Lending Club Case Study

Introduction to Lending Club case study

- The Lending club case study is a crucial part of loan processing and application analysis. It represents the creditworthiness of the borrower and plays a significant role in the decision-making process for loan approval.

Business Model

- Bank’s generates revenue through loan origination. This case study assesses borrower risk based on various factors such as customer grading, loan paid status etc.

Loan Process

1. Application
2. Approval based on various factors such as customer grade etc.
3. Loan disbursement
4. Repayment and default management

Challenges

1. Loan default risks
2. Competition from other financial institutions

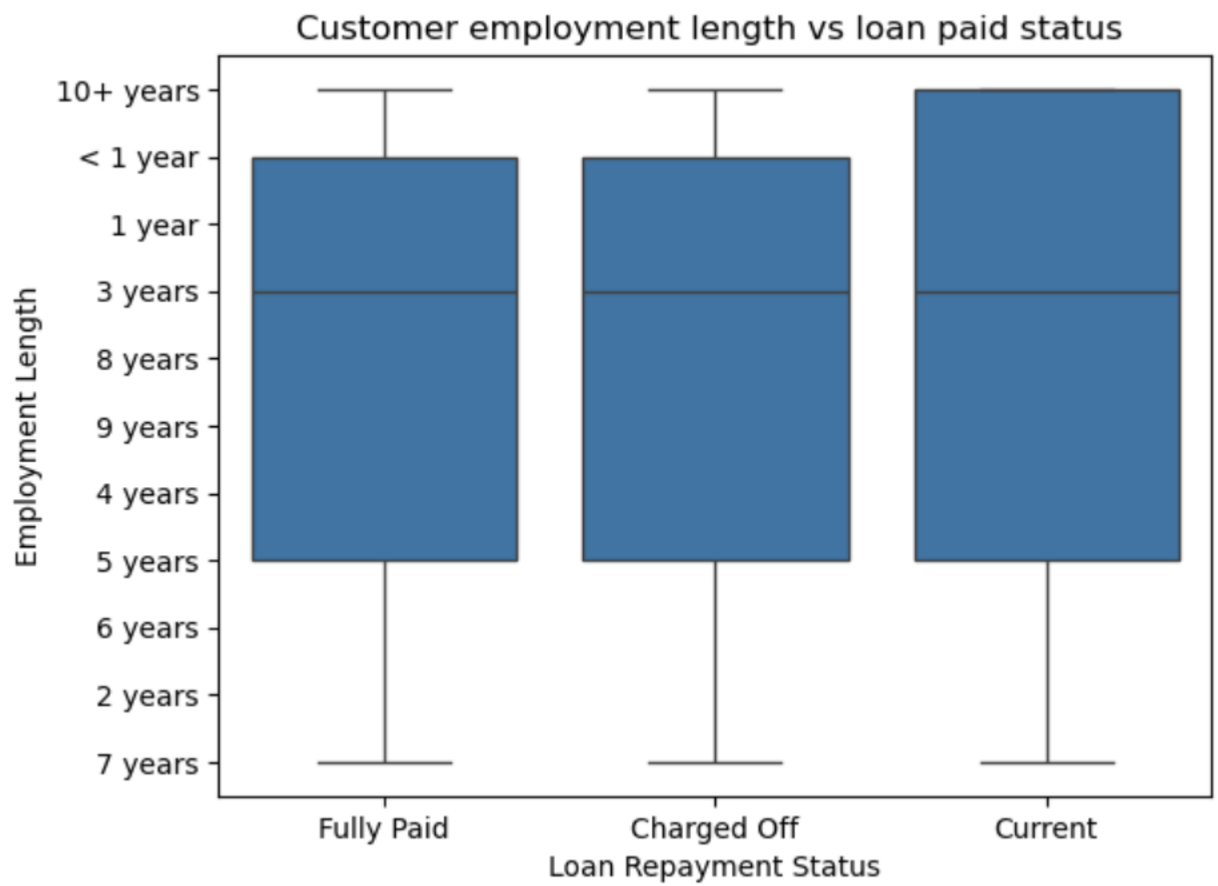
Key Data

These columns are particularly relevant to assess borrower risk and identify patterns related to loan defaults.

1. acc_now_delinq: The number of accounts on which the borrower is currently delinquent.
2. acc_open_past_24mths: Number of trades (accounts) opened in the past 24 months.
3. addr_state: The state of residence of the borrower, which could provide insights into geographic risk patterns.
4. annual_inc: The self-reported annual income, an essential factor in assessing the borrower's repayment ability.
5. loan_amnt: The total loan amount.
6. loan_status: The status of the loan (e.g., Fully Paid, Charged Off). This is crucial for identifying defaulters.
7. dti: Debt-to-income ratio, a key indicator of financial health.
8. grade: Loan grade assigned by the company, often tied to creditworthiness.
9. emp_length: Employment length, which might indicate job stability and repayment potential.
10. purpose: The purpose of the loan, which can show patterns of risky loan categories.
11. term: The term of the loan in months (e.g., 36 months or 60 months).
12. int_rate: Interest rate on the loan, which might increase for riskier applicants.
13. home_ownership: The homeownership status of the applicant, an indicator of financial security.
14. installment: Monthly payment on the loan, which could show the burden relative to income.

