

Lending club case study

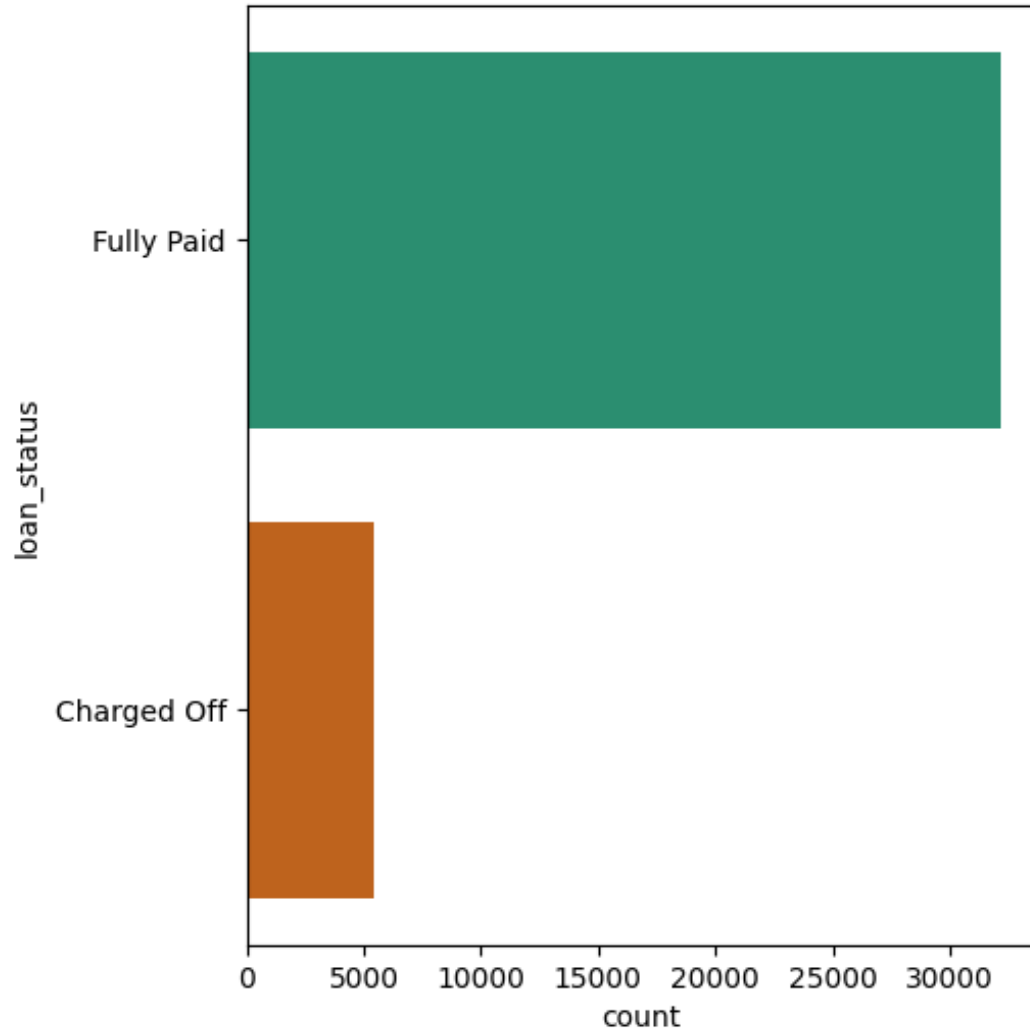
Introduction

- Lending Club is a peer-to-peer loan company. It runs an online marketplace to match borrowers with lenders.
- Borrowers apply for loans ranging from \$1,000 to \$35,000.
- If the application is approved, Lending Club will offer a loan whose interest rate is based on submitted information and credit history.
- The process is largely automated, reducing overhead costs that banks typically incur.

Problem statement

- The company wants to understand the **driving factors (or driver variables)** behind loan default, i.e. the variables which are strong indicators of default. The company can utilise this knowledge for its portfolio and risk assessment.
- In other words, borrowers who **default** cause the largest amount of loss to the lenders. In this case, the customers labelled as 'charged-off' are the 'defaulters'.
- If one is able to identify these risky loan applicants, then such loans can be reduced thereby cutting down the amount of credit loss. Identification of such applicants using EDA is the aim of this case study.

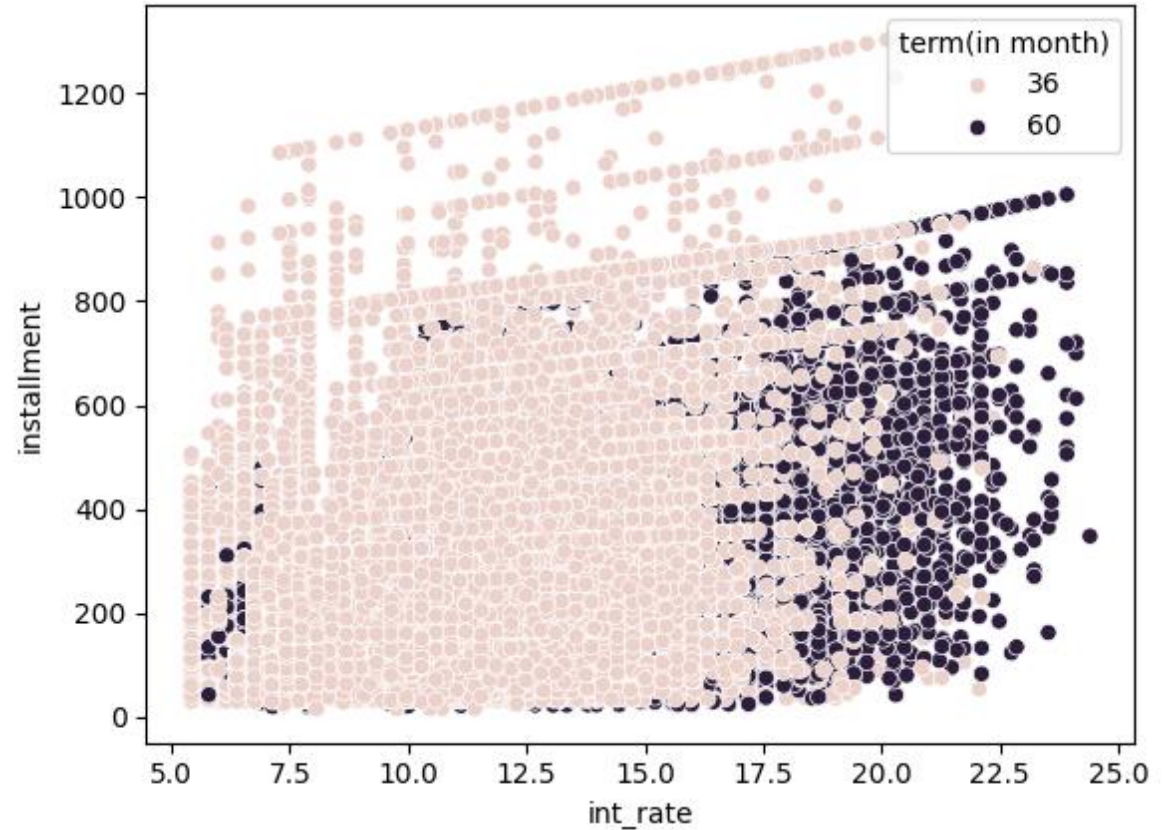
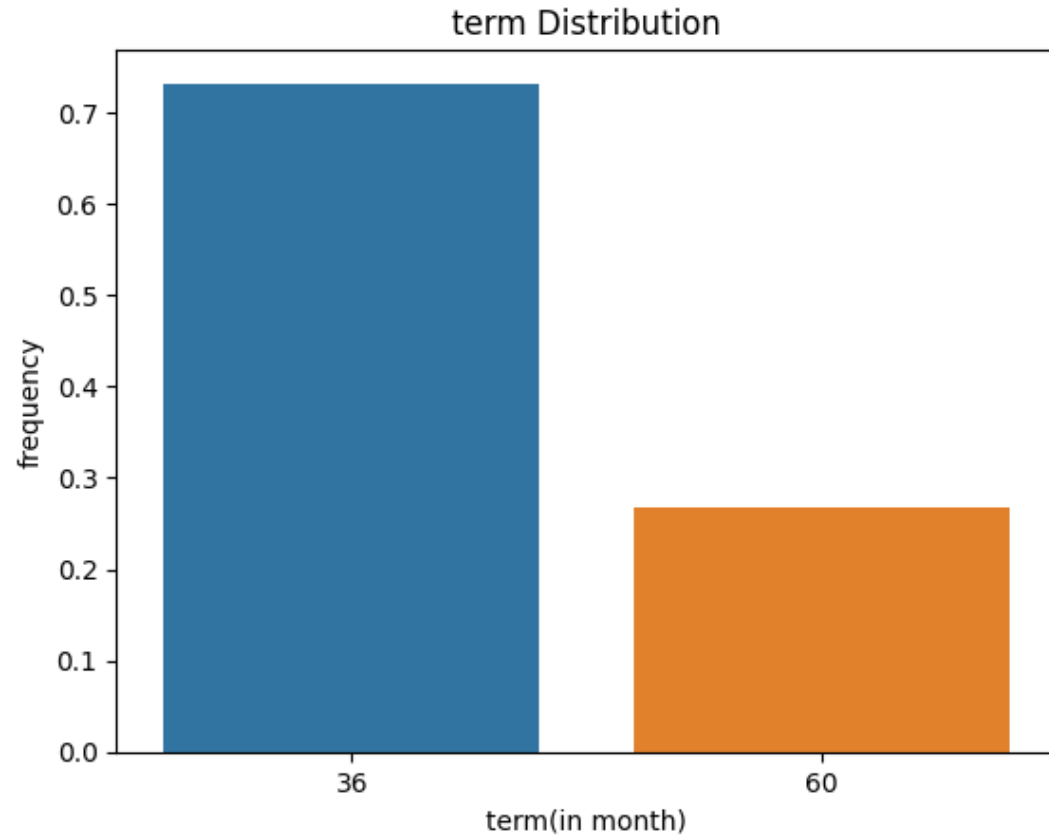
Analysis



