Lending Club Case Study

SUBMISSION

Group Facilitator : Jatin Padyar

Group Member : Nihit Patel

Abstract

Project Brief : A Consumer Finance Company, which specializes in lending various types of loans to urban customers based on their loan application, wants to make a decision for loan approval based on the applicant's profile.

Objective : The aim of this analysis is to understand the driving factors (or driver variables) behind loan default, i.e. the variables which are strong indicators of default. The company can utilize this knowledge for its portfolio and risk assessment.

Risks associated with the bank's decision :

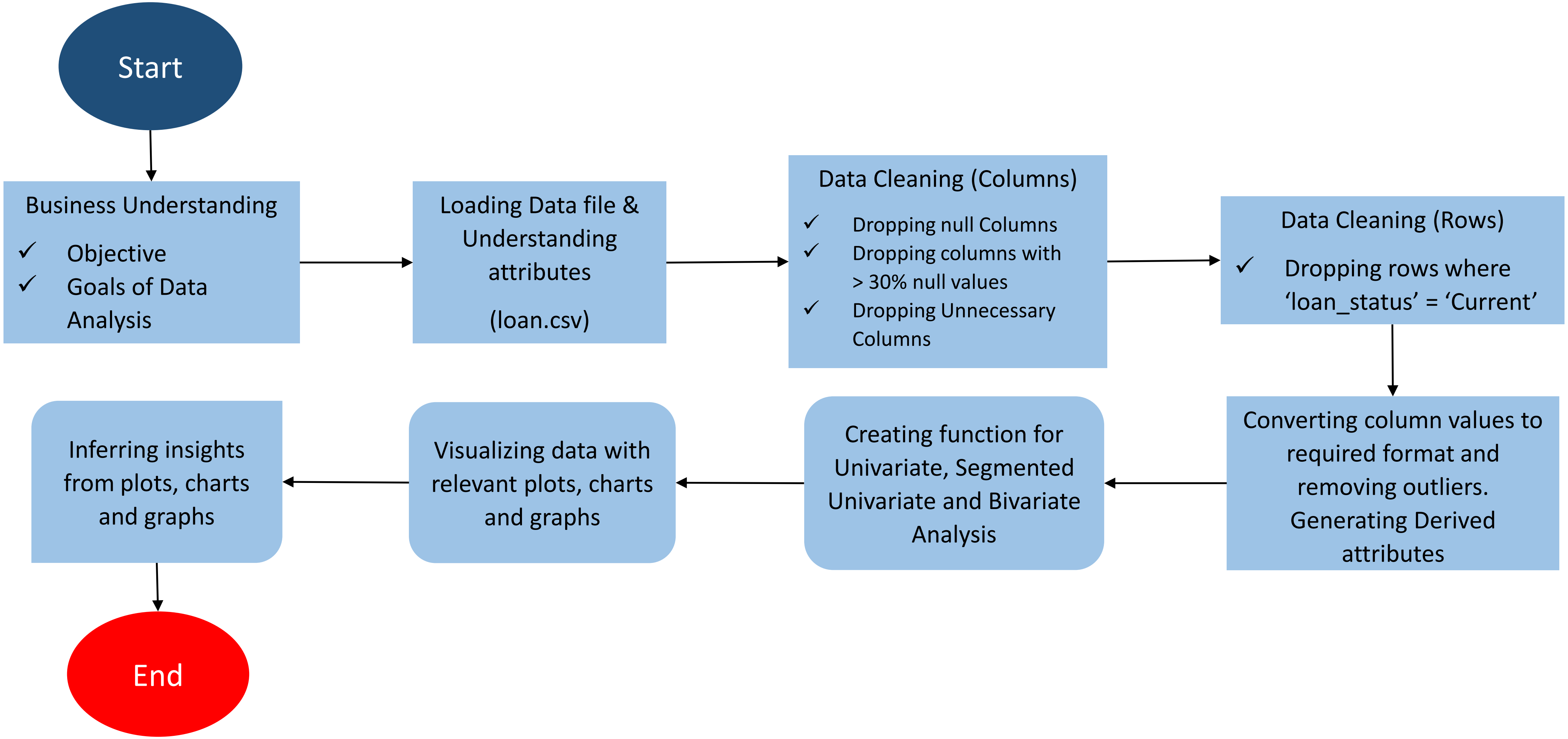
1. If the applicant is likely to repay the loan, then not approving the loan results in a loss of business to the company
2. If the applicant is not likely to repay the loan, i.e. he/she is likely to default, then approving the loan may lead to a financial loss for the company

Data (2007 - 2011):

1. Fully paid: Applicant has fully paid the loan (the principal and the interest rate)
2. Current: Applicant is in the process of paying the instalments.
3. Charged-off: Applicant has not paid the instalments in due time for a long period of time, i.e. he/she has defaulted on the loan.

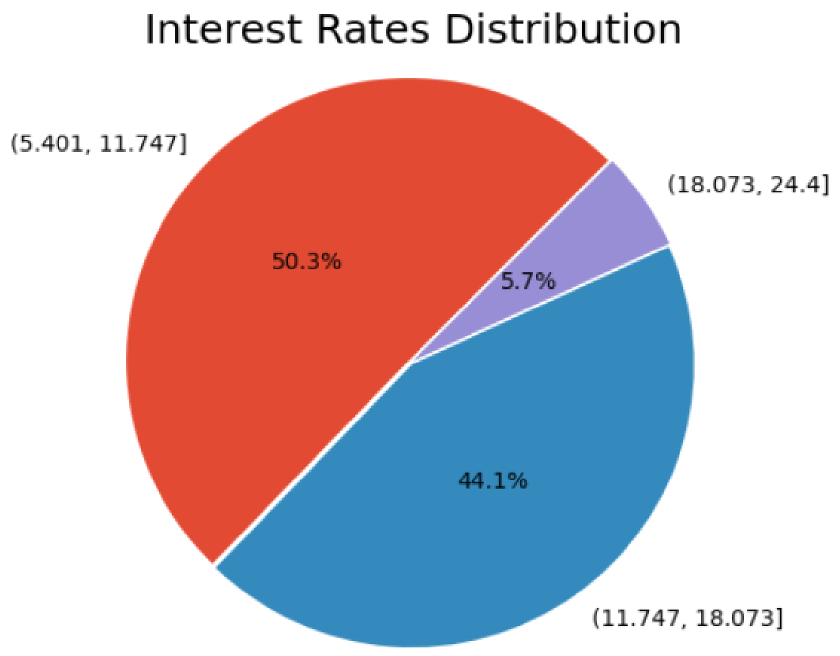
Data Analyzed	
Loans	39717
Attributes	111

