



CONSUMER
FINANCE

Gramener Case Study

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Problem Statement

- The Purpose of this Case Study is to analyze the profile of customer/loan applicants and based on that take decision whether to approve the loan OR reject the loan.
- If the applicant is **likely to repay the loan**, then not approving the loan results in a **loss of business** to the company.
- 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 .

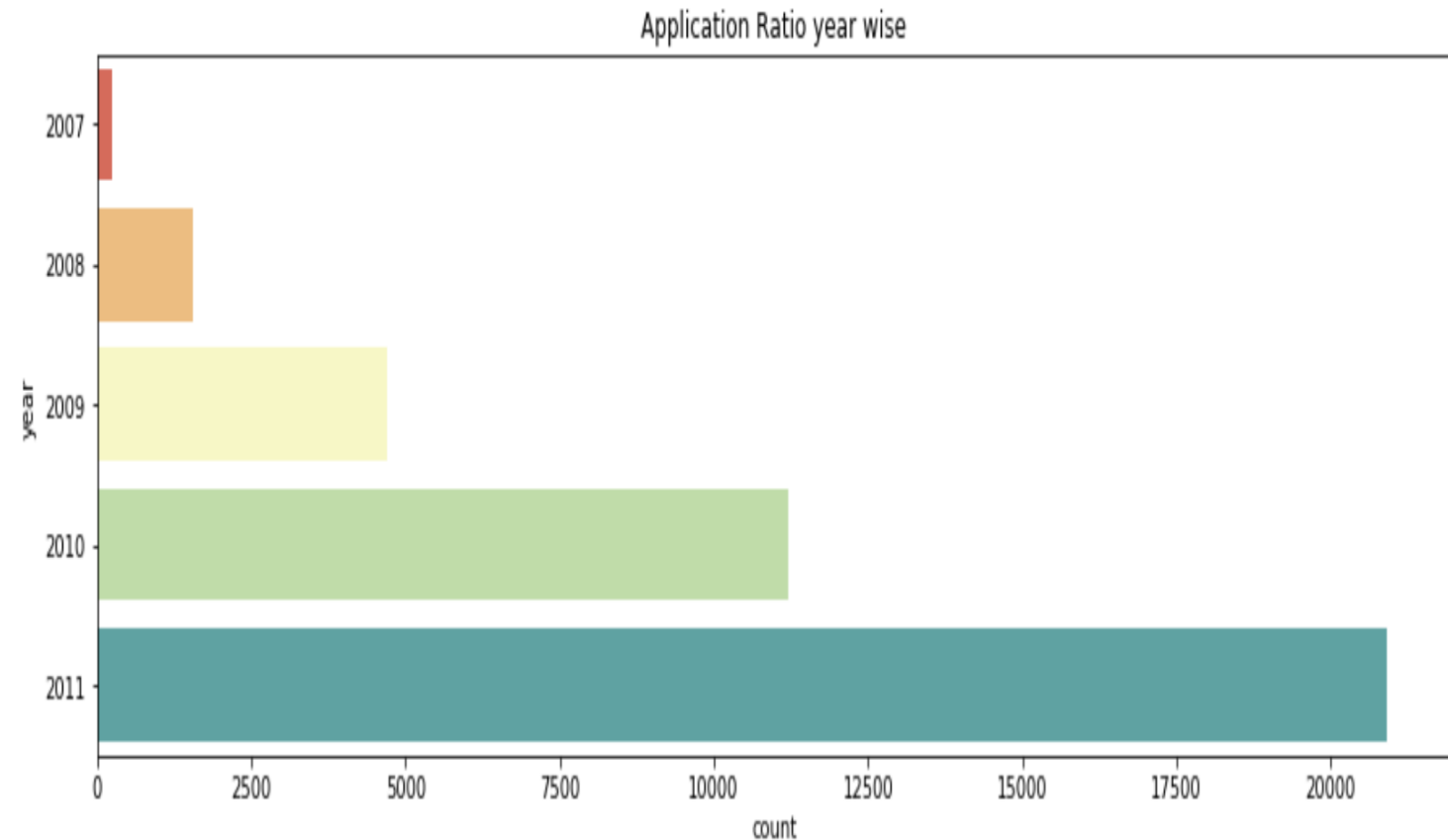
Data Cleaning and Data Preparation

- This is the first step we performed, clean the data and bring it in a state which is suitable for analysis.
- Removed all the columns having only null values.
- Removed all the columns having only one unique value.
- Removed duplicate rows if exists.
- Removed columns which are not required, mean the column like 'desc' which we will not use throughout the analysis.
- Introduces new columns wherever required and updated the existing column as per the requirement.

Data Analysis

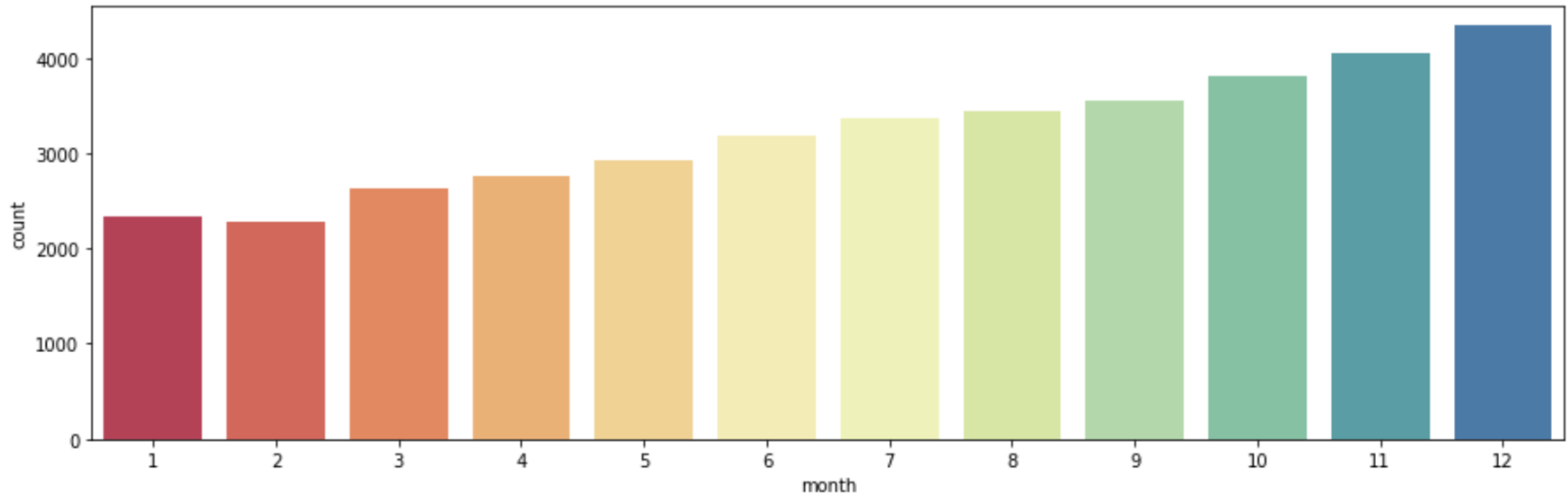
- Next we started with analyzing data based on various parameters and concepts like univariate and bivariate analysis.
- NOTE : After slide no 9 onwards all plots are related to Loan Defaulter Applicants/Employees.

