SyriaTel Customer Churn Prediction

Building a predictive model to reduce customer churn and maximize retention.

Business Context

- Churn leads to revenue loss and increased acquisition costs. Understanding churn patterns enables SyriaTel to implement targeted retention strategies, improving long-term customer value and profitability.

Business Problem

- SyriaTel, a telecommunications company, faces significant customer churn. Our goal is to build a classifier to predict whether a customer will leave soon, allowing the company to take proactive measures to retain them.

Business and Data Understanding

- Business Problem:
- Identify customers likely to churn and take targeted actions.

- Why Machine Learning?
- Traditional retention methods are inefficient.

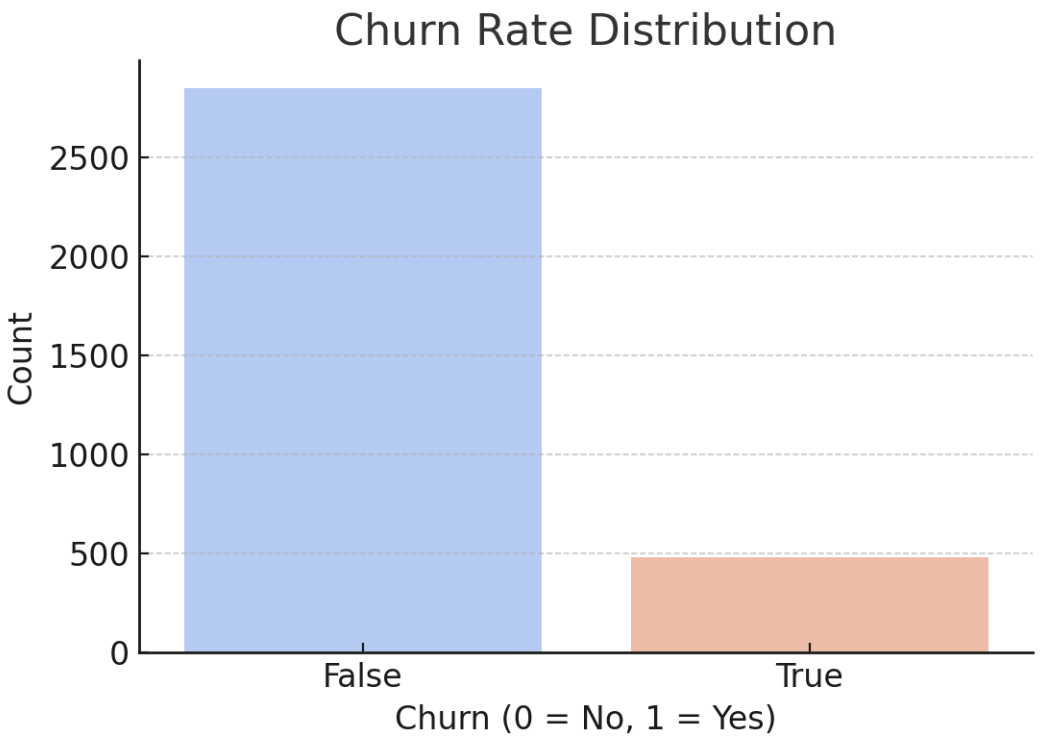
- Data Used:
- - Demographics
- - Service usage
- - Historical churn labels.

How Classification Helps

- Classification models categorize customers into:
- - **Likely to Stay**- False
- - **Likely to Leave** - True

- This helps Syria Tel take proactive actions to retain customers before they leave.

Churn Rate Distribution



Modeling Approach (Non-Technical)

- We tested different models:
- - **Logistic Regression**: Basic but interpretable.
- - **Decision Trees**: Identifies key factors leading to churn.
- - **Random Forest**: More advanced with higher accuracy.
- - **SMOTE**: Ensures fairness in predictions.
- - **Hyperparameter tuning**: Optimizes performance.

