■ Project 2 - Telco Customer Churn Prediction

Objective:

The goal of this project is to analyze customer churn behavior using the Telco Customer Churn dataset and build a machine learning model to predict whether a customer will churn. This helps telecom companies improve customer retention strategies.

Tools & Technologies:

1. Python (Pandas, NumPy) - Data Cleaning & Processing
2. Matplotlib & Seaborn - Data Visualization
3. Scikit-learn - Model Building & Evaluation
4. Kaggle Notebook Environment

Project Workflow:

1. 1. Data Cleaning - Removed unnecessary columns, handled missing values, converted TotalCharges to numeric.
2. 2. Exploratory Data Analysis - Visualized churn distribution, customer tenure, contract type, and internet service usage.
3. 3. Feature Engineering - Encoded categorical variables using one-hot encoding.
4. 4. Model Building - Logistic Regression classifier was trained on processed data.
5. 5. Model Evaluation - Assessed using Accuracy, Precision, Recall, F1-score, ROC-AUC, and Confusion Matrix.
6. 6. Insights - Identified top features driving customer churn (e.g., contract type, tenure, internet service, payment method).

Current Status:

■ Project Completed - Model trained, evaluated, and top insights identified.

This project demonstrates how machine learning can be applied to real-world telecom datasets to understand customer behavior and reduce churn.