



## **LENDING CLUB CASE STUDY**

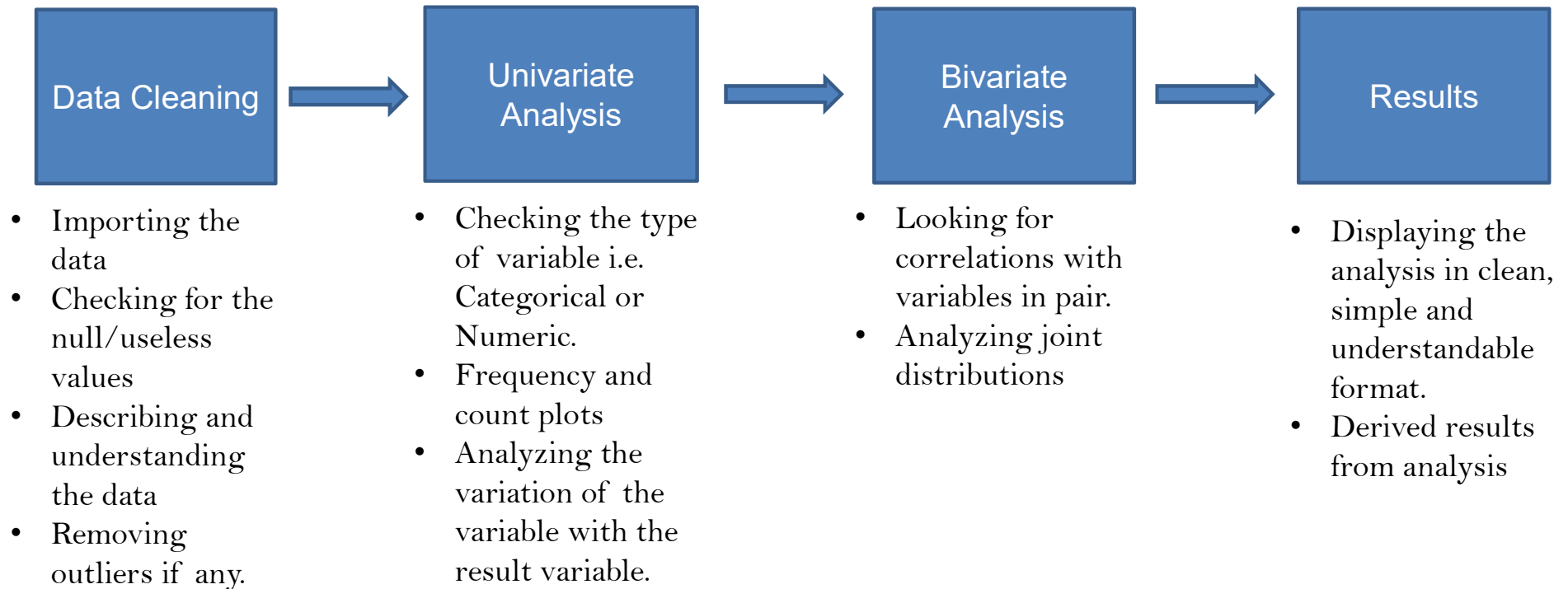
Group members :

- Shreyas Pai
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## Problem Statement

- Lending club, a consumer finance company what the important aspects and insights behind a customer failing to repay the funded loan by the club. If the club identifies the driver variables behind this, it can avoid losses and thus increase the profit.
- As a Data Analyst working for the Lending club, one needs to analyze the data provided by the club and find the main influential factors which lead to “Charged Off” or “Fully Paid” loans.

## Problem solving methodology

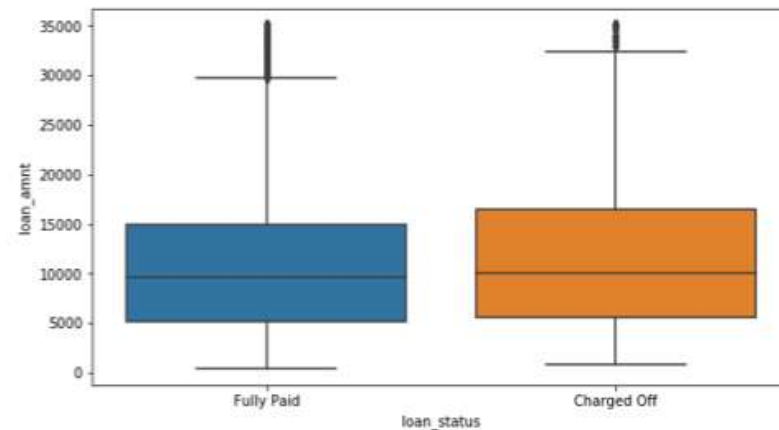
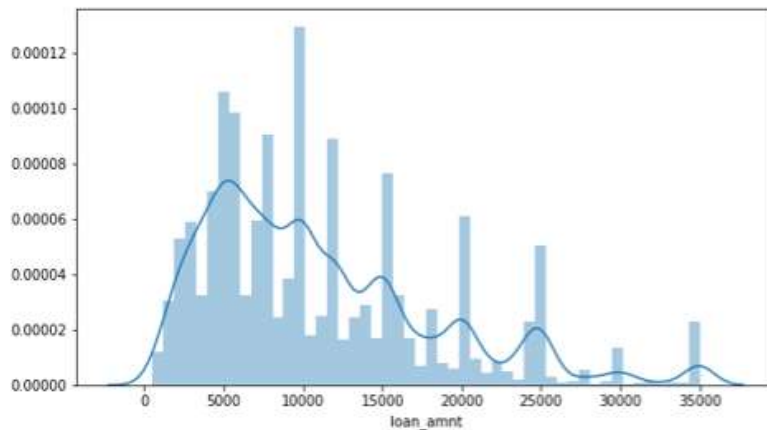


