



# **Bank Loan Analysis using Excel**

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# INTRODUCTION

In today's dynamic financial environment, the capacity to effectively monitor and analyze lending activities has emerged as a critical factor for maintaining competitive advantage and building enduring customer trust. As a leader in the financial industry, Bank of America acknowledges the pivotal role that data-driven decision-making plays in the management of its loan portfolio. To thrive in this landscape, it is essential to develop tools and resources that enable precise tracking of lending performance, insightful analysis of market trends, and informed strategic planning. The proposed Bank Loan Report aims to serve as a comprehensive repository of vital loan-related metrics, facilitating deeper insights into the lending operations and overall portfolio health. By leveraging accurate and timely data, Bank of America will be better positioned to enhance its lending practices, improve borrower satisfaction, and continue its tradition of responsible and effective lending.

# OBJECTIVE

The objective of the Bank Loan Report project is to develop a comprehensive and visually engaging report that systematically monitors and assesses bank's lending activities and performance. This report will track key metrics, including total loan applications, funded amounts, repayment statistics, and borrower assessments, providing stakeholders with invaluable insights to inform data-driven decision-making and enhance lending strategies.

By integrating critical loan-related metrics and analyzing their temporal changes, the report will facilitate a deeper understanding of the health of the loan portfolio and highlight emerging trends that can shape our lending strategies. In addition, an aim to create a detailed "Details Dashboard" that consolidates essential loan information, offering users a holistic view of vital metrics and data points. This dashboard will streamline access to crucial information, empowering stakeholders to make informed lending decisions and manage bank's lending operations effectively.

# PROBLEM STATEMENT

**Bank of America** is committed to providing transparent and efficient loan services to its customers, necessitating a comprehensive analysis of its loan performance to enhance decision-making and improve lending strategies. This involves examining key performance indicators (KPIs) such as Total Loan Applications, Total Funded Amount, Cash Flow, Interest Rates, Debt-to-Income Ratios, and Loan Quality. By systematically tracking and visualizing these metrics, the analysis aims to uncover trends over time, analyze borrower profiles, and pinpoint areas for improvement in loan quality.

## Key Performance Indicators (KPIs) Questions:

1. **Total Loan Applications:** How many loan applications were received during the specified period, and what are the Month-to-Date (MTD) and Month-over-Month (MoM) changes?
2. **Total Funded Amount:** What is the total amount of funds disbursed as loans, including the MTD Total Funded Amount and MoM changes?
3. **Total Amount Received:** What is the total amount received from borrowers for loan repayments, with analysis on MTD total received and MoM changes?
4. **Average Interest Rate:** What is the average interest rate across all loans, and how do MTD and MoM variations in interest rates reflect on our lending portfolio costs?
5. **Average Debt-to-Income Ratio (DTI):** What is the average DTI of borrowers, and what is MTD and MoM fluctuation in this ratio?

## Good Loan vs Bad Loan KPI's Questions:

### Good Loan KPIs:

1. **Good Loan Application Percentage:** What percentage of loan applications are classified as 'Good Loans' based on their loan status?
2. **Good Loan Applications:** What is the total number of loan applications falling under the 'Good Loan' category, defined as those with 'Fully Paid' and 'Current' statuses?
3. **Good Loan Funded Amount:** What is the total amount of funds disbursed as 'Good Loans' with status 'Fully Paid' and 'Current'?
4. **Good Loan Amount Total Received:** What is the total amount received from borrowers for 'Good Loans' categorized as 'Fully Paid' and 'Current'?

### Bad Loan KPIs:

1. **Bad Loan Application Percentage:** What percentage of loan applications are categorized as 'Bad Loans,' specifically those labeled as 'Charged Off'?
2. **Bad Loan Applications:** How many loan applications are classified as 'Bad Loans' based on loan status of 'Charged Off'?
3. **Bad Loan Funded Amount:** What is the total amount funded as 'Bad Loans' with a status of 'Charged Off'?
4. **Bad Loan Total Amount Received:** How much has been received from borrowers for 'Bad Loans', which are those that are 'Charged Off'?

**Loan Status Grid View:** What insights can we gain from a grid view report analyzing the performance of loans categorized by 'Loan Status', encompassing metrics like Total Loan Applications, Total Funded Amount, Total Amount Received, Average Interest Rate and Average Debt-to-Income Ratio (DTI)?

**Monthly Trends Analysis:** What do the trends in Total Loan Applications over time reveal about our lending activities?

**Regional Lending Analysis:** How can we visualize lending metrics by state to identify regional disparities in Total Loan Applications?

**Loan Term Insights:** What does a distribution of loan statistics based on various loan terms (e.g., 36 months, 60 months) indicate about borrower preferences in terms of Total Loan Applications?

**Employment Length Impact:** How do lending metrics vary among borrowers with different employment histories in terms of Total Loan Applications?

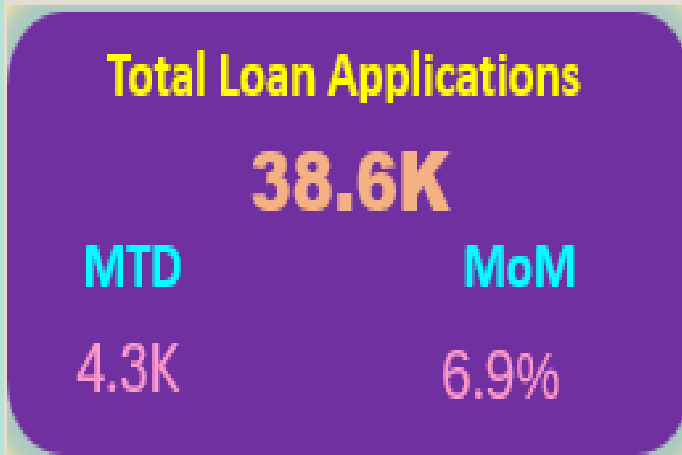
**Loan Purpose Insights:** What breakdown does the analysis provide regarding loan metrics based on different stated purposes (e.g., debt consolidation, credit card), focusing on Total Loan Applications?

**Home Ownership Metrics:** How does home ownership status impact Total Loan Applications?

**Details Dashboard:** What key loan-related metrics and data points are essential for creating a comprehensive 'Details Dashboard' that provides users with efficient access to critical loan information?

# Key Performance Indicators (KPIs)

1. **Total Loan Applications:** How many loan applications were received during the specified period, and what are the Month-to-Date (MTD) and Month-over-Month (MoM) changes?



