

LENDING CLUB CASE STUDY SUBMISSION

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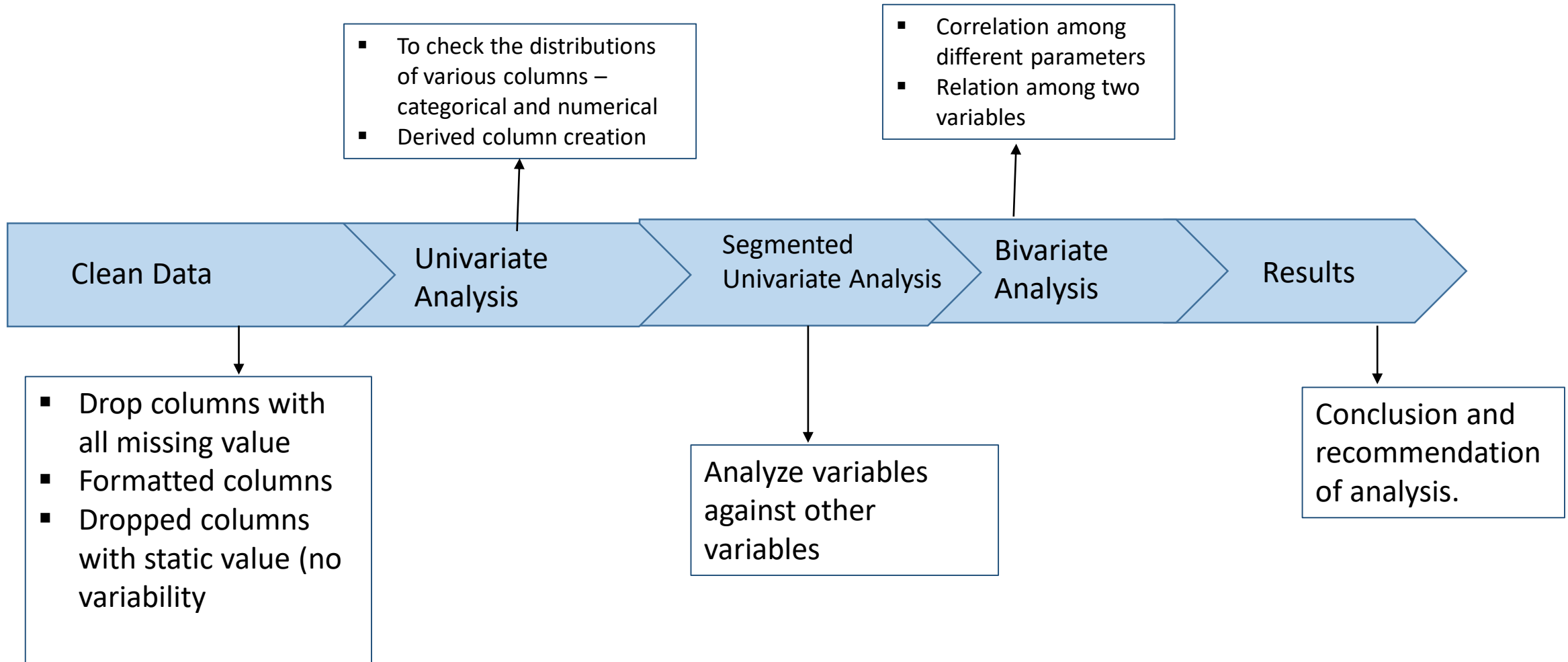


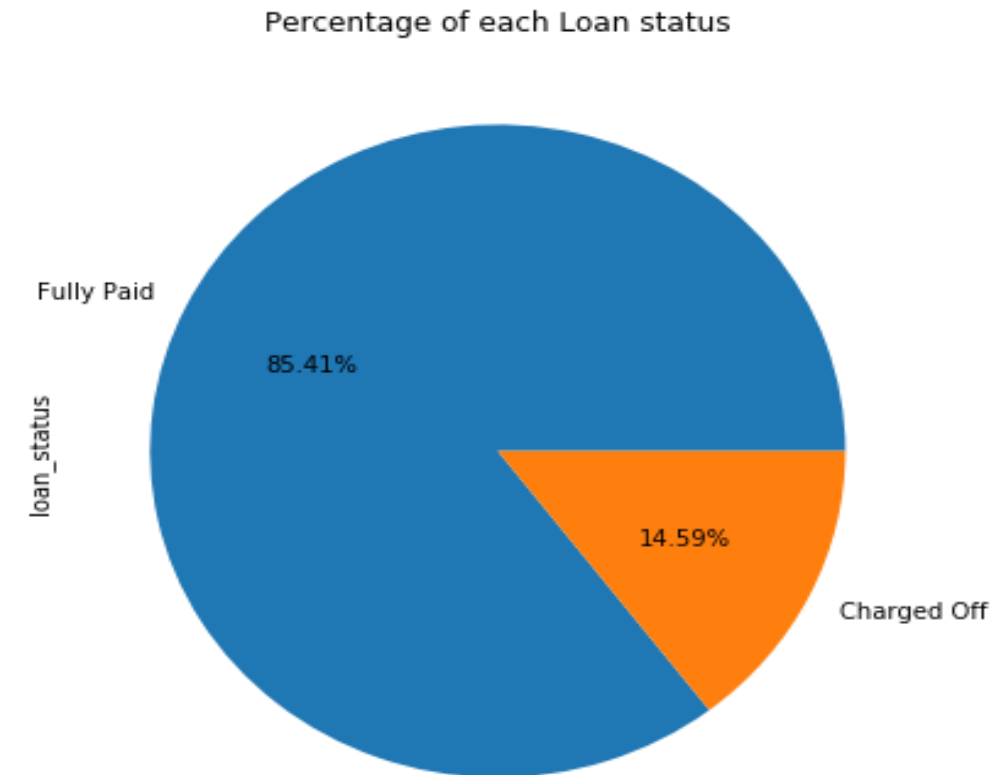
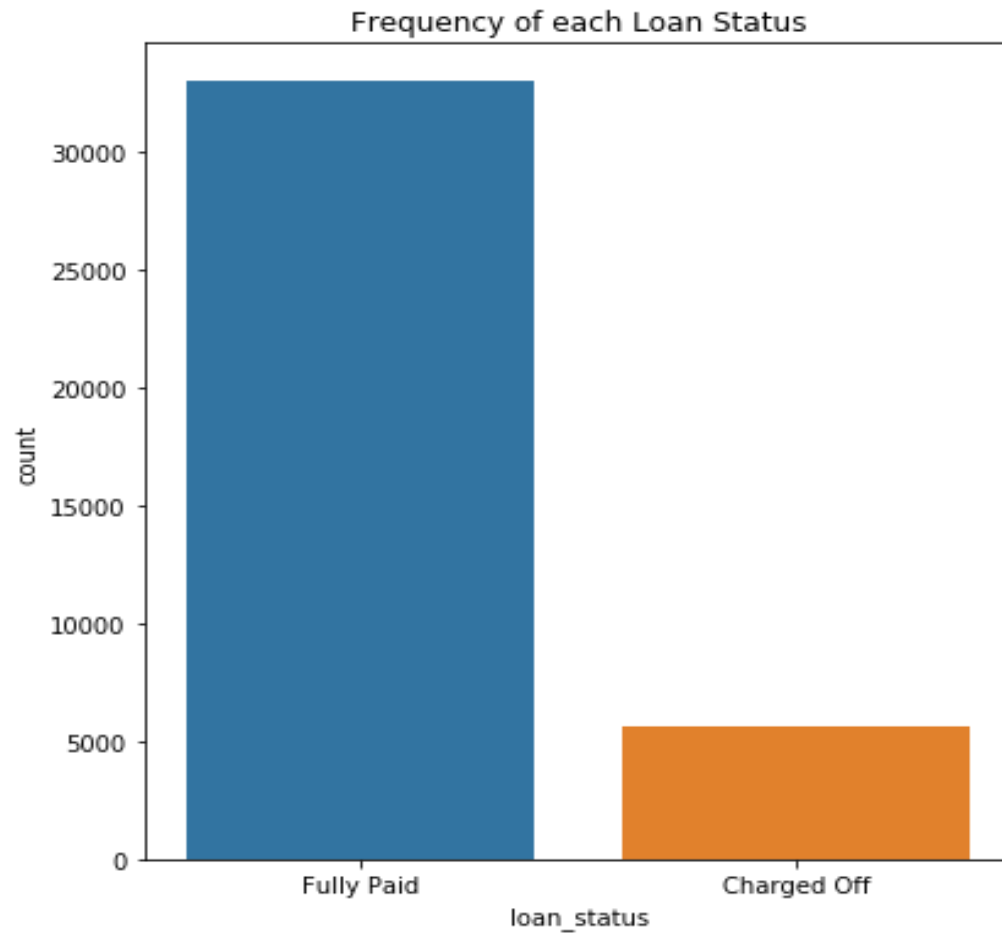
Business Objectives

