**FEATURE ENGINEERING PROJECT PROPOSAL**

**MODEL TO PREDICT CUSTOMERS LEAVING TELECOMMUNICATION COMPANIES**

**Team members:**

1. Rajagopal Naidu Kodavati 11596822
2. Jaya Naga Satya Pavan Ganesh Kotipalli 11594936
3. Jaya Sindhu Edara 11708783
4. Sri Mounish Seeni 11549237

**Ideal description:**

In present, customers churn from the companies becoming huge problem due to loss of revenue and work management. So, the companies are intended to maintain the data and record of the employ to tracking to know the customers move for this type of concerns. This project is about to build a model which helps to predict costumers leaving companies using feature engineering and analysing of data.

**Goals and objectives:**

The goal of this model is to predict the customer who are leaving or intended to leave the companies. To build this model and make model to work successful, analysing of data of the customers is significant step, selecting necessary features from data using feature engineering models and machine learning model to predict the expected outcome.

**Motivation:**

1. The motivation for developing churn prediction models in a telecommunications company is to improve customer satisfaction, reduce costs, and gain a competitive edge by making data-driven decisions and proactively addressing customer churn.

2. This project has the potential to lead to significant financial and operational benefits for the company.

3. These models are a key tool for increasing revenue and driving business growth.

4. It's a strategic initiative that combines data analysis, modeling, and business intelligence to drive tangible results and long-term success.

**Significance:**

1. It leverages data-driven insights to inform decision-making and improve the company's competitiveness in a dynamic industry.

2. It directly impacts revenue, customer satisfaction, and overall business success.

3.Customer churn is a significant concern for telecommunications companies.

4. Losing customers can result in a loss of revenue, and it can be more costly to acquire new customers than to retain existing ones. Predicting and preventing churn can significantly impact a company's bottom line.

**Literature survey:**

M Makhtar, S Nafis was published journal of fundamental and applied sciences on 2017. They work on telecommunication companies to prevent the loss of revenue. So, they thought of building a machine learning model to predict the customers churn by overlapping existing model and significant to increase accuracy for this they work to develop better machine learning model. As of now we are planning that our project model is willing to work more accurate than existing models by choosing only significant and required features from the data and building most accurate classification model to work successful and more accurately.

**Objectives:**

1.Initially we are planning to categorize our data into numerical and categorical values and perform exploratory data analysis like (univariate, bivariate, etc.) to get a complete idea on what the dataset can do.

2.After finding out the capabilities of the dataset we are planning to perform feature engineering on the given data and develop some features which are useful for better finding out the customer churn.

3.Identifying the factors which contribute customer churn and reduce them.

4.The main objective is to improve the performance of the machine learning models by training them with more relatable features.

**Features:**

The features which we are using are categorical and numerical

1. Categorical features: Customer\_ID, Gender, Partner, Dependents, Phone\_Service, Multiple\_lines, Internet\_Service, Online Security, Online Backup, Device Protection, Tech Support, Stream Movies, Paperless Billing, Payment Method.
2. Numerical features: Tenure, Monthly\_Charges, Totla\_Charges.
3. Also Planning on perfoming feature engineering with these features and create useful features which contribute to customer churn

**Expected Outcome:**

The expected outcome for this model is to publish the predicted results of the employees who are leaving the company and intended to do on future. The predicted results are done by machine learning classification model by using extracted features and analysing of raw data.

**References:**

1. Makhtar M, Nafis S, Mohamed M, Awang M, Rahman M, Deris M. Churn classification model for local telecommunication company based on rough set theory. J Fundam Appl Sci. 2017;9(6):854–68
2. Suchánek P, Králová M: Customer satisfaction, loyalty, knowledge and competitiveness in the food industry. Economic Research-Ekonomska Istraživanja.2019;32(1):1237–1255. 10.1080/1331677x.2019.1627893 [[CrossRef](https://doi.org/10.1080%2F1331677x.2019.1627893)] [[Google Scholar](https://scholar.google.com/scholar_lookup?journal=Economic+Research-Ekonomska+Istra%C5%BEivanja.&title=Customer+satisfaction,+loyalty,+knowledge+and+competitiveness+in+the+food+industry.&author=P+Such%C3%A1nek&author=M+Kr%C3%A1lov%C3%A1&volume=32&issue=1&publication_year=2019&pages=1237-1255&doi=10.1080/1331677x.2019.1627893&)]
3. Pope L: How to Prevent Customer Churn with Retention Marketing. G2.2020, 27th August. [Reference Source](https://www.g2.com/articles/customer-retention-marketing) [[Google Scholar](https://scholar.google.com/scholar_lookup?journal=G2.&title=How+to+Prevent+Customer+Churn+with+Retention+Marketing.&author=L+Pope&publication_year=2020,+27th+August&)]