



Lending Club Case Study

Contents of this template

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.

The primary objective of this study is to:

- **Identify key predictors of loan default:** Determine which customer and loan attributes have the strongest correlation with default.
- **Provide actionable insights:** Offer recommendations to lending institutions to mitigate credit risk and improve their decision-making processes.

Data Source: Historical data of loan applicants and their repayment statuses.

Process Flow

01

Data Understanding

Understanding the data thoroughly

02

Data Cleaning

Removing unwanted columns and removing or filling the missing values.

03

Univariate Analysis

Analysing the distribution of individual columns

04

Bivariate Analysis

Analysing relationship of various variables with target variable.

05

Recommendations

Showcase our insights and recommendations.

Table of contents

01

Introduction

Describe the topic of
the section here

02

Company

Describe the topic of
the section here

03

Analysis

Describe the topic of
the section here

04

Conclusion

Describe the topic of
the section here

05

Business views

Describe the topic of
the section here

06

Financial plan

Describe the topic of
the section here

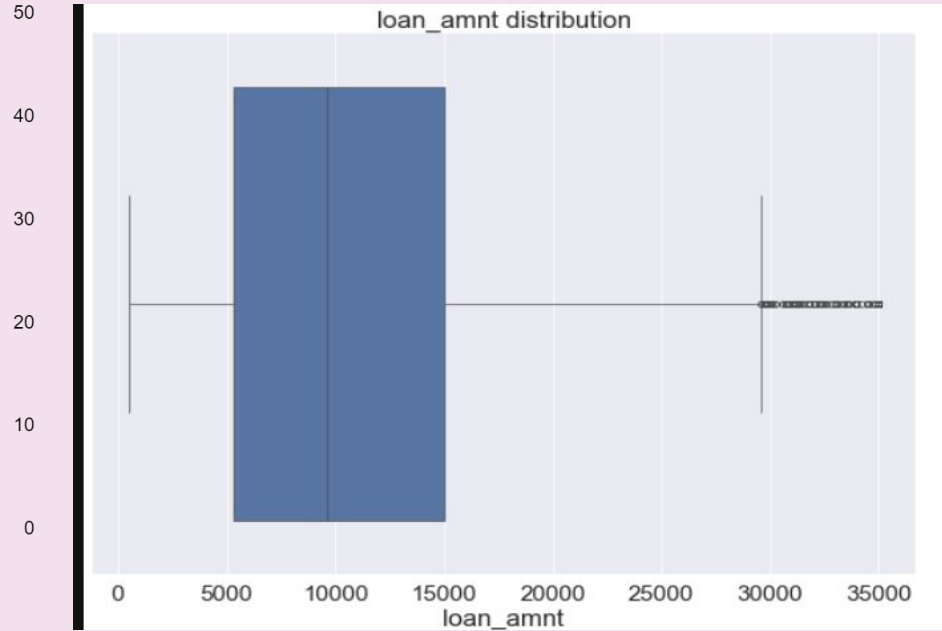
The slide features a light pink background with two horizontal lines. The top line starts with a curve on the left side, and the bottom line ends with a curve on the right side.

UNIVARIATE ANALYSIS

The image features a light pink background with two horizontal lines. The top line starts with a curved line on the left side, and the bottom line ends with a curved line on the right side.