Findings:

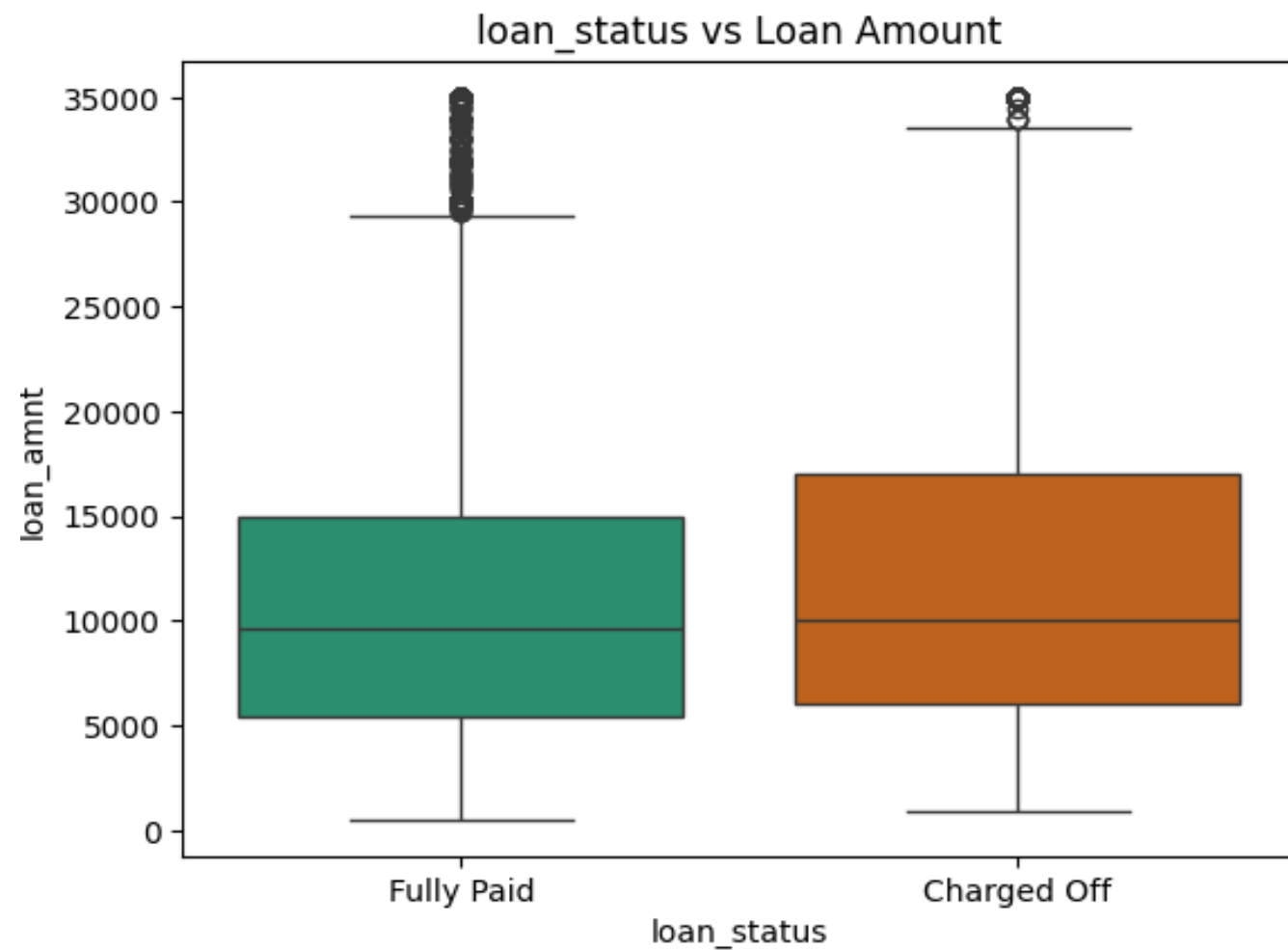
There almost 30K borrower is Fully Paid and 5k borrower is charge-off i.e. 85% of borrowers has paid the loan fully. where are 14% are defaulted the loan.

Analysis



Findings: 1. Borrower have taken 36 months term/tenure more than 60 months
2. Borrower with 36 tenure period from 5-15 % interest rate has mostly between 800-1000 installments.

