


# LENDING CLUB CASE STUDY

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**"A SMALL LOAN MAKES A  
DEBT ; A GREAT ONE MAKES  
AN ENEMY"**

*- PUBLILIUS SYRUS*



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## PROBLEM STATEMENT AND APPROACH

This describes the problem statement for the case study and the data driven approach.

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## UNIVARIATE ANALYSIS

This describes the unique character of every individual feature.

3

## BI-VARIATE ANALYSIS

This describes the behavior or influence of one feature over another.

4

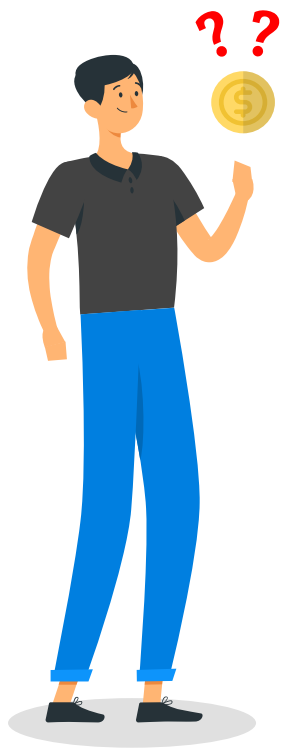
## MULTI VARIATE ANALYSIS

This describes the behavior or influence of one feature over several others.

5

## CONCLUSION

This part describes the inference of the analysis with conclusion and recommendation.



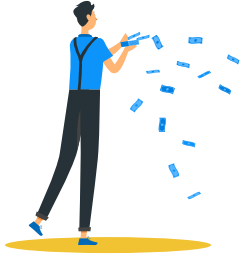
1

## PROBLEM STATEMENT AND APPROACH.



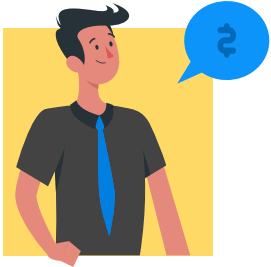


# PROBLEM STATEMENT



## HISTORY

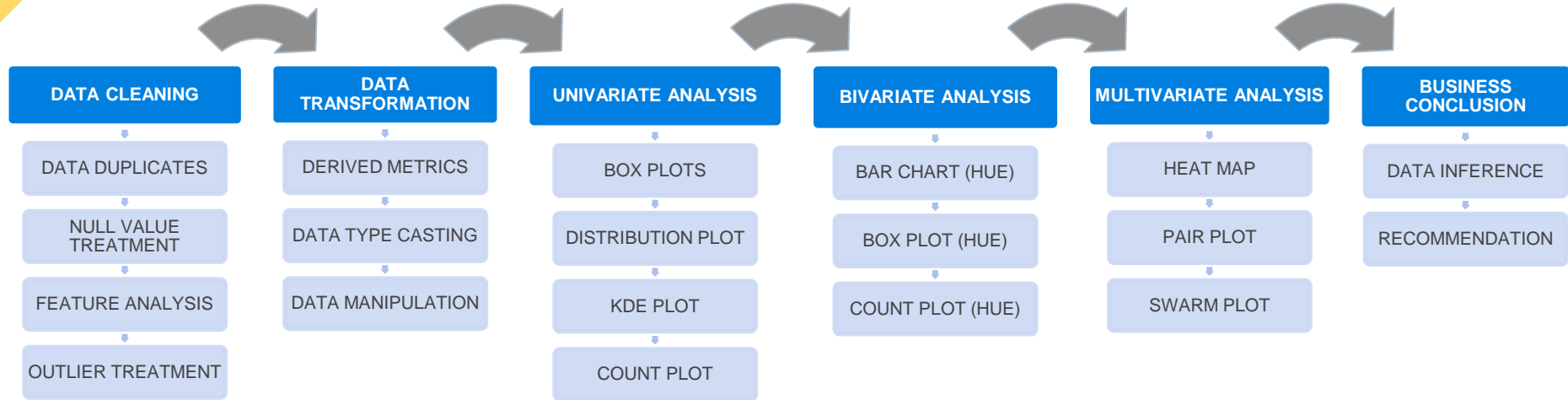
Lending club provided interest-only loans affordable to subprime borrowers is one of the main causes for 2008 Global Financial Crisis.



## STATEMENT

Lending a loan is risky decision that a company takes and the borrowers who default cause the largest amount of loss to the lenders, reduces lender's cash flow. Identifying those risky applicants helps in cutting down the amount of credit loss to the organization.

