

LOANS CASE STUDY

(EDA Assignment)

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Agenda

- Goal
- Analysis Approach
- Key Drivers for Loan Default
 - Purpose of Loan
 - Payment Term
 - Credit Inquiries
 - Revolving Line Utilization Rate
- Conclusion

Goal

Lending Club is the largest online loan marketplace where borrowers can easily access lower interest rate loans through a fast online interface. About 14% of the loans given by them end up defaulting i.e. borrowers do not repay the loan. This is the largest source of financial loss for them.

Lending Club wishes to minimize these losses and better manage risk by understanding the driving factors behind these loan defaults i.e. which attributes of the borrower or the loan are strong indicators of loan defaults.

Through analysis of about 40,000 loans, this project identifies the key drivers that can improve or lower the risk of loans defaulting.

Analysis Approach

Broadly, this is the approach we employed for analysis of key variables affecting loan defaulting.

1. Segmentation of attributes into 3 types
 - Attributes of the Loan Applicant
 - Attributes of the Requested Loan
 - Attributes of the Approved Loan
2. Review 13 attributes to identify key indicators of charge offs a.k.a. defaulting
3. Business recommendations to reduce loan charge offs

Note on Graphs: Charged_Off indicates loans that have defaulted

Purpose of Loan

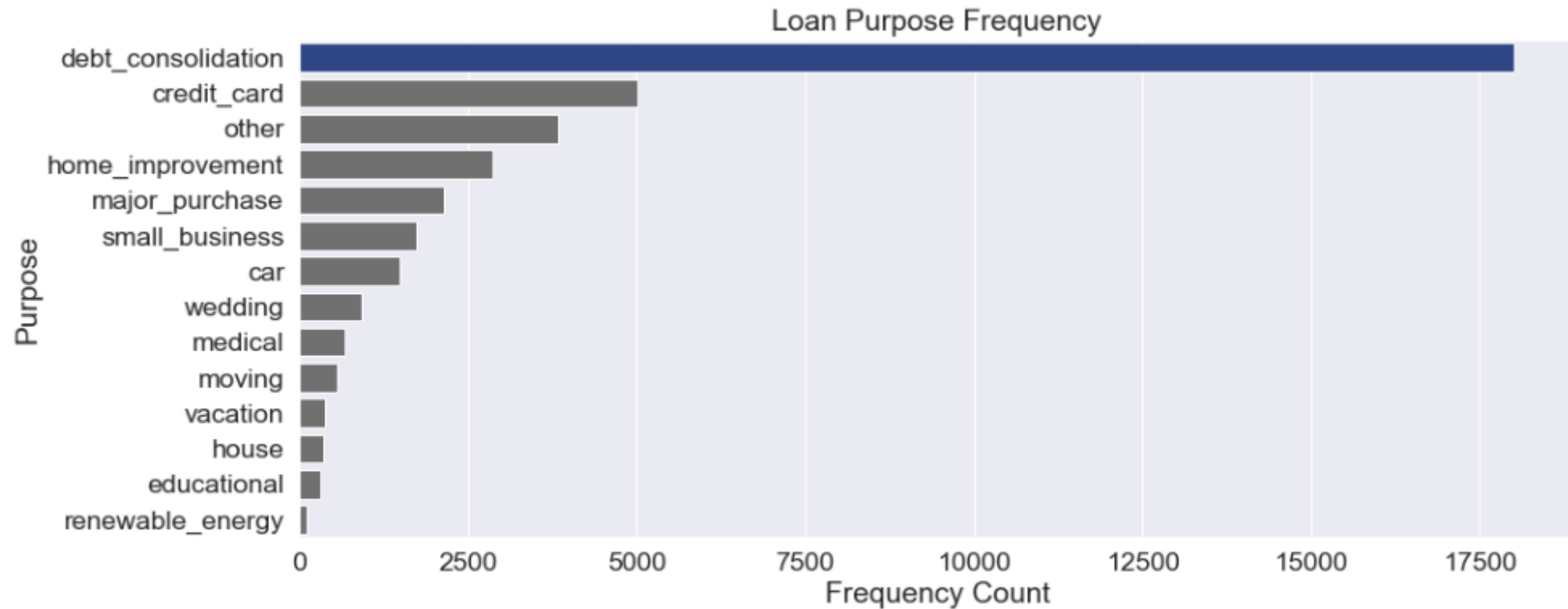
Description

Loans may be taken for 14 different purposes

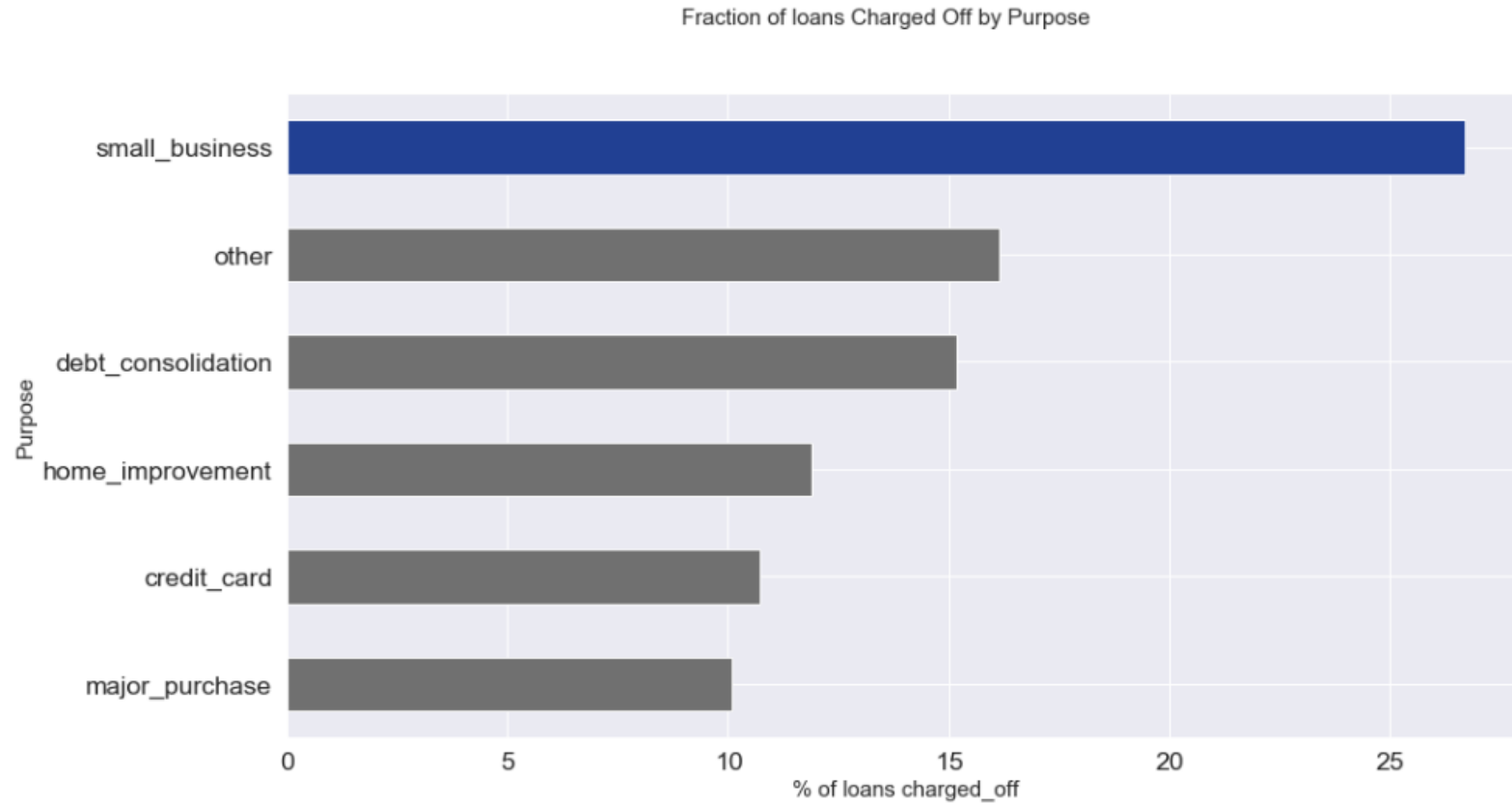
Findings

- Top purpose for taking a loan is Debt Consolidation
- 27% of loans taken for Small Business default. This is twice as much as that of typical loans (14%)

