Lending Club Case Study

Prepared by
Group Felicitator – Vinay Naik
Group Member – Vipul Fande

Problem Statement

- A business lending company wants to identify wants to reduce the **"Credit loss"** in other words, reduce the risky borrowers.
- The company wants to understand the **driving factors (or driver variables)** behind loan default, i.e. the variables which are strong indicators of default.
- Identifying the riskier part of business can help to reduce the loss making customers and thereby increasing the company's and investor's profit.

Analysis Approach

- Cleaning up of columns having null values

- Cleaning up of redundant columns which are not important for our analysis

- Date Conversion into proper Date Time format

- Cleanup of columns with numeric values (Removing percentage sign)

- Format conversion of columns

- Filtering data to contain the either Fully Approved or Charged-off loans I.e., removed the current status.
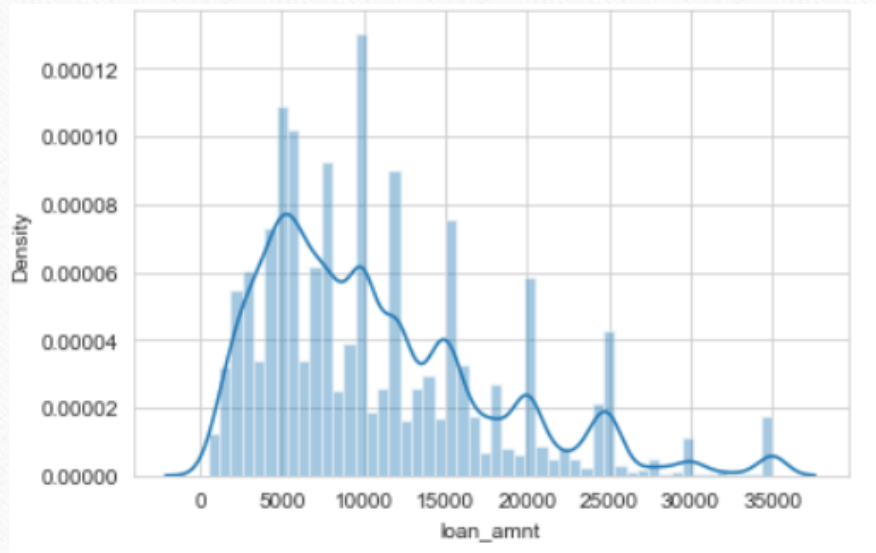
- Univariate Analysis (Analysis of most basic columns vs count)

- Bi-variate analysis (Analysis of 2 columns) and analysis whether they lead to Fully Paid or Charged customers

- Multi-Variate Analysis - Analysis of all the numeric columns to find the correlation between them.