# APPROACH

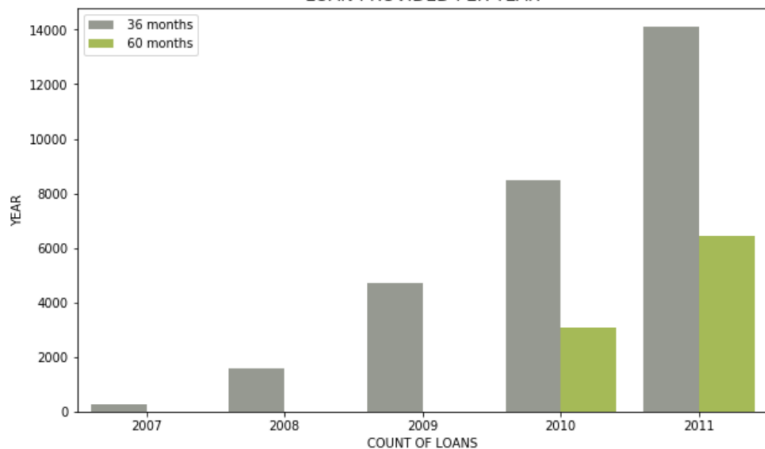


# 2

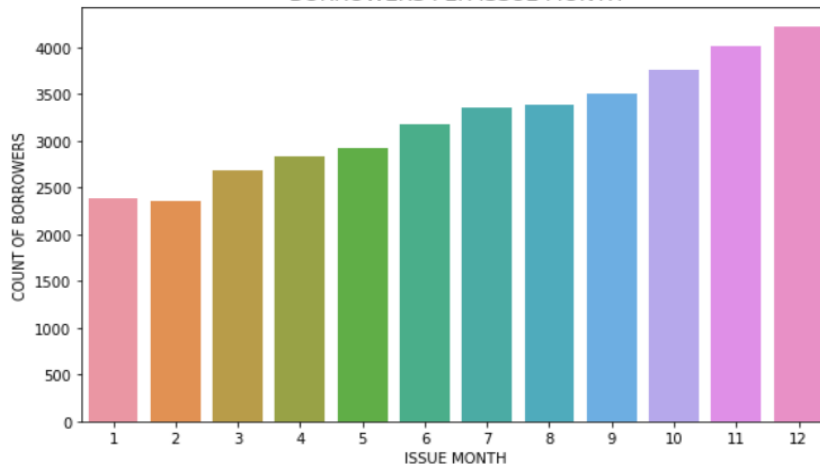
## UNIVARIATE ANALYSIS



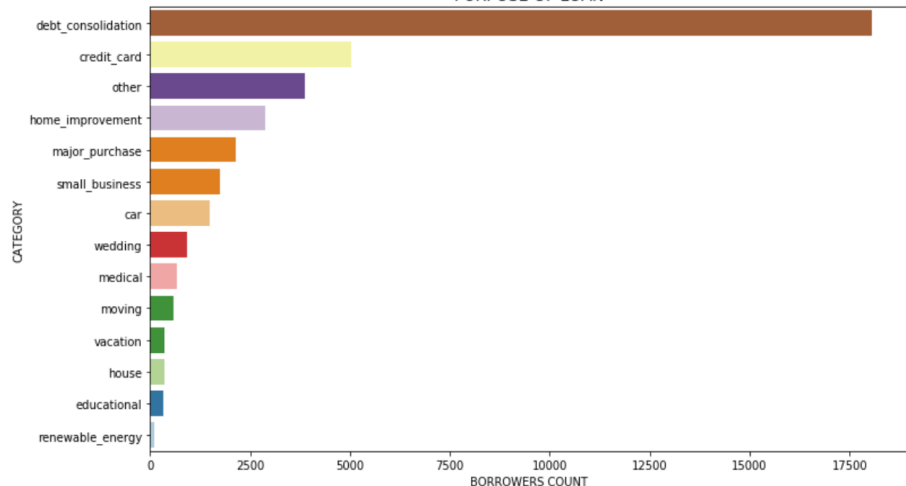
LOAN PROVIDED PER YEAR



BORROWERS PER ISSUE MONTH



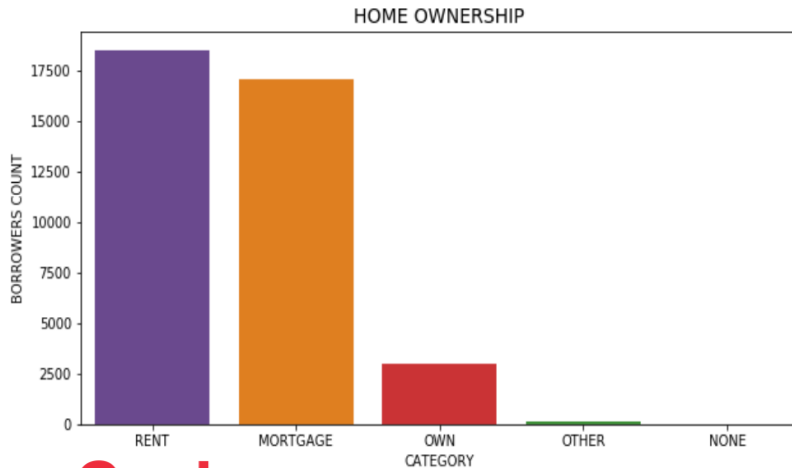
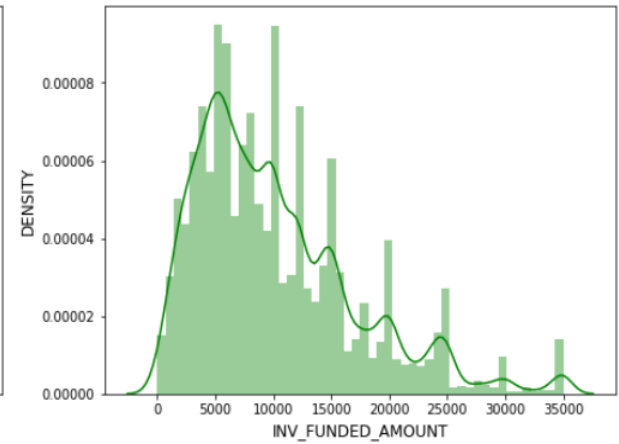
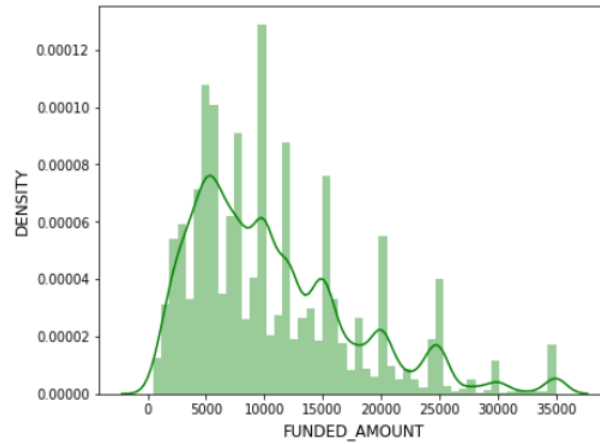
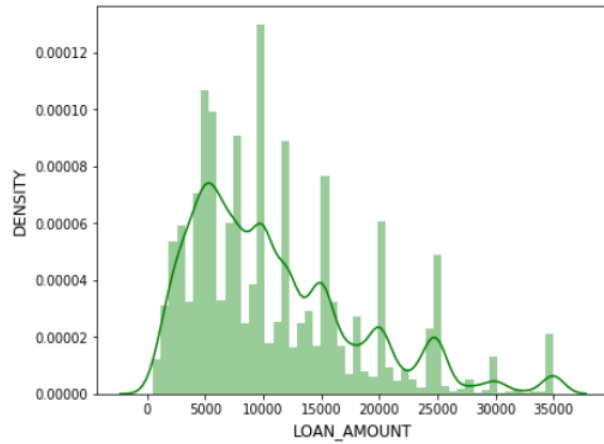
PURPOSE OF LOAN



