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**Tools Used:** SQL, Power BI, Excel  
**Timeframe:** 2021–2024

**Executive Summary**

**Purpose:**  
This analysis evaluates customer churn in a retail banking dataset to identify drivers of attrition and provide actionable recommendations to retain high-value clients.

**Key Findings:**

* **Demographics:** Female (25.6%) and middle-aged clients (35–54, 26.7%) show elevated churn. German customers are at highest risk (32.1%).
* **Behavioral Patterns:** Clients with 2 products churn the least (8%), while those with 3+ products churn at 83–100%, indicating a need for better product engagement. Inactive clients have nearly double the churn rate of active clients.
* **Financial Factors:** Credit score and salary minimally impact churn. High-balance clients ($80K+) churn disproportionately (24%), suggesting retention opportunities.

**Business Implications:**  
Churn threatens revenue, increases acquisition costs, and risks eroding market share. Targeted interventions focused on high-risk segments can directly reduce attrition and improve profitability.

**Objective & Approach**

**Business Questions:**

* Which customers are most likely to churn and why?
* How can product usage and engagement strategies reduce churn?
* Are there regional or demographic segments at higher risk?

**Approach:**

1. **Data Cleaning & Preprocessing:** Removed NULLs, duplicates, standardized variables, created age buckets, calculated churn rates.
2. **Analysis:**
   * SQL for extraction, segmentation, and KPI calculation
   * Power BI for interactive dashboards showing churn trends by demographic, behavioral, and financial features
3. **Limitations:**
   * Dataset lacks transaction-level details and product specifics.
   * Extreme churn among 4-product clients (100%) requires further investigation.

**Data Analysis & Insights**

**Demographic Drivers:**

* Female clients churn higher than males (25.6% vs 17%).
* Middle-aged clients (35–54) churn at 26.7%; seniors (55+) at 39.1%, though in a smaller sample.
* Germany: 32.1% churn, highlighting urgent retention focus.

**Behavioral Drivers:**

* 2-product customers are the most loyal (8% churn).
* Customers with 3+ products experience extreme churn (83–100%).
* Inactive clients churn at 27.6% vs active clients at 14.8%.

**Financial Drivers:**

* Minimal impact from credit score or salary (2–3% variance).
* High-balance clients ($80K+) show elevated churn (24%), indicating retention opportunities.

**Recommendations & Business Impact**

**Retention & Engagement Strategies:**

1. **High-Risk Segments:** Develop loyalty programs for females, middle-aged clients, and German customers to reduce attrition by 10–15%.
2. **Product Strategy:**
   * Encourage 1-product customers to adopt a second product to reduce churn.
   * Investigate and resolve extreme 4-product churn to stabilize retention.
3. **Activity & Communication:**
   * Re-engage inactive clients via personalized campaigns.
   * Provide high-balance clients with premium offers to prevent churn.

**Projected Impact:**  
Implementing these strategies could **reduce churn by up to 15%** among high-risk groups, directly improving customer lifetime value and revenue retention.

**Next Steps**

* Conduct predictive modeling to proactively flag at-risk customers.
* Deep-dive into German market churn drivers.
* Explore behavioral drivers for multi-product clients.
* Test targeted interventions and monitor KPI improvements.

**Deliverables**

* SQL queries for data cleaning and KPI calculation
* Power BI dashboard with demographic, behavioral, and financial insights
* Excel files for raw and cleaned datasets
* Python scripts for data preprocessing (optional predictive modeling)