

Lending Club Case Study

Group members:

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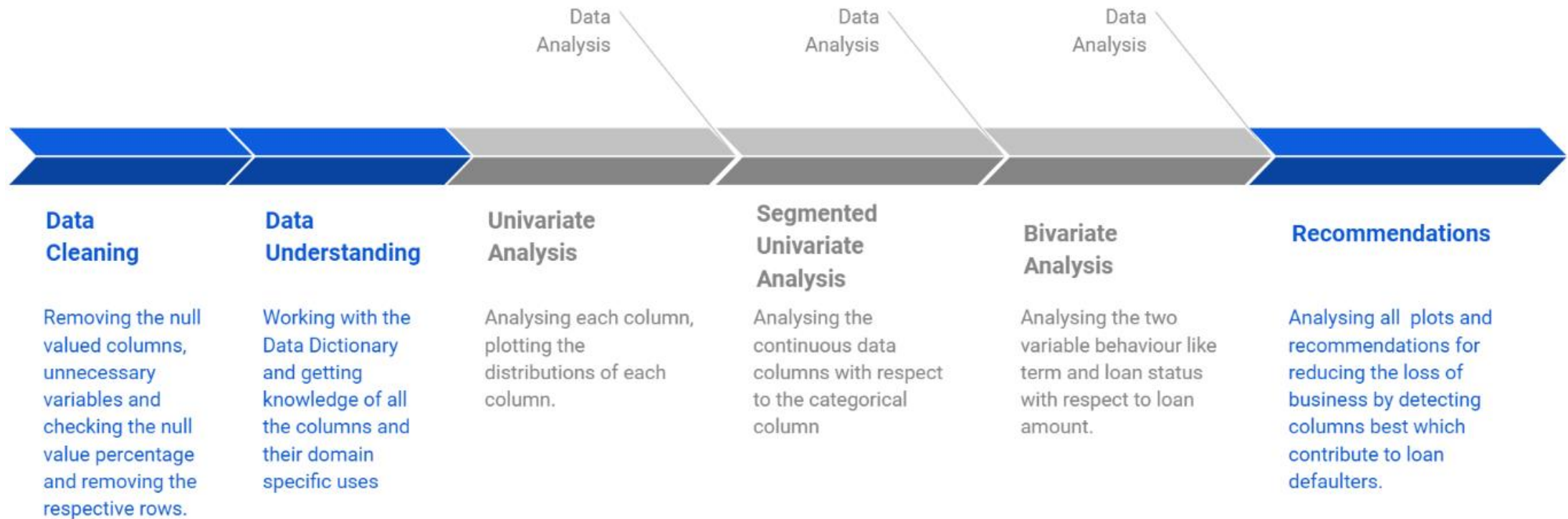
VISHNU VARDHAN

GOLLAPUDI

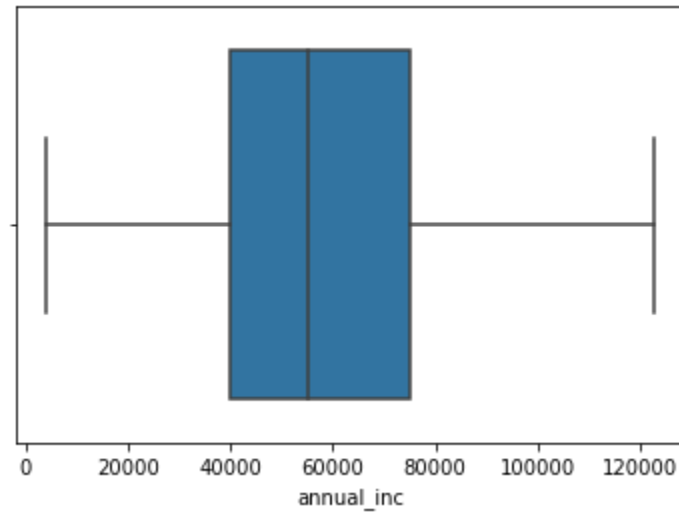
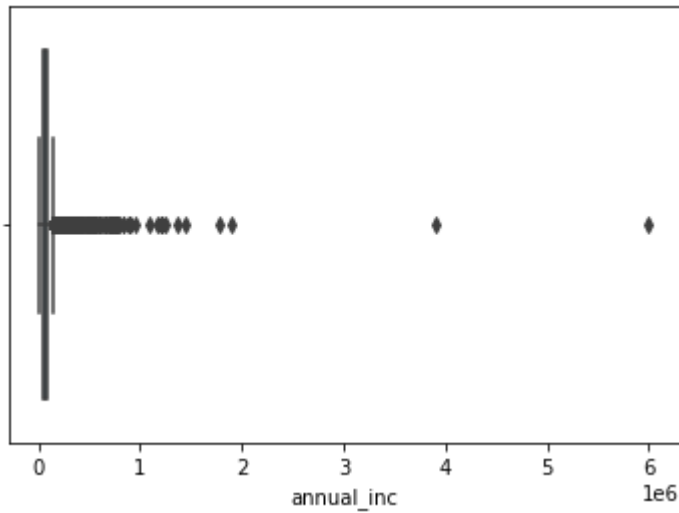
Abstract

- Lending club is the largest online loan market place, facilitating personal loans, business loan and financing of medical procedures or any kinds of loans/borrowings from the bank.
- Borrowers can easily access lower interest rate loans through a fast online interface
- The objective of the analysis is to use the information of the past loan applicants and find whether they 'defaulted or not'

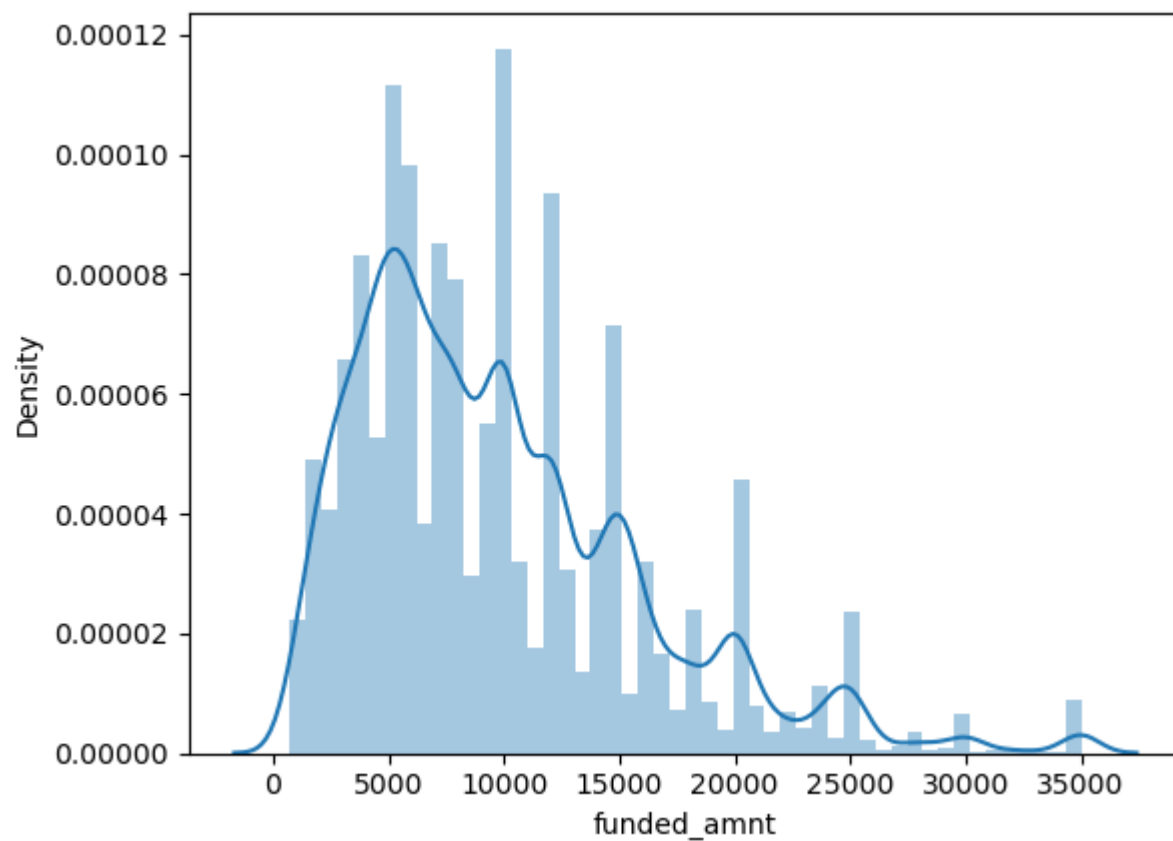
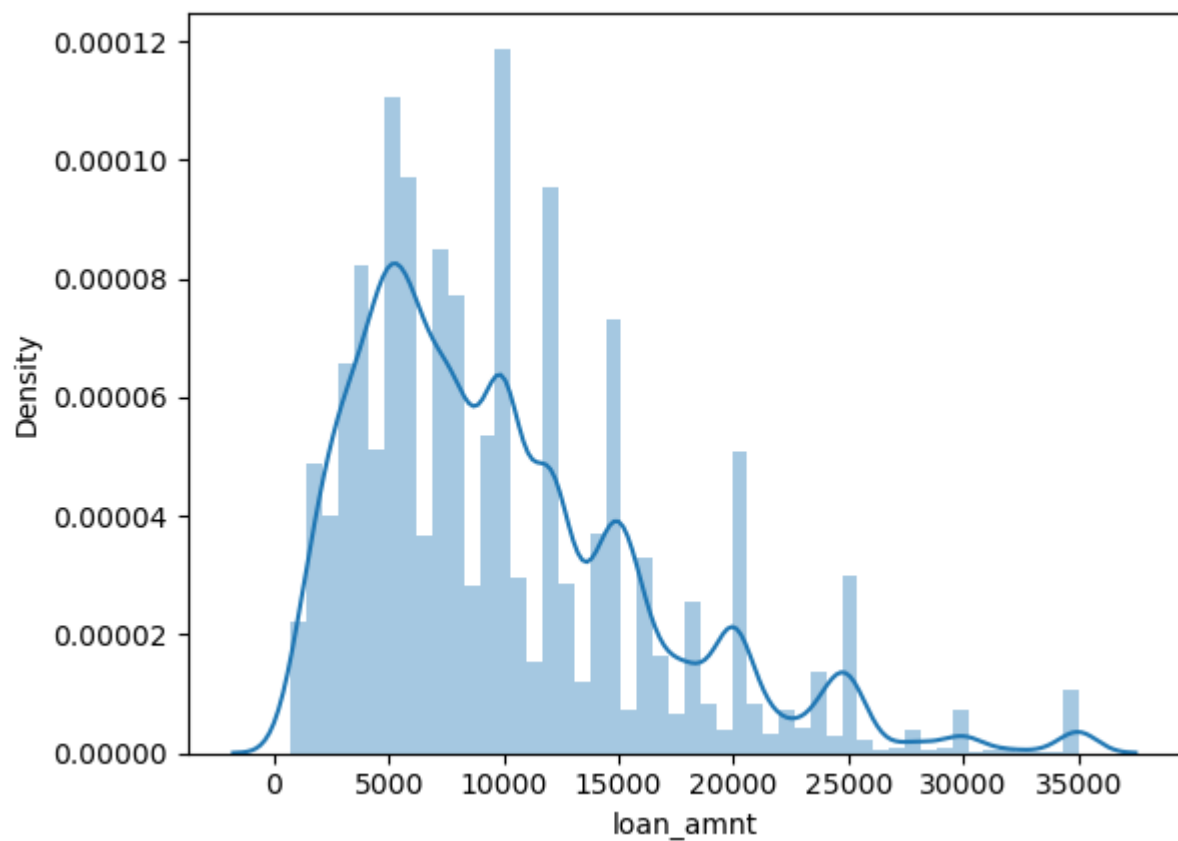
Problem solving methodology



