📊 PhonePe Transaction Analytics – Case Study

📌 Project Title

PhonePe Transaction, Recharge, Loan & Insurance Analytics Dashboard

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🎯 Project Objective

📊 PhonePe Transaction Analytics – Case Study (Updated)

□ Data Handling & Scale (as part of the project)

- **Worked with 6 interrelated tables simultaneously to perform end-to-end analysis.**
- **Managed datasets ranging from:**
  - **Minimum: ~50,000 records**
  - **Maximum: ~30 lakh (3 million) records**
- **Performed aggregation, grouping, filtering, and relationship-based analysis across these tables to generate consolidated insights.**
- **Ensured data consistency and correctness while handling large-volume transactional data.**

This highlights the ability to work with both mid-scale and high-volume real-world datasets, similar to production-level business data.

The objective of this project was to **analyse PhonePe transaction data** to understand **user behaviour, transaction patterns, service usage, failures, and revenue trends** across multiple financial products such as:

- Money Transfers
- Mobile & Utility Recharges
- Loans
- Insurance

The project focuses on converting raw transaction data into **business-ready insights using Power BI dashboards**.

□ Why I Chose This Project

- PhonePe is a **high-volume digital payments platform**, making it ideal for real-world analytics.
- The dataset contains **multiple business domains** (payments, recharges, loans, insurance), allowing deep analysis.
- This project demonstrates my ability to:
    - Perform **EDA**
    - Build **interactive dashboards**
    - Extract **business insights**
    - Communicate findings clearly for decision-making

🛠 Tools & Technologies Used

1. **Excel – Data source, initial inspection, and data validation**
2. **Power BI – Data modeling, relationships, and interactive visualizations**
3. **DAX – Measures, KPIs, and calculated metrics**
4. **Python (Pandas, NumPy) – Data cleaning, transformation, and aggregation**
5. **Seaborn & Matplotlib – Exploratory data analysis (EDA) and visualizations**
6. **EDA Techniques – Trend analysis, distribution analysis, and comparative analysis**

🗁 Data Overview

The dataset includes the following key attributes:

- User_ID
- Transaction_ID
- Date
- Amount
- Transfer Type
- Recharge Type
- Loan Type
- Insurance Type
- Payment Status

- Failure Reason
- Age Group
- Weekday / Month / Quarter / Year

📈 Analysis Performed

1️⃣ Overall Platform Performance

- **Total Transaction Amount:** 3474M
- **Total Payments:** 300K
- **Total Transactions:** 300K
- **Total Users:** 108K
- **Failed Transactions:** 9,980

This gives a clear snapshot of **platform scale and reliability**.

2️⃣ Money Transfer Analysis

- Analysed **transfer types**:
    - To Mobile Number
    - To QR Code
    - To Self Account
    - To UPI ID
- All transfer types show **almost equal usage**, indicating diversified user behavior.
- **Monthly trends** show stable transaction volumes with moderate fluctuations.

3️⃣ Weekday User Behaviour

- User activity varies across weekdays.
- **Mid-week days (Tuesday & Wednesday)** show higher engagement.
- Helps in planning **system load & campaigns**.

4️⃣ Recharge Analysis

- Recharge types analysed:
    - Mobile Recharge
    - Electricity Bill
    - DTH
    - Cable TV
- **Mobile Recharge** has the highest transaction volume.
- Quarterly analysis shows **consistent demand**, with Q3 & Q4 slightly higher.

5️⃣ Loan Analysis

- Loan types analysed:
    - Auto Loan
    - Credit Score
    - Gold Loan
    - Mutual Fund
- **Auto Loan & Credit Score services** dominate usage.
- Monthly loan amount trend shows a **peak around mid-year**, indicating seasonal borrowing behaviour.

6️⃣ Insurance Analysis

- Insurance types analysed:
    - Bike
    - Car
    - Health
    - Term Life
- **Bike and Car insurance** contribute the largest share.
- Monthly insurance amount trends remain stable with slight peaks.

7️⃣ Failure & Payment Status Analysis

- Majority of transactions are **successful (≈96%)**.
- Key failure reasons:
    - Insufficient Amount
    - Server Error
    - Wrong PIN
- This highlights **system reliability** with clear areas for UX improvement.

