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Lending Club Case Study

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Problem Statement

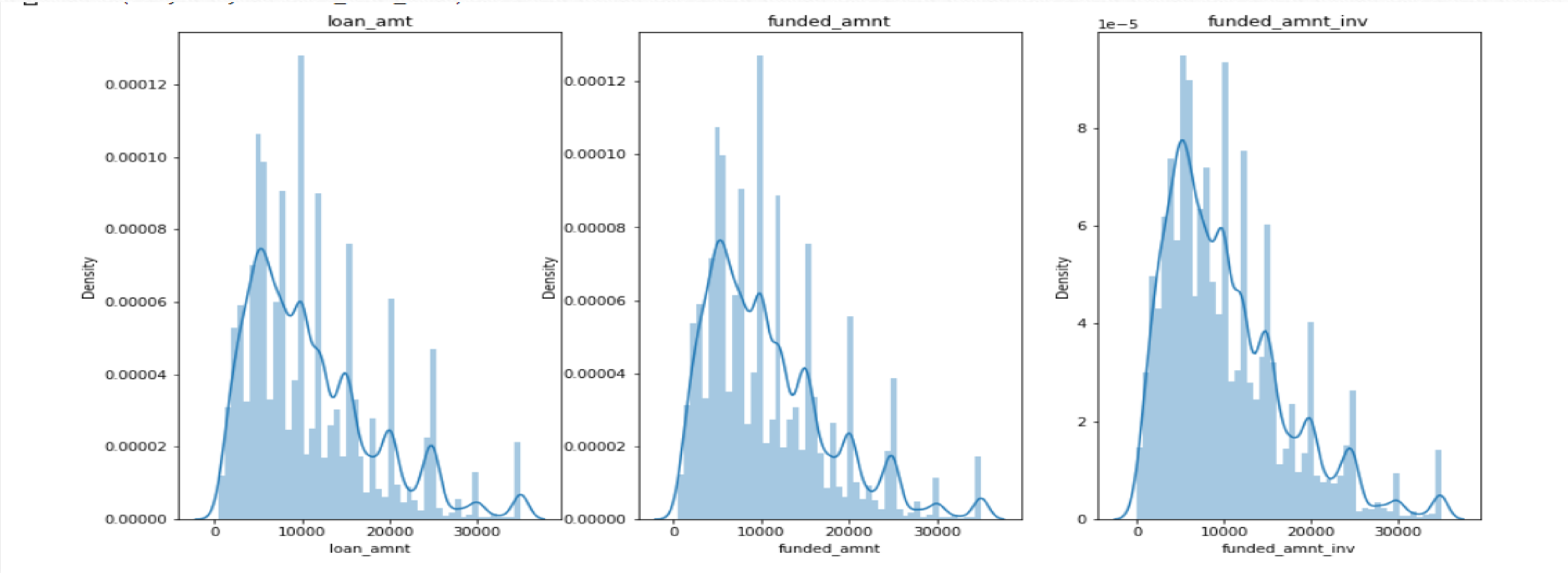
- Need to identify the defaulters before giving the loans by bank.
    - Borrowers who take money may or may not pay back the money. In scenarios where the burrower doesn't return back the money lender will have a financial impact.
    - Before lending money banks need to identify if they will repay or not.

Solution Approach

- **Why** - Problem needs to be addressed as giving loans to who don’t repay will have a financial impact.
- **Identification** - Identification of the impacting columns for defaulters like interest rate, annual income of the borrower , loan status, home ownership.
- **Univariate analysis** -Performed univariate analysis on individual columns to identify the role of the columns independently.
- **Identification of defaulters** - Performed segmented univariate analysis vs loan status to identify which group has defaulters.
- **Bivariate analysis** - Performed bivariate analysis for loan status vs other grouped columns items to identify which set of group has more defaulters.
- This solution approach gives indication to banks on loan defaulters and help them to build success strategy in customer focused expansion.

Univariate Analysis

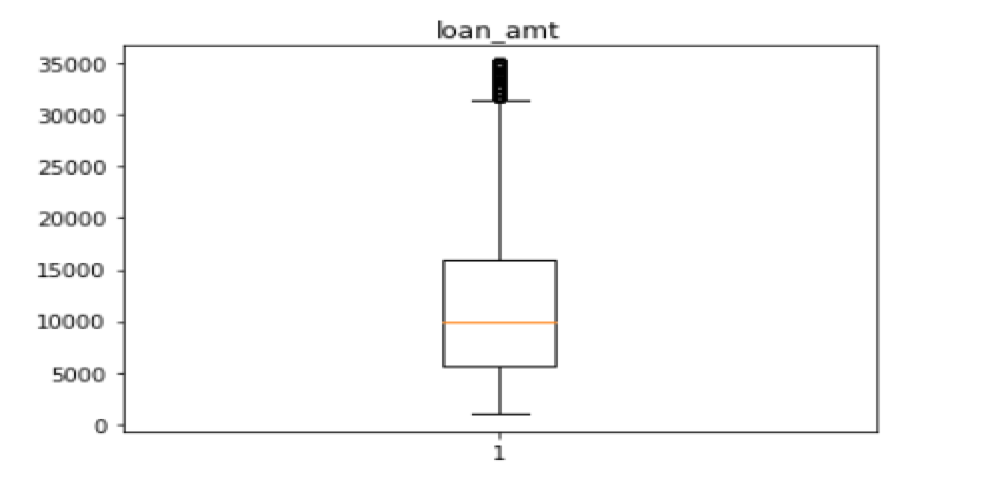
Loan_amt vs funded_amt vs funded_amnt_inv