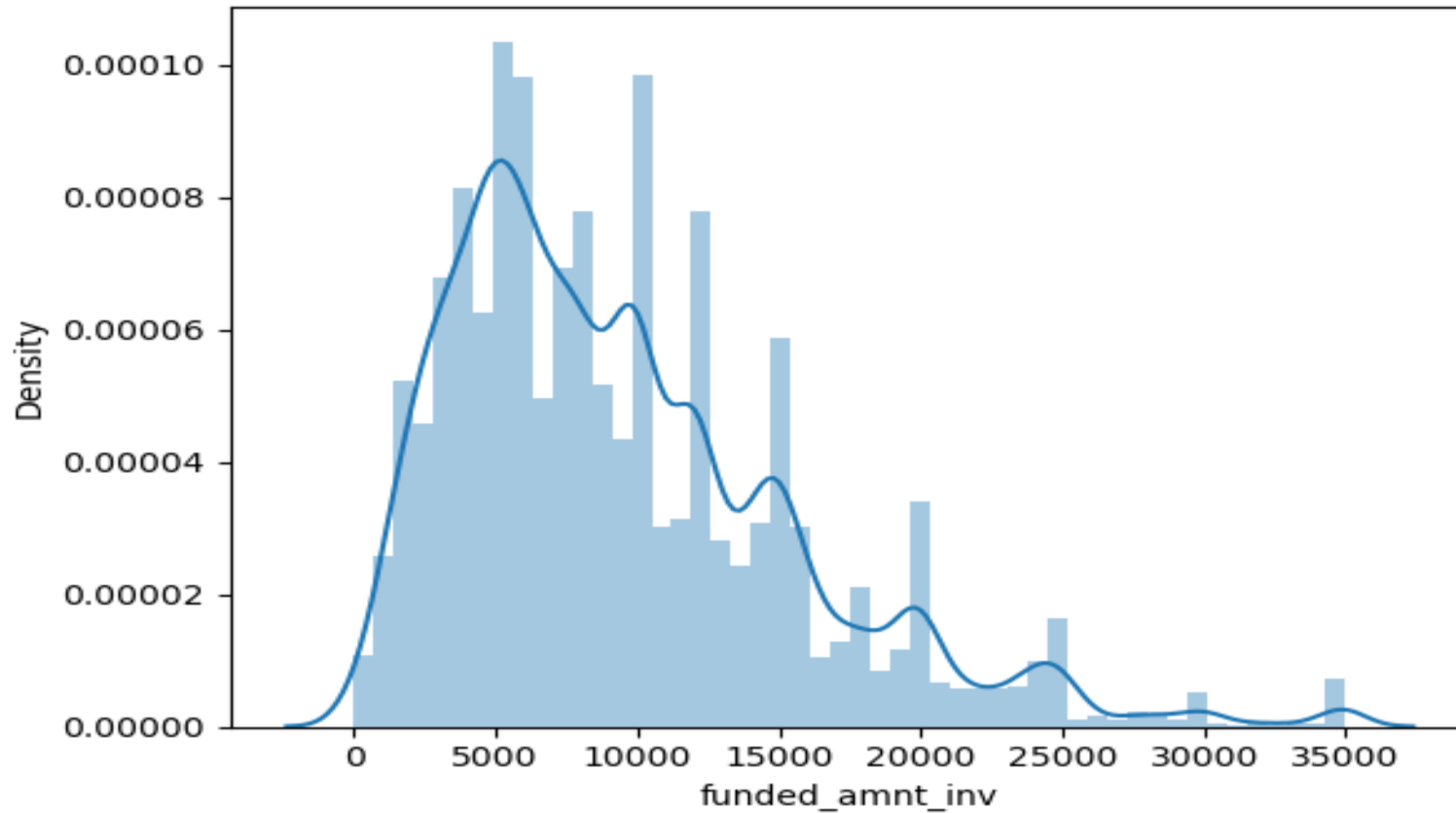
Outlier Treatment



Analysis

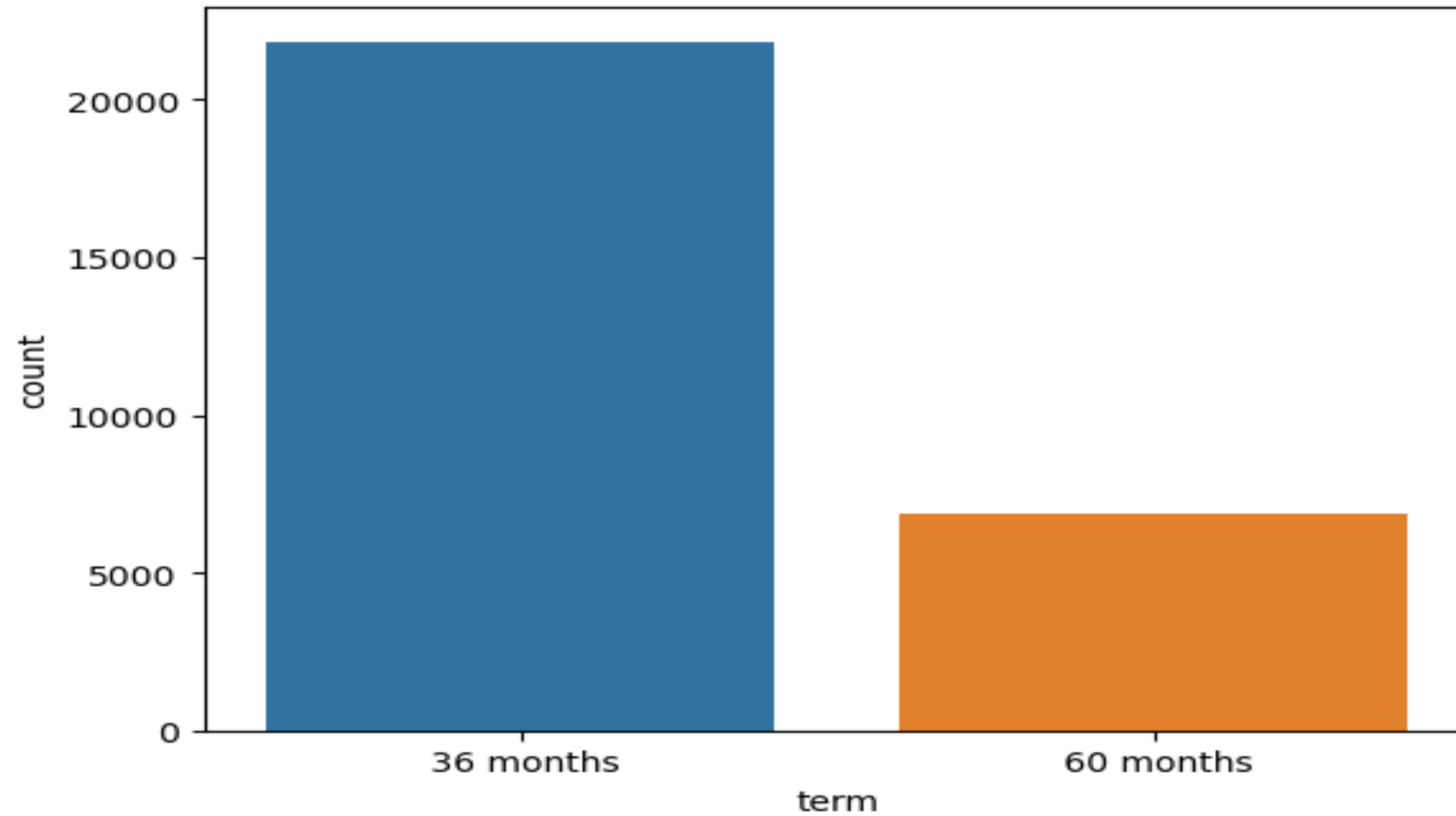


Analysis



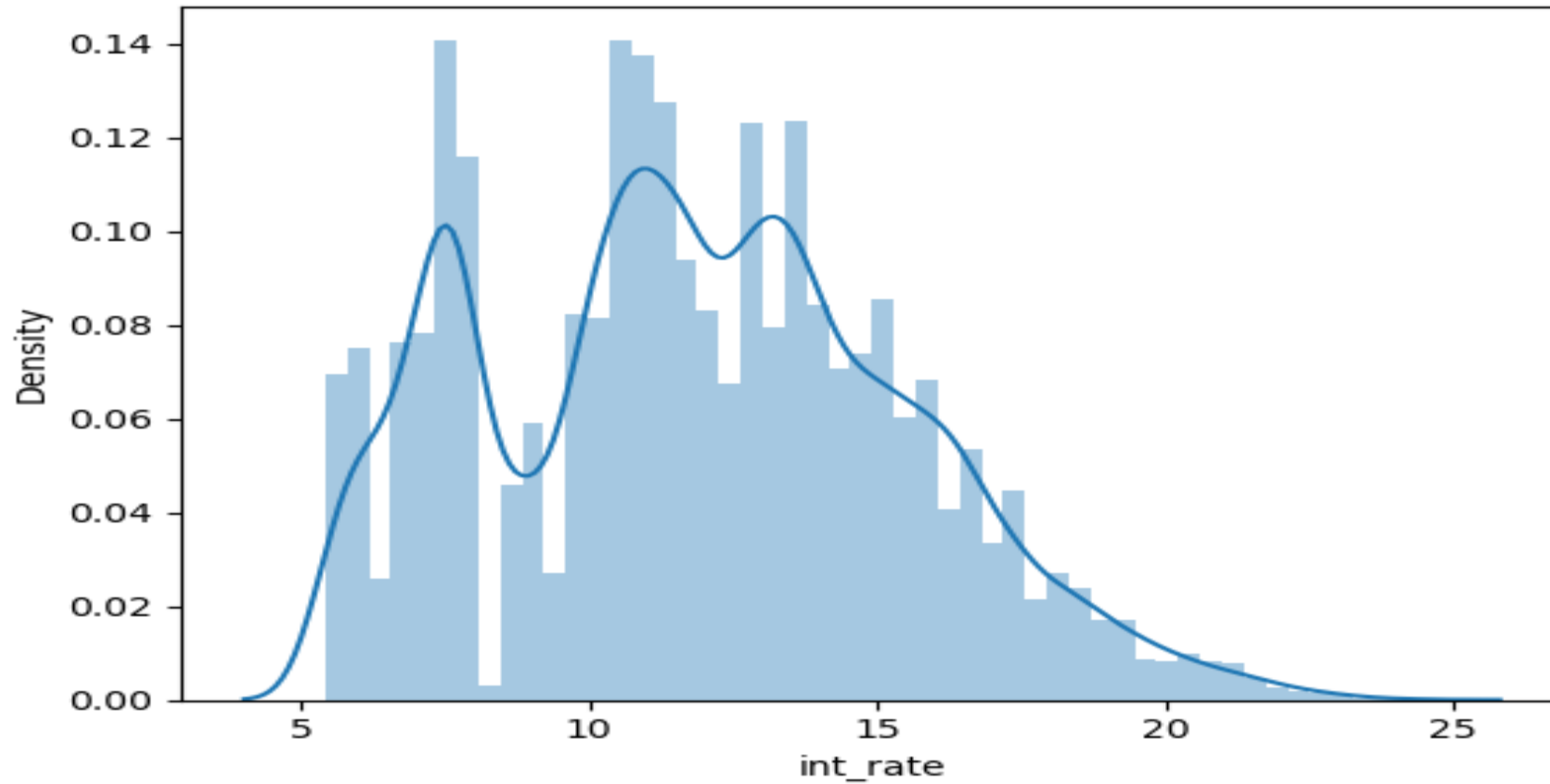
- Mostly people apply for loan for 4000 to 7000 and we can see spikes at 5000, 10000, 15000, 20000 and so on. So these are the preferred kind of amounts that people generally go for.

Analysis



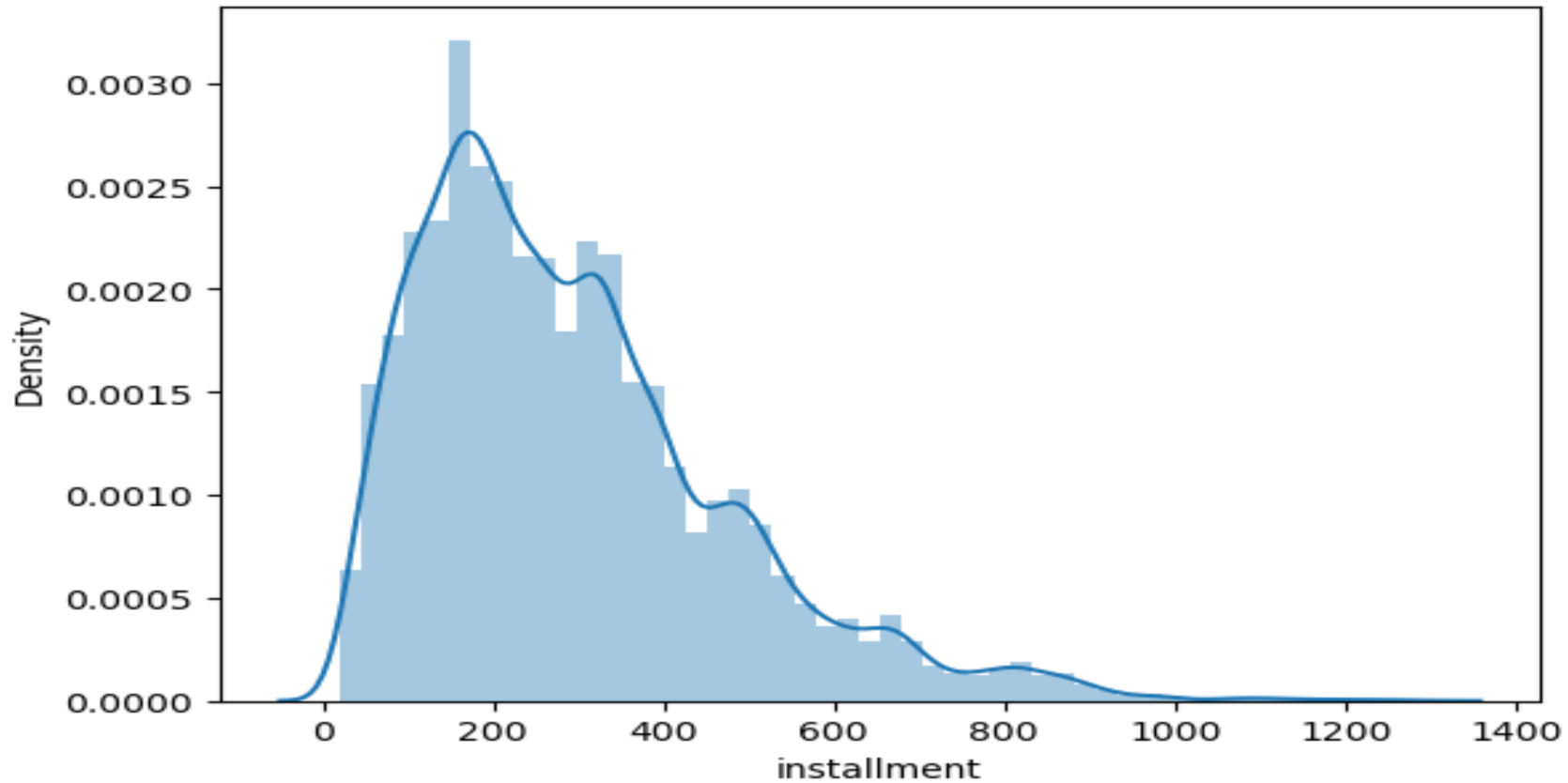
- Mostly people go for 36 months plan than 60 months plan. People are interested in short term loan than long term loan

