

# SYNOPSIS

**PROJECT: BANK LOAN ANALYSIS**

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## Project Overview:

This project focuses on Analyzing key performance indicators (KPIs) related to loan management for a banking institution. The goal is to provide insights into the bank's loan portfolio performance by calculating critical KPIs and visualizing them using Excel, Power BI, and SQL.

## DataSet:

By giving the dataset financial\_loan , we have to analyse the performance and give the overview of the bank loan report to give all the summary of the KPI and basic Indicators.

## Problem Statement:

Key Performance Indicators (KPIs) Requirements:

1. **Total Loan Applications:** We need to calculate the total number of loan applications received during a specified period. Additionally, it is essential to monitor the Month-to-Date (MTD) Loan Applications and track changes Month-over-Month (MoM).

2. **Total Funded Amount:** Understanding the total amount of funds disbursed as loans is crucial. We also want to keep an eye on the MTD Total Funded Amount and analyse the Month-over-Month (MoM) changes in this metric.
3. **Total Amount Received:** Tracking the total amount received from borrowers is essential for assessing the bank's cash flow and loan repayment. We should analyse the Month-to-Date (MTD) Total Amount Received and observe the Month-over-Month (MoM) changes.
4. **Average Interest Rate:** Calculating the average interest rate across all loans, MTD, and monitoring the Month-over-Month (MoM) variations in interest rates will provide insights into our lending portfolio's overall cost.

**Average Debt-to-Income Ratio (DTI):** Evaluating the average DTI for our borrowers helps us gauge their financial health. We need to compute the average DTI for all loans, MTD, and track Month-over-Month (MoM) fluctuations

## CHARTS

1. **Monthly Trends by Issue Date (Line Chart):** To identify seasonality and long-term trends in lending activities
2. **Regional Analysis by State (Filled Map):** To identify regions with significant lending activity and assess regional disparities
3. **Loan Term Analysis (Donut Chart):** To allow the client to understand the distribution of loans across various term lengths.
4. **Employee Length Analysis (Bar Chart):** How lending metrics are distributed among borrowers with different employment

lengths, helping us assess the impact of employment history on loan applications.

5. **Loan Purpose Breakdown (Bar Chart):** Will provide a visual breakdown of loan metrics based on the stated purposes of loans, aiding in the understanding of the primary reasons borrowers seek financing.
6. **Home Ownership Analysis (Tree Map):** For a hierarchical view of how home ownership impacts loan applications and disbursements.

### Methodology:

1. **Data Collection & Processing:** Loan data is collected from the bank's database using SQL, cleaned, and transformed for analysis in Excel. Key metrics are calculated and prepared for visualization.
2. **Excel Analysis:** Initial data exploration, calculation of KPIs, and trend analysis is done using Excel functions. Pivot tables and charts are utilized to present key statistics.
3. **Power BI Dashboard:** A comprehensive dashboard is created using Power BI, offering interactive visualizations and real-time insights into loan metrics. The dashboard includes filters for MTD, MoM, and detailed comparisons between different metrics to track loan performance.
4. **SQL Querying:** SQL queries are used to extract relevant loan data from the database. These queries form the backbone for the data analysis and are integrated into the Power BI reports.

### Technologies:

- SQL: For Data Management and Analysis.
- Power BI: For Interactive Dashboards and Reports.
- MS Excel: For Data Cleaning and Pre Processing

### Software Requirements:

- Operating Systems: Windows, Linux, macOS.
- IDE: MySQL Database (for SQL) Or Power BI (for Visualizations).

### Hardware Requirements:

- RAM: Minimum 8GB , Recommended 16GB.
- Processor: Minimum Intel i5/ AMD Ryzen 3, Recommended Intel i7 / AMD Ryzen 5
- Storage: SSD 256GB / 1TB Hard Drive Storage.