



Lending Club Case Study

Team:

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Objective

- The Objective of this case study is to implement EDA technique on a real-world problem and understand the insights and present in a business first manner via presentation.
- Benefits of the case study:
 - Gives an idea about how EDA is used in real life business problems.
 - It also develops a basic understanding of risk analytics in banking and financial services.
 - How the data is used to minimize loss of money while lending it to clients.
 - It improves our understating of visualization and what charts to use for real life data.

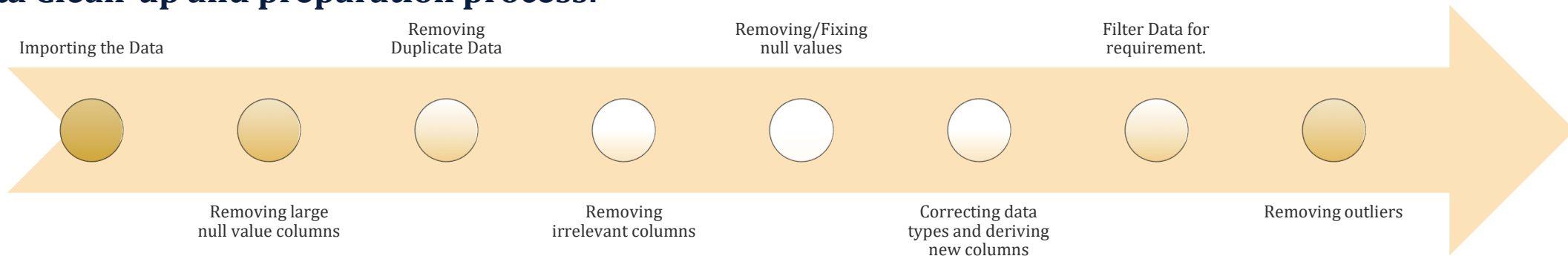
Business Understanding

The business objective is to take a decision whenever they receive a loan application whether to reject or approve based on certain variables.

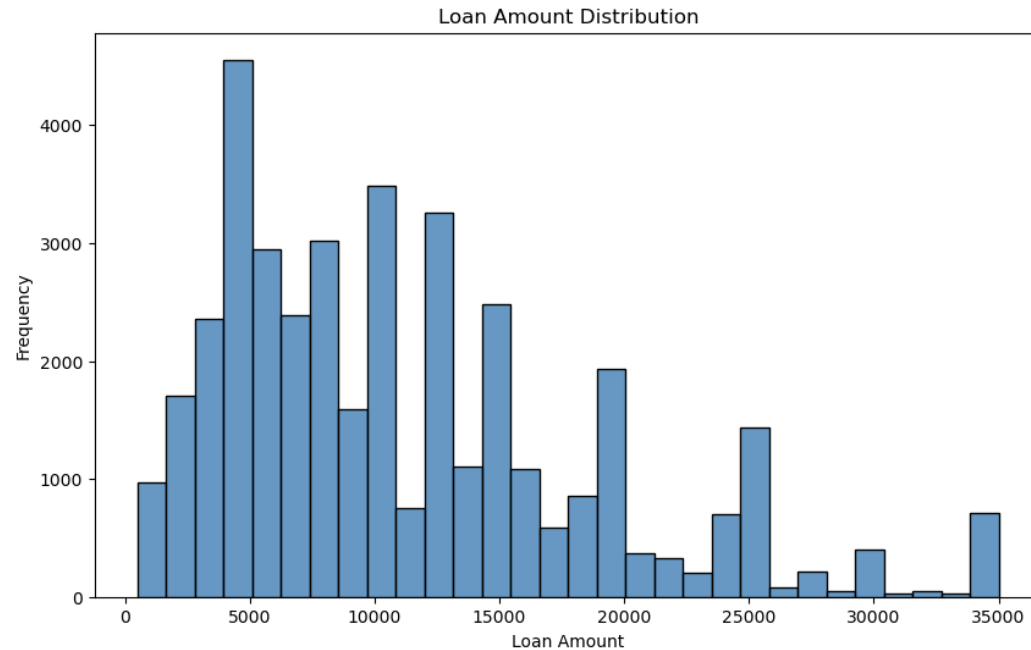
Dataset Details:

The data given below contains information about past loan applicants and whether they 'defaulted' or not. Data has details regarding approved loan not the rejected ones. It has 3 status of loan which is Fully Paid, Current and Charged-Off.

