

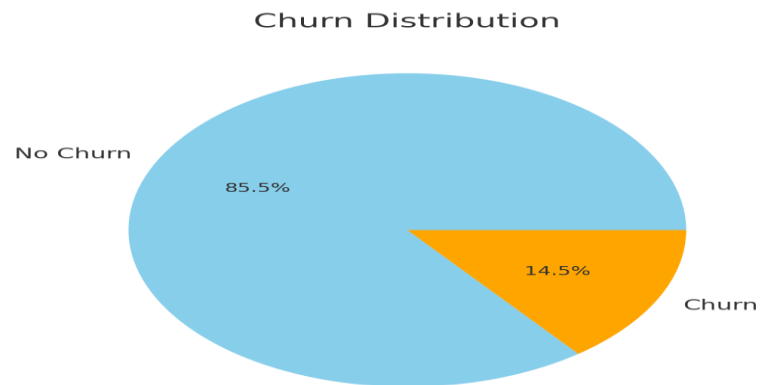
Telecom Churn Prediction

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Business Problem

- ▶ Customer churn impacts revenue & profitability.
- ▶ Acquiring new customers costs 5x more than retaining existing ones.
- ▶ Current challenge: High churn without clear drivers.

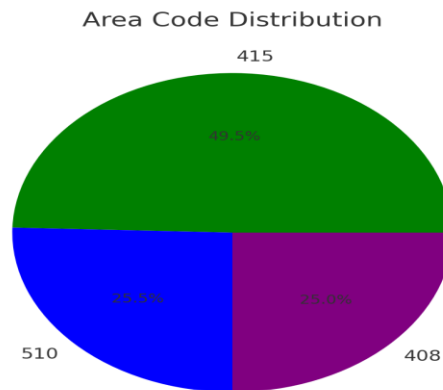


Project Goal

- Predict customers likely to churn
- Identify top factors influencing churn
- Enable proactive retention strategies

Data Overview

- Dataset: SyriaTel (3,333 customers)
- Features:
 - Numeric: Call durations, charges, service calls
 - Categorical: State, Area code, Plans
- Target: Churn (Yes/No)



Key Insights from EDA

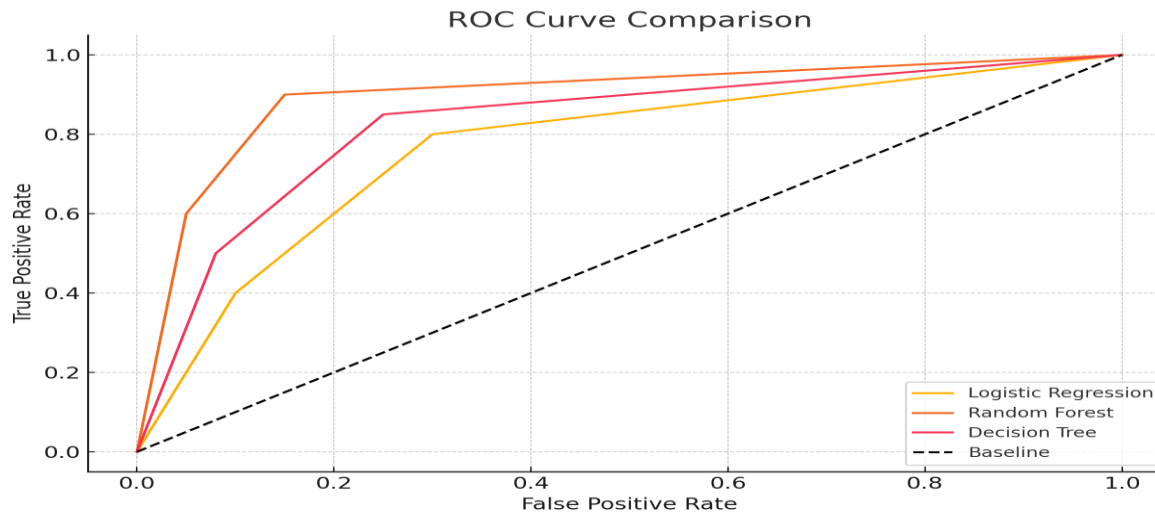
- Churn Rate: 14.5% (imbalanced data)
- Customers with International Plan churn more
- More service calls = higher churn risk
- Heavy imbalance in area code distribution (415 dominates)