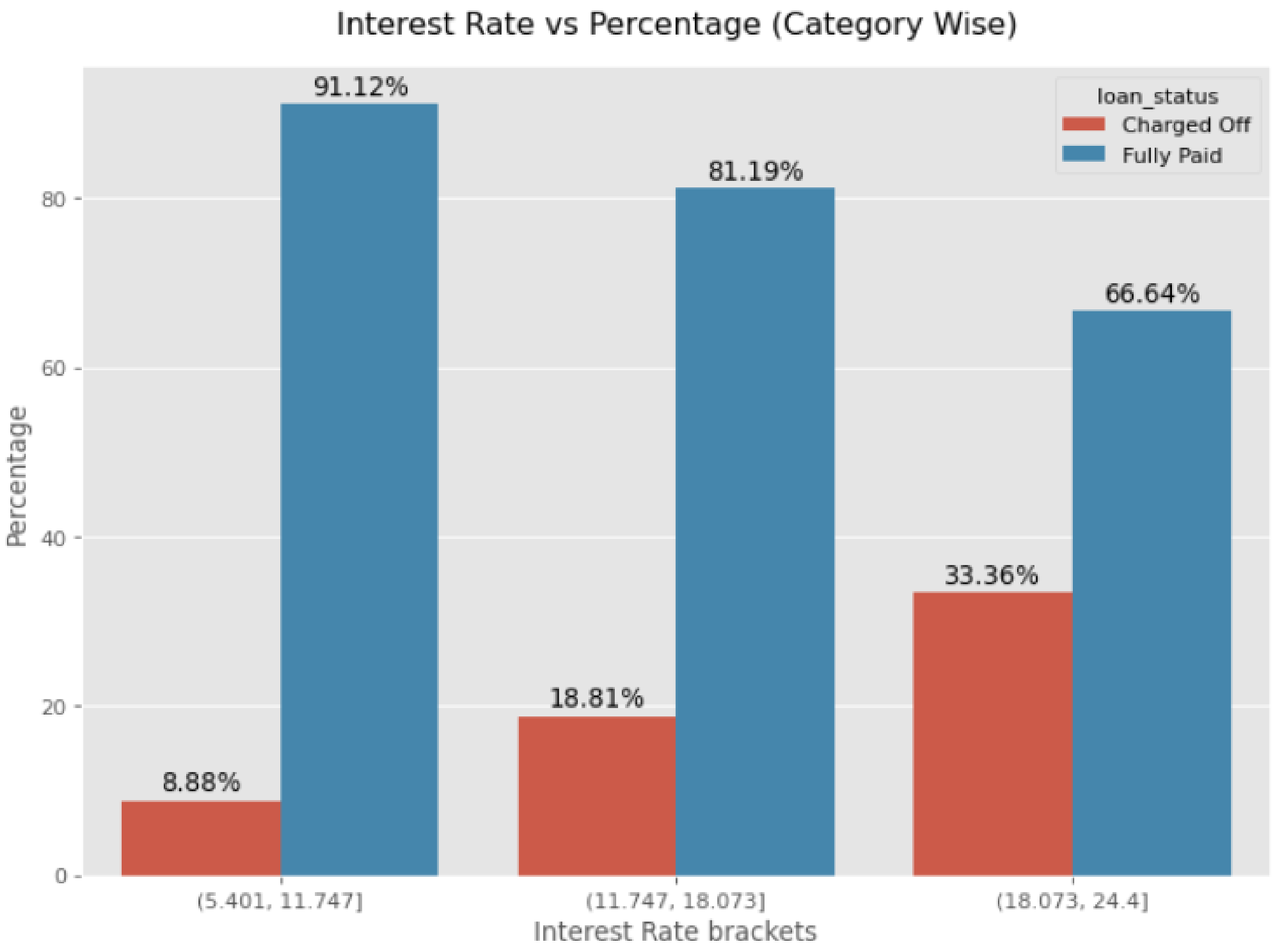
Methodology



Univariate Analysis : Interest Rate

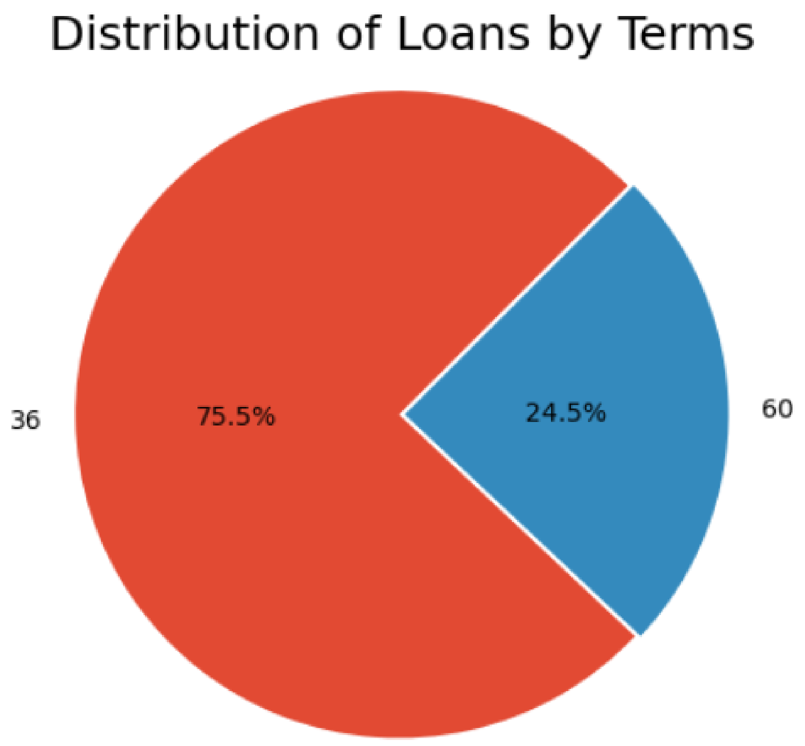
- We can infer that loans with Higher Interest Rates (>18%) are more likely to become charge off than that with less interest rates.