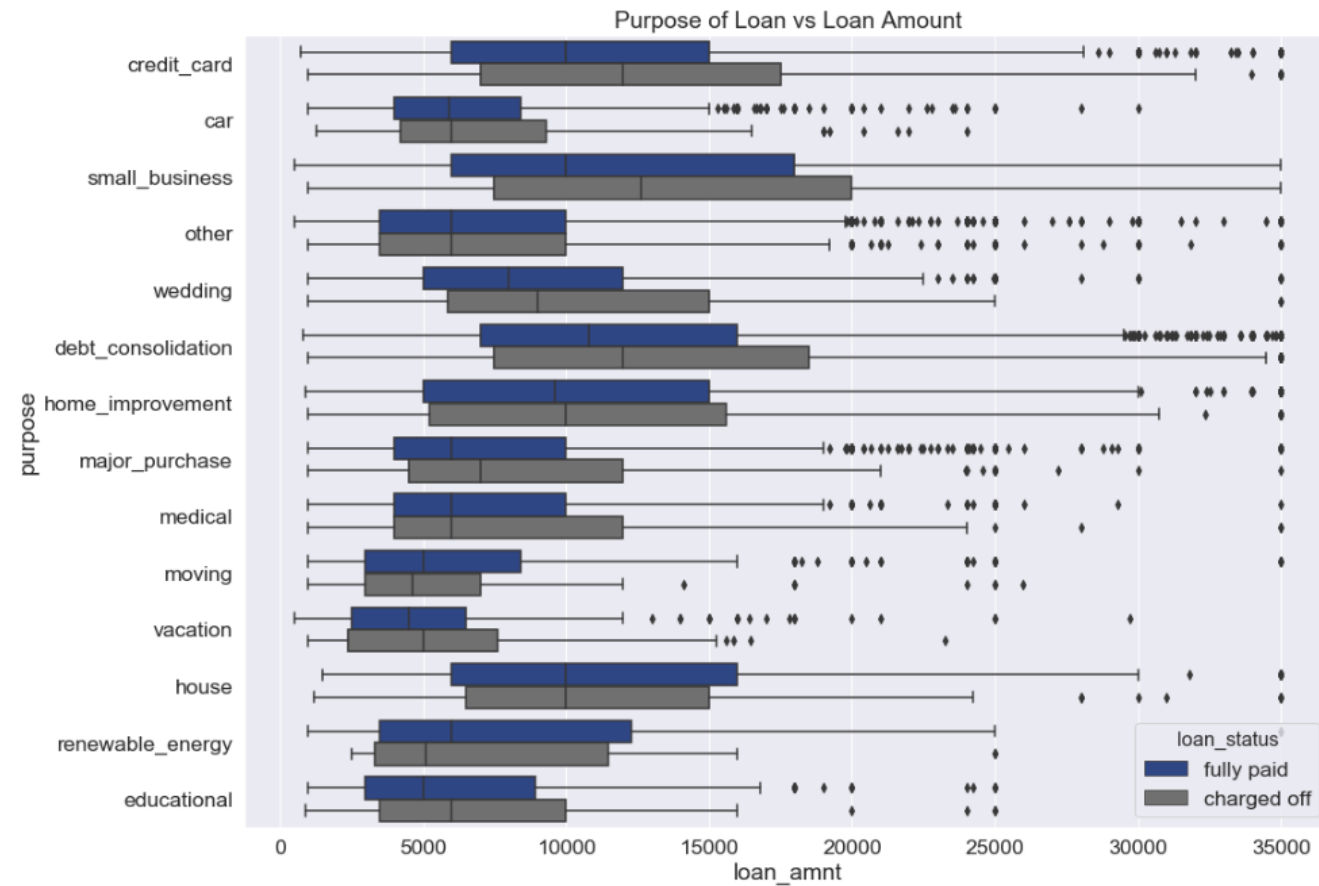
Top Reasons Borrowers Take Loans



Which Purpose Loans Default the most?