## Analysis Approach

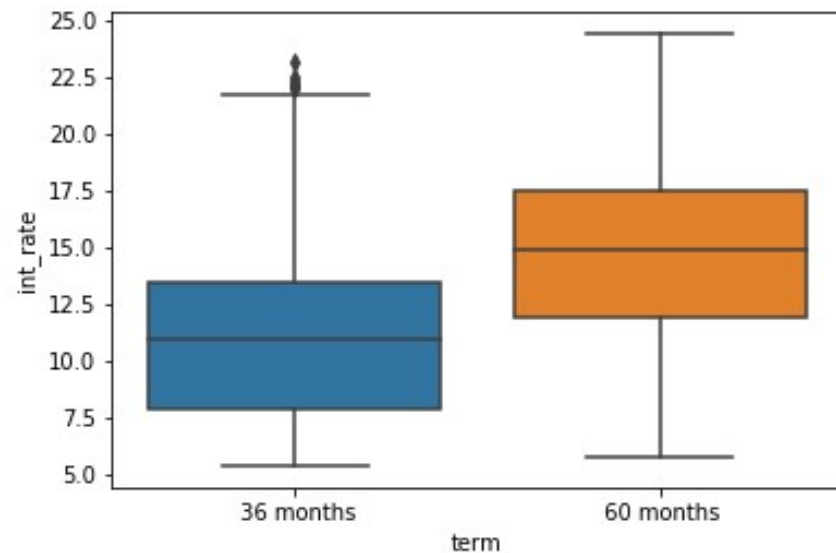
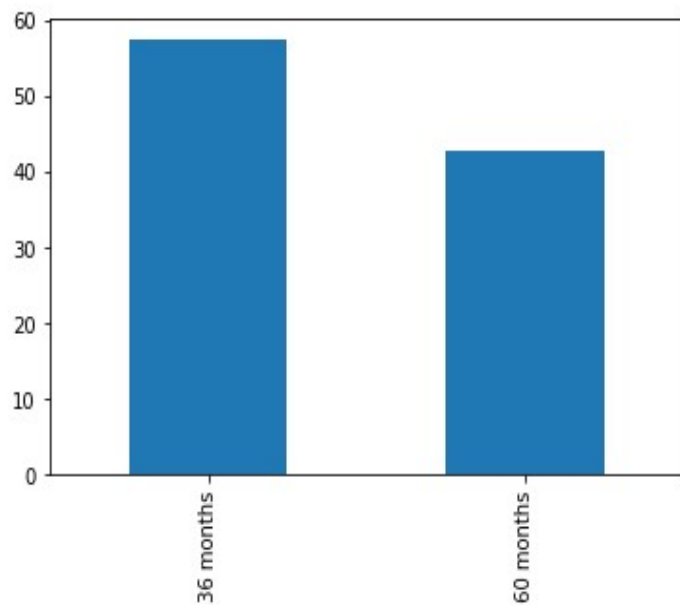
- Overall approach of analysis can be divided into 3 parts –
  1. Analysis of variables related to *Applicants*.
  2. Analysis of variables related to *Loan*
  3. Analysis of variables related to *Customer behavior*
- Based on the analysis of these different variables, we have derived some interesting observations which can lead to increase of profit to Lending club.

## Observations

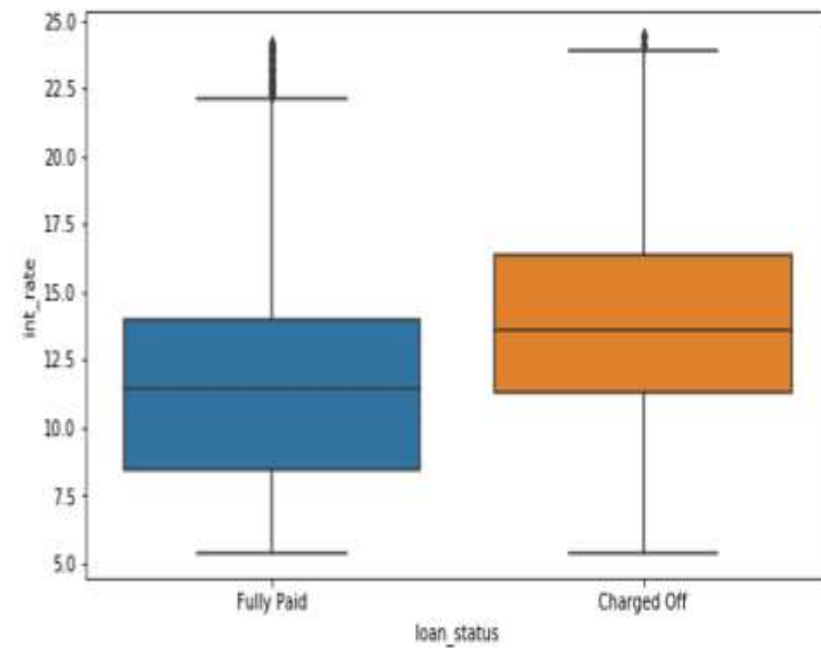
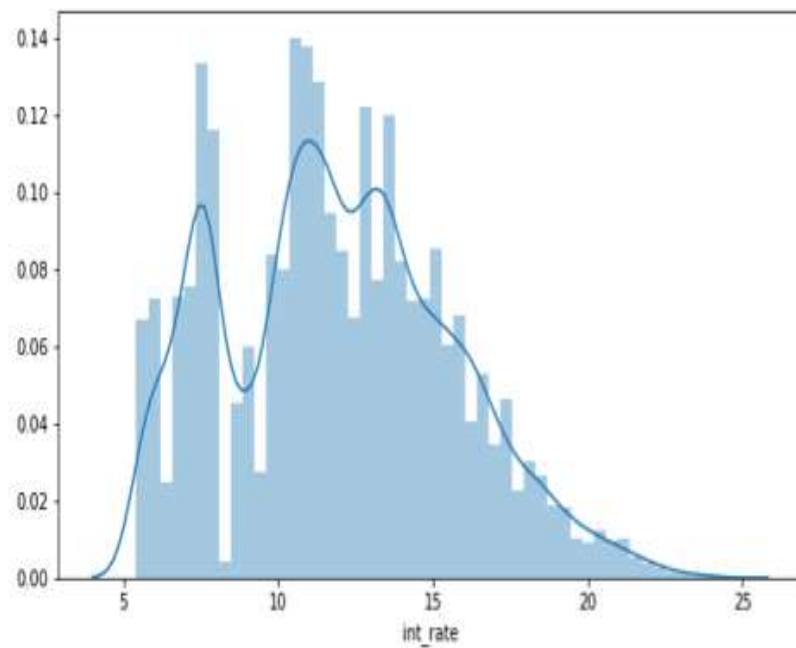
- Many people opt for loan amount = 10,000
- There are spikes over each 5000 multiple, which concludes people request loans rounding off to nearest 5000 multiple.



