



A Data-Driven Approach for SyriaTel

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1. Business Understanding

- ❑ SyriaTel faces high customer churn impacting revenue.

► **Goal:**

- ✓ Predict customers likely to churn using historical data.
- ✓ Enable proactive retention strategies through model insights.

Business Objective & Stakeholders

- ▶ **Objective:** Build predictive model to identify high churn risk customers.
- ▶ **Stakeholders:**
 - - Executive Management
 - - Marketing Team
 - - Customer Service
 - - Data Science Team

Success Metrics & Scope

▶ **Success Metrics:**

- ✓ - Balanced precision & recall (F1-Score)
- ✓ - Actionable business insights

▶ **Scope:** Based on historical data; probabilistic predictions.

2. Data Understanding

► Data includes:

- ✓ demographics,
- ✓ account info,
- ✓ usage patterns.

► Initial step:

- ✓ import libraries & explore data structure.
- ✓ Identify missing values, outliers, and inconsistencies.

3. Data Preparation

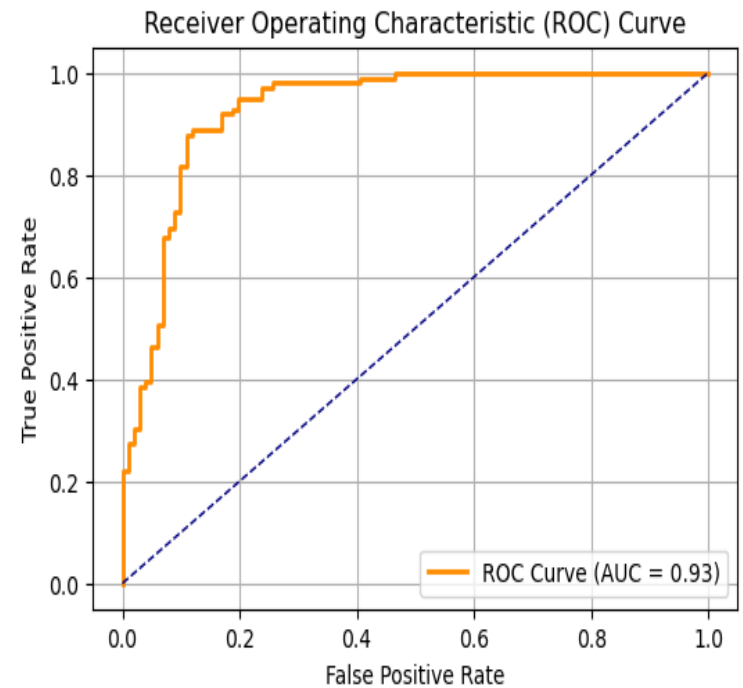
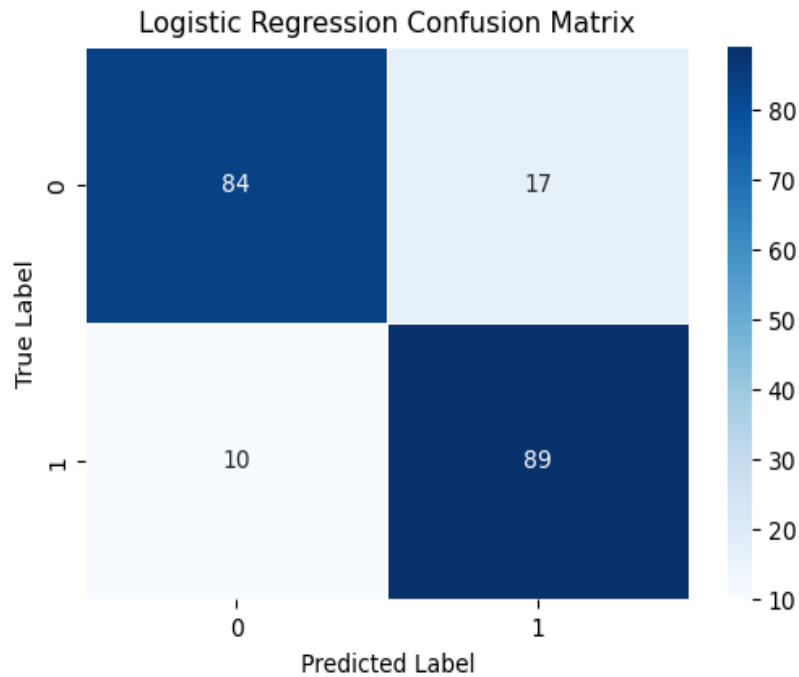
- I. Handled missing values and inconsistent entries.
- II. Performed feature encoding for categorical variables.
- III. Scaled numerical features for model compatibility.
- IV. Feature selection applied to reduce dimensionality.

