INTRODUCTION

- For telecom companies, high churn rates can spell disaster, leading to revenue loss, diminished market share, and ultimately, hindered growth.
- By examining the underlying factors driving churn and leveraging advanced analytics and predictive modeling, telecom providers can proactively address customer attrition, fostering long-term loyalty and sustainable business success.

PROBLEM STATEMENT

The problem at hand revolves around the persistent attrition of customers from telecom services, leading to revenue erosion, diminished market share, and strained customer relationships.

OBJECTIVES

1. Understanding Churn Dynamics

2. Predictive Analytics and Modeling

3. Enabling telecom providers to proactively intervene and mitigate attrition

4. Empower telecom stakeholders with the knowledge, tools, and insights needed to navigate the complexities of customer churn and drive sustainable business growth
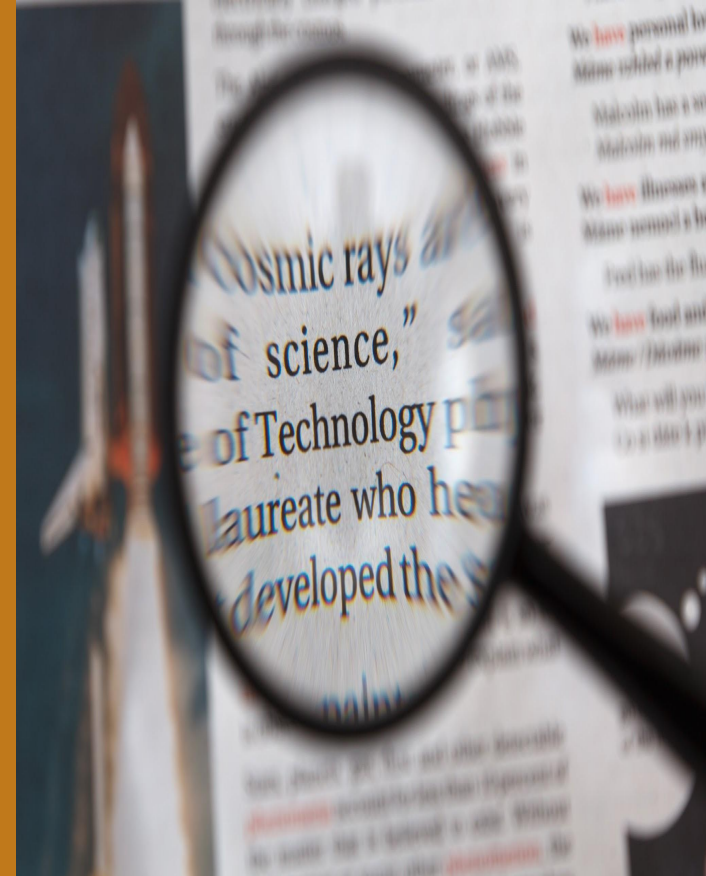
BUSINESS UNDERSTANDING

- The telecommunications industry is characterized by intense competition, rapid technological advancements, and shifting consumer expectations. Telecom companies operate in a dynamic marketplace where customer loyalty is a prized asset. Moreover, the cost of acquiring new customers often exceeds that of retaining existing ones, underscoring the imperative of prioritizing customer retention initiatives.

- In the complex ecosystem of telecom customer churn, success hinges on a multifaceted understanding of industry dynamics, customer behavior, and competitive forces. By embracing data-driven insights and strategic foresight, telecom providers can navigate the challenges of churn management, cultivate customer loyalty, and position themselves for sustained success in an ever-evolving marketplace.

