



Syria Tel Churn Analysis

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PHASE 3 PROJECT

Project Overview

A photograph of a desert landscape at night. The foreground is filled with the dark, undulating shapes of sand dunes. Above them, the sky is a deep, dark purple, densely populated with numerous small, white stars of varying brightness. The overall atmosphere is one of tranquility and vastness.

Established in January 2000, SyriaTel has emerged as the premier telecommunications company in the region. With its headquarters situated in Damascus, Syria, the company has garnered a strong reputation for providing reliable and innovative communication services. SyriaTel has continuously demonstrated its commitment to delivering cutting-edge technology and seamless connectivity to its vast customer base.



Business Understanding

Our mission is to develop machine learning algorithms that will provide valuable insights into customer churn for the company. By analyzing historical customer data, including demographics, usage patterns, and customer interactions, we aim to identify key factors that contribute to churn. These insights will empower the company to implement proactive measures, such as personalized marketing campaigns and improved customer service, to mitigate churn and enhance customer retention.

Steps Involved

Business Understanding

Data Understanding

Data Preparation

Modelling

Model evaluation



Models

Models	Accuracy	After Tuning	Improvement
Logistic Regression	15%	81%	+66%
K Nearest Neighbors	15%	67%	+52%
Naives Bayes	77%	67%	-10%
Decision Tree	15%	93%	+78%
Bagged Trees	15%	97%	+82%
Random Forest	40%	97%	+57%

Upon creation of a logistic regression baseline model and 5 other models, I was able to improve their accuracy to the point of usability

Evaluating the models

Best Performing Models	Accuracy	F1 Score	Precision	Recall
Scaled Random Forest	97%	94%	98%	91%
Tuned Random Forest	97%	94%	98%	90%
Tuned Bagged Tree	97%	97%	97%	97%
Resampled Bagged Tree	95%	95%	95%	95%
Resampled Decision Tree	93%	93%	93%	93%

Evaluating all the models using the metrics, I determined that the best model was the Tuned Bagged Tree

A photograph of a tall, narrow sandstone rock formation, likely a natural arch or monolith, standing prominently against a clear blue sky. The sun is positioned directly behind the rock, creating a bright, radial burst of light that highlights the vertical texture and layers of the stone. The foreground consists of light-colored, sandy ground with some smaller rocks scattered around the base of the formation.

Recommendations

1. Analyze regions with low performance to determine if network coverage is an issue
2. Make international plan attractive for international travelers
3. Evaluate customer service procedures, training and staff to better handle customers
4. Provide incentives through outside vendors to increase customer satisfaction



Next Step

1. Network coverage improvement
2. International calling plan enhancement
3. Incentivize customers
4. Implementation, evaluation and monitoring

Thank You