## INFERENCE :

- For each year number of borrowers keeps on increasing and they opt for 36 months tenure.
- Loans approved on Q4 are more likely to default.
- Most of the borrowings happens for debt consolidation and credit card bill payment.

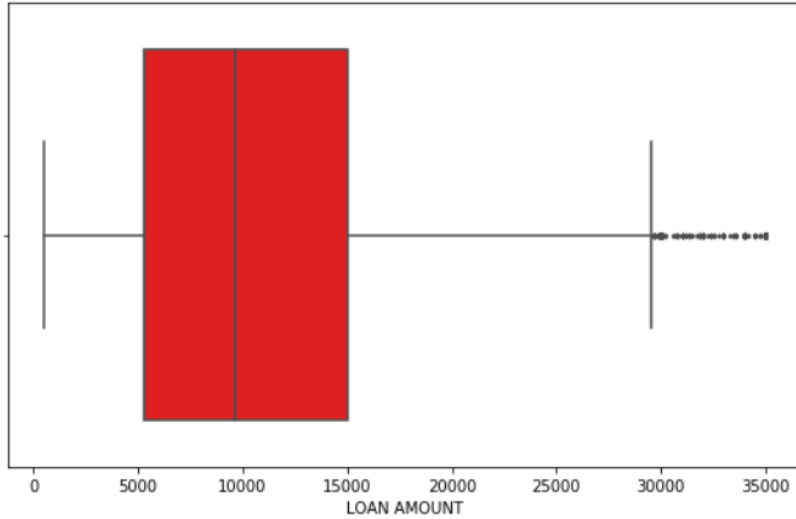




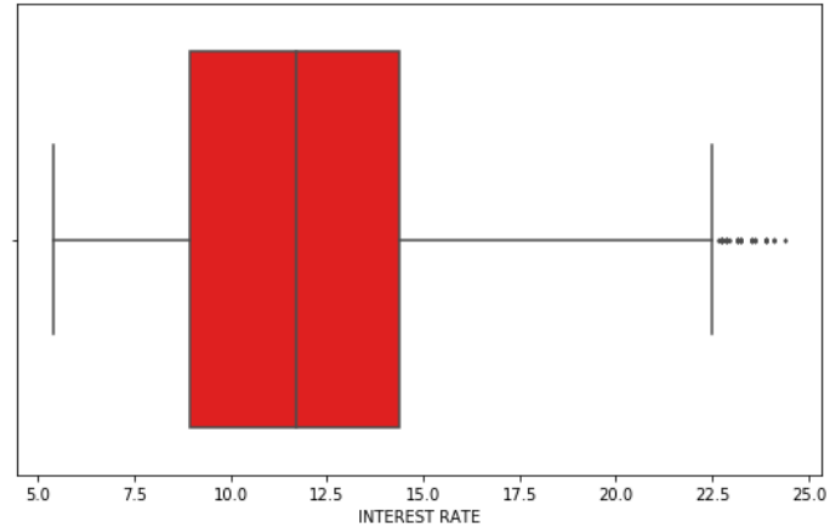
## INFERENCE :

- Density distribution for all the three features are similar.
- Based on nature further analysis can be done on 'loan\_amnt'.
- Proportion of borrowers who owns a house is significantly less.

