

# GRAMENER INVESTMENT CASE STUDY

## SUBMISSION

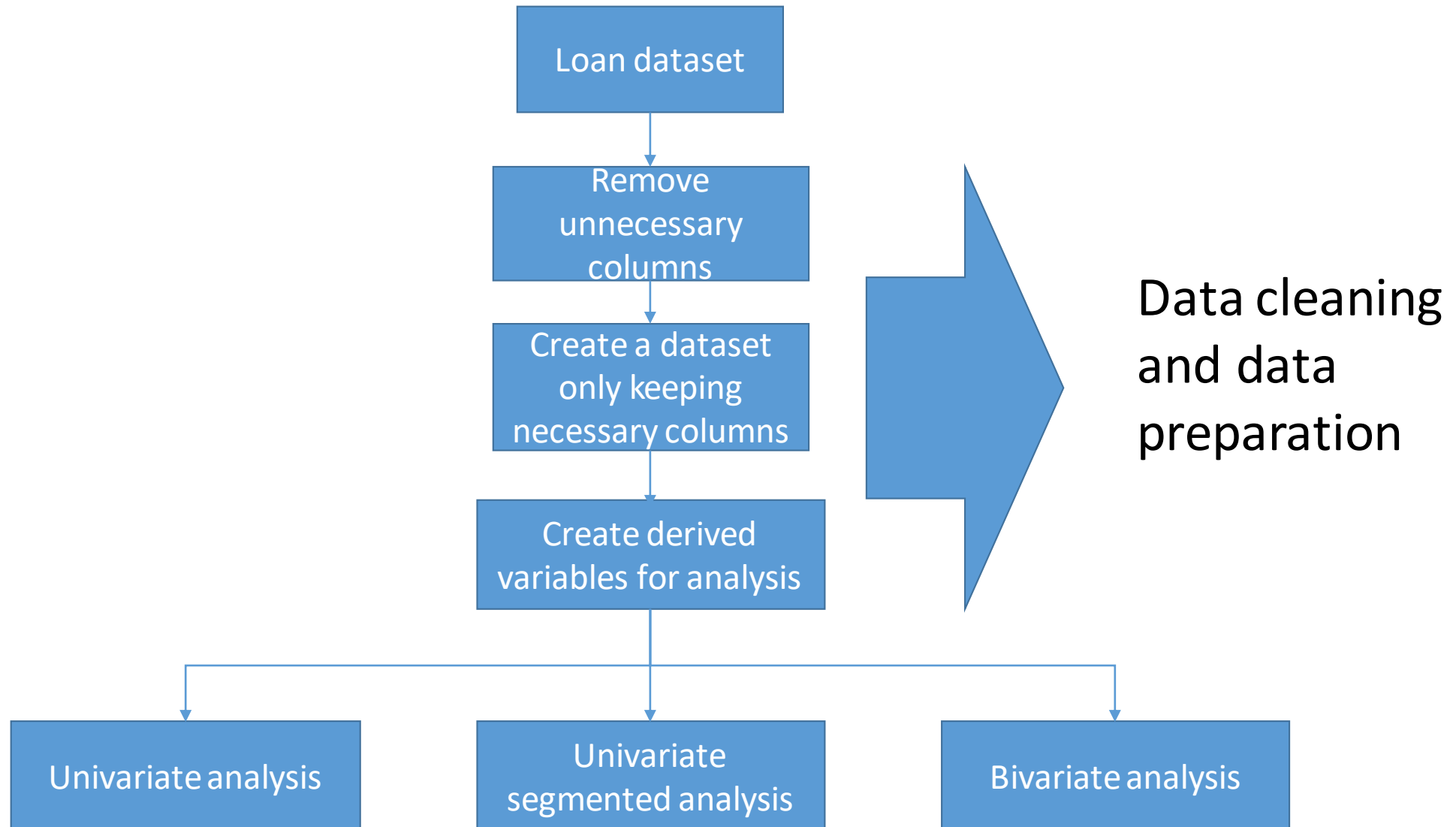
Group Name: Dynamic Developers

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## Abstract

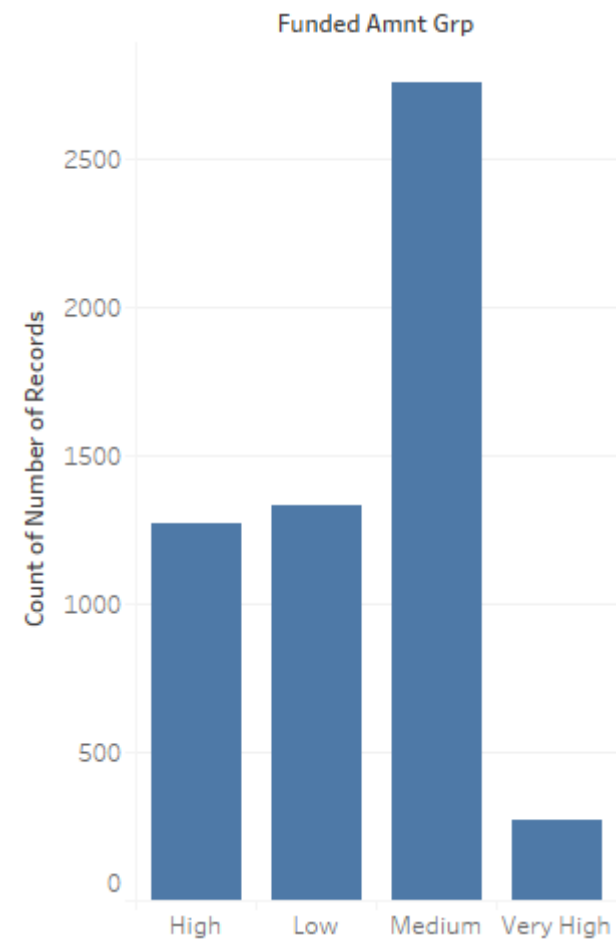
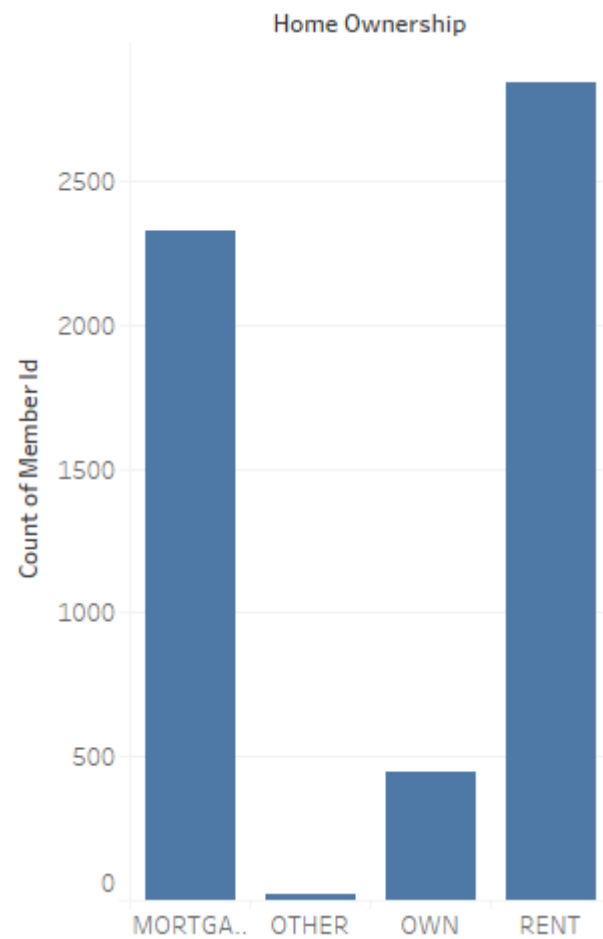
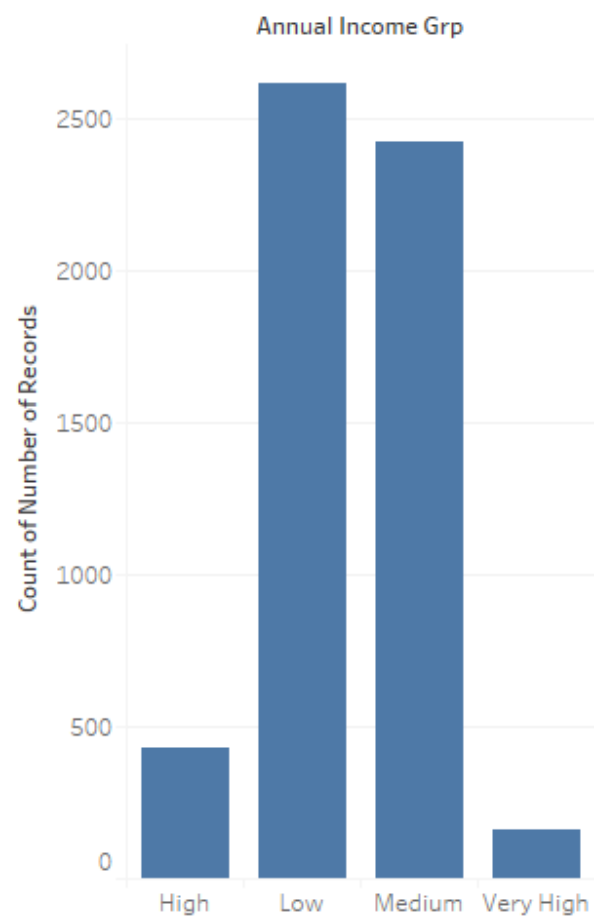
- Objective of the project is to help the consumer finance company in identify the loan defaulters and the driving factors causing the loan defaults.
- Univariate analysis, univariate segmented analysis and Bivariate analysis is performed.
- This would help in finding and detailing the most important points related to loan such as loan amount, term, interest rate, delinquency, borrower details like employment status, years of experience.
- The company can use this knowledge to assess the risk factors so that such defaulters can be foreseen and the loans can be rejected or the loan amount can be reduced, thus reducing the loss for the company.

