Lending Club Case Study

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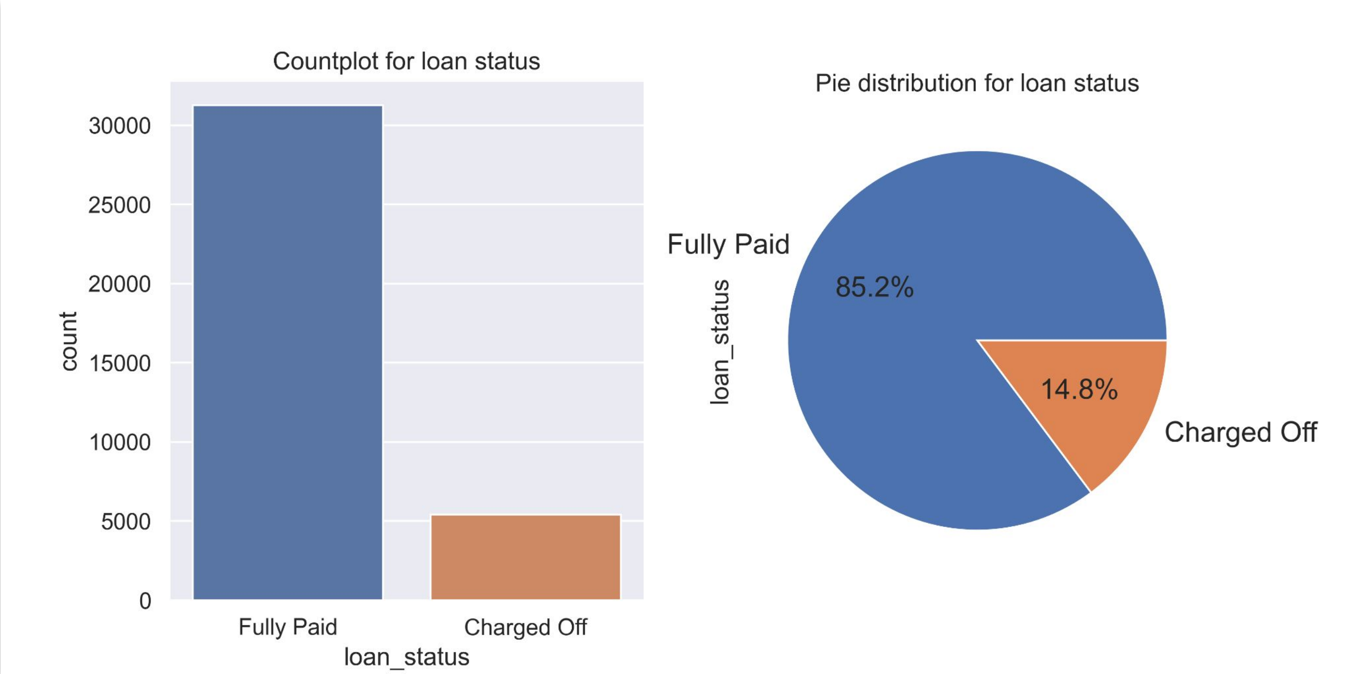
Introduction

Lending Club is a marketplace for personal loans that matches borrowers who are seeking a loan with investors looking to lend money and make a return. Borrowers who default on their loans are the largest cause for loss for Lending Club. Lending Club wants to understand the driving factors behind loan default.