## Total Loan Applications

- ❑ **Total number of Loan Applications** stands at **38.6K**.
- ❑ **Month-to-Date (MTD) Total Loan Applications** are **4.3K**, indicating ongoing interest and demand for loans.
- ❑ **Month-over-Month (MoM) Total Loan Applications** is **6.9%** increase in loan applications compared to the previous month (**MoM:6.30%**), highlighting a positive trend in loan demand.

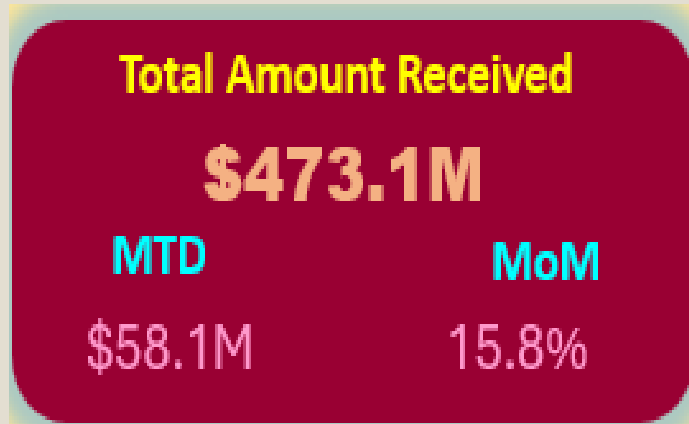
**2. Total Funded Amount:** What is the total amount of funds disbursed as loans, including the MTD Total Funded Amount and MoM changes?



### Total Funded Amount

- ❑ **Total Funded Amount** is **\$435.8M**, indicating a robust lending activity in the current financial period.
- ❑ The **Month-to-Date (MTD) Total Funded Amount** is **\$54.0M**.
- ❑ **Month-over-Month (MoM) Total Funded Amount** growth at **13.0%**.  
This increase suggests an upward trend in loan applications and approvals compared to the previous month (**MoM:6.37%**), indicating that the organization is likely experiencing positive momentum in its funding efforts.

**3. Total Amount Received:** What is the total amount received from borrowers for loan repayments, with analysis on MTD total received and MoM changes?



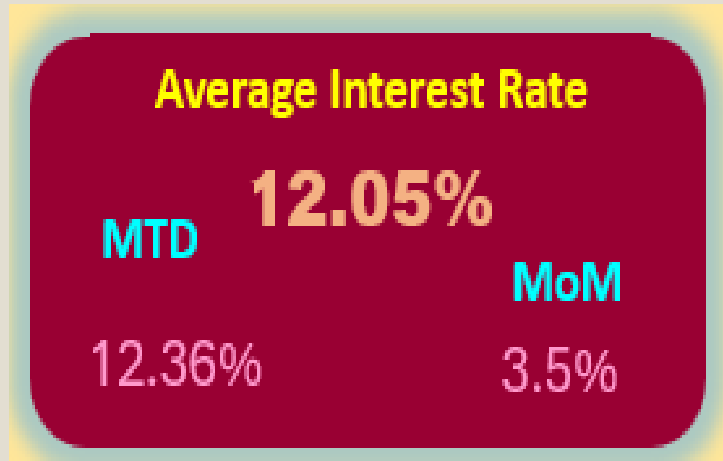
### Total Amount Received

- ❑ **Total Amount Received** is **\$473.1M**.
- ❑ The **Month-to-Date (MTD) Total Amount Received** is **\$58.1M**.
- ❑ **Month-over-Month (MoM) Total Amount Received** growth at **15.8%**.

This growth reflects a sharp increase compared to the previous month's growth of only (**MoM:1.48%**), this substantial spike indicates an increasing demand for loans or financial products, showing positive momentum in business activities.



**4. Average Interest Rate:** What is the average interest rate across all loans, and how do MTD and MoM variations in interest rates reflect on our lending portfolio costs?



### Average Interest Rate

- ❑ **Average Interest Rate** is **12.05%** representing the overall average interest rate in the period under review.
- ❑ The **Month-to-Date (MTD) Average Interest Rate** is **12.36%**, this increase in the MTD average indicates that recent transactions have occurred at higher rates compared to the overall average, suggesting a possible uptick in demand for loans or credit.
- ❑ **Month-over-Month (MoM) Average Interest Rate** is **3.5%**. This figure indicates a significant increase from the previous month's (**MoM : -0.69%**). The positive shift suggests a reversal from previous declines, pointing to an increased demand or changes in market conditions affecting interest rates.

**5. Average Debt-to-Income Ratio (DTI):** What is the average DTI of borrowers, and what is MTD and MoM fluctuation in this ratio?

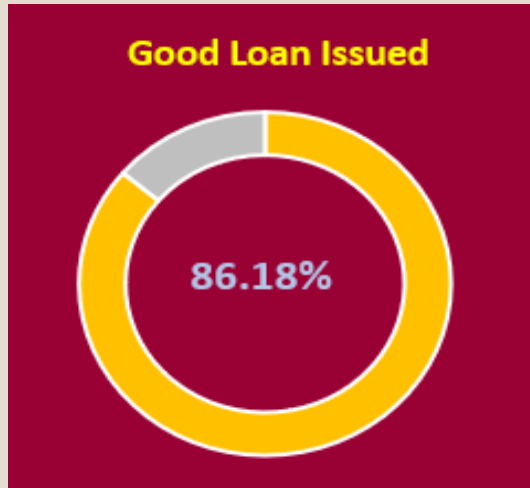


### Average Debt-to-Income Ratio(DTI)

- ❑ The **Average Debt-to-Income Ratio** is recorded at **13.33%**, which suggests a manageable level of borrower debt relative to income.
- ❑ **MTD Average Debt-to-Income Ratio** is slightly increased to **13.67%** compared to the overall average DTI, which may imply that borrowers are taking on more debt relative to their income in the short term.
- ❑ The **Month-over-Month (MoM) Average Debt-to-Income (DTI) ratio** has increased from **-0.83%** to **2.7%**. This change indicates a significant upward trend in the DTI, suggesting that borrowers are now allocating a larger portion of their income toward debt repayment compared to the previous period. This increase could have implications for consumer spending, creditworthiness, and overall financial health of borrowers, and should be monitored closely in future analyses.

# Good Loan KPIs

1. **Good Loan Application Percentage:** What percentage of loan applications are classified as 'Good Loans' based on their loan status?



