Lending Club Case Study

Exploratory Data Analysis (EDA)

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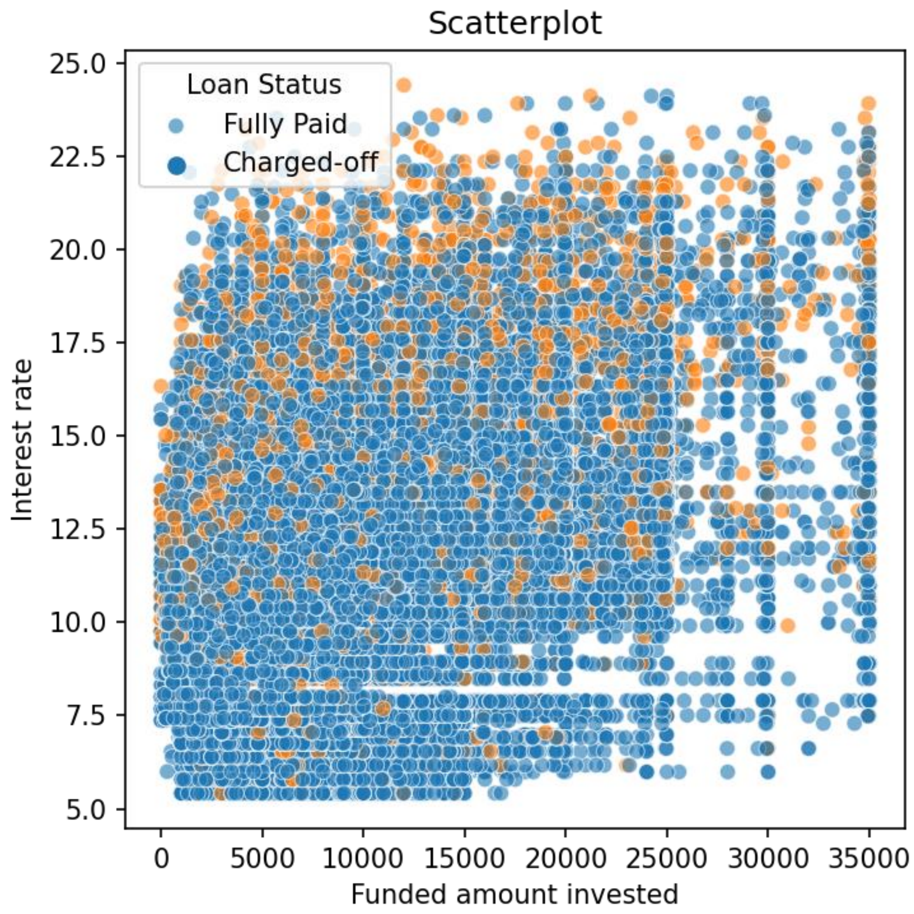
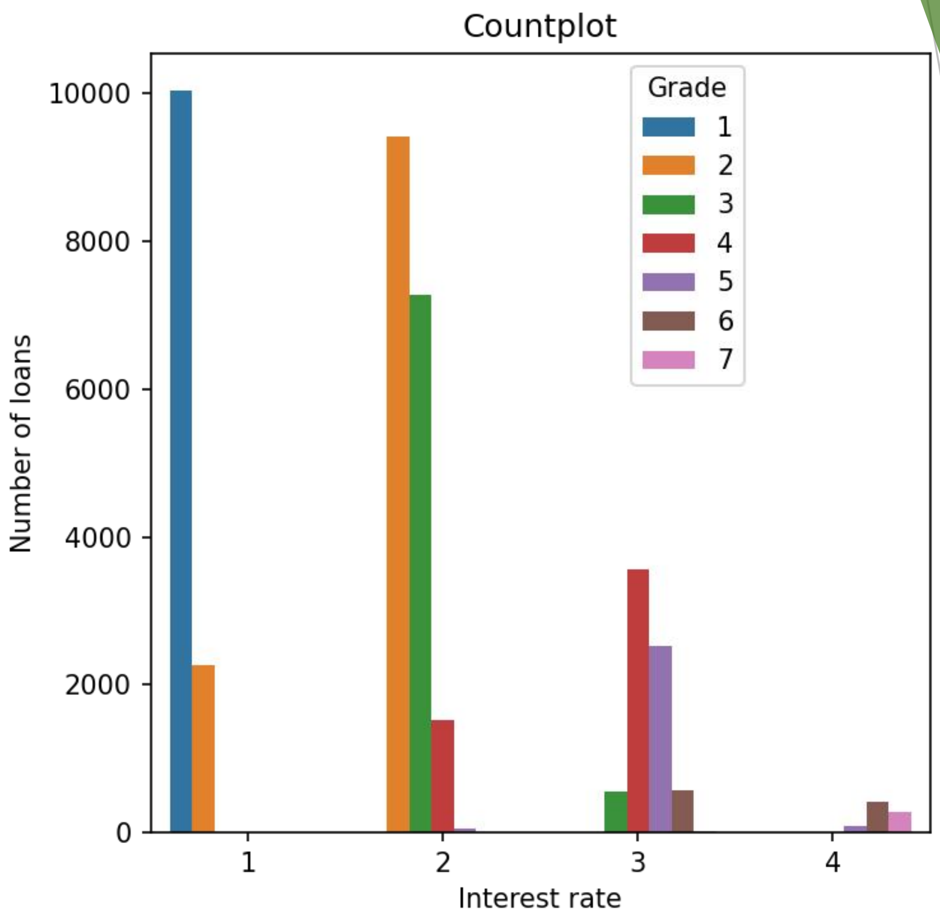
Introduction