- 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.

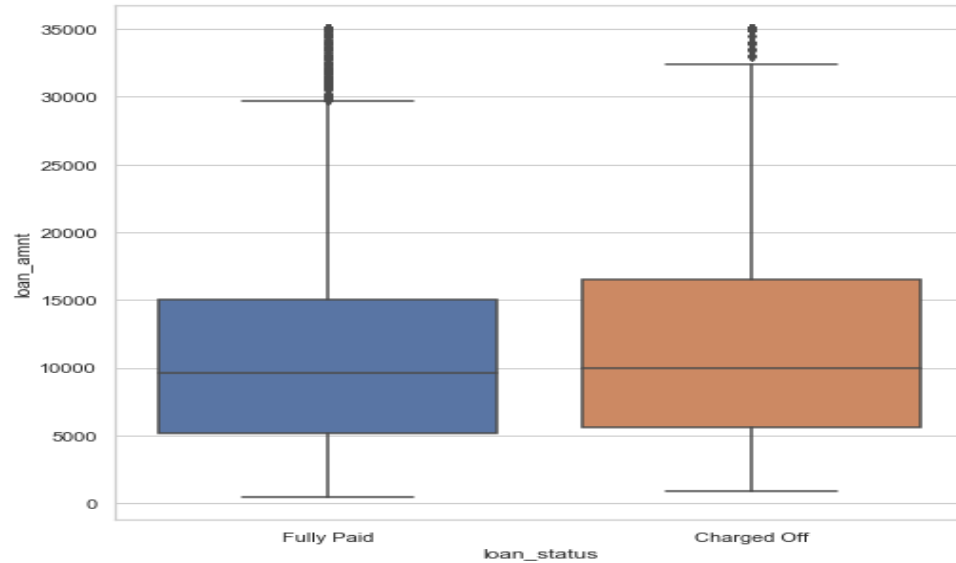
Problem Statement

- 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 utilize this knowledge for its portfolio and risk assessment.