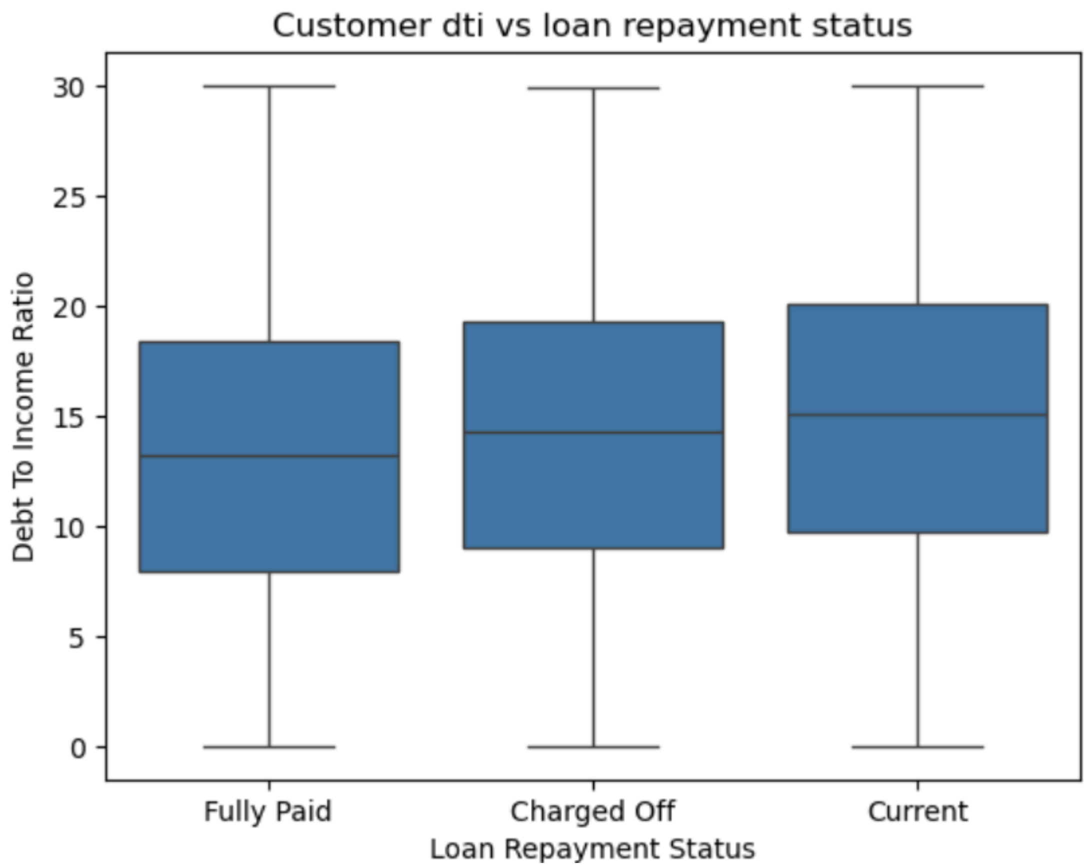
Employment length vs Loan repayment status

- Employment length reflects job stability. Shorter employment histories may increase the risk of default.
- From following we can conclude employment length not relevant to loan default



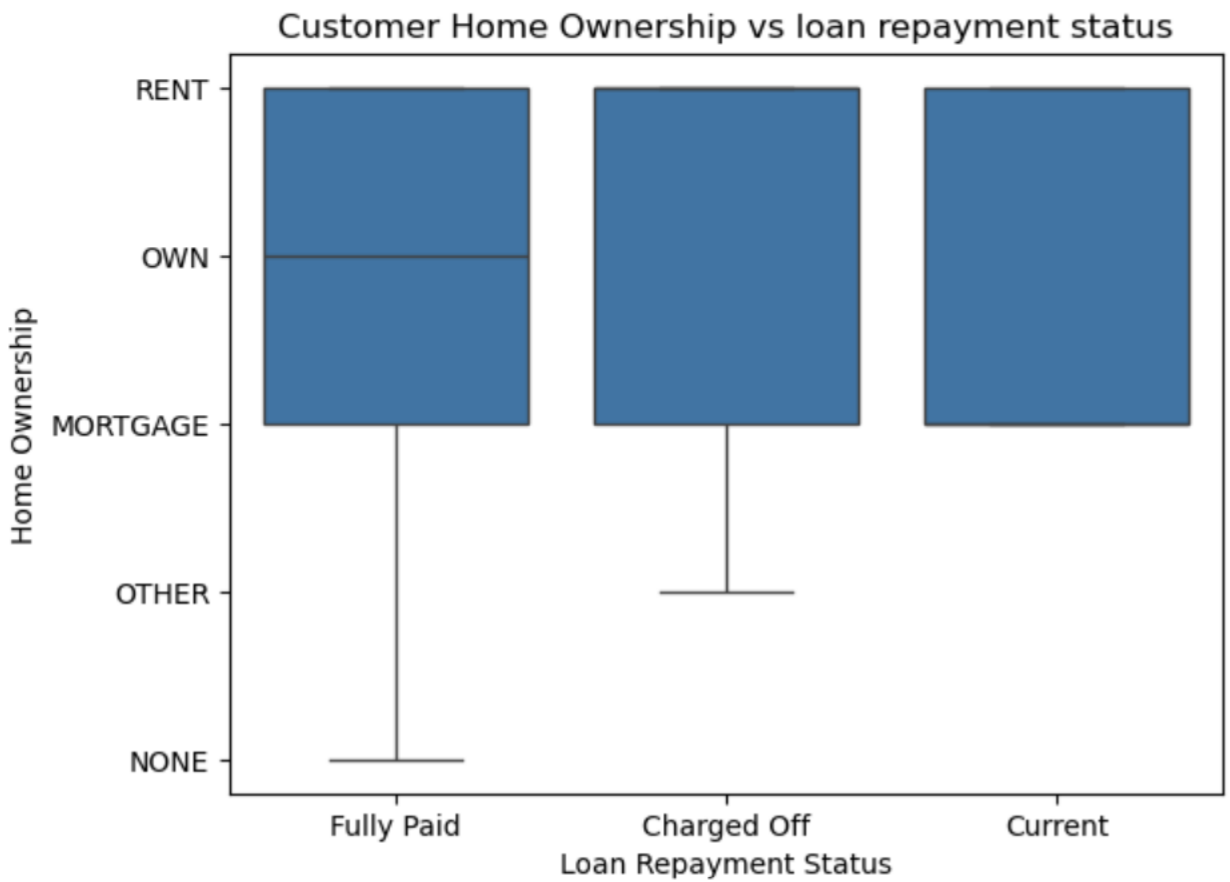
Debt-To-Income Ratio(DTI) vs Loan repayment status

