

1. Project Title

FinTech Transactions – SQL End-to-End Analysis

2. Objective

Analyze customer transactions, accounts, and digital payments in a FinTech ecosystem using SQL. The project demonstrates end-to-end SQL skills, from basic querying to advanced analytics with CTEs and window functions.

3. Business Problem

FinTech companies need insights into customer behavior, transaction patterns, and wallet usage to make strategic decisions. The challenge includes: - Understanding customer demographics and segmentation. - Analyzing transaction behaviors (deposits, withdrawals, payments, transfers). - Evaluating wallet adoption and cashback trends. - Monitoring balances and fees

4. Dataset Overview

The project uses **4 synthetic datasets (1000+ records each)**:

Customers Table

customer_id, name, age, gender, city, account_type, join_date

Accounts Table

account_id, customer_id, account_balance, account_status, last_updated

Transactions Table

txn_id, account_id, txn_date, txn_type, amount, merchant, fee

Digital_Wallet_Usage Table

wallet_id, customer_id, wallet_provider, txn_date, amount_spent, cashback

5. Data Cleaning Steps

Handled missing values for critical columns.

Removed duplicate records using ROW_NUMBER.

Standardized date and numeric formats.

Handled outliers (ensuring positive balances and transaction amounts).

Ensured referential integrity between tables.

6. Primary & Foreign Key Assignments

Customers: customer_id (PK)

Accounts: account_id (PK), customer_id → Customers (FK)

Transactions: txn_id (PK), account_id → Accounts (FK)

Digital Wallet Usage: wallet_id (PK), customer_id → Customers (FK)

7. SQL Problem Set & Solutions

Covers 16 queries: - **Basic Queries:** Customer listing, account counts, top balances. - **Joins:** Customer-account mapping, transaction aggregation, wallet usage. - **Subqueries:** Average balance comparison, high-value transactions, merchant aggregation. - **CTEs:** Monthly transaction volume, declining balances, cumulative deposits. - **Window Functions:** Customer ranking, running balances, top transactions, 3-month moving average of wallet spends.

8. Tools & Technologies

MySQL: Table creation, importing CSV, writing queries.

Excel/CSV: Dataset preparation.

9. Conclusion

This project demonstrates how SQL can be applied to analyse FinTech customer, account, transaction, and wallet data end-to-end. By using data cleaning, schema design, joins, subqueries, CTEs, and window functions. It showcases strong SQL proficiency and practical FinTech domain knowledge.