Lending Club Case Study

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Abstract

- - Lending Club operates as the largest online loan marketplace, facilitating various types of loans such as personal, business, and medical procedure financing.

- - Borrowers can conveniently secure loans through a user-friendly online platform, benefiting from competitive interest rates.

- - The analysis focuses on utilizing historical data of past loan applicants to determine their likelihood of defaulting on the loan.

Problem solving methodology

Data Analysis | Data Analysis | Data Analysis

Data Cleaning

Removing the null valued columns, unnecessary variables and checking the null value percentage and removing the respective rows.

Data Understanding

Working with the Data Dictionary and getting knowledge of all the columns and their domain specific uses

Univariate Analysis

Analysing each column, plotting the distributions of each column.

Segmented Univariate Analysis

Analysing the continuous data columns with respect to the categorical column

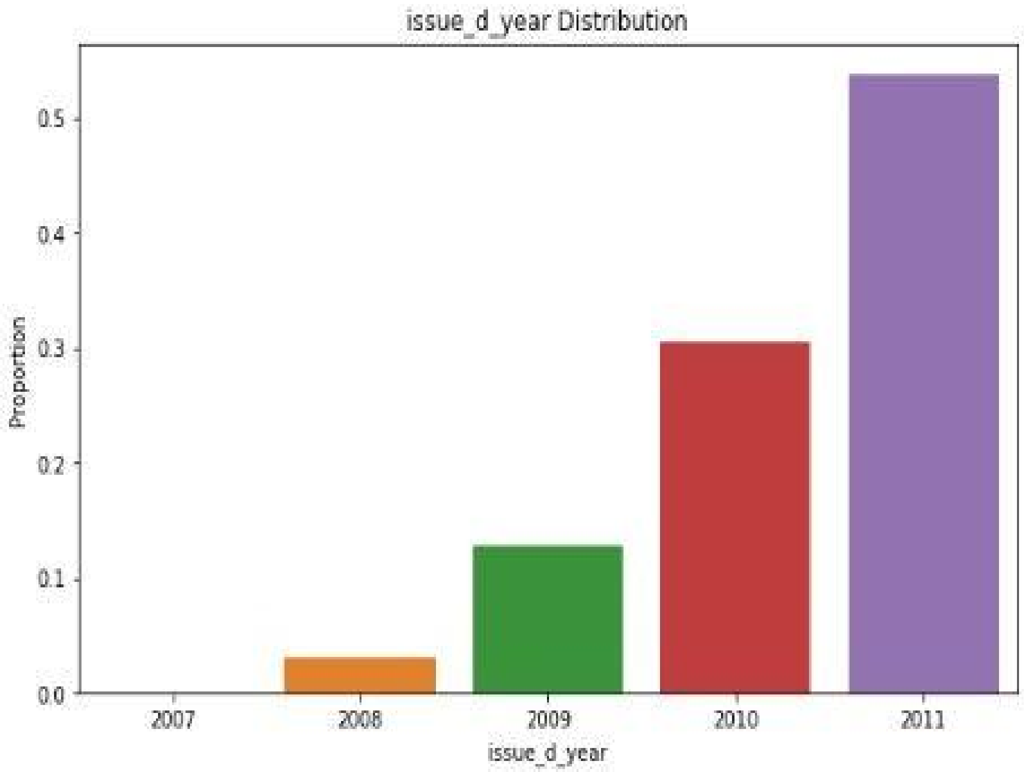
Bivariate Analysis

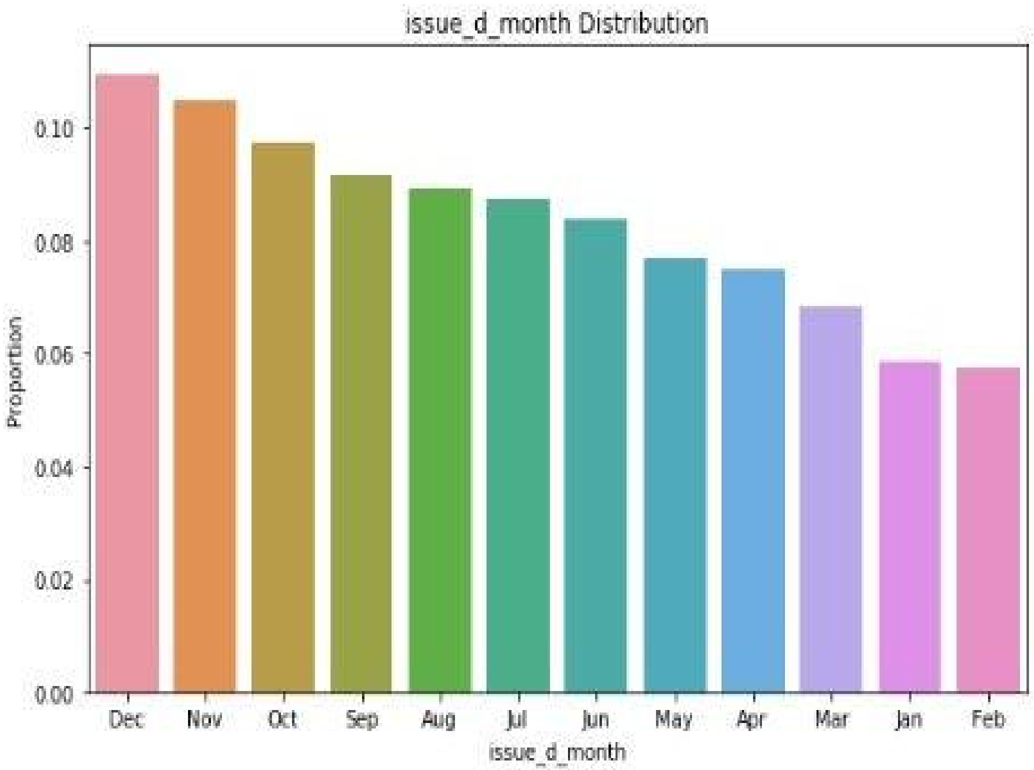
Analysing the two variable behaviour like term and loan status with respect to loan amount.