- A higher DTI ratio indicates that the borrower is more financially burdened and therefore a higher risk.
- Loans could be rejected if the DTI exceeds a specific threshold, say 40%.
- From following we can conclude DTI not relevant to loan default



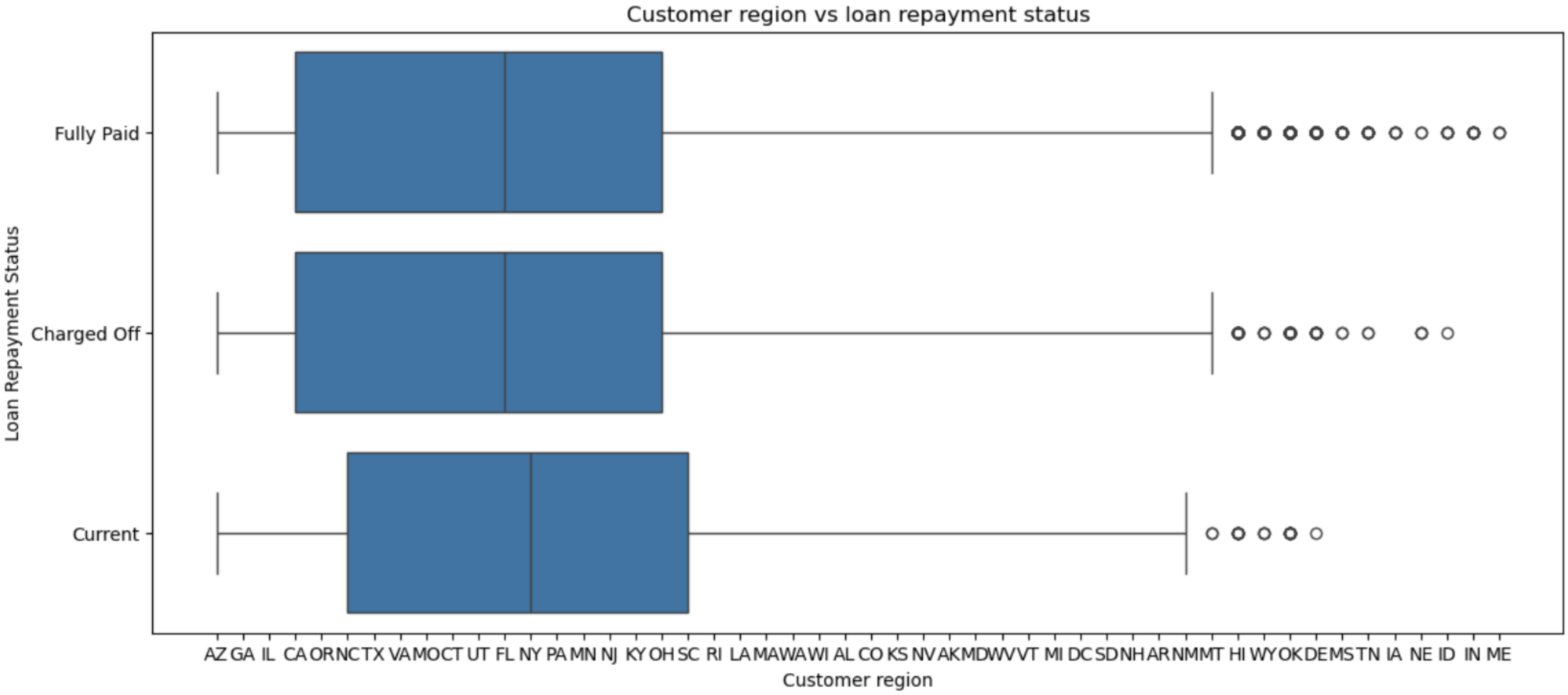
Home Ownership vs Loan repayment status

- Borrowers with homeownership may be more financially stable and could be favored.
- From following we can conclude Home Ownership not relevant to loan default



