



Who's Leaving Syria Tel? A Prediction Model

BY: VICKER IVY

MUSI CALORI

JESSICA GICHIMU

BOB LEWIS

OVERVIEW

Syria Tel is a telecommunications company that provides mobile services such as voice calls, messaging and data plans. As a provider in the competitive telecom industry, its operations rely on recurring subscription revenue from customers. **Customer churn** is the rate at which customers stop doing business with a company during a given period of time.

BUSINESS UNDERSTANDING

- ✓ **Challenge:** Retaining customers is cheaper than acquiring new ones.
- ✓ **Problem Statement:** Syria Tel is losing customers. Can we predict who is most likely to leave, and why
- ✓ **Goal:** Predict which customers are most likely to churn so the company can act before they leave.



DATA UNDERSTANDING

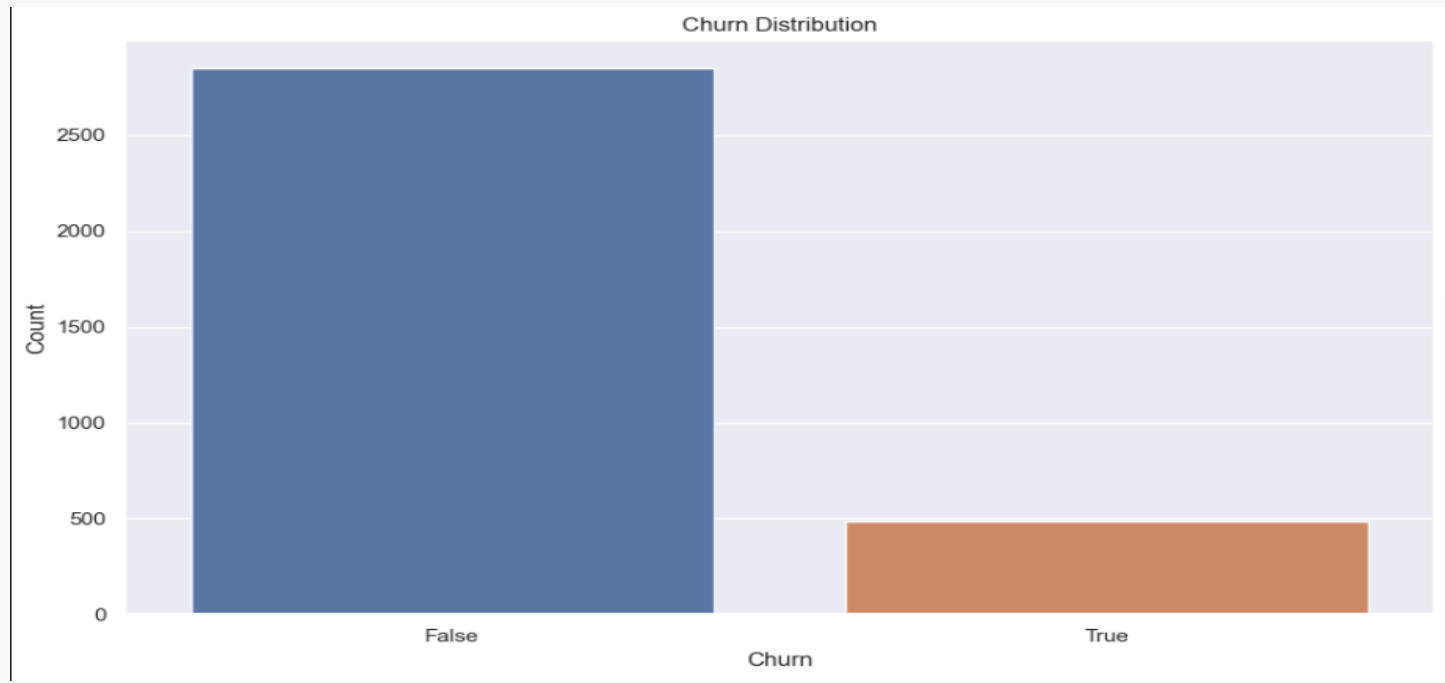
✓ **DataSource:** Syria Tel Customer Churn dataset

✓ **Target Variable:** Churn (Yes/No)

For the analysis we used ;