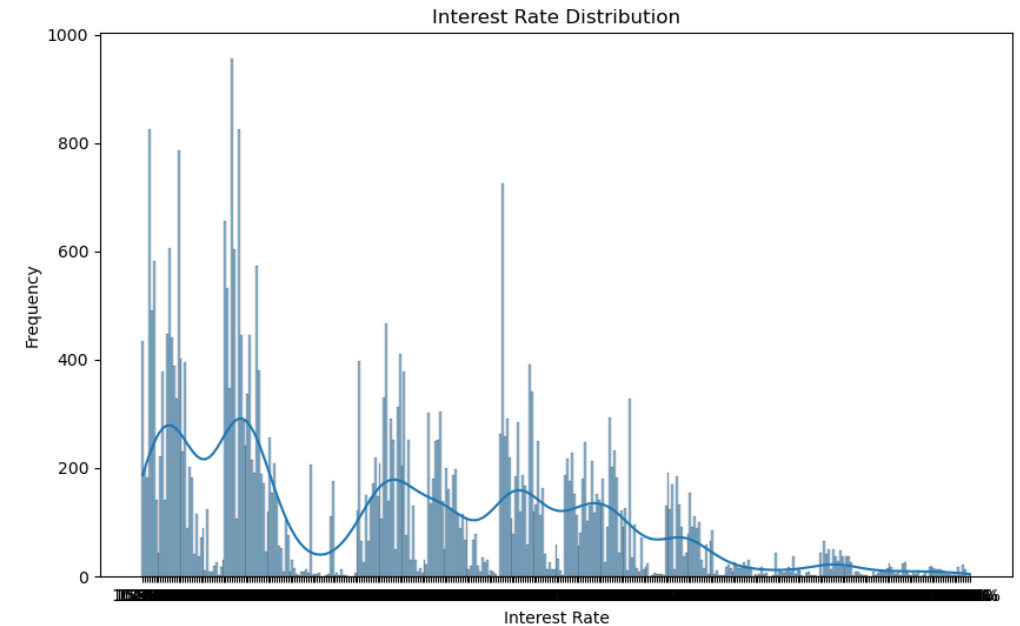
Data Clean-up and preparation process:



Loan Amount and Interest Rates

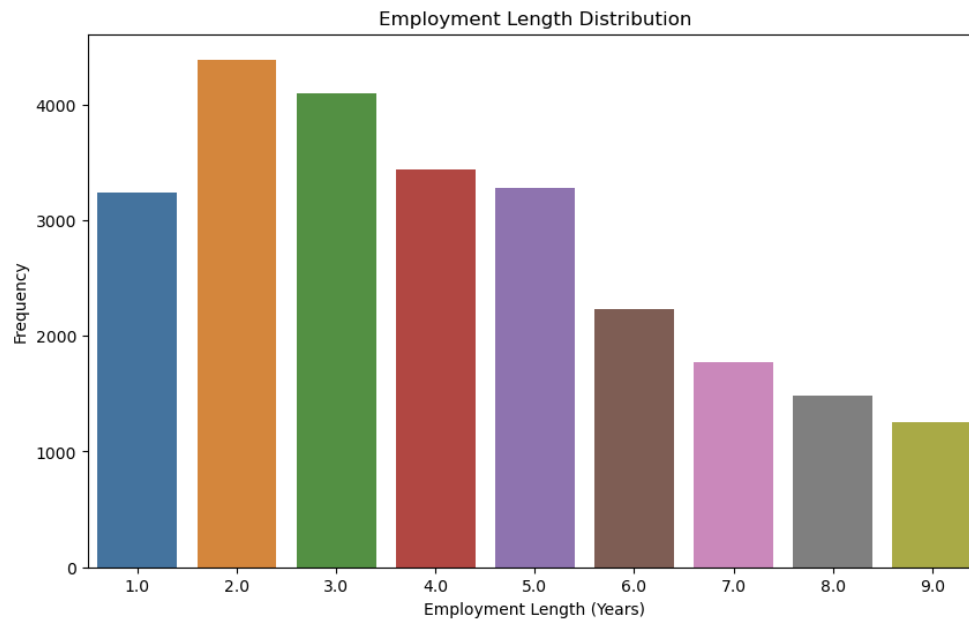


Loan Amount: The listed amount of the loan applied by the borrower. Frequency is found to be maximum for Loan amount 5K. Frequency of more than 3K is found across loan amount between 10K and 15K

