



# Customer Churn Prediction for SyriaTel

Predicting Customer Churn to Drive Retention Strategies

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## Project Overview

- **Objective:** Predict customer churn and provide business insights to reduce churn rates.
- **Summary:** This project uses machine learning to predict which customers are likely to churn and identify the main factors driving this behavior.
- **Goal:** Provide actionable recommendations based on model results to improve retention.



## Business Problem

- **Business Need:** SyriaTel needs to reduce churn rates by identifying at-risk customers early.
- **Key Metric:** Retention of customers through targeted interventions (e.g., discounts or loyalty programs).



## Dataset Overview

- **Data Source:** Telecom customer data from Kaggle.
- **Key Features:** Customer service calls, charges (day, night, international), international plan, voicemail plan, etc.
- **Target Variable:** Churn (True/False).



# Modeling Approach

- **Models Tried:**
  - Logistic Regression
  - Decision Tree
- **Final Model:** Optimized Decision Tree
- **Why Decision Tree:** Best tradeoff between accuracy and interpretability for business insights.



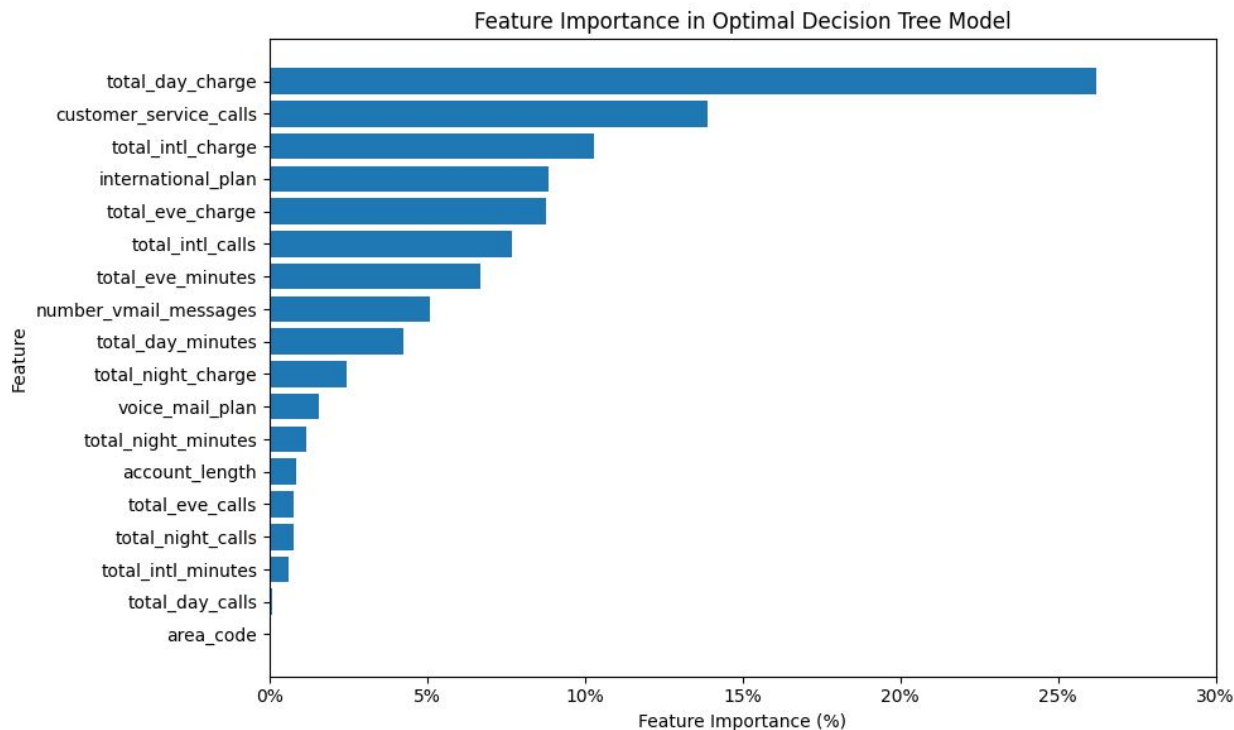
## Model Performance

- **Final Model Accuracy:** 94%
- **Churn Precision:** 83%
- **Churn Recall:** 72%
- **Overall Effectiveness:** The balance between these metrics ensures the model makes smart trade-offs between precision and capturing the highest number of at-risk customers.