# Problem solving methodology



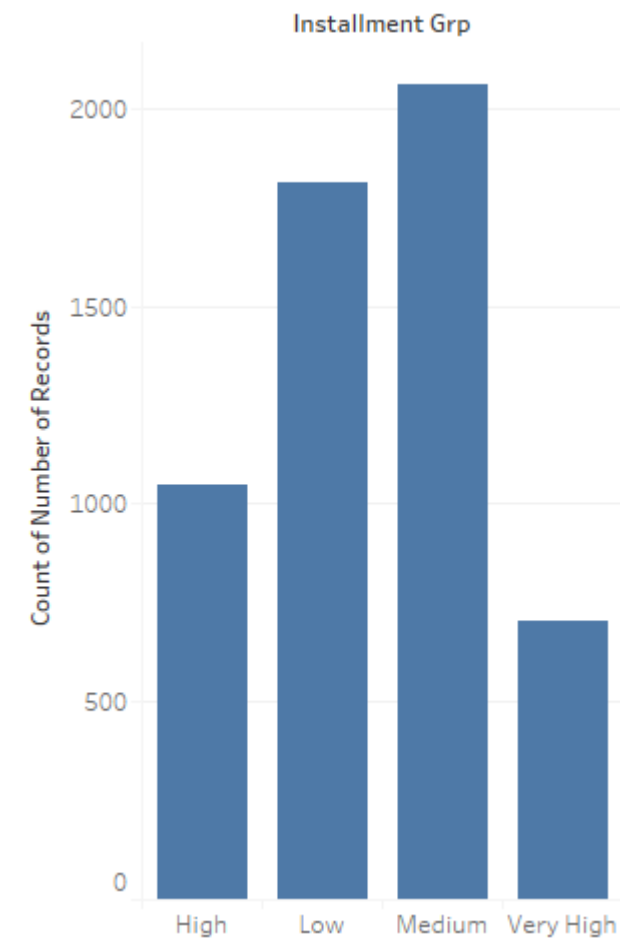
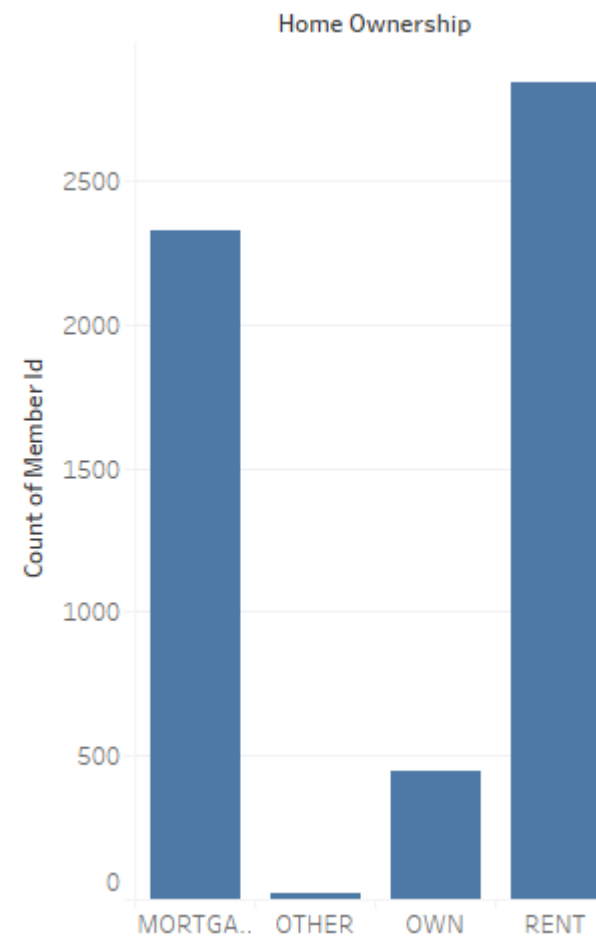
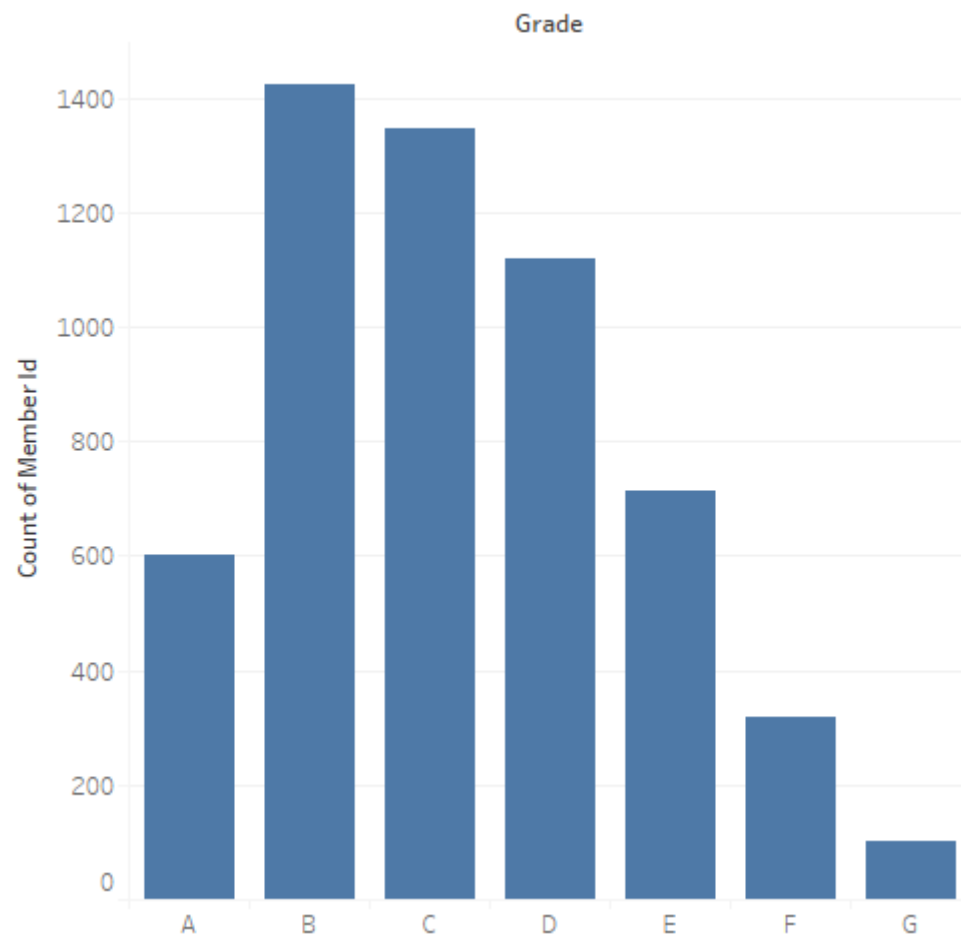
# Univariate Analysis

- We have segmented the annual income into Low, Medium, High and Very High. Low indicates that the annual income less than 50000, medium indicates 50000 to 100000, High is 100000 to 150000 and very high is greater than 150000. From the chart below, we can see that the lower the income, the chances of being a loan defaulter is greater.
- We have segmented the Emp Length into Junior, Mid-level and Senior. Junior is who has less than 4 years of experience, Mid-level is 5 to 8 years of experience and Senior is 9 and above years of experience. From the chart, we can see that Juniors have high chances of being a loan defaulter.
- We have segmented the Funded Amount to Low, Medium, High and Very High. Low is less than 5000 funded amount, medium is 5000 to 15000, high is 15000 to 25000 and very high is more than 25000. From the chart, we can see that people whose loan has been funded within 15000 to 25000 has many defaulters



