Lending Club Case Study

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Problem Statement

Lending Club 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.

Lending club wants to understand the driving factors behind the loan defaults. The company can utilize this knowledge for it’s portfolio and risk management.

Data Analysis Approach

Data Cleaning

- Drop the columns with null values
- Drop the unwanted columns
- Categorize the columns into categorical and numerical
- Validate the data type of each column and convert them into required data type

Univariate Analysis

- Check distribution and frequencies of various categorical vs numerical data

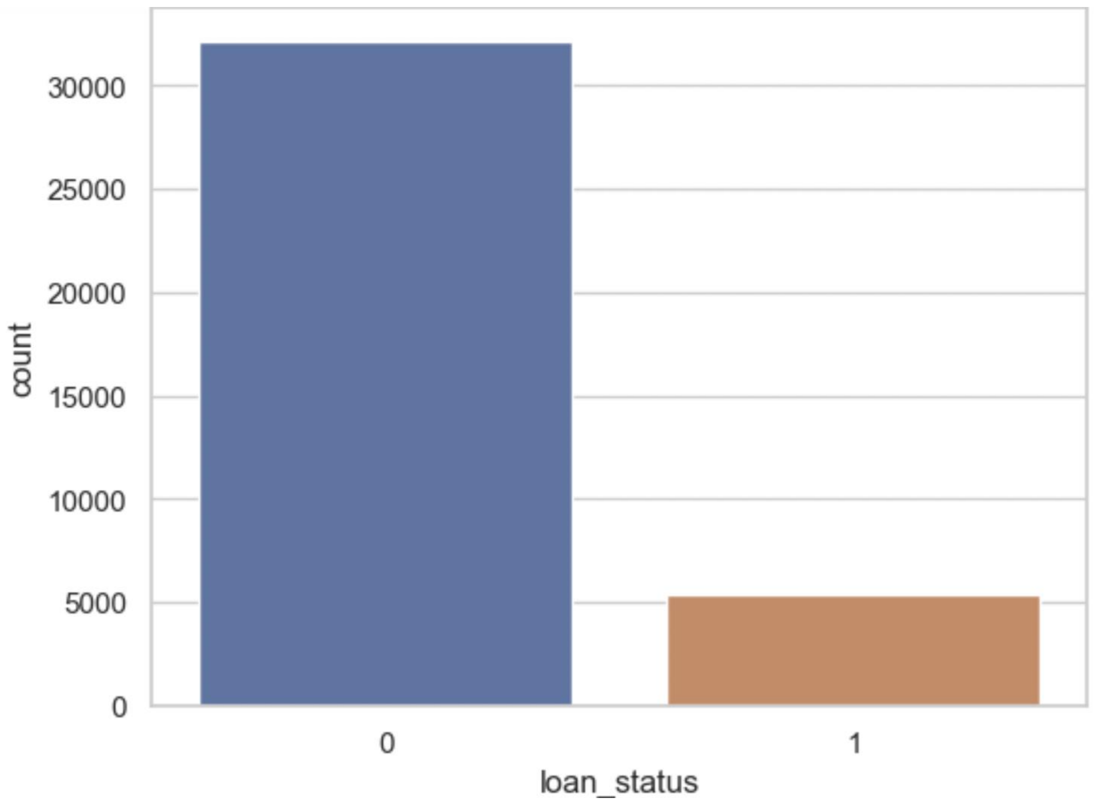
Bivariate Analysis

- Do analysis between how two variables affect each other or other data or distribution

