TELECOMMUNICATION CUSTOMER CHURN

Predict whether a customer will churn

Presented by: Alberto SYLVEUS – Data scientist student

OVERVIEW

A telecommunication company, his name is SyriaTel, he wants to be informed whether a customer will ("soon") stop doing business with him.

Business and data understanding

Business Problem

- SyriaTel faces customer churn (clients leaving the service).

- Retaining customers is more cost-effective than acquiring new ones.

- Goal: Predict churners to take proactive actions (offers, support, loyalty programs).

Business and data understanding

Stakeholders

- **Executives**: Want financial impact insights.

- **Marketing**: Design targeted retention campaigns.

- **Customer Service**: Engage with at-risk customers.

- **Data Science Team**: Build & maintain predictive models.

Business and data understanding

Dataset

- Source: SyriaTel customer data.
- Size: 3333 rows and 21 columns.

Features:

- Account length, international plan, voicemail plan
- Call usage (day, evening, night, international)
- Number of customer service calls
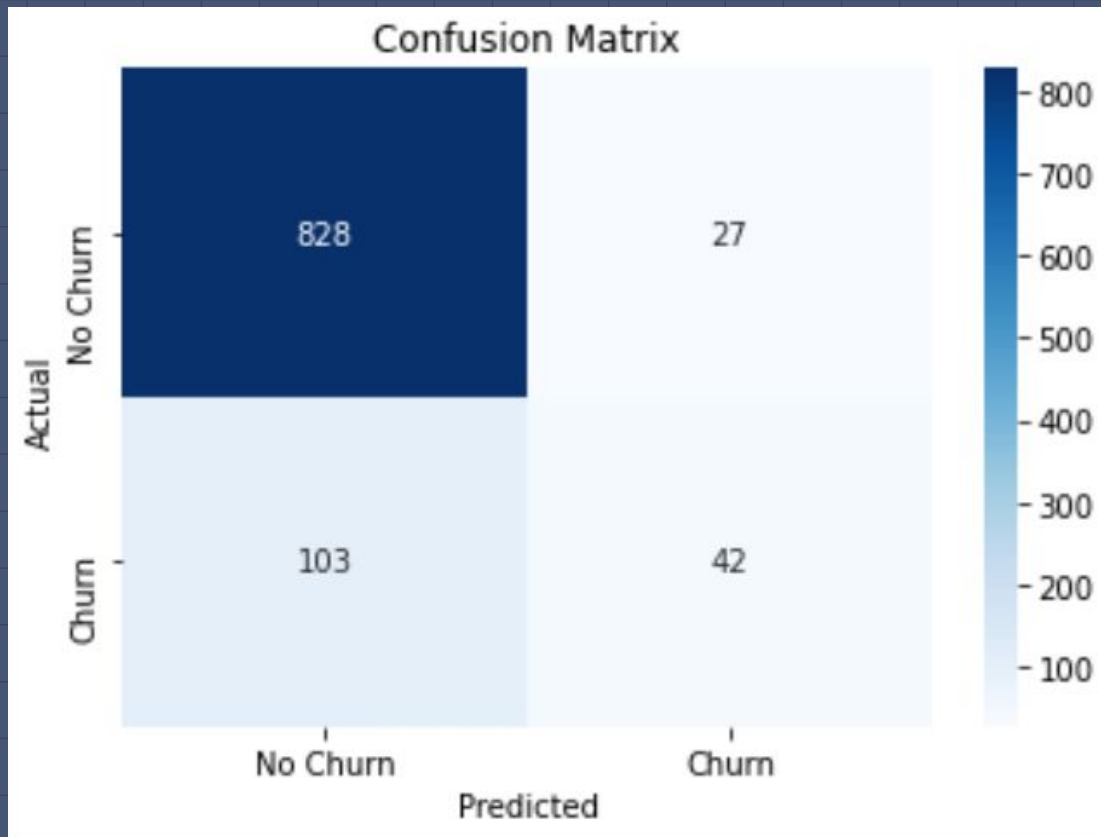- Target Variable: Churn (1 = left, 0 = stayed).
- Etc …

