SYRIATEL CUSTOMER CHURN

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Overview

This project is aimed at providing a data-driven approach to minimize customer churn at Syriatel

This project leverages machine learning algorithms to predict the likelihood of a customer terminating business with Syriatel.

Why machine learning?

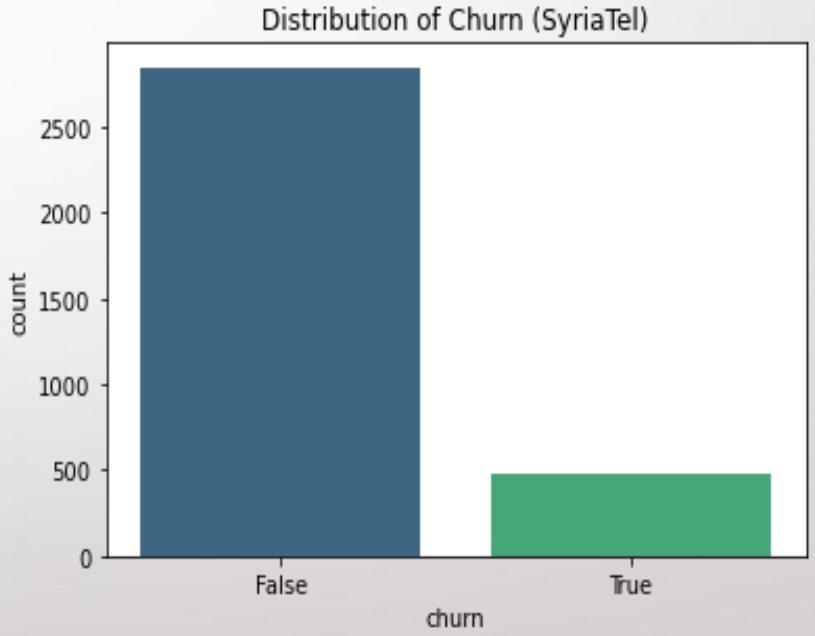
Unlike other simple data analysis, which takes a look at past and historical data, machine learning is a more sophisticated approach that identifies patterns in historical data and predicts the future.

Through machine learning models, Syriatel will automate its customer churn detection strategies for better performance of the organization.

Business & Data Understanding

- To address the increased customer churn challenge in Syriatel, this project has leveraged machine learning models to build classification models to help the company mitigate the customer churn risk.
- The dataset used in the analysis is a Syriatel customer record dataset that contains 3333records of customers and 21 features related to customers.
- The key predictor is Churn, which is identified as True/False. (True, whether a customer will churn, and False, customers who stayed).
- From the historical dataset, around 85% of the customers stayed in the company, but 15% of the customers churned from Syriatel. The project has addressed the 15% customers who terminated business with Syriatel.

Distribution of Churn



MODELING

Iterative Approach

- In a trick to identify the best performing models, different models have been implemented in a plan to identify the best performing model.
- A best model is a model that can generalize the data (a model that can learn patterns on unseen data).
- From a simple logistic model to decision trees, tuned decision trees, and finally on the Random Forest.

Random Forest (Best Performing model)

- Why Random Forest?
- Random forest is like a "collection of professionals," making a decision.
- In Random Forest, instead of a single model being used to predict an outcome, multiple models come together to vote on which best predicts an outcome.
- Random Forest is the best model to predict whether a customer is likely to churn Syriatel due to its high accuracy.

