Lending Club Case Study

SUBMISSION

Group Members:

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Case Study Objective

Company

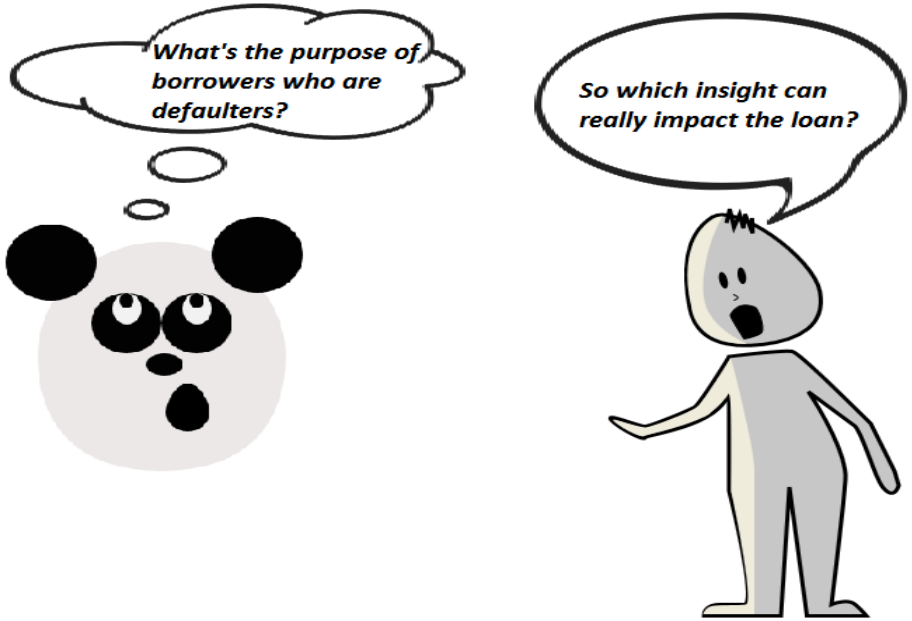
The lending cub is the largest online loan marketplace, facilitating personal loans, business loans, and financing of medical procedures. Borrowers can easily access lower interest rate loans through a fast online interface.

Context

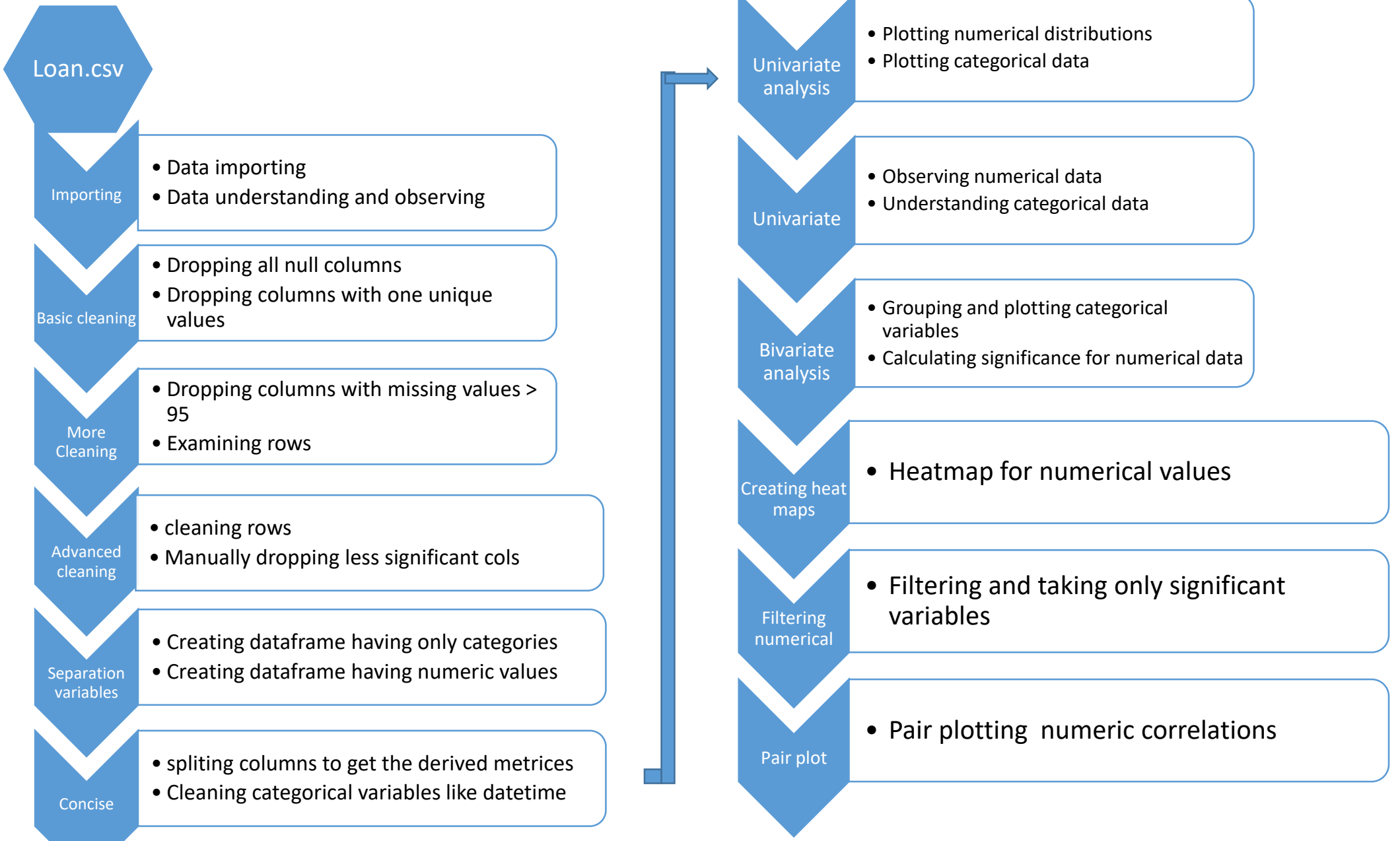
Lending club wants to find out the the company wants to understand the driving factors (or driver variables) behind loan default, i.e. the variables which are strong indicators of default. The company can utilise this knowledge for its portfolio and risk assessment.

Problem Statement

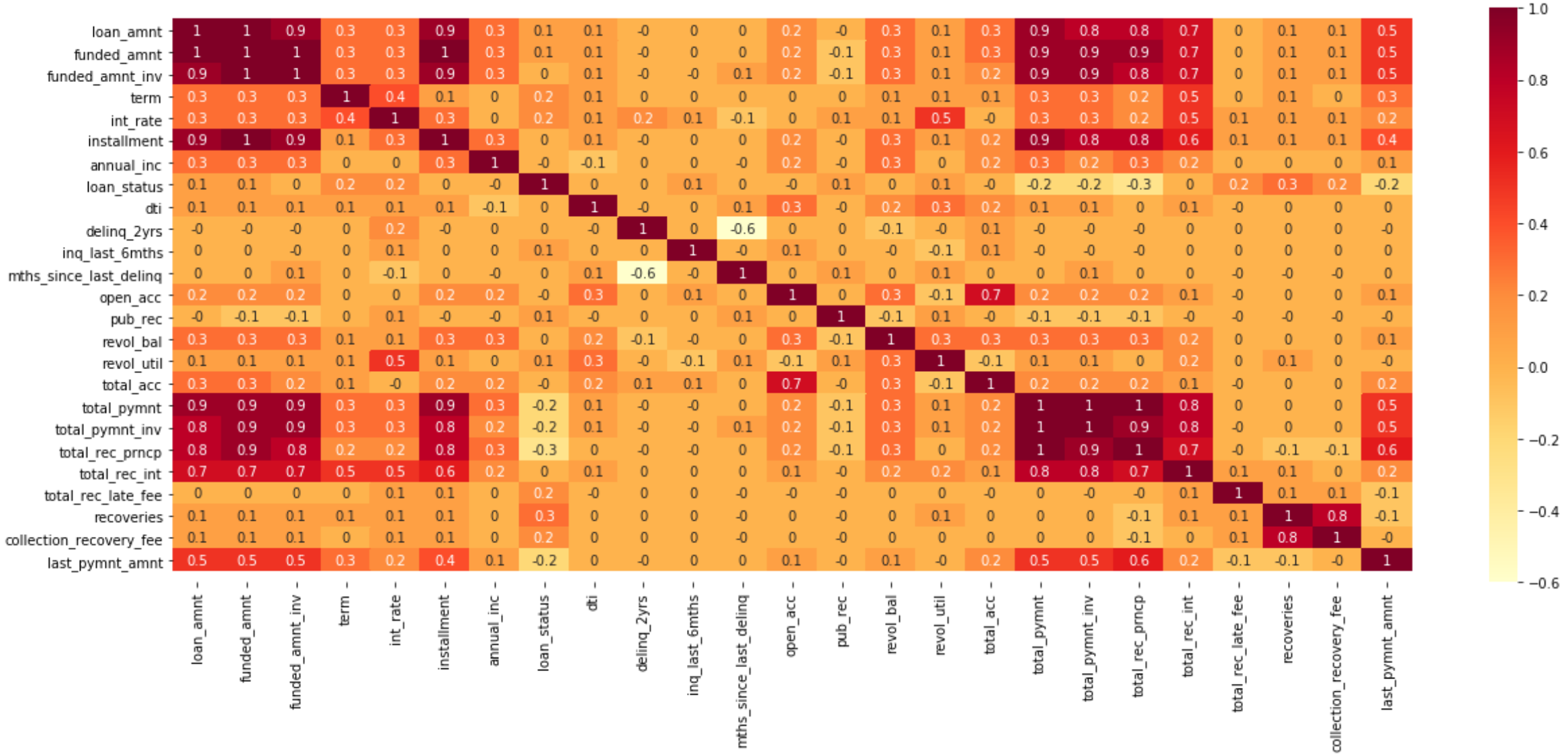
As a data scientist of Lending Club analyze the dataset containing information about past loan applicants using EDA to understand how Consumer attributes and Loan Attributes influence the tendency of default

