SyriaTel Customer Churn Prediction

Bridging the Future Together

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Current Trends in SyriaTel

We built a model to identify customers at risk of leaving SyriaTel so we can intervene proactively.

- Business problem
- Data & methods
- Key findings
- Recommendations & next steps

Business Problem & Stakeholder Value

The telecom industry is evolving rapidly due to **innovative technologies** that enhance connectivity and efficiency.

- What is churn and why it matters (lost revenue, acquisition cost)
- Stakeholder need: “Marketing needs to know who to target with retention offers.„

Data Overview

- Source & size: “3,333 customers, 21 fields„
- Key feature groups (account info, usage, service calls)
- Target balance: “14.5% churners, 85.5% stayers„

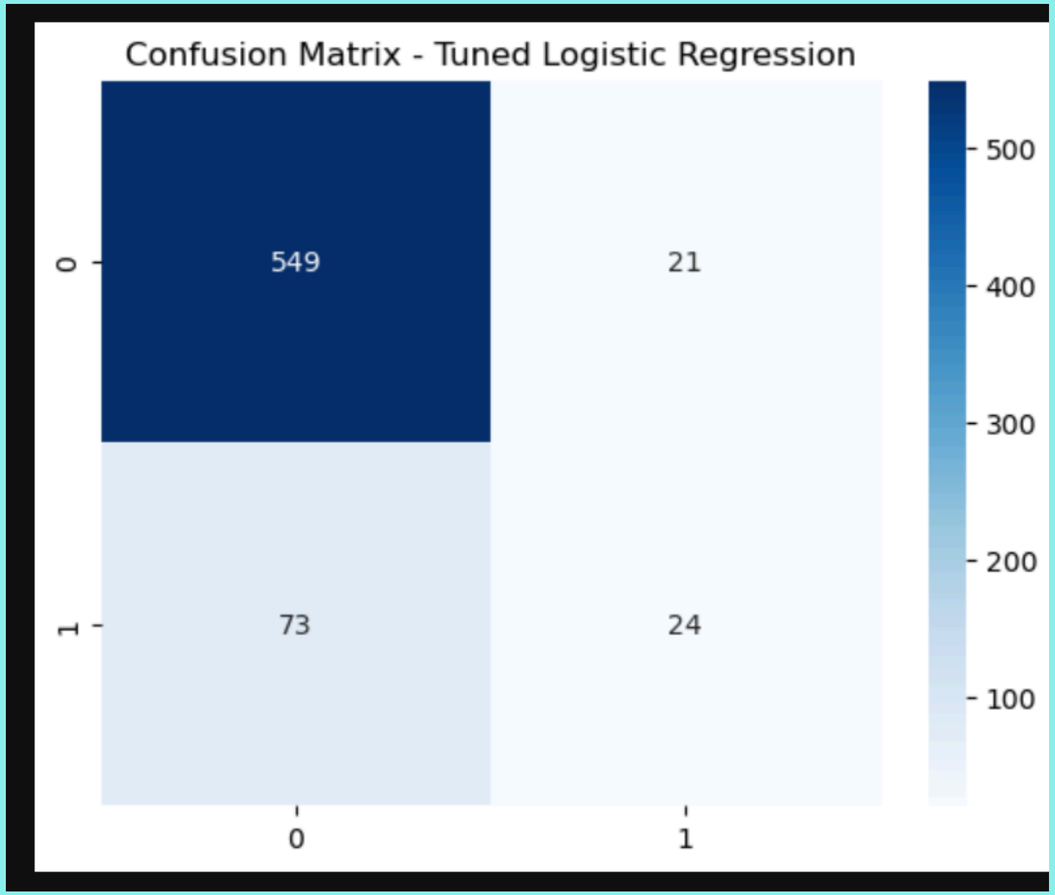
Modeling Approach

- Iterative process: baseline → tune → compare
- Models tried: Logistic Regression, Decision Tree, Random Forest
- Primary metric: recall (catch as many churners as possible)