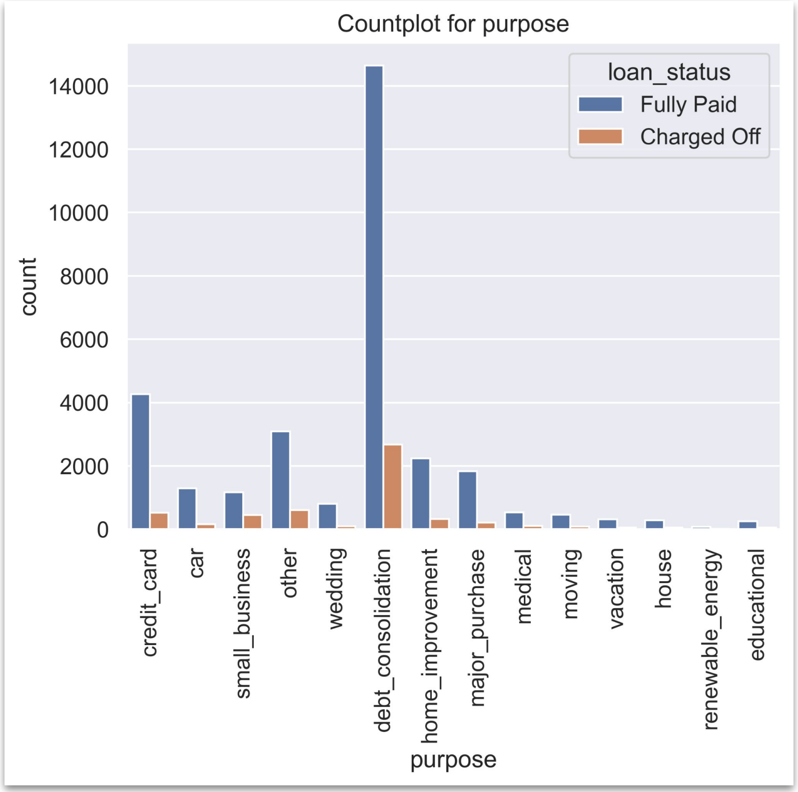
Data Overview



Observations

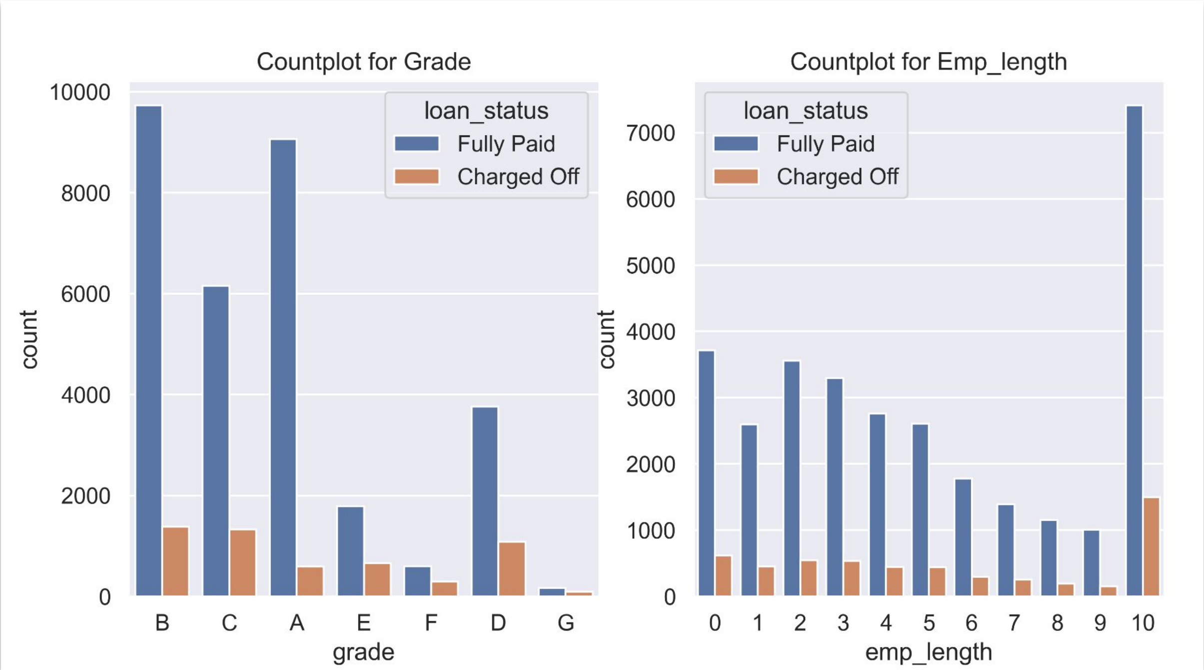
Univariate Analysis

- Most charged off loans were taken for debt consolidation.



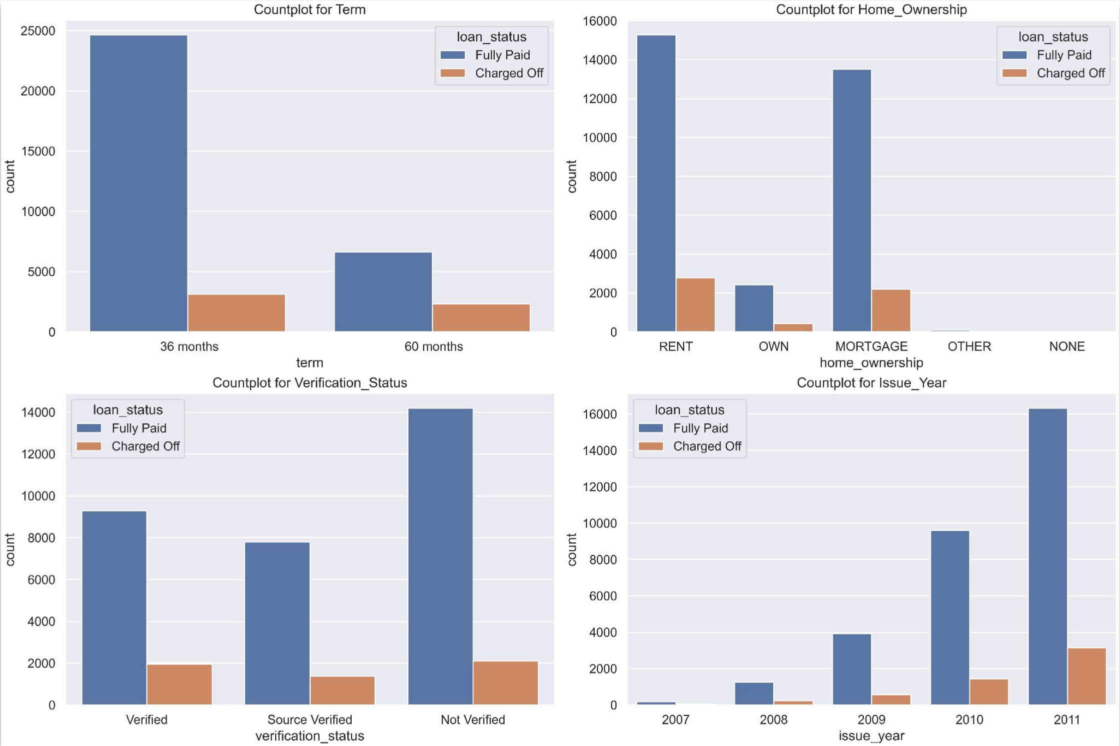
Observations

- It was seen that most charged off loans were taken for the "B" Grade.
- Employees having experience of 10+ years tend to default more.



Observations

Loans of term 36 months, borrower having home ownership as mortgage, verified status and loans issued in 2011 have a high count of charged off loans.

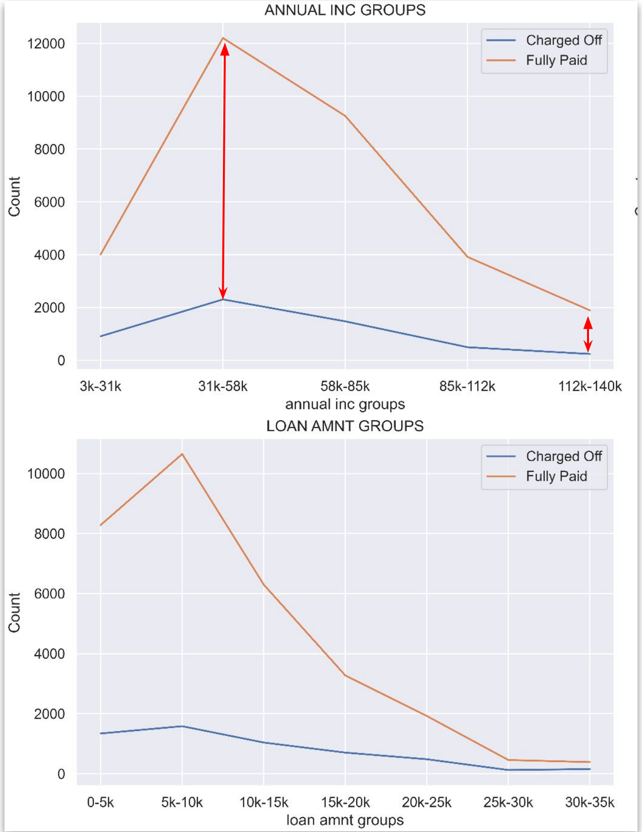


Observations

Segmented Univariate Analysis

Here, lower the gap between the fully paid and charged off line, higher is the chances of borrower defaulting the loan. Therefore,

- Borrowers in the annual income range of 3k-31k and 112k-140k have higher chances of defaulting.
- Loans given of above 25k have high chances of defaulting.