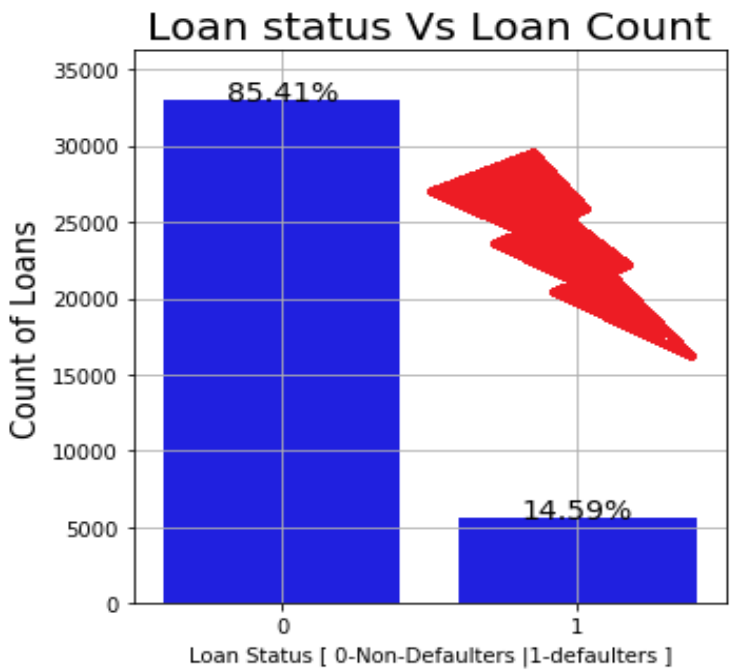


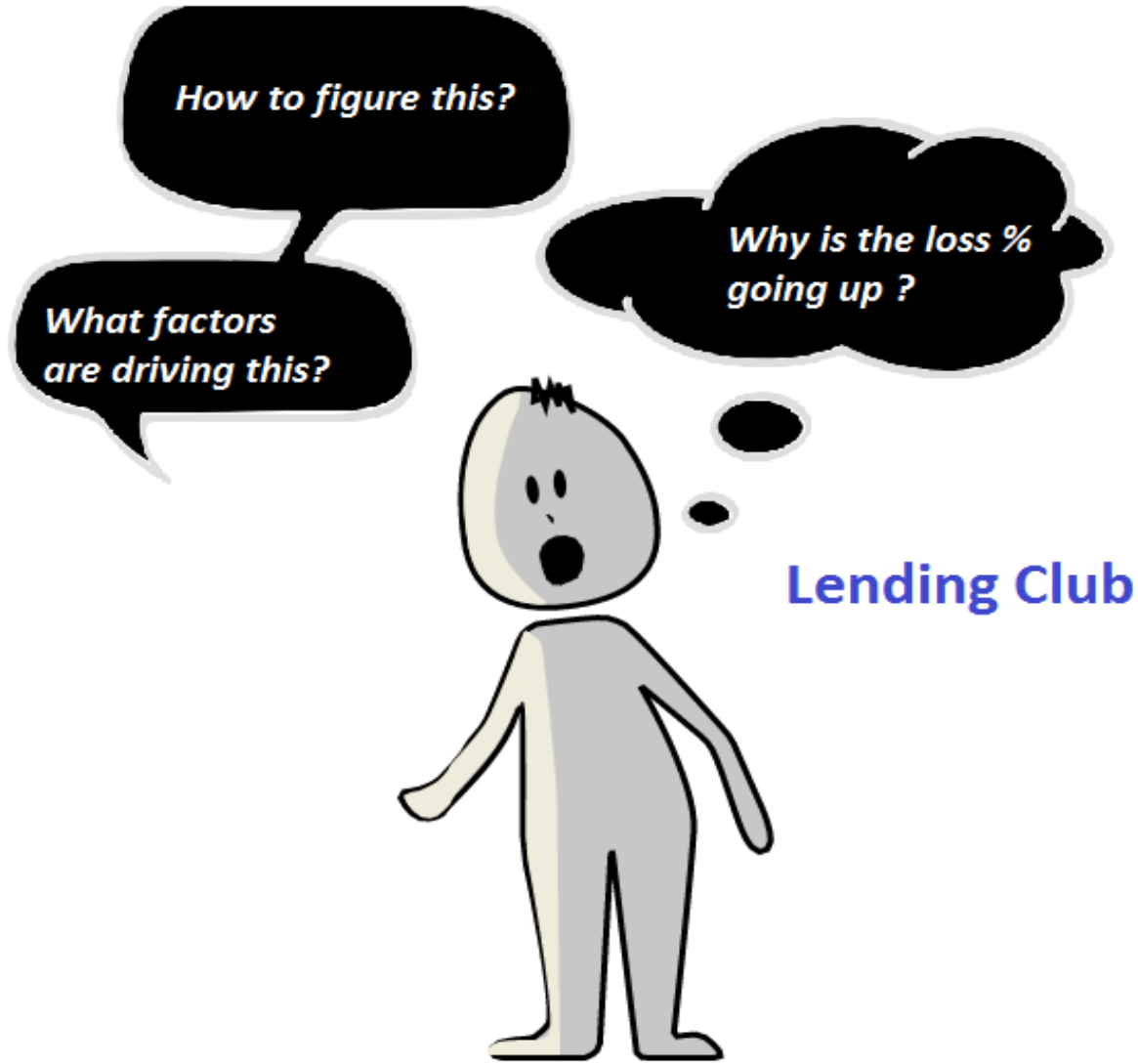
Working Methadology



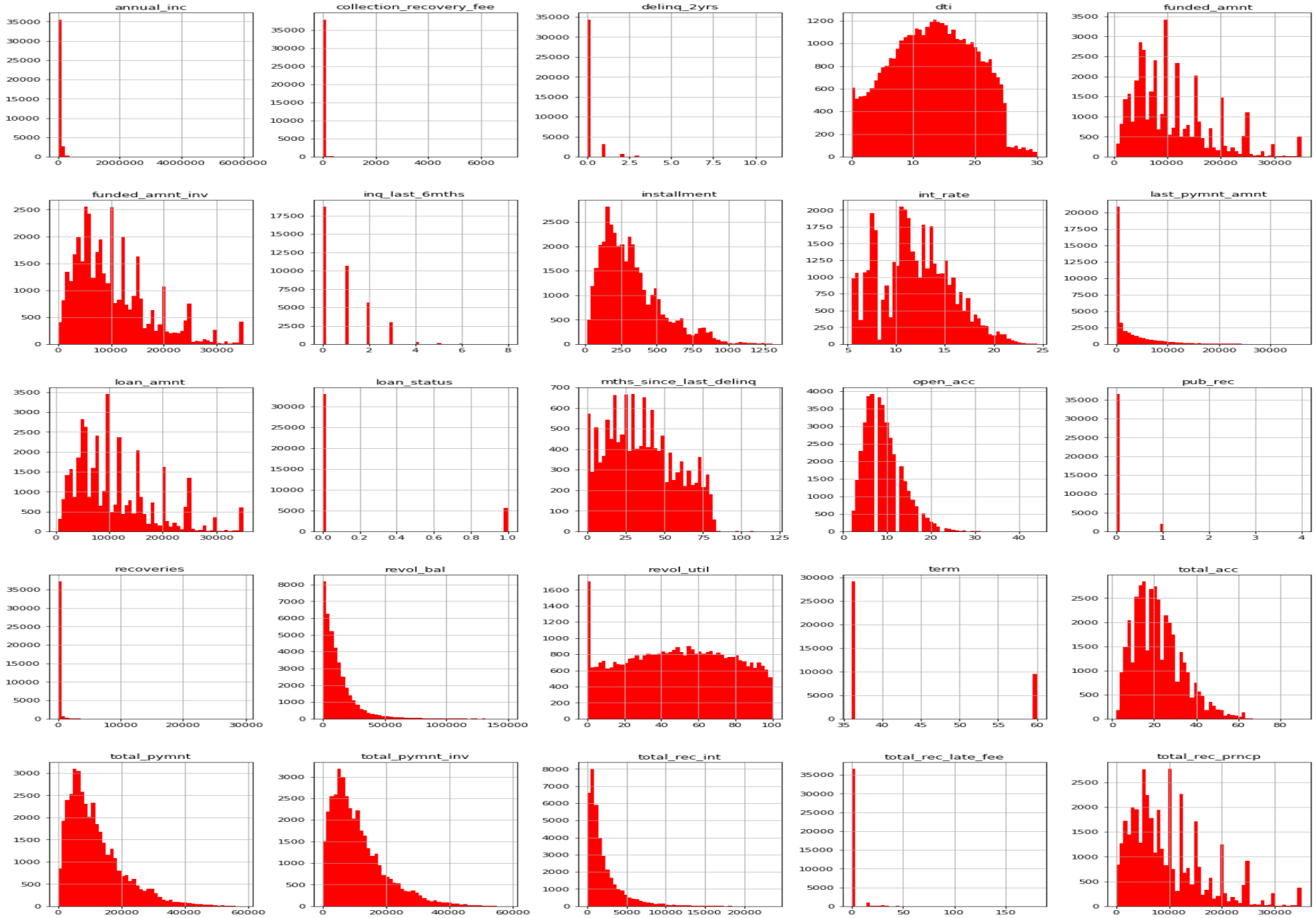
Heat Map For finding The Correlation




Loan status Vs Loan Count
Count of Loans
35000
30000
25000
20000
15000
10000
5000
0
85.41%
14.59%
0
1
