


# TELECOM CHURN CASE STUDY



UNDERSTANDING AND ADDRESSING CUSTOMER  
ATTRITION

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# SUMMARY



- ❖ The telecommunications industry is highly competitive, with companies constantly striving to retain customers amidst fierce competition.
- ❖ Churn, or customer attrition, poses a significant challenge for telecom companies, impacting revenue and profitability.
- ❖ This case study delves into the analysis of churn data to identify key factors influencing customer attrition and proposes strategies to mitigate churn and enhance customer retention.
- ❖ The case study involves analyzing a dataset containing a wide range of features related to customer demographics, usage patterns, billing information, and customer service interactions.
- ❖ The dataset includes information on thousands of customers over a specific period.



# FINDINGS

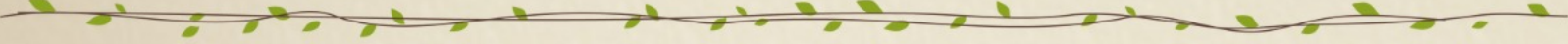


- ✿ Data Overview: The dataset included a wide range of features (226 in total), covering user demographics, service usage, and billing information among others, for nearly 100,000 customers.
- ✿ Missing Values and Data Types: Significant missing values in some columns were addressed, and the data types were appropriately formatted for analytical purposes.
- ✿ Churn Distribution: The initial analysis highlighted that churn rates needed direct attention, as seen in the distribution visualization where the imbalance between churned and retained customers was evident.
- ✿ Feature Importance: The Gradient Boosting model, which provided the best performance, indicated key predictors of churn such as `std_ic_mou_8`, `roam_ic_mou_8`, and `total_rech_amt_8`. These features represent inbound standard minutes of usage, roaming incoming minutes of usage, and total recharge amount in August, respectively.
- ✿ Model Performance: Among the models tested, Gradient Boosting showed the highest ROC-AUC of 0.8036, signifying a strong ability to differentiate between churn and non-churn customers. The model's accuracy was at 94.26%, with precision and recall optimized to capture the churn effectively.



# RECOMMENDATIONS

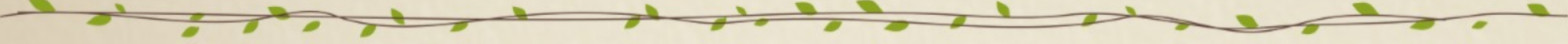


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- ✿ Focus on Critical Predictors: Enhance service quality around the key predictors like standard and roaming call qualities and recharge incentives, particularly in the critical months identified by the model.
  - ✿ Proactive Engagement Strategies: Develop targeted customer engagement and retention programs based on model insights. For example, offer special roaming packages to users identified at higher risk of churn due to increased roaming usage.
  - ✿ Model Deployment for Real-time Prediction: Implement the Gradient Boosting model into the customer service workflows to flag high-risk customers in real-time, allowing for immediate remedial actions.
  - ✿ Refinement of Predictive Features: Continuously monitor and update the feature set used for predictions to adapt to changing customer behavior patterns and new service trends.  
Business Implications
  - ✿ Operational Efficiency: Using predictive analytics to guide customer interactions can reduce operational costs by prioritizing resources towards high-risk customers and potentially reducing the number of service interventions needed.
  - ✿ Enhanced Customer Insight: Detailed analysis of churn predictors helps in understanding customer needs better, thereby facilitating more personalized and effective marketing strategies.
  - ✿ Increased Customer Lifetime Value: By reducing churn and improving customer retention strategies, the overall lifetime value of the customer base increases, positively impacting the bottom line.  
Data-Driven Decision Making: Establishing a culture of data-driven decision making within the company can lead to improved operational strategies across all departments influenced by customer behavior trends.



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