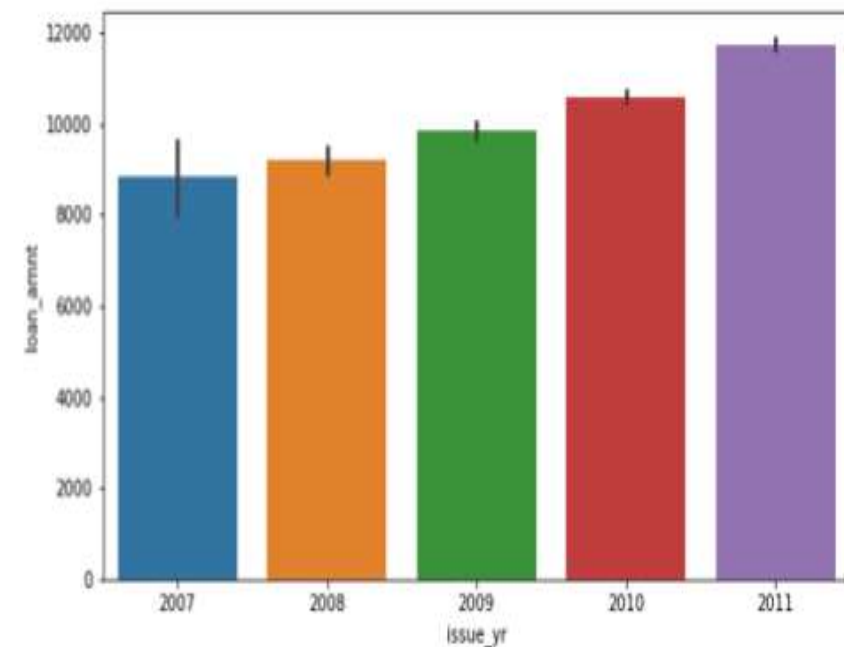
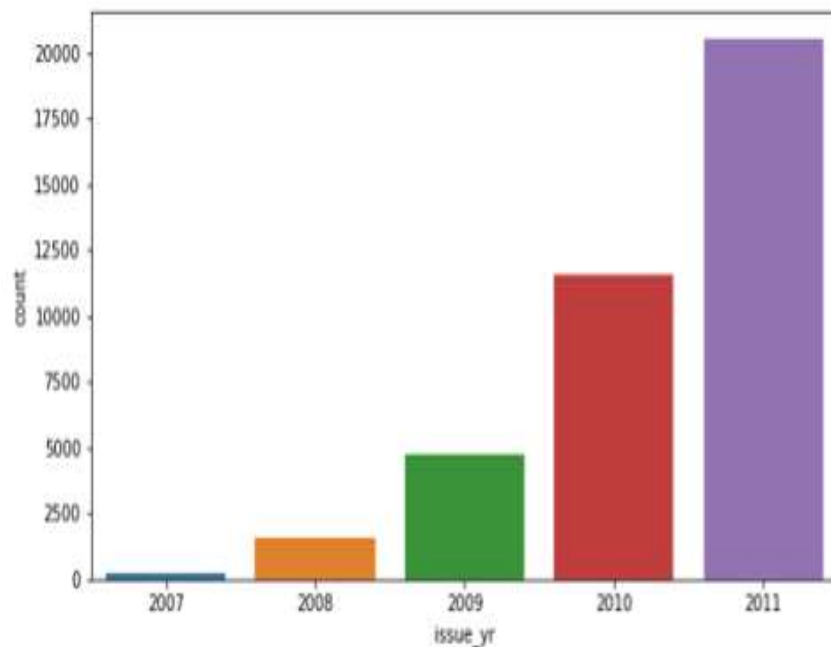
- The 36 months term has 57.35% of values which were defaulted.
- There is almost 4% increase in interest rates offered for loans of 60months duration



- Average interest rate is 11.9%, and higher interest rates have led to charge offs

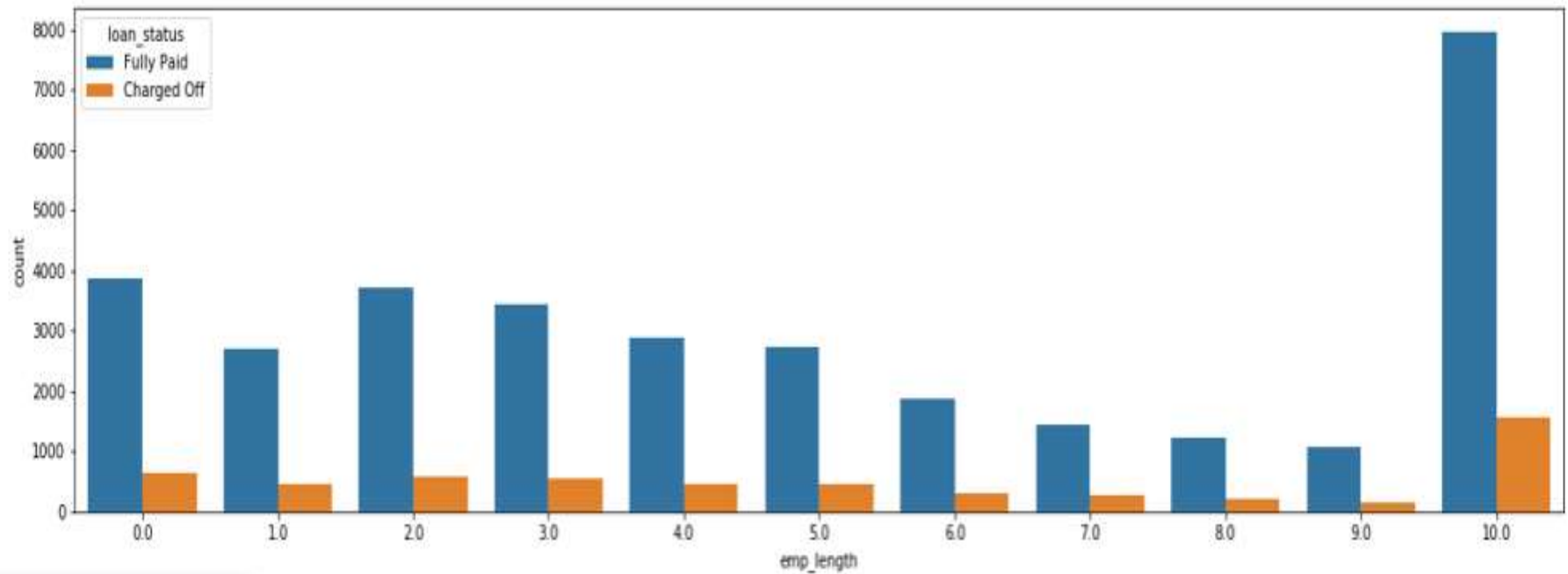


- Loans were issued exponentially from 2007 onwards
- Higher loan amounts were issued as the years progressed from 2007 to 2011

