

SYRIATEL CUSTOMER CHURN





► **Project Overview**

Focus: Addressing customer churn for SyriaTel, a fictitious telecom company.

Challenges: Churn impacts revenue; proactive retention is vital.

► **Project Objectives**

Churn Prediction: Develop models to forecast potential churn.

Model Evaluation: Select the most effective model.

Feature Insights: Identify key factors contributing to churn.



► 1. Business Understanding

Problems: Predict churn, segment customers, improve service quality, optimize pricing, assess marketing effectiveness.

► 2. Data Understanding

Source: Customer dataset with usage, subscriptions, and churn info.

Exploration: Understanding feature distribution.

► 3. Data Preparation

Cleaning: Handle missing values and ensure data consistency.

Feature Engineering: Create new features and encode categorical variables.

Class Imbalance: Use SMOTE for balancing classes.

► 4. Modeling

Models Tested: Logistic Regression, Random Forest, XGBoost, SVM, K-Nearest Neighbors.

Top Performer: XGBoost with 95% accuracy.

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XGBoost Accuracy: 0.95
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XGBoost Classification Report:
              precision    recall  f1-score   support

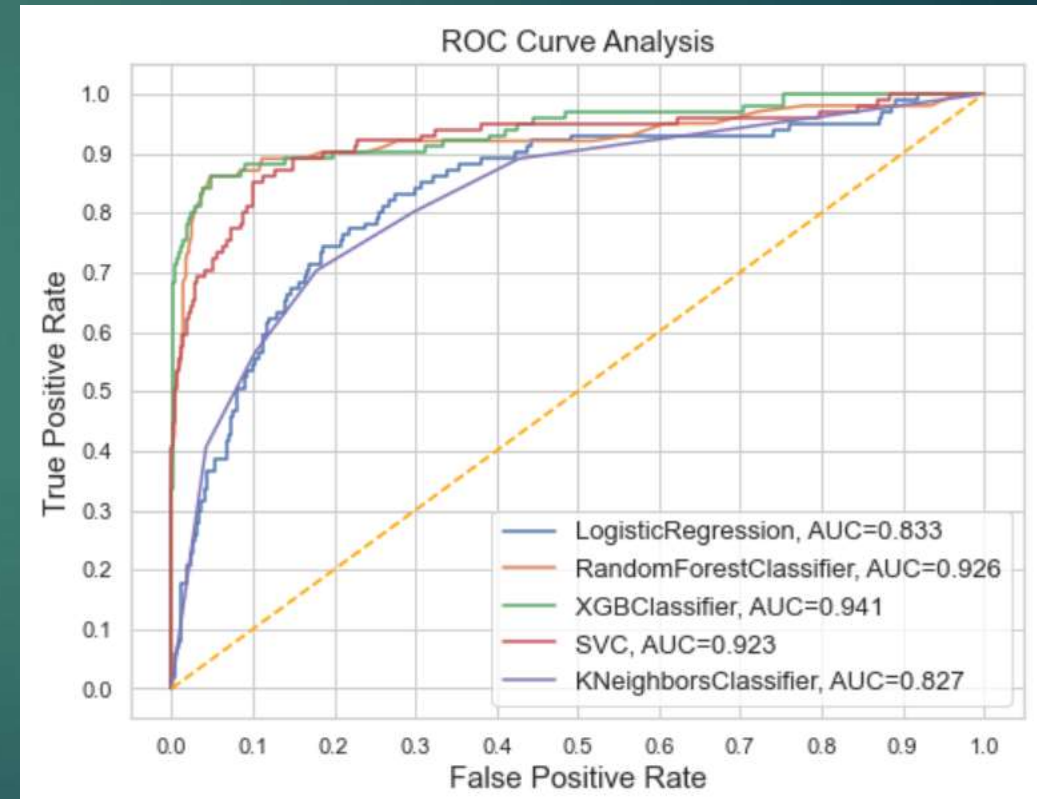
         0           0.96       0.97       0.97         566
         1           0.84       0.80       0.82         101

