Lending Club Case Study

Presented by Nivedita & Skanthi

Upgrad

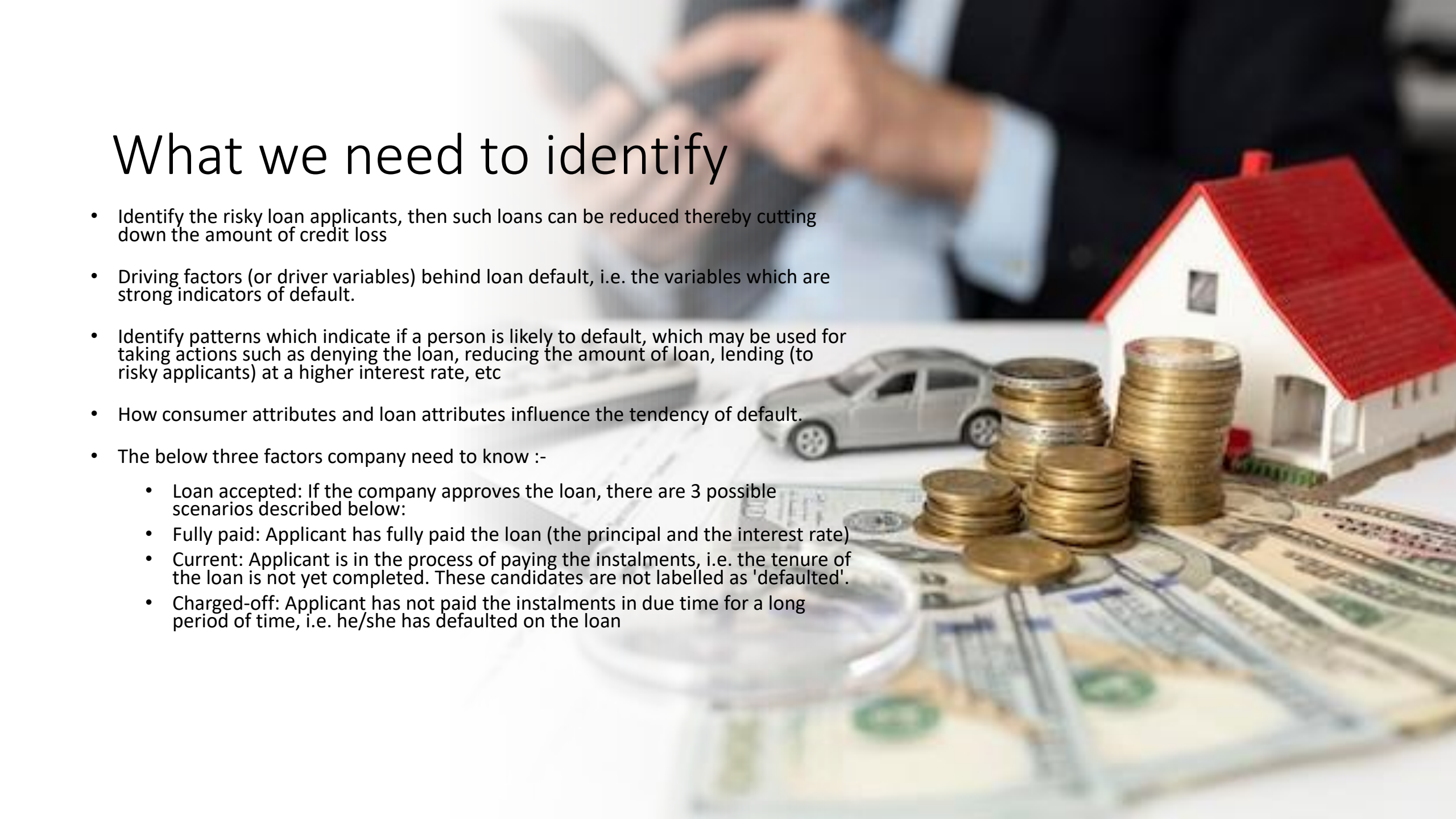
IIIT Bangalore .

Business Objectives

- This company is the largest online loan marketplace, facilitating personal loans, business loans, and financing of medical procedures. Borrowers can easily access lower interest rate loans through a fast online interface.
- Like most other lending companies, lending loans to ‘risky’ applicants is the largest source of financial loss (called credit loss). Credit loss is the amount of money lost by the lender when the borrower refuses to pay or runs away with the money owed. 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
- The company can utilise this knowledge for EDA portfolio and risk assessment to make a risk assessment plant to give loan to the Applicants .

What we need to identify

- Identify the risky loan applicants, then such loans can be reduced thereby cutting down the amount of credit loss
- Driving factors (or driver variables) behind loan default, i.e. the variables which are strong indicators of default.
- Identify patterns which indicate if a person is likely to default, which may be used for taking actions such as denying the loan, reducing the amount of loan, lending (to risky applicants) at a higher interest rate, etc
- How consumer attributes and loan attributes influence the tendency of default.
- The below three factors company need to know :-
    - Loan accepted: If the company approves the loan, there are 3 possible scenarios described below:
    - Fully paid: Applicant has fully paid the loan (the principal and the interest rate)
    - Current: Applicant is in the process of paying the instalments, i.e. the tenure of the loan is not yet completed. These candidates are not labelled as 'defaulted'.
    - Charged-off: Applicant has not paid the instalments in due time for a long period of time, i.e. he/she has defaulted on the loan



What we are going to achieve

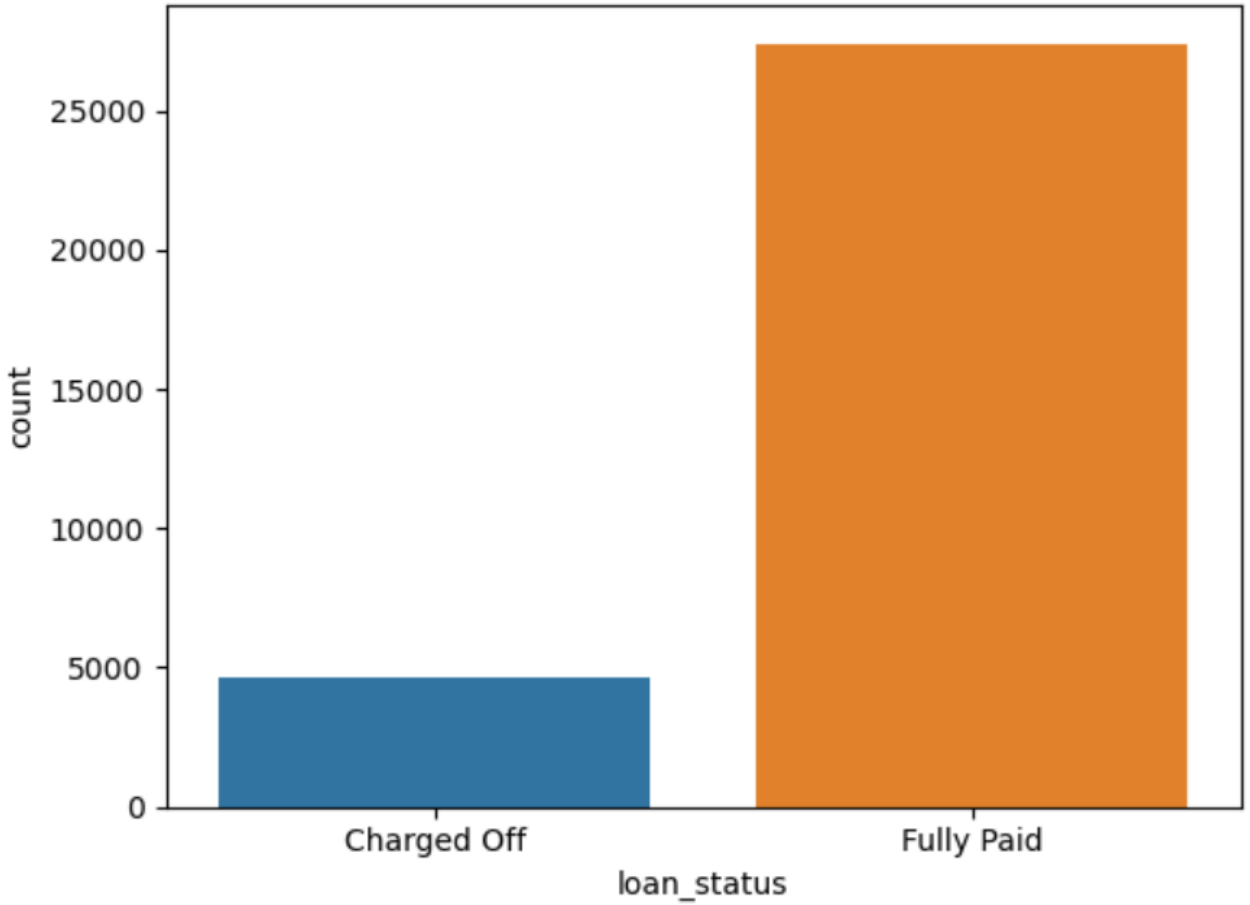
- About how real business problems are solved using EDA.
- Also develop a basic understanding of risk analytics in banking and financial services and understand how data is used to minimize the risk of losing money while lending to customers.

