**Bank Loan Analysis Project Report**

**Project Overview**

This SQL-based project focuses on analyzing historical bank loan application data to identify trends, assess financial performance, and understand customer behavior. The goal is to provide insights into loan volume, loan term preferences, the impact of employment length on loan issuance, and other key metrics, with the aim to improve loan product strategy and operations.

**Objective**

The objective of this project is to build a comprehensive SQL-driven backend for a bank loan performance dashboard. By querying historical loan application data, this project uncovers key patterns in funding, payment, customer attributes, and loan terms.

**Dataset Overview**

The primary dataset used in this analysis is bank\_loan\_data. The dataset contains the following columns:

|  |  |
| --- | --- |
| **Column Name** | **Description** |
| id | Unique identifier for each loan |
| issue\_date | Date when the loan was issued |
| loan\_amount | Amount funded to the customer |
| total\_payment | Amount received from the customer |
| term | Loan term (e.g., 36 or 60 months) |
| emp\_length | Length of employment of the borrower |
| purpose | Purpose of the loan (e.g., debt consolidation) |
| home\_ownership | Type of home ownership (Rent, Own, Mortgage) |
| address\_state | US state from which the loan was applied |

**SQL Queries and Analysis**

**1. Retrieve All Data**

-- 1. Retrieve all data from the bank loan dataset.

SELECT \*

FROM

bank\_loan\_data;

**Explanation:** This query retrieves all the records from the bank\_loan\_data table, displaying the full dataset.

**Result:** A screenshot of a computer

AI-generated content may be incorrect.

**2. Total Loan Volume Issued Per Month**

**Query:**

-- 2. Total Loan Volume Issued Per Month

-- ============================================

SELECT

MONTH(issue\_date) AS Month, -- Extract month number

DATENAME(MONTH, issue\_date) AS Month\_Name, -- Get the month name

COUNT(id) AS Total\_Loan\_Applications, -- Count of loans issued

SUM(loan\_amount) AS Total\_Funded\_Amount, -- Total amount funded by the bank

SUM(total\_payment) AS Total\_Received\_Amount -- Total amount paid back by customers

FROM

bank\_loan\_data

GROUP BY

DATENAME(MONTH, issue\_date), MONTH(issue\_date)

ORDER BY

MONTH(issue\_date); -- Order by month number

**Explanation:** This query calculates the total number of loan applications, the total funded amount, and the total received payment for each month.

**Result:**

A screenshot of a table

AI-generated content may be incorrect.

* **Key Insight:** December shows the highest volume of loan applications and total funding.

**3. Loan Issuance by US State**

**Query:**

SELECT

address\_state, -- State where loan was applied

COUNT(id) AS Total\_Loan\_Applications, -- Number of loan applications from each state

SUM(loan\_amount) AS Total\_Funded\_Amount, -- Total amount funded in each state

SUM(total\_payment) AS Total\_Received\_Amount -- Total payment received from borrowers in each state

FROM

bank\_loan\_data

GROUP BY

address\_state -- Group by state

ORDER BY

SUM(loan\_amount) DESC; -- Order by total loan amount funded in descending order

**Explanation:** This query calculates the total number of loan applications, total funded amount, and total received payment for each state. The results are ordered by the total loan amount in descending order.

**Result:**

A screenshot of a computer

AI-generated content may be incorrect.

* **Key Insight:** States like California and Texas are at the top for funded loan amounts.

**4. Loan Term and Funding Analysis**

**Query:**

-- 4. Loan Term and Funding Analysis

-- ============================================

SELECT

term, -- Loan term in months (e.g., 36 or 60 months)

COUNT(id) AS Total\_Loan\_Applications, -- Number of loan applications for each term

SUM(loan\_amount) AS Total\_Funded\_Amount, -- Total funded amount for each term

SUM(total\_payment) AS Total\_Received\_Amount -- Total payment received for each term

FROM

bank\_loan\_data

GROUP BY

term -- Group by loan term

ORDER BY

term; -- Order by loan term in ascending order

**Explanation:** This query analyzes the loan term (e.g., 36 or 60 months), calculating the total number of loan applications, the total funded amount, and total payment for each term.

