LENDING CLUB CASE STUDY

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BUSINESS OBJECTIVES

About the Company:

- Largest online loan marketplace.
- Offers personal, business, and medical financing loans.

Challenge:

- Credit Loss: Financial loss caused by defaults ("Charged-Off" loans).
- Lending to risky applicants is the primary source of loss.

Objective of the Study:

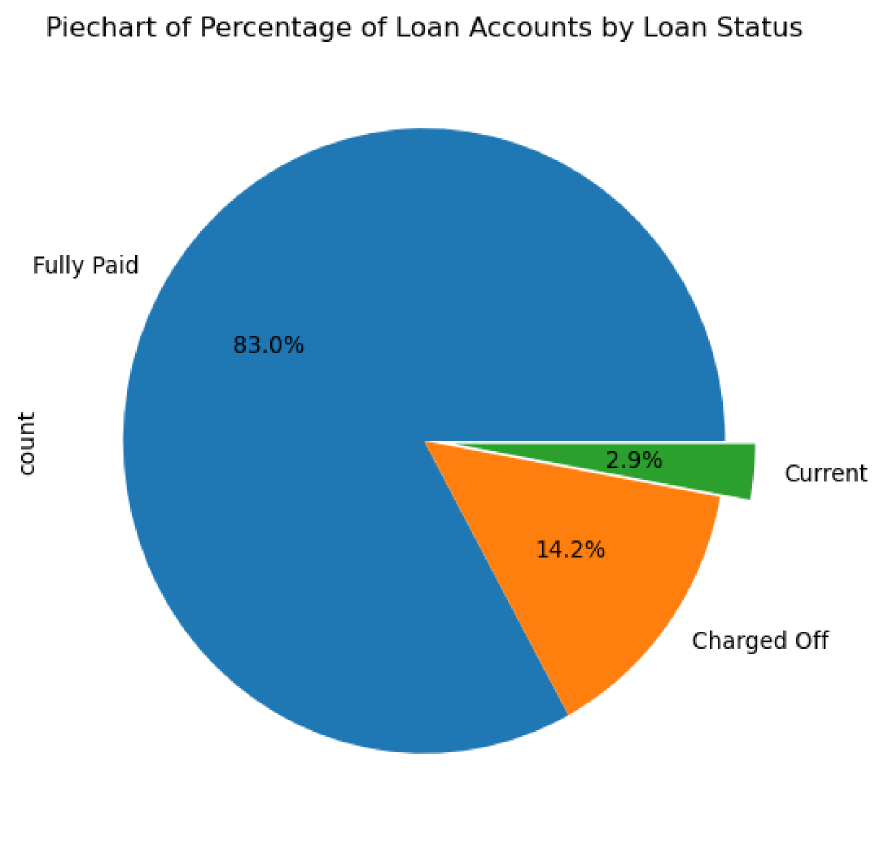
- Identify risky loan applicants to reduce credit loss
- Understand the key drivers of loan defaults.

Outcome

- Help improve portfolio and risk assessment strategies

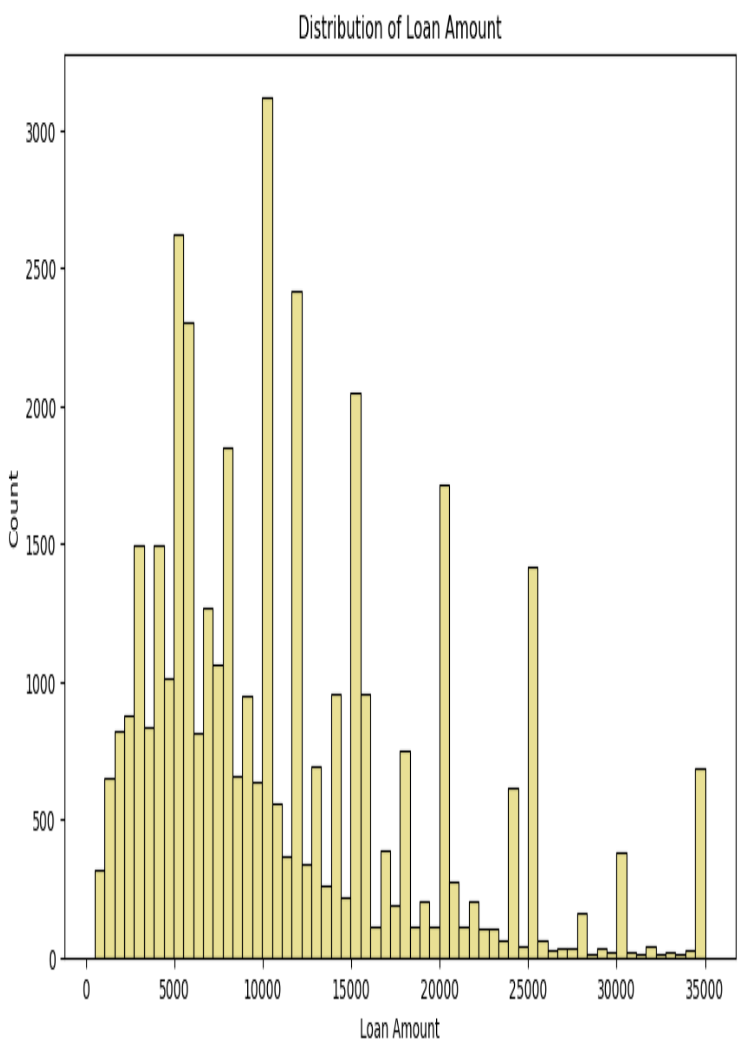
1. LOAN STATUS DISTRIBUTION

- **83% Fully Paid:**
  - These applicants have completely repaid their loans, including principal and interest.
  - Represents the majority of the dataset, indicating overall repayment stability for most borrowers.14.2%
- **Charged-Off:**
  - These borrowers have defaulted on their loans and stopped paying installments for a prolonged period.
  - This is the key focus group for risk assessment and default mitigation strategies.2.9%
- **Current:**
  - These borrowers are still in the process of repaying their loans.
  - Loan tenure is ongoing, and final repayment status remains undecided.



