

SyriaTel

Customer Churn Prediction Project

SyriaTel Customer Churn Prediction Project*



****Business Problem****

- This project aims to identify customers who are at the highest risk of leaving(customer churn), enabling SyriaTel to implement proactive measures, such as targeted offers and enhanced service, to improve retention rates.

Project Objective

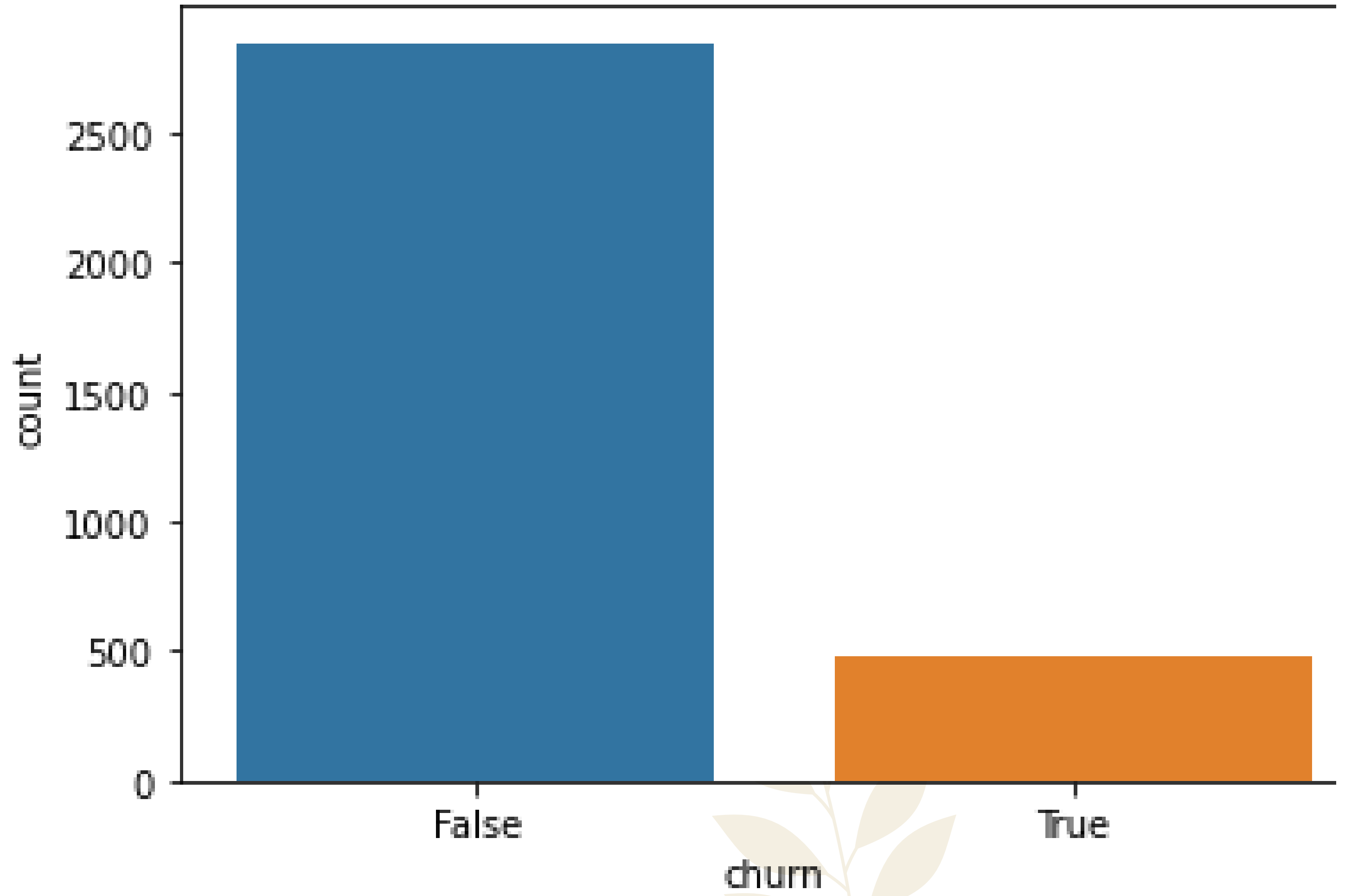
To build a predictive model that identifies customers likely to churn, based on their usage patterns, service interactions, and plan types.

