

Bank Loan Dataset Analysis Report

- **Prepared by:** Aniket Ashok Pawar
- **Guide by:** Vishal sir

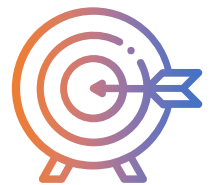


Introduction:

The Bank Loan dataset is a collection of data from a Finance bank that provides an analysis of bank loan data, examining factors such as loan amount, Payment Amount, interest rate, DTI enabling insights into loan viability and risk assessment.

Objective:

- Good loan vs Bad loan overall analysis
- Monthly trend by issue date
- Regional Analysis
- Loan term analysis
- Employee experience analysis
- Loan Purpose analysis
- Home ownership Analysis



Data overview:

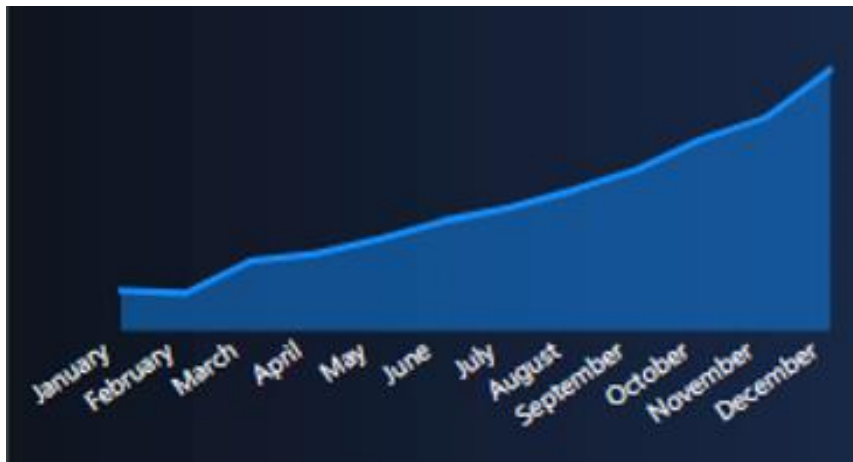
- **Data source:**
The dataset is sourced from a publicly available bank loan dataset on Kaggle.
- **Data description:**
 - The analysis focuses on following key columns: ID (unique identifier), Address State, Emp experience, Home Ownership, Issue Date, Loan Status, Purpose, Term, DTI(Debt to Income ratio), Interest rate, Loan amount, total payment, Month.
 - **Records:** [Number of rows - 38576]
 - **Features:** [Number of columns - 25]
 - **Data records date:** Complete 2021 Year
- **Data pre-processing:**
 - **Data transformation:**
Created New column name 'Month' extracted from 'Issue date' column

➤ **Methodology:**

The analysis was conducted using Python and key libraries such as Pandas for data manipulation, Seaborn and Matplotlib for data visualization, and Microsoft Word for report preparation. Statistical methods including mean, median, mode were applied to summarize data and identify key patterns and trends.

Numerical findings & analysis using Visualisation:

❖ **Overall applications trend:**



Key findings:

- There are a total of 38.58k loan applications, demonstrate a steady growth from January to December, indicating an increasing demand for loans throughout the year.

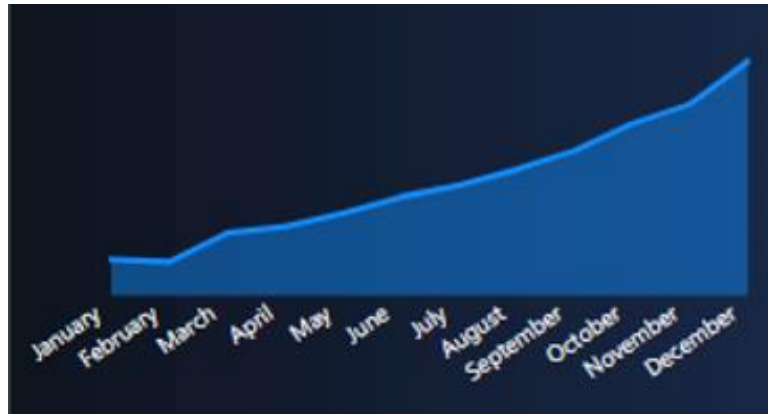
❖ **Good Loan VS Bad Loan Analysis:**



Key findings:

In the analysis of loan quality, 86.2% of applicants were classified as good loans, contributing 85% of the funded amount (\$370.2M) and receiving 92.1% of the total loan amount (\$435.8M).