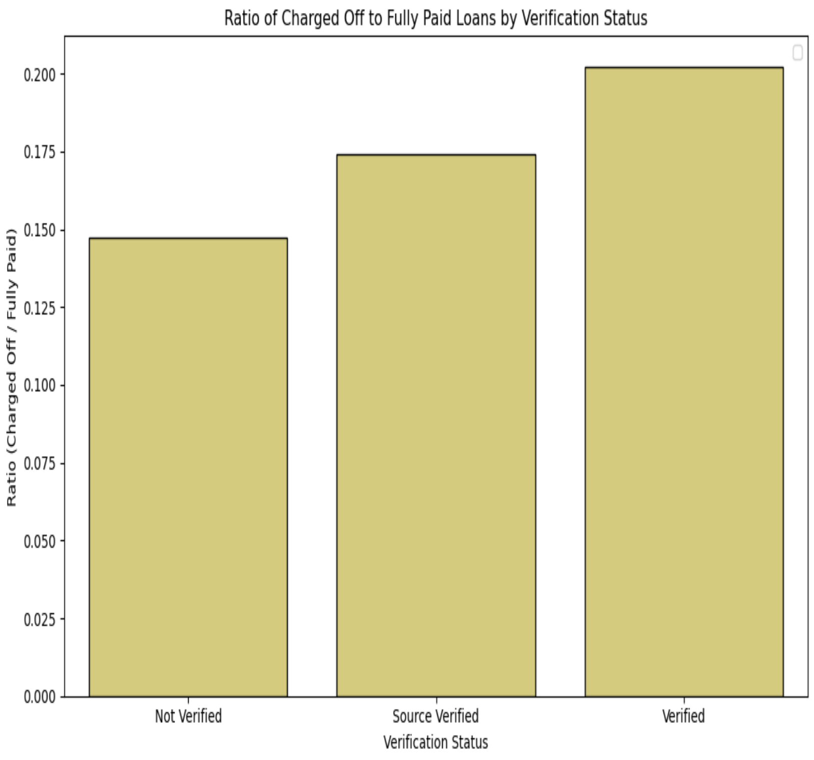
2. LOAN AMOUNT DISTRIBUTION ANALYSIS

- **Observations:**
  - Loans range from USD 500 to USD 35,000.
  - The histogram is skewed to the left, indicating that the majority of loans are small-ticket loans.
  - Peaks are observed at every **$5,000 interval**, reflecting a general preference for **round-figure loan amounts.**
- **Implications:**
  - Small-Ticket Loans dominate, but larger loan amounts show growing significance.
  - Round Numbers suggest customer preference for easy-to-calculate loan amounts.
- **Action Points:**
  - Analyze borrower behavior and needs for small-ticket loans versus large-ticket loans.
  - Review and optimize lending policies for round-figure preferences and high-value loans.
  - Tailor marketing strategies to meet the demand patterns observed in the distribution



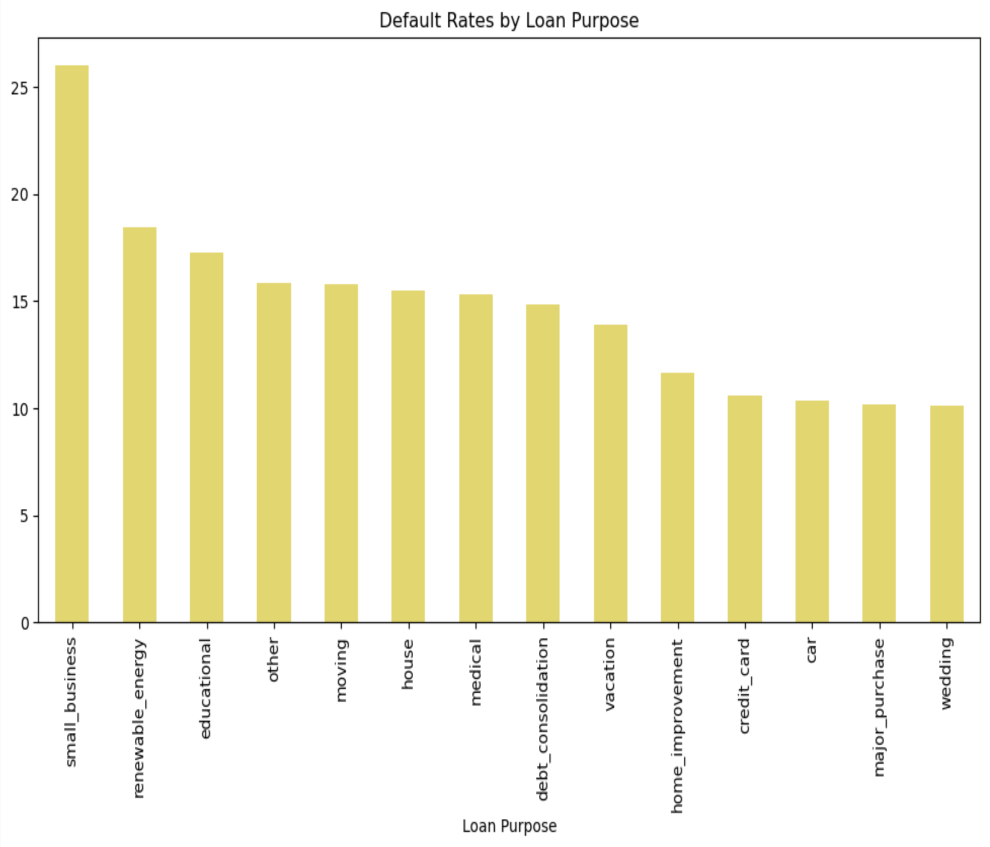
3. VERIFICATION PROCESS IMPROVEMENT NEEDED

- **Observation:**
  - Almost 62% of defaulted applications are verified.
- **Concern:**
  - Highlights gaps in the current verification process.
- **Action Required:**
  - Strengthen verification criteria and procedures.
  - Conduct a detailed review to identify weaknesses.
  - Implement stricter controls and robust checks.
- **Goal:**
  - Minimize verification errors and enhance application reliability.