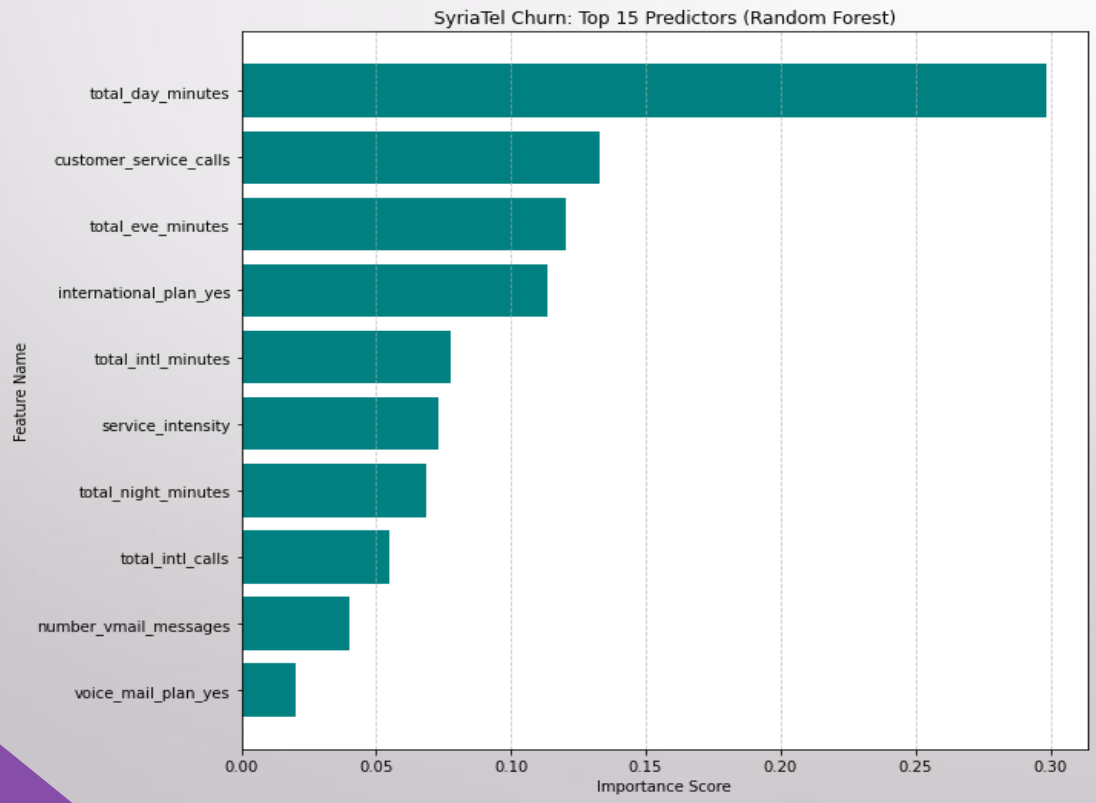
EVALUATION

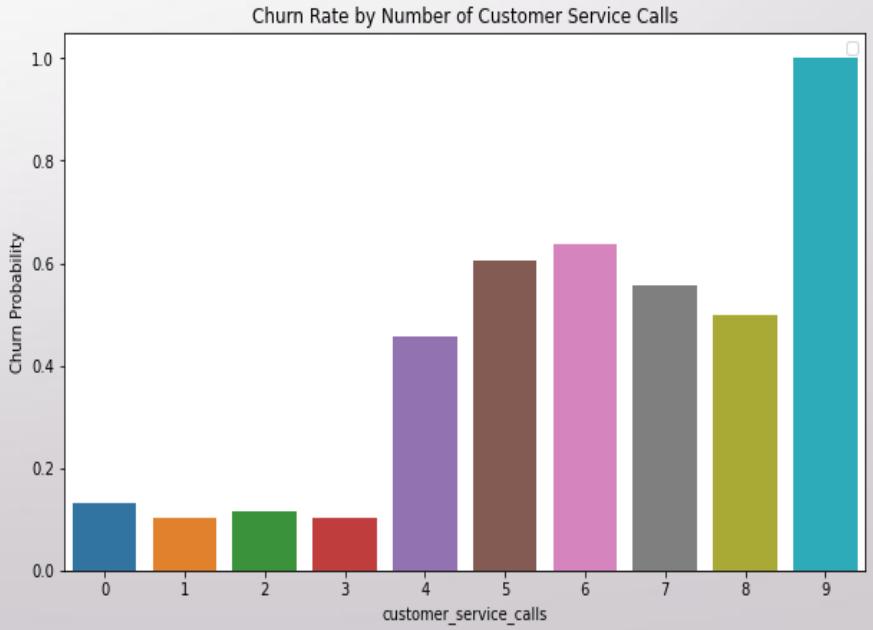
Model	Recall	Precision	Accuracy
Logistic Regression	0.75	0.36	0.77
Decision Tree	0.81	0.73	0.93
Decision Tree(Tuned)	0.87	0.47	0.84
Random Forest	0.77	0.93	0.96

- **Interpretation of Random Forest metrics**
- The precision of 93% means that when the model predicts that a customer is likely to churn, it is 93% likely that the customer will churn.
- This is important in Syriatel as it will help in providing marketing plans and strategies, focus more promotions and discounts on customers who are likely to churn.
- A Recall of 77% means that the model can identify 3 out of every 4 customers who plan to terminate business with Syriatel.
- The model is the most appropriate as it has increased the prediction accuracy from 77% on the basic logistic model to 96% in the Random Forest.

Key Insights For Syriatel

- The illustration shows the top 10 predictors of customer churn in Syriatel.
- To conclude, based on the insights derived, customer churn in Syriatel is not just random but is a result of customer dissatisfaction, complaints, and financial pressure.





RECOMMENDATIONS

- Syriatel should enforce a "3rd Call emergency" Rule to address the increased customer churn rate on customers with more than 3 customer service calls.
- Daytime_minutes has the greatest predictor of customer churn. The company can implement a "High volume" specialized bundle to help daytime users reduce their per-minute costs. This could decrease the probability of churn on day _time _minute customers.
- Customers with international plans have a churn risk. Syriatel needs to evaluate the value proposition for international plan customers.

NEXT STEPS

- Implement a real-time integration of the Random Forest Model to generate real-time "At Churn Risk Alerts".
- The marketing needs to conduct other comprehensive analyses, such as clustering for customer segmentation, to classify the churn customers into similar categories, i.e, High spenders
- A/B testing is also a good strategy to complement the Random Forest Model. A/B testing can be implemented in the marketing department to compare the marketing strategies that attract and keep Syriatel customers longer.
- An example: An A/B test to test different offers on the loyal customers. The 20% discount on credit or a free month of data.

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