LENDING CLUB CASE STUDY

ASSIGNMENT SUBMISSION

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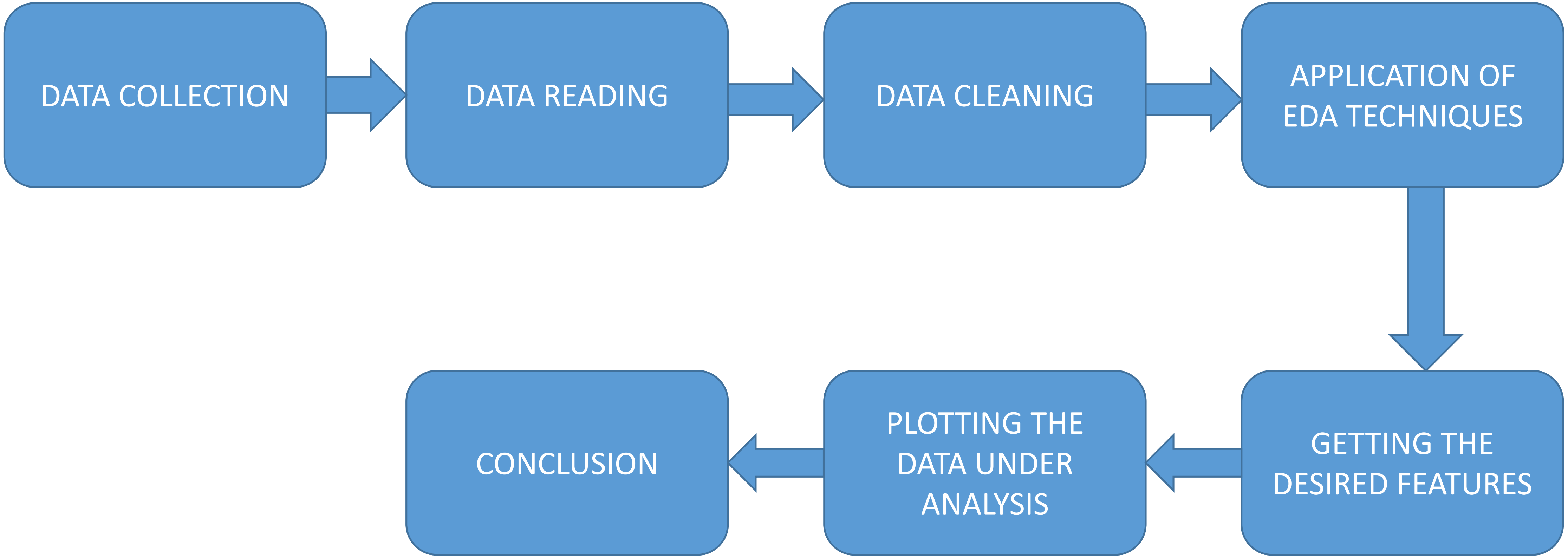
Lending Case Analysis –Analysing Customer Defaulting Chances

Analysis Objectives:

- If the applicant is **likely to repay the loan**, then not approving the loan results in a **loss of business** to the company
- If the applicant is **not likely to repay the loan,** i.e. he/she is likely to default, then approving the loan may lead to a **financial loss** for the company
- 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.

Problem Solving Methodology

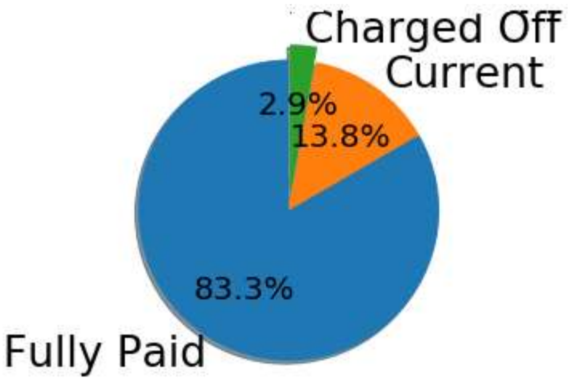


Top 10 factors considered by a bank for Loan Acceptance or Rejection

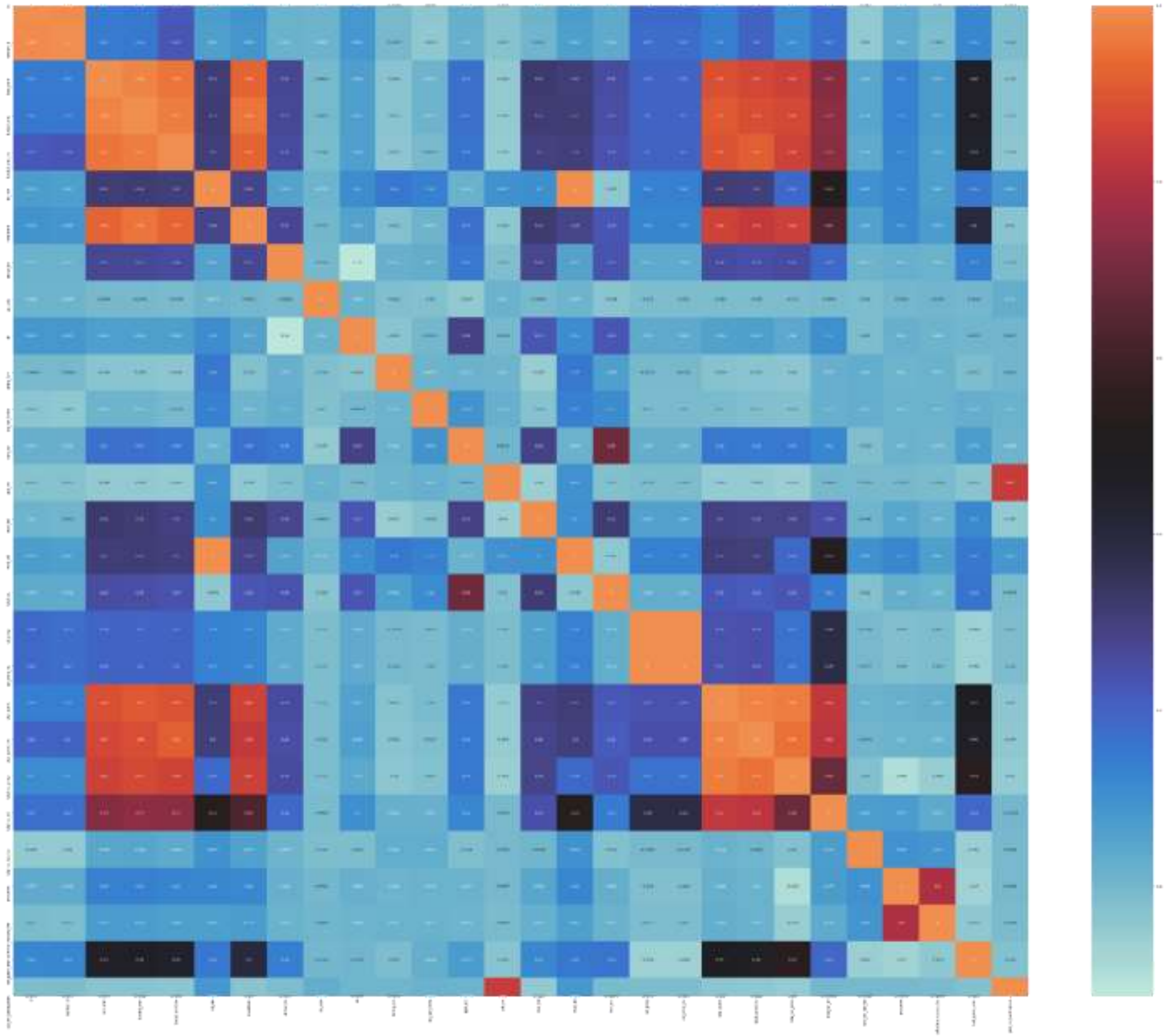
1. CREDIT HISTORY
2. OCCUPATION
3. AGE
4. DISTANCE
5. WORK EXPERIENCE
6. SPOUSE'S INCOME SOURCE
7. REPAYMENT PERIOD
8. RELATIONSHIP WITH THE BANK
9. PURPOSE OF THE LOAN
10. SURPLUS INCOME

