

SyriaTel — Predicting Customer Churn



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Overview



Problem: SyriaTel is losing customers to competitors.

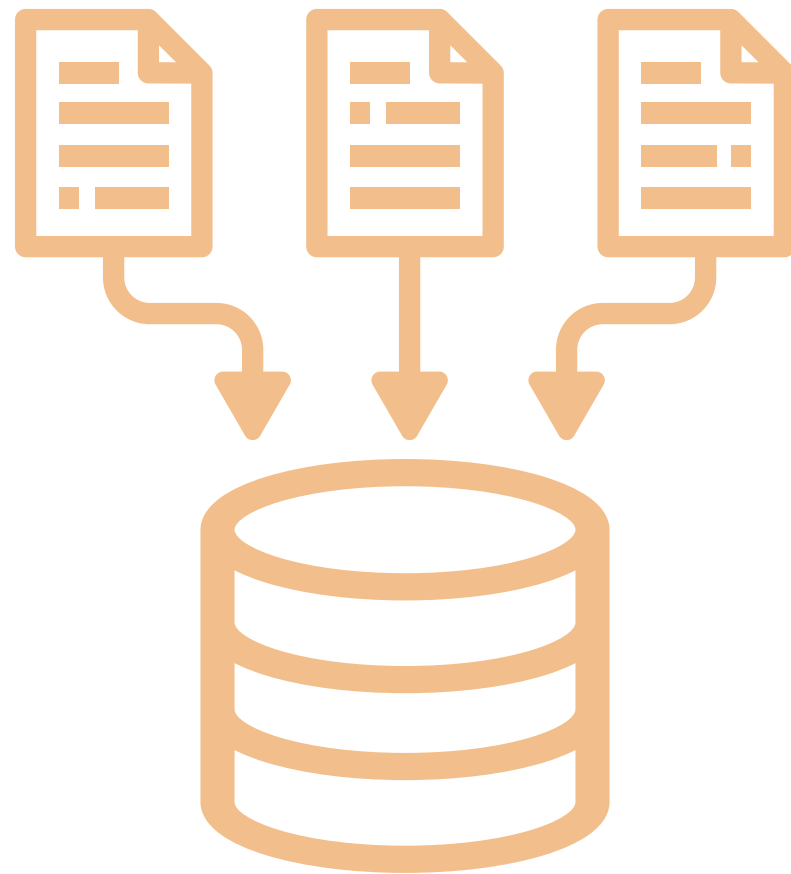
Goal: Predict which customers are likely to leave.

Approach: Analyzed customer data and applied machine learning models.

Result: Best models reach 94% accuracy and identify most at-risk customers.

Value: Enables early action to reduce churn and improve loyalty.

Business & Data Understanding



Business Context: Customer churn reduces revenue and increases marketing costs. Keeping existing customers is cheaper than finding new ones.



Data Source: SyriaTel customer records (3,300+ customers).