FIVE NUMBER SUMMARY



FIVE NUMBER SUMMARY



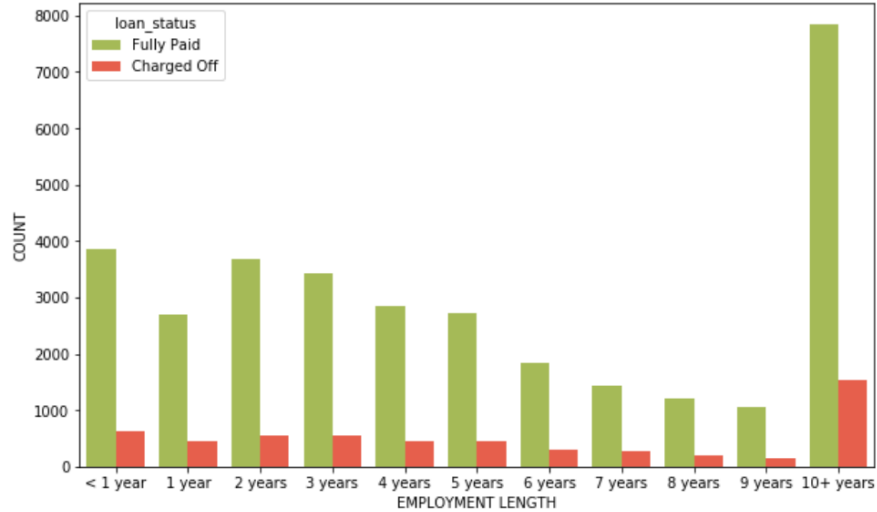
### INFERENCE :

- Most of the borrowers prefer to get loan amount between 5000 to 15000.
- Almost of the borrowers gets interest rate between 9% to 14%.

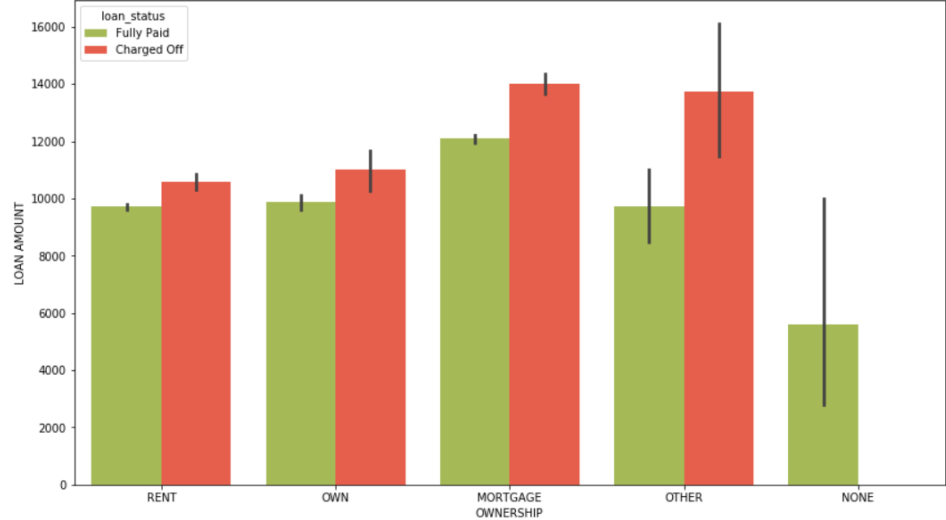


# BI-VARIATE ANALYSIS 3

EMPLOYMENT LENGTH VS LOAN STATUS

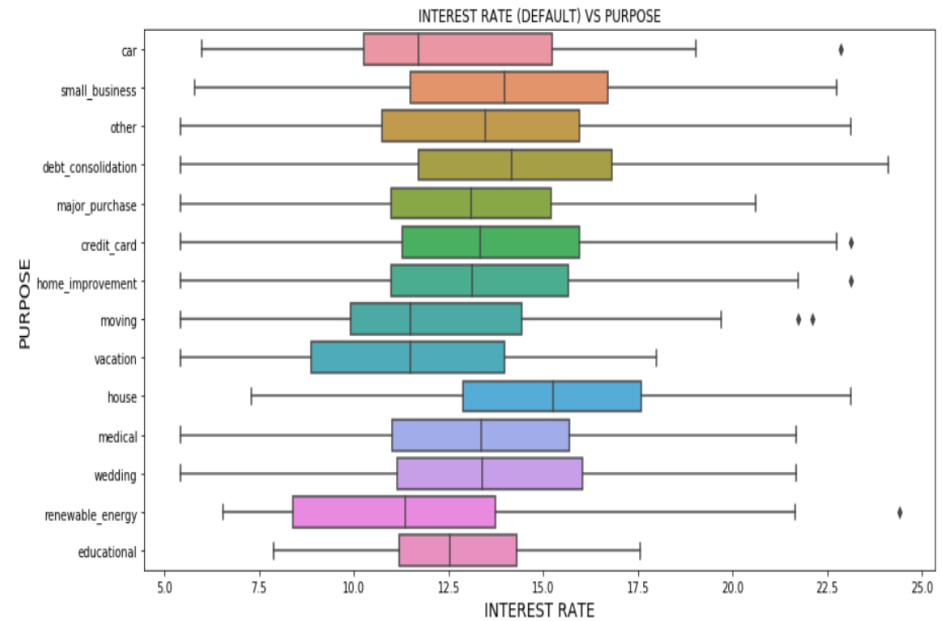
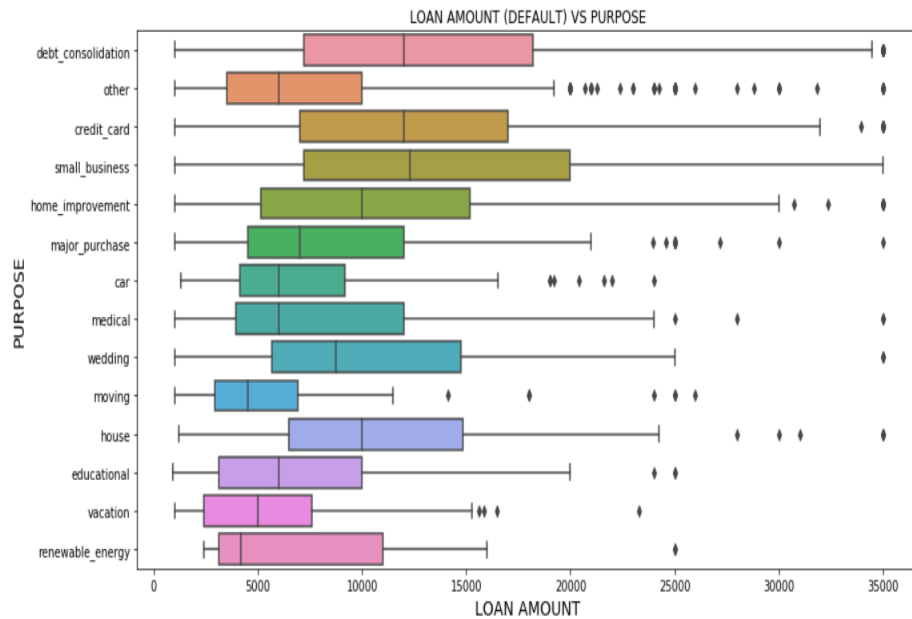