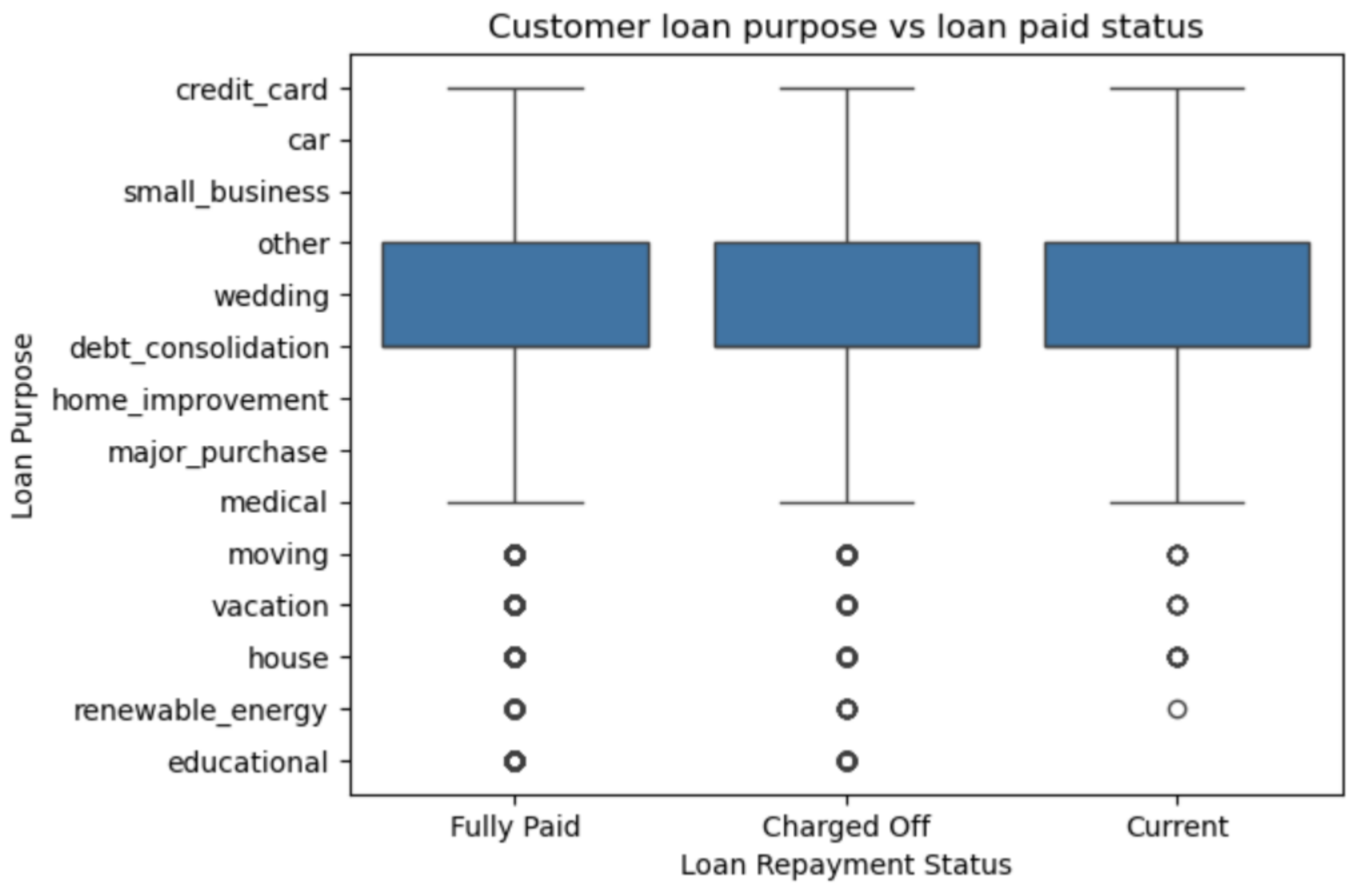
Customer Region vs Loan repayment status

- The state of residence of the borrower, which could provide insights into geographic risk patterns.
- From following we can conclude customer Region not relevant to loan default