Loan Amount Distribution

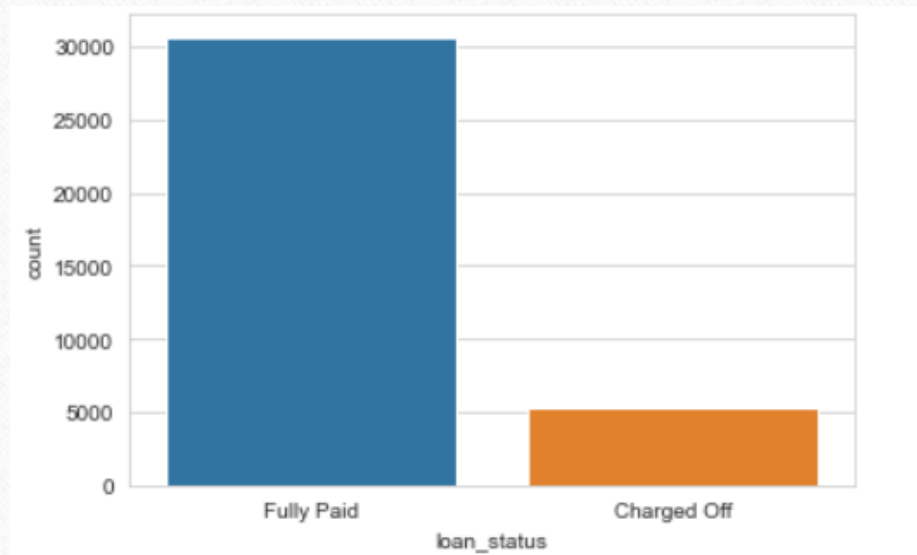
Description

- We can see from the plot that maximum people apply for a loan amount of around 5k.
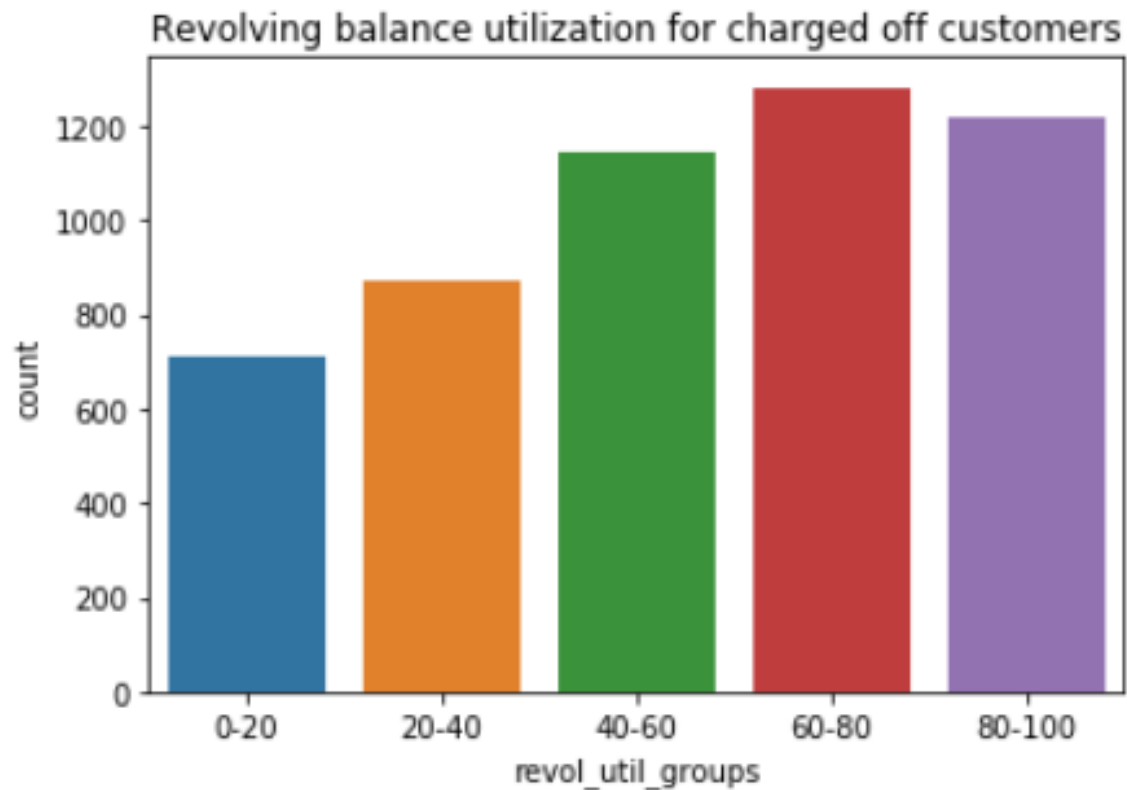
Loan status counts

Loan status count

More people tend to repay their debts, However there is a small sum of people still going under charged-off Category.

Revolving balance utilization trend for charged-off customers


Revolving balance utilization for charged off customers

This is one of the most important stat we got from our analysis. The customers which might be potentially charged-off have a high Revolving balance utilization. So This is a red-flag which we should observe.
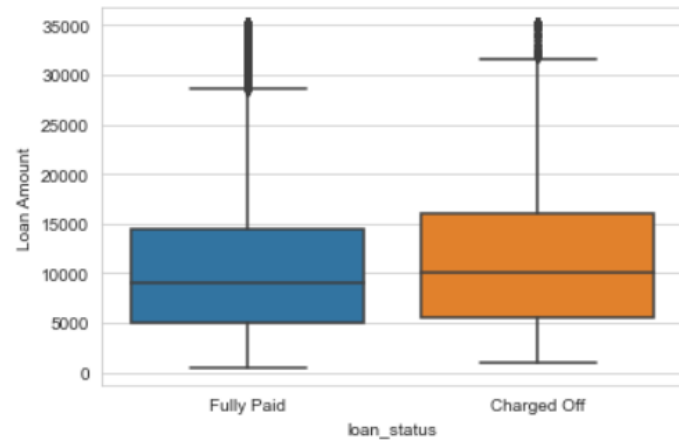
Bi-variate Analysis

