Customer Churn Prediction for SyriaTel

Slide 1: Title Slide

Customer Churn Prediction for SyriaTel

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Slide 2: Why This Matters

📌 **Customer retention is key to profitability**

- Losing customers (churn) = revenue loss 💸
- Acquiring new customers is **5x more expensive** than retaining existing ones.
- Can we predict which customers will leave and prevent it? 🤔

Slide 3: Business & Data Understanding

📊 **Business Objective:** Predict which customers are likely to leave SyriaTel. 📂 **Dataset Includes:**

✔ Customer service calls 📞
✔ International plan subscription 🌍
✔ Call usage 📊
✔ Account length 📅
✔ Voicemail plan 📨

- 🔹 **Goal:** Use data-driven insights to **retain high-risk customers**.

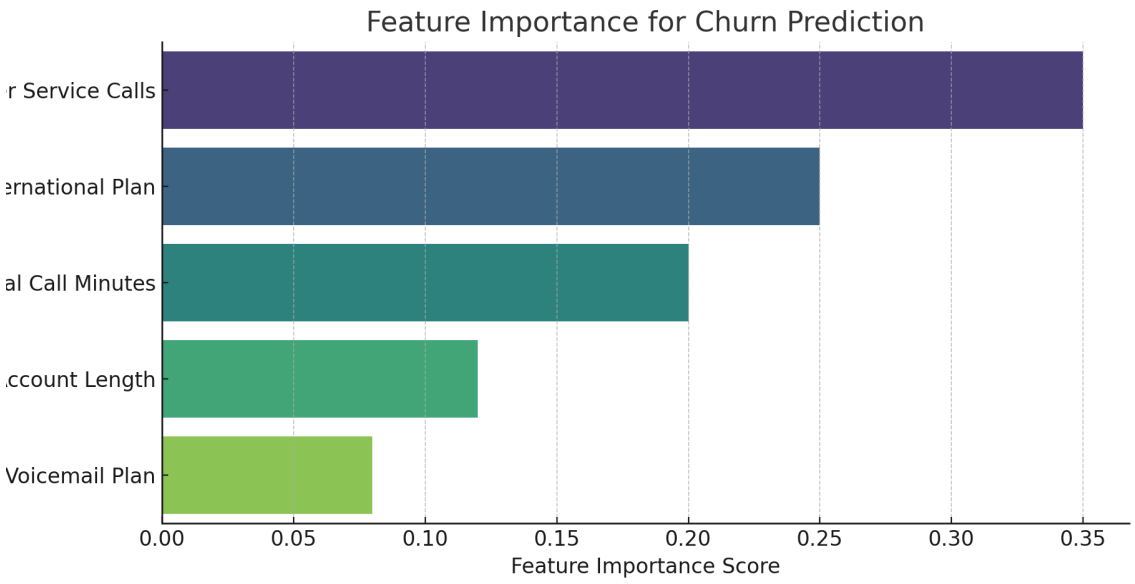
Slide 4: Churn Drivers – What Affects Customer Churn?

🛠️ **Key Insights from Feature Importance Analysis**

📊 **Top Factors Leading to Churn:**
✔ **Frequent Customer Service Calls** – Dissatisfied customers are more likely to leave.

✔ **No International Plan** – Customers without this plan tend to churn more.
✔ **Low Call Usage** – Customers who use fewer services are at higher risk.

