Lending Club Case Study

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Objective

Lending Club is an online loan marketplace that connects loan lenders and borrowers. Investors invest in retail as well as business loans. Its borrowers are consumers and companies.

Borrowers who default cause the largest amount of loss to the lenders. In this case, the customers labelled as 'charged-off' are the 'defaulters’.

In this case study we need to identify –

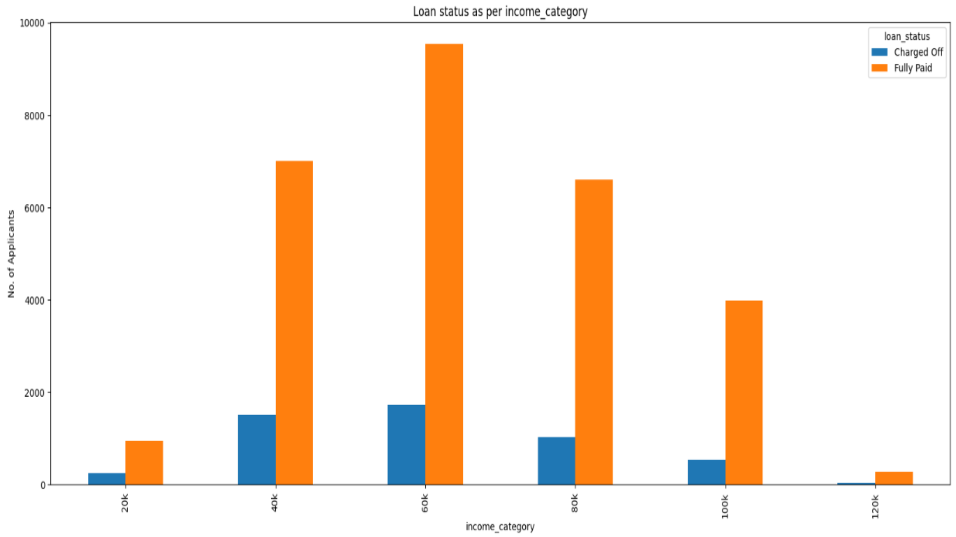
Risky loan applicants, then such loans can be reduced thereby cutting down the amount of credit loss. Identification of such applicants using EDA is the aim of this case study.

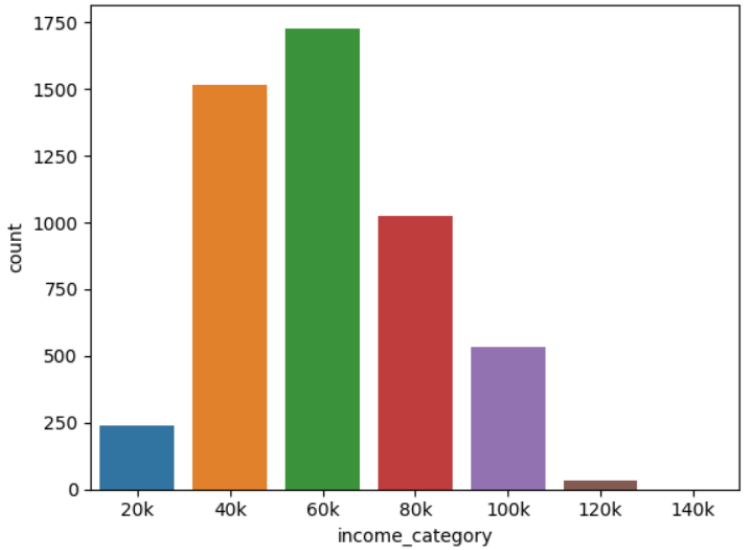
Identify the key variables for identification of defaulters