Summary

- Publish the insights and observation

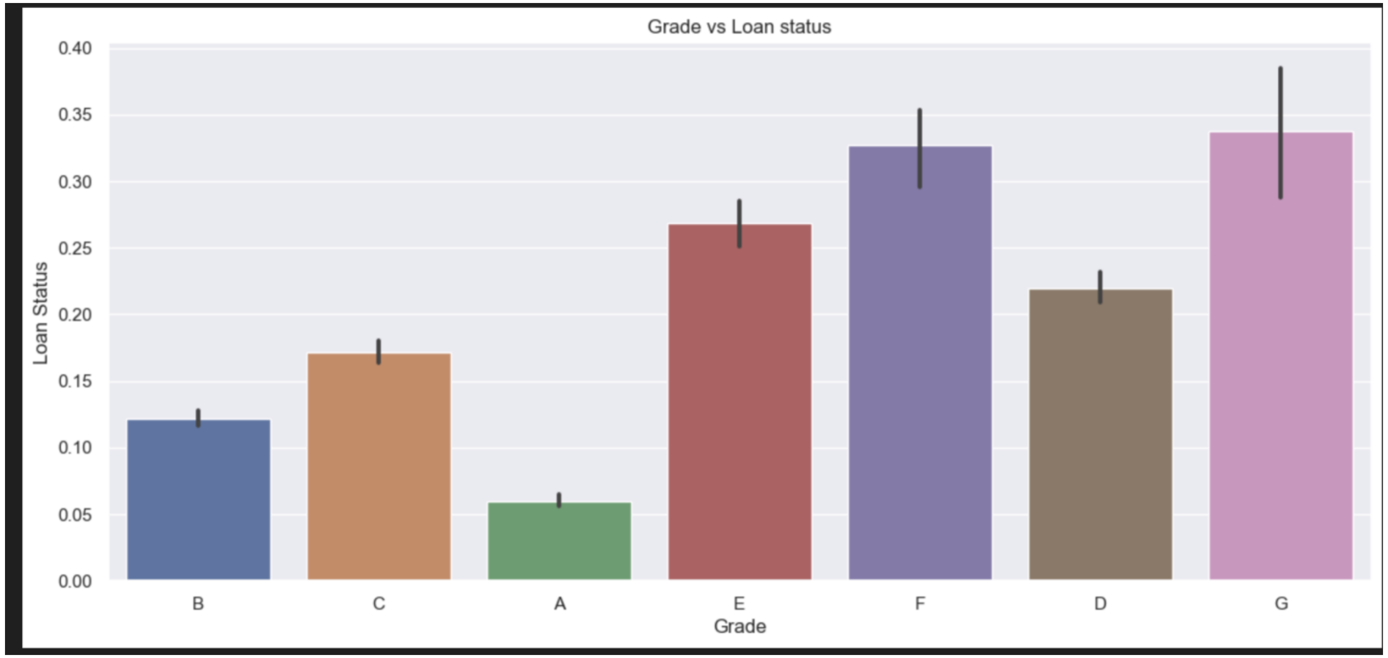
Analysis – Univariate – Loan Status



Approximately 14.3% loans defaulted

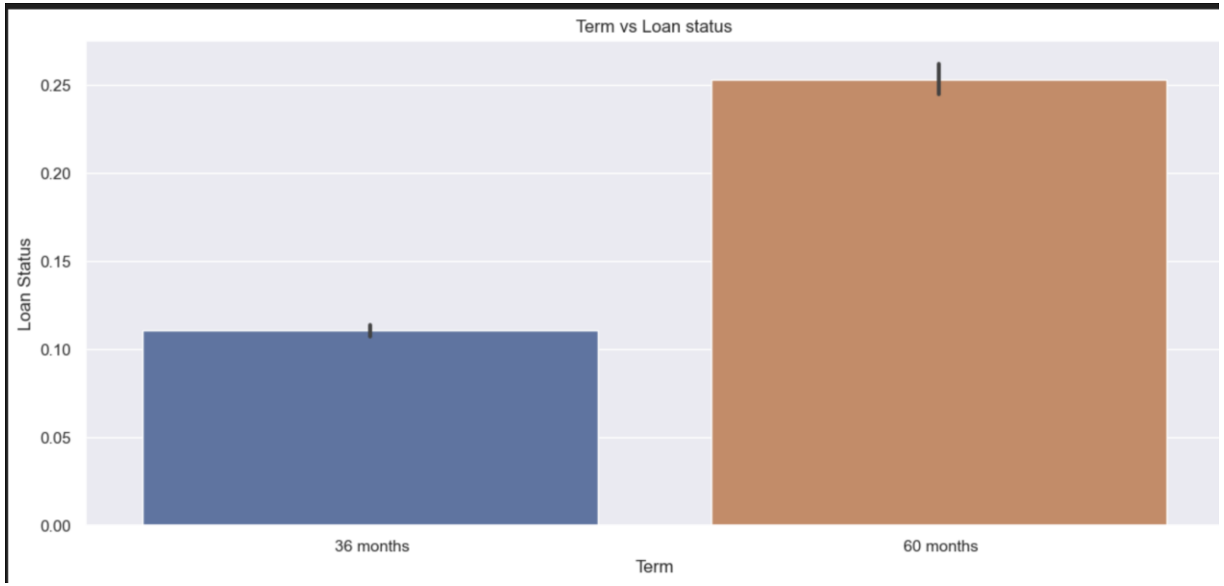
Analysis – Defaulters by Grade

- Analysis : Loans from G and F grades are most defaulted whereas A and B are the saftest grade for loan



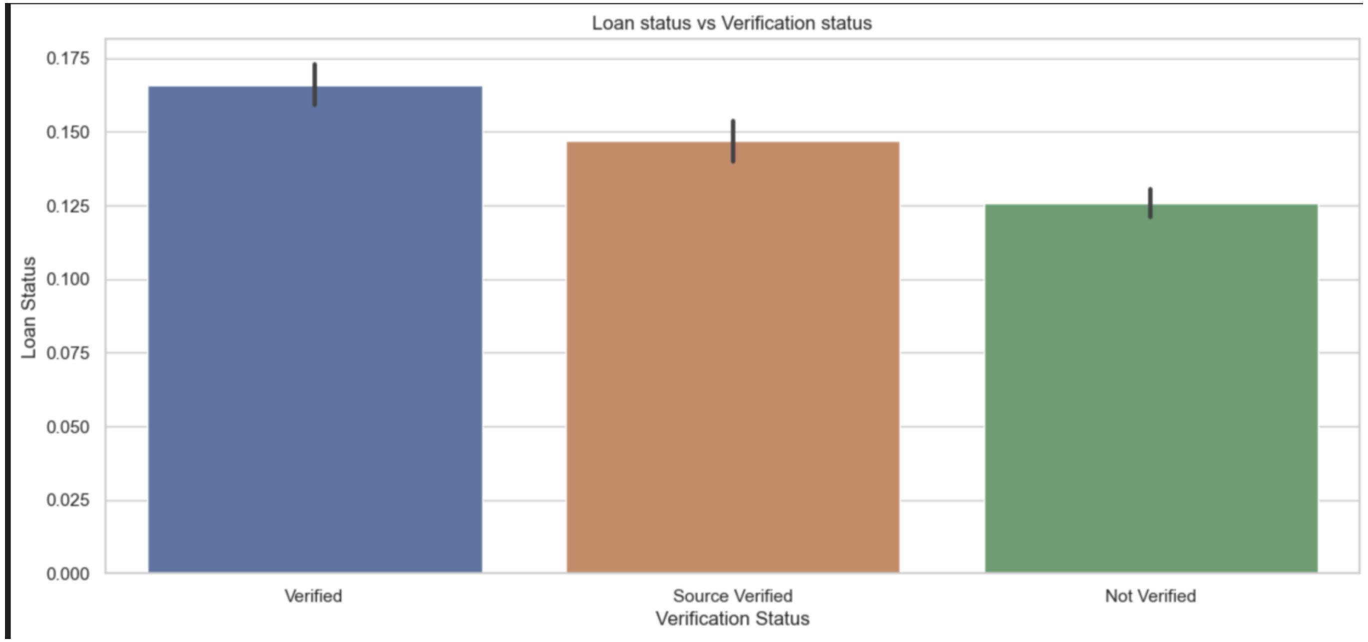
Analysis – Defaulters by Term

- Analysis : Loans of 60 months Term plan tend to parched off highly then term of 36 months.



