

Project Report Content

Title: Banking Analytics Project – Customer Insights using SQL & Power BI

1. Introduction

- Objective: Analyze customer behavior, risk, profitability, churn, and cross-sell potential using bank accounts, loans, and transaction data.
- Tools Used: MySQL, SQL, Power BI, CSV exports.

2. Data Description

- Tables: Accounts, Loans, Transactions
- Key fields explained (customer_id, balance, principal, interest, txn_date, etc.)

3. Methodology

- Step 1: Data ingestion into MySQL
- Step 2: Data cleaning and validation
- Step 3: KPI computation using SQL queries
- Step 4: Export KPI outputs to CSV
- Step 5: Dashboard planning and visualization in Power BI

4. KPIs & Metrics

KPI	Description	Purpose
Profitability per Customer	Total expected interest per customer	Identify high-value customers
Risk Score / Risky Segments	Missed EMIs, low balance, low activity	Identify high-risk customers
Churn Signals	Low transaction frequency	Predict potential churn

Cross-Sell Potential	Customers with high balance but no loans	Recommend products
Cohort Metrics	Signup month vs activity	Measure retention & engagement
Revenue by Loan Type	Interest revenue per loan type	Product performance analysis
Average Spend per Cohort	Mean transaction amount per cohort	Evaluate customer value over time

5. Segmentation

- By Account Balance: Low / Medium / High
- By Loan Amount: Small / Medium / Large / No Loan
- By Transaction Behavior: Inactive / Moderate / Highly Active

6. Visualization Plan

- Pareto Chart: Top customers vs cumulative revenue
- Scatter Plot: Balance vs Revenue (color = risk)
- Heatmap: Missed EMI counts by city
- Line Chart: Monthly active customers
- Cohort Retention Table: First transaction month vs active customers
- Cross-sell / Product Recommendation Tables

7. Key Insights (Sample)

- Top 20% customers contribute ~75% of total expected interest
- 15% of customers are high-risk → need monitoring
- Customers with high balance but no loans → high cross-sell opportunity

- Q1 2025 cohort has highest retention → acquisition strategy recommendation

8. Future Work

- Complete Power BI dashboard and make interactive with slicers
- Publish to Power BI Service for stakeholders
- Add geographic analysis (city/branch level)

9. Tools & Technologies

- MySQL 8.0, SQL queries, CSV exports, Power BI Desktop

10. References

- MySQL Documentation
- Power BI Desktop Documentation
- Industry references on banking KPIs

Future Work

- Complete **Power BI dashboard** with all planned KPIs and visuals.
- Add dynamic slicers for segments, cohorts, and city-level analysis.
- Publish dashboard on **Power BI Service**.