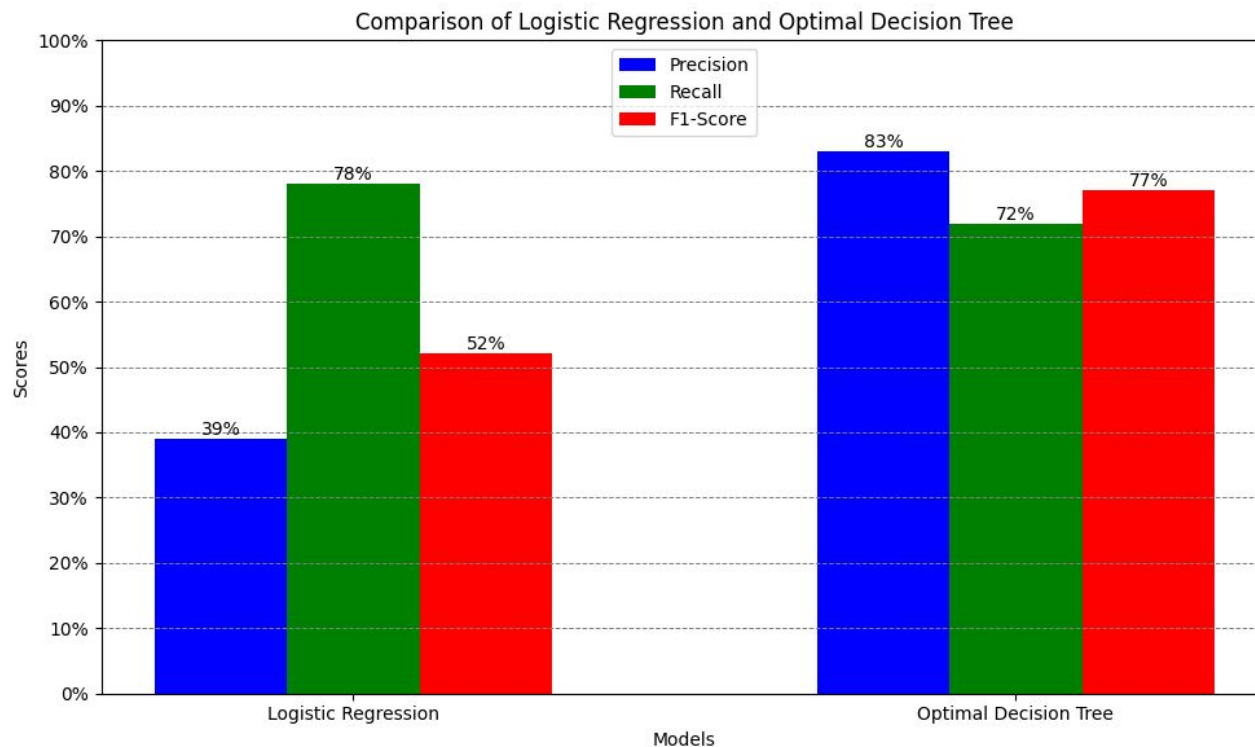
# Visualizing Results

# Key Features Importance Chart





# Model Comparison Chart





## Key Insights and Recommendations

- **Focus Areas:**
  - Prioritize customers with high **day charges** and frequent **customer service calls** for retention strategies.
  - **International Plan** subscribers show higher churn rates – consider offering specialized retention programs.
  - **Voice Mail Plan** customers churn less frequently; encourage uptake.



## Next Steps

- Implement the model
- **Data Expansion:** Consider including additional customer touchpoints or social media engagement for more holistic predictions.



# Thank You!

Questions?

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