**Good Loan Application Percentage** comprises as **86.18%** of total applications, indicating robust borrower performance.

2. **Good Loan Applications:** What is the total number of loan applications falling under the 'Good Loan' category, defined as those with 'Fully Paid' and 'Current' statuses?



A total of **33.2K** applications fall under **Good Loan Applications** category.

**3. Good Loan Funded Amount:** What is the total amount of funds disbursed as 'Good Loans' with status 'Fully Paid' and 'Current'?

Good Loan Funded Amount

\$370.2M

Good Loan Funded Amount is \$370.2M

**4. Good Loan Total Amount Received:** What is the total amount received from borrowers for 'Good Loans' categorized as 'Fully Paid' and 'Current'?

Good Loan Total Received Amount

\$435.8M

Good Loan Total Amount Received is \$435.8M

# Bad Loan KPIs

1. **Bad Loan Application Percentage:** What percentage of loan applications are categorized as 'Bad Loans,' specifically those labeled as 'Charged Off'?



**Bad Loan Application Percentage** comprises as **13.82%**, indicating a smaller subset of riskier loans.

2. **Bad Loan Applications:** How many loan applications are classified as 'Bad Loans' based on loan status of 'Charged Off'?



A total of **5.3K Bad Loan Applications** are categorized as 'Charged Off'

**3. Bad Loan Funded Amount:** What is the total amount funded as 'Bad Loans' with a status of 'Charged Off'?

Bad Loan Funded Amount  
\$65.5M

Bad Loan Funded Amount is \$65.5M.

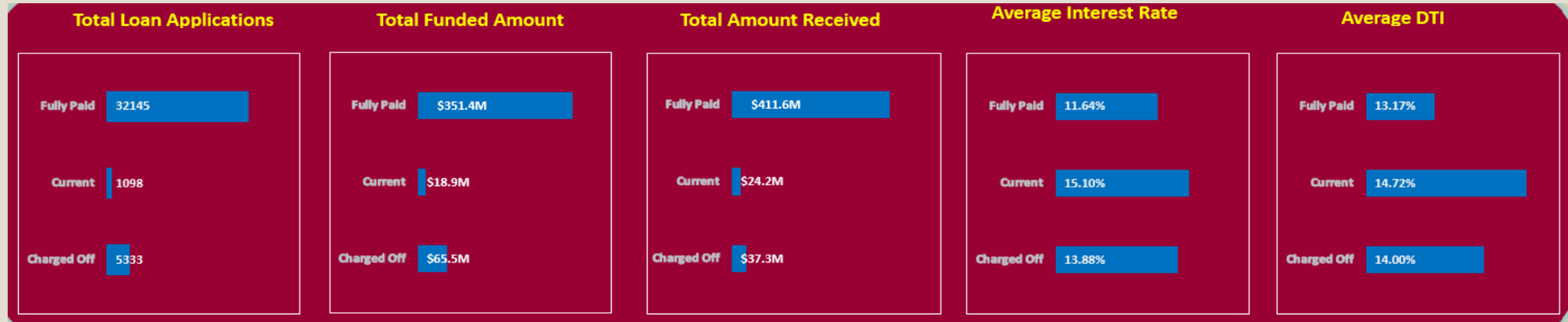
**4. Bad Loan Total Amount Received:** How much has been received from borrowers for 'Bad Loans', which are those that are 'Charged Off'?

Bad Loan Total Received Amount  
\$37.3M

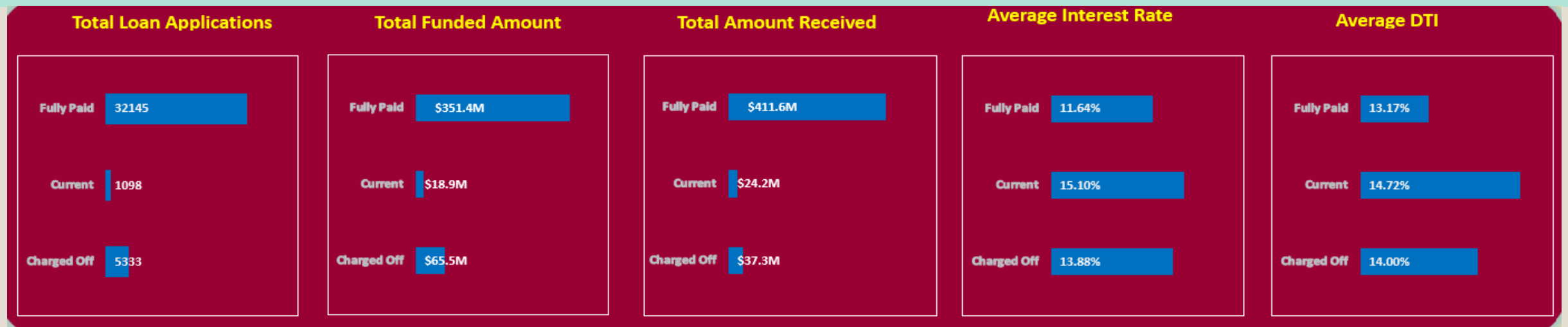
Bad Loan Total Amount Received is \$37.3M.

# Loan Status Grid View

What insights can we gain from a grid view report analyzing the performance of loans categorized by 'Loan Status', encompassing metrics like Total Loan Applications, Total Funded Amount, Total Amount Received, Average Interest Rate and Average Debt-to-Income Ratio (DTI)?