**Result:**

A screenshot of a cell phone

AI-generated content may be incorrect.

* **Key Insight:** Most applications fall under the 36-month loan term.

**5. Loan Issuance by Employment Length**

**Query:**

-- 5. Loan Issuance by Employment Length

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SELECT

emp\_length, -- Employment length of the borrower

COUNT(id) AS Total\_Loan\_Applications, -- Number of loan applications for each employment length

SUM(loan\_amount) AS Total\_Funded\_Amount, -- Total funded amount for each employment length

SUM(total\_payment) AS Total\_Received\_Amount -- Total payment received for each employment length

FROM

bank\_loan\_data

GROUP BY

emp\_length -- Group by employment length

ORDER BY

COUNT(id) DESC; -- Order by number of loan applications in descending order

**Explanation:** This query evaluates the relationship between the borrower's length of employment and the loan volume. It calculates the number of loan applications, total funded amount, and total received payment by employment length.

**Result:**

A screenshot of a calculator

AI-generated content may be incorrect.

* **Key Insight:** Borrowers with 10+ years of employment represent the largest group of applicants.

**6. Most Common Loan Purposes**

**Query:**

-- 6. Most Common Loan Purposes

-- ============================================

SELECT

purpose, -- Purpose of the loan (e.g., debt consolidation, home improvement)

COUNT(id) AS Total\_Loan\_Applications, -- Number of loan applications for each purpose

SUM(loan\_amount) AS Total\_Funded\_Amount, -- Total funded amount for each purpose

SUM(total\_payment) AS Total\_Received\_Amount -- Total payment received for each purpose

FROM

bank\_loan\_data

GROUP BY

purpose -- Group by loan purpose

ORDER BY

COUNT(id) DESC; -- Order by the number of loan applications in descending order

**Explanation:** This query identifies the most common purposes for loan applications by calculating the number of applications, the total funded amount, and total payments for each loan purpose.

**Result:**

A screenshot of a calculator

AI-generated content may be incorrect.

* **Key Insight:** Debt Consolidation and Credit Card are the leading loan purposes.

**7. Loan Issuance by Home Ownership Status**

**Query:**

-- 7. Loan Issuance by Home Ownership Status

-- ============================================

SELECT

home\_ownership, -- Type of home ownership (e.g., Rent, Own, Mortgage)

COUNT(id) AS Total\_Loan\_Applications, -- Number of loan applications for each home ownership type

SUM(loan\_amount) AS Total\_Funded\_Amount, -- Total funded amount for each home ownership type

SUM(total\_payment) AS Total\_Received\_Amount -- Total payment received for each home ownership type

FROM

bank\_loan\_data

GROUP BY

home\_ownership -- Group by home ownership type

ORDER BY

COUNT(id) DESC; -- Order by the number of loan applications in descending order

**Explanation:** This query explores how home ownership status (Rent, Own, Mortgage) affects loan issuance, funding, and payments.

**Result:**

A screenshot of a white sheet with black text

AI-generated content may be incorrect.

* **Key Insight:** Most applicants are homeowners or have a mortgage.

**Key Insights**

* **December** has the highest volume of loan applications and total funding.
* **California** and **Texas** are the leading states for loan issuance.
* The most common loan purposes are **Debt Consolidation** and **Credit Card**.
* Borrowers with **10+ years of employment** represent the largest group.
* Most loans are issued with a **36-month term**.

**Recommendations**

* **Marketing Focus:** Prioritize marketing in states with high loan demand and performance, such as California and Texas.
* **Target Long-Tenure Employees:** Offer incentives to borrowers with longer employment histories, as they represent reliable borrowers.
* **Tailor Loan Packages:** Design loan packages around the most common purposes, like debt consolidation.
* **Loan Term Analysis:** Analyze risk and performance differences between loan terms, particularly between 36-month and 60-month loans.

**Conclusion**

This SQL project provides the backend logic for a performance-focused loan dashboard. The insights derived from the data analysis support marketing strategies, loan product development, and credit risk analysis. Future improvements could include integrating borrower credit scores and repayment status for predictive modeling.