- In this case study, we will be using EDA to analyse the consumer credit data of a consumer finance company that is focused on providing quick loans to urban consumers.
- When the company receives a loan application, the company has to make a decision for loan approval based on the applicants profile. Two types of risk are associated with the company's decision:
  - If the applicant is likely to repay the loan then not providing the loan results in a loss of business to the company.
  - If the applicant is not likely to repay the loan, then providing the loan may lead ti financial loss to the company.

Objectives

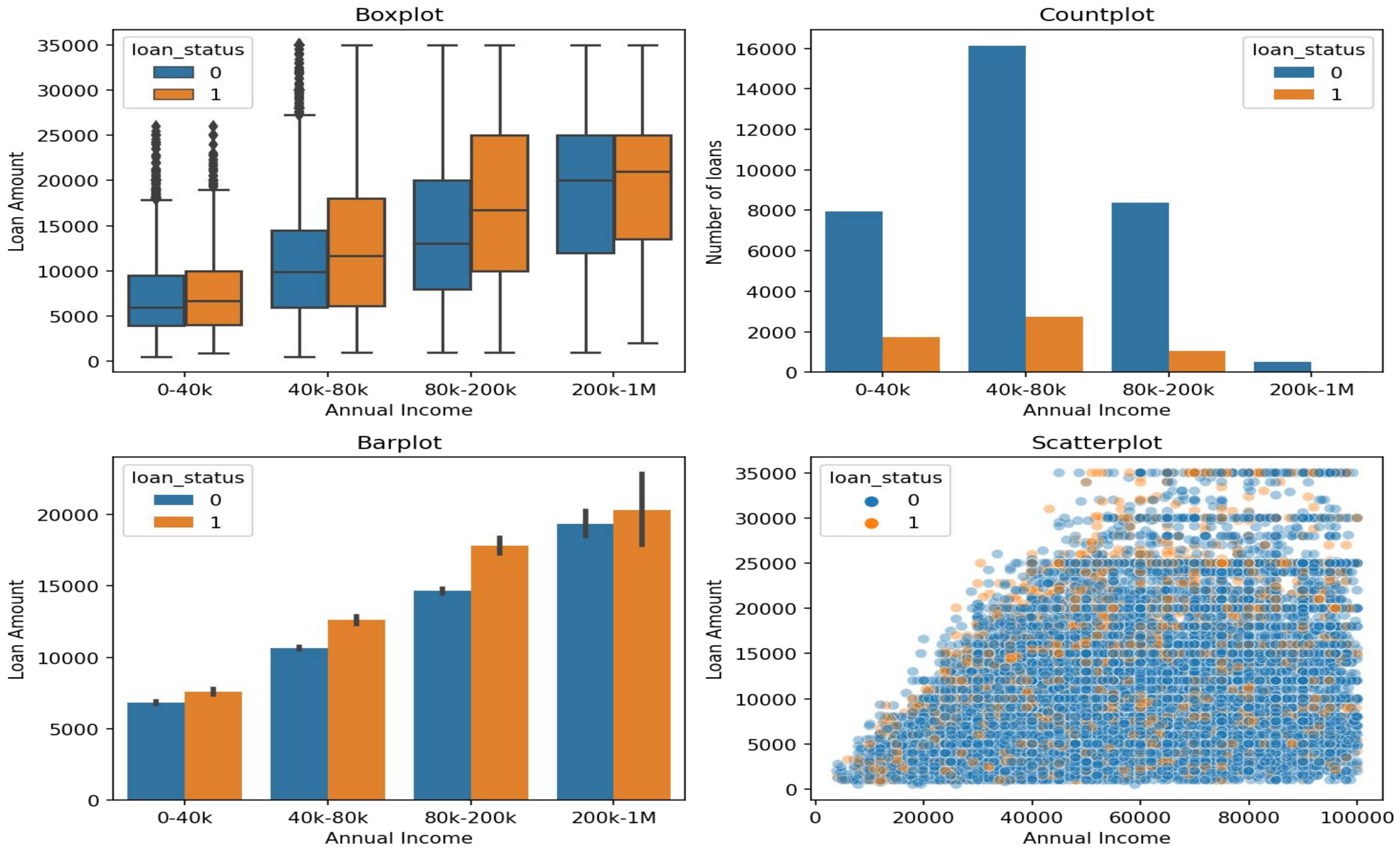
- To find the driving factors behind loan success and loan default by using the past data to segregate the new applicants based on their profile.
- To identify the key parameters in the loan application which influence the borrower's ability to pay back the loan amount.
- To explain the results of univariate, bivariate and multivariate analysis performed on the data.