## Univariate Analysis

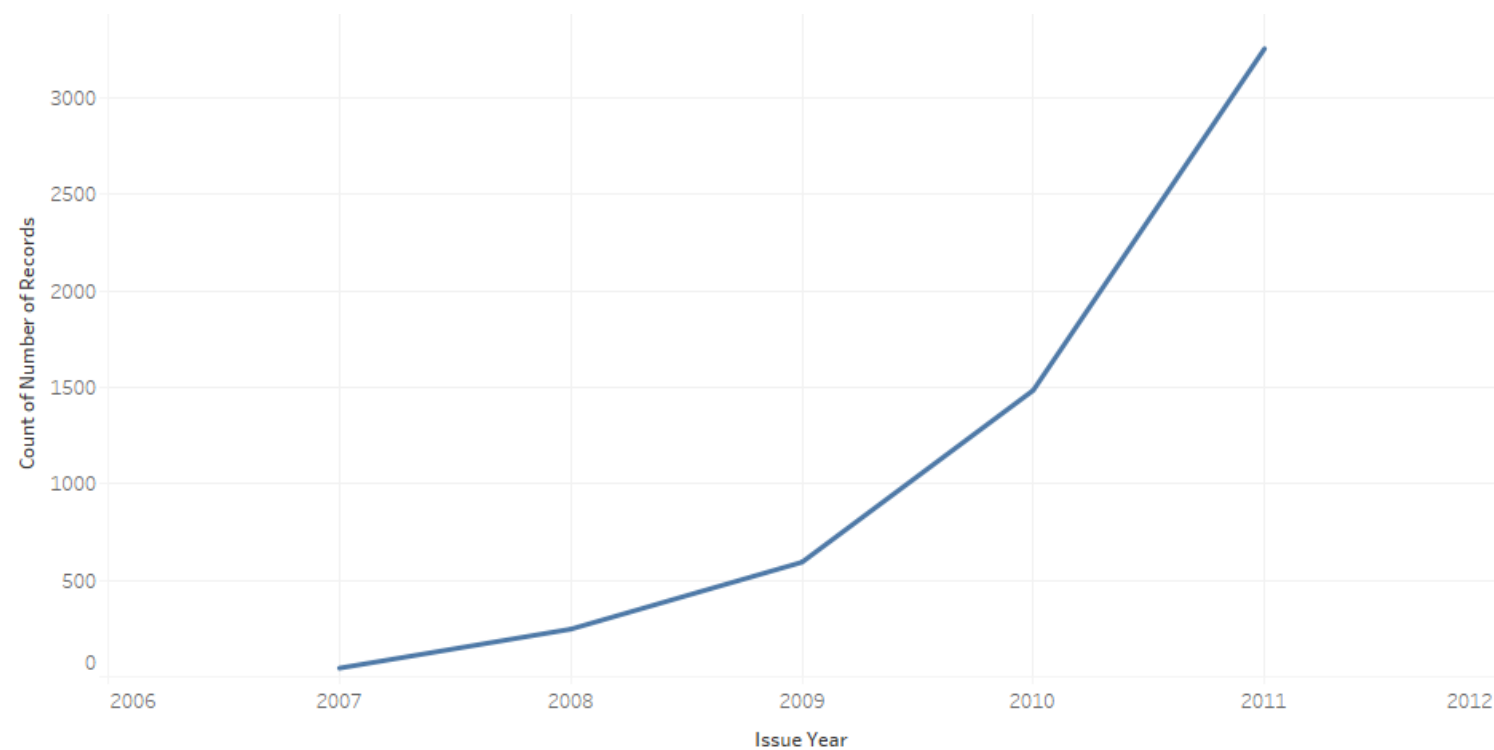
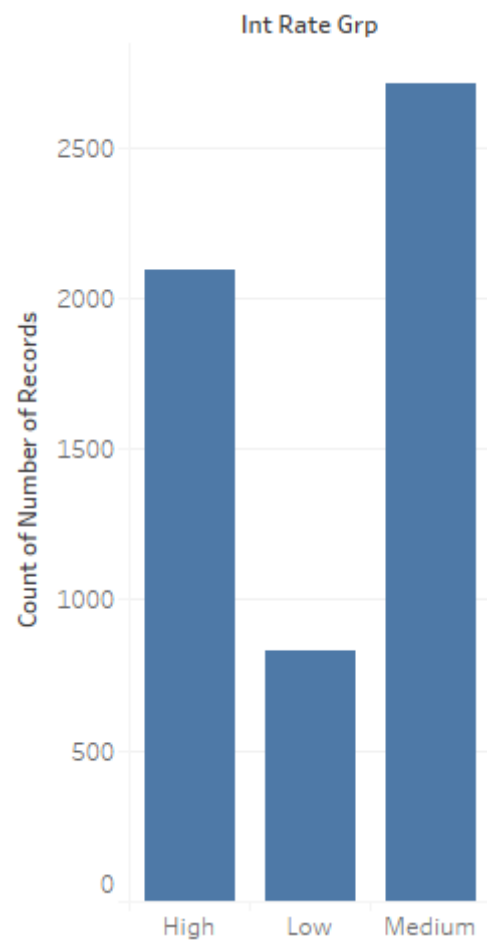
- The grades are marked according to the borrower's credit worth and also on other variables specific to loan. The majority of the loans in the grades in B and C have been defaulted. A small amount of loan has been defaulted in grade G which is rendered as uncollectible.
- When we see the number of defaulters in the category of home ownership, there is a high possibility of people who are living on rent who may miss to pay their monthly installments. The second highest loan defaulters can be seen whose homes are mortgaged.
- Instalment group has been categorized into Low, Medium, High and Very High. Low is less than 200, medium is 200 to 400, high is 400 to 600 and very high is more than 600. We see that people whose installment is between 400 and 600 has more defaulters, and the second highest are people whose instalment is less than 200.



# Univariate Analysis

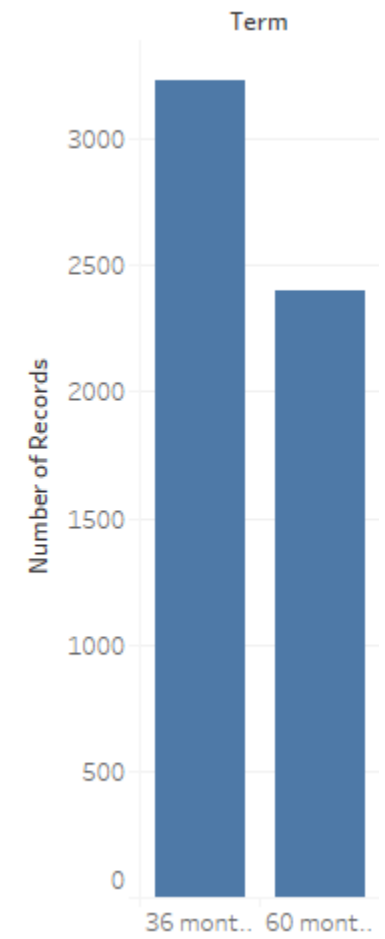
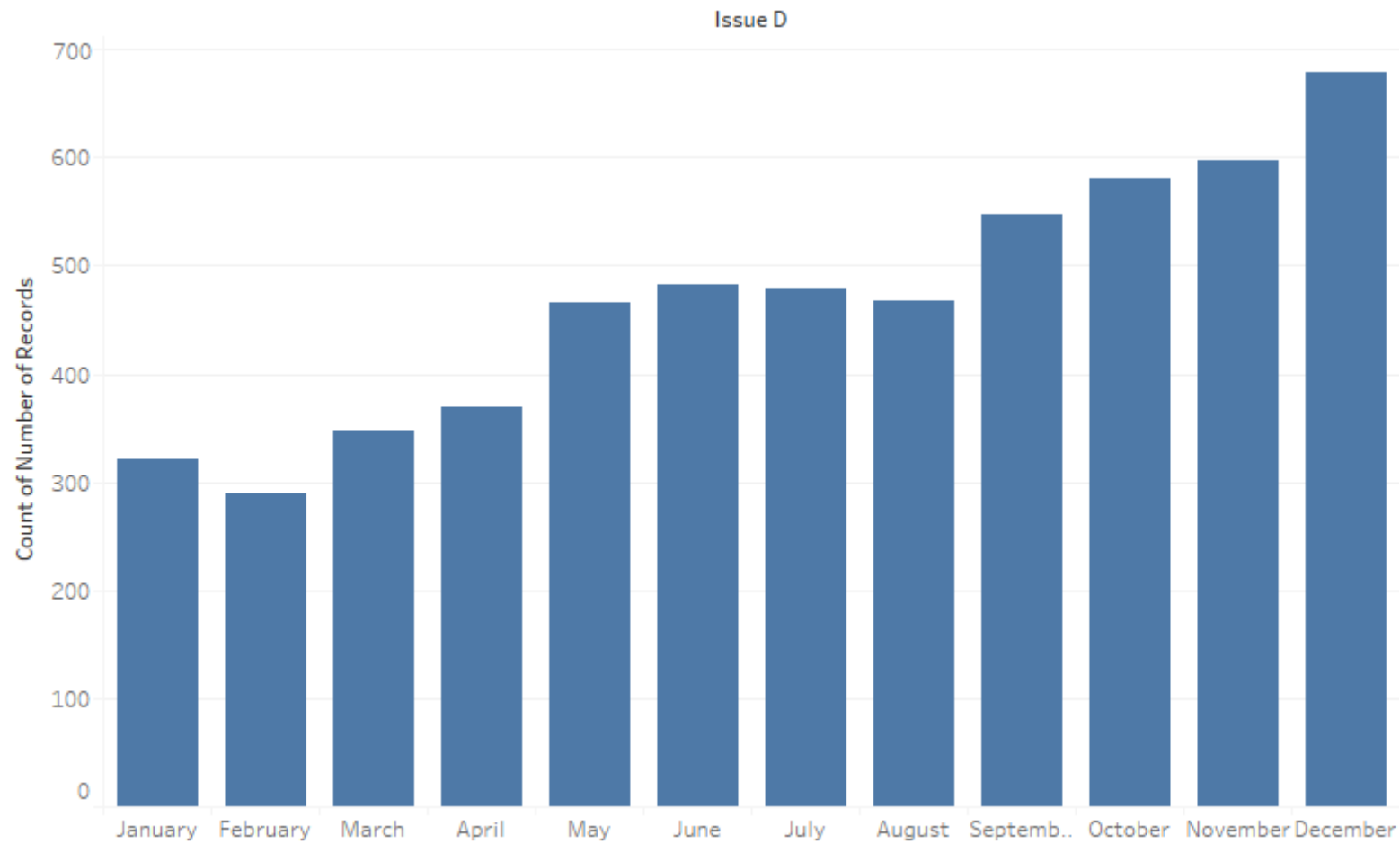
- Interest group has been categorized into Low, Medium, and High. Low is less than 10, medium is 10 to 15, and high is more than 15.
- We see that people whose interest rate is between 10 and 15 has more defaulters, and the second highest are people whose instalment is greater than 15. Hence higher rate of interest attracts more defaulters.
- We see from the graph that the amount of defaulters have increased over the years from 2007 to 2011. But we see that there is a rapid increase in defaulters from the year 2010 to 2011.