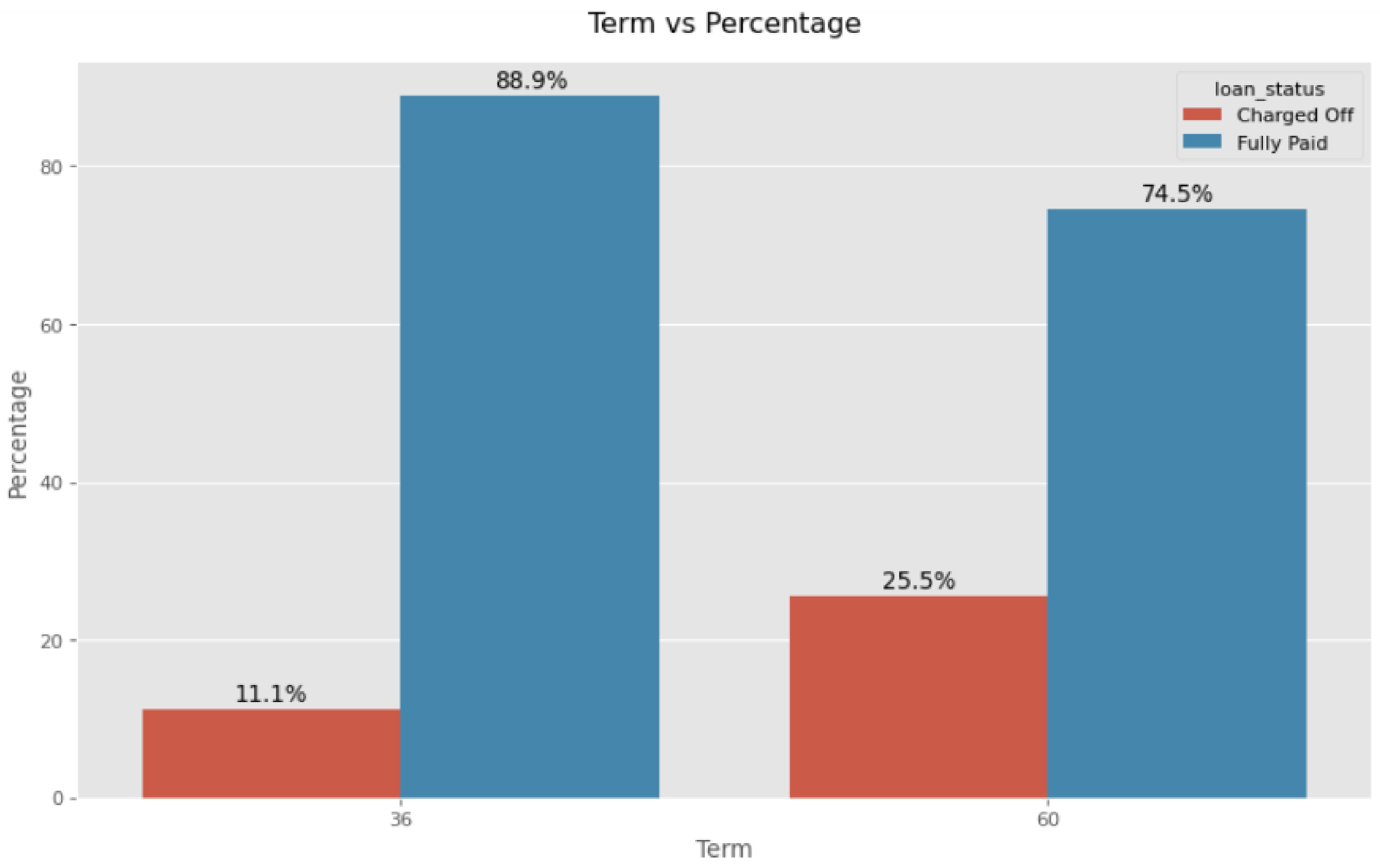




Univariate Analysis : Term

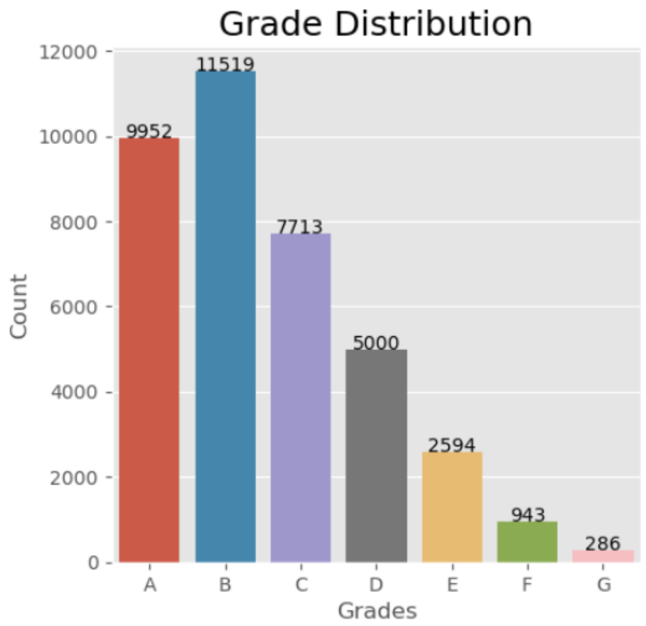
- Loans with 60 months Term are more likely to charge off than that with 36 months term.