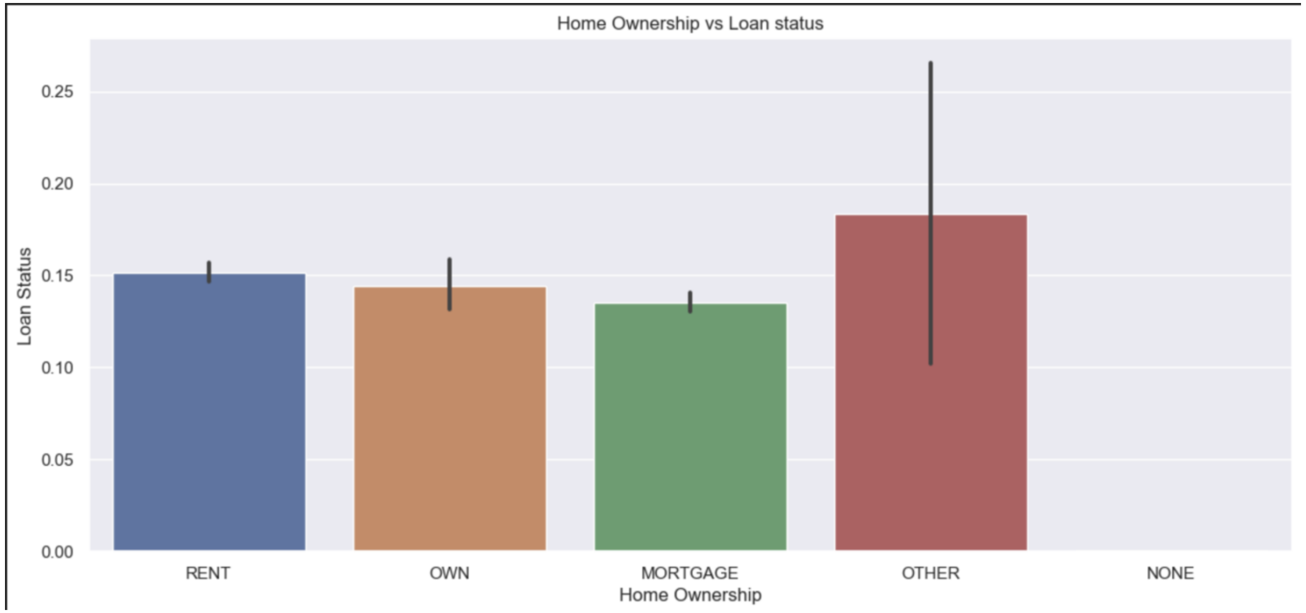
Analysis – Defaulters by Verification Status

- Analysis : As per data verified users defaults more then others.



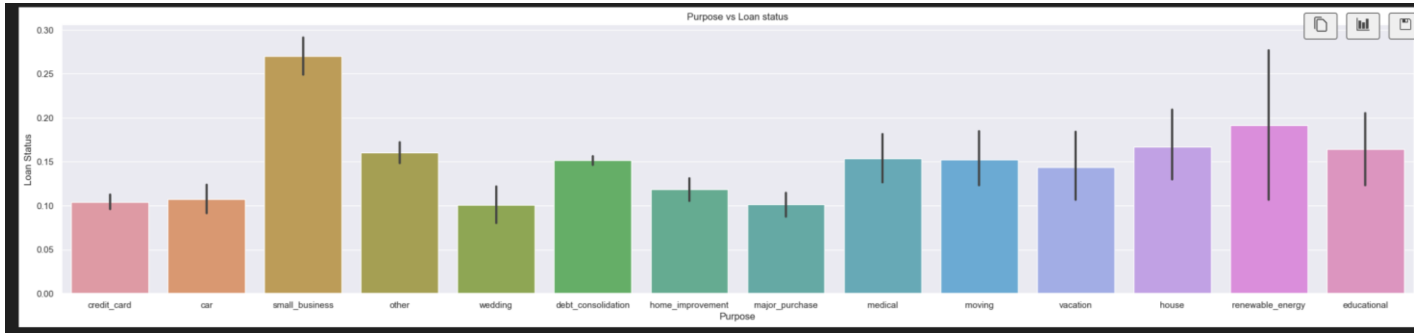
Analysis – Defaulters by Home Ownership

- Analysis : People with Home Ownership as ‘other’ tend to parched-off more followed by ‘Rent’ and ’Owner’



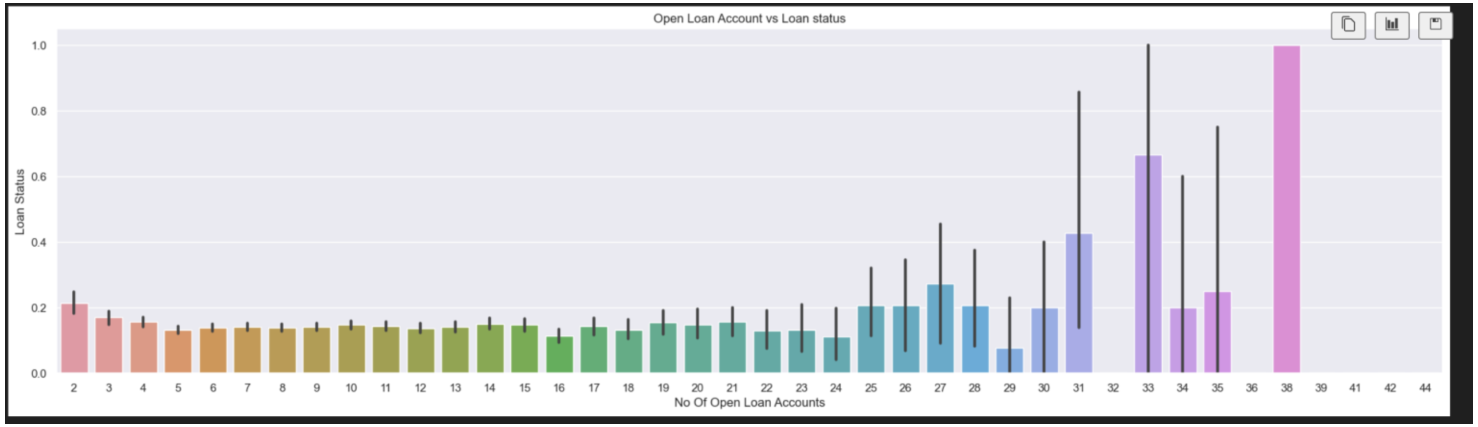
Analysis – Defaulters by Purpose

- Analysis : Clearly people who take loan for small business purpose parched-off more followed by renewable energy and education loan