Analysis



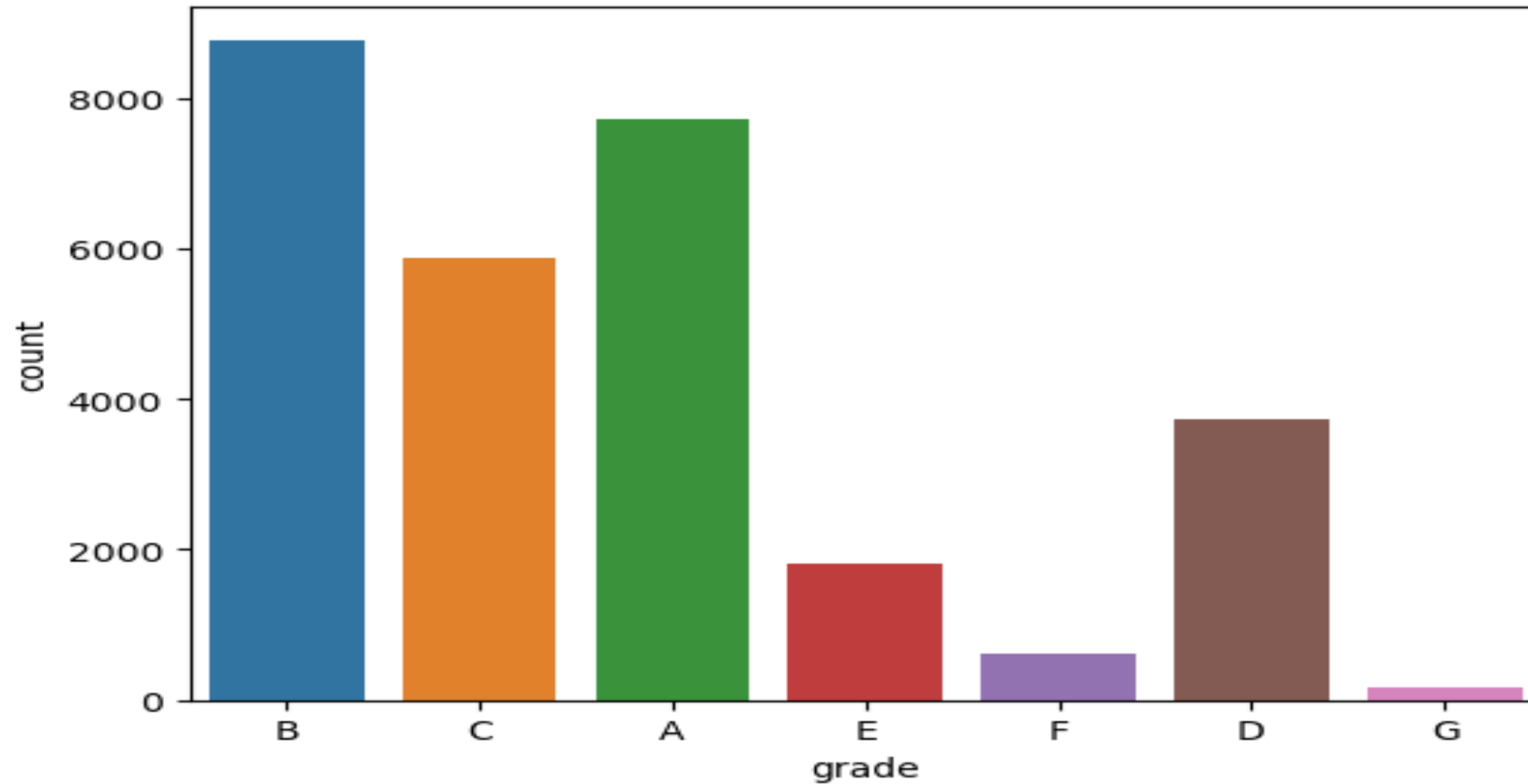
- Mostly interest rate is between 10% to 15%. But there is also spike between 6% to 8% interest rate

Analysis



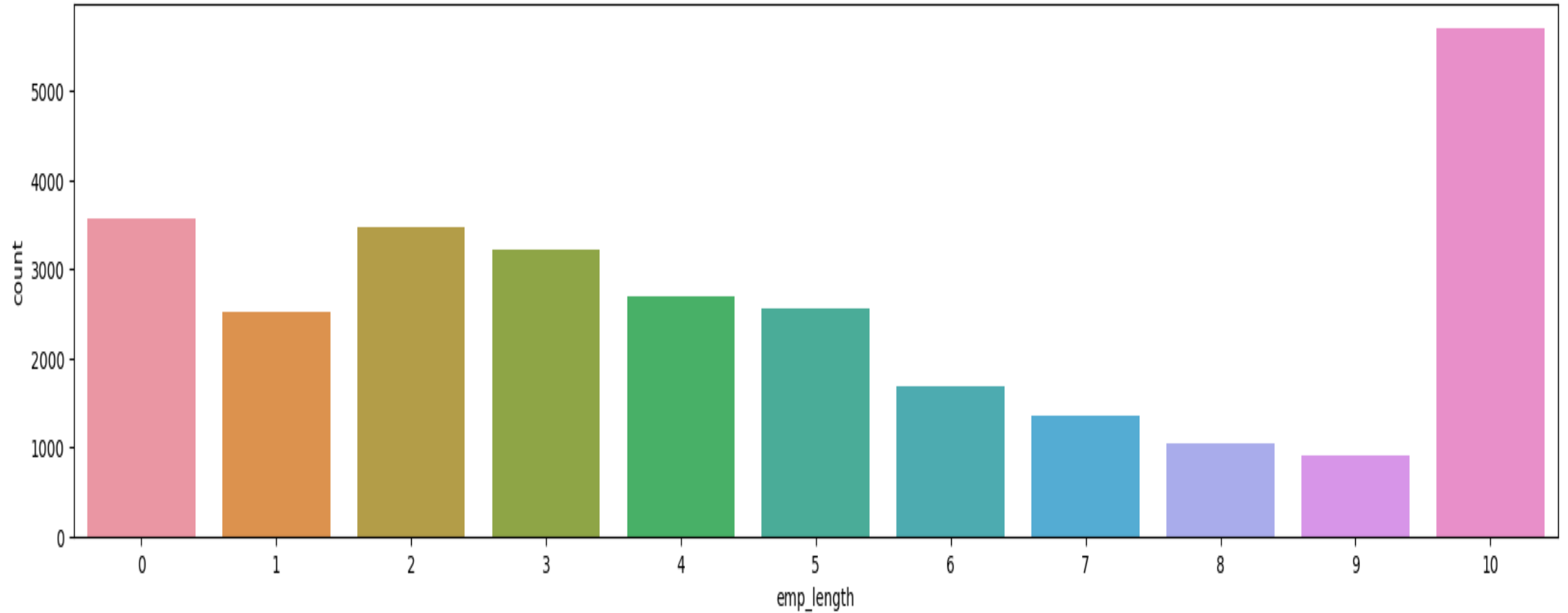
- Most installments are between 100-300

Analysis



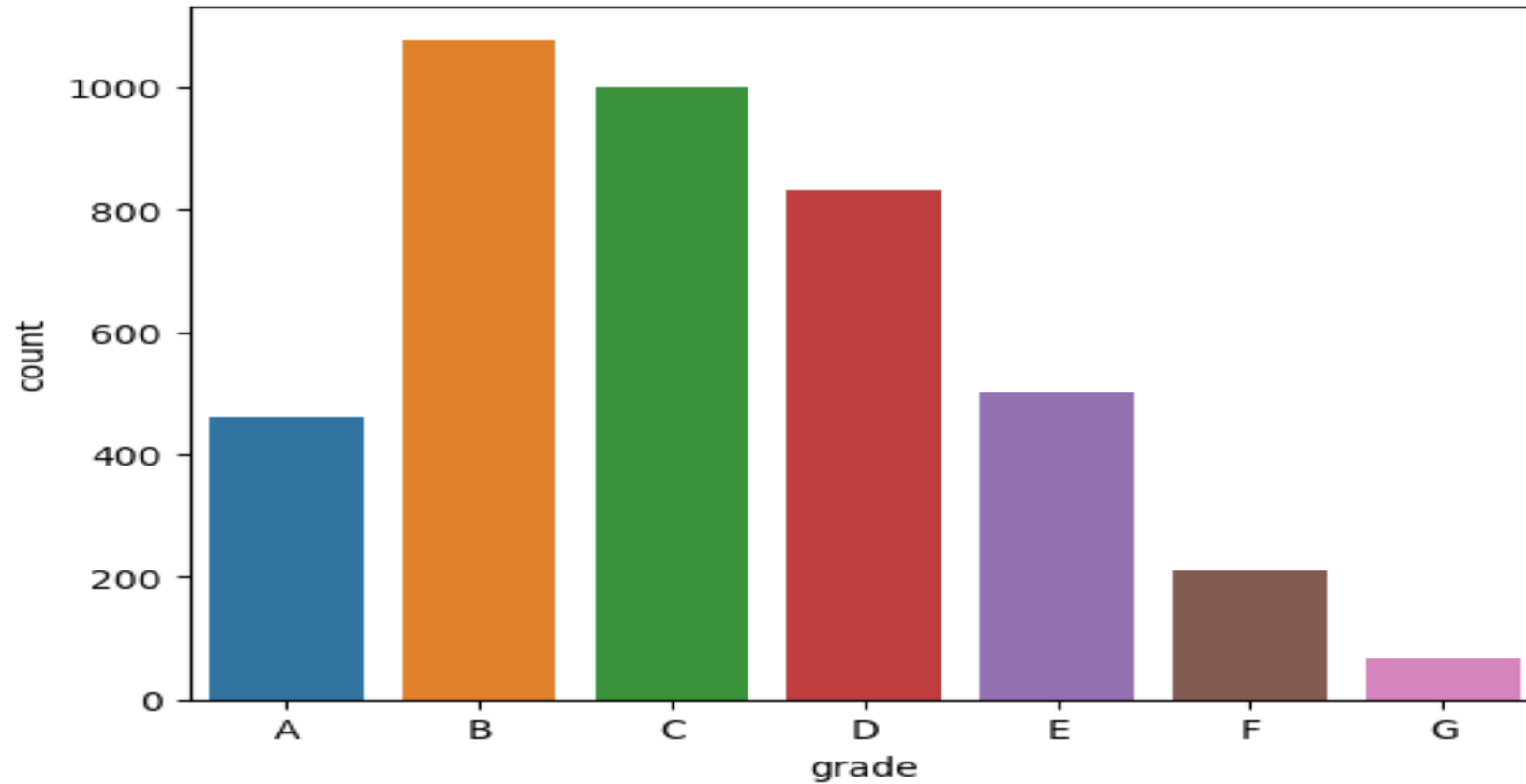
- Most of the borrowers are of good credit quality - B FOLLOWED BY A

Analysis



- Most of the borrowers have >10yrs exp

Analysis



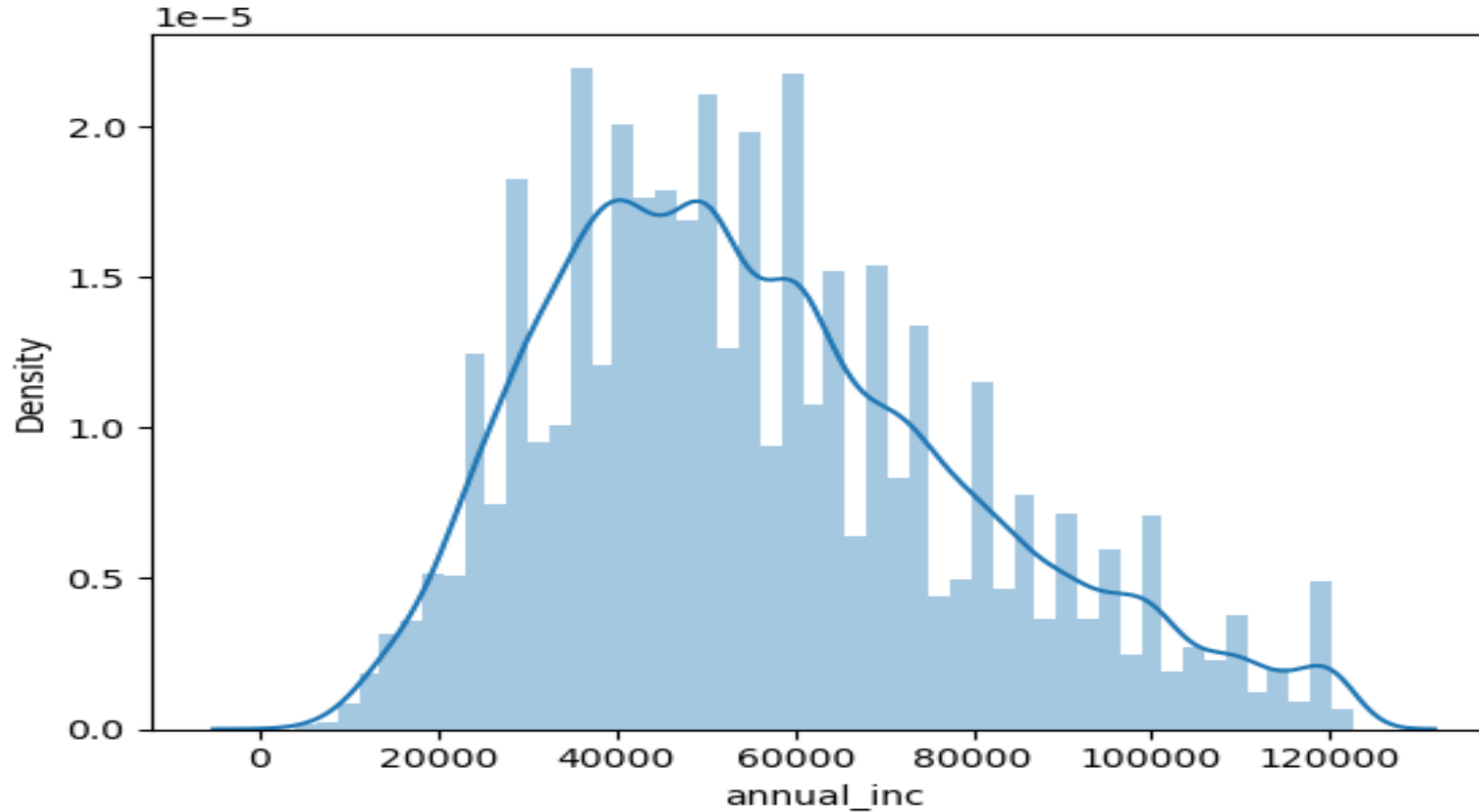
- As credit quality deteriorates, likelihood of default increases