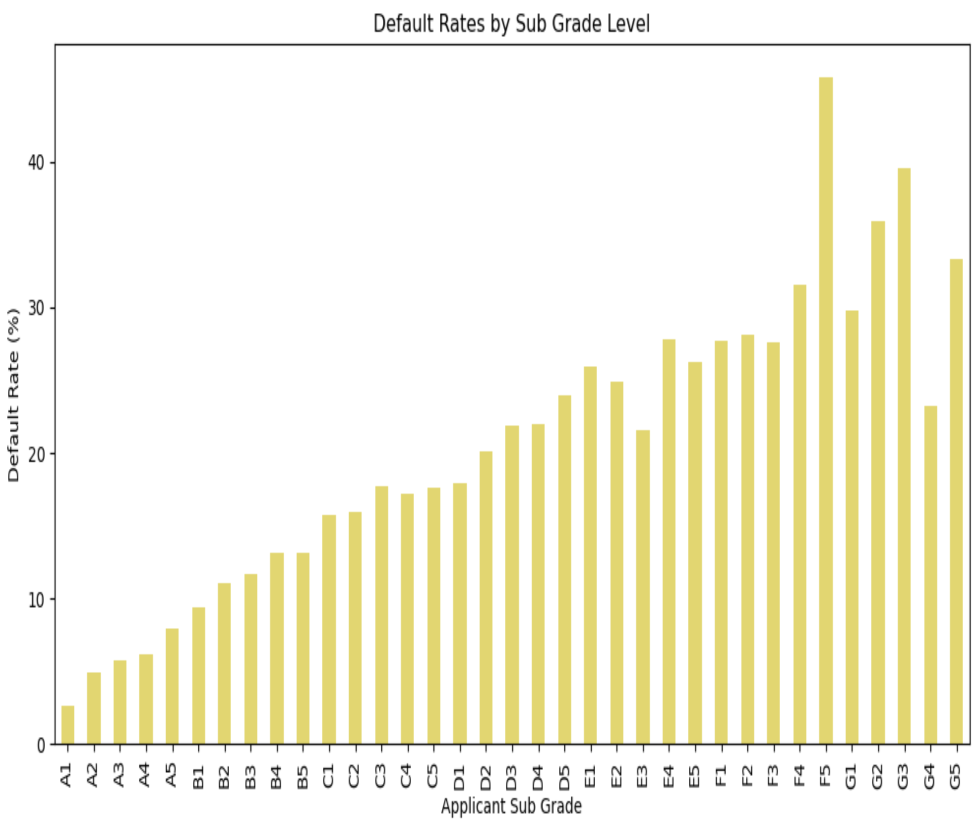
4. RISK ASSESSMENT BY LOAN PURPOSE

- **High-Risk Purposes:**
  - Categories such as "**Small Business**" and "**Renewable Energy**" exhibit higher default rates.
  - These categories inherently carry more risk due to external factors and market uncertainties.
- **Low-Risk Purposes:**
  - Categories like "**Weddings**" or "**Major Purchases**" (e.g., buying goods) demonstrate lower default rates
  - Indicates a more stable repayment behavior, likely tied to personal financial planning
- **Insights for Strategy:**
  - Focus on stricter evaluation criteria for high-risk categories.
  - Prioritize promotion or support for low-risk categories to maintain portfolio stability.



5.1 GRADE AND SUB-GRADE DEFAULT RATE ANALYSIS

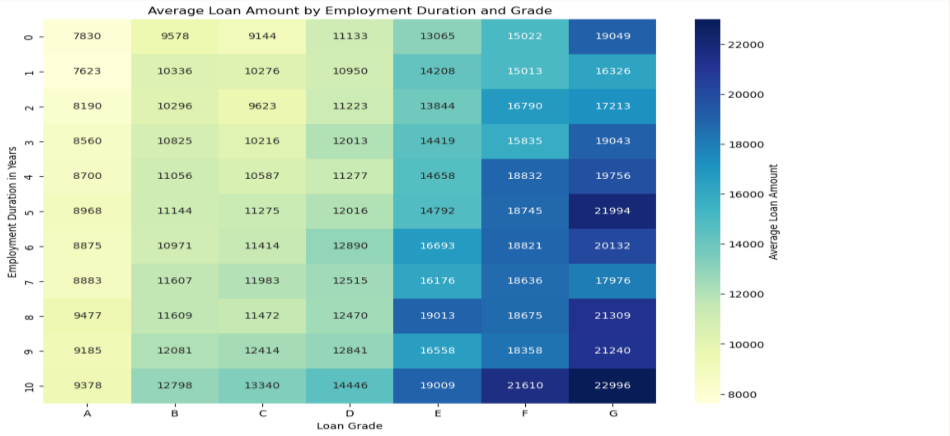
- **Key Findings:**
  - "**F5**" Sub-Grade applicants have the highest default rate.
  - "**G3**" and "**G2**" sub-grades follow closely in terms of default rate.
- **Implications:**
  - F5 Sub-Grade: Needs urgent attention for stricter risk assessments.
  - G3 & G2 Sub-Grades: Consider reviewing their risk profiles and mitigating factors to reduce defaults.
- **Action Points:**
  - Implement targeted strategies to reduce defaults in high-risk sub-grades.
  - Conduct further analysis to understand the contributing factors for these defaults.

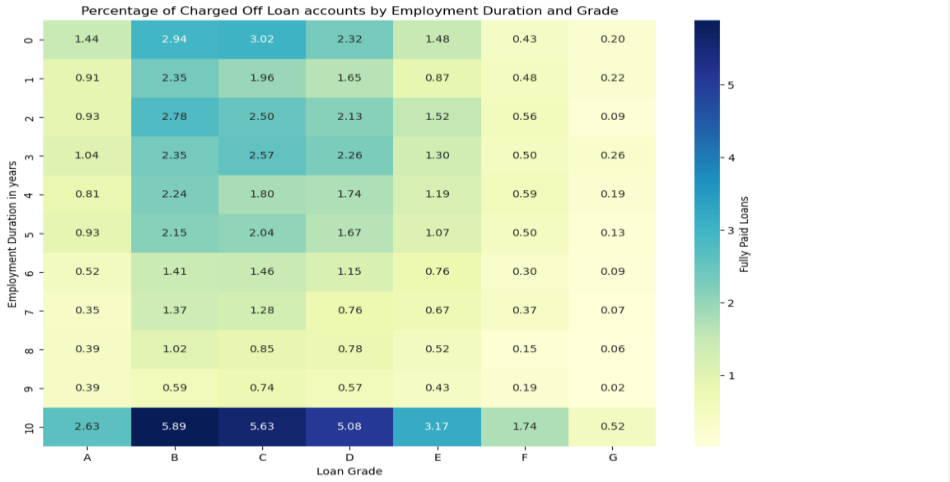


5.2 GRADE AND SUB-GRADE DEFAULT RATE ANALYSIS

❑ **Key Findings:**

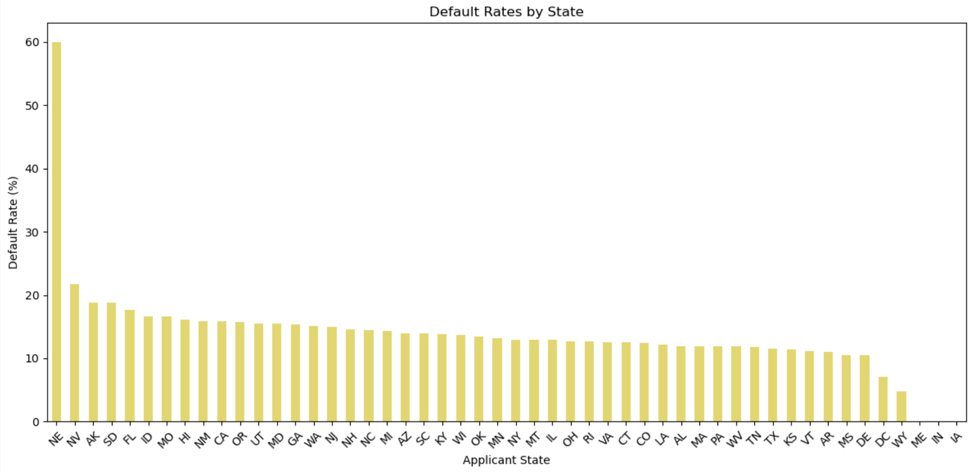
- Despite the higher risk categories having high ticket loans, the cumulative percentage of portfolio in less
- Across all employment duration the portfolio peak is in grade B
- The employees with more than 10 years of employment duration have a significantly higher proportion of the overall portfolio
- On Further inspection of portfolio spread for fully paid loans and defaulted loans:
- Grades A and B had higher concentration of fully paid loans
- Grades A,B,C,D had higher concentration and relatively comparable distribution of defaulted loans
- Loans in A,B,C,D have lower ticket size and higher concentration of default rate as a percentage of over all portfolio