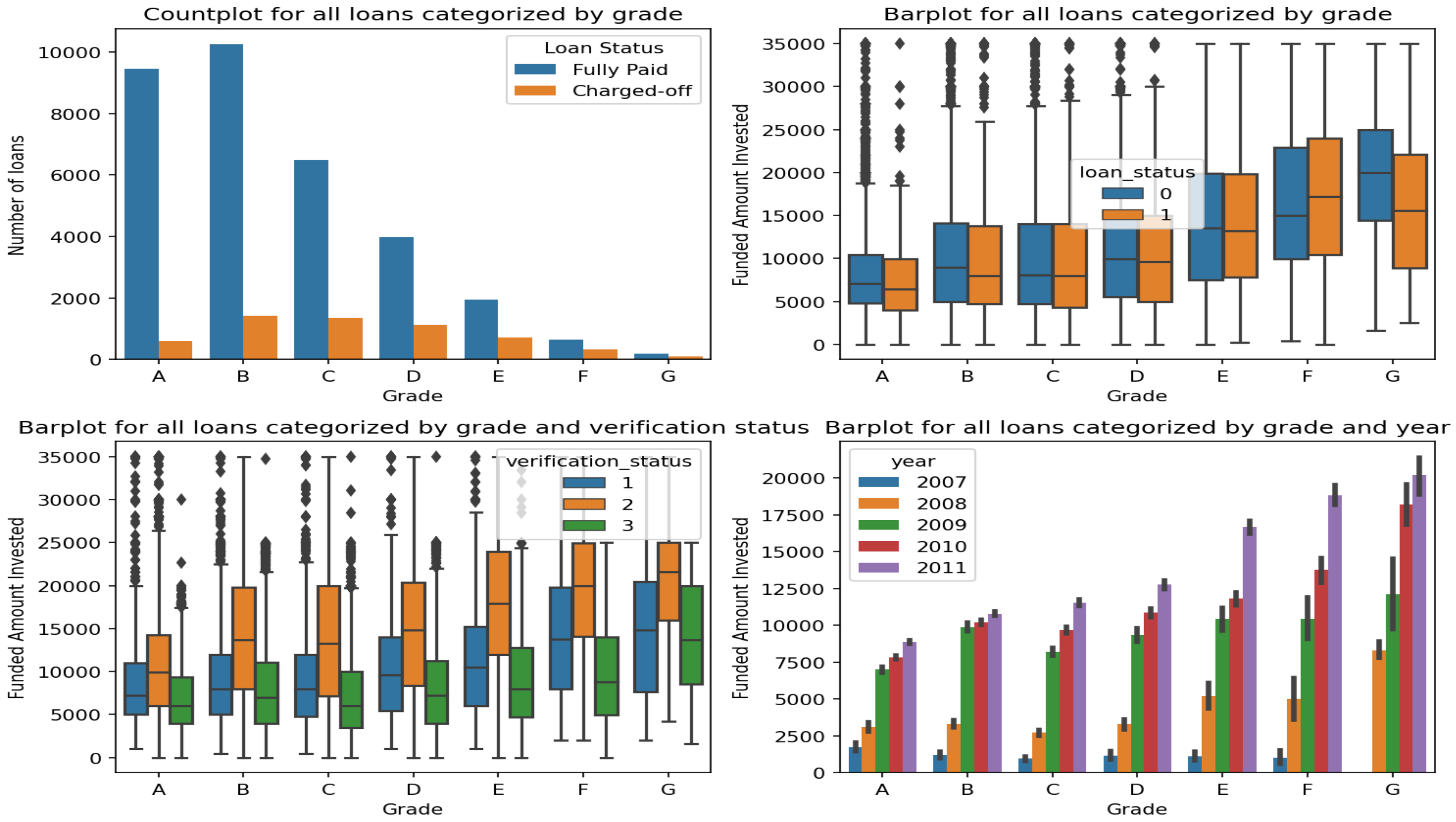
Observations:

- The probability to default is higher for loans with high interest rates.
- Borrowers with low grades are the ones taking high interest loans. These loans carry with them high risk of default.