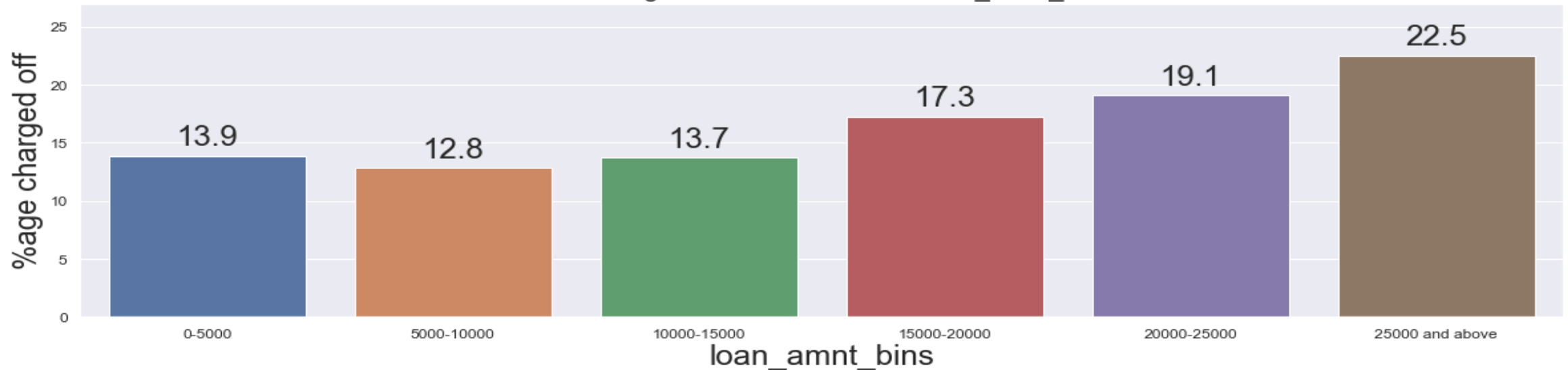


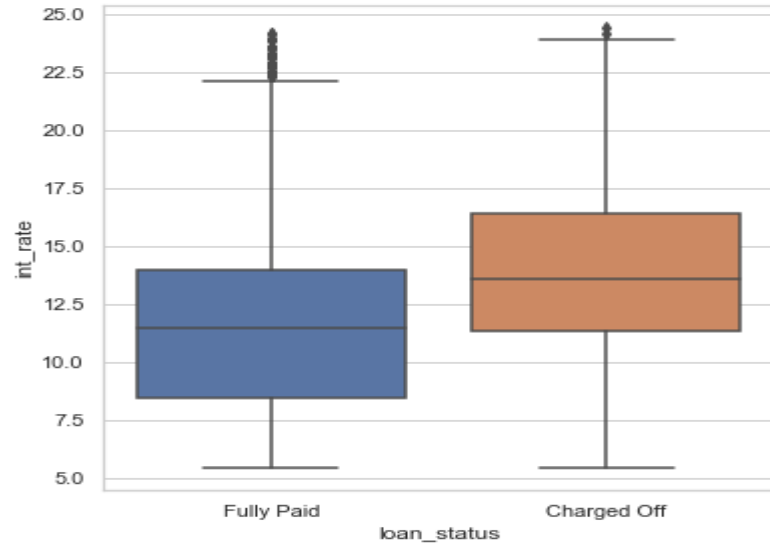
Approximately 14% of loans are defaulted. Any feature that leads to increase in default % to 16% should be considered as business risk.



With the increase in loan amount the default rate also increases. For loan amount > 15k the default % > 15 %.

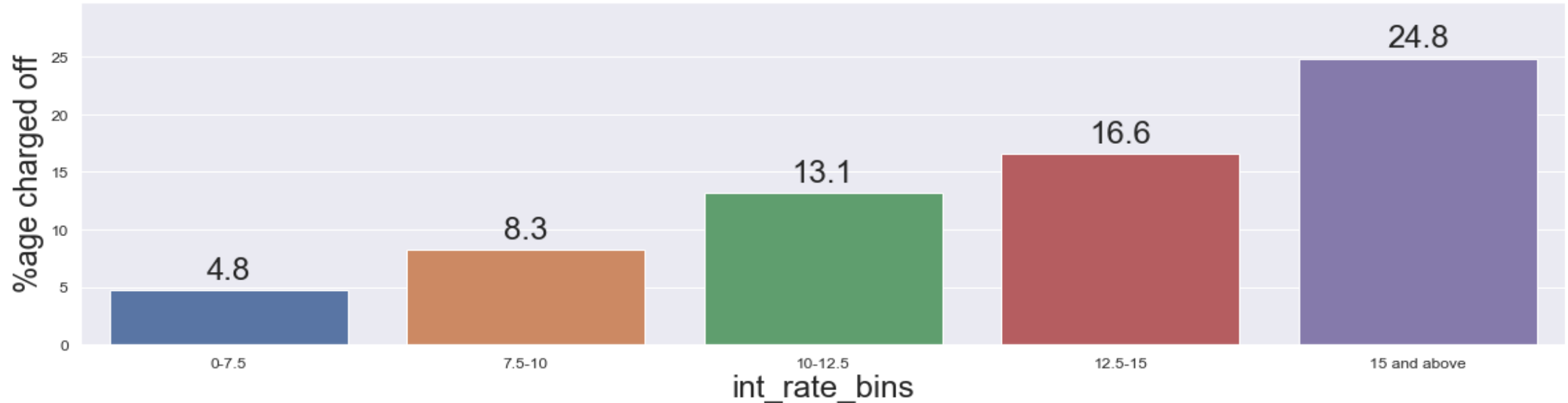
% of charged off loans in various loan_amnt_bins



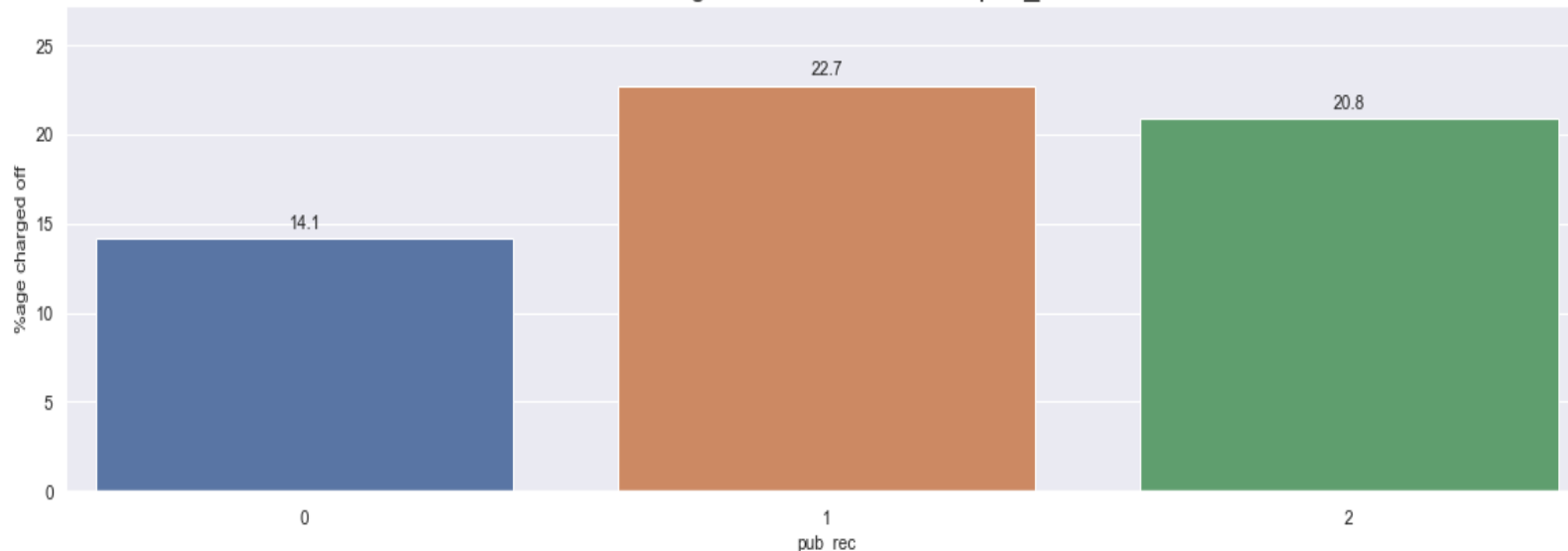


Percentage of Defaults increases in a monotonous pattern with higher interest rate. At the interest rate above 12.5 more than ~ 16 % of loans are charged off.