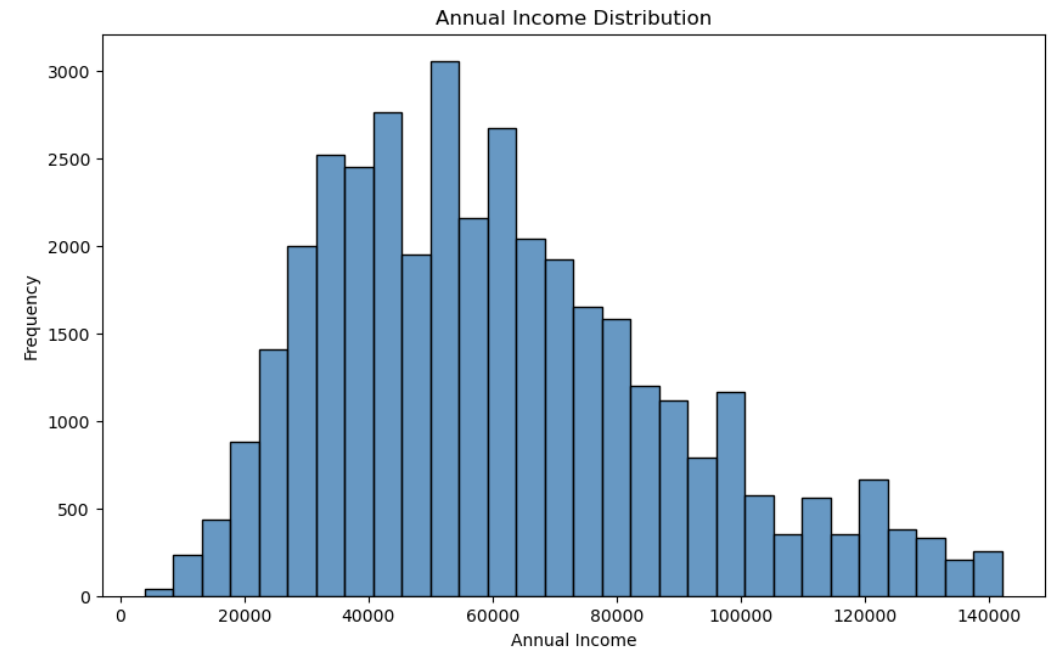


Interest Rate: Interest Rate on the loan. It can be clearly observed that lower the interest rate, higher the frequency & higher the interest rate, lower the frequency

Employment Length & Annual Income

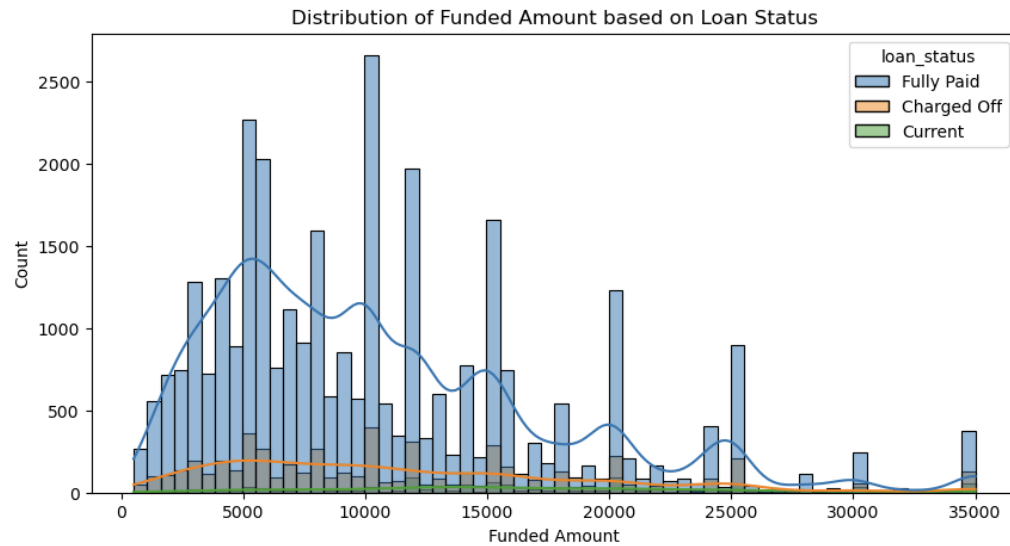


Employment Length: Employment length in years. New Employees within 3 years of joining tend to frequent the loan requests

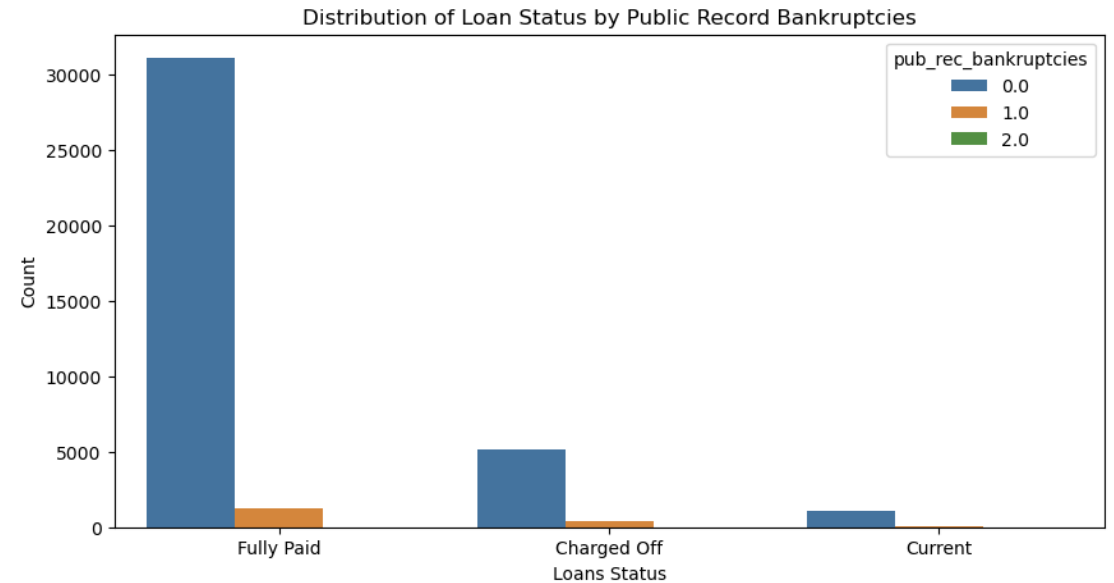


Annual Income: Self reported annual income reported by borrower during registration. Mid range of Annual income varying from 40K to 70K tend to frequent the loan requests