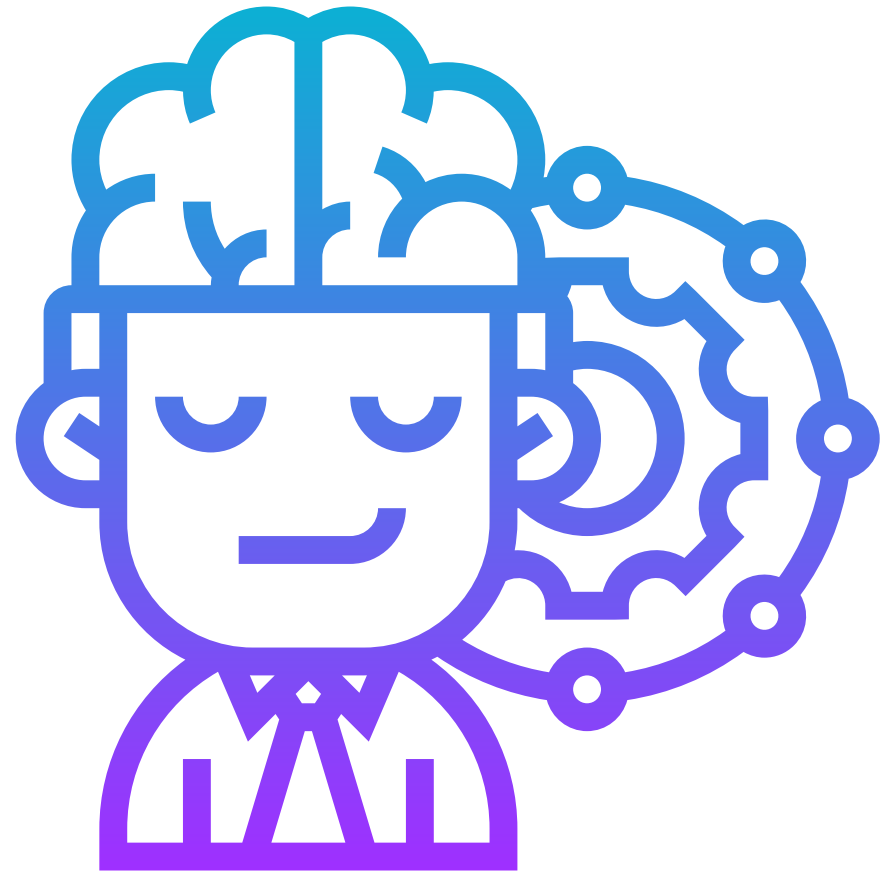


Key Information Collected:

- Usage (day, evening, night, international calls)
- Plans (international, voicemail)
- Customer service calls
- Churn (whether the customer left)

***Insight:** These patterns help us predict which customers are at risk of leaving.*

Modelling



Approach: Tested three machine learning models

- Logistic Regression
- Random Forest
- XGBoost

Why Classification?

The goal is to separate customers into two groups: stay vs leave

Process: Trained models on historical data

Compared performance using accuracy, precision, recall, and F1-score

Evaluation



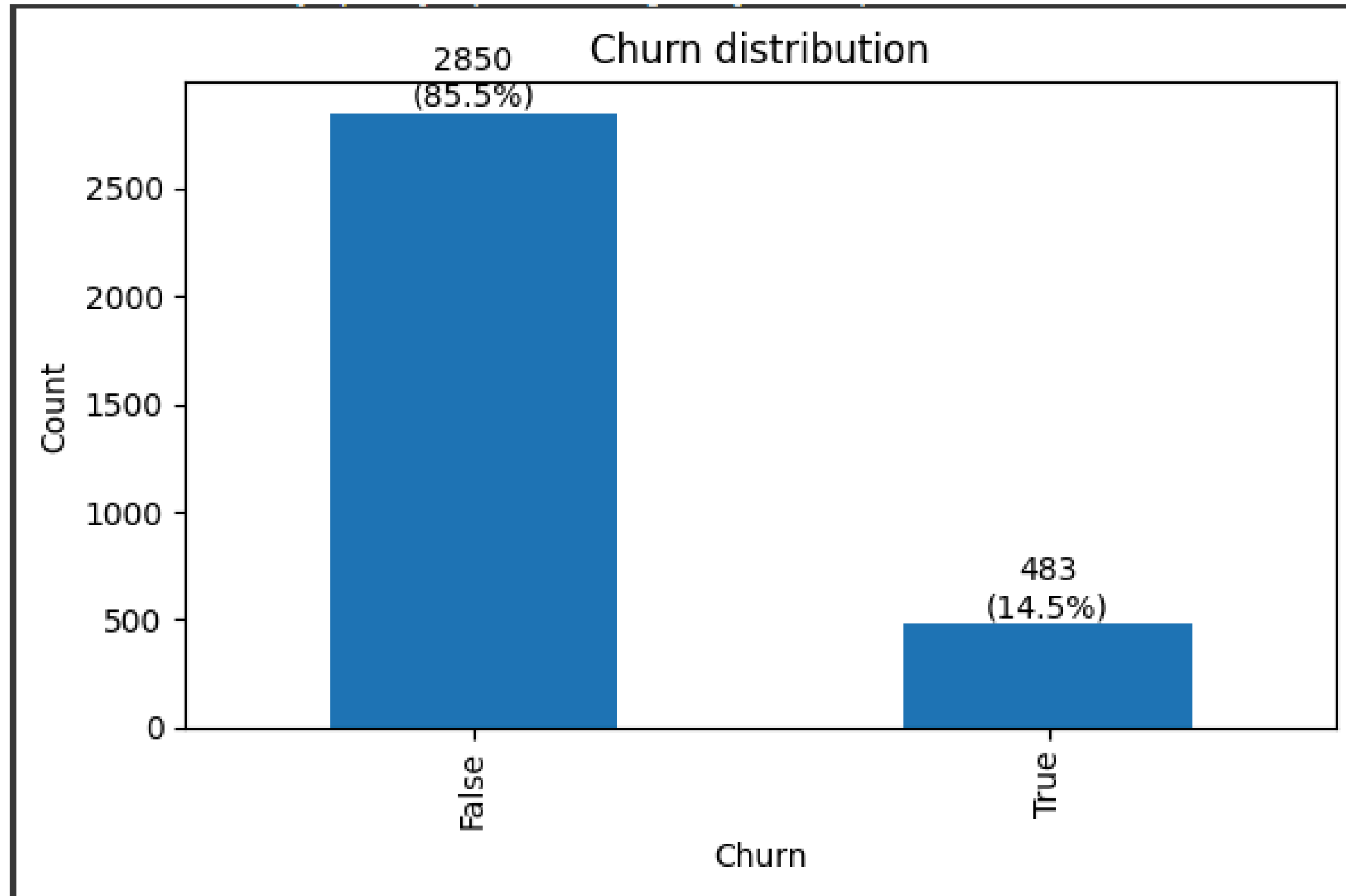
Logistic Regression: 76% accuracy — weaker at catching churners