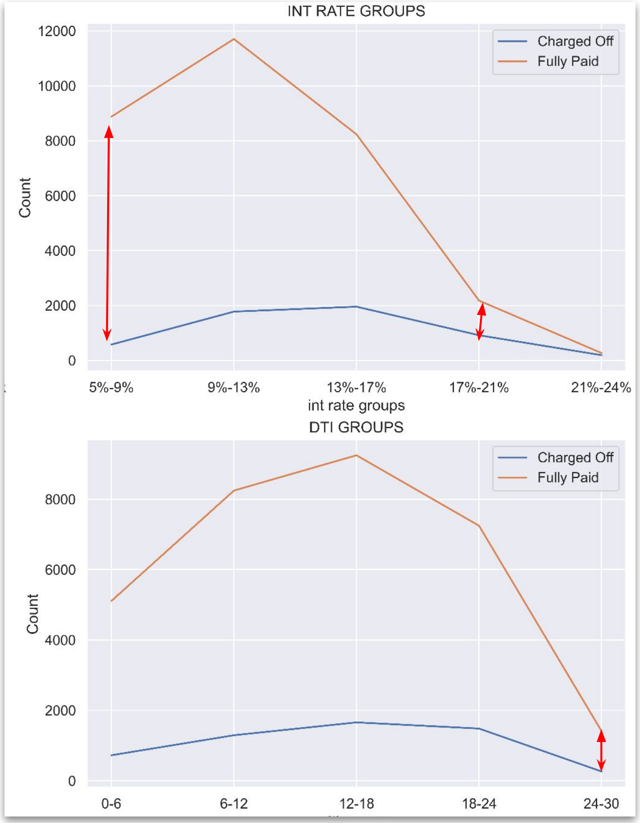


Observations

Segmented Univariate Analysis

Here, lower the gap between the fully paid and charged off line, higher is the chances of borrower defaulting the loan. Therefore,

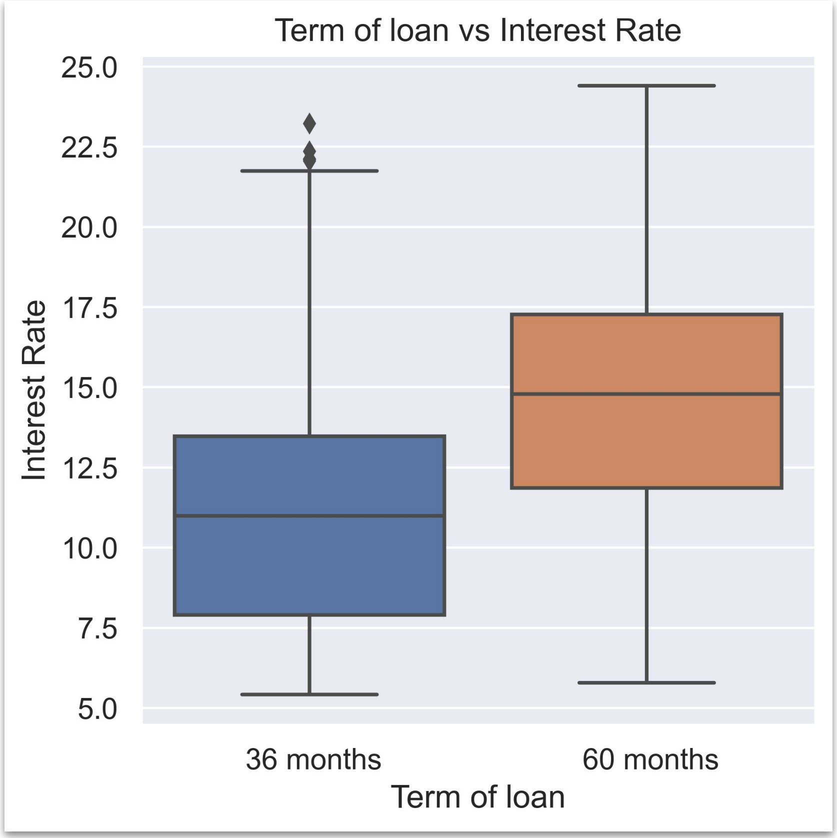
- Loans given at interest rates above 17% have high probability of getting charged off.
- The Debt-to-Income ratio in the range 0-6 and 24-30 have high percentage of defaulting.