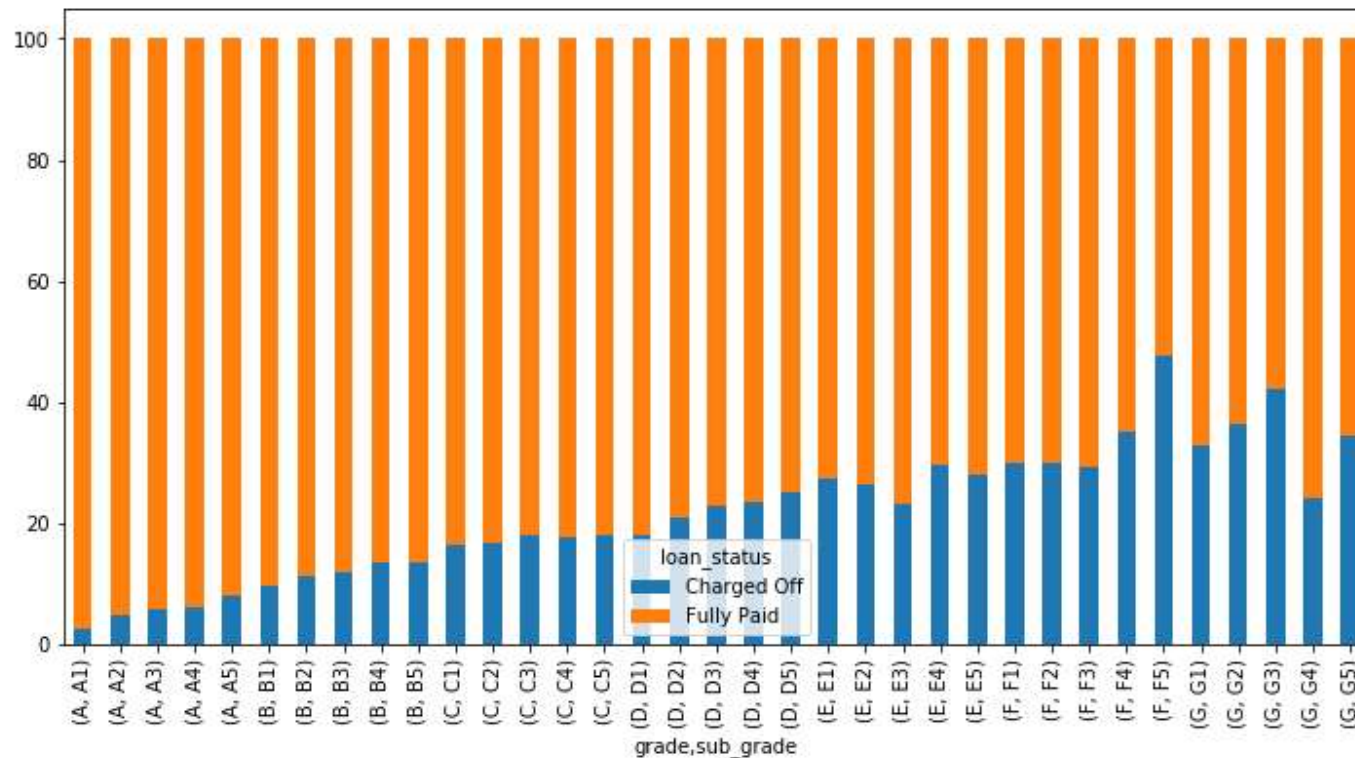




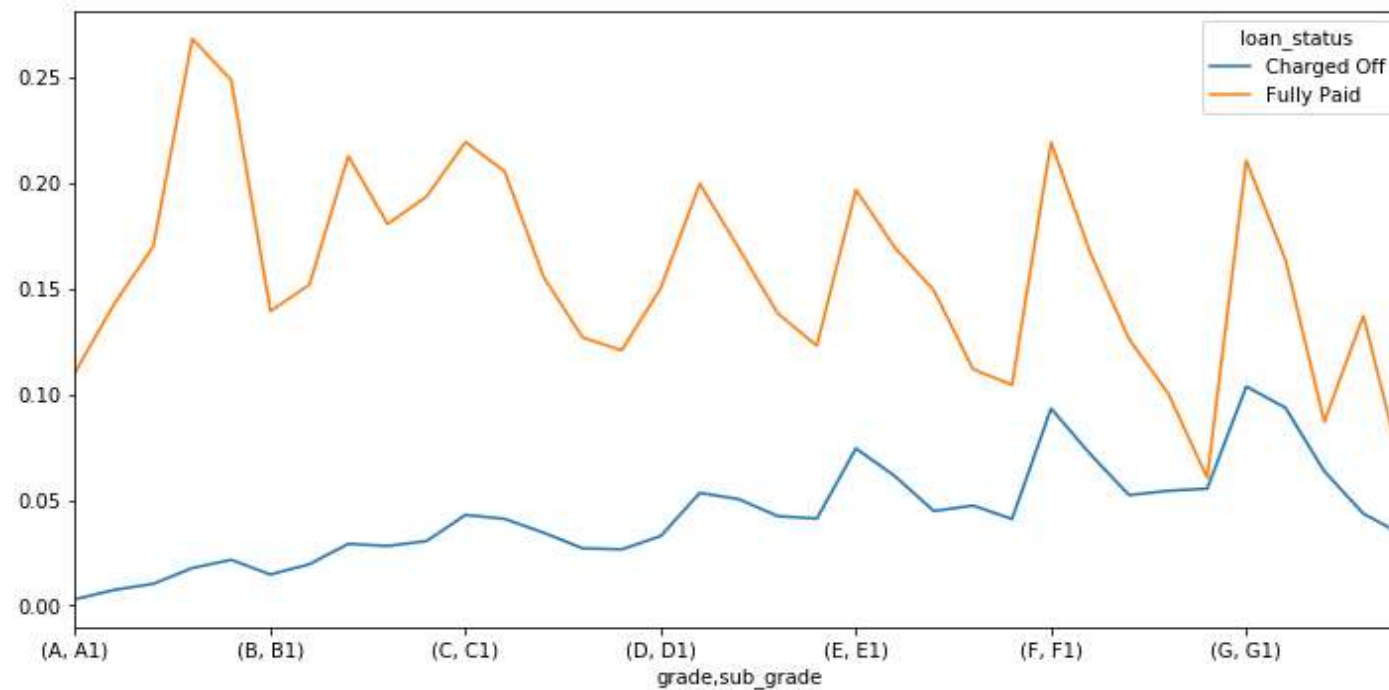
- A considerable count of loans are repaid by the applicants with employment history of greater than 10 years.



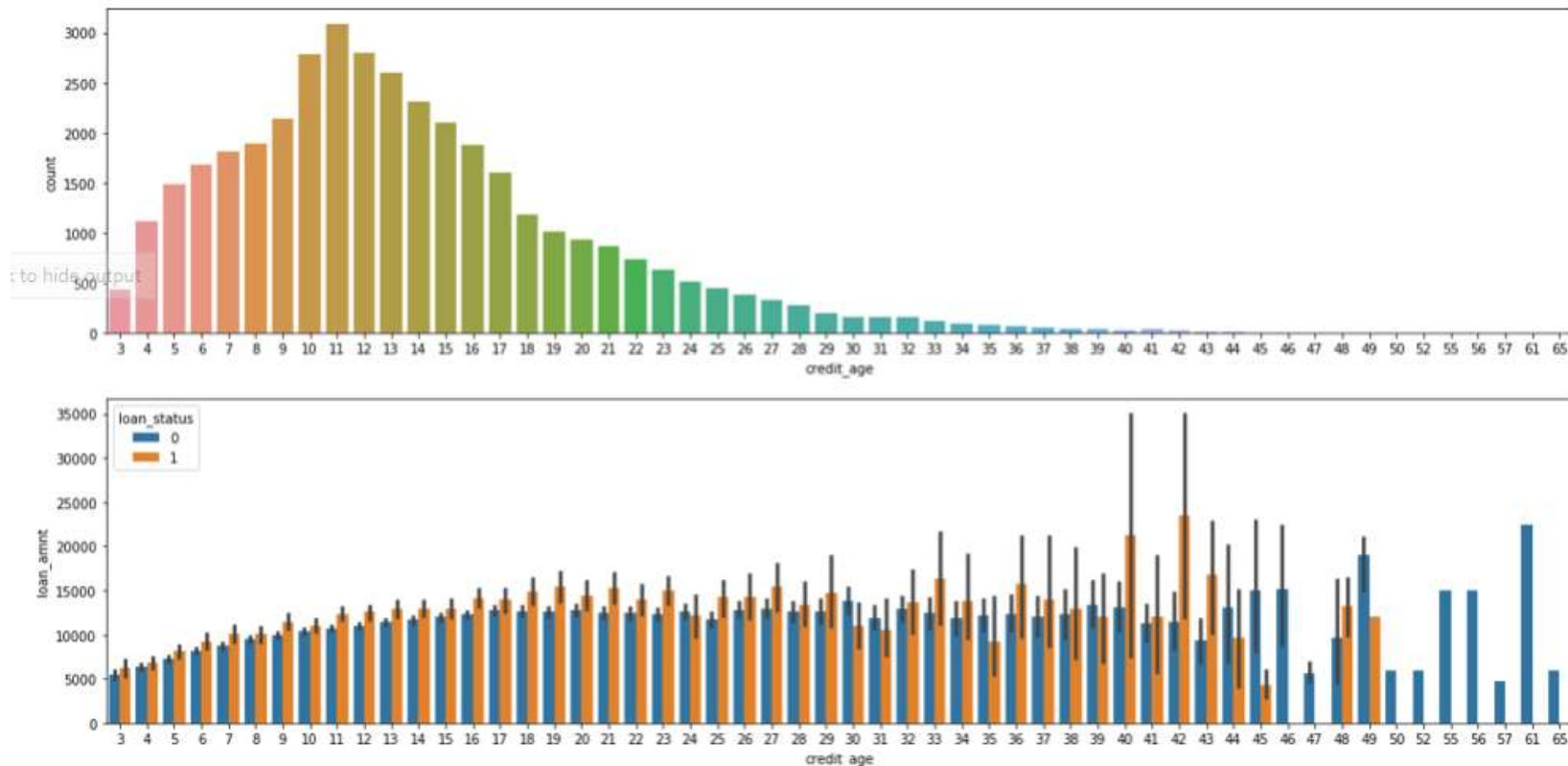
- A graded loans have more number of Fully paid loans as compared to other grades, which make them safer.
- Grade F-F5 has the highest default rate