% of charged off loans in various int_rate_bins



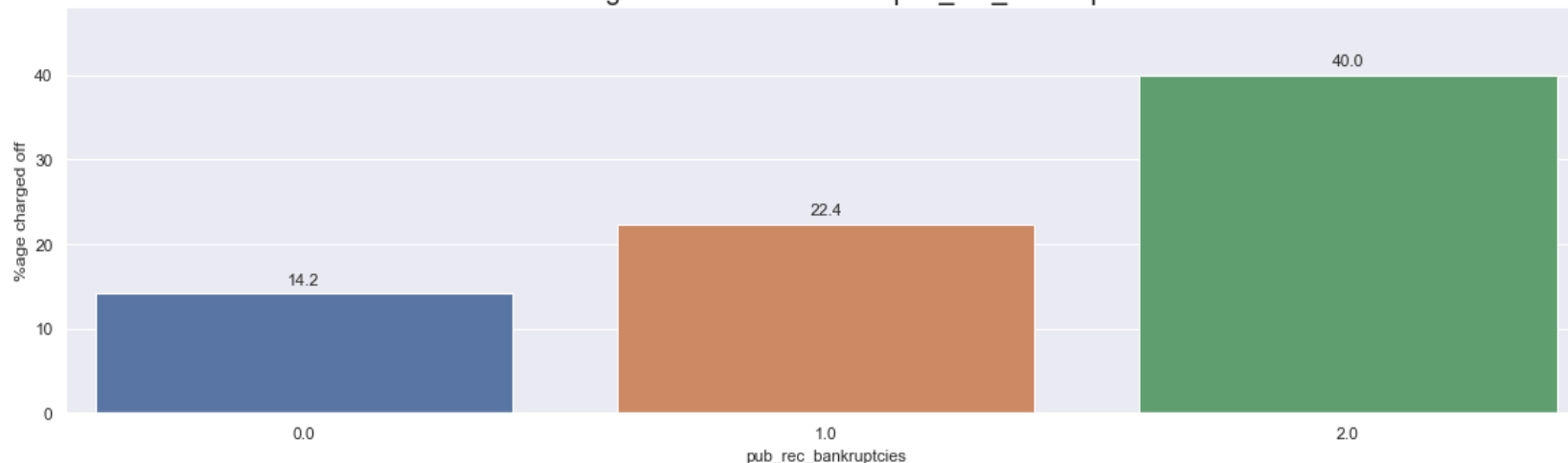
% of charged off loans in various pub_rec



Having 1 derogatory public record increases the chances of charged off significantly.

In this case ~ 23%

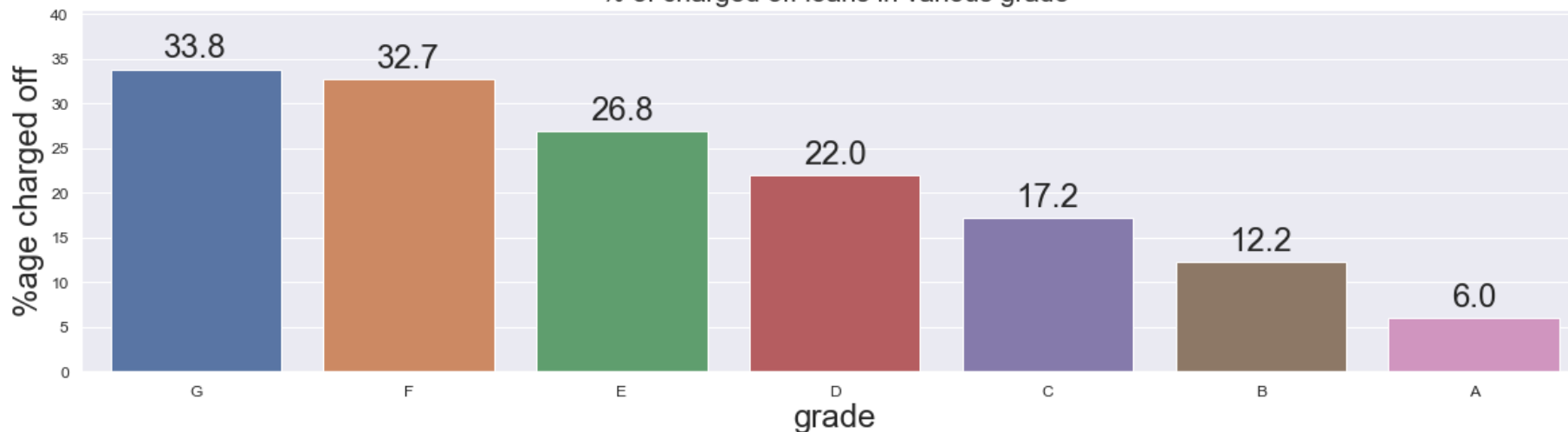
% of charged off loans in various pub_rec_bankruptcies



Having 1 bankruptcy record increases the chances of charged off significantly.

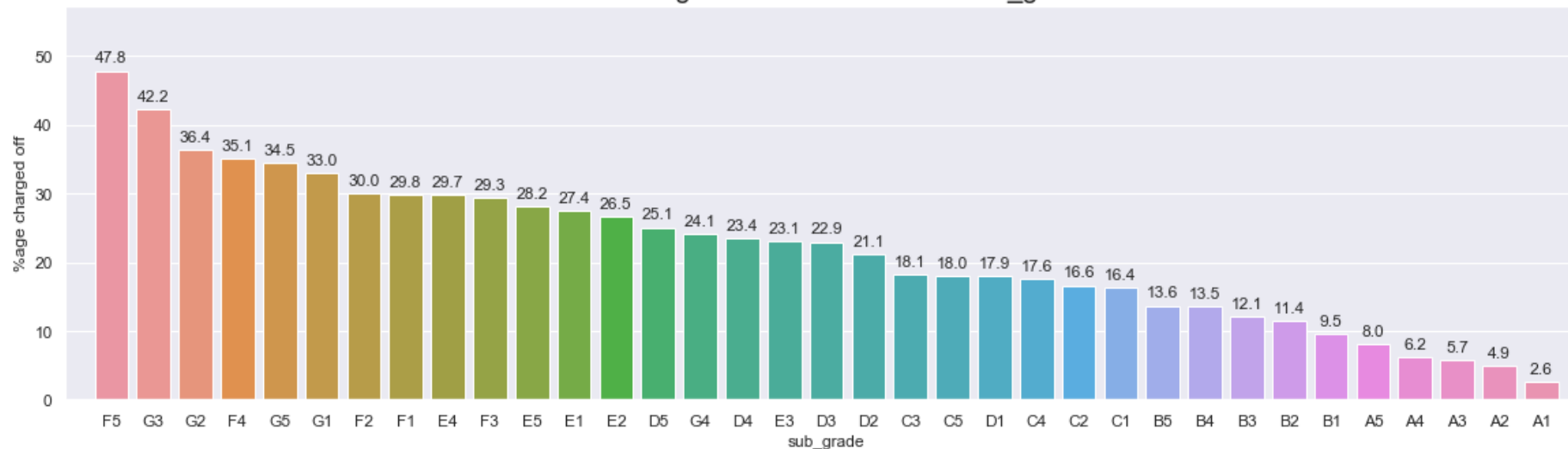
Public record and pub_rec_bankruptcies has 0.85 correlation, so we can use any one of them.