Observations

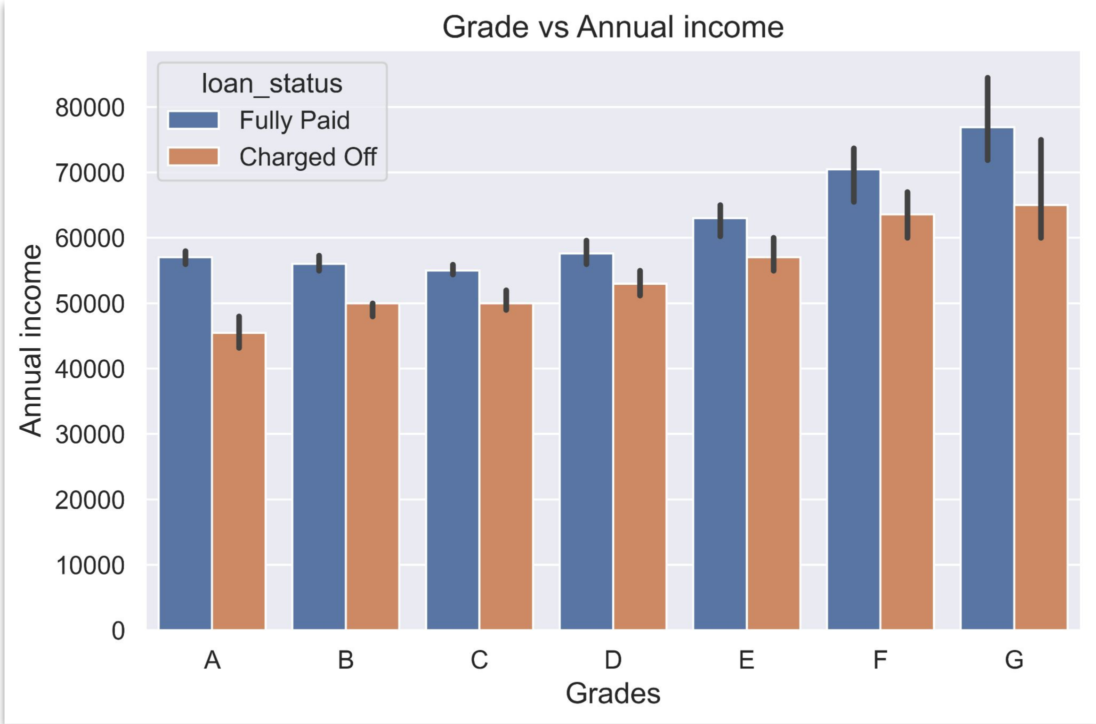
Bivariate / Multivariate Analysis

- Loans given for a term of 60 months have a higher median of interest rate compared to the interest rates for 36 months.



Observations

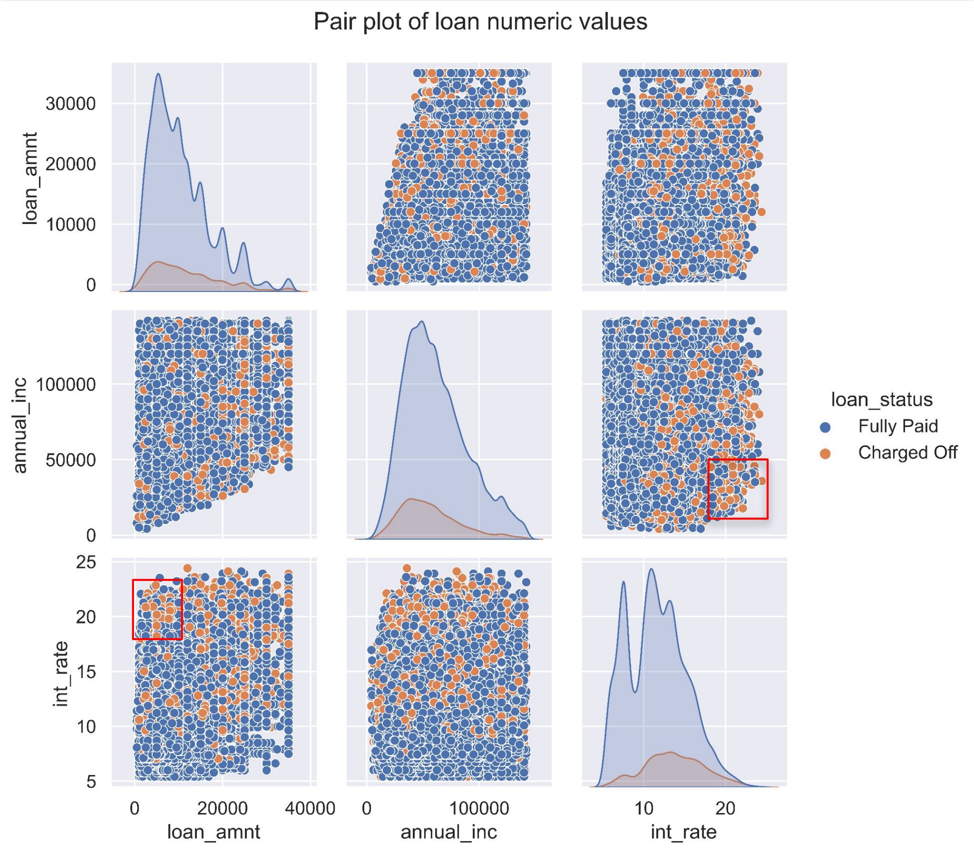
- A common trend is seen here that 'charged off' have lower annual incomes compared to "fully paid" for each and every grade of loan.



Observations

The regions where there are higher concentration of orange dots, marks the region where there are high chances of defaulting like:

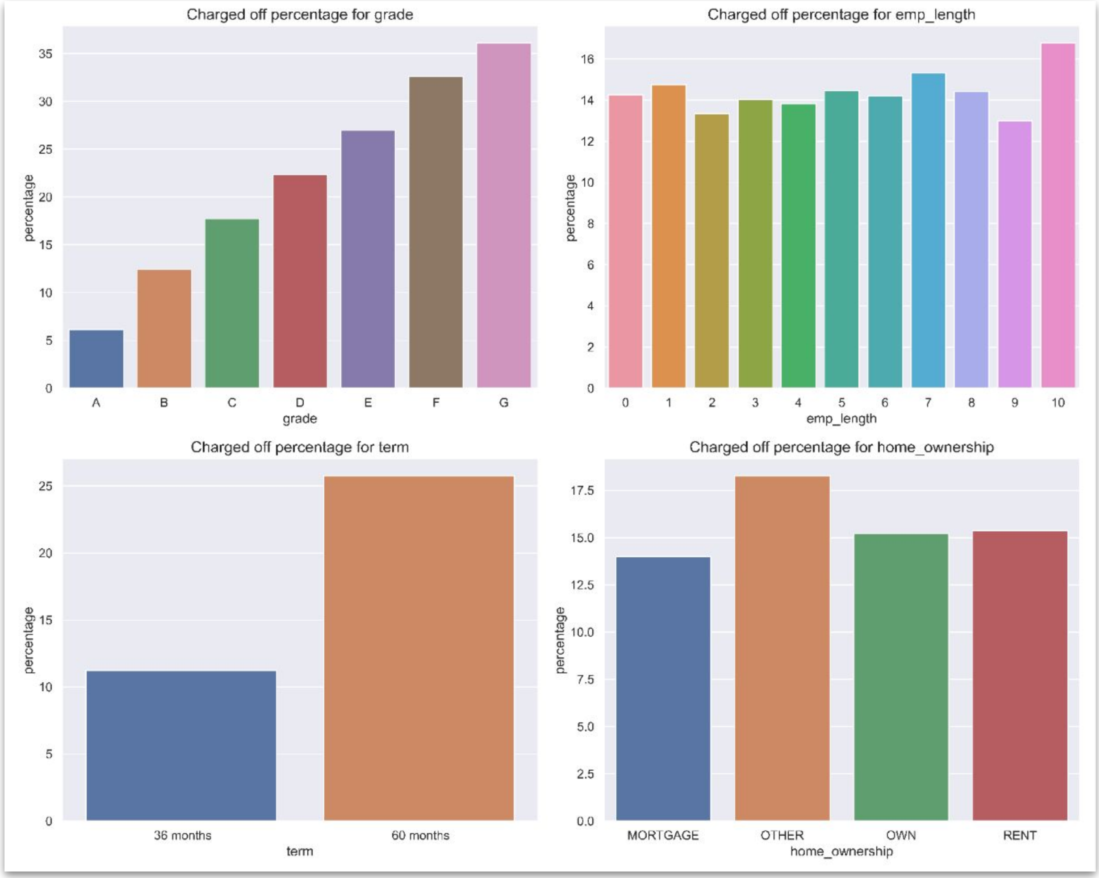
- Interest rates above 20% and loan amounts of below 10000.
- Annual income below 50k and loan taken at interest rate above 20%.



Observations

Proportion of charged off loans was taken wrt to the total loans taken for a particular category. And, we found that:

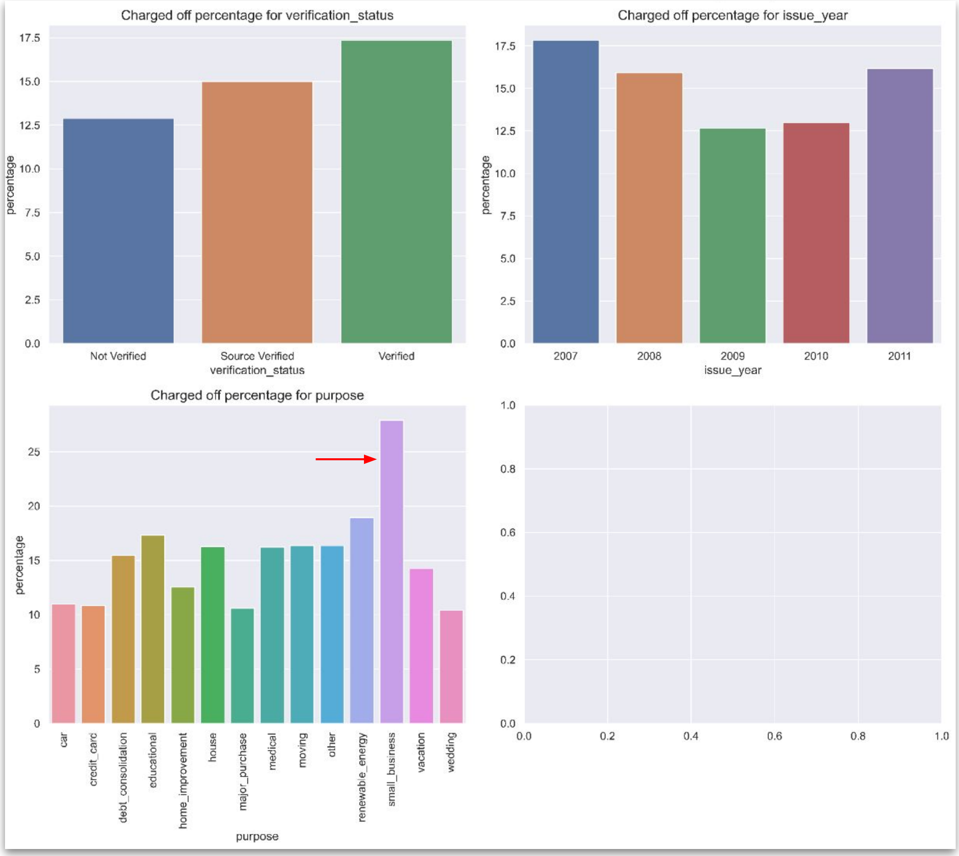
- Loans of grade "G" have higher possibility of defaulting.
- Loans taken for term of 60 months have higher possibility of defaulting compared to 36 months.



Observations

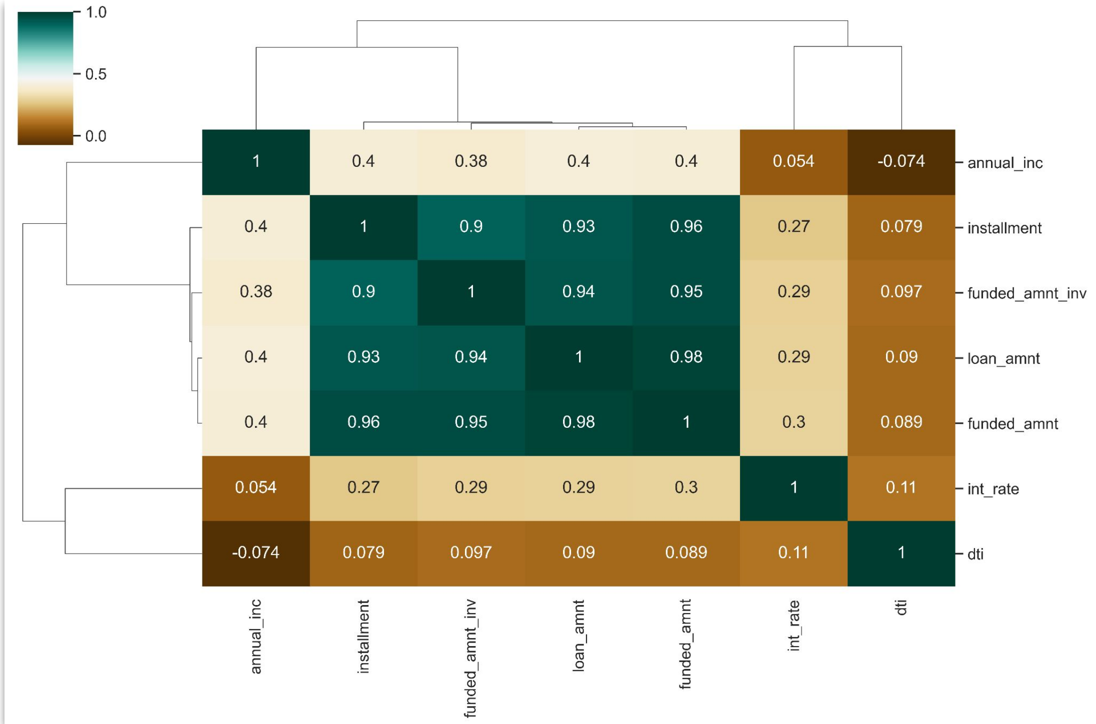
Proportion of charged off loans was taken wrt to the total loans taken for a particular category. And, we found that:

- Loans taken for small businesses have higher possibility of defaulting compared to other purposes.



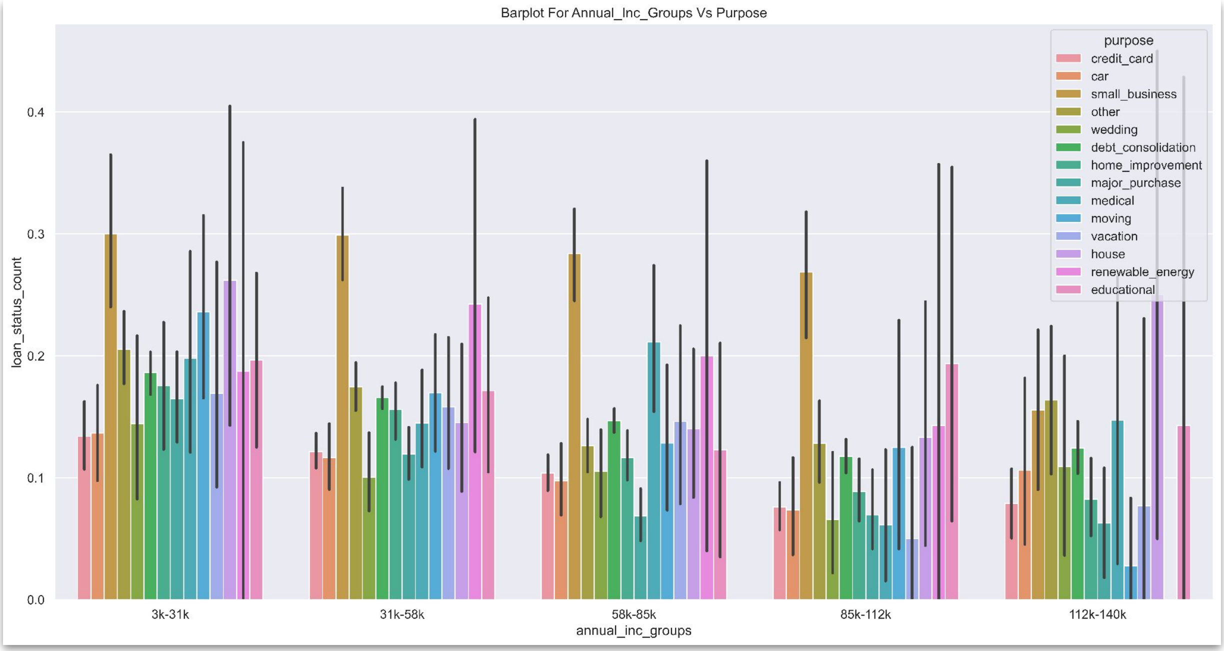
Observations

- Installment, funded amount, loan amount, interest rate and investor amount are highly correlated to each other.
- Annual Income and Debt-to-Income ratio are negatively correlated.



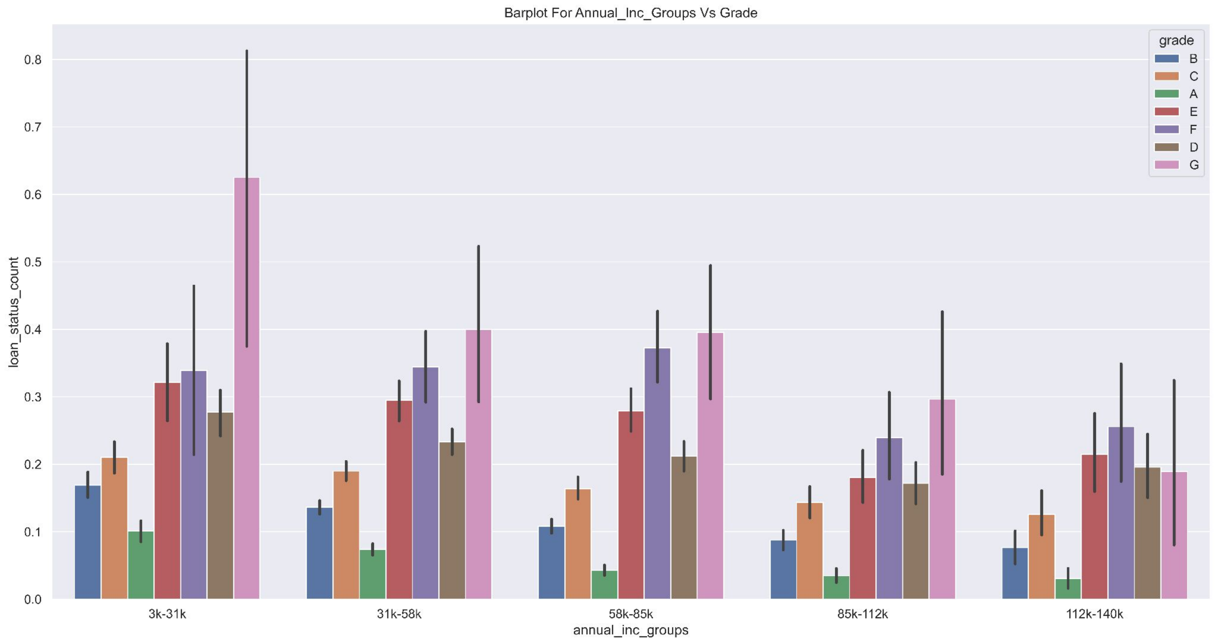
Observations

- Constant trend seen in loans taken for small businesses getting charged off for all income groups. In the last annual income i.e., 112k to 140k it can be see that House loans have higher percentage for loans getting charged off.