Understanding Model Performance

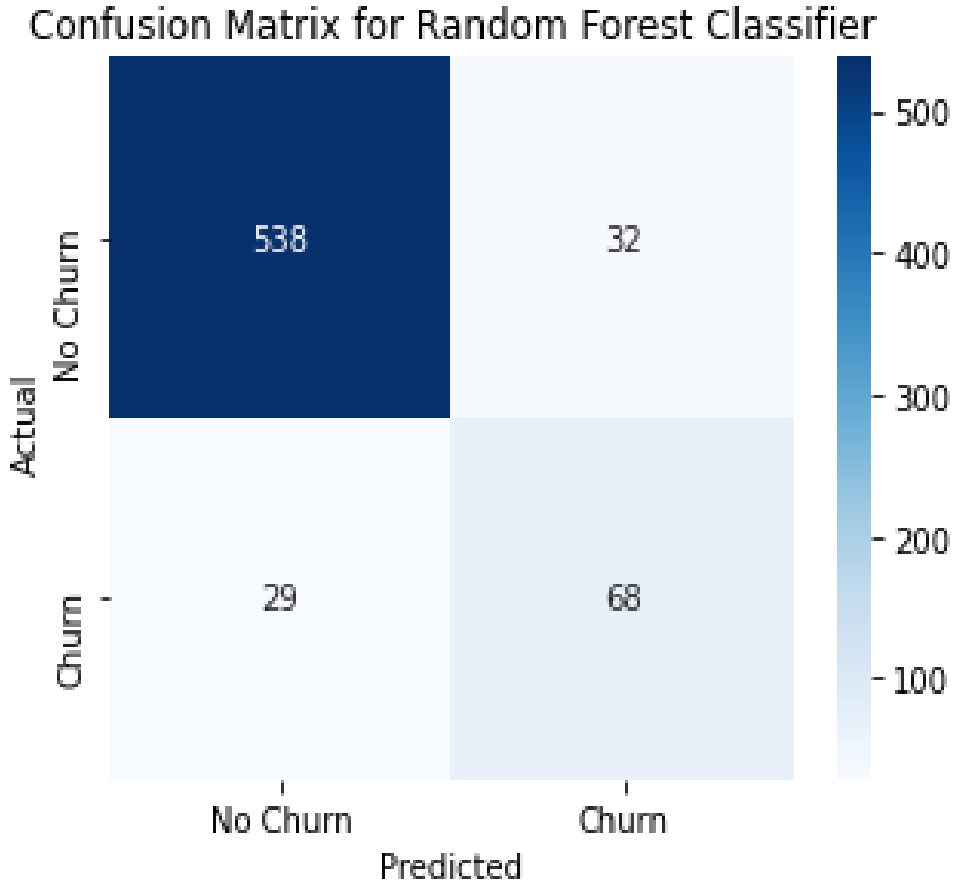
- Metrics Explained in Plain Language:
- - **Accuracy**: How often predictions are correct.
- - **Precision**: Focuses on correctly identifying real churners.
- - **Recall**: Ensures we catch as many churners as possible.
- - **F1-score**: Balances precision and recall.

Random Forest Model Metrics

Accuracy: 0.9085457271364318

Classification Report:

	precision	recall	f1-score	support
0	0.95	0.94	0.95	570
1	0.68	0.70	0.69	97
accuracy			0.91	667
macro avg	0.81	0.82	0.82	667
weighted avg	0.91	0.91	0.91	667


Confusion Matrix for Random Forest Classifier
538
32
29
68
No Churn
Churn
Actual
No Churn
Churn
Predicted
500
400
300
200
100