Most common purpose of Loan

- Debt consolidation comes out to be the most common reason for loan application. However, the ratio of Fully paid to charged-off customers remain across all the purposes
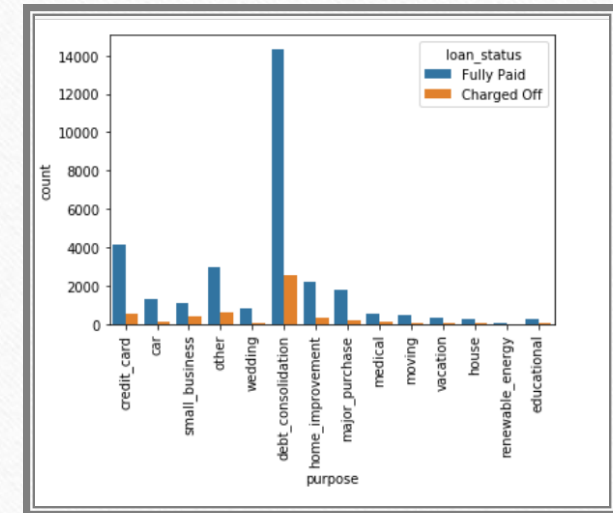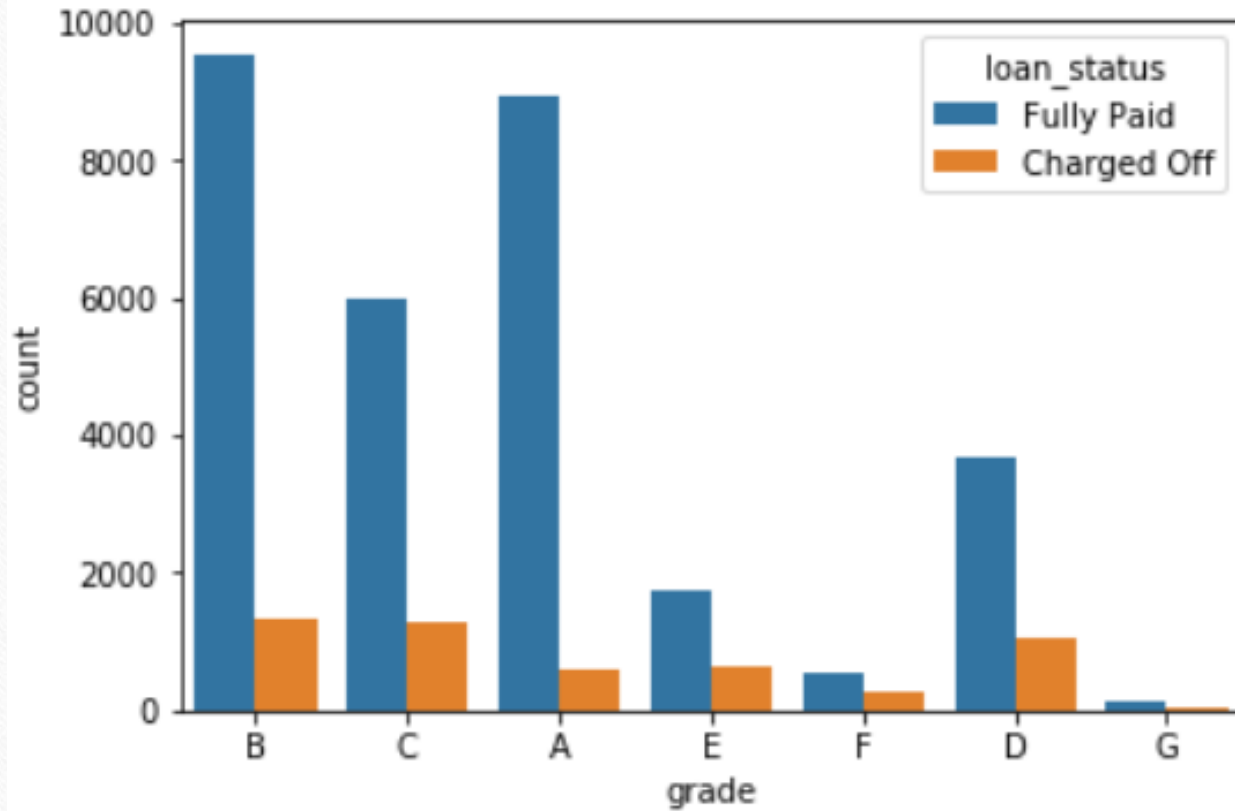
Loan Amount Vs Loan Status