Analysis

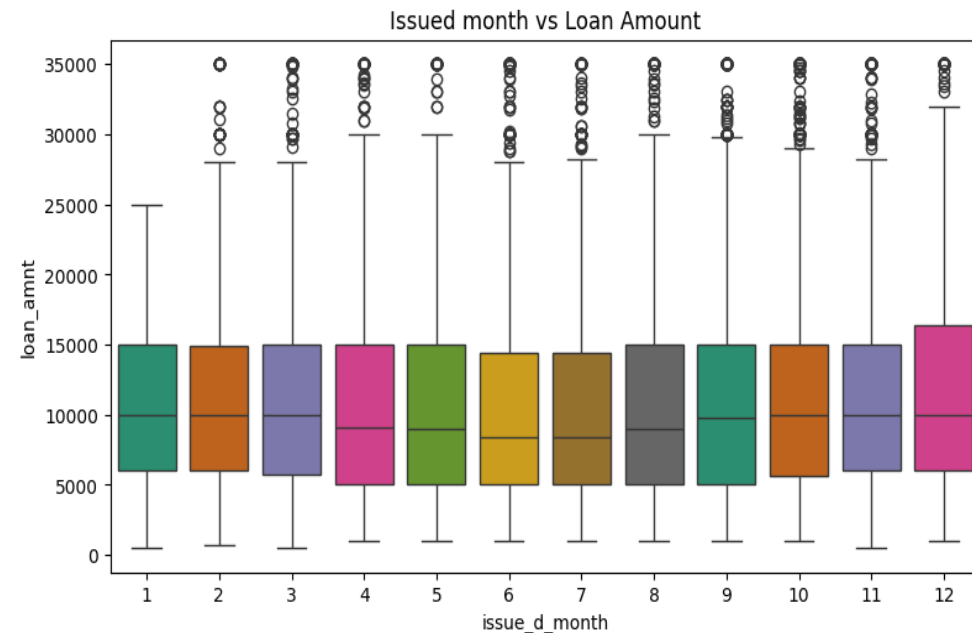
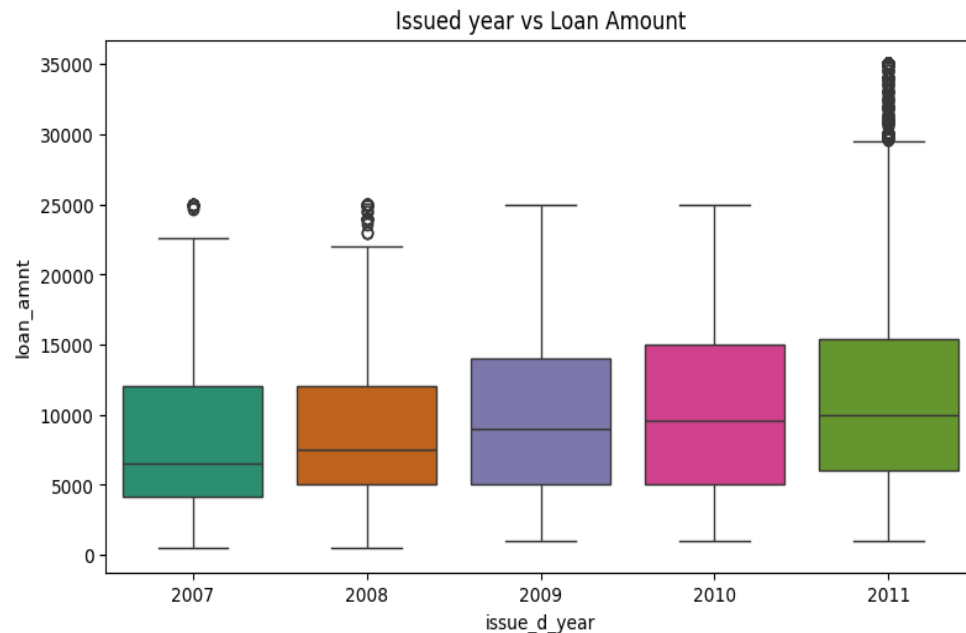


- **Finding:** Charged Off loans have higher amounts than Fully Paid ones.

Analysis

Finding:

- The median loan amount in each year did not change much but the distribution is more spread as the years increase, which means people have taken different loan amounts in each year.
- Few Loan borrowers took higher loan amount in 2008 and 2011 which are plotted as outliers.
- Loan borrowers took almost similar amounts in all the months except in December, people have taken higher amounts as distribution is high above median



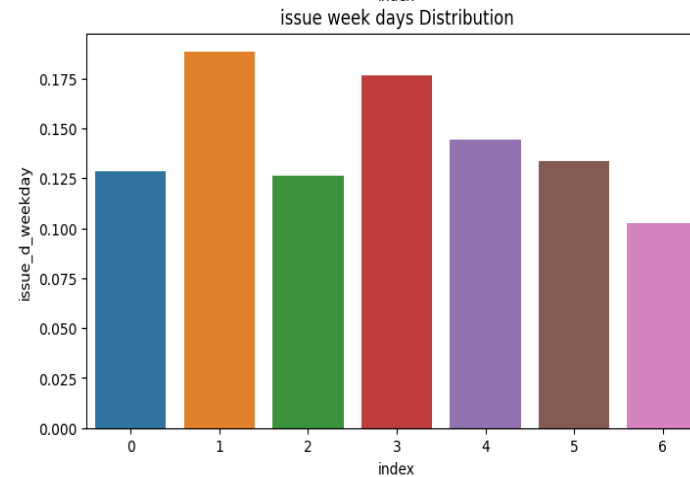
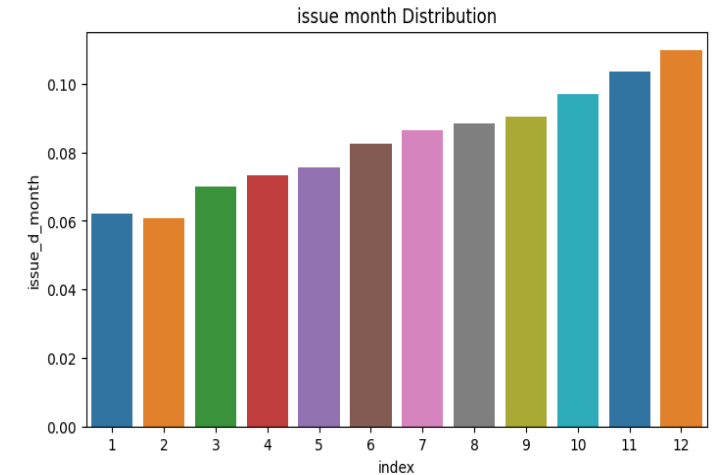
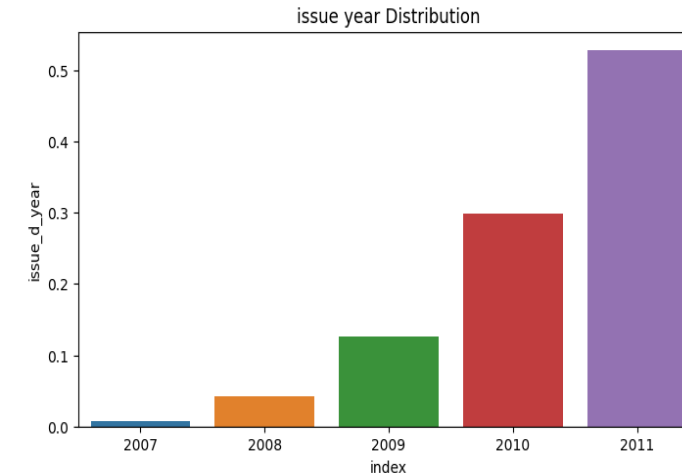
Analysis

- **Finding:**

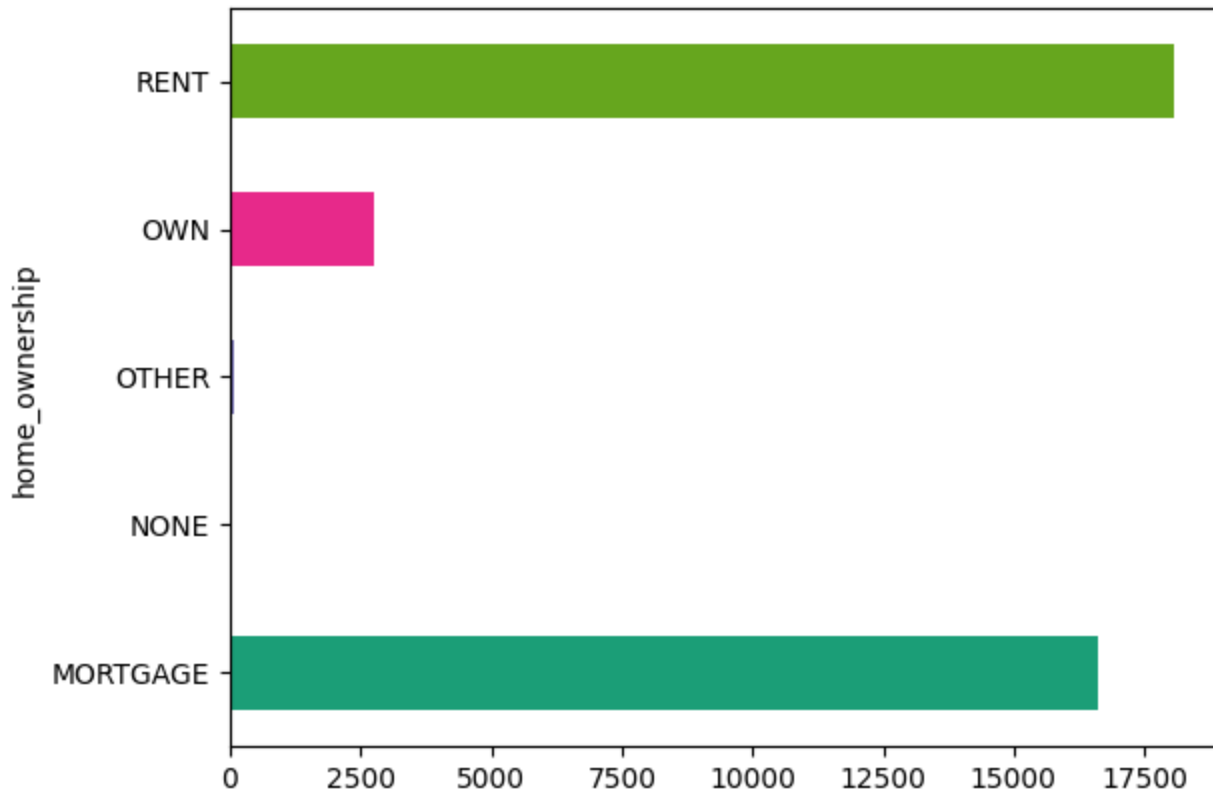
The lending club(LC) has doubling loan issues every year.

