**PROBLEM STATEMENT 1:**

**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 analyze 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 analyze 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.
5. **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.

**PROBLEM STATEMENT 2:**

**Good Loan v Bad Loan KPI’s**

**Good Loan:**

1. **Good Loan Application Percentage**
2. **Good Loan Applications**
3. **Good Loan Funded Amount**
4. **Good Loan Total Received Amount**

**Bad Loan**

1. **Bad Loan Application Percentage**
2. **Bad Loan Applications**
3. **Bad Loan Funded Amount**
4. **Bad Loan Total Received Amount**

**Loan Status Grid View**

To gain a comprehensive overview of our lending operations and monitor the performance of loans, we aim to create a grid view report categorized by 'Loan Status.’ By providing insights into metrics such as 'Total Loan Applications,' 'Total Funded Amount,' 'Total Amount Received,' 'Month-to-Date (MTD) Funded Amount,' 'MTD Amount Received,' 'Average Interest Rate,' and 'Average Debt-to-Income Ratio (DTI),' this grid view will empower us to make data-driven decisions and assess the health of our loan portfolio.

**PROBLEM STATEMENT 3:**

**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): W**ill 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.

***Metrics to be shown: 'Total Loan Applications,' 'Total Funded Amount,' and 'Total Amount Received'***

**PROBLEM STATEMENT 4:**

***GRID***

Need for a comprehensive 'Details Dashboard' that provides a consolidated view of all the essential information within our loan data. This Details Dashboard aims to offer a holistic snapshot of key loan-related metrics and data points, enabling users to access critical information efficiently.

***Objective:***

*The primary objective of the Details Dashboard is to provide a comprehensive and user-friendly interface for accessing vital loan data. It will serve as a one-stop solution for users seeking detailed insights into our loan portfolio, borrower profiles, and loan performance.*

**BANK LOAN REPORT QUERY DOCUMENT**

1. **BANK LOAN REPORT | SUMMARY**

**KPI’s:**

**Total Loan Applications**

SELECT COUNT(id) as Total\_Loan\_Applications FROM bank\_loan\_data

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**MTD Loan Applications**

SELECT COUNT(id) as MTD\_Total\_Loan\_Applications FROM bank\_loan\_data

WHERE EXTRACT(MONTH FROM issue\_date) = 12 AND EXTRACT(YEAR FROM issue\_date) = 2021

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Description automatically generated with medium confidence

**PMTD Loan Applications**

SELECT COUNT(id) as PMTD\_Total\_Loan\_Applications FROM bank\_loan\_data

WHERE EXTRACT(MONTH FROM issue\_date) = 11 AND EXTRACT(YEAR FROM issue\_date) = 2021

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Description automatically generated with medium confidence

**Total Funded Amount**

SELECT SUM(loan\_ammount) AS Total\_Funded\_Amount FROM bank\_loan\_data

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**MTD Total Funded Amount**

SELECT SUM(loan\_ammount) AS MTD\_Total\_Funded\_Amount FROM bank\_loan\_data

WHERE EXTRACT(MONTH FROM issue\_date) = 12 AND EXTRACT(YEAR FROM issue\_date) = 2021

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Description automatically generated

**PMTD Total Funded Amount**

SELECT SUM(loan\_ammount) AS PMTD\_Total\_Funded\_Amount FROM bank\_loan\_data

WHERE EXTRACT(MONTH FROM issue\_date) = 11 AND EXTRACT(YEAR FROM issue\_date) = 2021

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**Total Amount Received**

SELECT SUM(total\_payment) AS Total\_Amount\_Received FROM bank\_loan\_data

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**MTD Total Amount Received**

SELECT SUM(total\_payment) AS MTD\_Total\_Amount\_Received FROM bank\_loan\_data

WHERE EXTRACT(MONTH FROM issue\_date) = 12 AND EXTRACT(YEAR FROM issue\_date) = 2021

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**PMTD Total Amount Received**

SELECT SUM(total\_payment) AS PMTD\_Total\_Amount\_Received FROM bank\_loan\_data

WHERE EXTRACT(MONTH FROM issue\_date) = 11 AND EXTRACT(YEAR FROM issue\_date) = 2021

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**Average Interest Rate**

SELECT AVG(int\_rate) \* 100 AS Avg\_Interest\_Rate FROM bank\_loan\_data

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**MTD Average Interest**

SELECT AVG(int\_rate) \* 100 AS MTD\_Avg\_Interest\_Rate FROM bank\_loan\_data

WHERE EXTRACT(MONTH FROM issue\_date) = 12 AND EXTRACT(YEAR FROM issue\_date) = 2021

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**PMTD Average Interest**

SELECT AVG(int\_rate) \* 100 AS PMTD\_Avg\_Interest\_Rate FROM bank\_loan\_data

WHERE EXTRACT(MONTH FROM issue\_date) = 11 AND EXTRACT(YEAR FROM issue\_date) = 2021

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**Avg DTI**

SELECT AVG(dti) \* 100 AS Avg\_DTI\_Rate FROM bank\_loan\_data

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**MTD Avg DTI**

SELECT AVG(dti) \* 100 AS MTD\_Avg\_DTI\_Rate FROM bank\_loan\_data

WHERE EXTRACT(MONTH FROM issue\_date) = 12 AND EXTRACT(YEAR FROM issue\_date) = 2021

