



# Title:-TELECOM CUSTOMER CHURN PREDICTION

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**SUBTITLE:** ANALYZING HIGH-VALUE CUSTOMER  
BEHAVIOR TO PREDICT AND MANAGE CHURN

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# Business Objective

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- **Goal:** Predict churn among high-value customers in the last month (September) based on the previous three months of data.
- **Business Impact:** Proactively identify at-risk customers to reduce churn by offering retention incentives.

# Understanding Customer Lifecycle Phases

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- **Customer Phases:**
  - **Good Phase:** First two months - customer satisfied.
  - **Action Phase:** Third month - potential signs of dissatisfaction.
  - **Churn Phase:** Fourth month - no activity (defines churn).
- **Churn Tagging:** Defined customers as churned if no call or internet usage in the fourth month.

# Data Preparation

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- **Dataset:** Customer-level data for four months (June–September).
- **Key Steps:**
  - Filtered high-value customers (above 70th percentile recharge).
  - Tagged churners.
  - Removed churn-phase columns (i.e., all columns ending in "\_9").

# Exploratory Data Analysis (EDA) Insights

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- **Churn Rate Among High-Value Customers:**
- Visualized churn rate: ~8.6% of high-value customers churned.
- **Average Recharge Amount vs. Churn:**
- Customers with lower average recharges in the good phase show a higher churn rate.

# Feature Engineering and Model Selection

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- **Feature Engineering:** Created variables such as `avg_rech_amt_6_7` (average recharge in good phase) to capture behavior patterns.
- **Model Choice:**
  - Used logistic regression for interpretability and to handle class imbalance.
  - Model evaluation with accuracy, F1-score, and AUC-ROC for churn prediction.

# Model Results and Key Predictors

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- Evaluation:**

- Confusion Matrix: Displays predictions vs. actuals.
- AUC-ROC: Indicates model reliability.

- Important Predictors:**

- Recharge Amount:** Lower recharge correlated with churn.
- Call Volume:** Higher call drop-off in the action phase increased churn risk

# Recommendations

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- Targeted Retention Efforts:**

- Identify customers with declining recharge behavior for proactive offers.
- Monitor call and internet usage drop-offs and intervene with support.

- Business Actions:**

- Offer loyalty rewards and exclusive promotions in the action phase.
- Address complaints to improve customer experience proactively.



# Conclusion

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- **Summary:**
  - Built a predictive model for high-value customer churn.
  - Derived actionable insights to help reduce churn.
- **Next Steps:** Implement a pilot intervention plan and evaluate retention improvement over subsequent months.