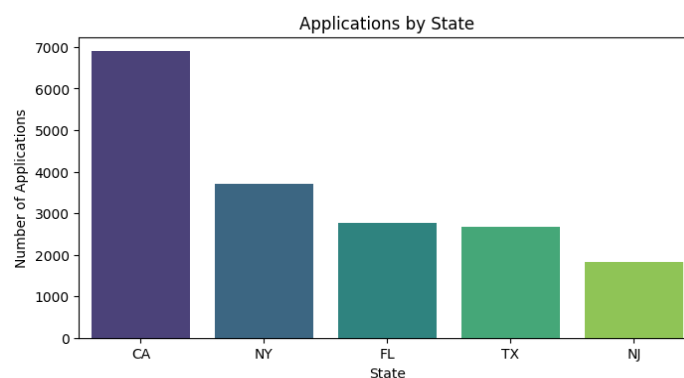
❖ Monthly trend by Issue date:



Key findings:

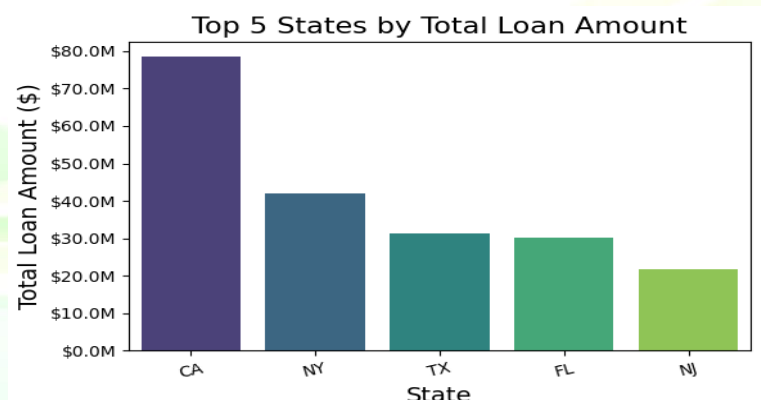
- steady growth from January to December, indicating an increasing demand for loans throughout the year.

❖ Regional Analysis:



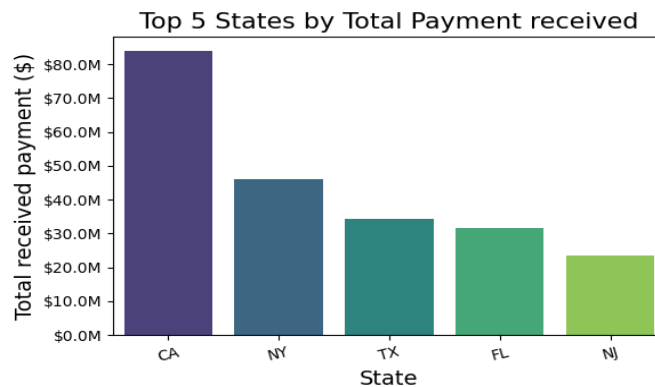
Key findings:

- The regional analysis of loan applications reveals that California (CA) leads with the highest number of applications at 6,894, followed by New York (NY) with 3,701 applications. Florida (FL) and Texas (TX) show moderate demand with 2,773 and 2,664 applications, respectively, while New Jersey (NJ) has the lowest at 1,822 applications.



Key findings:

- California (CA) leads with a total loan amount of \$78,484,125, followed by New York (NY) at \$42,077,050. Texas (TX) and Florida (FL) show significant amounts at \$31,236,650 and \$30,046,125, respectively, while New Jersey (NJ) has \$21,657,475. Overall, California significantly outpaces other states in loan amounts.



Key findings:

- The top 5 states by total payments received show that California (CA) leads with \$83.9 million, followed by New York (NY) with \$46.1 million. Texas (TX) and Florida (FL) contribute \$34.4 million and \$31.6 million, respectively, while New Jersey (NJ) rounds out the top five with \$23.4 million. This highlights California and New York as the highest contributors.

Conclusion:

- In conclusion, California consistently leads in loan applications, total loan amounts, and payments received, reflecting its strong economic activity and loan demand. New York follows as the second-highest contributor across all metrics, highlighting significant demand in the state as well. Texas and Florida show moderate but substantial engagement, while New Jersey, though among the top five, has the lowest figures. Overall, the regional analysis underscores California and New York as dominant states in the loan sector, with notable contributions from Texas and Florida.

❖ Loan term analysis:



Key findings:

- Application Volume: The majority of applicants, 28,237, chose a 36-month term, while 10,339 opted for a 60-month term, indicating a preference for shorter loan durations.
- Loan Amount: Loans for the 36-month term total \$273 million, outpacing the 60-month term, which totals \$162.7 million—demonstrating higher loan demand for shorter terms.
- Total Payments: Payments received are also higher for 36-month loans at \$294.7 million, compared to \$178.4 million for 60-month loans, highlighting greater revenue from shorter-term loans.