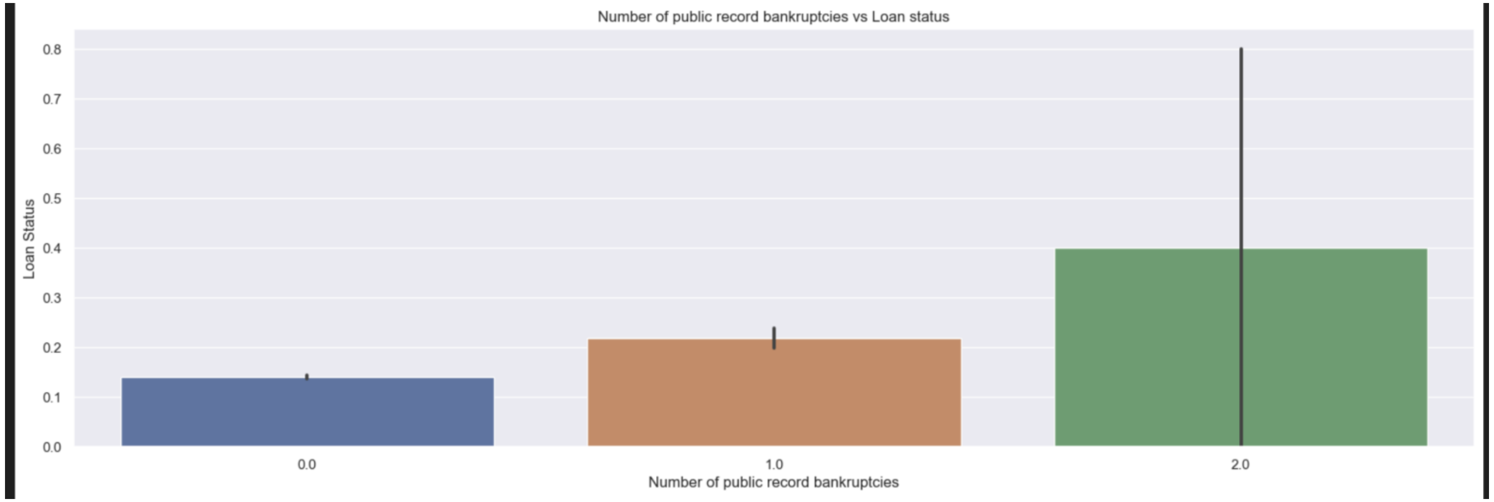
Analysis – Defaulters by Open Account

- Analysis : People with more open credits tend do default more.



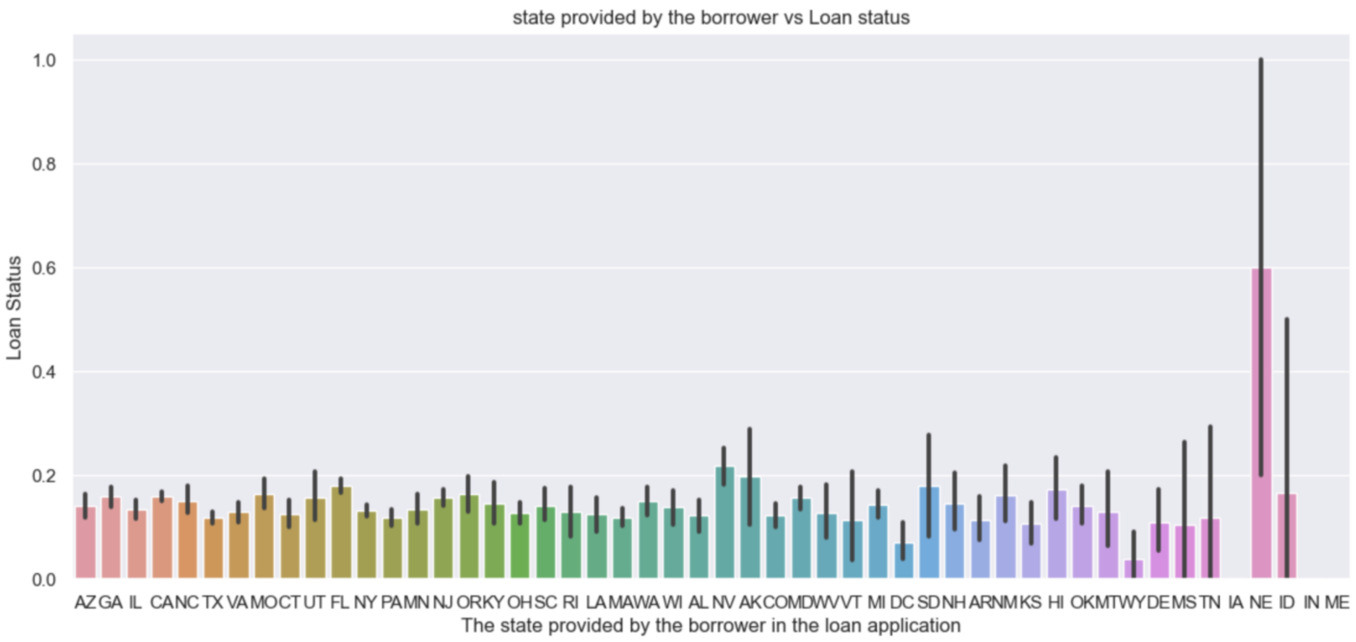
Analysis – Defaulters by pub_rec_bankruptcies