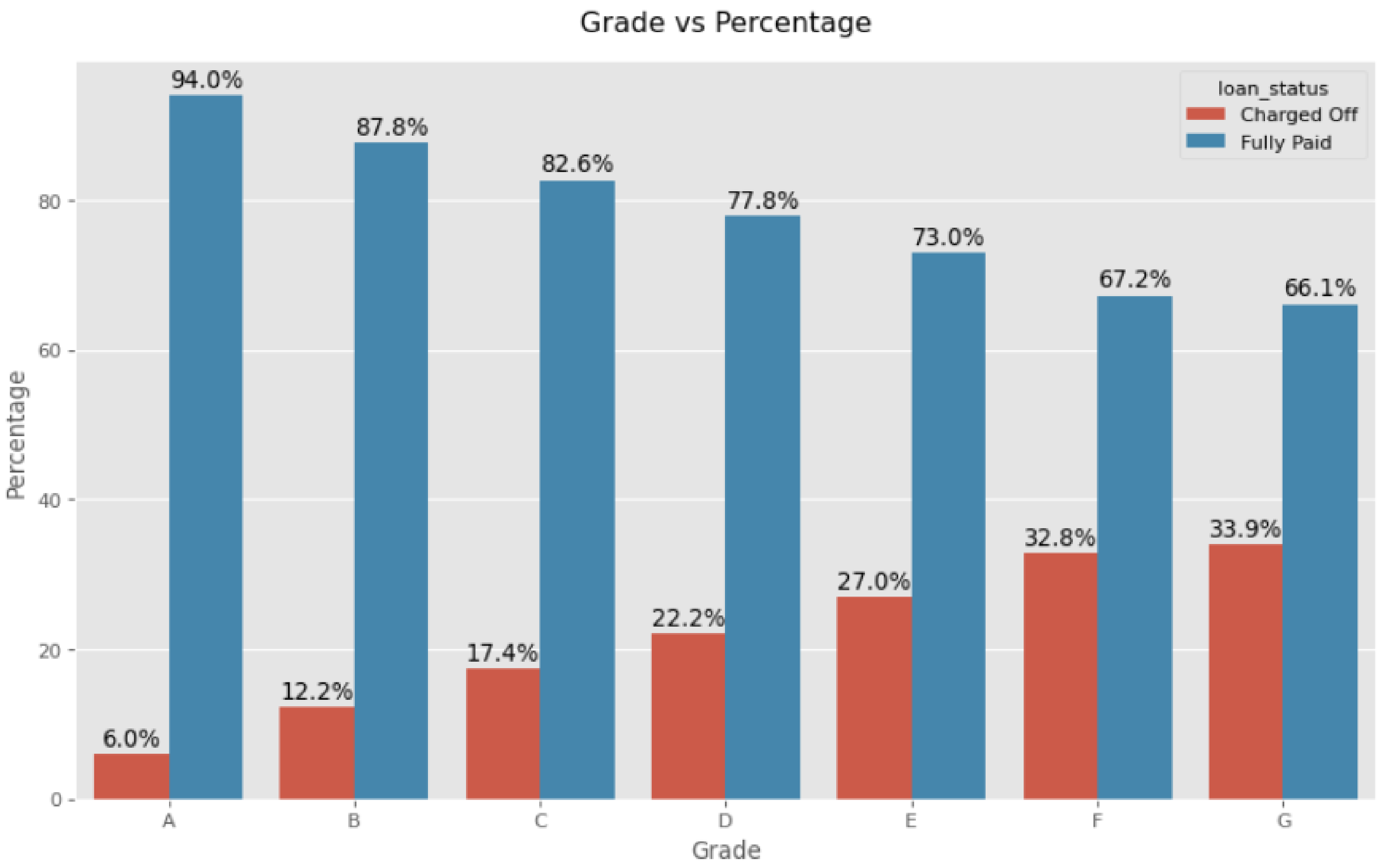




Univariate Analysis : Grade

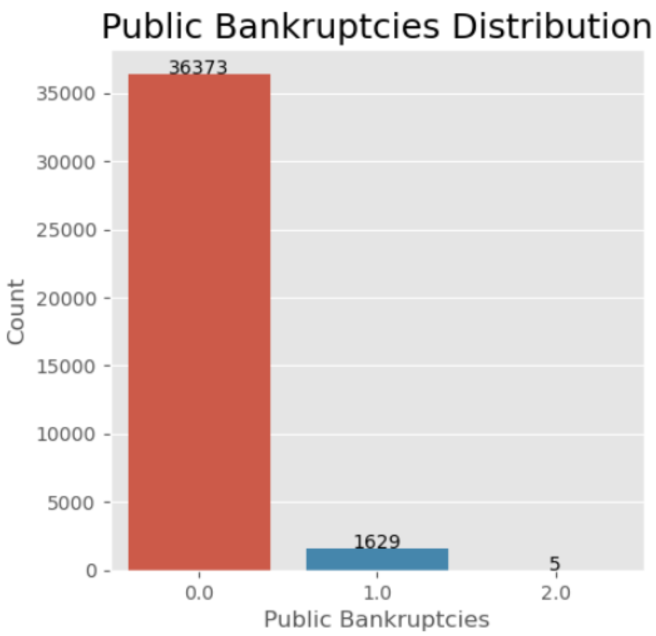
- As the Grade Increase from ‘A’ to ’G’ the charge off percentage also increases.
- Hence, it is better to give loans to customer with good grade (from A till C)
- And, we should be more careful while sanctioning loan to customers with bad grade