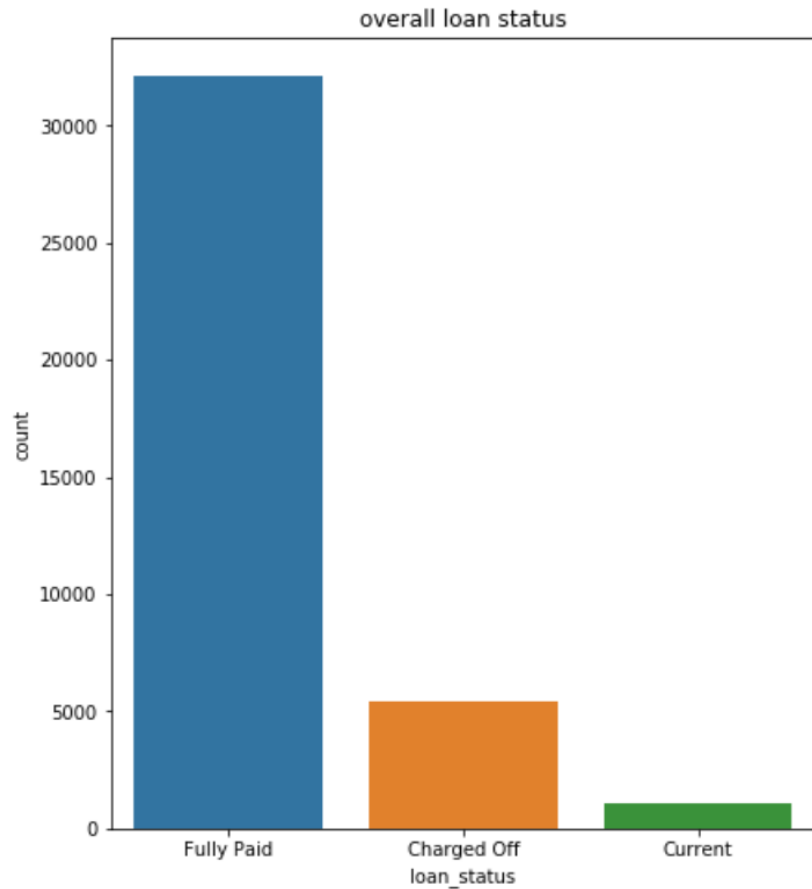
Year-wise Application count



- Clearly seen that applications are maximum in 2011 and also relatively very high
- Just double from the previous year
- Least application in the year 2007(a few hundreds)

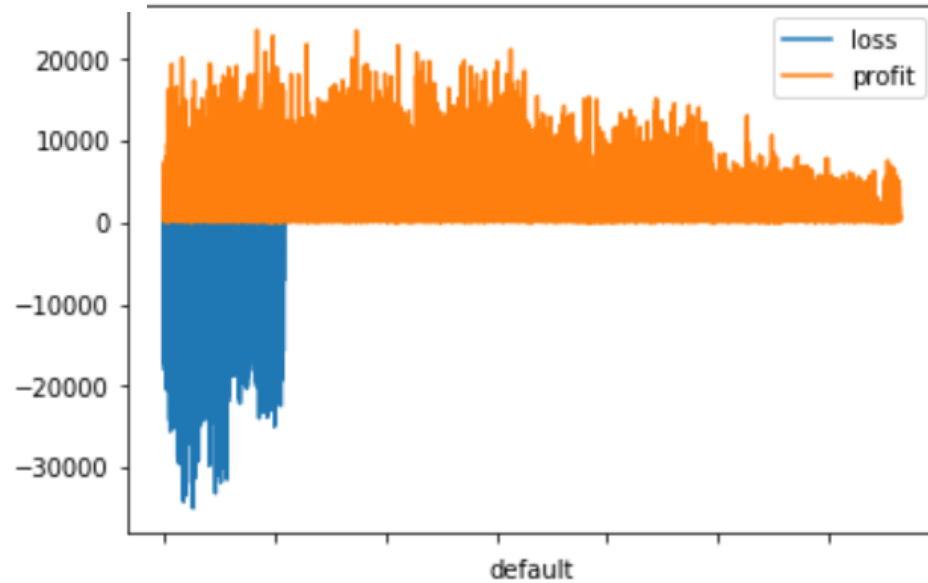
Month-wise Application count





Overall Running Loan Status

- Most of the Customers paid their loan in full and final way.
- We can't predict for running loan applicants.
- Around 6k applicants fall in the category of defaulters..