NUMERICAL COLUMNS

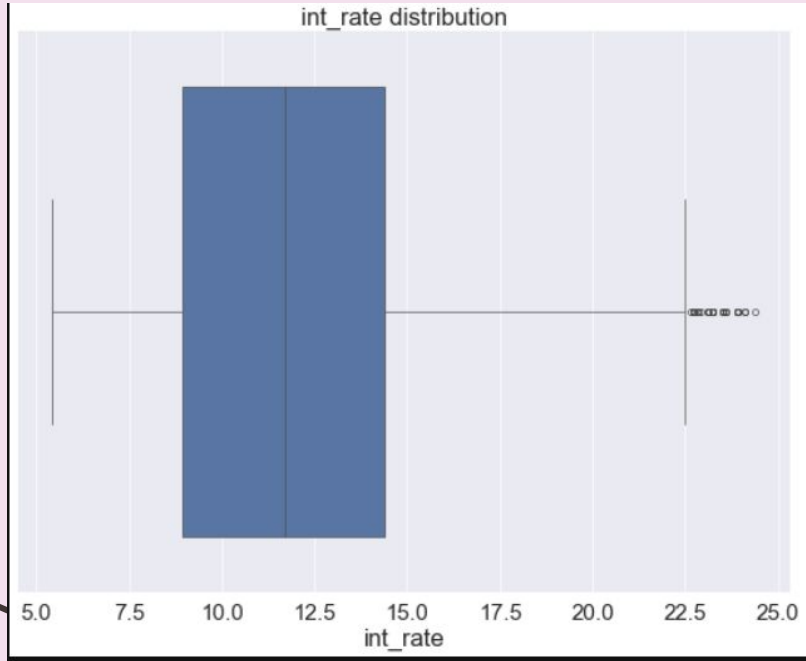
Loan amount distribution



Observations

1. We notice outliers beyond 30K.
2. Median loan amount application is 10K

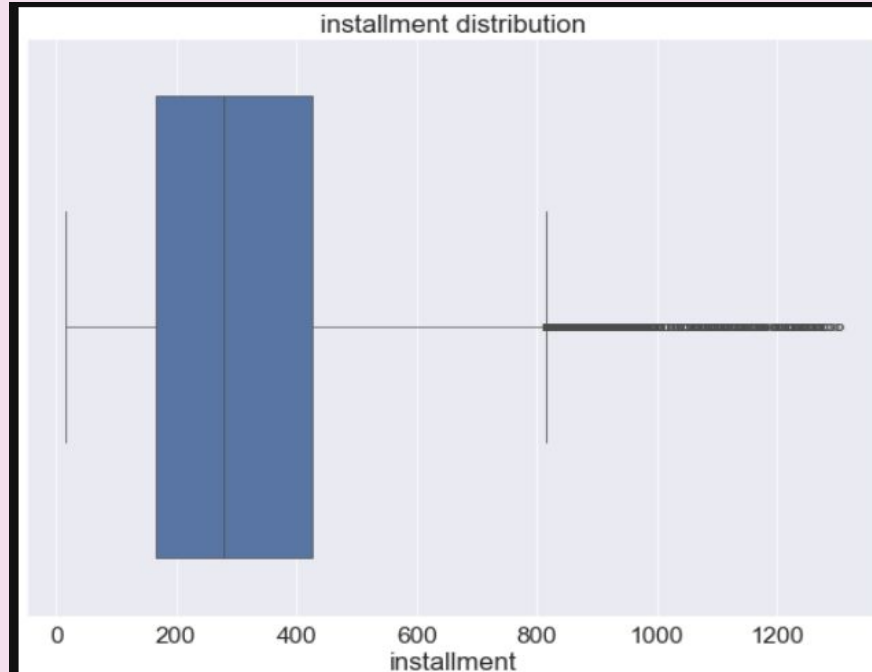
Interest rate distribution



Observations

- We do notice outliers beyond 20.5%

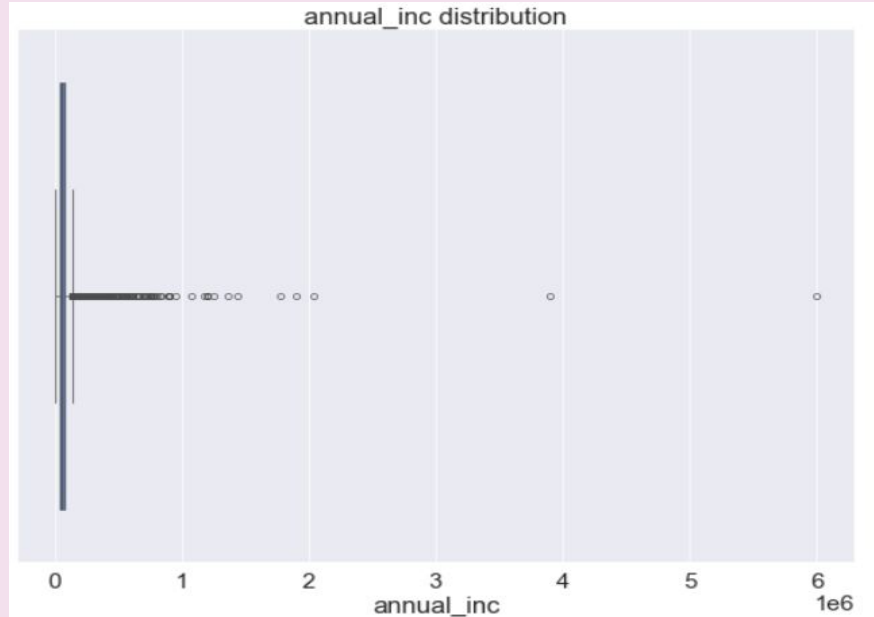
Installment distribution



Observations

- We do notice outliers beyond 500.

Annual Income distribution



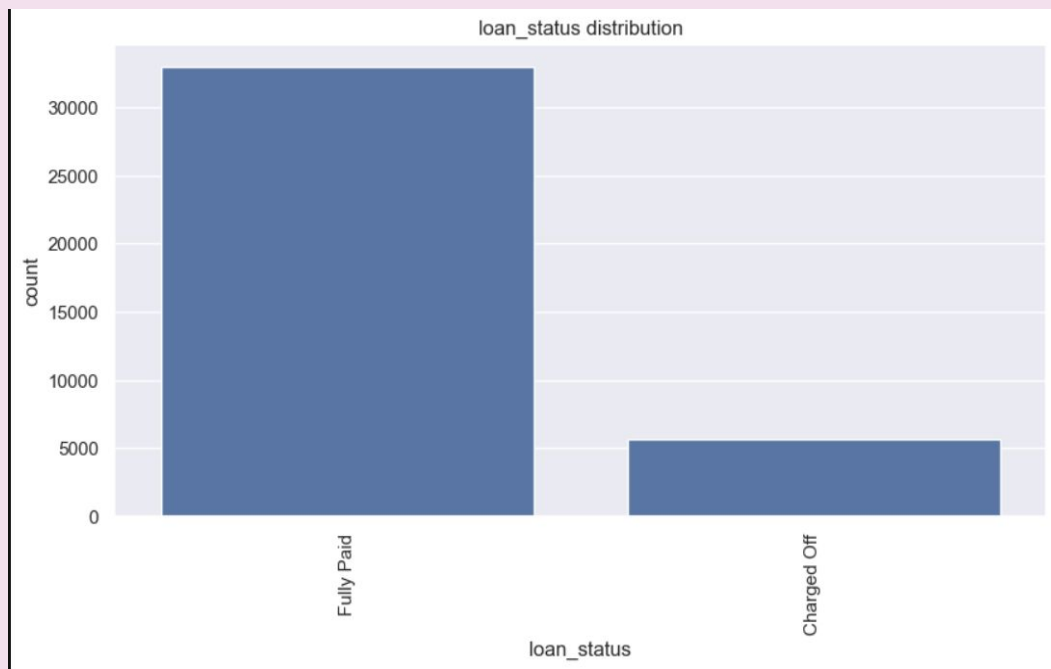
Observations

- We do notice a lot of outliers, post removal of which, data can be analysed efficiently.

The slide features a light pink background with two horizontal lines. The top line starts with a curve on the left side, and the bottom line ends with a curve on the right side.

CATEGORICAL COLUMNS

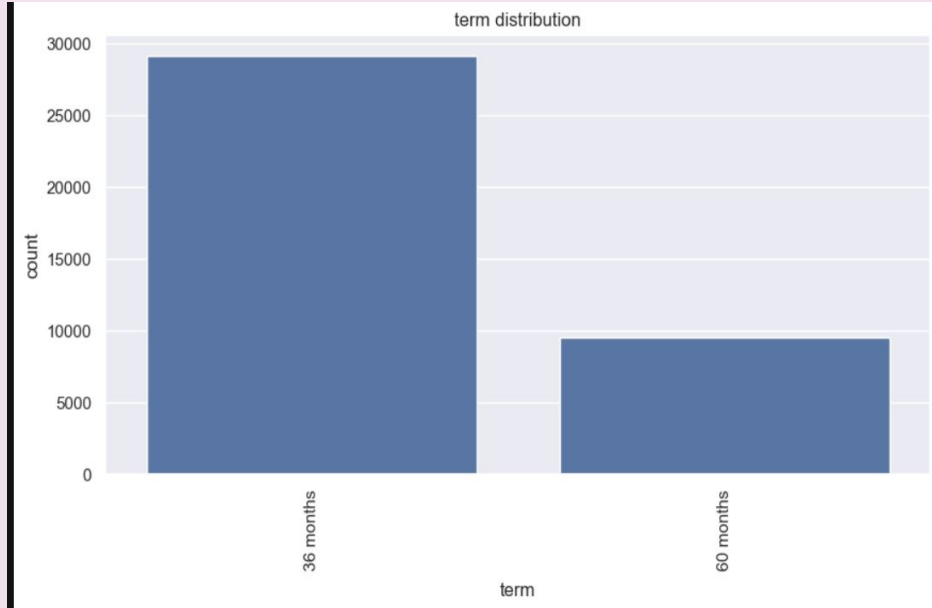
Loan Status distribution



Observations

- There are more fully paid loan applications as compared to charge offs.