Loan Status [0-Non-Defaulters |1-defaulters]

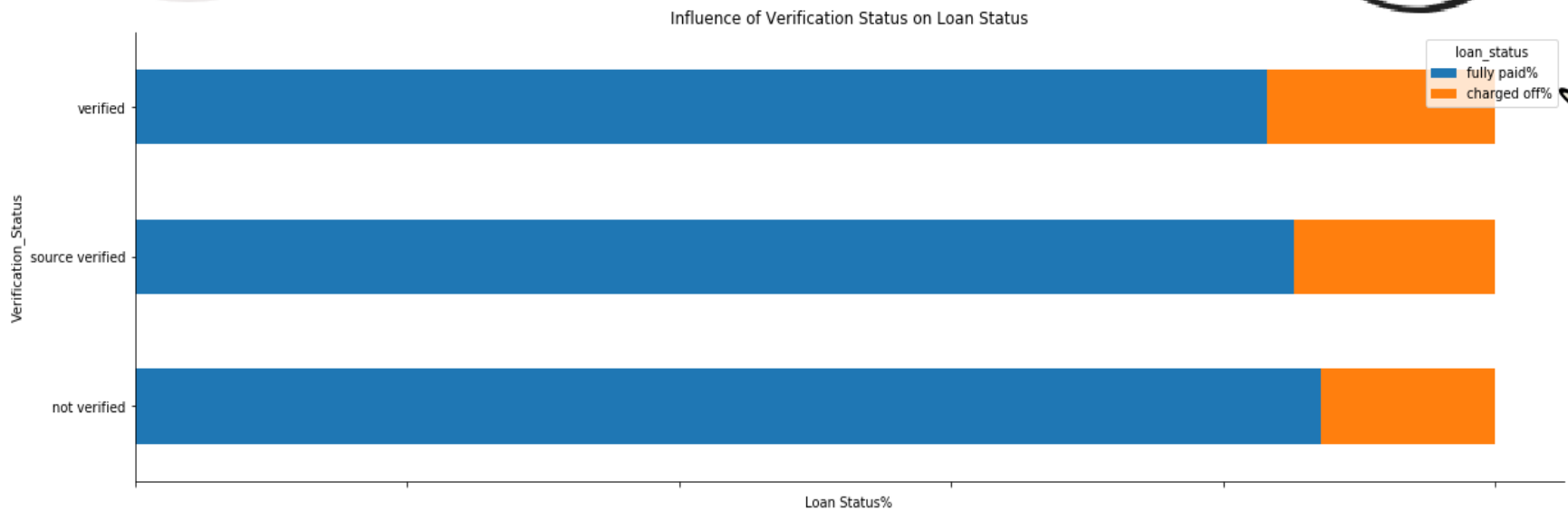

How to figure this?
What factors are driving this?
Why is the loss % going up ?
Lending Club

Loan Status Analysis (loan count versus all numerical variable)

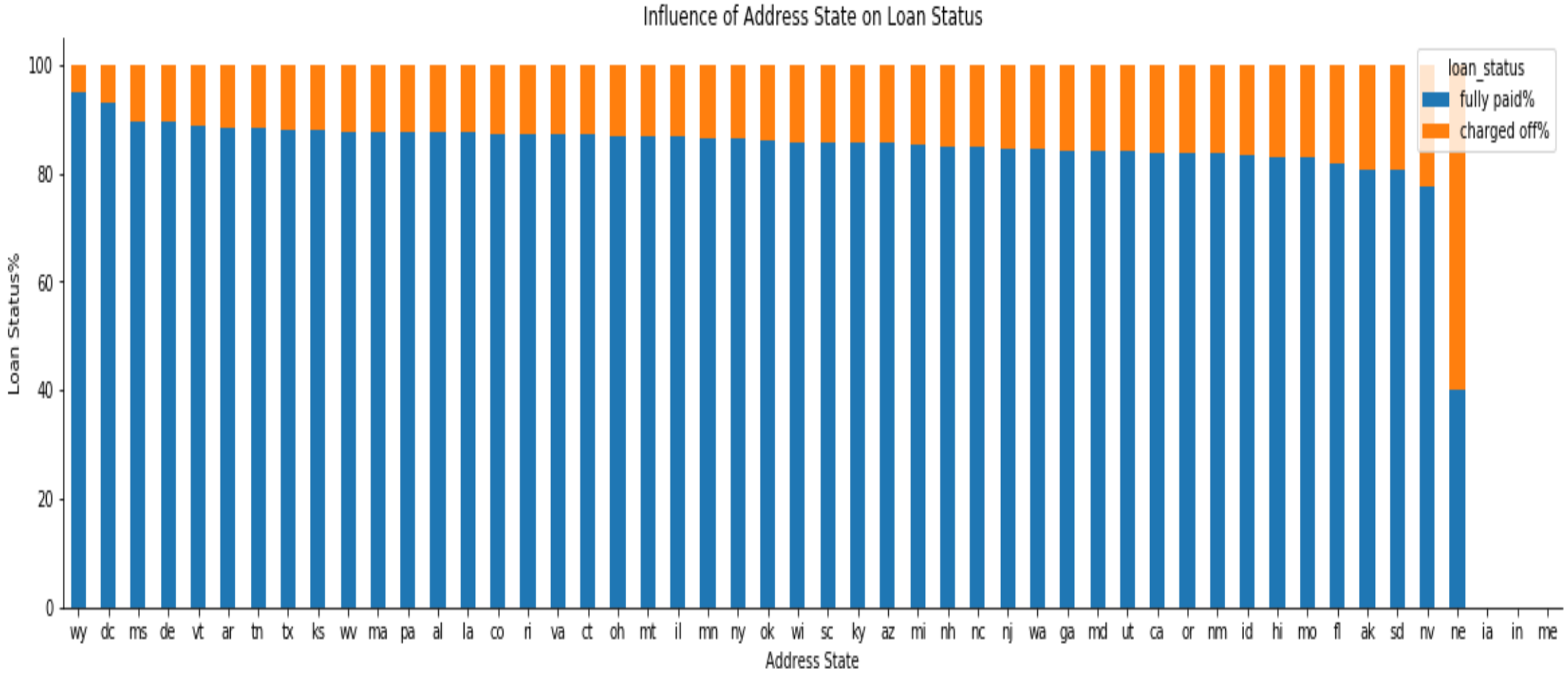


Do you really verify the borrowers?

