# KEEPING CUSTOMERS HAPPY

**Customer churn analysis and prediction**

# Business Problem

Preventing customer churn is crucial for telecommunications companies like SyriaTel due to its direct impact on profitability.

High churn rates reflect customer dissatisfaction, which not only results in lost revenue but also increases the cost associated with acquiring new customers.

Increasing customer retention rates by 5% can increase profits from 25 to 95% (Bain & Company)

Getting a new customer can cost 5 to 25 times more than keeping an existing customer (Singh R, Khan IA)
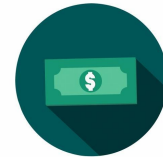
# Objectives

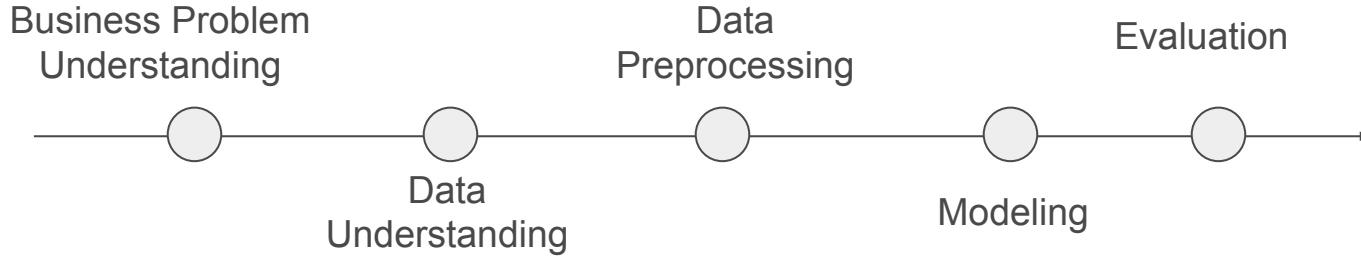**1** **Identify the key factors** that determine if a customer is likely to churn