8️⃣ Age Group Analysis

- **Senior Adults** contribute the highest transaction amount.
- Followed by **Middle Adults**, then **Young Adults**.
- Indicates higher financial engagement among older users.

📊 **Key Business Insights**

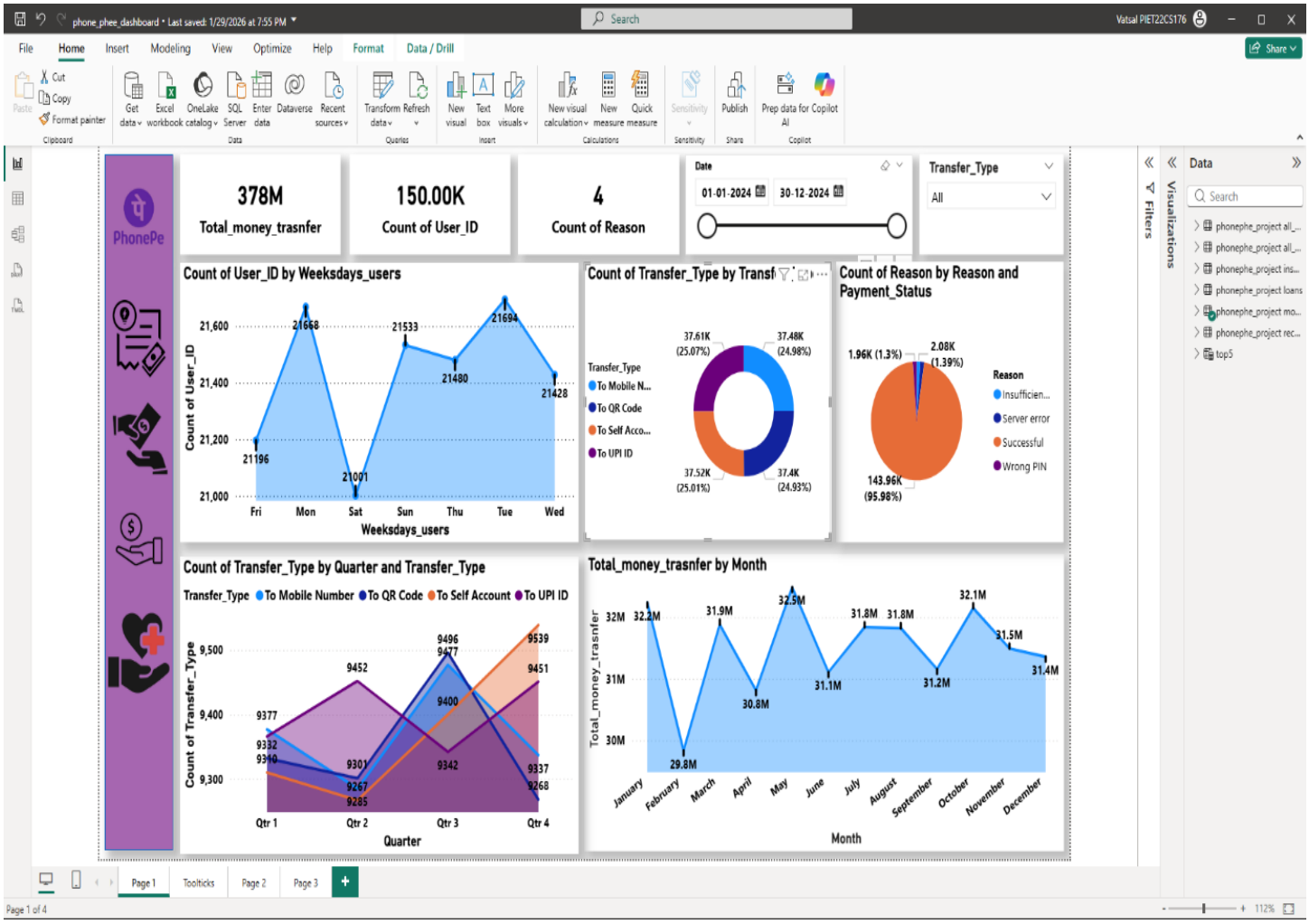
- PhonePe has **high transaction success rates**, indicating strong system stability.
- Users actively utilize **multiple financial services**, not limited to payments.
- **Mobile recharges and money transfers** are core revenue drivers.
- Loan and insurance services show **steady adoption**, indicating cross-selling potential.
- Failure analysis helps identify **process improvement opportunities**.

