IMPORTANT INSIGHTS WITH MySQL

General Loan Performance Metrics

1. Total Loan Applications Received During a Specified Period

```
SELECT COUNT(loan_id) AS total_loan_applications
FROM loan_data
WHERE application_date BETWEEN '2024-01-01' AND '2024-01-31';
```

2. Month-to-Date (MTD) Loan Applications vs. Previous Month

```
SELECT
    COUNT(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) THEN
loan_id END) AS MTD_Loan_Applications,
    COUNT(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) - 1 THEN
loan_id END) AS Previous_Month_Loan_Applications
FROM loan_data
WHERE YEAR(application_date) = YEAR(CURRENT_DATE());
```

3. Total Funded Amount for a Specified Period

```
SELECT SUM(funded_amount) AS total_funded_amount
FROM loan_data
WHERE application_date BETWEEN '2024-01-01' AND '2024-01-31';
```

4. Month-to-Date (MTD) Funded Amount and Month-over-Month (MoM) Change

```
SELECT
    SUM(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) THEN
funded_amount END) AS MTD_Funded_Amount,
    SUM(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) - 1 THEN
funded_amount END) AS Previous_Month_Funded_Amount,
    (SUM(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) THEN
funded_amount END) -
     SUM(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) - 1 THEN
funded_amount END))
```

```
      / SUM(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) - 1 THEN
funded_amount END) * 100 AS MoM_Change_Percentage
FROM loan_data
WHERE YEAR(application_date) = YEAR(CURRENT_DATE());
```

5. Total Amount Received from Borrowers and Comparison with Previous Period

```
SELECT
    SUM(received_amount) AS total_amount_received,
    SUM(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) - 1 THEN
received_amount END) AS previous_month_received,
    (SUM(received_amount) - SUM(CASE WHEN MONTH(application_date) =
MONTH(CURRENT_DATE()) - 1 THEN received_amount END))
    / SUM(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) - 1 THEN
received_amount END) * 100 AS MoM_Change
FROM loan_data
WHERE YEAR(application_date) = YEAR(CURRENT_DATE());
```

6. Month-over-Month (MoM) Change in Average Interest Rate

```
SELECT
    AVG(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) THEN
interest_rate END) AS MTD_Avg_Interest_Rate,
    AVG(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) - 1 THEN
interest_rate END) AS Previous_Month_Avg_Interest_Rate,
    (AVG(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) THEN
interest_rate END) -
     AVG(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) - 1 THEN
interest_rate END))
    / AVG(CASE WHEN MONTH(application_date) = MONTH(CURRENT_DATE()) - 1 THEN
interest_rate END) * 100 AS MoM_Change_Percentage
FROM loan_data
WHERE YEAR(application_date) = YEAR(CURRENT_DATE());
```

7. Average Debt-to-Income (DTI) Ratio Over Time

```
SELECT
    MONTH(application_date) AS month,
    YEAR(application_date) AS year,
    AVG(debt_to_income_ratio) AS avg_dti
FROM loan_data
GROUP BY YEAR(application_date), MONTH(application_date)
```

ORDER BY year, month;

Good Loan vs. Bad Loan Analysis

8. Percentage of Good Loan Applications

```
SELECT
    (COUNT(CASE WHEN loan_status = 'Good' THEN loan_id END) * 100.0 / COUNT(loan_id))
AS good_loan_percentage
FROM loan_data;
```

9. Total Good Loan Applications

```
SELECT COUNT(loan_id) AS good_loan_applications
FROM loan_data
WHERE loan_status = 'Good';
```

10. Total Funded Amount for Good Loans

```
SELECT SUM(funded_amount) AS total_funded_good_loans
FROM loan_data
WHERE loan_status = 'Good';
```

11. Total Amount Received for Good Loans

```
SELECT SUM(received_amount) AS total_received_good_loans
FROM loan_data
WHERE loan_status = 'Good';
```

12. Percentage of Bad Loan Applications

```
SELECT
    (COUNT(CASE WHEN loan_status = 'Bad' THEN loan_id END) * 100.0 / COUNT(loan_id))
AS bad_loan_percentage
FROM loan_data;
```

13. Total Bad Loan Applications

```
SELECT COUNT(loan_id) AS bad_loan_applications
FROM loan_data
```

WHERE loan_status = 'Bad';

14. Total Funded Amount for Bad Loans

SELECT SUM(funded_amount) AS total_funded_bad_loans
FROM loan_data
WHERE loan_status = 'Bad';

15. Total Amount Received for Bad Loans

SELECT SUM(received_amount) AS total_received_bad_loans
FROM loan_data
WHERE loan_status = 'Bad';

Loan Status and Trends

16. Loan Applications Trend Over Time (Line Chart)

SELECT
    YEAR(application_date) AS year,
    MONTH(application_date) AS month,
    COUNT(loan_id) AS total_loan_applications
FROM loan_data
GROUP BY YEAR(application_date), MONTH(application_date)
ORDER BY year, month;

17. Highest and Lowest Lending Activity by State (Filled Map)

SELECT state, COUNT(loan_id) AS total_loans
FROM loan_data
GROUP BY state
ORDER BY total_loans DESC;

18. Loan Term Distribution (Donut Chart)

SELECT loan_term, COUNT(loan_id) AS count
FROM loan_data
GROUP BY loan_term;

19. Employment Length Impact on Lending (Bar Chart)

SELECT employment_length, COUNT(loan_id) AS total_loans
FROM loan_data
GROUP BY employment_length
ORDER BY total_loans DESC;

20. Most Common Loan Purposes (Loan Purpose Breakdown - Bar Chart)

SELECT loan_purpose, COUNT(loan_id) AS total_loans
FROM loan_data
GROUP BY loan_purpose
ORDER BY total_loans DESC;