DATA ANALYSIS PROCESS


Distribution of Voice mail Plan
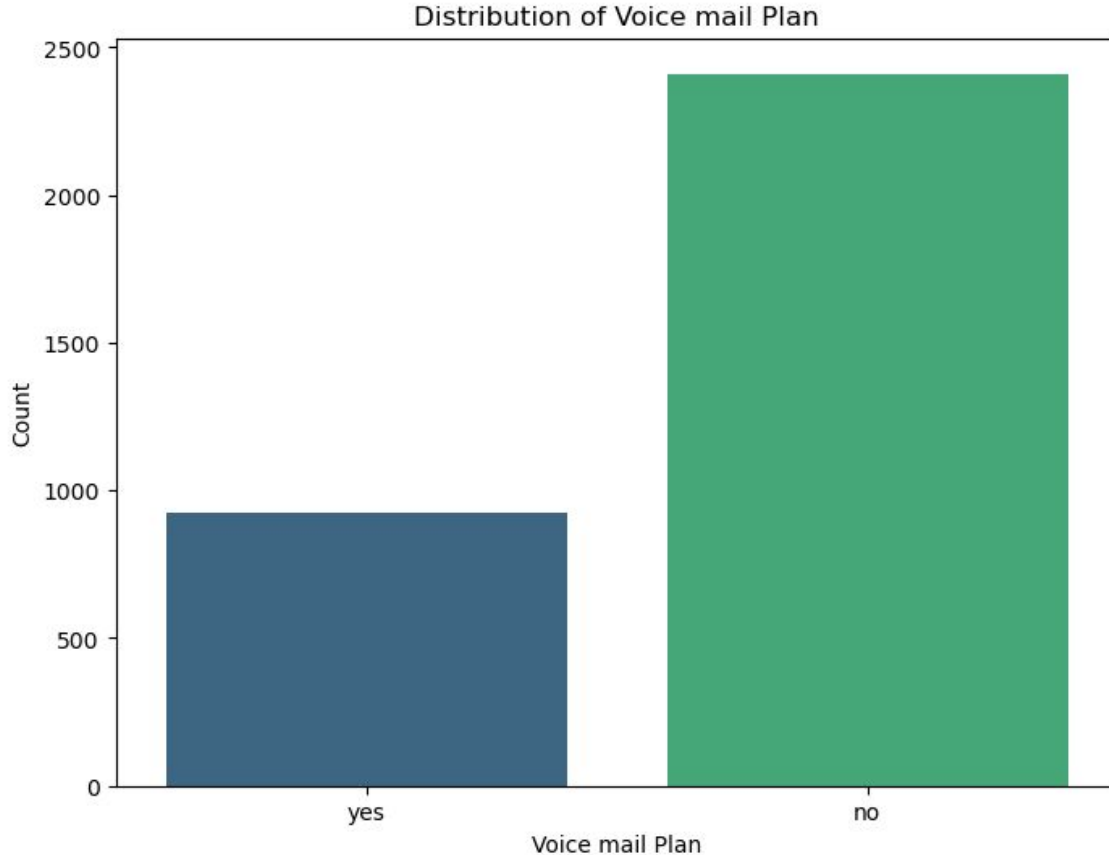
Voicemail functionality provides convenience and flexibility for users to receive and manage messages, which can contribute to higher satisfaction levels and loyalty.

A huge percentage of customers dont have a voice mail plan hence a high rate of churn on the customers

415 is more volatile or competitive compared to other areas, leading to higher churn rates as customers switch providers and a great no of customer based in that area.

Demographic factors such as population density, income levels, and lifestyle preferences can influence churn rates within an area code
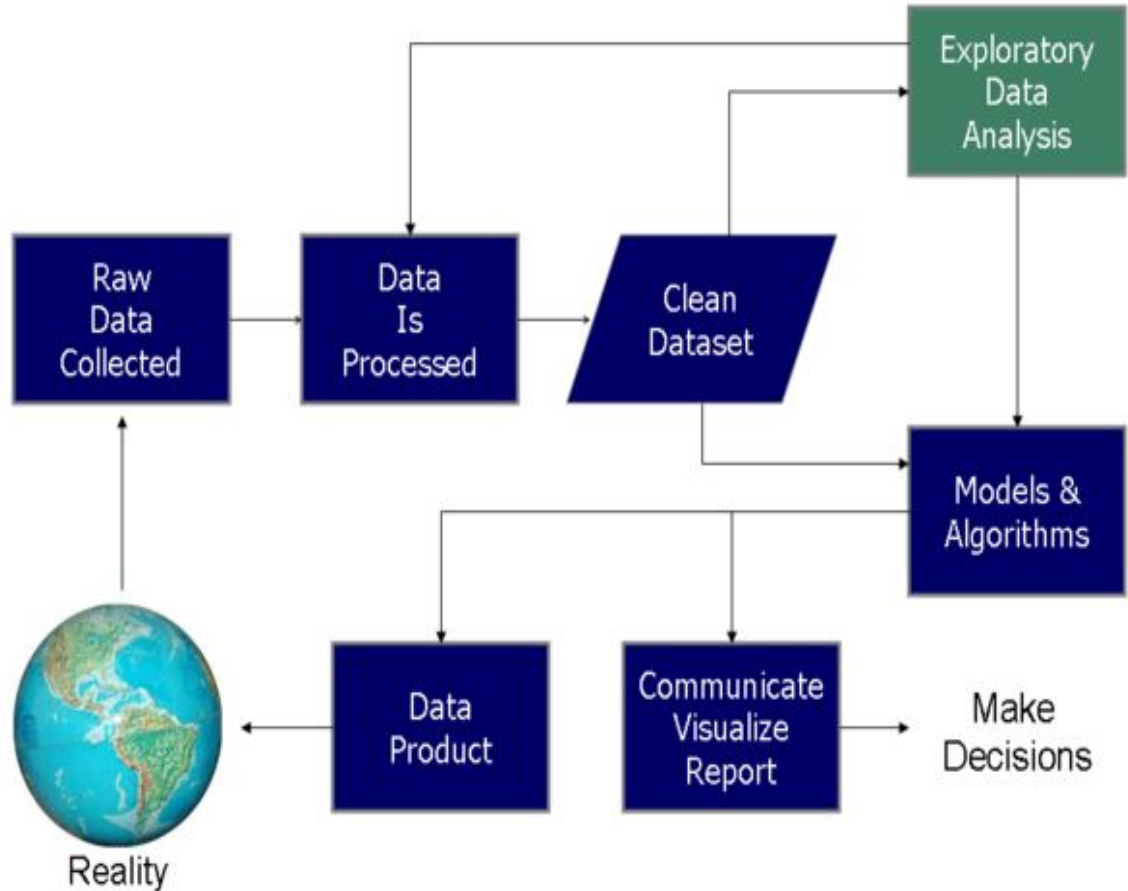