Python File

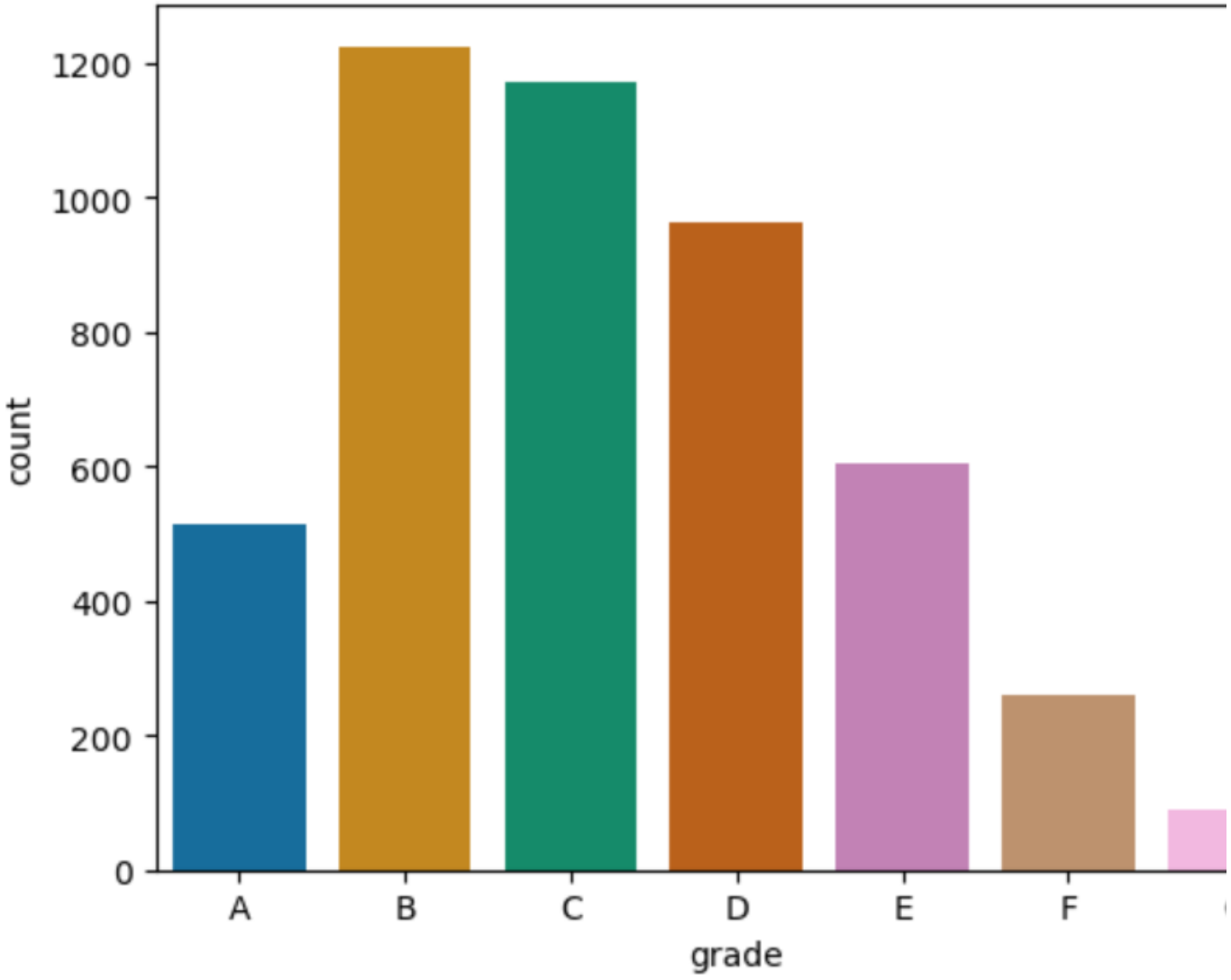
1. Lending-club-case-study-

- /**Nivedita _Lending_Club_Case_Study.ipynb**

Charged off and Full Paid count is shown in the diagram which clarifies that 0-5K are those which are charged off & rest left are fully paid category .,

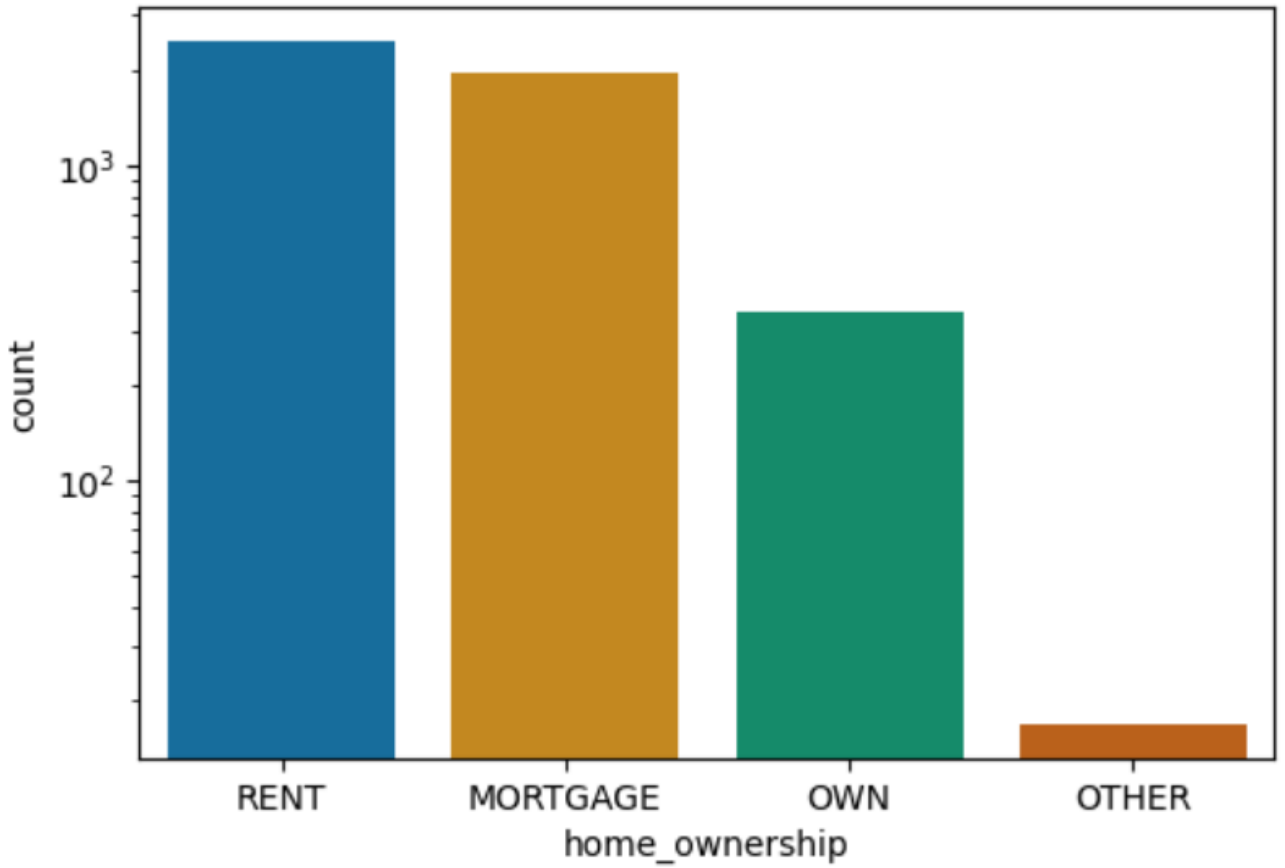


Count Vs Grade
Just to check which grades we have .