Term distribution



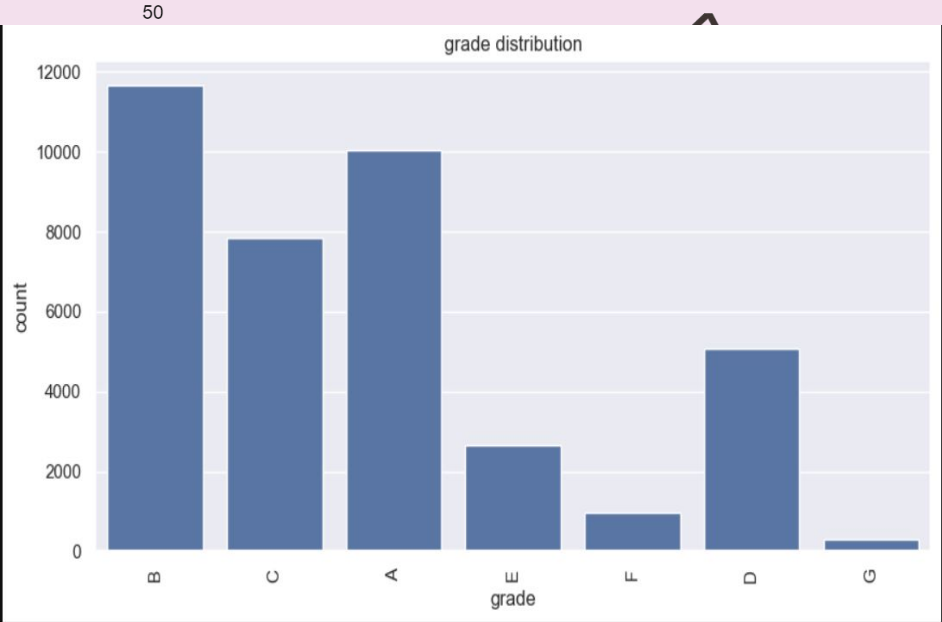
Observations

- Higher loan applications are with a shorter term i.e., 36 months as compared to that of 60 months.

Grade distribution

Observations

- A, B,C are the top three grades where most of the count lies, highest being B.



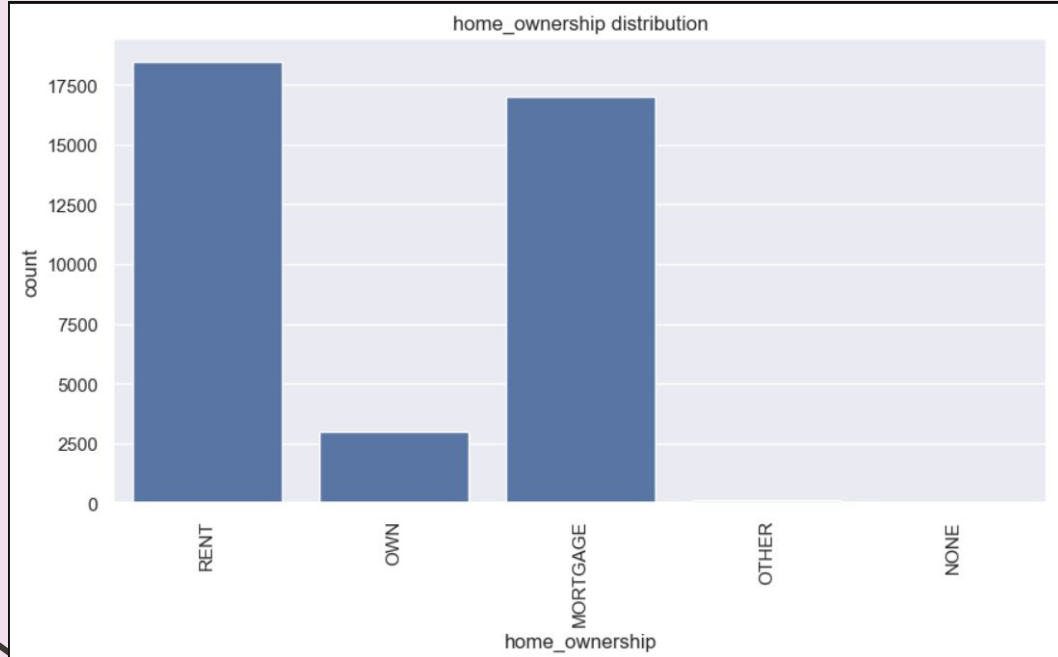
Verification Status distribution



Observations

- Most of the loan applications here are not verified which could be risky

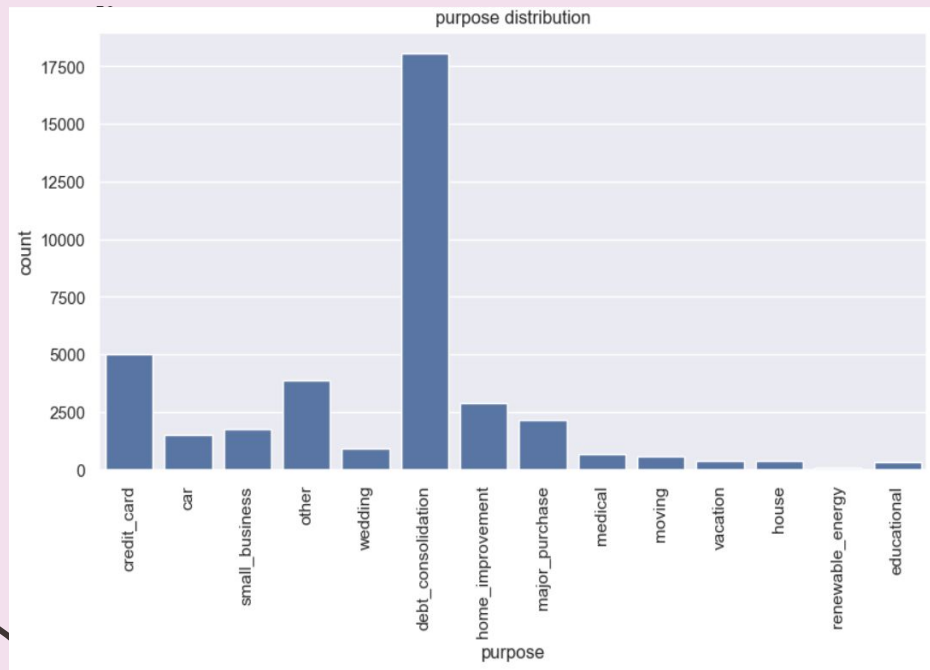
Home Ownership distribution



Observations

- About 90% of the loan applicants either have a mortgage or are on rent and about 6% are home owners

Purpose distribution



Observations

- We notice that most of the loans have been consumed for debt consolidation.