Correlation Heatmap:

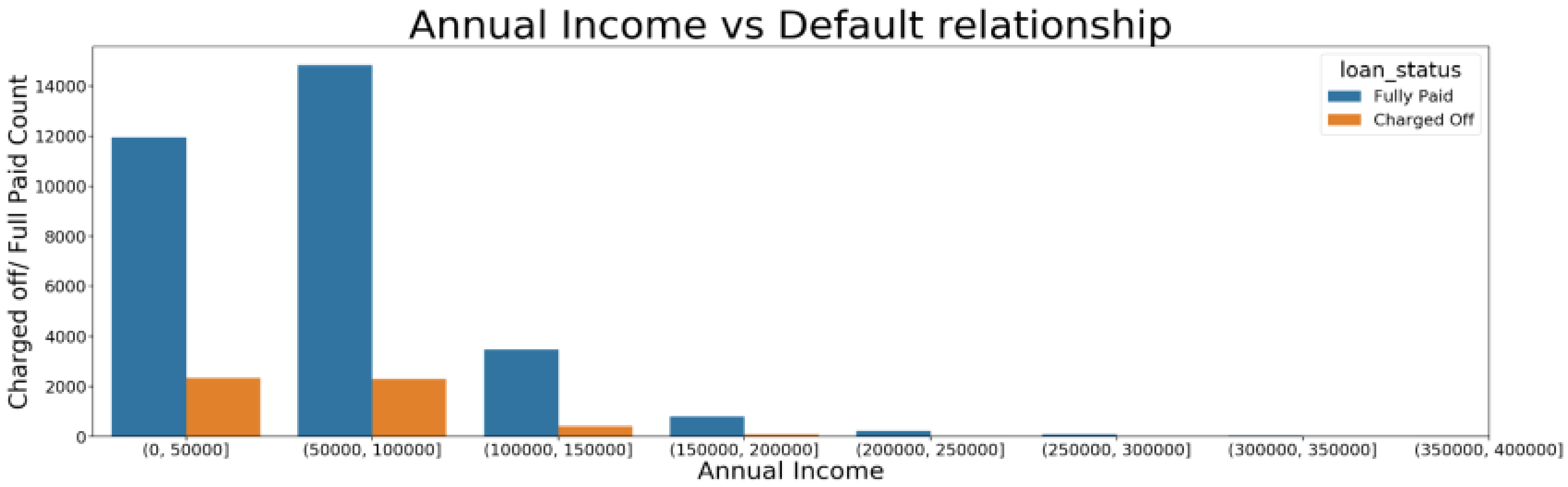
The following heatmap shows the correlation between each columns retained after the data cleaning process.



The following piechart shows the Demography of loan Payment from 2007 to 2011.