Driving Factors

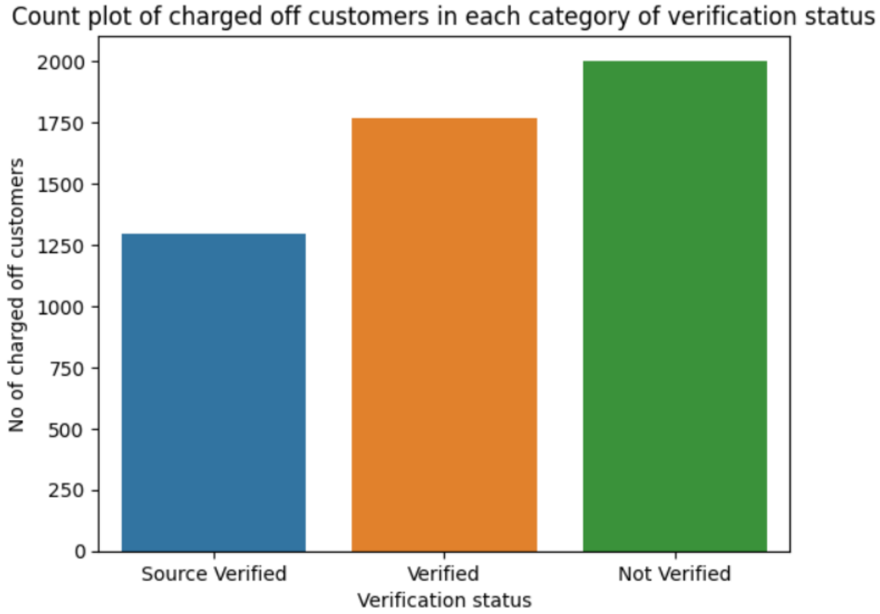
Loan Status

- Annual Income
- Verification status
- Funded amount Inv
- Debt To Income
- Interest rate
- purpose
- Grade & Sub grade
- Employment Length
- Home Ownership
- Issue Date
- Public record Bankruptcies
- Loan Term

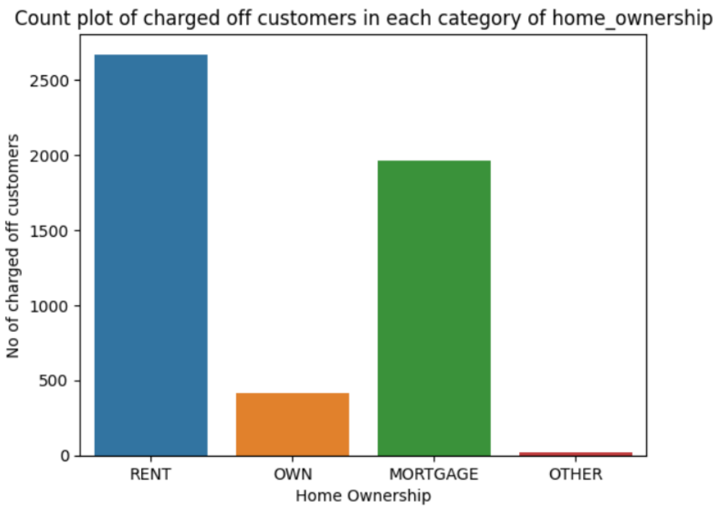


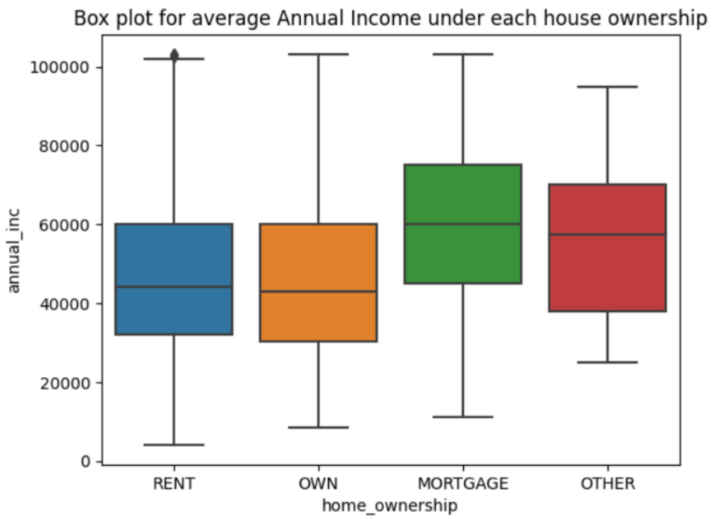


Income in the range of 40K to 60K are seen to be applying more loans however proportionately we can observe ~40K to be defaulting more