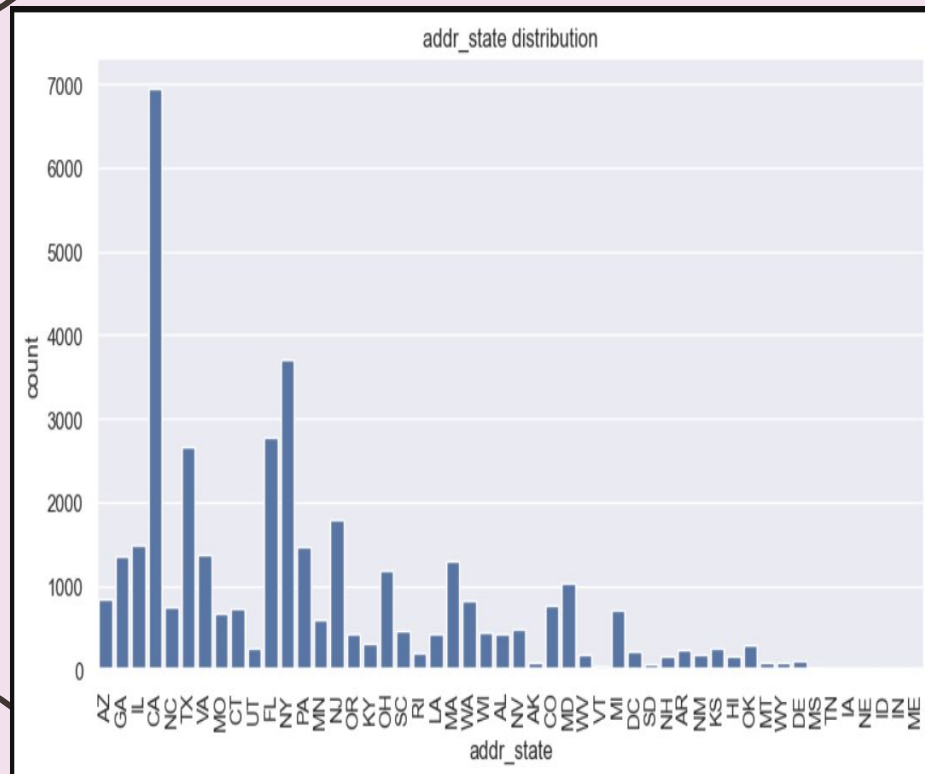
Zip code distribution



Observations

- Specific zip codes to have higher consumption

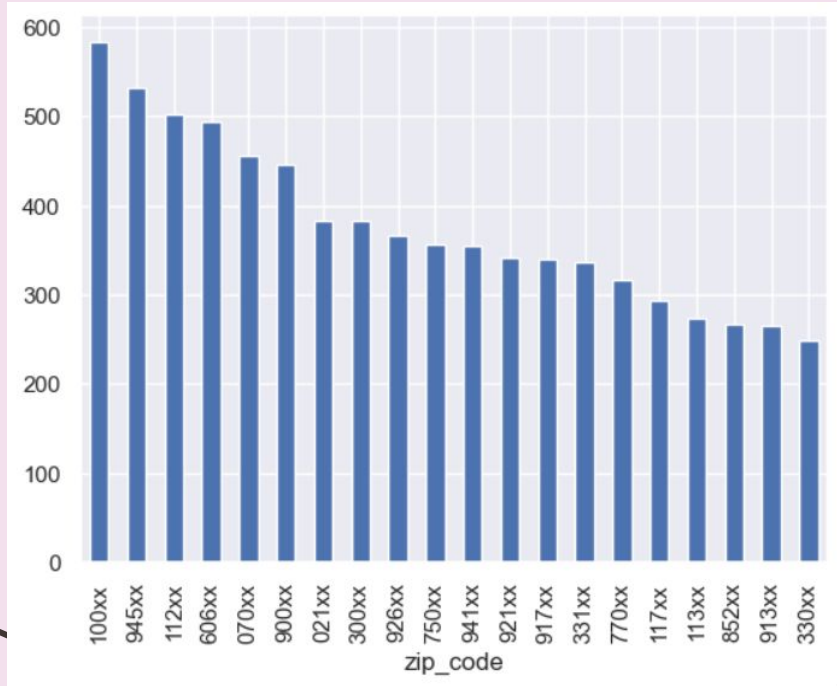
Address state distribution



Observations

- Top loan accounts originate from well known progressive states such as CA, NY, FL, TX