Amount of Loans By Purpose



Payment Term of Loan

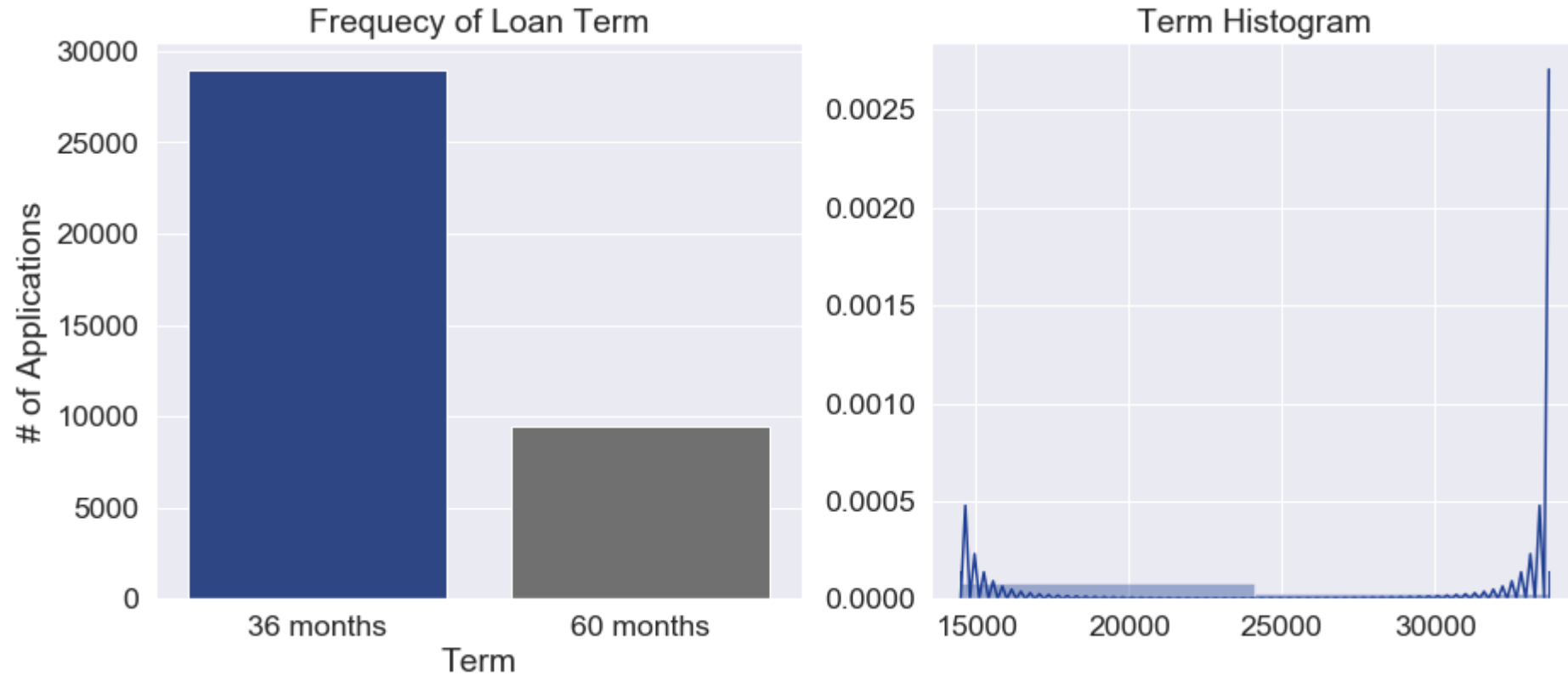
Description

Borrowers can repay loans either in 36 months or 60 months, this time periods are referred to as (payment) terms.