LOAN AMOUNT VS HOME OWNERSHIP



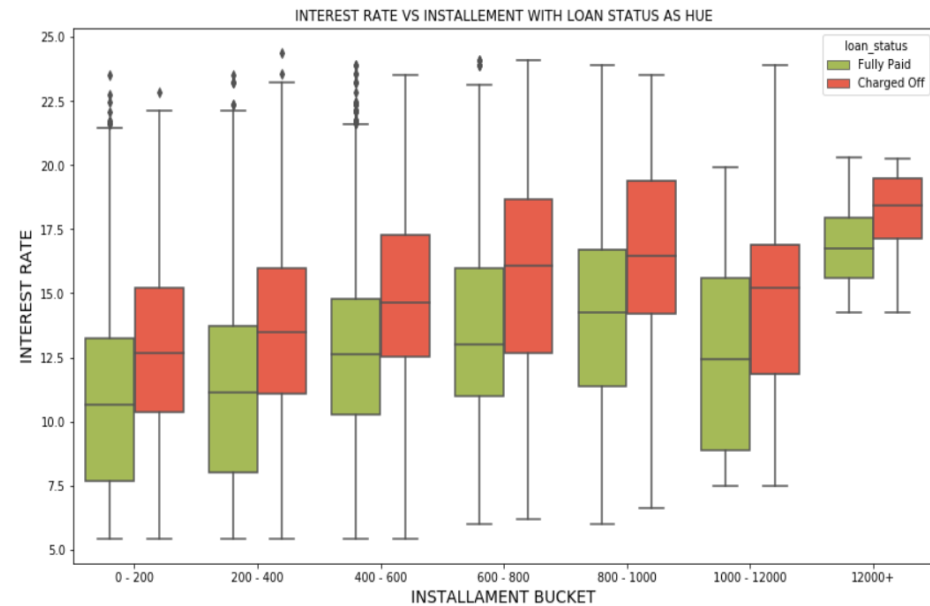
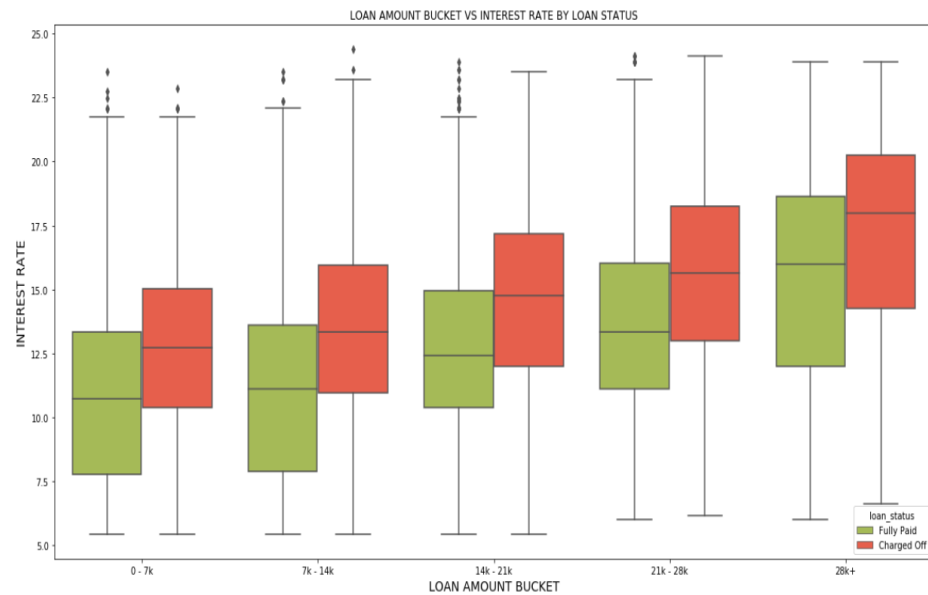
## INFERENCE :

- Borrowers with 10+ years of employment length are more likely to charge off.
- Borrowers living on mortgage with loan amount greater than 12k are likely to charge off.