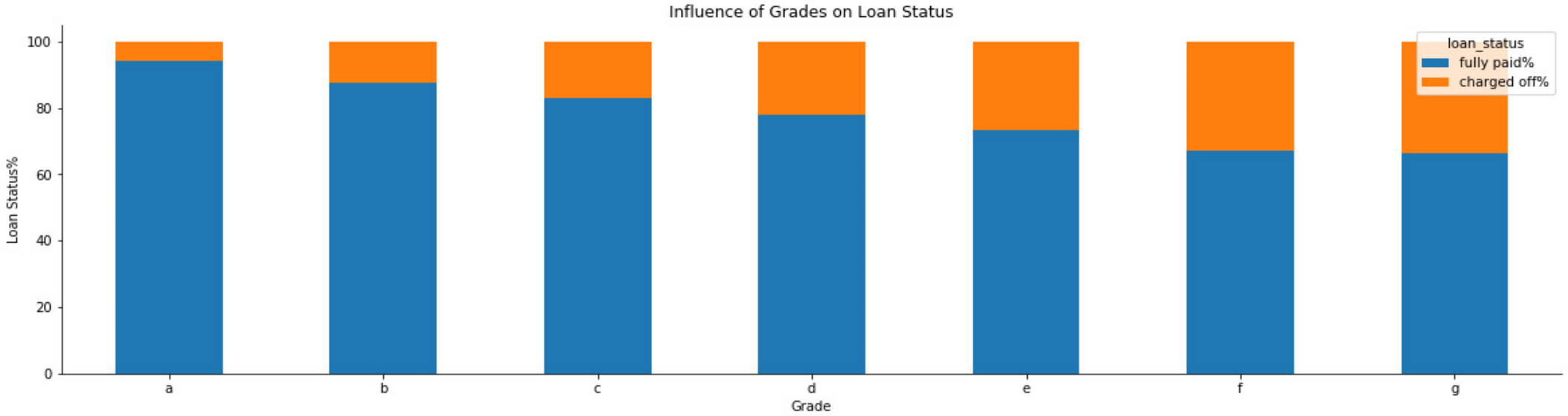
Why do people forget to re-pay while on Vacations ?

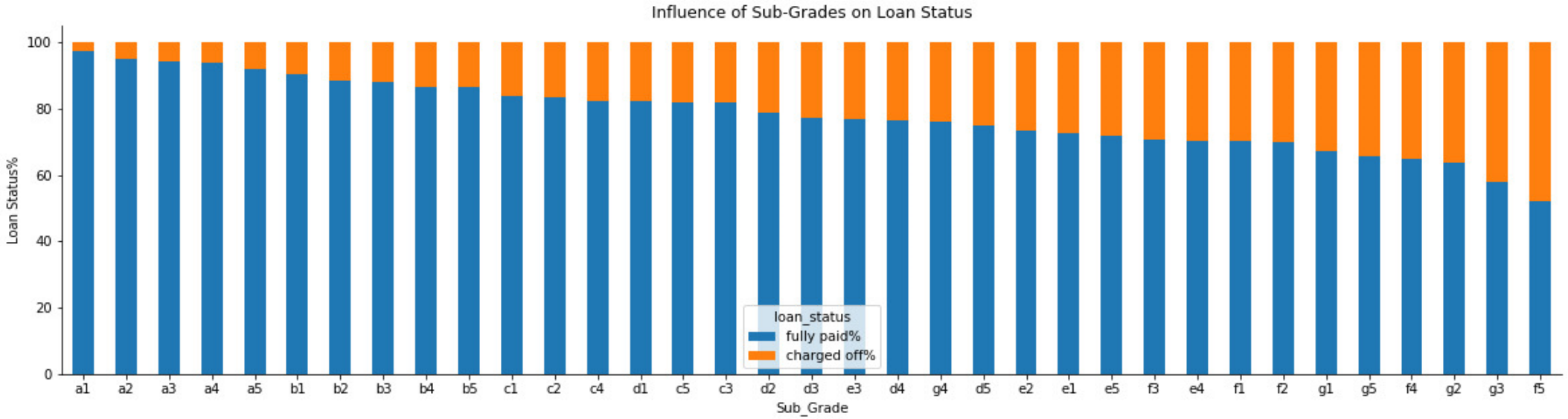


Loan Status Analysis



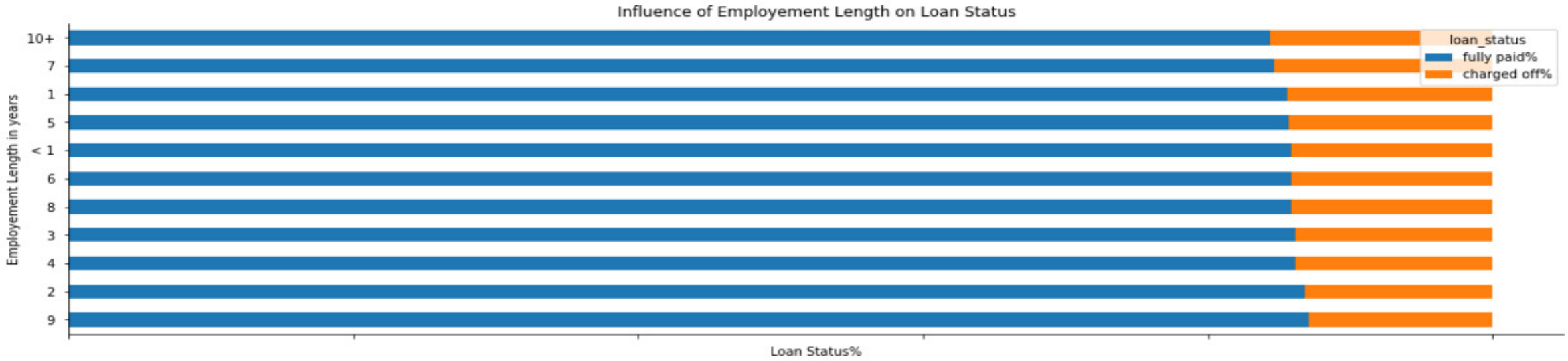
SD,NV and NE has maximum number of defaulters