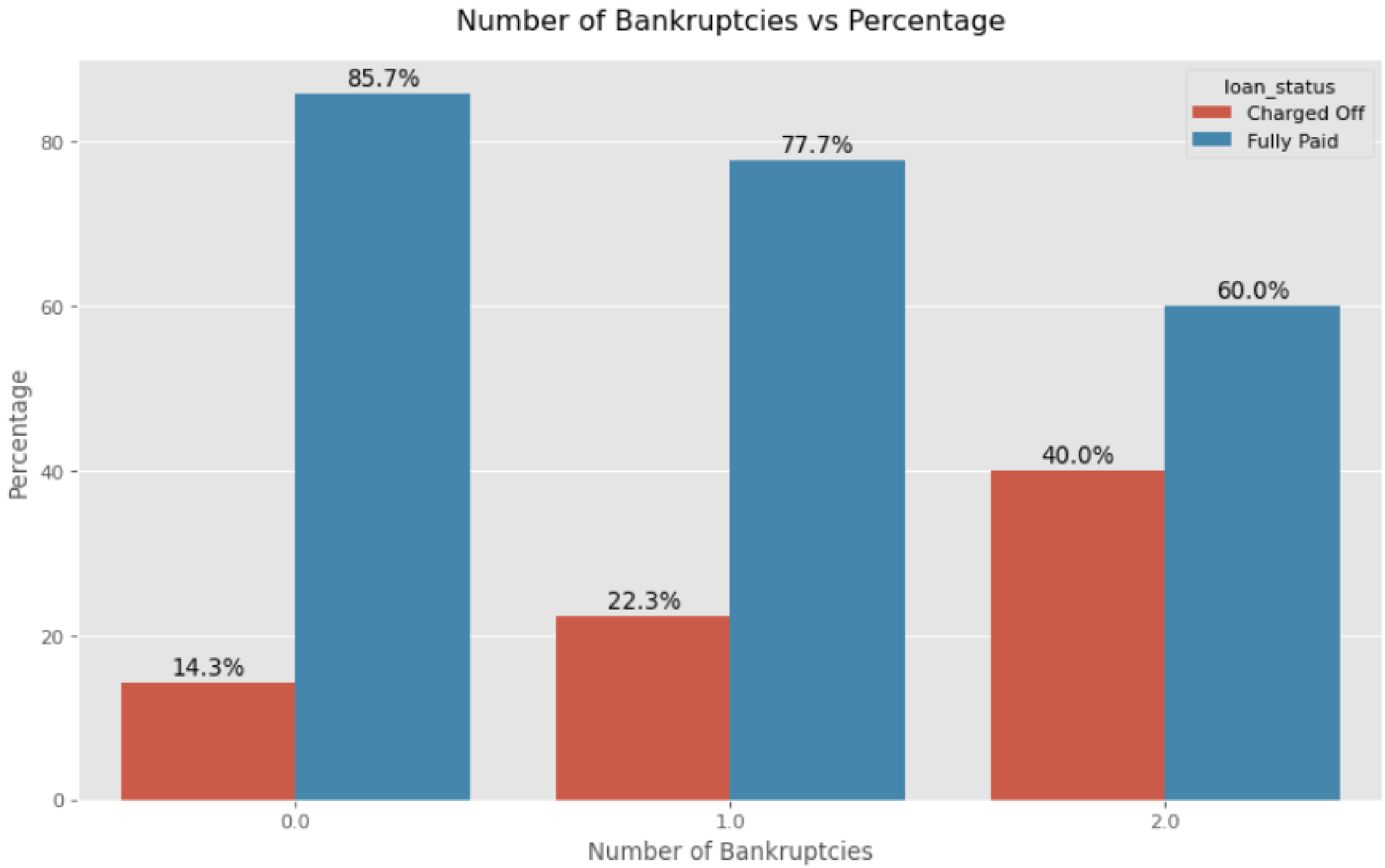




Univariate Analysis : Bankruptcies

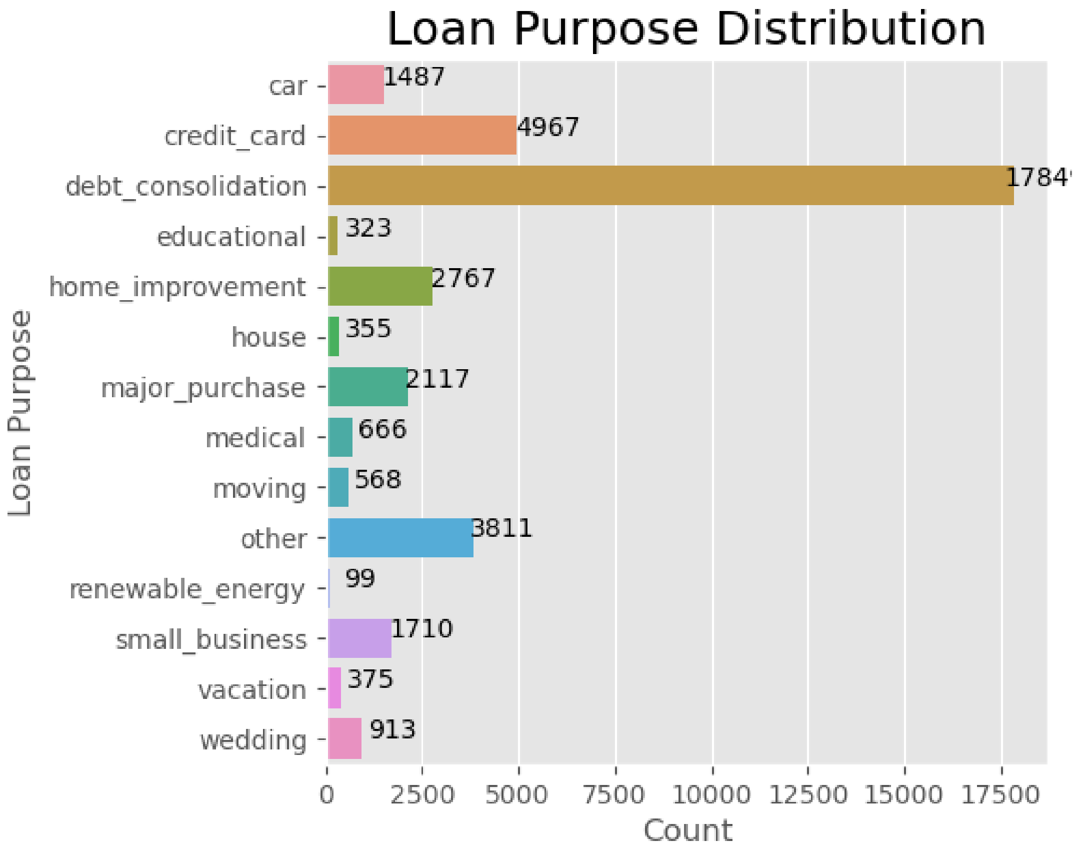
- It is very risky to provide loans to applicants with 2 public Bankruptcies
- Also we need to be very careful when providing loans to applicant with 1 public Bankruptcies
- In fact, it is better to sanction loans to applicant with 0 public bankruptcies, as they are less likely to default