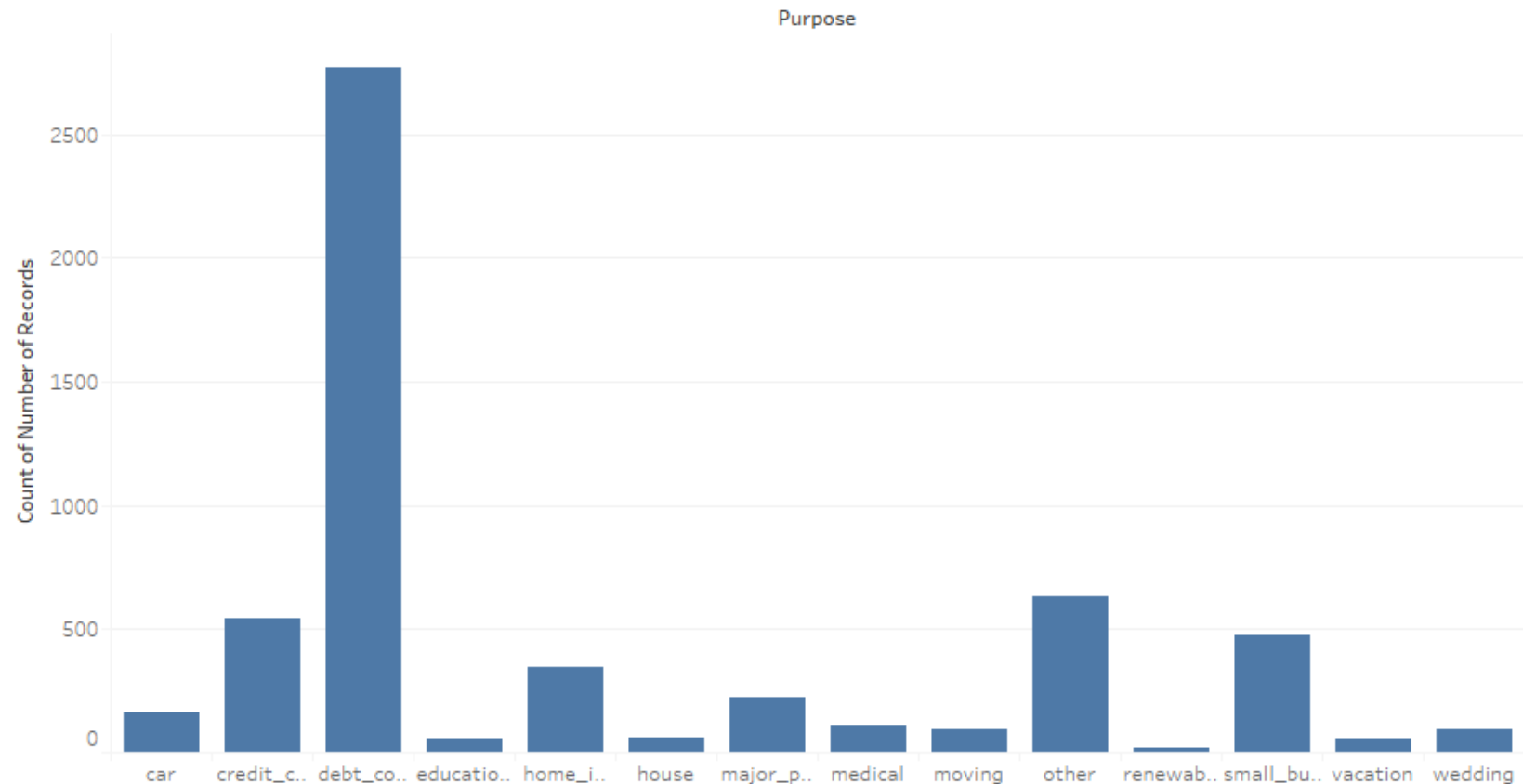
## Analysis- Month of Issue of loan

- We see from the graph that the during the end of the year the defaulters are increasing, December being the highest.
- Term refers to the number of payments on the loan.
- It is usually 36 or 60 months.
- From the graph, we see that the lesser the number of term, more is the chance of being a defaulter