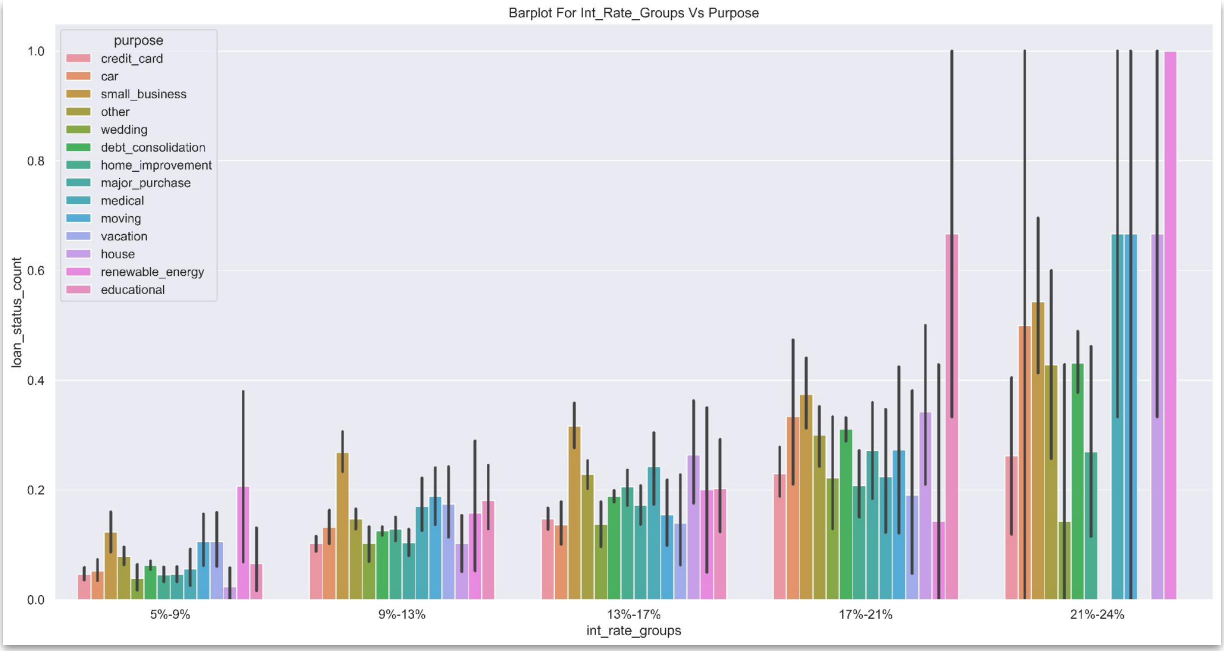
Observations

- Grade "G" tends to get defaulted across all income groups apart from the highest bracket i.e., 112k to 140k.



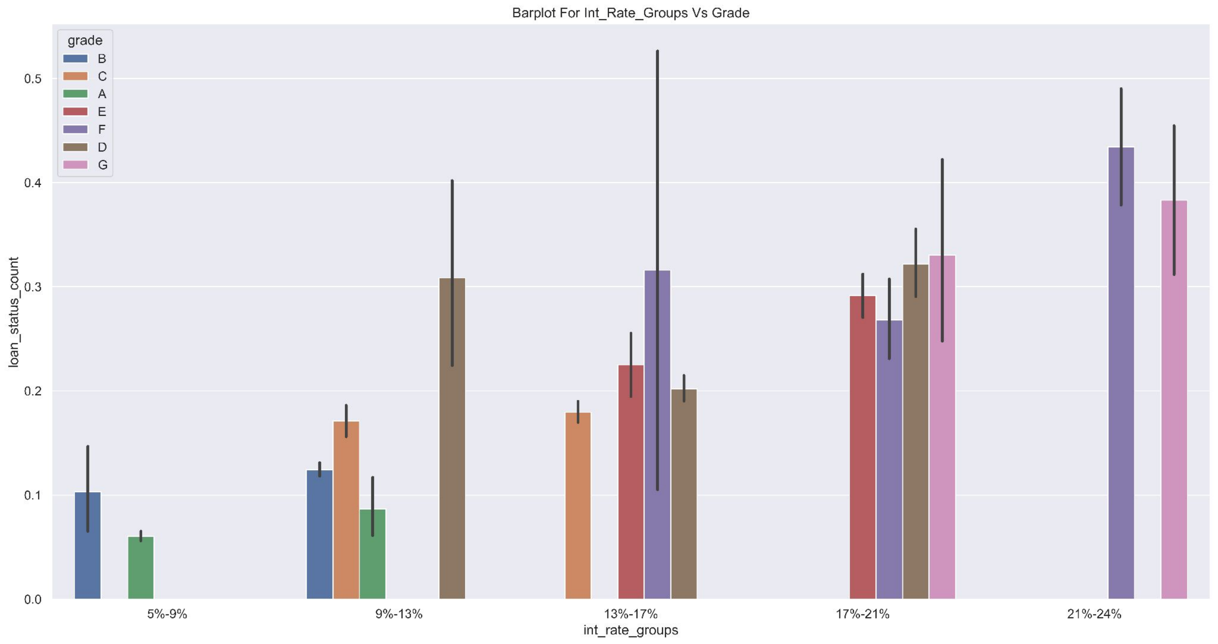
Observations

- Loans taken for small businesses from interest rate 9% to 17% have higher chances of defaulting compared to other purposes. Whereas in interest range of 5% to 9% and 21% to 24%, loans taken for renewable energy are more often defaulted.