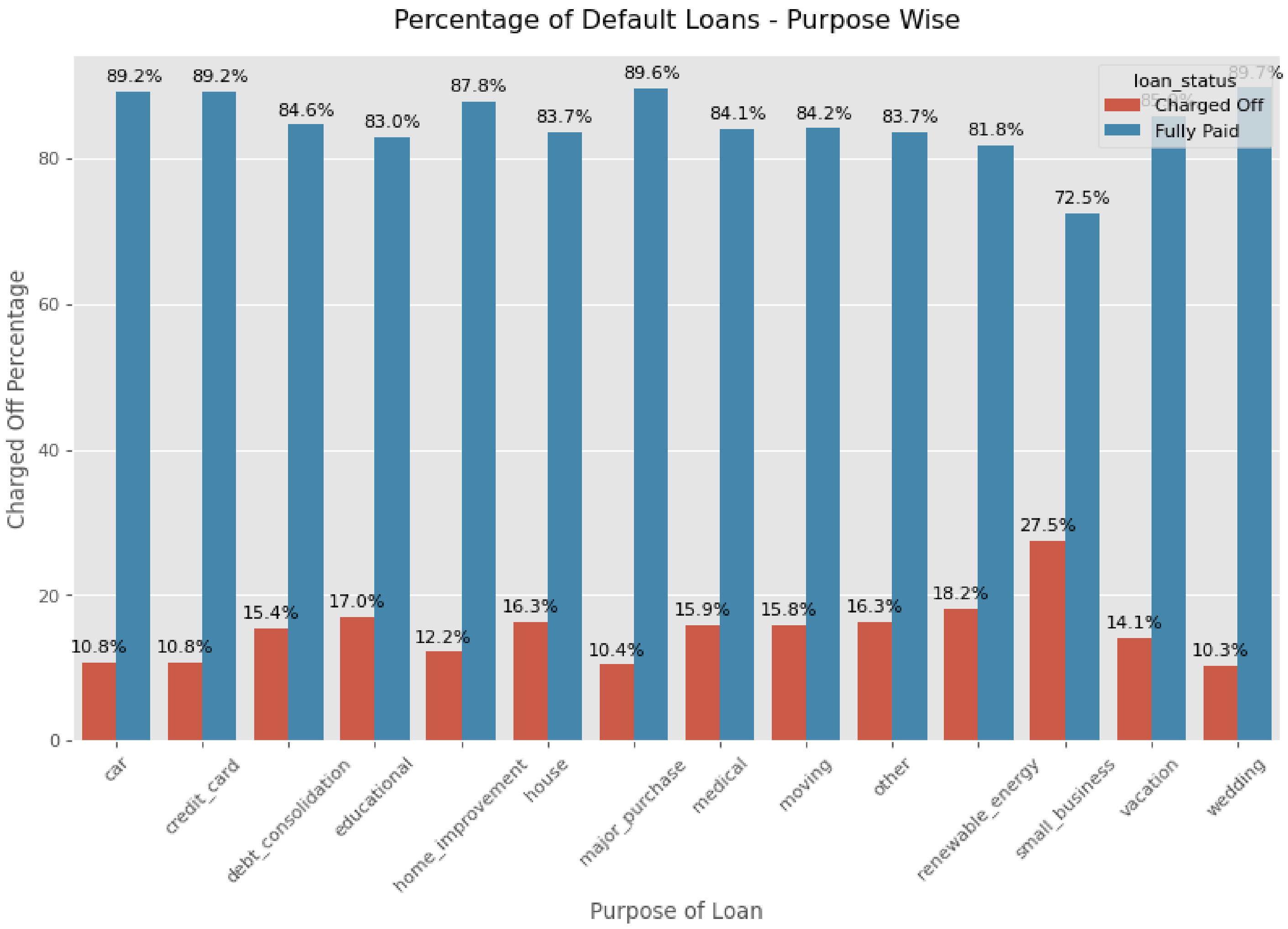




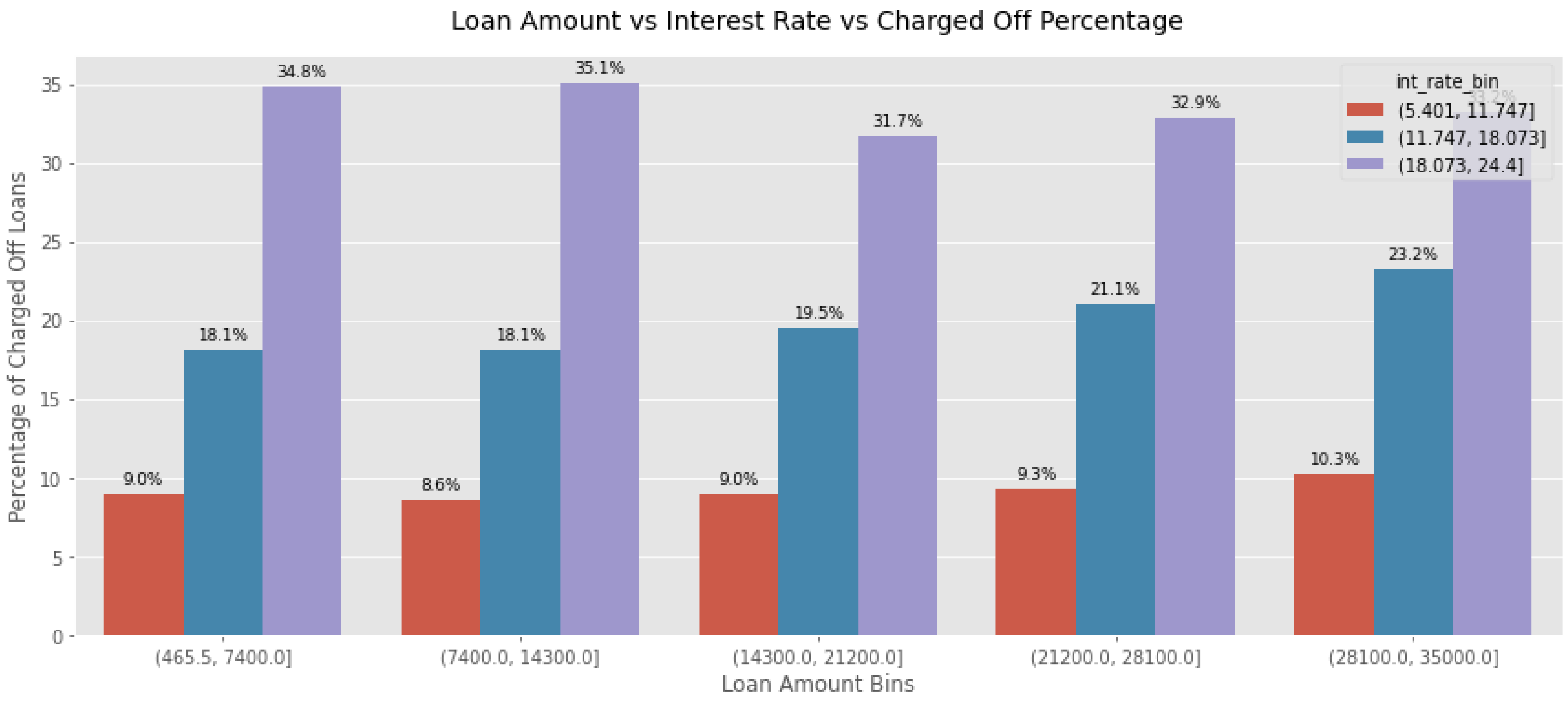
Univariate Analysis : Purpose

- ‘Small Businesses’ & ‘renewable energy’ are the loan purpose where there is high default percentage. So we need to be very careful while sanctioning loans for above mention purposes.