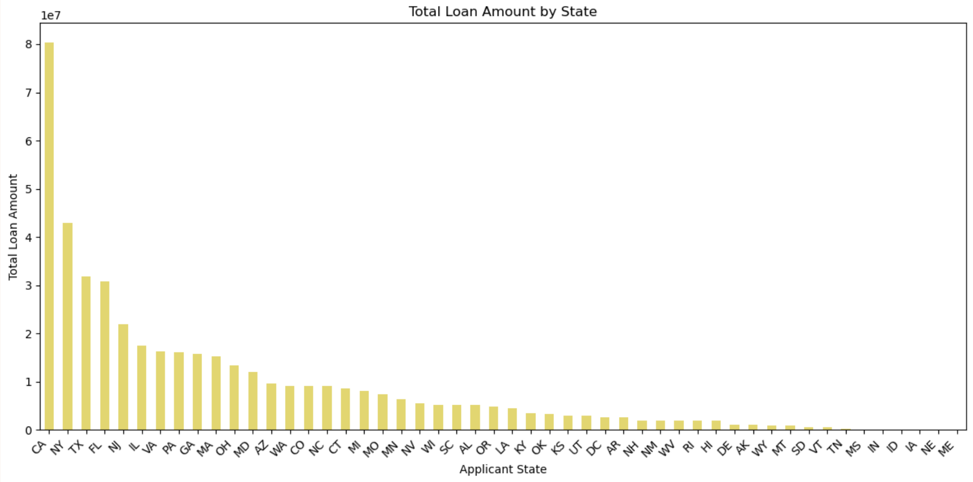




6. GEOGRAPHIC DEFAULT RATE ANALYSIS

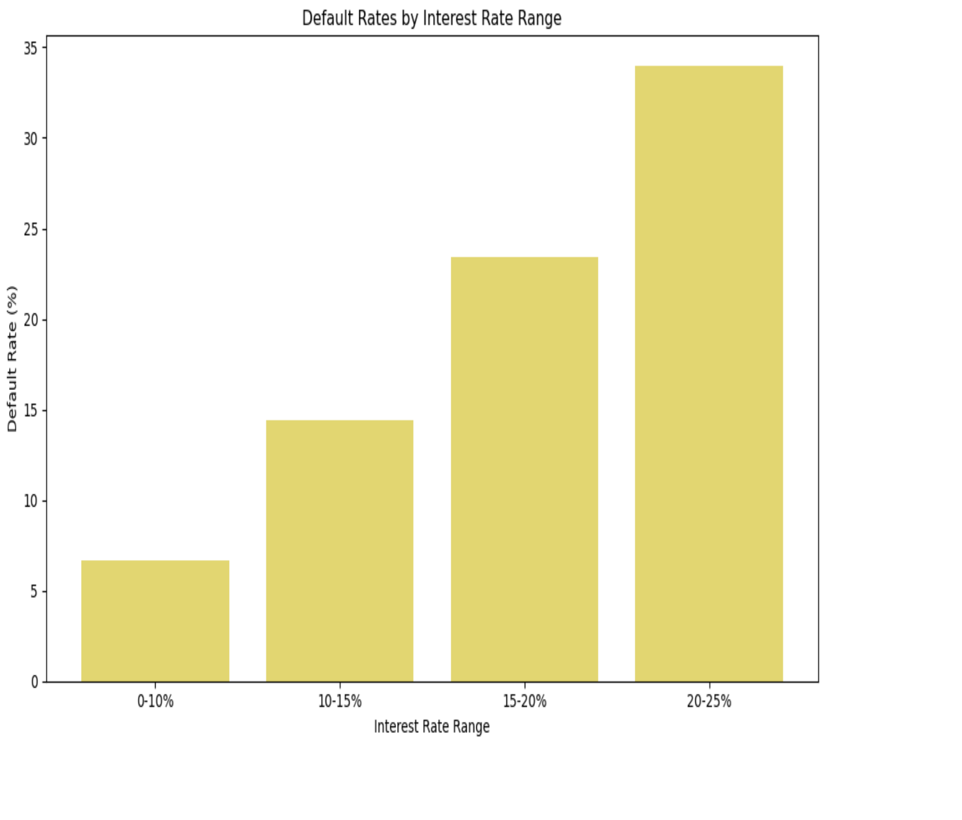
- **Key Findings:**
  - **NE (Nebraska)** state has the highest default rate.
  - **MV (Montana)** and **AK (Alaska)** follow with the next highest default rates.
  - **FL(Florida)** and **CA(California)** are on higher side of default rates of more than 15% - which calls for more stringent risk assessment of applicants in this region.
- **Implications:**
  - NE State: Requires a focused risk management strategy and targeted interventions.
  - MV & AK: Further investigation needed to understand regional challenges contributing to higher defaults.
- **Action Points:**
  - Analyze regional factors affecting default rates in NE, MV, and AK.
  - Consider adjusting lending strategies or implementing tailored support for these areas.





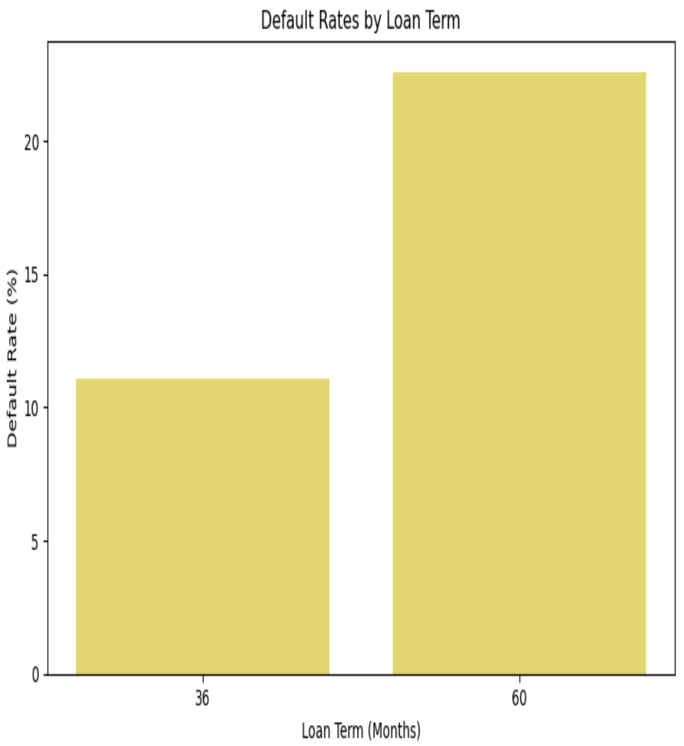
7. IMPACT OF INTEREST RATE ON LOAN DEFAULT

- **Key Findings:**
  - **Clear Relationship:** As the interest rate increases, the default rate also rises significantly.
  - **Key Insight:** Borrowers with higher interest rates are more likely to default on their loans.
- **Implications:**
  - High-interest rates create financial strain, increasing the risk of default.
  - More vulnerable borrowers tend to be affected by higher interest charges, leading to repayment difficulties.
- **Action Points:**
  - Reevaluate interest rate structures for higher-risk borrowers.
  - Consider offering alternative repayment plans or lower interest rates for at-risk groups to reduce defaults.



