**Revolutionizing Customer Retention in Telecom: A Data-Driven Strategy**

**Date:** 2023-06-20  
**Author Profile:** True  
**Layout:** Single  
**Classes:** Wide  
**Categories:** Data Analysis  
**Tags:** Customer Churn, Data Science, Predictive Modeling, Telecom

**Excerpt:** "Discover how advanced data science techniques and strategic accounting insights combine to tackle telecom churn, enhancing customer loyalty and business sustainability."

![Customer Churn](/assets/images/customer\_churn/download (1).jfif)

**Introduction**

In the rapidly evolving telecom sector, understanding and mitigating customer churn is crucial. Utilizing Python and my accounting expertise, I embarked on a project to unravel churn patterns and develop effective strategies for customer retention and business growth.

**Project Overview**

This project represents a blend of in-depth statistical analysis and strategic business insights. Armed with the Orange Telecom’s Churn Dataset, I set out to construct a predictive model that accurately forecasts customer churn, which is vital in a market characterized by frequent customer shifts.

**Data Exploration and Preprocessing**

The initial stages were centered around refining the data:

* **Data Integrity and Transformation**: I addressed missing or inconsistent data and converted categorical data into a numerical format, ensuring a robust base for analysis.
* **Outlier Management**: Implementing robust scaling minimized the influence of outliers on the model predictions.

**Exploratory Data Analysis (EDA)**

I delved into various aspects of the data to uncover patterns:

* **Total Day Minutes vs. Churn**: Higher total day minutes were linked to increased churn, suggesting customer dissatisfaction.
* **International Plan and Churn**: Customers with international plans showed a higher churn rate, indicating possible issues with these services.
* **Customer Service Calls and Churn**: Frequent customer service interactions typically indicated unresolved issues, leading to greater churn risk.

**Addressing Data Imbalance**

* **Stratified K-Fold Cross-Validation and Balancing Techniques**: These methods ensured that the data used for training was representative and balanced, enhancing the model’s accuracy and generalizability.

**Predictive Modeling**

* **Model Selection and Feature Engineering**: I explored various models and created new features based on EDA insights to enhance the predictive accuracy.
* **Hyperparameter Tuning and Validation**: Fine-tuning the model through grid search and a thorough validation strategy ensured consistent performance.

**Results and Reflections**

The model demonstrated high proficiency in identifying potential churners, with a strong balance between precision and recall. The project not only enhanced my skills in practical data science application but also provided invaluable experience in handling complex data challenges.

**Conclusion**

This project underscores the significant role of data science in addressing practical business challenges such as customer churn. The insights gleaned are actionable, offering telecom companies strategies to enhance customer retention and highlighting the value of data-driven decision-making.

**Discover the Full Story**

Dive into the comprehensive analysis [here](https://chat.openai.com/customer-churn/).

**Explore the Technical Journey**

For a detailed breakdown, including code and visuals, view the project notebook on [NBViewer](https://nbviewer.org/github/timothyrobbinscpa/new_customer_churn/blob/master/src/customer_churn.ipynb).

**Engage with My Journey**

I welcome feedback and discussions on this project and my journey into data science. Connect with me on [LinkedIn](https://chat.openai.com/g/g-HMNcP6w7d-data-analyst/c/87f0a4b4-7f57-43f1-87bf-4b8f754a0eef) to exchange ideas and explore potential collaborations.