Analysis



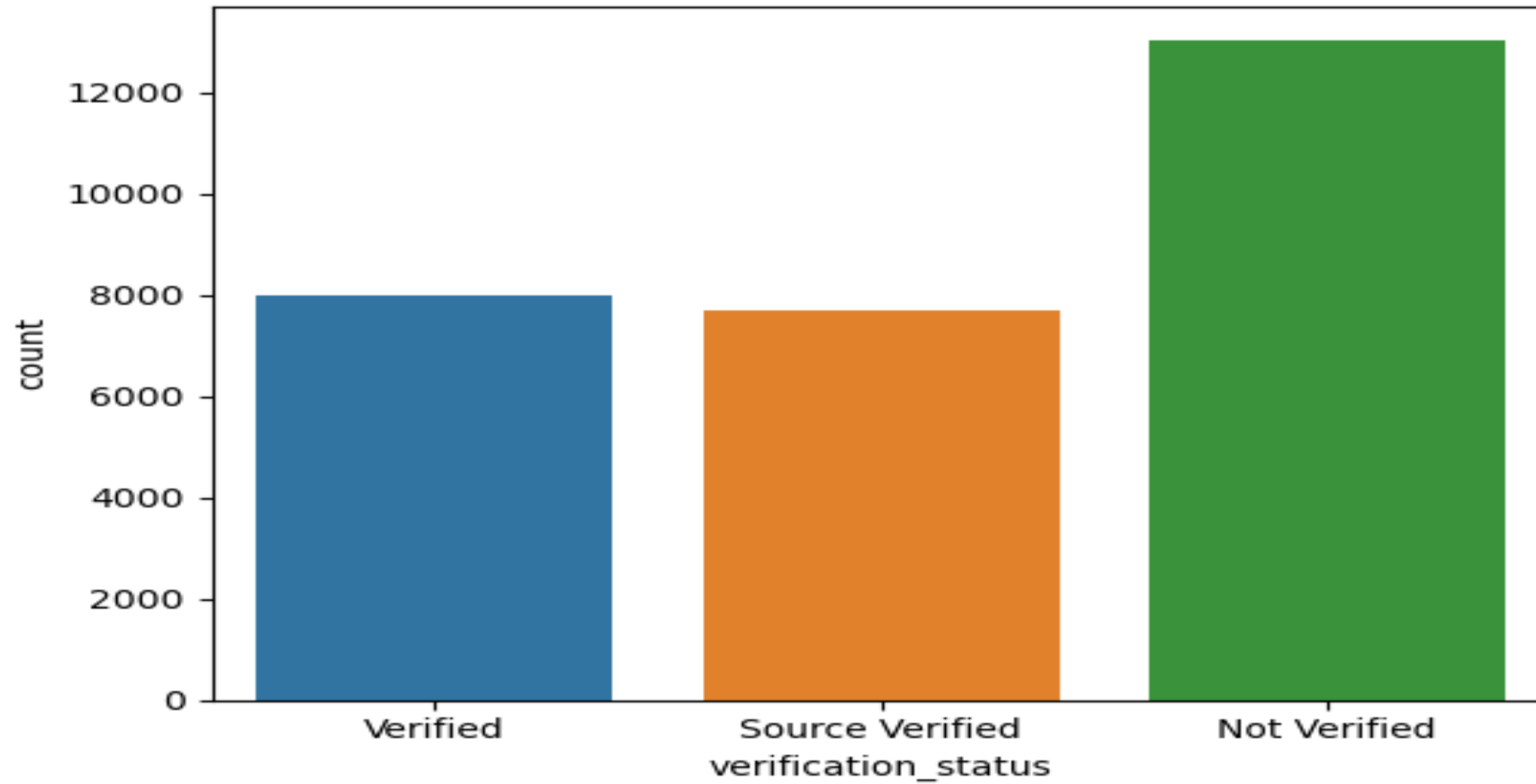
- Majority of borrowers stay in rented accommodations, followed by those who stay in mortgaged accommodations

Analysis



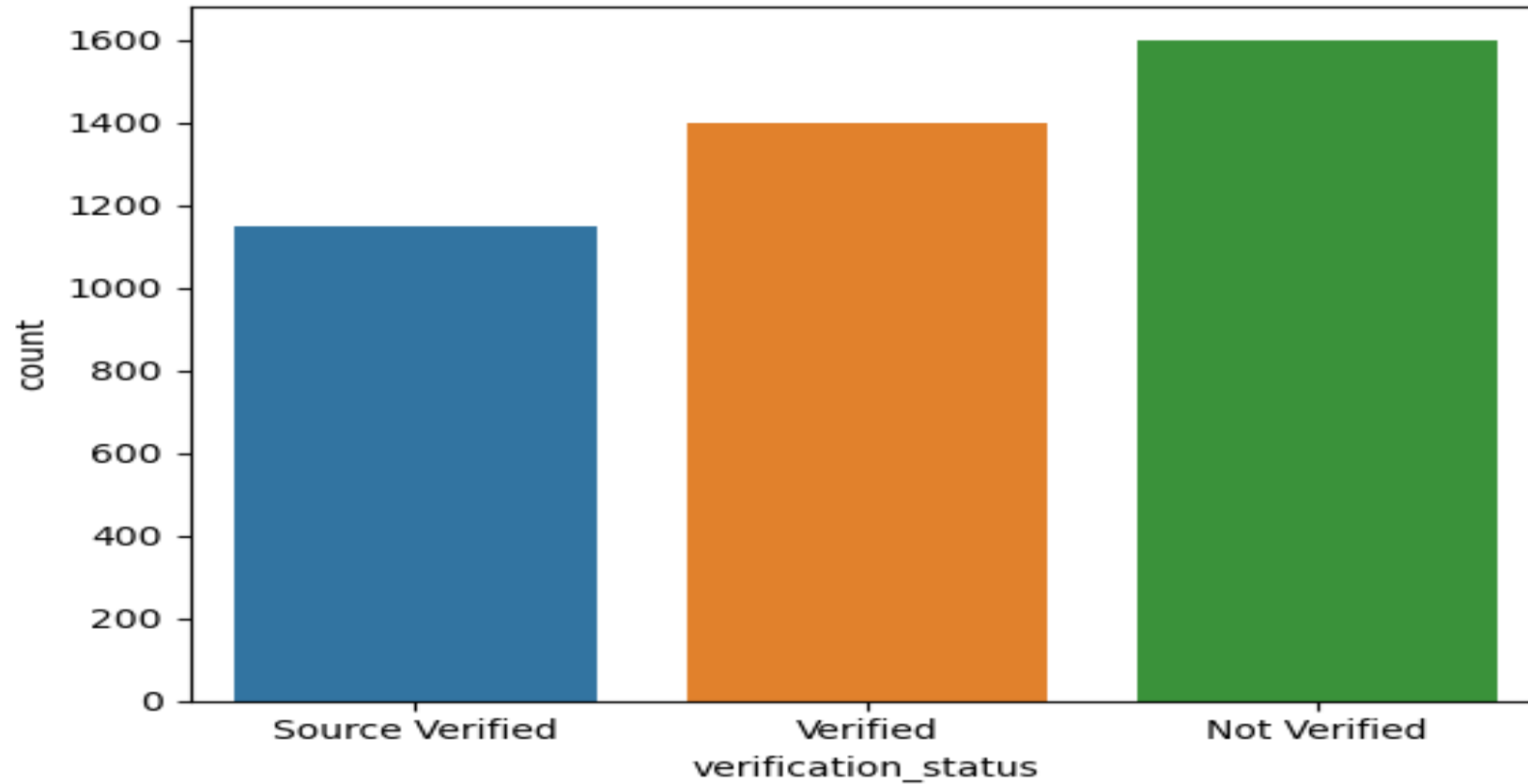
- Borrowers with pay of 30000-60000 are the ones who take the majority of loans

Analysis



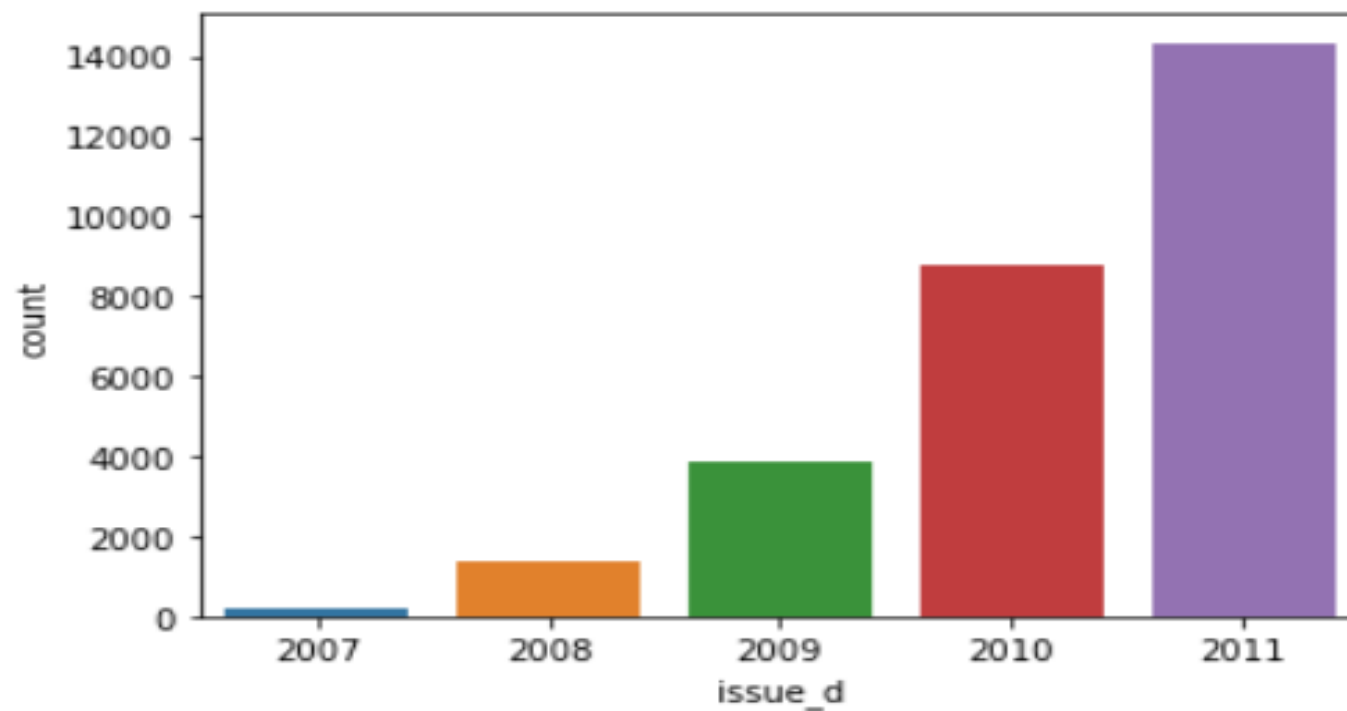
- Most borrowers' income is not verified

