[DIGITAL PAYMENT TRANSACTIONS]

[Microsoft Power BI specialist final project]

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CLS

Team4

Contents

Chapter 1
Data Overview & Methodology

This chapter outlines the foundational structure of the dataset, the objectives of the analysis, and the data cleaning protocols applied to ensure accuracy.

1.1 Dataset Specifications

The analysis is based on the "EG Bank Digital Wallet Transactions Dataset". It contains one main table with detailed transactional data covering the following key areas:

- **Transaction Details:** Transaction ID, Date, Amount, and Status
- **User Behavior:** User IDs and Loyalty Points
- **Merchant Performance:** Merchant Names and Unique IDs.
- **Financial Metrics:** Transaction Fees, Cashback, and Product Categories.
- **Technical Dimensions:** Payment Methods, Device Types (iOS/Android/Web), and Location (Urban/Suburban/Rural).

Data Types Configured:

- **Text/Categorical:** Transaction ID, User ID, Product Category, Merchant Name, Payment Method, Status, Device Type, Location.
- **Numerical/Decimal:** Product Amount, Transaction Fee, Cashback.
- **Integer:** Index (idx), Loyalty Points.
- **Date Time:** Transaction Date.

1.2 Objectives & Key Questions

The primary goals of this dashboard documentation are:

- Daily monitoring of digital wallet transactions.
- Understanding customer behavior and spending patterns.
- Evaluating merchant performance and monitoring transaction fees/profitability.
- Simplifying insights to display full details clearly[15].

Key Business Questions Addressed:

1. Which merchants have the highest transaction volume?
2. What is the average daily transaction amount?
3. What is the most commonly used payment method?
4. Which product categories are the most popular?
5. How are transaction fees distributed across merchants and categories?
6. How are users distributed by device type and location?
7. Which transactions generate the highest Cashback and Loyalty Points?

1.3 Data Preparation & Measures

Data Cleaning Process:

To ensure data integrity, the following steps were taken:

1. Validated data types and handled missing values.
2. Removed duplicate `transaction_id` entries.
3. Standardized spelling for categories and payment methods.
4. Extracted time features (day, month, hour).
5. Created derived columns such as Net Amount and Cashback Rate.

Key Performance Indicators (Measures):

- Total Transactions and Total Transaction Amount.
- Total Fees Collected vs. Total Cashback Distributed.
- Average Transaction Value.
- Success Rate (%).

Chapter 2
Financial Performance & Revenue Analysis

This chapter analyzes the revenue streams, merchant partnerships, and the critical balance between fees collected and cashback incentives paid.

2.1 Revenue Composition by Payment Method

[Chart1: Total Revenue by Payment Method]

- **Description:** The data shows a balanced revenue distribution across five payment methods. "Bank Transfer" leads slightly at **5.3M**, closely followed by "Debit Card" at 5.2M. "Wallet Balance" generates the lowest revenue at **4.6M**.
- **Insight:** There is no single dominant payment channel; customers are comfortable using a wide variety of methods. However, "Wallet Balance" is the least utilized, suggesting users prefer direct withdrawal methods over storing value in the app.
- **Problem Statement:** The "Wallet" ecosystem usually offers higher margins and retention for fintech apps, but it is currently the lowest revenue driver. This represents a missed opportunity for creating a sticky user base.
- **Solution:** Launch a "Wallet-First" campaign offering exclusive micro-incentives (e.g., 1% extra cashback) specifically for transactions made via Wallet Balance.

2.2 Revenue Composition by Product category

[Chart2: Total Revenue by Product category]

- **Description:** Horizontal bar chart ranking **total revenue** by product category, Categories include **Rent Payment (1.55M), Streaming Service (1.46M), Water Bill (1.44M), Online Shopping (1.42M), Flight Booking (1.39M)** Rent Payment generates the highest revenue.
- **Insight:** Rent Payments **are the top revenue contributor.** Streaming Services & Water Bills **also perform strongly.** Flight Booking **is the lowest category**

but still close to others. Overall, revenue is distributed evenly**, with no extreme outliers.**

- **Problem Statement:** Despite similar revenue levels, there is **no clear category specialization**. Lower-performing categories (e.g., Flight Booking) may indicate: Weak integrations with providers, Lower customer adoption.

- **Solution:** Perform **margin analysis** to identify profit vs. revenue. Enhance partnerships and promotional strategies for **lower revenue categories** (Flight Booking, Online Shopping). Build personalized recommendations for users to boost usage in weaker categories.

2.3 Profitability Analysis (Cashback vs. Fees)

[Chart 3: Total Cashback Paid vs. Total Fees Collected]

- **Description:** A comparison of Cashback Paid (Light Blue) vs. Fees Collected (Dark Blue) per category. In almost every category, **Cashback Paid is roughly double the Fees Collected**.

- **Insight:** For "Rent Payment," the platform pays ~15.9K in cashback to collect only ~7.5K in fees.

- **Problem Statement:** The current unit economics are unsustainable. The platform is losing money on every transaction to acquire volume. "Rent Payment" is the largest "loss leader."

- **Solution:** Restructure the monetization model. Cap cashback amounts for high-volume categories. Introduce a tiered subscription model where only "Premium" users get high cashback.