**2** **Develop models** and determine the most effective to predict customer churn

**3** Give **customer retention recommendations** to reduce churn

# Steps

Business Problem
Understanding

Data
Preprocessing

Evaluation
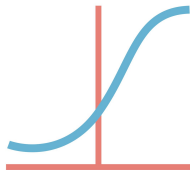
Data
Understanding

Modeling

# Data used

Name: Churn in Telecom's dataset

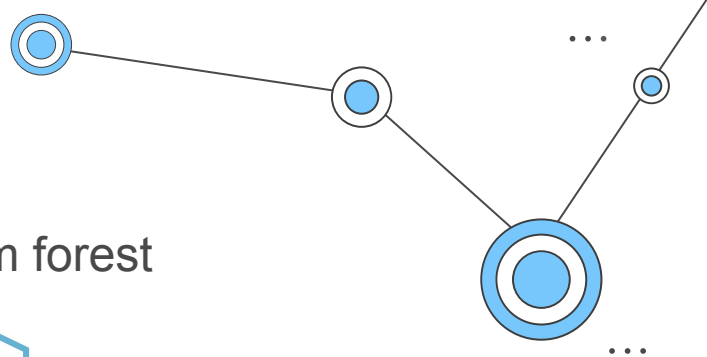Source: Kaggle

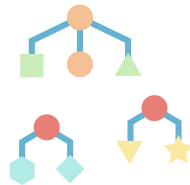Size: 21 columns, 3333 rows

# Modeling

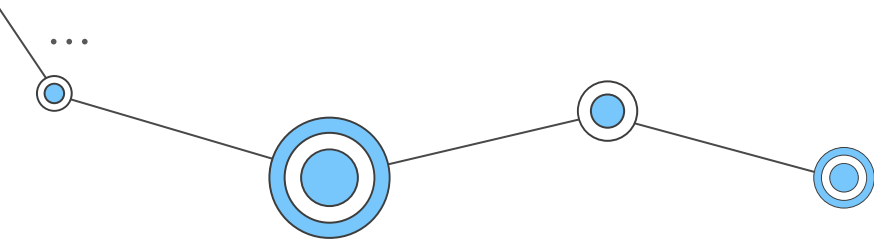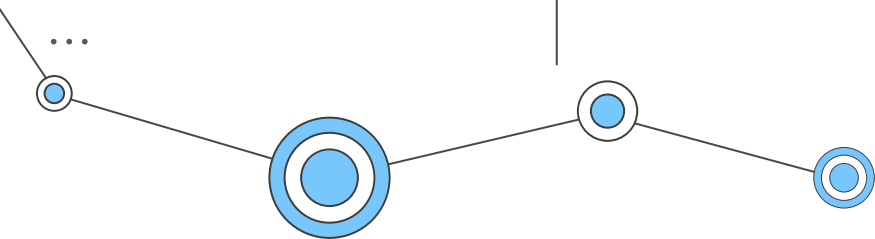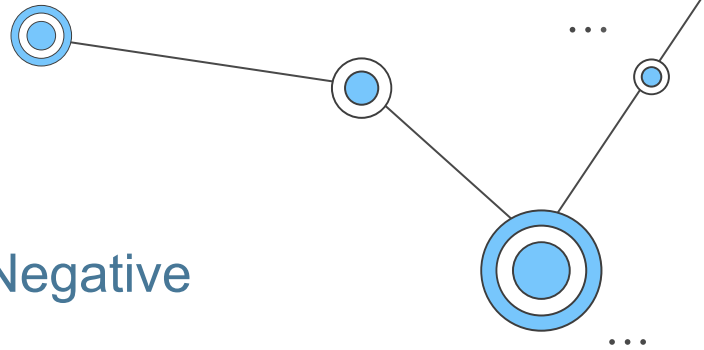Logistic regression       Decision tree       Random forest

# Evaluation Metrics

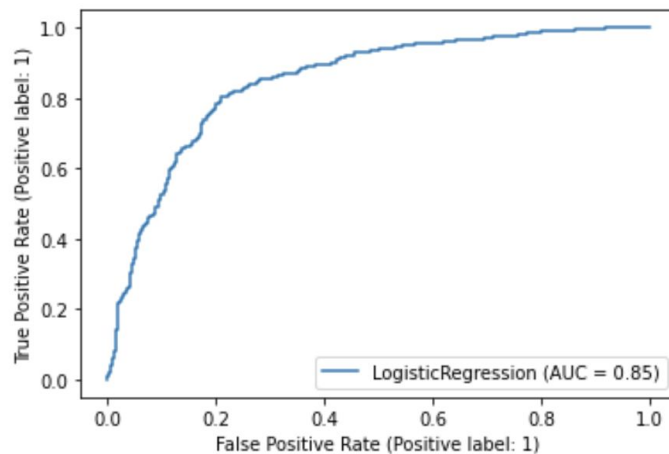**Main - Recall**     F1 Score       ROC-AUC

|  | Positive | Negative |
|---|---|---|
| **True** | predicted churn<br>actual churn | predicted no churn<br>no actual churn |
| **False** | predicted churn<br>no actual churn | predicted no churn<br>actual churn |

# Best Model – Logistic Regression

|              | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0            | 0.81      | 0.78   | 0.79     | 585     |
| 1            | 0.78      | 0.81   | 0.79     | 555     |
|              |           |        |          |         |
| accuracy     |           |        | 0.79     | 1140    |
| macro avg    | 0.79      | 0.79   | 0.79     | 1140    |
| weighted avg | 0.79      | 0.79   | 0.79     | 1140    |

# Models comparison

|  | **Recall** | **F1** | Accuracy | AUC |
|---|---|---|---|---|
| Logistic Regression | 0.81 | 0.79 | 0.79 | 0.85 |
| Decision Tree | 0.76 | 0.77 | 0.93 | 0.86 |
| Random Forest | 0.42 | 0.57 | 0.88 | 0.87 |