🎯 **Business Outcomes**

- Enables stakeholders to:
    - Optimize **service offerings**
    - Improve **failure resolution**
    - Target **high-value user segments**
    - Plan **marketing campaigns by time & service type**
- Dashboards provide **real-time, decision-ready insights**.

What I Learned from This Project

- Designing **end-to-end analytical dashboards**
- Writing **business-focused KPIs**
- Handling **multi-domain financial data**
- Translating data into **clear business stories**
- Improving **data visualization & storytelling skills**



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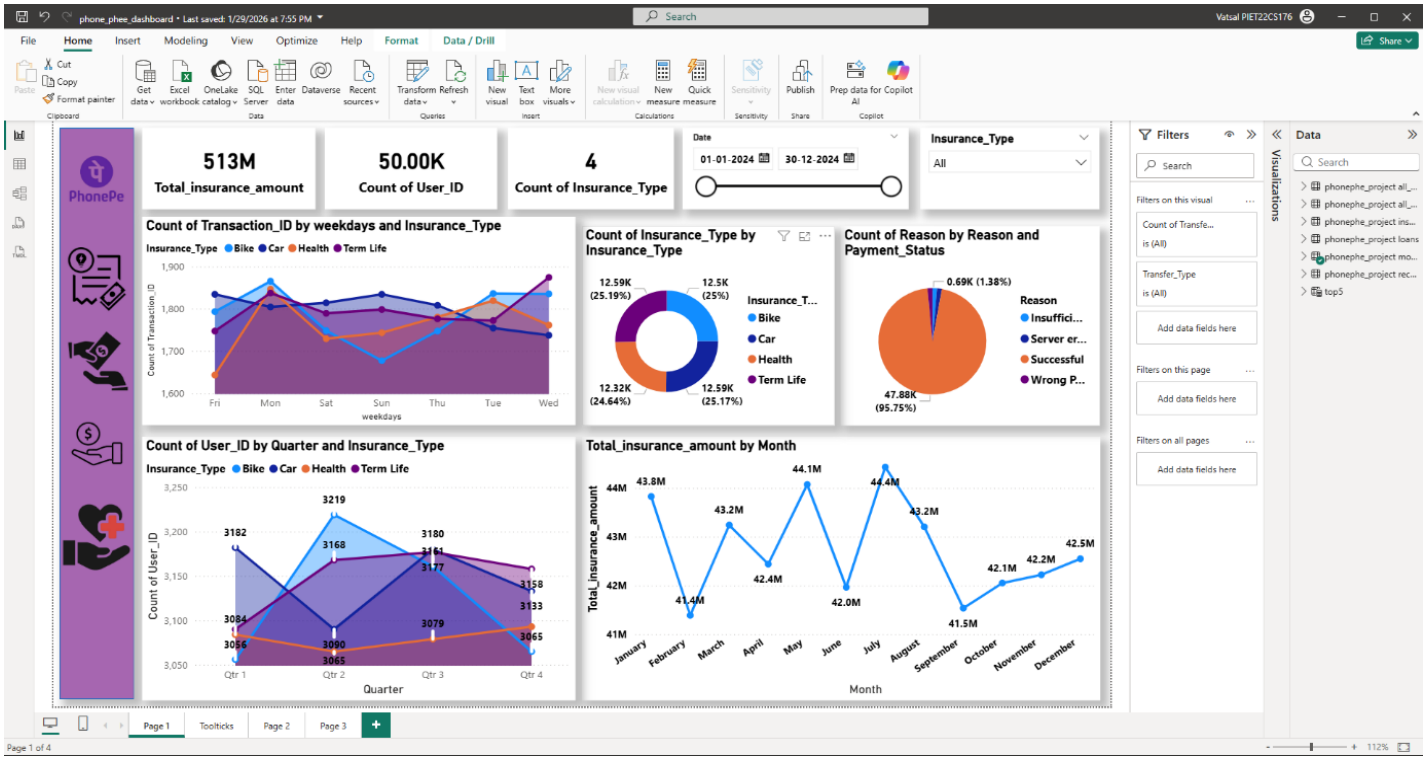
513M
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50.00K
Count of User_ID
4
Count of Insurance_Type
Date
01-01-2024
30-12-2024
Insurance_Type
All
Count of Transaction_ID by weekdays and Insurance_Type
Insurance_Type Bike Car Health Term Life
Count of Transaction_ID
1,900
1,800
1,700
1,600
Fri Mon Sat Sun Thu Tue Wed
weekdays
