact on a company's revenue and growth.

# Business Problem

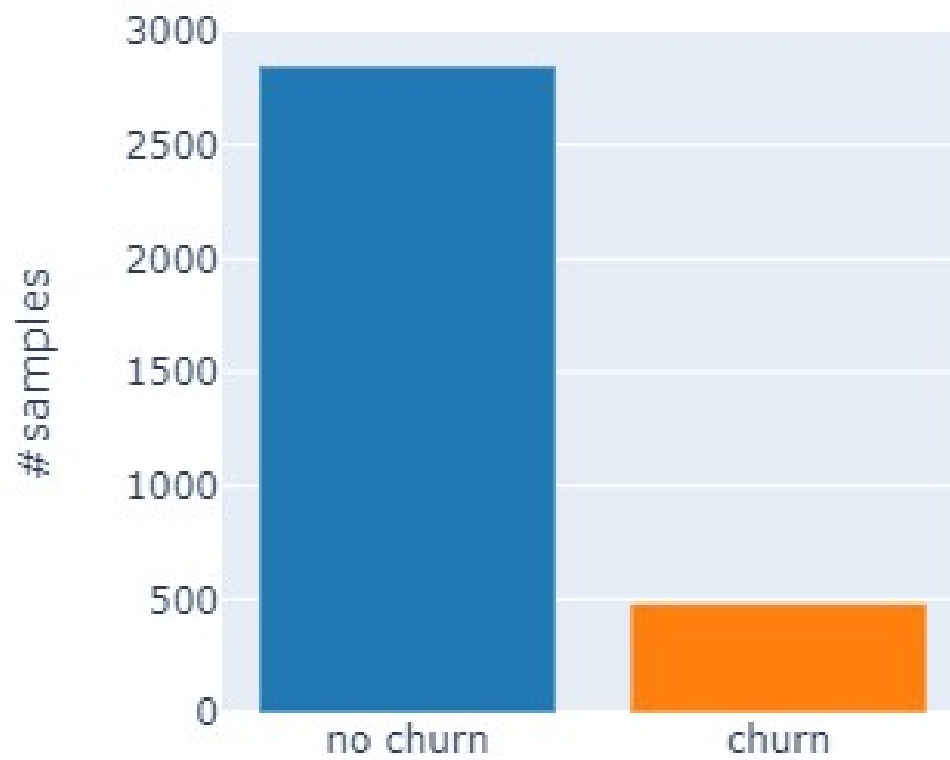
- ▶ The business problem of customer churn in the telecommunications industry, including SyriaTel, is to minimize the loss of revenue and customers due to attrition. High customer churn rates can significantly impact a company's revenue and growth, as it means that customers are leaving and not being replaced by new ones at the same rate.
- ▶ This problem is particularly important for SyriaTel, as the telecommunications industry is highly competitive, and retaining customers is crucial for the company's success. Additionally, the telecommunications industry is characterized by high customer acquisition costs, making it even more important for companies to minimize customer churn and retain their existing customer base.

# Solution

- ▶ SyriaTel needs to identify the factors that contribute to customer churn and take action to reduce it. This can include improving customer service, offering more competitive pricing and services, and addressing customer complaints and concerns.
- ▶ This will not only solve problem of customer churn, SyriaTel can not only reduce its revenue losses but also improve customer satisfaction and increase customer loyalty, leading to long-term growth and success for the company.

