

Introduction

- SyriaTel telecommunications company in Syria
- Challenge of identifying and preventing customer churn
- Leveraging machine learning techniques for prediction



Objective

- Accurately predict customer churn for SyriaTel
- Proactively implement measures to mitigate customer attrition
- Benefits
 - Improved customer retention
 - Increased profitability
 - Enhanced customer experience

Data Understanding

- Dataset:
 - US telco data used for analysis
 - Information on 3333 users over 256 days
- Assumption:
 - Geolocation and zip code data excluded
 - Other data signals utilized for Syrian telco market inferences

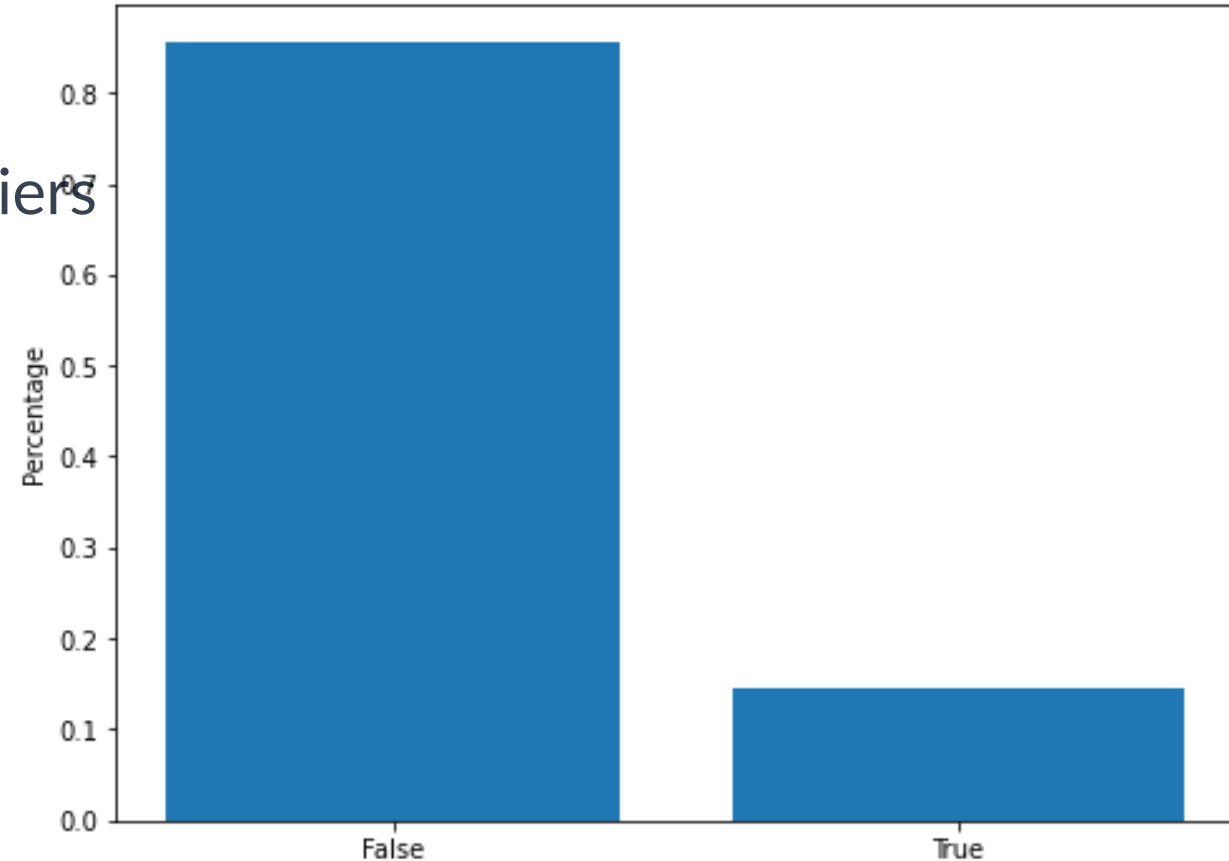


Business Understanding

- Importance of Customer Churn Analysis:
 - Impact on profitability
 - Resource allocation for customer retention
 - Enhancing service quality and customer experience
- SyriaTel's Objectives:
 - Improved customer retention
 - Increased profitability
 - Enhanced customer satisfaction