Count of Insurance_Type by Insurance_Type
12.59K (25.19%)
12.5K (25%)
12.32K (24.64%)
12.59K (25.17%)
Insurance_T...
Bike
Car
Health
Term Life
Count of Reason by Reason and Payment_Status
0.69K (1.38%)
47.88K (95.75%)
Reason
Insuffici...
Server er...
Successful
Wrong P...
Count of User_ID by Quarter and Insurance_Type
Insurance_Type Bike Car Health Term Life
Count of User_ID
3,250
3,200
3,150
3,100
3,050
3219
3182
3168
3180
3161
3177
3158
3133
3084
3056
3090
3079
3065
3065
Qtr 1 Qtr 2 Qtr 3 Qtr 4
Quarter
Total_insurance_amount by Month
Total_insurance_amount
44M
43M
42M
41M
43.8M
41.4M
43.2M
42.4M
44.1M
42.0M
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43.2M
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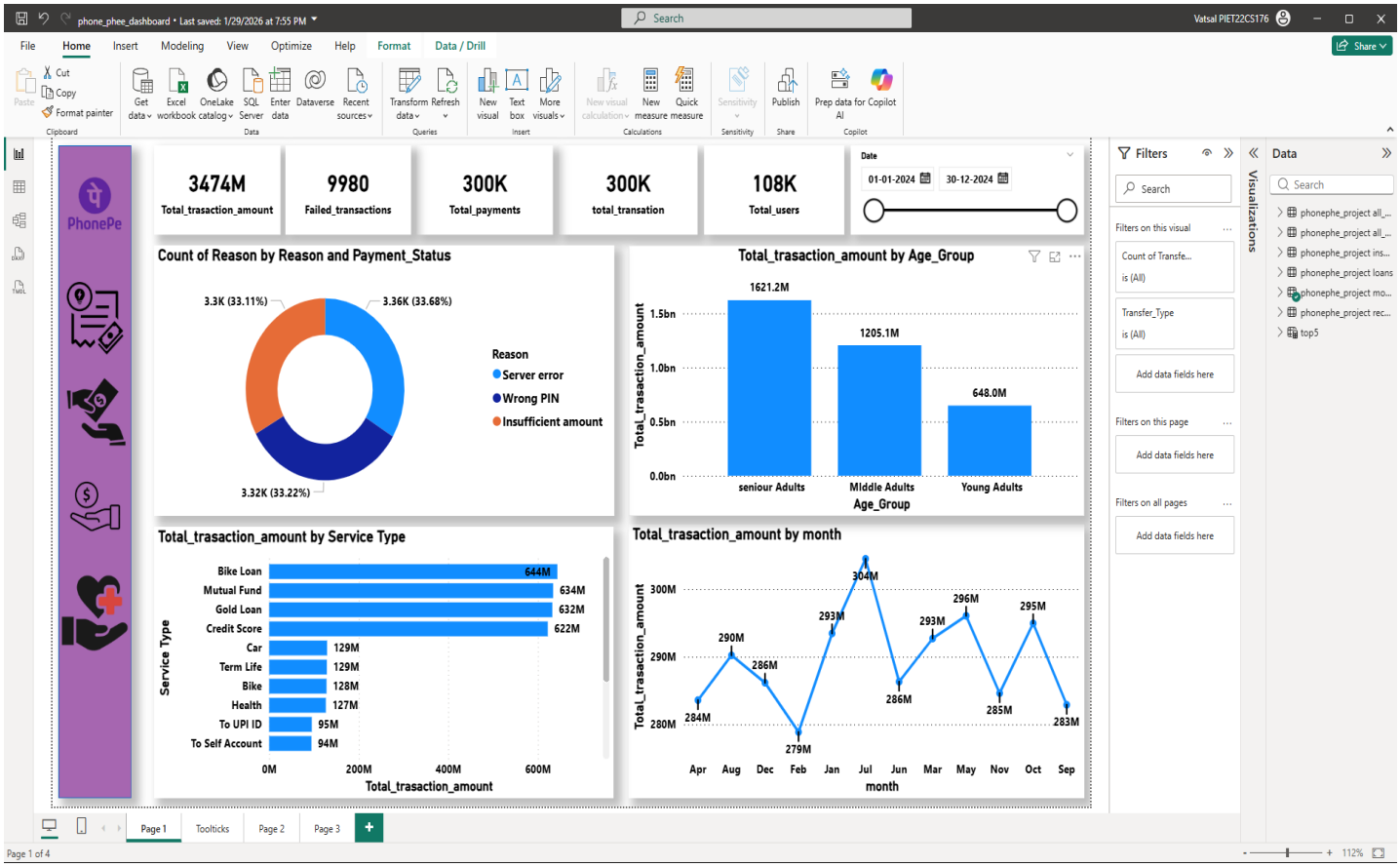
3474M
Total_trasaction_amount
9980
Failed_transactions
300K
Total_payments
300K
total_transation
108K
Total_users
Date
01-01-2024
30-12-2024
Count of Reason by Reason and Payment_Status
3.3K (33.11%)
3.36K (33.68%)
3.32K (33.22%)
Reason
