Customer Churn Prediction - SyriaTel

Business Strategies for Customer Retention & Business Growth

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Introduction

- Problem: SyriaTel is experiencing customer churn, leading to revenue loss.

- Objectives:
    1. Build a classification model to predict churn
    2. Identify key factors influencing retention
    3. Provide recommendations for reducing churn

- Stakeholders: Management, Marketing, Sales, and Customers.

Why Does Customer Churn Matter?

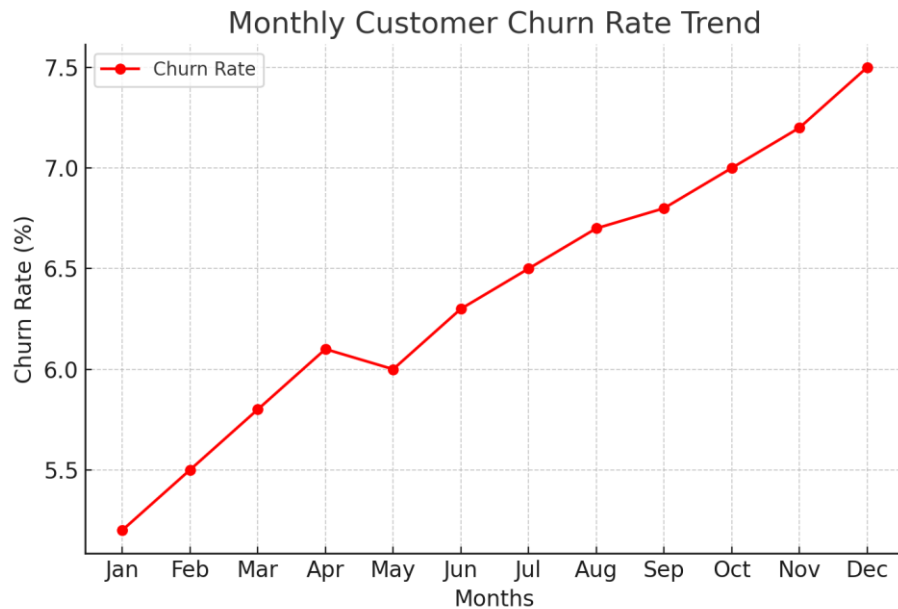Losing customers = lost revenue & increased acquisition costs.

Retaining existing customers is cheaper than acquiring new ones.

Helps improve customer satisfaction & loyalty.

Negative Impact of Churn

Monthly Customer Churn Rate Trend

- High churn rates reduces market share.

- Dissatisfied customers influence brand reputation.

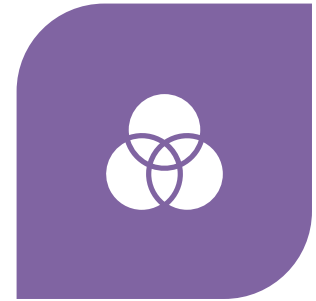- Data-driven strategies are needed to improve retention.

Benefits of Predicting Churn

- PROACTIVE RETENTION EFFORTS = REDUCED CHURN RATES.

- INCREASED CUSTOMER LIFETIME VALUE (CLV).

- STRENGTHENED CUSTOMER RELATIONSHIPS & COMPETITIVE ADVANTAGE.

Dataset - Overview

- Dataset: 3,333 customer records with 21 features.

- Key Features: Call duration, charges, customer service calls, international plan.

- Target Variable: **Churn** (Yes/No).

Dataset - Limitation

- Class Imbalance Impact

    - Despite applying Synthetic Minority Oversampling Technique (SMOTE) to balance the dataset, the model still favored the majority class (non-churn customers).

    - This led to lower precision in predicting actual churners.