Zip code distribution



Observations

- Specific zip codes to have higher consumption

Maybe you need to divide the content



Mercury

Mercury is the closest planet to the Sun and the smallest one



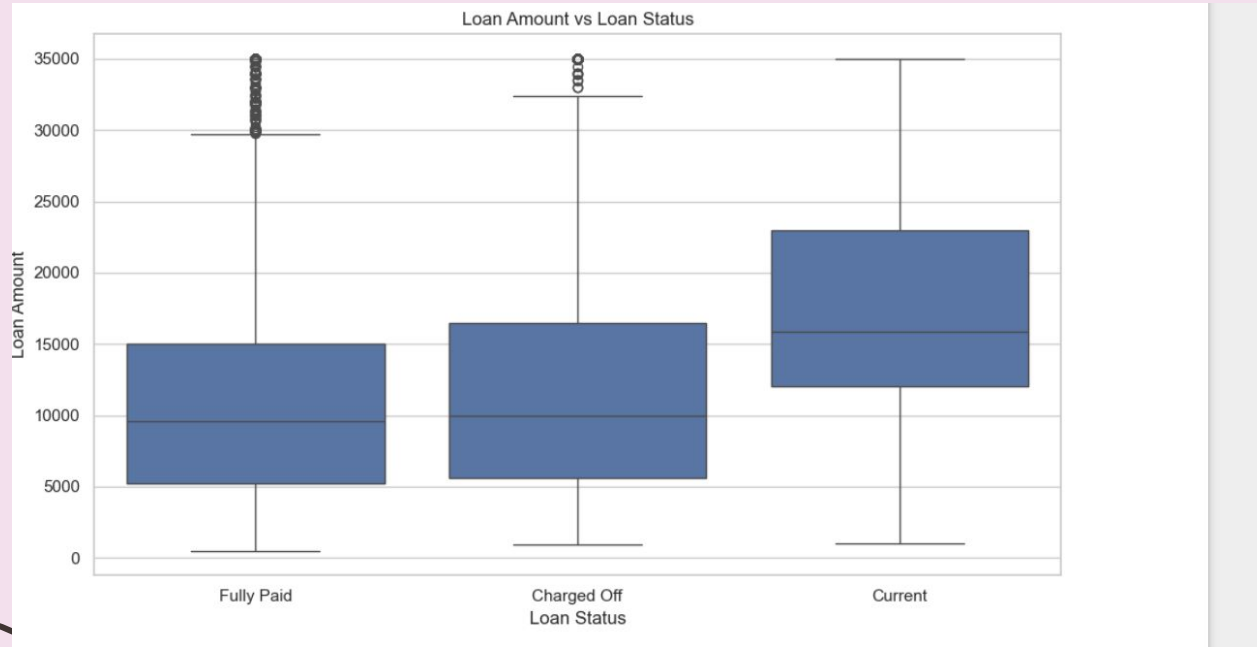
Venus

Venus has a beautiful name and is the second planet from the Sun

The slide features a light pink background with two horizontal lines. The top line starts with a curve on the left side, and the bottom line ends with a curve on the right side.

BIVARIATE ANALYSIS

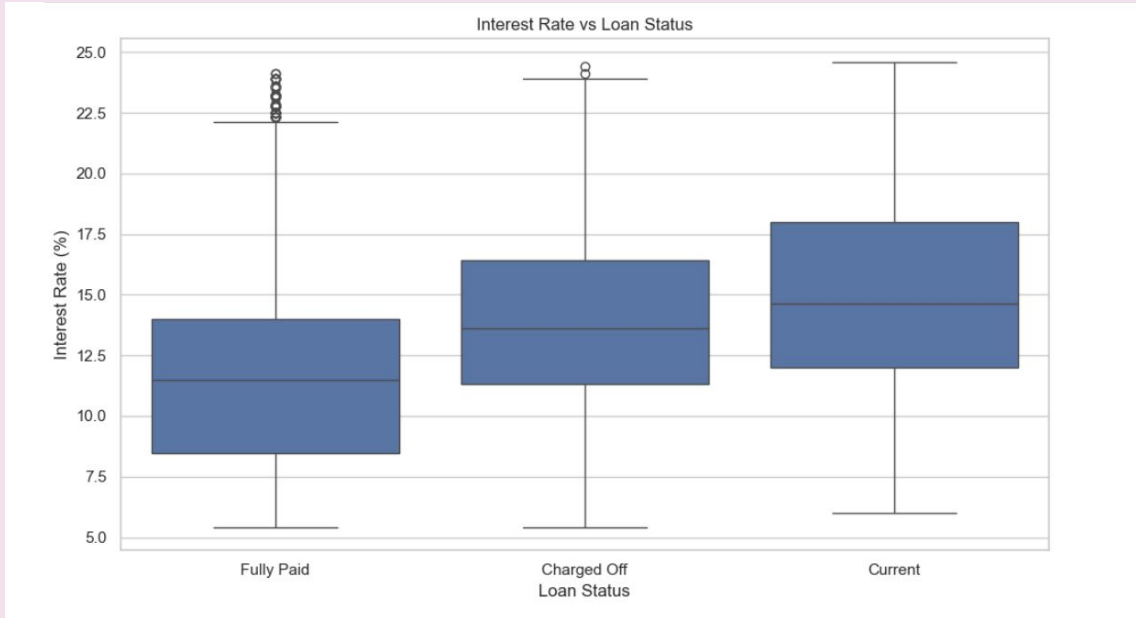
Loan Amount VS Loan Status



No Relation

Loan amount does not seem to affect probability of default.