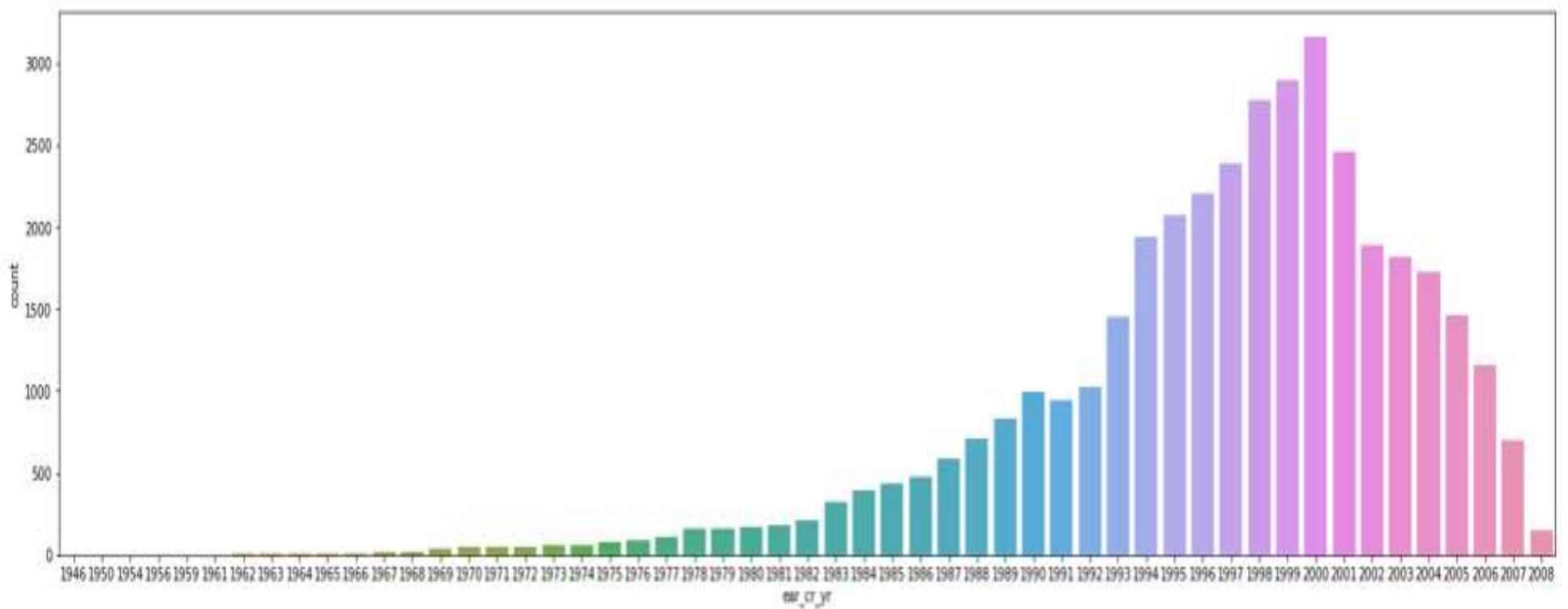
- Sudden spikes at E1, F1 and G1
- The default rate from C onwards follows a trend of decreasing default rate with sub-grades



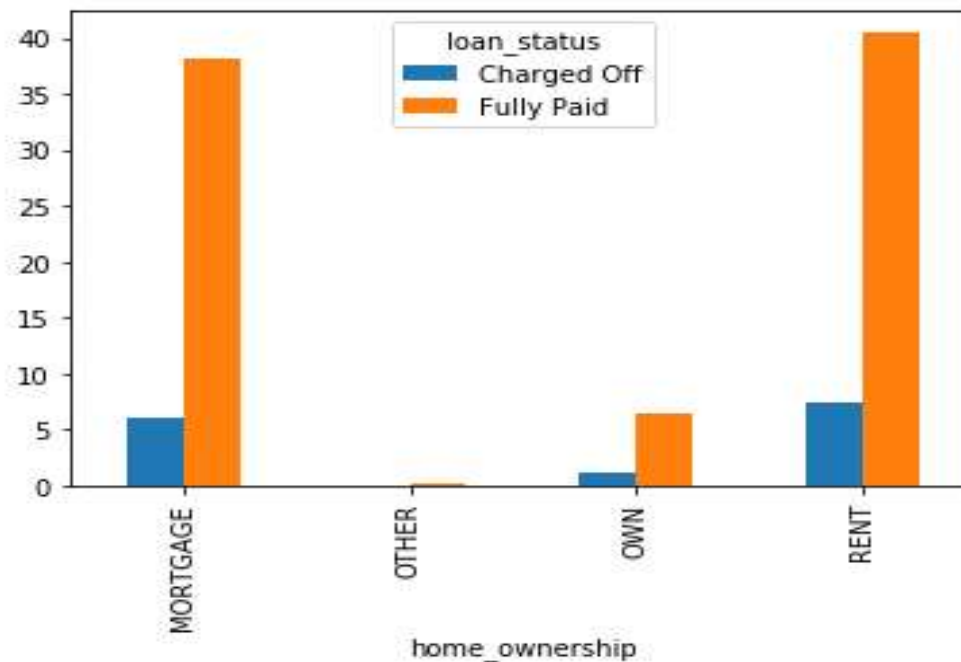
- The credit age above 50 years don't have a default loans at all.
- Credit age of 11 is most occurring one.
- The default loan amount increases for increasing age and stabilizes at around 20