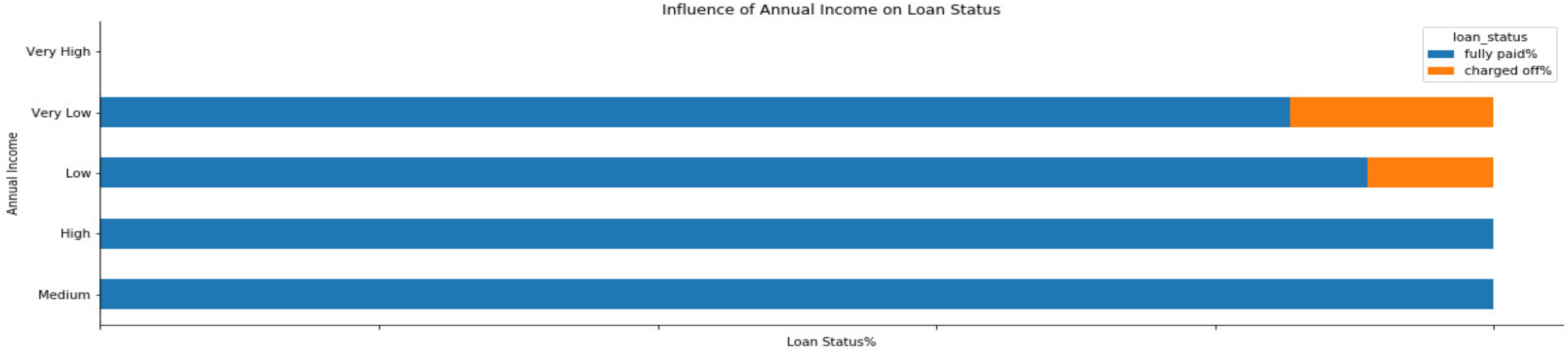




G grade has maximum number of defaulter

Subgrade F5 has maximum number of defaulter

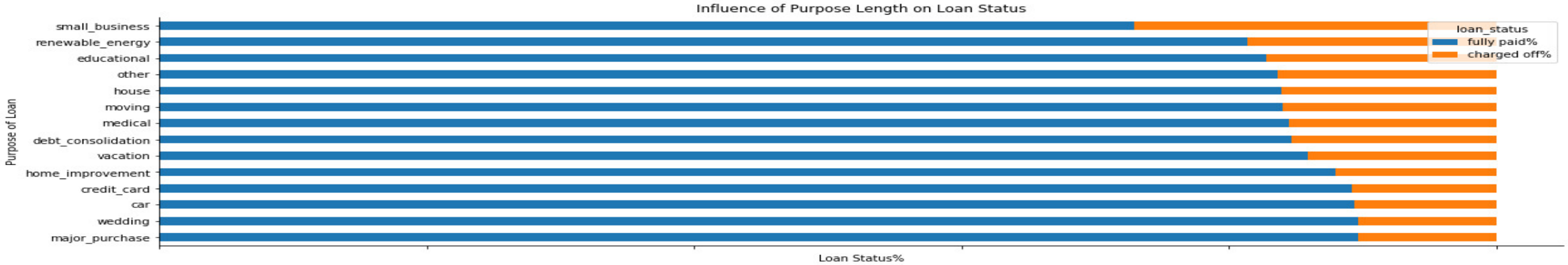


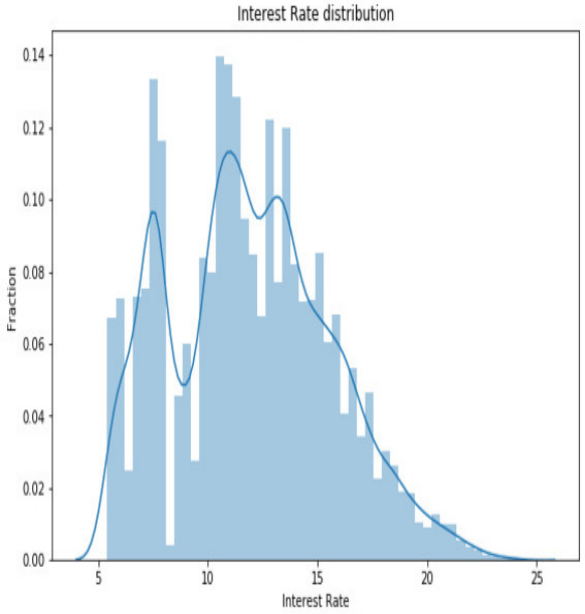


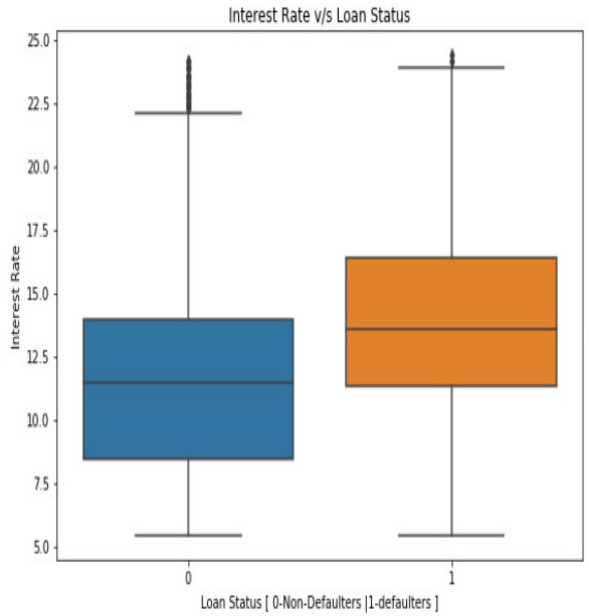
Very Low income comes with more default case

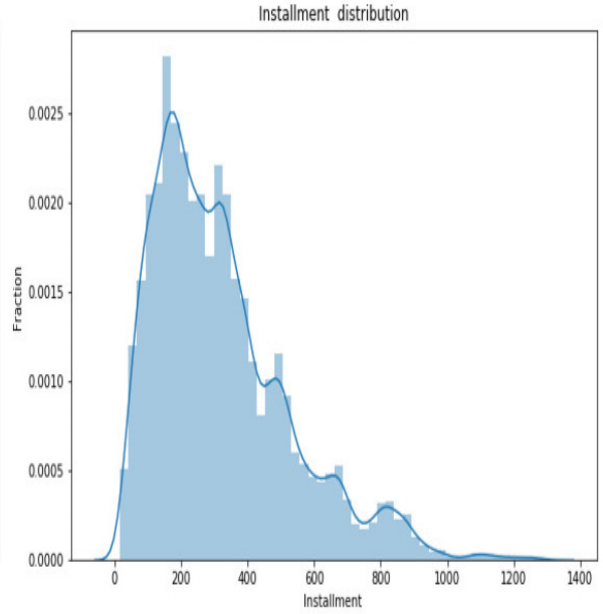
Employee experience doesn't have significant difference

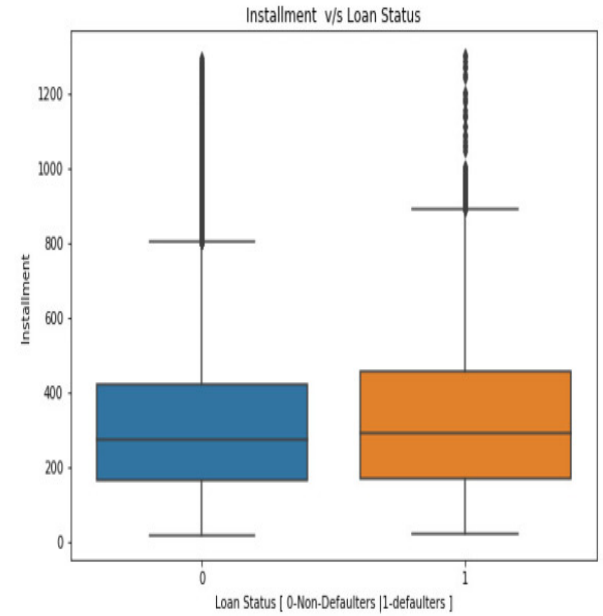
Overall Small business comes with more defaulter , for 60 month loan education loan comes with more defaulter

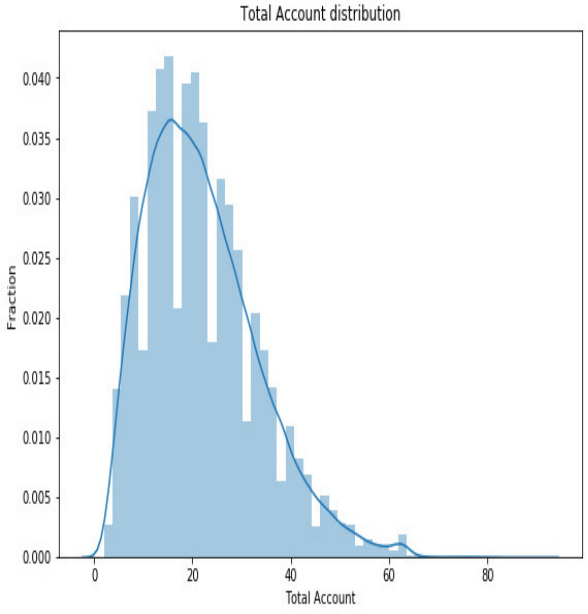


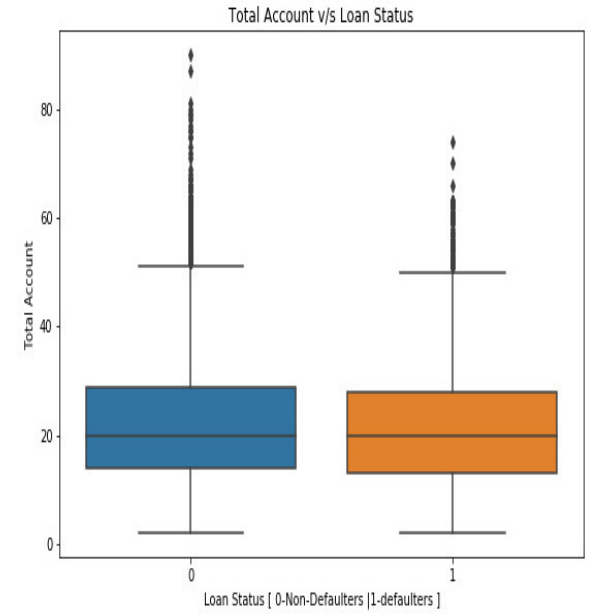

Interest Rate distribution
Fraction
Interest Rate

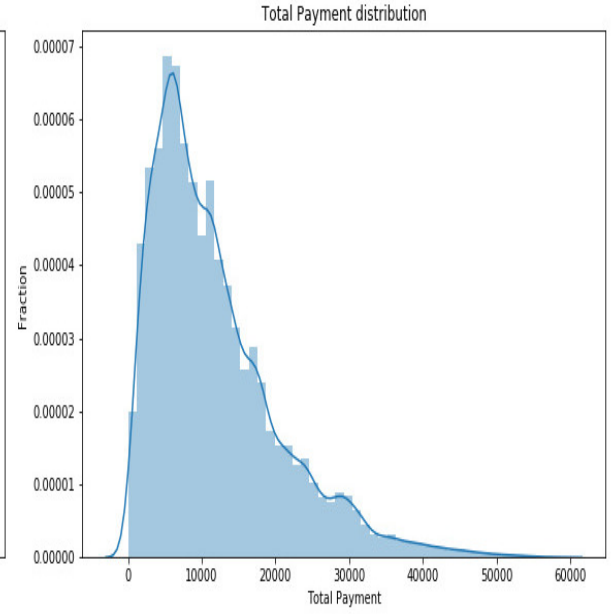

Interest Rate v/s Loan Status
Interest Rate
Loan Status [0-Non-Defaulters |1-defaulters]