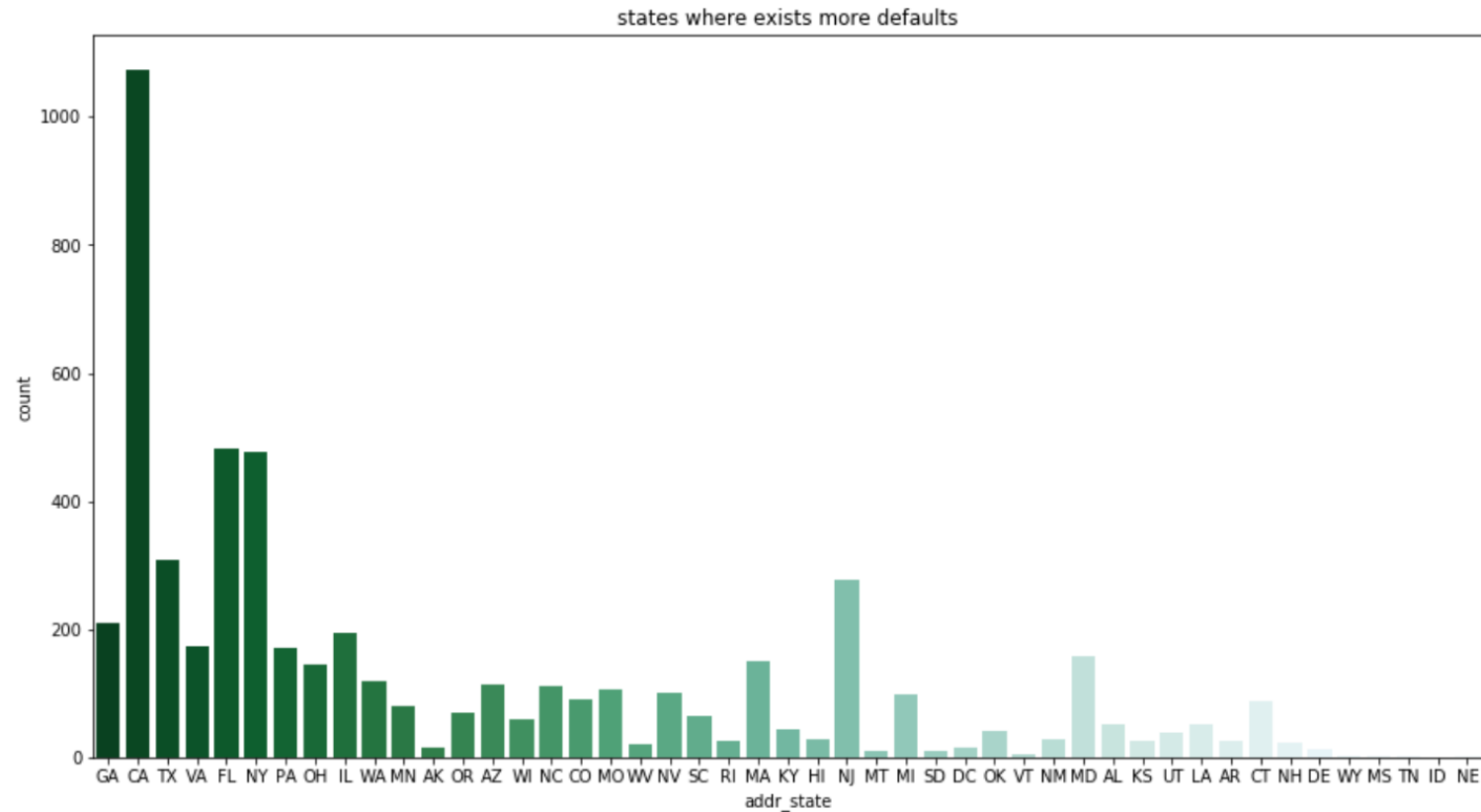


company_revenue	
default	
defaulter	-26.836
non-defaulters	74.227

Frequency Revenue Diagram

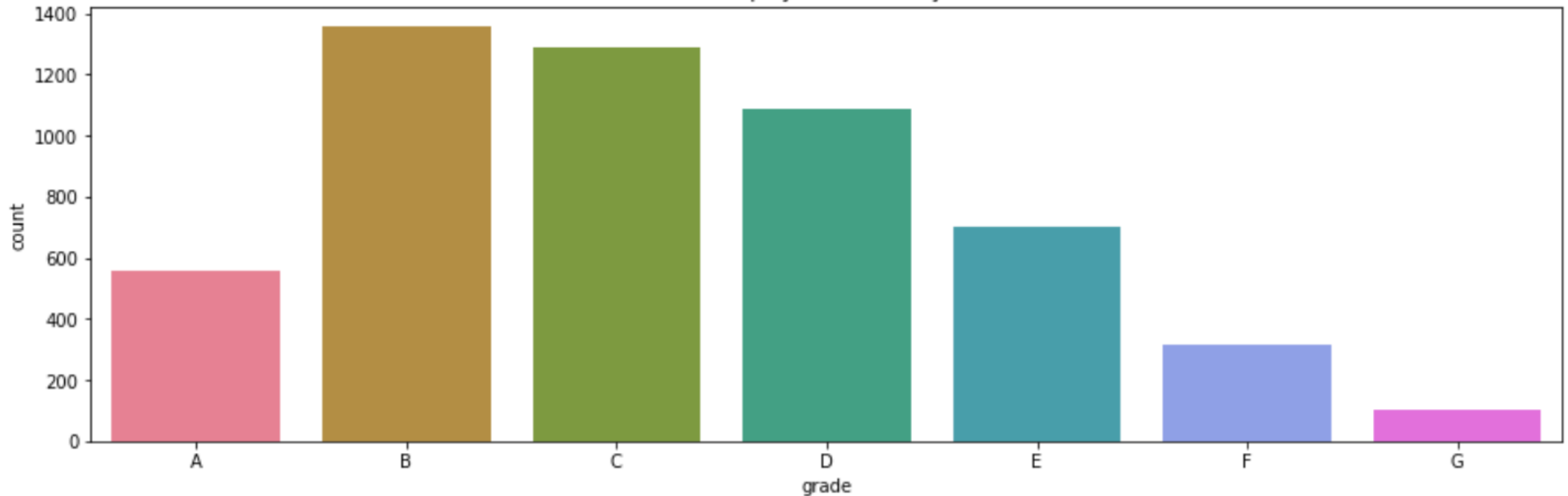
(*data is in million)