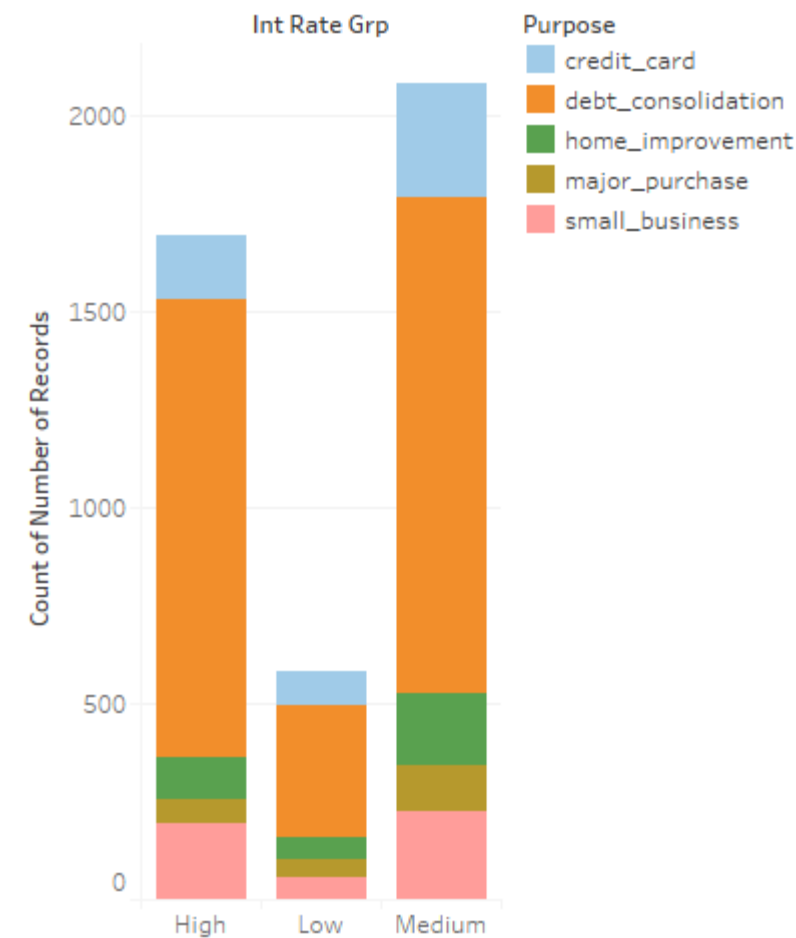
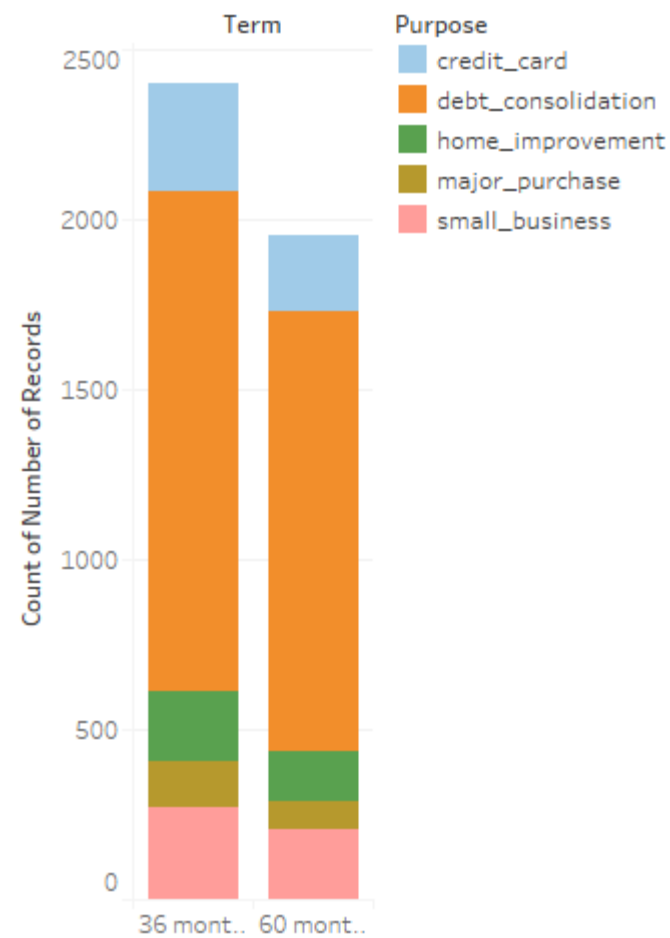
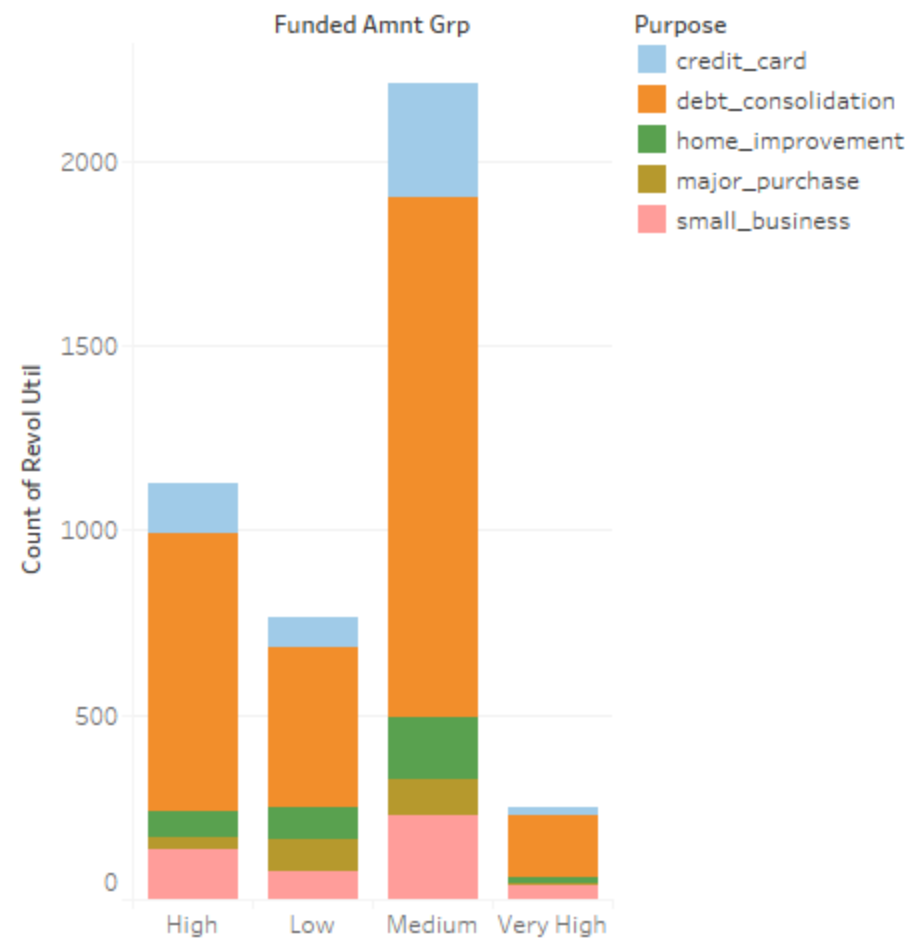
# Univariate Analysis

- The purpose of taking the loan can be varied. But we should notice which category of purpose contains the highest number of loan defaulters.
- We see that people who are taking a loan to consolidate their debts are the most defaulters, while people who have applied for 'other' purpose and small business are the next category of defaulters.



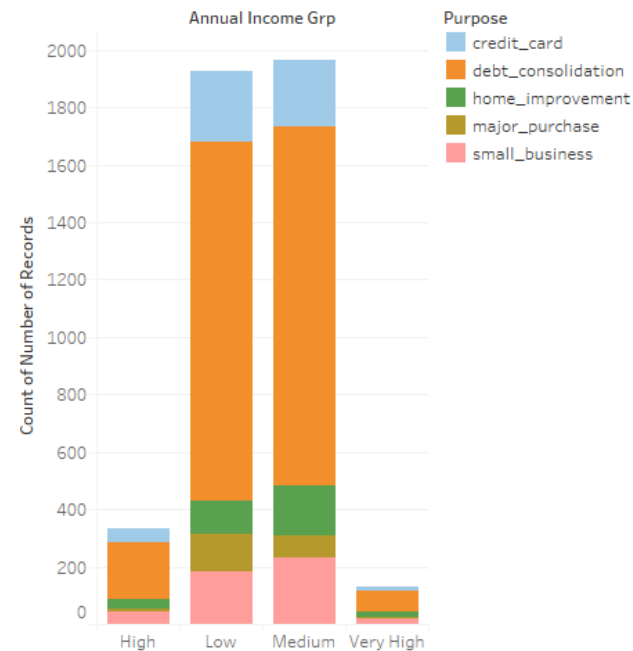
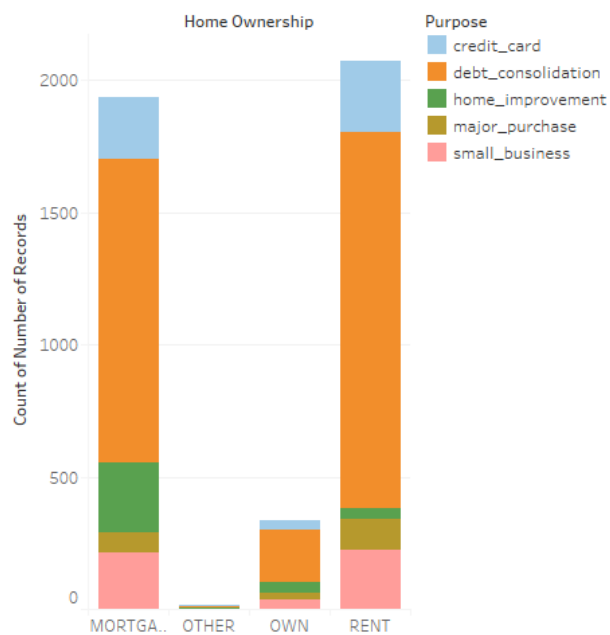
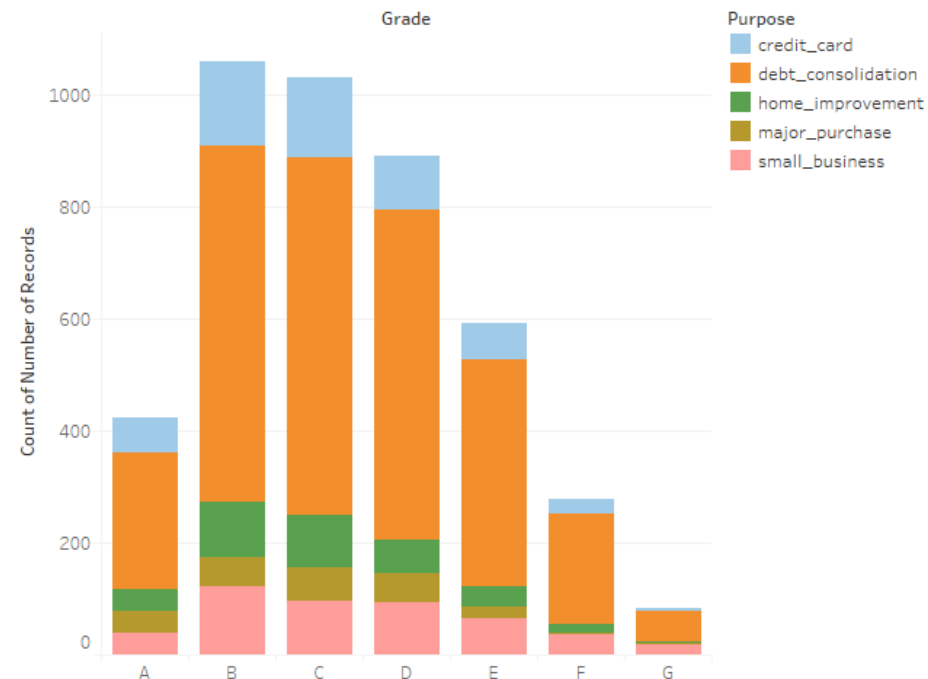
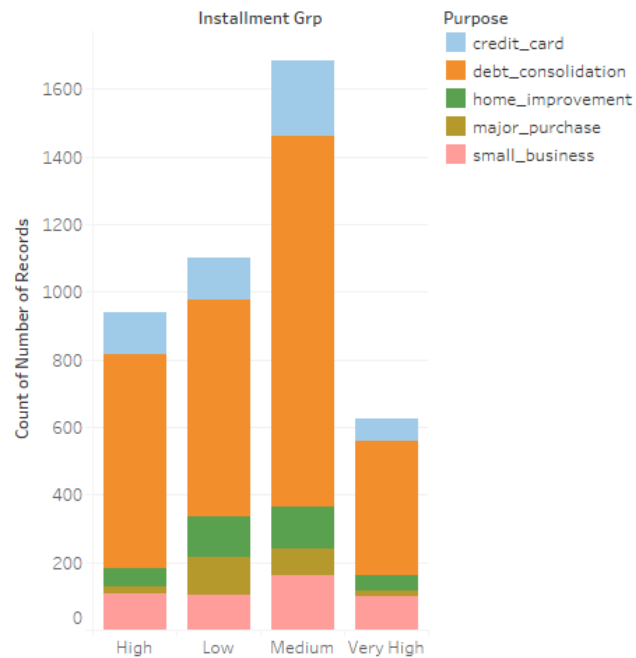
# Univariate Segmented Analysis