Churn Distribution by Area Code
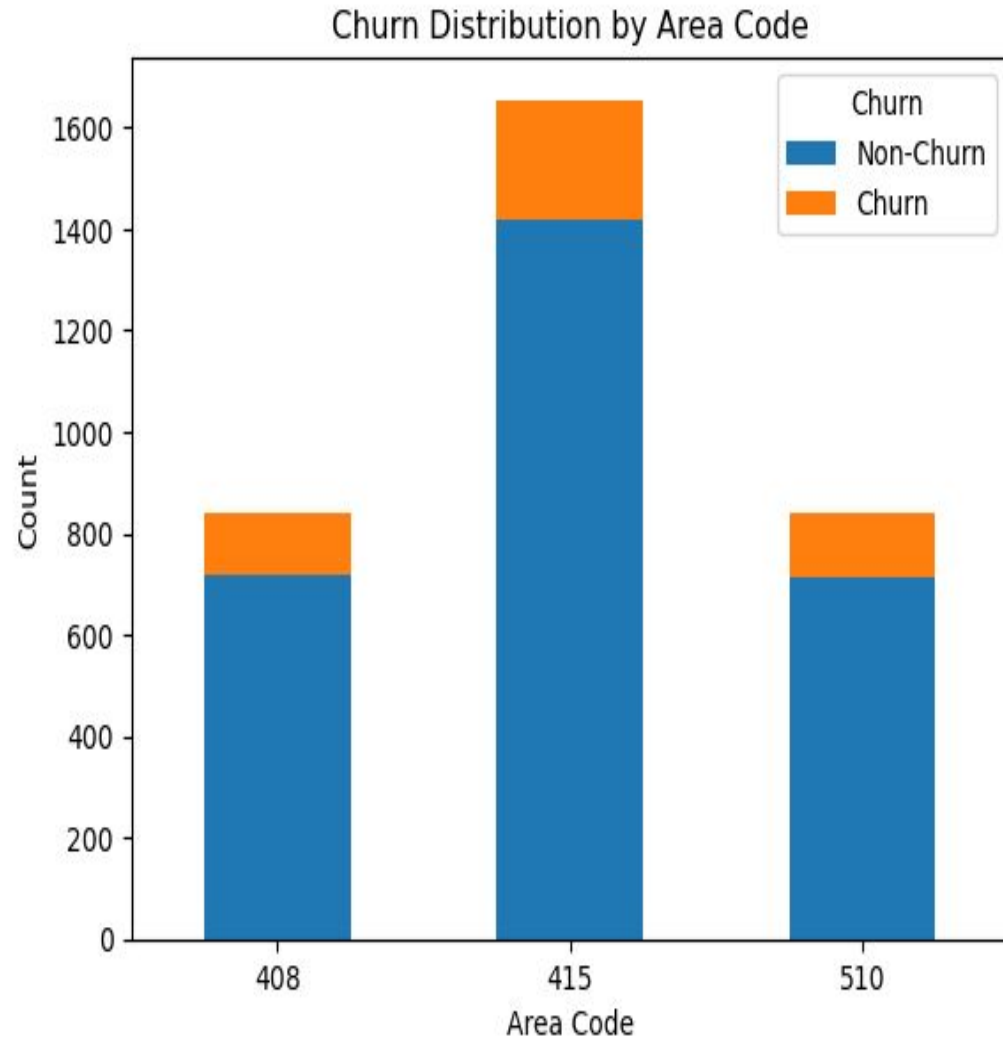
MODELING