- Analysis : More number of public record bankruptcies tend to do more defaults



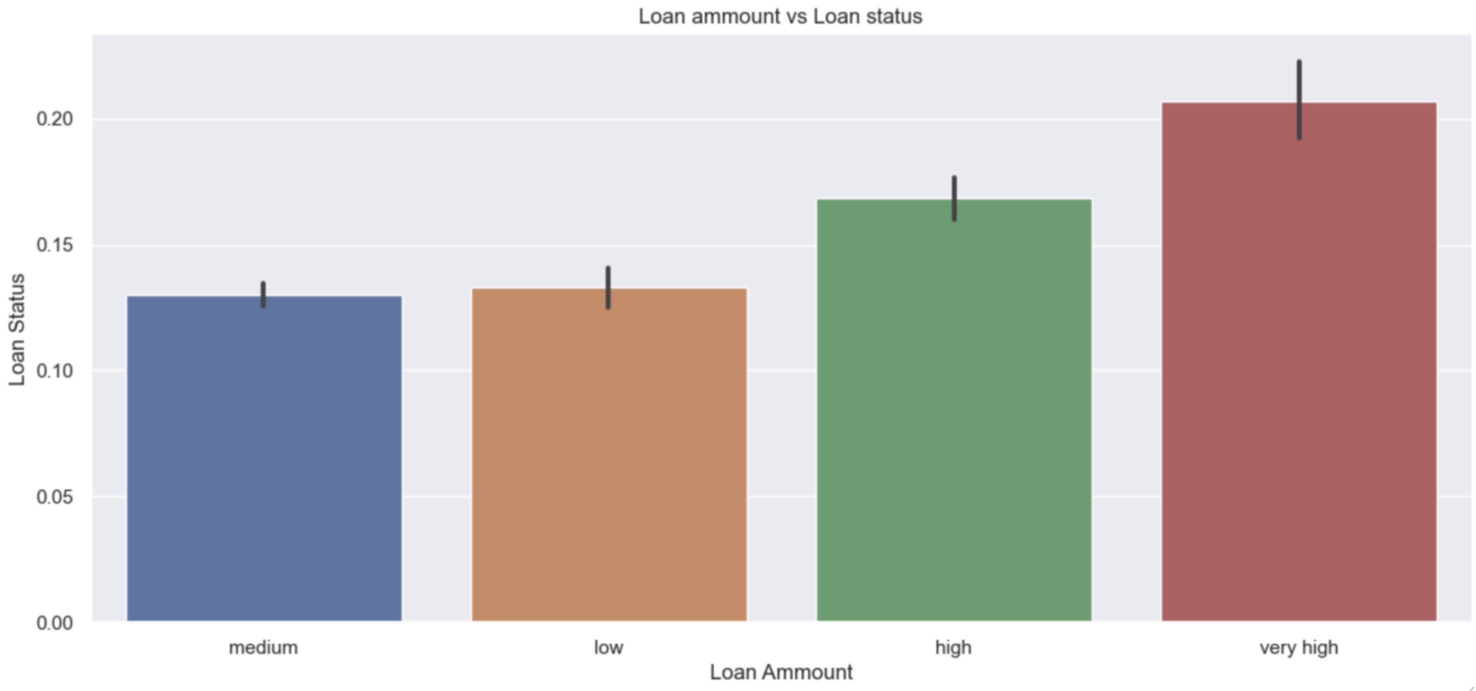
Analysis – Defaulters by Borrower's State

- Analysis : Loan borrower's from 'NE' state defaults more then any other state



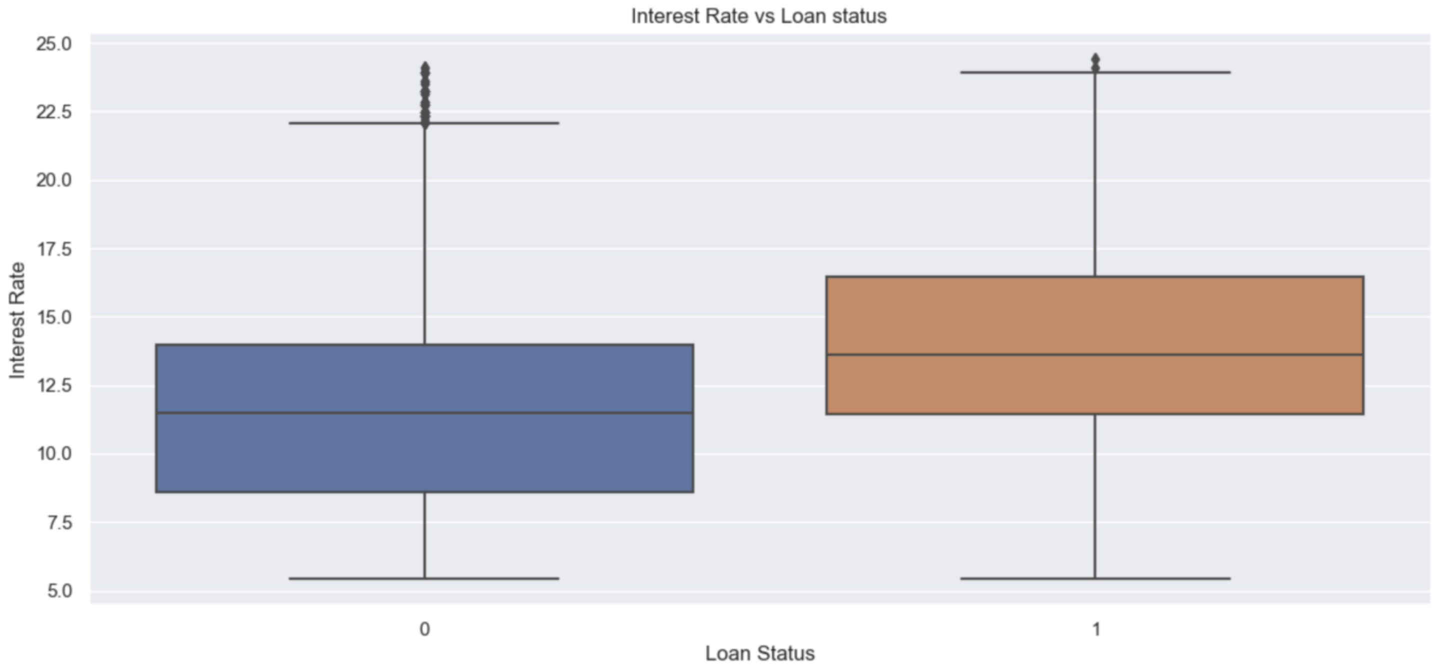
Analysis– Defaulters by Loan Amount

- Analysis : Data shows that more the loan amount, more chances to default that means as loan amount increases, chances to default increases as well.



