Bank Loan Analysis and Visualization Project

# Introduction

In today's financial landscape, bank loans are vital for both individuals and businesses to fulfill their financial needs and achieve long-term goals. However, to manage these loans effectively, banks must analyze vast amounts of data to assess risk, optimize portfolios, and maintain regulatory compliance. This report outlines a project designed to analyze and visualize bank loan data using SQL and Tableau, providing valuable insights that will drive informed decision-making.

# Objective

The primary objective of this project is to create a comprehensive Bank Loan Report that delivers detailed insights into key loan-related metrics. This report will help in monitoring the bank's lending activities, assessing portfolio health, and identifying trends to inform lending strategies. The report is structured around three dashboards, each focusing on different aspects of the loan data.

# Dashboard 1: Summary

This dashboard is designed to provide an overview of the bank's lending activities. Key metrics and performance indicators include:

* - Total Loan Applications: Total number of loan applications received within a specific period.
* - Total Funded Amount: Total funds disbursed as loans during the selected timeframe.
* - Total Amount Received: Total repayments received from borrowers.
* - Average Interest Rate: The average interest rate across all loans.
* - Average Debt-to-Income Ratio (DTI): Gauging borrowers' financial health by calculating the average DTI.

This dashboard also distinguishes between Good Loans and Bad Loans based on their status, providing insights into the performance and risk associated with each loan category.

# Dashboard 2: Overview

The second dashboard focuses on visualizing key metrics to identify trends and regional differences. It includes the following visualizations:

1. 1. Monthly Trends by Issue Date (Line Chart): Tracks the changes in loan applications, funded amounts, and received amounts over time.
2. 2. Regional Analysis by State (Filled Map): Displays loan metrics by state to identify areas with significant lending activity.
3. 3. Loan Term Analysis (Donut Chart): Visualizes loan data segmented by different loan terms, such as 36 or 60 months.
4. 4. Employee Length Analysis (Bar Chart): Illustrates how lending metrics correlate with borrowers' employment lengths.
5. 5. Loan Purpose Breakdown (Bar Chart): Breaks down loan metrics based on the stated purposes of the loans.
6. 6. Home Ownership Analysis (Tree Map): Displays loan data categorized by home ownership status, offering insights into how home ownership affects loan applications and disbursements.

# Dashboard 3: Details

This dashboard serves as a consolidated view of all critical information within the loan data, providing users with an accessible and comprehensive overview. The objective is to present detailed insights into the bank's loan portfolio, borrower profiles, and loan performance, aiding in the day-to-day management of the bank's lending operations.

# Conclusion

The Bank Loan Analysis and Visualization project aims to provide a thorough and insightful examination of loan data, helping the bank to optimize its lending strategies, mitigate risks, and improve overall performance. By leveraging SQL for data processing and Tableau for visualization, this project delivers a robust tool for data-driven decision-making.