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# Project: Loan Software Integrity Assurance

## 1.0 Background

Every organization relies heavily on technology and automation to save time and resources so they can focus efforts on their core businesses that creates extra value. Banks deploy desktop and mobile applications, IT infrastrucure over connected performed by skilled personnel to serve the needs of customers and the bank itself. Some of the electronic services delivered by the banks include internet banking, banking apps, POS, debit and credit. It is expected that all the services delivered by the bank should be able to to serve customers with limited human interventions.

**Objective:**
The objective of this project is to determine the integrity of the bank loan software to correctly calculate the customers monthly repayment instalment, principal loan balance and loan final repayment date and continuously maintain such values with integrity to be relied on by both the bank and customers. The period under review was up to 31st December 2025.

**Scope and Information Classification:**
25 loan details of customers were used for this project. The loans were disbursed within 2nd half of 2025 with tenor ranging from 2 to 6 years.

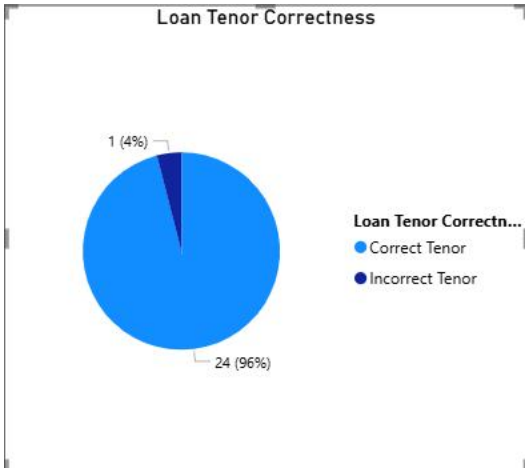
**Methodology:**
The following methods were deployed:

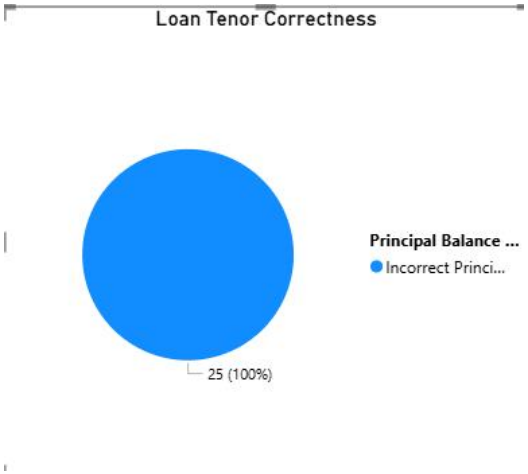
- Acquired sample datasets relating to 25 bank loan details of customers with the following information: ***Customer ID, Customer name, Loan disbursed date, Loan amount disbursed, Annual interest rate, Loan principal balance, Loan final repayment date, Type of security, Monthly loan instalment, Collateral held by bank response.***
- Recalculation was performed to the loan tenor, loan principal and monthly instalment to determine correctness.
- The recalculated value was compared to the data fetched to determine matches and differences

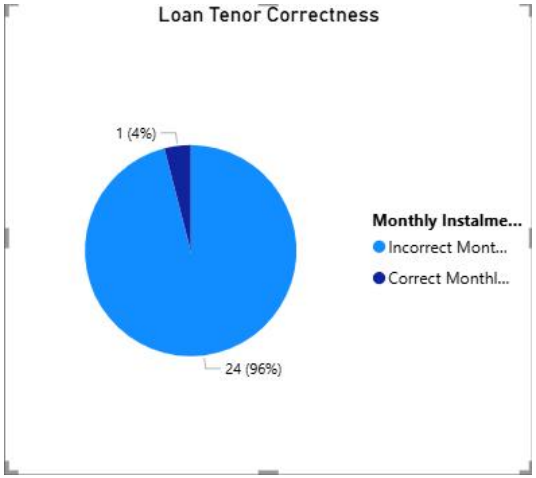
## 2.0 Audit Outcomes

Deficiencies were found with the loan software in correctly calculating the loan detail with regards to all the three (3) key objectives for this project.

- 24 out of the 25 loan tenor was incorrectly calculated
- All 25 loan principal balances were incorrect as expected for 31st December 2025 balances
- 24 out of the 25 monthly instalment were incorrectly calculated.




The incapability of the loan software used by the bank to automatically calculate loan information required and needed by customers and the bank poses integrity issues for both parties. The situation can lead to loss of reputation to the bank, loss of money to both bank and customer, and heated misunderstanding regarding loan information mismatches between the bank and customer. The risk exposure should be assessed immediately with appropriate primary or supplementary controls put in place. The following controls have been recommended guided by NIST SP 800-53r5: Security and Privacy Controls for Information Systems and Organizations

| Audit Objective | Recommended Controls based on NIST SP 800-53r5 |
|---|---|
| Loan tenor correctness | AT-1: Policy and Procedures<br>AT-3: Role-based Training<br>CM-2: Baseline Configuration<br>MA-2: Controlled Maintenance<br>MA-4: Maintenance Personnel<br>MA-6: Timely Maintenance<br>SA-4: Acquisition Process<br>SA-10 Developer Configuration Management<br>SA-11: Developer Testing and Evaluation<br>SI-12: Error Handling |
| Principal balance correctness | |
| Monthly instalment amount correctness | |