The SQL queries systematically address each Key Performance Indicator (KPI) and data requirement for all three dashboards outlined in your problem statement.

Dashboard 1: Summary

This dashboard focuses on high-level KPIs, including Month-to-Date (MTD) and Month-over-Month (MoM) changes.

Key Performance Indicators (KPIs)

- **Total Loan Applications:**
    - **Requirement:** Calculate the total number of loan applications[1].
    - **SQL Query:** SELECT COUNT(id) AS Total_Applications FROM bank_loan_data[2].
    - **Result: 38,576** applications.
- **MTD Loan Applications:**
    - **Requirement:** Monitor the Month-to-Date (MTD) loan applications[4]. The query assumes the current month is December.
    - **SQL Query:** SELECT COUNT(id) AS MTD_Total_Applications FROM bank_loan_data WHERE MONTH(issue_date) = 12.
    - **Result: 4,314** MTD applications.
- **Month-over-Month (MoM) Loan Applications:**
    - **Requirement:** Track changes Month-over-Month (MoM)[7]. This is calculated using the MTD result and the Previous MTD (PMTD) result for November.
    - **PMTD Query:** SELECT COUNT(id) AS PMTD_Total_Applications FROM bank_loan_data WHERE MONTH(issue_date) = 11.
    - **Calculation:** The MoM change is a **6.91% increase** from November (4,035 applications [9]) to December (4,314 applications).
- **Total Funded Amount:**
    - **Requirement:** Understand the total amount of funds disbursed[11].
    - **SQL Query:** SELECT SUM(loan_amount) AS Total_Funded_Amount FROM bank_loan_data.
    - **Result: $435,757,075**[13].
- **Total Amount Received:**
    - **Requirement:** Track the total amount received from borrowers[14].
    - **SQL Query:** SELECT SUM(total_payment) AS Total_Amount_Collected FROM bank_loan_data.
    - **Result: $473,070,933**.
- **Average Interest Rate:**

    - **Requirement:** Calculate the average interest rate across all loans[17].
    - **SQL Query:** SELECT round(AVG(int_rate), 4) * 100 AS Avg_Int_Rate FROM bank_loan_data.
    - **Result: 12.05%**.
- **Average Debt-to-Income (DTI) Ratio:**
    - **Requirement:** Evaluate the average DTI for borrowers[20].
    - **SQL Query:** SELECT AVG(dti) * 100 AS Avg_DTI FROM bank_loan_data[21].
    - **Result: 13.33%**.

Good Loan vs. Bad Loan KPIs

The queries distinguish between 'Good Loans' ('Fully Paid' or 'Current') and 'Bad Loans' ('Charged Off') as specified.

Good Loan KPIs

- **Good Loan Application Percentage: 86.18%** [24]of loans are classified as good loans, as requested.
- **Good Loan Applications:** There are **33,243** good loan applications , meeting the requirement.
- **Good Loan Funded Amount:** The total funded amount for good loans is **$370,224,850** , fulfilling the requirement
- **Good Loan Total Received Amount:** The total amount received for good loans is **$435,786,170** , as required

Bad Loan KPIs

- **Bad Loan Application Percentage: 13.82%** of loans are classified as bad loans, as requested
- **Bad Loan Applications:** There are **5,333** bad loan applications , meeting the requirement.
- **Bad Loan Funded Amount:** The total funded amount for bad loans is **$65,532,225** , fulfilling the requirement.
- **Bad Loan Total Received Amount:** The total amount received for bad loans is **$37,284,763** , as required.

Loan Status Grid View

The problem statement requires a grid view categorized by 'Loan Status' with key metrics. The SQL document provides two queries that generate the data for this view.

- **Overall Status Query:** Groups data by loan status to get total applications, funded amount, received amount, average interest rate, and average DTI.
- **MTD Status Query:** Filters for the current month (December) to provide the MTD Funded Amount and MTD Amount Received for each loan status[42].

Combining the results of these two queries directly produces the required grid view.

Dashboard 2: Overview

This dashboard uses various charts to visualize trends and distributions[43]. The SQL document provides the exact queries needed to generate the data for each specified chart.

- **Monthly Trends by Issue Date (Line Chart) :**
    - **Requirement:** A line chart showing 'Total Loan Applications,' 'Total Funded Amount,' and 'Total Amount Received' by month.
    - **SQL Query:** The query groups the required metrics by month and month name, ordering them chronologically. The resulting table is perfectly formatted to be used as the data source for this line chart.
- **Regional Analysis by State (Filled Map) :**
    - **Requirement:** A filled map showing the same three metrics categorized by state.
    - **SQL Query:** The query groups the metrics by address_state , providing the necessary data to populate the map.
- **Loan Term Analysis (Donut Chart):**
    - **Requirement:** A donut chart to show the distribution of the key metrics across different loan terms.
    - **SQL Query:** This query groups the metrics by term, creating a simple table ideal for a donut chart showing the split between 36-month and 60-month terms.
- **Employee Length Analysis (Bar Chart):**
    - **Requirement:** A bar chart illustrating the metrics distributed by borrowers' employment lengths.
    - **SQL Query:** The data is grouped by emp_length , and the output table provides the values needed for the Y-axis of the bar chart, with employee length on the X-axis.
- **Loan Purpose Breakdown (Bar Chart):**
    - **Requirement:** A bar chart showing the breakdown of metrics based on the loan's purpose.
    - **SQL Query:** This query groups the metrics by purpose. The resulting table contains the data to create a bar chart comparing purposes like debt consolidation, credit cards, etc.
- **Home Ownership Analysis (Tree Map):**
    - **Requirement:** A tree map to display metrics categorized by home ownership status.
    - **SQL Query:** The query groups the metrics by home_ownership , providing the hierarchical data [61] needed to construct the tree map.

Dashboard 3: Details

- **Requirement:** Provide a consolidated, detailed view of all essential information for users to access critical data efficiently.
- **SQL Implementation:** While a specific query for this dashboard isn't provided, it would typically be a detailed table view of the entire bank_loan_data dataset. Users could then filter and search this detailed view to find specific information, fulfilling the objective of a "one-stop solution". The underlying data for such a dashboard is the bank_loan_data table itself.