Project title: SyriaTel Customer Churn Prediction

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OVERVIEW

- ▶ Business problem: We are losing \$2.4M annually due to customer churn
- ▶ Project goal: Build a predictive model to identify at risk customers to reduce churn by 25% in 6 months
- Approach: Using machine learning to analyze customer data and predict churn

BUSINESS AND DATA UNDERSTANDING

- ► Key findings from data:
- Overall churn rate is 14.5 %
- ► Having an international plan has 3 times churn risk
- Making more than 3 customer service calls has 4 times churn risk
- ► High day charges of over \$35 increase risk churn risk 4 times

OBJECTIVES

- Reduce rate of churners in SyriaTell communications
- Predict whether the customer will soon stop doing business with SyriaTel communications
- Prevent financial loss when customers churn

MODELLING APPROACH

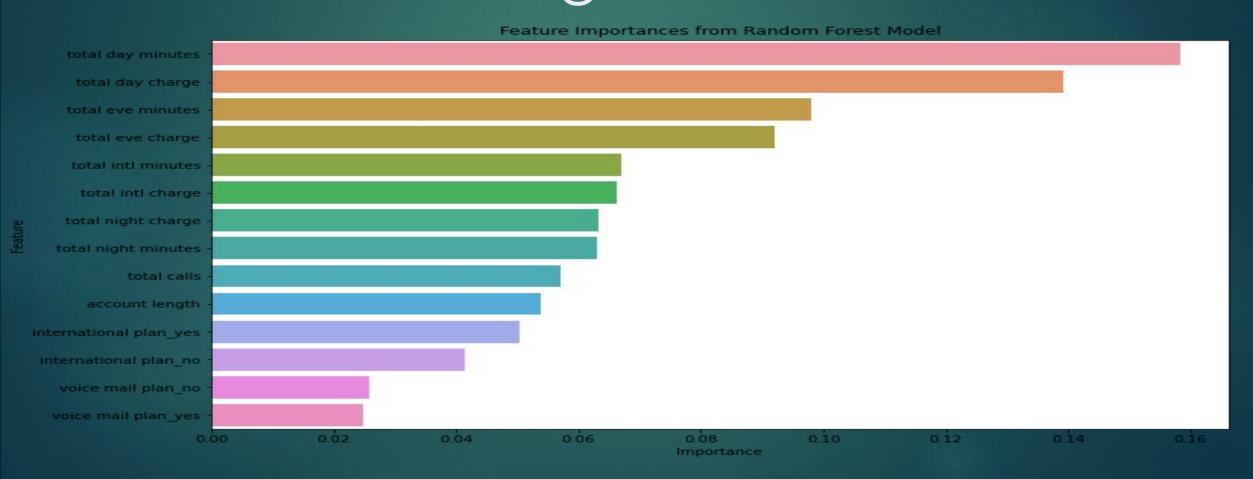
- ► We built several models to predict churn
- Our focus was on capturing as many true churners as possible (recall) while keeping false alarm manageable
- Selected Model: Random Forest (a type of model) because it achieved the highest recall hence capturing more churners

Predictive model perfomance

- Final model: Tuned Random Forest
- ► Metric: /Results/ Target/ Outcome/
- ▶ Recall: /46.5%/ 85%/ Not met/
- ▶ Precision/83.9%/75%/ exceeded/
- Impact: The model is precise with 83.9% of predicted churners but only captures less than half of the actual churners (46.5% recall). This means we are missing many at risk customers

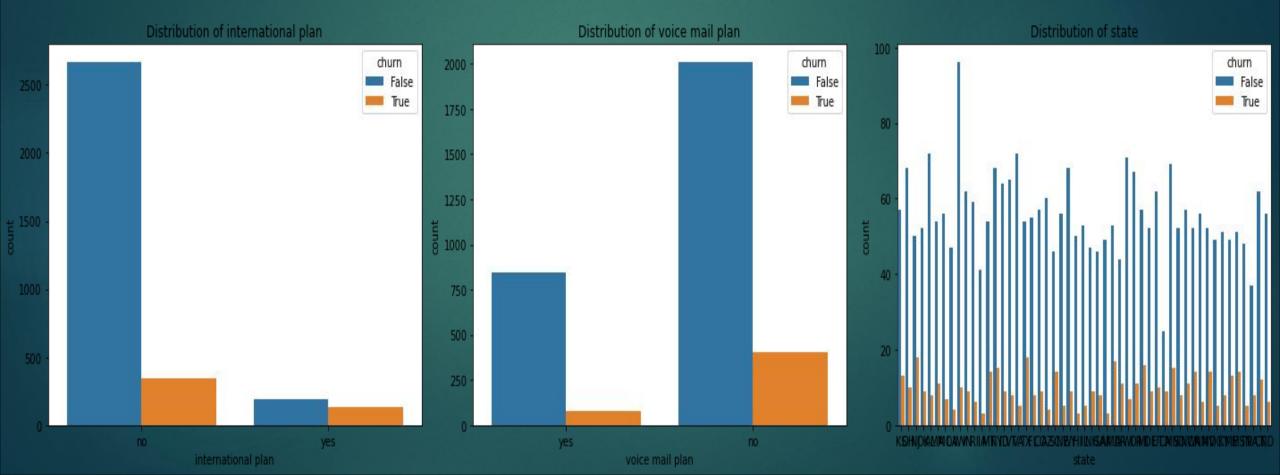
EVALUATION

Feature names of forest model after one-hot encoding



Feature analysis

► This includes distribution in international plan, voice mail and state over count



Confusion Matrix

Shows actual positive (true positive and false negative) and actual negative (false positive and true negative)



Recommendations

- Tier 1 (high risk): offer \$10 account credit and assign a dedicated support representative
- Tier 2 (medium risk): Conduct a service quality review and offer personalized plan adjustment
- Reduced service calls: improve first call resolution to address issues immediately

ROIESTIMATE

- A monthly saving of \$60(2.5% churn reduction)
- A \$35 targeted incentives and monitoring
- A 100% ROI in 6 months

CONCLUSION

- The current model provides high precision but requires supplemental strategies to capture missed churners
- ► With immediate rule based intervention and model enhancement, SyriaTel can achieve 25% churn reduction goal within 9 months