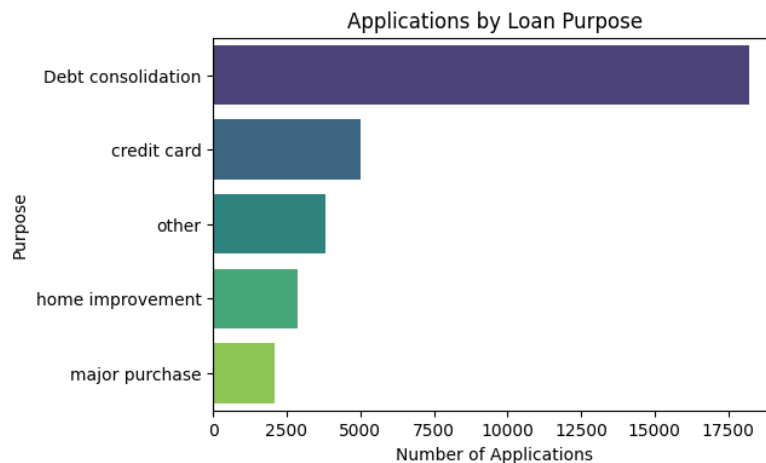
➤ Employee experience analysis:



Key findings:

- Most loan applicants have 10+ years of experience (8,870), indicating higher demand among experienced employees. Early-career applicants with <1 to 5 years of experience also show notable demand, while applications decline in the 6 to 9 years experience range.
- Applicants with 10+ years of experience lead in loan amounts at \$116.1 million, followed by early-career applicants (<1 to 5 years) with substantial totals, especially at \$44.9 million for 2 years. Loan amounts steadily decrease for those with 6 to 9 years of experience.
- Total payments received are highest from applicants with 10+ years of experience at \$125.9 million. Early-career applicants (<1 to 5 years) also show significant payments, especially those with 2 years at \$49.2 million. Payments decline progressively for applicants with 6 to 9 years of experience.

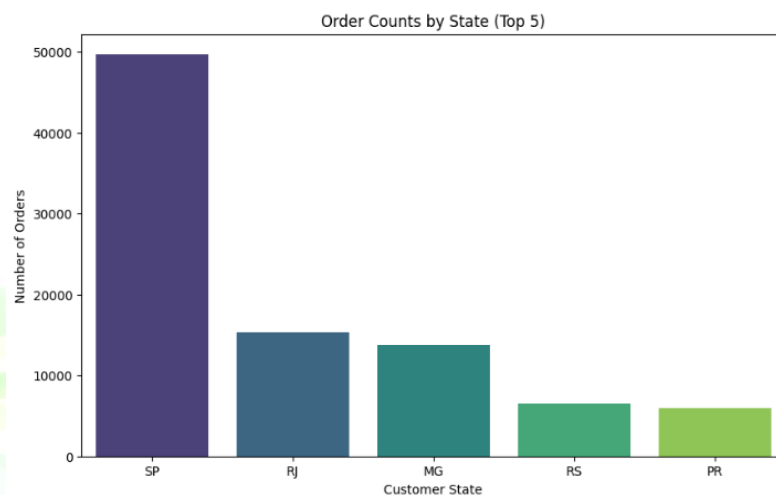
➤ Loan purpose analysis:



Key findings:

- **Total Applicants Insight:** The loan purpose analysis reveals that Debt Consolidation has the highest number of applicants (18,214), followed by Credit Card loans (4,998) and Other purposes (3,824). This suggests that borrowers are primarily focused on managing existing debts and improving financial stability.
- **Total Loan Amount Insight:** In terms of loan amounts, Debt Consolidation leads with \$232.5 million, while Credit Card loans follow with \$58.9 million, and Home Improvement loans account for \$33.4 million. This highlights that debt management is prioritized over other financial needs.
- **Total Payment Received Insight:** Total payments received show a strong repayment trend, with Debt Consolidation at \$253.8 million, followed by Credit Card loans at \$65.2 million and Home Improvement loans at \$36.4 million. This indicates borrowers are effectively managing their loan obligations across various purposes.

➤ Home ownership analysis:



Key findings:

- The home ownership analysis reveals that Rent is the predominant status among applicants, with 18,439 individuals, followed closely by Mortgage holders at 17,198. In contrast, only 2,838 applicants Own their homes, while 98 fall under Other and a mere 3 have None, indicating a strong inclination towards rental and mortgage arrangements.
- The loan amount analysis shows that Mortgage holders lead with \$219.3 million, followed by Rent at \$185.8 million. Homeowners account for \$29.6 million, while the Other category totals \$1.0 million, and those with None contribute a minimal \$16,800, highlighting the dominance of mortgages and rentals in the loan landscape.
- The total payment analysis by home ownership reveals that Mortgage holders have made the highest payments, totaling \$238.5 million, followed by Rent at \$201.8 million. Homeowners contribute \$31.7 million, while the Other category accounts for \$1.0 million, and those with None represent a minimal \$19,053. This emphasizes the significant repayment contributions from mortgage and rental borrowers.