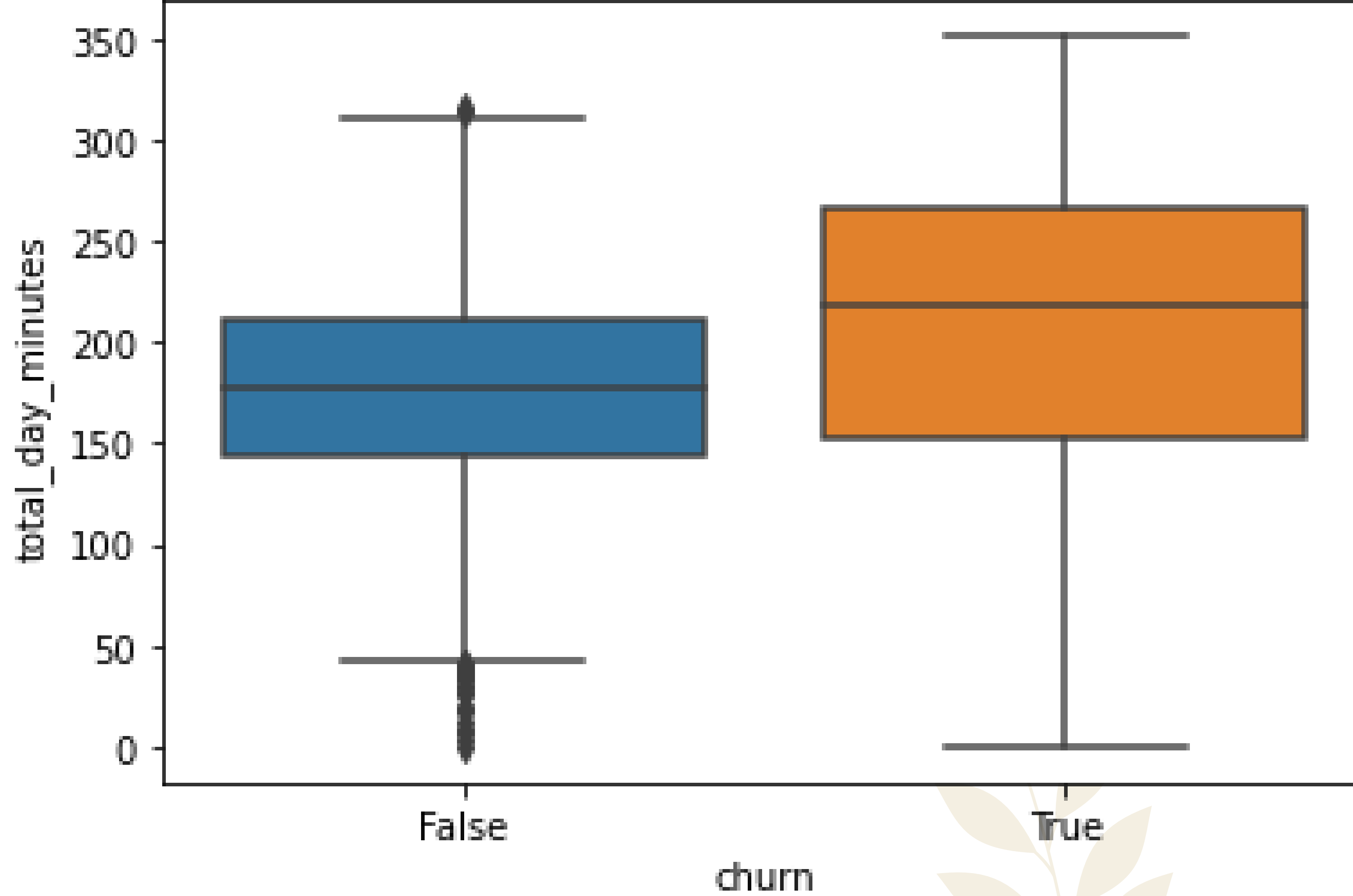
Data Overview

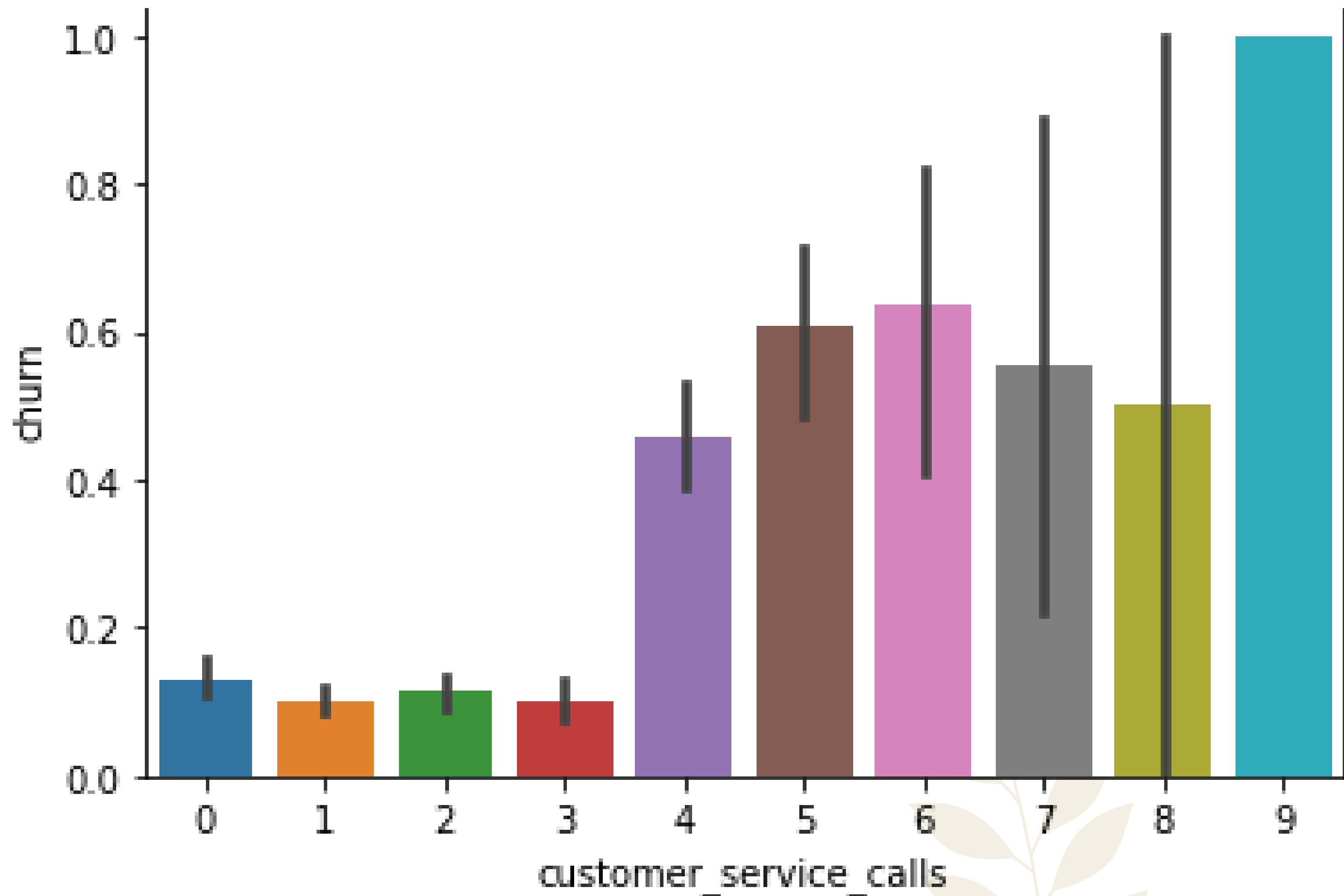
The analysis used over 3,000 SyriaTel customer records, including:

- Call usage data (day, evening, night, international minutes)
- Service plan details (international plan, voicemail plan)
- Customer service interactions
- Billing and area information
- Churn status (whether the customer left or stayed)