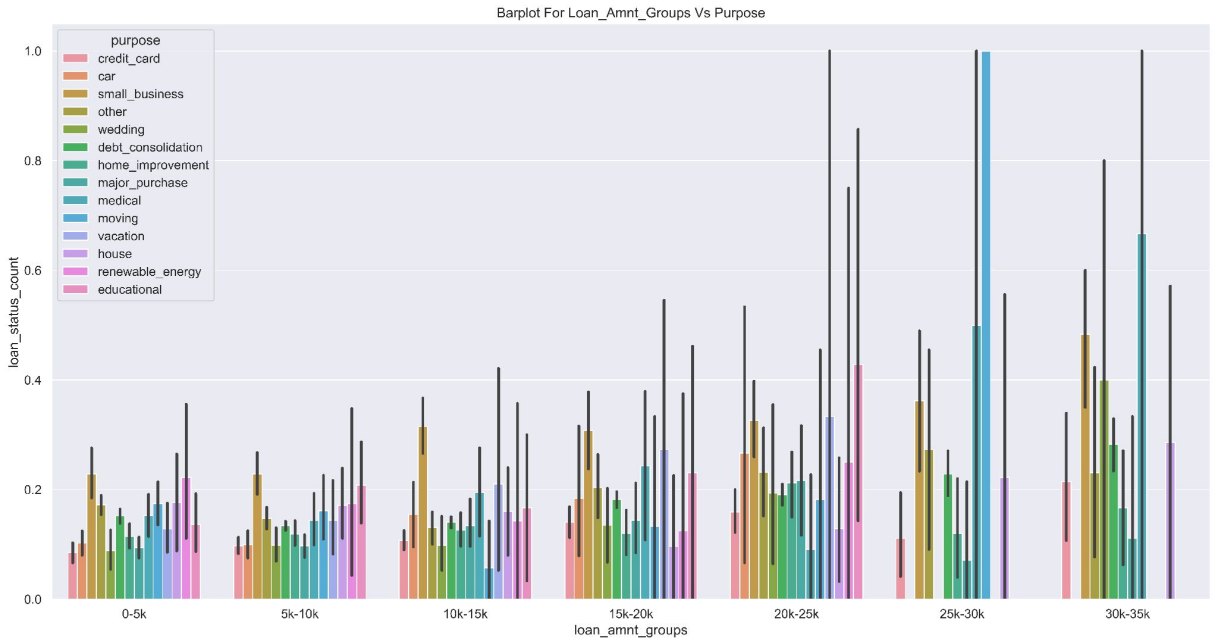
Observations

- In interest rates above 13%, 'D', 'F' & 'G' grade loans comparatively have higher probability of getting charged off.



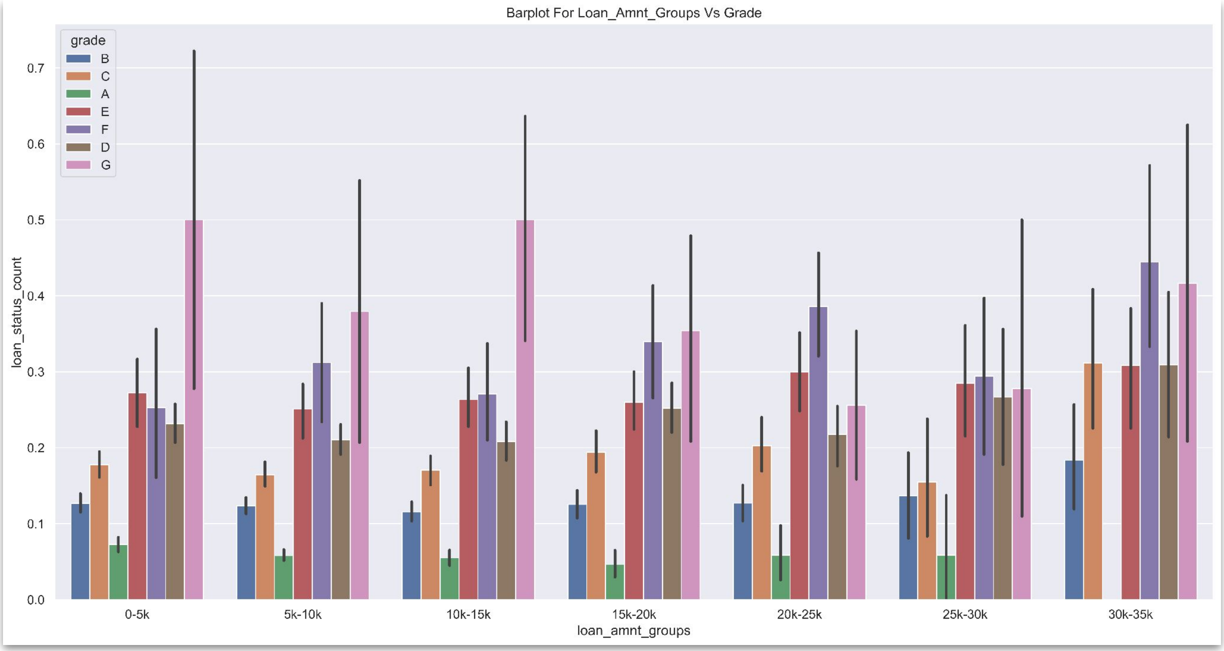
Observations

- In loan amounts taken from 0 to 25k, high percentage of defaulters are seen in small businesses.
- Loan amount in the range of 25k to 30k, there is high chance of loans taken for Moving to get charged off.



Observations

- "G" grade loans relatively does worse compared to other grade loans across all loan amount groups.
- In loan amounts greater than 20k, "F" grade loans has higher chances of getting charged off.



Recommendations

Stop:

- Giving loans for “G” grade loans.
- Giving loans for small businesses if the borrowers income is less than 112k.
- Loan for renewable energy above the rate of 21%
- Giving loans above 10k with interest above 20%
- Giving loans to borrower having annual income less than 50k at interest rate above 20%

Start:

- Giving more loans for “A” grade loans.
- Medical loans to be given to mid ranged income borrower.
- Major purchase and vacation loan can be given at higher interest rate.
- Giving “F” grade loans below 13%
- Giving loans below 10% of interest rate to low income borrower.