Analysis



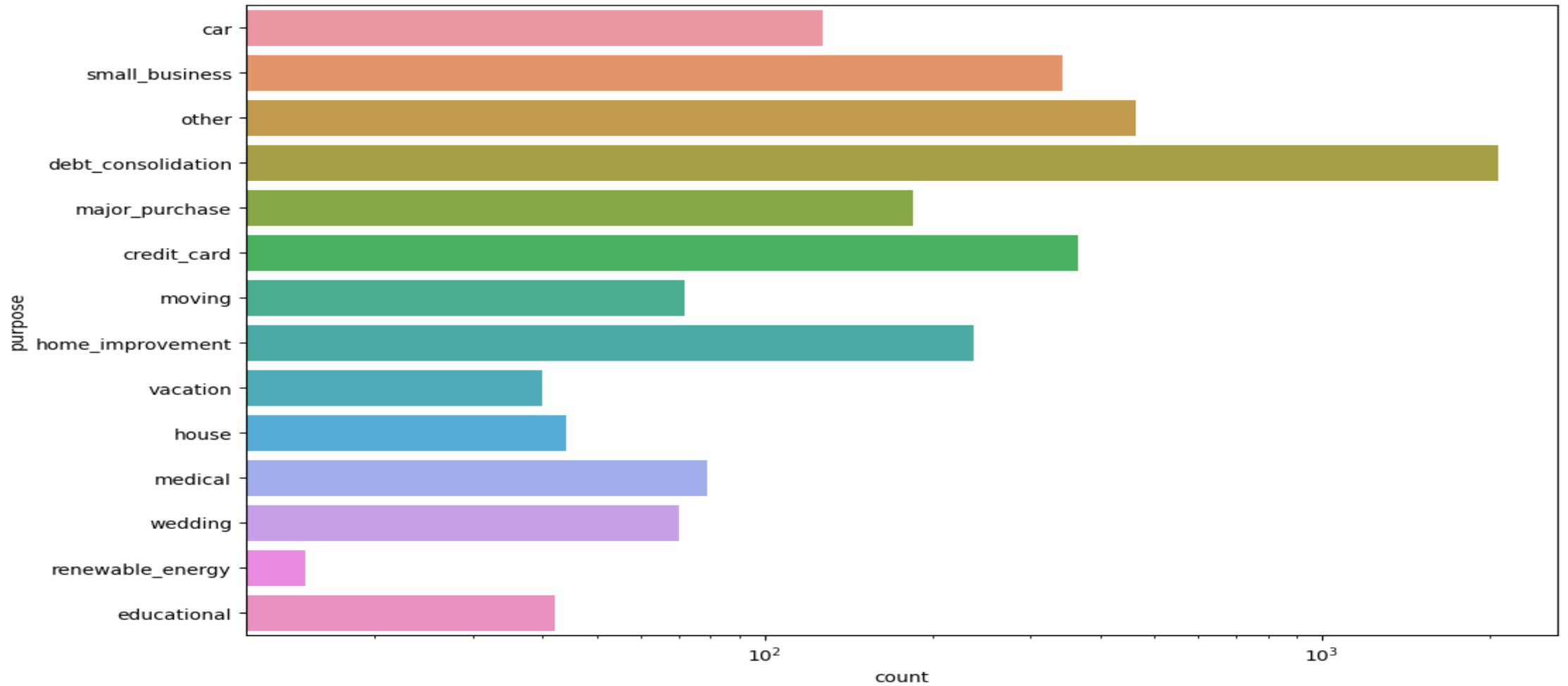
- Majority of loans that failed were those where Income was Not Verified

Analysis



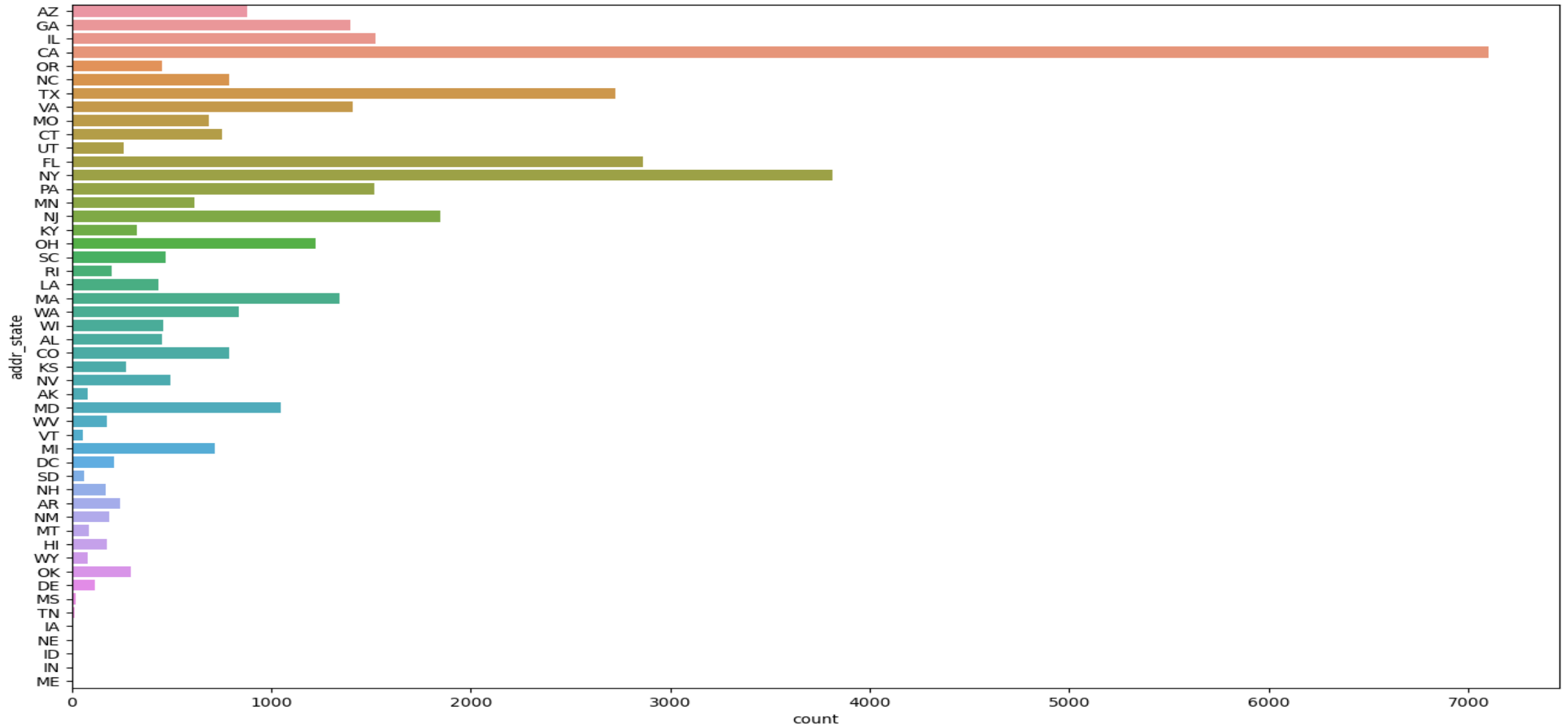
Issuing loans are increased by 2x every year

Analysis



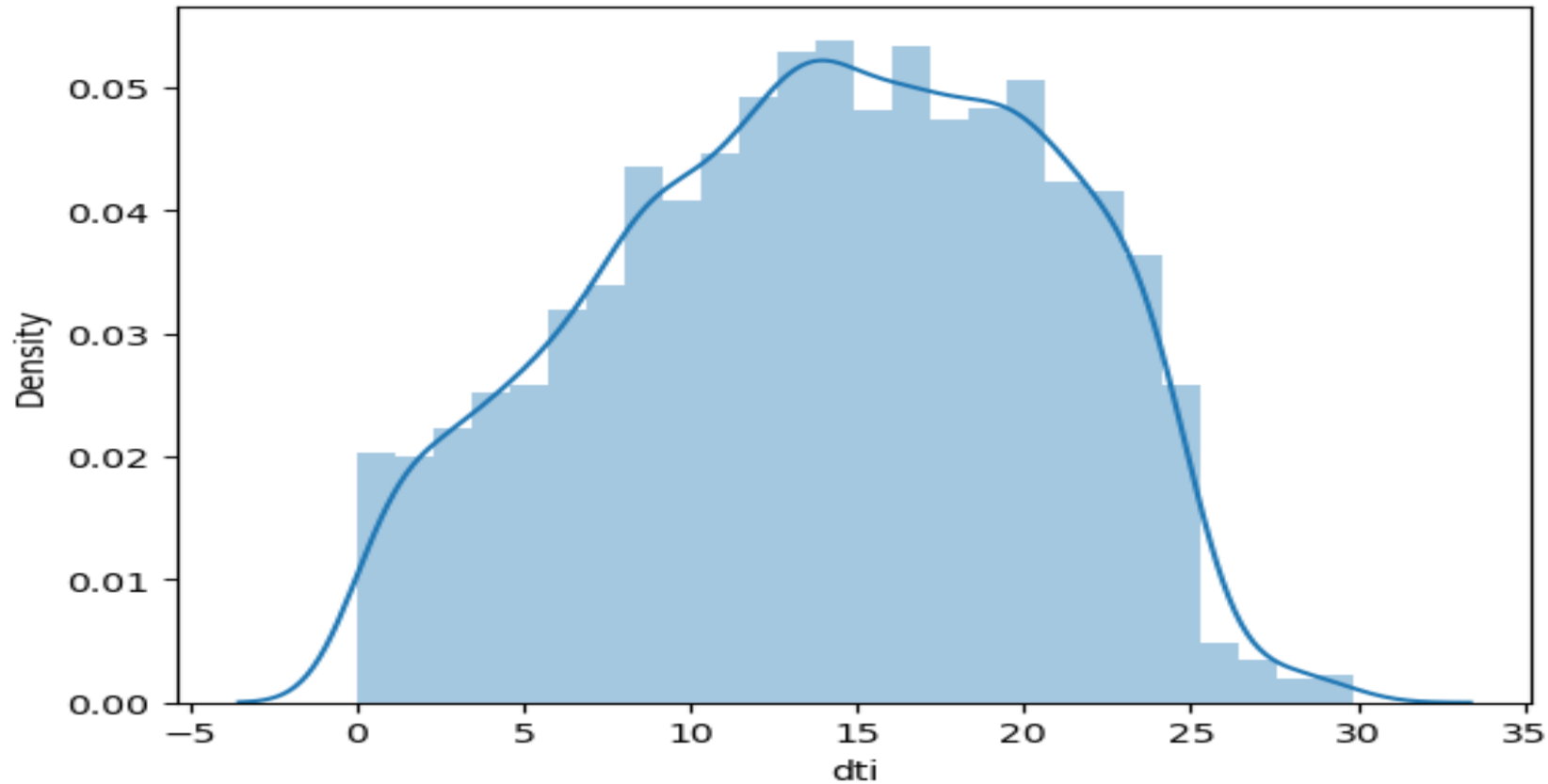
- Maximum charged off loans were taken for debt consolidation, credit cards and for other businesses

Analysis



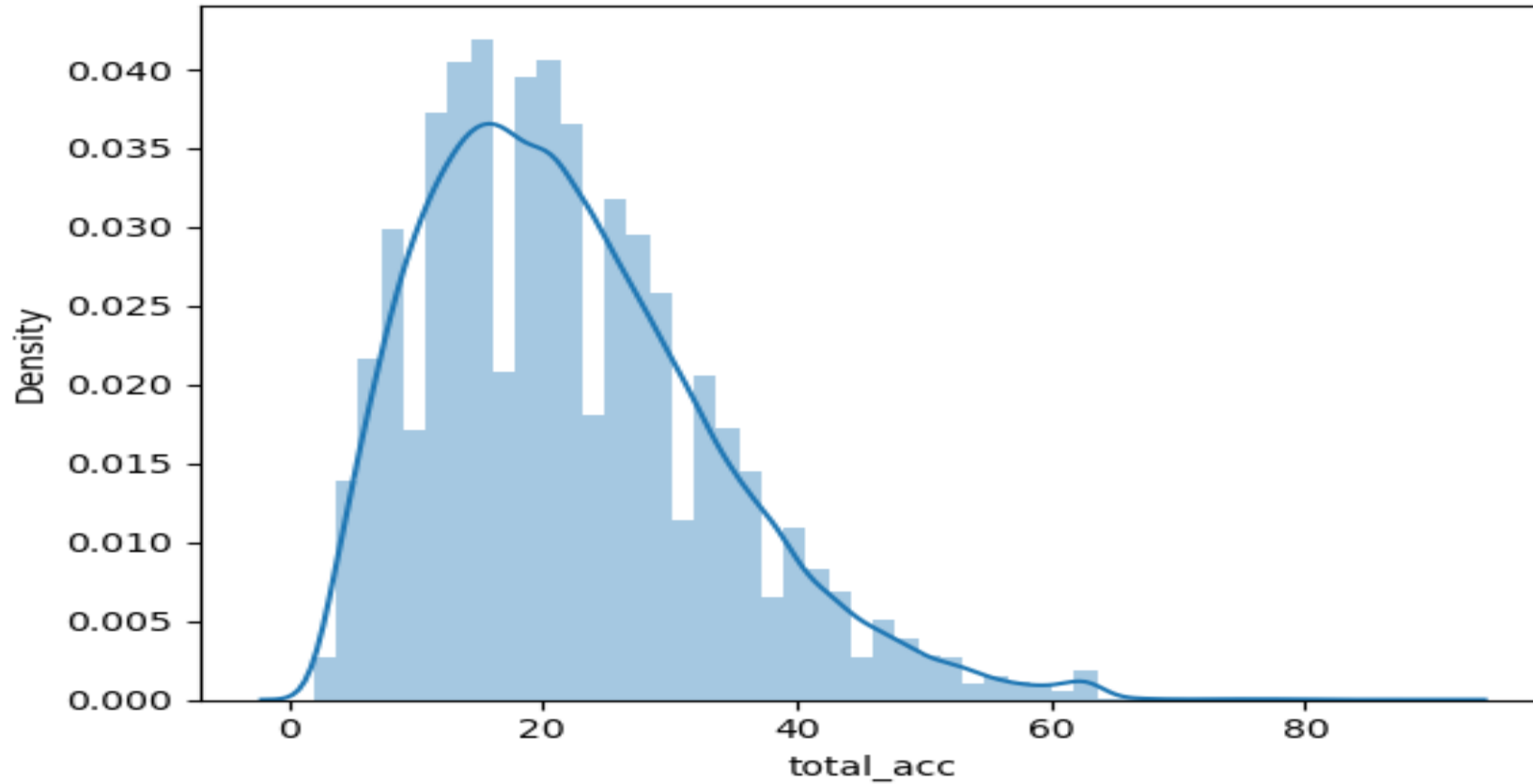
- Highest number of loans are taken from states of CA, NY, FL