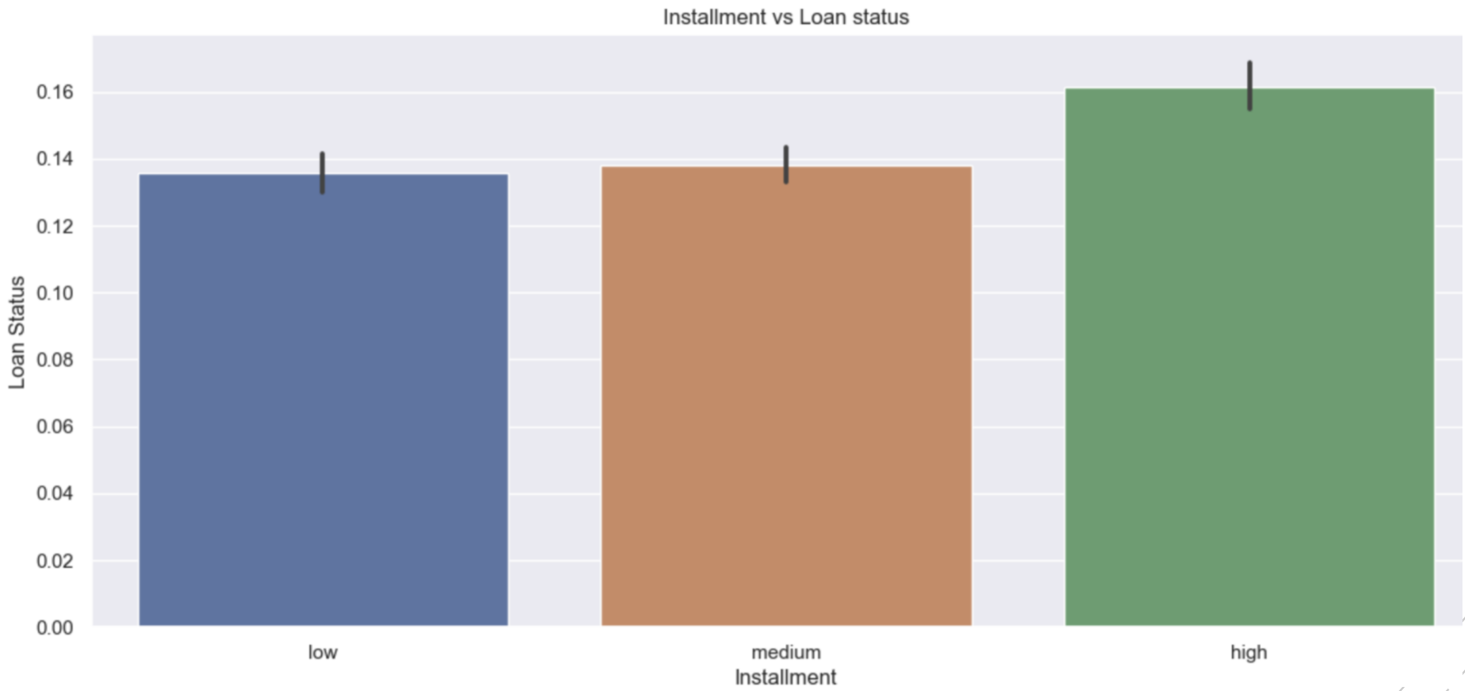
Analysis– Defaulters by Interest Rate

- Analysis : Data shows that more the interest rates, more chances to default.



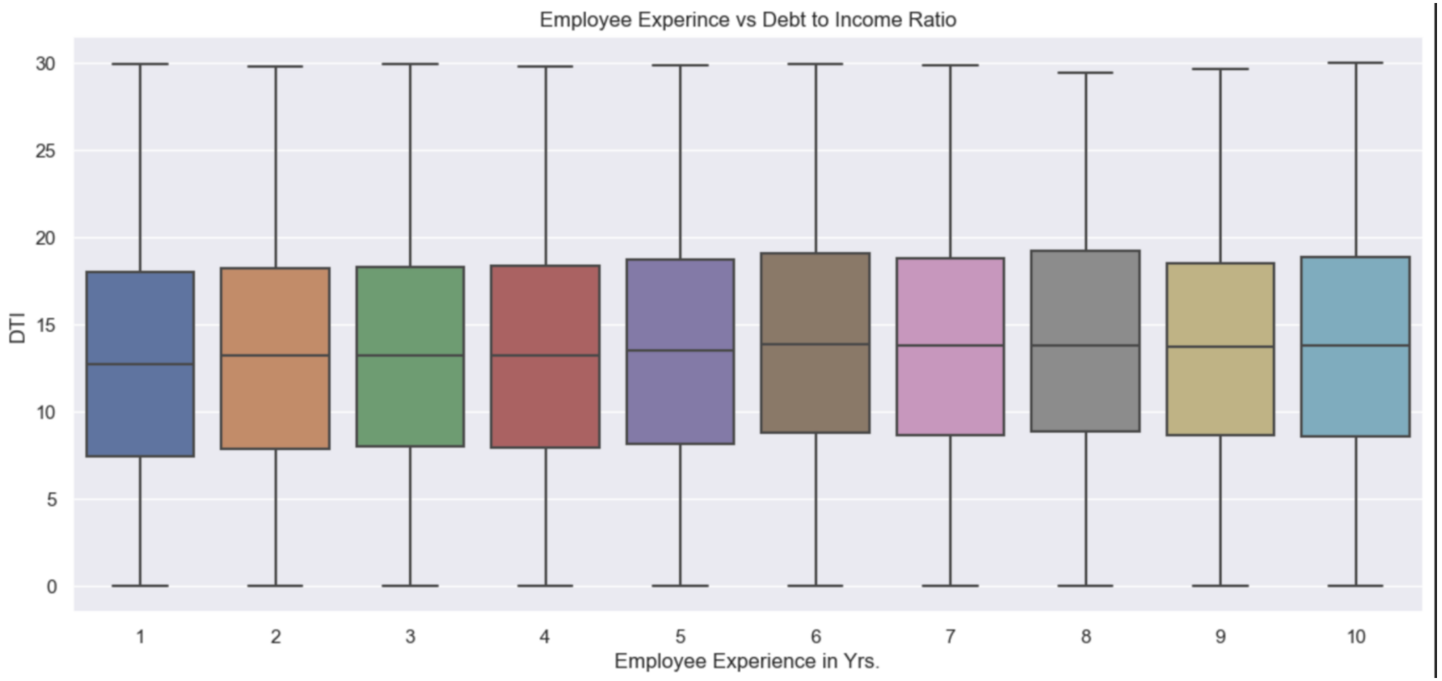
Analysis– Defaulters by Loan Installment