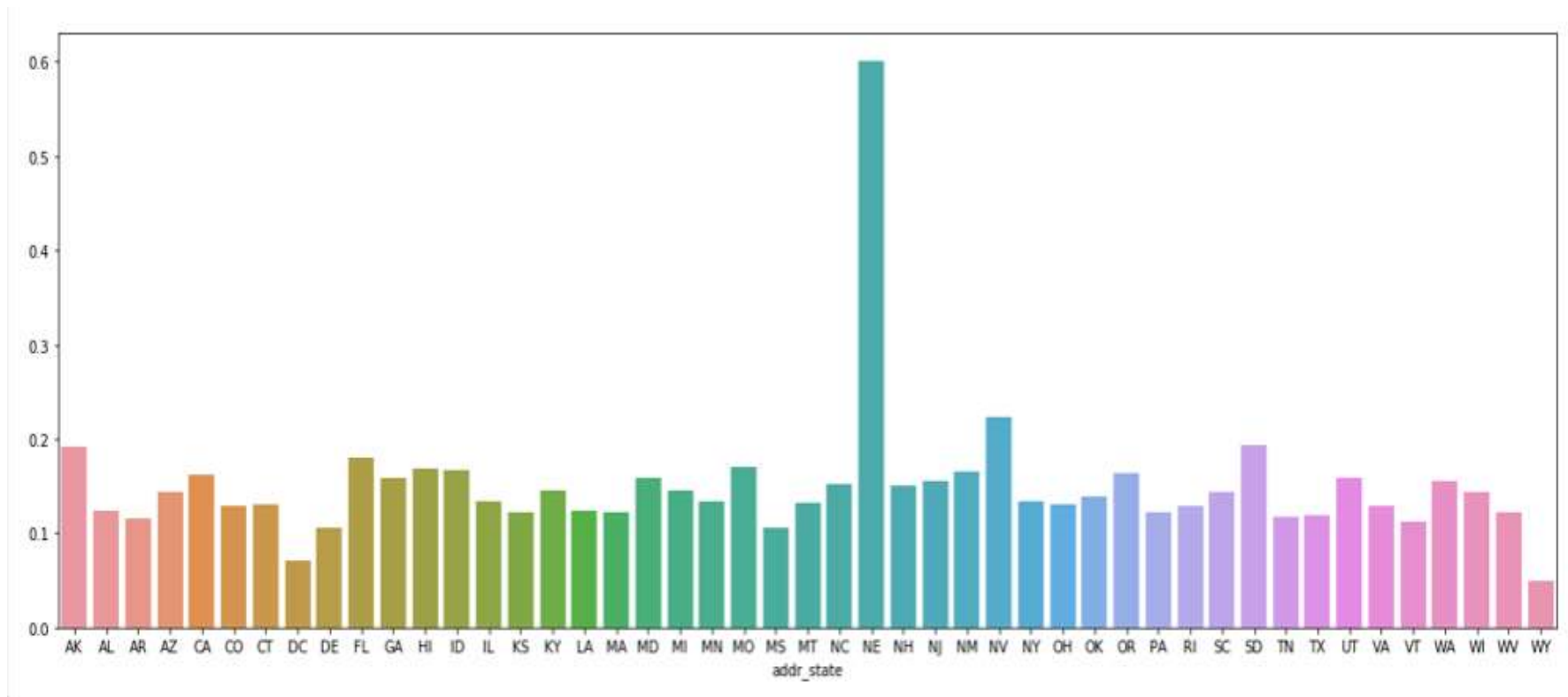
- Borrowers who have earliest credit line in the year 2000 have availed highest loan



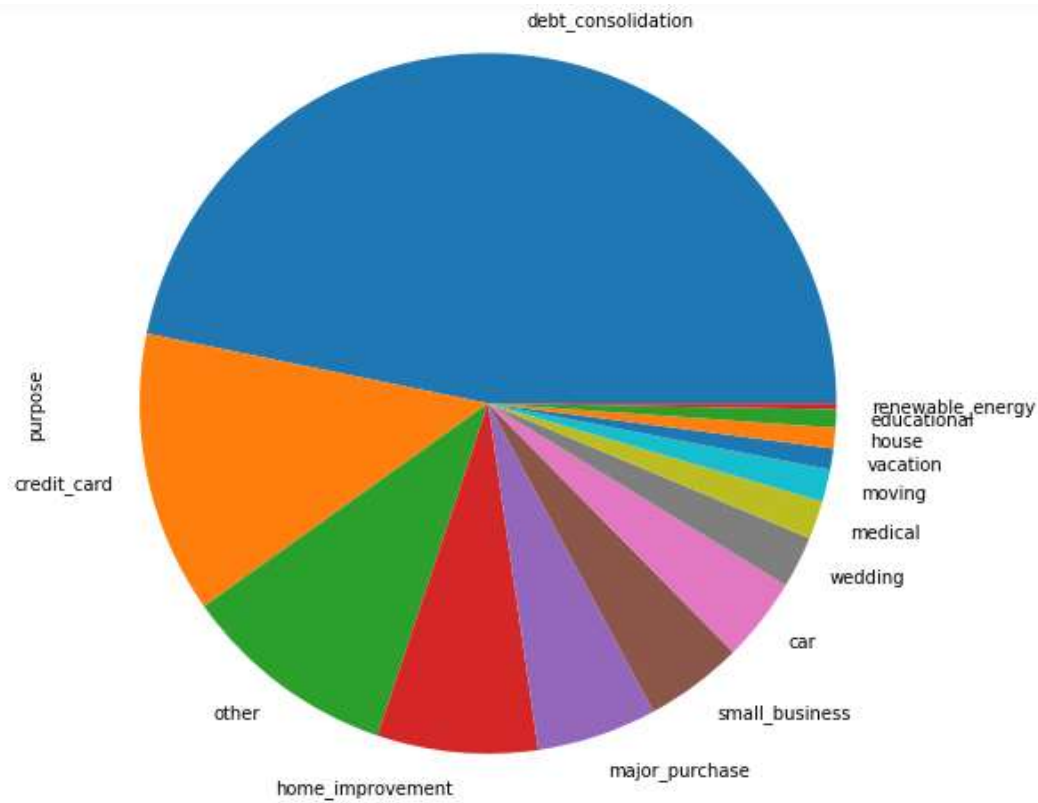
- People who have Rented their house, have higher chance of getting charged-off at 7%
- People with Mortgage type is not far behind at the default-rate at 6%