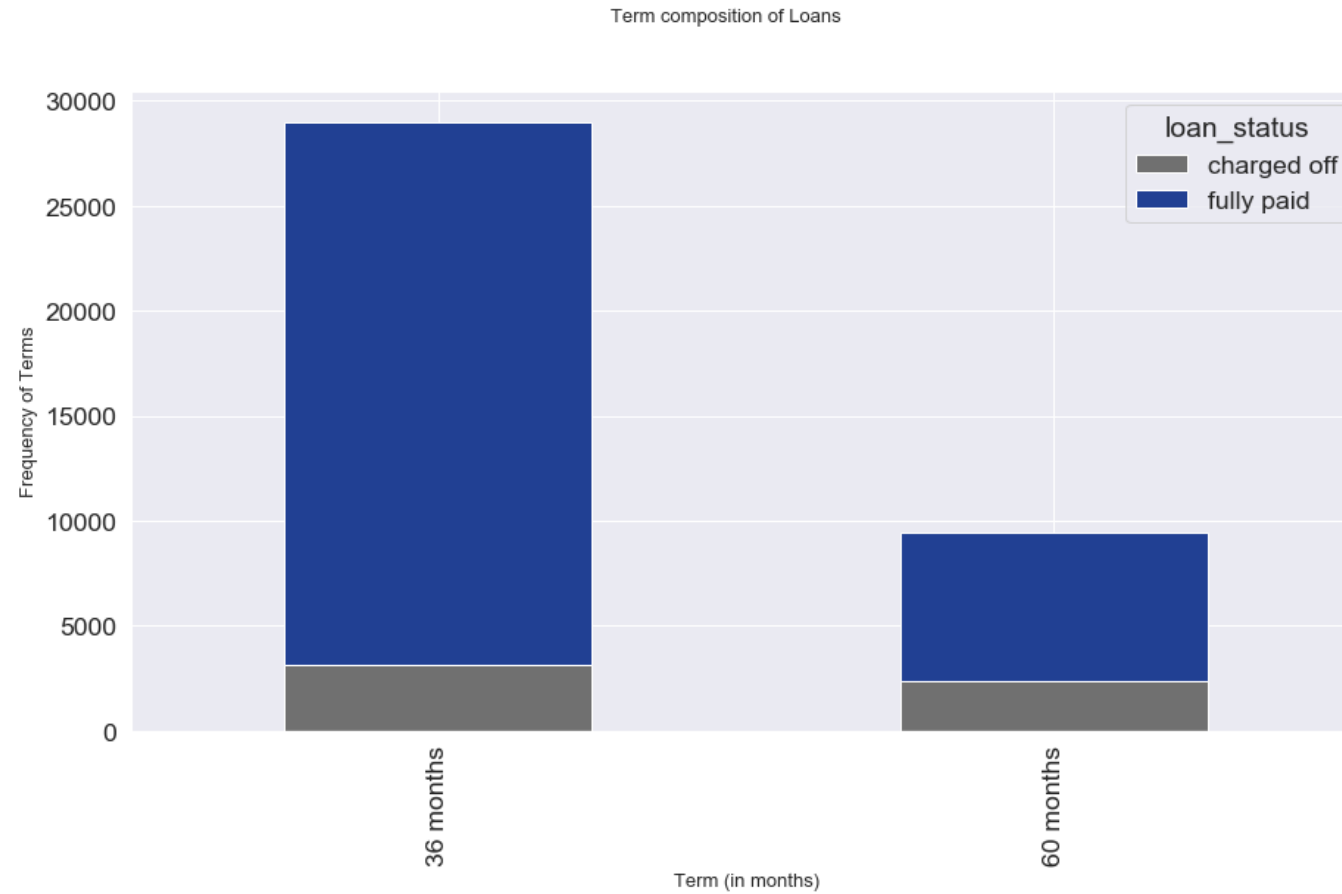
Findings

- Most borrowers prefer to repay their loan in 36 months
- 60 month loans have a significantly higher likelihood of defaulting than 30 month loans

Borrower Preference of Payment Terms



Which Loan Term Defaults more?



Credit Inquiries of Applicants

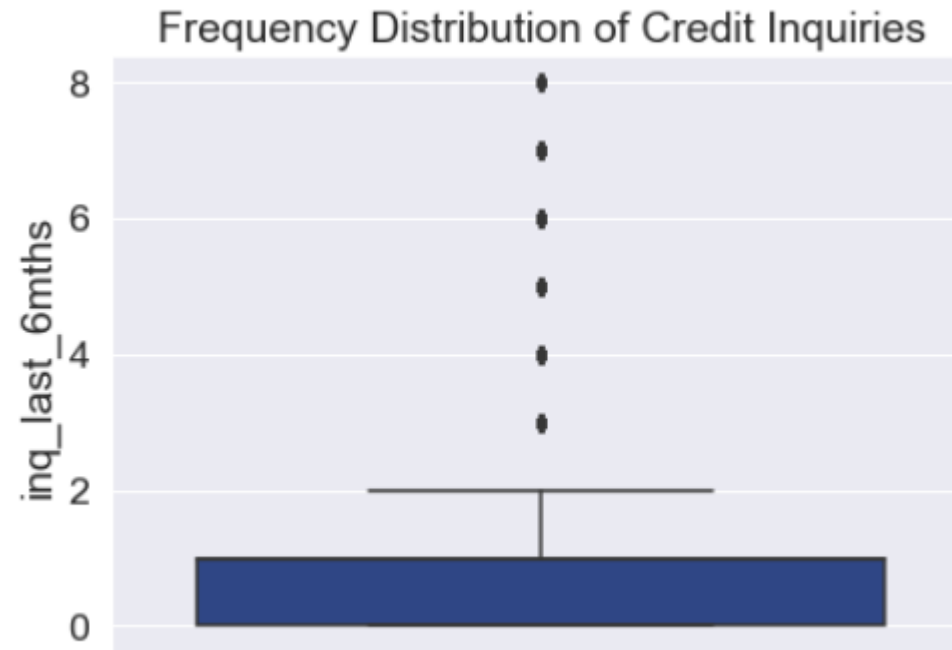
Description

Credit inquiries in the last 6 months made by other lenders to whom applicant requested a loan.