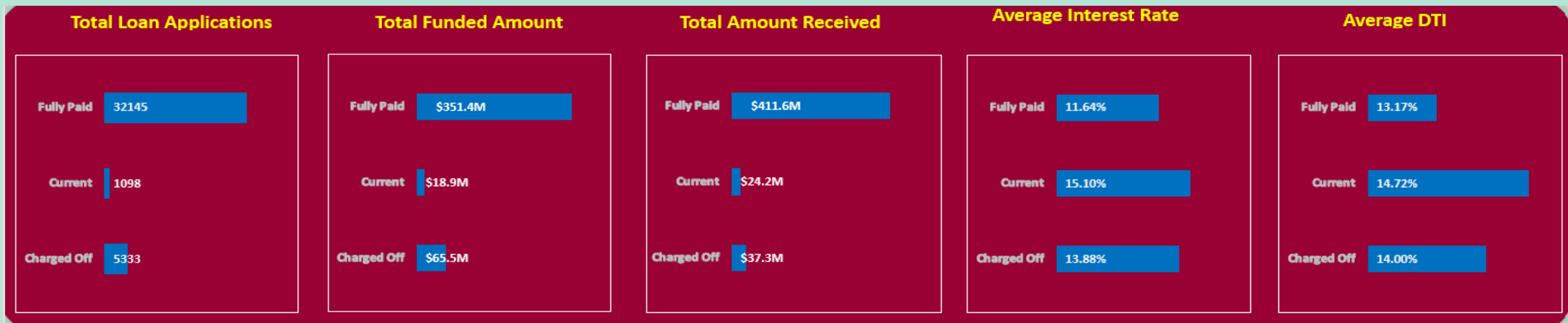


- ❑ The total count of **Fully Paid** and **Current** loan applications is **33,243**, significantly outweighing the **5,333 Charged Off** applications. This indicates that majority of borrowers are successfully repaying their loans, reflecting positively on the bank's lending practices and borrower creditworthiness.
- ❑ The **Total Funded Amount** for **Fully paid** and **Current** loan is **\$370.3M**, which is much higher than **\$65.5M** in loans that have been **Charged Off**. This difference shows that most loans are being repaid successfully, indicating a positive trend. However, the **Charged Off** loans still pose a risk that the bank needs to address.



- ❑ The **Total Amount Received** from **Fully Paid** and **Current** loans is **\$435.8M**, compared to only **\$37.3** from **Charged Off** loans. This indicates that the majority of the cash inflow to the bank is coming from loans that are either fully repaid (**Fully Paid**) or actively being serviced(**Current**), which helps improve the bank's financial stability.
- ❑ The **Average Interest Rate** for **Current** loan is **15.10%**, which is higher than the rates for loans that have been **Fully Paid** (**11.64%**) and for **Charged Off** loans (**13.88%**). This indicates that the bank offers better rates to borrowers who make their payments on time, while the higher rate for **Charged Off** loans helps cover potential losses.
- ❑ The **Average Debt-to-Income Ratio** for **Fully Paid** loans at **13.17%** is more favorable compared to the **Current** (**14.72%**) and **Charged Off** (**14.00%**) ratios. A lower DTI suggests that **Fully Paid** borrowers manage their debts more effectively, which is indicative of better financial health and repayment behavior.

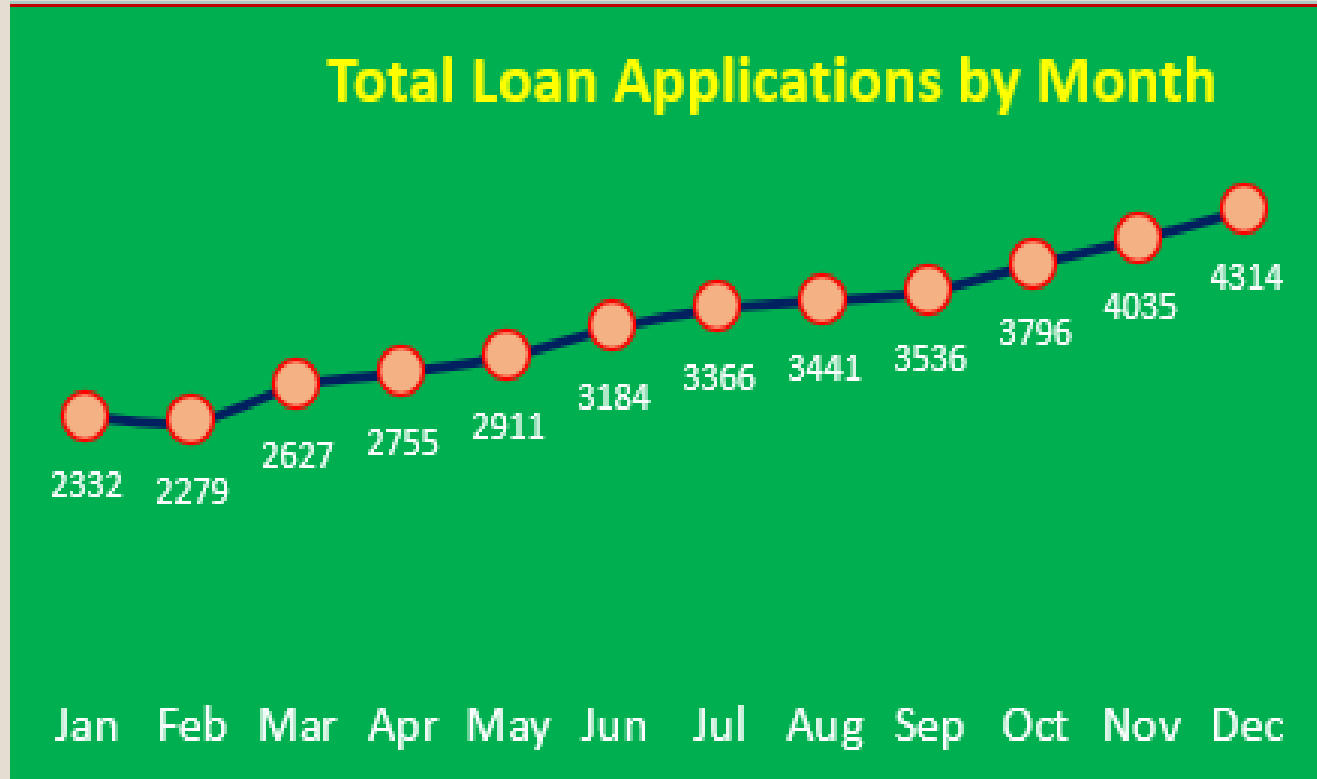




- ❑ All loans in the **Fully Paid** category have been successfully paid back with extra interest or fees. The **Total Received Amount** exceeds the **Total Funded Amount** by approximately **17%**, indicating profitability and positive return on the investment.
- ❑ The **Charged Off** category represents loans that were deemed uncollectible, resulting in a loss. The **Total Amount Received** is significantly lower than the **Total Funded Amount**, showing a negative return of about **43%**. This indicates significant risk associated with these loans, contributing to overall portfolio losses.
- ❑ Loans that are **Current** show a positive performance similar to the **Fully Paid** category. The **Total Amount Received** exceeds the **Total Amount Funded**, by around **28%**, suggesting these loans are performing well and likely to continue generating returns.