Funded Amount & Public Rec Bankruptcies

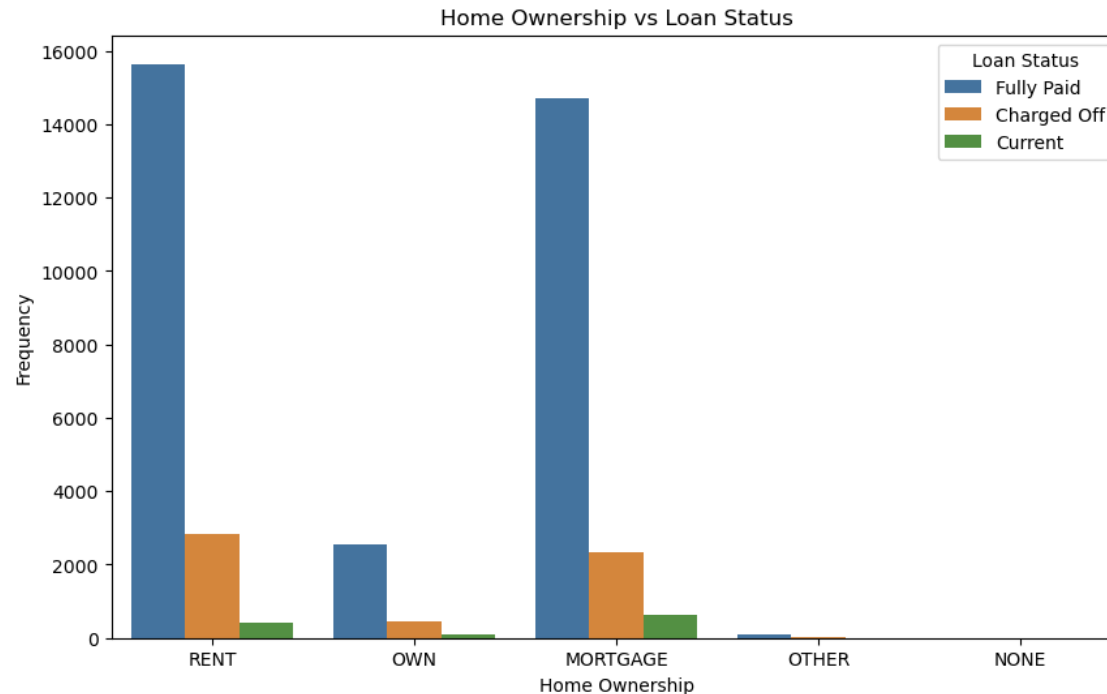


Funded Amount: Total amount committed to the loan at a point in time.
The higher the Funded Amount, better the loan status

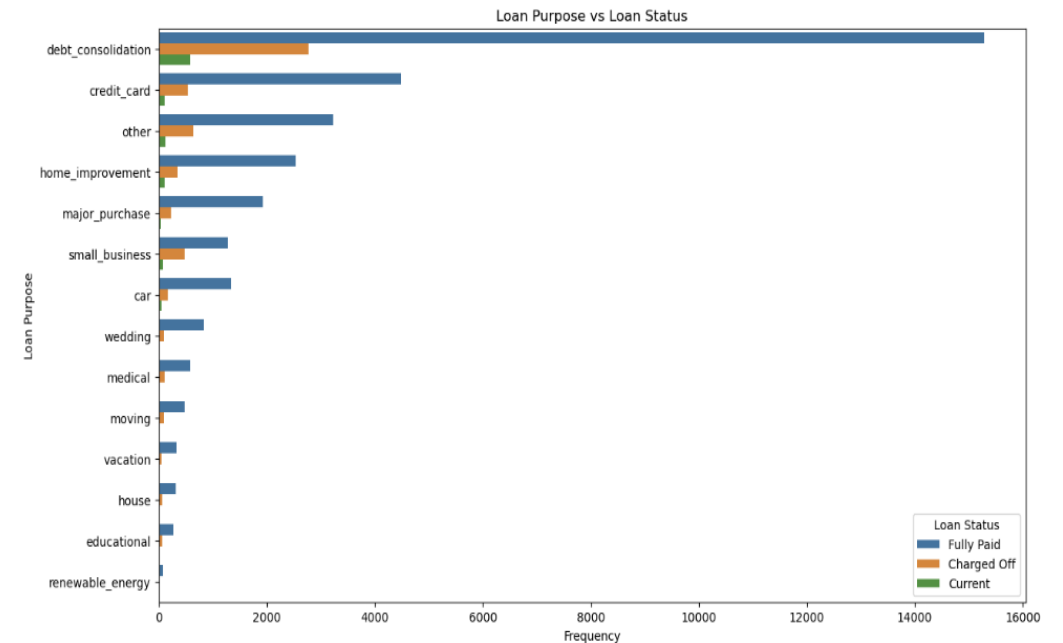


Public Rec Bankruptcies: No of Public Record Bankruptcies
Majority of clients have no record of declaring bankruptcy.

Home Ownership & Loan Purpose



Home Ownership: Majority of clients are lacking ownership of any property and are on rent or mortgage and have a higher chance of defaulting.