Interest Rate VS Loan Status



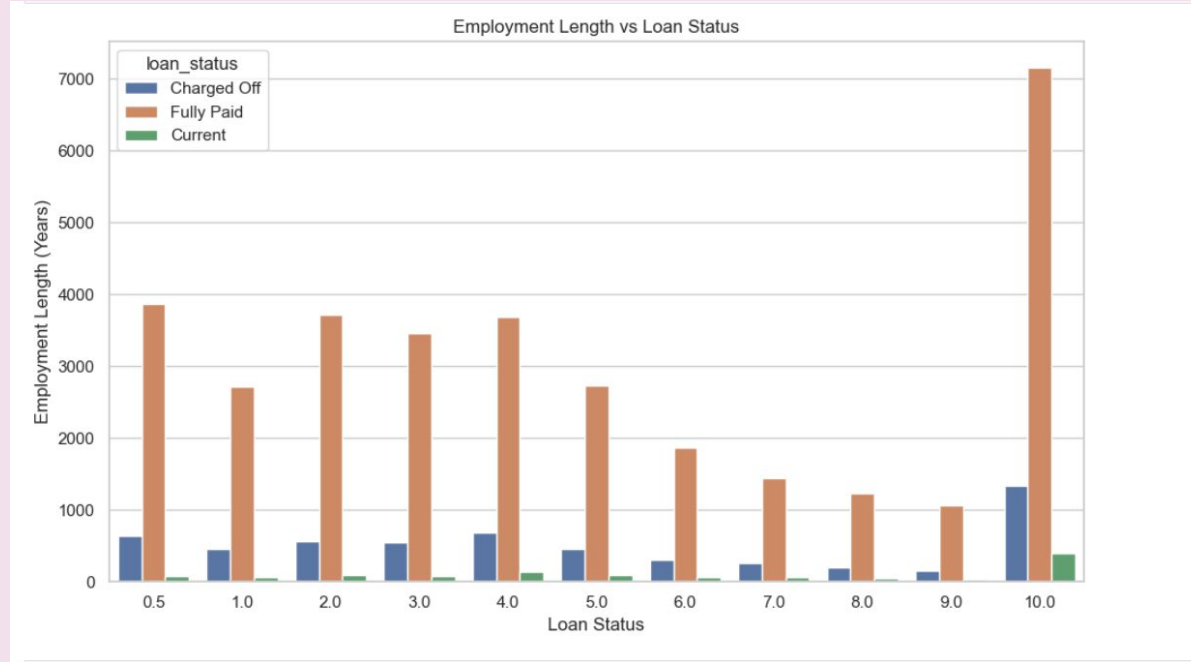
Observations

Higher the Interest, Higher is the tendency to default

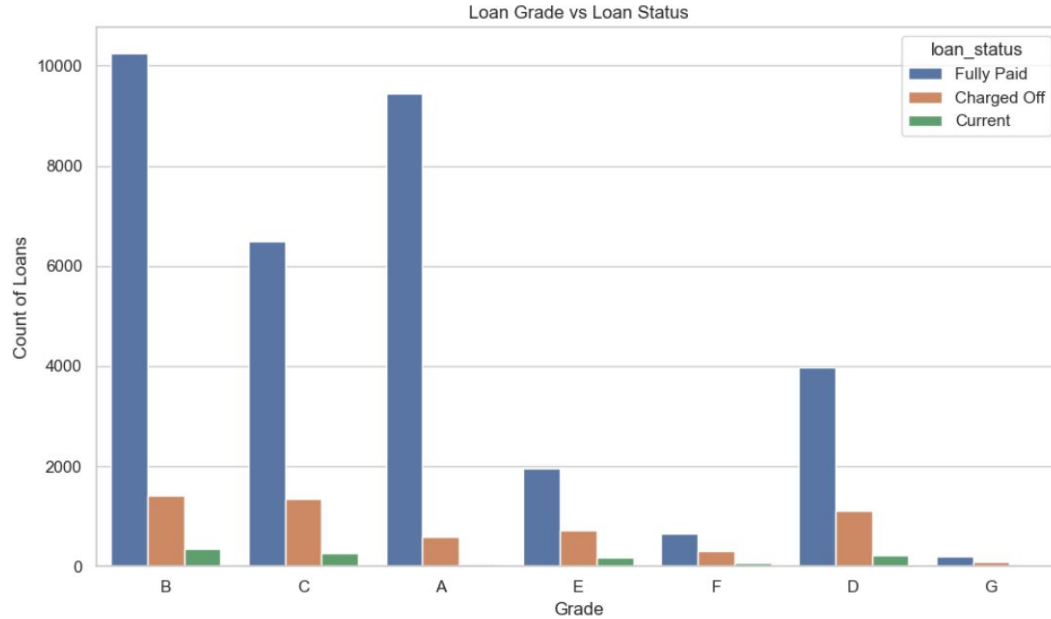
Employment Length VS Loan Status

Observations

- The tendency to default decreases until 10 years and after that there is a sudden increase.



Loan Grade VS Loan Status



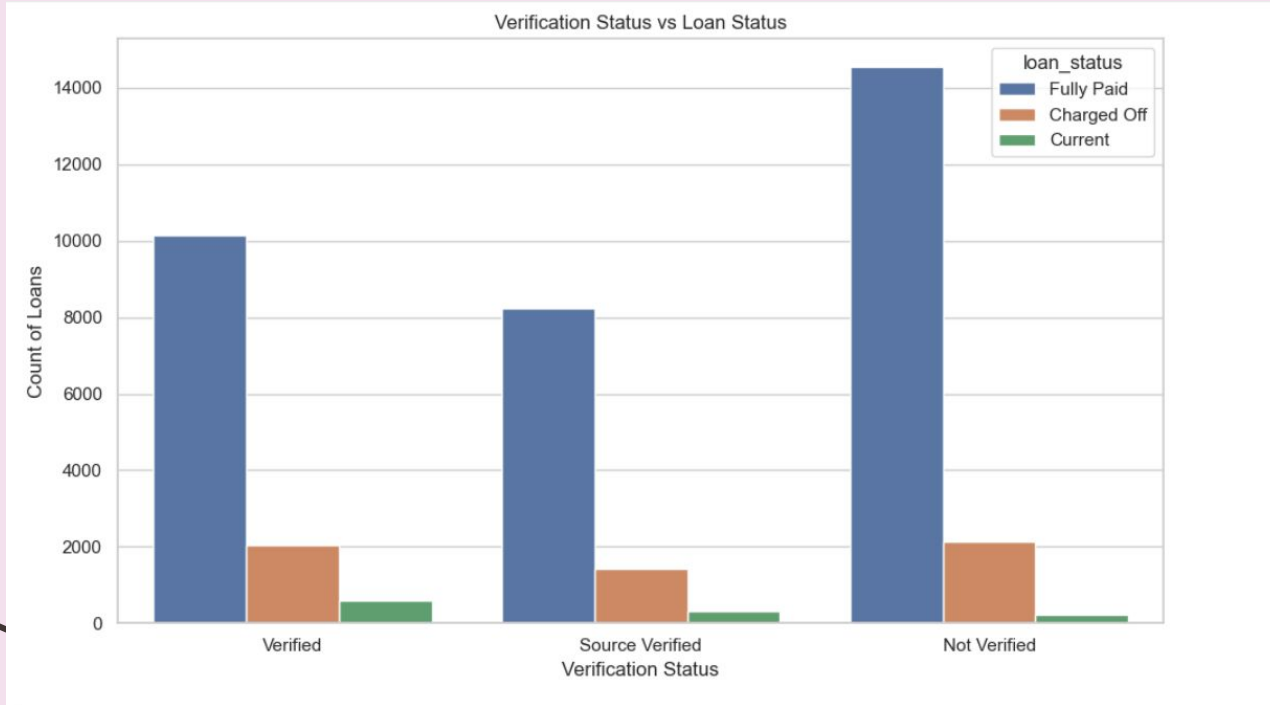
Observations

Loan Grade B , C , D , E posses High risk of default. A,F G have Low Risk of Default