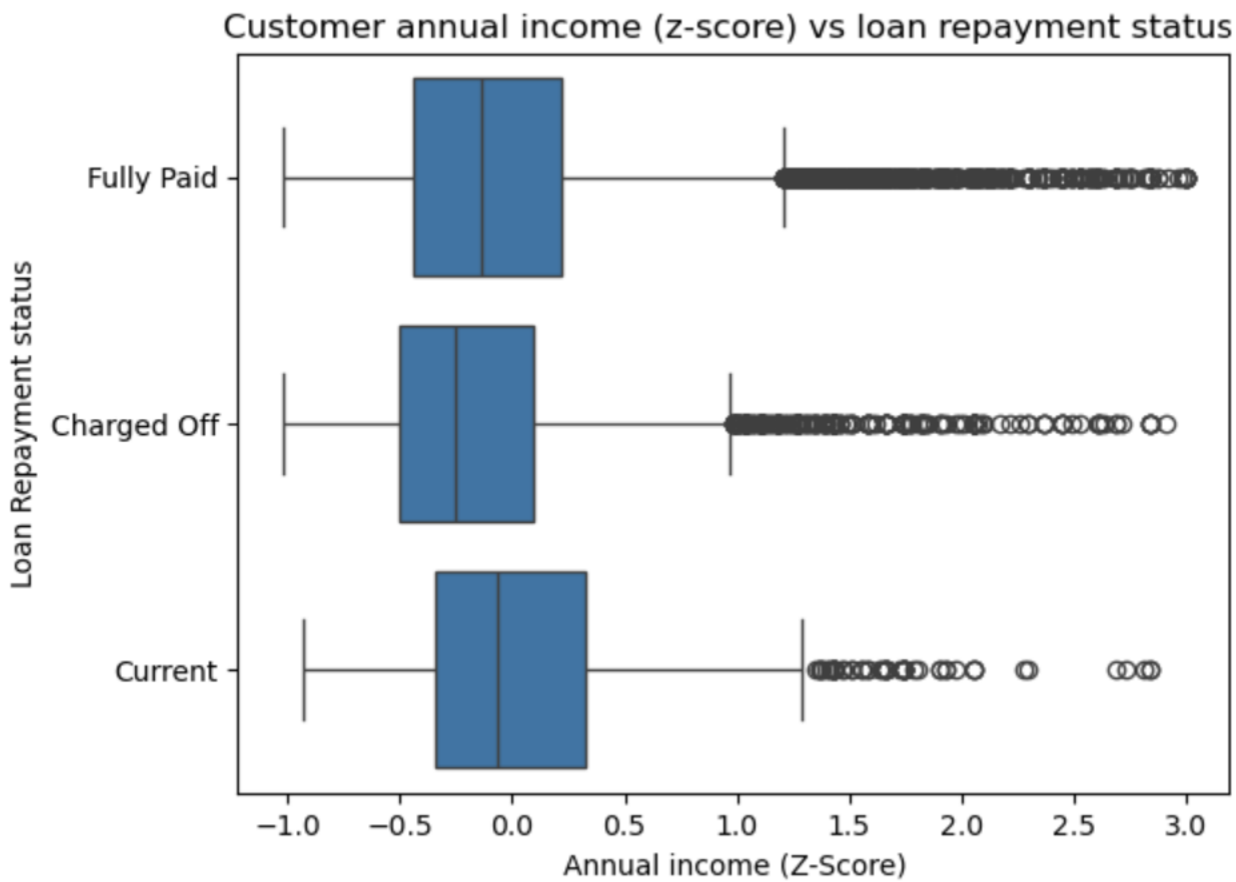
Customer loan purpose vs Loan repayment status

- The purpose of the loan, which can show patterns of risky loan categories.
- From following we can conclude customer loan purpose not relevant to loan default



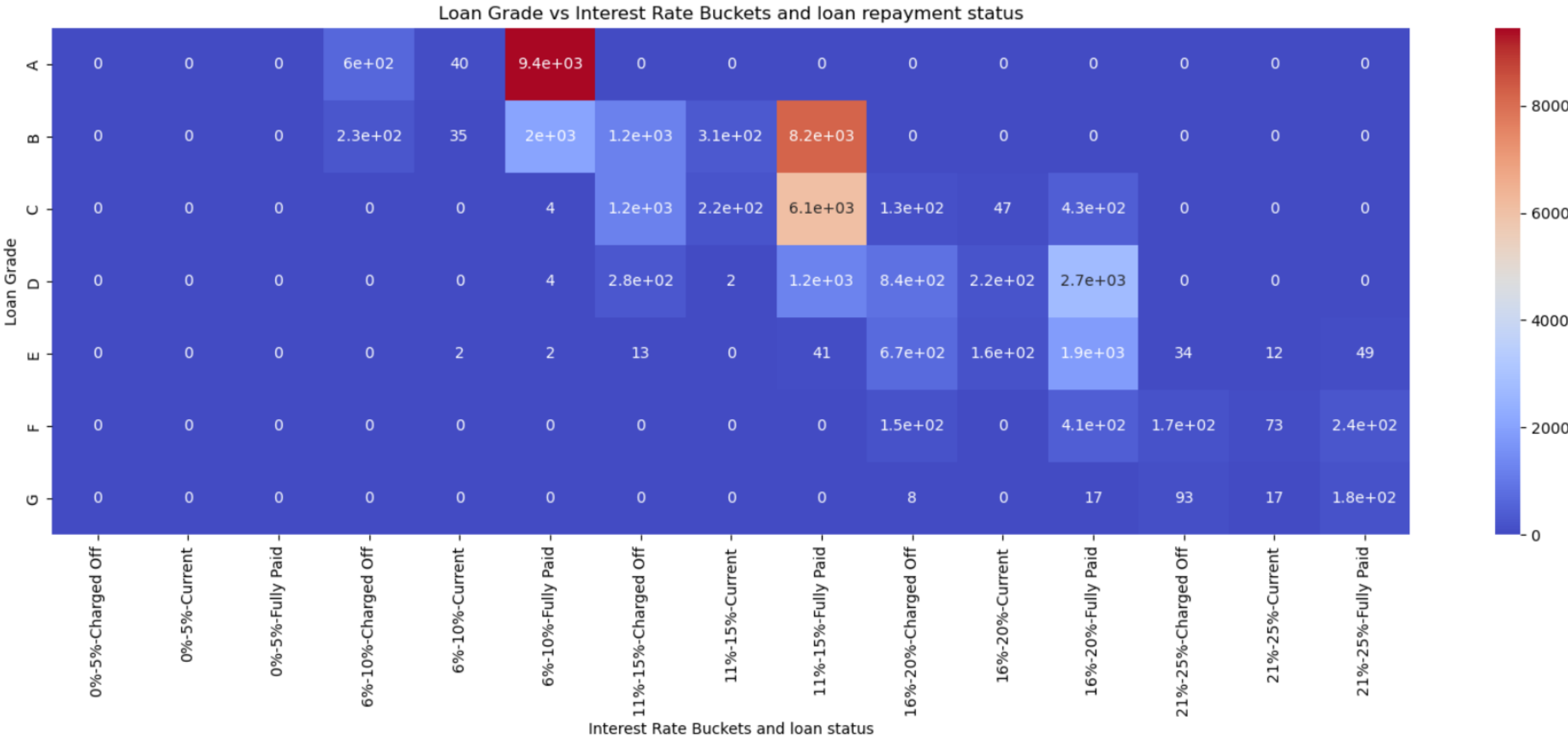
Customer annual income (z-score) vs Loan repayment status