4. Modeling Approach

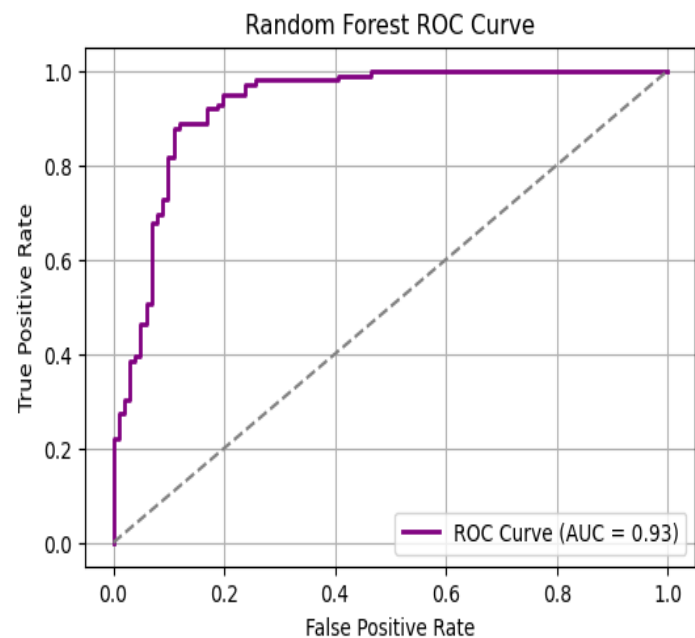
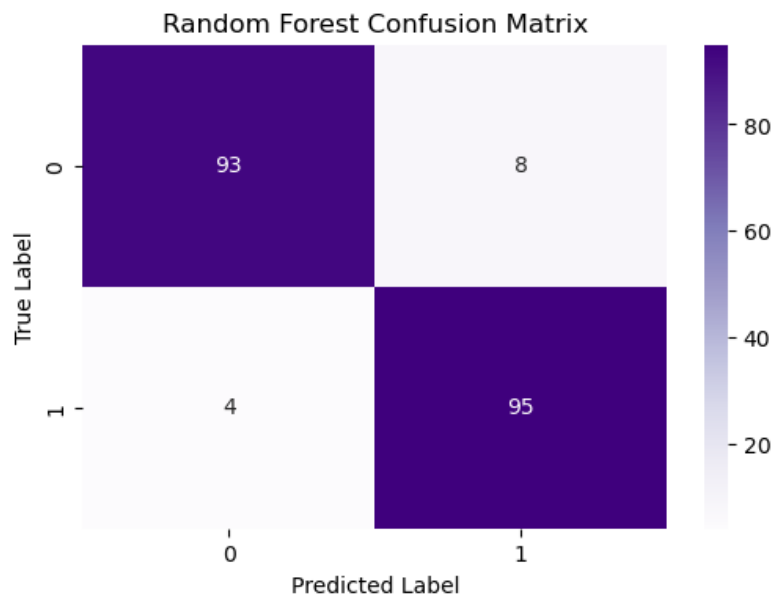
► Tried multiple classification models:

- ✓ - Logistic Regression
- ✓ - Random Forest
- ✓ - XGBoost
- ✓ Used GridSearchCV for hyperparameter tuning.
- ✓ Trained on 80% of data, validated on 20%.

Model 1: logistic Regression



Model 2: Random Forest



5. Model Evaluation

► Evaluated using metrics:

- ✓ - Accuracy, Precision, Recall, F1-Score
- ✓ - ROC-AUC for probability-based models
- ✓ Selected best performing model for deployment.

6. Conclusions & Recommendations

Conclusions:

- ✓ Model's successfully predicts customer churn.

▶ **Key churn indicators:**

- ✓ - Contract type.
- ✓ call duration.
- ✓ customer service calls.

▶ **Recommendations:**

- ✓ - Proactive engagement for high-risk users.
- ✓ - Improve service for frequent complaint categories.

Next Steps

- ▶ Deploy model to production environment.
- ▶ Set up regular retraining with new data.
- ▶ Collaborate with marketing to design retention offers.



Questions?