Classification Models

Comparison of different models based on: Accuracy, Precision, Recall, and F1-Score.
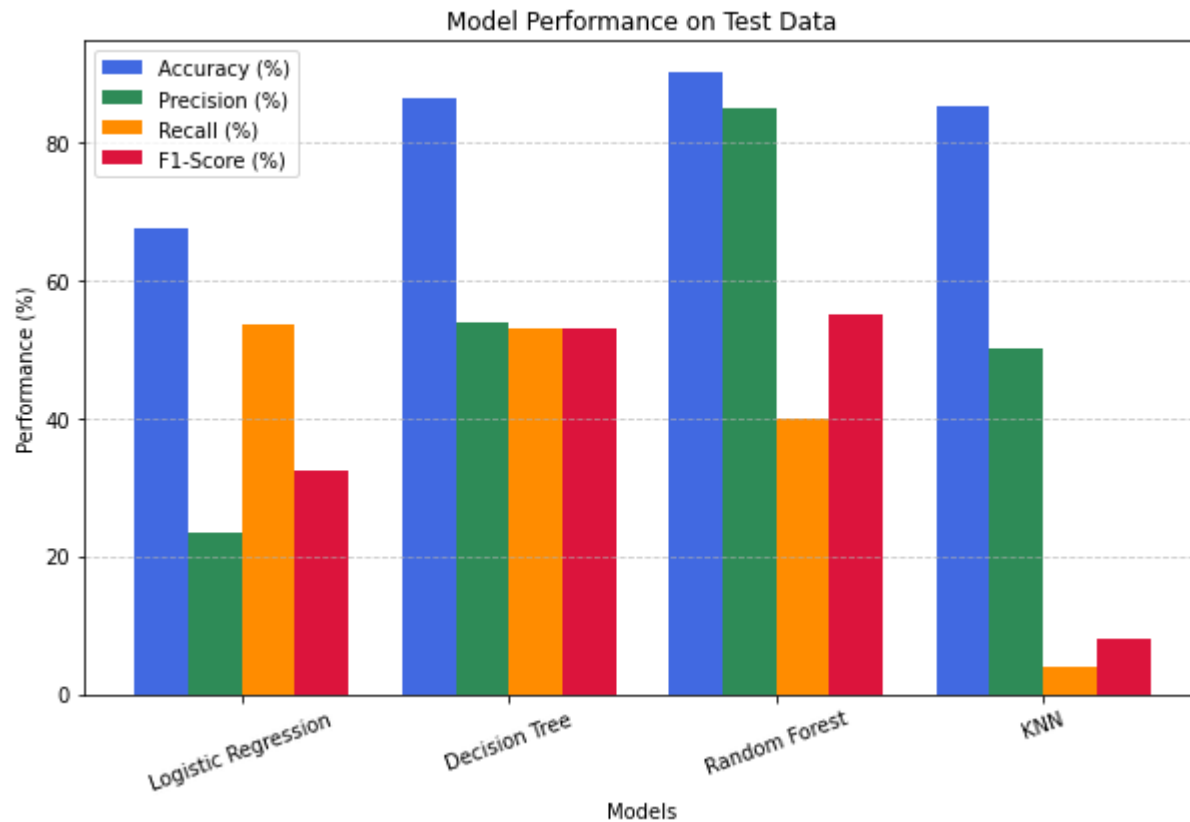
Final Model Performance - Random Forest

Cross-Validation Scores by Model
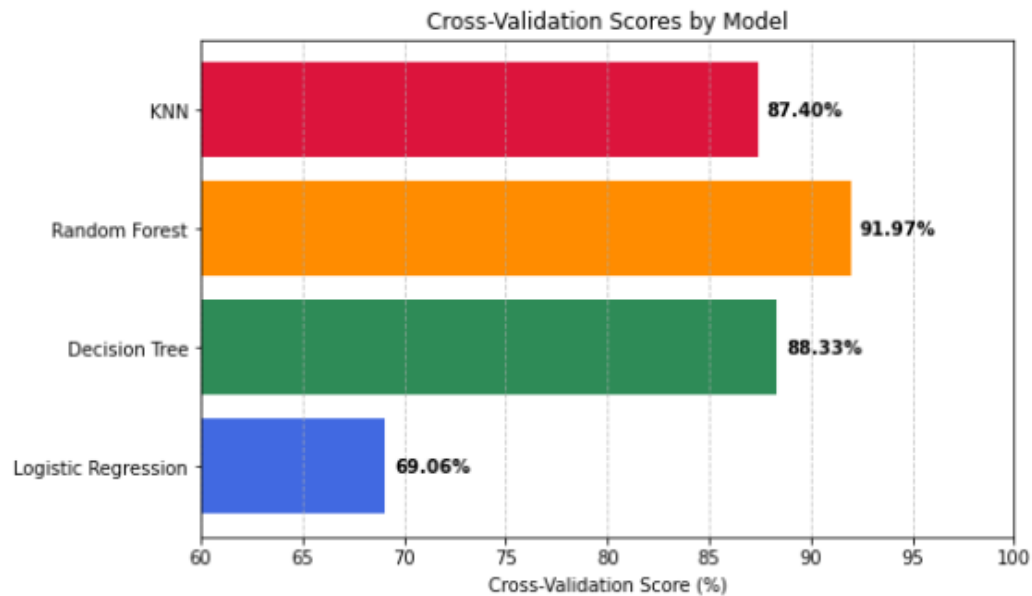
- Logistic Regression (69.06%)

- Decision Tree (88.33%)