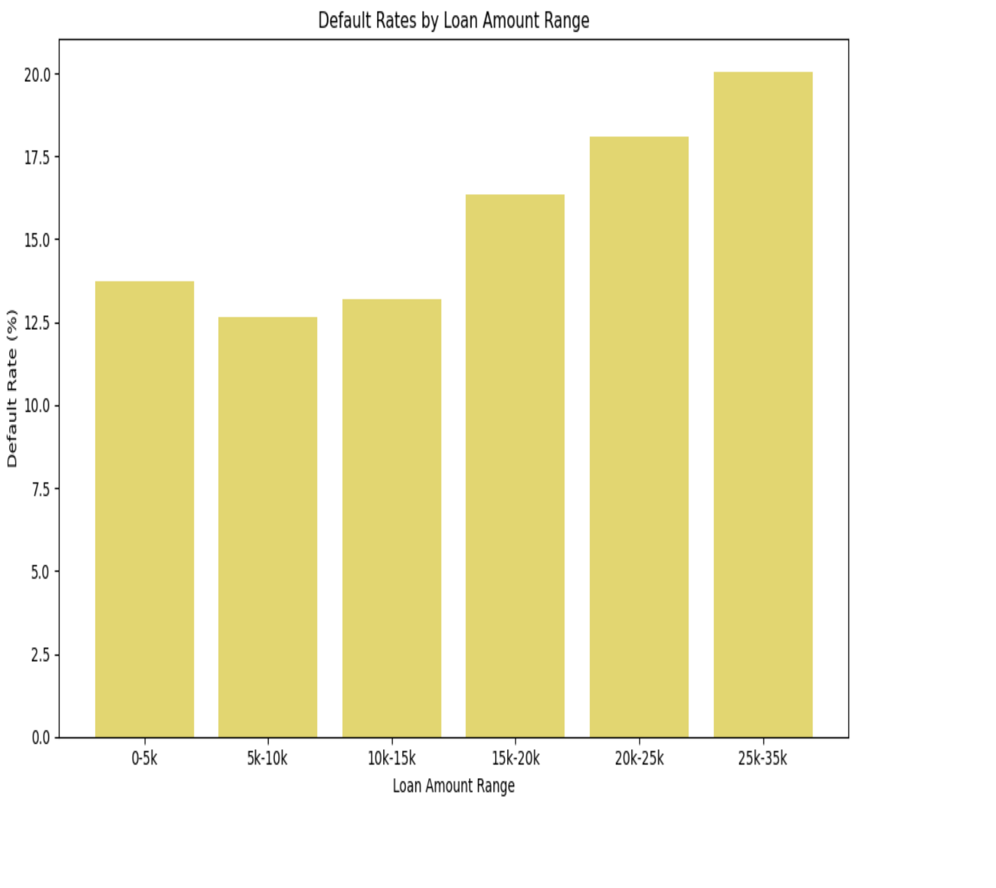
8. IMPACT OF LOAN TENURE ON LOAN DEFAULT

- **Key Findings:**
  - **Clear Relationship:** Loans with longer tenures (60 months) show higher default rates compared to shorter tenures (36 months).
  - **Key Insight:** Borrowers with higher tenures are more likely to default on their loans.
- **Implications:**
  - Longer loan terms increase the likelihood of repayment challenges, leading to higher defaults.
  - Borrowers may face difficulties maintaining consistent payments over extended periods, especially with unforeseen life changes.
- **Action Points:**
  - Review loan tenure options and consider limiting longer-term loans for higher-risk applicants.
  - Explore offering customized repayment plans or incentives for borrowers with long-tenure loans to reduce default rates.



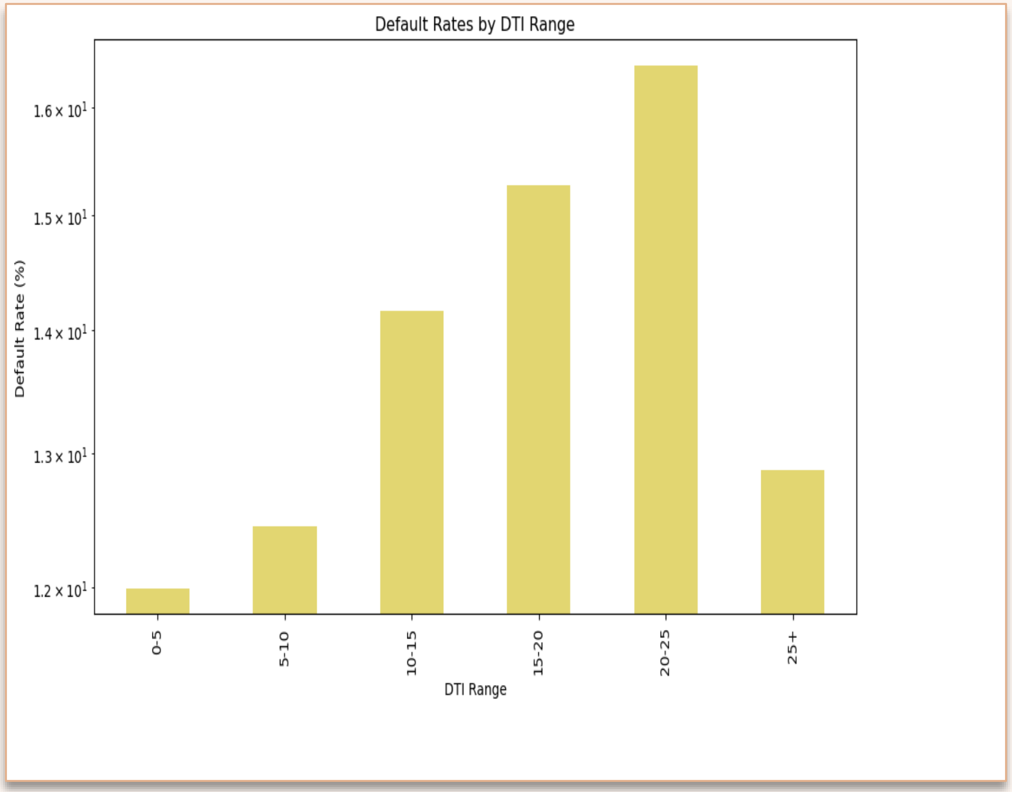
9. IMPACT OF LOAN AMOUNT ON LOAN DEFAULT

- **Key Findings:**
  - **Clear Relationship:** As the **loan amount** increases, the **default rate** also rises**.**
  - **Key Insight:** Higher loan amounts are linked to greater financial risk, making borrowers more likely to default.
- **Implications:**
  - Larger loans contribute to higher default rates, emphasizing the risk tied to larger borrowings.
  - Critical Factor: Assessing borrower capacity for higher loan amounts is essential in managing lending risk.
- **Action Points:**
  - Strengthen assessments of borrower financial capacity before approving higher loan amounts.
  - Consider offering smaller loan amounts with flexible repayment terms to reduce default risk.