Models used

1. Logistic Regression

2. Decision Trees

3. Random Forest

4. XG BOOST

Data Science Process

Exploratory Data Analysis

Raw Data Collected → Data Is Processed → Clean Dataset → Models & Algorithms

Reality → Data Product → Communicate Visualize Report → Make Decisions
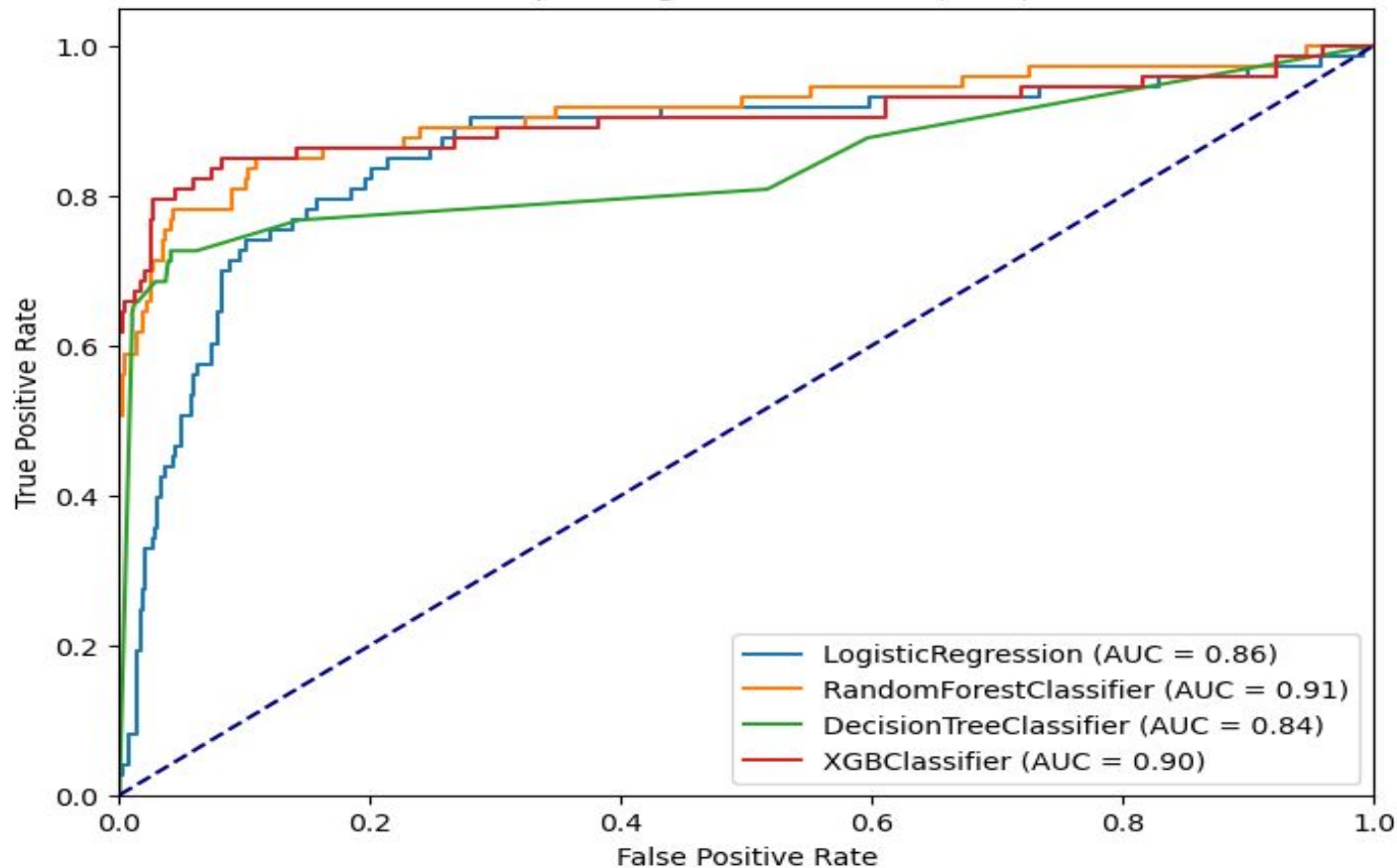
EVALUATION MODEL

