Paytm End-to-End Data Analysis

Transforming raw transactional data into actionable business insights for digital payments optimization

Understanding Customer Behavior

Despite a large user base, Paytm faces challenges understanding customer behavior, transaction failures, service adoption patterns, and revenue contribution across multiple digital financial services.

Key Services Analyzed

- Recharge & Bills
- Money Transfer
- Loans
- Insurance

Project Objective

Analyze Behavior

Understand usage patterns across all Paytm services

Identify Failures

Detect transaction failure causes and patterns

Segment Customers

Group users by engagement and service adoption

Drive Growth

Improve engagement, retention, and operational efficiency

Technical Stack & Methodology

Python Analysis

Pandas, NumPy, Matplotlib, and Seaborn for data cleaning and exploratory analysis

SQL Modeling

MySQL for data modeling, joins, aggregation, and business queries

Power BI Dashboards

Interactive visualizations and KPI tracking for stakeholders

Version Control

Jupyter Notebook for analysis workflow and GitHub for project hosting

Data Cleaning & Transformation

01

Handle Missing Values

Identified and resolved null values across all datasets

02

Standardize Categories

Ensured consistent categorical values and data types

03

Create Metrics

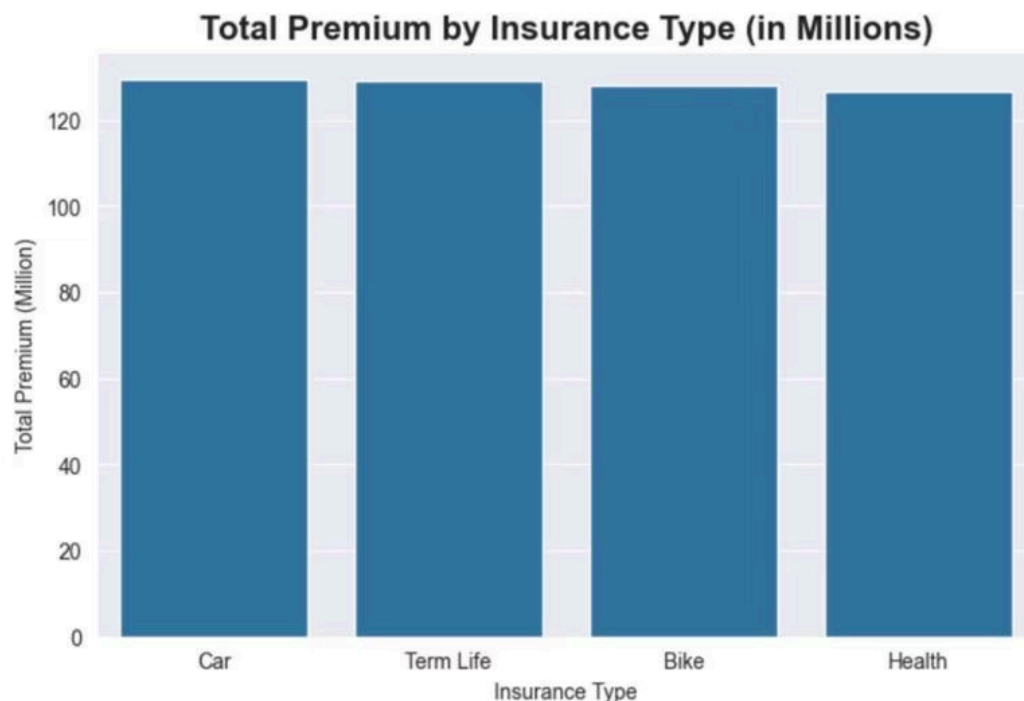Derived transaction success rates and engagement indicators

04

Drop Irrelevant Data

Removed unused columns to streamline analysis

Key Findings: Transaction Performance

Total Premium by Insurance Type (in Millions)