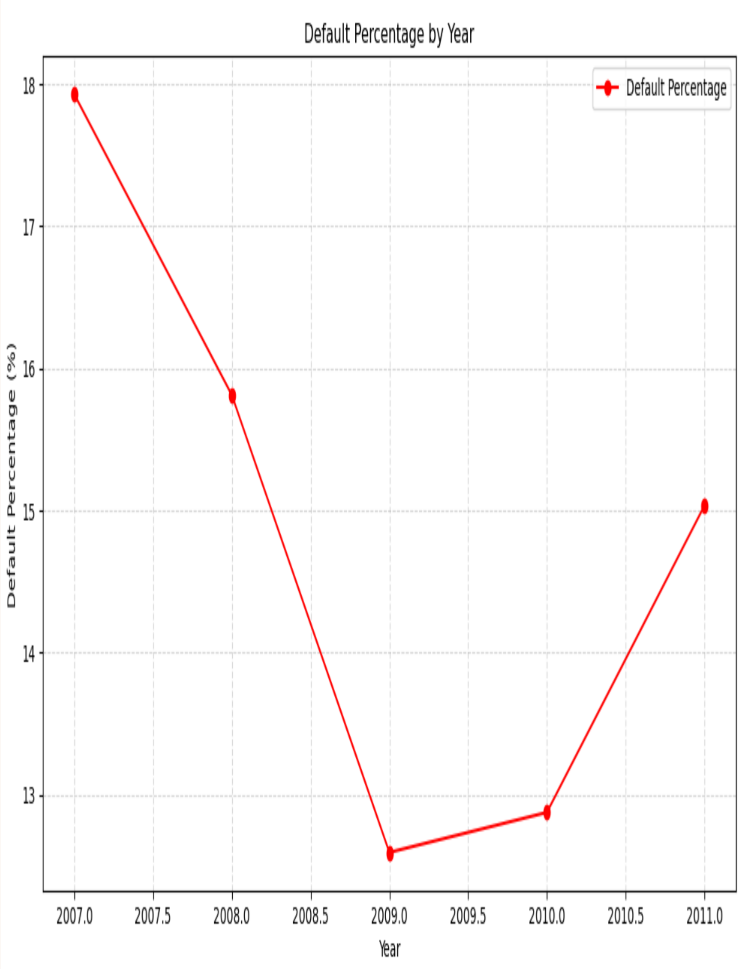
10. IMPACT OF DTI (DEBT-TO-INCOME) ON LOAN DEFAULT

- **Key Findings:**
  - **Clear Relationship:** As the **Debt-to-Income (DTI)** ratio increases, the **default rate** also tends to increase.
  - **Key Insight** Borrowers with higher DTI ratios are more likely to default, as they face challenges managing existing debts.
- **Implications:**
  - A higher DTI ratio suggests a borrower may be over-leveraged and at greater risk of default.
- **Action Points:**
  - Implement stricter DTI thresholds to reduce lending to high-risk borrowers.
  - Explore alternative support options for borrowers with higher DTI ratios to mitigate default risks.



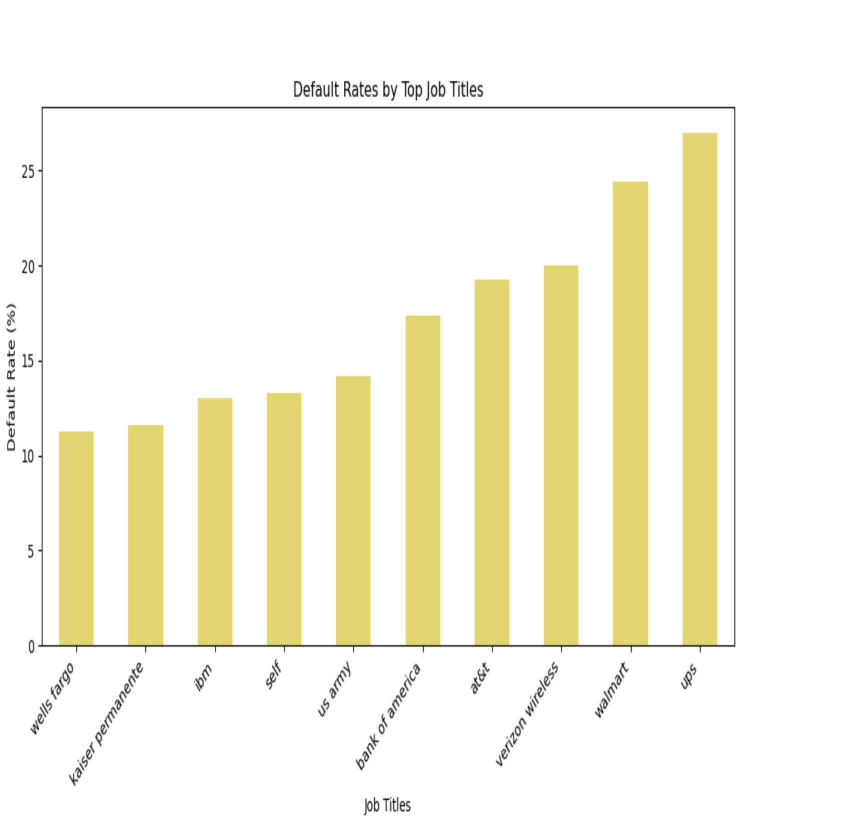
11. DEFAULT PERCENTAGE AGAINST ISSUED LOANS

- **Key Findings:**
  - **2007** had the **highest default rate** at **17.93%**, likely due to the financial crisis, which caused widespread financial strain and higher loan defaults.
  - **2007**: 17.93% (Highest default rate, likely due to the financial crisis)
  - **2008**: 15.81%
  - **2009**: 12.60%
  - **2010**: 12.88%
  - **2011**: 15.04%
- **Implications:**
  - The **2007 financial crisis** likely led to a spike in defaults, impacting borrowers' ability to repay.
- **Action Points:**
  - **2007-2011 Period**: Consider revisiting loan approval and risk mitigation strategies during this era to understand and minimize future defaults.
  - **Post-Crisis Monitoring**: Increase monitoring of loans issued in volatile periods to better predict and manage default risk.