✓ **Exploratory Data Analysis, Modelling and Visualizations in Python.**

***Python is a high-level programming language .**



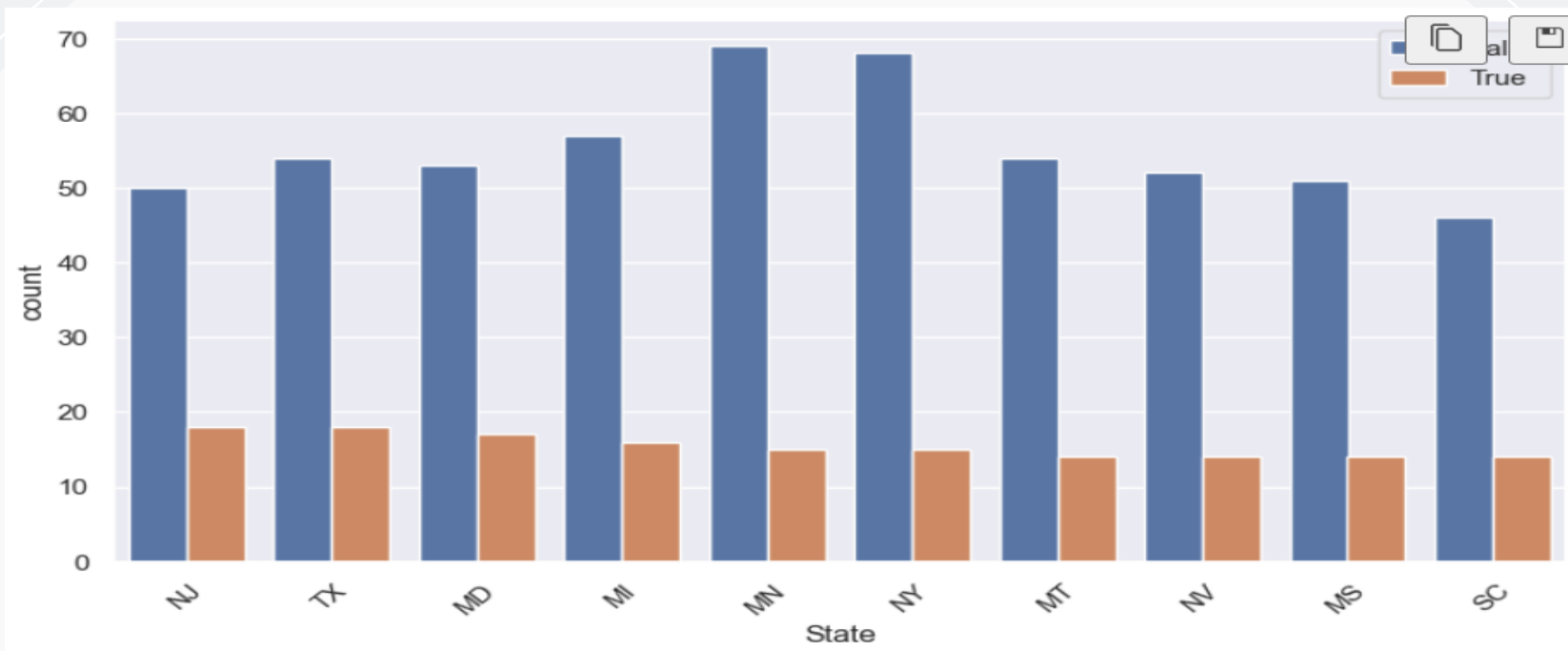
VISUALIZATION 1:Churn Distribution

- ✓ The churn distribution shows that out of 3,333 customers, 483 customer about 14.5% have churned while 2,850 customers about 85.5% have not churned.
- ✓ This highlights a real churn challenge in the Syria Tel company.



VISUALIZATION 2: Customer Service Calls vs. Churn

- ✓ Customers with more than 3 service calls are much more likely to churn indicating dissatisfaction with customer support, or unresolved issues.
- ✓ This confirms that customer support interactions are a critical driver of churn in regards to the Syria Tel customers.