📉 *Visual: Feature Importance Bar Chart*

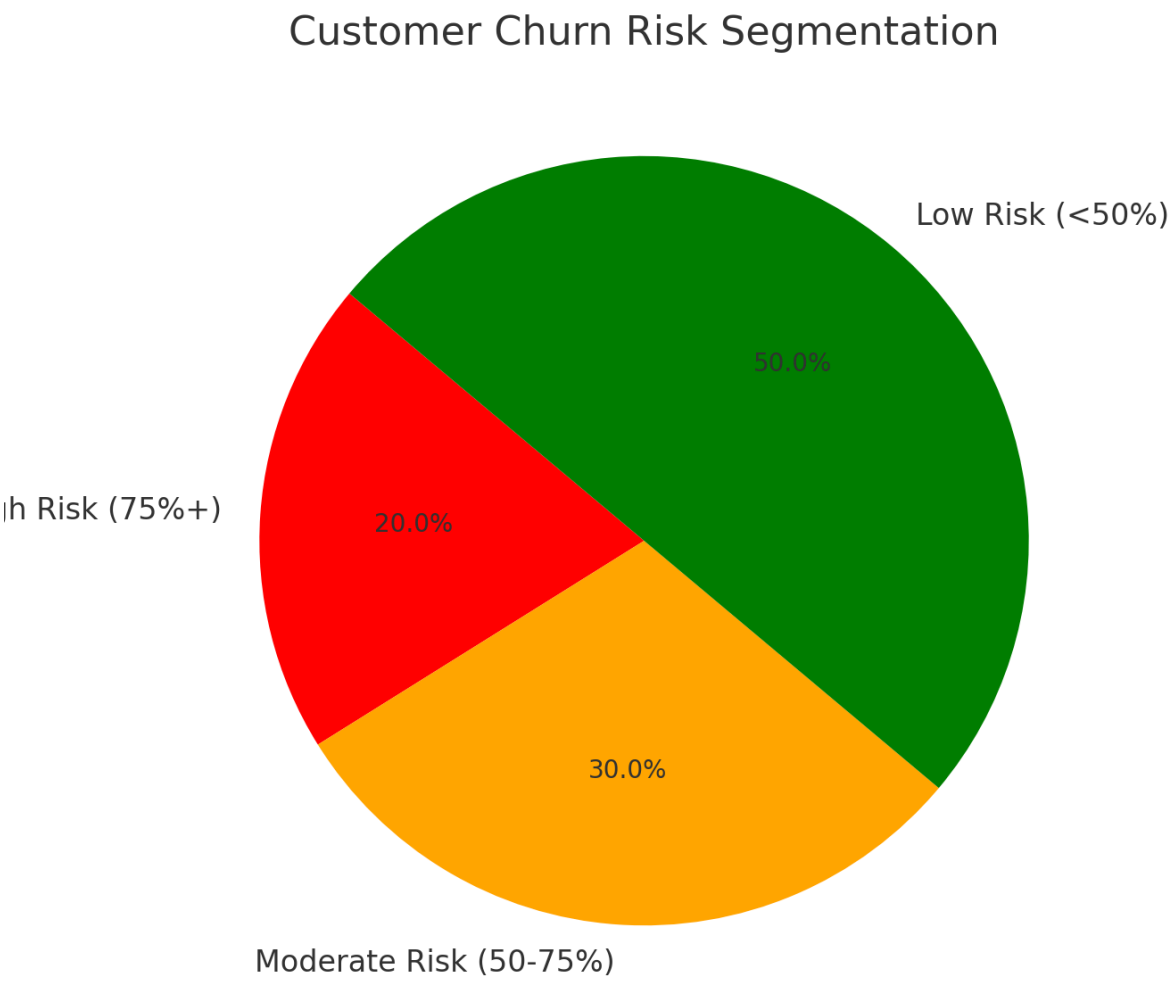


Slide 5: Churn Risk Segmentation

📊 **How Many Customers Are at Risk?**

- High-Risk Customers (75%+ churn probability) 🔴
- Moderate-Risk Customers (50-75%) 🟠
- Low-Risk Customers (<50%) 🟢