# Monthly Trends Analysis

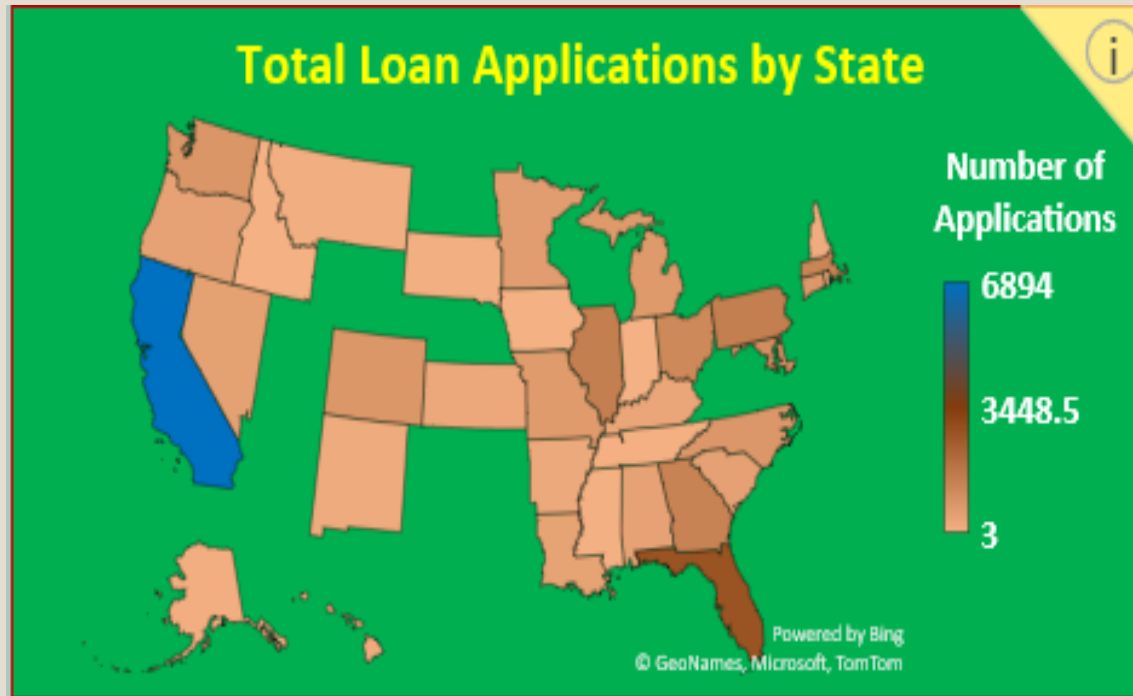
What do the trends in Total Loan Applications over time reveal about our lending activities?



- The **Total Loan Applications** received in **December** (4,314) and **November** (4,035) were the highest for the period, while **February** (2,279) and **January** (2,332) recorded the lowest number of loan applications. From **March** to **October**, the **Total number of Loan Applications** fluctuated, reaching figures of 2,627, 2,755, 2,911, 3,184, 3,366, 3,441, 3,536, and 3,796 respectively.

# Regional Lending Analysis

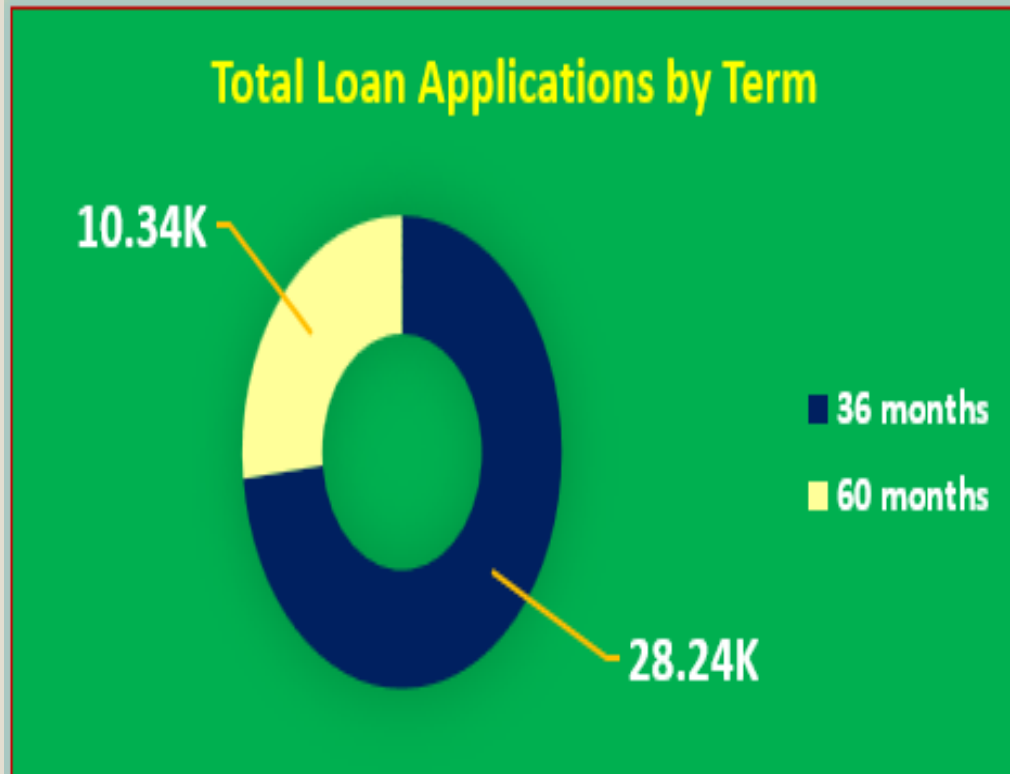
How can we visualize lending metrics by state to identify regional disparities in Total Loan Applications?



- State **CA** (**6894**) has received the highest number of loan applications followed **FL** (**2773**), **IL** (**1486**) and **PA** (**1482**). State **IA** (**5**) has received the lowest number of loan applications followed by **ID** (**6**) and **IN** (**9**).

