Problem Statement: Developing Predictive Models to Identify At-Risk Customers and Reduce Churn Rate

- As a Data Analyst, the project aims to delve into extensive datasets from both banking and telecom domains to understand customer churn dynamics.

- By leveraging various customer-related features such as demographics, transaction history, and activity status, the goal is to analyze patterns and build predictive models capable of forecasting customer churn.

- Through comprehensive data analysis, feature engineering, and model development, the project seeks to empower businesses with actionable insights to implement targeted retention strategies and enhance customer loyalty.

Key Features:

Customer Information:

- **RowNumber:** Unique identifier for each row.
- **CustomerId:** Unique identifier for each customer.
- **CreditScore:** The credit score of the customer.
- **GeographyID:** Identifier for the geographical location of the customer.
- **GenderID:** Identifier for the gender of the customer.
- **Age:** Age of the customer.
- **Tenure:** Number of years the customer has been with the bank or telecom company.
- **Balance:** Current balance in the customer's account.
- **NumOfProducts**: Number of products the customer has with the company.
- **HasCrCard:** Binary variable indicating whether the customer has a credit card (1 for yes, 0 for no).
- **IsActiveMember:** Binary variable indicating whether the customer is an active member (1 for yes, 0 for no).
- **EstimatedSalary:** Estimated salary of the customer.
- **Exited:** Binary variable indicating whether the customer has exited (1 for yes, 0 for no).
- **Bank DOJ:** Date of joining the bank.

Geography:

- **GeographyID:** Unique identifier for geographical locations.
- **GeographyLocation:** Location names corresponding to GeographyID.

Gender:

- **GenderID:** Unique identifier for gender.
- **GenderCategory:** Gender categories corresponding to GenderID.

Customer Exits:

- **ExitID:** Unique identifier for exit categories.
- **ExitCategory:** Exit categories corresponding to ExitID.

Credit Card:

- **CreditID:** Unique identifier for credit card categories.
- **Category:** Credit card categories corresponding to CreditID.

Active Customers:

- **ActiveID:** Unique identifier for active customer categories.
- **ActiveCategory:** Active customer categories corresponding to ActiveID.

Analysis Objectives:

Identifying Key Churn Drivers:

- Determine which factors contribute most significantly to customer churn within the banking and telecom industries.
- Analyze the correlation between different customer attributes and the likelihood of churn.
- Identify patterns or trends that distinguish churned customers from those who remain active.

Segmentation of Customer Base:

- Segment customers based on their demographic characteristics, transactional behavior, and activity status.
- Explore distinct customer segments and their respective churn rates.
- Identify high-value segments that are more prone to churn and those that are more loyal.

Customer Lifetime Value (CLV) Analysis:

- Calculate the CLV for different customer segments to understand the revenue potential associated with each group.
- Determine how churn rates affect the CLV of different customer segments.
- Explore strategies to maximize CLV while minimizing churn.

Retention Strategy Recommendations:

- Generate actionable insights and recommendations to improve customer retention based on analysis findings.

- Develop targeted retention campaigns tailored to specific customer segments and their churn risk levels.
- Evaluate the potential effectiveness of retention initiatives through simulations or A/B testing.

Continuous Monitoring and Iterative Improvement:

- Establish mechanisms for ongoing monitoring of churn rates and customer behavior patterns.
- Implement feedback loops to continuously refine predictive models and retention strategies based on real-time data.
- Track the impact of implemented strategies on reducing churn and increasing customer loyalty over time.