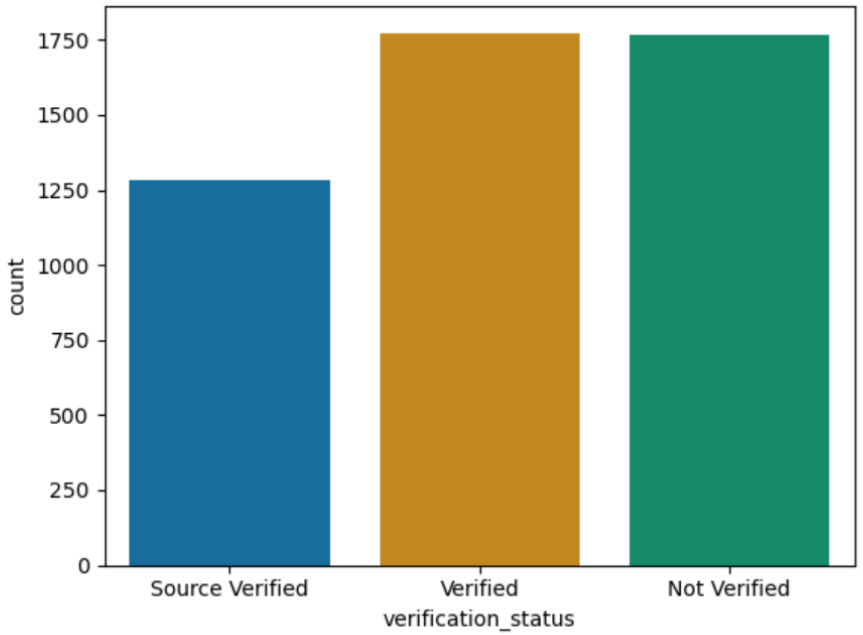
Homewonesship Vs count

- Count of subscribers in mortgage and rent are higher

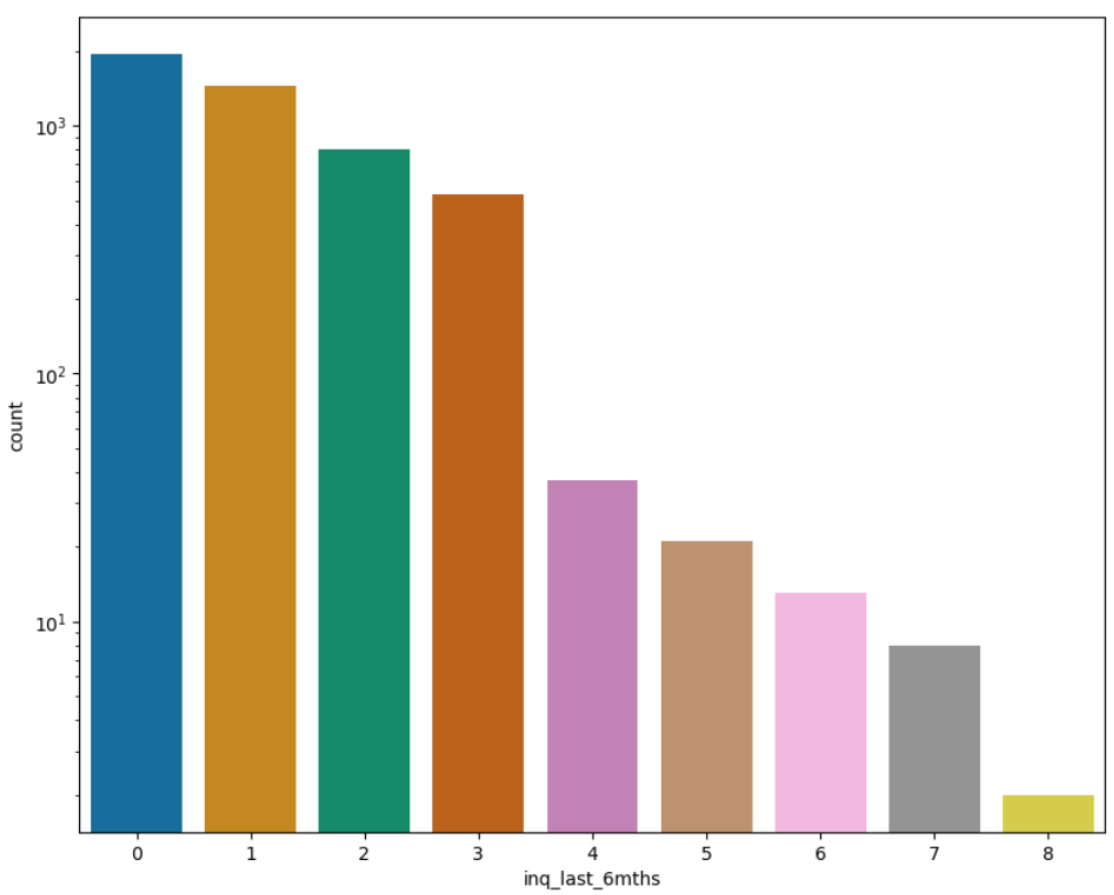


Verification status Vs count

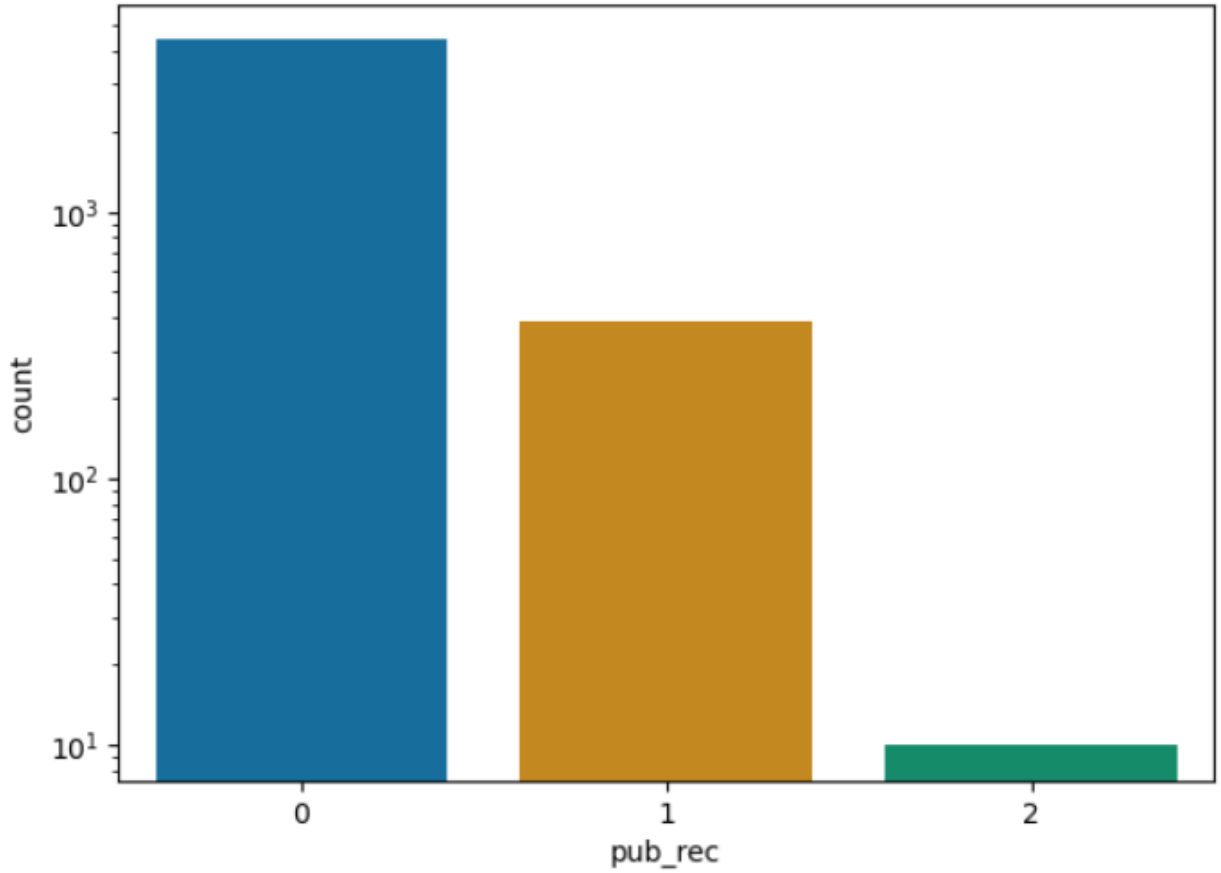
- Loan is verified when count is 16k around.



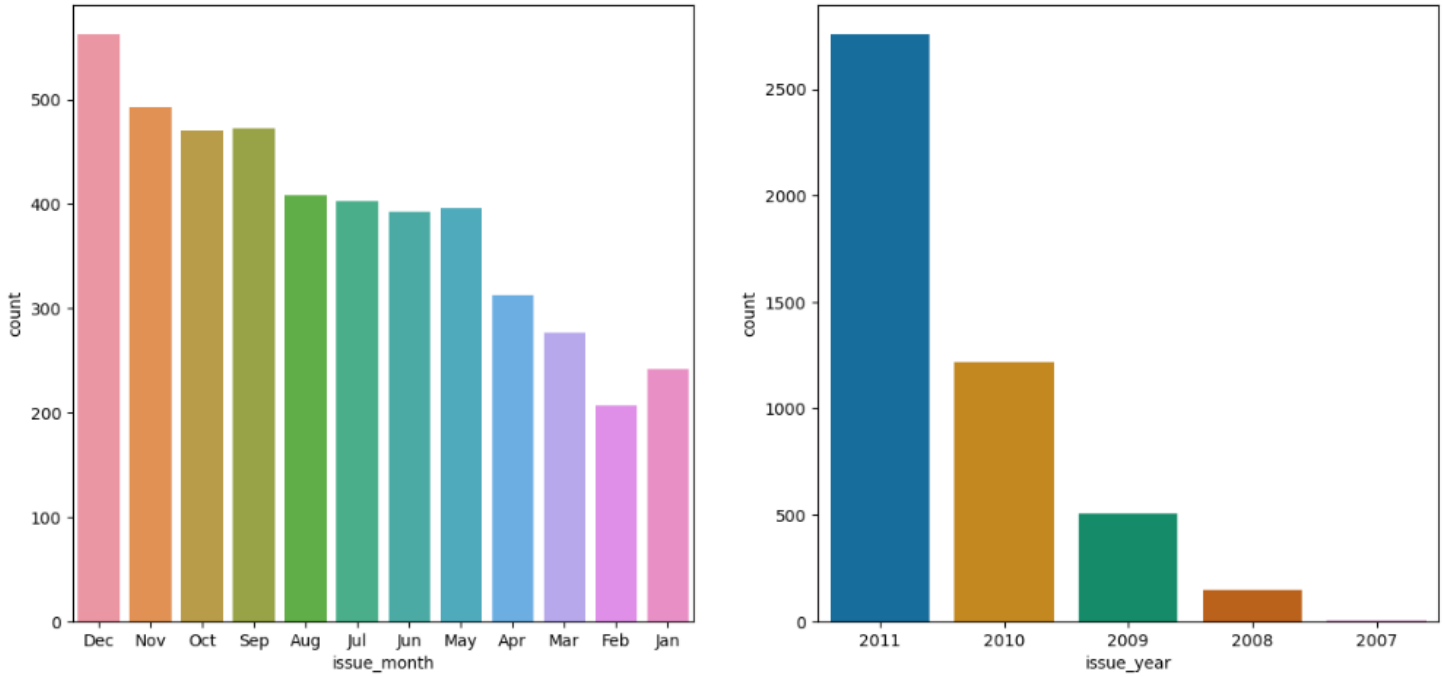
Last 6 months status is important to know what is the status of payment as per count .