Recommendations

Analysing all plots and recommendations for reducing the loss of business by detecting columns best which contribute to loan defaulters.

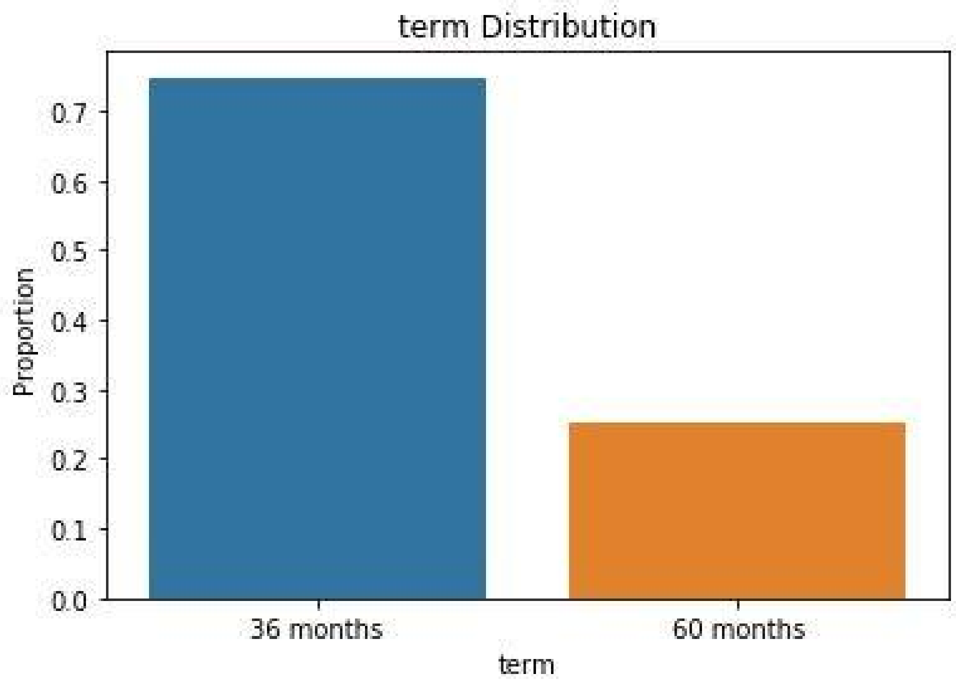
Analysis

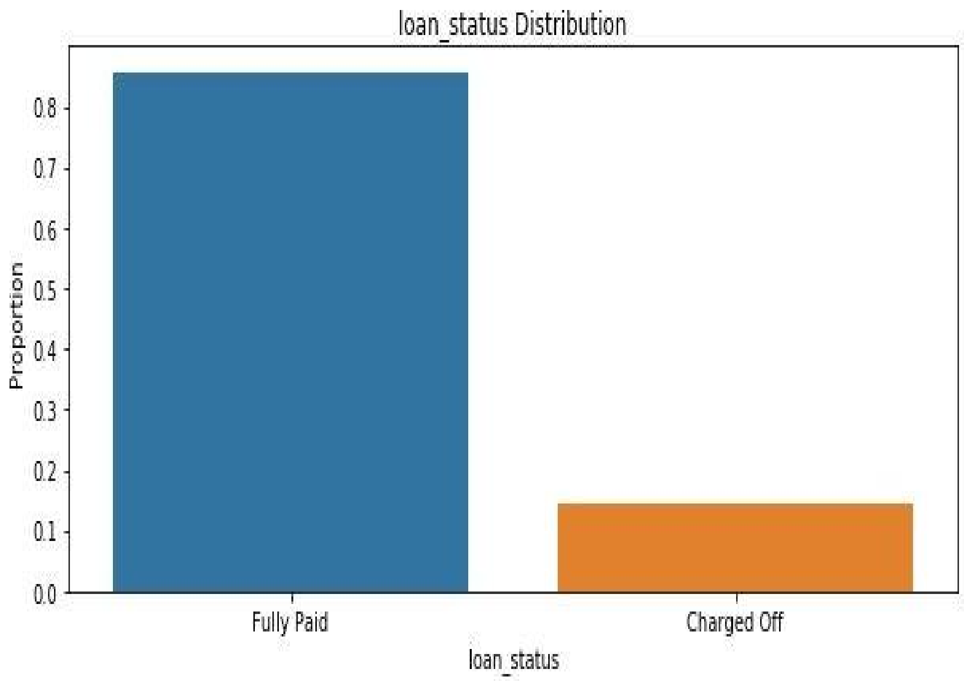




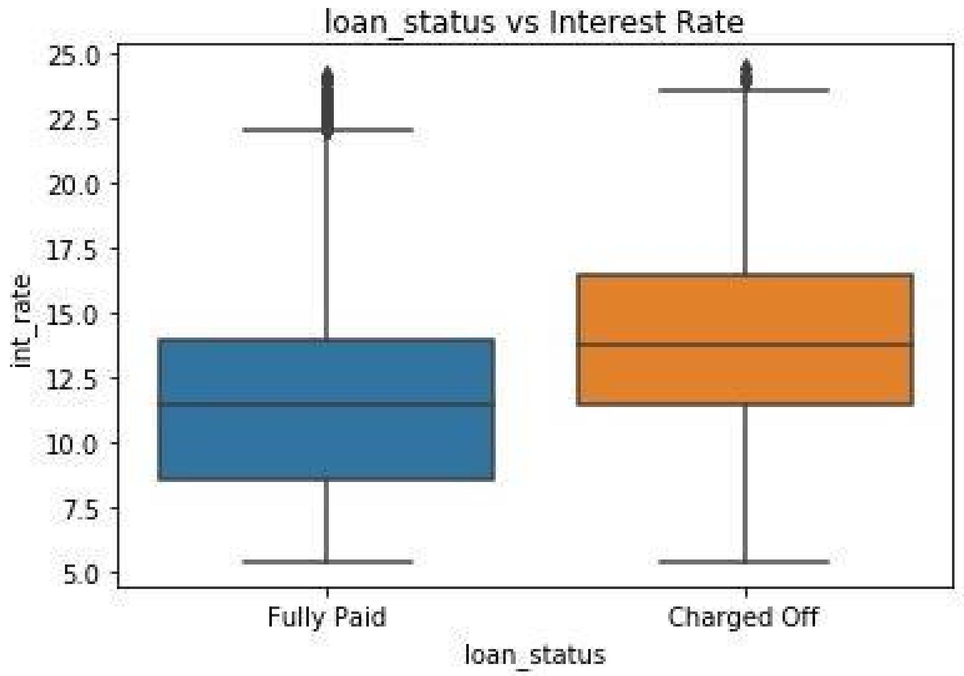
- - Lending Club's growth has been remarkable over the years, with the number of issued loans doubling annually.
- - The issuance of loans follows a consistent trend, gradually increasing from January to December.
- - Notably, the final quarter of the year experiences a significant surge in loan issuances, which could be attributed to the holiday season, including vacations and Christmas celebrations.