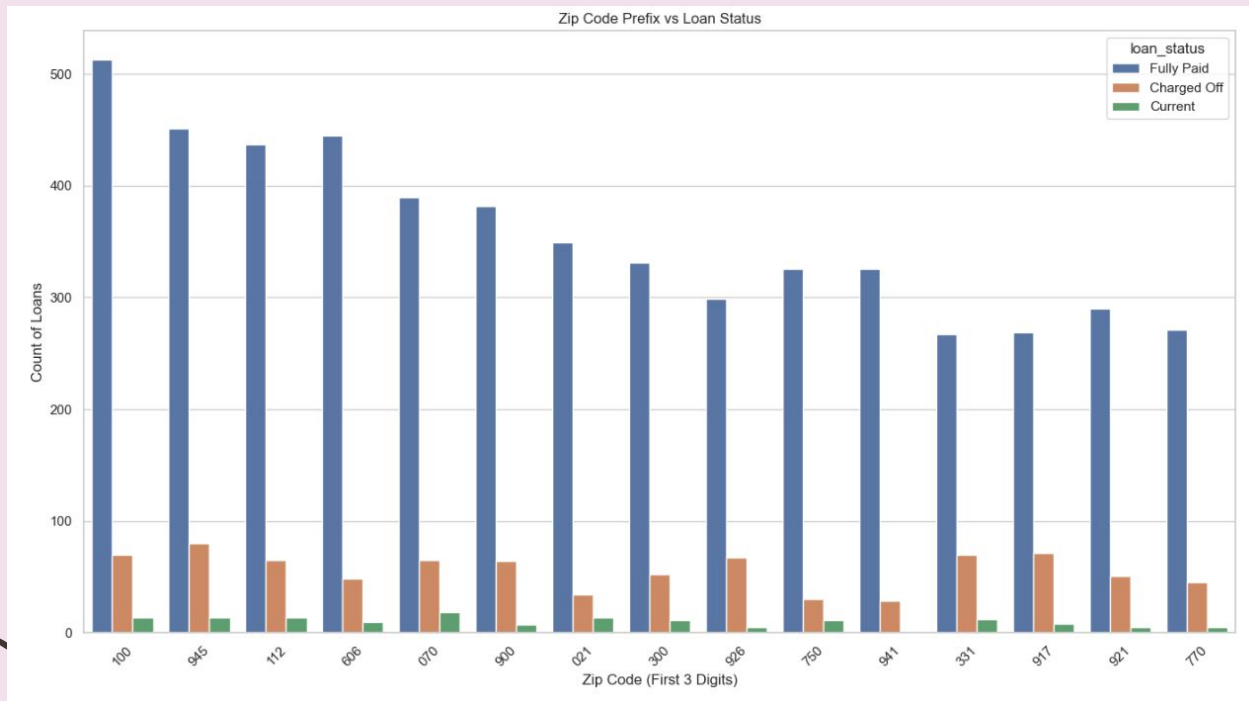
Verification Status VS Loan Status

Observations

Verified and Unverified Loans have same number of Defaults. Source verified have lesser defaults.



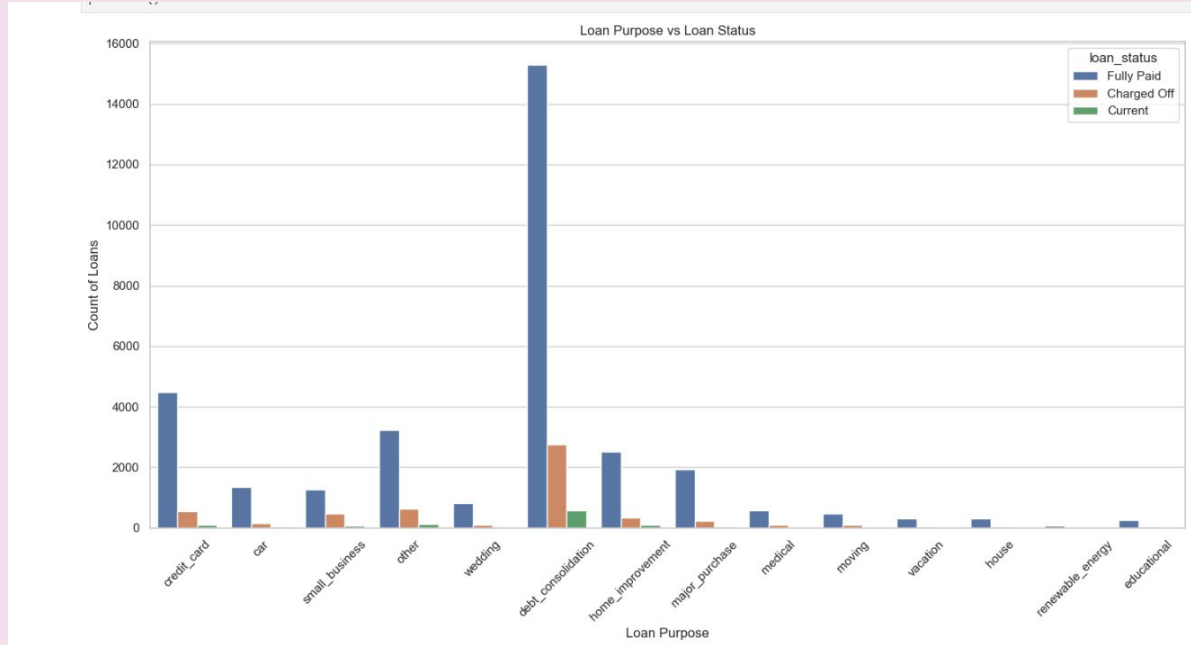
Zip Code VS Loan Status



Observations

606,021,750,941 Zip codes have less defaults than others.

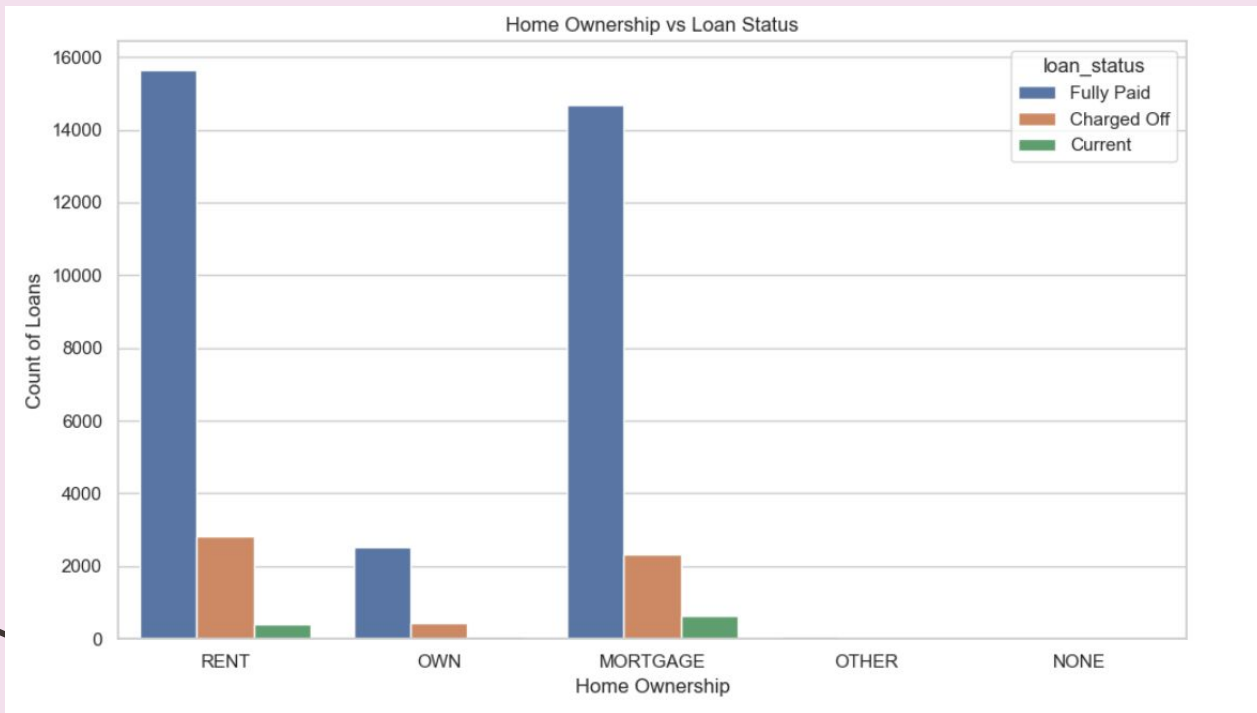
Loan Purpose VS Loan Status



High Risk Purposes

Loan Purpose Like Credit Card, Debt Consolidation, Small Business have High Risk of Defaults

