**Bank Customer Data Churn Analysis in Power BI**

**Project Overview**

This project involves the analysis of bank customer churn using **Power BI** to visualize customer data and churn metrics. The goal is to determine the churn rate and understand the behavior of customers who have left, providing insights that can help improve customer retention strategies.

**Objectives**

* To calculate the churn rate by analyzing customer data.
* To visualize customer data across various dimensions (gender, activity status, country, etc.).
* To provide actionable insights for improving customer retention.

**Data Source**

The dataset used for this analysis is the **Customer Data** of a bank, which includes the following fields:

* **Customer ID**: Unique identifier for each customer.
* **Churn Status**: Indicates whether a customer has churned or not.
* **Gender**: Gender of the customer.
* **Activity Status**: Active or inactive status of the customer.
* **Credit Card Status**: Whether the customer has a credit card.
* **Country**: Country of residence of the customer.
* **Products**: Products associated with each customer.
* **Age Group**: The age group category of the customer.

**Measures and Calculations**

**1. Number of Customers**

A measure to calculate the total number of customers:

Customers = COUNT('Customer Data'[Customer ID])

Result: 10,000 customers

**2. Customers that Left (Churned)**

A measure to calculate the number of customers who have churned:

Customer Lost = CALCULATE(COUNT('Customer Data'[Churn Status]), 'Customer Data'[Churn Status] = "Churned")

Result: 2,037 customers lost

**3. Churn Rate**

A measure to calculate the churn rate, which is the percentage of customers who have left compared to the total number of customers:

Churn Rate = 'Customer Data'[Customer Lost] / 'Customer Data'[Customers]

Result: 20.37% churn rate

**Visualizations**

To visualize the customer churn analysis, the following charts were created in Power BI:

**1. Donut Charts**

* **Customers by Gender**: Displays the distribution of customers by gender.
* **Customers by Activity Status**: Shows the number of active vs inactive customers.
* **Customers by Credit Card Status**: Indicates how many customers have or do not have a credit card.
* **Customers by Country**: Provides the distribution of customers by country.
* **Customers by Products**: Visualizes the number of customers associated with different products.

**2. Clustered Column Chart**

* **Customers & Churn Rate by Age Group**: A clustered column chart showing the number of customers and churn rate across different age groups.

**3. Gauge Chart**

* **Churn Rate Gauge**: Displays the actual churn rate with the target churn rate and the minimum and maximum churn values.
  + **Value**: Actual Churn Rate (20.37%)
  + **Min Value**: Minimum Churn Rate (calculated from the dataset)
  + **Max Value**: Maximum Churn Rate (calculated from the dataset)
  + **Target Value**: Target Churn Rate (15%)

**Slicer**

A slicer was used to filter the data based on **Churn Status**, allowing dynamic analysis of churned vs active customers.

**Key Insights**

* The **churn rate** of 20.37% indicates that a significant portion of customers has left the bank.
* Age, activity status, and country have notable effects on churn rate, with certain segments showing higher churn.
* The target churn rate of 15% has not been met, which presents an opportunity for improvement.
* Strategies can be developed for retention, focusing on the demographics and behaviors associated with the highest churn.

**Tools Used**

* **Power BI**: For data visualization and dashboard creation.
* **DAX**: For creating measures to calculate churn rate, customers lost, and others.

**Conclusion**

The Bank Customer Data Churn Analysis project provides insights into customer retention strategies. By analyzing churn across various customer segments, actionable steps can be taken to improve retention and reduce churn.