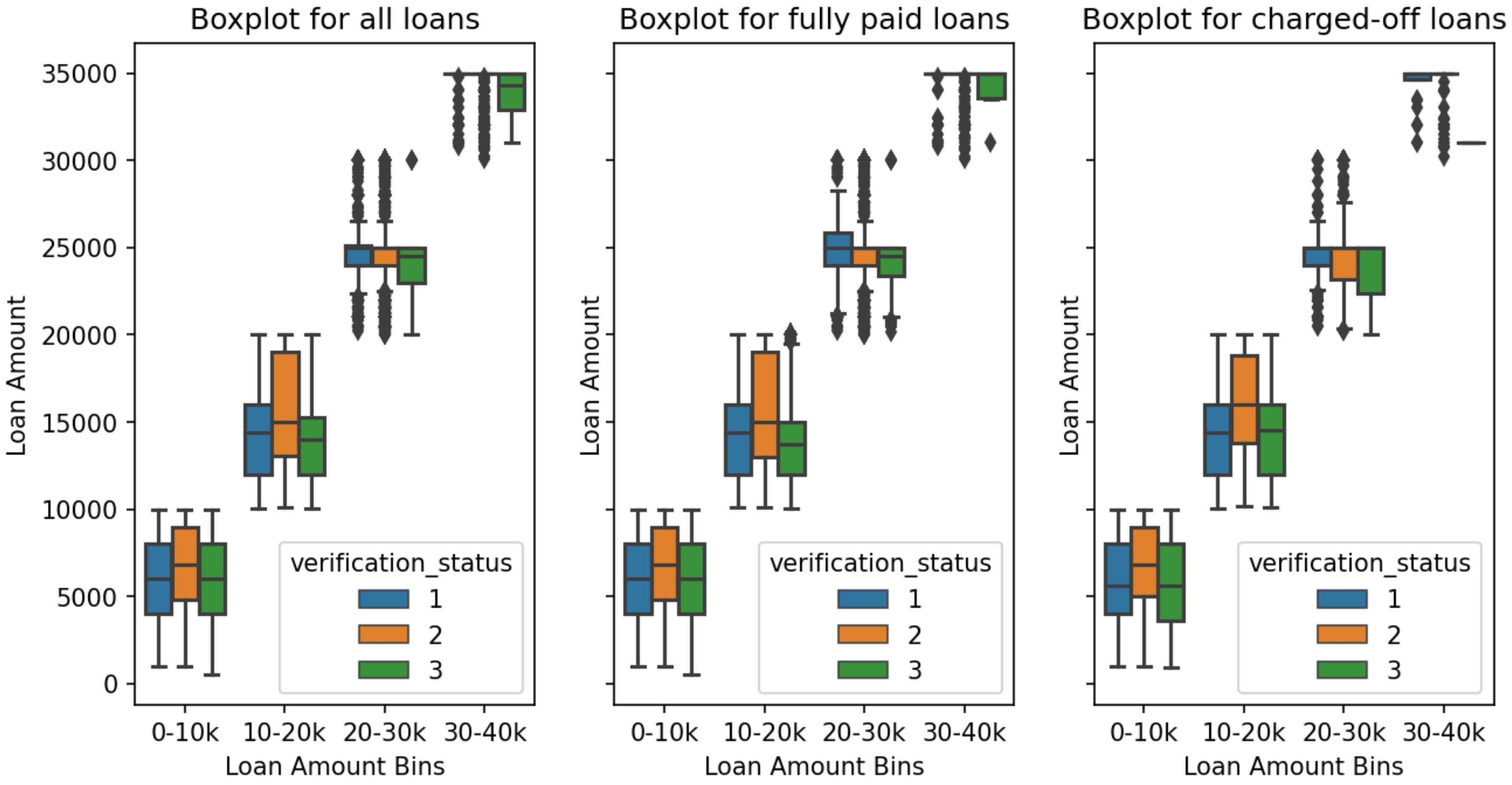
Recommendations:

- Borrowers with higher annual income can be given higher loan amounts.
- Loans can be given at high interest rates to borrowers with high income and low grades to increase the profitability.



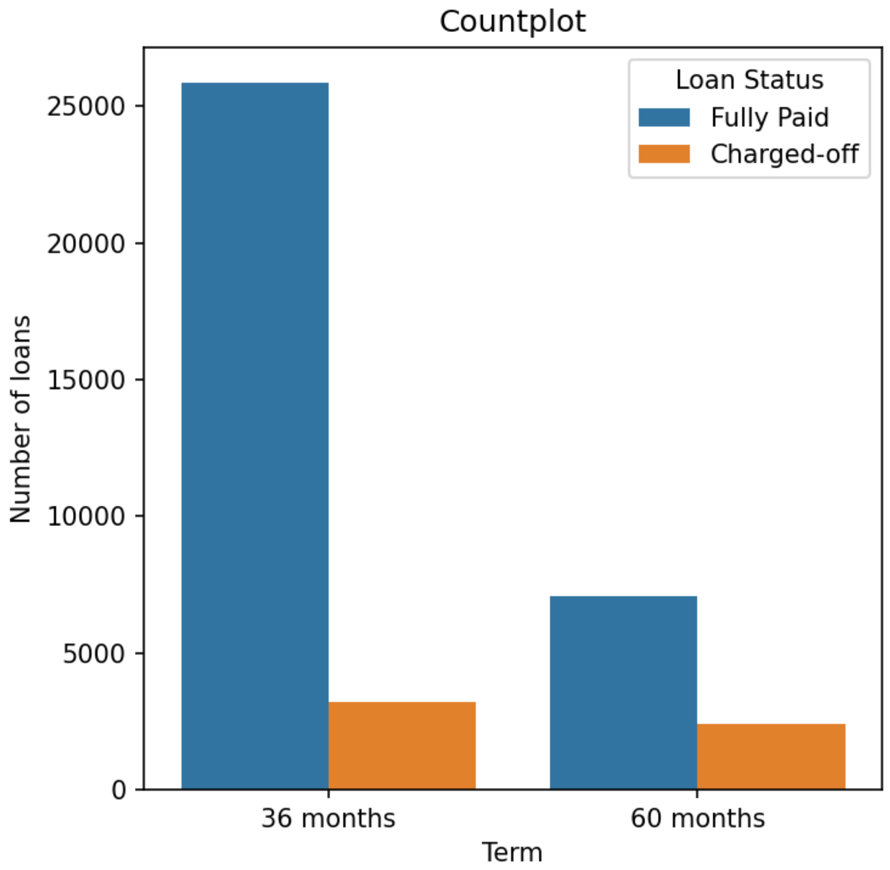
Recommendations:

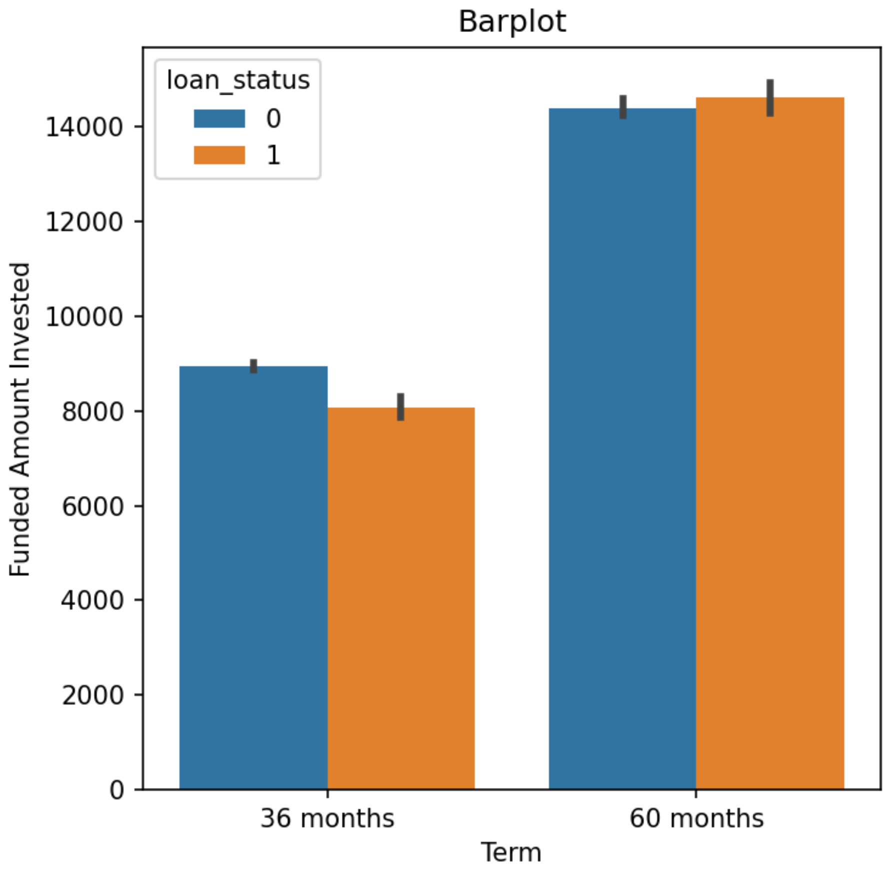
- Reduce the number of high loan amounts given to borrowers with low grade. Borrowers with low grade are defaulting more on average.
- Increase the loan amounts given to borrowers with good grades as they generally carry lower risk of default.



Recommendations:

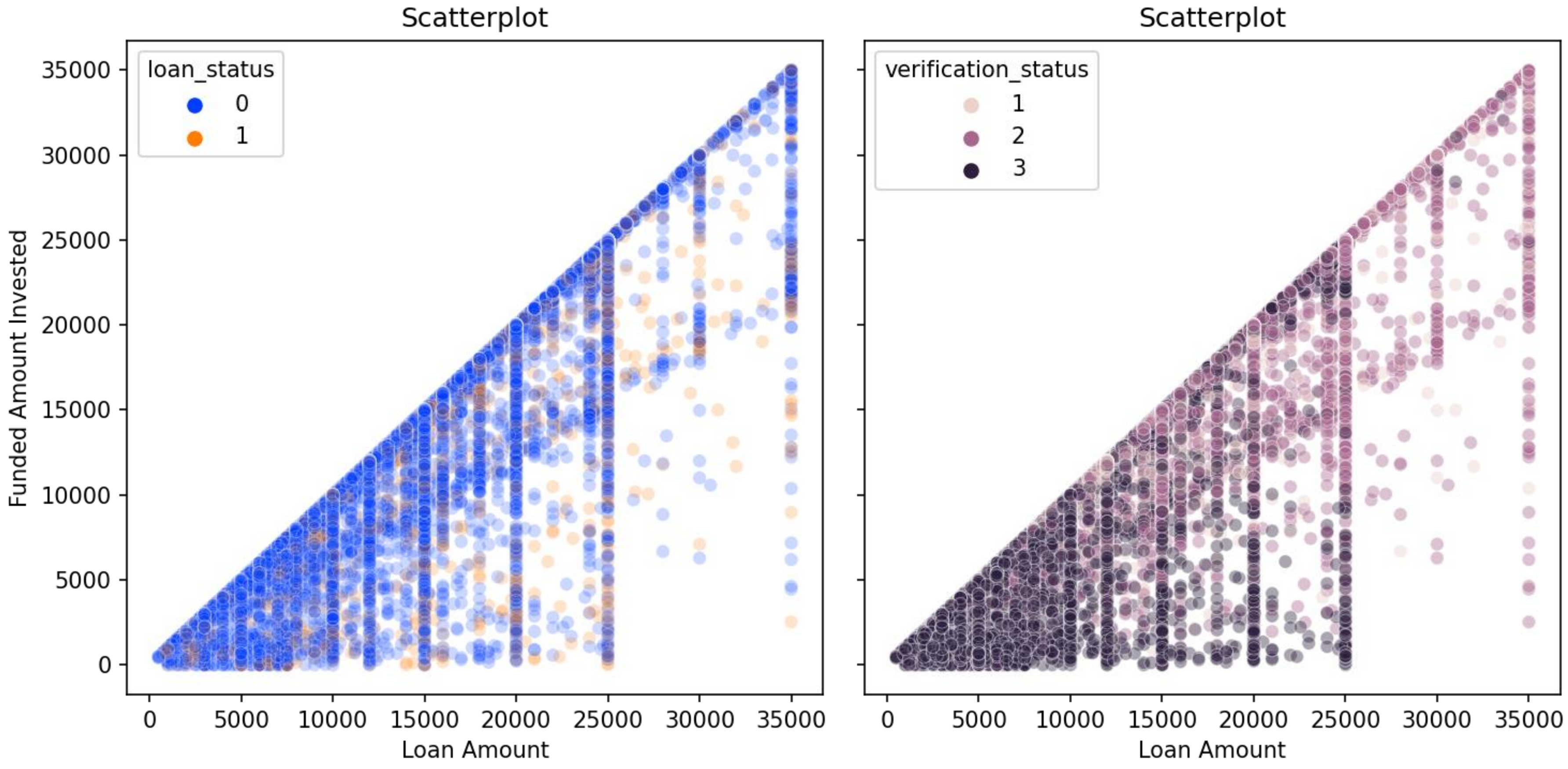
- Reduce the number of loans given to borrowers with non-verified sources of income, these borrowers carry more risk.
- Increase the loans given to borrowers whose income is source verified.





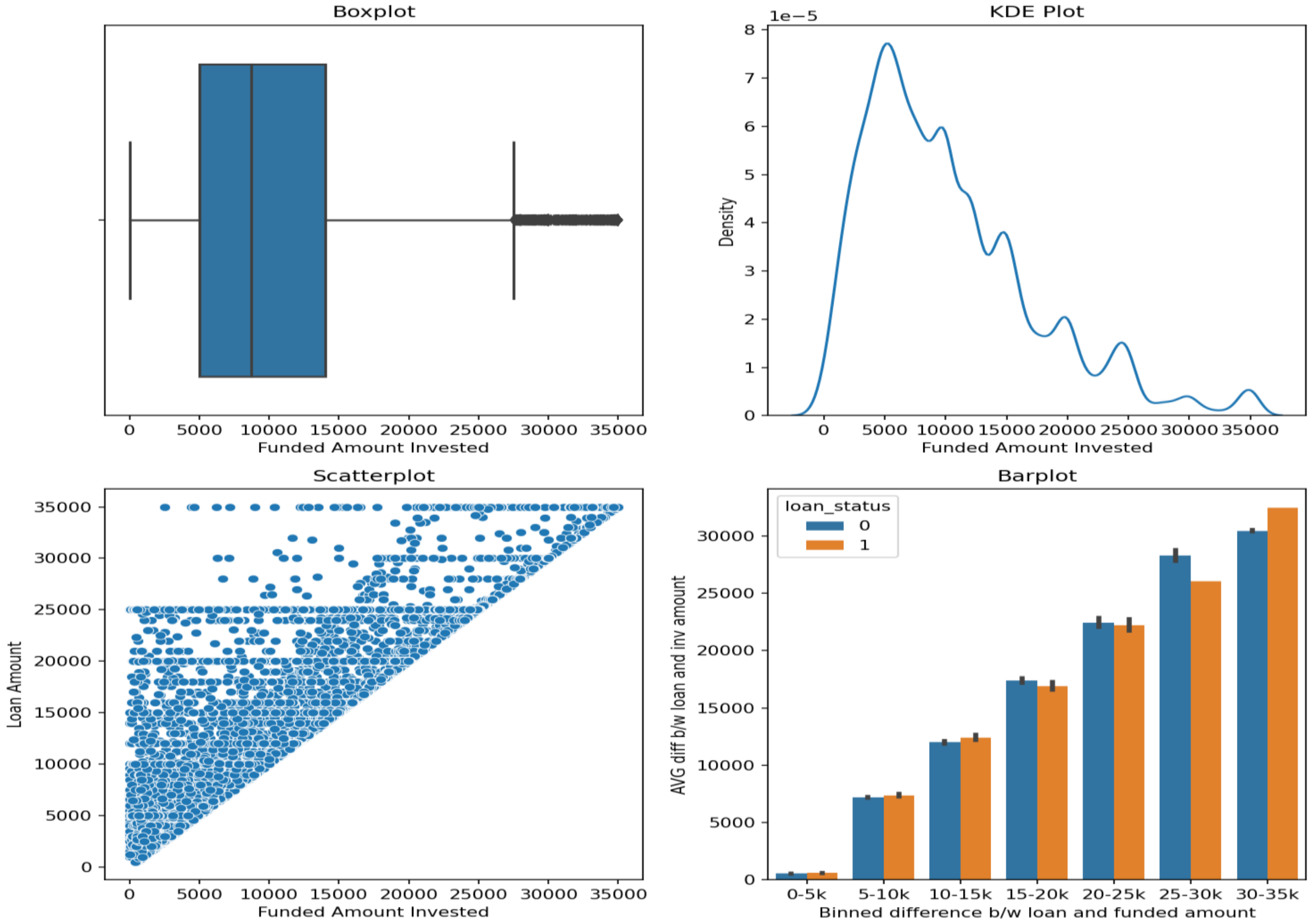
Recommendations:

- Reduce the number of high loan amounts given for a term period of 60 months. These loans have highly defaulted.
- Increase the number of small loans with a term period of 36 months. These loans have mostly been fully paid back.



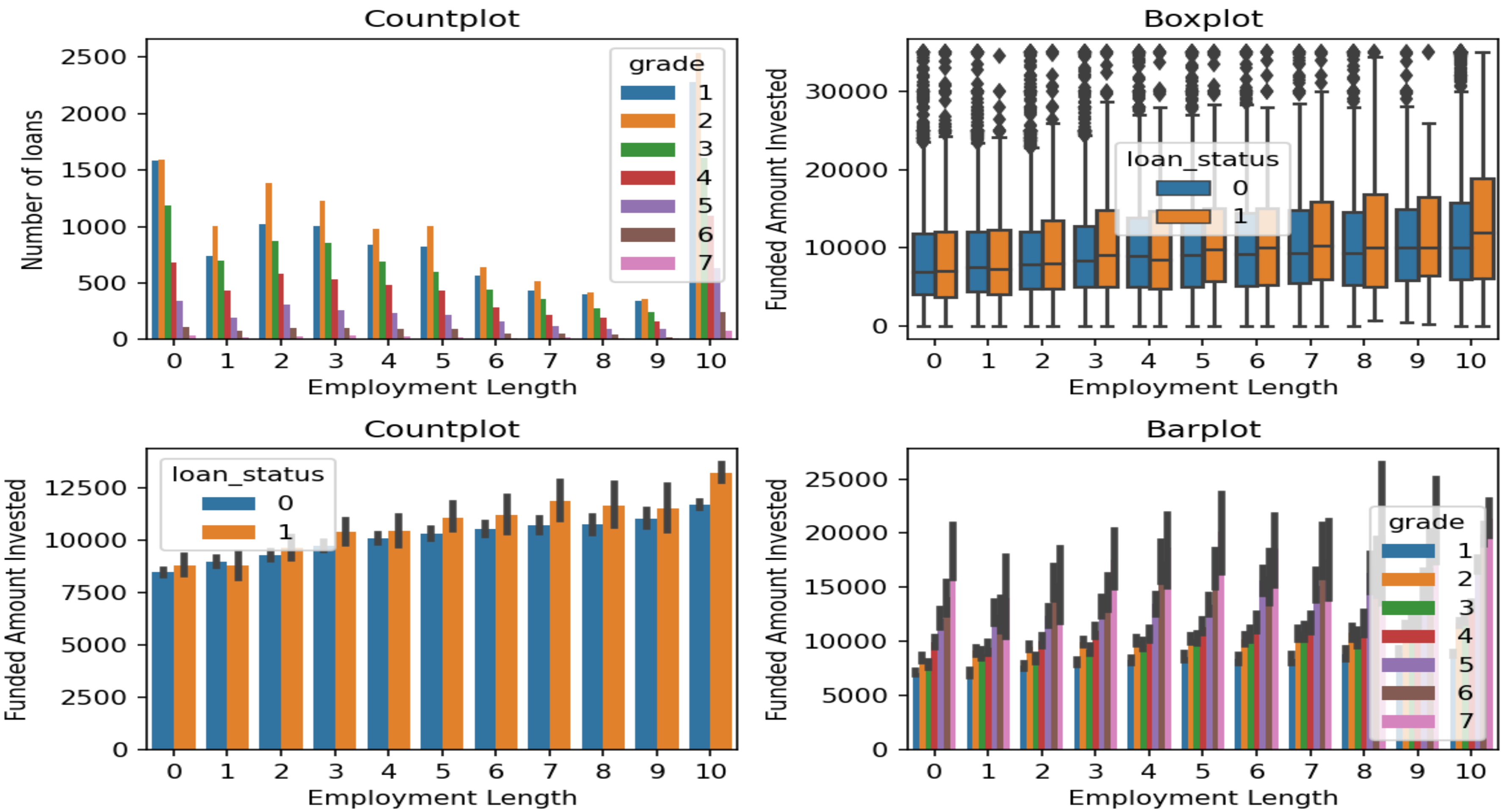
Recommendations:

- When the difference in funded amount to the actual loan amount is high, the risk of default is high. These borrowers have mostly defaulted on their payments.
- Loans which are higher amounts and when the income status is not verified has resulted in mostly default. The income of the borrower must be verified for loans with higher amounts.