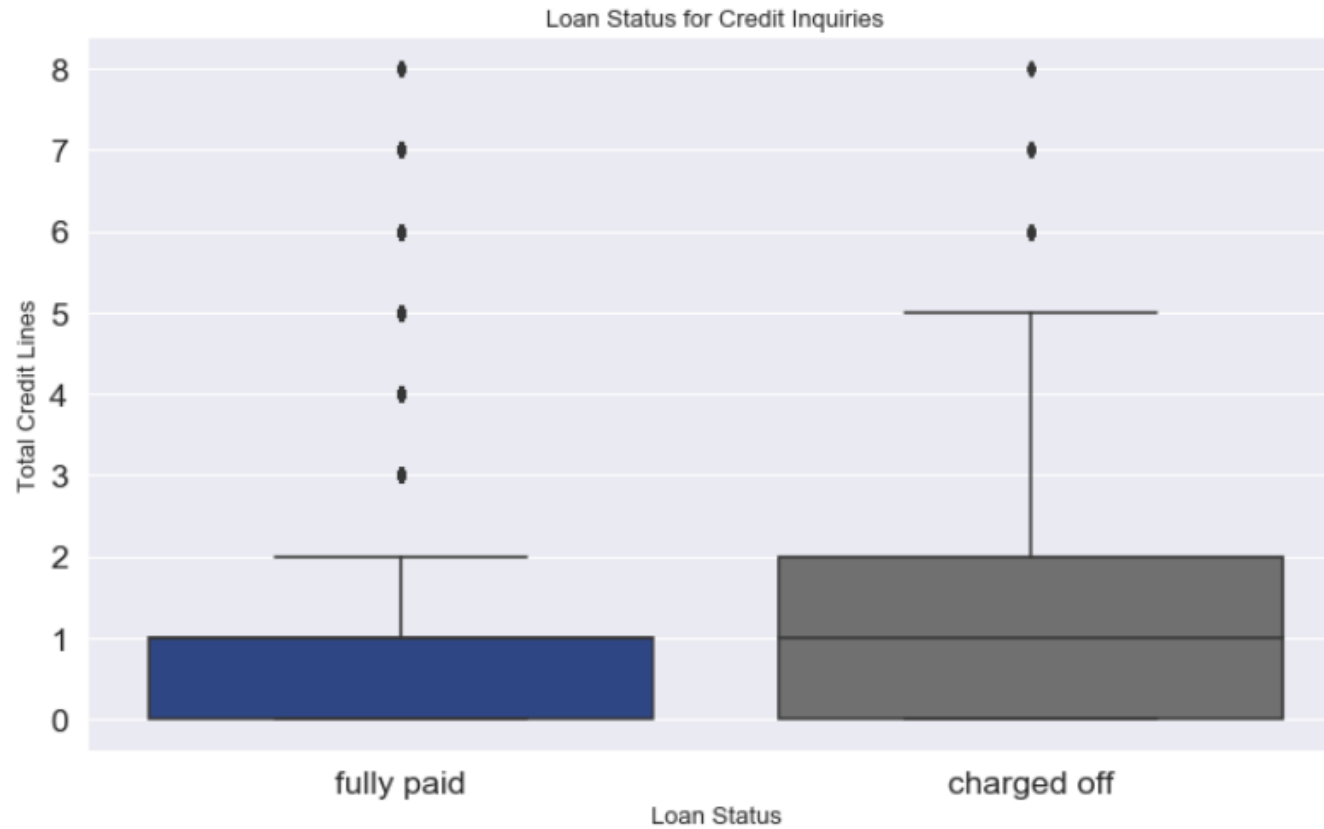
Findings

- Majority of the applications have zero credit inquiries.
- With increase in credit inquiries beyond 1, the likelihood of defaulting increases.

No. of inquiries applicants have typically?



