CASE STUDY: Customer Behavior & Channel Optimization in Retail Banking

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📖 About the Project

This case study explores transaction behavior, platform performance, and customer experience within a fictional retail banking ecosystem. Using synthetic yet realistic data across four tables, we simulate a real-world analytics scenario that mirrors challenges faced by modern digital banks. The analysis focuses on customer segmentation, channel profitability, support pain points, and strategic decision-making.

⚠️ Problem Statement

The bank operates across multiple digital and physical channels (USSD, POS, Web, Apps, Cards) and offers various banking products. However, leadership lacks clarity on how customers interact with these channels, which platforms generate the most value, and where the bottlenecks in customer experience exist.

Key challenges:

- Poor visibility into channel performance beyond transaction count
- Lack of segmentation based on behavior or profitability
- Rising customer complaints without clear attribution
- Low insights into product adoption by demographic segment

🎯 Project Objectives

1. Identify which customer groups generate the highest transaction volume and value
2. Evaluate channel performance across revenue (fees), usage, and customer satisfaction
3. Uncover key drivers of support complaints
4. Build a customer segmentation model to inform strategic decisions
5. Provide recommendations on where to invest, optimize, or improve

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📄 Available Data Tables

1. **Customers**: customer_id, account details, demographics, products, region
2. **Transactions**: individual transaction logs including amount, type, channel, and currency
3. **Channel Metadata**: operational info about each transaction channel (fees, providers)
4. **Support Tickets**: logs of customer complaints and their resolution times

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📊 Stakeholder Requests (SQL-Driven Questions)

These are the real stakeholder queries, designed to touch on **intermediate to advanced SQL areas**, such as joins, CTEs, subqueries, and window functions.

1. Channel Fee Profitability (Join + Aggregation)

Which transaction channel generates the most revenue in fees for the bank overall, and how does that break down by currency?

2. High-Value Customer Identification (CTE + Aggregation)

Who are the top 10 customers by total debit transaction amount in the last 12 months, and what account type and product do they use?

3. Channel Preference by Demographics (Join + Grouping)

How do male and female customers differ in their usage of channels, especially digital vs physical ones?

4. Complaint Density by Customer Segment (Join + Subquery)

Which customer product and region combinations have the highest average number of complaints per customer?

5. Time to Resolution Trend (CTE + Date Logic)

What is the monthly average complaint resolution time over the last 12 months? Has it improved?

6. Multi-Currency Risk Profile (Join + Aggregation + Filtering)

What percentage of all debit transactions in foreign currencies (non-Naira) came from customers in each account type?

7. Silent Customers (Subquery + Anti-Join)

Which customers have not made any transactions in the past 6 months but have active accounts?

8. Complaint vs Transaction Volume Correlation (Join + Ranking)

Are the customers with the most complaints also among those with the highest number of transactions? Rank them.

📈 Expected Deliverables

- SQL queries with insights and commentary
- Optional: Visual dashboards showing trends and segmentations
- Executive summary with recommendations

🏋️ Business Impact

This project supports smarter channel investment decisions, improved customer satisfaction, and deeper behavioral insights that can drive personalization and retention strategies. It also builds your credibility in stakeholder-facing analytics roles by tying SQL skills to real business questions.