- The customers who tend to take loan of amount 10k or more tend to be charged-off in the end. This suggests to us that loan amount of 10k or less is less riskier
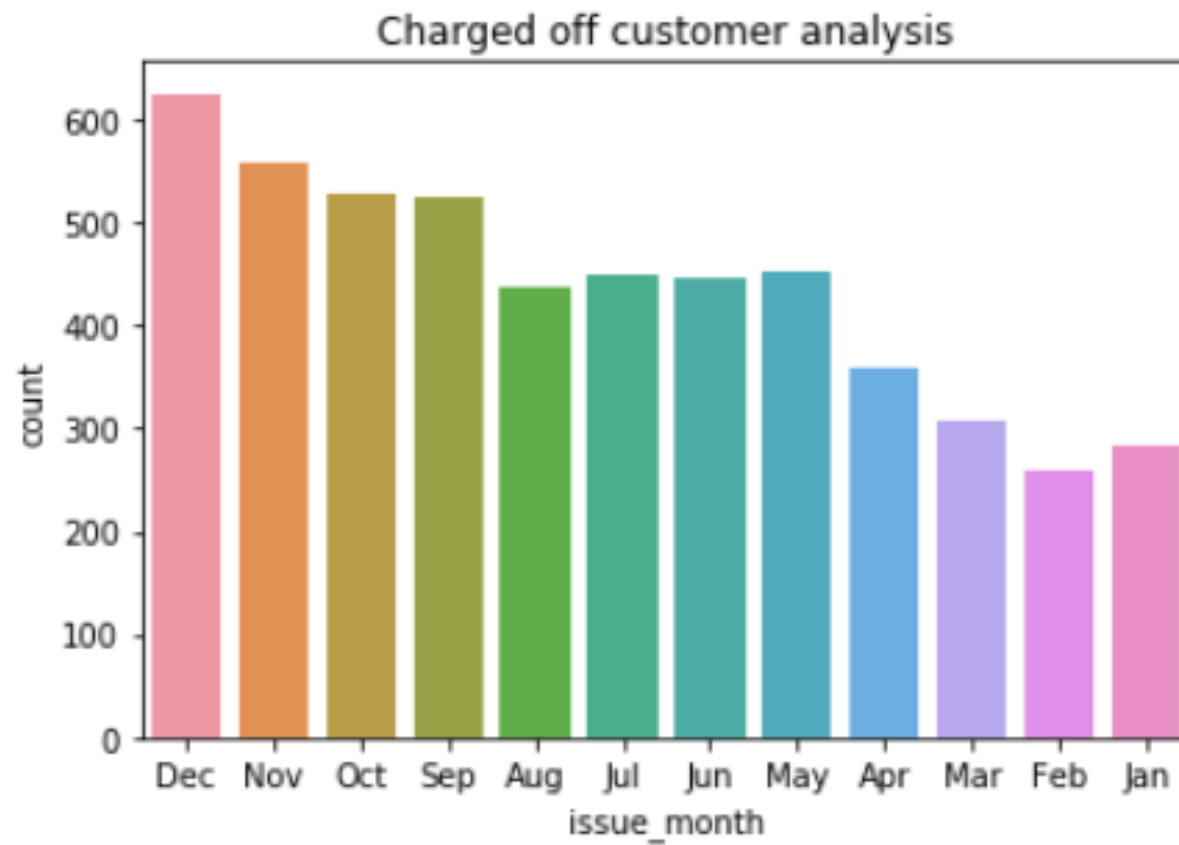
customer grade vs loan status

Grade 'B' customer category is the category is the one whose loans are getting approved.