- NE has a considerably high amount of 'Charged Off' history followed by NV

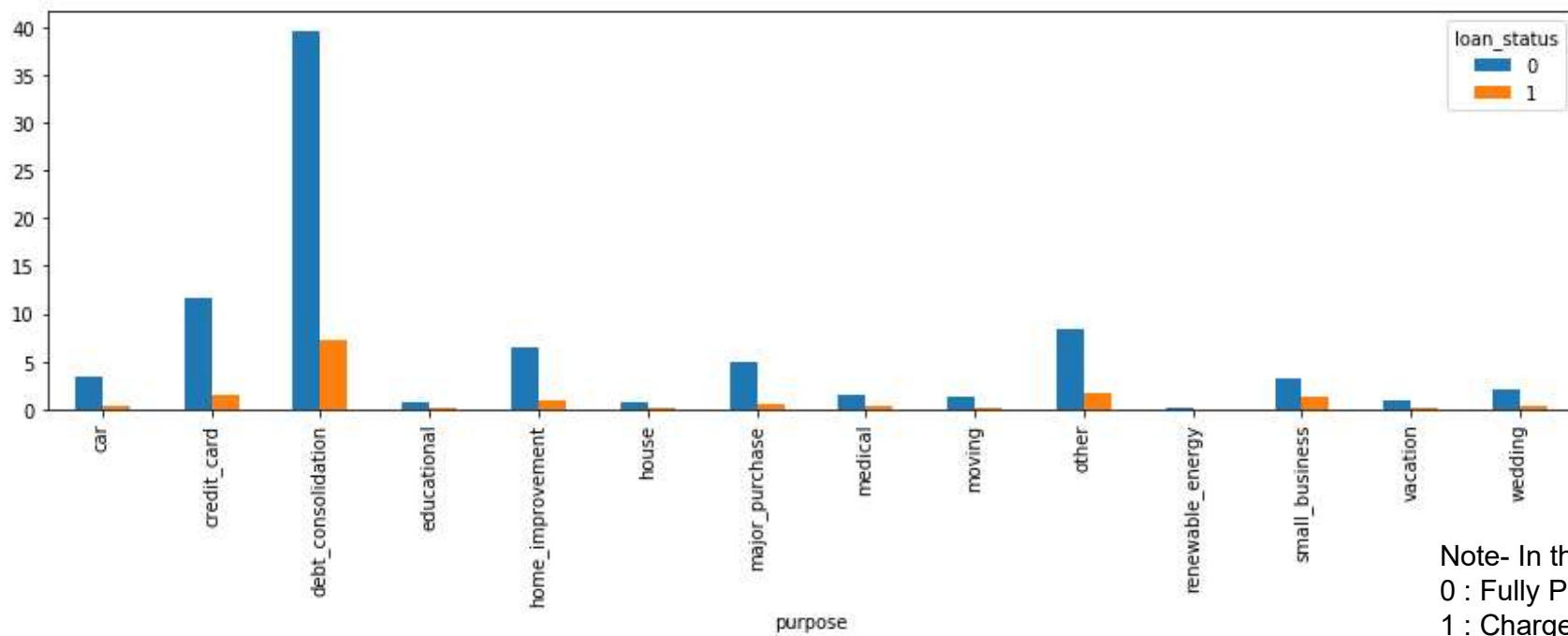


- Debt consolidation has the highest percentage of loans (by count)

