Bank Customer Churn Prediction

# **1. Introduction**

Customer churn poses a significant challenge for the banking industry, as retaining existing customers is often more cost-effective than acquiring new ones.

This project focuses on analyzing customer behavior and predicting churn using Power BI, providing meaningful insights that can help the bank develop data-driven retention strategies.  
  
The goal of this dashboard is to:  
- Identify key factors influencing customer churn.  
- Visualize demographic and behavioral patterns.  
- Enable decision-makers to act on customer retention opportunities.

# **2. Data Import and Cleaning**

The dataset, titled 'Bank Customer Churn Dataset', was imported into Power BI from a CSV source. It includes 10,000 records with attributes such as:

- Customer ID  
- Gender  
- Age  
- Tenure  
- Balance  
- Estimated Salary  
- Credit Score  
- Geography  
- Active Member  
- Credit Card Status  
- Churn (Target Variable)

Cleaning Steps Performed:  
- Handled missing values (none detected in this dataset)

**3. Visualization Insights**

Key Metrics:

- Average Age: 38.92 years  
- Average Balance: ₹76.49K  
- Average Credit Score: 650.53  
- Average Tenure: 5.01 years  
- Average Salary: ₹100K  
- Total Churned Customers: 2,000  
- Customers with Credit Cards: 7,000  
- Active Customers: 5,000

Visual Trends:

- Churn by Gender: More females than males have churned  
- Geography-Based Churn: Germany has the highest churn rate compared to France and Spain  
- Credit Card vs. Churn: Customers without credit cards churn slightly more  
- Tenure vs. Churn: Customers with very low or very high tenure show higher churn rates  
- Age Distribution: Churn rate is higher among middle-aged customers (40–50 years)  
- Balance vs. Churn: Some customers with high balances are still churning, indicating potential service dissatisfaction

Map Visual:

The map visual (disabled initially due to security settings) shows churn distribution geographically, with Germany appearing as a hotspot for customer loss.

# **4. Conclusion**

The Bank Customer Churn Prediction dashboard reveals several actionable insights:

- Customers in Germany are at a higher risk of churn  
- Demographics like age, credit score, and tenure significantly impact churn  
- Female customers and those without credit cards show higher churn tendencies  
- Active membership and customer engagement play a crucial role in retention

Recommendation: The bank should prioritize customer loyalty programs, especially for customers in Germany, females, and those with high tenure but low engagement.

By leveraging these insights, the bank can proactively reduce churn and enhance customer satisfaction.

# **5.Bank should Recommend:**

To enhance the effectiveness of churn reduction strategies, the bank should focus on targeted loyalty efforts. Here's what the recommendation entails:

1. 1. Customers in Germany

Your data shows that most churned customers are from Germany. The bank should investigate why customers in Germany are leaving and offer region-specific improvements, such as localized services, promotions, or better customer support in the native language.

1. 2. Female Customers

Since more female customers are churning compared to males, the bank should consider offering customized services, improving engagement through targeted marketing campaigns, or conducting surveys to understand their needs better.

1. 3. High Tenure but Low Engagement

These are long-time customers who aren't actively using the bank's services. Despite their tenure, they may feel ignored or unvalued. The bank should reconnect with them through personalized emails, calls, or special loyalty offers to reignite engagement.

By focusing on these groups, the bank can prevent future customer losses (churn), retain valuable long-term customers, and improve overall satisfaction and loyalty.

Bank Should focusing on these groups:

The bank can **prevent future customer losses (churn)**.

It helps **retain valuable customers** who already have a long relationship with the bank.

It improves **customer satisfaction and loyalty**, which boosts long-term revenue.