

MOHAMMAD SAIFUDDIN SANUSI

pusaifsanusi@gmail.com | +(65) 8342 - 9186 | Permanent Resident | <https://github.com/Saifsan97>

Result-oriented and multilingual research engineer specializing in data analysis with a background in hydrogen fuel cell technology, customer service, mechatronics, polymer extrusion, green energy, sales, and management.

WORK EXPERIENCE

Testing & Research Engineer | Sydrgoen Energy Pte Ltd

June 2023 – Present

- Performing 500 hours durability, DFM, RA, FMEA, performance, and environmental testing on hydrogen fuel cells and PEM electrolyzer prototype.
- Leading Gas Chromatography sample testing, creating protocols that **improved data accuracy by 20%**.
- Scaling and transitioning products from **New Product Introduction to High Volume Production**.
- Formulating the catalyst formulation based on the cost and performance analysis.
- Managing projects including product sampling and leveraging 3D printing technology for rapid prototyping.
- Supporting **CE certification** of first hydrogen fuel cell product through testing and assembly collaboration with China team.

Process Engineer | Powerzone H2 Technologies Pte Ltd

Sept 2022 – June 2023

- Developed SOPs, BOMs, and managed the product development - design, manufacturing, and final packaging
- Established relationships with over 45 suppliers and handled inquiries from potential customers.
- Enhanced product visibility by **increasing booth traffic by 30%** through marketing strategies.

Associate Engineer | Kulicke & Soffa Pte Ltd

June 2021 – Sept 2022

- Troubleshoot and resolved complex mechanical, electrical, and process issues during equipment assembly and testing phases.
- Assembled and tested **2 wire bond machines** in under 4 hours, adhering to standard work instructions.
- Acted as a technical mentor, leading diagnostic processes on testing and calibration for machine components.

EDUCATION

UNIVERSITY OF MASSACHUSETTS AMHERST, USA | 2020

Bachelor of Science in Chemical Engineering

SKILLS

| LANGUAGE | SOFTWARE | MACHINERY |
|------------|--------------------|---|
| • Malay | • Microsoft Office | • Polymer Extruder Machine |
| • English | • MATLAB | • Tensile Testing Machine |
| • Thai | • C++ | • Eye Tracking Device |
| • Mandarin | • Aspen | • 3D Resin Printing |
| | • SQL | • AutoCAD |
| | | • Rheometer |
| | | • UV-Vis |
| | | • Wire Bond Process Analytical |
| | | • Gas Chromatography (GC) |
| | | • High Performance Liquid Chromatography (HPLC) |
| | | • Digital Scanning Calorimeter (DSC) |

BANKING ANALYTICS DASHBOARD:

Tracking Loans, Repayments, And Borrower Trends

TOOLS: EXCEL , SQL, TABLEAU, DATA WRAPPER

Bank Loan Database Analytics

Github : <https://github.com/Saifsan97>

AGENDA



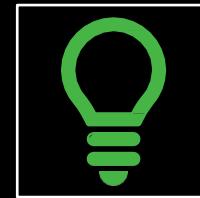
Objectives



Data Analysis



Project Limitations



Recommendations

OBJECTIVES



Track Loan Applications: Measure the total number of loan applications, including Month-to-Date (MTD) and Month-over-Month (MoM) changes, to gain insight into the trends and demands of loan applicants.



Monitor Disbursed Loans: Calculate and track the total amount of loans funded during a specific period, including MTD funded loans and MoM changes, to understand lending volumes and variations over time.

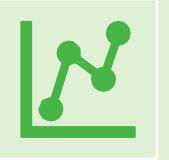


Assess Loan Repayment: Track the total amount received from borrowers and analyze MTD and MoM changes to evaluate the bank's cash flow and repayment patterns.

OBJECTIVES



Analyze Financial Health: Calculate the average interest rate and Debt-to-Income (DTI) ratio across all loans, providing a comprehensive look at the cost of lending and the financial stability of borrowers.



Visualize Lending Patterns: Provide detailed data visualizations, including monthly trends, regional analysis, loan term distributions, and borrower demographics, allowing for better insights into loan activity across different dimensions.



Support Decision-Making: Enable stakeholders to make data-informed decisions by identifying lending trends, understanding borrower behavior, and recognizing regional disparities in loan applications and funding.

```
-- BANK LOAN DATA ANALYSIS PROJECT
-- Part 1: BANK LOAN REPORT | SUMMARY

-- 1.Primary KPIs
-- 1.Total Loan Applications
-- Calculates the total number of applications.
SELECT COUNT(id) AS Total_Applications
FROM bank_loan_data

-- 2.MTD Loan Applications
-- Calculates the total number of loan applications in December 2021. (MTD - Month to Date).
SELECT COUNT(id) AS MTD_Total_Applications
FROM bank_loan_data
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date) = 2021

-- 3.PMTD Loan Applications
-- Calculates the total number of loan applications for the previous month (PMTD - Previous Month to Date).
SELECT COUNT(id) AS PMTD_Total_Applications
FROM bank_loan_data
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date) = 2021

-- 4.Total Funded Amount
-- Calculates the total funded amount across all loan applications.
SELECT SUM(loan_amount) AS Total_Funded_Amount
FROM bank_loan_data

-- 5.MTD Total Funded Amount
-- Calculates the Month-to-Date (MTD) total funded amount in December 2021.
SELECT SUM(loan_amount) AS MTD_Total_Funded_Amount
FROM bank_loan_data
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date) = 2021

-- 6.PMTD Total Funded Amount
-- Calculates the total funded amount for the previous month (PMTD - Previous Month to Date).
SELECT SUM(loan_amount) AS PMTD_Total_Funded_Amount
FROM bank_loan_data
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date) = 2021
```

```
-- 7.Total Amount Received
-- Calculates the total amount collected from loan payments.
SELECT SUM(total_payment) AS Total_Amount_Collected
FROM bank_loan_data

-- 8.MTD Total Amount Received
-- Calculates the Month-to-Date (MTD) total amount collected from loan payments in December 2021.
SELECT SUM(total_payment) AS MTD_Total_Amount_Collected
FROM bank_loan_data
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date) = 2021

-- 9.PMTD Total Amount Received
-- Calculates the Previous Month-to-Date (PMTD) total amount collected from loan payments.
SELECT SUM(total_payment) AS PMTD_Total_Amount_Collected
FROM bank_loan_data
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date) = 2021

-- 10.Average Interest Rate
-- Calculates the average interest rate across all loan applications.
SELECT AVG(int_rate)*100 AS Avg_Int_Rate
FROM bank_loan_data

-- 11.MTD Average Interest
-- Calculates the Month-to-Date (MTD) average interest rate for loan applications in December 2021.
SELECT AVG(int_rate)*100 AS MTD_Avg_Int_Rate
FROM bank_loan_data
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date) = 2021

-- 12.PMTD Average Interest
-- Calculates the Previous Month-to-Date (PMTD) average interest rate for loan applications.
SELECT AVG(int_rate)*100 AS PMTD_Avg_Int_Rate
FROM bank_loan_data
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date) = 2021

-- 13.Avg DTI
-- Calculates the average Debt-to-Income Ratio (DTI) across all loan applications.
SELECT AVG(dtci)*100 AS Avg_DTI
FROM bank_loan_data
```

OVERVIEW (SQL CODING)