Not verified customers seem to be defaulting more as compared with verified customers

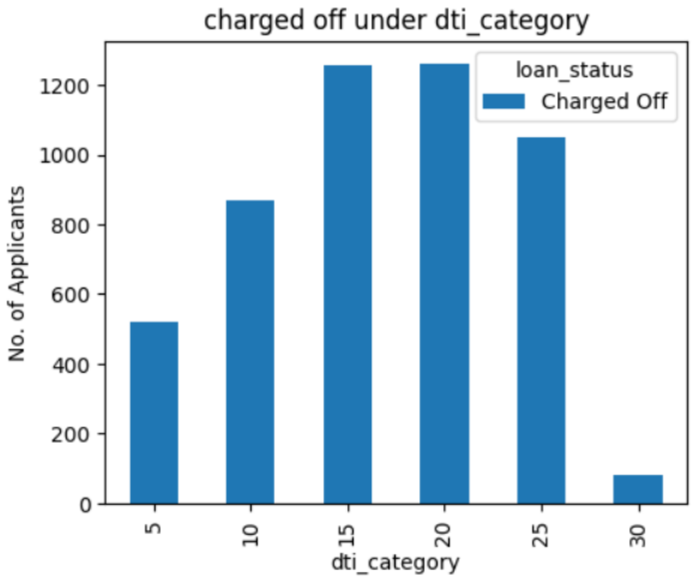


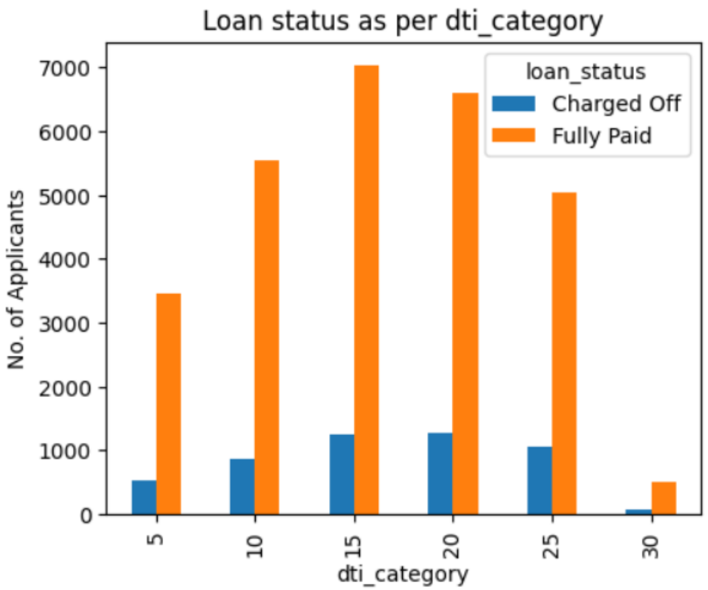


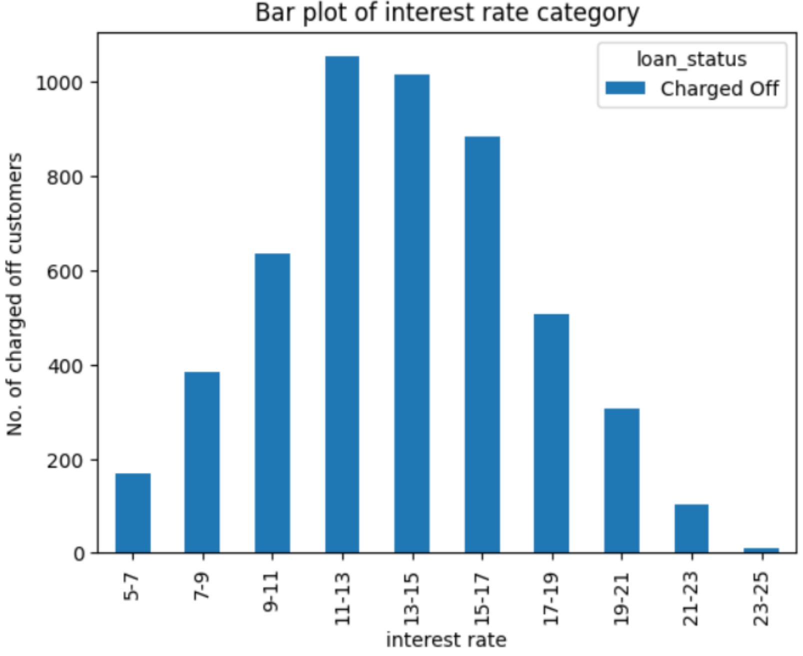
- In the first view customers with **home ownership** as Rent and mortgage have very high chances of being charged off
- In the next figure when analyzed with income below combinations are defaulting,
  - ~ 60 K income and mortgage accounts
  - ~ 40K income with Rent and own