Random Forest: 94% accuracy — strong balance of precision & recall

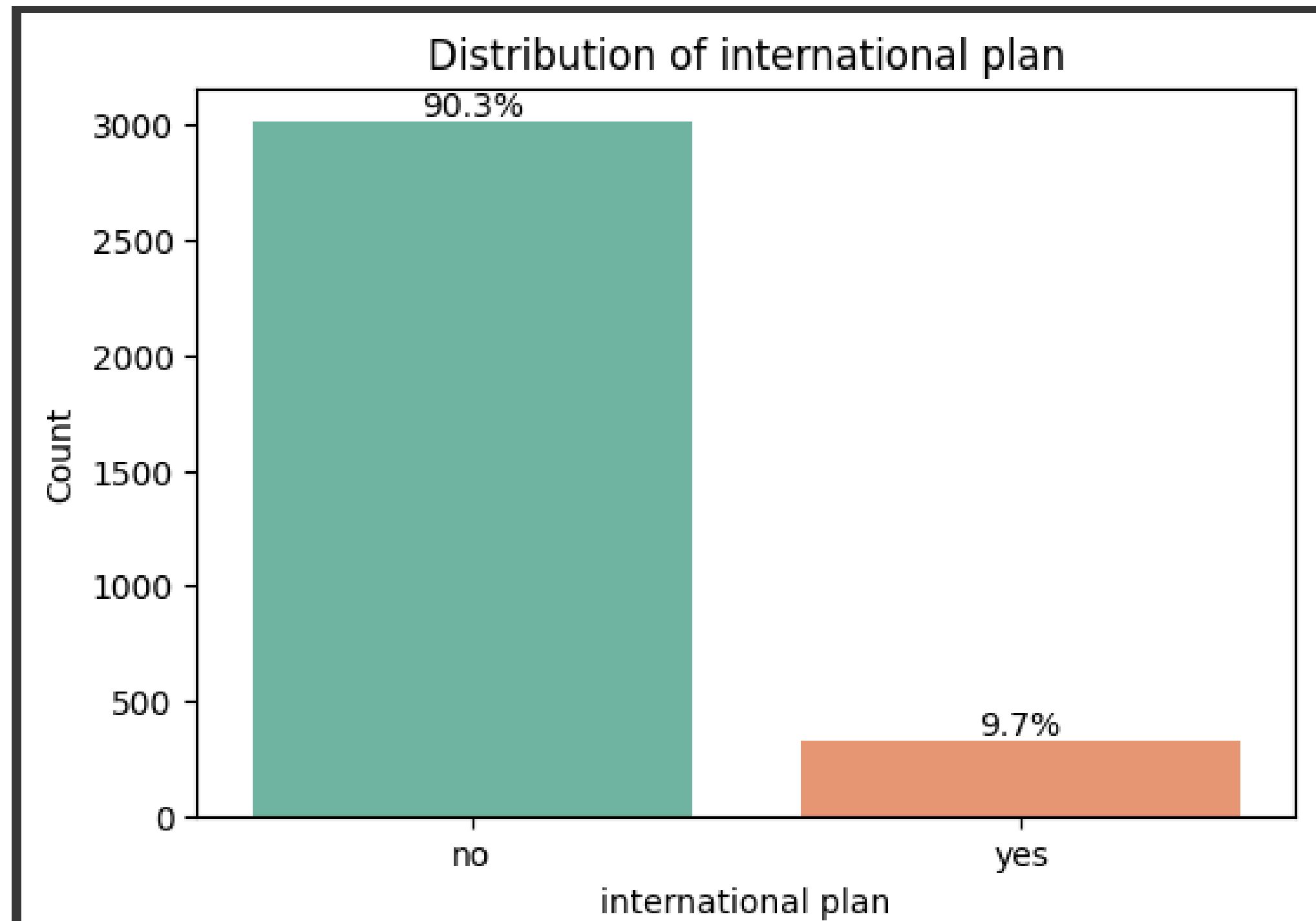
XGBoost: 94% accuracy — best at finding customers likely to churn