- Analysis : More number of installments tend to do more defaults.



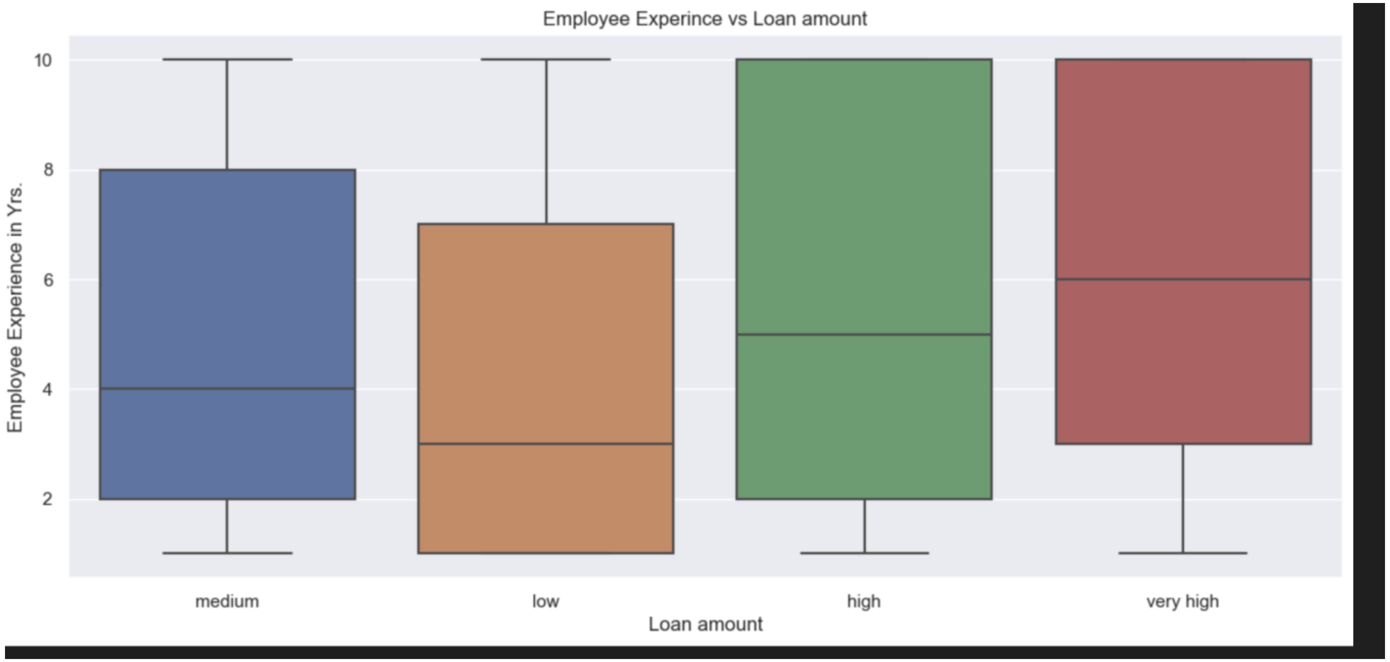
Analysis– Emp Exp vs DTI

- Analysis : People with more experience take high amount of loans and their debt to income ratio also goes up, but others no such significant discriminator.