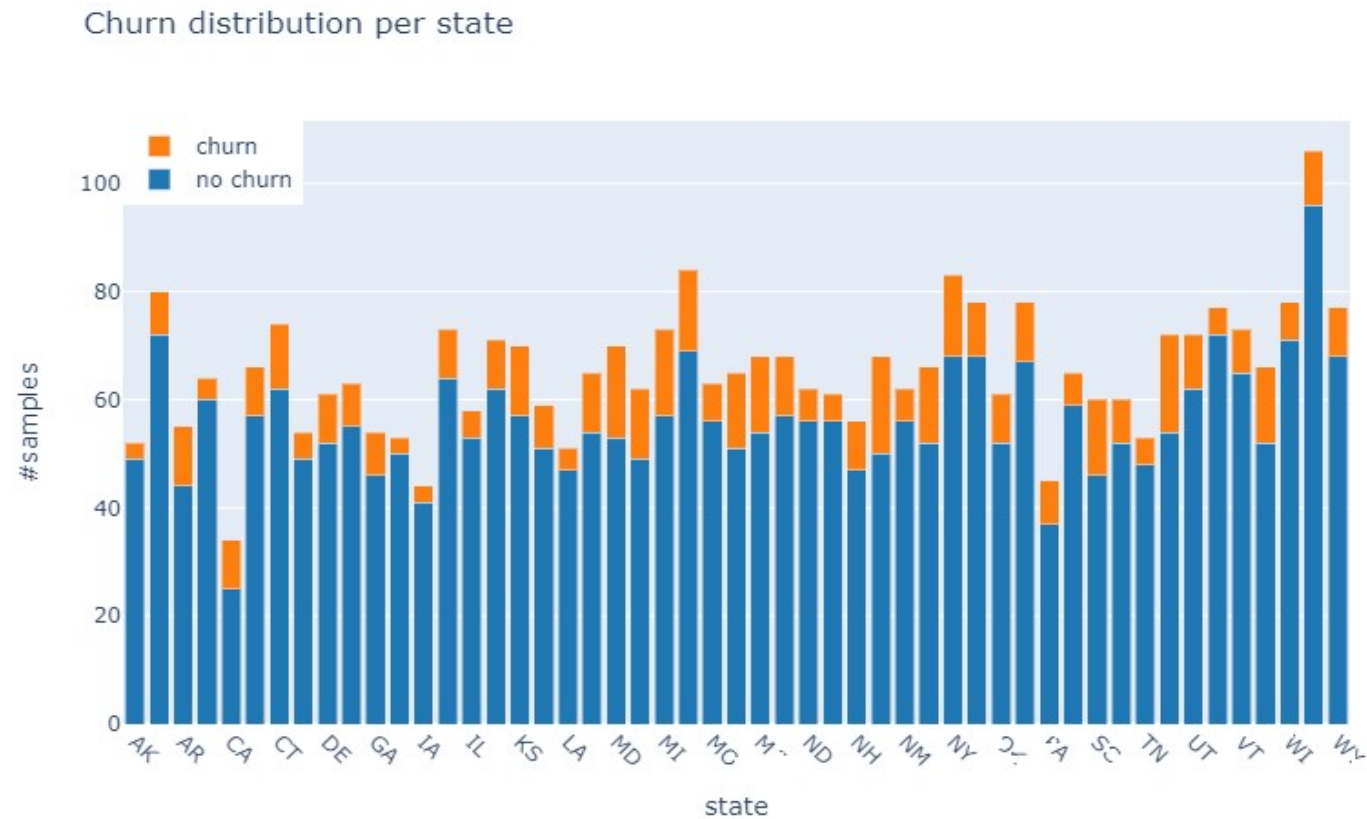
# Exploratory Data Analysis

Churn distribution



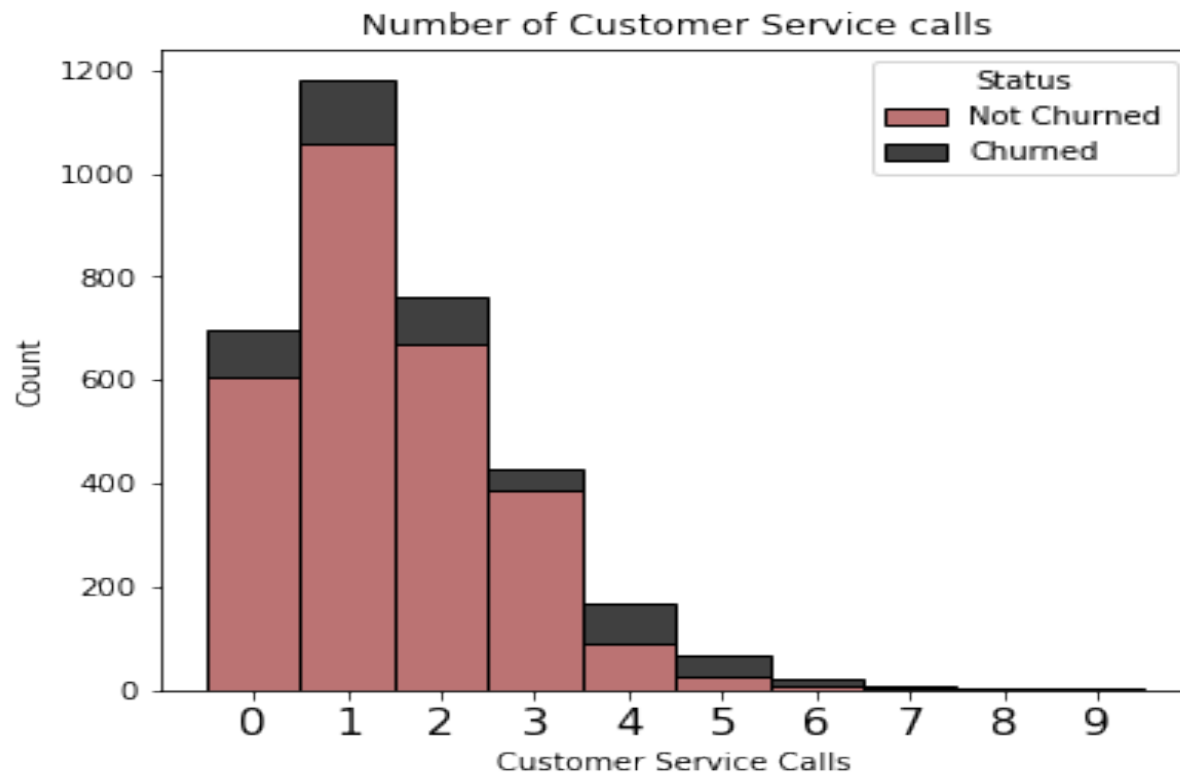
Churn percentage is 14.491%.