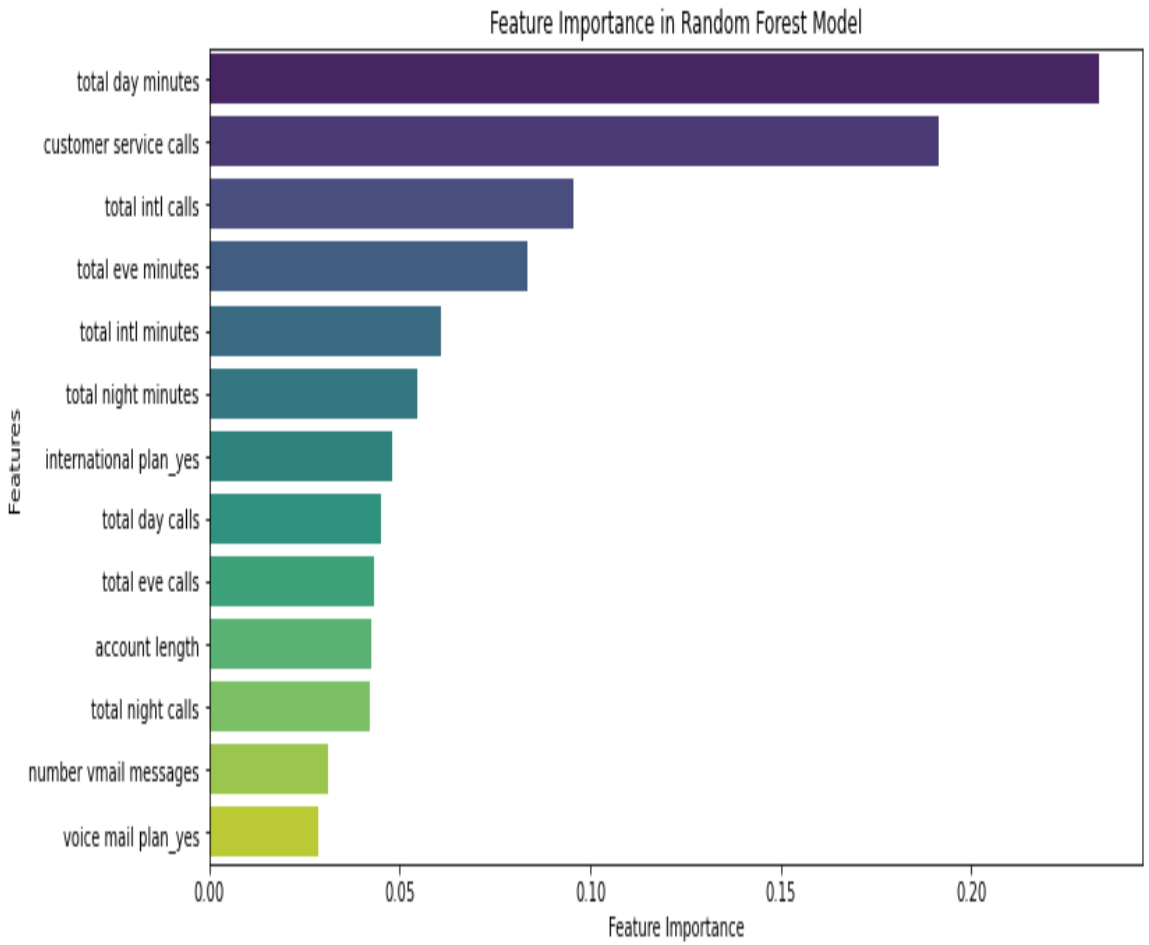
Key Findings

- Best Model: **Random Forest**

- Top Churn Indicators:
- - High service usage
- - International plans
- - Frequent customer support calls

- **Implication:** These groups need targeted interventions.

Top Churn Indicators



Recommendations

- 1. Implement personalized retention offers for high-risk customers.
- 2. Improve customer experience with proactive support and incentives.
- 3. Use data-driven insights to refine loyalty programs.
- 4. Continuously monitor and adjust churn prediction models for optimal accuracy.

Next Steps

- 1. Deploy the best model.
- 2. Continuously update with new data.
- 3. Conduct A/B testing for retention strategies.

Thank You!

- Looking forward to discussing the insights and next steps.

- Feel free to reach out on;

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