Churn Distribution







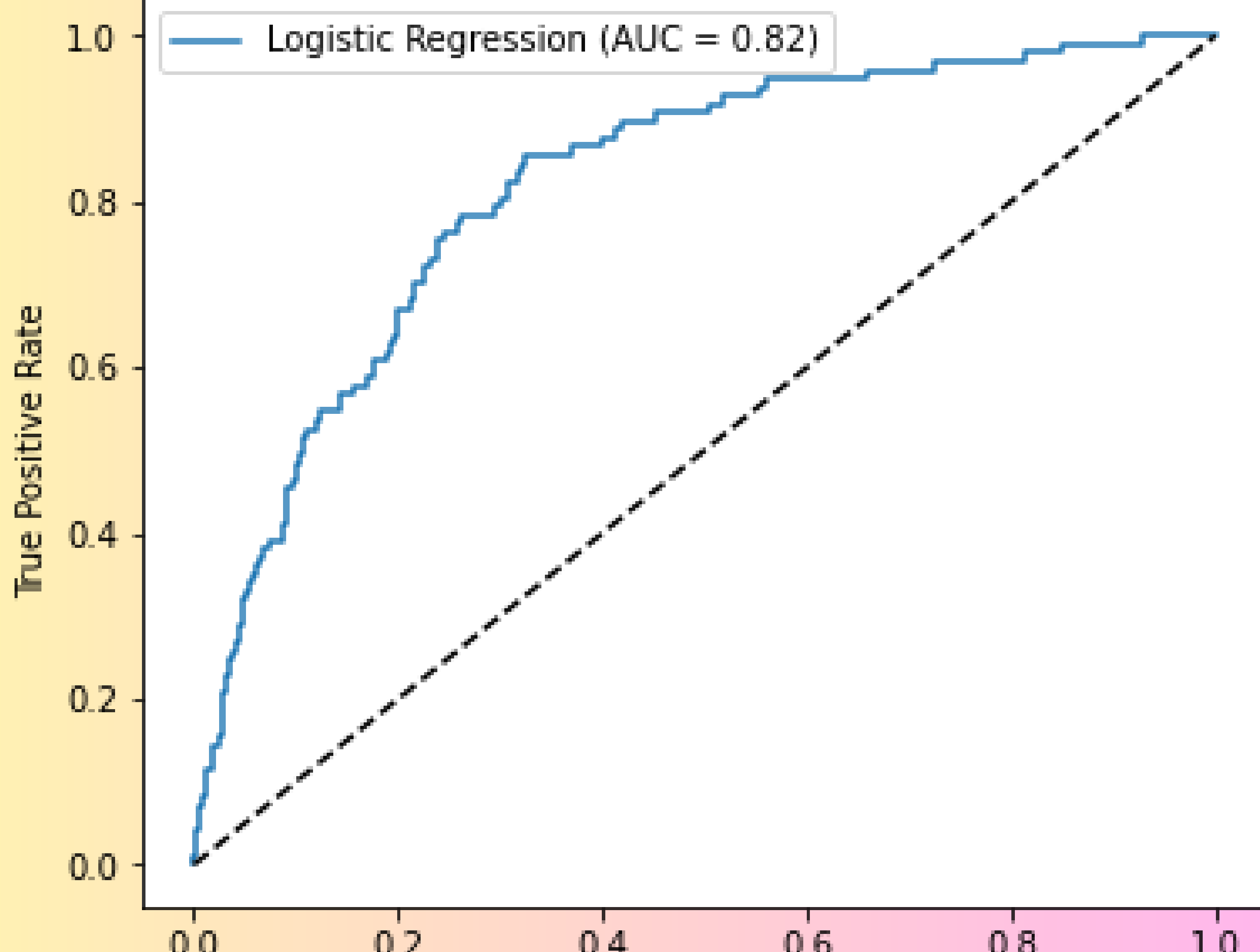
Key Findings from Data

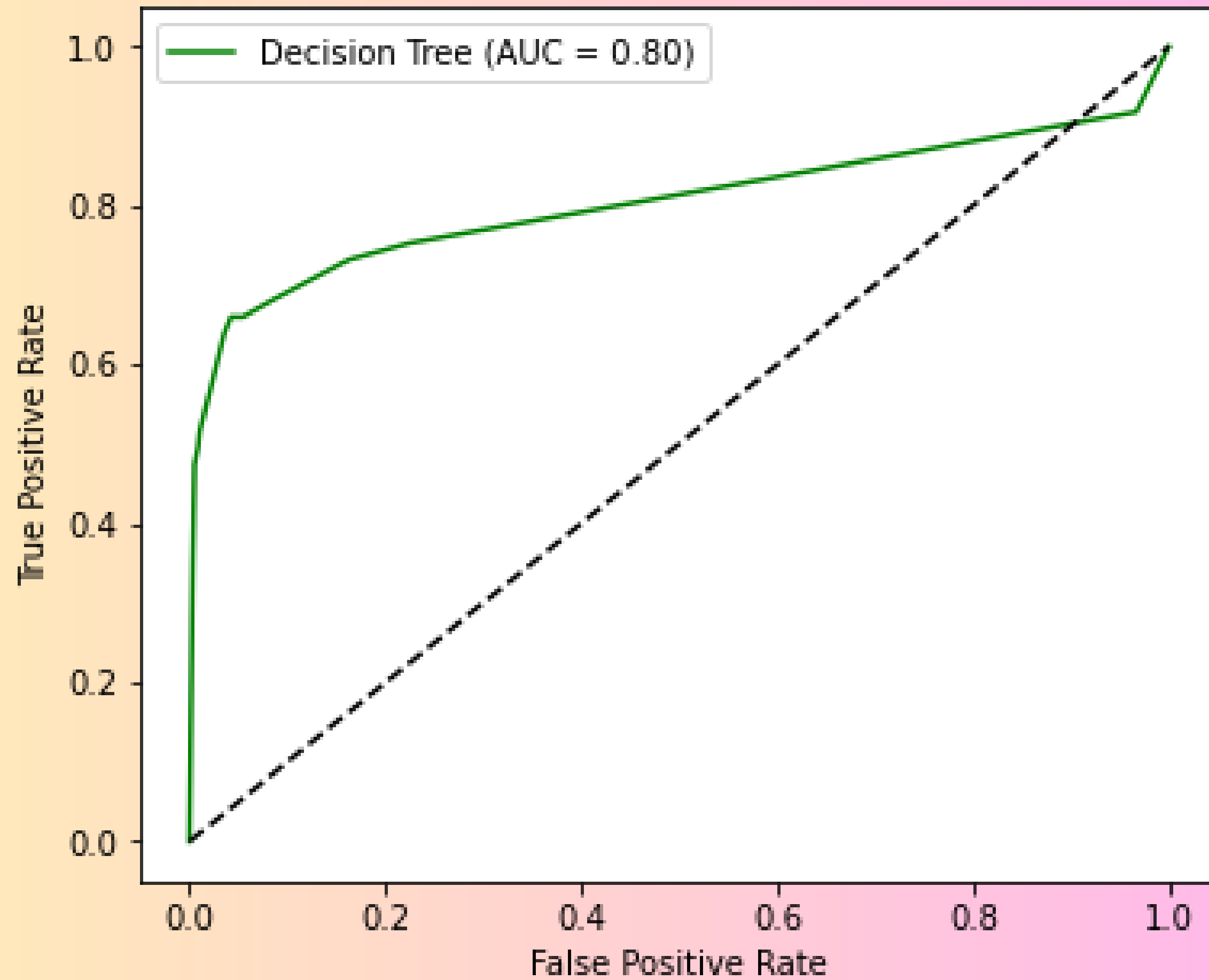
- Customers who called customer service frequently were more likely to churn — often due to unresolved issues.
- Having an international plan increased churn likelihood — possibly due to higher costs or dissatisfaction with rates.
- Customers with a voicemail plan tended to stay longer.
- Higher daytime charges also correlated with churn, suggesting billing concerns or heavy usage frustrations.

Models Used

Two predictive models were tested:

Model	Accuracy	ROC-AUC (Discrimination Power)	Notes
Logistic Regression	85.90%	0.82	Good baseline, interpretable but less sensitive to churners
Decision Tree	91.80%	0.8	More accurate, easily interpretable decision rules





Decision Tree Insights

- The Decision Tree model visually mapped how SyriaTel customers decide (or are predicted) to stay or leave.
- Some key decision patterns:
- Few or no customer service calls → likely to stay
- Frequent customer service calls → likely to churn
- High daytime charges → higher churn risk

Model Performance -Decision Tree

- Overall accuracy: 92% — the model correctly predicts customer behavior 9 out of 10 times.
- Churn recall: 64% — it successfully identifies 2 out of every 3 customers likely to leave.
- This is a strong starting point for proactive customer retention.

Business Recommendations

1. Focus retention campaigns on customers with:

- High daytime charges
- Frequent customer service calls
- International plans
- No voicemail plans

2. Enhance customer service quality:

- Customers who reach out multiple times are at high risk — prioritize fast, effective issue resolution.

3. Personalize offers:

- Use model predictions to offer targeted discounts or loyalty benefits before customers leave.

4. Continue improving the model:

- Use more recent data
- Add factors like payment delays or network issues
- Explore advanced models like Random Forest or XGBoost for higher recall

Conclusion

The churn prediction model provides actionable insights to help SyriaTel:

- Reduce customer turnover
- Save acquisition costs
- Improve customer satisfaction
- Enhance long-term profitability
- With this tool, SyriaTel can predict who is at risk — and take action before it's too late.