- **Random Forest (91.97% Accuracy - Best Model)**
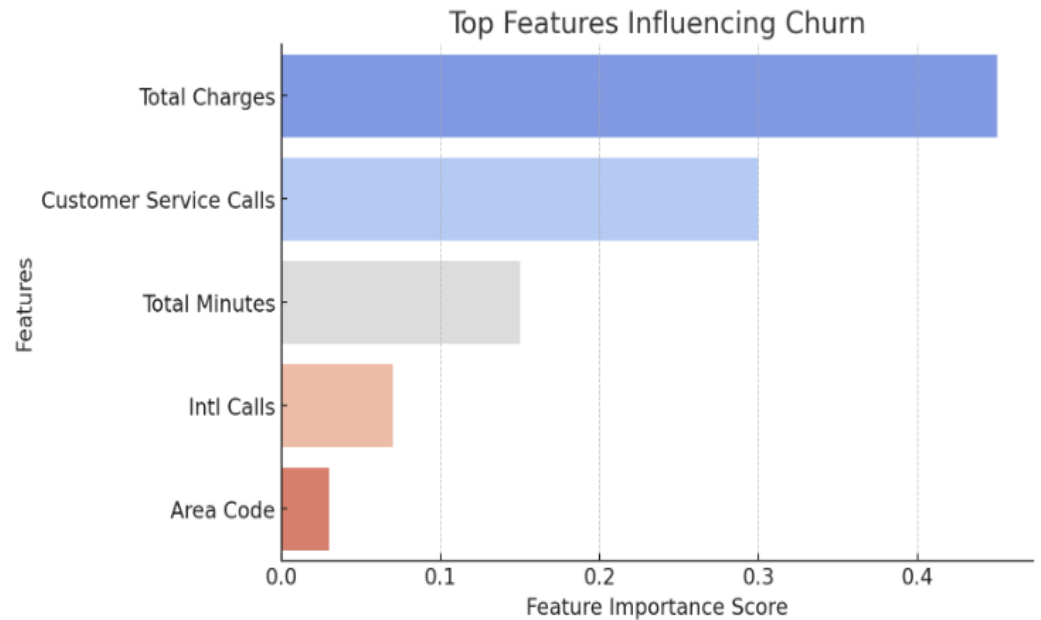
- K-Nearest Neighbors (87.40%)

Why Random Forest?

The Random Forest Classification Model:
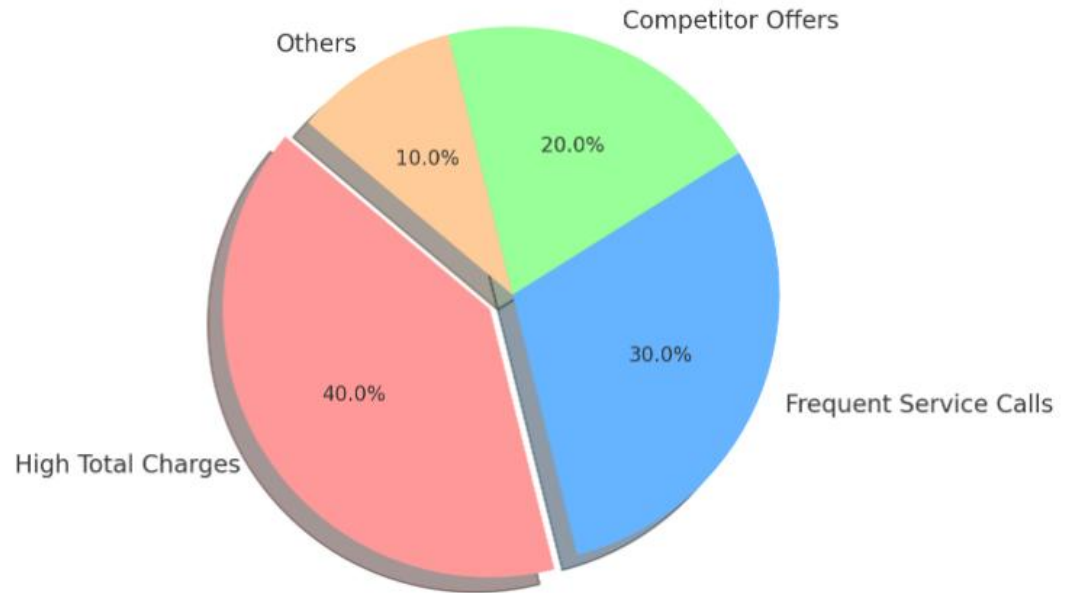
- Provided the best trade-off between:
    1. Accuracy,
    2. Interpretability, and
    3. Robustness to class imbalance.

- Outperformed simpler models like Logistic Regression

- Reduced overfitting compared to other models.

Key Findings from the Data Analysis

- Customers with high total charges are more likely to churn.

- Frequent customer service calls indicate dissatisfaction.

- Geographical location has minimal impact on churn.

Top Features Influencing Churn

Features (y-axis): Total Charges, Customer Service Calls, Total Minutes, Intl Calls, Area Code

Feature Importance Score (x-axis): 0.0, 0.1, 0.2, 0.3, 0.4

Reasons for Customer Churn

Customer Retention Strategies

1. IMPROVE CUSTOMER SUPPORT – ADDRESS FREQUENT COMPLAINTS PROMPTLY.

2. LOYALTY PROGRAMS – OFFER DISCOUNTS & BENEFITS TO SPENDING CUSTOMERS.

3. TARGETED RETENTION CAMPAIGNS – PERSONALIZED OFFERS FOR AT-RISK CUSTOMERS.

Additional Strategies

- Implement AI-driven churn prediction in real-time.
- Develop customized engagement strategies.
- Monitor & refine strategies based on customer feedback.

Conclusions

- Predicting churn helps protect revenue and enhance customer loyalty.

- Actionable insights lead to better customer experiences.

- A data-driven approach is key to long-term success.

Thank You!

Questions?