% of charged off loans in various grade



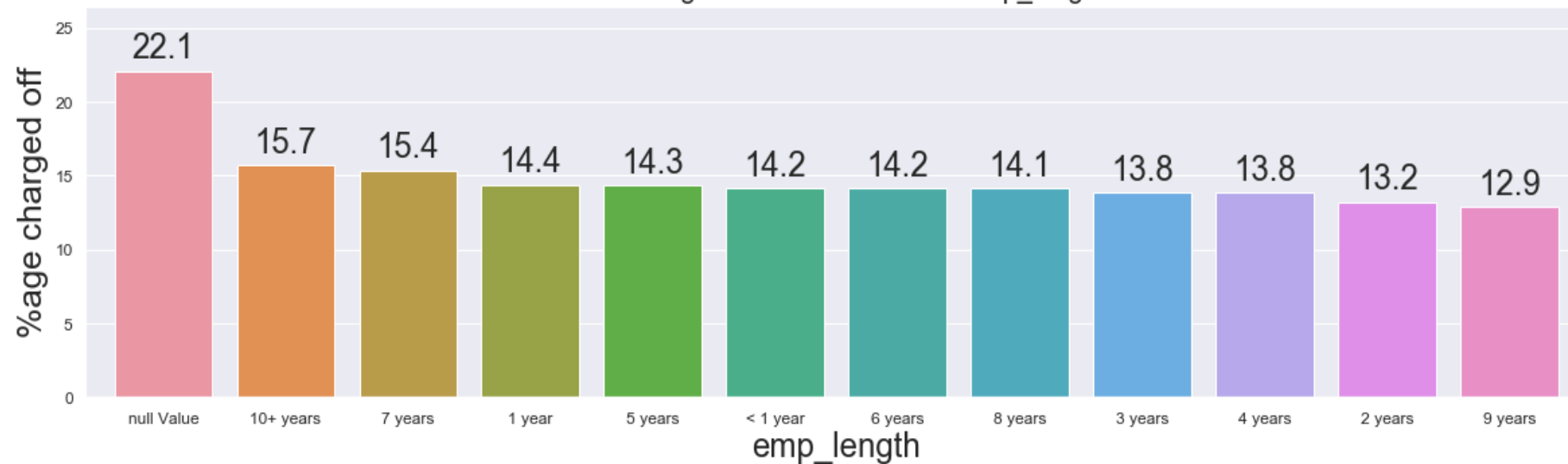
Most of the loans with higher charged off % lies in grade G ~ 34% followed by F ~ 33 %

% of charged off loans in various sub_grade



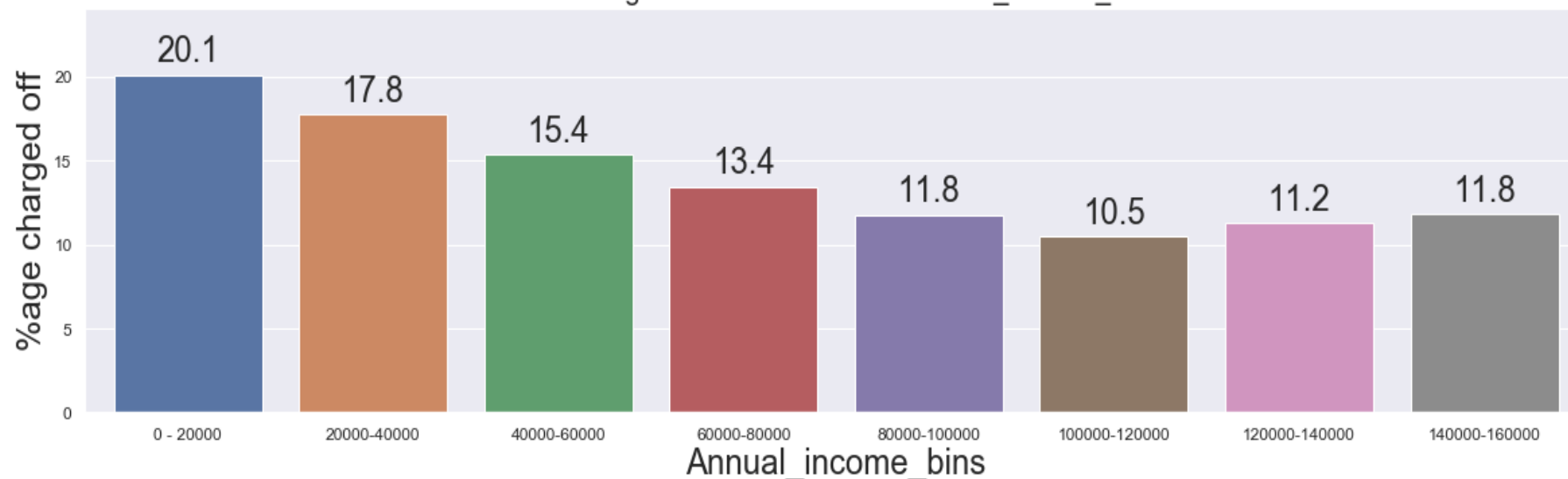
Among the G and F grade with highest percentage of default – subgrade F% and G3 contributes the most.

% of charged off loans in various emp_length



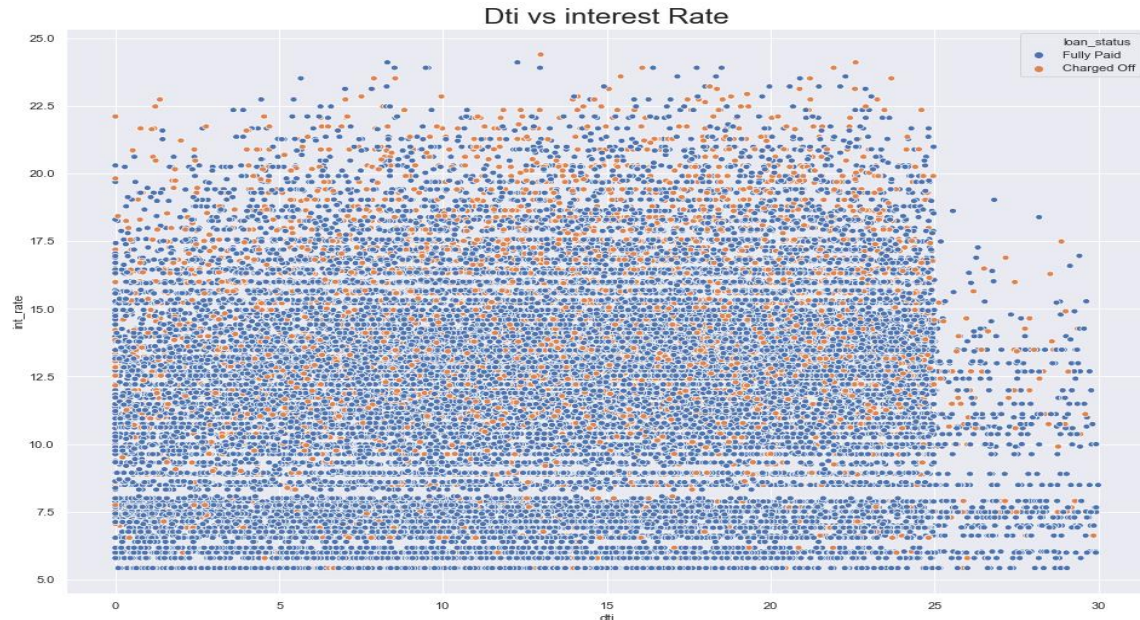
More the employment length, more is the chances of charged off. 10+years of employment length has around 16% defaults.