Server error
Wrong PIN
Insufficient amount
Total_trasaction_amount by Age_Group
Total_trasaction_amount
1.5bn
1.0bn
0.5bn
0.0bn
1621.2M
1205.1M
648.0M
seniour Adults
Middle Adults
Young Adults
Age_Group
Total_trasaction_amount by Service Type
Service Type
Bike Loan 644M
Mutual Fund 634M
Gold Loan 632M
Credit Score 622M
Car 129M
Term Life 129M
Bike 128M
Health 127M
To UPI ID 95M
To Self Account 94M
0M 200M 400M 600M
Total_trasaction_amount
Total_trasaction_amount by month
Total_trasaction_amount
300M
290M
280M
284M
290M
286M
279M
293M
304M
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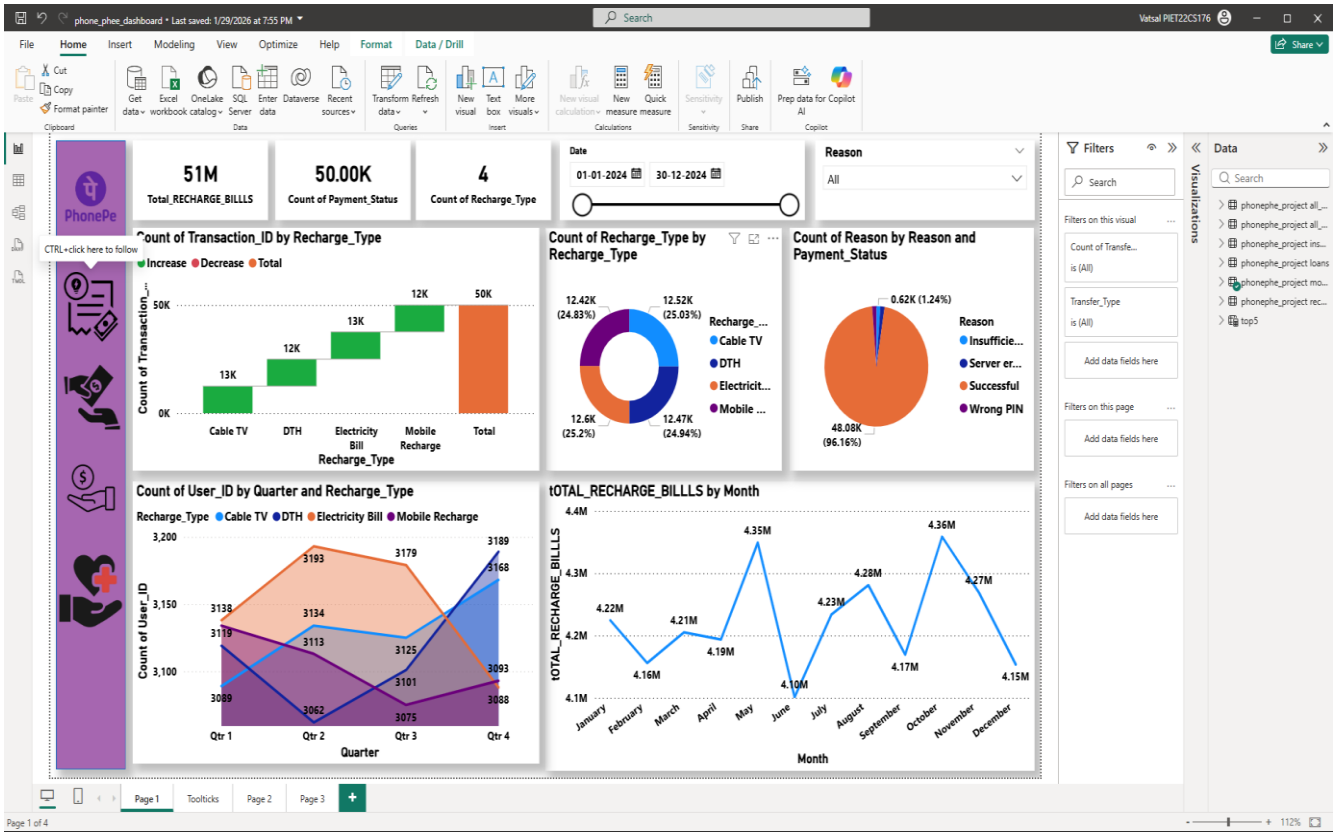
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51M
Total_RECHARGE_BILLLS
50.00K
Count of Payment_Status
4
Count of Recharge_Type
Date
01-01-2024
30-12-2024
Reason
All
Count of Transaction_ID by Recharge_Type
Increase Decrease Total
Count of Transaction_ID
50K
0K
13K
12K
13K
12K
50K
Cable TV
DTH
Electricity Bill
Mobile Recharge
Total
Recharge_Type