# Features



Feature Importance for Churn Prediction (Logistic Regression)
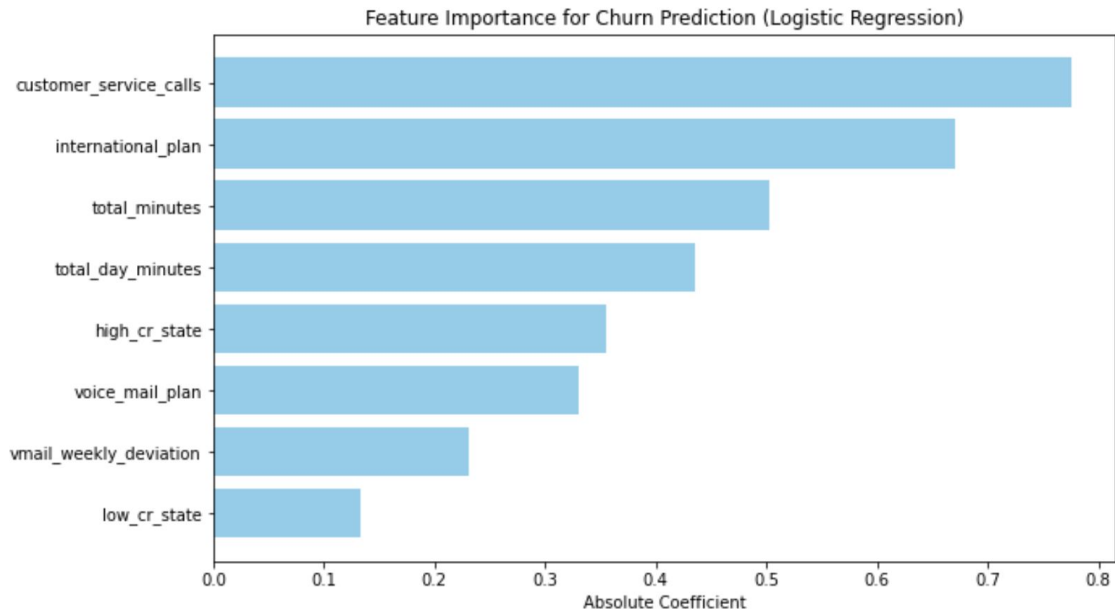
# Recommendations

**Customers who make many customer service calls are more likely to churn:**

- Develop AI enhanced **support assistant**
- developing support materials that customers can easily access: short illustrated instructions, **video materials, FAQ portal,** automated service status check.
- **Proactively survey - identify issue - solve**

**Customers with international plan are more likely to churn:**

- **Differentiate the international plan** by offering lower rates per minute or additional benefits such as free international texts or reduced rates for calls to popular destinations.
- Develop **tailored international plans** with tiered pricing based on location, eg 30 discounted minutes per month to a country of choice.

# Recommendations

**Customer with higher total charges and total day minutes charges are more likely to churn:**

- Introduce more **flexible pricing plans** - choosing or customizing their peak hours according to usage patterns.
- **Reduce day time** minutes cost
- Give **discounts for customer loyalty** to prevent customers churning to competitors with time.

**Customers from New Jersey, California, Texas and Maryland are more likely to churn:**

- **Infrastructure Improvements:** prioritize upgrading infrastructure in these states to improve service quality and customer satisfaction.
- **Market Research:** Invest into local market research. **Investigate all competitors** locally, their promotions, rate and retention strategies. Analyze how company compares to competitors and try to **enhance value proposition.**

# Next Steps Ideas

Introduce new features for analysis, including data usage and data services

Include qualitative analysis for a deeper dive into customer feedback

Introduce new features for analysis, including data usage and data services
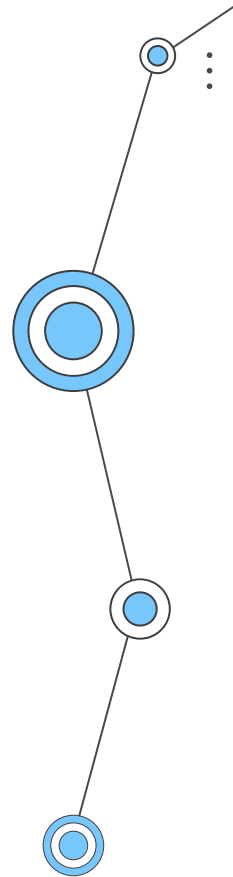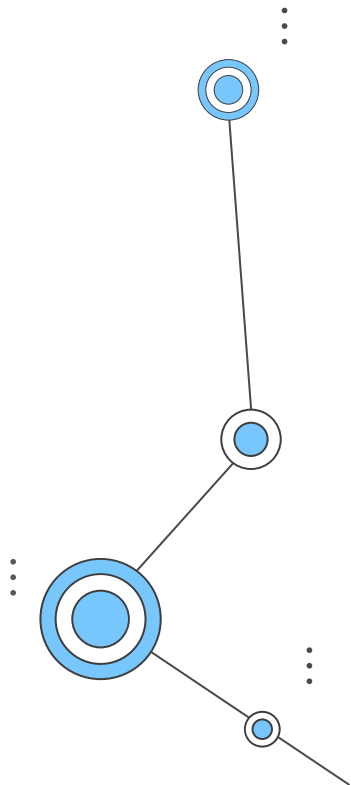
# Thank you

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