Receiver Operating Characteristic (ROC) Curve

Area under the curve evaluates the model's ability to discriminate between classes but focuses on the precision-recall trade-off rather than true positive rate and false positive rate
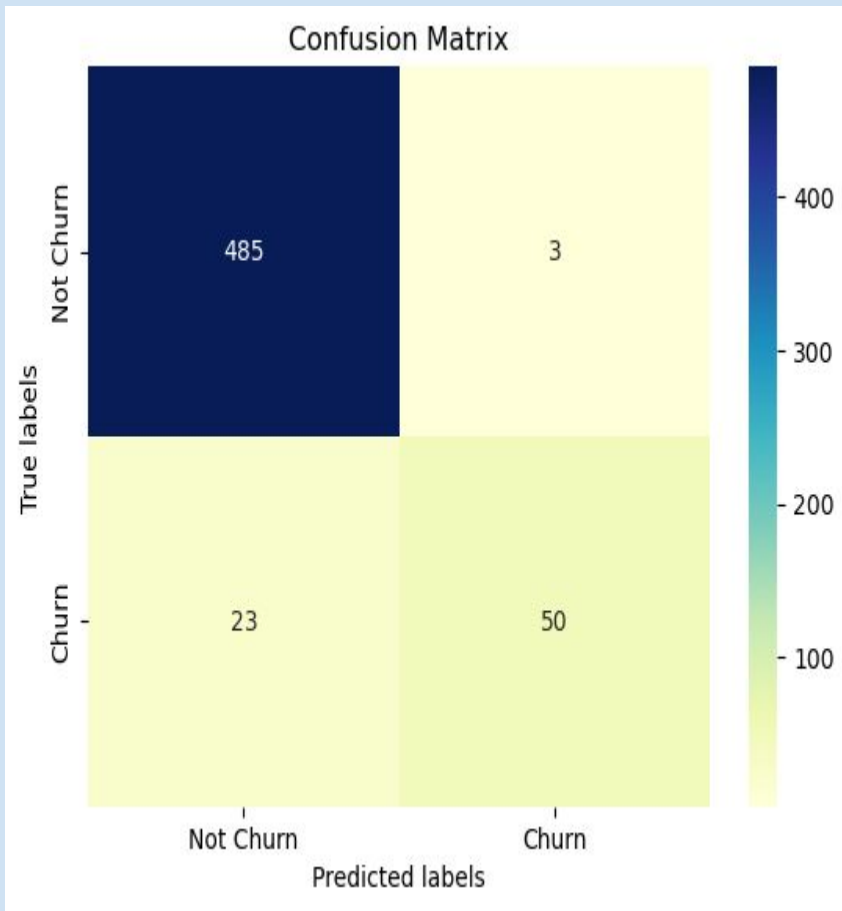
0.91%

Random forest Classifier

This indicates that it has excellent discriminatory power in distinguishing between the positive and negative classes across different threshold settings.

APPROVED

MODEL RESULTS TUNING

Confusion Matrix

- The accuracy has increased, and more importantly, the recall for the minority class (True) has improved significantly, resulting in better detection of true positives.The high overall accuracy and precision indicate that the model is highly effective in correctly classifying the majority of instances. The confusion matrix and classification report highlight that the model performs very well

CONCLUSION

- Through advanced analytics and targeted strategies, providers can anticipate and address churn, enhancing customer satisfaction and loyalty.
- By leveraging insights, telecom companies can tailor retention efforts, adapt to market shifts, and foster lasting customer relationships.
- By prioritizing customer-centric approaches and fostering innovation, providers can navigate challenges and drive sustainable business success.

RECOMMENDATION

.Implement personalized promotional offers and discounts tailored to individual customers, especially those identified as at-risk of churning based on the model predictions.

.Use insights from the model to send targeted ads and promotions to customers who are at risk of leaving, based on their behavior and preferences.

Regularly reassess the predictive model's performance and refine it as new data becomes available to ensure its accuracy and relevance over time