State-wise loan defaulter count plot

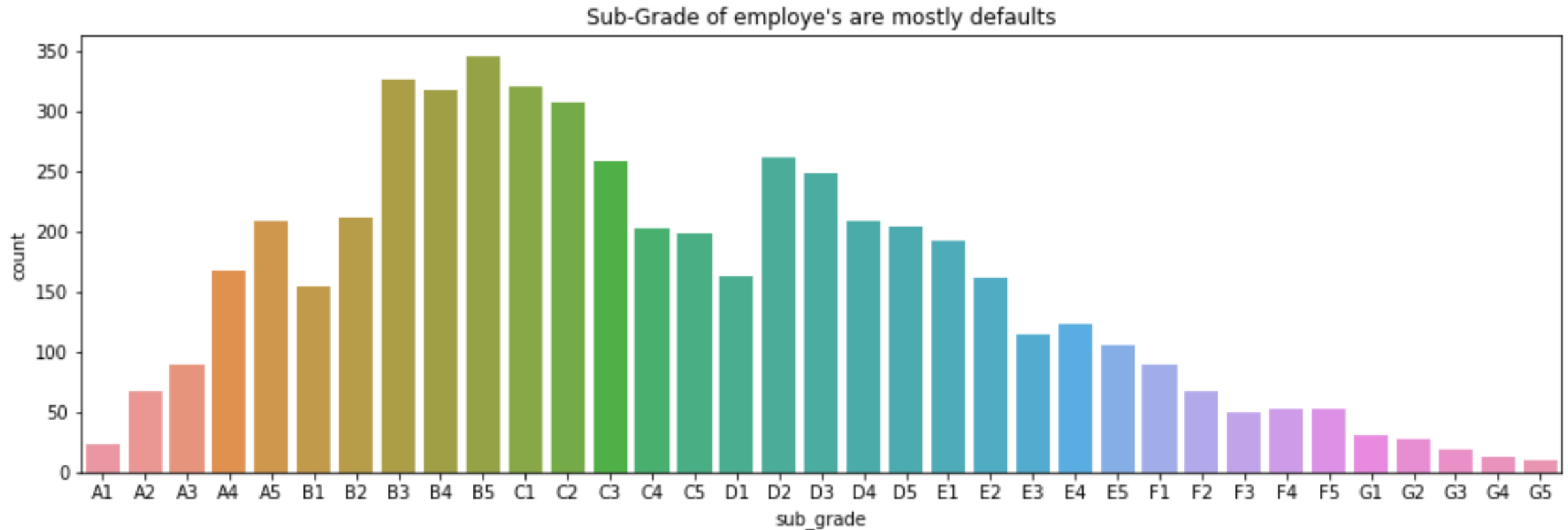


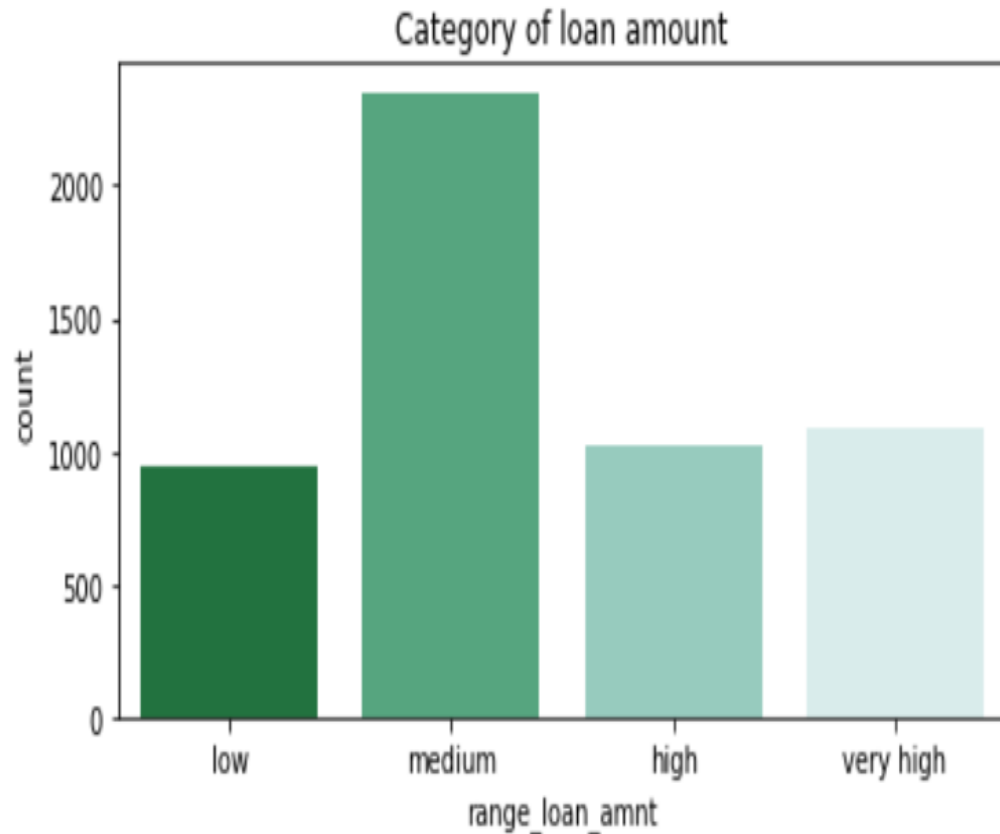
Grade of Defaulter Employees

Grade of employee's are mostly defaults



Sub-Grade of Defaulter Employee





Loan Category of Defaulters

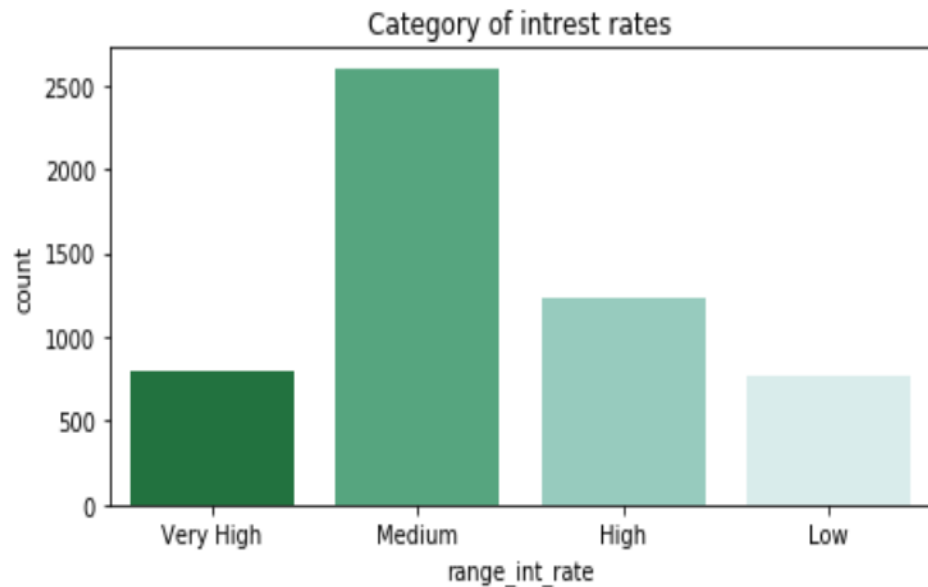
- Mostly fall into medium category
- Classification

