

Jwaneng Branch Case Study: Payroll, SME Financing & Digital Banking Insights

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Role: Data Analyst (Portfolio Case Study)

1 Introduction

Context:

Jwaneng is a mining town dominated by Debswana. The FNB branch serves mine employees and SMEs linked to mining contracts. Understanding banking patterns in this environment helps optimize branch operations, payroll management, SME lending, and digital banking adoption.

Objective of Study:

- Analyze banking behavior for mine employees and SMEs
- Assess digital banking adoption and transaction patterns
- Provide actionable insights for branch operations

Why this is a case study:

- Uses a synthetic dataset simulating real financial transactions
- Demonstrates data manipulation, analysis, and visualization skills
- Provides insights that mimic real-world operational decision-making

2 Data Description

Source: BankSim synthetic financial transactions

Modifications:

- Added Jwaneng-specific fields: mine employees, payroll, SMEs, digital banking channels
- Payroll transactions added on 15th and end of month
- SMEs include loan amounts, credit scores, and repayment status

Volume:

- Total transactions: 693,307
- Mine employees: ~30% of customers
- SMEs: 50 linked to customers

Columns included:

- Customer, Age, Gender, Category, Amount, Channel, Date, Is_mine_employee

3 Analysis & Findings

3.1 Payroll Transaction Spikes

Method: Aggregated payroll transactions by date

Visualization: Line plot of payroll transactions over time

Findings:

- Clear spikes on the 15th and end of each month
- Branch can anticipate high transaction volume and optimize staffing and cash management
- Opportunity for payday-linked micro-loans or digital savings campaigns

3.2 SME Financing Trends

Method: Examined repayment status, credit scores, and loan amounts

Visualizations:

- Bar chart for repayment status distribution
- Scatter plot for loan amount vs credit score

Findings:

- Most SMEs repay on time; some default or pay late
- Higher credit scores generally correlate with timely repayment
- Insights guide risk-based SME lending and industry-specific loan products

3.3 Digital Banking Adoption

Method: Analyzed transactions by channel (ATM, Branch, Mobile, USSD)

Visualizations:

- Bar chart of overall channel usage
- Channel usage for payroll transactions

Findings:

- ATM and Branch dominate for salary withdrawals
- Mobile/USSD channels underutilized, suggesting opportunity for adoption campaigns
- Branch congestion can be reduced through digital adoption initiatives

4 Conclusion

- Demonstrated data wrangling, ETL, and visualization skills using a synthetic dataset
- Provided actionable insights for payroll management, SME lending, and digital banking adoption
- Serves as a portfolio-ready mini project showing ability to analyze branch-level banking operations