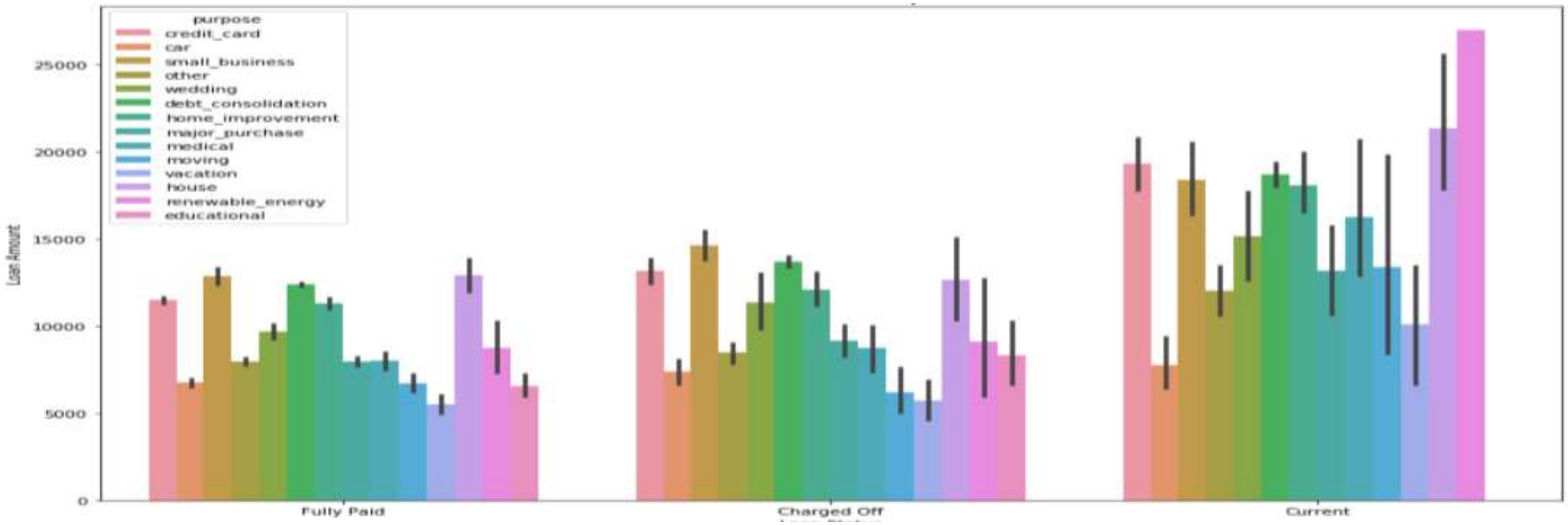


Analysis of Purpose and Annual Income

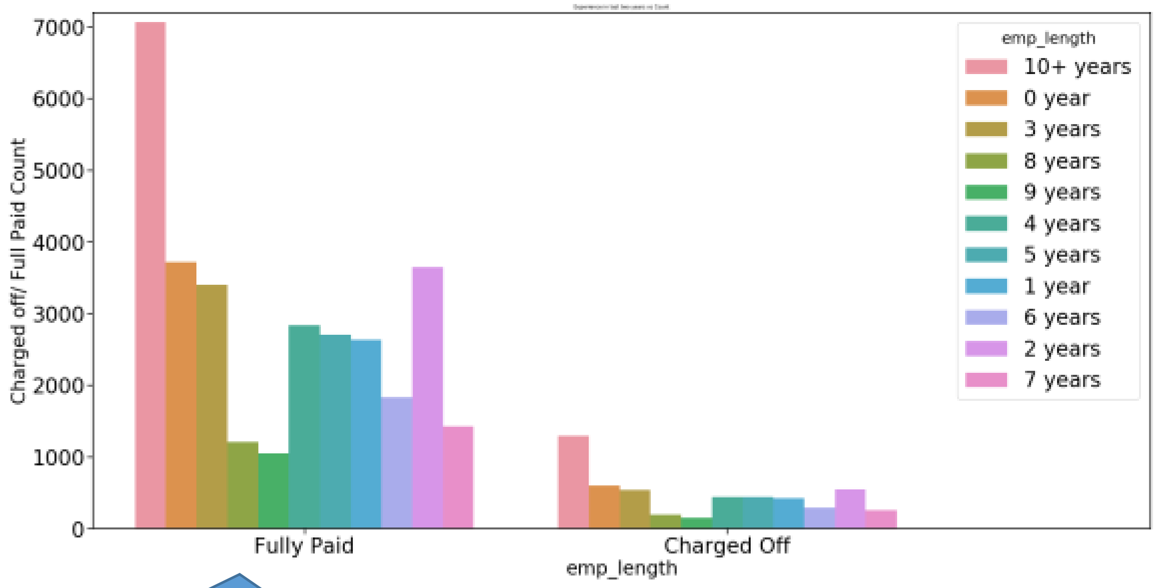


Maximum number of defaulted loans are for debt consolidation, followed by credit card

Most Risky Range of Annual Income

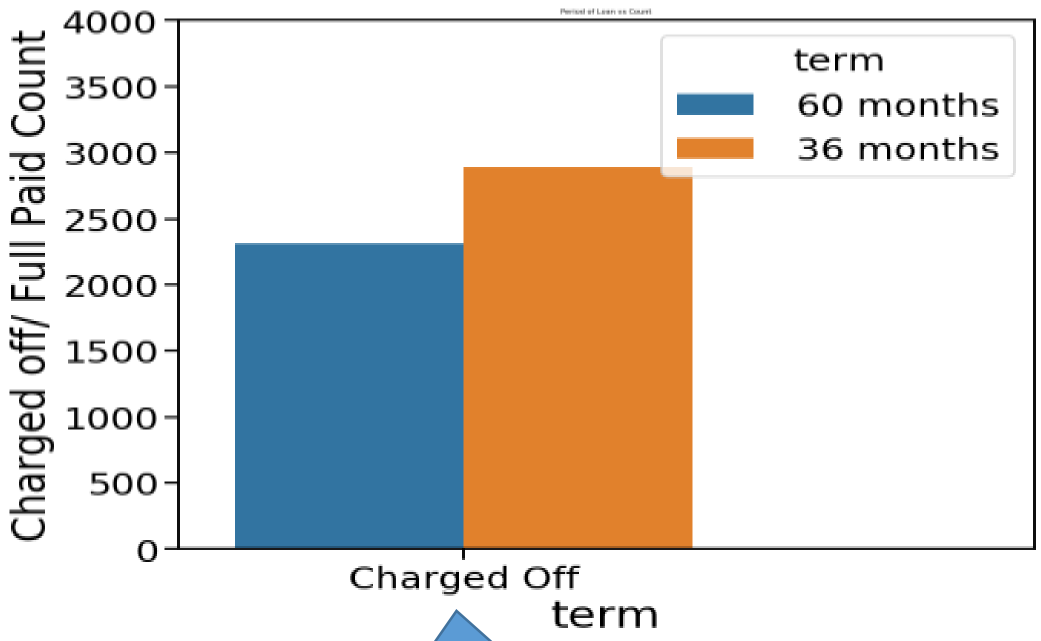


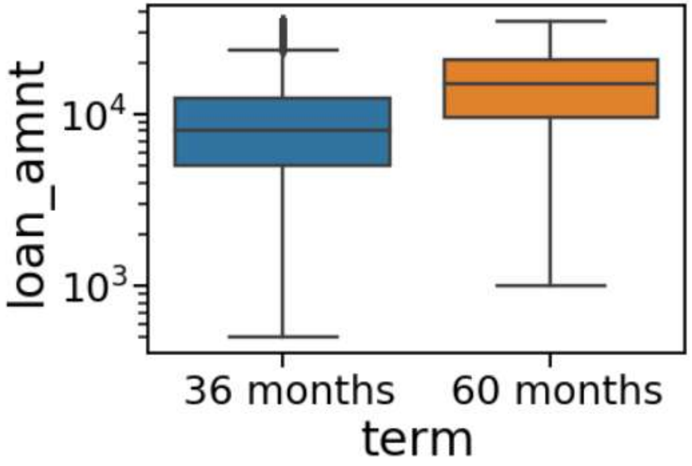
Experience



People with more experience are 10+ years experience are more likely to charge-off the loan. One hypothesis can be that these people are likely to retire soon and thus have less time to pay loan.