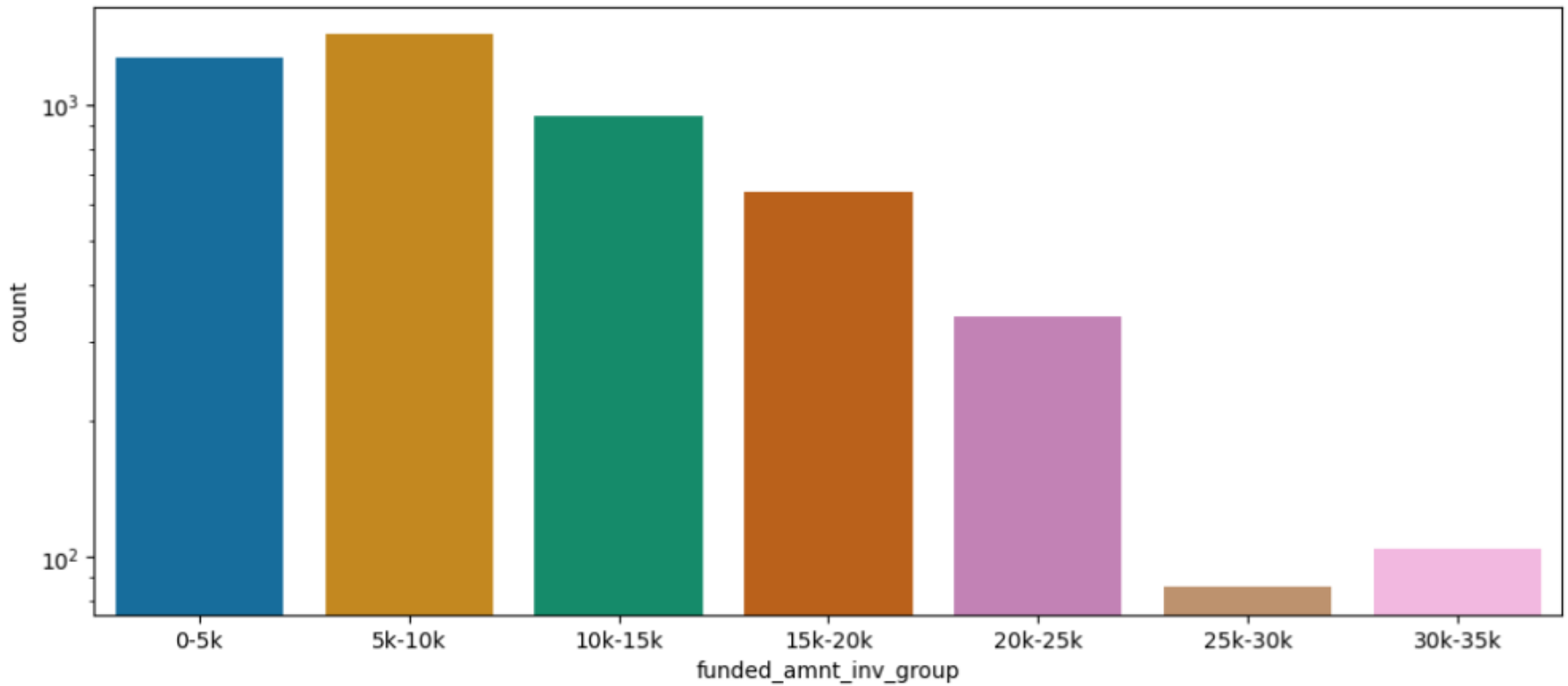
Pub rec Vs Count



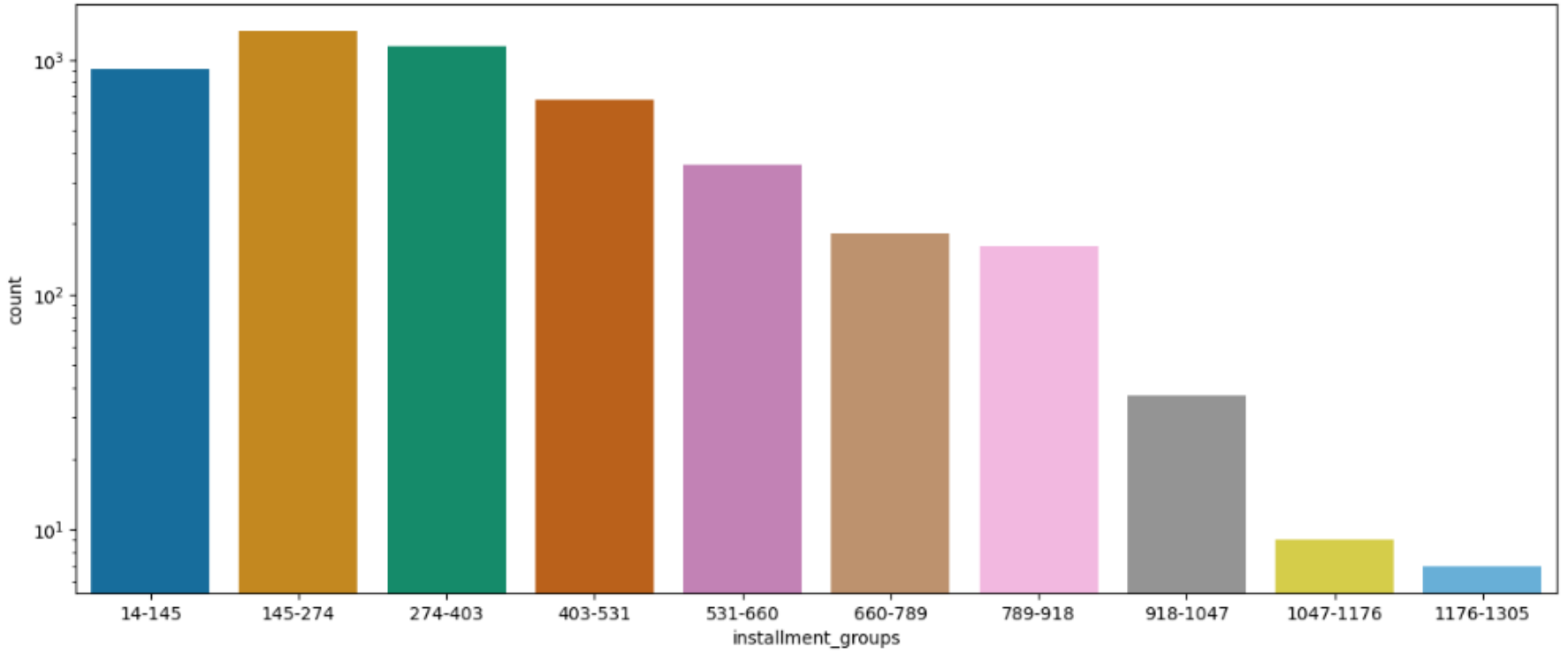
Loan issue month and year with respect to count



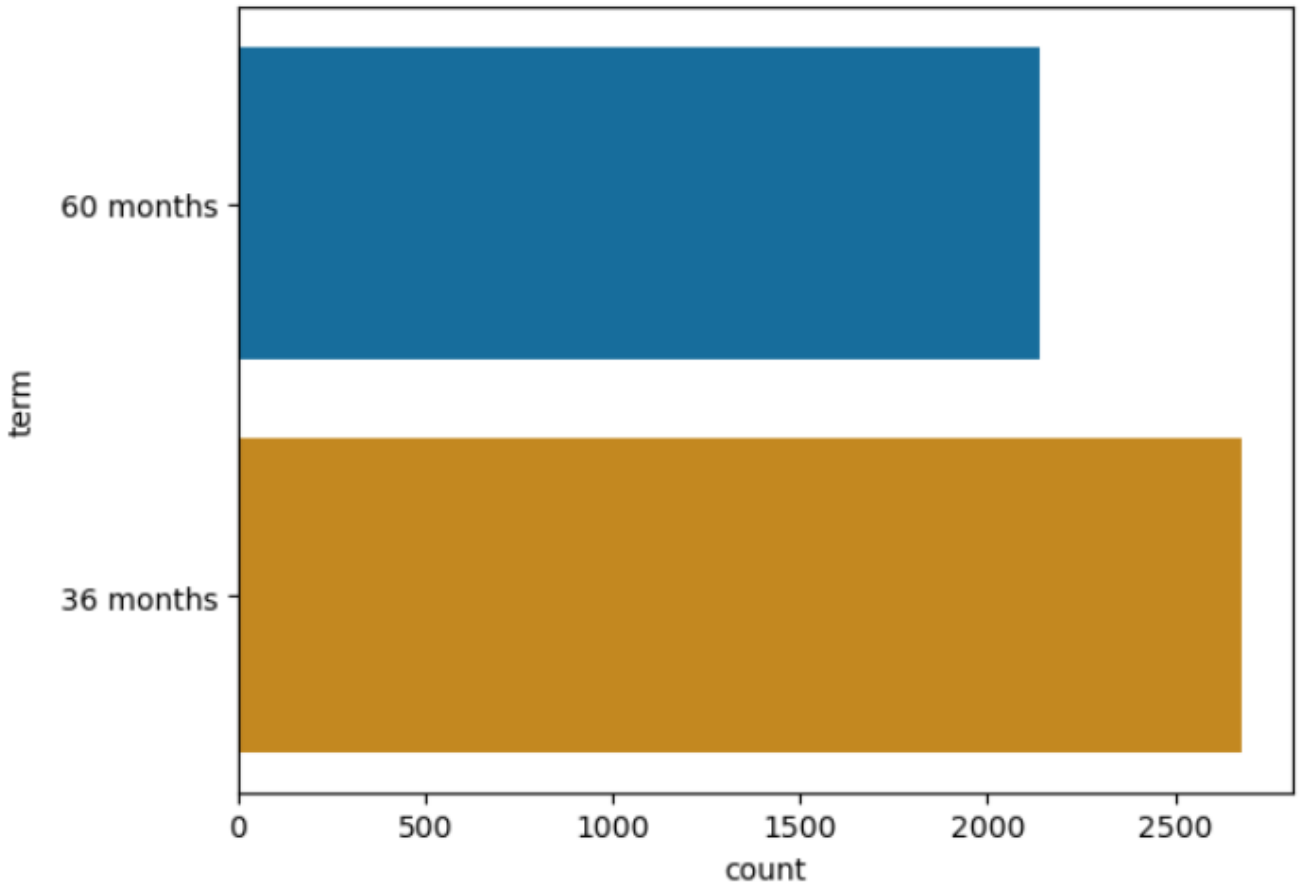
Maximum number of defaults you can see when the loan was sanctioned/issued in Dec. Loan issued in the year 2011 were also as compared to other years