- People in medium funded amount group have the most number of loans with debt consolidation as its purpose.
- In fact, each of the loan purpose has higher value in medium funded amount group.
- People who have taken 36 months as their loan repayment term and their purpose is debt consolidation would be the highest number of defaulters.
- People who have interest rate between 10 to 15 and who have a purpose of debt consolidation would be the highest number of loan defaulters.



# Univariate Segmented Analysis

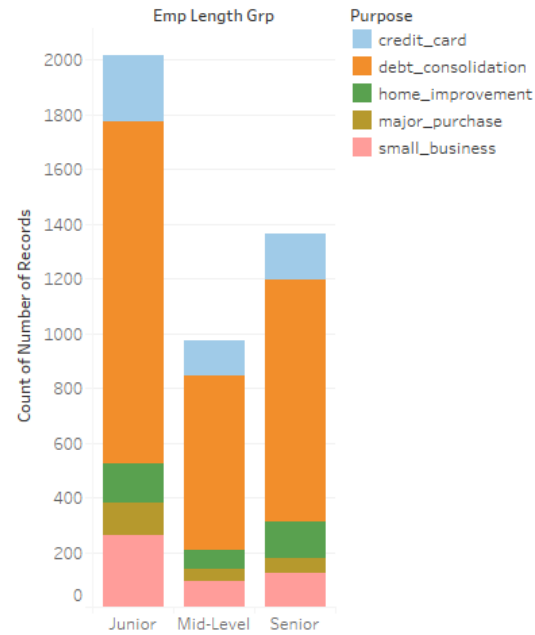
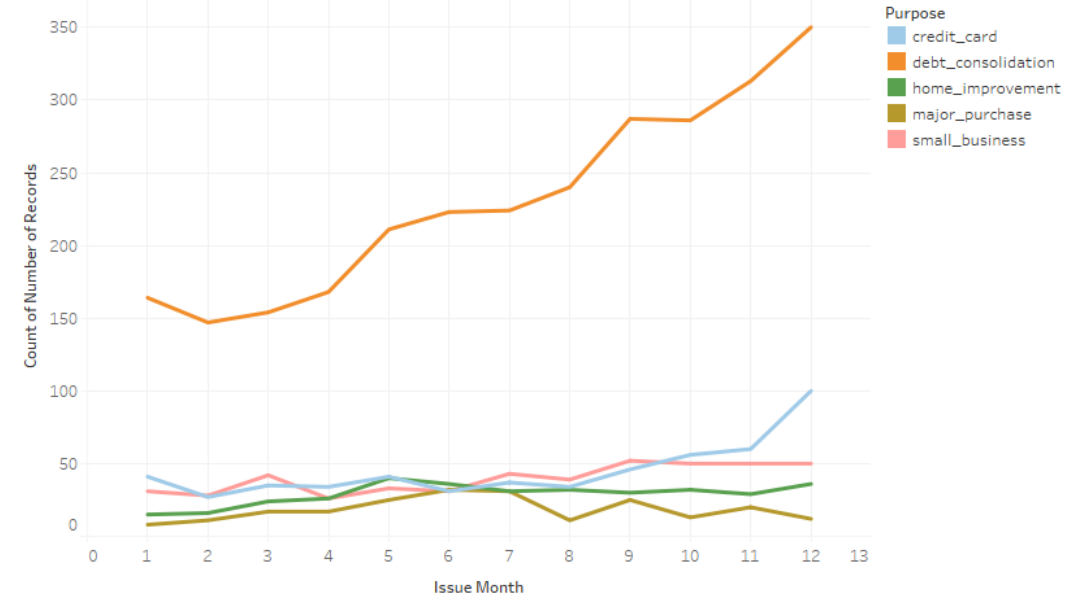
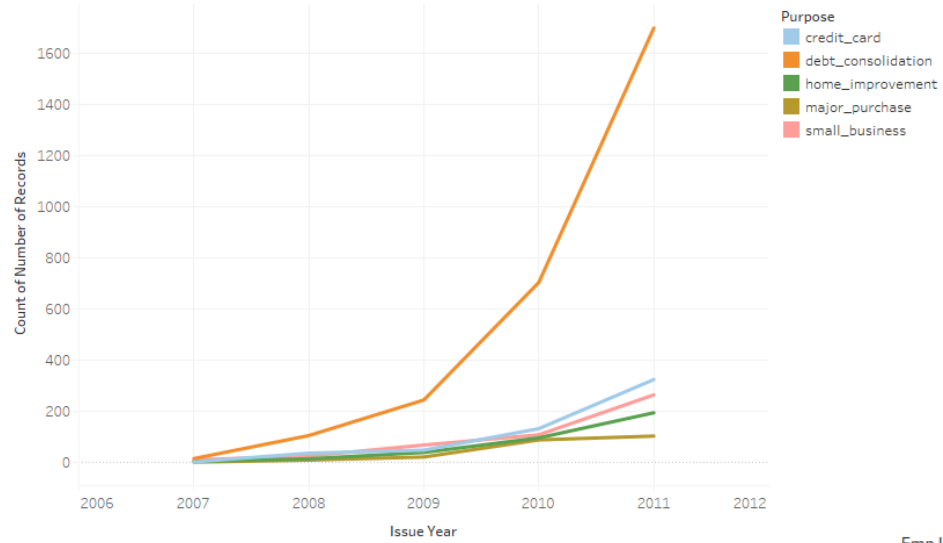
- People who have chosen the installment between 200 to 400 and have taken the loan for debt consolidation purpose have the highest number of loan defaulters. Actually, people have taken the installment between 200 to 400 have been the highest loan defaulters regardless of the purpose.
- When we see the purpose of loan taken with respect to grade, we see that people who have B grade have the highest number of loan defaulters and debt consolidation being the main purpose.
- People who have mortgaged their house have a higher purpose of debt consolidation and hence the chances of being loan defaulter is high.
- If people have less annual income, the chances are high that they may need money for various purposes and hence turn into loan defaulters.





# Univariate Segmented Analysis

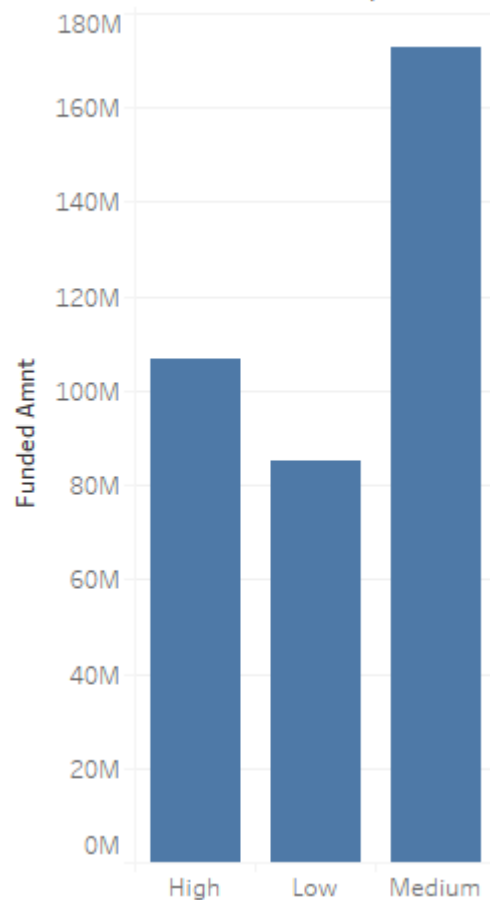
- The loan defaulters number has increased drastically over the years and the main purpose of drastic increase has been debt consolidation. The number of loan defaulters for other purposes has been generally less drastic.
- If take in to account the months where the loan defaulters have increased, again it is due to the reason of debt consolidation and is much higher in the graph compared to the all the rest of the purposes.
- Also, we see that people who has less number of experience are most loan defaulters, Since they also have lesser salary, there is high chance of them being loan defaulters.



