PROJECT TITLE: CUSTOMER CHURN ANALYSIS (for Banking Sector)

Purpose of the Project:

This project focuses on analysing bank customer data using Power BI to uncover patterns and key drivers behind customer churn. Through dynamic dashboards and DAX-driven metrics, it provides business stakeholders with actionable insights to support data-informed decisions aimed at reducing churn and improving customer retention strategies.

Data Source:

- Source**:** Bank Customer Churn Prediction.csv - Google Drive
- Dataset Name**:** Bank Customer Churn Prediction
- File Format**:** CSV
- Size**:** 10,000 records with 12 columns

Features & their Explanation:

- Customer ID: Unique ID for each customer.
- Credit Score: Credit rating score of the customer.
- Country: Country of the customer (France, Germany, Spain)
- Gender: Gender of the customer.
- Age: Customer's age.
- Tenure: Number of years the customer has been with the bank.
- Balance: Account balance of the customer.
- Product: which kind of product services does customer have(prod1, prod2, prod3)
- Credit Card: If the customer has a credit card, or Not.
- Active Members: Whether customer is actively using services or Not.
- Estimated Salary: Estimated Annual salary.
- Churn: if the customer churned, or Not.

Business Problems Identified:

- Why are certain customers leaving the bank services?
- Which factors most strongly correlate with customer churn?
- Are certain customer segments (e.g., by country, age, activity) more likely to churn?
- How can the bank retain more customers and lower the churn rate?

Tech Stack:

The dashboard was built using the following tools and technologies:

1. Power Query – Data transformation and cleaning layer for reshaping and preparing the data. The operations perform under Power Query is :

- Importing Data
- Checking Features Names and Their Data Type
- Adding New Columns Credit Card, Active Status, Churn Status and replacing their Integer values (0,1) with Categorical (credit card : Owned, Not Owned, Active : Active, Not Active, Churn : Churned, Not Churned)
- Adding New Tables like Age Groups, Credit Score Groups, Account Balance Group to see Results in Histogram Bins or Range

2. Data Modelling – Relationships established among tables (Customer Data & Age Groups, Credit Score Groups, Account Balance Groups) to enable cross-filtering and aggregation.

3. DAX (Data Analysis Expressions) – Used for calculated measures, dynamic visuals, and conditional logic.

- Total Customers : 10k
- Customer Lost : 2037k
- Churn Rate (in percentage) : 20.37%
- Average Age : 39
- Average Balance : 76.49k

4. Power BI Desktop – Main data visualization platform used for report creation.

- KPI Cards: Tracked metrics like Total Customers**,** Churn Rate**,** Average Age & Average Balance**.**
- Gauge: It Shows the Total Churn Rate (20.37%) and Targeted Churn (15%)
- Slicer: Creating Drop Down For Churn Status to know data for Churned & Not Churned
- Donut Chart: Churn Breakdown of Customers by Gender, Active Status, Credit Card, Product, Country.
- Line & Cluster Column Chart: Customers & Churn Rate by Age Group, Credit Score, Balance.

Key Insights from Dashboard:

- Germany has the highest churn rate (~25%), likely due to lower engagement levels.
- Inactive customers and those with a credit card are more likely to leave.
- Age and tenure have a strong influence; customers aged 50-60 with <3 years of tenure are high-risk.
- Customer with less Credit Score likely >400 are high in churned Rate.
- Customers with 0-10k balance often remain, likely inactive or dormant are churned.

Business Impact & Recommendation:

- Targeted Retention Campaigns**:** Focus on high-churn countries and demographics (Germany, older customers, Female Customers).
- Improve Engagement: Re-engage inactive members with loyalty or benefit programs.
- Product Simplification: For customers with 2+ products, offer personalized value to avoid confusion or drop-off.
- Early Warning System: Use Power BI alerts and DAX to track KPIs and flag high-risk customers.