Analysis



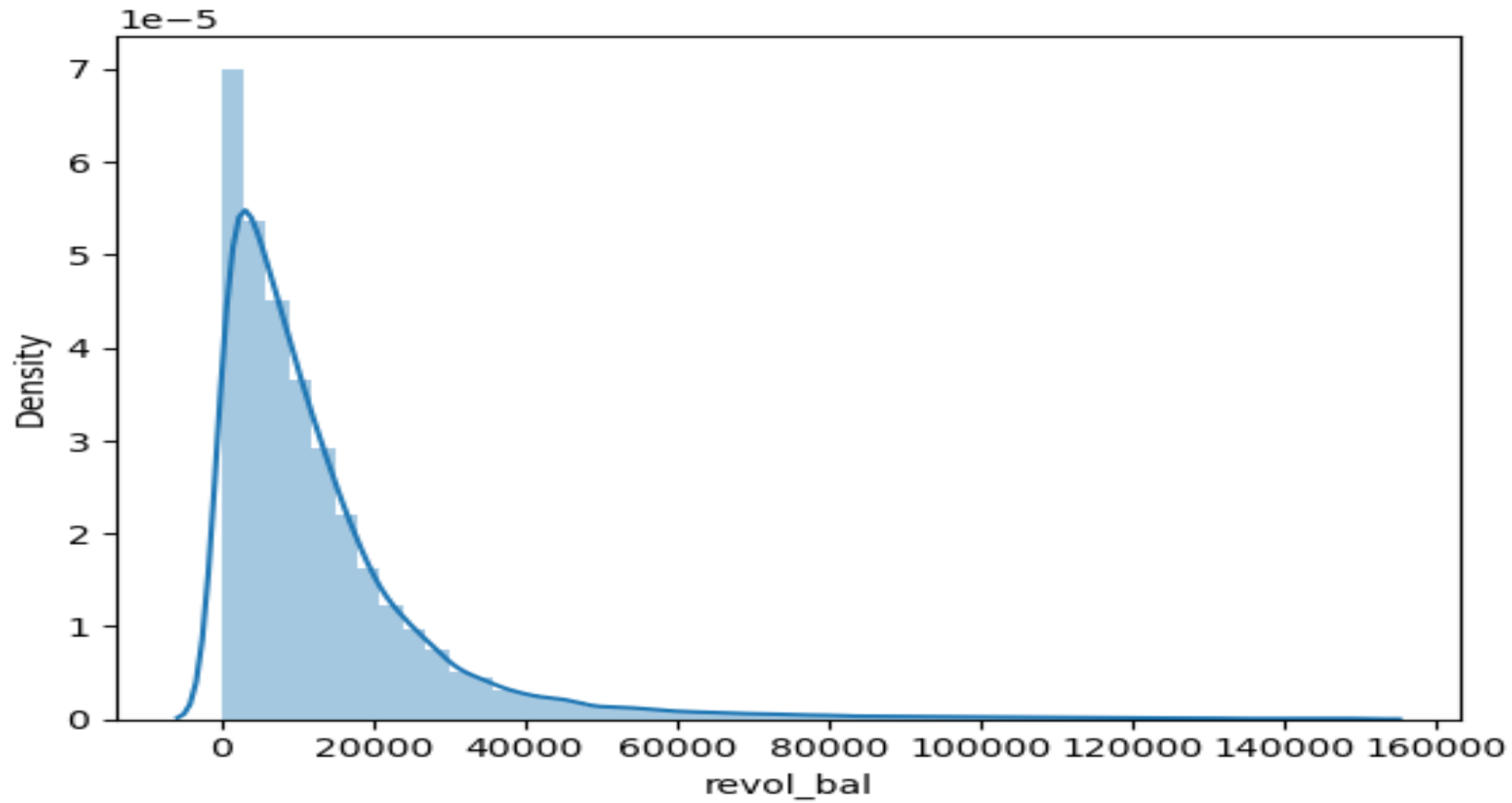
- Majority of the borrowers that were charged off had a dti of 15-20

Analysis



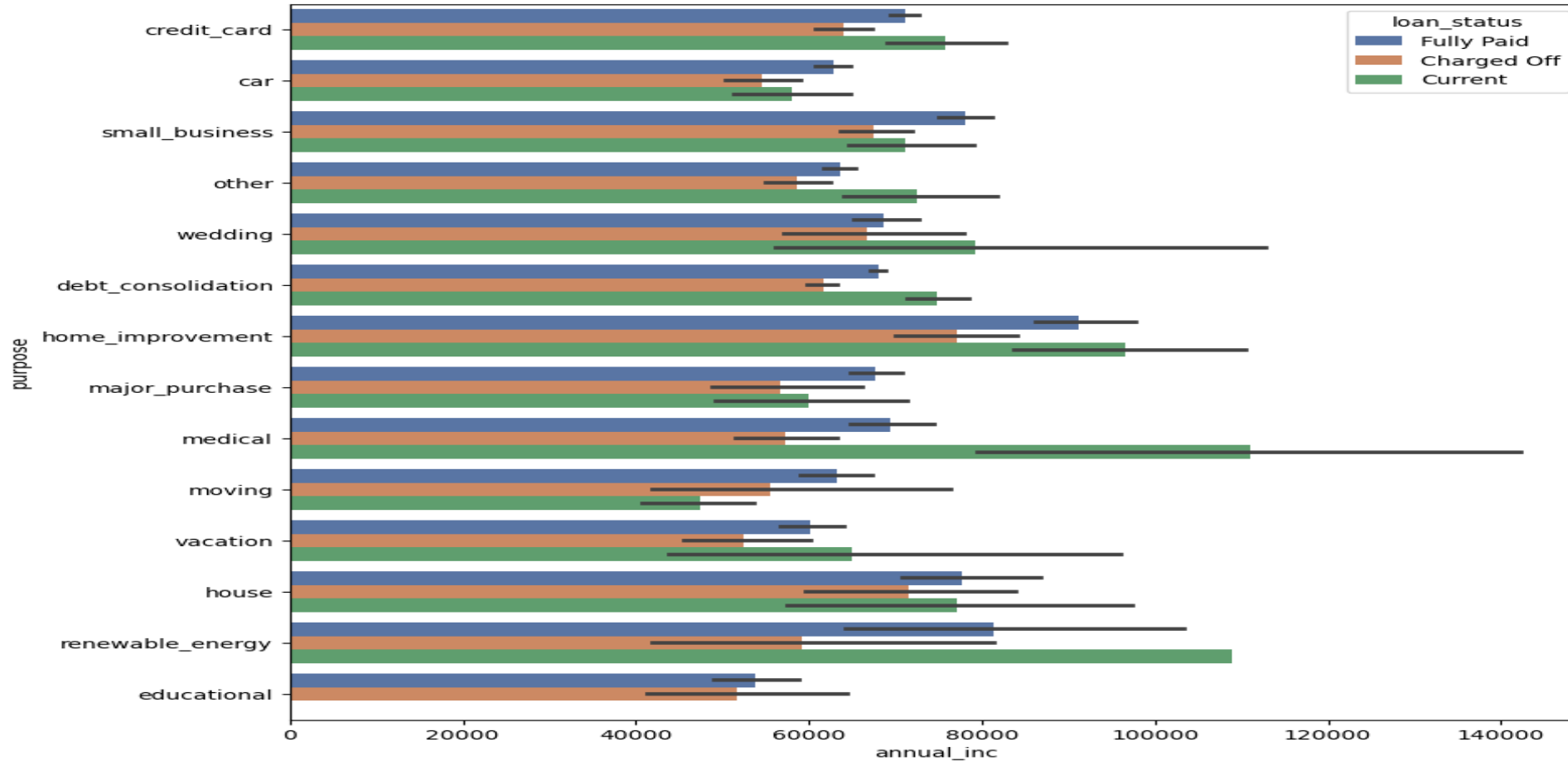
Mostly number of credit lines are between 10-25

Analysis



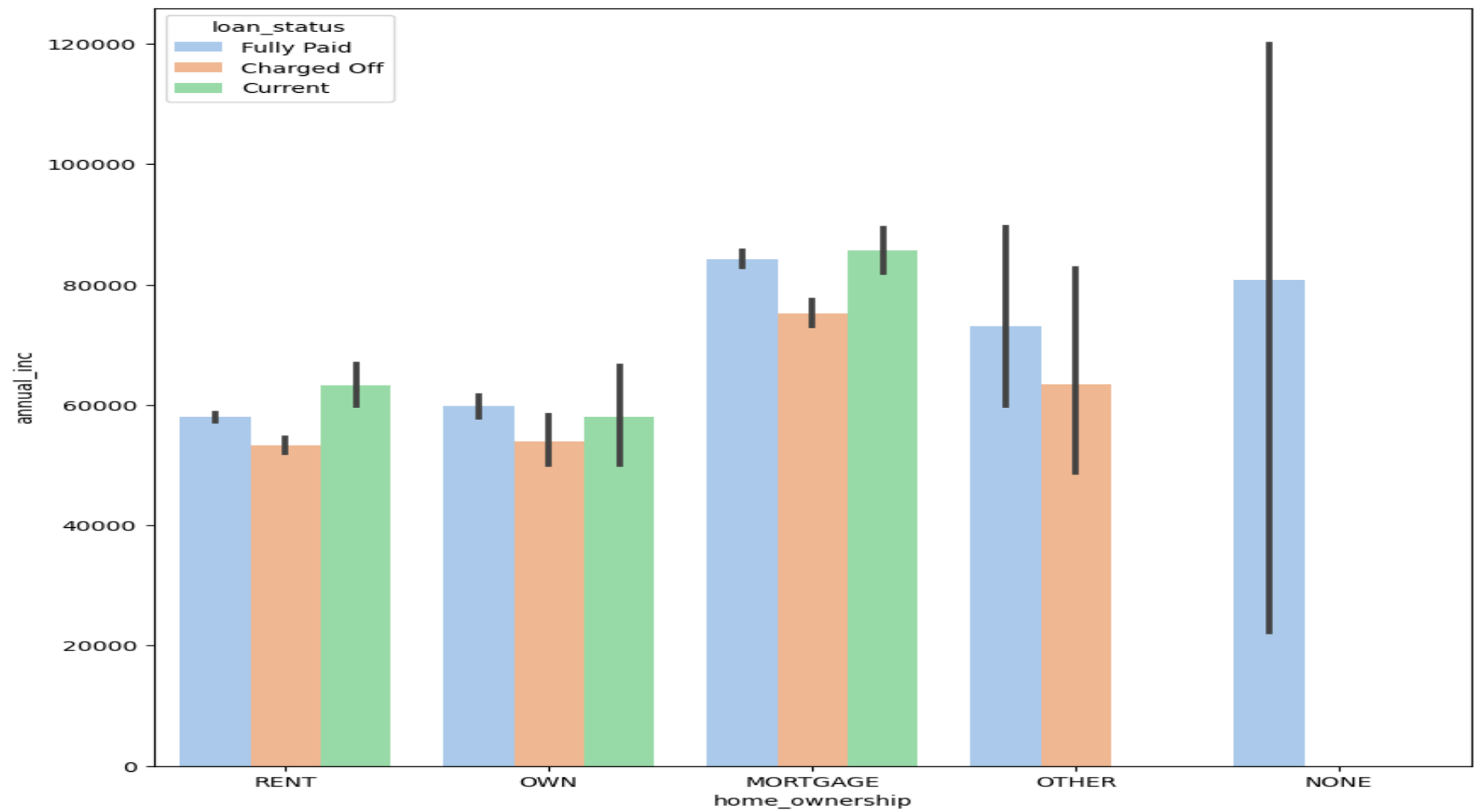
- Mostly revolving balance is below 20000