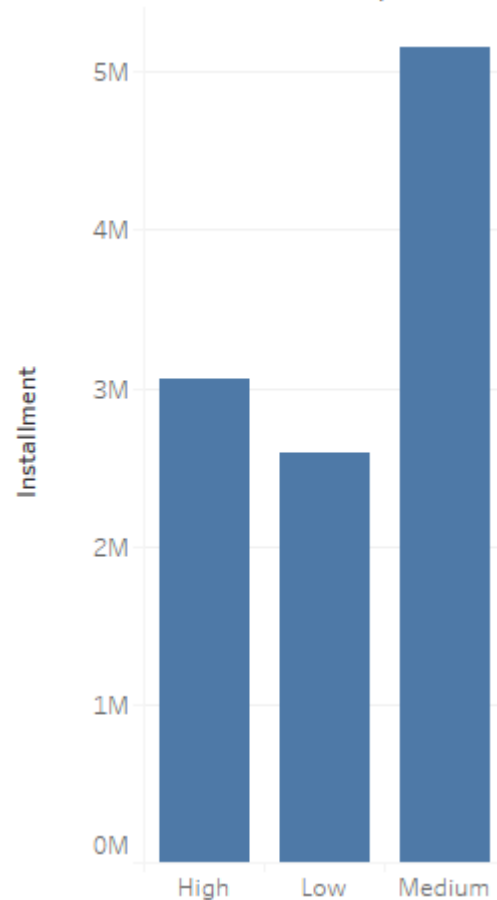
# Bivariate Analysis

- The interest rate group between 10 and 15 have the highest funded amount.
- If a person has agreed on an installment that will be payed for the loan as between 200 and 400 and if their interest rate is between 10 and 15, then there is a higher chance of being loan defaulter.
- The amount of credit the borrower is using relative to all available revolving credit is higher in the interest rate group of 10 to 15.
- We also see that he funded amount is directly proportional to the salary income of a person. If a person has higher salary, then he gets higher funding amount