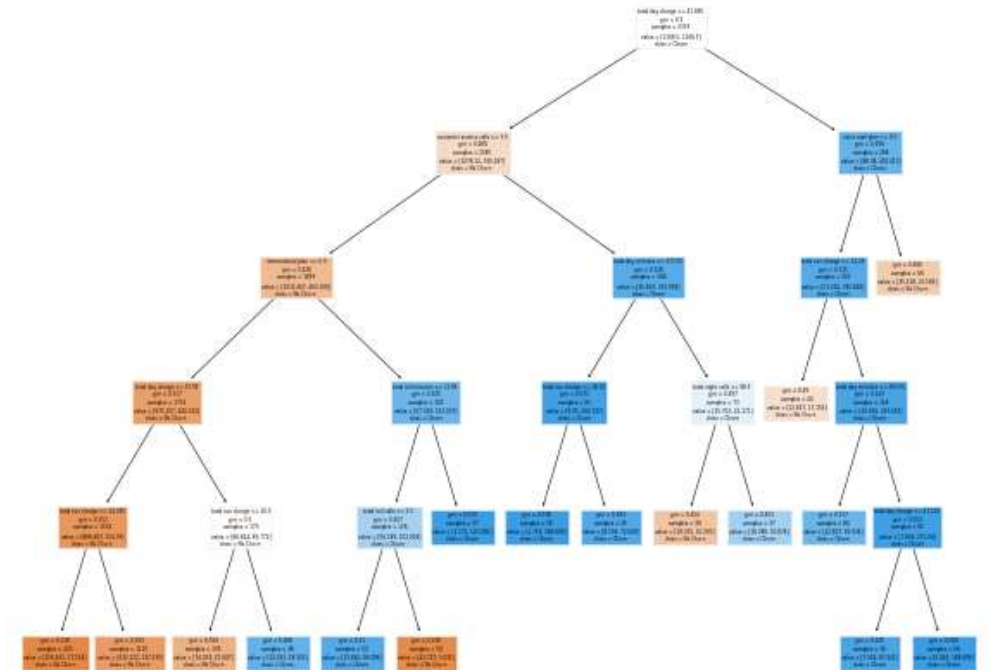
Data Cleaning

- Dataset:
 - No missing values or significant outliers
- Class Imbalance:
 - Churned users: 14.49%
 - Handling imbalance for modeling



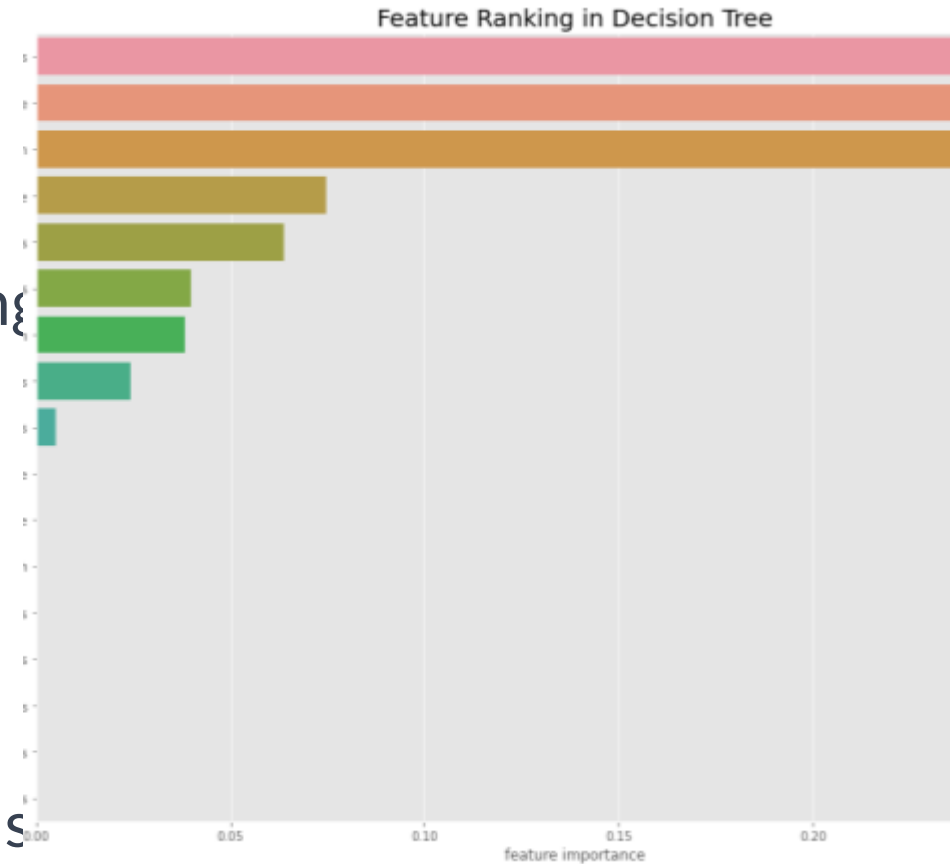
Modeling

- Binary Classification Problem:
 - Significant class imbalance
- Performance Evaluation Metric:
 - roc_score for imbalanced datasets
- Model Selection:
 - Baseline model: Naive Bayes
 - Decision Tree, Random Forest, Logistic Regression
- Hyperparameter Tuning:
 - GridSearch CV to optimize performance



Evaluation

- Cost Evaluation:
 - Potential costs of False Negatives
 - Acquiring new customers vs. retaining existing
- Model Performance:
 - Overall accuracy: 87%
 - Recall: 83%
- Potential Benefits:
 - Estimated cost savings: \$24,915 per 1000 cus



Feature Importance

- Impactful Features:
 - Customer service calls
 - International plan
 - Total day charge
- Weight of Features:
 - Three times more significant than others

Recommendations:

- Improve customer service quality
- Evaluate and optimize international plan offerings
- Monitor and manage total day charge effectively
- Integrate model predictions into retention strategies
- Continuous monitoring and evaluation for improvements
- Expand analysis to include internet services segment