- A borrower’s income is critical for repayment ability. Low income, relative to the loan amount, might indicate higher risk.



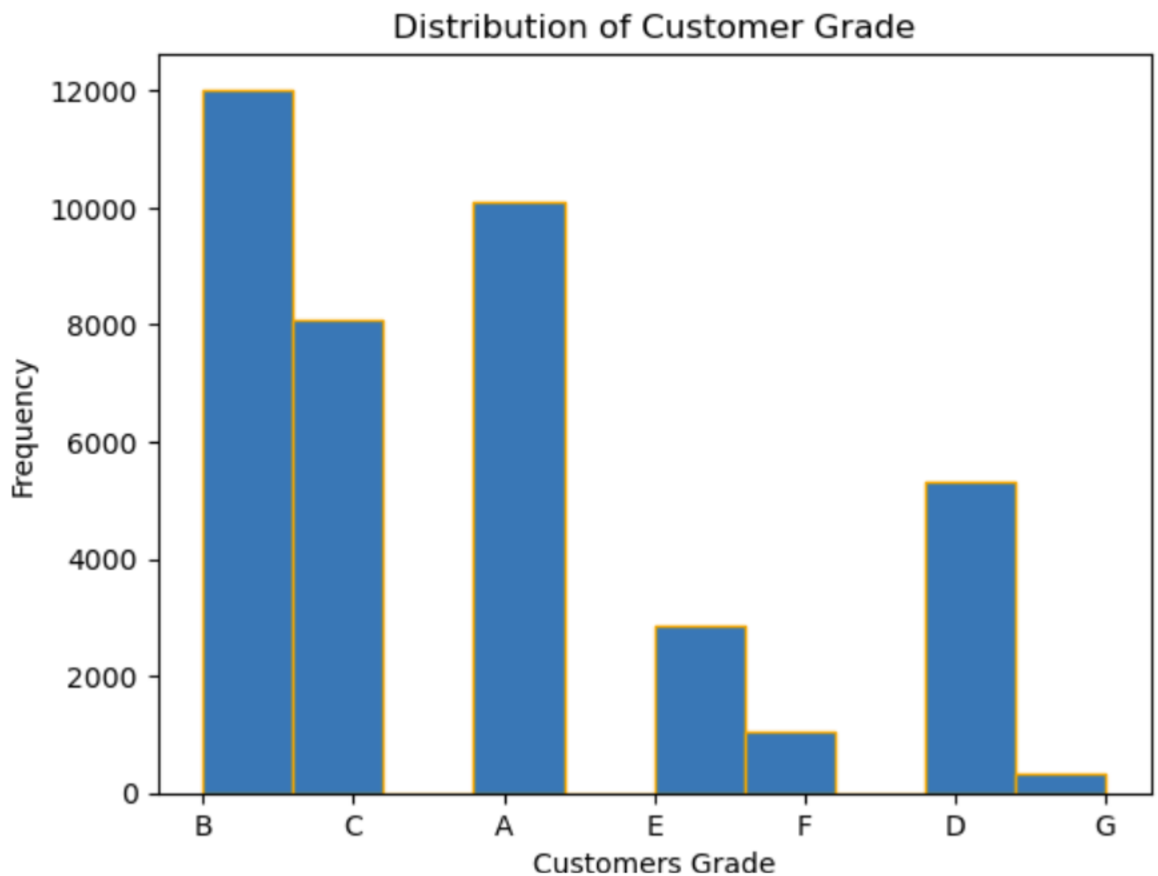
Loan grade vs
Interest rate & loan repayment status

- Higher-grade borrowers are typically charged lower interest rates since they are considered safer investments. On the other hand, borrowers with lower grades face higher interest rates to compensate for the increased risk of default.
- From following analysis we can conclude Higher interest rates and lower loan grades are not associated with a higher likelihood of loan default.