There are more issues of loan in last 3 months every end of the ear i.e., Oct, Nov and Dec.

LC has issued more loans on tuesday and wednesday than other week days.



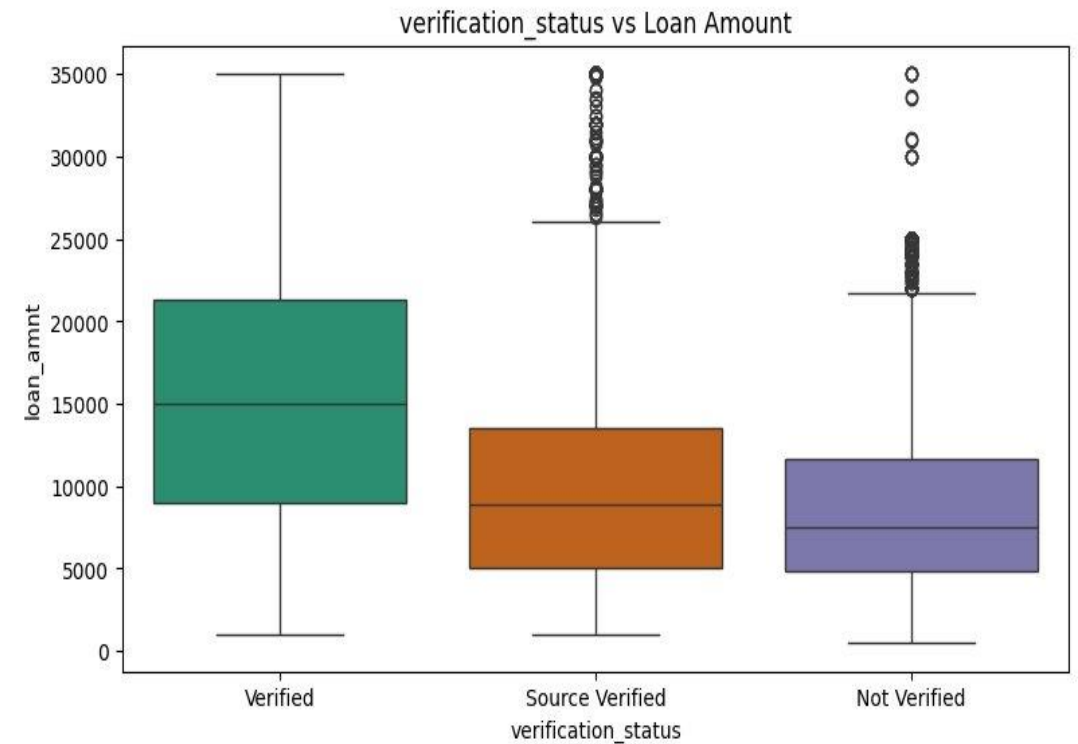
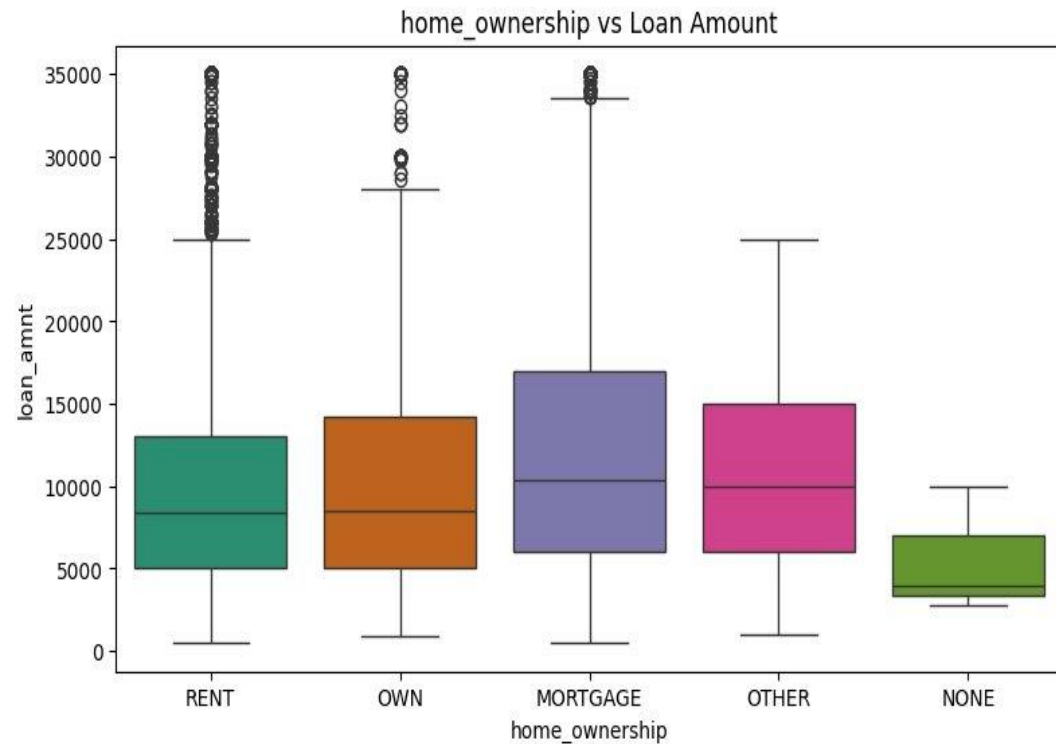
Analysis



Finding:

- The loan borrowers are mostly having rented and mortgage houses.