MODELING

Approach

- Tested two algorithms: Logistic Regression & Decision Tree

- Data split: 70% training / 30% testing

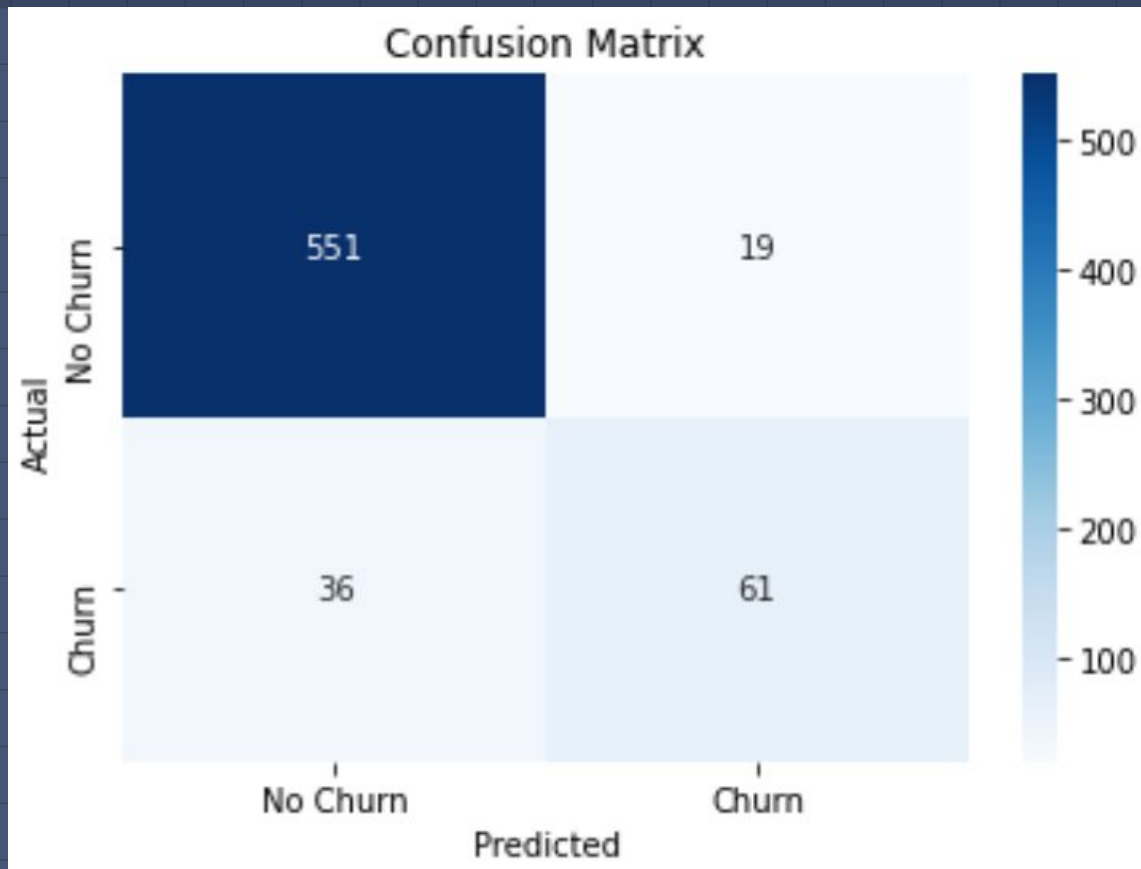- Evaluated using Accuracy, Precision, Recall, F1-Score