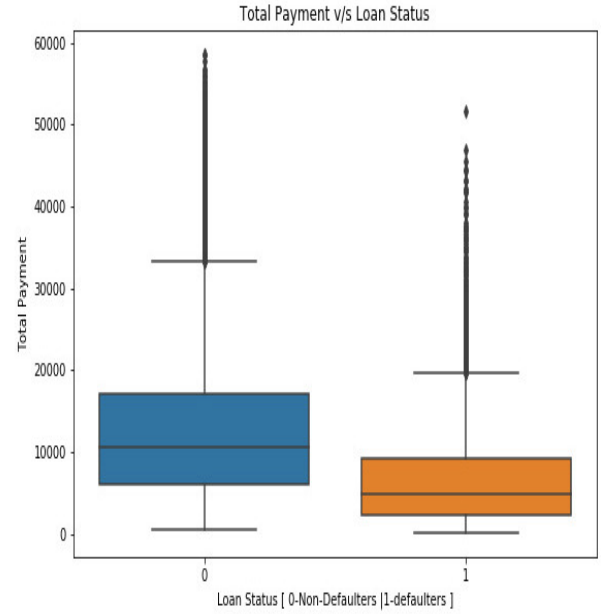

Installment distribution
Fraction
Installment

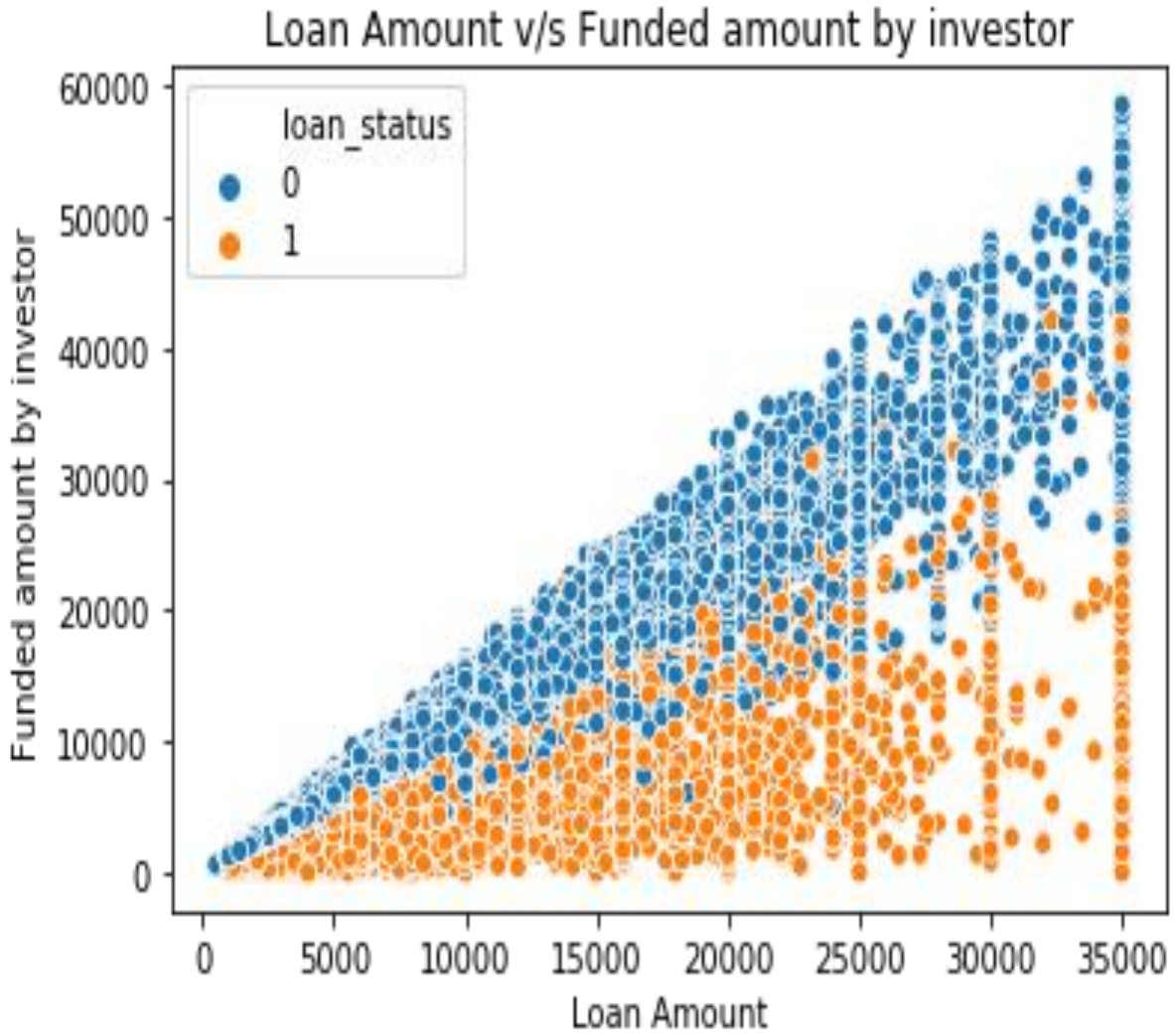

Installment v/s Loan Status
Installment
Loan Status [0-Non-Defaulters |1-defaulters]