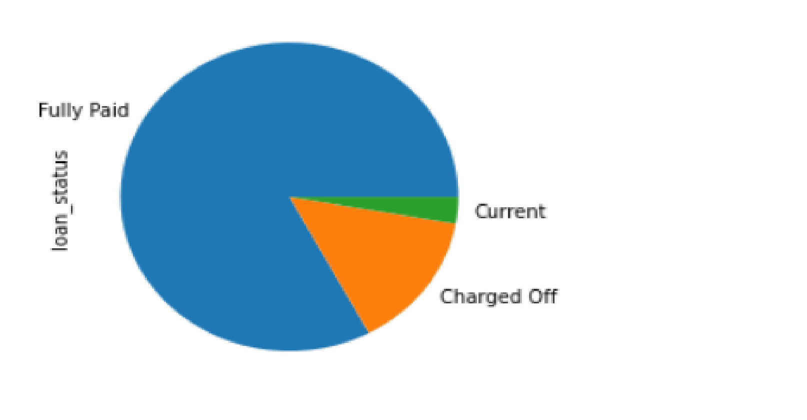


Observations -

With this we can conclude that there is no difference between loan amount to funded amount and funded amount invested.
So we can drop funded amount and funded amount invested columns and use only loan amount for further analysis.

Observations





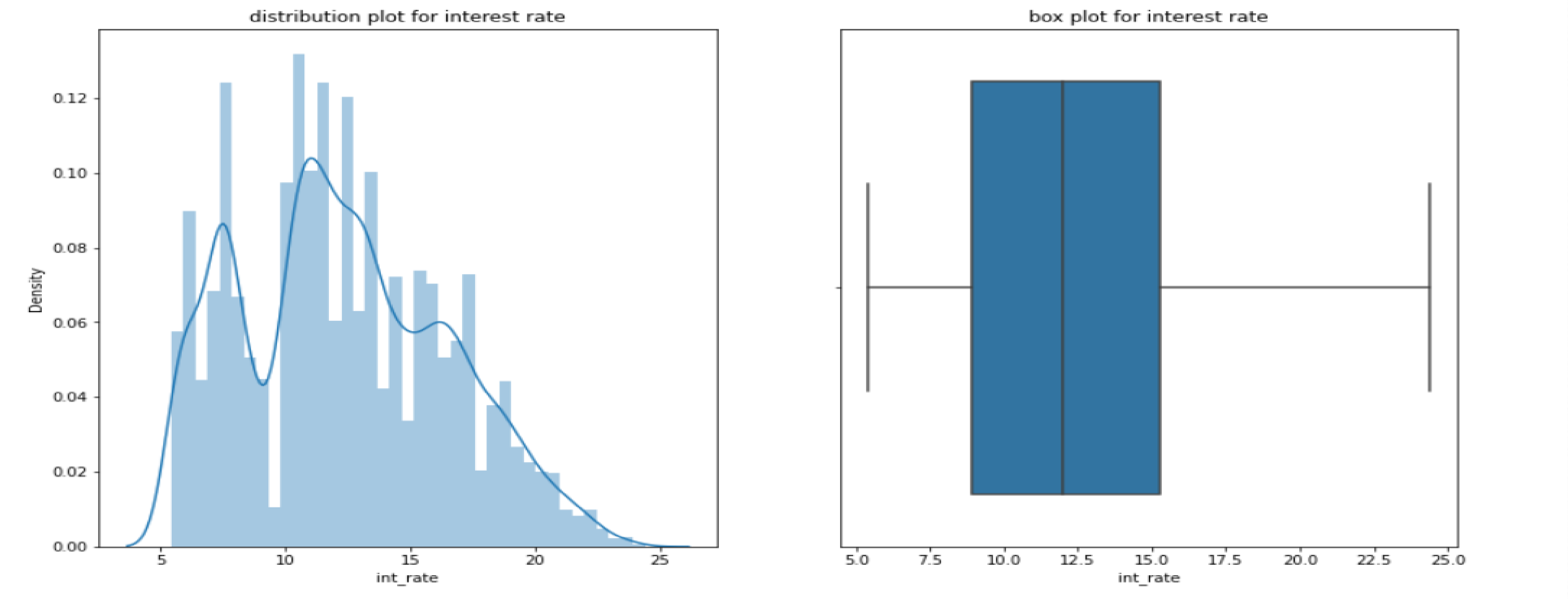
Observations-

Most of the loans given are between 500 0 and 15000

Observations-

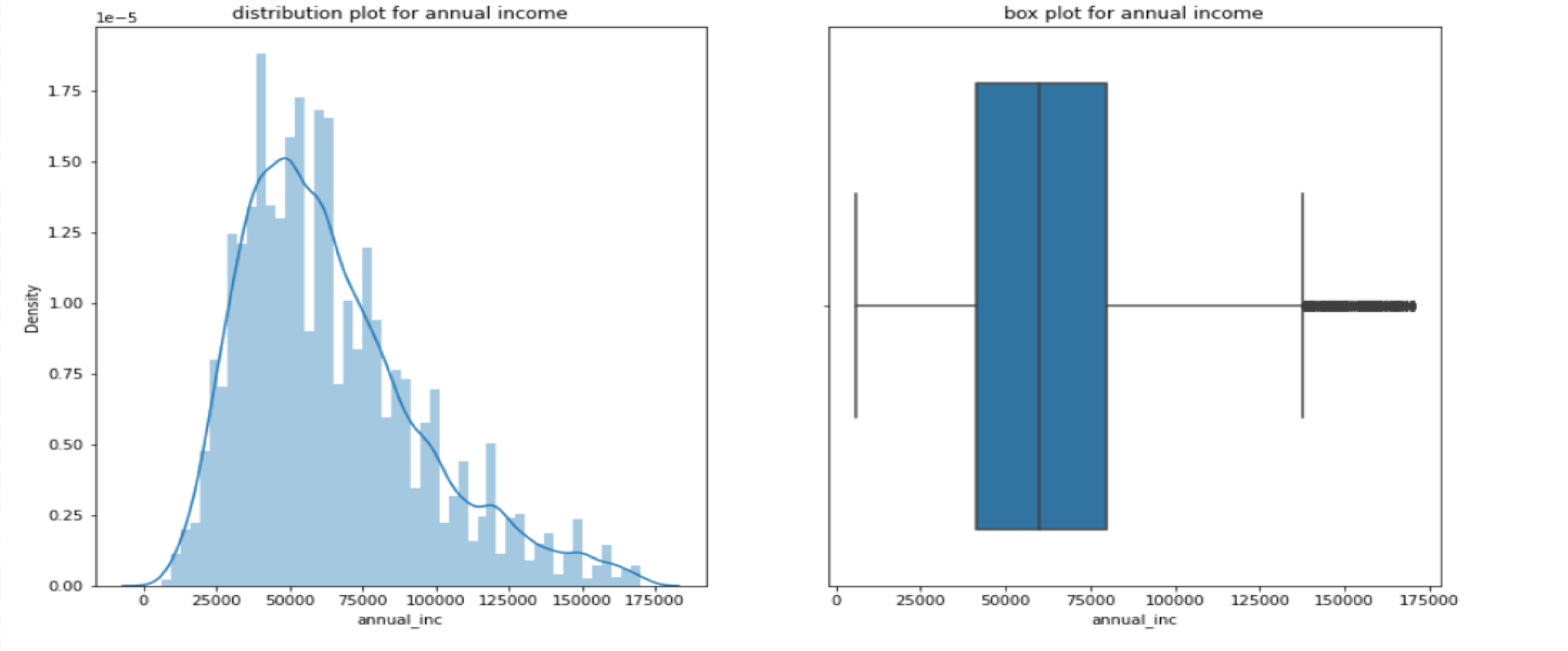
Most of the loans are fully paid and very few are current going on.