Analysis

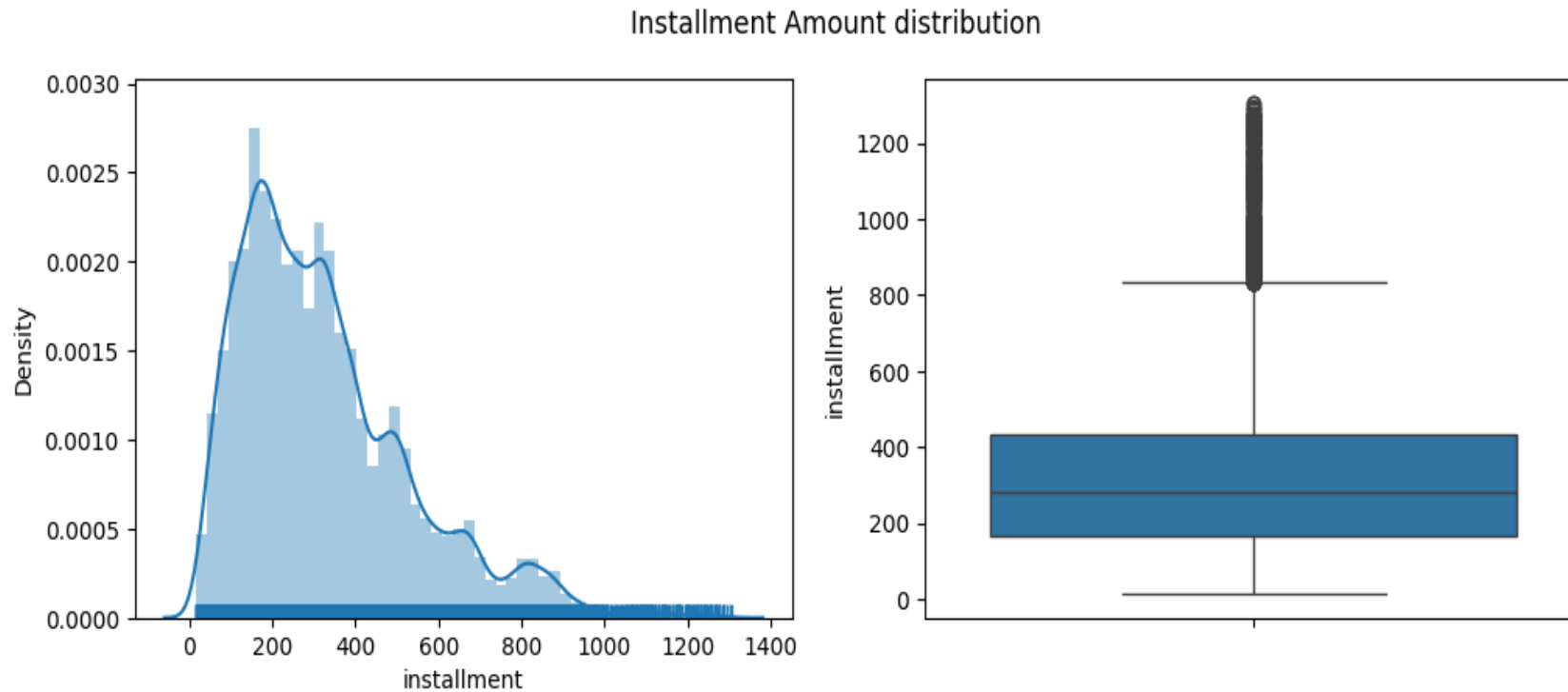


Finding:

The home ownership status for MORTGAGE has higher income.

The income source was verified for most of the borrower's who had higher annual incomes

Analysis

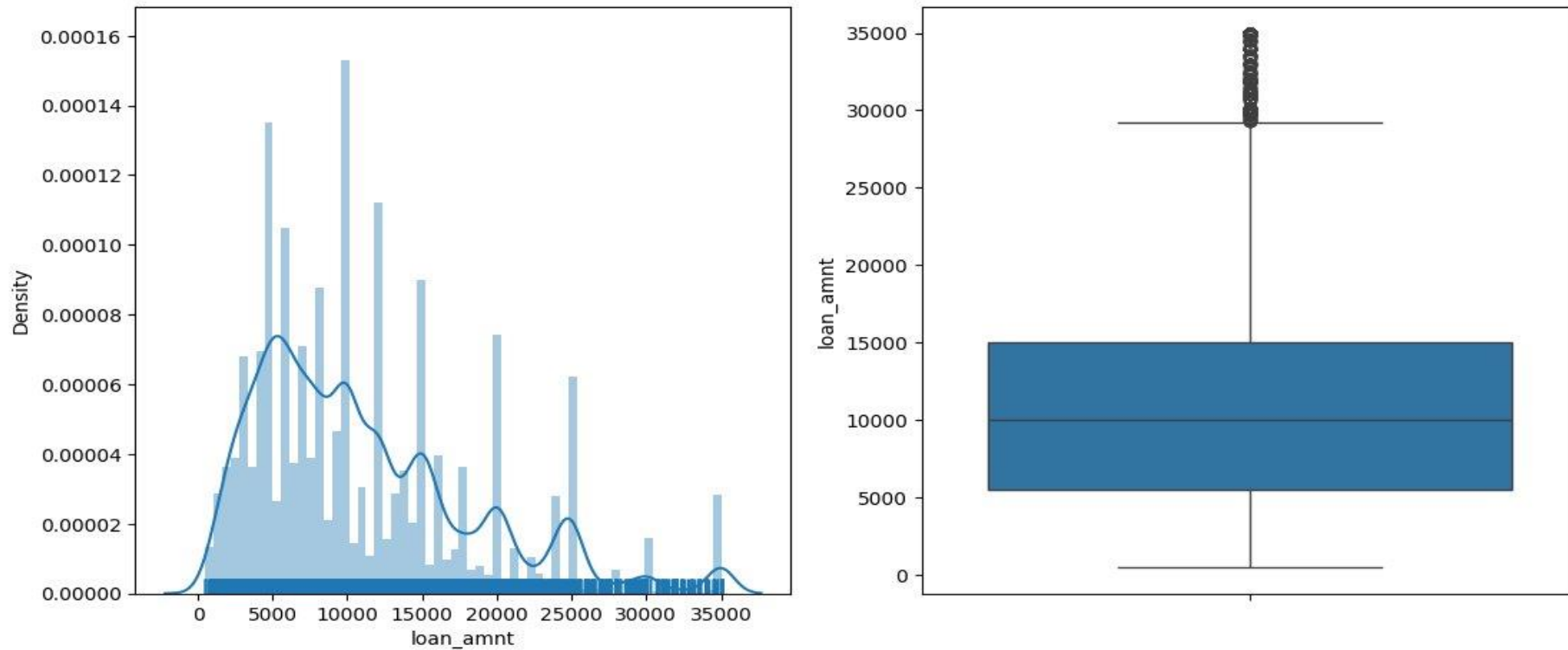


Findings:

The Most representative value of Installment amount is around 280.

Analysis

Loan Amount distribution

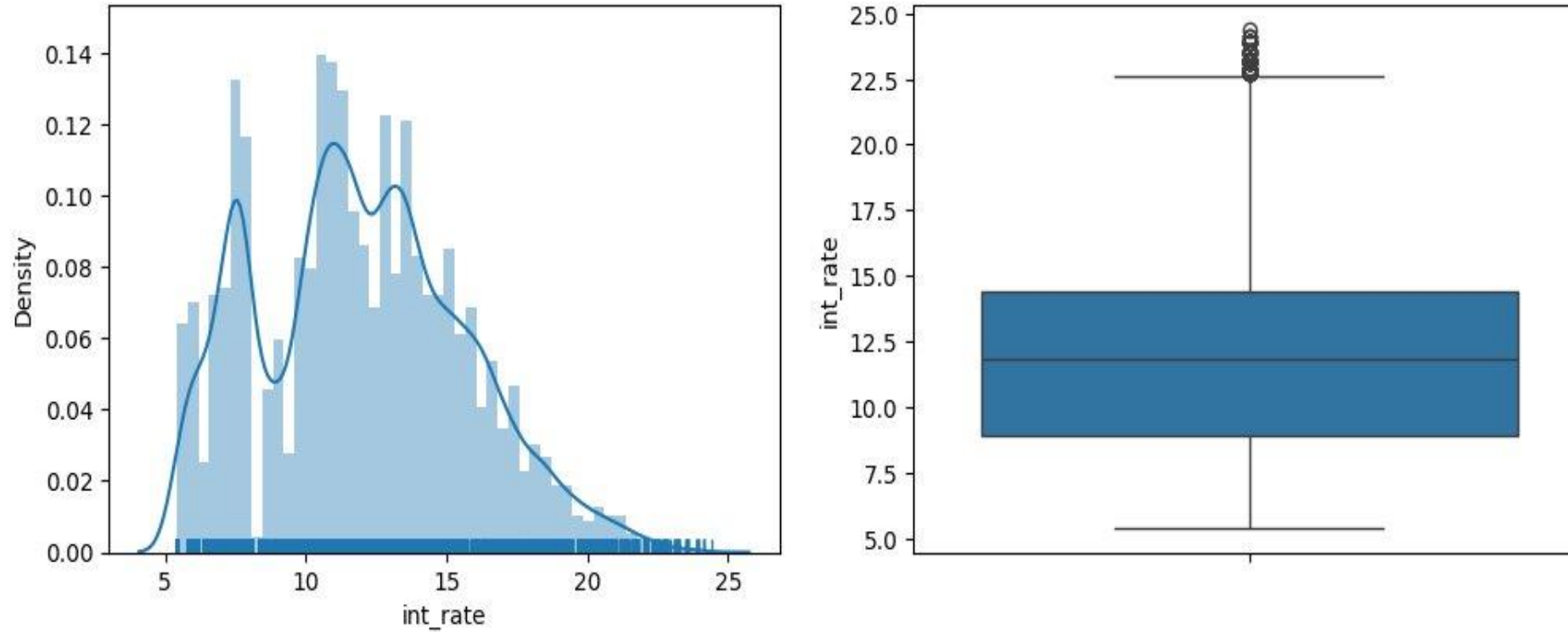


Findings:

.From the above plots, more number of people took loan amount of 10000, and also median of distribution is 10000. And very few people took more than 30000 loan amount.

