

CUSTOMER CHURN PREDICTION AT SYRIATEL.

OVERVIEW

- ❑ Telecommunications firms encounter huge difficulties with preventing customer churn, which can result in large revenue losses.
- ❑ Customer churn happens when consumers abandon their services, and understanding the factors that influence this behavior is critical for sustaining profitability and growth.
- ❑ This project will analyze customer data to find predictable trends in customer churn. The purpose of constructing predictive models and segmenting clients based on their behavior is to deliver actionable insights that optimize service quality, increase customer satisfaction, and improve operational efficiency. These data will assist telecom companies in making strategic decisions to improve performance and increase consumer loyalty.

BUSINESS & DATA UNDERSTANDING

- The primary audience for this project is SyriaTel's telecom business itself.
- The stakeholders include executives, marketing teams, and customer relationship management teams who are interested in reducing churn and optimizing customer retention strategies.
- The insights gained from the analysis will help the stakeholders understand the patterns and factors influencing churn and enable them to make data-driven decisions to mitigate customer churn.

- The dataset used for this project contains historical customer data from SyriaTel, including various features such as customer demographics, usage patterns, account information, and customer churn status.
- The dataset provides valuable insights into customer behavior and characteristics that can be leveraged to predict churn.
- By analyzing this dataset, we aim to identify predictable patterns and develop a robust churn prediction model.

MODELLING

- Classification modelling is a technique that categorizes customers as either churners or non-churners based on their characteristics and behavior.
- Therefore this modelling phase we employed various classification algorithms to predict customer churn.
- By applying the classification models, we can analyze customer data and models that can learn from patterns in order to predict the future churn of which it will enable Syriatel to identify customers who are most likely to churn , allowing them to take proactive measures to retain those customers

Models used;

1. **Logistic Regression(Base model)**
2. **Decision Trees classifier model**
3. **K-Nearest Neighbors model**
4. **Random Forest classifier model**

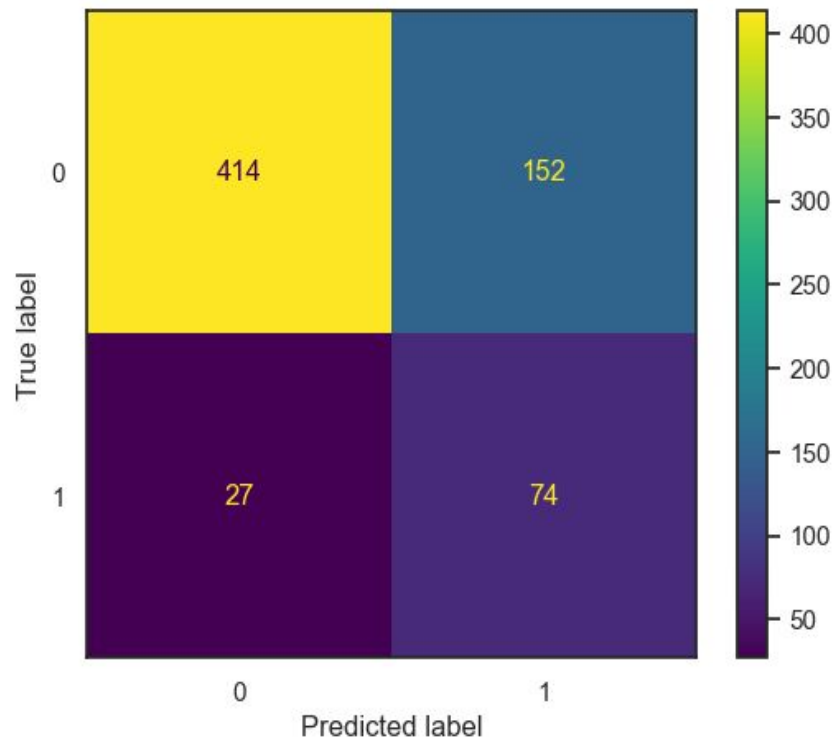
★ By leveraging this models , we can gain insights into the factors influencing churn and identify key features that contribute to customer attrition

EVALUATION

Metrics used ;

1. **Accuracy** - It measures the proportion of correct predictions made by the model out of all the predictions.
 2. **Precision** - precision measures the accuracy of the positive predictions made by the model.
 3. **Recall** - measures the proportion of positive instances that are correctly identified by a binary classification model out of all the actual positive instances.
 4. **F1 score** - combines precision and recall to provide a comprehensive evaluation of a binary classification model
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- ★ **Class 0:** Customers who are not likely to churn (i.e they are predicted to stay with the company)
 - ★ **Class 1:** Customers who are likely to churn (i.e they are predicted to leave the company)

1. Logistic Regression



Accuracy: 0.73

Precision:

Class 0: 0.94

Class 1: 0.33

Recall:

Class 0: 0.73

Class 1: 0.73

F1-score:

Class 0: 0.82

Class 1: 0.45

2. Tuned Decision tree classifier model

Accuracy: 0.86

Precision:

Class 0: 0.95

Class 1: 0.52

Recall:

Class 0: 0.88

Class 1: 0.74

F1-score:

Class 0: 0.91

Class 1: 0.61

3. Tuned K-Nearest neighbors model

Accuracy: 0.79

Precision:

Class 0: 0.94

Class 1: 0.40

Recall:

Class 0: 0.81

Class 1: 0.70

F1-score:

Class 0: 0.87

Class 1: 0.51

4. Tuned Random Forest classifier model

Accuracy: 0.90

Precision:

Class 0: 0.93

Class 1: 0.72

Recall:

Class 0: 0.96

Class 1: 0.56

F1-score:

Class 0: 0.94

Class 1: 0.63

RECOMMENDATIONS

1. Focus on the identified features that contribute most to churn and conduct an in-depth analysis to understand the root causes.
2. Implement targeted and personalized customer retention strategies for high-risk segments identified by the churn prediction model.
3. Segment customers based on their usage patterns, demographics, and churn probability to create detailed personas and tailor retention strategies.
4. Develop a feedback system to regularly gather insights from customers and engage them through personalized communication and loyalty programs.
5. Use predictive analytics for proactive issue resolution and predictive maintenance to address potential churn causes before they escalate.
6. Continuously update the churn prediction model and refine retention strategies based on their effectiveness to ensure ongoing improvement.

NEXT STEPS

Model Deployment:

- Deploy the churn prediction model into the production environment, ensuring seamless integration with the existing customer management system.

Performance Monitoring:

- Set up regular monitoring to track the model's performance over time, with mechanisms for periodic evaluation to detect any drift in model accuracy.

Customer Retention Strategies:

- Develop and implement targeted retention strategies based on model predictions, including personalized marketing campaigns for customers predicted to churn.

Data Collection and Updates:

- Continuously collect new data to keep the model updated and relevant, with regular retraining using the latest data to maintain its predictive power.



THANK YOU