count
10^3
10^2
0-5k
5k-10k
10k-15k
15k-20k
20k-25k
25k-30k
30k-35k
funded_amnt_inv_group

Installment Group Vs Count
This depicts that

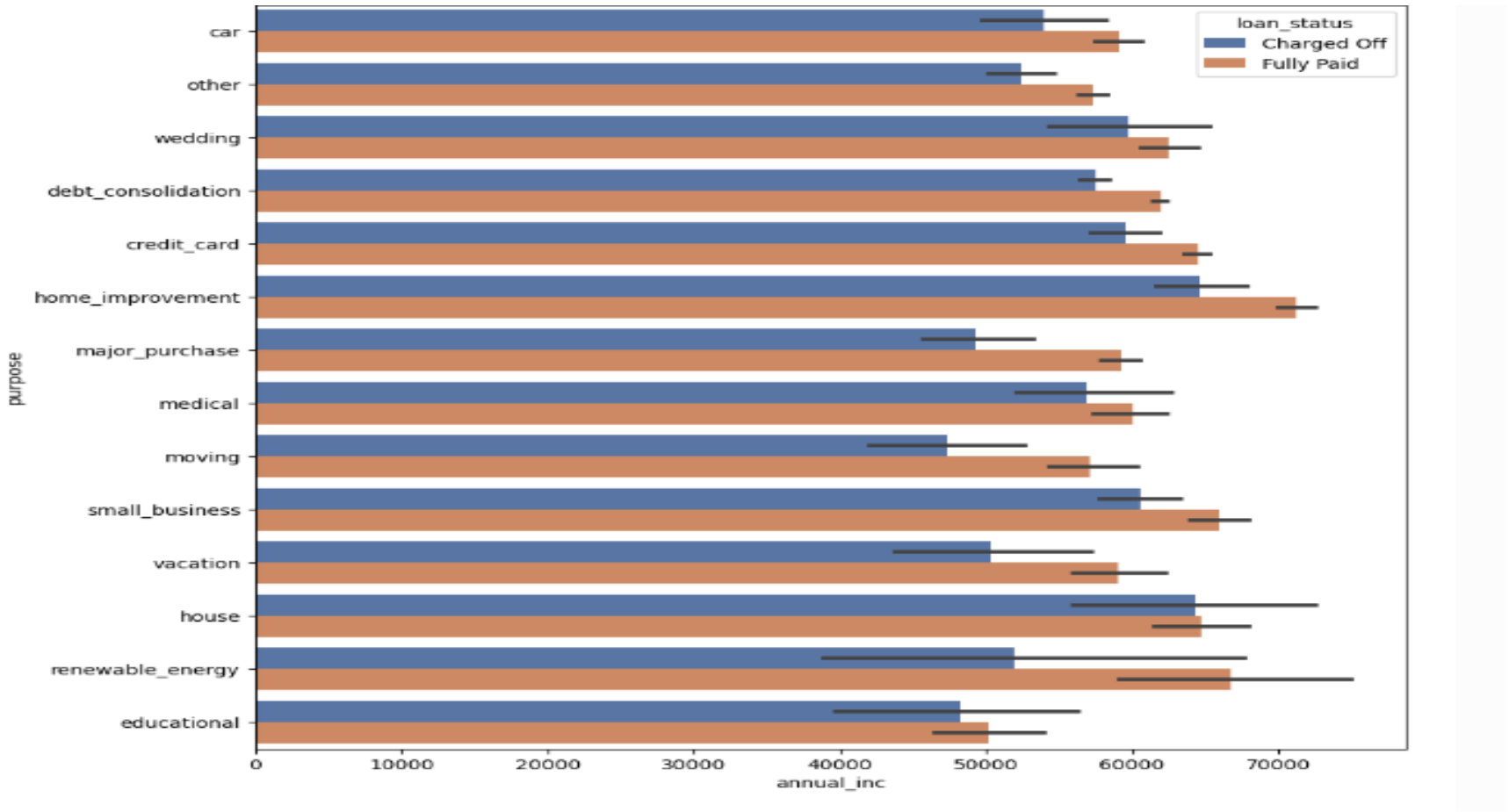


Count Vs Term

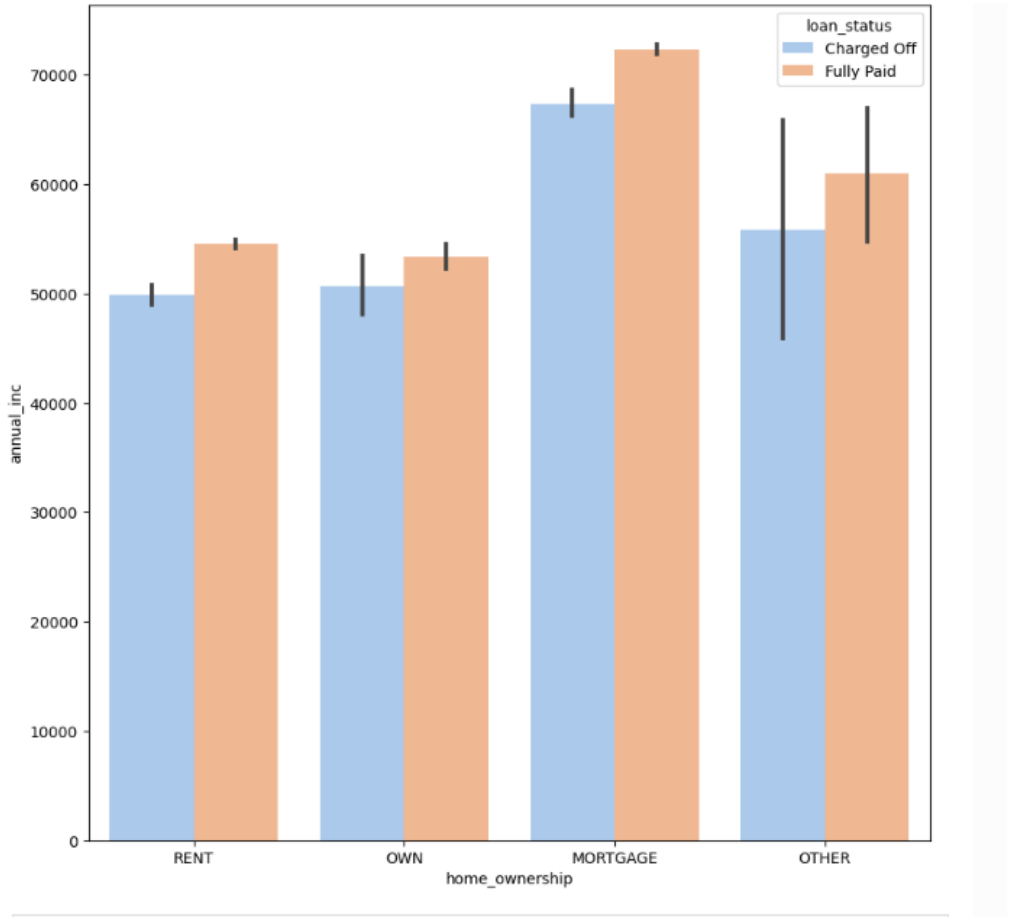


Annual Income Vs Purpose/rationale of taking loan

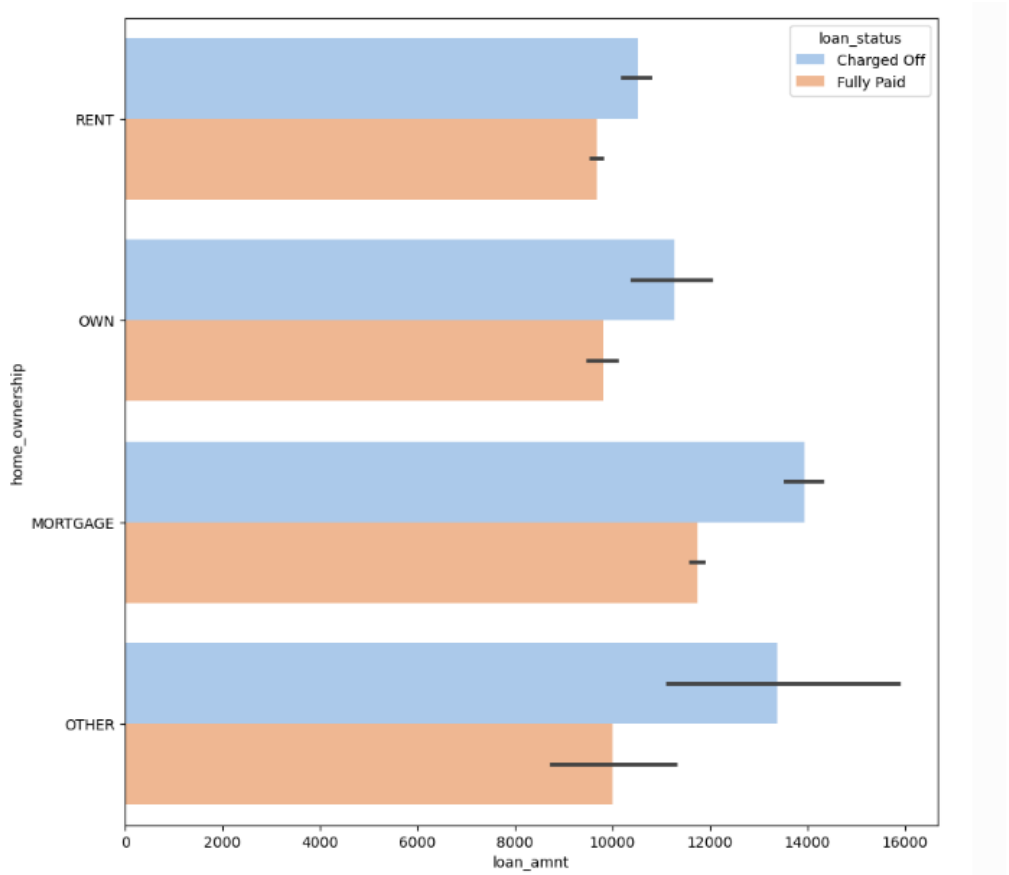
Below picture shows that Home improvement is the reason for taking