Low : amount < 5000

Medium : 5000 < amount < 15000

High : 15000 < amount < 25000

Very High : all remaining



Interest Rate Category for Defaulter

- Mostly fall into medium category
- Classification

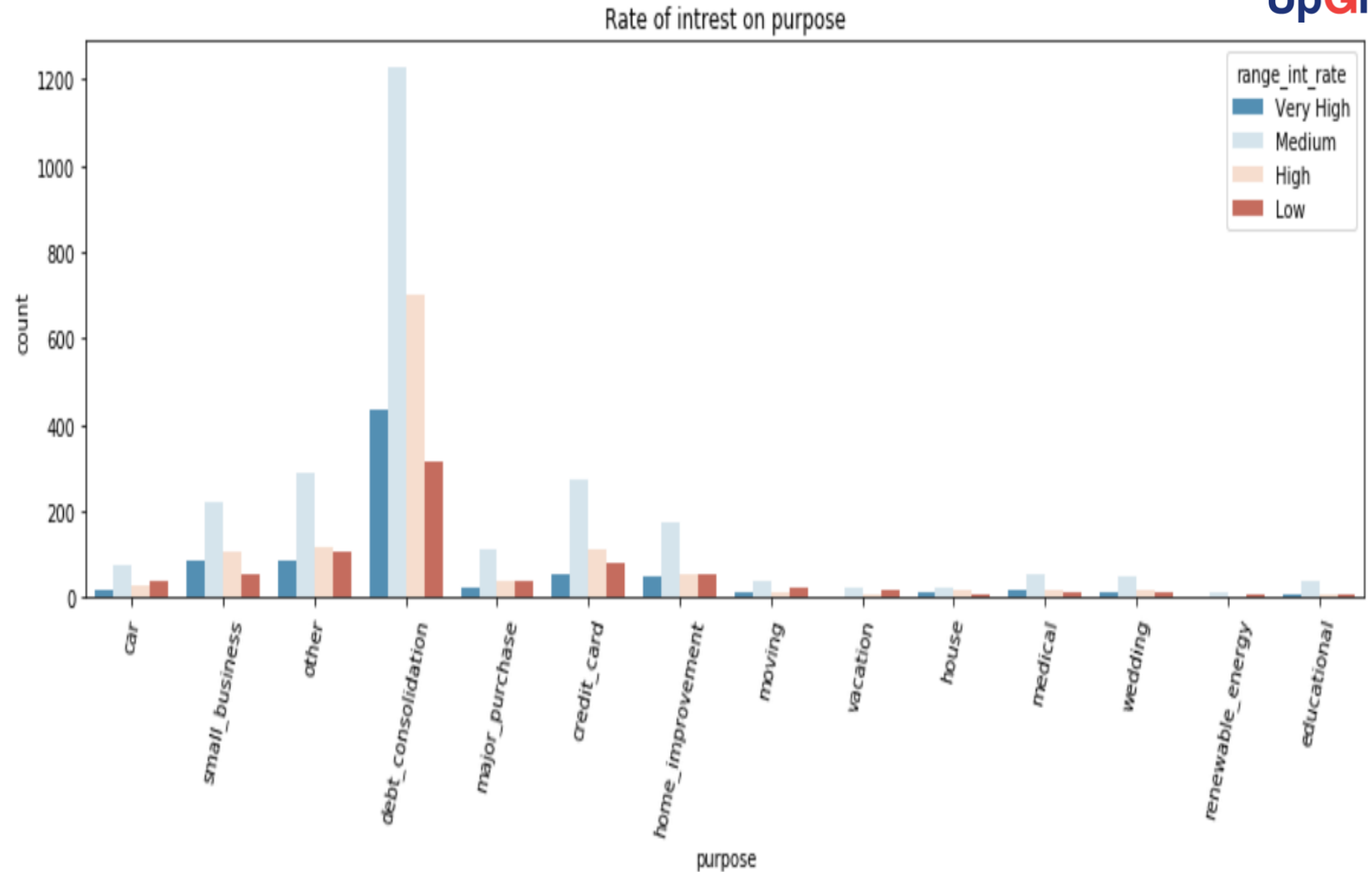
Low : rate ≤ 10

Medium : $10 < \text{amount} \leq 15$

High : $15 < \text{amount} \leq 20$

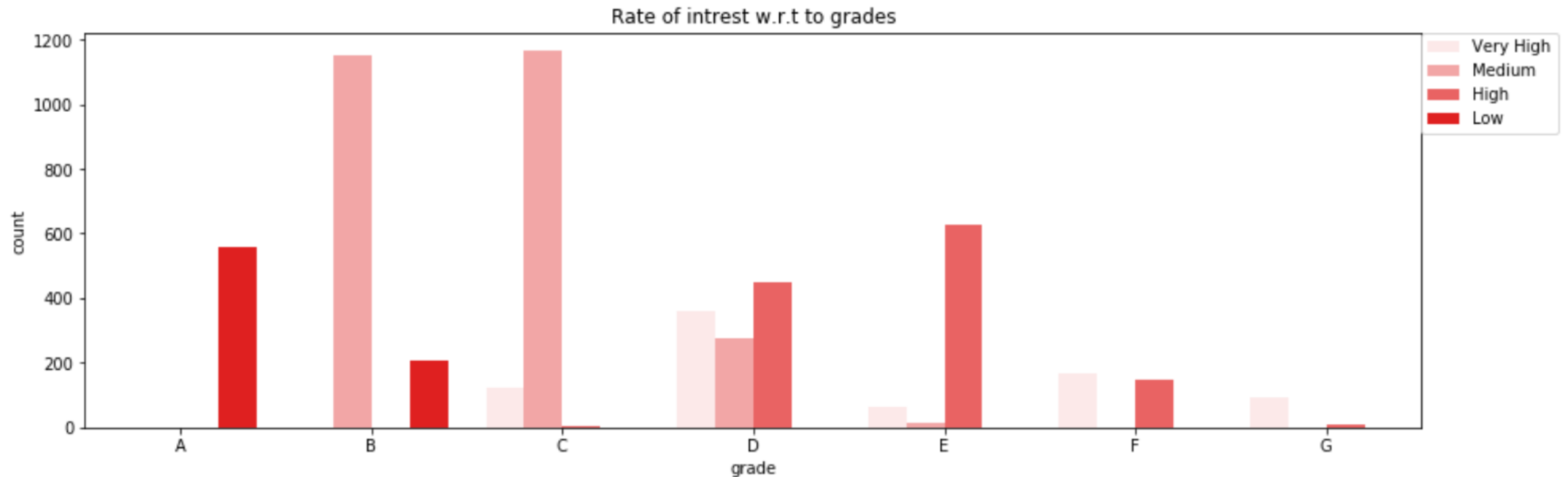
Very High : all remaining

Rate of Interest for Different Loan Purposes



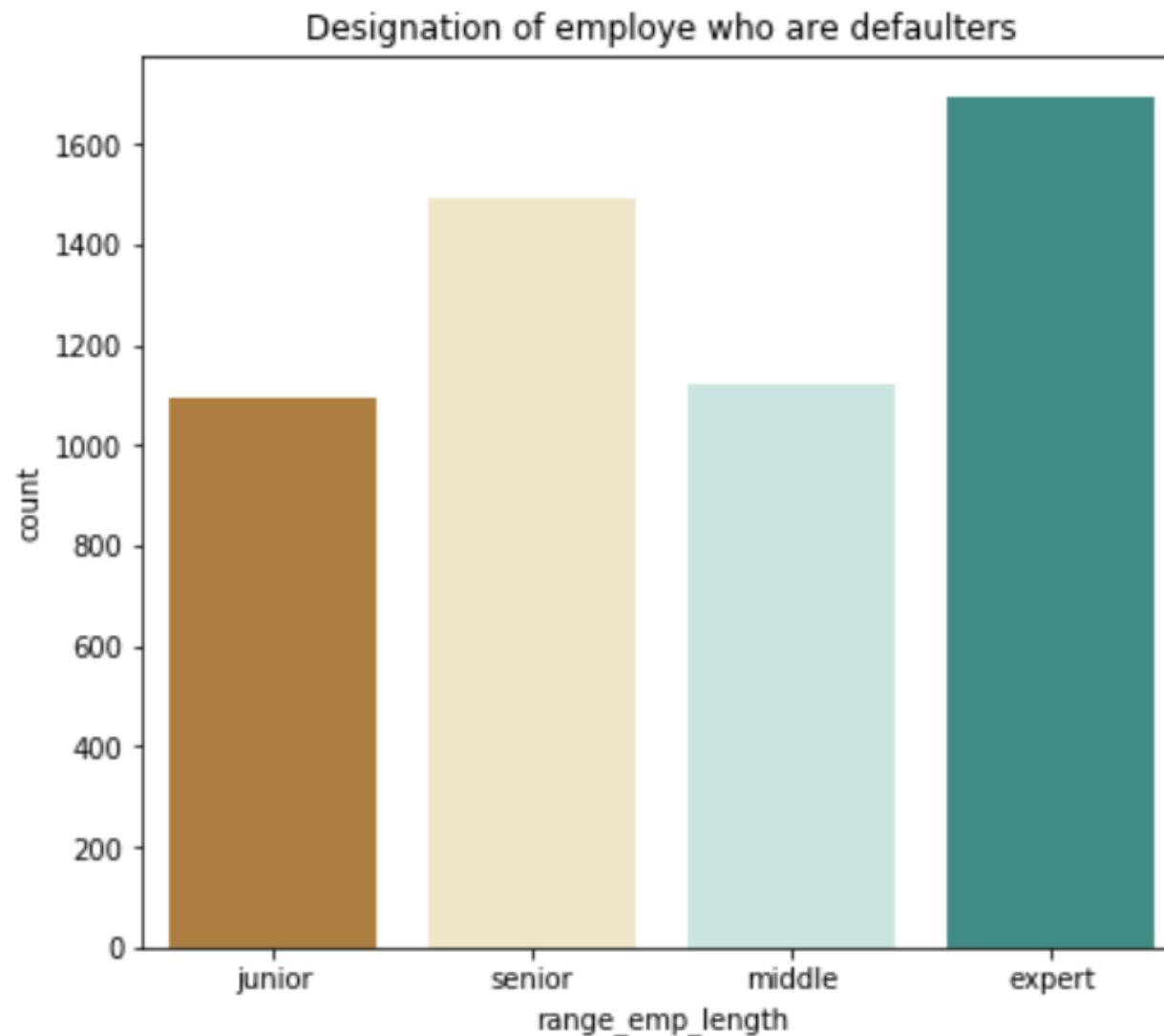
Mostly the purpose is debt consolidation