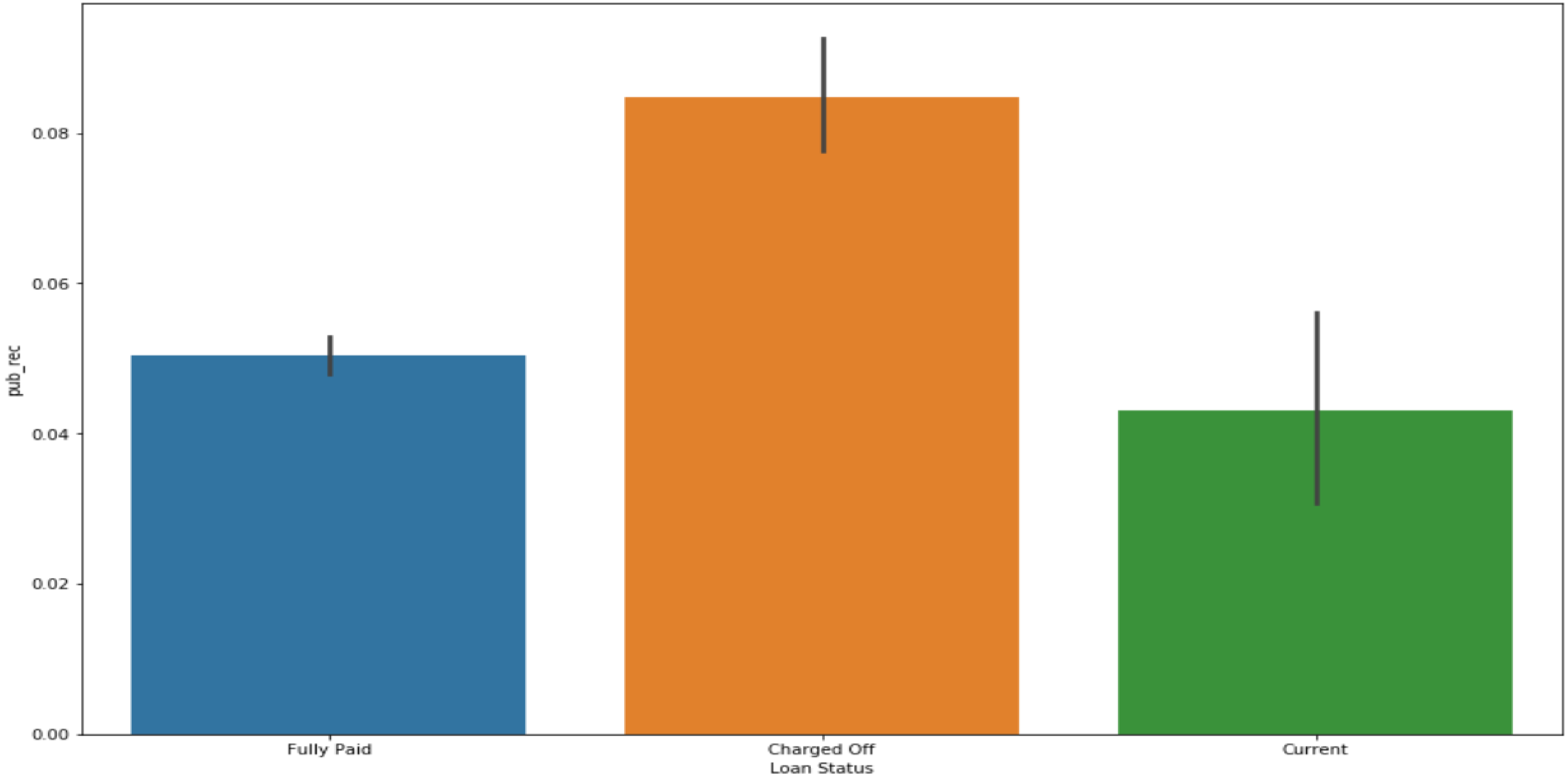
Repayment period



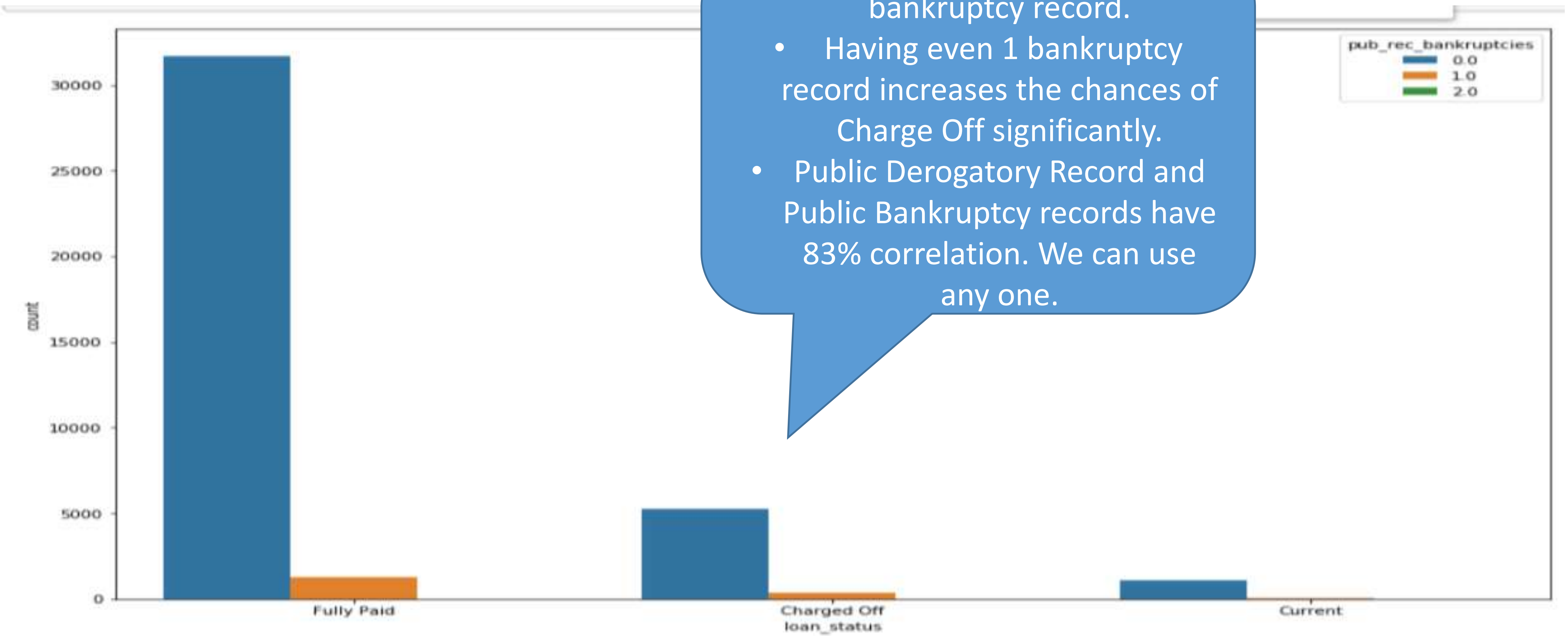


Thus we can conclude according to our data that number of deafults for repayment period of 36 months is much higher as compared to 60 months. Also people are more likely to avail higher amount of loan for 6 years as compared to 3 years