Github : <https://github.com/Saifsan97>

```
-- 14.MTD Avg DTI
-- Calculates the Month-to-Date (MTD) average Debt-to-Income Ratio (DTI) for loan applications in December 2021.
SELECT AVG(dti)*100 AS MTD_Avg_DTI
FROM bank_loan_data
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date) = 2021

-- 15.PMTD Avg DTI
-- Calculates the Previous Month-to-Date (PMTD) average Debt-to-Income Ratio (DTI) for loan applications.
SELECT AVG(dti)*100 AS PMTD_Avg_DTI FROM bank_loan_data
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date) = 2021

-- 2.GOOD LOAN ISSUED
--1.Good Loan Percentage
-- Calculates the percentage of loans that are 'Fully Paid' or 'Current'.
SELECT
    (COUNT(CASE WHEN loan_status = 'Fully Paid' OR loan_status = 'Current' THEN id END) * 100.0) /
    COUNT(id) AS Good_Loan_Percentage
FROM bank_loan_data

-- 2.Good Loan Applications
-- Counts the number of loan applications that are classified as 'Fully Paid' or 'Current'
SELECT COUNT(id) AS Good_Loan_Applications
FROM bank_loan_data
WHERE loan_status = 'Fully Paid' OR loan_status = 'Current'

-- 3.Good Loan Funded Amount
-- Calculates the total funded amount for loan applications that are classified as 'Fully Paid' or 'Current'
SELECT SUM(loan_amount) AS Good_Loan_Funded_amount
FROM bank_loan_data
WHERE loan_status = 'Fully Paid' OR loan_status = 'Current'

-- 4.Good Loan Amount Received
-- Calculates the total amount received from the customers for loan applications that are classified as 'Fully Paid' or 'Current'
SELECT SUM(total_payment) AS Good_Loan_amount_received
FROM bank_loan_data
WHERE loan_status = 'Fully Paid' OR loan_status = 'Current'
```

```
-- 3.BAD LOAN ISSUED
--1.Bad Loan Percentage
-- Calculates the percentage of loans that are 'Charged Off'.
SELECT
    (COUNT(CASE WHEN loan_status = 'Charged Off' THEN id END) * 100.0) /
    COUNT(id) AS Bad_Loan_Percentage
FROM bank_loan_data

-- 2.Bad Loan Applications
-- Counts the number of loan applications that are classified as 'Charged Off'
SELECT COUNT(id) AS Bad_Loan_Applications
FROM bank_loan_data
WHERE loan_status = 'Charged Off'

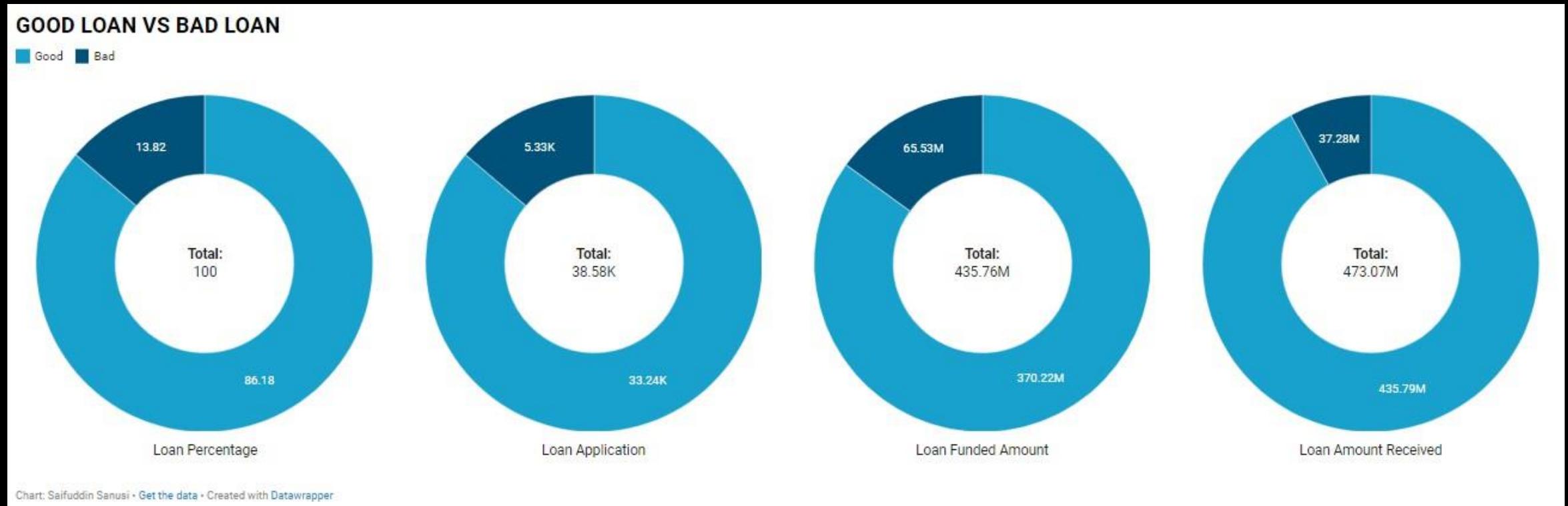
-- 3.Bad Loan Funded Amount
-- Calculates the total funded amount for loan applications that are classified as 'Charged Off'
SELECT SUM(loan_amount) AS Bad_Loan_Funded_amount
FROM bank_loan_data
WHERE loan_status = 'Charged Off'

-- 4.Bad Loan Amount Received
-- Calculates the total amount received from the customers for loan applications that are classified as 'Charged Off'
SELECT SUM(total_payment) AS Bad_Loan_amount_received
FROM bank_loan_data
WHERE loan_status = 'Charged Off'

-- 4.LOAN STATUS
-- 1. Retrieves loan status statistics, including counts, total amount received,
-- total funded amount, average interest rate, and average Debt-to-Income Ratio (DTI).
SELECT
    loan_status,
    COUNT(id) AS LoanCount,
    SUM(total_payment) AS Total_Amount_Received,
    SUM(loan_amount) AS Total_Funded_Amount,
    AVG(int_rate * 100) AS Interest_Rate,
    AVG(dti * 100) AS DTI
FROM
    bank_loan_data
GROUP BY
    loan_status

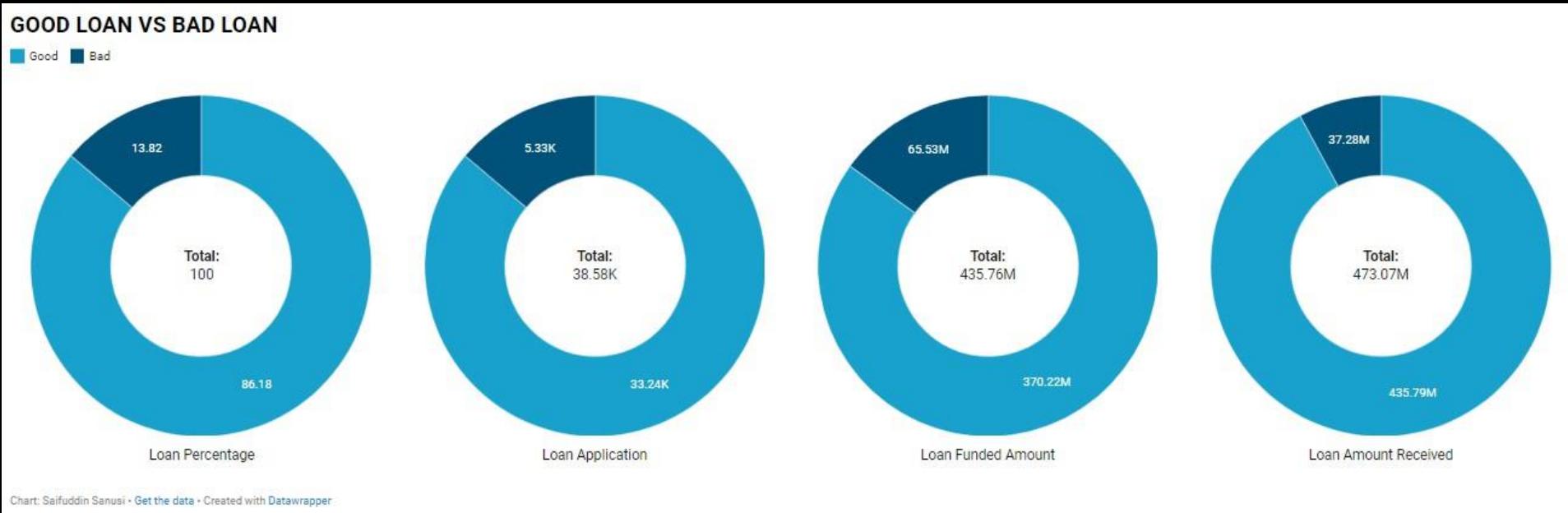
-- 2. Retrieves Month-to-Date (MTD) loan status statistics for December 2021, including total amount received and total funded amount.
SELECT
    loan_status,
    SUM(total_payment) AS MTD_Total_Amount_Received,
    SUM(loan_amount) AS MTD_Total_Funded_Amount
FROM
    bank_loan_data
WHERE
    MONTH(issue_date) = 12 AND YEAR(issue_date) = 2021
GROUP BY
    loan_status
```

OVERVIEW (GOOD LOAN VS BAD LOAN)



- **Loan Distribution:**
 - Good Loans account for 86.18% of the total loans, with 33,243 applications.
 - Bad Loans make up 13.82%, with 5,333 applications.
- This indicates that a significant majority of the bank's loan portfolio consists of good loans, showing a healthy lending performance.