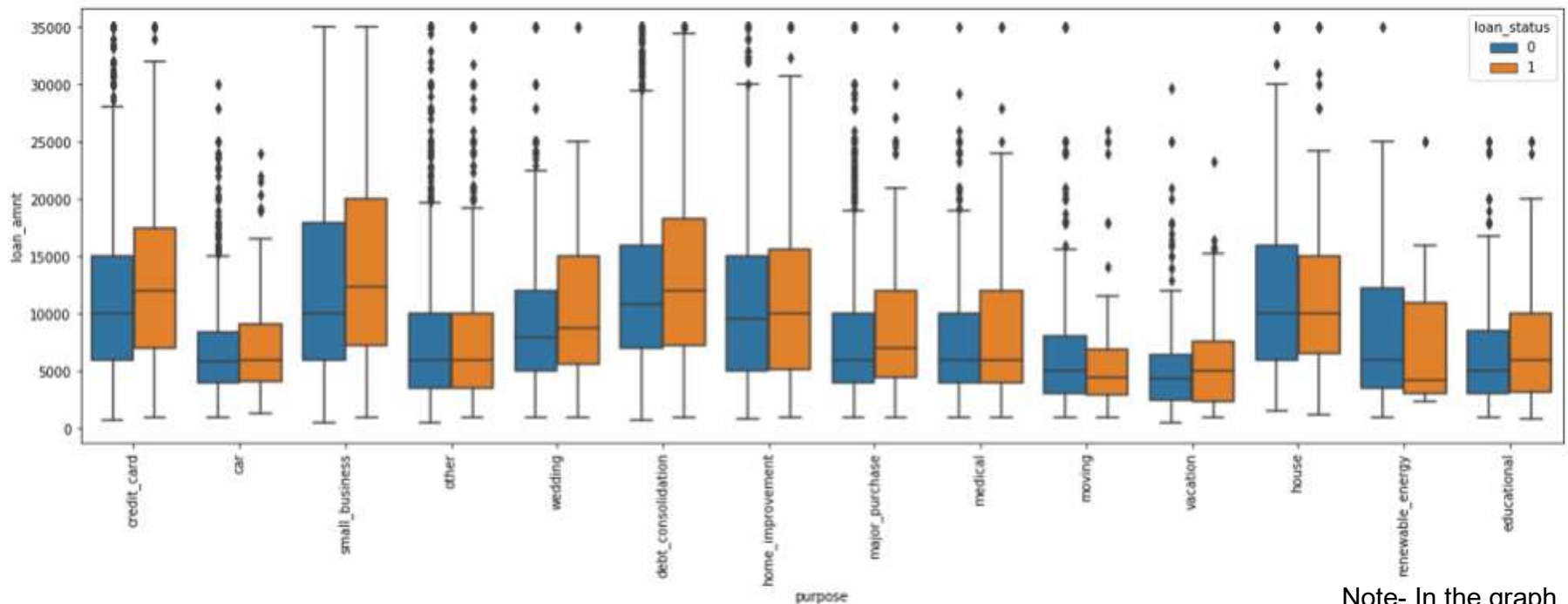




- High default rate for debt consolidation

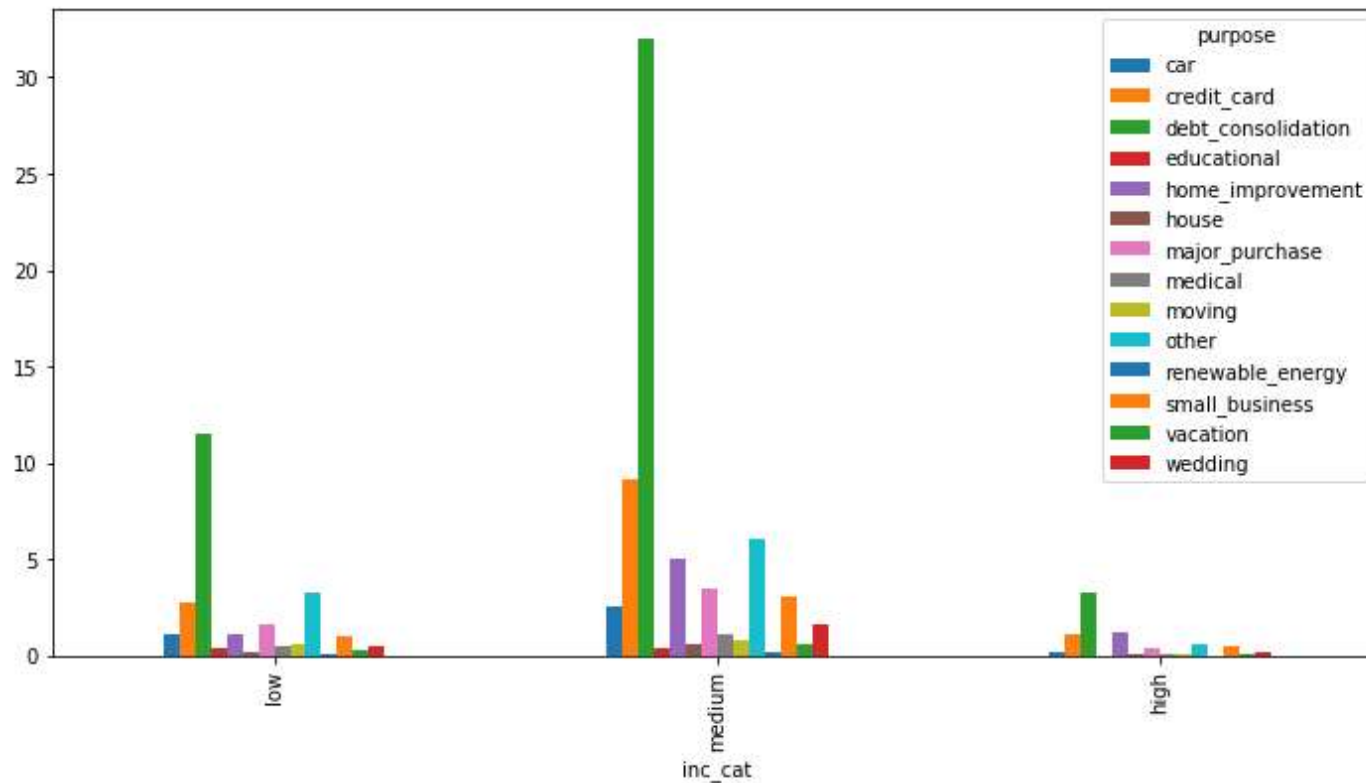


- High default loan amounts is observed in larger loan amounts involved in small business, debt consolidation and credit card

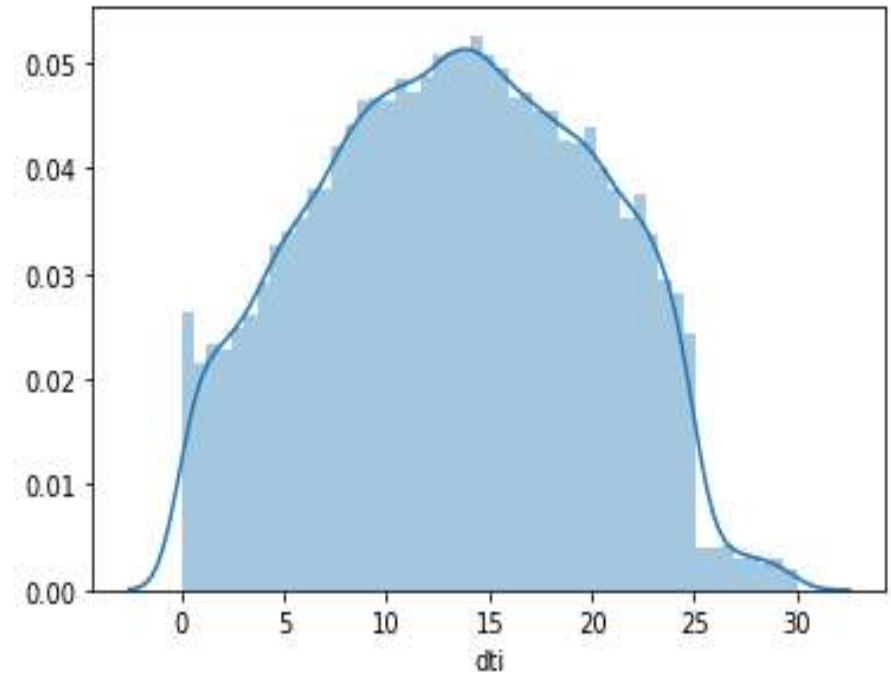
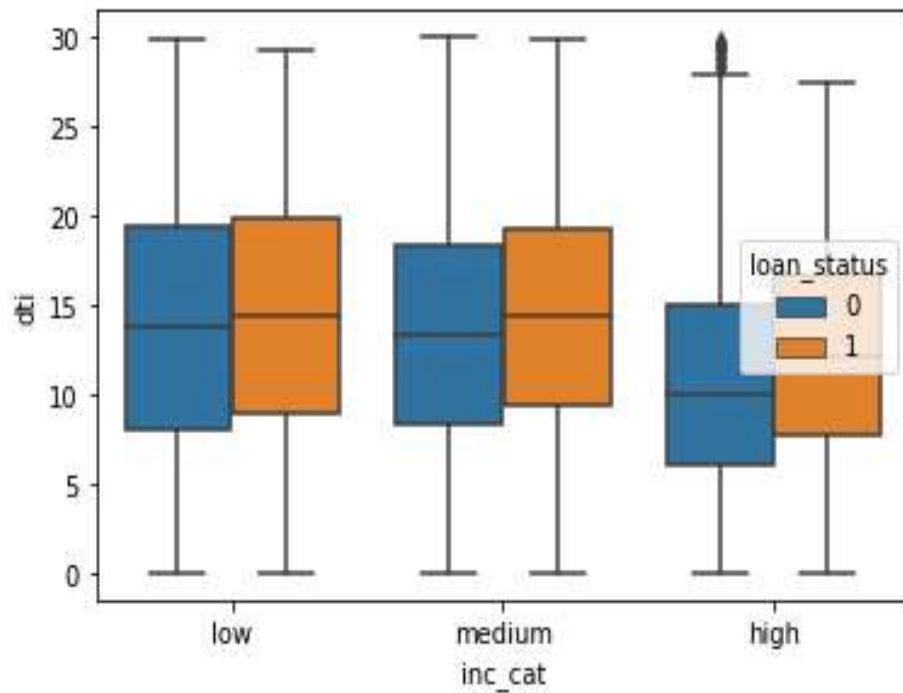


Note- In the graph  
0 : Fully Paid  
1 : Charged Off

- High Income: popular loan purpose = debt consolidation and home improvement
- Medium and Low income: debt consolidation and credit card



- Ones with higher DTI among income class category have higher chances of default.
- Distribution of Debt-to-income ratio is Normal.



## Conclusions/Recommendations

Following are the recommendations we would like to provide to the Lending club according to the insights obtained from analysis.

1. **Reduction** in number of approval of the loan with *purpose* as ‘*small business*’, ‘*debt-consolidation*’ and ‘*credit card*’
2. **Stop** approving loans with from the *state* ‘*NE*’.
3. **Reduce** providing loans of *grade/subgrade* type *F5* & *G3* and **increment** the approval of *A* & *B* category loans.
4. **Approve** the loan applications having *employment length* greater than 10 years.
5. **Inspect** the applicants having *home ownership* as category ‘*Rented*’.
6. **Approve** the loan applications having *credit age* above “50 years”.
7. The amount of loan is **increasing** which is a positive thing for the club.
8. **Proper and repayable** interests should be provided for the tenure of the loan otherwise it may fall in charged off category.
9. **Care** should be taken to give loans to applicants with lower income.
10. *DTI* is good indicator of bad loans