loan which is still charged off and going on also Applicants who have took loan for small business and the loan amount is greater than 14k



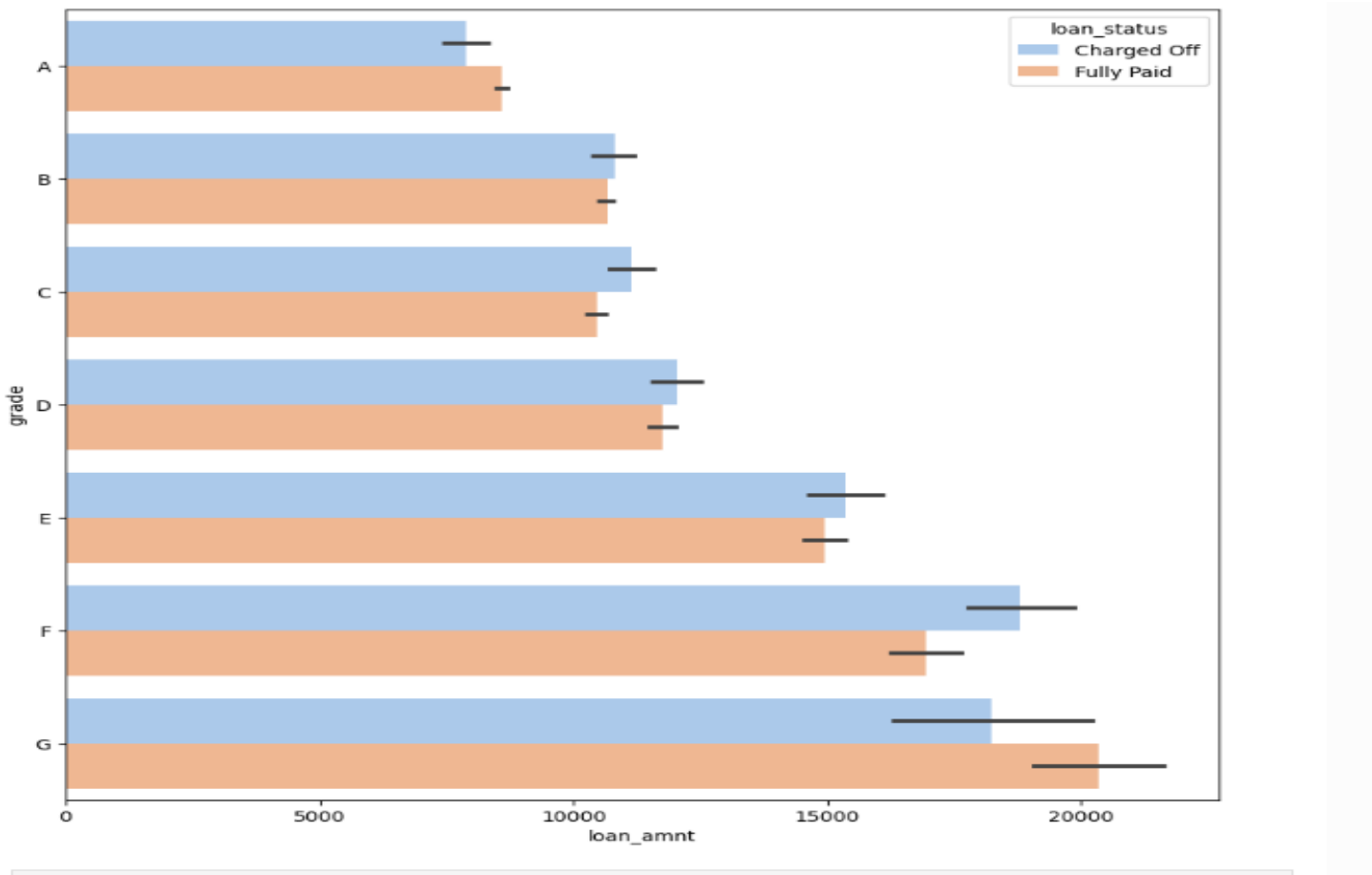
Homeownership Vs Annual income
loan for 'home improvement' and have income of 60k -70k



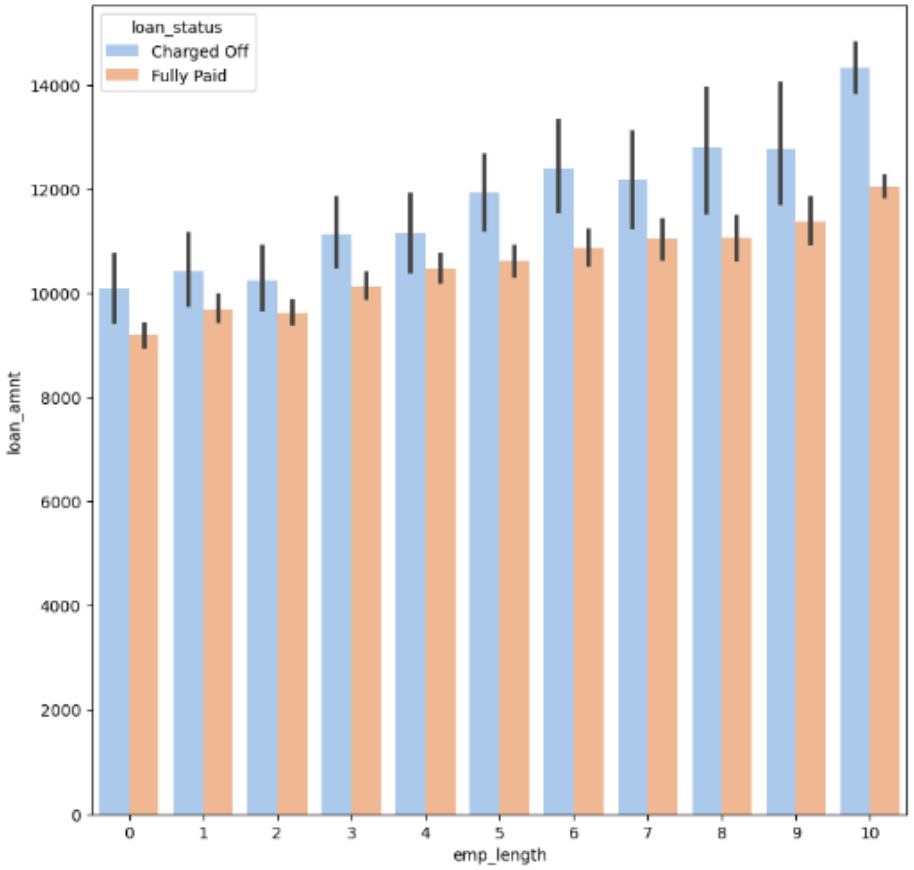
Loan amount Vs Homeownership
home ownership is 'MORTGAGE and have loan of 14-16k