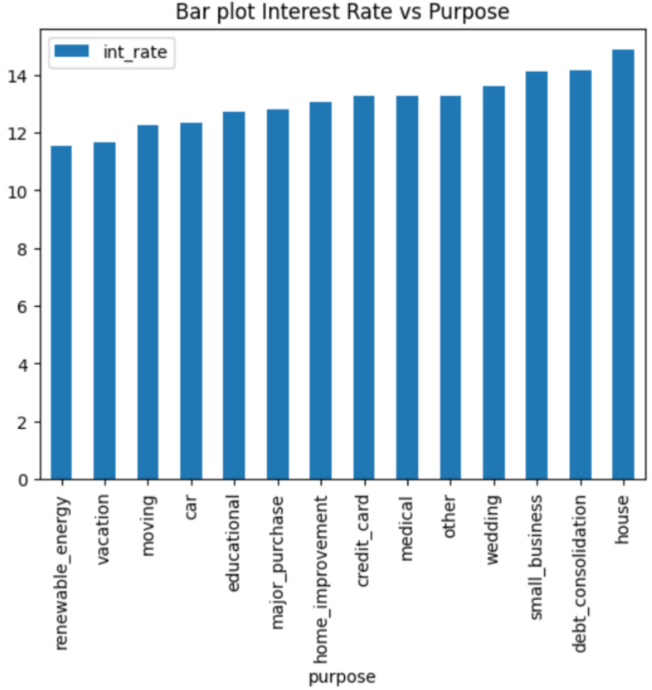
DTI ranges 10-15 and 15-20 have high and equal charged off however when analyzed with loan status

- 10-15 range is profit making bucket
- 15-20 range could be at risk as more charged off customer

