**Context**

ConnectTel is a leading telecommunications company at the forefront of innovation and connectivity solutions. it has strong presence in the global market, with a well established trusted provider of reliable voice, data, and internet services. Offering a comprehensive range of Telecommunications solutions, including mobile networks, broadband connections, and enterprise solutions. It caters to both individual and corporate customers, they are commited to providing exceptional customer service and cutting-edge technology.

ConnectTel ensures seamless communoication experiences for millions of users worldwide through strategic parnerships and a customer-centric approach, ConnectTel continue to revolutionize the telecom industry, empowering individuals and businesses rto stay connected and thrive in the digital age

**Objective**

To address customer churn,using supervised learning Machine which poses a significant threat to ConnectTel business sustainability and growth. The Company current customer retention strategies lack precision and effectiveness, resulting in the loss of valuable customers to competitors. To overcome this challenge, there is the need to develop a robust customer churn prediction system by leveraging on advance analytics and Machine learning techniqueson available customer data to accurately predict customer churn and implement targeted retrention initiatives.This approach will help to reduce customer attrition and bring back customer confidence, and maintain a competitive edge in the highly dynamic and competitive telecommunictions industry.

**Data Description**

* The data provided is of various customers

Data Dictionary

* customerID: A unique Identifier assigned to each Telecom customer, enabling tracking and identification of individual customer.
* Gender: The gender of the customer, which can be categorized as male, or female. This information helps to analyzing gender- based trends in customer churn.
* SeniorCitizen: A binary indicator that identifies whether the customer is a senior Citizen or not.This attributes help in understanding if there are any specific churn patterns among the senior customers.
* Partner: Indicates whether the customer has a partner or not. This attribute helps in evaluating the impact of having a partner on churn behavior.
* Dependents:Indicates whether the customer has dependants or not.This attribute help in assessing the influence of having dependents oncustomer churn.
* Tenure: The duration for which the customer has been subscribed to the telecom service. I t represents the loyalty of longevity of the customer's relationship with the company and it is a significant predictor of churn.
* PhoneService: Indicates whether the customer has a phone service or not.This attribute helps in understanding the impact of phone service on churn
* MultipleLines: Indicates whether the customer has multiple lines or not.This attribute helps in analyzing the effect of having multiple lines on customer churn.
* InternetService: Indicates the type of internet service subscribed by the customer, such as DSL, fibre optics or no internet service. It helps in evaluating the relationship between internet service and churn.
* OnlineSecurity: Indicates whether the customer has online security services or not. This attribute helps in analyzing the impact of online security on customer churn.
* OnlineBackup: Indicates whether the customer has online backup services or not. This service helps in evaluating theimpact of online backup on churn behavior.
* DeviceProtection: This indicates whether the customer has device protection services or not. The attribute helps in understanding the influence of device protection on churn.
* TechSupport: Indicates whether the customer has technical support services or not.This attribute helps in assessing the impact of tech support on churn behavior.
* StreamingTV: Indicates whether the customer has streaming Tv services or not.The attribute helps in evaluating the impact of streaming Tv on customer churn.
* StreamingMovies:Indicates whether the customer has streaming Movies services or not. This attribute helps in understanding the influence of streaming movies on churn behavior.
* Contract:Indicates the type of contract the customer has, such as a month-to-month, one-year, or two year contract. It is a crucial factor in predicting churn as different contract length may have varying impacts on customer loyalty.
* PaperlessBilling: Indicates whether the customer has opted for paperless billing or not.This attribute helps in analyzing the effect of paperless billing on customer churn.
* PaymentMethod: Indicates the payment method used by the customer, such as electronic checks, mailed checks, bank transfers, or credit cards. This attribute helps in evaluating the impact of payment method on churn.
* MonthlyCharges: The total amount charged to the customer over the entire tenure. It represents the cumulative revenue generated from the customer and may have an impact on the churn.
* Churn: The target variable indicates whether the customer has churn(cancel the service) or not. It is the main variable to predict in Telecom customer churn analysis