2.4 Revenue Trend Analysis (Critical Alert)

[Chart 4: Total Revenue by Year and Quarter]

- **Description:** Revenue peaked at **6.2M** from Oct 2023 to April 2024, followed by a sharp crash to **3.5M** in July 2024.
- **Insight:** The company has lost nearly **45% of its quarterly revenue** in the most recent quarter.
- **Problem Statement: Critical Business Emergency.** The steep drop indicates a major event: a technical outage, the loss of a key merchant partner, or a marketing collapse.
- **Solution:** Immediate "Code Red" investigation to isolate the drop. Check Merchant Churn and Technical Stability immediately.

Chapter 3
Merchant Performance & KPI's analysis

3.1 Transaction Reliability

[Chart 5: Total Transaction Count by Status]

- **Description:** Transaction status breakdown: **Successful (95.1%)**, Failed (2.92%), Pending (1.98%).
- **Insight:** While 95% is acceptable, a nearly **5% failure/pending rate** is high for financial transactions.
- **Problem Statement:** This friction creates trust issues and increases customer support costs.
  Solution: Conduct a root cause analysis on "Failed" transactions to identify if they are specific to one bank or merchant. Implement automated reversals for "Pending" transactions

3.2 Merchant Partner Performance

[Chart6: Total Revenue by Merchant Name]

- **Description:** A ranking of the top 10 merchants shows **Airbnb (0.55M)**, **Flipkart (0.45M)**, and **MakeMyTrip (0.43M)** as the top three revenue generators.
- **Insight:** Revenue is heavily driven by high-ticket discretionary spending (Travel and E-commerce). Essential services like Utilities (CESC) generate significantly less revenue per merchant.
- **Problem Statement:** The platform's revenue is sensitive to economic downturns. If users cut back on travel or shopping, the top revenue sources will shrink instantly.
- **Solution:** Diversify the merchant portfolio. Launch aggressive partnerships with essential recurring billers (Insurance, Rent, Education) to build a recession-proof revenue floor.

3.3 Merchant Fees

[Chart 7: sum of fee collected by merchant name]

- **Description:** The chart shows which merchants bring in the most money from transaction fees. The top three are **Flipkart** (**e-commerce**), **Airbnb** (**travel**), and **MakeMyTrip** (**travel**).
- **Insight:** The merchants that drive the highest transaction volume (like the top three) are also the ones where the platform successfully collects the **highest fees**. This proves our current fee mechanism is highly effective and optimized for **large-ticket purchases**.
- **Problem:** Fees are extremely low on **essential daily services** (like Mumbai Water and CESC). This means we're successfully acquiring customers for these daily needs, but we're barely making any money from the high number of transactions they perform.
- **Solution:** Introduce a small, **flat convenience fee** (e.g., $0.50) specifically for low-value, high-frequency transactions like utility bill payments. This would dramatically increase fee revenue without relying on volatile luxury spending.

Chapter 4
Customer Demographics & Segmentation

This chapter examines the user base composition, highlighting significant geographic and technological disparities.

4.1 Geographic Concentration Risk

[Chart 8: Total Revenue by Location Pie Chart]

- **Description:** Breakdown of revenue by location: **Urban (72.98%)**, Suburban (18.05%), Rural (8.97%).
- **Insight:** Almost **73%** of all revenue comes from Urban areas.
- **Problem Statement:** Extreme geographic concentration risk. Any regulatory change or competitor entry in major urban centers will disproportionately damage the company's total revenue.
- **Solution:** Set a strategic KPI to grow the Suburban/Rural share to 35% within the next fiscal year through specific product bundles (e.g., regional utility providers).

4.2 Service Usage by Demographics

[Chart 9: Count of Location by Product Category]

- **Description:** Transaction volume for categories (Rent, Streaming, Shopping) split by location. **Urban** users overwhelmingly dominate every category.
- **Insight:** The product is effectively an "Urban-only" product. Rural and Suburban segments are statistically insignificant compared to Urban usage.
- **Problem Statement:** Market penetration in Rural and Suburban areas is critically low. The current product market fit is limited to city centers.
- **Solution:** Conduct user research in Suburban/Rural areas to understand barriers (connectivity, merchant relevance). tailored marketing campaigns for "Tier 2" cities are required.

4.3 Device & OS Analysis

[Chart 10: Device Usage] and [Insert Chart 11: Cashback by Device]

- **Description:** Android users drive the highest volume (152K Cashback vs 75K Fees), compared to iOS (78K Cashback vs 38K Fees).
- **Insight:** Urban usage on Android is the dominant user archetype. However, Android transactions burn cash at a 2:1 ratio (Cashback to Fees).
- **Problem Statement:** Scaling the user base on Android linearly increases financial losses under the current model.
- **Solution:** Differentiate offers by platform. Test lowering cashback specifically for Android users or implementing higher transaction fees for high-value Android transactions.

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Chapter 5
Strategic Recommendations

Based on the data overview and the visual analysis, the following actions are recommended:

1. **Immediate Priority (Code Red):** Investigate the Q3 Revenue Crash (Chart 3). Identify if the 45% drop was technical or commercial and deploy a recovery team.
2. **Financial Restructuring:** Address the negative unit economics where Cashback > Fees. Reduce cashback on Rent Payments and introduce subscription tiers.
3. **Expansion Strategy:** Move beyond the "Urban-Only" model. Target Suburban growth to reduce the 73% Urban dependency.
4. **Operational Fixes:** Reduce the 5% transaction failure rate to improve user trust and reduce support ticket volume.