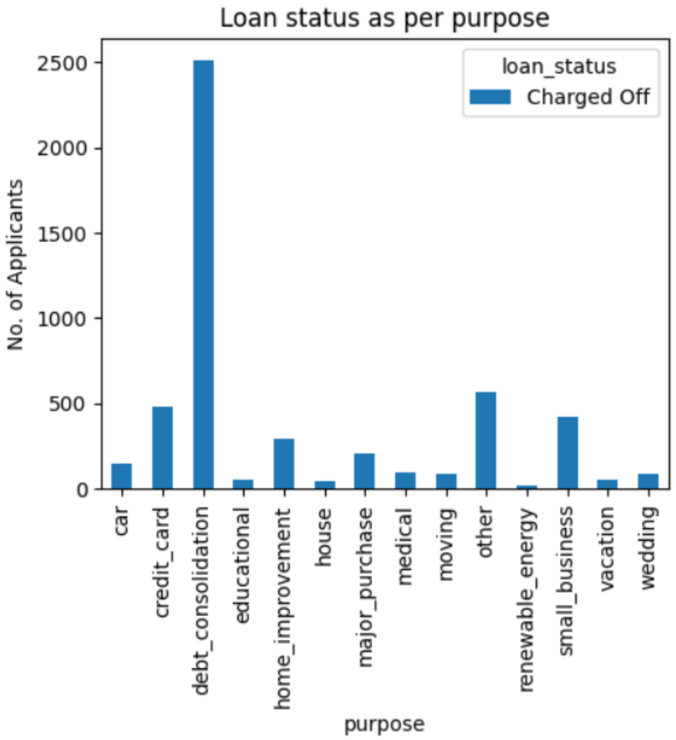




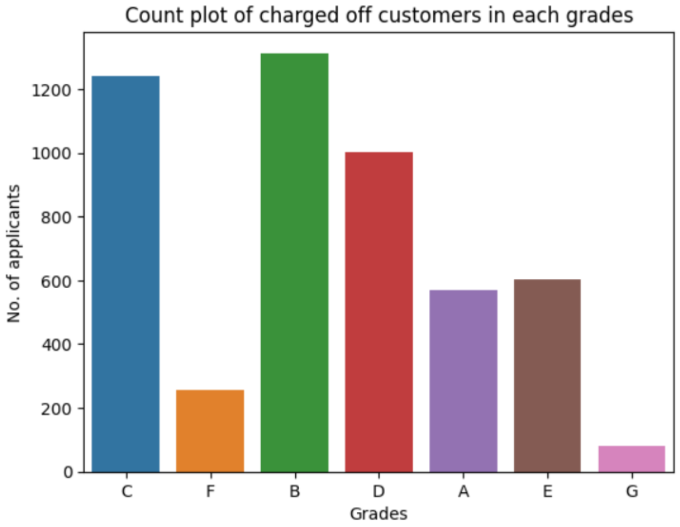


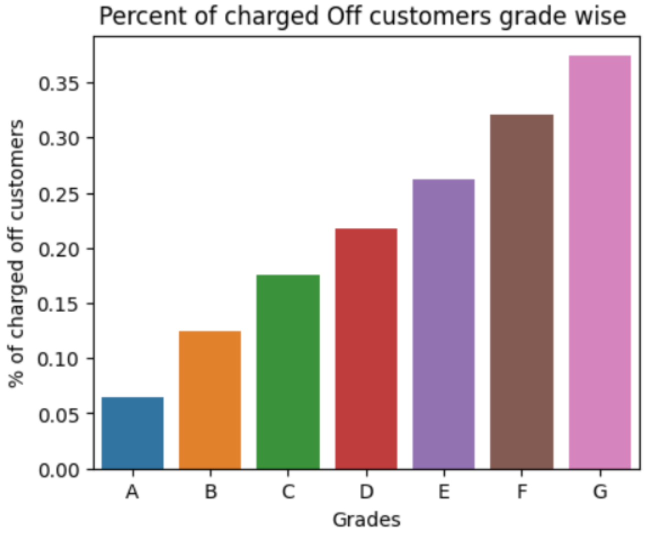


Interest rate in the range of **10-17%** have more probability of defaulting
When analyzed with purpose
•house with average of 14% interest rate
•small business & debt consolidation with average ~13%



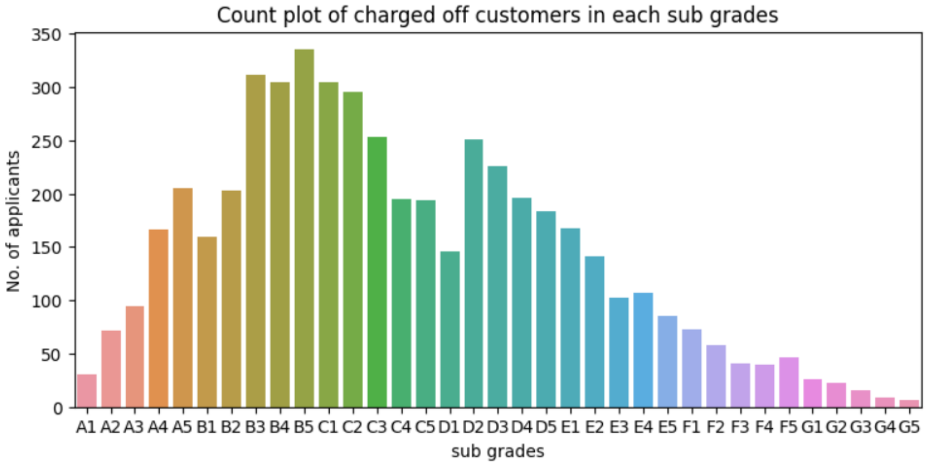
Charged off customers are more for the loan purpose under **debt consolidation** category