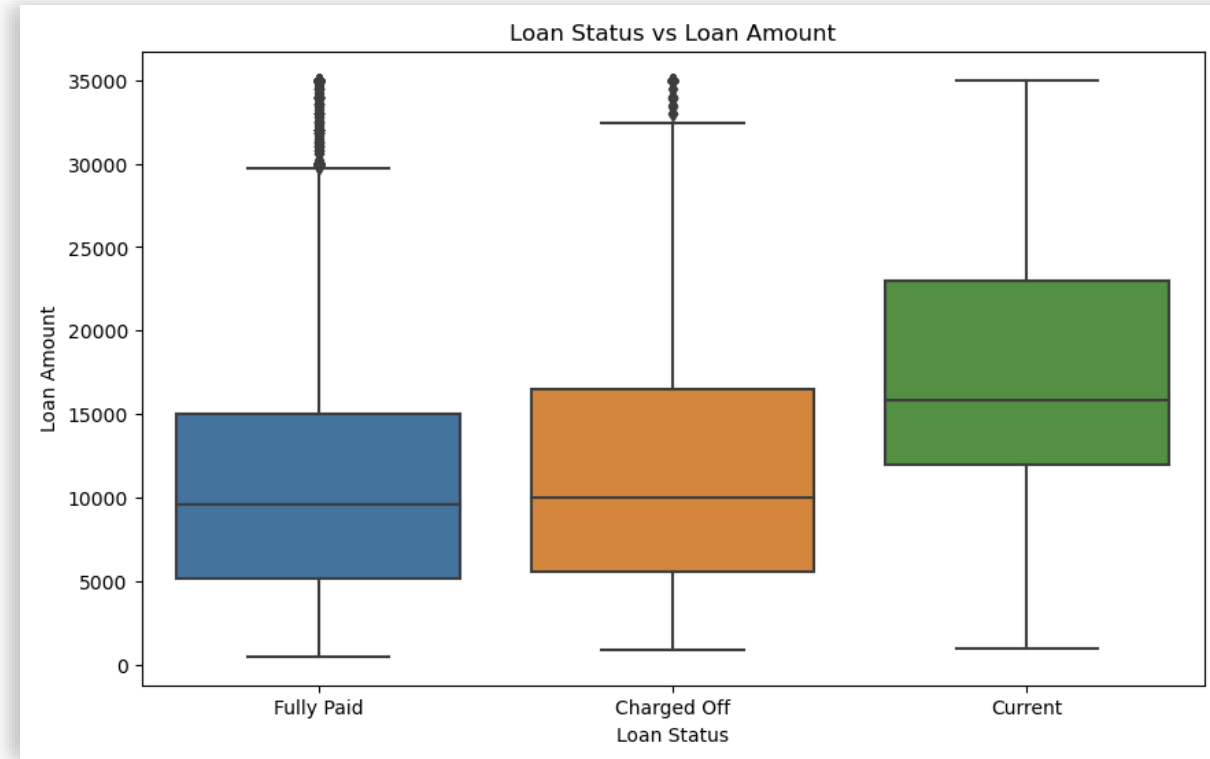


Purpose: Loans are taken mostly for debt consolidation followed by credit card payment. Whereas the debt consolidation has highest fully paid loan but also has highest defaulted loans as well.

Loan Status vs Loan Amount

- ✓ Currently there are no high Loan Amount outliers
- ✓ Most of the high loan Amount are fully paid

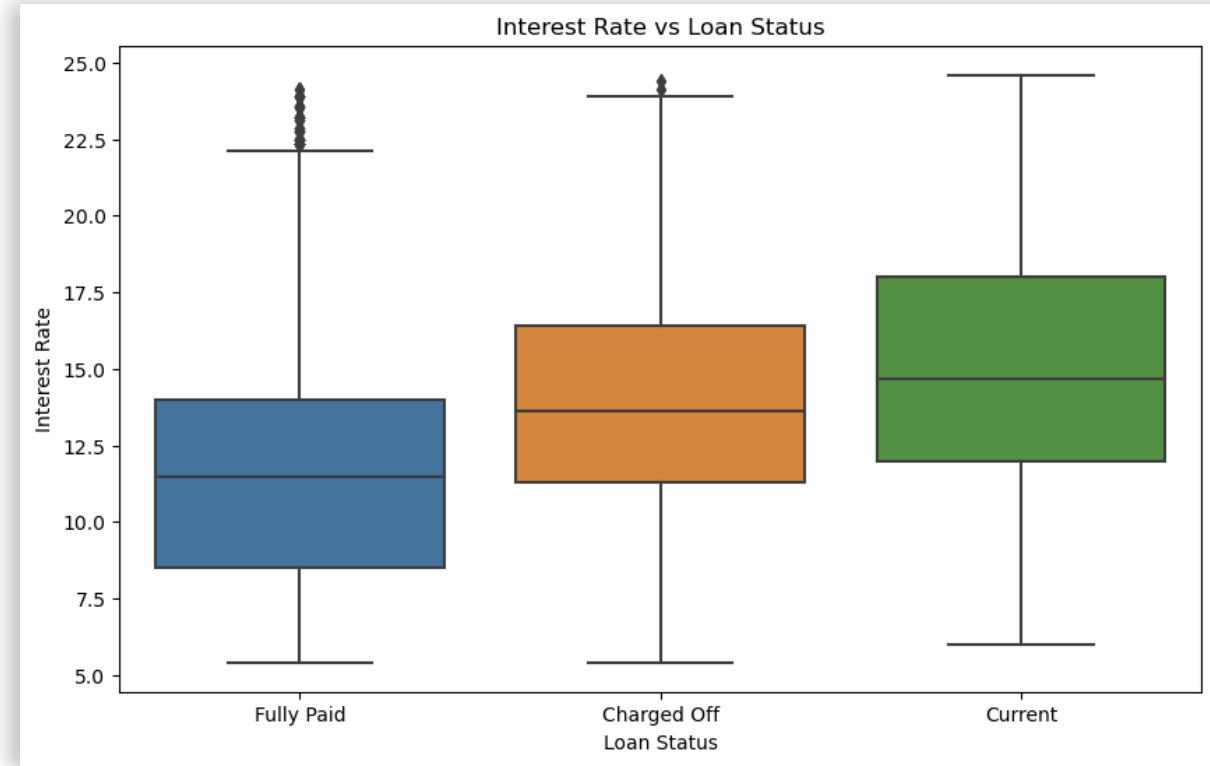
Defaulters have high loan amount which needs to be followed up on closely