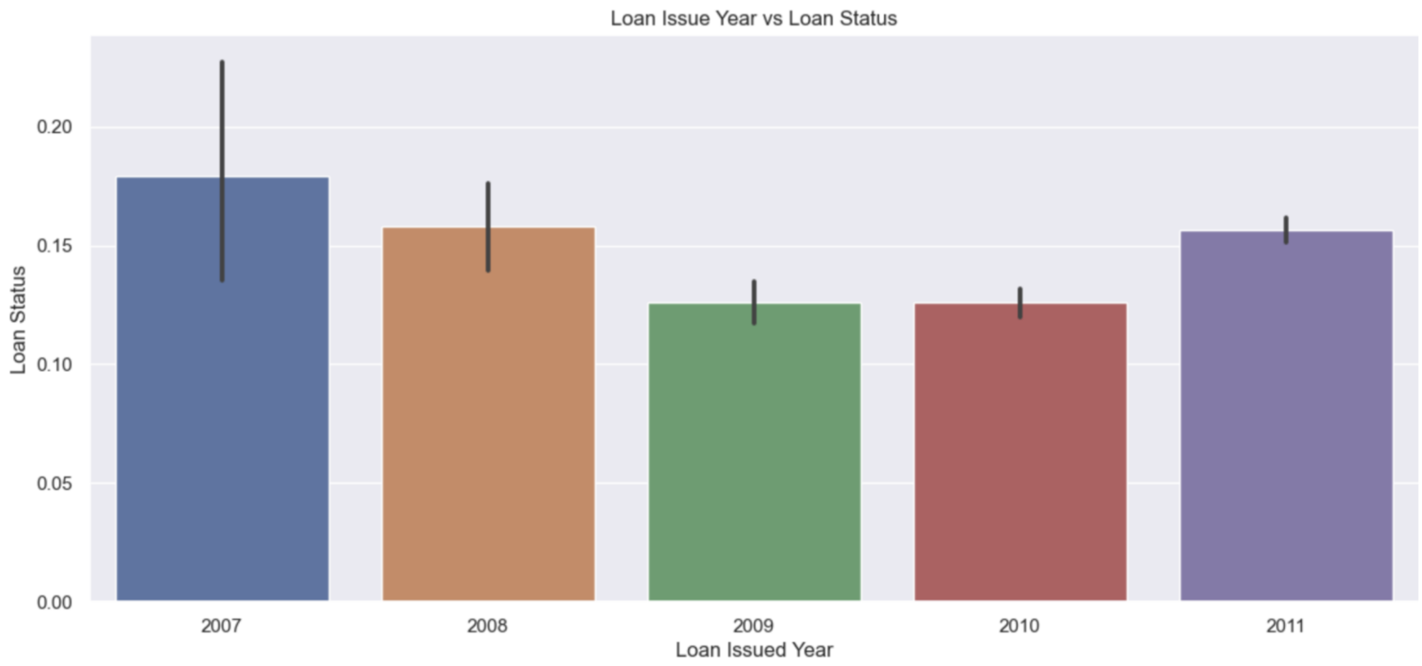
Analysis– Emp Exp vs Loan Amount

- Analysis : This shows that people with more experience take high amount of loans.



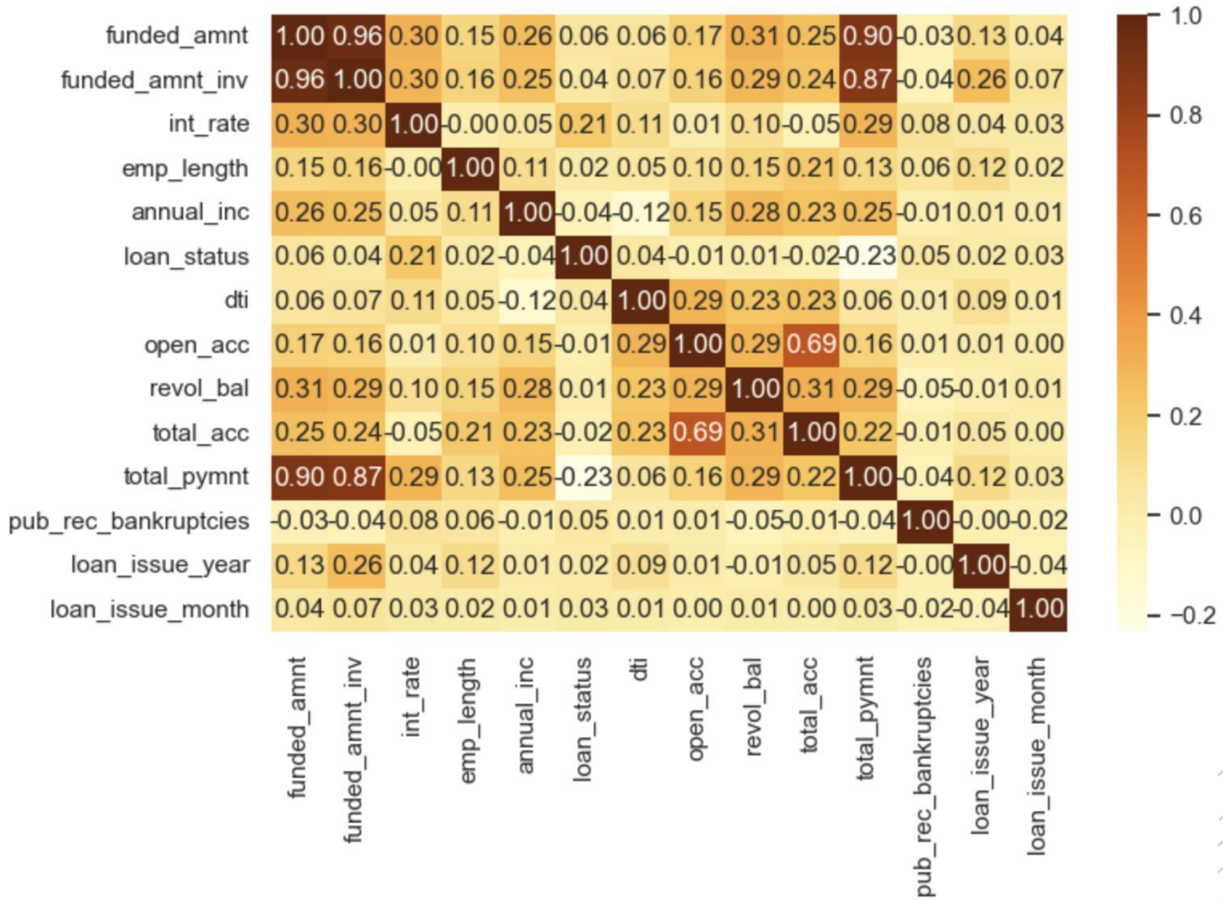
Analysis– Loan Issue Year

- Analysis : This shows that there are more defaulters for the loan issued in the year of 2007 followed by 2008 and 2011.



Analysis– Attribute Correlation

- Analysis : Observation is that Loan amount, investor amount, funding amount are strongly correlated.
- Annual income with DTI(Debt-to-income ratio) is negatively correlated.
- positive correlation between annual income and employment years mean more experience tend to more annual income.



Recommendations

Refrain	Refrain from giving Huge Loan Amount loans.
Reduce	Reduce giving loans for Small Business purpose.
Avoid	Avoid giving loans for users who have multiple open credit open accounts.
Stop	Stop approving loans foe people with bad record OR have lower grade.
Reduce	Reduce giving loans to user with high DTI ratio.