Relationship of Inquiries with Defaulting



Revolving Line Utilization Rate

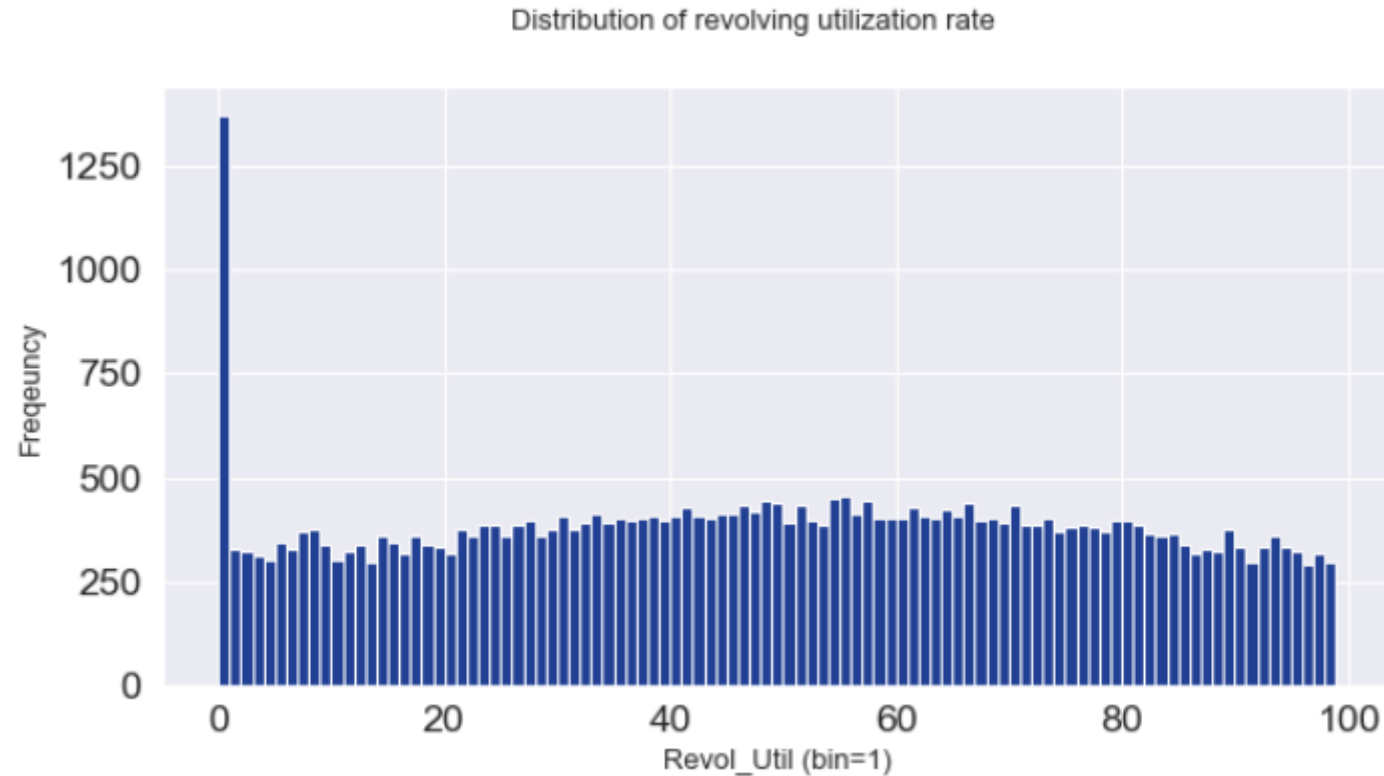
Description

The amount of credit the borrower is using relative to all available revolving credit.