Interest Rates Vs Loan Status

- ✓ There are no outliers in current status with respect to higher interest rates.
- ✓ Most of the high interest rate loans are fully paid

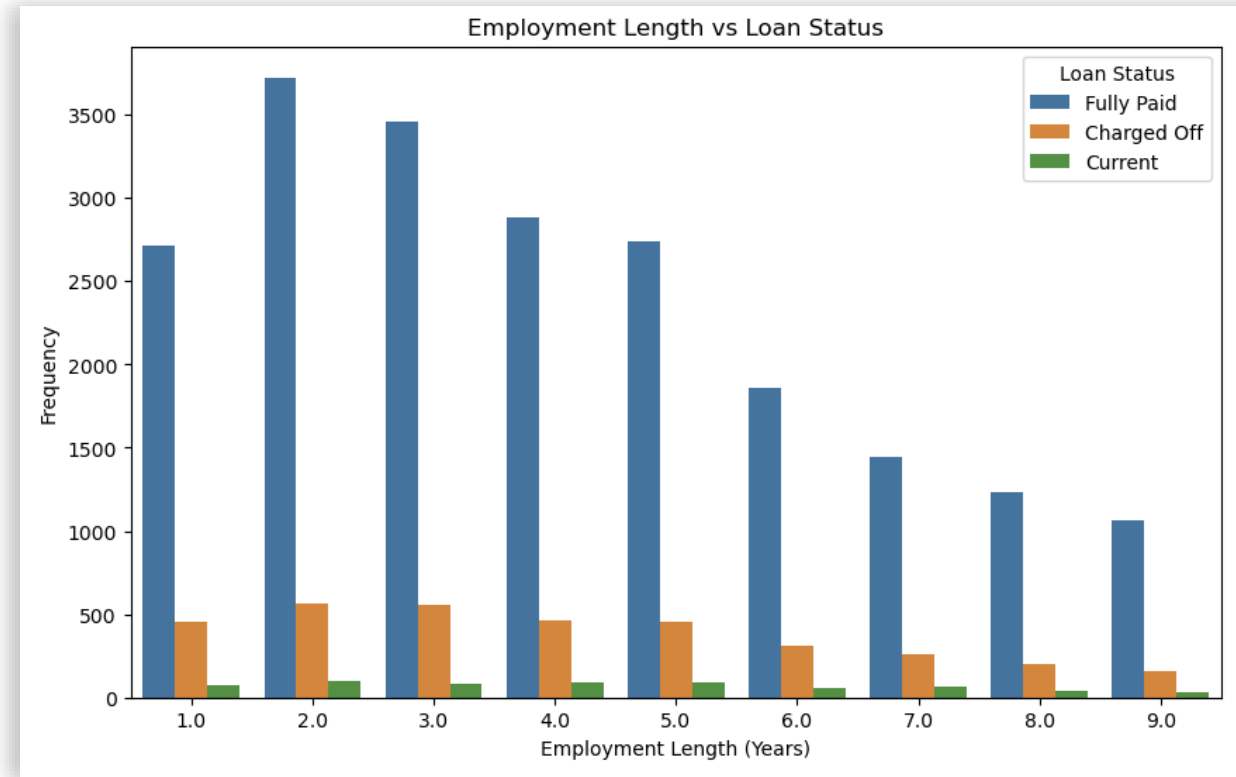
Defaulters also have interest rate
Loans which need to be monitored
and followed up promptly



Employment Length Vs Loan Status

- ✓ It can be clearly understood that across all the Employment tenure buckets most of the loans are fully paid.

