# Churn Customer Analysis

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**Objective:**

Predicting the customers, how likely the customers having Telecom service or cancel the subscription using Machine Learning. Because maintaining the existing customers are important as acquiring new customers.

**Project Pipeline:**

- Raw data is collected and performed Basic quality check (Missing values, outliers)
- Analyzed dataset and performed EDA to visualize the Data.
- Preprocessing techniques like Label Encoding, Scaling and feature selection process completed using Chi2 test to get top 6 features in the dataset.
- Since the dataset is imbalanced in Target (Churn) classes, it is balanced using SMOTE analysis.
- Dataset is split into Training and Test set with stratified sampling technique.
- Implemented an Auto-ML model to estimate the best model choice, after that the algorithms is further tuned to perform best.
- Implemented a Neural network to classify whether the customer is churn or not.
- Both model's performance is evaluated and compared to pick the stable algorithm.

**Performance Measure:**

| | precision | recall | f1-score | support |
|---|---|---|---|---|
| 0 | 0.88 | 0.84 | 0.86 | 1549 |
| 1 | 0.61 | 0.69 | 0.65 | 561 |
| accuracy | | | 0.80 | 2110 |
| macro avg | 0.74 | 0.77 | 0.75 | 2110 |
| weighted avg | 0.81 | 0.80 | 0.80 | 2110 |

**Future works:**

Deployment on Cloud services like Heroku, Docker, Kubernetes, which includes four major steps:

- Create and develop model in the training environment
- Testing and ready for Deployment
- Prepare for container Deployment
- Monitoring and maintenance of machine learning model.