Interest Rate



Observation-
Most of the interest rates lie between 10 and 15

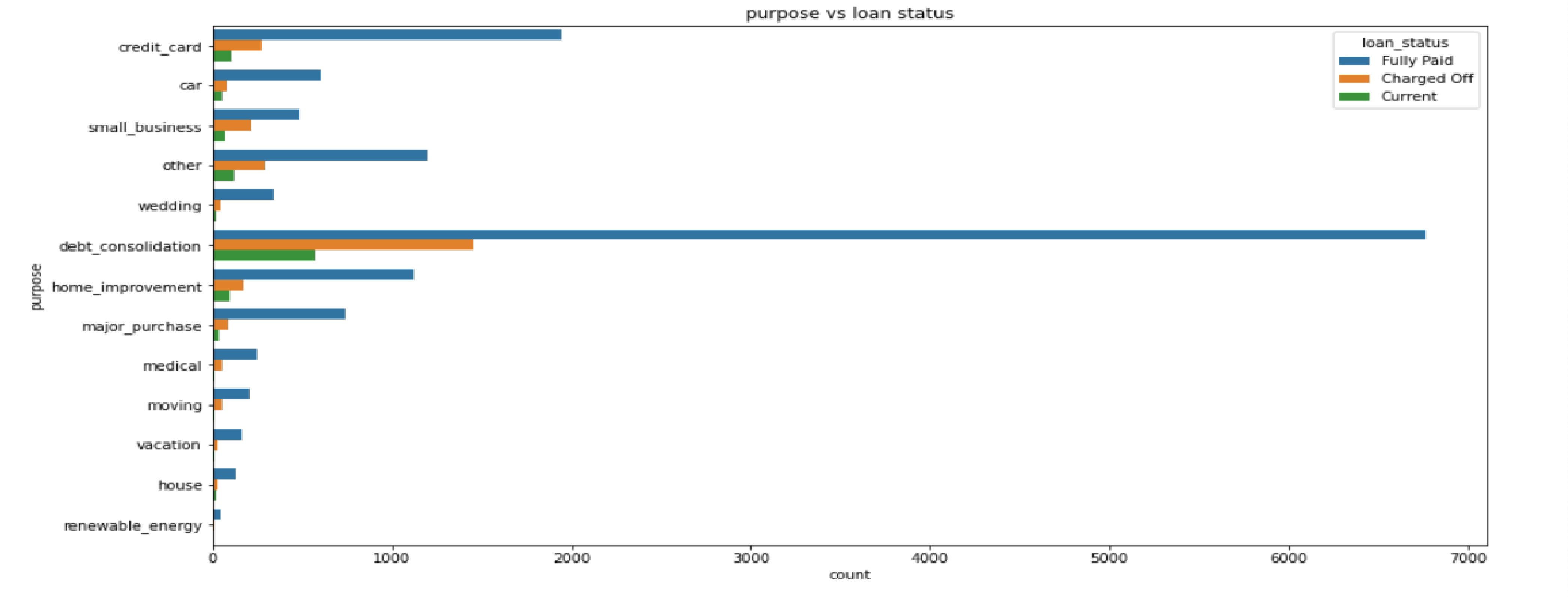
Annual Income



Observations- Borrowers annual income lies between 40K and 80K.

Segmented Univariate Analysis

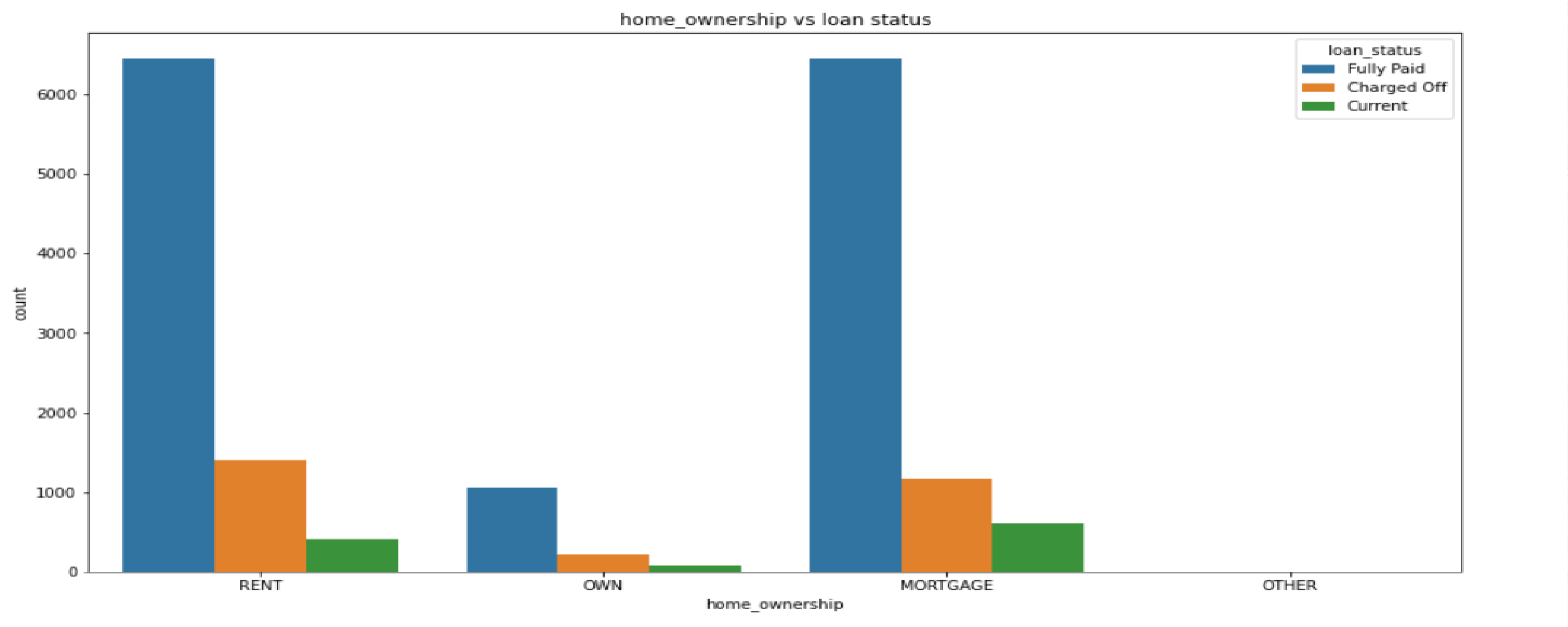
Purpose vs Loan status



Observations-

- We can see that most of the charged off are with debt_cosolidation and credit cards.
- loans under renewable energy are least likely to be charged off
- loans under house, educational and vacation are also least likely to be charged off