OVERVIEW (GOOD LOAN VS BAD LOAN)



□ Funded Amount:

- The total funded amount for Good Loans is approximately 370.22 million, while for Bad Loans it is 65.53 million.
- Good Loans dominate in terms of loan funding, as nearly 85% of the total loan funds are allocated to good loans.

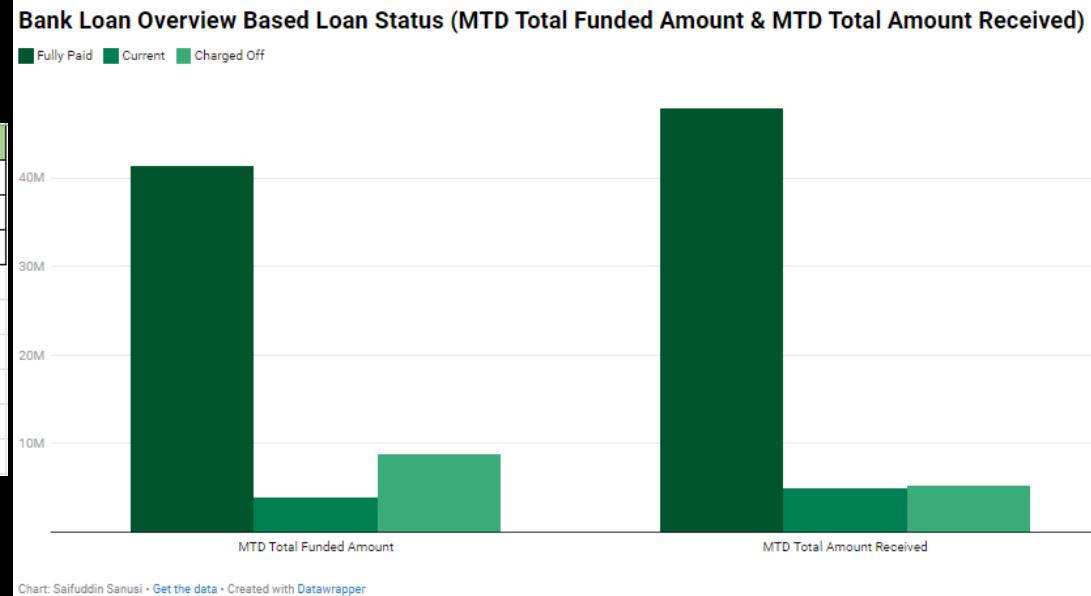
□ Recommendation:

- Improve Risk Assessment for Bad Loans: Investigate the characteristics of the 5,333 bad loan applications and develop more stringent risk assessment criteria. By understanding the common traits or risk factors, the bank can fine-tune its screening process to reduce the number of bad loans.
- Focus on Loan Recovery for Bad Loans: While bad loans account for 13.82% of total loans, their impact on funds received is significant, with only 37.28 million recovered compared to 65.53 million funded. Strengthening loan recovery efforts (e.g., restructuring, legal action, or incentives for repayment) could improve the recovery rate.

OVERVIEW (LOAN STATUS)

| Loan Status | Loan Count | Total Amount Received | Total Funded Amount | Interest Rate (%) | DTI (%) |
|-------------|------------|-----------------------|---------------------|-------------------|-------------|
| Fully Paid | 32,145 | 411,586,256 | 351,358,350 | 11.64107079 | 13.16735076 |
| Current | 1,098 | 24,199,914 | 18,866,500 | 15.09932608 | 14.72434427 |
| Charged Off | 5,333 | 37,284,763 | 65,532,225 | 13.87857493 | 14.0047328 |

| Loan Status | MTD Total Amount Received | MTD Total Funded Amount |
|-------------|---------------------------|-------------------------|
| Fully Paid | 47,815,851 | 41,302,025 |
| Current | 4,934,318 | 3,946,625 |
| Charged Off | 5,324,211 | 8,732,775 |



- **Fully Paid Loans** account for 32,145 out of the total loans, contributing a total funded amount of 351.36 million and generating 411.59 million in repayments. These loans have an average interest rate of 11.64% and an average Debt-to-Income (DTI) ratio of 13.17%.
- **Current Loans** represent 1,098 loans, with 24.20 million received and 18.87 million funded. These loans have a relatively higher average interest rate of 15.10% and a DTI of 14.72%, indicating that these are still in repayment and might present a higher risk due to the higher DTI and interest rate.
- **Charged-Off Loans** consist of 5,333 loans that have been written off as defaults, with 37.28 million received versus 65.53 million funded. The average interest rate is 13.88%, and the DTI ratio is 14.00%, reflecting riskier borrowers.

OVERVIEW (LOAN STATUS)

Month-to-Date (MTD) Performance:

- **Fully Paid Loans**, the Month-to-Date (MTD) total amount received is 47.82 million, with a corresponding funded amount of 41.30 million, indicating a strong repayment performance.
- **Current Loans** show an MTD total amount received of 4.93 million and an MTD funded amount of 3.95 million. The relatively high receipts compared to funded amounts indicate borrowers are actively paying off their balances.
- **Charged-Off Loans** have an MTD total received of 5.32 million against an MTD funded amount of 8.73 million, indicating some level of recovery despite their default status.

Interest Rate and DTI Insights:

- **Fully paid loans** have the lowest average interest rate at 11.64% and DTI at 13.17%, indicating that borrowers with lower interest rates and DTI ratios are more likely to successfully repay loans.
- **Current loans** have the highest interest rate at 15.10% and a DTI of 14.72%, suggesting these are higher-risk loans that may still perform well.
- **Charged-Off loans** feature a higher average interest rate of 13.88% and a DTI ratio of 14.00%, confirming that loans with higher interest rates and DTI ratios are more likely to default.

OVERVIEW (LOAN STATUS)

Conclusion

- The bank's loan portfolio is performing well overall, with fully paid loans showing strong repayment trends and relatively low-risk metrics (low interest rate and DTI). However, charged-off loans represent a significant portion of defaults, and borrowers with higher interest rates and DTI ratios are more prone to default

Future Recommendations

- Introduce Tiered Interest Rate Loan Products:
 - To encourage successful repayments, the bank could offer lower interest rates to borrowers who maintain good repayment behavior - a "reward" system for consistent payers.
- Predictive Analytics for Early Warning Systems:
 - Implement predictive analytics to identify loans at risk of becoming charged-off. By analyzing patterns in borrower behavior (e.g., late payments, high DTI, or increasing loan balances), the bank can intervene earlier with payment plans

OVERVIEW(MONTHLY)

| Month | Total Loan Applications | Total Funded Amount | Total Amount Received |
|-----------|-------------------------|---------------------|-----------------------|
| January | 2,332 | \$25,031,650 | \$27,578,836 |
| February | 2,279 | \$24,647,825 | \$27,717,745 |
| March | 2,627 | \$28,875,700 | \$32,264,400 |
| April | 2,755 | \$29,800,800 | \$32,495,533 |
| May | 2,911 | \$31,738,350 | \$33,750,523 |
| June | 3,184 | \$34,161,475 | \$36,164,533 |
| July | 3,366 | \$35,813,900 | \$38,827,220 |
| August | 3,441 | \$38,149,600 | \$42,682,218 |
| September | 3,536 | \$40,907,725 | \$43,983,948 |
| October | 3,796 | \$44,893,800 | \$49,399,567 |
| November | 4,035 | \$47,754,825 | \$50,132,030 |
| December | 4,314 | \$53,981,425 | \$58,074,380 |

Loan Applications:

The number of loan applications increases steadily throughout the year, starting from 2,332 applications in January and peaking at 4,314 applications in December.

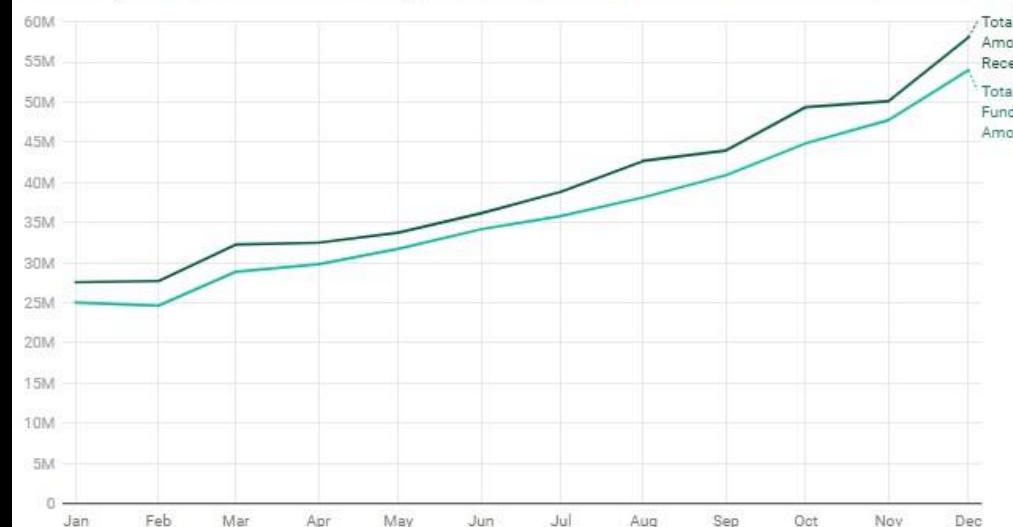
Total Funded Amount:

The total funded amount follows a similar upward trend, beginning at \$25.03 million in January and reaching \$53.98 million in December.