Analysis



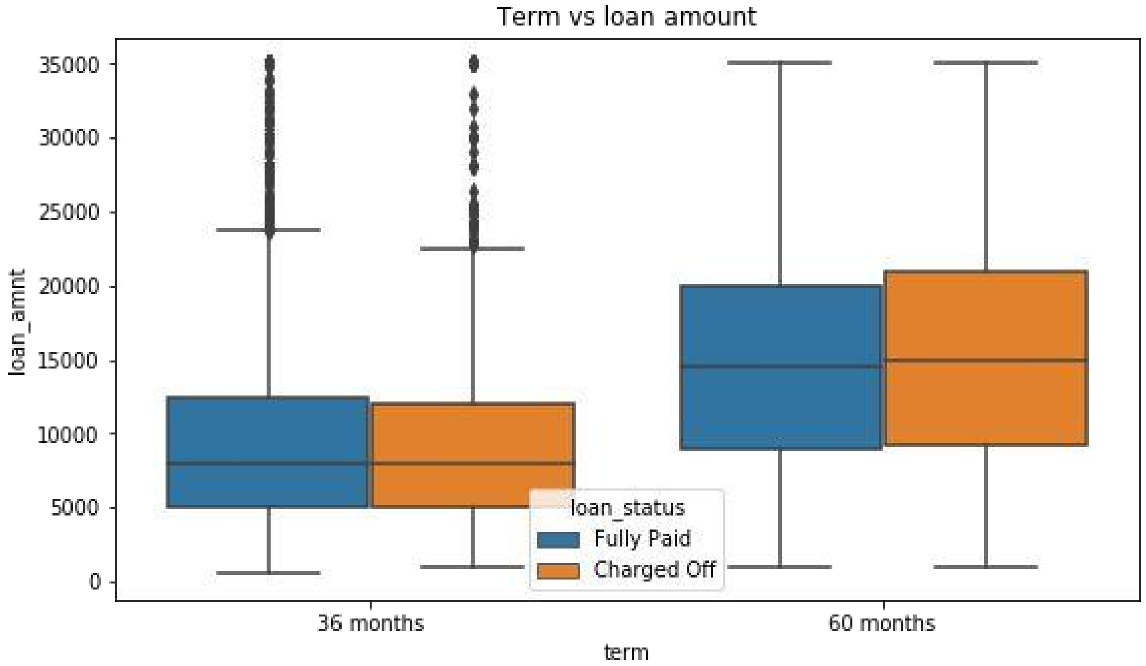


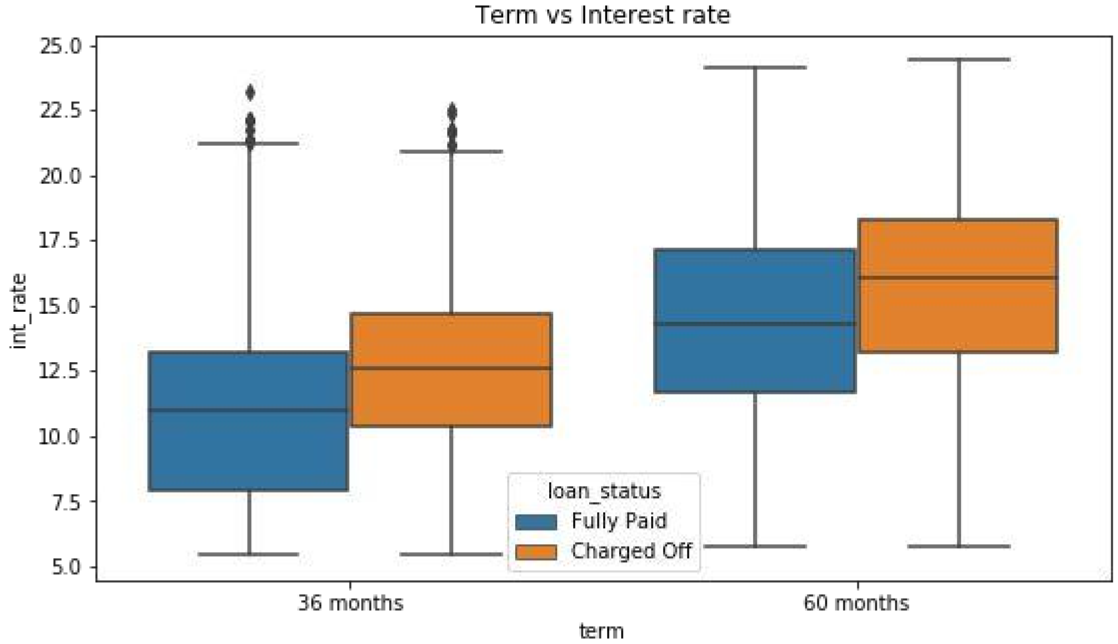
- - The loan terms offered by Lending Club are limited to two options: 36 months and 60 months.
- - Approximately 75% of borrowers opted for loans with a 36-month term.
- - Within the dataset, about 15% of borrowers are classified as "charged off," while the remaining 85% are categorized as "fully paid."

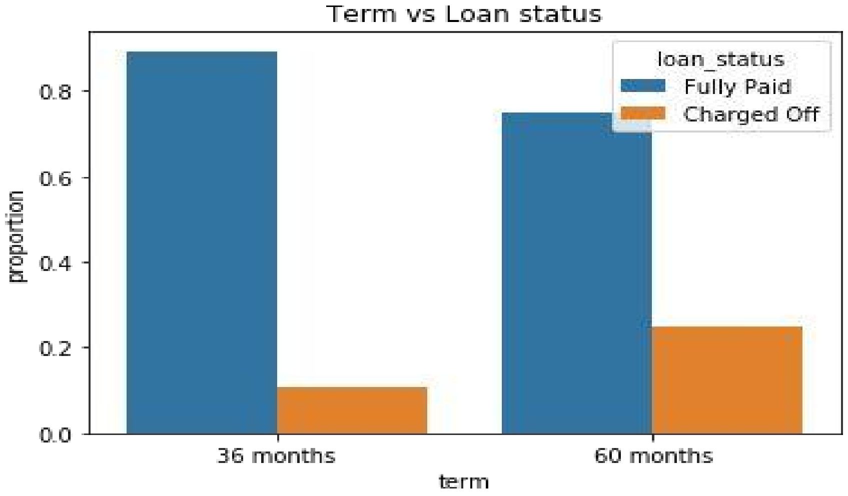


When the loan interest rate is high there is high chance of loan getting defaulted.