 accuracy              0.95         667
 macro avg           0.90       0.89       0.90         667
weighted avg           0.95       0.95       0.95         667
```

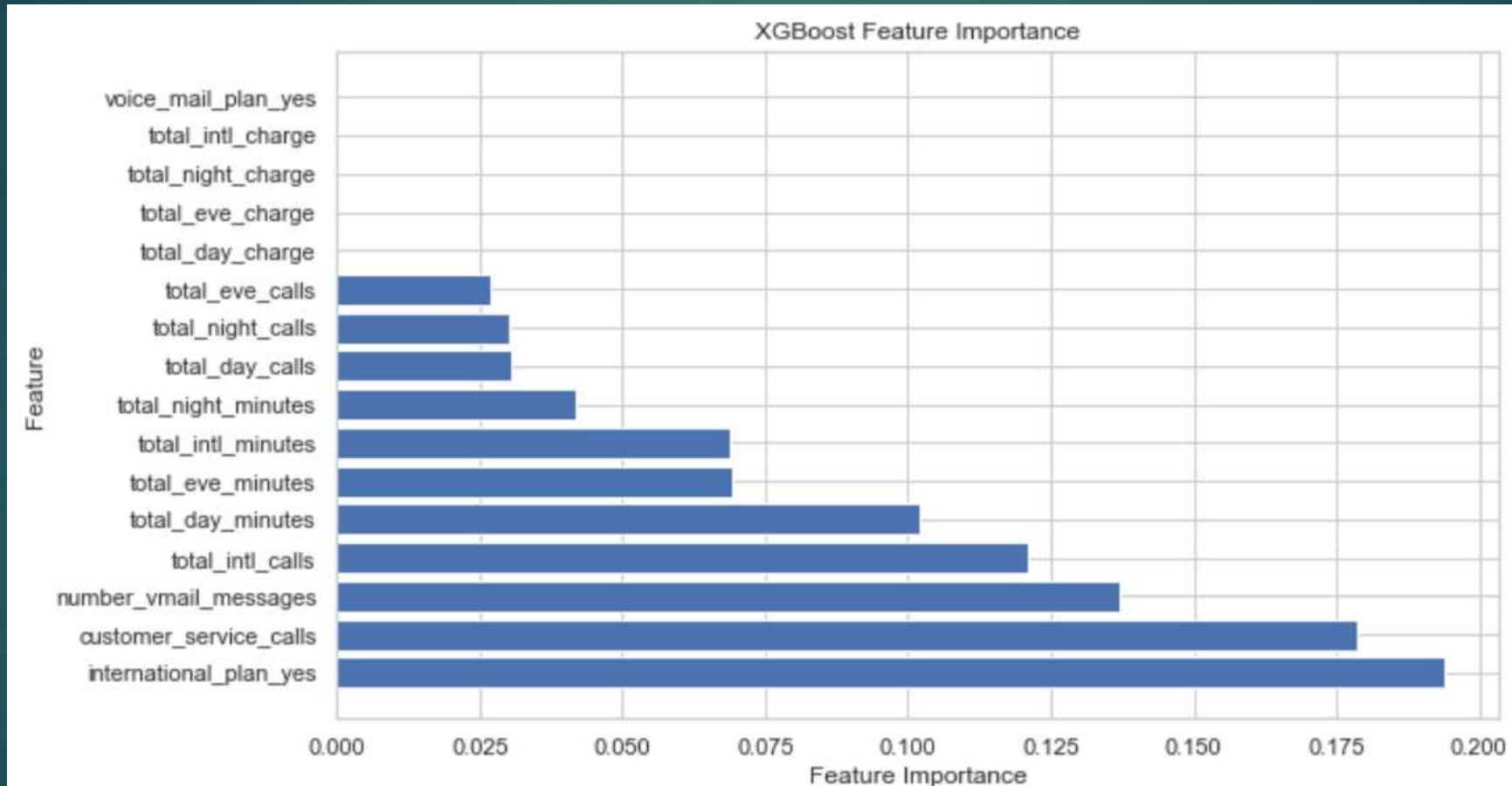
► 5. Evaluation

Metrics: Accuracy, precision, recall, F1-score, and AUC-ROC.

Top Models: XGBoost and Random Forest.



► 6. Feature Importance





► 7. Conclusion

Data Prep & Class Balance: Key for accurate churn predictions.

Top Performer: XGBoost with 95% accuracy.

Crucial Features: "international_plan_yes," "customer_service_calls,"
"number_vmail_messages," "total_intl_calls," "total_day_minutes."



► 8. Recommendations

- Prioritize International Plans and improve customer service.
- Optimize voicemail usage, address international calls, and enhance service quality.
- Implement proactive XGBoost for churn prediction.
- Segment customers and create targeted retention campaigns.
- Continuously monitor, establish a feedback loop, and assess for reduced churn and growth..