# Churn distribution per state



from the graph, some states have less proportion of customer with churn like AK, HI, IA and some have a higher proportion such as WA, MD and TX

# Churn vs customer service calls

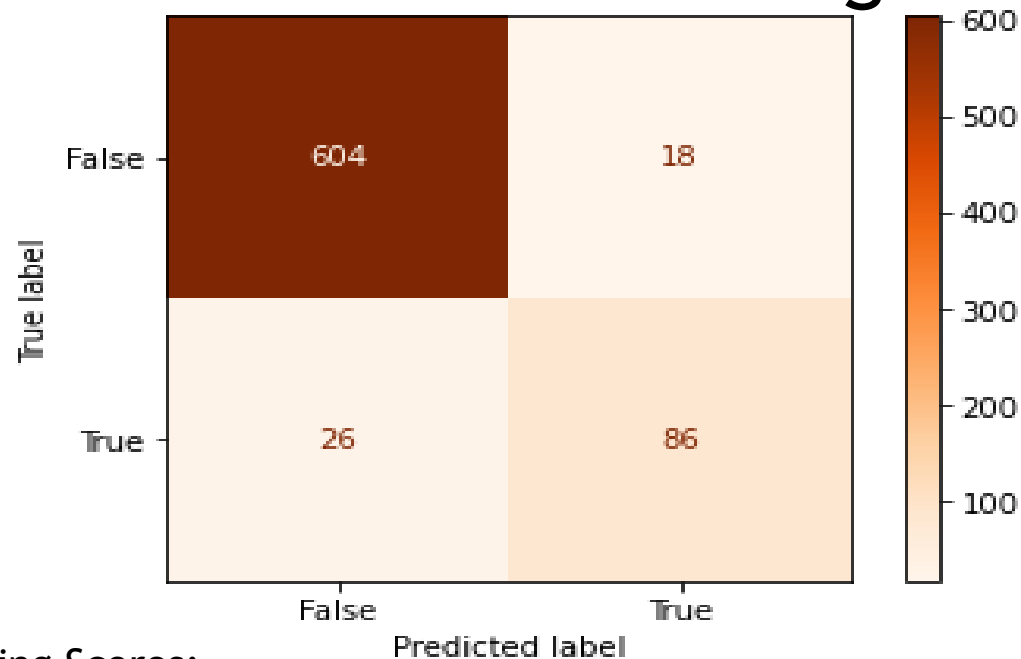


from the graph, there were few churns with service calls



# MODELING

## Gradient Boosting



Testing Scores:

Test Accuracy: 0.9400544959128065

Test Precision: 0.8269230769230769

Test Recall: 0.7678571428571429

Test F1-Score: 0.7962962962962962

ROC-AUC: 0.9228582912264585

# Other models with their accuracy

1. logistic regression:

Test Accuracy: 0.7888283378746594

2. random forest

Test Accuracy: 0.9277929155313351

3. KNN model

Test Accuracy: 0.9400544959128065

4. Decision tree

Test Accuracy: 0.9291553133514986

5. Gradient boosting

Test Accuracy: 0.9400544959128065



# Technologies used

- ▶ \* data mining
- ▶ \* data understanding
- ▶ \* data cleaning
- ▶ \* data visualization
- ▶ \* predictive model
- ▶ \* machine learning algorithms
- ▶ \* analysis

# Model limitations

- ▶ Computational Complexity: .
- ▶ Overfitting:
- ▶ Hyperparameter Tuning:
- ▶ Class Imbalance
- ▶ Limited Interpretability:



## Conclusion

- ▶ The most important factors affecting customer churn are the monthly charges, tenure, and the type of contract. Customers with longer tenures and lower monthly charges are less likely to churn. Customers with monthly contracts are more likely to churn than those with annual or two-year contracts.

# Recommendations

- ▶ Offer special promotions and discounts to customers with longer tenures and higher monthly charges to encourage them to stay with the company. Consider offering customers with monthly contracts the option to switch to an annual or two-year contract, which may reduce their likelihood of churning. Conduct surveys and customer feedback programs to better understand why customers are leaving the company and what factors are contributing to their decision to churn.