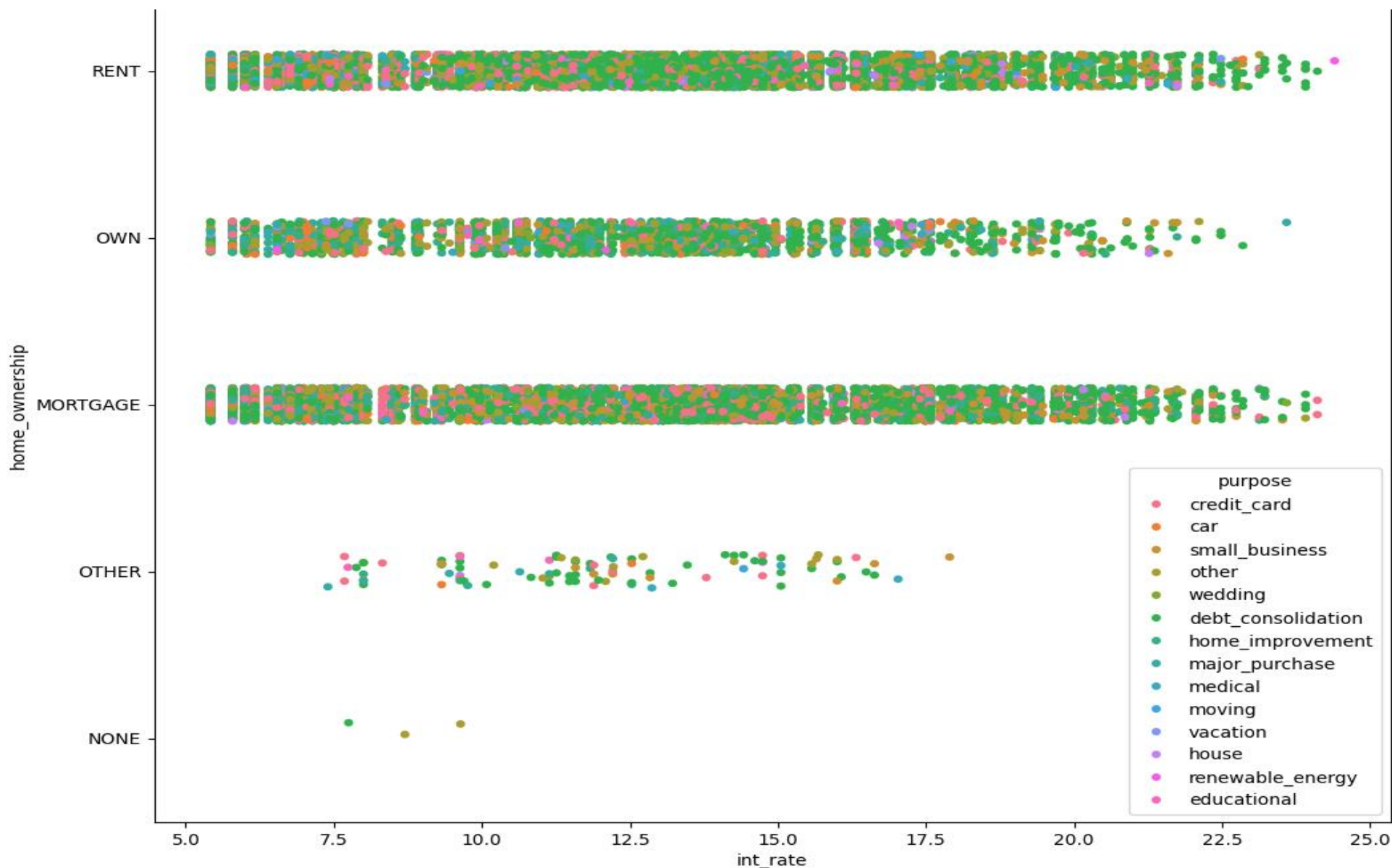
Analysis

interest rate distribution



Findings: From the above 2 plots and statistics of interest rates we can conclude that most of the interest rates lies between **9% to 14.5%**. Some people took loan at higher rates of interest i.e., **22.5%**