Total Amount Received:

The total amount received by the bank shows consistent growth, with \$27.58 million in January and \$58.07 million in December.

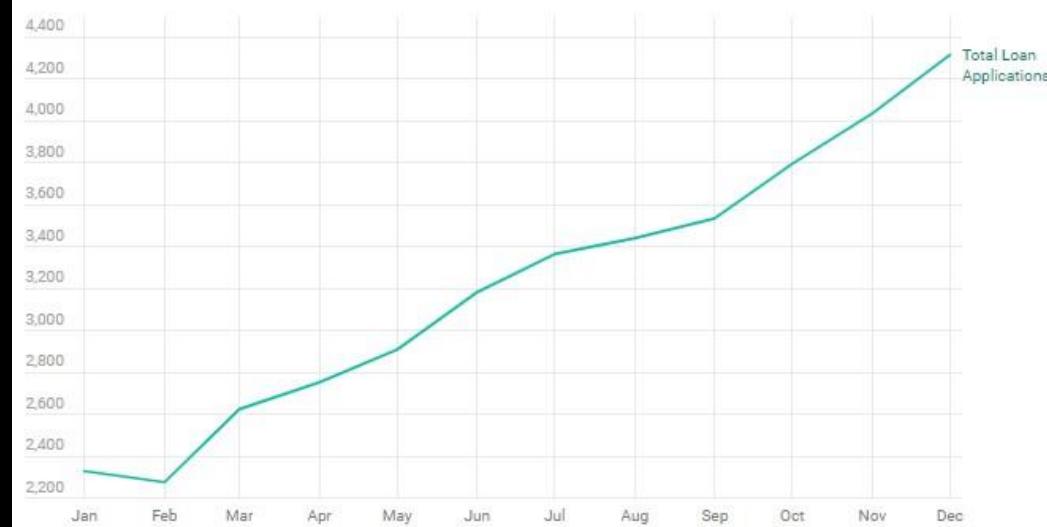
Monthly Bank Loan Overview (Total Amount Received & Total Funded Amount)



The data indicates strong growth in both loan demand and repayment over the year, with consistent increases in both the number of applications and the total funded amounts.

Chart: Saifuddin Sanusi • [Get the data](#) • Created with Datawrapper

Monthly Bank Loan Overview (Total Loan Applications)



The data indicates strong growth in both loan demand and repayment over the year, with consistent increases in the number of applications.

Chart: Saifuddin Sanusi • [Get the data](#) • Created with Datawrapper

OVERVIEW(MONTHLY)

Conclusion

- The bank has experienced strong loan growth throughout the year, with significant increases in both the number of applications and the total amount of loans funded. The second half of the year shows particularly robust growth in loan demand and repayment performance, as demonstrated by the sharp increase in both total funded amounts and total amount received.
- The steady rise in loan applications and the corresponding increase in funded amounts indicate that the bank has been able to successfully meet borrower demand.

Future Recommendations:

1. Expand Loan Offerings in High-Demand Months:

The data indicates that demand for loans is highest in the second half of the year, particularly from July to December. The bank should prepare for this by ensuring ample liquidity and potentially rolling out new or promotional loan products during these months to capture even more demand.

2. Utilize Predictive Analytics for Demand Forecasting:

The clear seasonality in loan applications and funding suggests that the bank could benefit from more precise demand forecasting. By using predictive analytics, the bank can anticipate the number of loan applications it will receive and prepare accordingly (e.g., staffing, liquidity management).

OVERVIEW (STATES)

Bank Loan Overview Based On States (Total Loan Applications)