## INFERENCE :

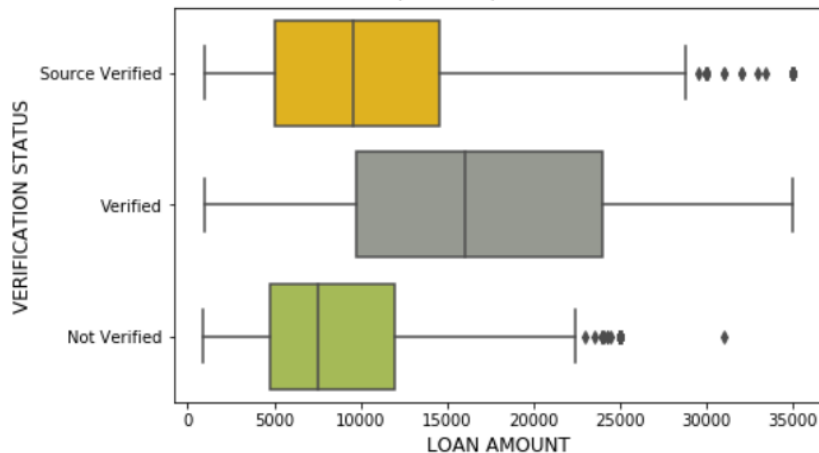
- Loan for debt consolidation, credit card, small business with average loan amount greater than 12000 are more likely to default.
- Loan provided for house, debt consolidation, small business with highest interest rate are more likely to charge off.



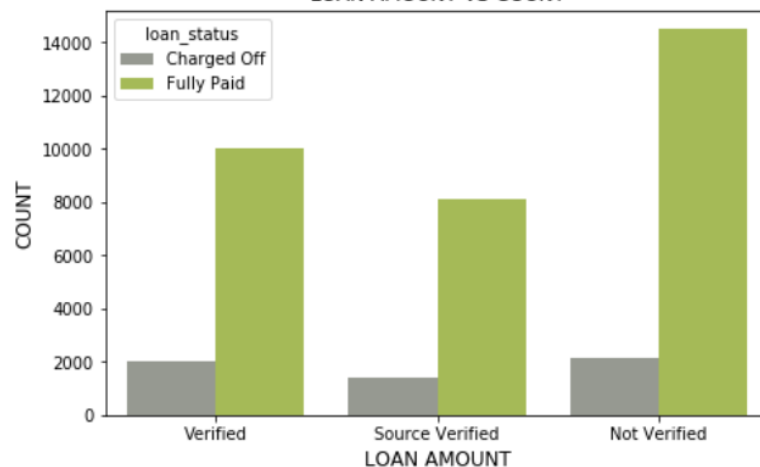
## INFERENCE :

- Loan with highest interest rate in all buckets are more likely to charge off.
- As the number of installment increase the borrowers with high interest rate are more likely to charge off.

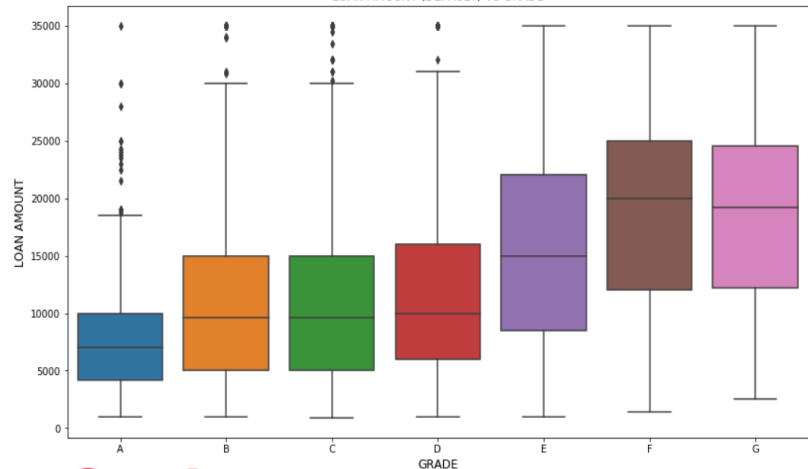
LOAN AMOUNT (DEFAULT) VS VERIFICATION STATUS



LOAN AMOUNT VS COUNT

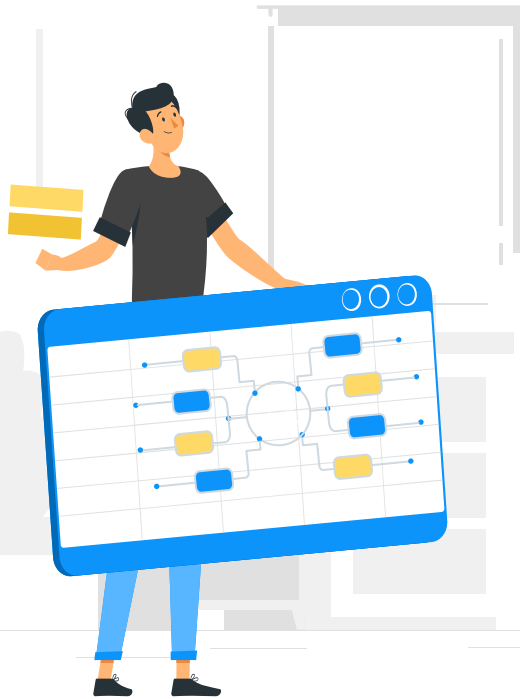


LOAN AMOUNT (DEFAULT) VS GRADE



## INFERENCE :

- Borrowers with verification status "not-verified" has loan amount with 5k to 12.5k are more likely to charge off.
- Borrowers with verification status "not-verified" and "verified" has an equal proportion in charge off.
- Borrower within grade E,F,G and with average loan amount greater than 15000 are more likely to charge off.