# Loan Term Insights

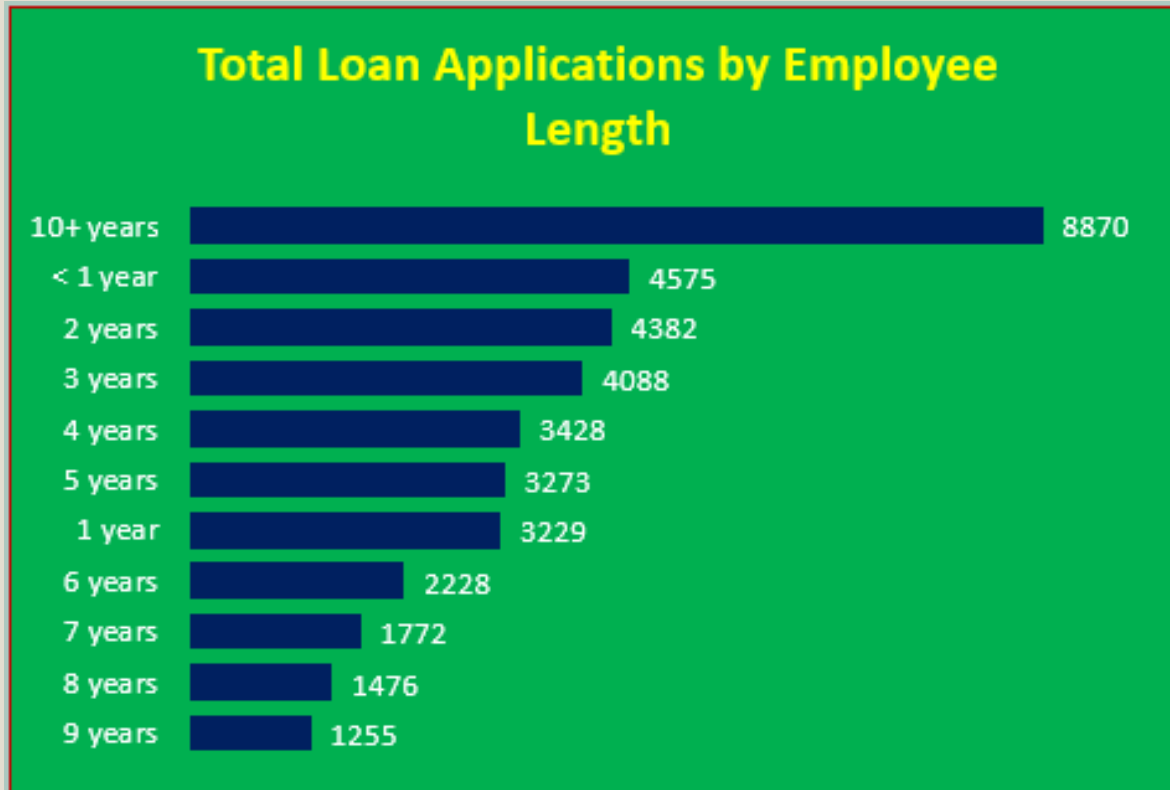
What does a distribution of loan statistics based on various loan terms (e.g., 36 months, 60 months) indicate about borrower preferences in terms of Total Loan Applications?



- ❑ The **Total Loan Applications** for 36-month terms (28.24K) is significantly higher than for 60-month terms (10.34K). This suggests that borrowers prefer shorter loan terms.

# Employment Length Impact

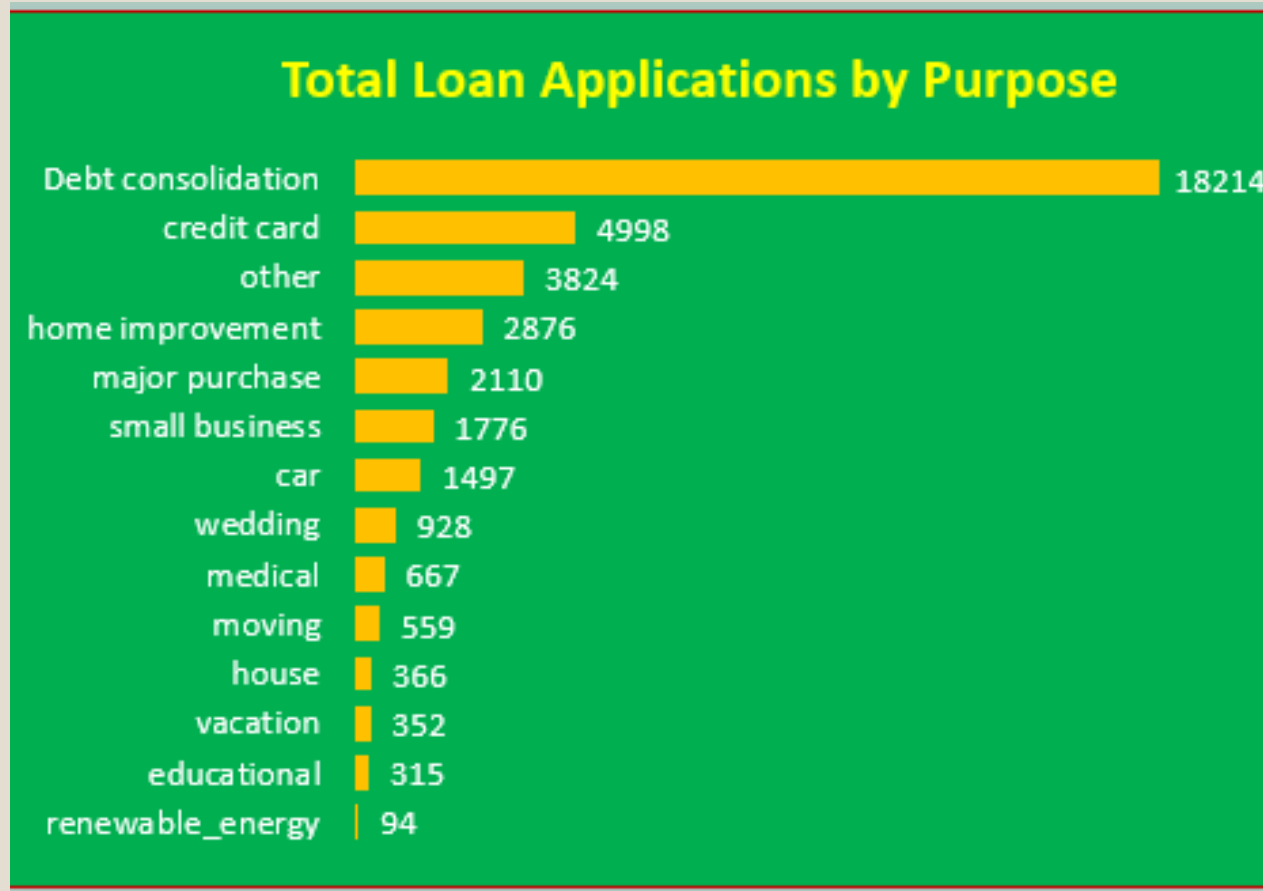
How do lending metrics vary among borrowers with different employment histories in terms of Total Loan Applications?