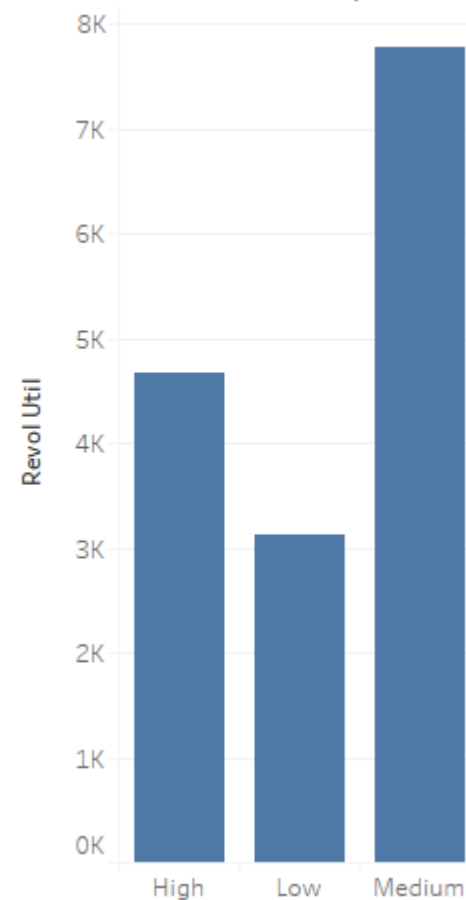
Int Rate Grp



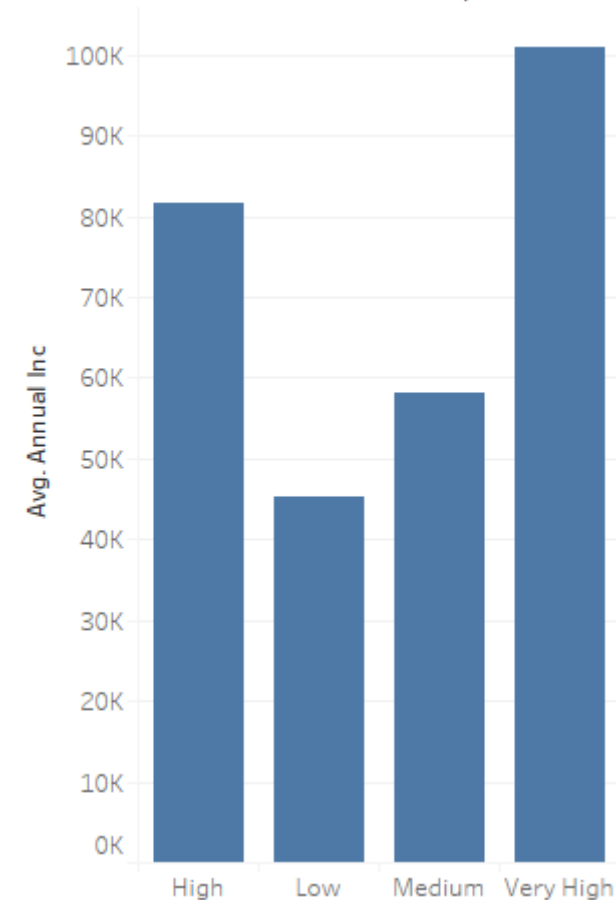
Int Rate Grp



Int Rate Grp

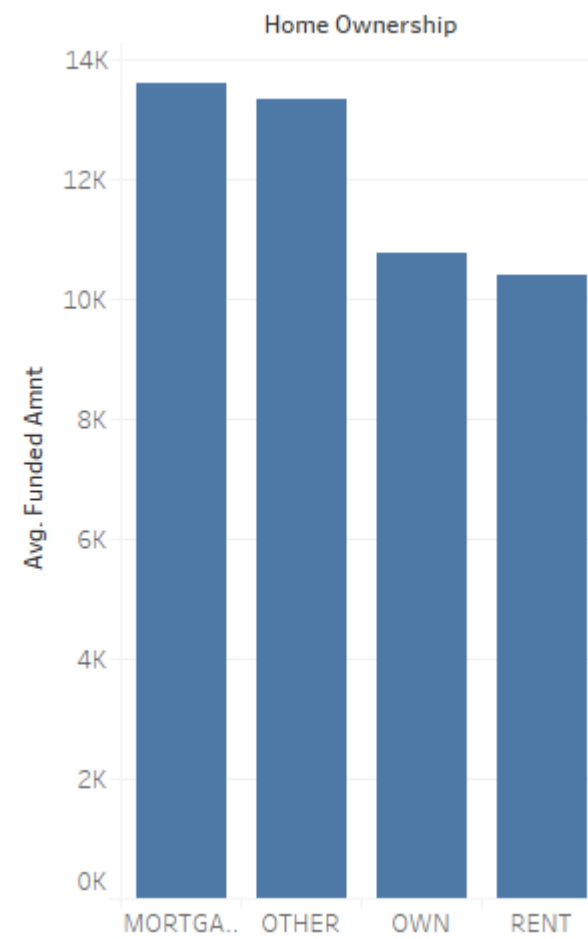
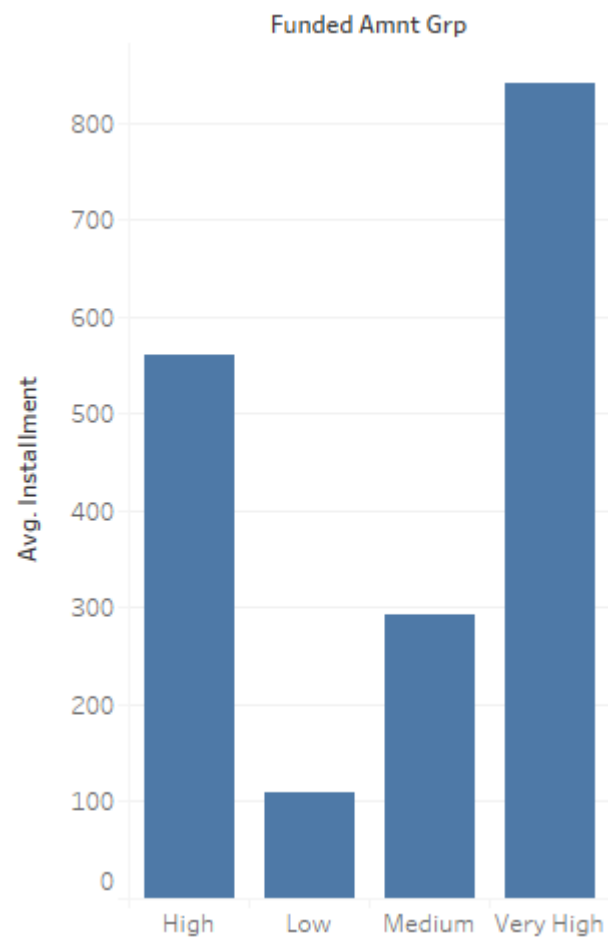
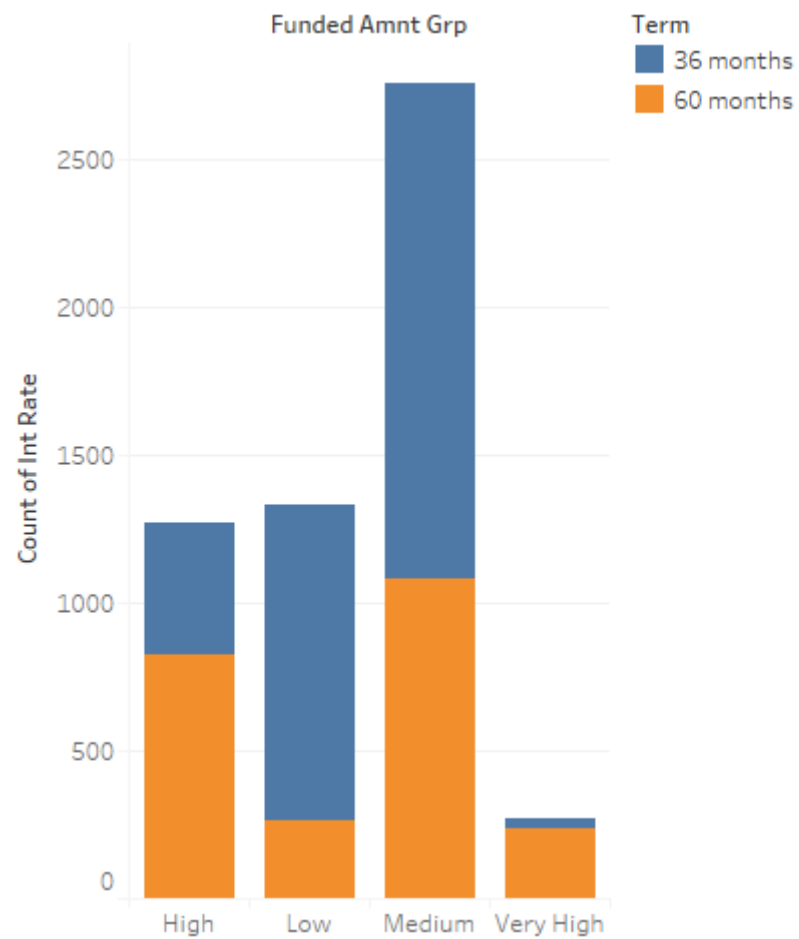


Funded Amnt Grp



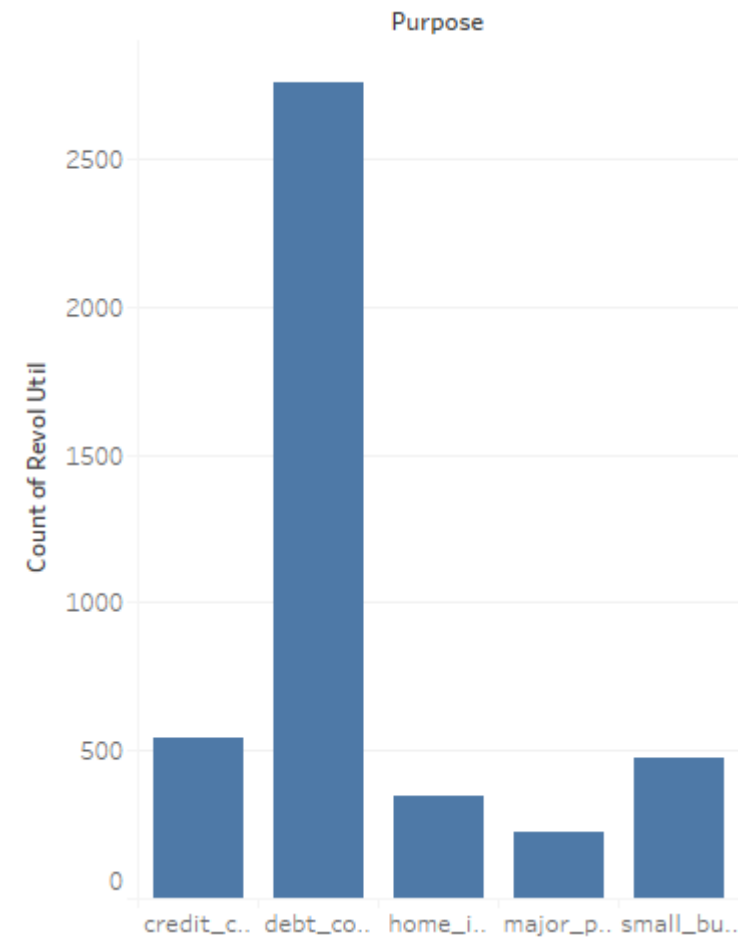
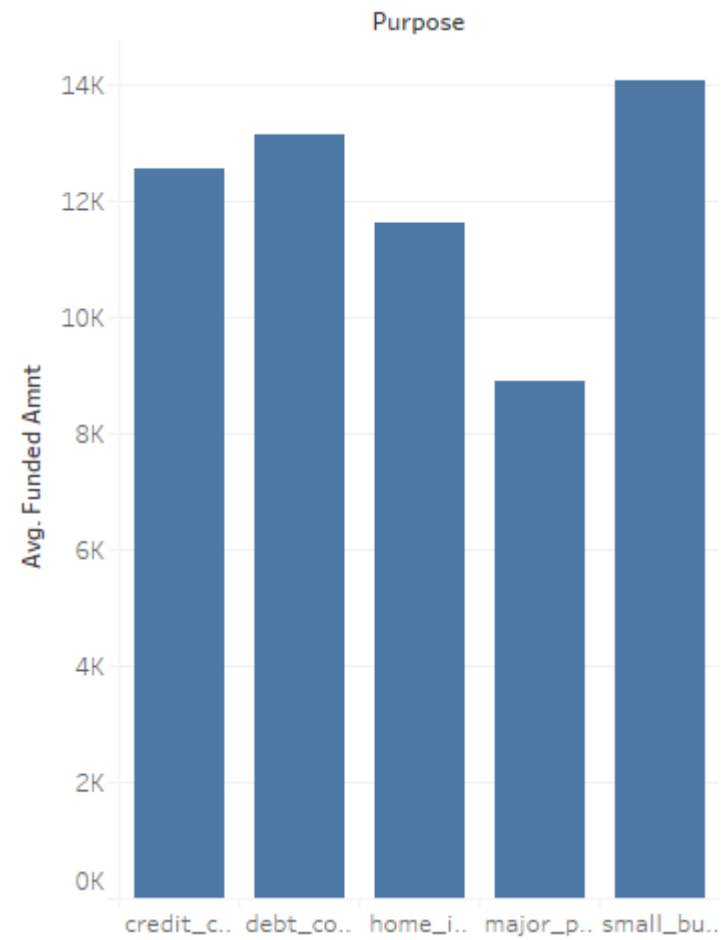
## Bivariate Analysis

- People who have opted for 36 months loan payment tenure, and their funded amount group is in between 200 and 400 and their interest rate is high, have a greater chance of defaulting.
- If their funding is in between 200 to 400 and installment is very high have higher chances of defaulting.
- Those who have mortgaged their house and also have higher funding amount have chances of defaulting.



## Bivariate Analysis

- Small businesses have got higher average amount of funding. After which debt consolidation and credit card has got higher funding.
- The revolving utilization of debt consolidation is the highest, when we see the graphs below.





## Conclusions

- Borrowers who have been approved a **fund amount between 5000 to 15000** are likely to default, in specific people who have received a **rate of interest between 10 to 15%** who have been obliged to repay the loan in a **term of 36 months** are specifically to default the loan. This being the most significant borrowers group, the company should be more careful in its lending practices.
- People who have a **lesser salary amount, within 50000** are likely to default. Company can consider keeping some collateral in lieu of amount lent.
- When many people have taken a loan to **consolidate a debt, they are likely to default**. Hence loan amount should be reduced for this purpose of loan.
- People receive higher funding loan amount for higher number of instalments, hence either the number of instalments should be reduced or the funding amount should be reduced.
- People who are living in **rented** house have higher chances of defaulting the loan, and hence loan should be avoided for such people.
- If the **grade** that has been assigned to the person falls in the category of **B or C**, then loan should be avoided as there are higher chances of defaulting.