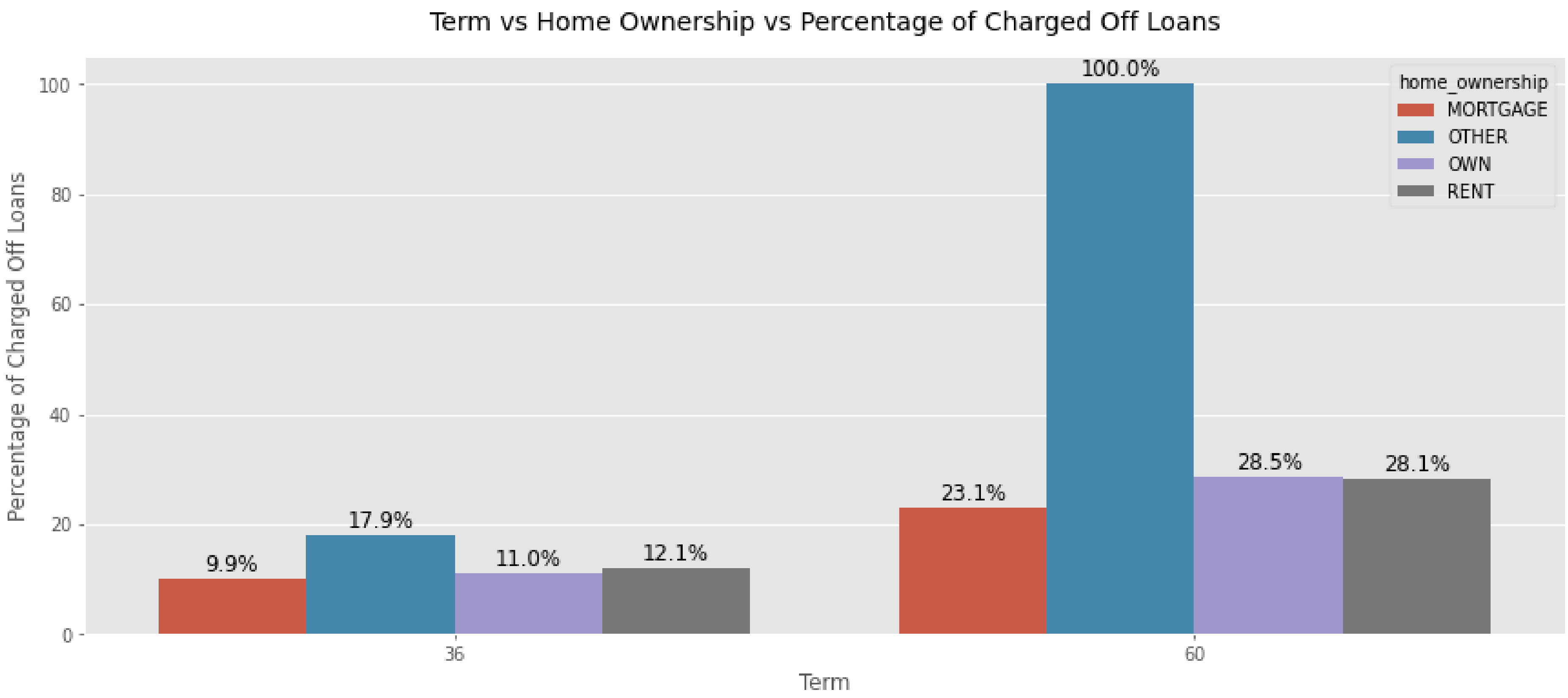


Bivariate Analysis



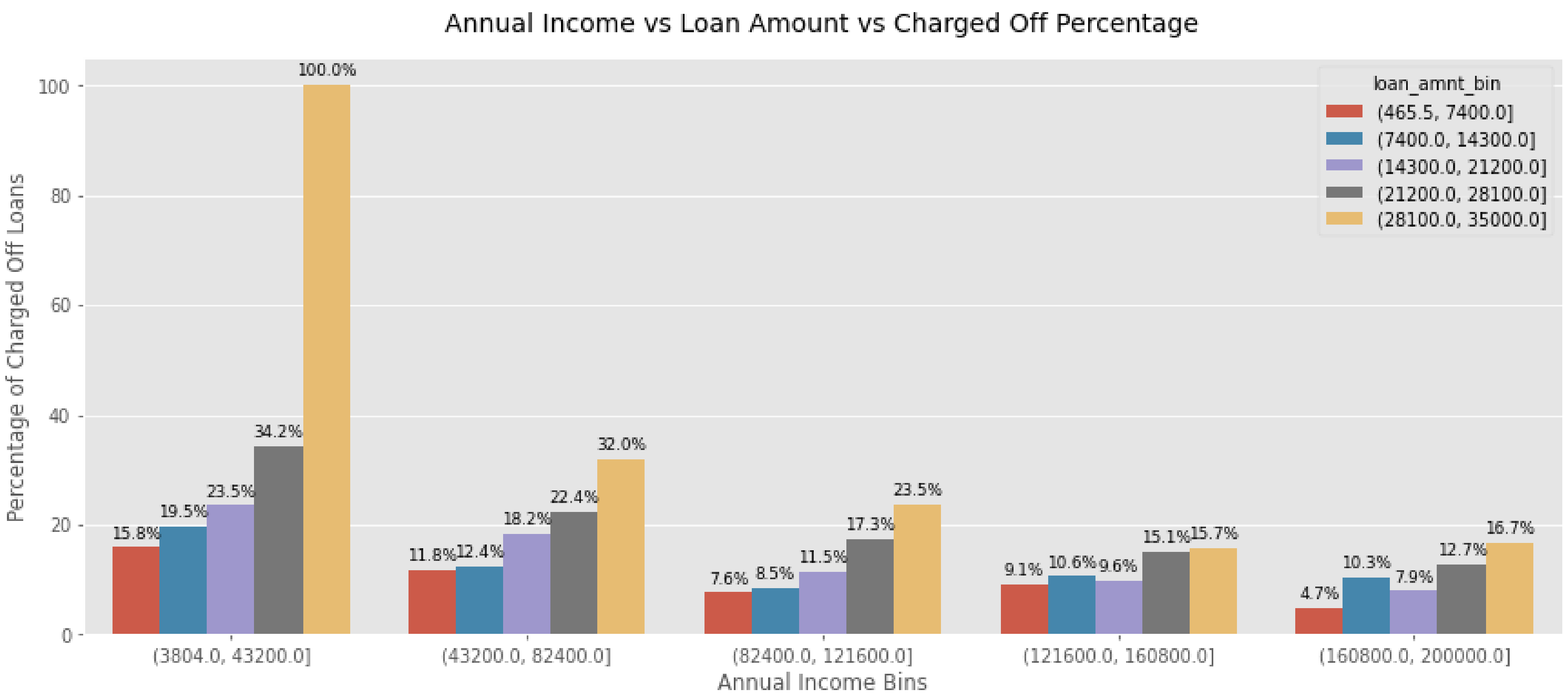
- ✓ It is always very Risky to provide loans with High Interest Rates (> 18%) irrespective of Loan Amount
- ✓ Providing loans more than 21,000 with interest rate more than 12% are more likely to default
- ✓ We should consider providing loans with less interest rates as they are very likely to repay

Bivariate Analysis



✓ Providing Loans to applicant with 'Mortgage' , 'Own' , 'Rent' type home ownership and with 36 months terms is very safe

Bivariate Analysis



- ✓ For Applicant with Annual Income less than $43,000 , it is very risky to provide loans more than $14,000
- ✓ Providing Loan more than $21,000 is risky for applicant having annual income less than $82,400
- ✓ Applicant with less than $120,000 annual income, it is risky to provide loans more than $28,000
- ✓ It is always safe to provide loans to applicant with high annual income (> $120,000)

Conclusions

Assumption :

1. Default Ratio > 18% is risky and approving loan may lead to financial losses to the company. If Lending club wants to sanction loans with higher default ratio, it should take extra caution.
2. Default Ratio <= 18% is likely to repay the loan and rejection may lead to loss of business to the company

Major Driving factors for Loan Defaults :

1. **'Sub Grade' :** It is risky to give loan to any applicant with sub-grade D2 or below.
2. **'Grade' :** It is risky to give loan to any applicant with grade D or below.
3. **Public Bankruptcies :** It is **very risky** to provide loans to applicants with 2 public Bankruptcies & also **risky** with 1 public bankruptcy.
4. **Interest Rate :** Loans with Higher Interest Rates (>18%) are more likely to default than that with less interest rates.
5. **Inquires in Last 6 Months :** Applicant with number of inquiries in last 6 months more than 5 are more likely to default.
6. **Purpose :** Small Businesses & Renewable Energy loans are more likely to default than other loans.
7. **Term :** Loans with 60 months Term are more likely to default than that with 36 months term.
8. **Loan Amount** : It is risky to approve loan with amount > $21,000.

These are the variables which are strong indicators of default. The company can further utilize this knowledge for its `portfolio and risk assessment`.