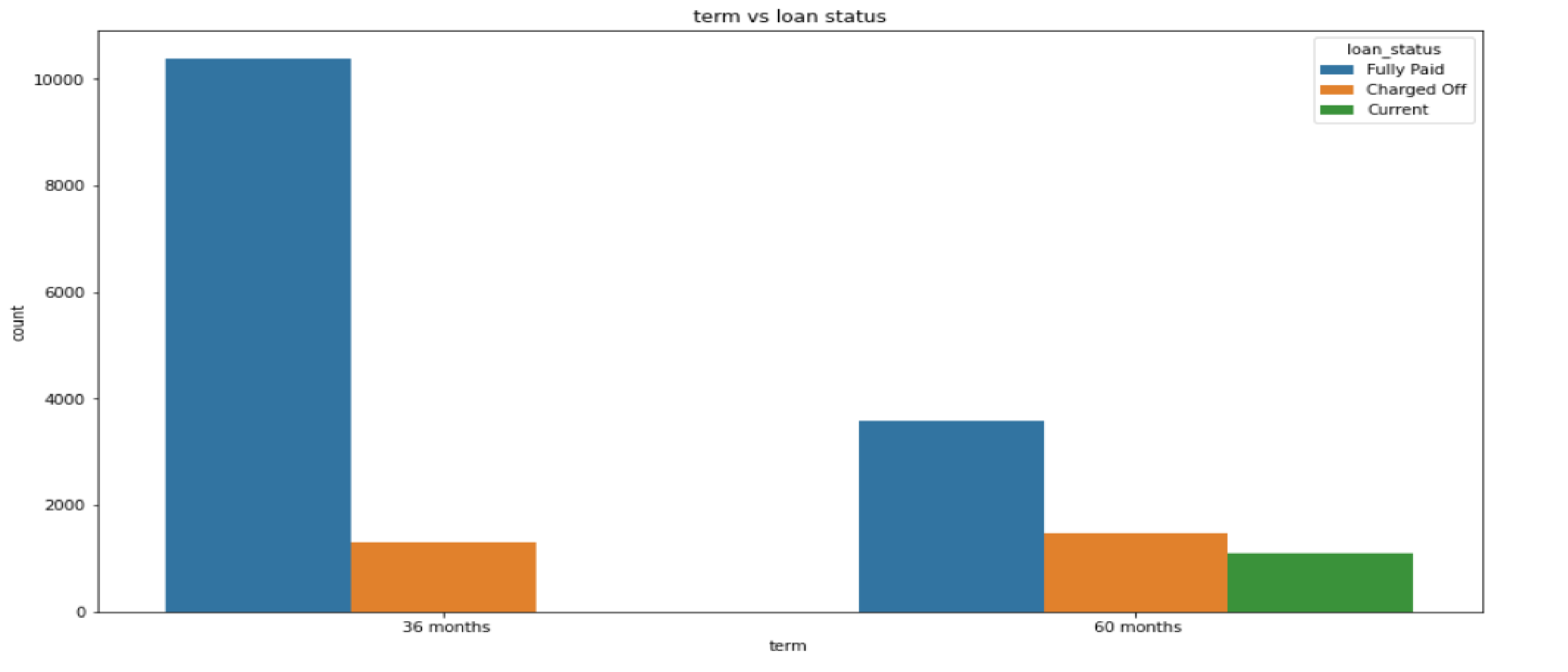
Home ownership vs loan status



Observations-

- Most of the charged of accounts are where houses are in mortgage or in rent.
- People having own house and not in mortgage have very less chances of getting charged off.