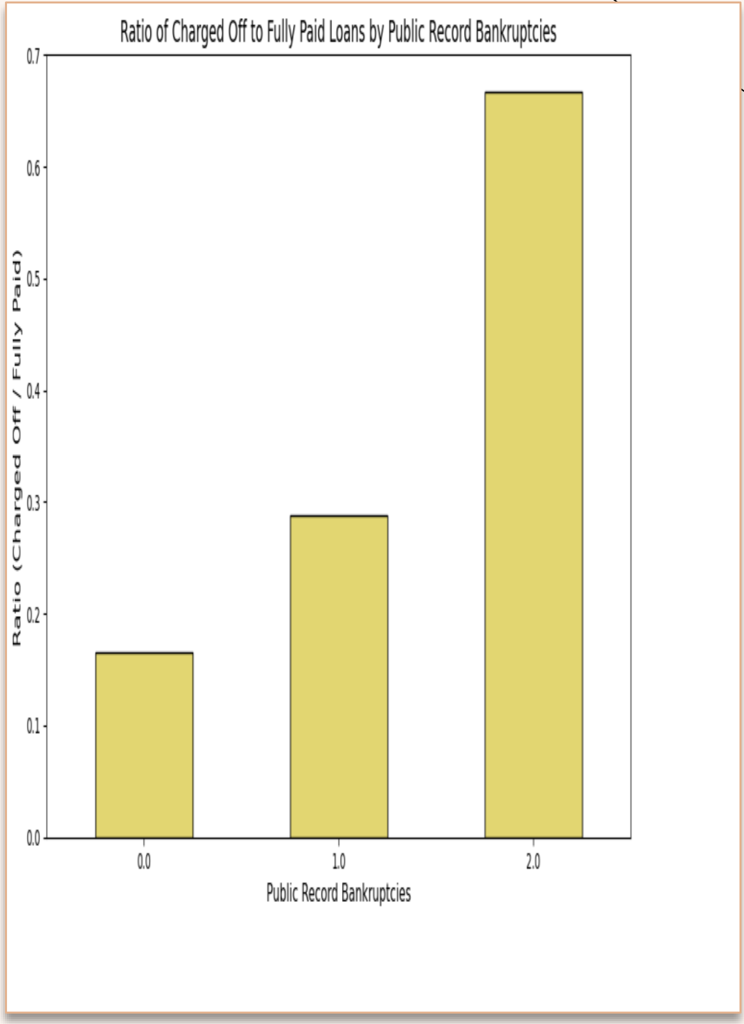
12. DEFAULT RATE BY TOP JOB TITLES

- **Key Findings:**
  - **"UPS"** employees have the **highest default rate**, followed by those working at **"Walmart"** and **"Verizon Wireless"**.
- **Implications:**
  - Certain industries or employers may be associated with higher default rates, potentially due to factors such as income instability or financial stress within these sectors.
  - Understanding the underlying causes for defaults within these job titles can help improve lending strategies and risk assessment.
- **Action Points:**
  - Investigate the financial health and employment conditions within these organizations to better assess risk.
  - Consider adjusting lending criteria or offering tailored repayment options for applicants in high-risk job categories.



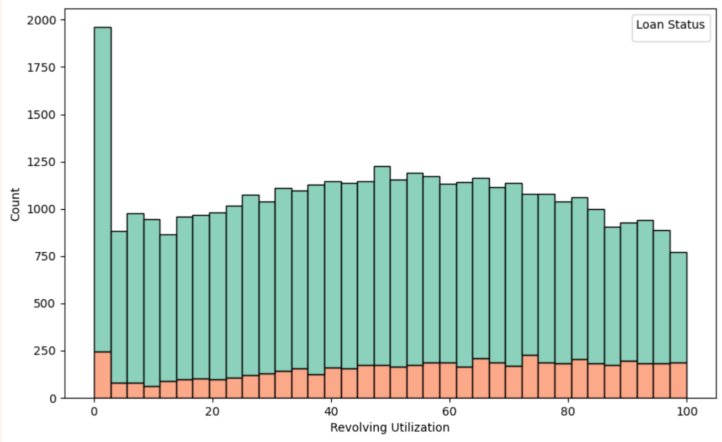
13. IMPACT OF BANKRUPTCY RECORDS ON LOAN DEFAULT

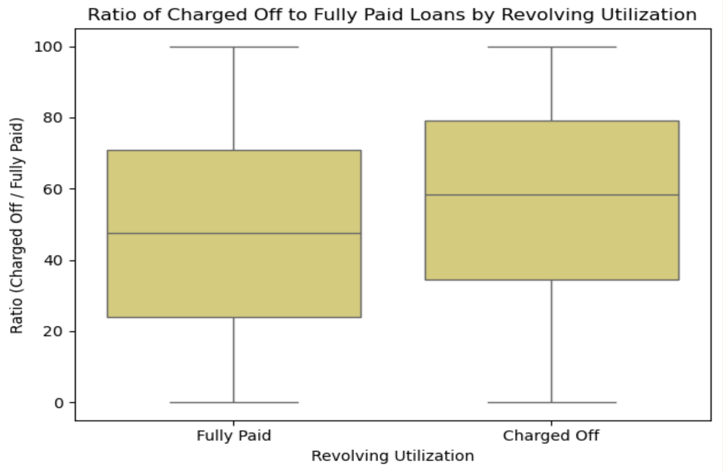
- **Key Findings:**
  - The ratio of **defaulted accounts to fully paid** accounts rises as the number of bankruptcy records increases.
  - Applicants with any **bankruptcy record** make up **less than 5%** of the total portfolio.
  - Borrowers with a **history of bankruptcy** are significantly more likely to default on loans, requiring **thorough verification**
- **Implications:**
  - **Bankruptcy as a Risk Factor**: Bankruptcy records are a strong indicator of default risk.
  - **Thorough Review Needed**: Applicants with bankruptcy records should undergo enhanced scrutiny during the verification process.
- **Action Points:**
  - Implement strict evaluation protocols for applicants with bankruptcy history.
  - Monitor and track the performance of loans issued to such applicants.
  - Consider adjusting lending limits or interest rates for higher-risk profiles.



14. IMPACT OF REVOLVING UTILIZATION PERCENTAGE ON LOAN DEFAULT

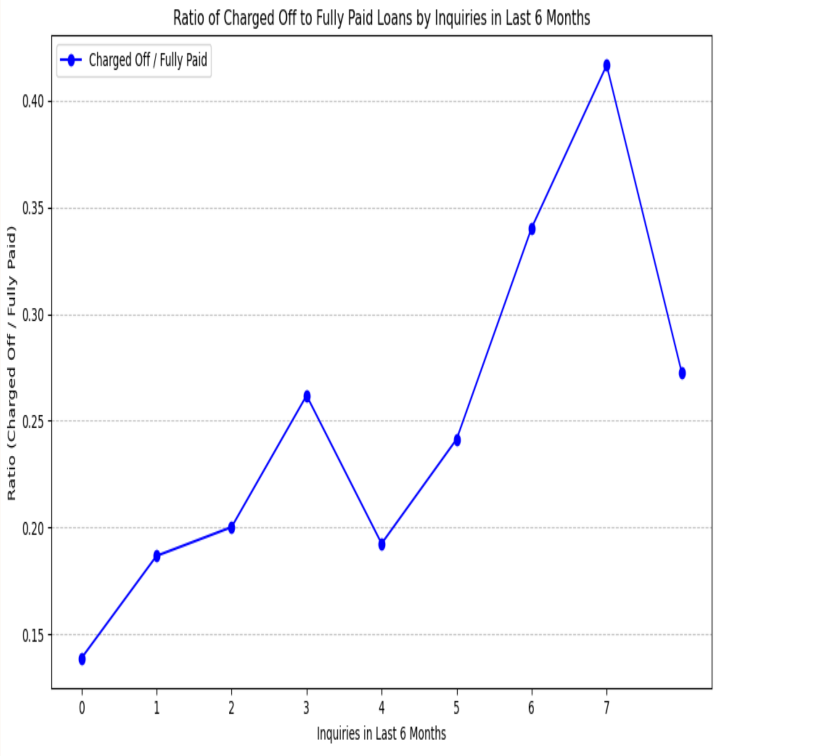
- **Key Findings:**
  - Higher Revolving Utilization = Higher Default Risk.
  - Defaulted Accounts: Average utilization is 60%.
  - Cleared Accounts: Average utilization is 40%.
  - Borrowers with higher revolving credit utilization are **more likely to default**, underscoring the need for proactive measures
- **Implications:**
  - High Credit Utilization is a critical indicator of financial strain and increased risk of default.
- **Action Points:**
  - Implement proactive collection mechanisms for accounts with high utilization percentages.
  - Set thresholds for acceptable credit utilization during the loan approval process.
  - Offer financial counseling or restructuring options to borrowers with high revolving credit usage.