Analysis

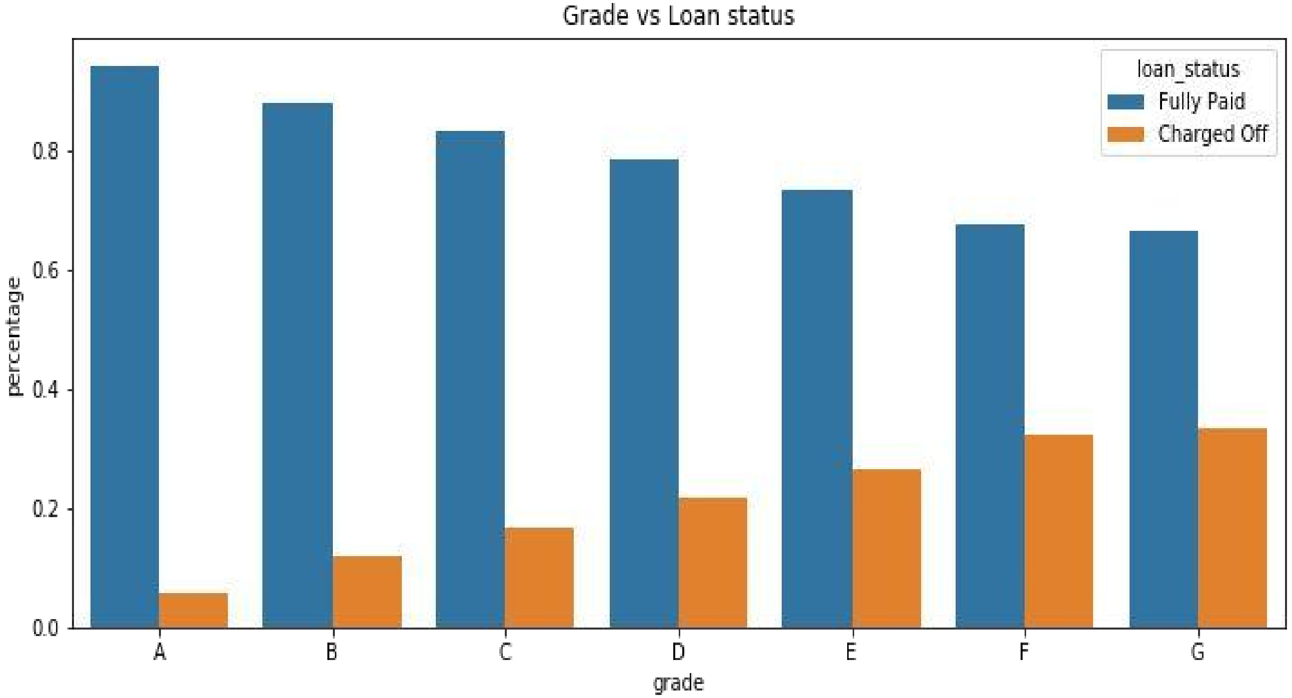


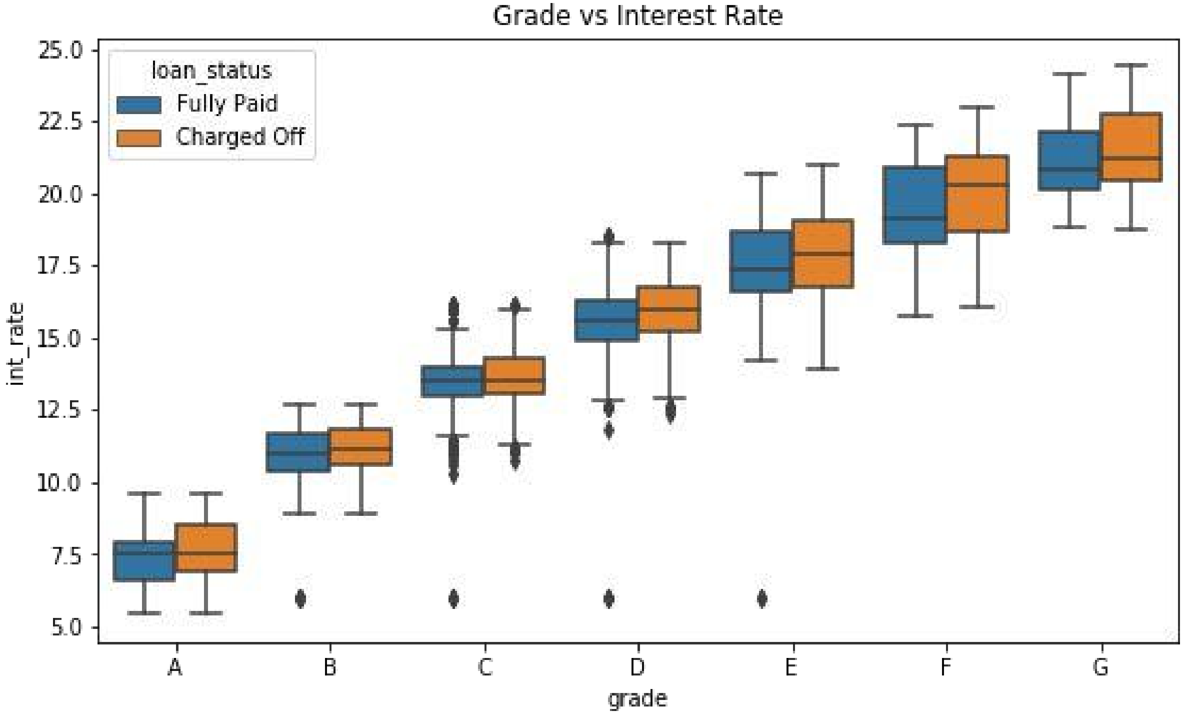




- The default rate is notably higher for loans with a 60-month tenure. This can be attributed to a significant number of individuals opting for larger loan amounts coupled with higher interest rates. Consequently, many of these borrowers encountered challenges in repaying the borrowed sum to the bank.