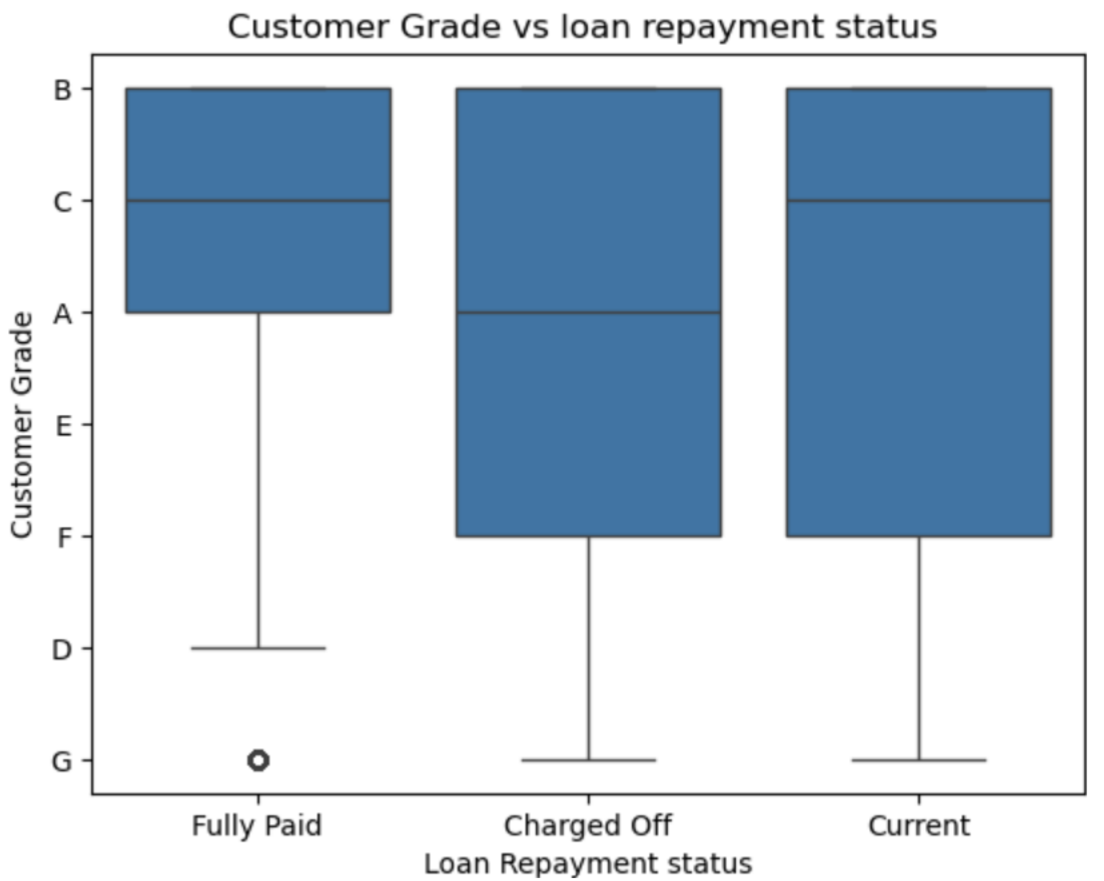
Customer Grade distribution

- From below we can conclude customer with grade A,B,C are higher in number compared to remaining grades



