

# Introduction

- The telecom industry faces high customer churn rates (15-25% annually), increasing the cost of customer acquisition.
- Reducing churn, especially among high-value customers, is crucial to minimizing revenue loss.
- Objective: Predict churn among high-value customers and identify key predictors.

# Business Problem Overview

- Retaining highly profitable customers is the primary business goal.
- Customer churn prediction helps reduce revenue leakage and allows targeted retention strategies.
- Churn Definition: Usage-based churn (no calls or internet usage during the churn month).
- Focus: Indian and Southeast Asian markets with a high prevalence of prepaid models.

# Data Understanding and Preprocessing

- Dataset: Customer-level data for four months (June, July, August, September).
- Key Steps:
  - Data cleaning and handling missing values.
  - Identifying high-value customers based on the 70th percentile of average recharge amounts.
  - Tagging churners based on zero usage in the churn phase (September).
- Final Data: 30,011 high-value customers with labeled churn data.

# Exploratory Data Analysis (EDA)

- Analyzed churn distribution and identified patterns related to recharge amounts and data usage.
- Key Observations:
  - Churn rate among high-value customers is low but significant.
  - Usage decline trends observed in action months (August) before churn.

# Model Building and Evaluation

- Models Used:
  - Logistic Regression (to identify key features)
  - Random Forest Classifier (for robust prediction)
- Handling Class Imbalance:
  - Applied SMOTE to balance churn and non-churn cases.
- Evaluation Metrics:
  - Accuracy, Precision, Recall, F1-score
  - ROC-AUC Curve to assess model performance
- Key Predictors Identified:
  - Average recharge amount
  - Total outgoing and incoming minutes of usage
  - Data usage (2G and 3G)

# Key Insights and Recommendations

- High-value customers with a steep decline in data usage or outgoing calls are more likely to churn.
- Recommendation: Implement proactive customer engagement strategies for users showing reduced activity.
- Offer customized retention plans for high-value customers showing early signs of churn.
- Monitor usage patterns continuously to identify churn risks early.

*Thank You*