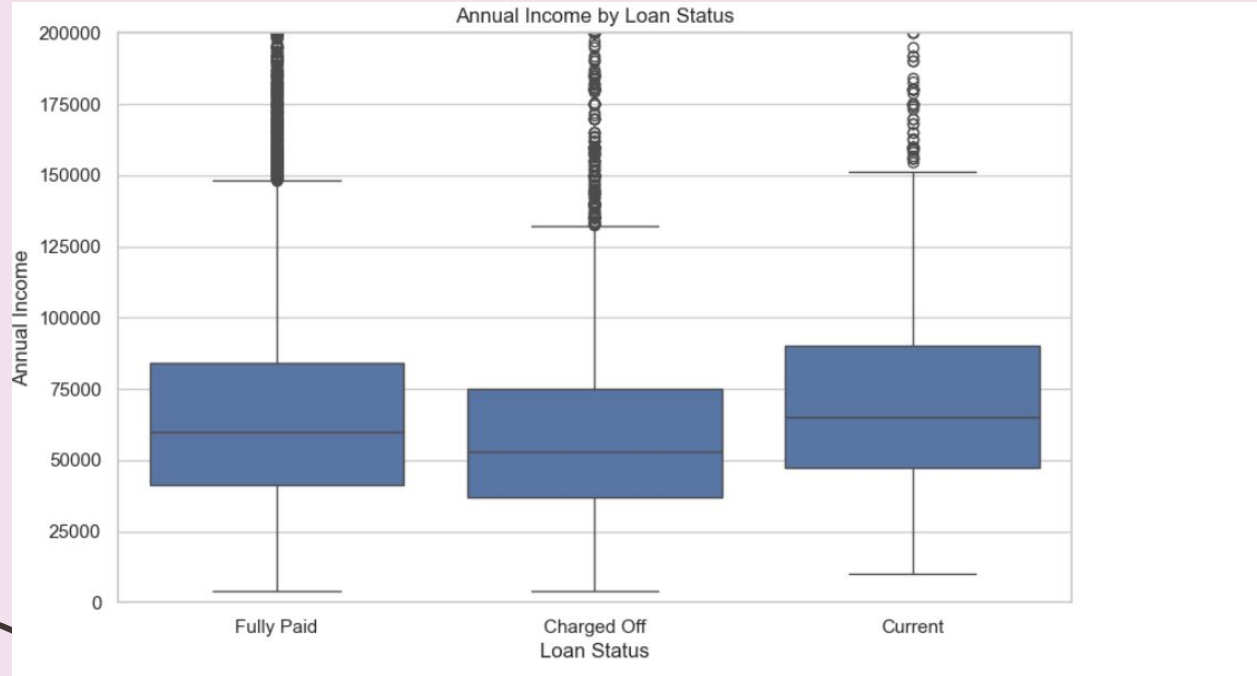
Home Ownership VS Loan Status



Observations

Rented and Mortgage home owners are more likely to default

Annual Income VS Loan Status



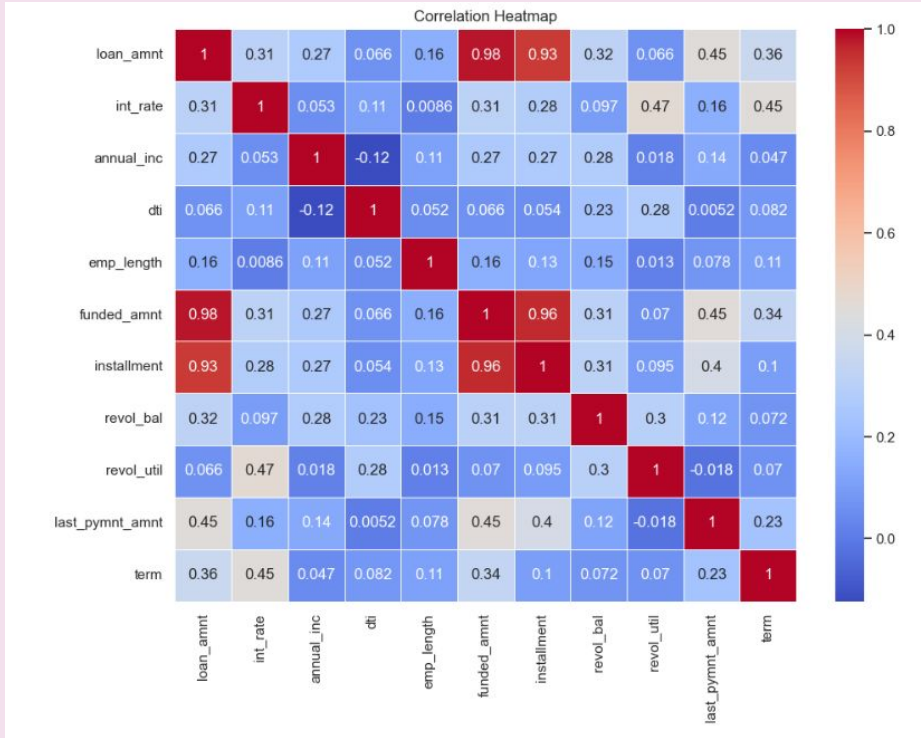
Observations

With Decrease in Income level
Probability of Default increases..



MULTIVARIATE ANALYSIS

Correlation Heatmap



Observations

Source Verified have less amount of defaults than the verified .

Insights & Recommendations

Insights :

1. Applicants with greater interest rates above 14% are much more likely to default.
2. Borrowers with credit grades D, C ,E, F have significantly higher default rates, making them riskier.
3. Borrowers taking loans for debt consolidation, small business, credit card are more likely to default.
4. Shorter employment tenure (less than 1 year) or after 10 years increases the likelihood of default.
5. Source verified applicants seem to have lesser default

Recommendations:

1. Engage more with employees with experience over 1 year and lesser than 10 to expand the pool by learning about their needs
2. Scrutinize purpose and public bankruptcy record of the loan applicants to prevent risk of default.



Thank You

Submitted By Sagar Sen