- ❑ Employees with over **10 years** of experience generated the highest number of **Loan Applications**, totaling **8,870** followed by employees with **less than 1 year** of experience as **4,575** applications. In contrast, employees with **9 years** of experience generated the lowest number of **Loan Applications**, totaling **1,255**, followed by employees with **8 years** of experience at **1,476** applications.

# Loan Purpose Insights

What breakdown does the analysis provide regarding loan metrics based on different stated purposes (e.g., debt consolidation, credit card), focusing on Total Loan Applications?



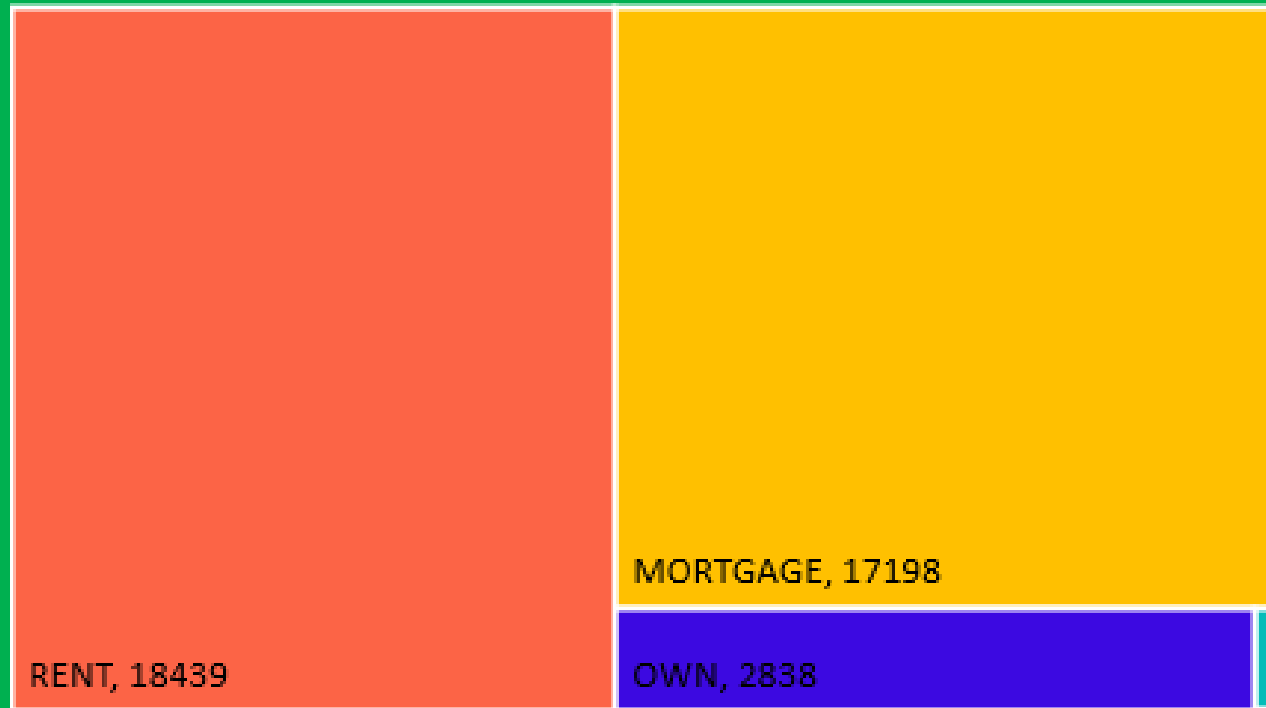
□ Debt consolidation (18,214), credit card (4,998) and other (3,824) purpose generated the highest number of **Total Loan Applications**. In contrast, renewable\_energy (94), educational (315) and vacation (352) generated the lowest number of **Total Loan Applications**.

# Home Ownership Metrics

How does home ownership status impact Total Loan Applications?

## Total Loan Applications by Home Ownership

■ MORTGAGE ■ NONE ■ OTHER ■ OWN ■ RENT



- ❑ **RENT**(18,439), **MORTGAGE**(17,198) and **OWN**(2,838) Home Ownership generated the highest number of **Total Loan Applications**. **OTHER**(98) Home Ownership generated the lowest number of **Total Loan Applications**.

# Details Dashboard

What key loan-related metrics and data points are essential for creating a comprehensive 'Details Dashboard' that provides users with efficient access to critical loan information?

id	address_state	application_type	emp_length	grade	home_ownership	issue_date	last_credit_pull_date	last_payment_date	loan_status	Good Vs Bad L
1000007	NY	INDIVIDUAL	1 year	E	RENT	11/11/2021	4/16/2021	5/16/2021	Current	Good Loan
1000030	NY	INDIVIDUAL	6 years	A	RENT	10/11/2021	1/16/2021	1/14/2021	Fully Paid	Good Loan
1000033	TX	INDIVIDUAL	9 years	D	MORTGAGE	11/11/2021	10/13/2021	9/12/2021	Fully Paid	Good Loan
1000045	GA	INDIVIDUAL	9 years	D	MORTGAGE	10/11/2021	5/16/2021	4/12/2021	Fully Paid	Good Loan
1000067	AL	INDIVIDUAL	< 1 year	D	RENT	11/11/2021	5/16/2021	5/16/2021	Current	Good Loan
1000095	AL	INDIVIDUAL	8 years	A	OWN	11/11/2021	5/16/2021	11/14/2021	Fully Paid	Good Loan
1000115	MA	INDIVIDUAL	10+ years	A	RENT	11/11/2021	7/14/2021	2/13/2021	Fully Paid	Good Loan
1000124	NJ	INDIVIDUAL	5 years	B	RENT	11/11/2021	5/16/2021	5/16/2021	Current	Good Loan
1000138	NY	INDIVIDUAL	2 years	C	RENT	10/11/2021	4/16/2021	11/14/2021	Fully Paid	Good Loan
1000142	TX	INDIVIDUAL	5 years	A	MORTGAGE	10/11/2021	11/14/2021	11/14/2021	Fully Paid	Good Loan
1000198	PA	INDIVIDUAL	2 years	A	MORTGAGE	11/11/2021	5/16/2021	12/14/2021	Fully Paid	Good Loan
1000208	UT	INDIVIDUAL	9 years	B	MORTGAGE	11/11/2021	5/16/2021	1/13/2021	Fully Paid	Good Loan
1000242	IL	INDIVIDUAL	10+ years	E	MORTGAGE	11/11/2021	5/16/2021	6/13/2021	Fully Paid	Good Loan
1000253	NY	INDIVIDUAL	10+ years	A	MORTGAGE	11/11/2021	7/12/2021	7/12/2021	Fully Paid	Good Loan
1000262	VA	INDIVIDUAL	6 years	B	MORTGAGE	11/11/2021	7/15/2021	2/15/2021	Charged Off	Bad Loan
1000267	FL	INDIVIDUAL	10+ years	A	MORTGAGE	10/11/2021	4/16/2021	8/12/2021	Charged Off	Bad Loan
1000280	TX	INDIVIDUAL	10+ years	B	OWN	11/11/2021	12/12/2021	12/12/2021	Fully Paid	Good Loan
1000285	FL	INDIVIDUAL	5 years	A	MORTGAGE	10/11/2021	11/14/2021	11/14/2021	Fully Paid	Good Loan