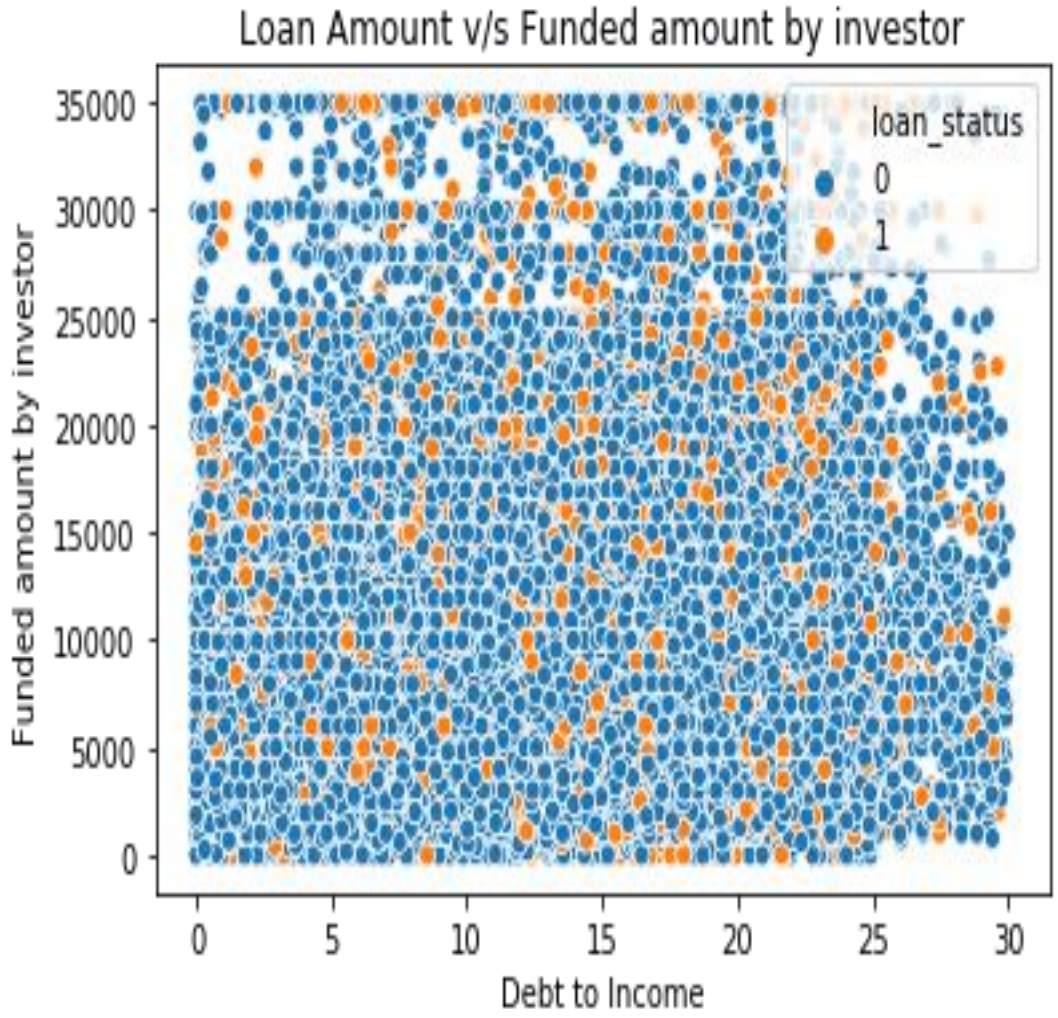

Total Account distribution
Fraction
Total Account

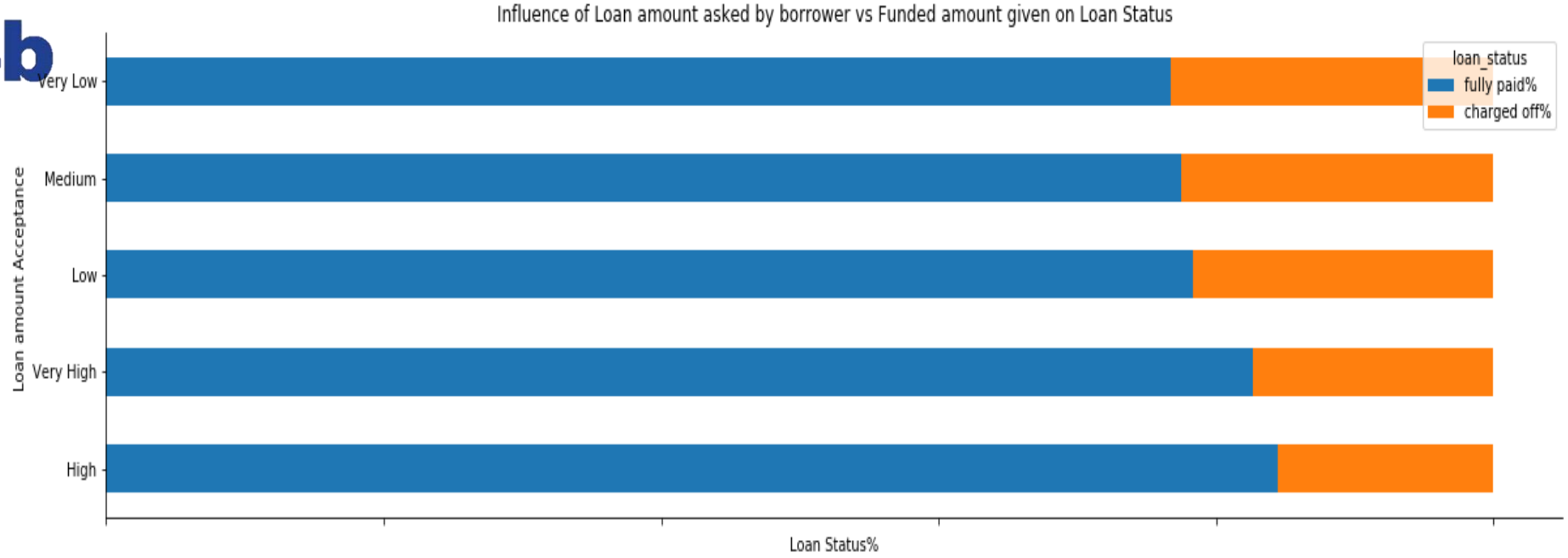

Total Account v/s Loan Status
Total Account
Loan Status [0-Non-Defaulters |1-defaulters]


Total Payment distribution
Fraction
Total Payment


Total Payment v/s Loan Status
Total Payment
Loan Status [0-Non-Defaulters |1-defaulters]

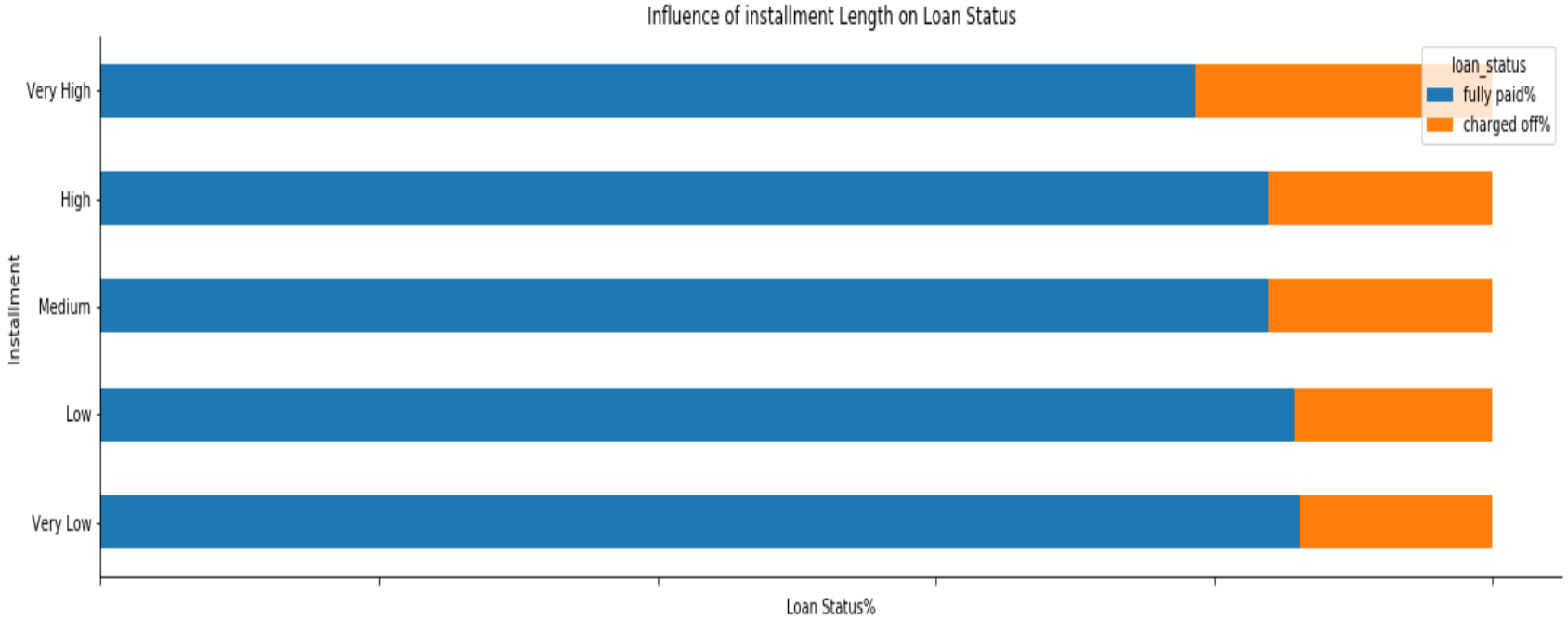

Loan Amount v/s Funded amount by investor
loan_status
0
1
Funded amount by investor
Loan Amount
0
10000
20000
30000
40000
50000
60000
0
5000
10000
15000
20000
25000
30000
35000