MODELING

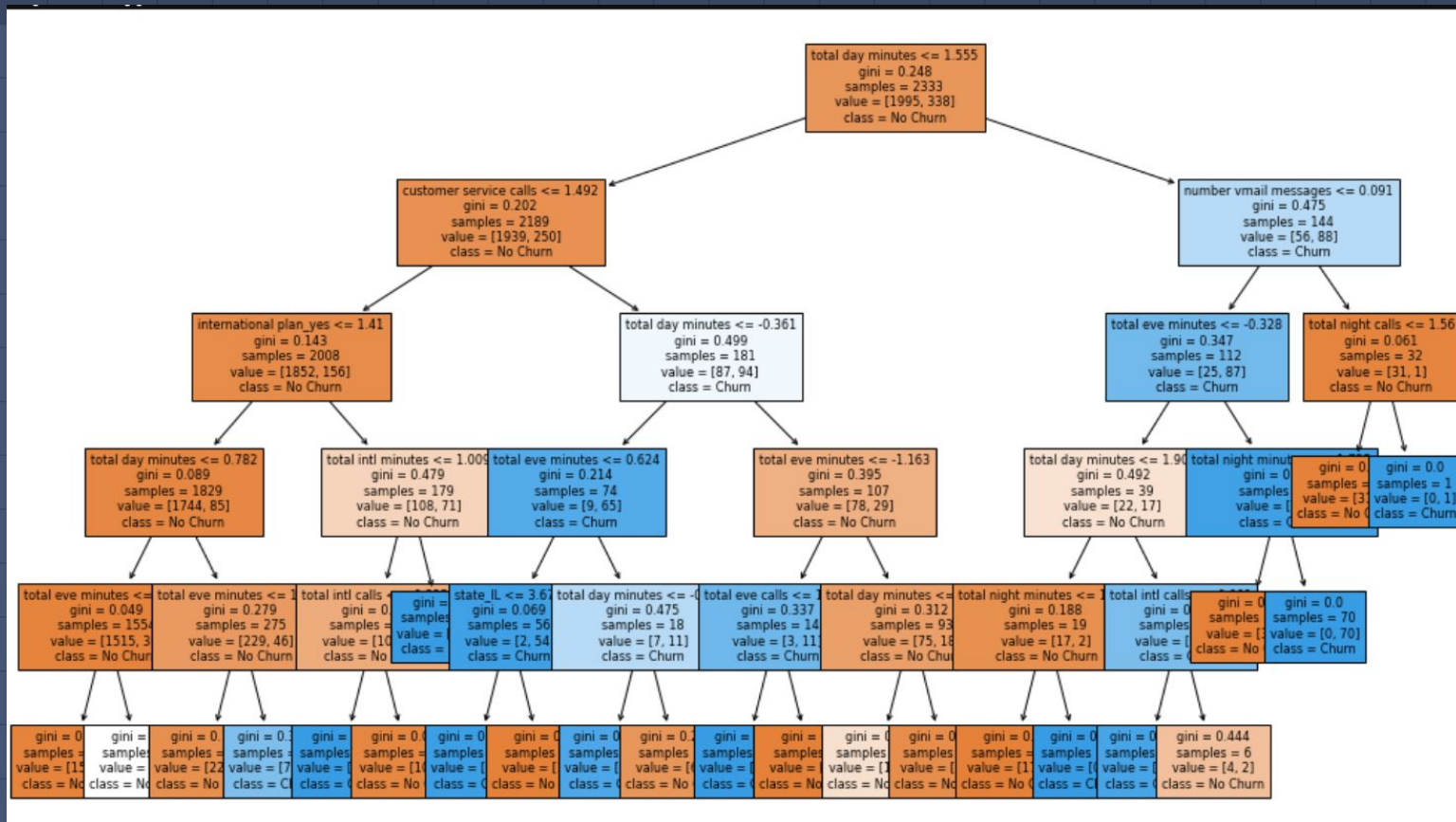| Model	Accuracy	Recall (Churn)	F1-Score
Logistic Regression	87%	0.29	0.39
Decision Tree	94%	0.65	0.76

Confusion matrix for logistic regression

Confusion matrix for decision tree algorithm

Decision tree graph

Recommendations

- Adopt Decision Tree Model
- Best performance for churn prediction (94% accuracy, recall 65%).
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Target At-Risk Customers

- Use model predictions to identify likely churners early.
- Offer loyalty programs, discounts, or personalized support.
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Improve Customer Service

- High number of service calls is a churn indicator.
- Train agents to resolve issues faster and proactively follow up.

NEXT STEP

STEP 1

STEP 2

STEP 3

- **Continuous Monitoring**

- **Retrain the model regularly with new data.**

- **Track churn trends to adapt marketing and service strategies.**

THANKS!

Any questions?

You can find me at

- www.linkedin.com/in/alberto sylveus
- albertosylveus@gmail.com