Insurance Premium Distribution

All four insurance types (Car, Term Life, Bike, Health) generated approximately **120 million** in total premiums, showing balanced performance across categories.
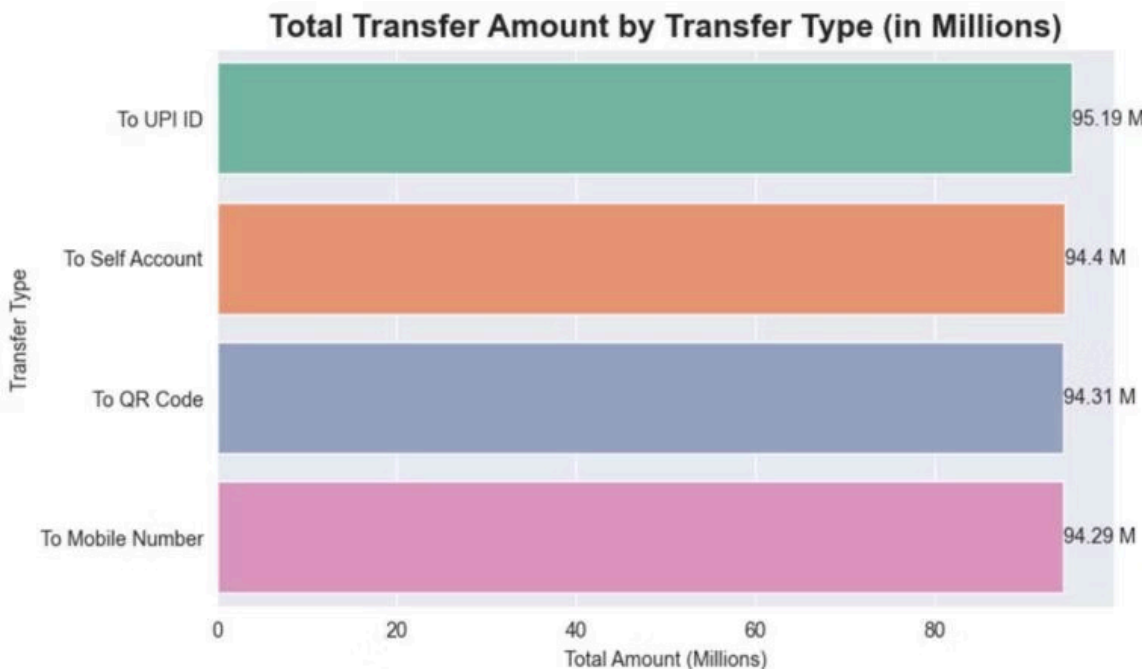
🗒 Equal distribution suggests strong market penetration across all insurance segments

Transaction Success & Failure Analysis

Loan Payment Status Distribution

Total Transfer Amount by Transfer Type (in Millions)

Loan Payment Status

Success rate: **95.9%** (47,973 successful vs 2,027 failed)

Money Transfer Distribution

Balanced usage across all transfer types: UPI ID (95.19M), Self Account (94.4M), QR Code (94.31M), Mobile (94.29M)

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Power BI Dashboard Insights

3.3B

Total Amount

Transaction volume processed

288K

Successful Transactions

96% success rate

12K

Failed Transactions

4% failure rate requiring attention

Critical Business Findings

High Volume, High Failure

Recharge & Bills drive highest transaction volume but show significant failure rates, indicating operational improvement opportunities

Failure Pattern Concentration

Server errors (33.76%), Wrong PIN (27.61%), and Insufficient funds (27.11%) account for majority of failures

High-Value Multi-Service Users

Subset of customers actively uses multiple Paytm services, representing prime targets for retention

Cross-Selling Potential

Strong opportunities exist between Recharge users and Financial services (Loans & Insurance)

Strategic Recommendations

Improve Gateway Reliability

Reduce recharge failures by addressing server errors and payment processing issues

Launch Loyalty Programs

Target high-frequency users with rewards to increase retention and lifetime value

Drive Cross-Selling

Promote Financial services to active Recharge & Bills customers

Optimize Recovery Flows

Improve UX for failed transaction recovery to reduce customer frustration

Focus Marketing Efforts

Concentrate campaigns on high-performing customer segments for maximum ROI

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