Term vs loan status

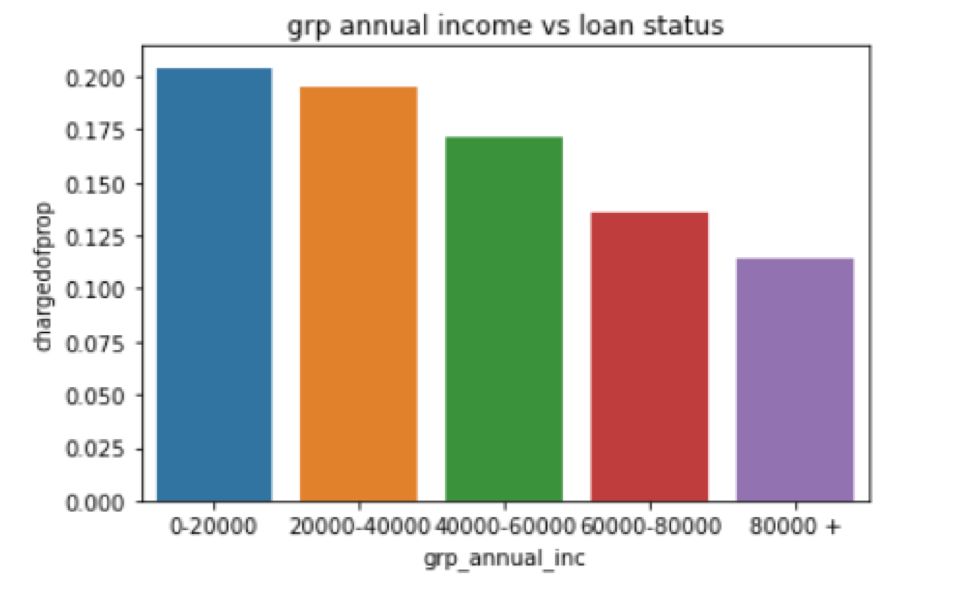


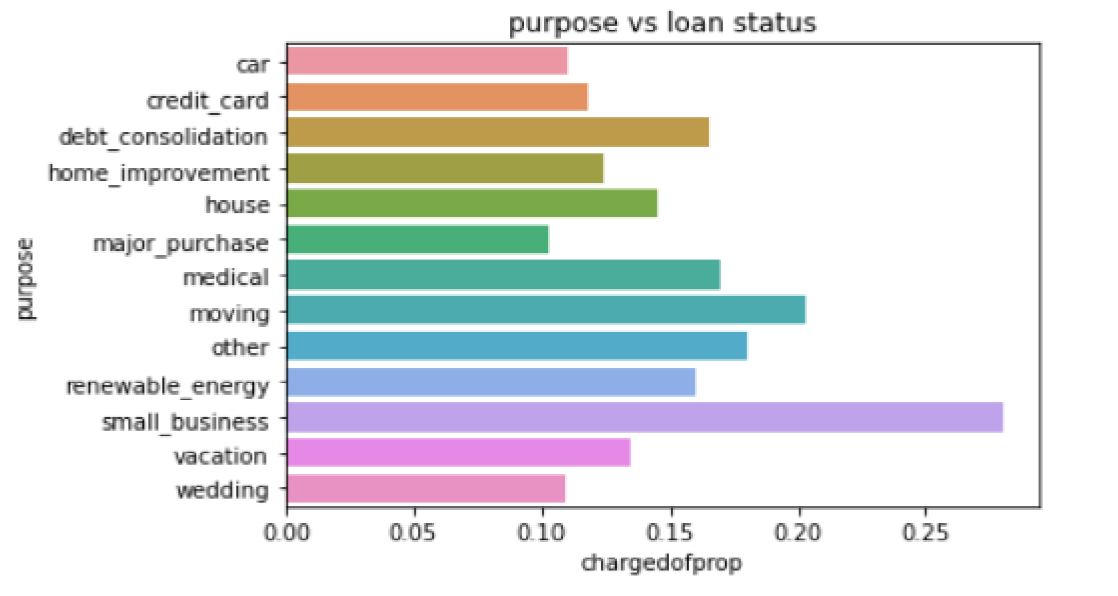
Observations-

- We can say that people whose term is for 60 months are more likely to charge off.