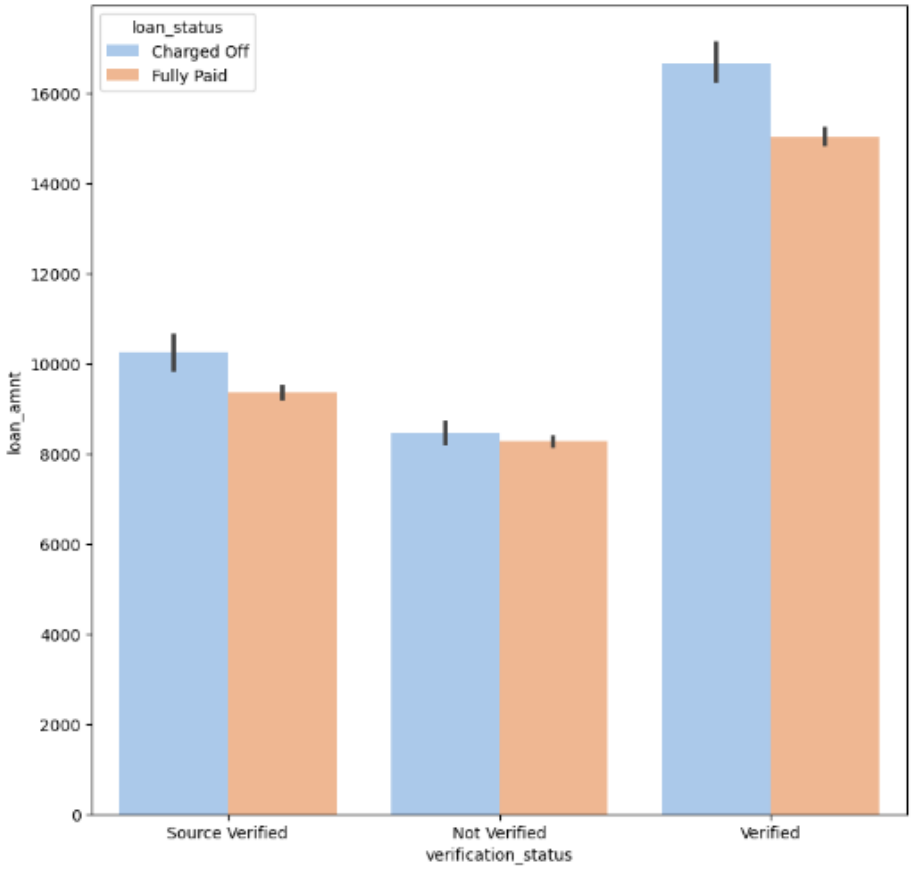


Loan amount Vs Grade
Grade is F and loan amount is between 15k-20k

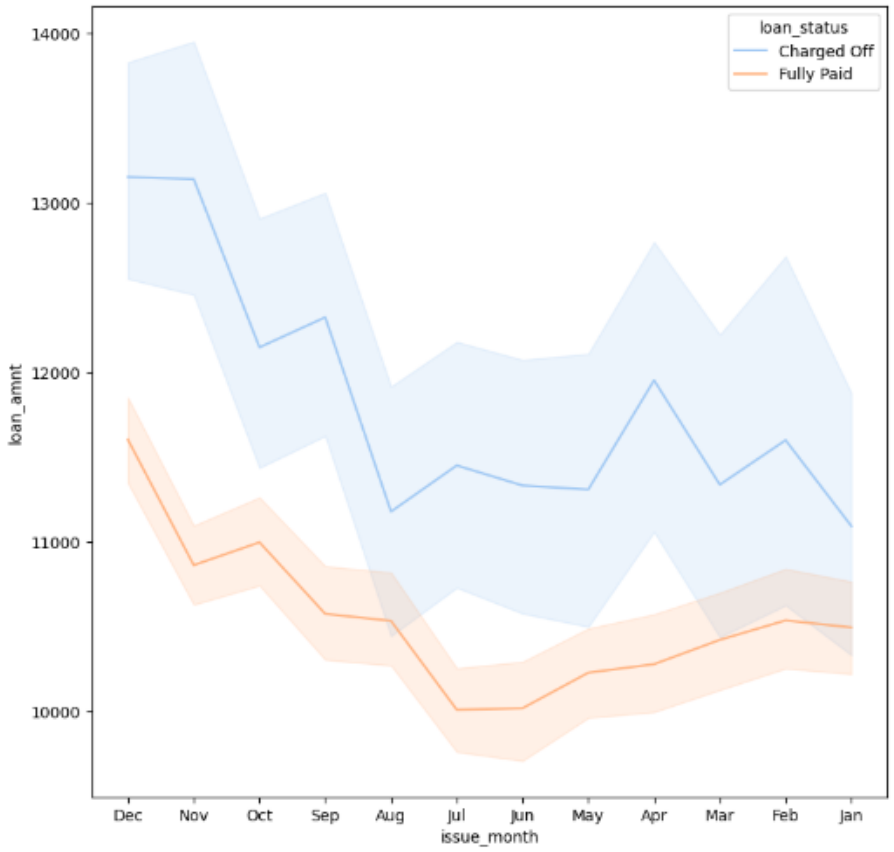


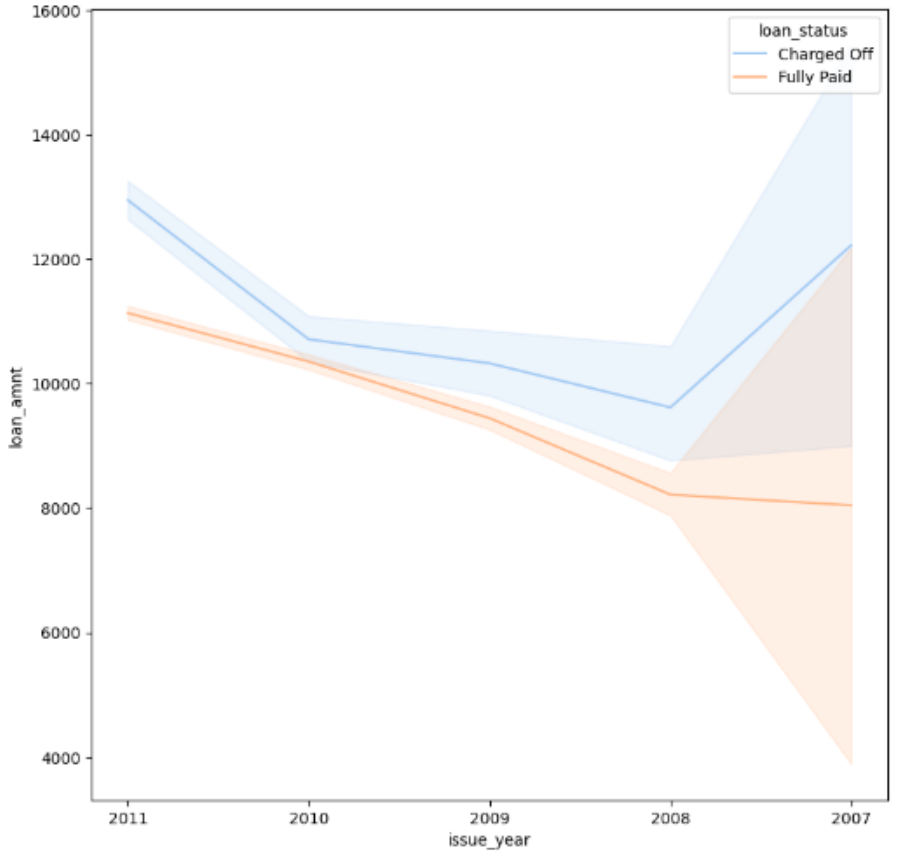
Employment length is 10yrs and loan amount is 12k-14k & the loan is verified and loan amount is above 16k