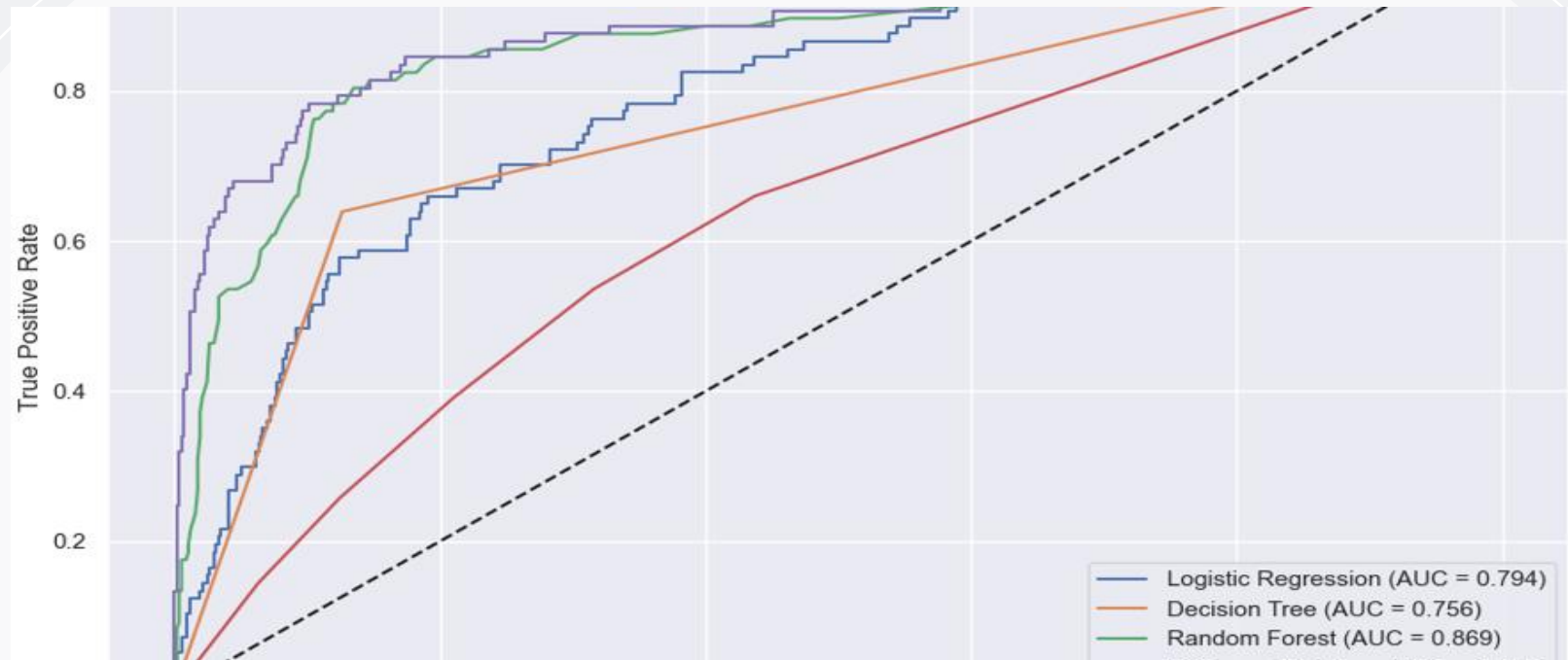
VISUALIZATION 3: State vs. Churn

- ✓ Certain states such as New York record slightly higher churn counts which could mean possible regional differences.
- ✓ While no extreme outliers are visible these findings confirm that geographic location is a relevant customer characteristic and may contribute to churn prediction.



VISUALIZATION 4:Correlation Heatmap

- ✓ Churn is strongly associated with customer service calls and day usage charges these are key predictors
- ✓ Customer Service Calls shows the strongest positive correlation with churn making it an important predictor.
- ✓ International usage also shows a modest positive link with churn while most other features exhibit minimal correlation.



VISUALIZATION 5: MODELROC CURVE

- ✓ Gradient Boosting achieved the highest AUC score of 0.912 showing the strongest ability to distinguish between churn and non churn.
- ✓ Random Forest followed closely with an AUC of 0.908 also demonstrating high predictive power.
- ✓ Gradient Boosting and Random Forest are the best models for predicting churn. They show better diagnostic ability and are the best candidates for further tuning and optimization.

RECOMMENDATIONS

- ✓ Use Gradient Boosting as the main churn prediction model. This is due to its superior performance in identifying churners.
- ✓ Use churn predictions to guide targeted retention strategies. This could include offering incentives or personalized plans to high risk customers.
- ✓ Model insights to be combined with feature analysis. This is to understand which customer characteristics drive churn and address them through policy and service improvements.
- ✓ Frequently re-train and monitor the model. The model to be continuously retrained with updated customer data to maintain predictive accuracy. In addition, it would enable the model to adapt to evolving behaviours.



An illustration of four people (three men and one woman) sitting around a table, engaged in a discussion. The man on the left is wearing a yellow shirt and a blue headband. The woman next to him is wearing a pink shirt. The man next to her is wearing a yellow shirt. The woman on the right is wearing a blue shirt. They are all looking at each other and talking. A red backpack is on the floor next to the woman on the right.

NEXT STEPS

- ✓ Deploy Model → implement the Gradient Boosting model into production. The model can also be tuned using grid search and class weighting to optimize performance.
- ✓ Customer Targeting → use predictions to identify at-risk customers and prioritize outreach.
- ✓ Retention Strategies → pilot personalized offers, these include; discounts, loyalty rewards, and improved support.
- ✓ Monitor & Update → track model performance regularly and retrain with new data.
- ✓ Business Integration → connect model outputs to CRM for real time alerts to service teams.



THANK YOU