Month-wise analysis of charged-off loan issue

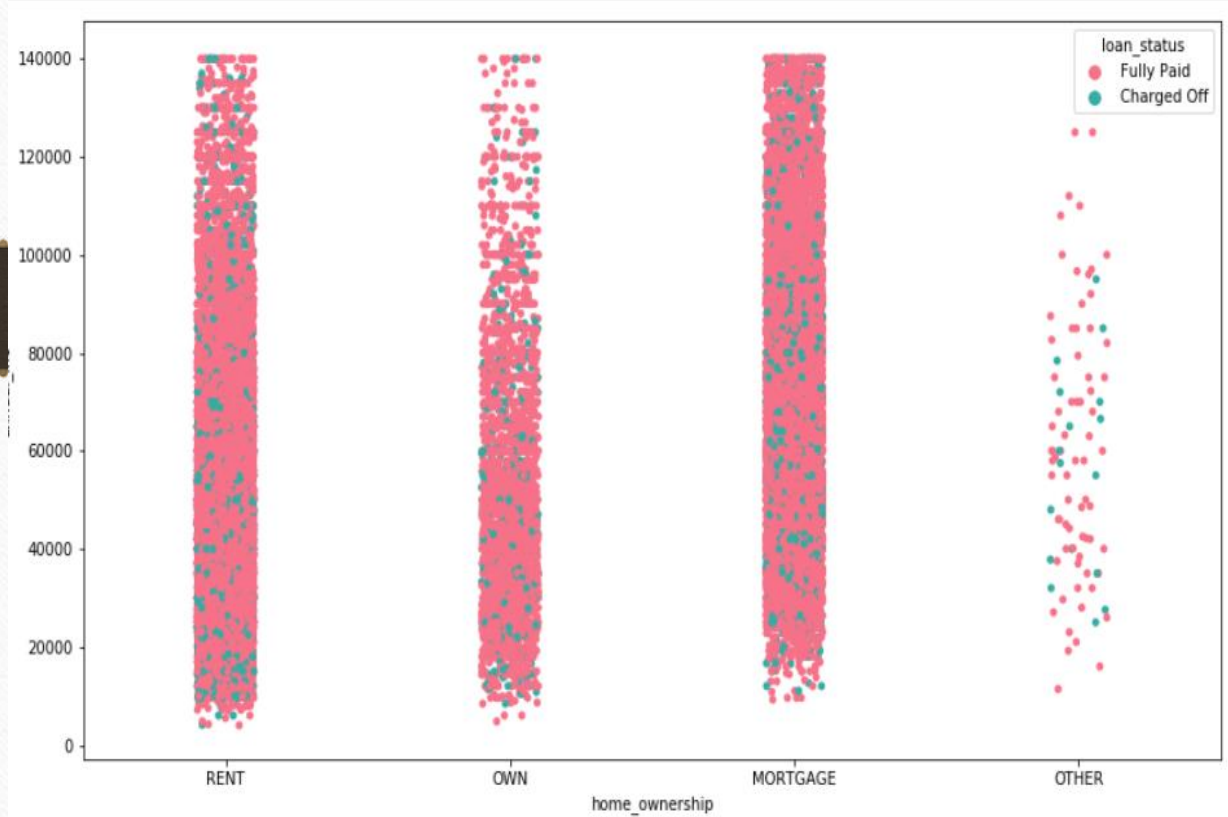Charged off customer analysis

The analysis suggests that most of the charged-off customers applied for loan on the month of Dec.

There is a monthly increase trend of increase.

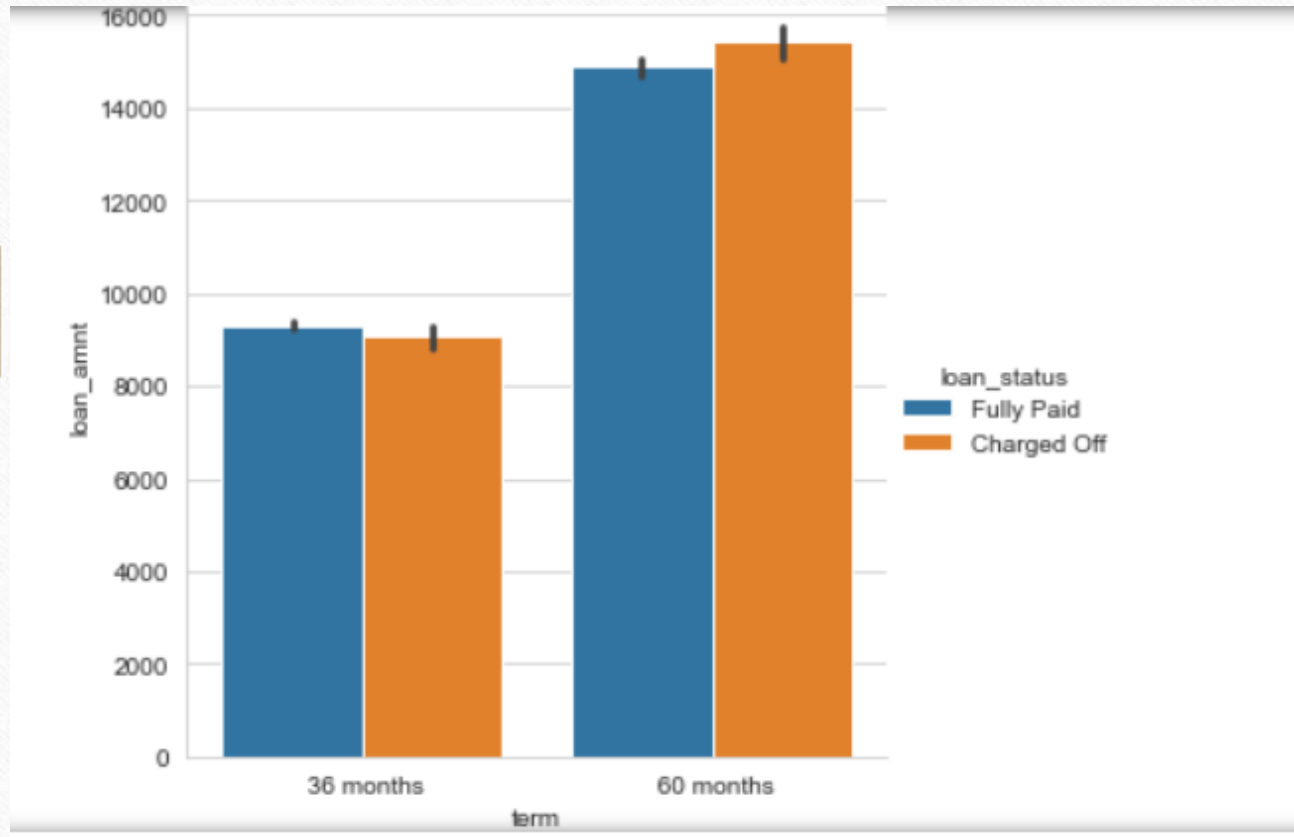This can be considered for further exploration.