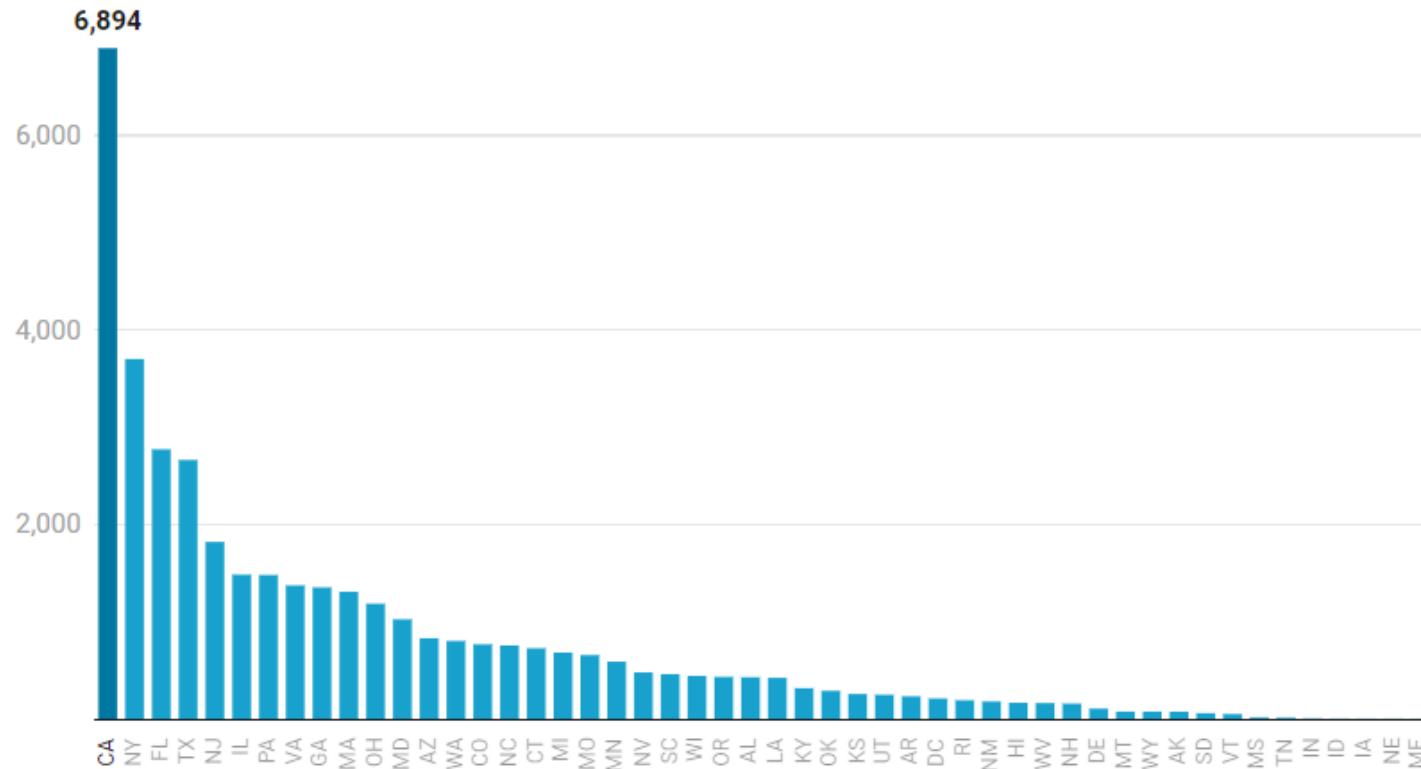


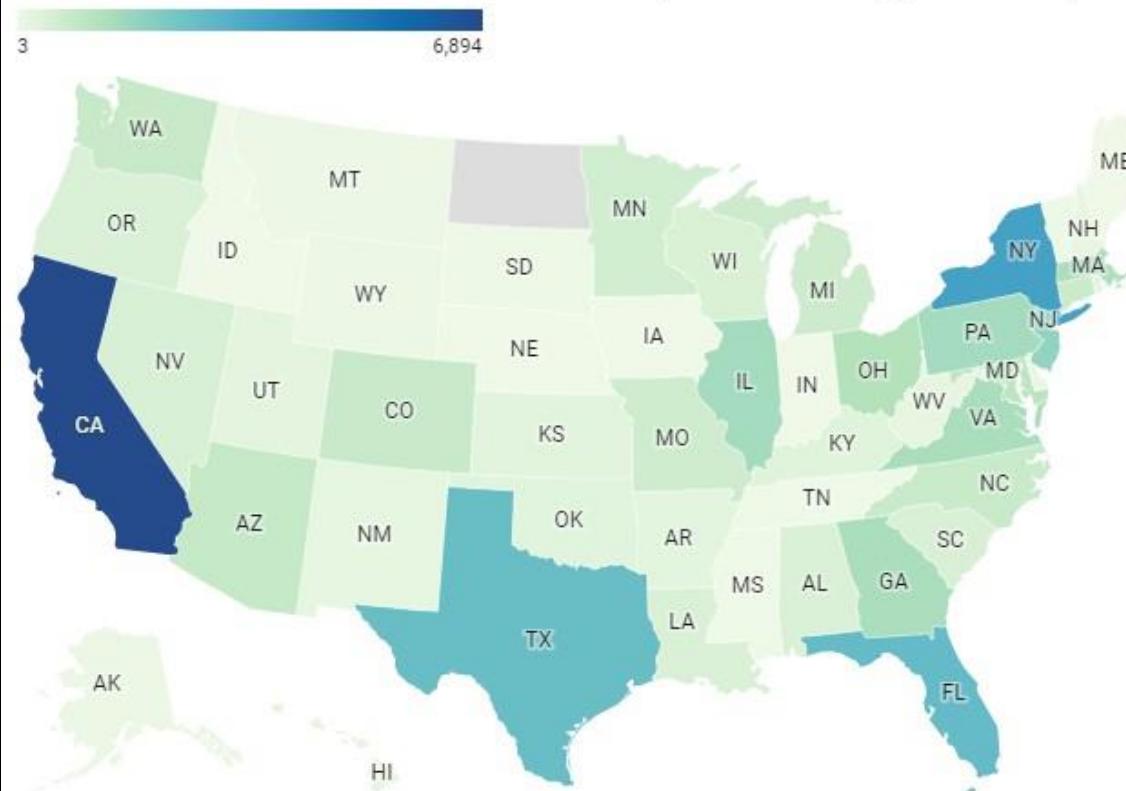
Chart: Saifuddin Sanusi • [Get the data](#) • Created with [Datawrapper](#)

State-wise Loan Applications:

- California (CA) leads with 6,894 total loan applications, followed by New York (NY) with 3,701 applications and Florida (FL) with 2,773 applications.
- States with very low loan application counts include Iowa (IA) and Nebraska (NE), each having fewer than 10 applications.

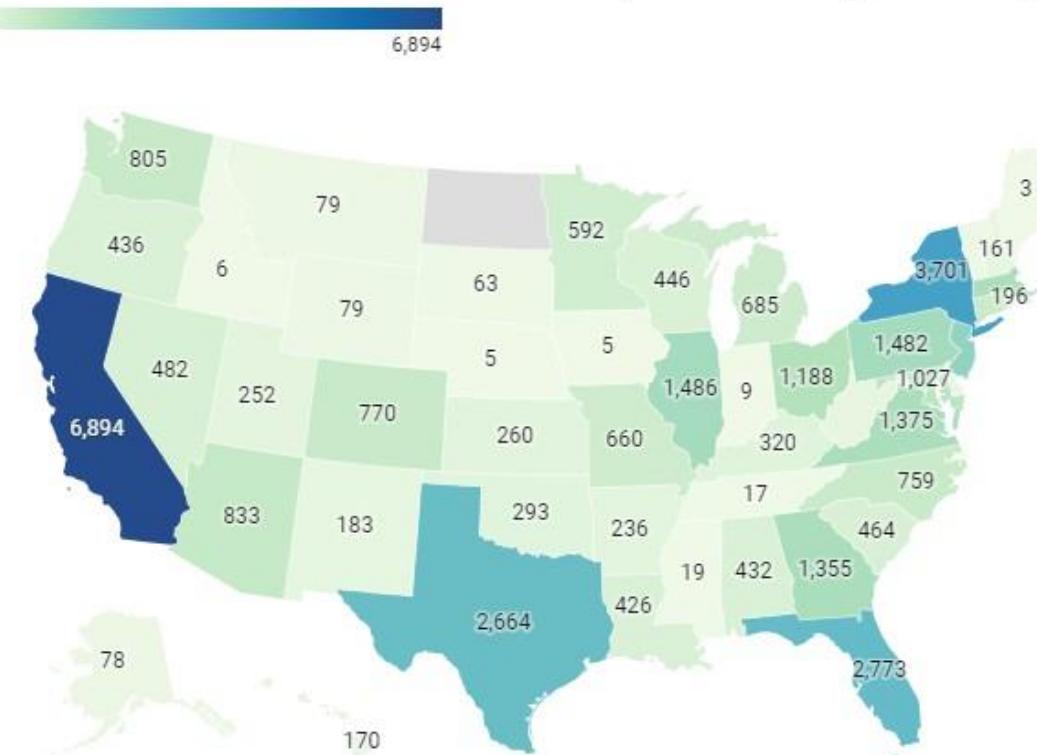
OVERVIEW (STATES)

Bank Loan Overview Based On States (Total Loan Applications)



Map: Saifuddin Sanusi • [Get the data](#) • Created with Datawrapper

Bank Loan Overview Based On States (Total Loan Applications)



Map: Saifuddin Sanusi · Get the data · Created with Datawrapper

OVERVIEW (STATES)

| Bank Loan Overview Based on Home Ownership (Total Funded Amount & Total Amount Received) | | | Bank Loan Overview Based on Home Ownership (Total Funded Amount & Total Amount Received) | | |
|--|---------------------|-----------------------|--|---------------------|-----------------------|
| State | Total Funded Amount | Total Amount Received | State | Total Funded Amount | Total Amount Received |
| CA | 78,484,125 | 83,901,234 | LA | 4,498,900 | 5,001,160 |
| NY | 42,077,050 | 46,108,181 | KY | 3,504,100 | 3,792,530 |
| TX | 31,236,650 | 34,392,715 | OK | 3,365,725 | 3,712,649 |
| FL | 30,046,125 | 31,601,905 | KS | 2,872,325 | 3,247,394 |
| NJ | 21,657,475 | 23,425,159 | UT | 2,849,225 | 2,952,412 |
| IL | 17,124,225 | 18,875,941 | DC | 2,652,350 | 2,921,854 |
| VA | 15,982,650 | 17,711,443 | AR | 2,529,700 | 2,777,875 |
| PA | 15,826,525 | 17,462,908 | NH | 1,917,900 | 2,101,386 |
| GA | 15,480,325 | 16,728,040 | NM | 1,916,775 | 2,084,485 |
| MA | 15,051,000 | 16,676,279 | RI | 1,883,025 | 2,001,774 |
| OH | 12,991,375 | 14,330,148 | HI | 1,850,525 | 2,080,184 |
| MD | 11,911,400 | 12,985,170 | WV | 1,830,525 | 1,991,936 |
| AZ | 9,206,000 | 10,041,986 | DE | 1,138,100 | 1,269,136 |
| CO | 8,976,000 | 9,845,810 | AK | 1,031,800 | 1,108,570 |
| WA | 8,855,525 | 9,531,739 | WY | 890,750 | 1,046,050 |
| NC | 8,787,575 | 9,534,813 | MT | 829,525 | 892,047 |
| CT | 8,435,575 | 9,357,612 | SD | 606,150 | 656,514 |
| MI | 7,829,900 | 8,543,660 | VT | 504,100 | 534,973 |
| MO | 7,151,175 | 7,692,732 | TN | 162,175 | 141,522 |
| MN | 6,302,600 | 6,750,746 | MS | 139,125 | 149,342 |
| NV | 5,307,375 | 5,451,443 | IN | 86,225 | 85,521 |
| SC | 5,080,475 | 5,462,458 | ID | 59,750 | 65,329 |
| WI | 5,070,450 | 5,485,161 | IA | 56,450 | 64,482 |
| AL | 4,949,225 | 5,492,272 | NE | 31,700 | 24,542 |
| OR | 4,720,150 | 4,966,903 | ME | 9,200 | 10,808 |

Table: Saifuddin Sanusi - [Get the data](#) • Created with Datawrapper

Table: Saifuddin Sanusi - [Get the data](#) • Created with Datawrapper

OVERVIEW (STATES)

Total Funded Amount

- The largest amount of loans funded also corresponds to California, which has \$78.48 million in loans disbursed. Other high-funded states include New York (\$42.08 million), Texas (\$31.23 million), and Florida (\$30.04 million).
- The smallest funded amounts appear in states like Idaho (ID) with \$59,750 and Iowa (IA) with \$56,450.