Analysis w.r.t Public Record

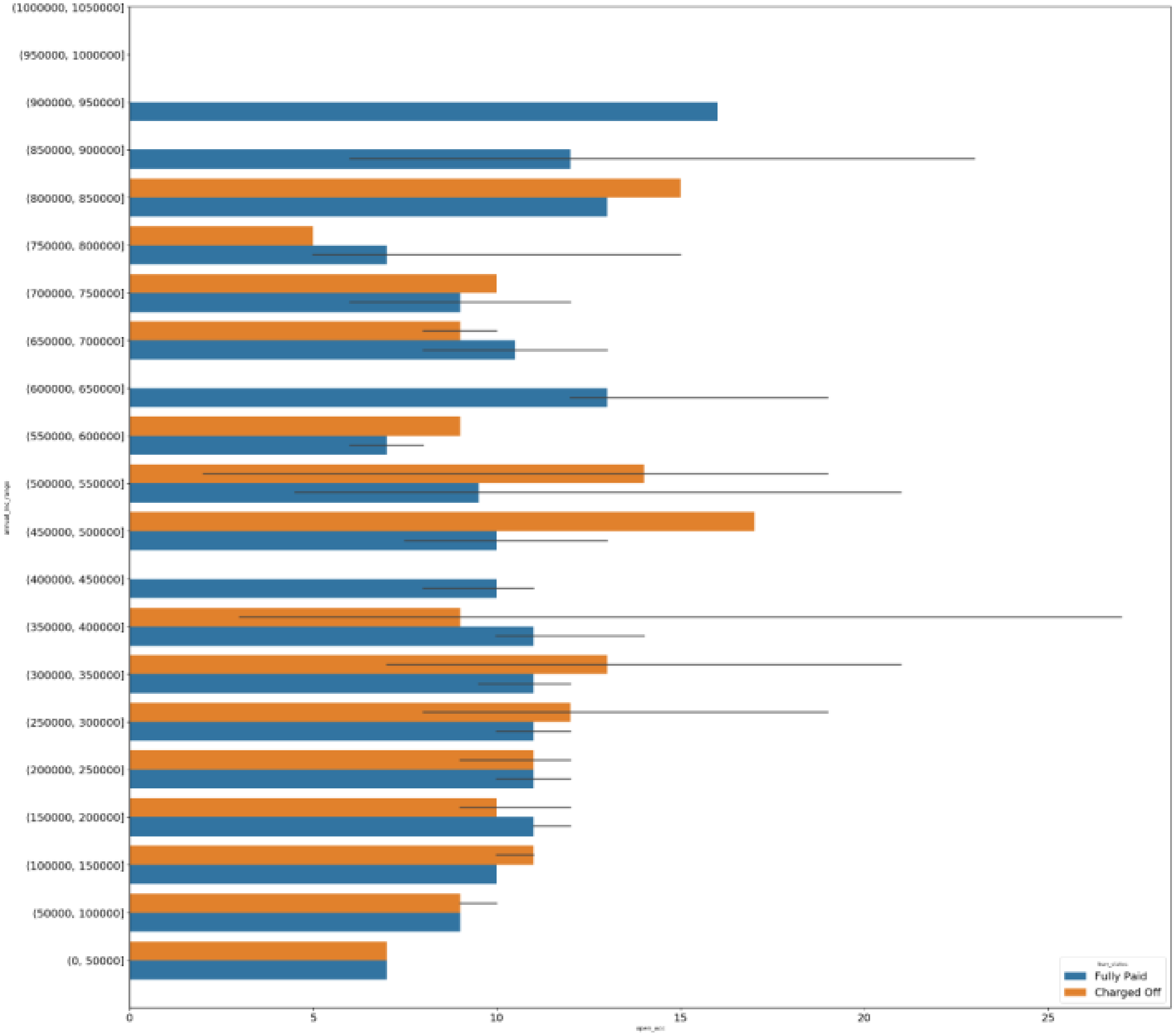


Analysis w.r.t Public Record Bankruptcies



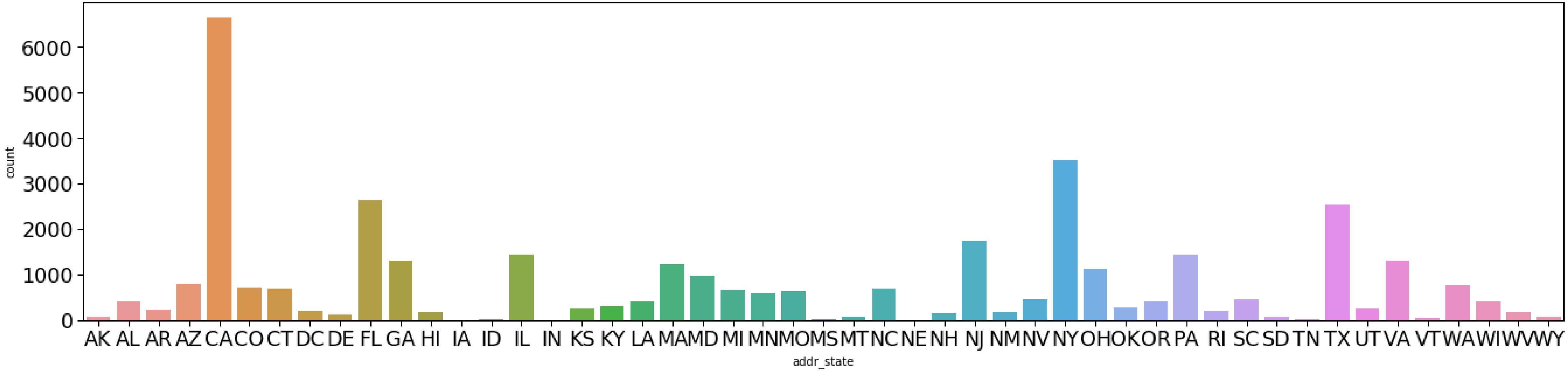
- Most of the people have no bankruptcy record.
- Having even 1 bankruptcy record increases the chances of Charge Off significantly.
- Public Derogatory Record and Public Bankruptcy records have 83% correlation. We can use any one.

Open Account Analysis V/S Loan Status



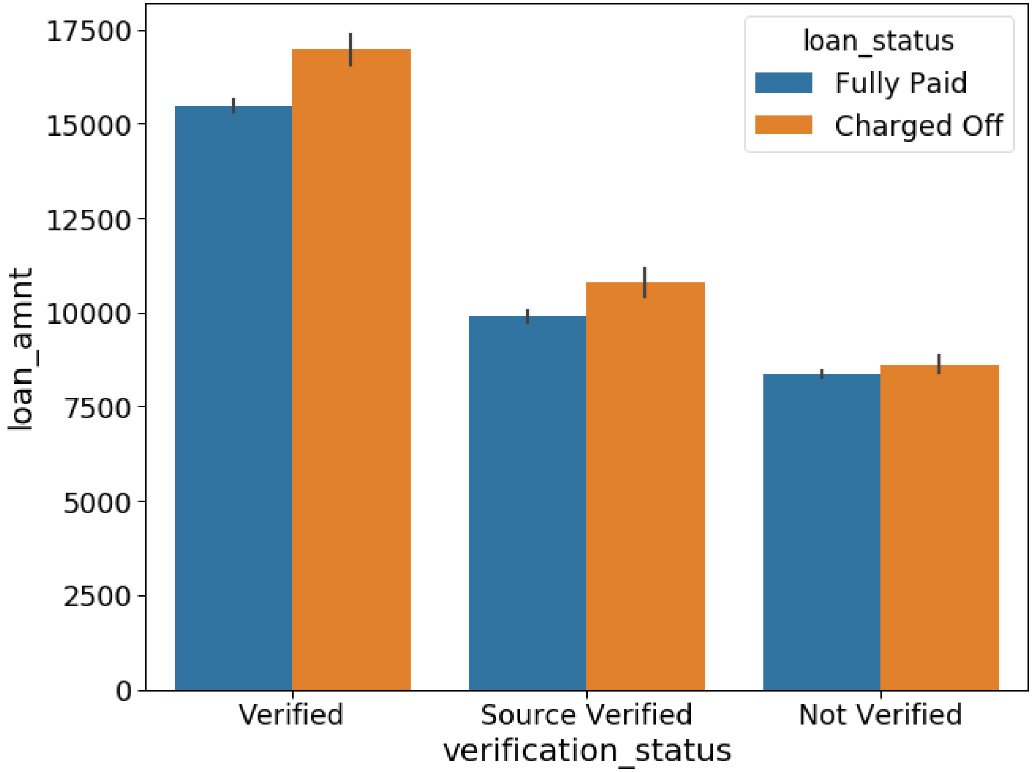
Conclusion: Thus people with salary 45000 to 55000 have more number of open accounts and more likely to charge off loan.