Home ownership vs Loan Status

The above figure shows the mid-income group whose loan is granted mostly to those customers who mortgage their home for the purpose of taking loans
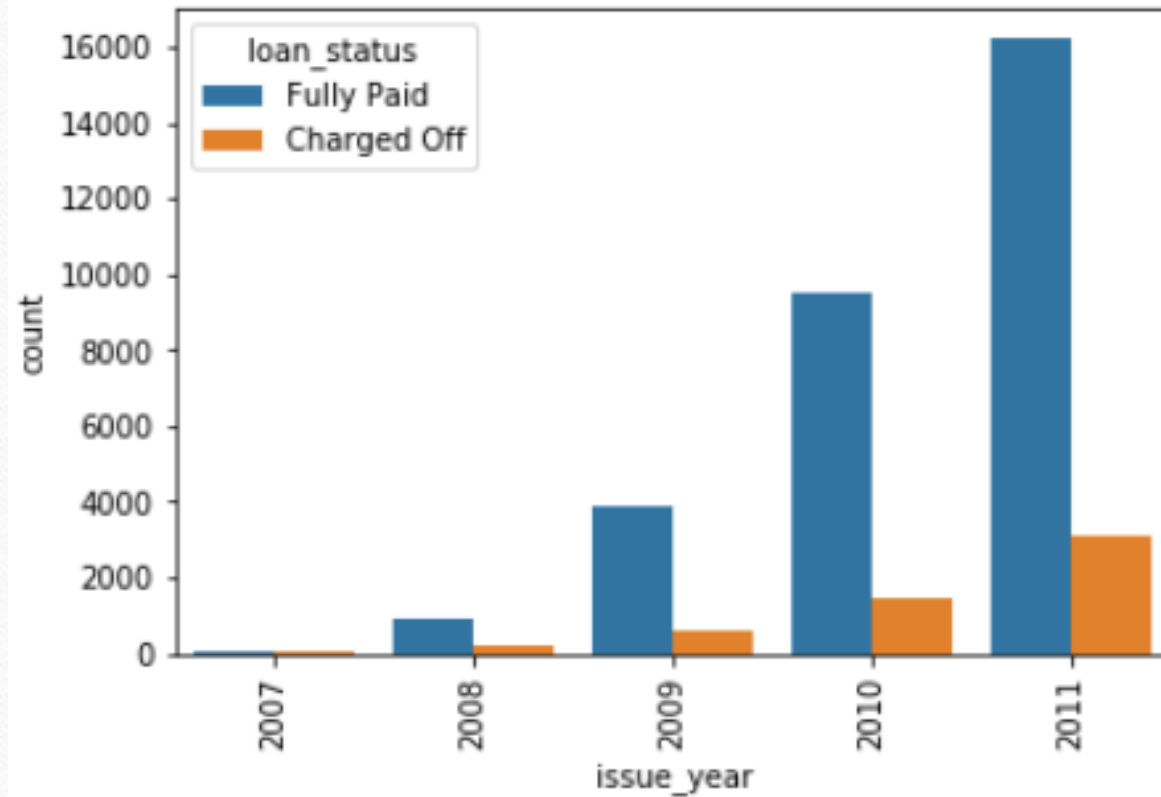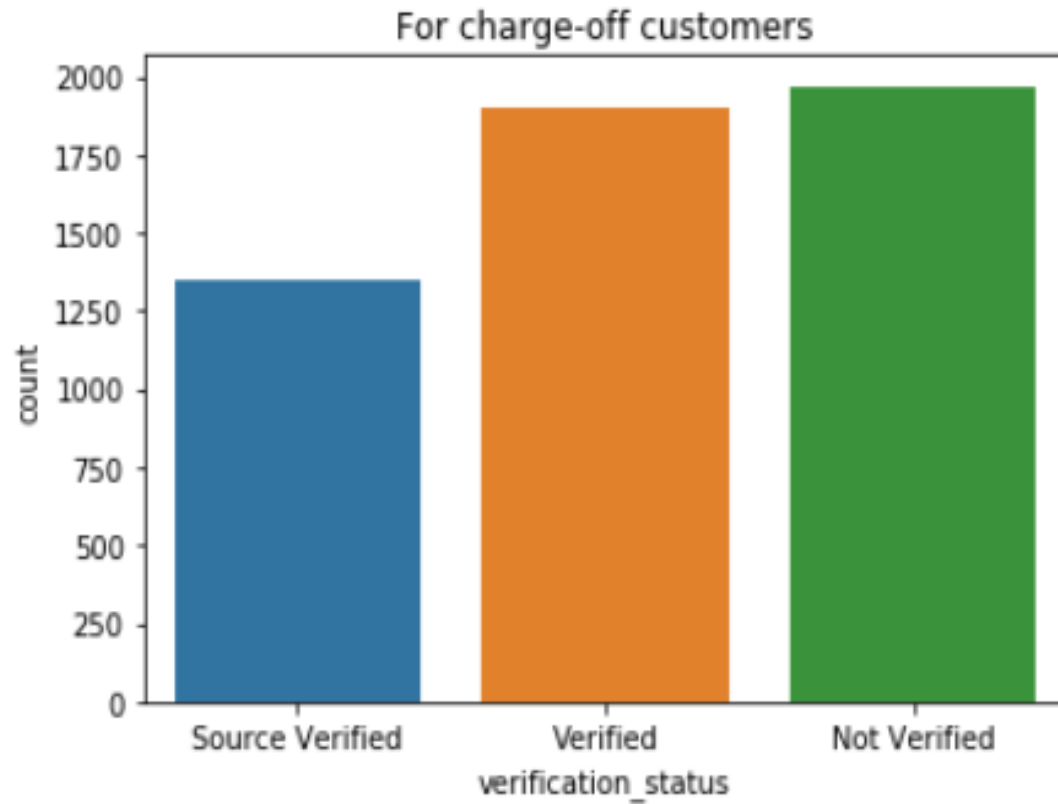
Loan term vs Loan Status