Total Amount Received

- The states that received the most funds back from borrowers are California (\$83.90 million), New York (\$46.1 million), Florida (\$31.60 million), and Texas (\$34.39 million).
- The smallest amounts received come from states such as Idaho (\$65,329) and Iowa (\$64,482).

Conclusion & Recommendations

- **Geographic Concentration:** The highest loan activity is concentrated in states with large populations and economic centers, such as California, New York, Texas, and Florida. These states lead in terms of both loan applications and the amounts funded and received. This suggests that the bank's lending operations are most active in the most populous states.
- **Low-Volume States:** States like Iowa, Idaho, and Vermont show very limited loan activity, with both small numbers of applications and low funded amounts. These states may be areas where the bank could explore market expansion or decide to minimize its efforts depending on the economic potential.

OVERVIEW (TERMS)

Total Funded Amount

- The total funded amount for 36-month loans is significantly higher than the funded for 60-month loans.

Total Amount Received

- The 36-month loans, the bank has received is higher than the for 60-month loans.

Performance by Loan Term

- The total amount received for 36-month loans is about 108% of the total amount funded while 60-month loans received is 109% of the total funded.

Conclusion

Shorter-Term Loans Dominate: The 36-month loan term is more popular, accounting for almost three times as many applications as the 60-month term. These shorter loans are also associated with higher total amounts funded and received, making them a key part of the bank's loan portfolio.

Bank Loan Overview Based on Terms (Total Funded Amount & Total Amount Received)



Chart: Saifuddin Sanusi • [Get the data](#) • Created with Datawrapper

Bank Loan Overview Based on Terms (Total Loan Applications)

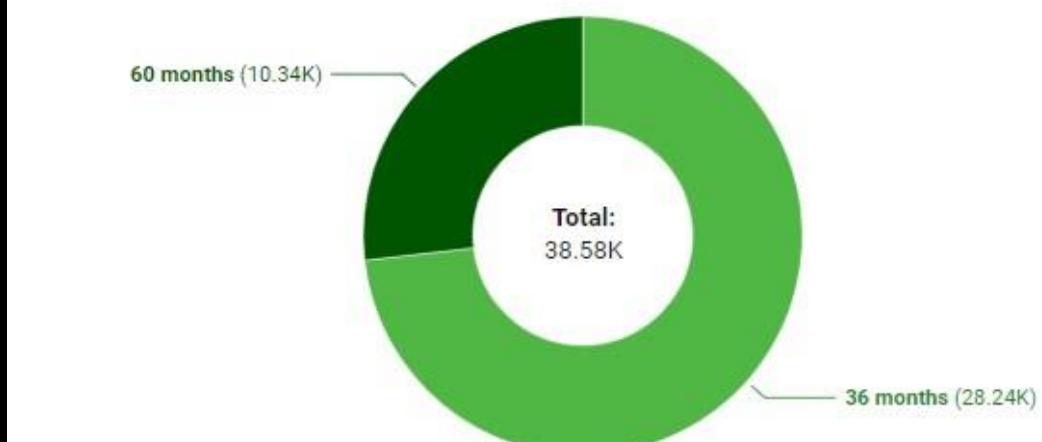
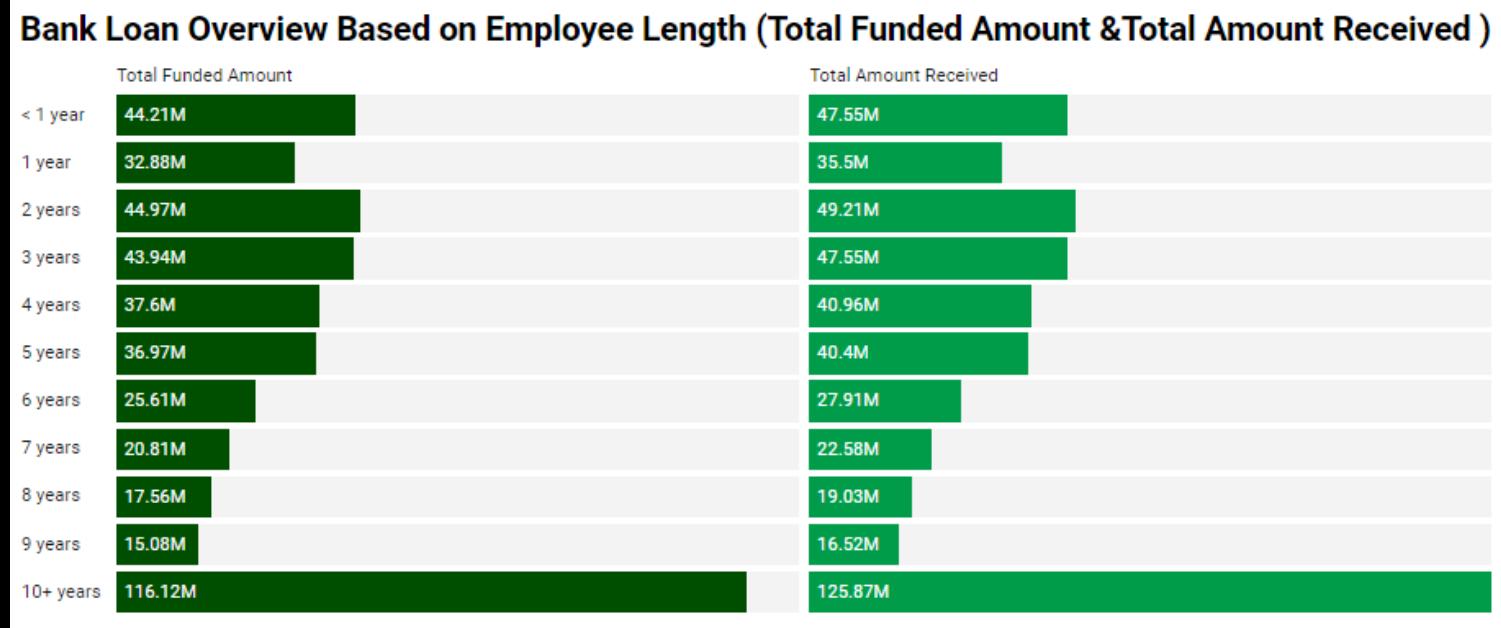
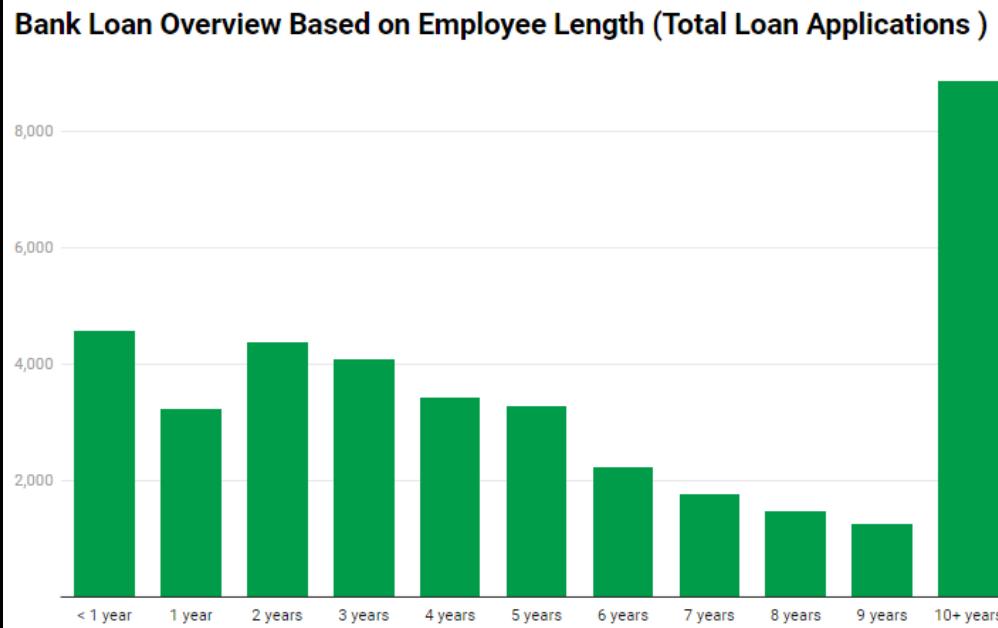


Chart: Saifuddin Sanusi • [Get the data](#) • Created with Datawrapper

OVERVIEW (EMPLOYEE LENGTH)



Loan Application

- Employees with **10+ years** of experience account for the largest portion of loan applications, with 8,870 applications, representing a significant share of the total loan portfolio.
- The next highest group is employees with **<1 year** of experience, with 4,575 applications, followed by those with 2 years of experience (4,382 applications).