Bivariate Analysis

Observations





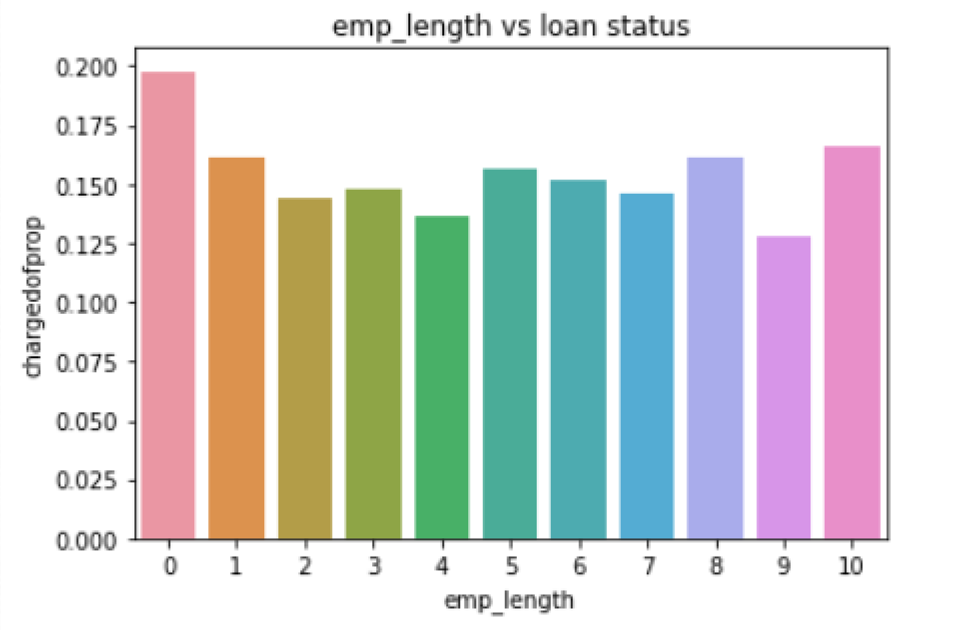
Observations-

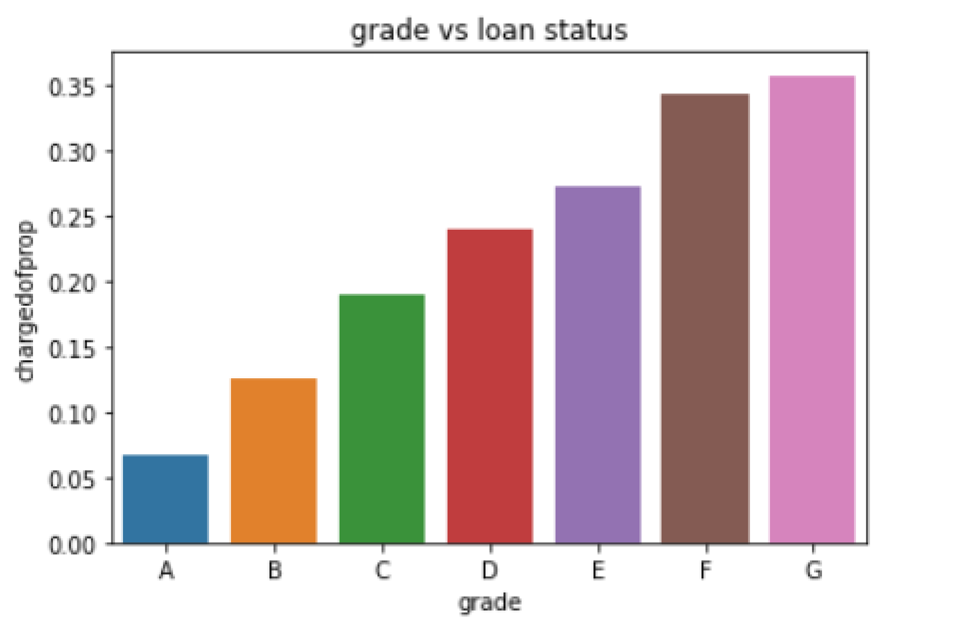
- We can see that low income grp people are most likely the charged off ones.
- With increasing in annual income the charged of ones also decrease.

Observation-

- We can see that small business purpose are mostly the charged off ones.
- People who have taken for wedding and major purpose are less likely to be the charged off ones.

Observations





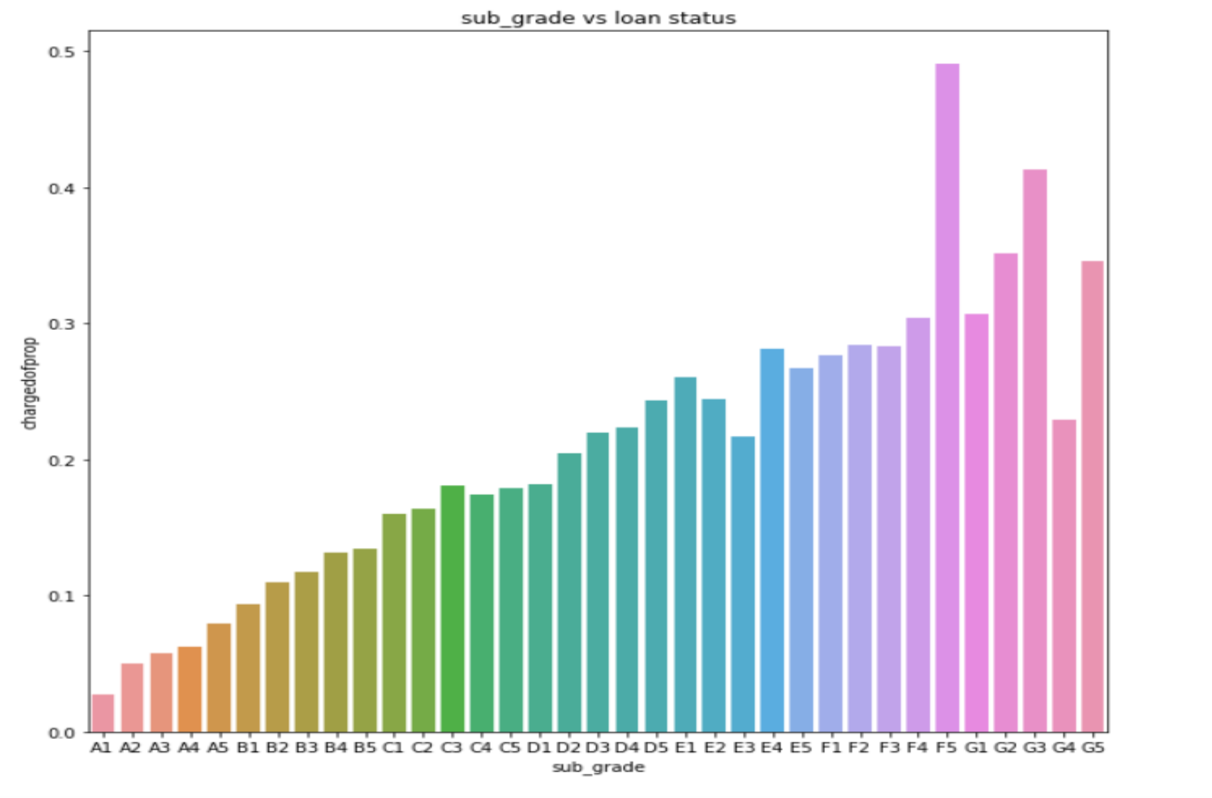
Observations:

- Employees with < 1 year of experience are mostly the charged off ones.
- Rest of the experience is more or less in same state.

Observations:

- G and F groups are the most likely charged off ones. →People in A group are less charged off.
- Increasing in grade the chances of getting charged off also increases.

Observations



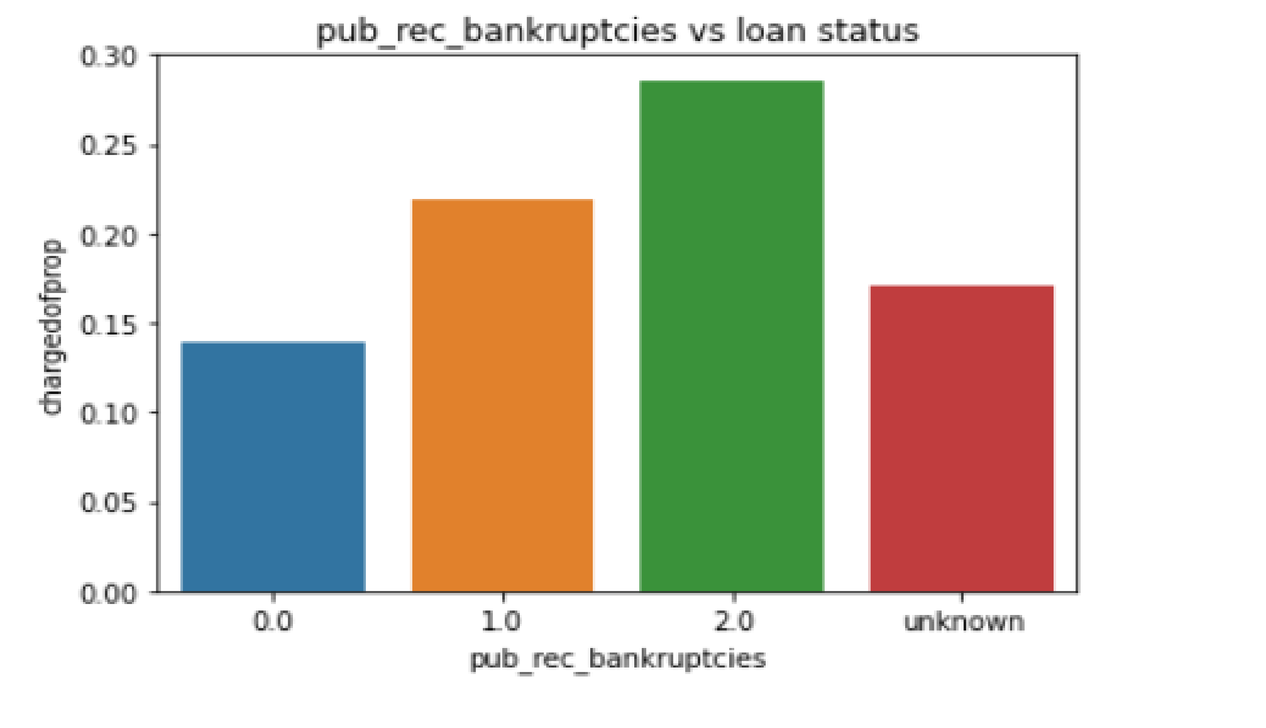
Observations

- People with high interest rate are the ones charged off.
- Less interest rate the charged off rate also decreases.

Observations:

- sub groups under A have very less chances of charged off.
- sub groups under F and G have very high chances of charged off with F5 and G3 being the highly likely.

Observations



Observation-

- Unknown is the column for which we don't have any information about the borrower.
- With this we can conclude that those who have defaulted before will more like be defaulters again.

Important Results

- High interest rate on loans more chances of being defaulters.
- Lower the annual income high chances of being defaulters.
- Higher the group and sub group (G and F) the defaulters increase.
- Loans given for small scale business purpose have more number of defaulters.
- If the term to repay increases the defaulters also increase
- Loans taken for Debt consolidation and Credit payment have high defaulters
- Borrowers who have previously defaulters are more likely to be defaulters again.

Thank You