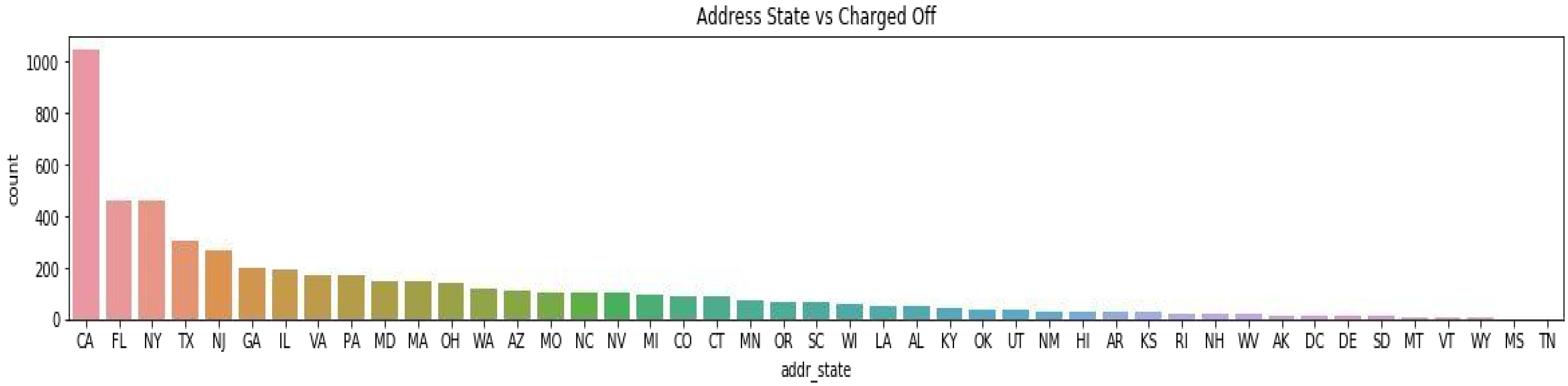
Analysis





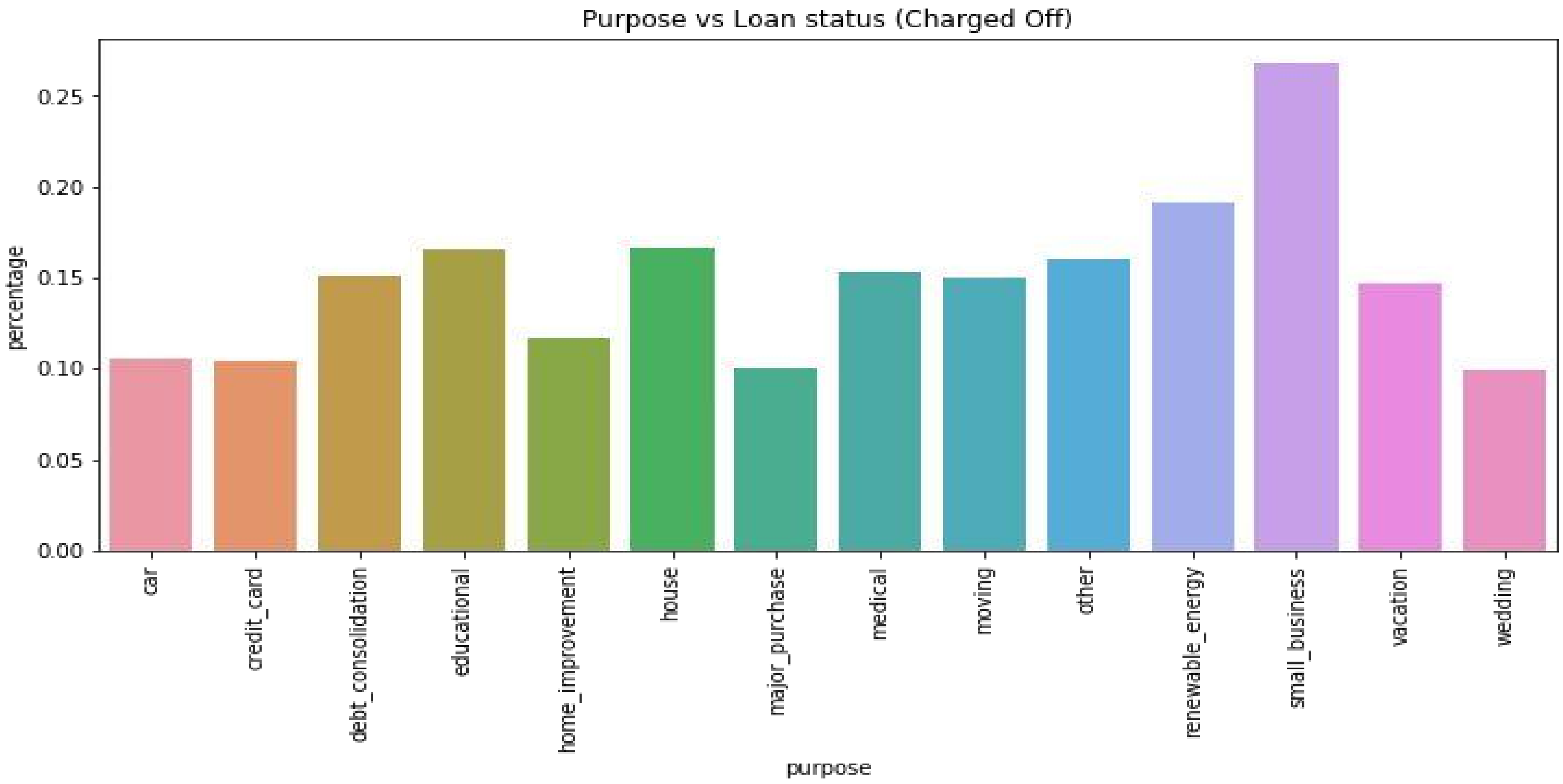
- \- Grades play a crucial role in assessing the borrower's likelihood of loan default. Lower-grade categories (E, F, G) exhibit a greater probability of default compared to higher-grade ones (A, B).
- \- Notably, borrowers with lower grades secure loans at higher interest rates, potentially contributing to the higher incidence of loan defaults within this group.