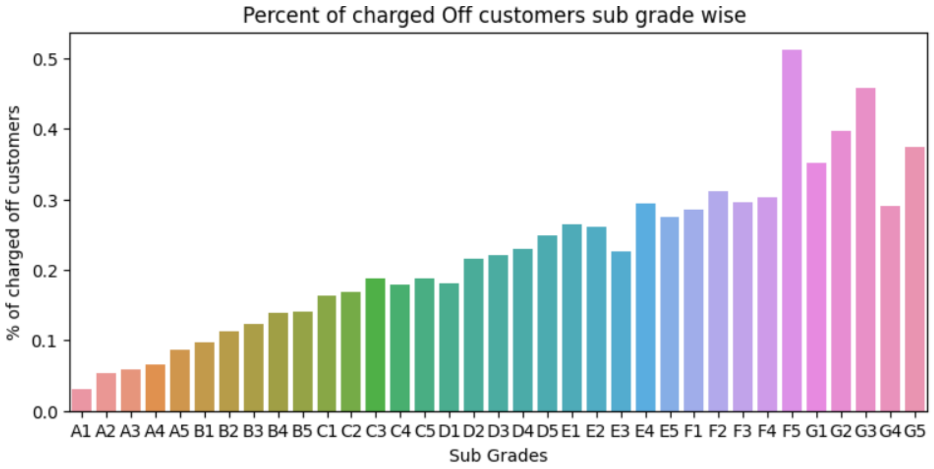


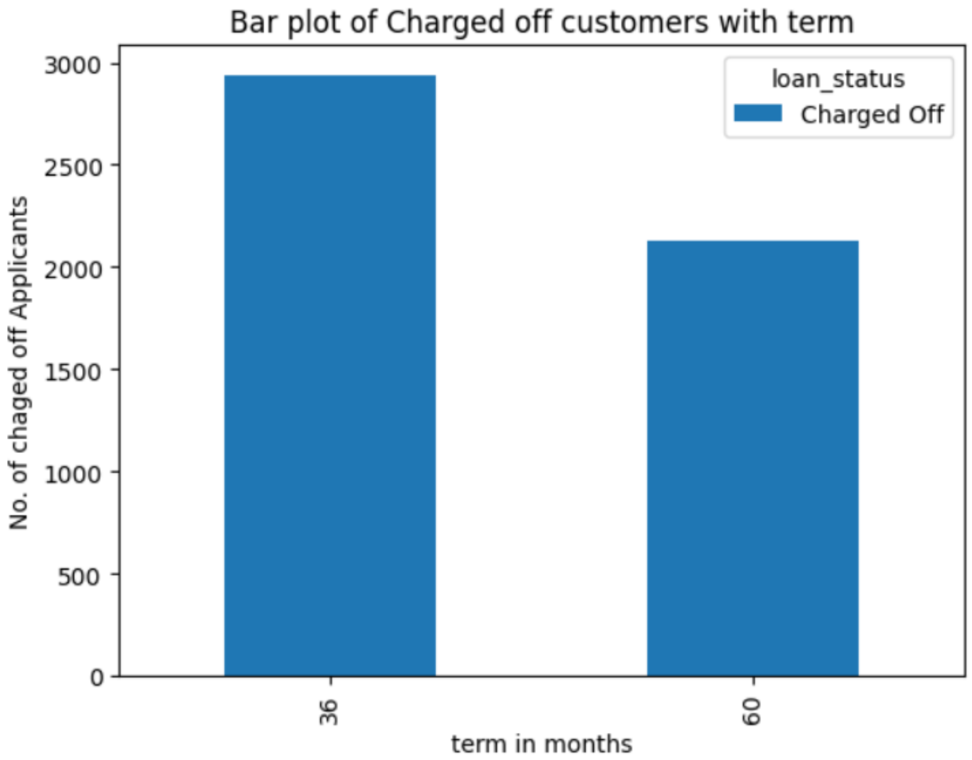


When analyzing **Grade** and **sub grade** with number of charged off,

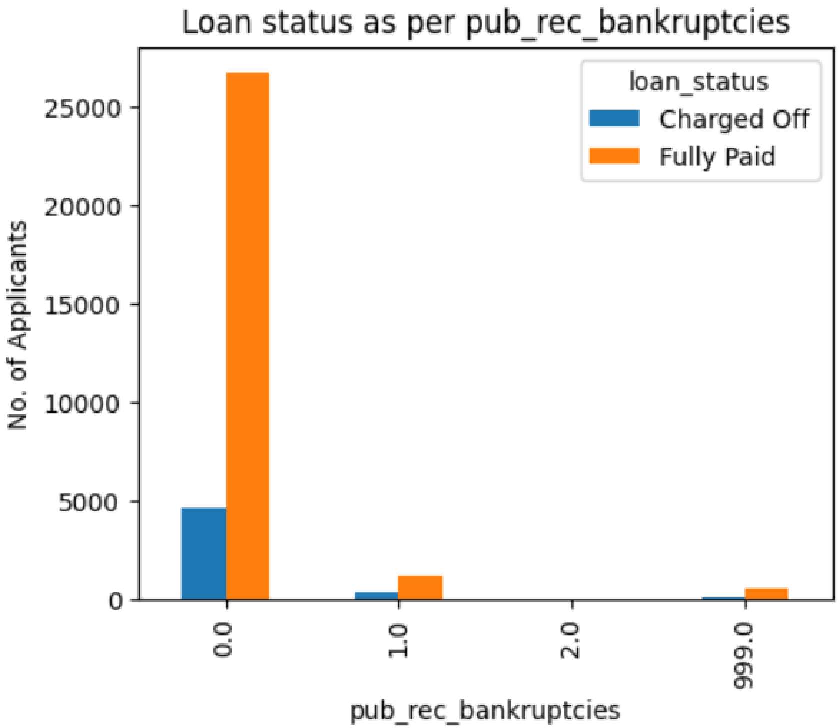
- Grade and subgrades of B and C are very high
- however charged off % in each segment is found very high for Grade G and its subgrades