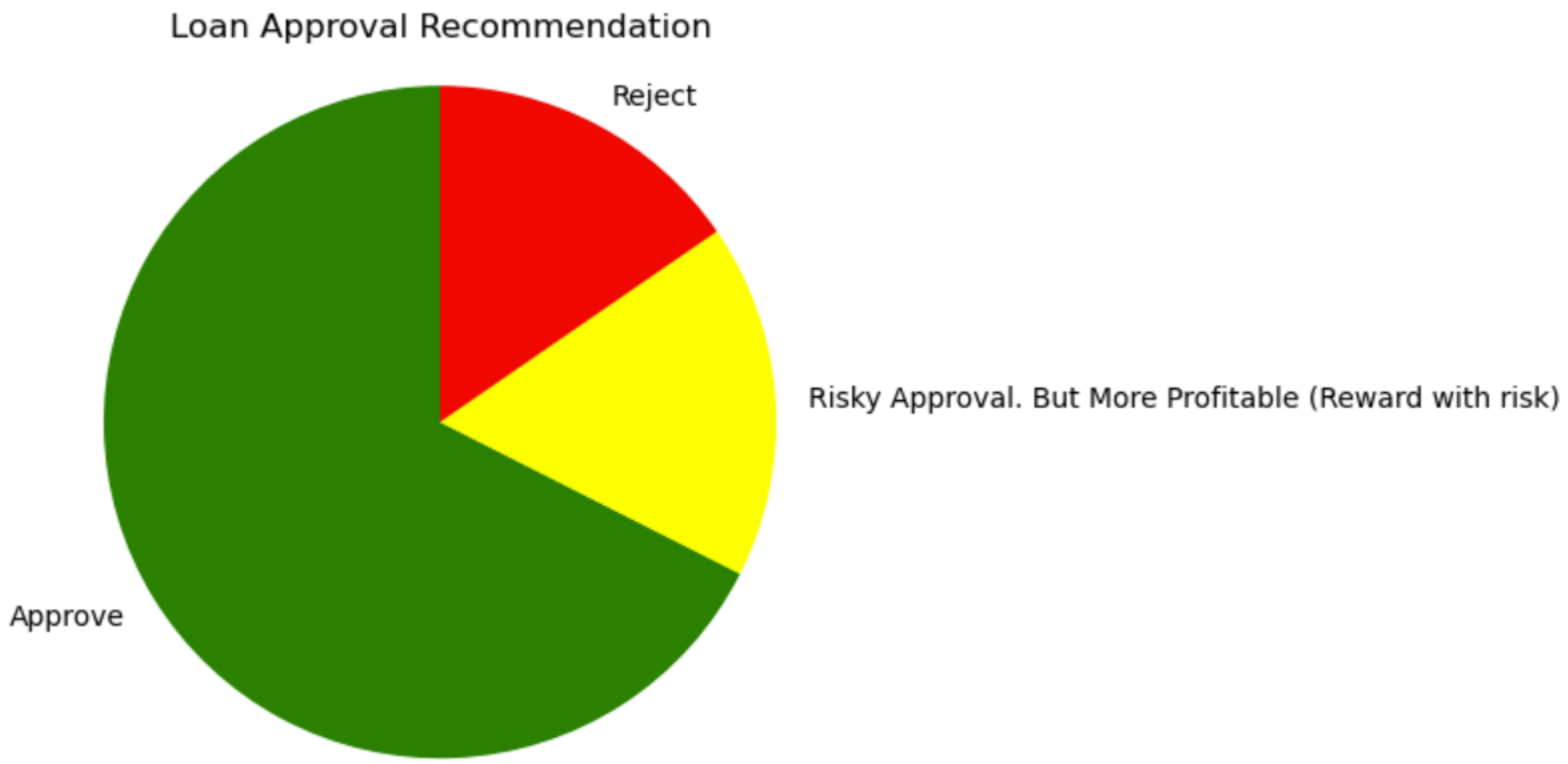
Customer Grade vs Loan repayment status

- The loan grade is a crucial part of loan processing and application analysis. It represents the creditworthiness of the borrower and plays a significant role in the decision-making process for loan approval.
- From following we can conclude customer grade is more relevant to loan default

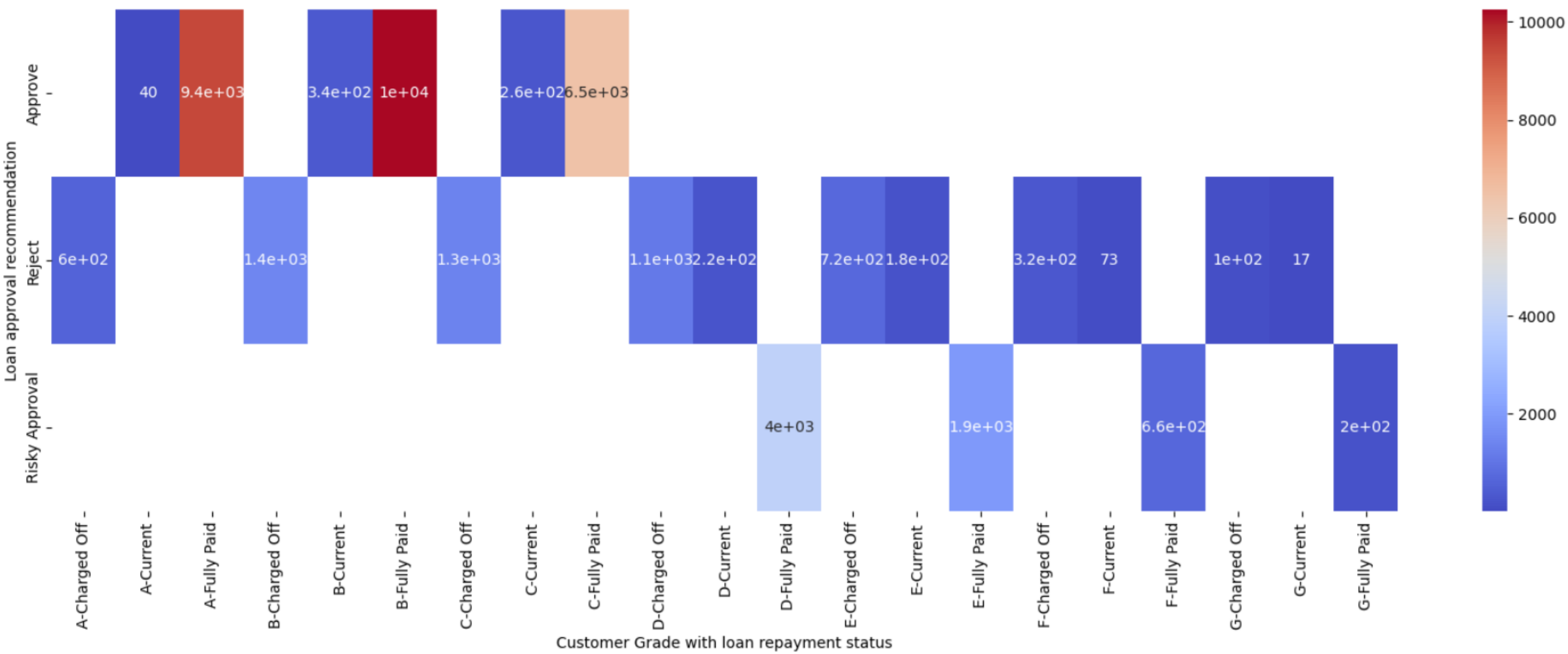


Loan approval recommendation

- The goal here is to determine whether a loan should be approved.
- Recommendation indicates whether a loan should be approved or not, based on following several key columns.



Loan approval recommendation vs customer grade & loan status



Case Study Highlights

- Examined the various factors which are helpful for identifying patterns related to default rates across borrower profiles.
- The customer grade acts as a summary indicator of a borrower's financial health and creditworthiness, guiding the lender through key decisions such as loan approval, interest rate setting, and risk management. This ensures that the lender can balance business growth with minimizing potential losses from defaults.

Conclusion

- Lending Club case study helped in reshaping the financial landscape by leveraging various factors of previous customer data lending.