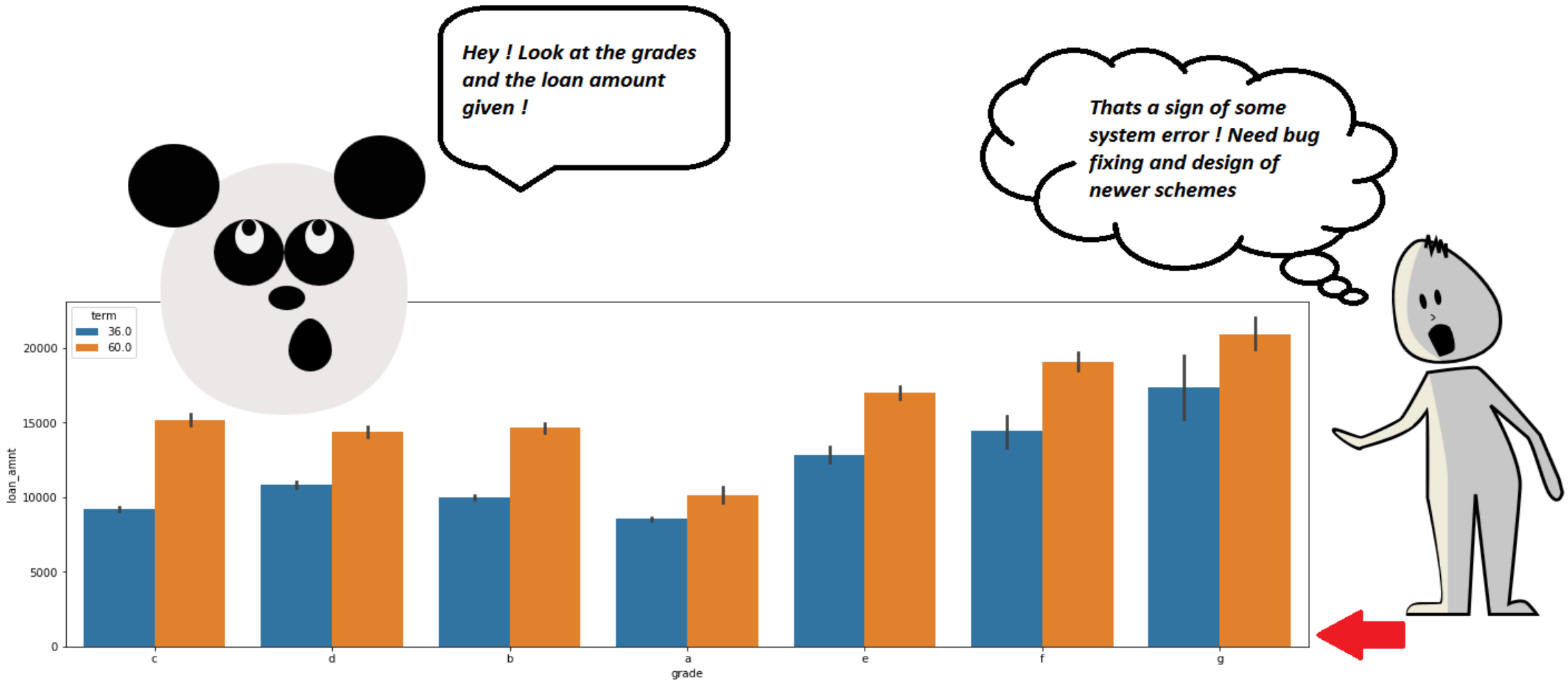

Loan Amount v/s Funded amount by investor
loan_status
0
1
Funded amount by investor
Debt to Income
0
5000
10000
15000
20000
25000
30000
35000
0
5
10
15
20
25
30



Loan amount asked and funded amount ratio impact on loan status

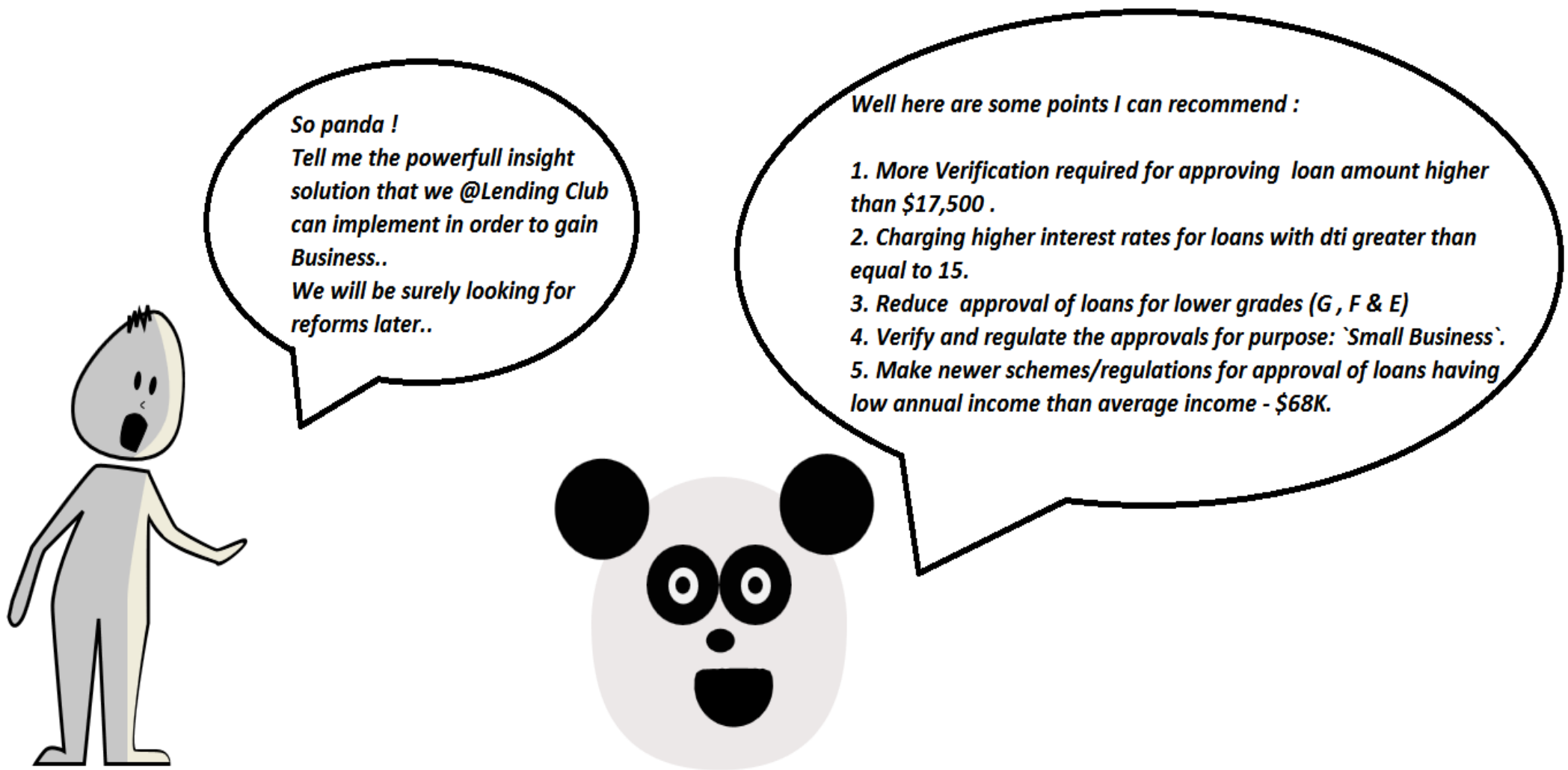
Very high length installment results in higher numbers of defaulting loan




Hey ! Look at the grades and the loan amount given !
Thats a sign of some system error ! Need bug fixing and design of newer schemes
term
36.0
60.0
loan_amnt
20000
15000
10000
5000
0
c
d
b
a
e
f
g
grade

Overall Analysis:

Surprisingly Verification Status : Verified has High number of Defaulters	With 60 month term : purpose with education has the higher defaulters
Grade 'G' has higher defaulters	Interest Rate has good impact on defaulters ; Higher the interest rate higher the defaulters
Subgrade 'F5' has higher defaulters	Debt to income havng average 15 dti has higher counts of defaulters
Borrowers taking loan on month on July defaults high	Higher installment has more defaulters
Home ownership : 'Other has slight higher impact on Default rate	With higher loan amount the funded amount by investor is dropping down
Employement length : 7 years and 10+ years shows higher number of defaulters	Medium and Very low acceptance percentage has higher count of defaulters
Term '60 months' has higher defaulters	Installment > 217.53 has higher defaulters
Small business have higher defaulters	Very low income (less than 1000000.0) has higher number of defaulters
With 36 month term : purpose with small business has the higher defaulters	House ownership : Other has higher defaults for term 36 months


So panda !
Tell me the powerfull insight solution that we @Lending Club can implement in order to gain Business..
We will be surely looking for reforms later..
Well here are some points I can recommend :
1. More Verification required for approving loan amount higher than $17,500 .
2. Charging higher interest rates for loans with dti greater than equal to 15.
3. Reduce approval of loans for lower grades (G , F & E)
4. Verify and regulate the approvals for purpose: `Small Business`.
5. Make newer schemes/regulations for approval of loans having low annual income than average income - $68K.