Total Funded Amount

- Employees with **10+ years** of experience received the highest total funded amount of \$116,115,950, which is almost three times more than the next largest group (employees with **<1 year** of experience at \$44,210,625).
- Funding decreases with fewer years of experience, with employees in the 6-9 year range receiving some of the lowest total amounts.

OVERVIEW (EMPLOYEE LENGTH)

Total Amount Received

- Employees with **10+ years** of experience have contributed the highest total amount received at \$125,871,616, significantly higher than other groups.
- All groups show solid repayment relative to the amount funded. However, employees in the **6 to 9 years** segment have slightly lower total amounts received relative to what was funded.

Future Recommendations

- Focus on Retaining Long-Term Clients: Offering loyalty incentives, lower interest rates, or additional financial products (e.g., investment opportunities) to the employees with **10+ years** of experience.
- Expand Support for Early-Career Borrowers: The bank should consider expanding its offerings to newer employees (**<1 year** of experience). This could include tailored loan packages that focus on first-time borrowers, lower initial loan amounts, or flexible repayment plans.
- Address the Mid-Career Segment: The relatively lower loan demand from employees in the **6 to 9 years** segment suggests potential untapped opportunity. The bank could explore why this group applies for fewer loans (e.g., higher perceived risks, different financial priorities) and offer tailored products to meet their needs.

OVERVIEW (PURPOSES)

Bank Loan Overview Based on Purpose (Total Loan Application)

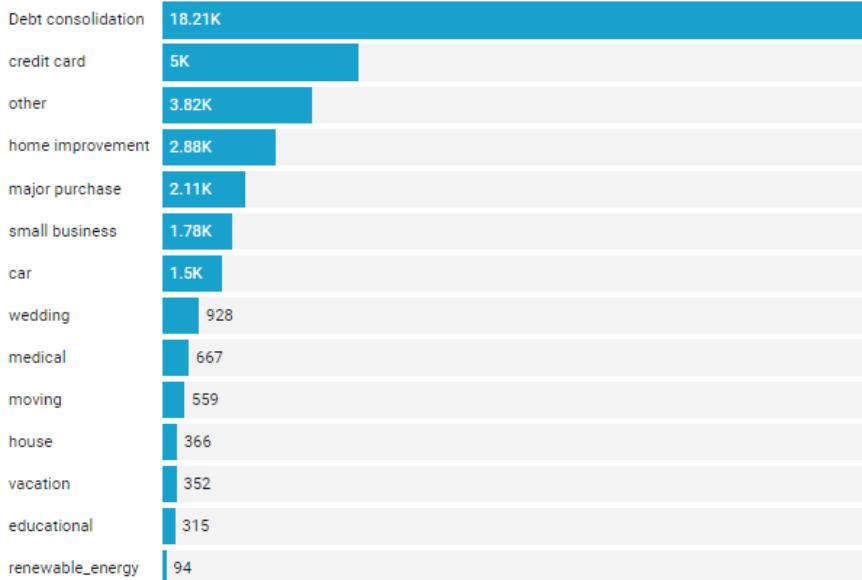


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Bank Loan Overview Based on Purpose (Total Funded Amount & Total Amount Received)

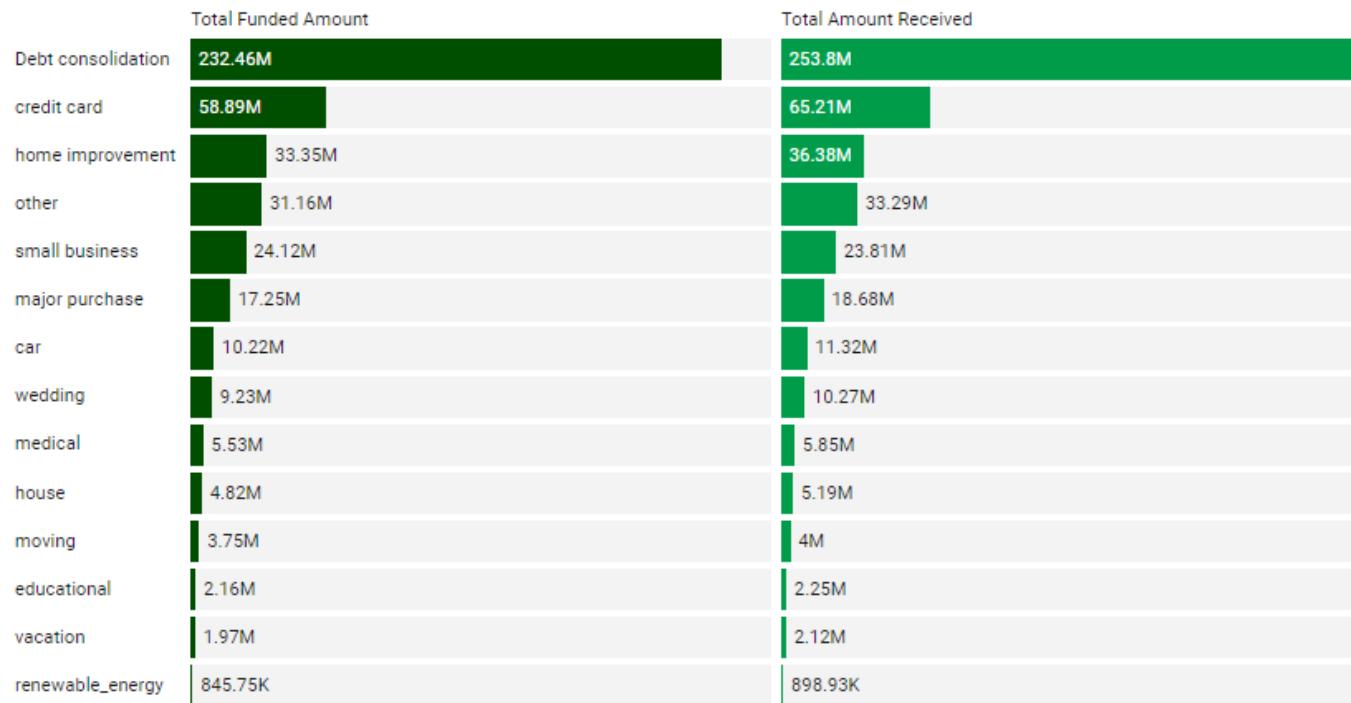


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Loan Applications

- **Debt consolidation** dominates the loan applications with 18,214 applications, more than three times the next highest category, credit card loans (4,998 applications).

Total Funded Amount

- **Debt consolidation** has the largest funded amount at \$232,459,675, which aligns with its high number of applications. Credit card loans have the second-highest funded amount at \$58,885,175, followed by **home improvement** loans at \$33,350,775.

OVERVIEW (PURPOSES)

Total Amount Received

- Many loan categories exhibit strong repayment performance, with several categories receiving more than what was initially funded.
For example:
 - **Debt consolidation:** Repayment rate of around 109% of the funded amount.
 - **Credit card:** Repayment rate of 110.7%.
 - **Home improvement:** Repayment rate of 109%.

Recommendations

- Expand **Debt Consolidation** and **Credit Card Loan Offerings:** The bank should continue to invest in and promote debt consolidation and credit card loan products. Offering competitive rates and flexible repayment terms will help maintain strong demand.
- Target Home Improvement Loans for Growth: The **home improvement** loan segment demonstrates excellent repayment and has substantial demand.