Here's a refined list of key loan-related metrics and data points that would be essential for users seeking critical loan information:

- 1) **Loan ID:** Unique identifier for tracking and managing individual loans.
- 2) **Address State:** Geographical location of the borrower.
- 3) **Application Type:** Type of loan application, indicating the nature of the borrower's request (e.g., Individual).
- 4) **Employment Length:** Duration of the borrower's employment in years or months, influencing the assessment of income stability.
- 5) **Purpose:** Reason for the loan, helping to understand borrower intentions and segment offerings.
- 6) **Home Ownership:** Indicates the borrower's housing status, providing insights into financial stability.
- 7) **Last Credit Pull Date:** Most recent date on which the borrower's credit history was accessed, relevant for assessment of current creditworthiness.
- 8) **Last Payment Date:** Date of the last payment made by the borrower, important for tracking loan performance.
- 9) **Grade:** Risk classification of the loan based on creditworthiness, important for pricing and risk management.
- 10) **Sub Grade:** Refines risk assessment within a grade, allowing for more precise risk differentiation.



- 11) Good Vs Bad Loan:** Classification indicating the performance of the loan, helping in identifying risks and returns.
- 12) Issue Date:** Date the loan was originated, crucial for tracking loan aging and maturity.
- 13) Member ID:** Unique identifier for the borrower, allowing for efficient tracking of individual borrower profiles.
- 14) Next Payment Date:** Upcoming due date for the next loan installment, essential for planning and cash flow management.
- 15) Annual Income:** Total yearly earnings of the borrower, assessing repayment capacity.
- 16) Term:** Duration of the loan (in months), influencing repayment structure and borrower obligation.
- 17) Loan Amount:** Total borrowed sum that defines the principal amount.
- 18) Interest Rate:** Annual cost of borrowing expressed as a percentage, significant for loan pricing.
- 19) Total Acc:** Total number of credit accounts the borrower has, providing insights into overall credit management.
- 20) Installment:** Fixed monthly payment amount for loan repayment, crucial for assessing payment affordability.
- 21) Loan Status:** Current state of the loan, tracking loan performance and health.
- 22) DTI (Debt-to-Income Ratio):** Measures the borrower's debt burden relative to their income, gauging capacity to handle additional debt.
- 23) Total Payment:** Total amount paid by the borrower over the life of the loan, important for understanding cost and financial responsibility.

# Conclusion

- ❑ The total of **38.6K loan applications** reflects strong market interest, with **86.18%** classified as **Good Applications** (33,243). This indicates effective credit assessments, though **5,333 Charged Off applications** highlight the need for diligent risk management. The **month-to-date (MTD)** total of **4.3K applications** and a **6.9% month-over-month (MoM)** growth demonstrate consistent demand for loans. In December, the total applications peaked at **4.3K**, while November also saw high activity with **4K applications**.
- ❑ California leads in application volume (**6,894**), funding amounts (**\$78.5 million**), and amounts received (**\$83.9 million**), signaling a necessity for targeted risk management strategies tailored to regional demands. The stark contrast in application volume across states, with **Iowa (5)**, **Idaho (6)** and **Indiana (9)** showing minimal engagement, indicates opportunities for market expansion and targeted marketing initiatives. States like **Florida (2773 applications)**, **Illinois (1486 applications)** and **Pennsylvania (1482 applications)** also show strong performance, with **\$30.0 million**, **\$17.1 million** and **\$15.8 million** funded, respectively.
- ❑ There is a clear preference for shorter loan terms, with **36-month loans** accounting for **28.24K applications** and receiving **\$273.0 million** in funding, significantly outpacing **60-month loans** at **10.34K applications** and **\$162.7 million** funded. This trend suggests a cautious consumer approach amid economic uncertainties.
- ❑ The predominant purpose for loans is **debt consolidation**, which generated **18.2K applications** and received **\$232.5 million** in funding. In contrast, categories like **renewable energy (0.1K applications)**, **educational loans (0.3K)**, and **vacation loans (0.4K)** show lower demand, receiving minimal funding, thus suggesting untapped opportunities for lenders.
- ❑ Employees with **more than 10 years** of experience submitted the most applications (**8.9K**) and secured the highest amount of funding (**\$116.1 million**). This shows how important experience is for obtaining loans and achieving successful results. The achievements of this experienced group demonstrate their significant impact on effective lending practices.

- ❑ The **Total Funded Amount** of **\$435.8 million** indicates robust lending activity, with a **month-to-date funding of \$54.0 million**, marking a **13.0% MoM increase**. The funding landscape is favorable, with **Good Loans** amounting to **\$370.2 million**, significantly outweighing **\$65.5 million** from **Charged Off loans**. The **total amount received** stands at **\$473.1 million**, exceeding the total funded amount by approximately **17%**, indicating profitability. However, **Charged Off loans** reflect a negative return of about **43%**, highlighting substantial risks. **Current loans** also perform well, exceeding funded amounts by around **28%**.
- ❑ **December** and **November** represent peak funding periods, with **\$54.0 million** and **\$47.8 million**, respectively. In contrast, **January** and **February** recorded lower amounts (**\$25.0 million** and **\$24.6 million**), indicating seasonal variations in demand.
- ❑ In terms of **home ownership** applications, **RENT (18,439)** and **MORTGAGE (17,198)** categories dominate, while the **OWN (2,838)** and **OTHER (98)** categories show lower engagement. The funding for **MORTGAGE** amounts to **\$219.3 million**, while **RENT** received **\$185.8 million**. This reflects consumer preferences and potential areas for product development.

**Thank You**