% of charged off loans in various Annual_income_bins

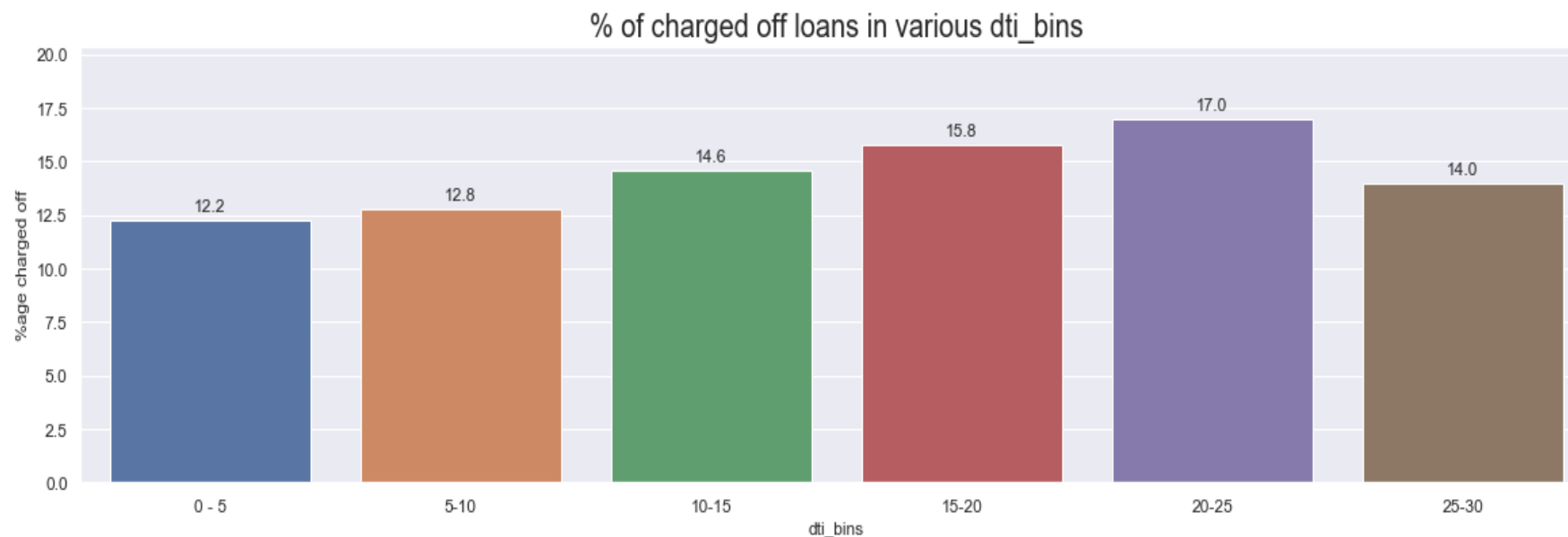


Borrowers having annual income less than 20000 has much higher charged off rate.

The loan default decreases with the increase in loan amount .

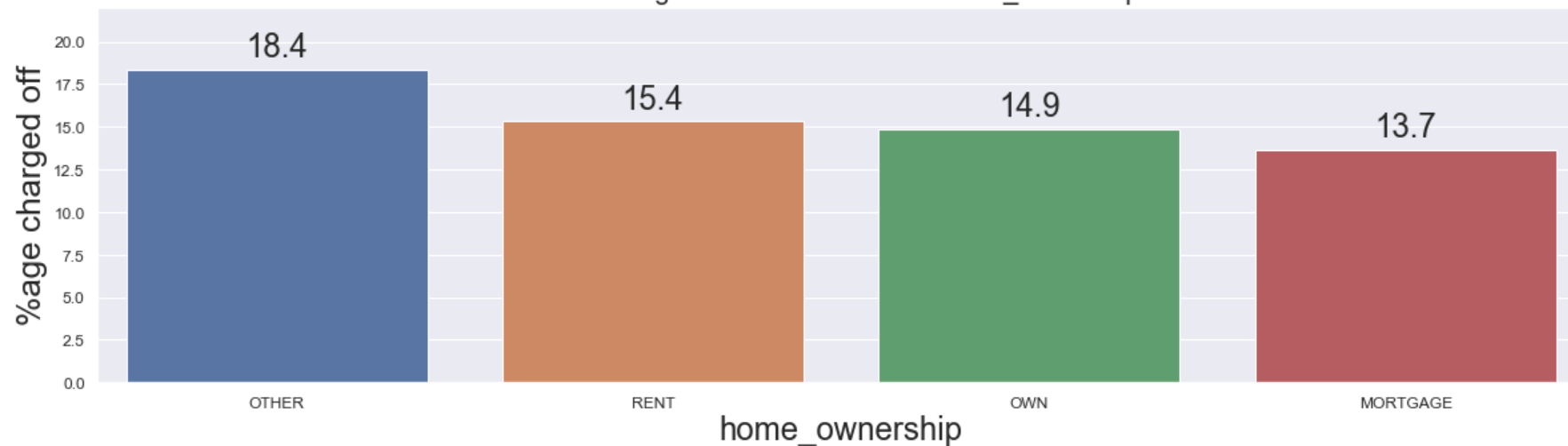


Higher interest rate should be charged higher dti , but the spread is overall .