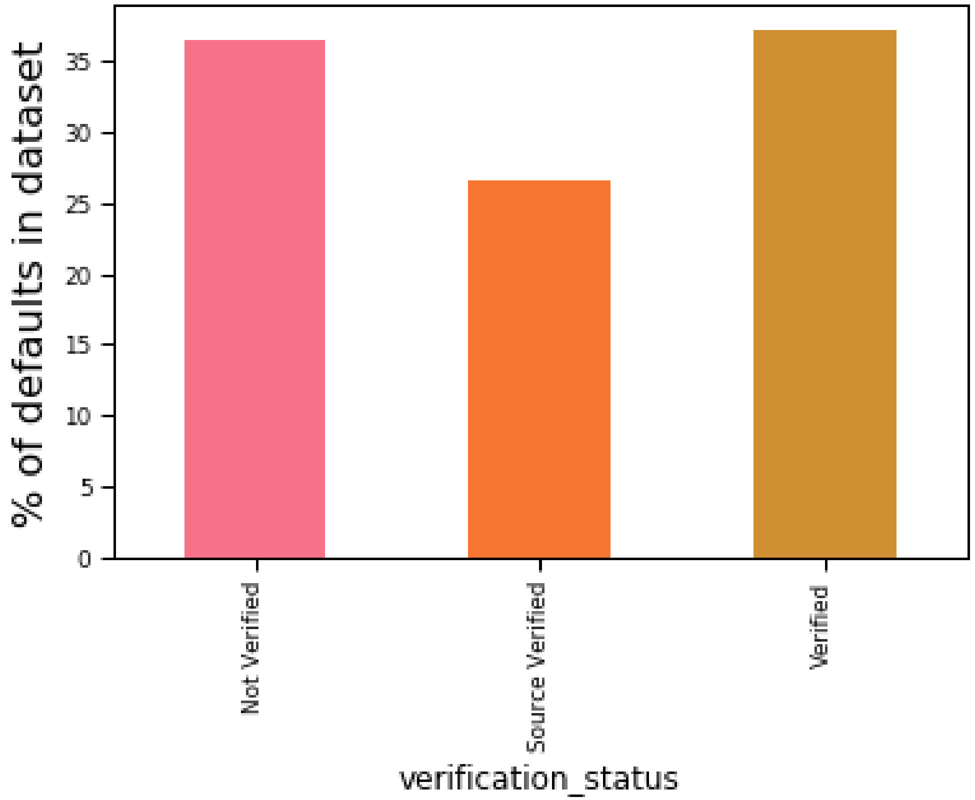
Variation of Loan requested with Region Vise



Maximum loans ~18% are from California following that is 9.5% from New York state and Florida with 7%. This is to be expected as these are also the three most populous US States with higher Charge Off rates have very low number of loans.

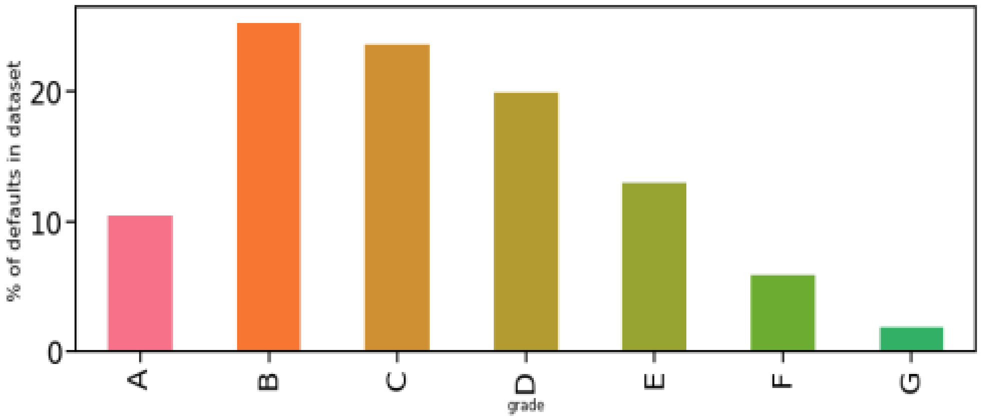
Verification Type:

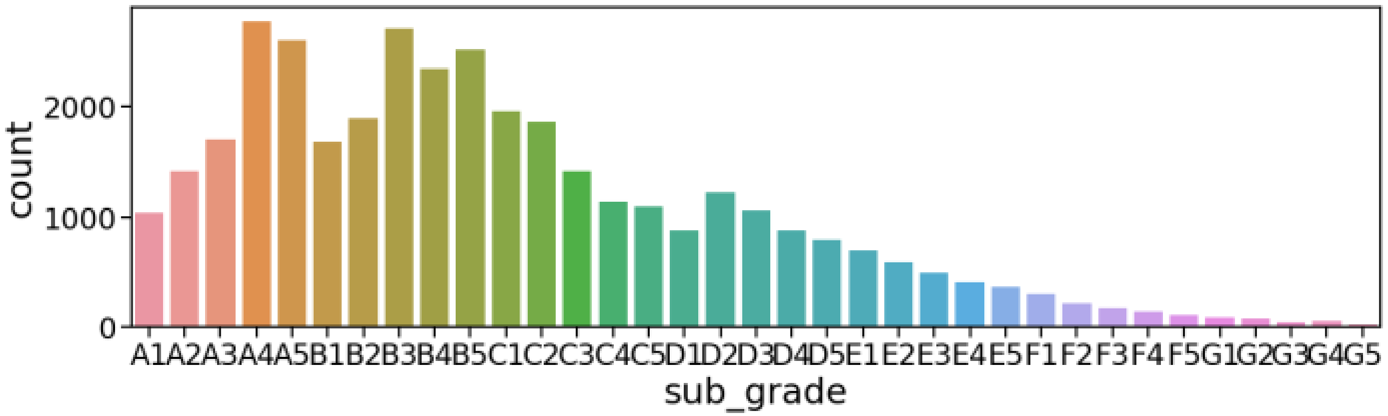




Conclusion: Higher loan amounts are more likely to go under verification. Verified loans are less likely to be defaulted as compared to source verified and non-verified loans. Also, it appears that non verified loans are more as compared to verified loans . So Lending club should take action against it.