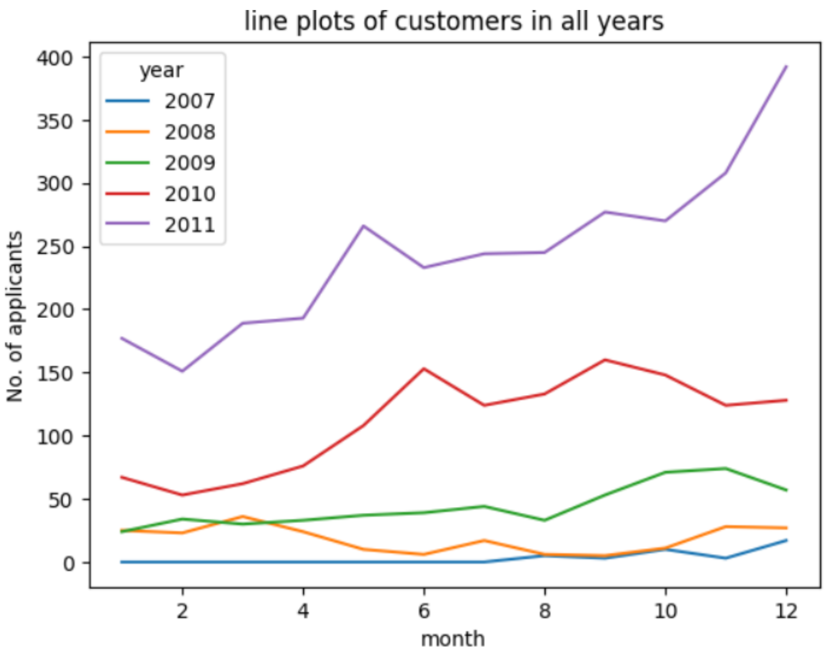




Customers availing for a higher loan period have higher chances of defaulters



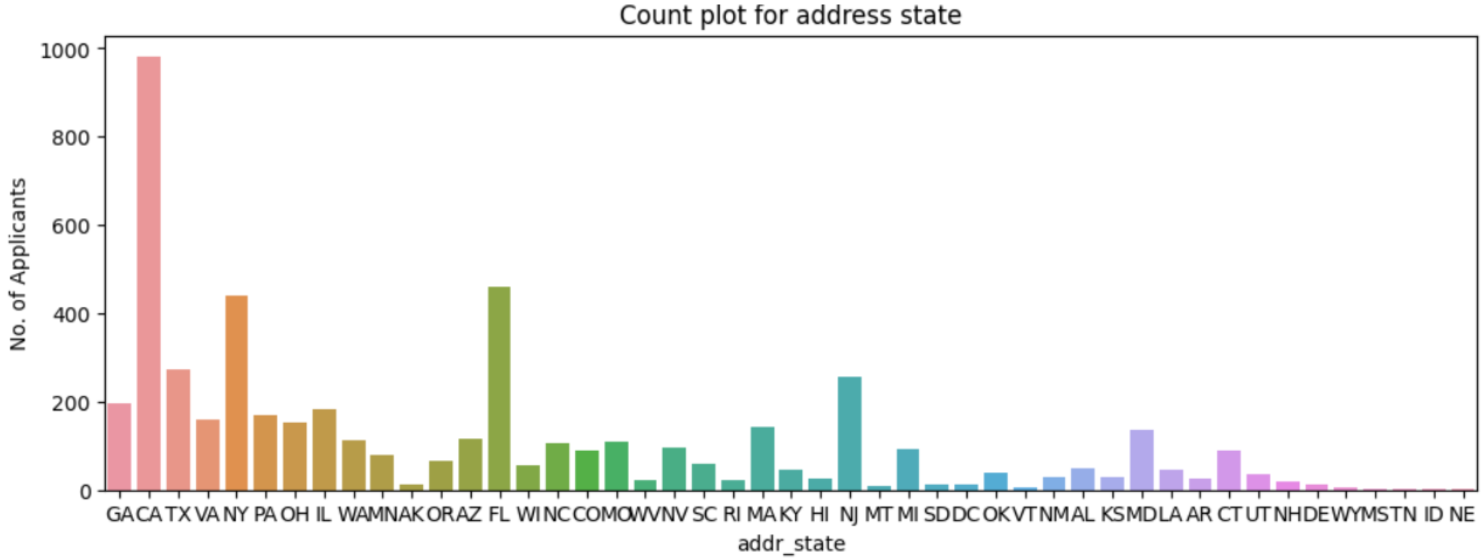
0 Bankruptcies have higher charged off, however also have very high fully paid which is profit making
Proportionately analyzing 1 and 2 bankruptcies could be potential defaulters



- 2011 - year of crisis . US Economy not in a good shape chances of defaulter may increase

- Acquisition can be slow down to decrease the chances of defaulters in a stressed economy

Customers from state California are likely to be more defaulters



Summary Insights

1. Customers holding the salary range within 40k to 60k are more likely to be charged off
2. Non verified customers are observed to be charging off more
3. Funded amount Inv within the range of 5000 to 10000 seems to be more charged off than higher funded amount inv.
4. Customers having more debt to income ratio are seen to be applying for more loan amount, resulting in higher loan amount corresponds to higher charged off
5. Loans with the interest rate in the range of 11-15% are likely to be more charged off
6. Charged off customers are more for the loan purpose under debt_consolidation, credit_card and other category
7. On analyzing grades with charged off frequency Grade B is observed to be most charged off segment. However on further analysis on sub grade having % of accounts being charged off Grade G looks to be on higher side
8. Customers having more than 10+ years of experience seem to be more charged off. In addition the customers less than 1 year of experience falls under defaulters
9. Customers ownership as Mortgage or Rent likely to be charged Off
10. Chances of defaulters increase in a stressed economy as we observed in later half of year 2011
11. Charged off customers are more for the loan purpose under debt consolidation and credit card category
12. pub_rec_bankruptcies having value as 0 are observed to be more charged off however looking at the % of applicants values 1 and 2 are charged off more.
13. Customers from state CA are more in defaulters