# Customer Churn Prediction- Telco Customer Analysis

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## 1 Dataset

The dataset "Telco Customer Churn" includes 7,043 rows and 21 columns, featuring customer information such as personal details (e.g., gender, age range, and dependents), services subscribed to (like security, internet, device protection, and phone lines), and customer behaviors (including payment methods, incurred charges, and total monthly costs). Additionally, it tracks whether customers have discontinued their services, reflecting churn. Link

## 2 Project Idea

This work aims to analyze and create a customer churn prediction model that would help define the customers who are potential churners. “Churners” are defined as customers who can/will leave the platform in the distant future. Thus, through the analysis of churners, businesses can get to know the clients/customers who are likely to churn. With this, they can apply specific measures to minimize the number of churning clientele and increase customer satisfaction and profitability.
This project particularly targets the behavior of telecom customers in the churners category. Our next step will be to identify the most conspicuous behavior of the customers through EDA and then use some of the predictive analytics techniques to identify the churners and the reasons behind leaving the platform/service.

## 3 Softwares

Anaconda(Python), Jupyter Notebook, Tensorflow, sci-kit learn

## 4 Relevant Papers

[1] Sharmila K. Wagh, Aishwarya A. Andhale, Kishor S. Wagh, Jayshree R. Pansare, Sarita P. Ambadekar, S.H. Gawande, Customer churn prediction in telecom sector using machine learning techniques, Results in Control and Optimization, Volume 14, 2024, 100342, ISSN 2666-7207, https://doi.org/10.1016/j.rico.2023.100342.

[2] AlShourbaji, I., Helian, N., Sun, Y. et al. An efficient churn prediction model using gradient boosting machine and metaheuristic optimization. Sci Rep 13, 14441 (2023), https://doi.org/10.1038/s41598-023-41093-6

[3] Jain, H., Khunteta, A. & Srivastava, S. Telecom churn prediction and used techniques, datasets and performance measures: a review. Telecommun Syst 76, 613–630 (2021). https://doi.org/10.1007/s11235-020-00727-0

## 5 Teammates and Work Division:

Rucha will handle data preprocessing, transformation, and model training, along with documentation. Akshada will focus on data transformation, model training, and accuracy evaluation. Rishi will manage data visualization, model selection, and testing. We’ll ensure equal contributions and regular check-ins to keep our progress synchronized.

## 6 Midterm milestone

By the midterm milestone, we will complete data preprocessing, transformation, and visualization, followed by initial model selection and training. At this stage, we aim to present the progress of model development, showcasing the effectiveness of the selected models and highlighting key insights from the prepared dataset.