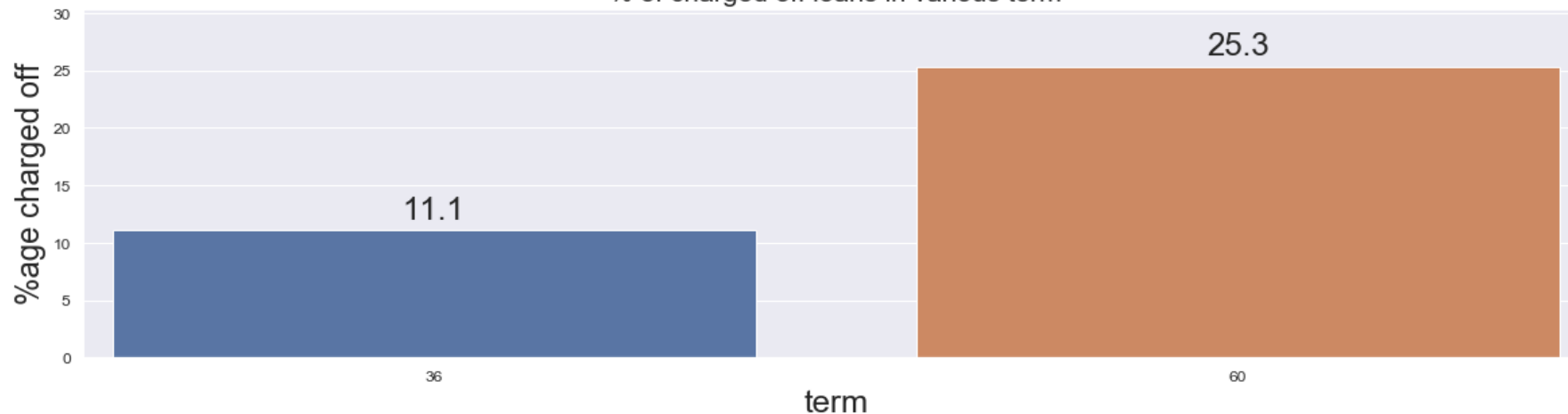
Default % increases with dti ratio. As the ratio rises above 20, the charged off rate increases up to 17 %. (risky)