Key Point: Both Random Forest and XGBoost correctly identify 7 out of 10 customers who are likely to leave

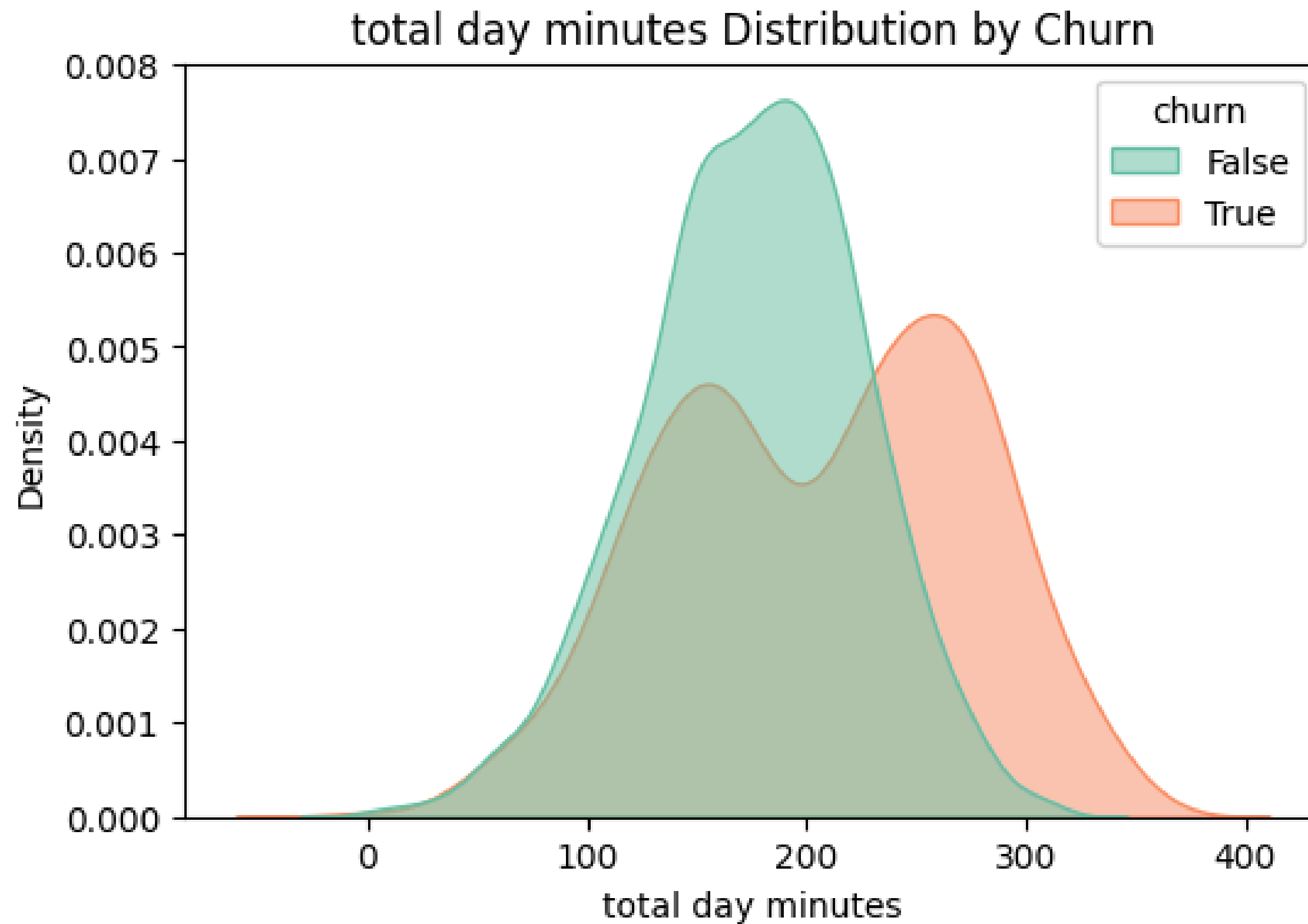
Descriptive analysis



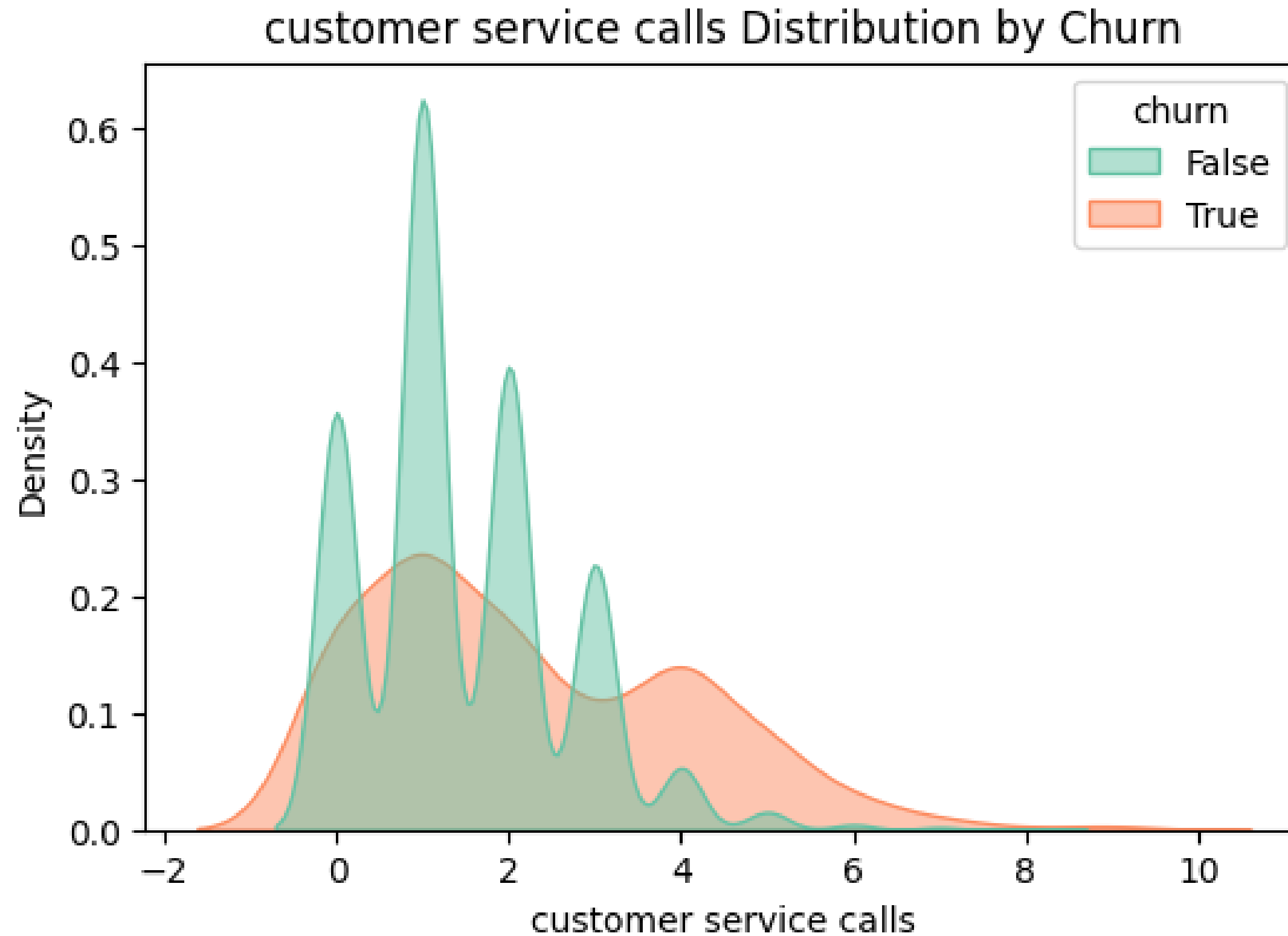
Distribution of international plan



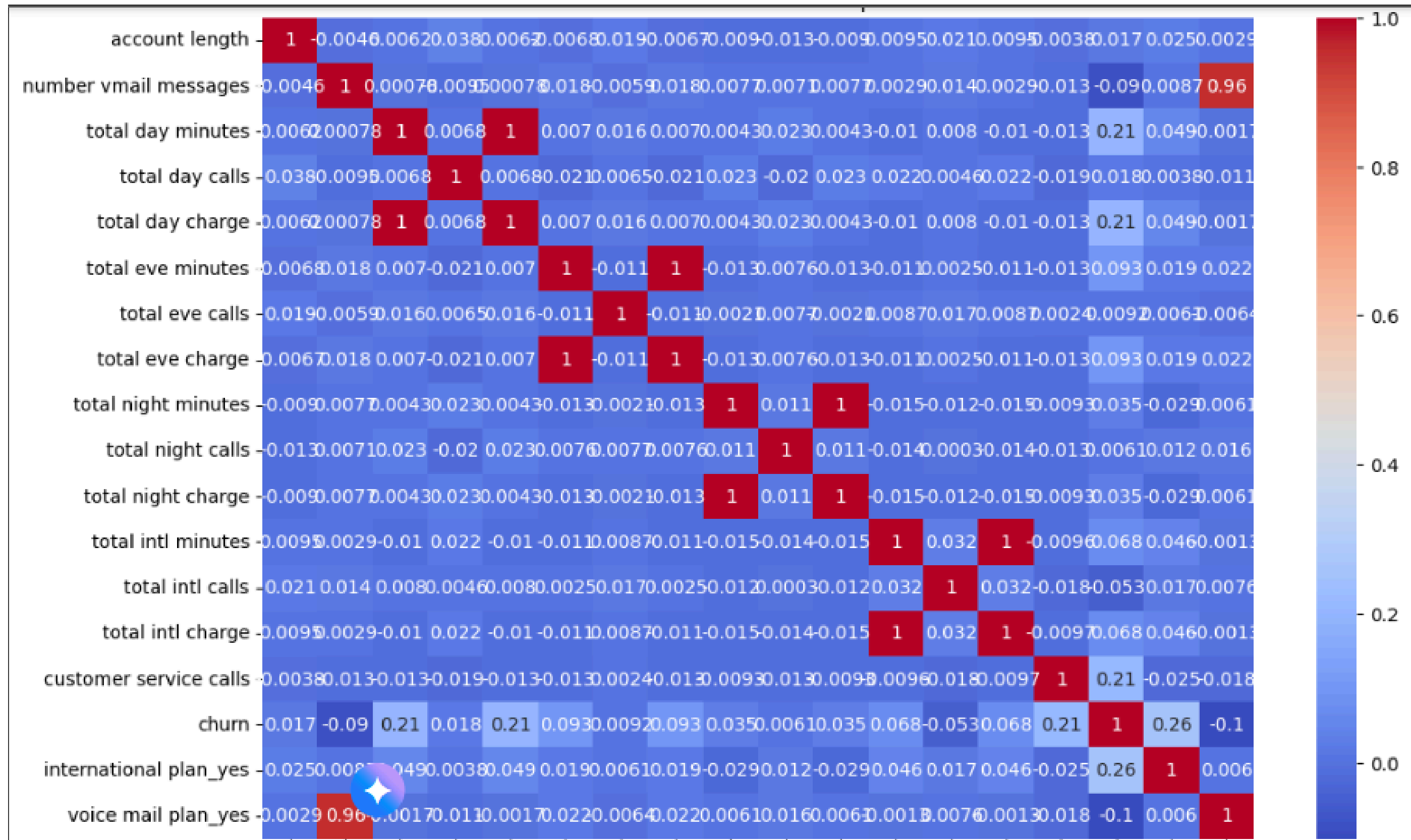
Total day minutes Distribution by churn



Customer service calls distribution bu churn



Correlation





Conclusion

- Our analysis shows that customer churn at SyriaTel can be predicted with high accuracy using machine learning.
- Random Forest and XGBoost models reached about 94% accuracy, successfully identifying most customers at risk of leaving.
- Key churn drivers include international plans and frequent customer service calls.
- By acting early on these insights, SyriaTel can reduce churn, save on customer acquisition costs, and strengthen customer loyalty.



Recommendations

- Use the model to flag high-risk customers early
- Prioritize retention efforts for those flagged customers
- Offer special discounts, loyalty perks, or personalized plans
- Monitor customer service calls closely — frequent calls are a strong churn signal
- Focus on international plan users — they are much more likely to leave



Next steps

- Integrate the model into SyriaTel's customer management system
- Pilot a retention program targeting high-risk customers
- Collect feedback on interventions (e.g., discounts, service quality improvements)
- Continuously update the model with new customer data for better accuracy

THE END