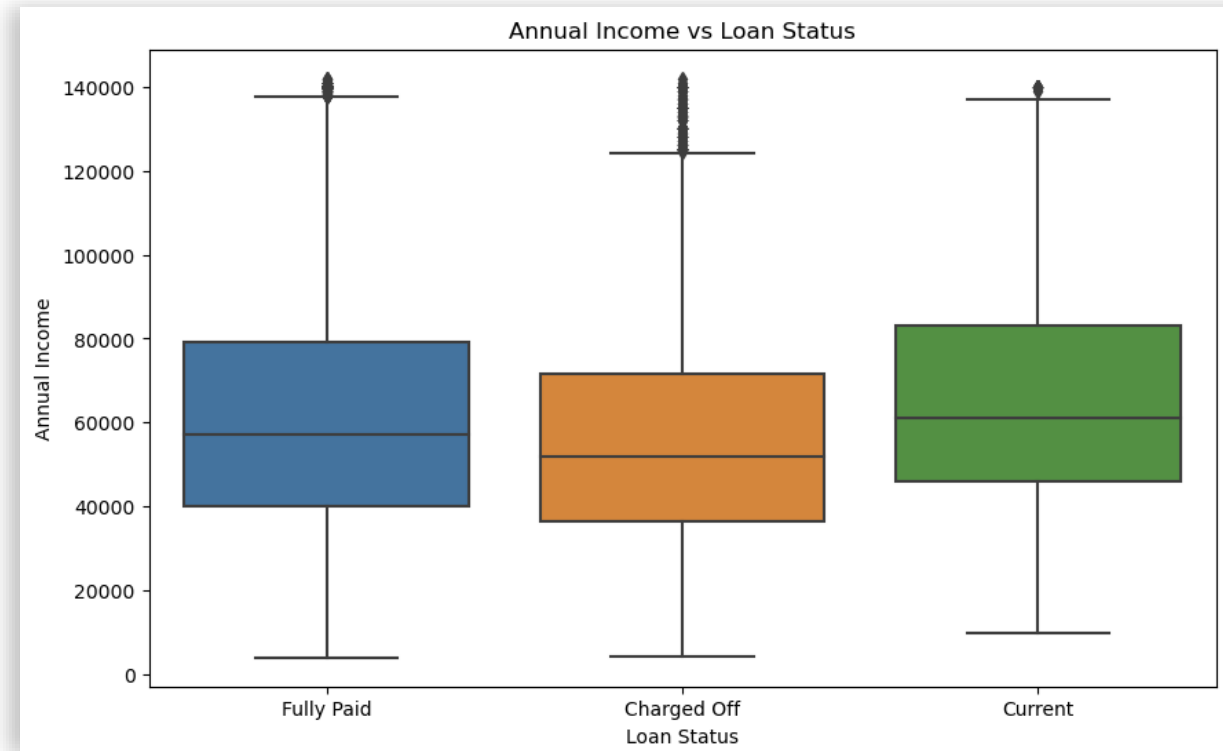
The trend of Defaulters and current keep decreasing as the tenure increases



Annual Income Vs Loan Status

- The mid band is consistent with their loan payment patterns.

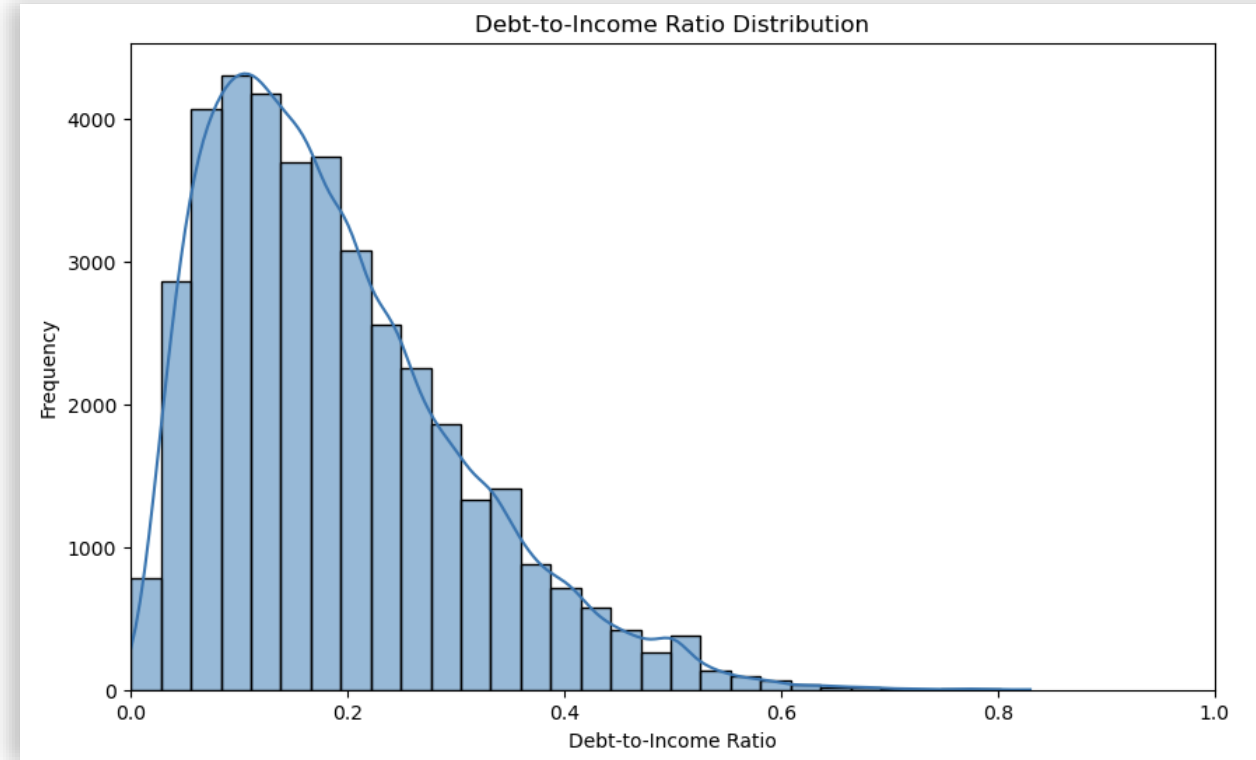
There are many high-income employees that are defaulters.