Looking at the trend, it can be stated that customers taking short term loans tend to re-pay their loans whereas those taking for a longer period of time are more prone to be charged off.

Issue year vs Loan Status

Loan approval keeps on increasing gradually every-year

Loan Amount Vs Loan Status
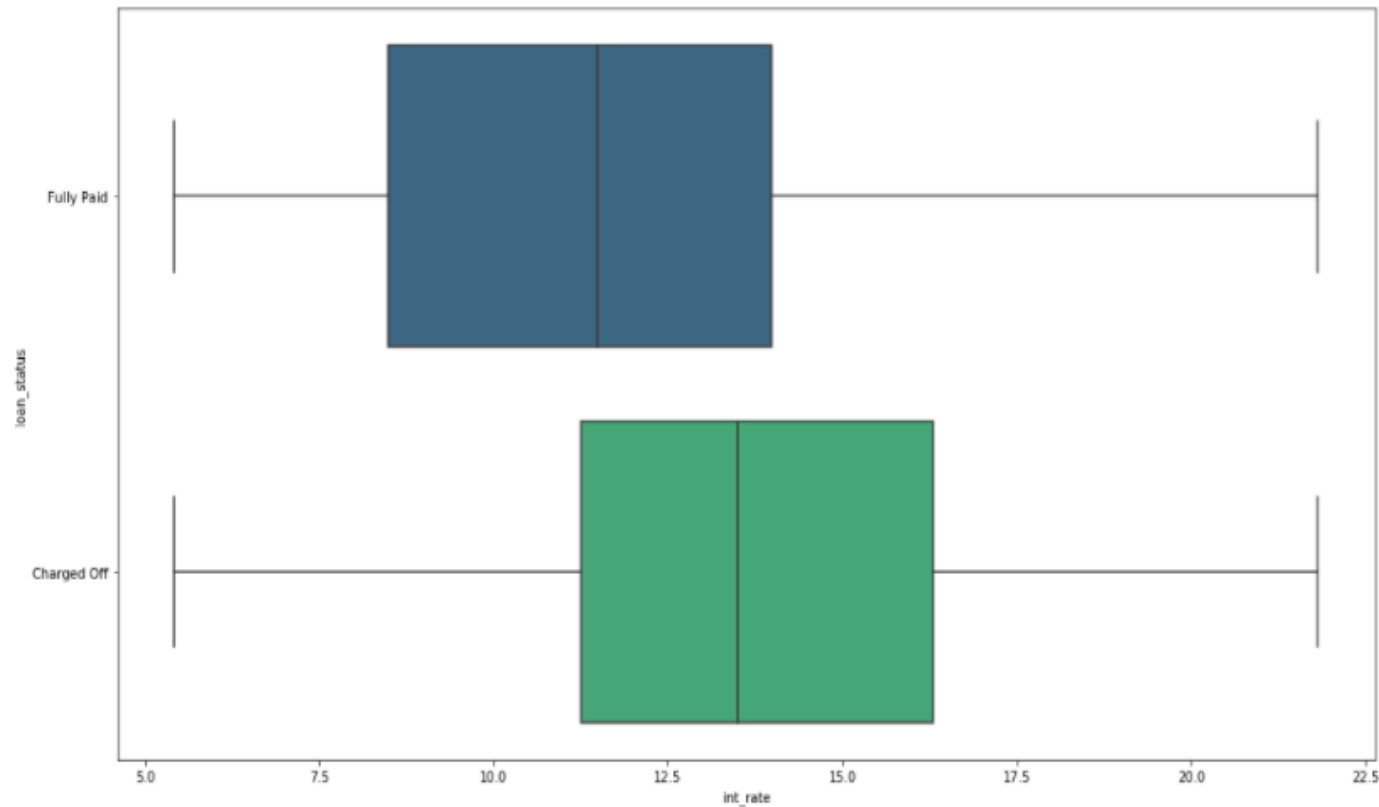## (charge off analysis)