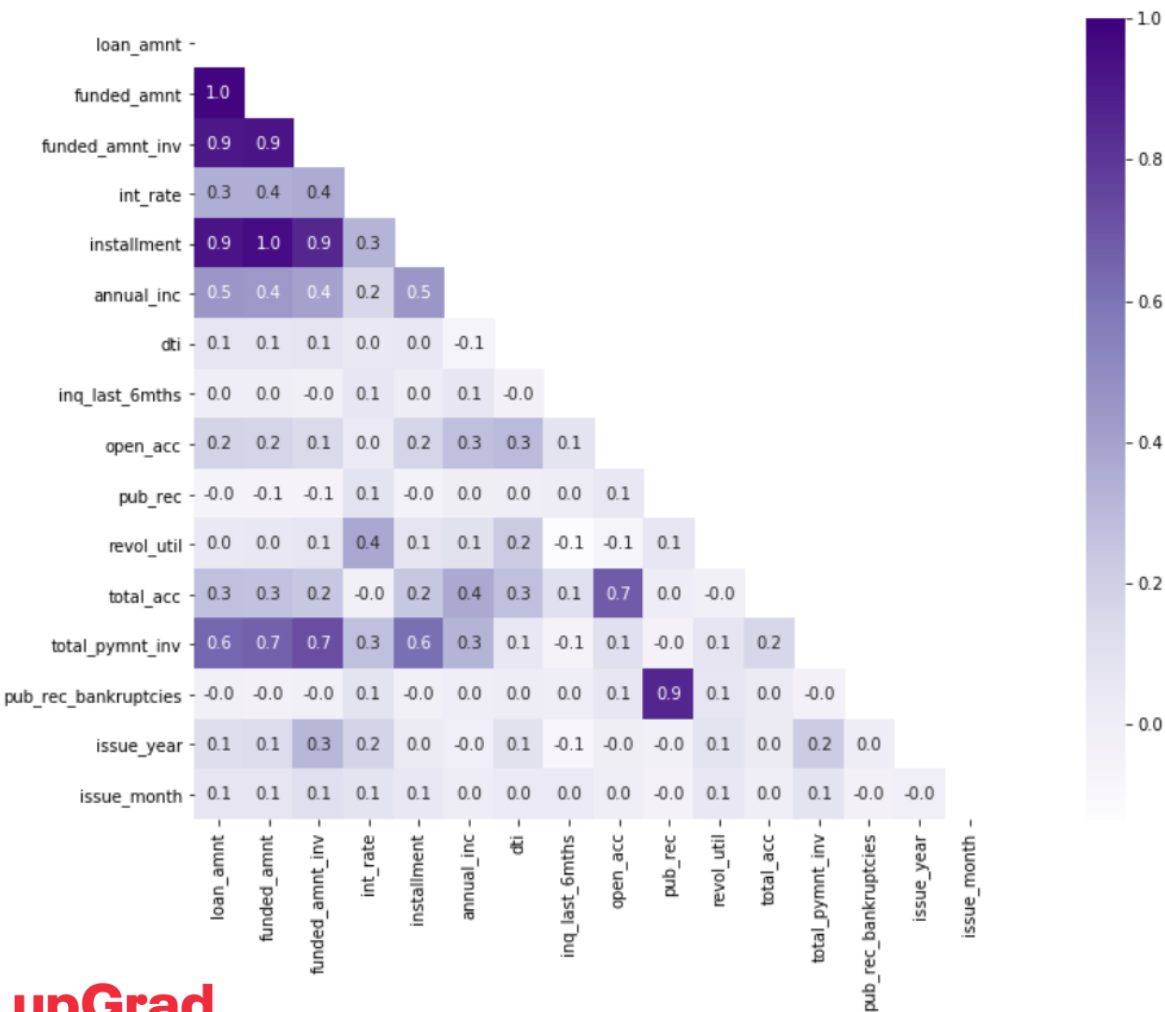
# 4 MULTIVARIATE ANALYSIS



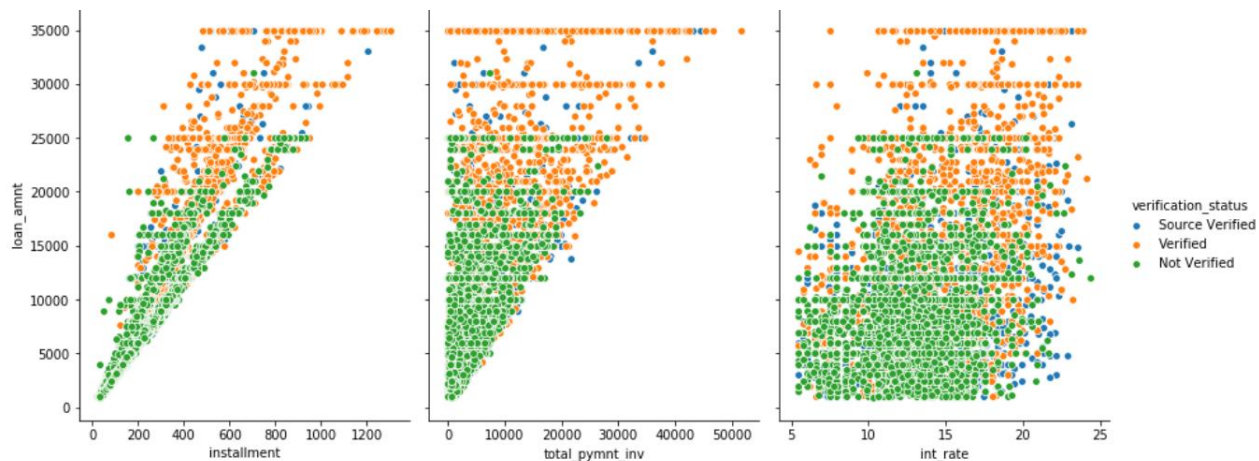
## HEAT MAP

### INFERENCE :

- loan\_amnt has strong positive correlation with installment, total\_payment\_inv.
- loan\_amnt has intermediate positive correlation with annual\_inc, int\_rate, total\_acc.
- open\_acc has strong positive correlation with total\_acc.
- pub\_rec has strong positive correlation with pub\_rec\_bankruptcies.