Modeling Approach

- ▶ 3 Models Tested: Logistic Regression, Decision Tree, Random Forest
- ▶ Addressed imbalance using SMOTE
- ▶ Evaluated on Accuracy, Recall, AUC

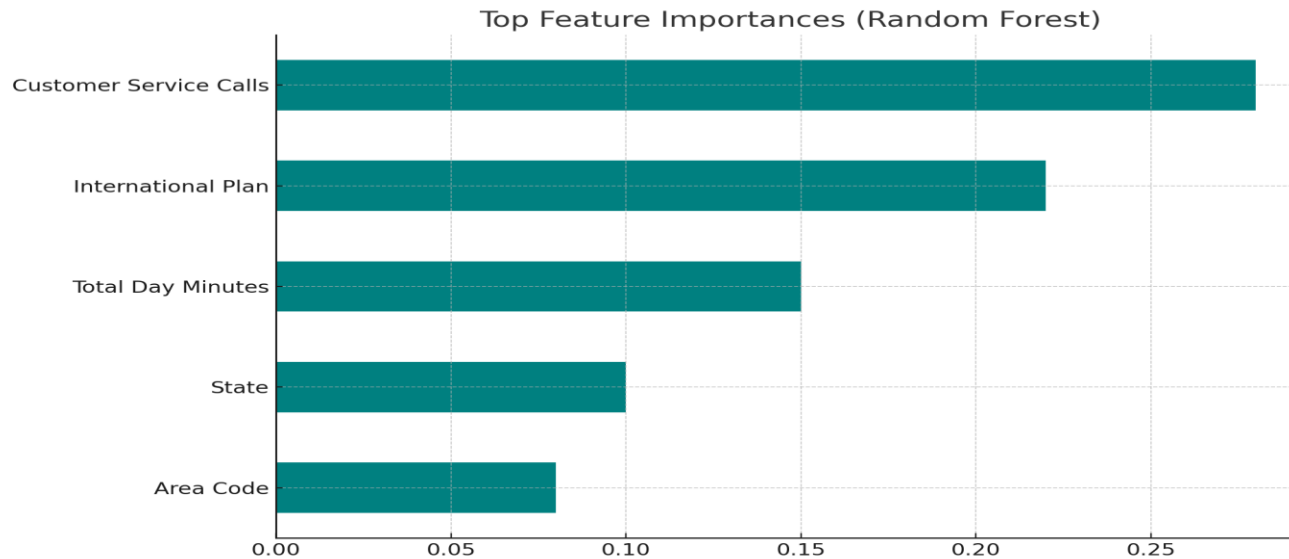
Model Comparison

- ▶ Logistic Regression: Accuracy=0.88, Recall=0.32, ROC-AUC=0.79
- ▶ Decision Tree: Accuracy=0.90, Recall=0.64, ROC-AUC=0.82
- ▶ Random Forest: Accuracy=0.93, Recall=0.64, ROC-AUC=0.88
- ▶ Winner: Random Forest



Top Churn Drivers

- ▶ Customer Service Calls (High dissatisfaction)
- ▶ International Plan
- ▶ Daytime Minutes
- ▶ State & Area Code



Business Recommendations

- ▶ Proactively reach out to customers with frequent service calls
- ▶ Review International Plan pricing & support
- ▶ Implement loyalty offers for high-usage customers
- ▶ Regional strategies for area code 415

Conclusion & Next Steps

- ▶ Random Forest deployed as the best model
- ▶ Enables data-driven retention campaigns
- ▶ Future Enhancements:
 - Deploy prediction dashboard
 - Continuous model monitoring

Business Actions & KPIs

Recommended Business Actions:

- ▶ Proactively monitor high-risk customers (high service calls).
- ▶ Offer loyalty incentives to customers with international plans.
- ▶ Review international plan pricing and customer experience.
- ▶ Create retention campaigns for customers with high usage patterns.
- ▶ Train customer support teams to resolve issues effectively.

Key KPIs to Track:

- ▶ Monthly Churn Rate
- ▶ Retention Rate after Intervention
- ▶ Customer Satisfaction Score (CSAT)
- ▶ Average Resolution Time for Complaints
- ▶ Cost of Retention per Customer