Analysis



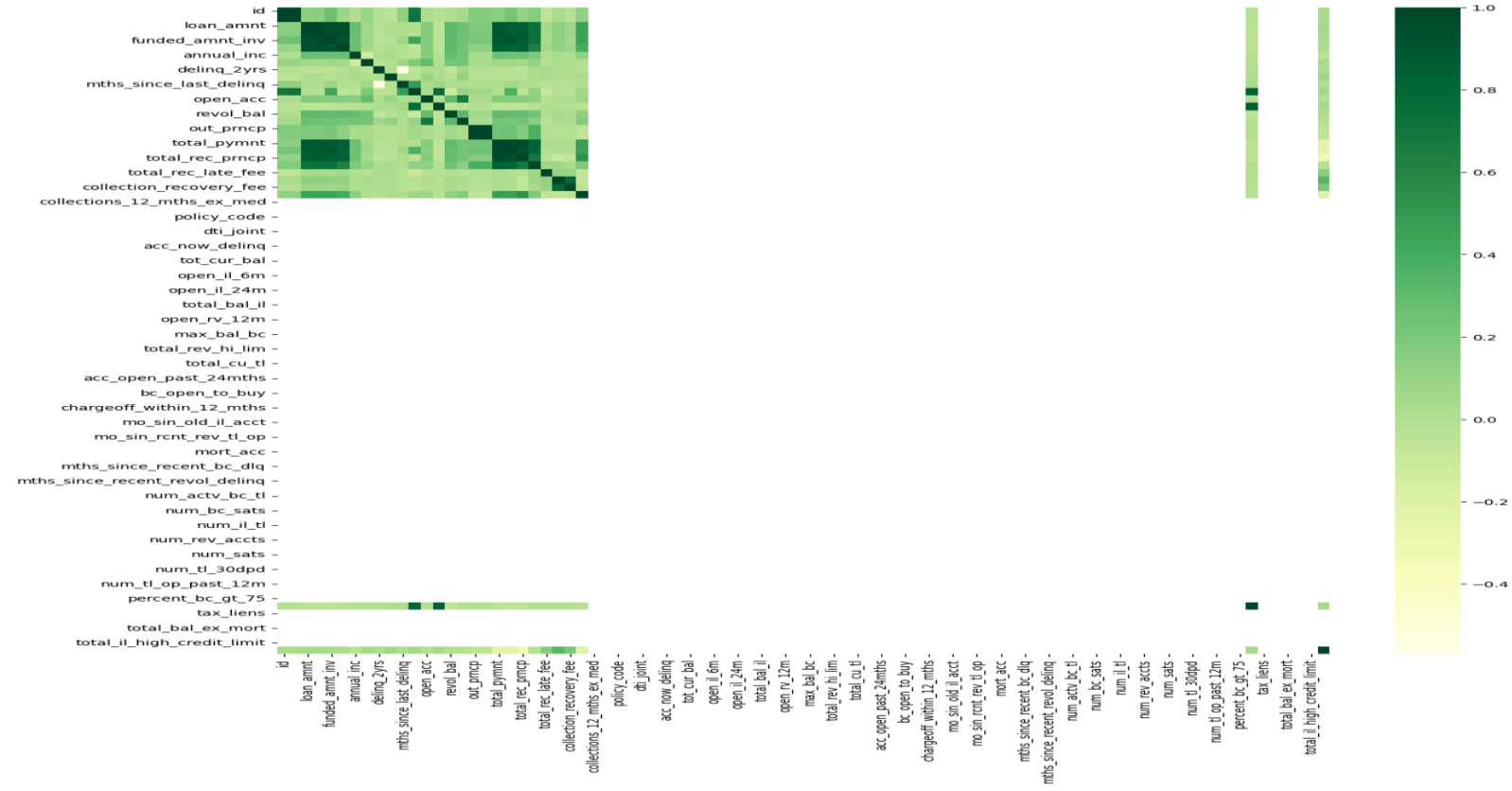
- Applicants with higher salary mostly applied loans for "home_improvement", "house", "renewable_energy" and "small_businesses"

Analysis

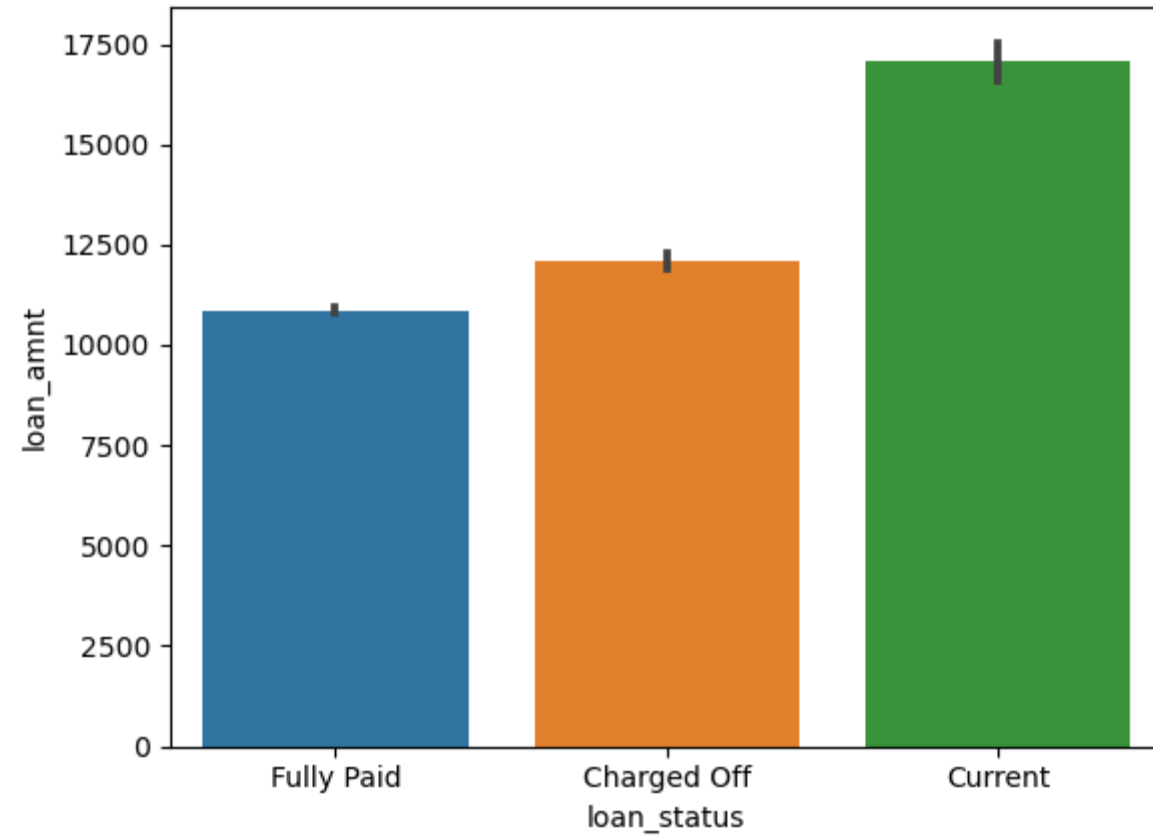


Annual income vs home ownership

Analysis

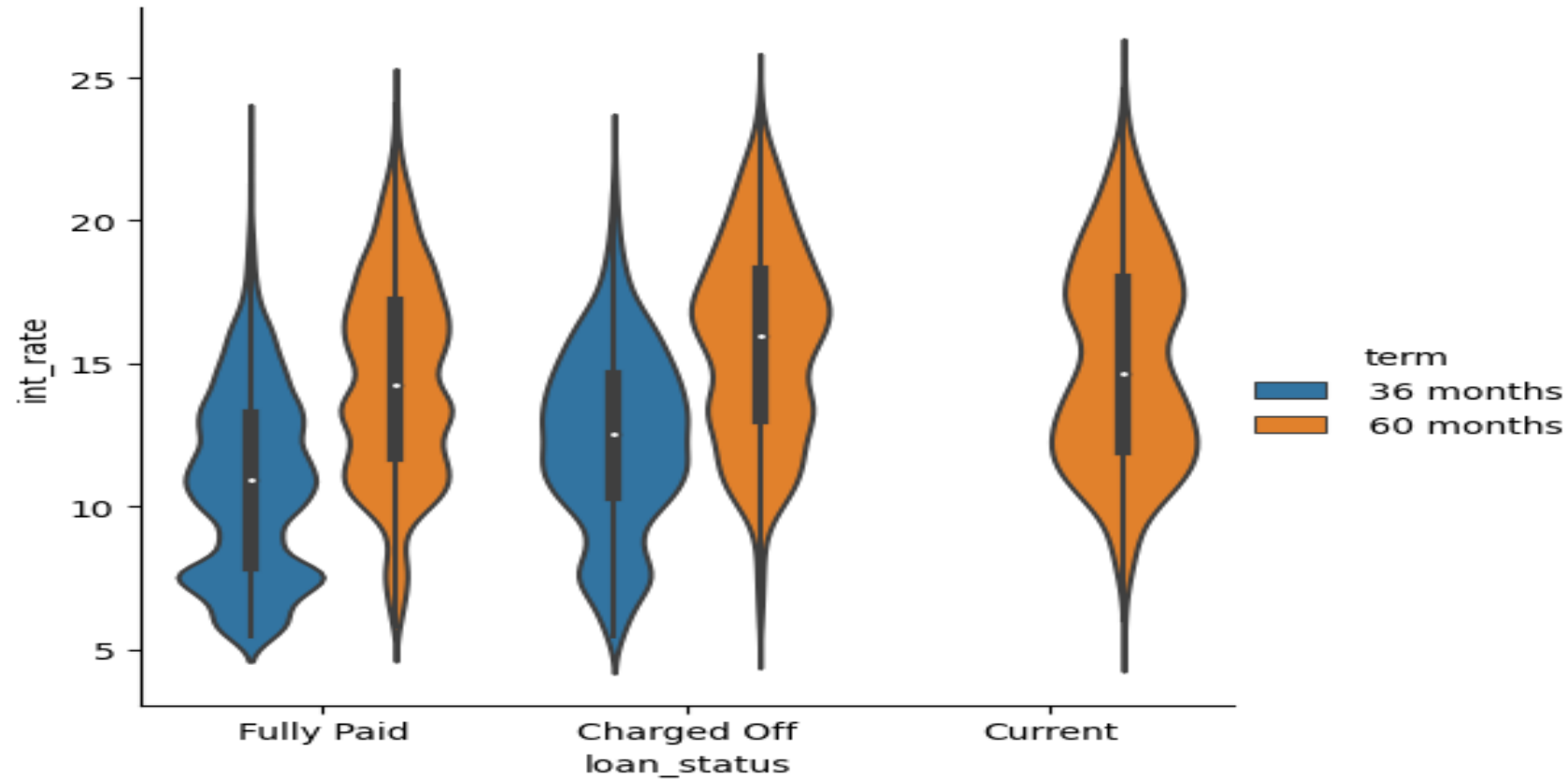


Analysis



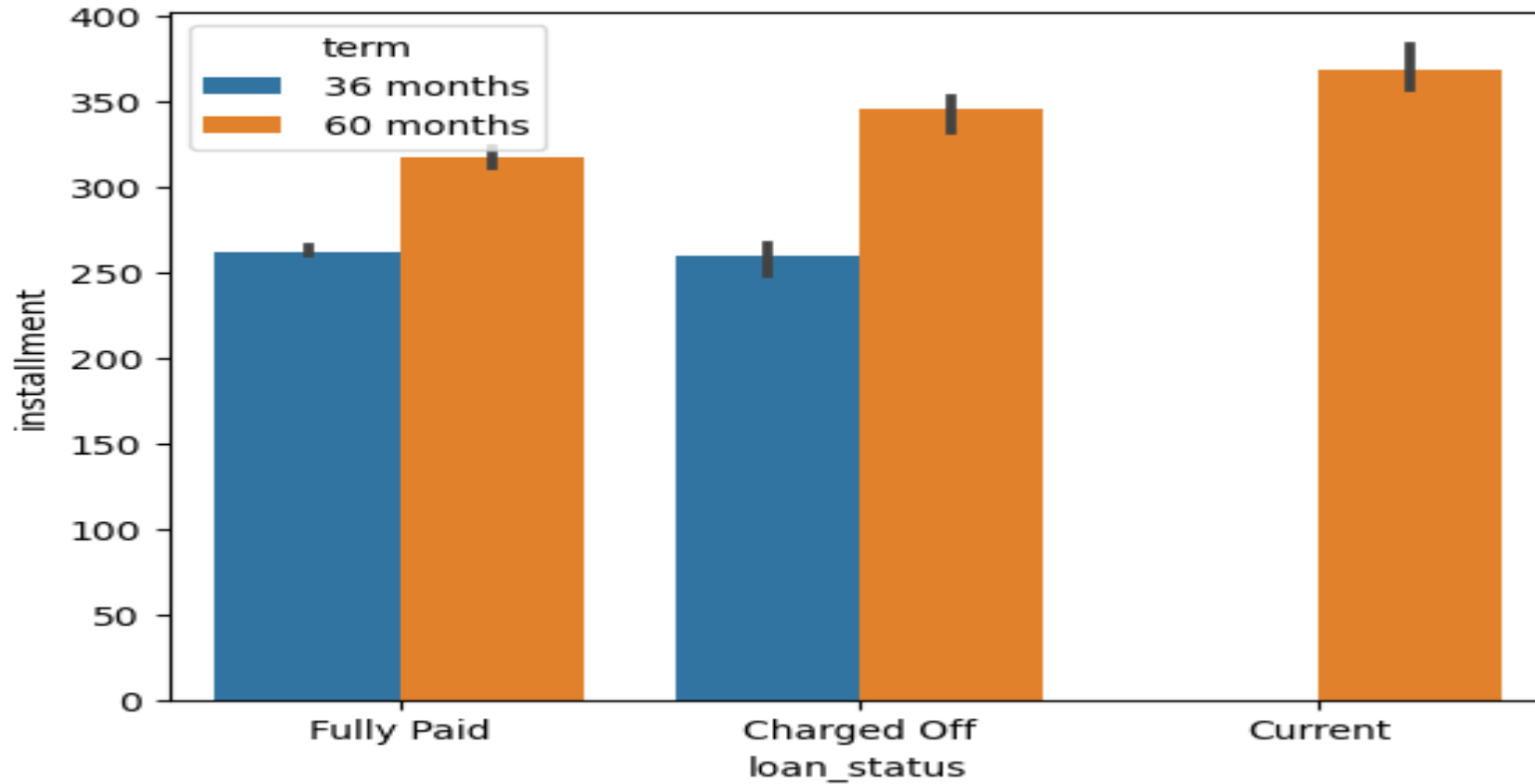
- Non Default customers have lower loan amounts than the Defaulters

