# **TELECOM CHURN CASE STUDY**

This repository contains the files and results for the following Problem statement

1.In the telecom industry, customers are able to choose from multiple service providers and actively switch from one operator to another. In this highly competitive market, the telecommunications industry experiences an average of 15-25% annual churn rate. Given the fact that it costs 5-10 times more to acquire a new customer than to retain an existing one, customer retention has now become even more important than customer acquisition.

2.For many incumbent operators, retaining high profitable customers is the number one business goal.

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4.To reduce customer churn, telecom companies need to predict which customers are at high risk of churn.

Objective :

To identify the data set provided to us and observe the patterns on the customer churning, where we also need to advice to the respective business on the churn probability and how to reduce it further so that the business growth is stable to north.

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## \*\*Repository Structure\*\*

### 1. \*\*Notebook\*\*

- Telcom case study final .ipynb

- Contains all the code, data processing, exploratory data analysis (EDA), clustering, and machine learning models.

- Steps included:

- Data cleaning and preparation.

- Exploratory data analysis with visualizations.

- Future Scaling

- Binary classification using logistic regression

- Model evaluation and insights

### 2. \*\*Presentation\*\*

- TELECOM CHURN CASE STUDY.pptx

- A concise, visually appealing summary of the project.

- Includes:

- Business context and problem statement.

- Approach and methodologies used.

- Key results, insights, and recommendations.

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## \*\*How to Use This Repository\*\*

1. \*\*View the Presentation\*\*:

- Download and open `TELECOM CHURN CASE STUDY.pptx` for a summary of the assignment.

2. \*\*Run the Notebook\*\*:

- Open ` Telcom case study final .ipynb ` in Jupyter Notebook or Google Colab.

- Follow the step-by-step analysis and modeling process.

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## \*\*Key Insights\*\*

1. \*\*Customer Segmentation\*\*:

- The Average Revenue Per User (ARPU) for churned customers predominantly falls within the range of 0 to 900

- Minutes of usage(MOU) of the churn customers is mostly populated on the 0 to 2500 range. Higher the MOU, lesser the churn probability.

- We observe that for churned customers, the Minutes of Usage (MOU) for the month of August are predominantly concentrated on the lower end compared to non-churned customers

2. \*\*Model Performance\*\*:

- \*\*Logistic Regression\*\*: Simpler, interpretable, with an AUC of 0.9

Recommendations can be read from the PPT file attached as part of the project

* **Monitoring Usage Drop**: Regular monitoring of drops in usage is a strong predictor of churn and should be prioritized.
* **High Roaming Service Usage**: Churned customers exhibit high usage of roaming services, indicating that network quality and service issues in roaming may contribute to churn.
* **Competitive Roaming Tariffs**: Network operators should closely monitor and enhance competitive roaming tariffs while improving both network quality and service delivery.
* **Competitor Campaign Monitoring**: In the face of intense competition among networks, it is essential to monitor competitors' marketing campaigns actively.
* **Targeted Marketing Campaigns**: The marketing team should implement campaigns specifically aimed at high-value users of roaming services, such as:
  + **Discounted Roaming Rates**: Offering discounted rates during specific hours of the day.

**Free Monthly Roaming Minutes**: providing free monthly roaming minutes based on users' past roaming usage

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## \*\*Tools and Technologies\*\*

- Python (Jupyter Notebook)

- Libraries: pandas, numpy, matplotlib, seaborn, scikit-learn

- Git for version control