Analysis



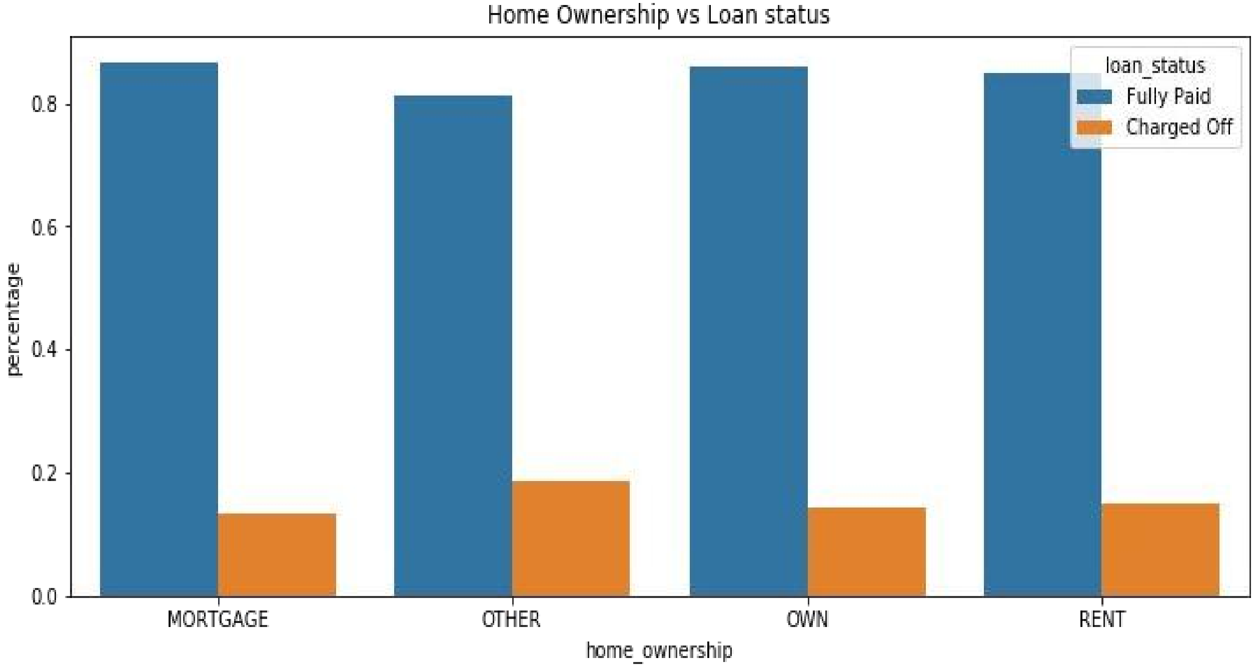
- Loans extended to borrowers in California (CA), Florida (FL), and Texas (TX) have a higher rate of loan defaults compared to borrowers in other states.

