**Bank Churn Analysis Project Explanation**

1. **Project Aim:**  
     
   The goal of the project was to create an interactive Power BI dashboard to analyze bank customer churn. It focused on providing insights into customer demographics, churn patterns, account activity, and financial data, helping the bank make informed decisions to reduce churn and retain customers.
2. **Problem:**

The bank struggled to understand why customers were leaving. They needed a detailed analysis to identify trends, patterns, and high-risk customer groups, along with insights to create effective retention strategies.

**3. My Role:**

As a Data Analyst, my role was to design and develop the Power BI dashboard. This involved:

1. Data modelling to ensure accuracy and integration of various data sources.
2. Creating DAX functions to calculate key metrics and churn-related KPIs.
3. Designing interactive visualizations to identify churn trends and patterns.
4. Collaborating with stakeholders to gather requirements and ensure the dashboard met business objectives.

**4. My Contribution:**

* **Data Modelling:** Created a robust star schema to integrate multiple data sources, including customer demographics, account activity, and churn data.
* **DAX Functions:** Developed complex DAX formulas for KPIs, such as churn rate, active customer percentage, average credit score, and high-risk customer counts.
* **Visualizations:** Designed interactive visuals, such as churn analysis by geography, age, gender, and tenure. Included dynamic slicers for better data exploration.
* **Insights Generation:** Identified key drivers of churn, such as low credit scores, inactive memberships, and short tenures.
* **Dynamic Filtering:** Enabled stakeholders to filter data dynamically by region, membership status, and product ownership.

**5. Timeline:**

* **Planning and Requirement Gathering:** 2 weeks.
* **Data Modelling and Preparation:** 3 weeks.
* **Dashboard Development:** 4 weeks.
* **Testing and Validation:** 2 weeks.
* **Deployment and Training:** 1 week.
* **Total Duration:** 12 weeks.

**6. Outcome:**

The Power BI dashboard provided the bank with:

* **Key Insights:** A clear understanding of customer churn patterns and high-risk segments.
* **Data-Driven Decisions:** Stakeholders could design targeted campaigns, such as loyalty programs for inactive members and personalized offers for low-balance customers.
* **Impact:** Reduced churn by X% (specific percentage if available) and improved customer retention.
* **Operational Benefits:** Enhanced ability to track active vs. inactive accounts and regional trends in churn.

**7. Challenges:**

* **Data Quality:** Ensuring consistency and accuracy across multiple data sources was a major challenge.
* **Complex DAX Calculations:** Developing and testing complex DAX measures for KPIs required significant effort.
* **Stakeholder Alignment:** Continuous communication and iteration were needed to align dashboard features with stakeholder requirements.
* **Segmentation:** Identifying high-risk customer segments based on churn drivers like tenure and credit score required careful analysis.

1. **Key DAX Measures:**

1. Active Customers

Active Customers = CALCULATE(COUNT(Bank\_Churn[CustomerId]),ActiveCustomer[ActiveCategory]="Active Member")

2. Inactive Customers = CALCULATE(COUNT(Bank\_Churn[CustomerId]),ActiveCustomer[ActiveCategory]="Inactive Member")

3. Total Customers = COUNT(Bank\_Churn[CustomerId])

4. Credit card holders = CALCULATE(COUNT(Bank\_Churn[CustomerId]),CreditCard[Category]="credit card holder")

5. Non Credit card holders = CALCULATE(COUNT(Bank\_Churn[CustomerId]),CreditCard[Category]="non credit card holder")

6. Exit Customers = CALCULATE([Total Customers],ExistCustomer[ExitCategory]="Exit")

7. Retain Customers = CALCULATE([Total Customers],ExistCustomer[ExitCategory]="Retain")

1. previous month exit customers = CALCULATE([Exit Customers],PREVIOUSMONTH(DateMaster[Date]))
2. Churn % =

var EC = [Exit Customers]

var TC = [Total Customers]

var churnper = DIVIDE(EC,TC)

return churnper

1. **Visualizations:**

**Cards = Total customers, Active customers, Inactive customers, Exit Customers, Retain customers, Credit card holder, non credit card holder.**

**Slicer: Year(2016-2019), Month Name, Geography Location(France,**

**Germany, Spain), GenderCategory(Male, Female), ActiveCategory(Active**

**Customer, Inactive Customer)**

**Clustered column chart : Total customer by year and**

**ActiveCategory(Active and inactive customer)**

**Clustered bar chart : Exit customer by credit type(find from credit**

**score column as fair, poor, good, very good, Excellent) 5 parts**

**Donut Chart : Exit Customer by GenderCategory(M,F)**

**Pie Chart : Exit customer by Category : category means credit card holder, non credit card holder**

**Stacked Bar Chart:**

* **Usage: Comparing churn by geography and gender.**
* **Example: Male vs. female churn rates for each region.**

**Tables and columns Name:**

* RowNumber—corresponds to the record (row) number and has no effect on the output.
* CustomerId—contains random values and has no effect on customer leaving the bank.
* Surname—the surname of a customer has no impact on their decision to leave the bank.
* CreditScore—can have an effect on customer churn, since a customer with a higher credit score is less likely to leave the bank.

**Credit score:**

* Excellent: 800–850
* Very Good: 740–799
* Good: 670–739
* Fair: 580–669
* Poor: 300–579
* Geography—a customer’s location can affect their decision to leave the bank.
* Gender—it’s interesting to explore whether gender plays a role in a customer leaving the bank.
* Age—this is certainly relevant, since older customers are less likely to leave their bank than younger ones.
* Tenure—refers to the number of years that the customer has been a client of the bank. Normally, older clients are more loyal and less likely to leave a bank.
  + Balance—also a very good indicator of customer churn, as people with a higher balance in their accounts are less likely to leave the bank compared to those with lower balances.
  + NumOfProducts—refers to the number of products that a customer has purchased through the bank.
  + HasCrCard—denotes whether or not a customer has a credit card. This column is also relevant, since people with a credit card are less likely to leave the bank.
    - 1 represents **credit card holder**
    - 0 represents **non credit card holder**
  + IsActiveMember—active customers are less likely to leave the bank.
    - 1 represents **Active Member**
    - 0 represents **Inactive Member**
  + Estimated Salary—as with balance, people with lower salaries are more likely to leave the bank compared to those with higher salaries.
  + Exited—whether or not the customer left the bank.

0 represents **Retain**

1 represents **Exit**

* + Bank DOJ — date when the Customer associated/joined with the bank.