Analysis



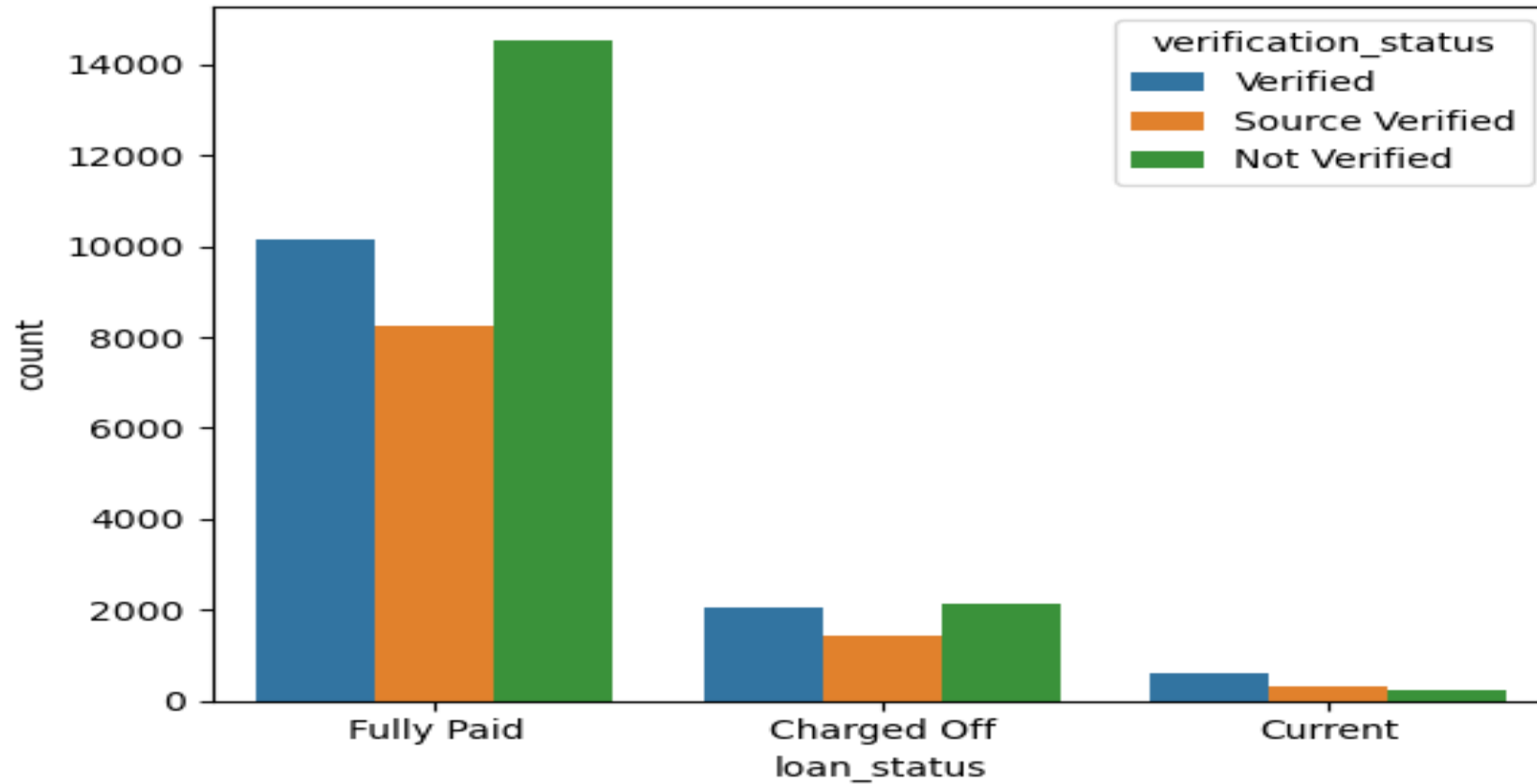
- It seems who have taken loan for 36 months with 13% interest (apprx.) and 60 months above 15% interest have higher chance of being default

Analysis



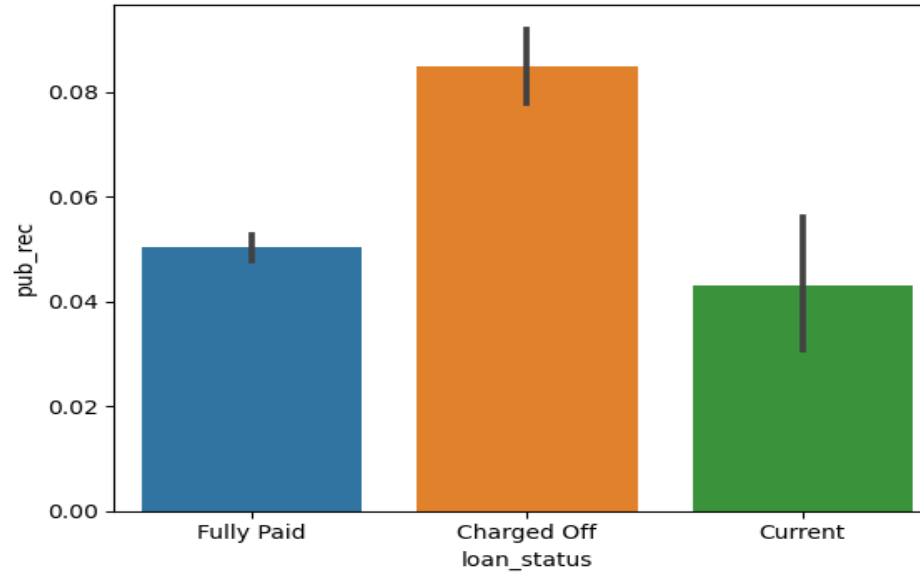
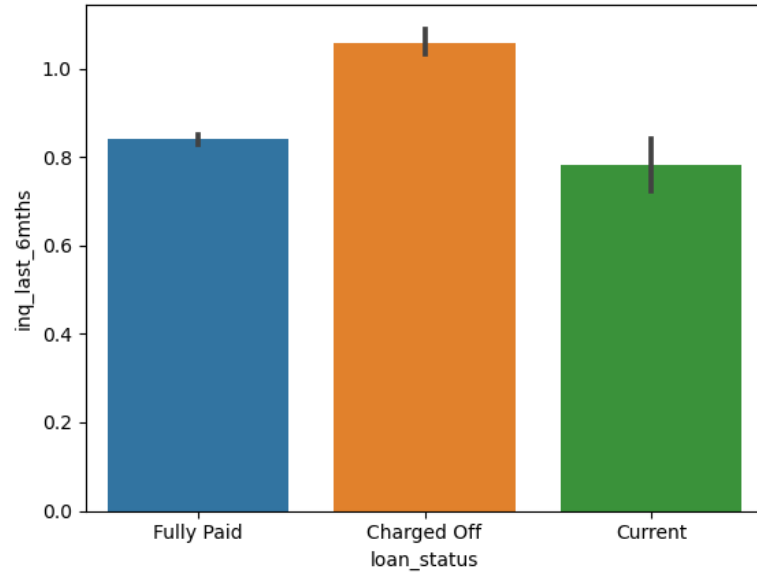
- Defaulters have more than avg 250 dollar monthly installments for 36 months, 320 dollar for 60 months

Analysis



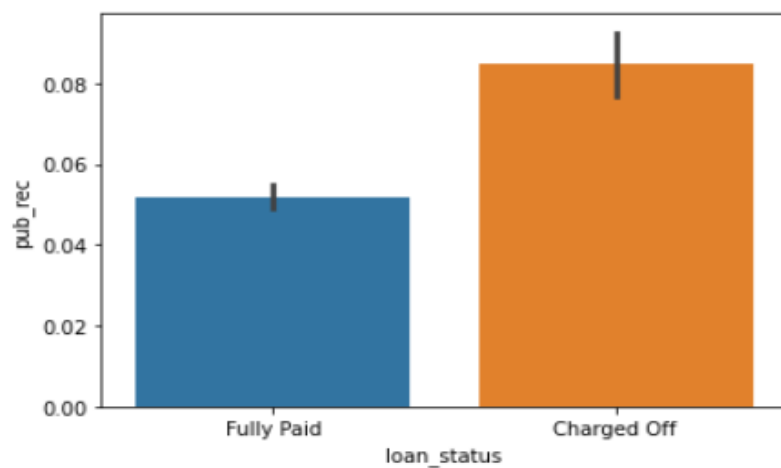
- Majority of the Charged odd loans are Not verified

Analysis



- More enquiries in last 6months increases likelihood of default
- Defaulters have higher number of derogatory public records

Analysis

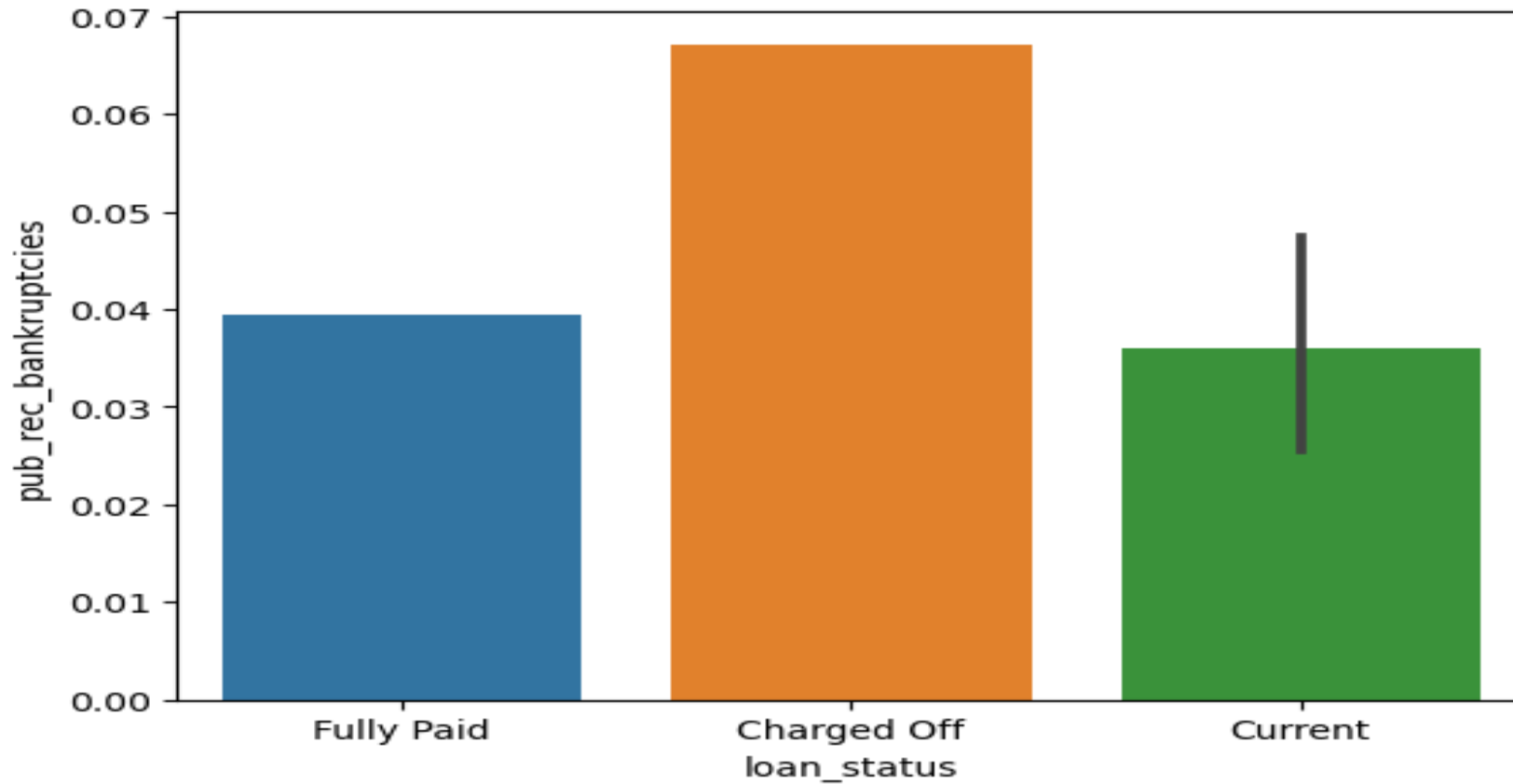


Dafaulters have higher number of derogatory public records



It's obvious that dafaulters will have higher revolving balance

Analysis



- Defaulters have more bankruptcies in publicly available records

Recommendations

Hereby we come to an end of the EDA of the loan data set and finding some of the drivers for loan default. Apart from the ones highlighted below, I am sure there will be multiple others too; however, according to me, these are the most impactful ones.

Minor Impact from the analysis:

- Higher loan amount (above 16K)
- Higher installment amount (above 327)
- Lower annual income (below 37K)
- Higher debt to income ratio (above 15%)
- Applicant's address state (NV, SD, AK, FL, etc.)
- Loan issue month (Dec, May, Sep)

Heavy impact from the analysis:

- Higher interest rate (above 13%)
- Higher revolving line utilization rate (above 58%)
- Repayment term (5 years)
- Loan grade & sub-grade (D to G)
- Missing employment record
- Loan purpose (small business, renewable energy, educational)
- Derogatory public records (1 or 2)
- Public bankruptcy records (1 or 2)

Combined impact from the analysis:

- High loan amount & interest rate for lower income group
- High installment and longer repayment term
- Home ownership (other) and loan purpose (car, moving or small business)
- Residential state and loan purpose
- Income group and loan purpose

Conclusion

- Lending Club should reduce the high interest loans for 60 months tenure, they are prone to loan default.
- Grades are good metric for defecting faulters. Lending club should examine more information from borrowers before issuing loans to Low grade(G to A).
- Lending Club should control their number of loan issues to borrowers who are from CA, FL and NY to make profits.
- Small business loans are defaulted more. Lending club should stop/reduce issuing the loans to them.
- Borrowers with mortgage home ownership are taking higher loans and defaulting the approved loans. Lending club should stop giving loans to this category when loan amount is more than 12000.
- People with more number of public derogatory records are having more chance of filing a bankruptcy. Lending club should make sure there no public derogatory records for borrowers.