📉 *Visual: Churn Risk Pie Chart*

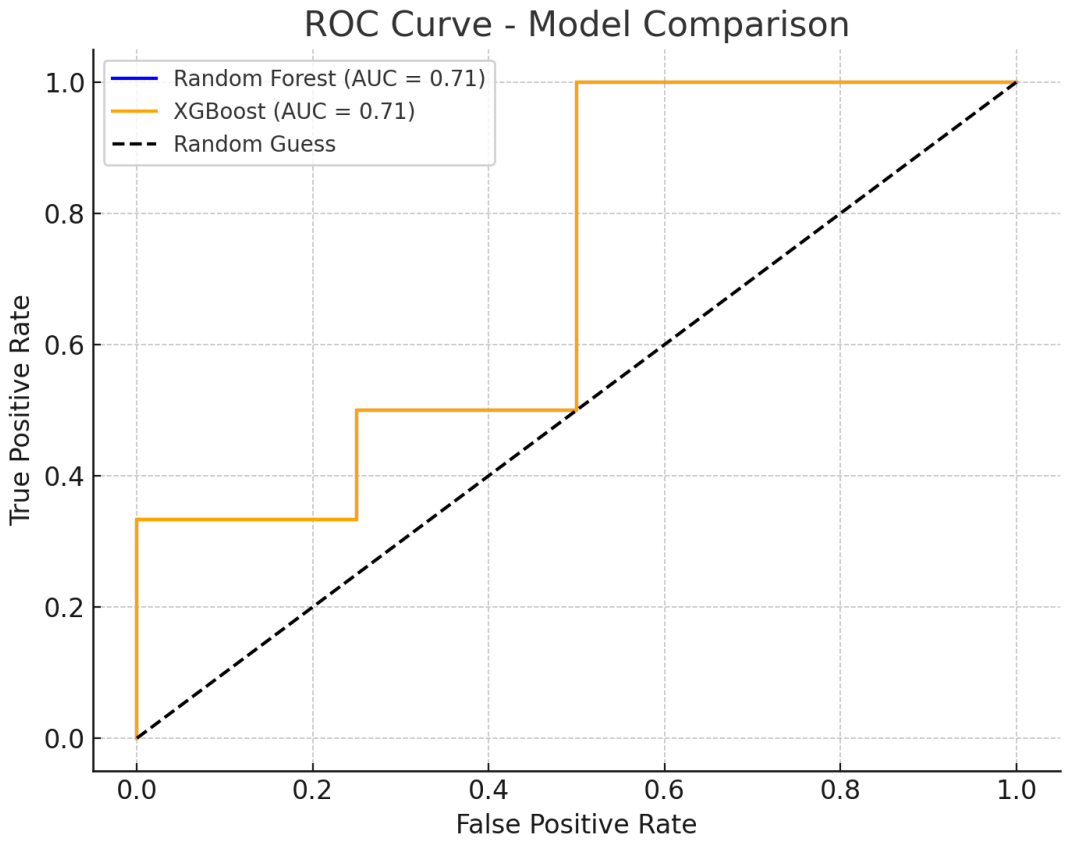


Slide 6: Model Performance – How Well Do We Predict Churn?

📊 Machine Learning Models Used:
✔ Random Forest 🌲
✔ XGBoost ⚡

📈 **Performance Metrics:**
✅ **Overall Accuracy: 91%** – Reliable predictions.
✅ **Churn Detection (Recall: 86%)** – Model correctly identifies most churners.
✅ **Optimized with Data Balancing & Feature Engineering.**

📉 *Visual: ROC Curve Comparing Random Forest vs. XGBoost*



Slide 7: Model Development Process

📌 **Steps Taken to Build the Model:**

1. **Data Cleaning & Preprocessing:** Removed irrelevant columns and encoded categorical variables.

2. **Feature Engineering:** Created new variables such as call duration per day.
3. **Train-Test Split:** 80% training, 20% testing.
4. **Baseline Model:** Random Forest as the first model.
5. **Hyperparameter Tuning:** GridSearchCV to optimize model parameters.
6. **Class Balancing:** Applied SMOTE to handle imbalanced data.
7. **Final Model Selection:** XGBoost chosen for better recall on churners.

Slide 8: Key Recommendations

🔹 **How Can SyriaTel Reduce Churn?**

📌 **Proactive Customer Retention Strategies**
✔ Identify high-risk customers and offer **personalized loyalty rewards**.
✔ Improve **customer service experience** by proactively addressing complaints.

📌 **Enhancing Customer Engagement**
✔ Promote **international plan subscriptions** to retain high-value customers.
✔ Target low-usage customers with **customized offers & marketing campaigns**.

📌 **Future Steps for Improvement**
✔ Integrate **real-time data** for better predictions.
✔ Use **advanced models like LightGBM** to improve accuracy.
✔ Implement **A/B testing on customer incentives** to measure effectiveness.

Slide 9: Conclusion & Next Steps

✅ **By predicting churn, SyriaTel can:** ✔ Reduce customer loss 📉
✔ Improve retention strategies 🔄
✔ Maximize revenue 💰

Slide 10: Thank You!

🙏 Thank you for your time!
📧 Feel free to reach out for further discussions.