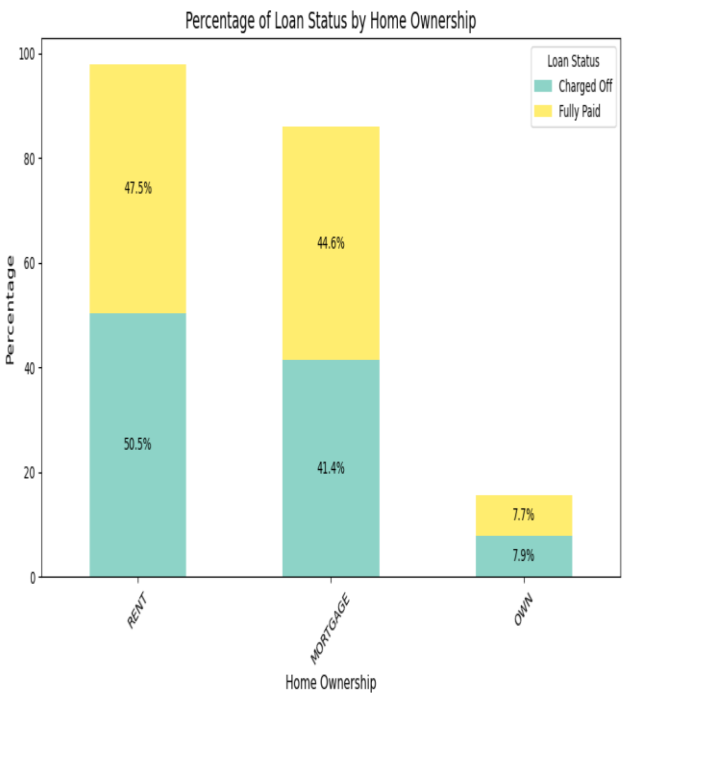
15. IMPACT OF CREDIT INQUIRIES ON LOAN DEFAULT

- **Key Findings:**
  - Higher Credit Inquiries = Higher Default Risk**.**
  - Borrowers with multiple credit inquiries are **more likely to default**, indicating potential financial distress or overleveraging**.**
- **Implications:**
  - Frequent credit inquiries may signal **riskier financial behavior** or dependence on credit, increasing the likelihood of default.
- **Action Points:**
  - Introduce stricter evaluation criteria for applicants with multiple credit inquiries.
  - Consider assigning a higher risk score to such applicants during credit assessments.
  - Provide financial education or support for borrowers with high credit inquiry activity to reduce default.



16. IMPACT OF HOME OWNERSHIP ON LOAN DEFAULT

- **Key Findings:**
  - A comparison of defaulted users and fully paid users shows no significant difference in the impact of home ownership mode**.**
  - Both groups have a **comparable split** of home ownership modes (e.g., owned, mortgaged, rented).
- **Implications:**
  - Home ownership mode is not a strong predictor of loan default behavior.
- **Action Points:**
  - Focus on factors with a stronger correlation to defaults for more effective risk assessment.
  - Continue monitoring home ownership data for any emerging trends over time.



SUMMARY: LENDING RISK ASSESSMENT AND PORTFOLIO IMPROVEMENT

Key Findings and Insights

- **Loan Status and Default Distribution**
  - **83% Fully Paid**: Most loans are successfully repaid, indicating overall portfolio stability.
  - **14.2% Charged-Off**: Defaults are concentrated in a significant minority, warranting focused mitigation strategies.
- **Small Loans Dominate**: Most loans are under $5,000, with larger loans linked to higher default rates.
- **Verification and Applicant Risk** : **62% of Defaulted Applications Verified**: Highlights gaps in the verification process.
- High-Risk Loan Purposes like "Small Business" and "Renewable Energy" show higher default rates**.**
- **Grade and Sub-Grade Risks** : **F5, G3, and G2 Grades e**xhibit inconsistent behavior with the grade definition and have highest default rates.
- **Impact of Financial Metrics on Defaults**
  - **Interest Rates**: Defaults increase significantly with higher rates.
  - **Loan Tenure**: 60-month loans have higher default rates than 36-month loans.
  - **Debt-to-Income Ratio**: High DTI correlates strongly with defaults.
- **Demographic and Behavioral Insights**
  - **Bankruptcy Records**: Borrowers with such records pose significant default risks despite being a small proportion (5%).
  - **High Revolving Credit Utilization**: Indicates financial strain, with defaulted accounts averaging 60% utilization.
- **Geographic** Concentration of Defaults at States with High Default Rates: Nebraska (highest), Montana, Alaska, Florida, and California.
- **Default Trends Over Time :** Defaults peaked at **17.93% in 2007**, influenced by the financial crisis, but declined post-2010.
- **Employment Impact :** Certain job titles (e.g., UPS, Walmart) correlate with higher default rates.

SUMMARY: LENDING RISK ASSESSMENT AND PORTFOLIO IMPROVEMENT

Actions

- **Loan Amount**: Enhance assessments for higher loan amounts and explore flexible repayment terms.
- **Verification Status**: **Strengthen verification criteria** to minimize approval of high-risk loans.
- **Loan Purpose**: Enforce stricter evaluation for high-risk purposes and prioritize stable categories such as "Weddings."
- **Inconsistent Sub Grade behavior**: **Target F5, G3, and G2 Grades** with stricter lending and risk-mitigation strategies.
- **High Risk States**: Tailor risk management to regional challenges and adjust strategies for high-risk states.
- **Review pricing structures**, limit long-term loans for high-risk applicants, and apply stricter DTI thresholds.
- **Financial health of Borrowers**: : Implement robust protocols for applicants with bankruptcy histories and monitor high credit utilization closely.
- **Employment Impact on Defaults**: Investigate employment conditions and tailor strategies for applicants from high-risk sectors.

Strategic Recommendations

- **Strengthen Risk Assessment:** Enhance verification processes and focus on high-risk grades and geographic regions.
- **Tailored Lending Policies**: Adjust loan amounts, tenures, and interest rates based on risk profiles.
- **Data-Driven Interventions**: Use insights on DTI, revolving credit utilization, and borrower history to guide decision-making.
- **Proactive Regional Strategies**: Develop specific interventions for states with higher default rates and consider regional economic factors.
- **Enhanced Borrower Support**: Offer financial counseling and customized repayment plans for at-risk borrowers to improve repayment likelihood.

THANK YOU

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