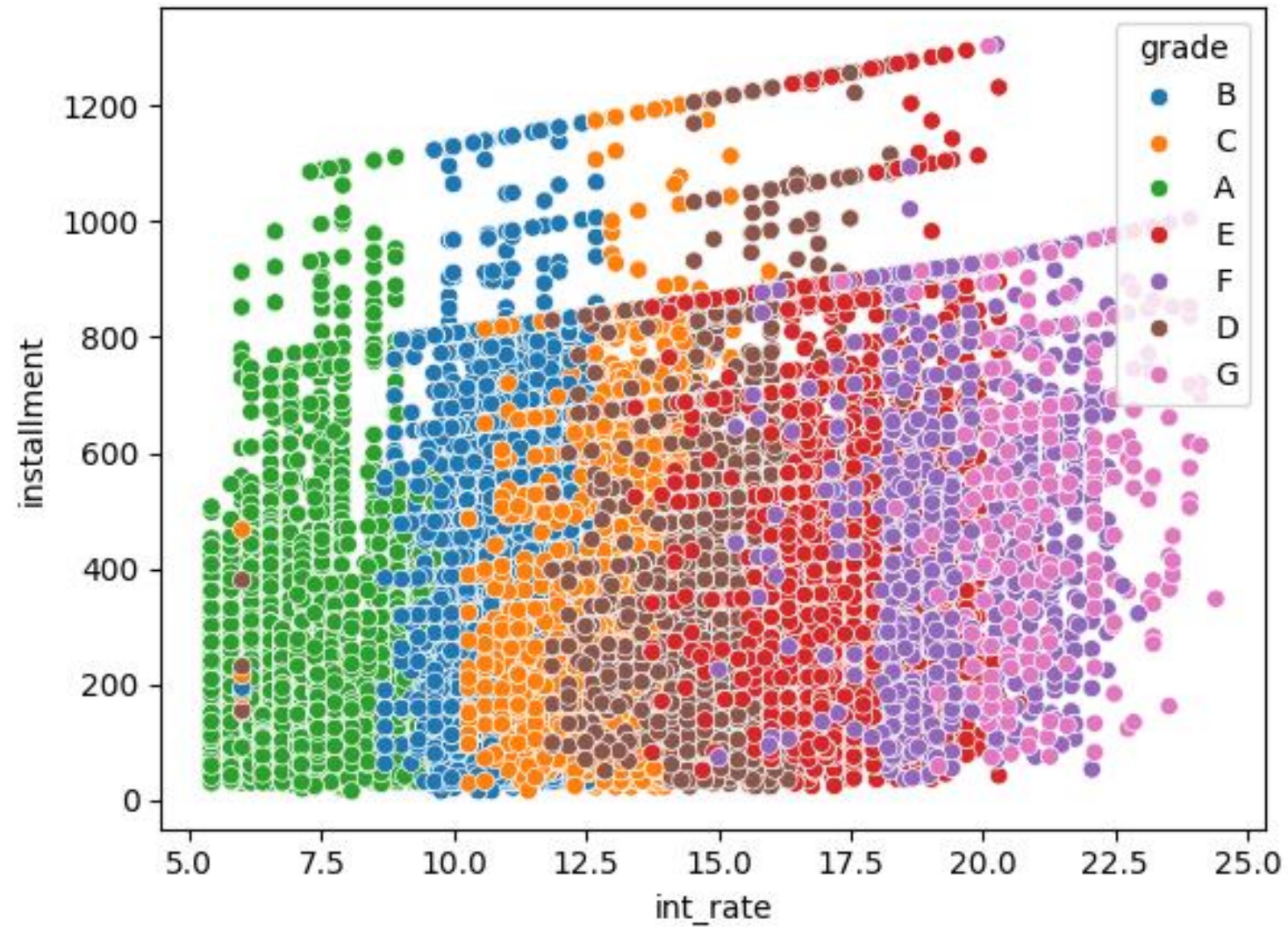
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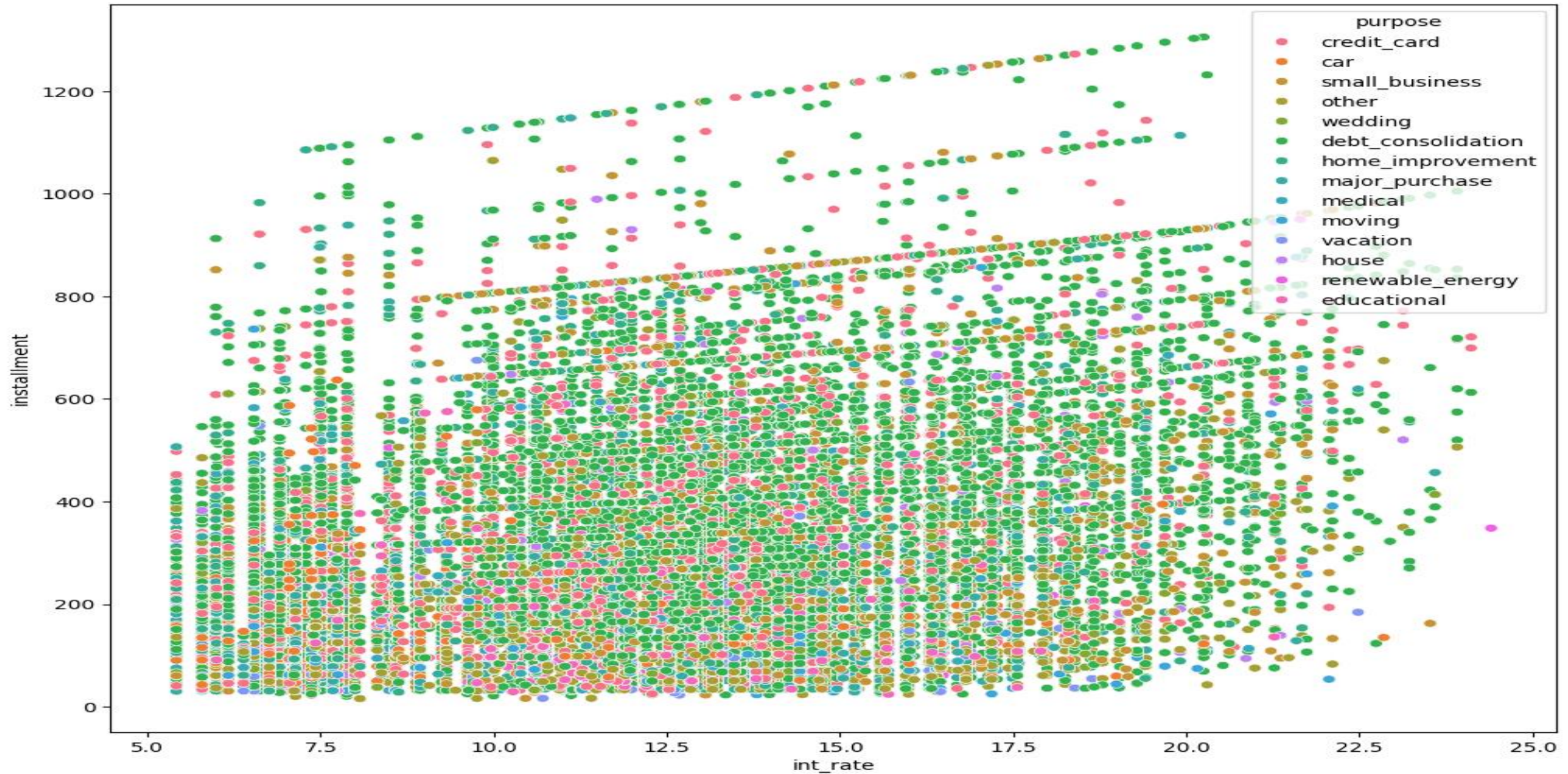
Findings:

You can see Mortgage and rent has more purpose for debt consolidation And small business