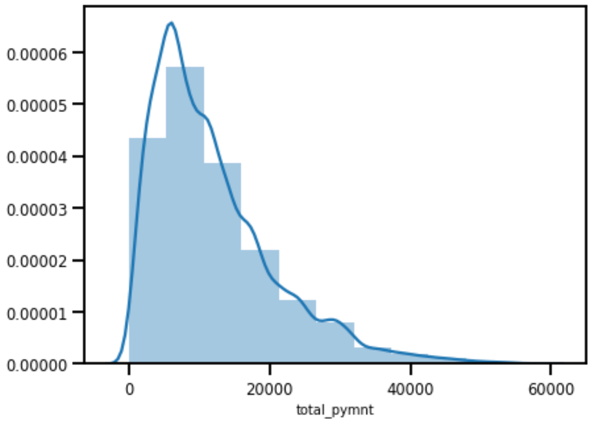
Grades and Sub Grades:

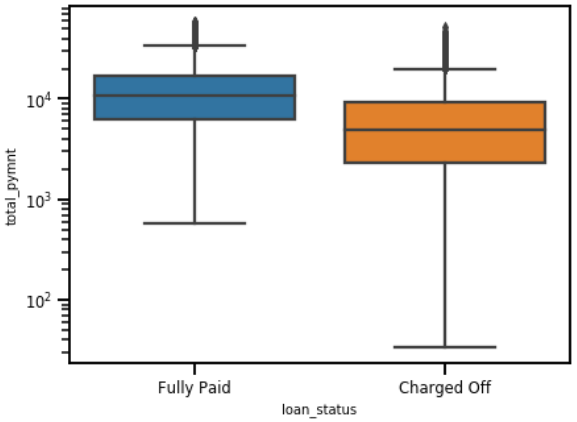




Conclusion: F & G are more safe to avoid charged-off loans. Grades B, C and D are more likely to get defaulted.

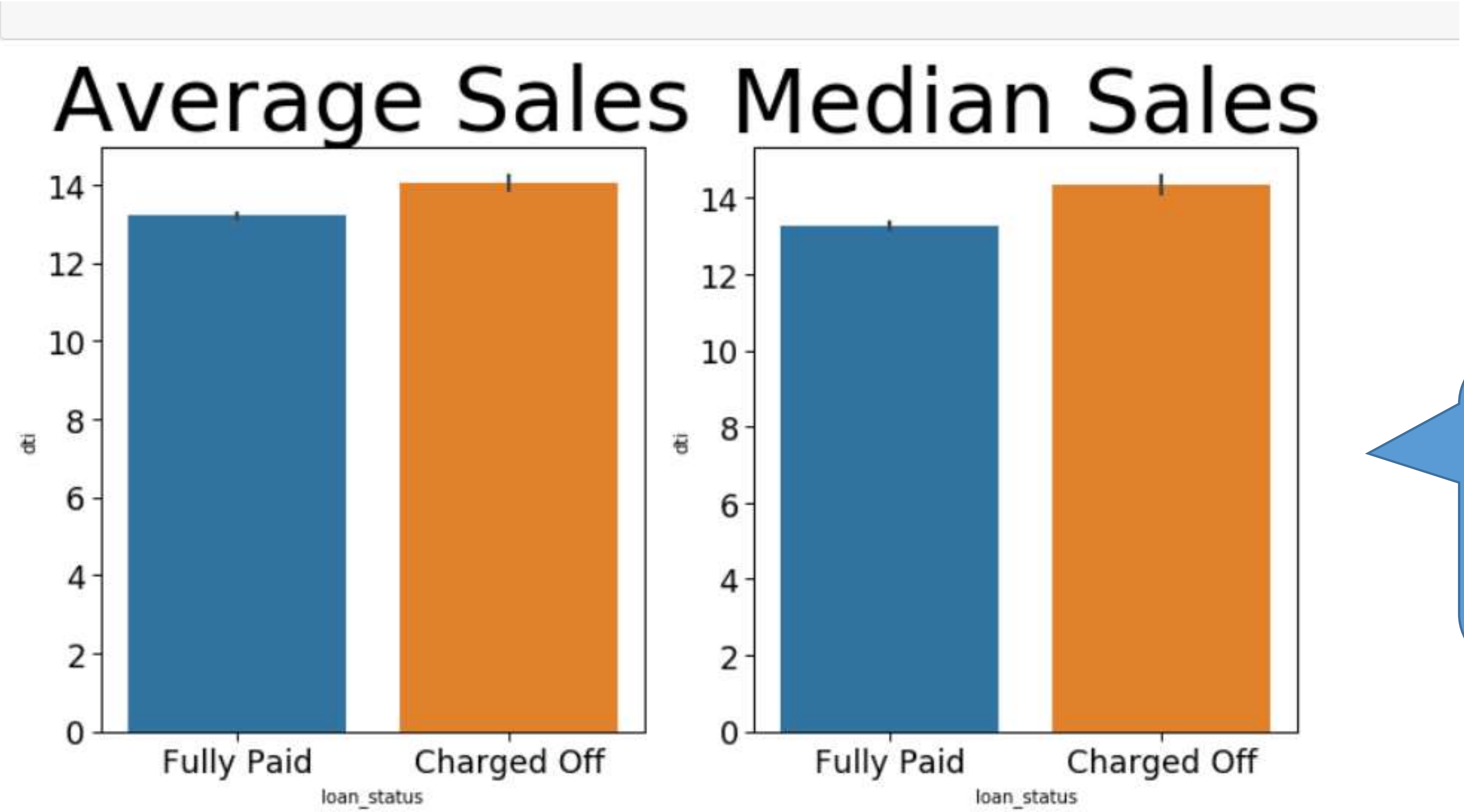
Total Payment:





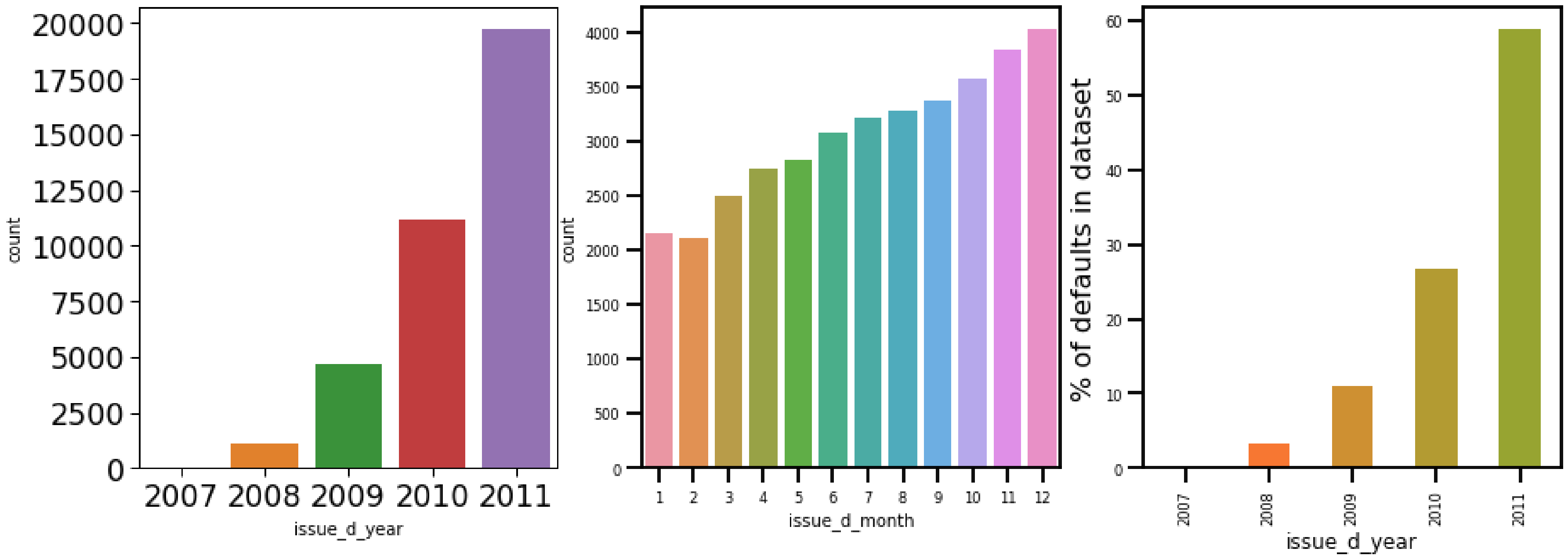
Conclusion: Average amount received is less for Charged Off than fully paid loans. Total Payment received to date is mostly centric between 0-2000. This variable can be ignored as we are not considering current payments.