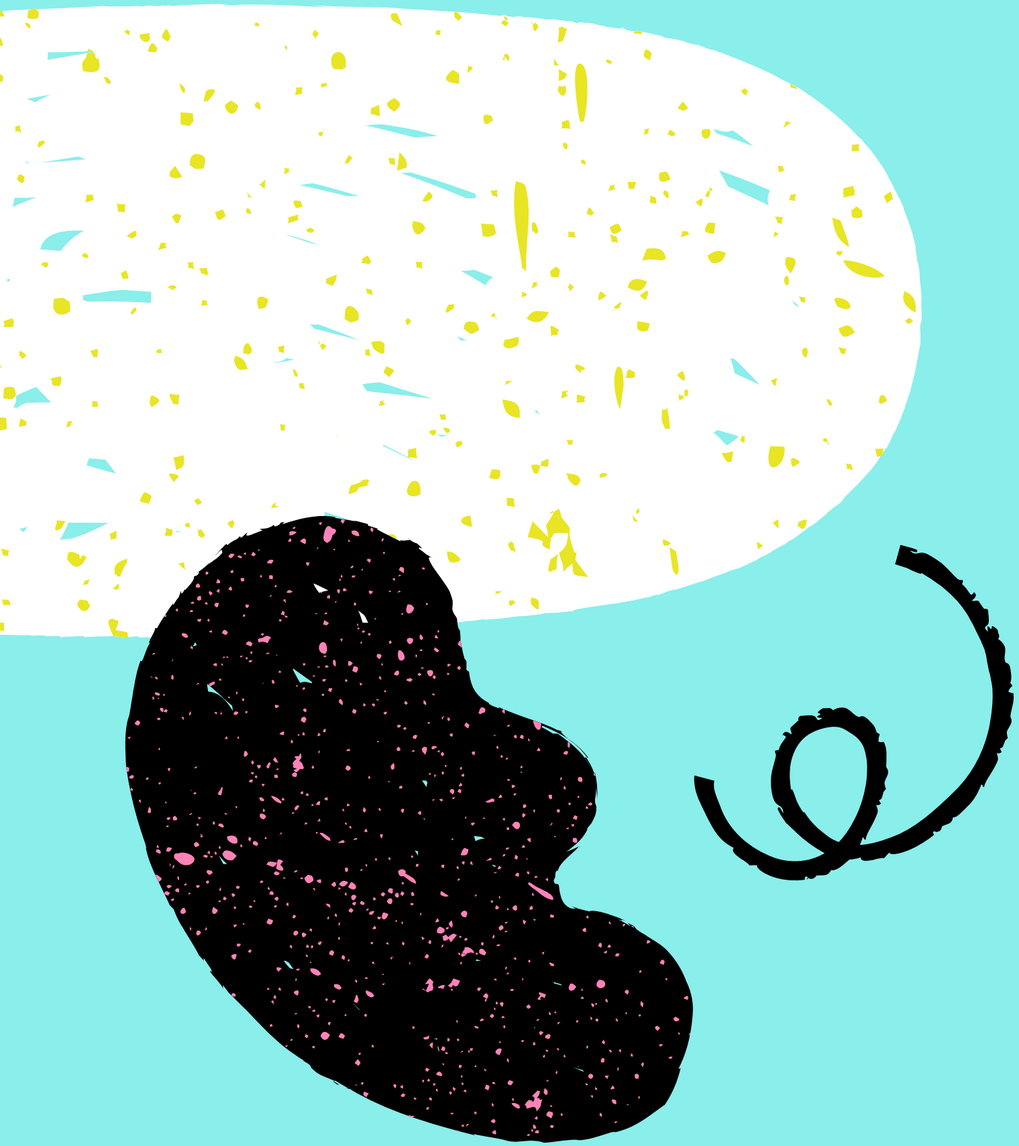
Key Results Comparison

Model	Precision	Recall	F1-score	Accuracy
Baseline LR	0.53	0.25	0.34	0.8591
Tuned LR	0.53	0.25	0.34	0.8591
Baseline Tree	0.90	0.67	0.77	0.9415
Tuned Tree	0.76	0.66	0.71	0.9205
Random Forest	1.00	0.12	0.22	0.8726

Confusion Matrix



The baseline tree offers the best balance—high precision (90%) and solid recall (67%)—resulting in the highest F1-score (0.77) and accuracy (94%). Tuning slightly lowers precision and accuracy for marginal gain in interpretability.



Business Impact & Recommendations

- Target top 10% highest-risk customers → retain ~45 customers/month„
- Revenue saved: “$1,350/month, $16,200/year„
- Next steps: A/B test offers, monitor performance, retrain quarterly

Limitations & Risks

- False negatives: 33% of churners not caught
- Data drift: Model retraining needed
- Feature gaps: Add survey or sentiment data in future

Thank You & Questions