Debt-to-income

Your debt-to-income ratio (DTI) is all your monthly debt payments divided by your gross monthly income. This number is one way lenders measure your ability to manage the monthly payments to repay the money you plan to borrow.

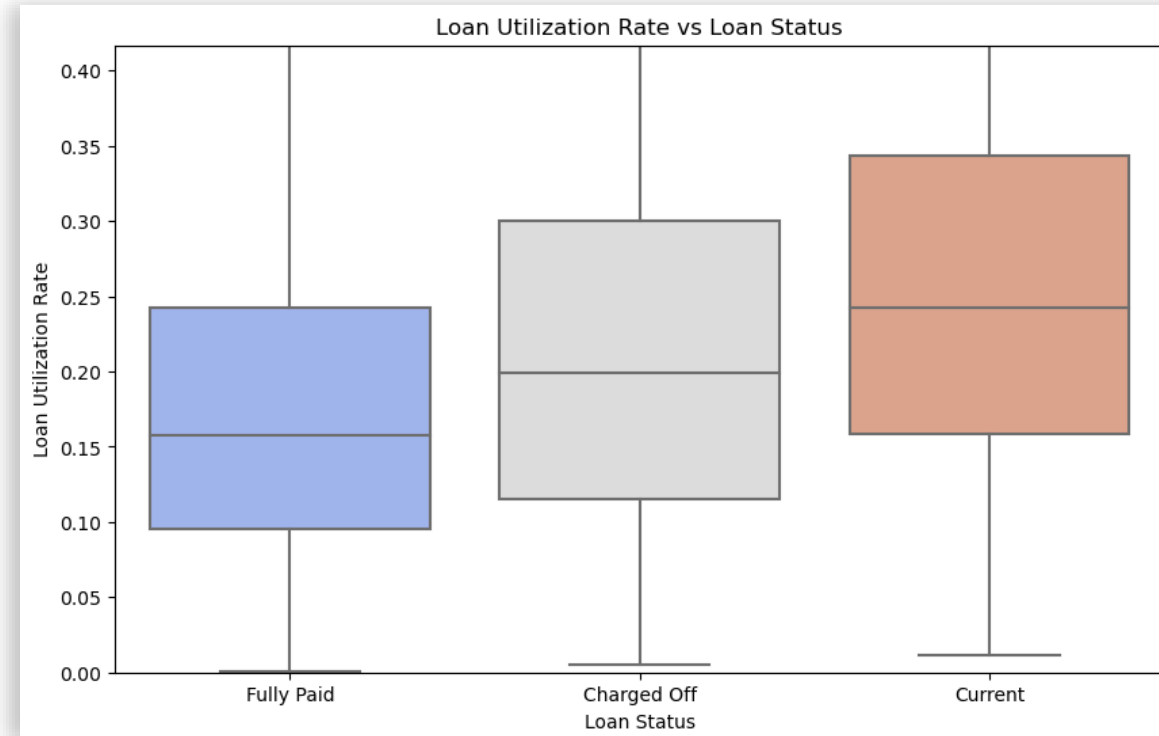
- ❖ Frequency is highest across DTI ratio from 0.1 to 0.2 which is favorable



Loan Utilization Rate

Total Utilization of Revolving Loan Commitments means, as at any date of determination, the sum of (i) the aggregate principal amount of all outstanding Revolving Loans plus (ii) the aggregate principal amount of all outstanding Swing Line Loans plus (iii) the Letter of Credit Usage.

- ❖ The currently unpaid loans needs to be closely monitored as the Loan Utilization Rate seems to be weighing high



Recommendations

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Major Driving factor which can be used to predict the chance of defaulting and avoiding Credit Loss:

1. DTI
2. Annual income
3. Interest Rates





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Major Driving factor which can be used to predict the chance of defaulting and avoiding Credit Loss:

1. DTI
2. Loan Utilization Rate
3. Annual income
4. Interest Rates

Other considerations for 'defaults' :

1. Borrowers having annual income in the range 50000-100000.
2. Borrowers having Public Recorded Bankruptcy.
3. Borrowers with very high Debt to Income value.
4. Borrowers with working experience 10+ years.