% of charged off loans in various home_ownership

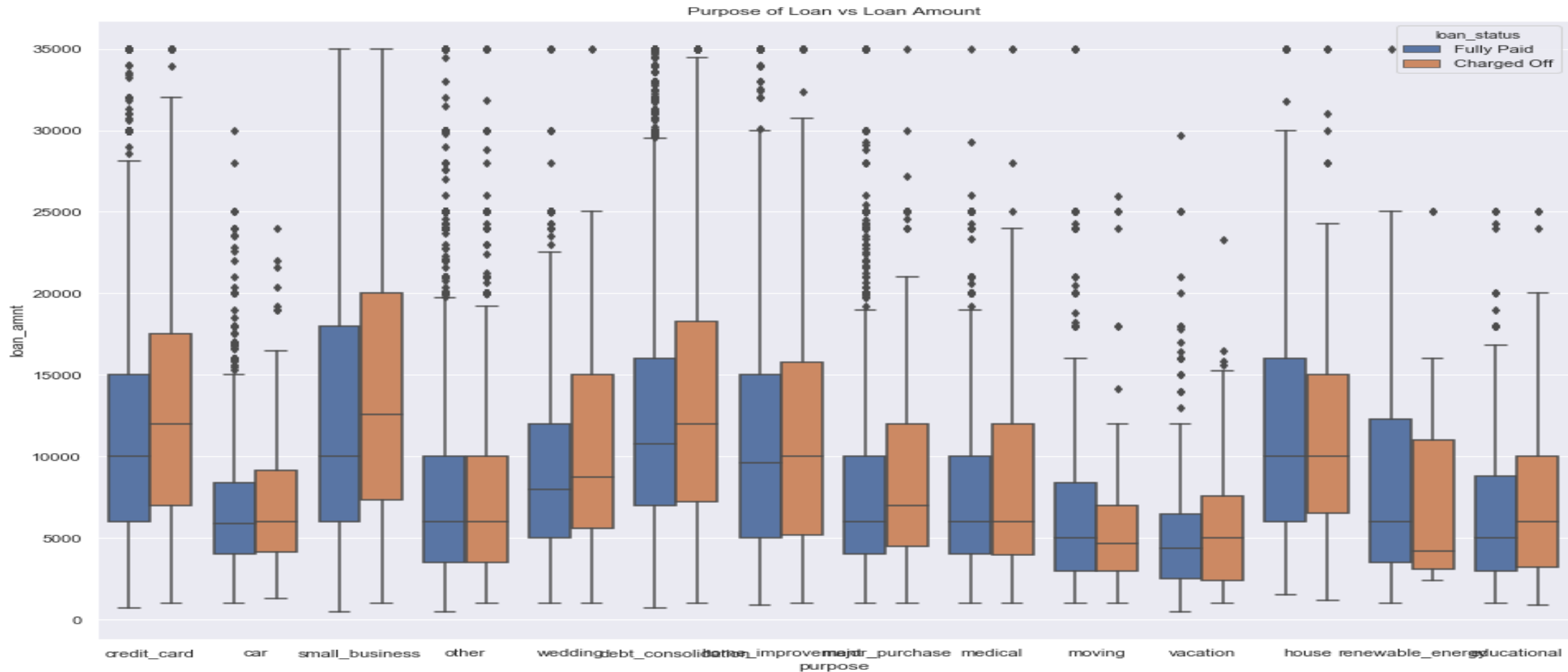


People with OWN house and on Mortgages are less likely to Default on Loans

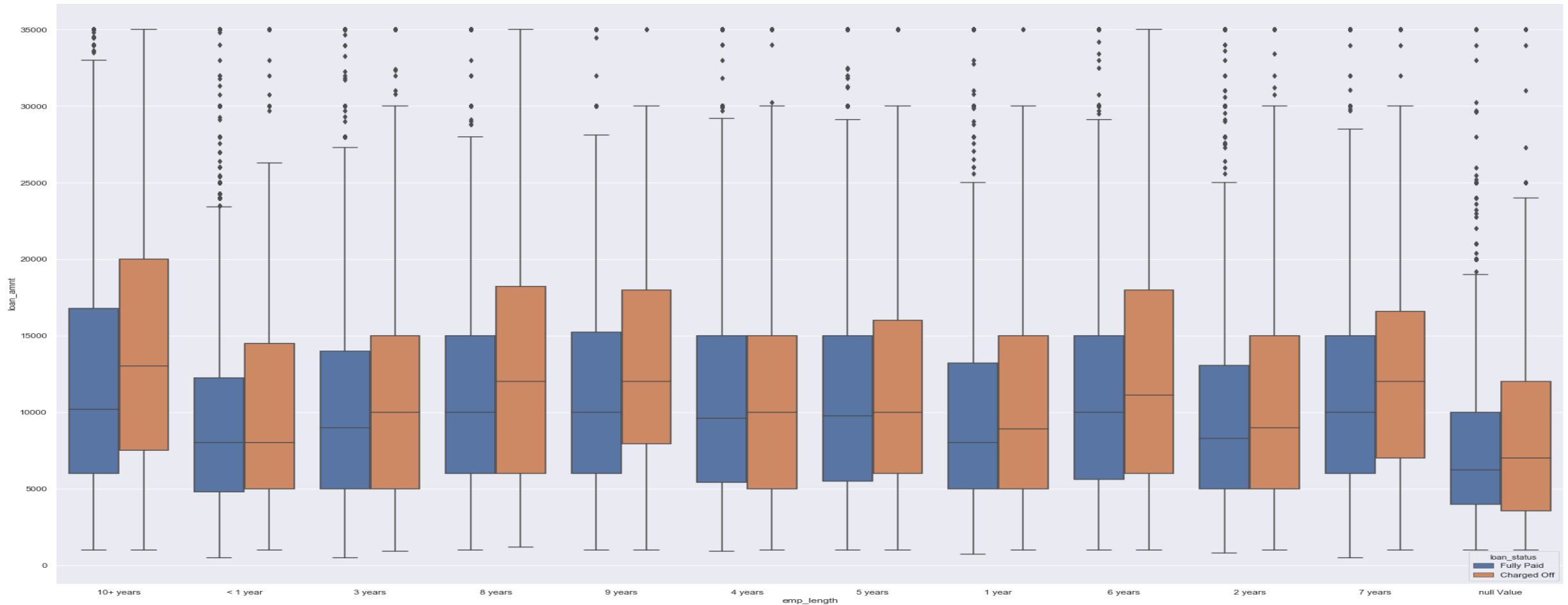
% of charged off loans in various term



we can notice that 60 months term have a higher default rate

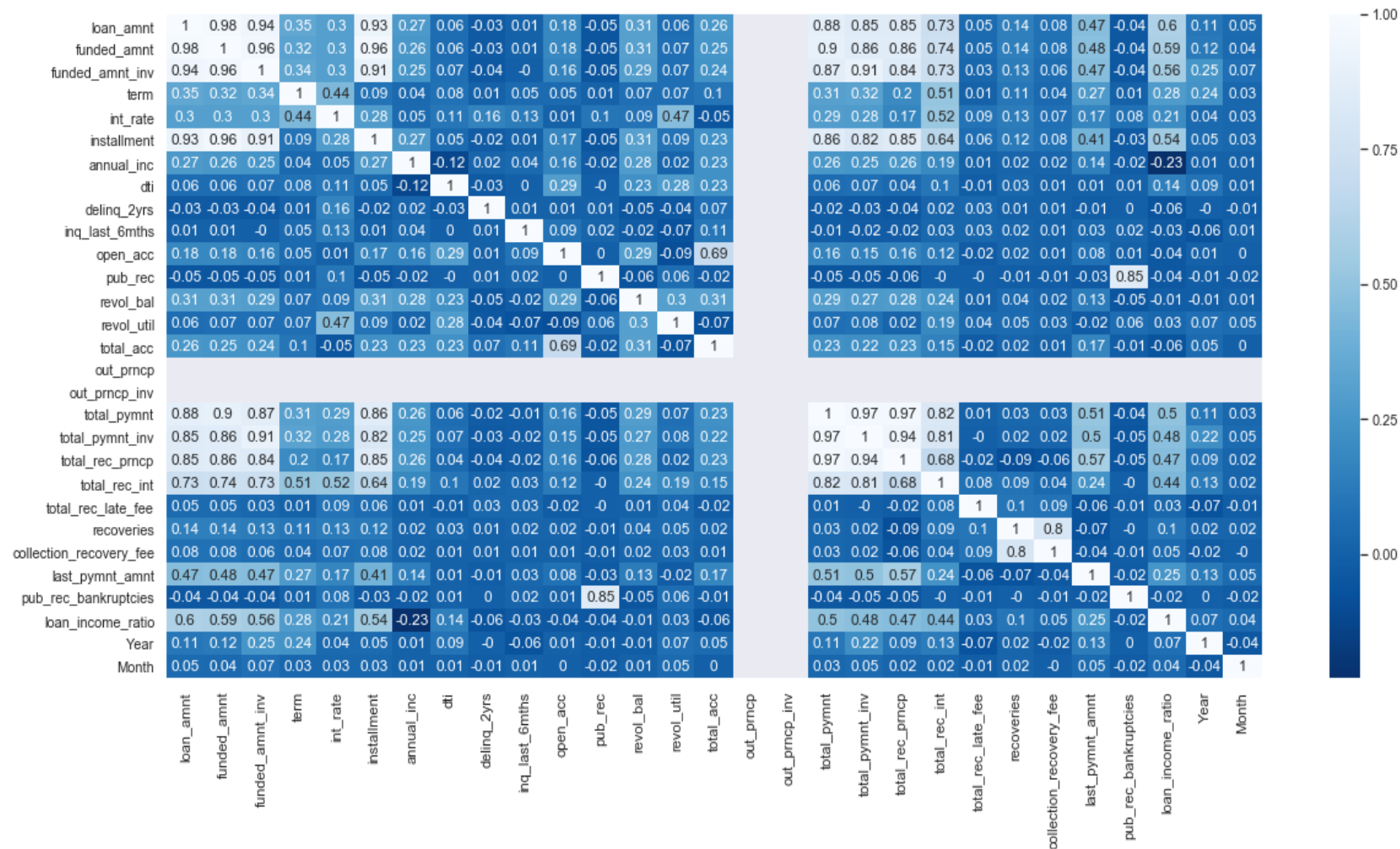


Small business is having maximum default as per highest loan amount taken by the borrower.



+10 year of employment length has taken maximum loan amount and has highest default rate.

Correlation among various parameters



Features ->
 loan_amount,
 funded_amount ,
 funded_amt_investment,
 installment, total payment,
 total_paymnt_inv,
 total_rec_pmcp are highly
 positively correlated

Scenarios which will lead to higher charged off :

1. Annual Income greater than 20000
2. Purpose of loan – small business
3. Loan approvals to people with bad records (based on public records and bankruptcy) will lead to high default
4. Charging higher interest rates for loans with dti greater than 20 will reduce default rate.
5. People with OWN house and on Mortgages are less likely to Default on Loans
6. 60 months term have a higher default rate

Current loans are 60 months term, sanctioned to people with pub_rec and pub_rec_bankruptcies records. Our analysis suggests that there will be a higher rate of default in current loans.