CAPSTONE PROJECT

TELECOM CHURN PREDICTION

Project Summary

Objective: Predict customer churn in the telecom industry.

Key Goals:

- Identify high-value customers at risk of churning.

- Provide actionable insights for customer retention.

Approach:

- Data preprocessing and feature engineering.

- Model training and evaluation.

- Business recommendations based on key insights.

DATA OVERVIEW

Dataset Contains:

- Customer recharge history

- Voice and data usage

- Customer engagement behaviour

- Churn indicator for prediction

Preprocessing Steps:

- Converted data to appropriate formats

- Removed missing values and redundant features

- Applied feature engineering

IDENTIFYING HIGH VALUE CUSTOMERS

- Customers with average recharge amounts in the top 30% are high value customers.

- High-value customers contribute significantly to revenue.

- Retaining them is crucial for profitability.

CHURN

Churn Criteria:

- No calls (incoming or outgoing) AND

- No mobile internet usage in the churn phase.

Business Impact:

- Churn leads to revenue loss.

- Identifying churn drivers helps in strategic retention efforts.

MODEL DEVELOPMENT

Approach:

1. **Logistic Regression** – For interpretability.

2. **Random Forest Classifier** – For better accuracy.

Handling Class Imbalance:

- Used **SMOTE (Synthetic Minority Over-sampling Technique)** to balance churn vs. non-churn data.

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MODEL EVALUATION

Metrics Used:

- **ROC-AUC Score** – Measures model performance.

- **Confusion Matrix** – Identifies correct and incorrect predictions.

- **Feature Importance Analysis** – Determines key churn indicators.

FEATURE IMPORTANT ANALYSIS

Top Predictors of Churn:

1. Decline in recharge amounts.

2. Decrease in data usage.

3. Reduction in voice call minutes.

BUSINESS RECOMMENDATIONS

❏ Provide special discounts to customers showing declining recharge amounts.

❏ Offer customized data and voice plans based on usage trends.

❏ Identify customers with reduced activity and reach out proactively.

❏ Encourage long-term engagement with exclusive benefits.

BUSINESS IMPACT

- **Increased Customer Retention** → Lower churn rates.

- **Higher Revenue** → Retaining high-value customers boosts earnings.

- **Improved Customer Satisfaction** → Personalized offerings enhance loyalty.

THANK YOU !