**Bank Customer Churn Analysis**

**Tool Used :- Python , Power BI**

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**Business Problem :-**

**Banks today face a critical challenge: customer churn — when existing customers stop using the bank’s services. Losing a customer not only reduces revenue but also costs more to acquire a new one than to retain an existing one.**

**Dataset Description :-**

**• Total Records: 10,000 bank customers**

**• Key Columns: Age, Gender,Country, Credit Score, Balance, Tenure, Active Status, churn.**

**• Target Column: Churn (1 = Churned, 0 = Retained)**

**Tools and Tech Used :-**

**Python – Data Cleaning , EDA ,Visualization**

**Power BI – Interactive Dashboard and KPIs**

**Pandas – Data Manipulation**

**Matplotlib / Seaborn – Plotting and Analysis**

**Python Analysis:-**

**• Data Cleaning & Null Handling**

**Created new segments:**

**• Age Group, Balance Group, Credit Score Group**

**•Calculated churn rates by segment**

**• Visualized churn patterns using seaborn/matplotlib**

**• Found Medium Credit Score Group had highest churn (23.7%)**

**Power BI Dashboard :-**

**Created an interactive Power BI dashboard showing:**

**•Total customers, churned customers, churn %**

**•Churn by country, gender, age, credit card, balance**

**•Filters for deep dive (Age group, Risk, etc.)**

**•Dynamic segments: Risk Level, Active status**

**Key Insights :-**

**Overall Churn Rate is High**

* **20.37% of customers have churned — significant enough to hurt profitability.**

**Inactive Customers Are More Likely to Leave**

* **Inactive members show a churn rate of 26.9%, compared to 14.3% for active ones.**

**Country-Based Churn Variation**

* **Germany has the highest churn rate (32.4%), much higher than Spain (16.7%) and France (16.2%).**

**Age Group 40–49 Is Most Vulnerable**

* **This group has the highest number of churned customers (806), suggesting targeted retention is needed.**

**High Risk Segments Are Churning Most**

* **High-risk customers have a churn rate of 22.68%, while low-risk only 7.88%.**

**No Credit Card = Higher Churn**

* **Customers without a credit card have a churn rate of 49.23%.**

**Balance Group Effect**

* **Customers with high average balance are churning more (25.2%) than low-balance customers (14.2%).**

**Credit Score Doesn’t Guarantee Retention**

* **All credit score groups show similar churn rates (~20%), even for those with high credit scores (700+).**

**Recommendation :-**

**Engage Inactive Customers with Targeted Campaigns**

* **Offer personalized messages, loyalty benefits, and account usage tips.**

**Customer Retention in Germany**

* **Investigate customer dissatisfaction in Germany — maybe service quality, fees, or competition is higher there.**

**Introduce Credit Card Offers to Retain Users**

* **Promote low-fee or reward-based credit cards to reduce churn among cardless customers.**

**Strengthen Relationships with High-Risk and High-Value Customers**

* **Provide personal relationship managers, rewards, or financial advice to high-risk/high-balance groups.**

**Churn Prevention Program for Age Group 40–49**

* **Understand their financial goals, and create products tailored to their needs (e.g., retirement, investment plans).**

**Monitor and Improve Customer Experience Regularly**

* **Use NPS surveys, complaint analysis, and feedback channels.**

**Conclusion :-**

**This churn analysis revealed that customer behavior, demographics, and financial engagement strongly influence churn rates. Although high salaries or credit scores might suggest loyalty, they do not guarantee retention. The churn is highest among inactive, high-risk, and non-credit card users, especially in Germany and among middle-aged customers.**

**By addressing these insights with targeted marketing, improved customer service, and personalized product offerings, the bank can reduce churn, boost retention, and increase lifetime customer value.**