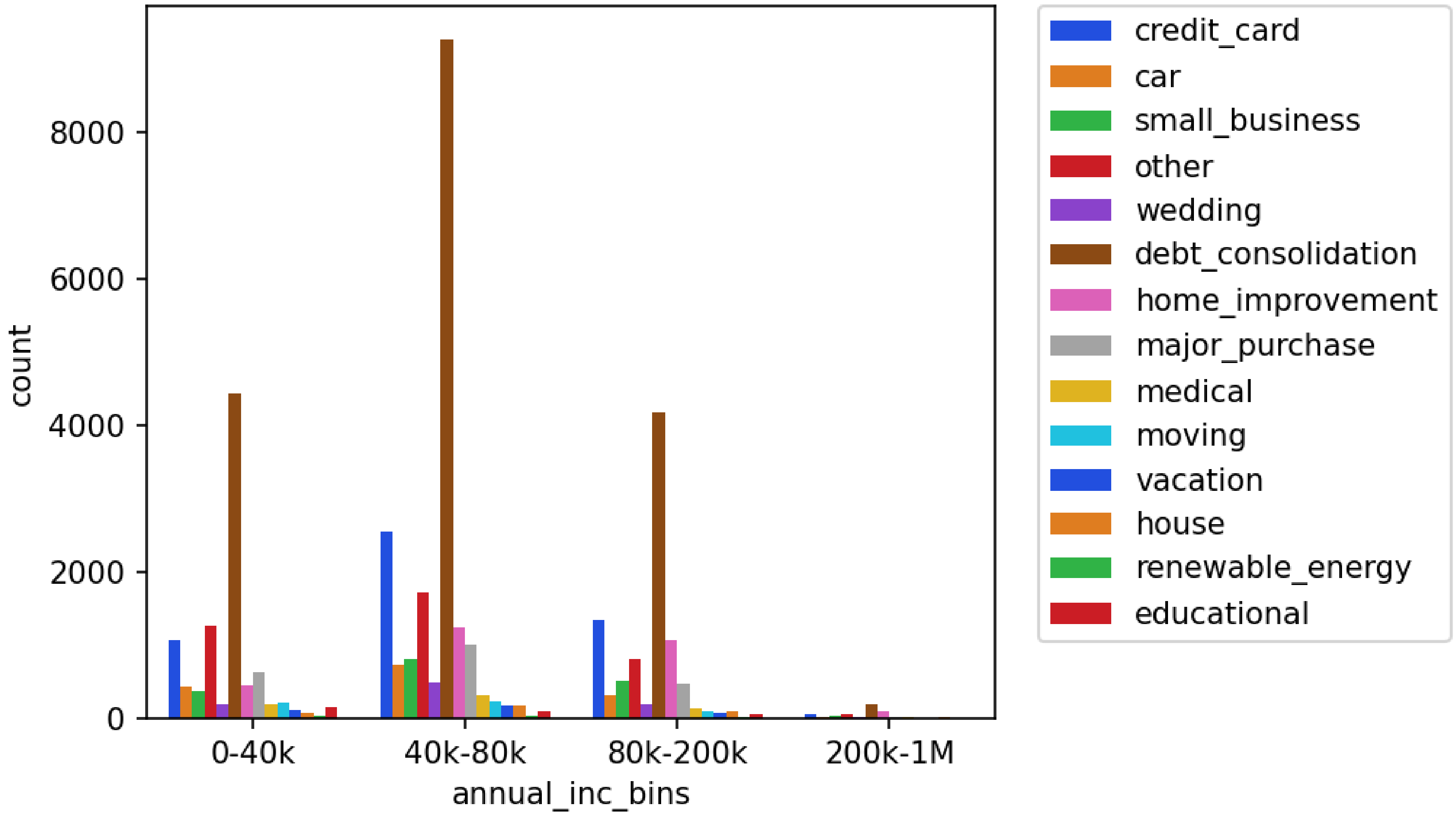
Recommendations:

- There is a difference between the asking loan amount and the funded amount. This difference increases as the loan amount increases.
- These small amounts which were sanctioned against the high asking amount have generally led to default and loss for the company.



Recommendations:

- Borrowers with employment length of more than 10 years and taking high value loans are more at risk of default. Limit the loans given to this type of borrowers.
- Increase the loans given to borrowers with good grades and low employment length. This type of borrowers have generally paid-off their loan dues.



Recommendations:

- Borrowers in low income groups have generally taken the loan to consolidate their debts, these loans tend to be risky and carry with them high risk of default.
- More people in high income groups have used their loans for home improvement, business etc. Consider increasing the loan amounts to high income groups.

Conclusion:

- Grades are good metric for detecting defaulters. As per the data, Borrowers who are part of lower Grades (E-G) are likely to default.
- Debt Consolidation loans are defaulted more. The company should reduce issuing loans to them
- Borrowers with low annual income and are part of lower Grades are likely to pay higher interest. Thus, they are more prone to defaulting.
- Borrowers who have less Annual income and are applying for High Loan Amount are likely to default. The Company should consider Annual Income before approving loan
- Borrowers who received lower loan amounts than what they were asking for have defaulted on their payments.

Thank you