Count of Recharge_Type by Recharge_Type
12.42K (24.83%)
12.52K (25.03%)
12.6K (25.2%)
12.47K (24.94%)
Recharge_...
Cable TV
DTH
Electricit...
Mobile ...
Count of Reason by Reason and Payment_Status
0.62K (1.24%)
48.08K (96.16%)
Reason
Insufficie...
Server er...
Successful
Wrong PIN
Count of User_ID by Quarter and Recharge_Type
Recharge_Type Cable TV DTH Electricity Bill Mobile Recharge
Count of User_ID
3,200
3,150
3,100
Qtr 1
Qtr 2
Qtr 3
Qtr 4
Quarter
tOTAL_RECHARGE_BILLLS by Month
tOTAL_RECHARGE_BILLLS
4.4M
4.3M
4.2M
4.1M
January
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Filters
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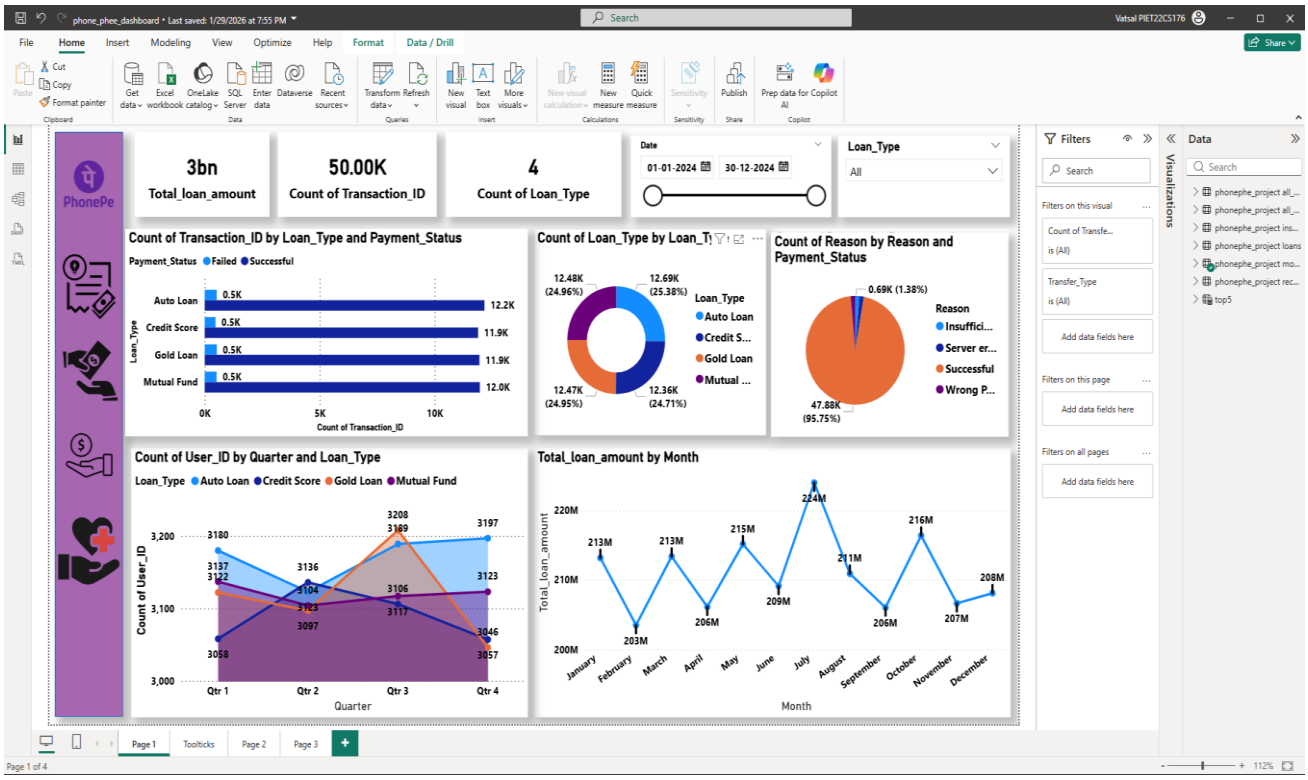
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3bn
Total_loan_amount
50.00K
Count of Transaction_ID
4
Count of Loan_Type
Date
01-01-2024
30-12-2024
Loan_Type
All
Count of Transaction_ID by Loan_Type and Payment_Status
Payment_Status Failed Successful
Loan_Type
Auto Loan 0.5K 12.2K
Credit Score 0.5K 11.9K
Gold Loan 0.5K 11.9K
Mutual Fund 0.5K 12.0K
0K
5K
10K
Count of Transaction_ID
Count of Loan_Type by Loan_T...
12.48K (24.96%)
12.69K (25.38%)
12.47K (24.95%)
12.36K (24.71%)
Loan_Type
Auto Loan
Credit S...
Gold Loan
Mutual ...
Count of Reason by Reason and Payment_Status
0.69K (1.38%)
47.88K (95.75%)
Reason
Insuffici...
Server er...
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Wrong P...
Count of User_ID by Quarter and Loan_Type
Loan_Type Auto Loan Credit Score Gold Loan Mutual Fund
Count of User_ID
3,200
3,100
3,000
Qtr 1
Qtr 2
Qtr 3
Qtr 4
Quarter
Total_loan_amount by Month
Total_loan_amount
220M
210M
200M
January
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Page 1
Toolticks
Page 2
Page 3
Page 1 of 4
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📌 Conclusion

This project demonstrates my ability to **analyse complex transaction data**, build **professional Power BI dashboards**, and generate **actionable business insights** aligned with real-world fintech use cases.