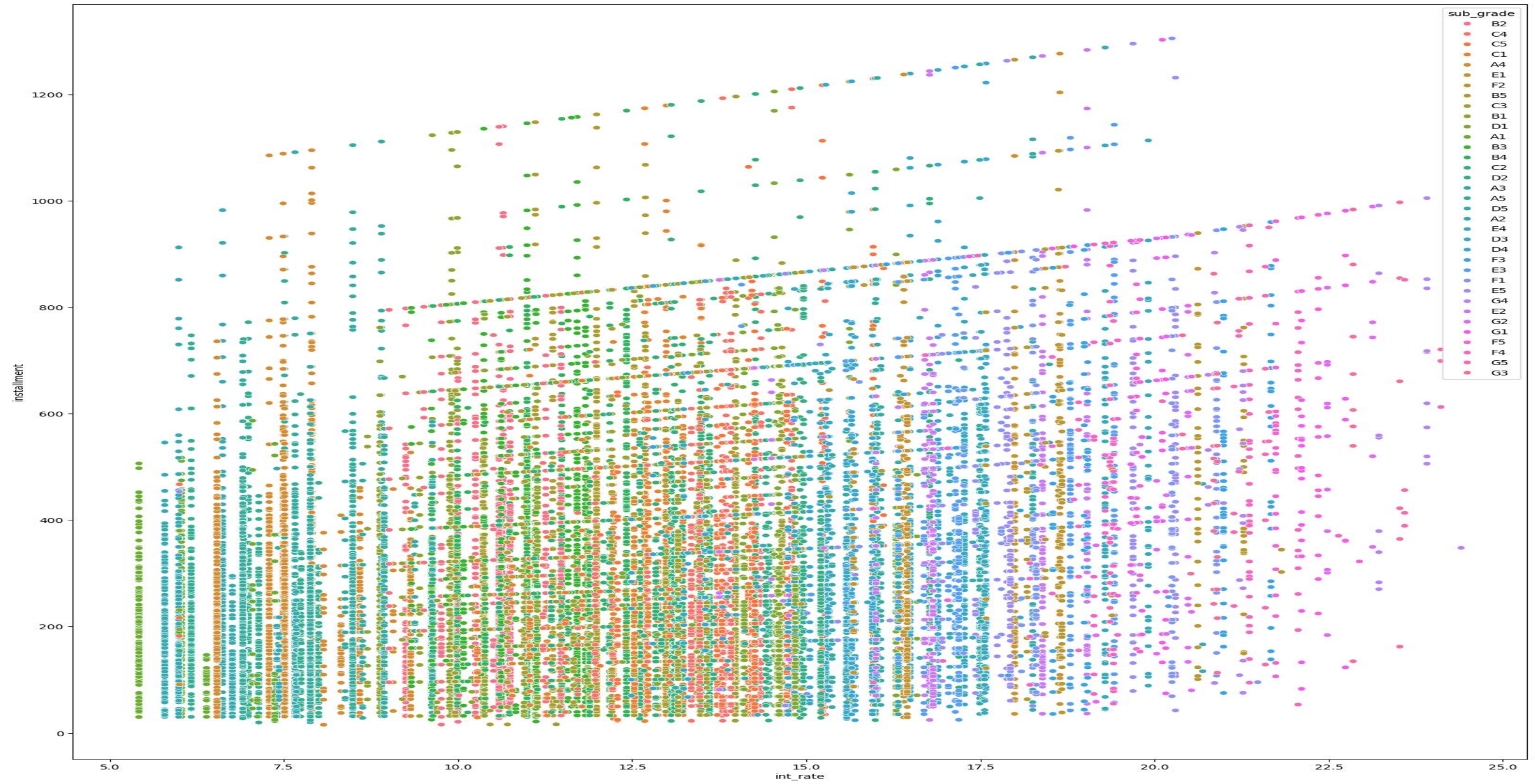
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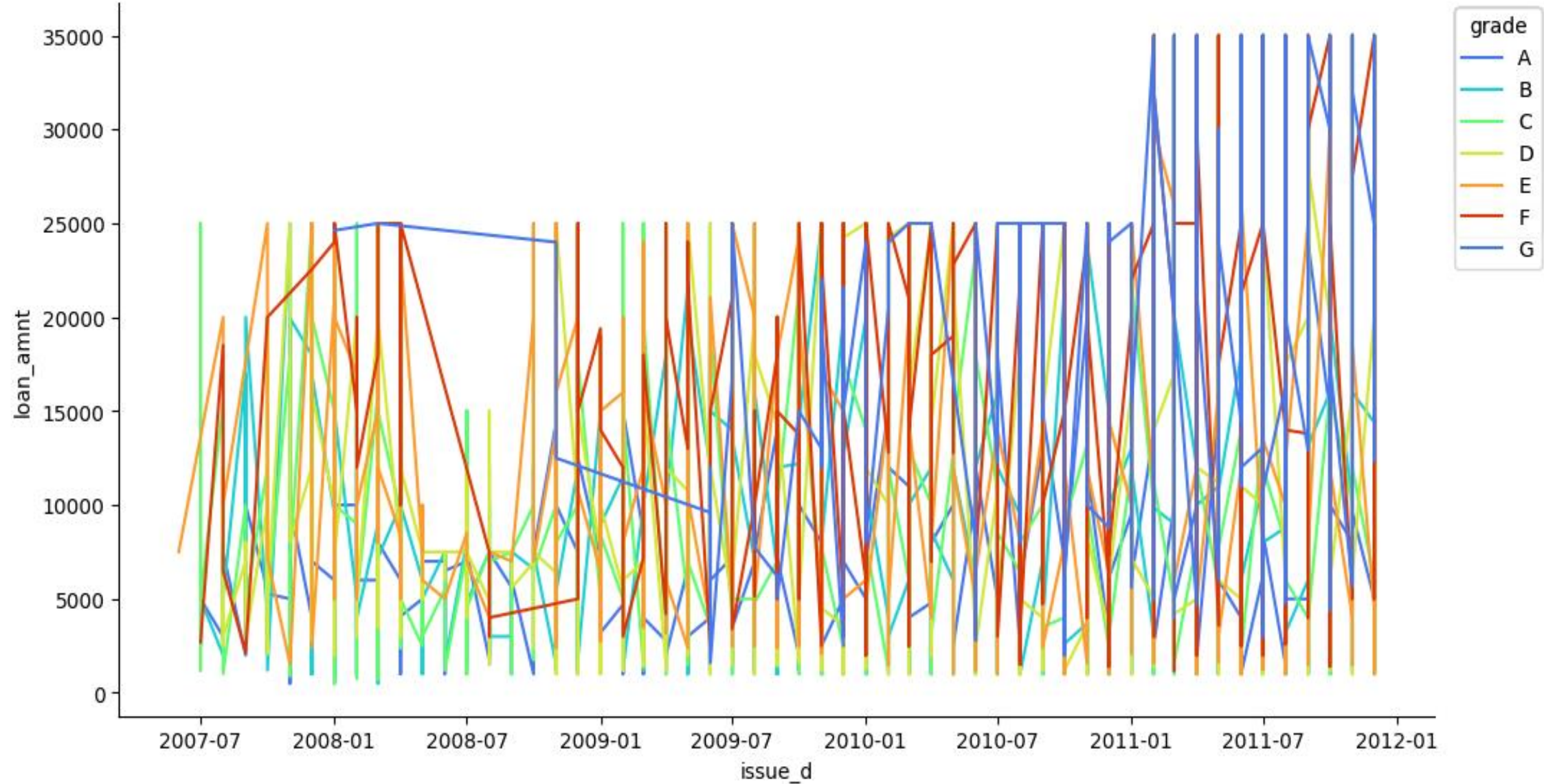
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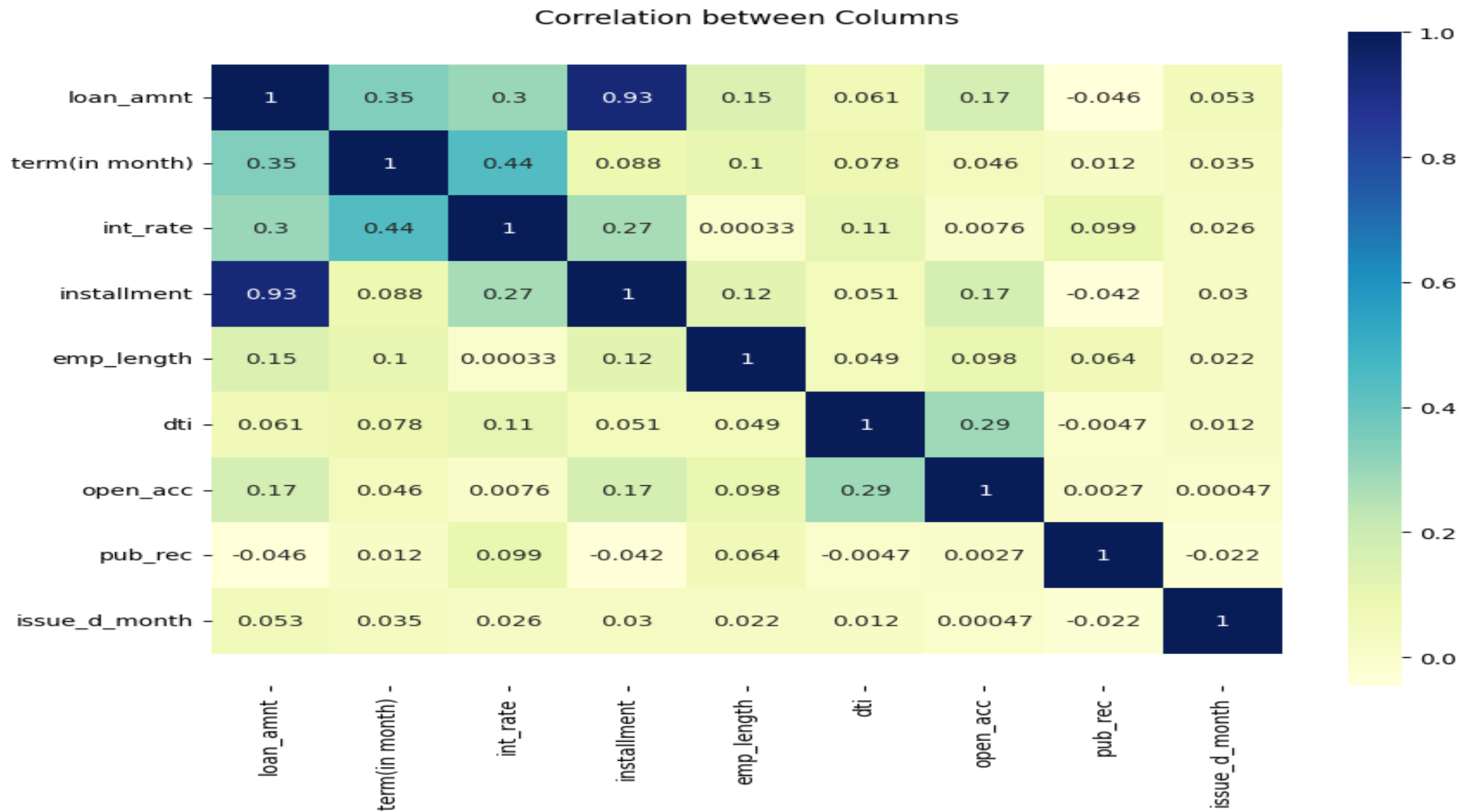
Analysis



Analysis



Analysis



Recommendation/conclusion

- 1.Loan given to customers for tenure of 60 months and interest rate lies between 15-20 are likely to default as the percentage for the same group is higher in charged off data (48%) vs. fully paid (39%)
- 2.Loan given to customers for tenure of 60 months and in category D, E and F have 4%, 5%, 4% more percentage in the charged off data than fully paid, hence these can be risky loans
- 3.They should look more into loan applicant of house ownership of mortgage, rent with debt consolidation and small Business as purpose as they have risk factor.