**Customer Churn Prediction Using**

**Machine Learning**

**INTRODUCTION: -** At present in this competitive marketplace, the profit of a company depends on the customer. The customer has become a valuable asset of a business. So keeping an existing customer’s an important concern for a business. Customer churn pre-diction refers to the percentage of customers or users who are unsubscribing for their service. Customer churn has become one of the most important parts of business today for growing a business. Nowadays the internet is the most important thing in our day-to-day life. Internet-related business like telecommunication business is an important part of the economy. In telecommunication, the customer is the main resource for business. So it’s very important to keep customers and predict how many customers churn and why? Using accurate churn prediction, any company will be able to understand the revenue of the business and will take the necessary steps to reduce the churn rate and analysis the reason for churn. For any business, an organization that predicts the churn rate is important so that they can understand why customers stop taking their services and how it will impact the business. There are many approaches for predicting customer churn. Machine learning approaches are one of them.

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**INFORMATION ABOUT THE DATASET: -** The sample data tracks a fictional telecommunications company, Telco. Its customer churn data sourced by the IBM Developer Platform. It includes a target label indicating whether or not the customer left within the last month, and other dependent featured that cover demographics, services that each customer has signed up fpr, and customer account information. It has data for 7043 clients, with 20 features.

There are 17 categorical features:

* Customer ID: Customer ID unique for each customer
* Gender: Whether the customer is a male or a female
* Senior Citizen: Whether the customer is a senior citizen or not(1,0)
* Partner: Whether the customer has a partner or not(Yes, No)
* Dependent: Whether the customer has dependents or not(Yes, No)
* Phone Service: Whether the customer has a phone service or not(Yes, No)
* Multiple lines: Whether the customer has multiple lines or not(Yes, No, No phone service)
* Internet Service: Customers internet service provider (DSL, Fiber optic, No)
* Online Security: Whether the customer has online security or not(Yes, No, No internet services)
* Online Backup: : Whether the customer has online backup or not(Yes, No, No internet services)
* Device Protection: Whether the customer has device protection or not(Yes, No, No internet services)
* Tech Support: Whether the customer has tech support or not(Yes, No, No internet services)
* Streaming TV: Whether the customer has streaming TV or not(Yes, No, No internet services)
* Streaming Movies : Whether the customer has streaming movies or not(Yes, No, No internet services)
* Contract: The contract term of the customer(Month-to-month, One year, Two years)
* Paperless Billing: The contract term of the customer(Month-to-month, One year, Two years)
* Payment Method: The customers payment method(Electronic check, Mailed check, Bank transfer (automatic),Credit card(automatics))

There are 3 numerical features:

Tenure: Number of months the customer has stayed with the company

Monthly Charges: The amount charged to the customer monthly

Total Charges: The total amount charged to the customer

There is a prediction feature:

Churn: Whether the customer churned or not (Yes or No)