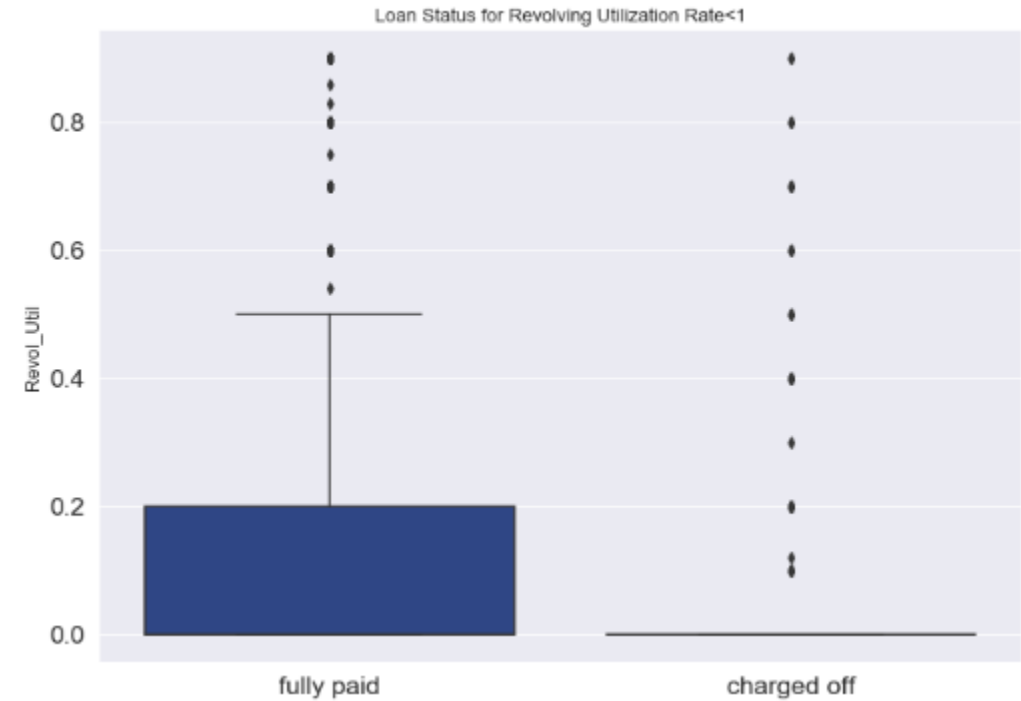
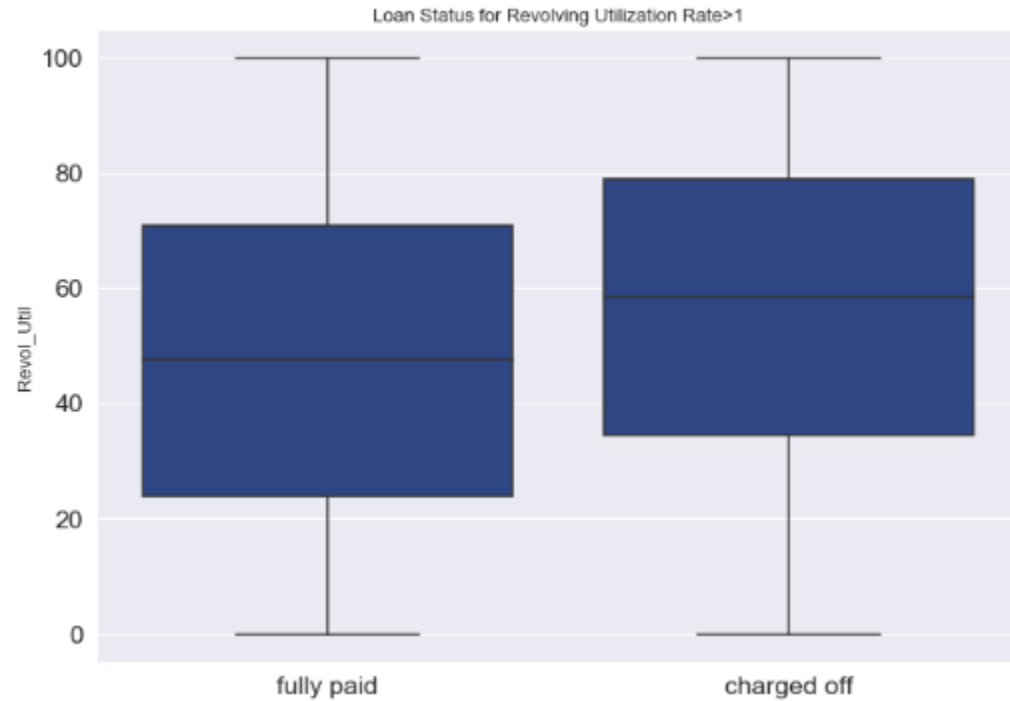
Findings

- A significant number of borrowers have a utilization rate of less than one, but are evenly distributed otherwise
- Borrowers with utilization rate of less than 1 have much lower chances of defaulting.

What is the utilization rate of borrowers?



Which utilization rates tend to defaults?



Conclusions

Recommendations to improve the loan default rate:

- **Avoid small business borrowers**

Suggestion: Increase interest rate of small business loans to discourage borrowing for this purpose

- **Discourage 60 month loans**

Suggestion: Penalize 60-month loans with higher interest rate

- **Attract borrowers with low credit enquiries**

Suggestion: Ideally, target the younger generation that is more likely to have fewer credit inquiries

- **Prefer borrowers with credit utilization rate less than one**

Suggestion: Lower the interest rate for such borrowers to make these loans more attractive