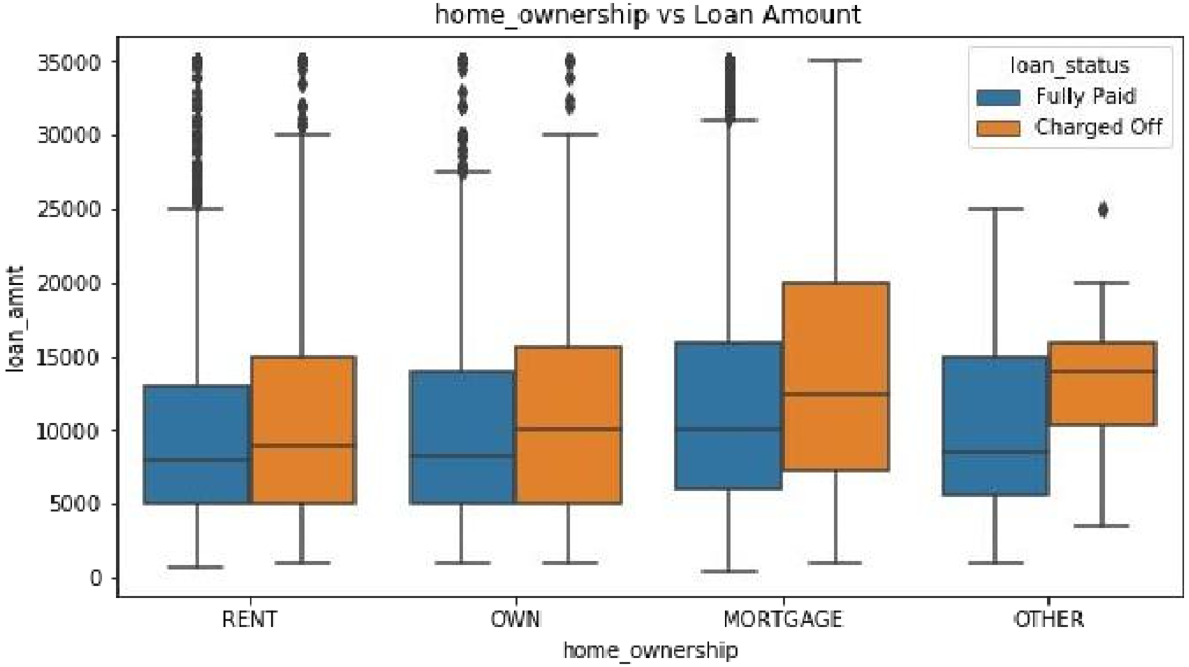
Analysis



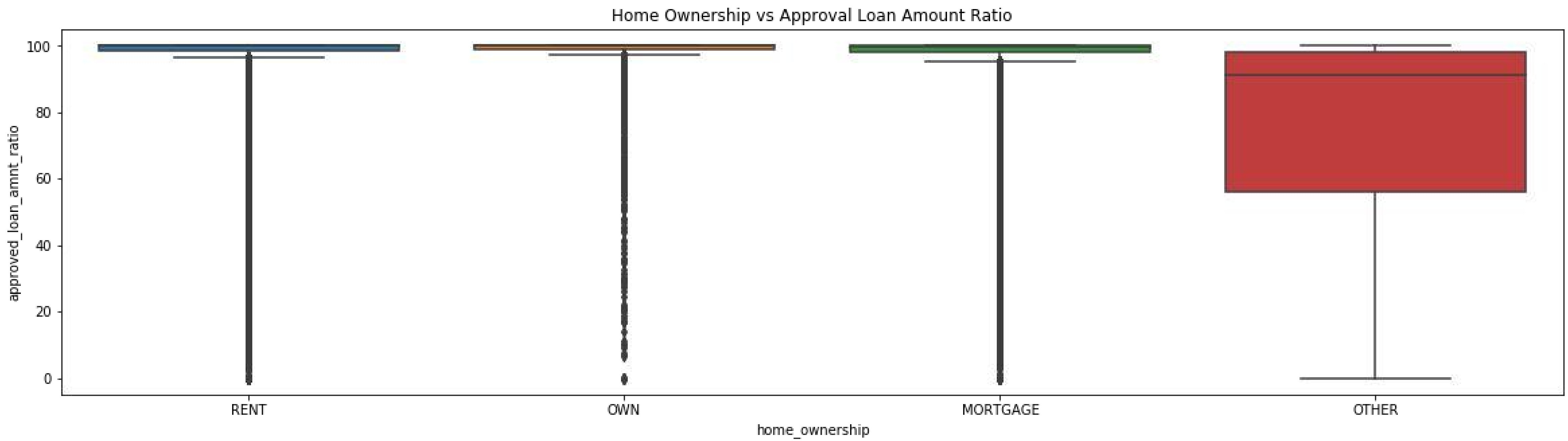
Borrower’s who took loans for small business purpose have defaulted more.

Analysis





- \- Across all home ownership categories, there is an approximate 20% probability of loan default.
- \- The second plot reveals a noteworthy pattern: individuals with higher loan amounts within the mortgage home ownership category exhibit a significantly higher default rate compared to other categories.



- For the "Other" home ownership category, the approved loan amount (funded by investors) is consistently lower than the originally requested loan amount by borrowers.

Conclusions

- - Lending Club should consider decreasing the prevalence of high-interest loans offered for 60-month tenures, as these loans have a higher susceptibility to defaults.
- - The utilization of grades as a metric for identifying potential defaulters is effective. Lending Club should enhance the scrutiny of applicants falling within the lower-grade range (G to A) by gathering more comprehensive borrower information.
- - To maximize profits, Lending Club should exercise control over the issuance of loans to borrowers from states such as CA, FL, and NY, which appear to carry a higher default risk.
- - It's evident that small business loans experience higher default rates. Lending Club should consider halting or limiting the issuance of loans to this category to mitigate default risks.
- - Borrowers within the mortgage home ownership category who request higher loan amounts tend to default more frequently. Lending Club should refrain from providing loans to this category when the requested loan amount exceeds $12,000.
- - Borrowers with a significant number of public derogatory records are more prone to bankruptcy. Lending Club should prioritize ensuring that borrowers do not have any public derogatory records before approving loans.