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**PMTD Avg DTI**

SELECT AVG(dti) \* 100 AS PMTD\_Avg\_DTI\_Rate FROM bank\_loan\_data

WHERE EXTRACT(MONTH FROM issue\_date) = 11 AND EXTRACT(YEAR FROM issue\_date) = 2021

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**GOOD LOAN ISSUED**

**Good Loan Percentage**

SELECT

    (COUNT(CASE WHEN loan\_status = 'Fully Paid' OR loan\_status = 'Current' THEN id END) \* 100)

    /

    COUNT(id) AS Good\_Loan\_Percentage

FROM bank\_loan\_data

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Description automatically generated

**Good Loan Applications**

SELECT COUNT(id) AS Good\_Loan\_Applications FROM bank\_loan\_data

WHERE loan\_status = 'Fully Paid' OR loan\_status = 'Current'

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**Good Loan Funded Amount**

SELECT SUM(loan\_ammount) AS Good\_Loan\_Funded\_Amount FROM bank\_loan\_data

WHERE loan\_status = 'Fully Paid' OR loan\_status = 'Current'

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**Good Loan Amount Received**

SELECT SUM(total\_payment) AS Good\_Loan\_Received\_Amount FROM bank\_loan\_data

WHERE loan\_status = 'Fully Paid' OR loan\_status = 'Current'

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**BAD LOAN ISSUED**

**Bad Loan Percentage**

SELECT

    (COUNT(CASE WHEN loan\_status = 'Charged Off' THEN id END) \* 100.0)

    /

    COUNT(id) AS Bad\_Loan\_Percentage

FROM bank\_loan\_data

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**Bad Loan Applications**

SELECT COUNT(id) AS Bad\_Loan\_Applications FROM bank\_loan\_data

WHERE loan\_status = 'Charged Off'

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**Bad Loan Funded Amount**

SELECT SUM(loan\_ammount) AS Bad\_Loan\_Funded\_Amount FROM bank\_loan\_data

WHERE loan\_status = 'Charged Off'

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**Bad Loan Amount Received**

SELECT SUM(total\_payment) AS Bad\_Loan\_Received\_Amount FROM bank\_loan\_data

WHERE loan\_status = 'Charged Off'

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**LOAN STATUS**

SELECT

        loan\_status,

        COUNT(id) AS Total\_Loan\_Applications,

        SUM(total\_payment) AS Total\_Amount\_Received,

        SUM(loan\_ammount) AS Total\_Funded\_Amount,

        AVG(int\_rate \* 100) AS Interest\_Rate,

        AVG(dti \* 100) AS DTI

    FROM

        bank\_loan\_data

    GROUP BY

        loan\_status

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SELECT

        loan\_status,

        SUM(total\_payment) AS MTD\_Total\_Amount\_Received,

        SUM(loan\_ammount) AS MTD\_Total\_Funded\_Amount

    FROM

        bank\_loan\_data

    WHERE EXTRACT(MONTH FROM issue\_date) = 12

    GROUP BY

        loan\_status

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1. **BANK LOAN REPORT | OVERVIEW**

**MONTH**

SELECT

    EXTRACT(MONTH FROM issue\_date) AS Month,

    TO\_CHAR(issue\_date, 'Month') AS Month\_Name,

    COUNT(id) AS Total\_Loan\_Applications,

    SUM(loan\_ammount) AS Total\_Funded\_Amount,

    SUM(total\_payment) AS Total\_Received\_Amount

FROM bank\_loan\_data

GROUP BY EXTRACT(MONTH FROM issue\_date), TO\_CHAR(issue\_date, 'Month')

ORDER BY EXTRACT(MONTH FROM issue\_date)

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**STATE**

SELECT

    address\_state,

    COUNT(id) AS Total\_Loan\_Applications,

    SUM(loan\_ammount) AS Total\_Funded\_Amount,

    SUM(total\_payment) AS Total\_Received\_Amount

FROM bank\_loan\_data

GROUP BY address\_state

ORDER BY SUM(loan\_ammount) DESC

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**TERM**

SELECT

    term,

    COUNT(id) AS Total\_Loan\_Applications,

    SUM(loan\_ammount) AS Total\_Funded\_Amount,

    SUM(total\_payment) AS Total\_Received\_Amount

FROM bank\_loan\_data

GROUP BY term

ORDER BY term

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**EMPLOYEE LENGTH**

SELECT

    emp\_length AS Employee\_Length,

    COUNT(id) AS Total\_Loan\_Applications,

    SUM(loan\_ammount) AS Total\_Funded\_Amount,

    SUM(total\_payment) AS Total\_Amount\_Received

FROM bank\_loan\_data

GROUP BY emp\_length

ORDER BY emp\_length

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**PURPOSE**

SELECT

    purpose AS PURPOSE,

    COUNT(id) AS Total\_Loan\_Applications,

    SUM(loan\_ammount) AS Total\_Funded\_Amount,

    SUM(total\_payment) AS Total\_Amount\_Received

FROM bank\_loan\_data

GROUP BY purpose

ORDER BY purpose

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**HOME OWNERSHIP**

SELECT

    home\_ownership AS Home\_Ownership,

    COUNT(id) AS Total\_Loan\_Applications,

    SUM(loan\_ammount) AS Total\_Funded\_Amount,

    SUM(total\_payment) AS Total\_Amount\_Received

FROM bank\_loan\_data

GROUP BY home\_ownership

ORDER BY home\_ownership

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