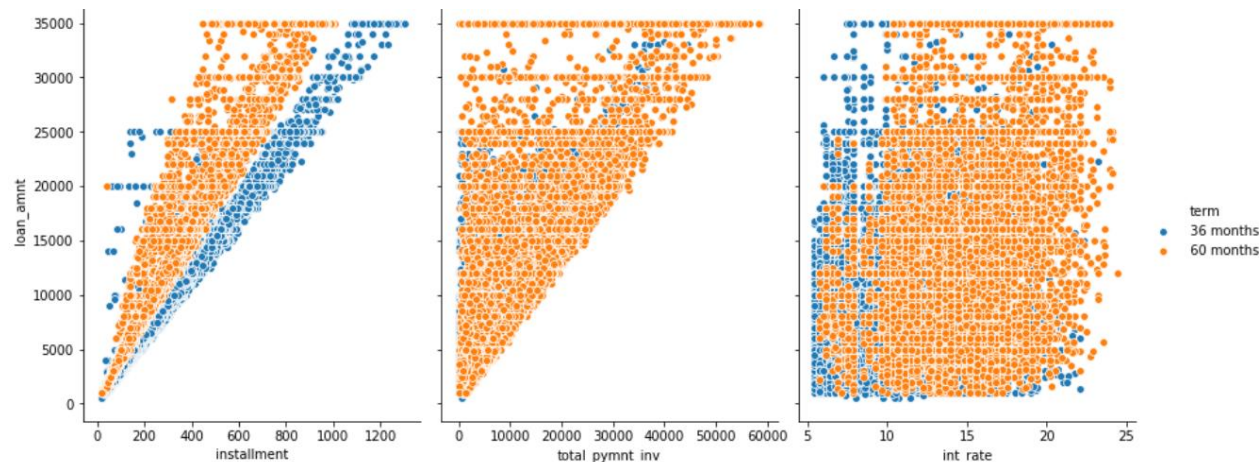


## PAIR PLOT



## INFERENCE :

- When the loan amount increases, number of installment, total\_pymnt\_inv, int\_rate also increases.
- Borrowers with verification status "Not-Verified" are most likely to get loan less than 25k (Charge off).
- Borrowers with verification status "Verified" are most likely to get loan greater than 25k (Charge off).
- Borrowers with lower term has higher installments comparatively.
- Borrowers with 60 months term has highest share to total\_pymnt\_inv.



# 5 CONCLUSION

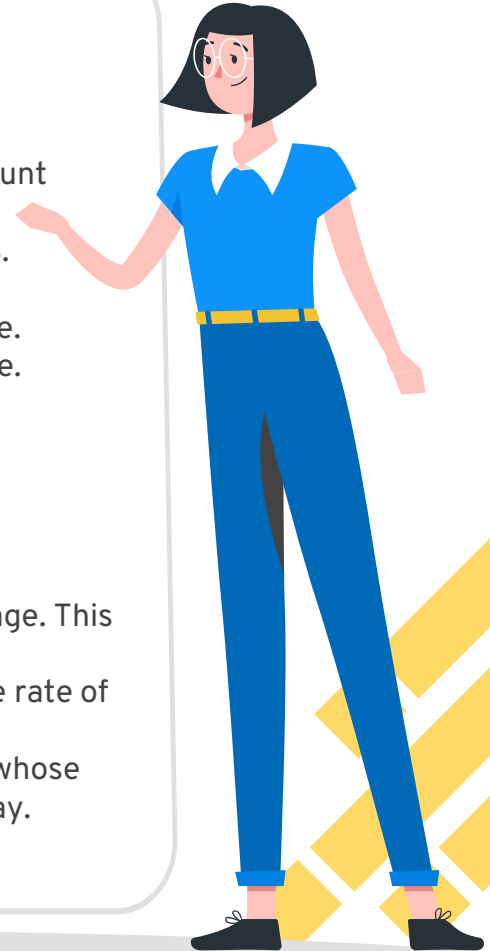


## CONCLUSION

- Borrowers with high interest and 10+ years of employment length.
- Borrowers living on mortgage with loan amount greater than 12000.
- Loan for debt consolidation, credit card, small business with loan amount greater than 12000.
- For any loan amount provided with an average interest rate higher than 13%.
- Loan provided for house purpose with average interest greater than 15%.
- Loan provided with an average of 12.5% interest rate for 36months of tenure.
- Loan provided with an average of 16.5% interest rate for 60months of tenure.
- Average loan amount greater than 15000 with grade E, F, G.
- Installments between 800 - 12000 with average interest greater than 15%.
- Average interest rate of 17% with installment greater than 12000.

## RECOMMENDATION

- Limit the loan amount to 12000 for applicants with ownership of mortgage. This also show financial status of a risky applicant.
- To encourage small business but also keep the investors less risked. The rate of interest for applicants for small business can be reduced around 2%
- Increase the rate of interest by 0.5% to the loan amount for applicants whose purpose is moving, as the loan amount is less and are more likely to repay.



**THANK  
YOU ...**