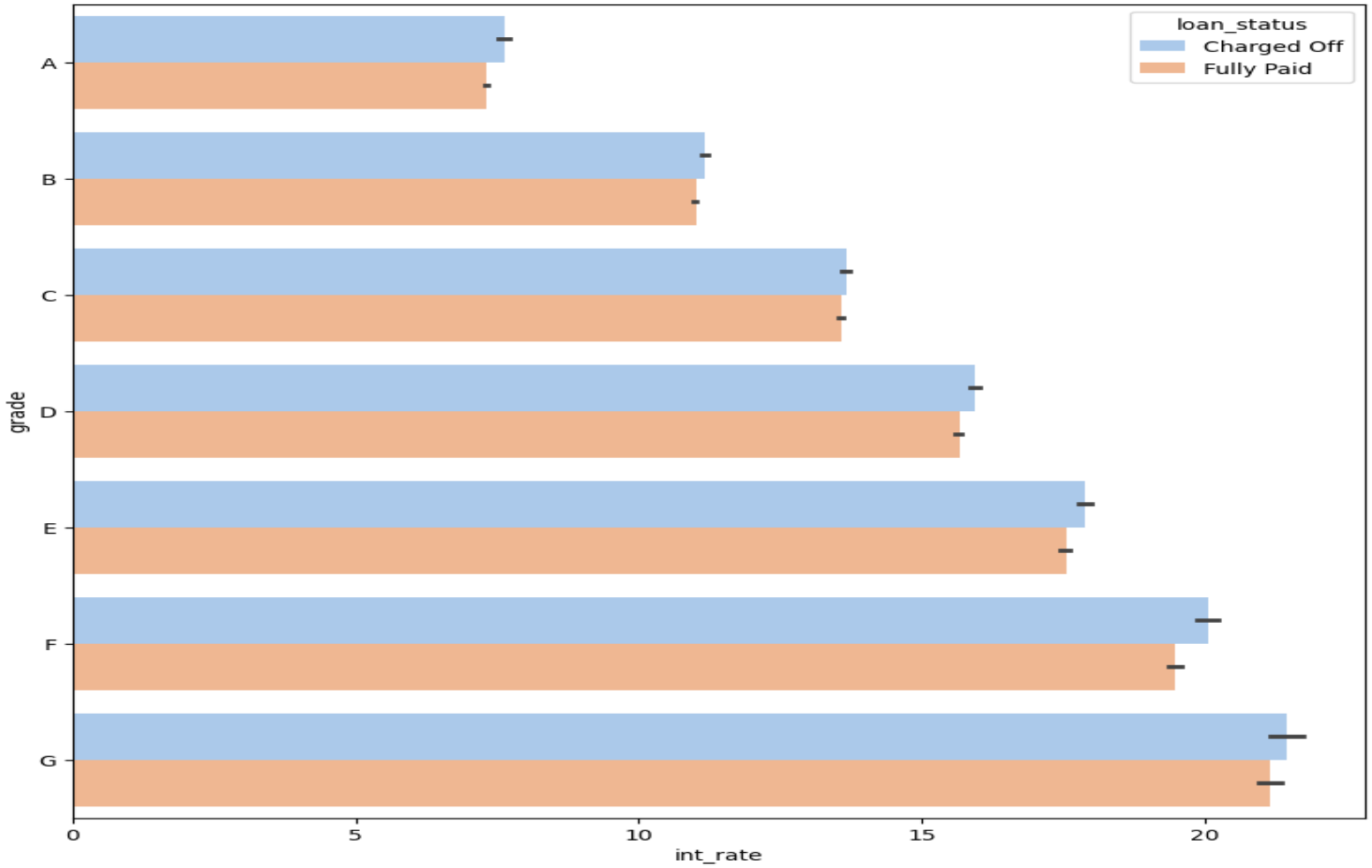


Picture depicts as Dec 2011 charged off loan amountwas higher as compared to fully paid



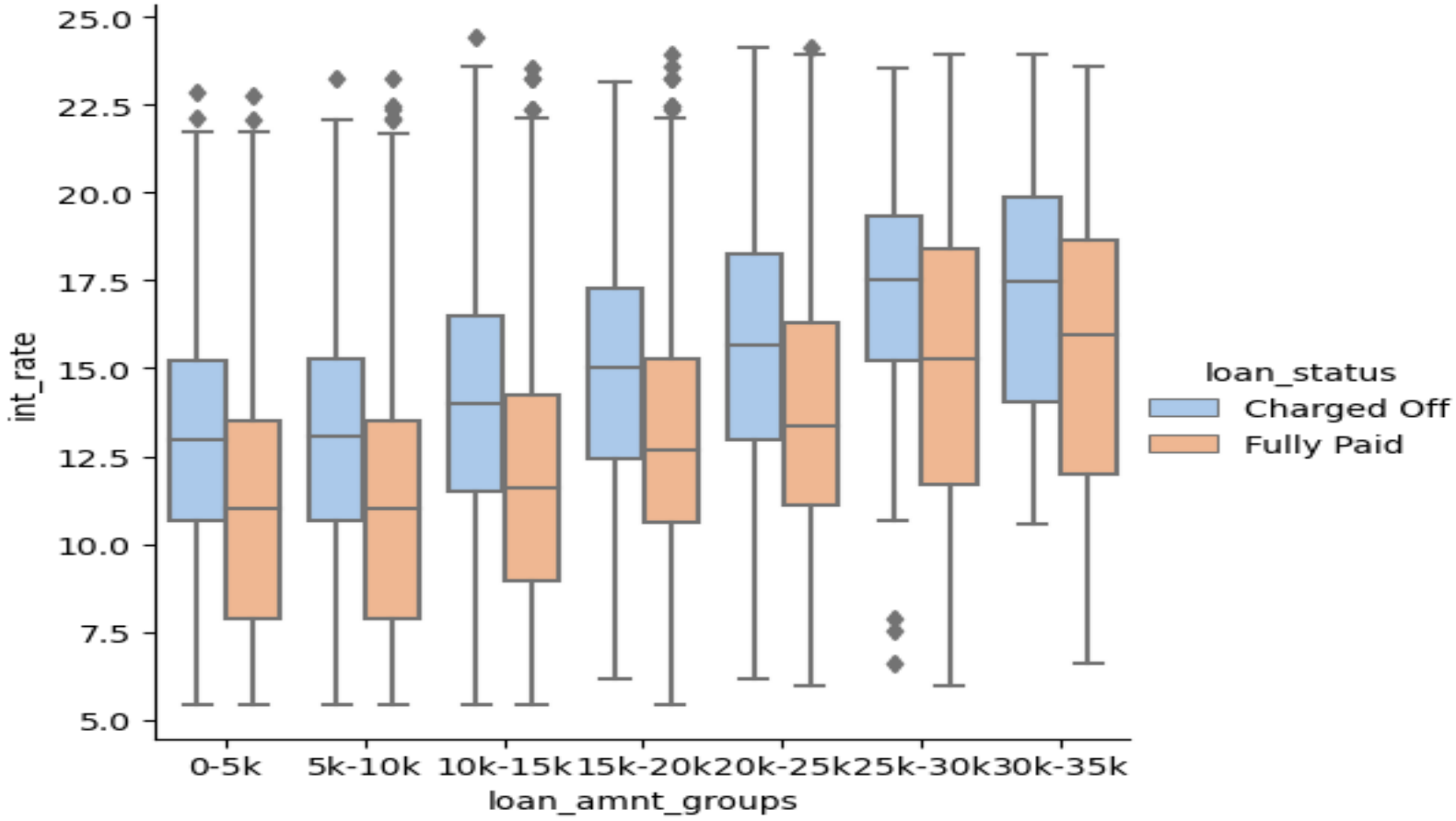


Below representation shows that interest rate of Grade G Charged off category is higher as compared to fully paid .

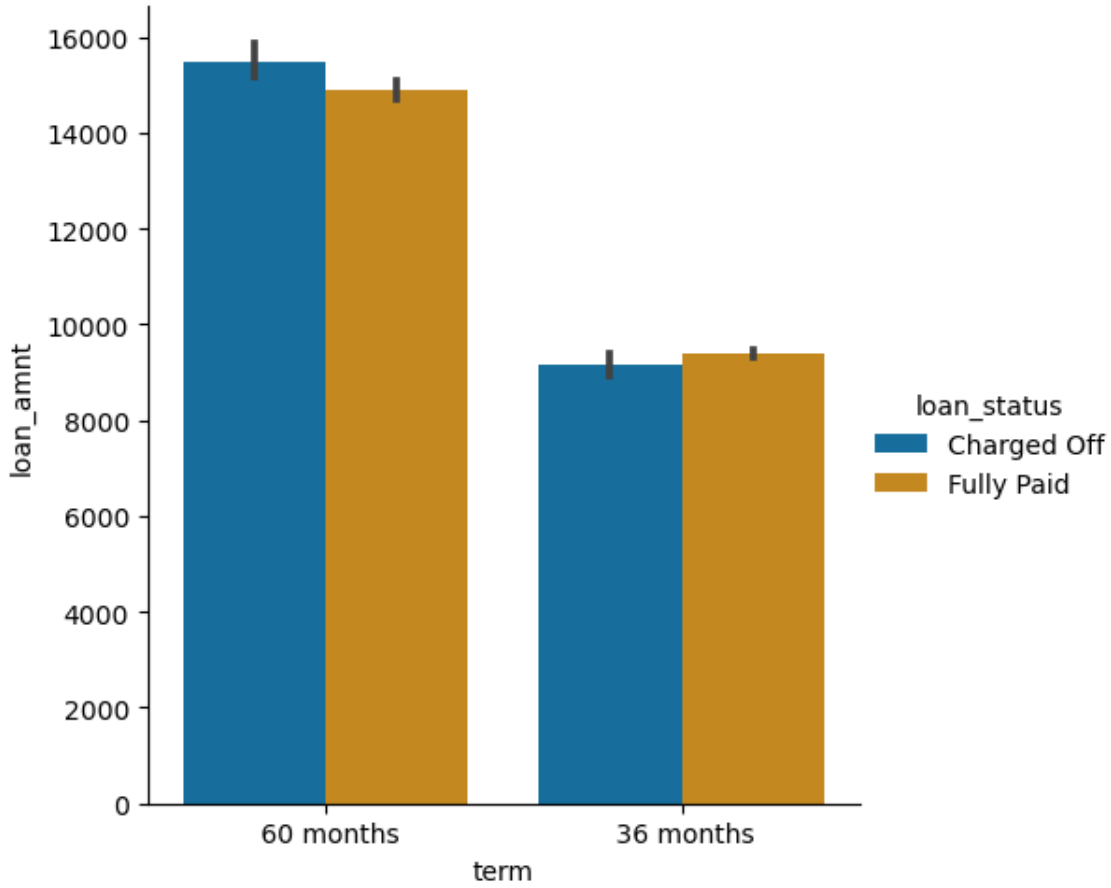


Below image proves that Interest rate of charged off Loan amount group is higher as compared to fully paid.

loan in the range 30k - 35k and are charged interest rate of 17.5 to -20 %



Applicants/subscriber who applied and defaulted have no significant difference in loan_amounts.



Analysis with respect to the charged off loans. Probability of default is found in below cases

- loan for 'home improvement' and have income of 60k -70k
- receive interest at the rate of 21-24% and have an income of 70k-80k
- have taken a loan in the range 30k - 35k and are charged interest rate of 1-17.5 to 20%
- have taken a loan for small business and the loan amount is greater than 14k
- home ownership is 'MORTGAGE and have loan of 14-16k
- grade is F and loan amount is between 15k-20k
- employment length is 10yrs and loan amount is 12k-14k
- the loan is verified and loan amount is above 16k
- grade G and interest rate above 20%

- Thank you.