Rate of Interest w.r.t Defaulter Employee's Grade

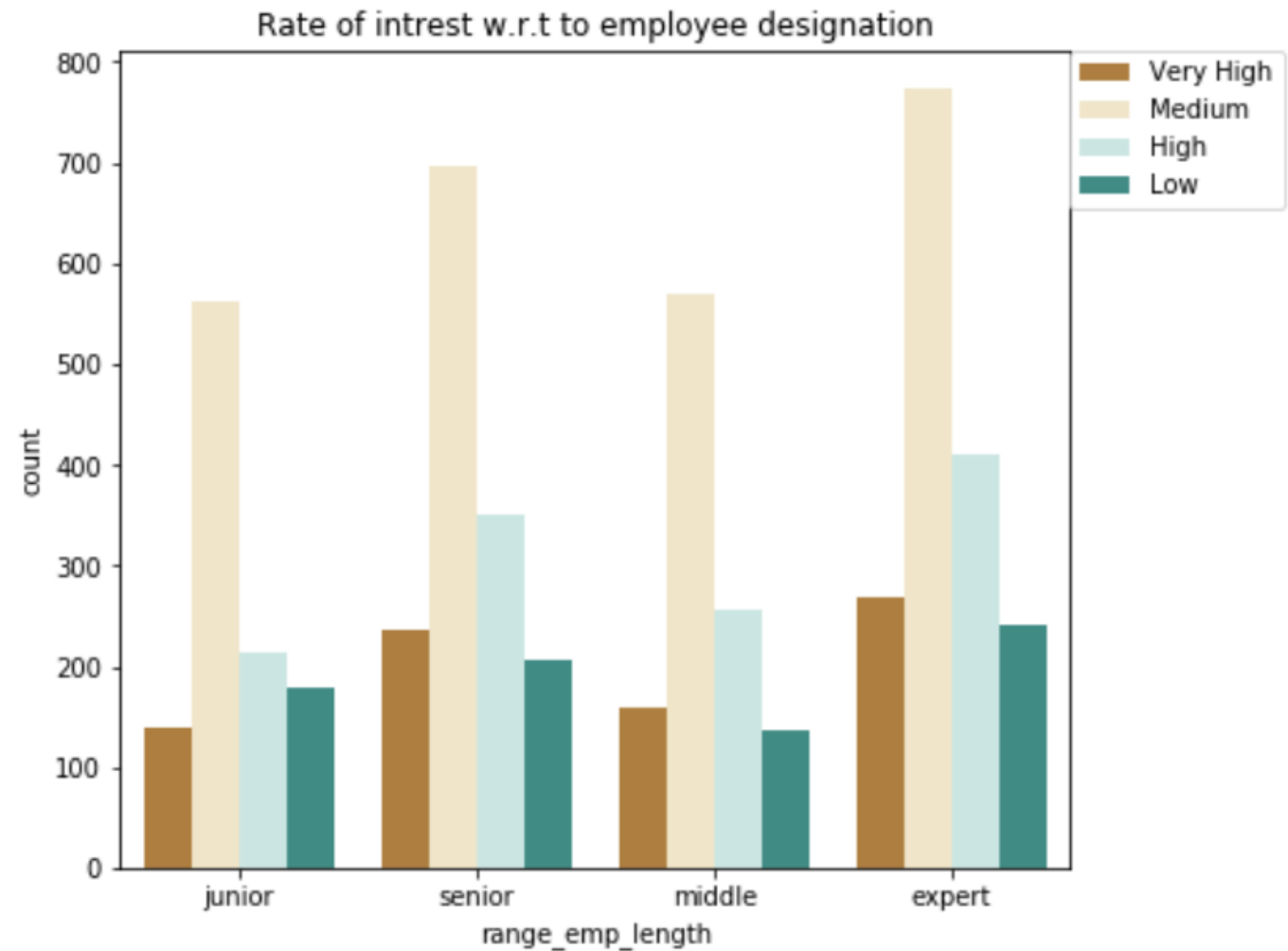


Experience wise Defaulter Employee

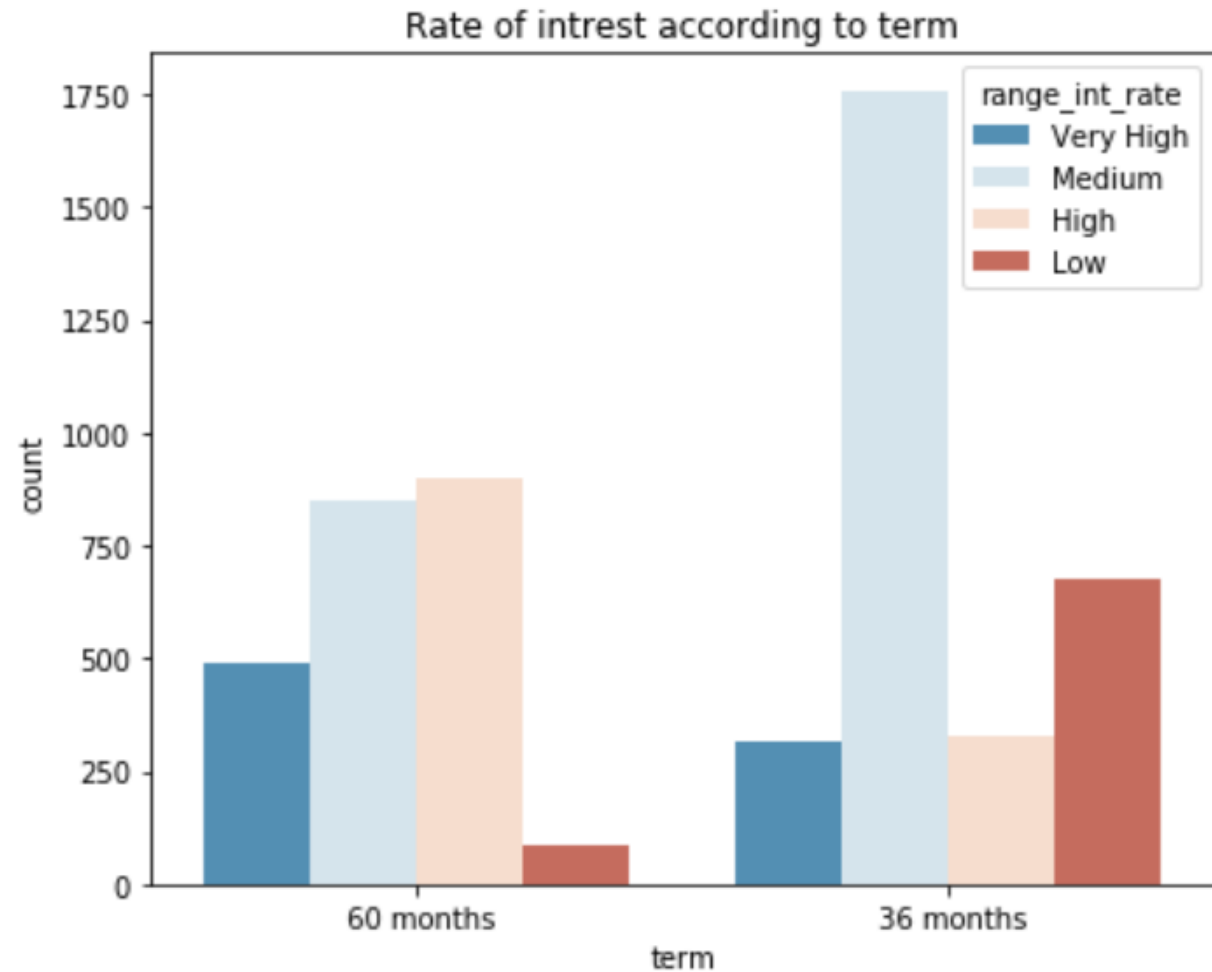
- Classification
 - Junior : $\text{exp} \leq 1$
 - Middle : $1 < \text{exp} \leq 3$
 - Senior : $3 < \text{exp} \leq 7$
 - Expert : $\text{exp} > 7$