Analysis of Debt to income ratio wrt loan



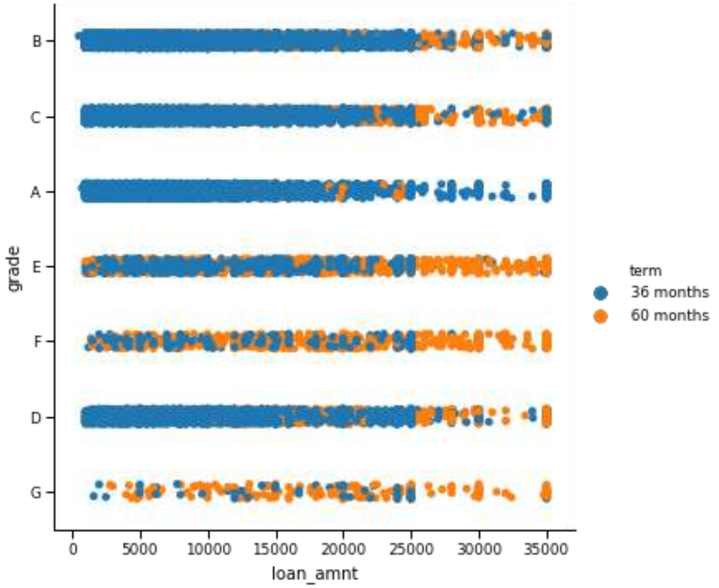
Percentage of Defaults increase with increasing Debt to Income Ratio.

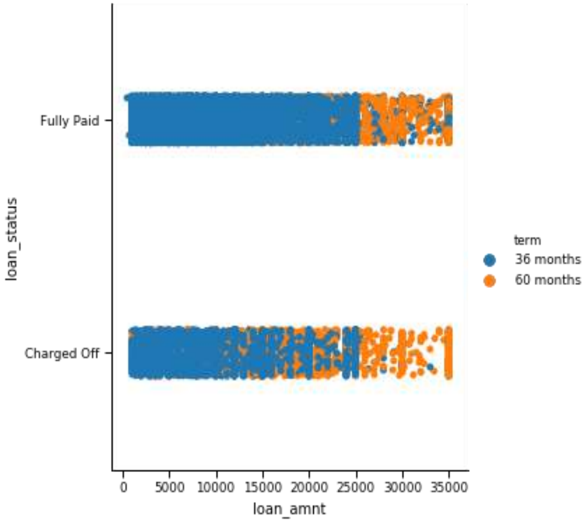
Loan Issue Date:

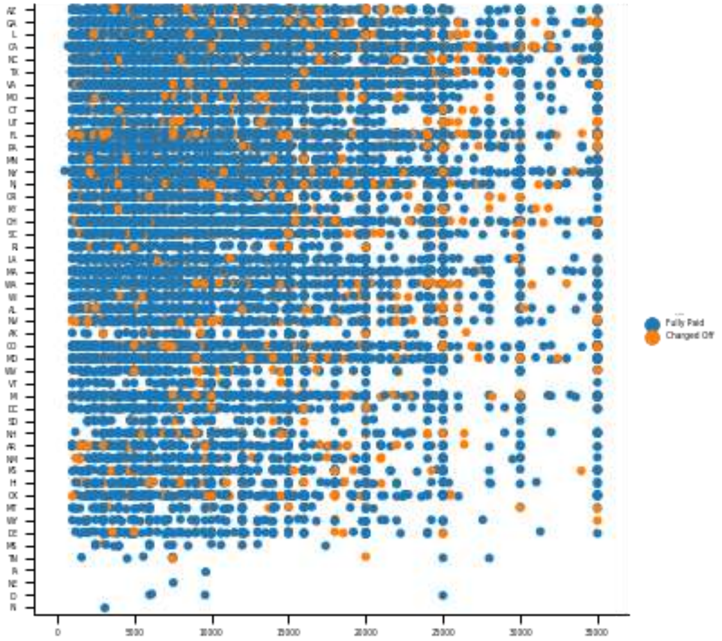


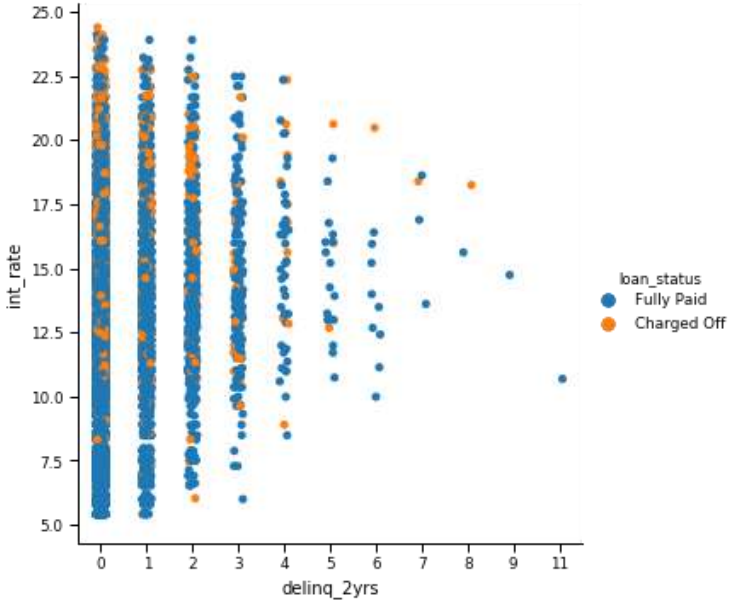
Conclusion- The no. of loans funded are increasing currently. Over the year of period also , number of loans funded are increased till end of year. Percentage of defaults are also increasing in recent years. The maximum number of defaults occurred in 2011.

Bivariate Analysis









Conclusions

- Start Analyzing people with salary range of 0 to 10 Lakhs more rigorously.
- Reduce- Approval of loans for debt consolidation should be reduced.
- Reduce – number of approvals where purpose is small business.
- Reject- loans by people with more number of credit lines and open accounts
- 3. Stop – approving high-value loans when revolving line utilization rate greater than 75%
- 4. Stop – approving loans to people with prior bad record. Or at least stop approving high-value loans
- 5. Start – charging higher interest rates for loans with higher DTI