OVERVIEW (HOME OWNERSHIP)

Bank Loan Overview Based on Home Ownership (Total Loan Application)

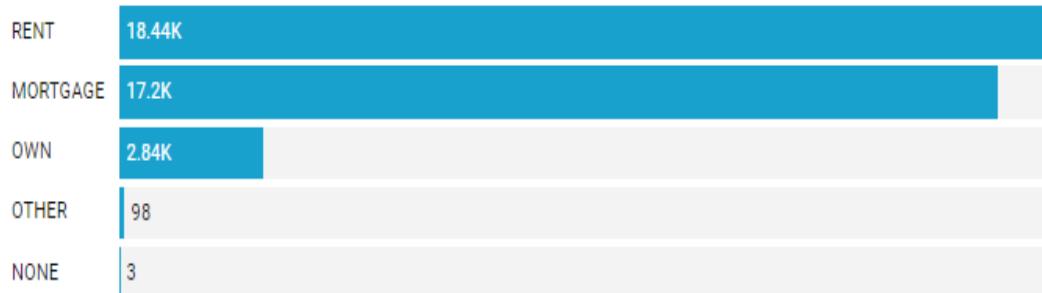


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Bank Loan Overview Based on Home Ownership (Total Funded Amount & Total Amount Received)

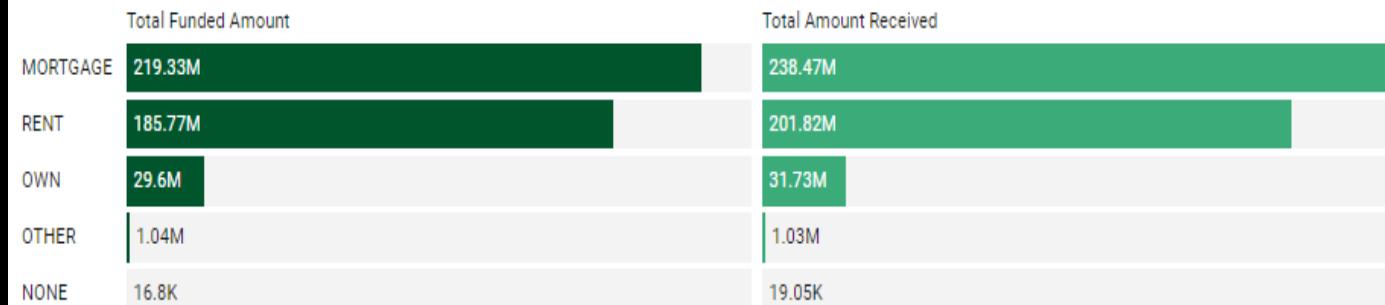


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Loan Applications

- Renters have the highest number of loan applications at 18,439, followed closely by mortgage holders with 17,198 applications.

Total Funded Amount

- Mortgage holders account for the largest share of the total funded amount, with \$219,329,150 funded.
- Renters come second with \$185,768,475 funded, which is still substantial but slightly lower than mortgage holders, despite having more applications.

Total Amount Received

- Mortgage holders show the highest total repayment, with \$238,474,438 received. This indicates that they are not only receiving the largest loans but also repaying a significant portion.

OVERVIEW (HOME OWNERSHIP)

Bank Loan Overview Based on Home Ownership (Total Loan Application)

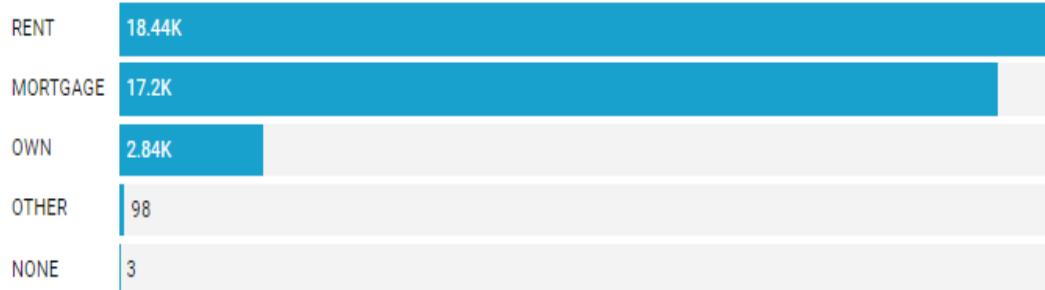


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Bank Loan Overview Based on Home Ownership (Total Funded Amount & Total Amount Received)

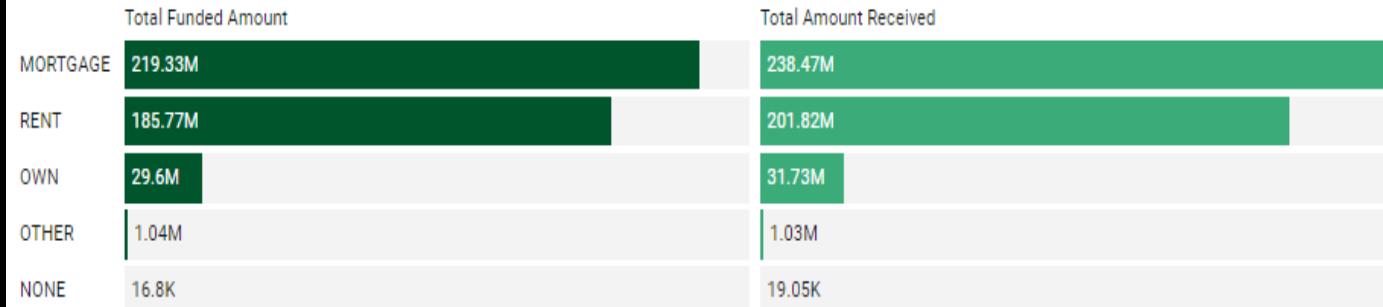


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Future Recommendations

1. Focus on Mortgage Holders and Renters for Loan Growth

- Given that **mortgage** holders and **renters** dominate both in volume and repayment strength, the bank should focus on enhancing loan offerings tailored to these groups.
- Mortgage** holders, offering additional loan products like home equity loans or refinancing options could boost loan activity further.
- Renters** could be targeted with tailored financial products, such as loans for home purchases, moving expenses, or even lease buyout financing, to capture more of this audience.

2. Leverage Strong Repayment Trends Among Homeowners

- Although the volume of loans to **homeowners** is smaller, they demonstrate strong repayment rates. The bank could develop more tailored loan products for this segment, such as retirement loans, home renovation loans, or reverse mortgages for older homeowners, capitalizing on their reliable repayment history.

PROJECT LIMITATIONS



Limited Data on Certain Demographics:
There is very little data on loan applications from the "none" and "other" homeownership categories. This limits the bank's understanding of potential market opportunities or challenges in these smaller segments.



Lack of Creditworthiness Data:
The analysis does not account for credit scores, income levels, or debt-to-income ratios. This omission limits the bank's ability to understand the risk associated with different borrower groups and the likelihood of defaults.



Narrow Loan Terms:
The data only reflects two loan term options: 36 months and 60 months, which limits insight into customer preferences for other potential loan durations, such as shorter-term or longer-term loans (e.g., 12 months, 48 months). This gap restricts understanding of broader customer needs.



Regional Disparities:
Some states have negligible loan activity. The bank's market penetration appears to be uneven across regions, potentially missing growth opportunities in underrepresented states.

RECOMMENDATIONS FOR FUTURE PROJECTS:

For Bank Employees:

- Enhance Customer Interaction for Mortgage Holders and Renters: Focus on offering personalized loan products, such as refinancing options, home equity loans, and tailored personal loans for renters, particularly for home improvement and debt consolidation.
- Data-Driven Loan Offerings: Use the data to guide personalized loan offers. For example, customers with strong repayment histories could receive targeted offers for larger loans, lower interest rates, or refinancing options.
- Gather More Customer Insights: Employees should engage in data collection and surveys to better understand why certain customer segments, like "none" and "other," have minimal engagement with the bank's loan offerings.

For Bank Management:

- Geographical Targeting: Focus on regions where loan applications are low but repayment rates are high, like certain underutilized states. Marketing campaigns and outreach programs tailored to high-potential regions could increase loan applications. Regions such as California, Texas, New York, and Florida demonstrate high loan activity and repayments. Management should continue to focus on these areas, but also consider expanding to underrepresented states with good repayment rates, such as Washington, Colorado, and Massachusetts.
- Product Innovation for Underrepresented Groups: Investigate opportunities in the "none" and "other" homeownership categories. Even though these segments are small, there may be a niche for unique financial products, such as shared housing loans or alternative housing financing.
- Leverage Employee Tenure Data: Utilize the insights from employee length of employment to develop loan products targeting mid-career professionals. Employees with 2 to 5 years of tenure tend to be high loan applicants with strong repayment, so specialized loan products for this group, like career development loans or advanced education loans, could be attractive.
- Monitor External Economic Trends: Incorporate economic indicators such as changes in interest rates, inflation, and housing market trends into future loan projects. This will help the bank to be more adaptable to market shifts and continue targeting the right customer segments.