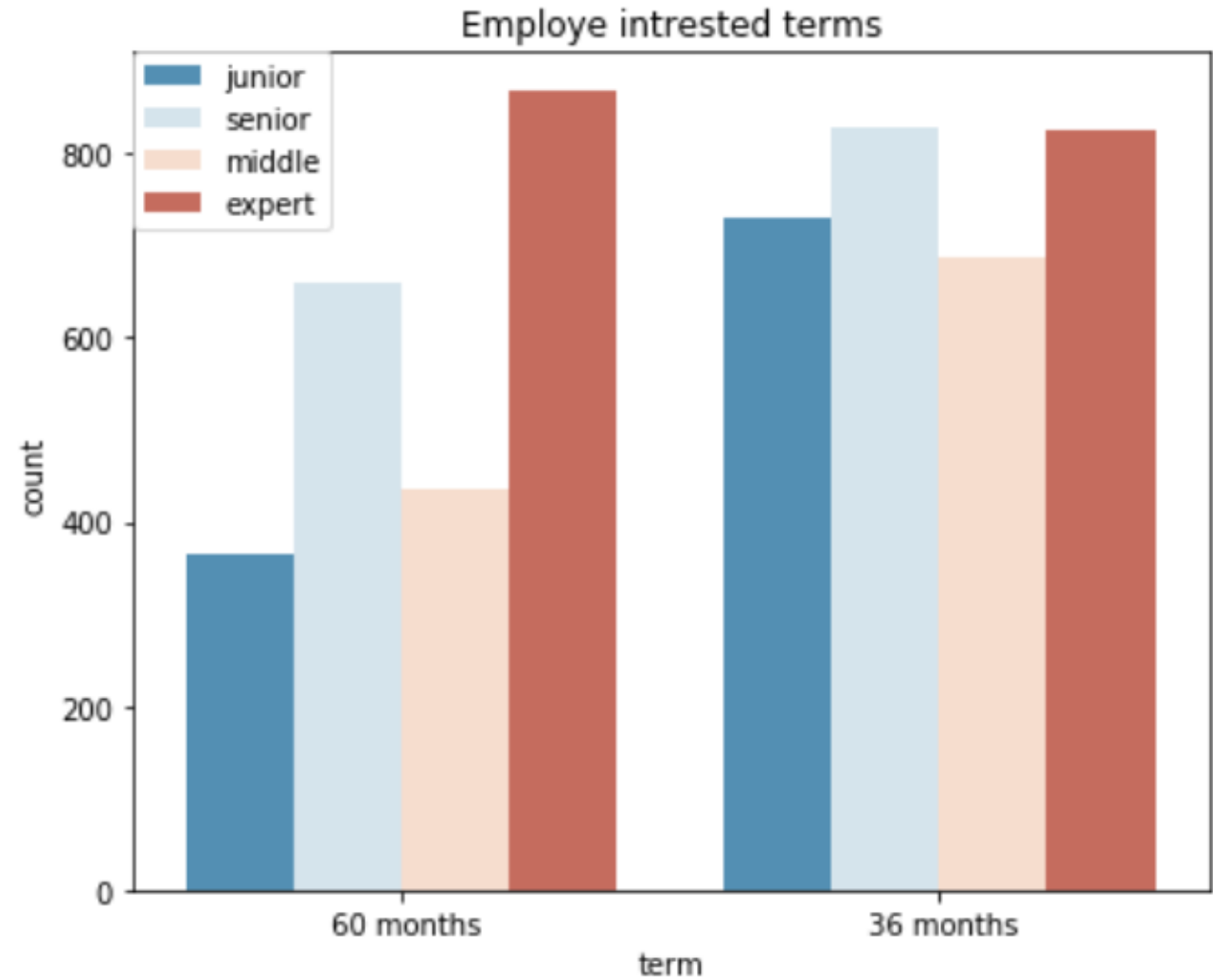
Rate of Interest wrt.
to Emp
Experience



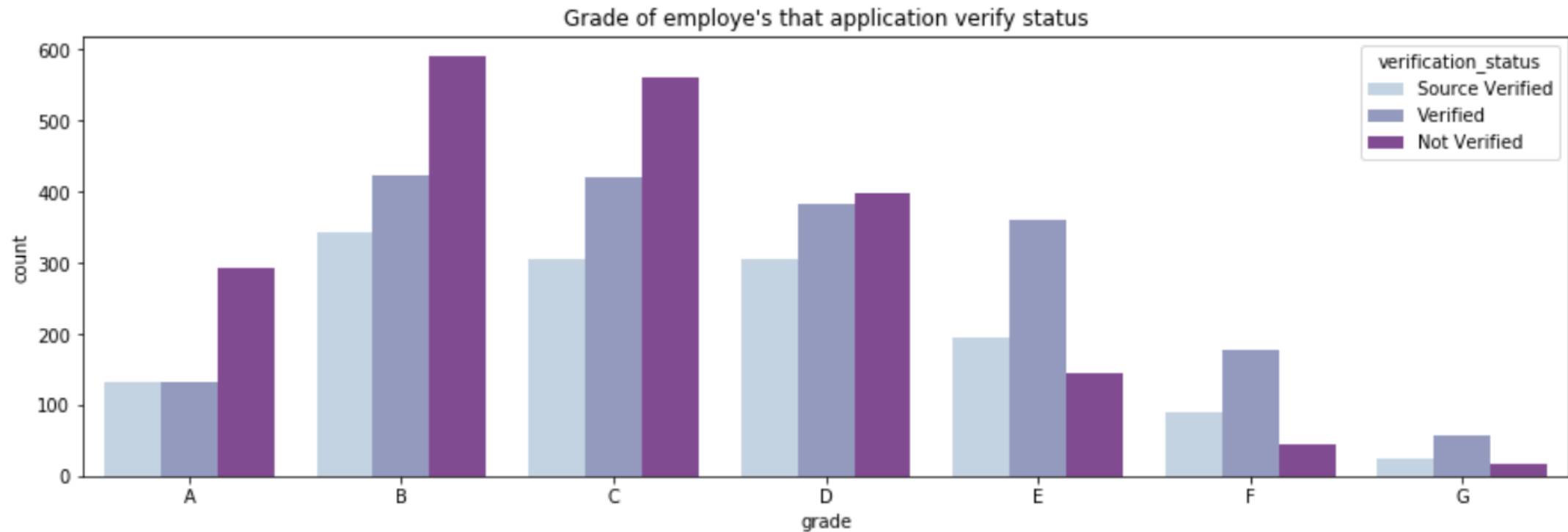
Rate of Interest wrt to Loan Term

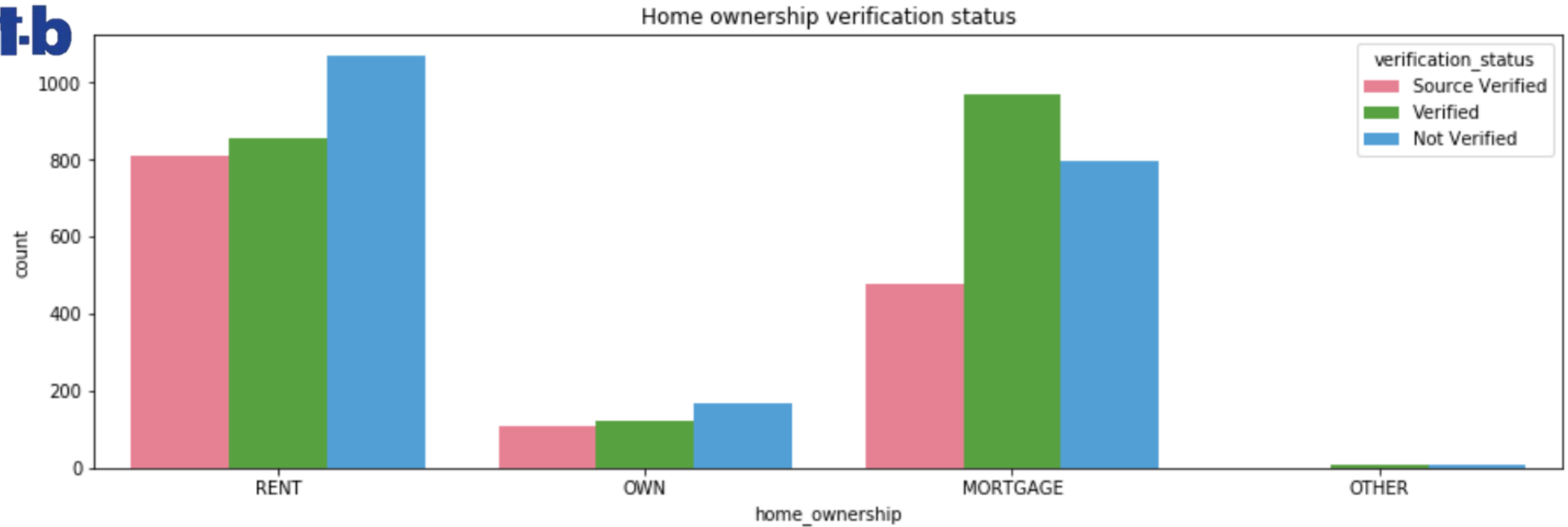


Employee Experience Level w.r.t to Loan Term Plan



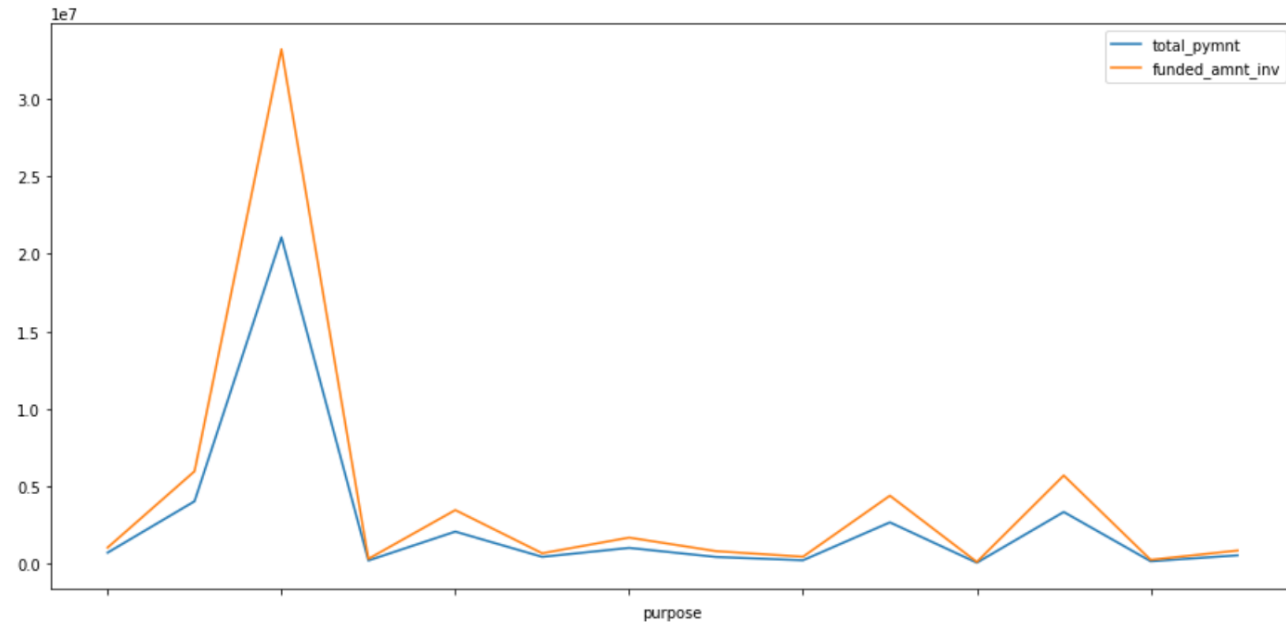
Verification Status w.r.t Employee Grade





Home Ownership w.r.t Verification status

Funded Amount vs Total Payment



- Here we can clearly notice that total payment done of loan is almost less than total funded amount.

Observations/Results

- Most defaulters are existing in **California(CA)** state.
- Employee grades in defaulters falls for 1st position is Grade B, next Grade C, next Grade D
- If we see in subgrades of Grade B, subgrade of B5 are highly defaulters where as B3 and B4 takes next place, Subgrade C1 are high defaulters where as C2 and C3 takes next place, subgrade D2 are high defaulters where as D3 follows next place.
- Most defaulters are taking loan for the purpose of '**debt consolidation**', next place of the purpose is '**others**' and for the '**small business**'.

Observations/Results

- Most of the defaulters are Expert employees whose experience is more than 8 years in industry and for them rate of interest is medium range, next place are occupied by senior position employees, next followed by middle position employees. The purpose of the loan by expert level employees are debt consolidation and ratio is also very high.
- Mostly the borrowers of home ownership are Rent and mortgage.
- Mostly the borrowers who are defaulters their applications are not verified properly i.e., it would be their home ownership and mortgage details etc.
- Coming to Grade wise applications verification status Grade B, C, D and A applicants are Lesly verified and also 36 months loan term applications are not verified where as 60 months loan term applications are moderately verified.

Recommendations

- Annual income, Interest rate and verification have bearing on whether it will become full paid or charged-off, this parameter would play vital role.
- Income verification should be done for all the applications.
- Background checks/Asset Computation will help Company to better know their Customers and also helps in minimizing company loss based on that.