For charge-off customers

Customer whose income is either not-verified or just Verified are more prone to being charged-off.
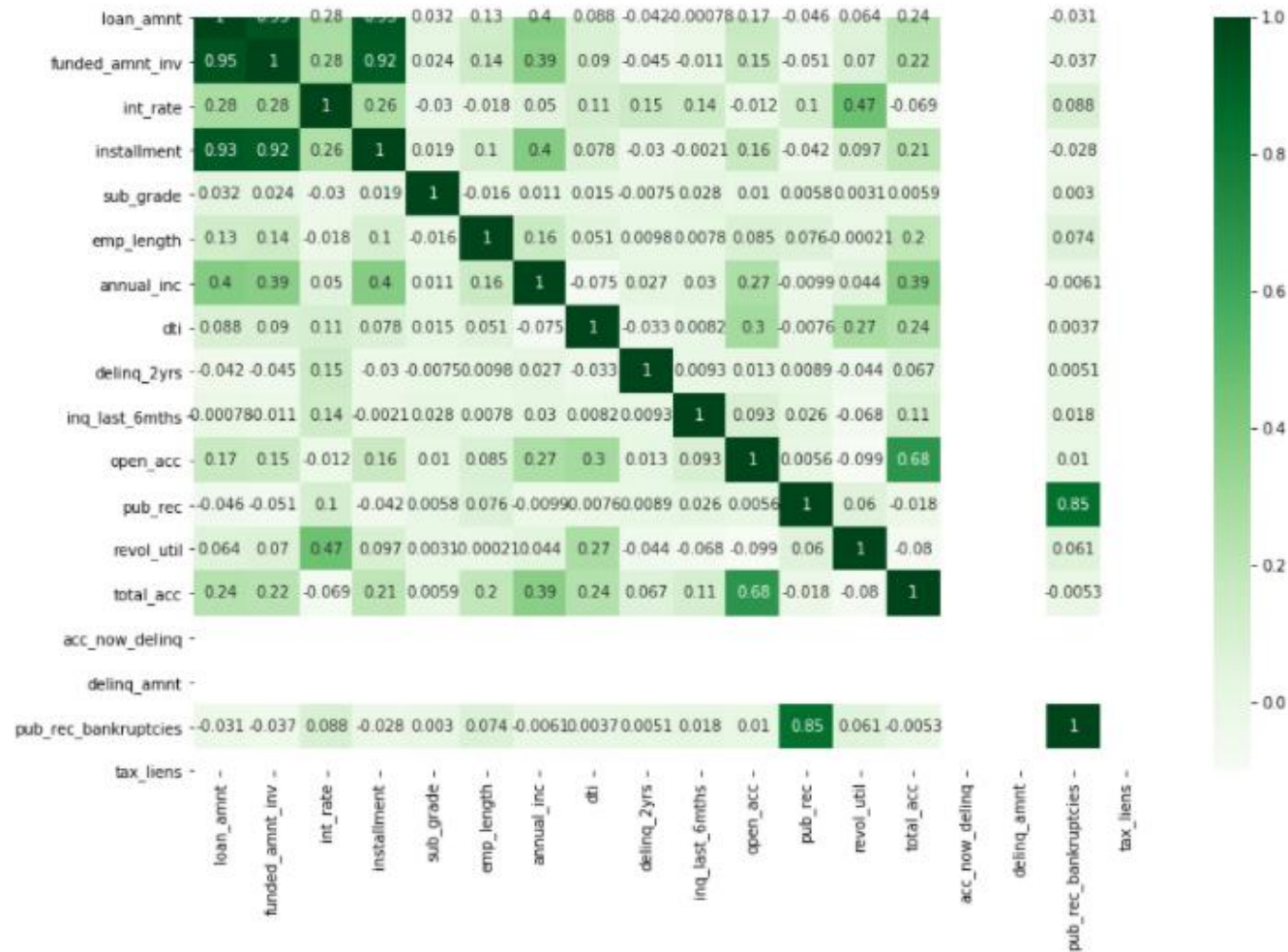
Source verified customers are less riskier

Int rate Vs Loan Status

Looking at the trend, It can be seen the **optimum rate of interest** to be charged **should be under 12%,** as the interest rate rises, the cases of Charging-off increases so high interest rate poses a risk of charge-off
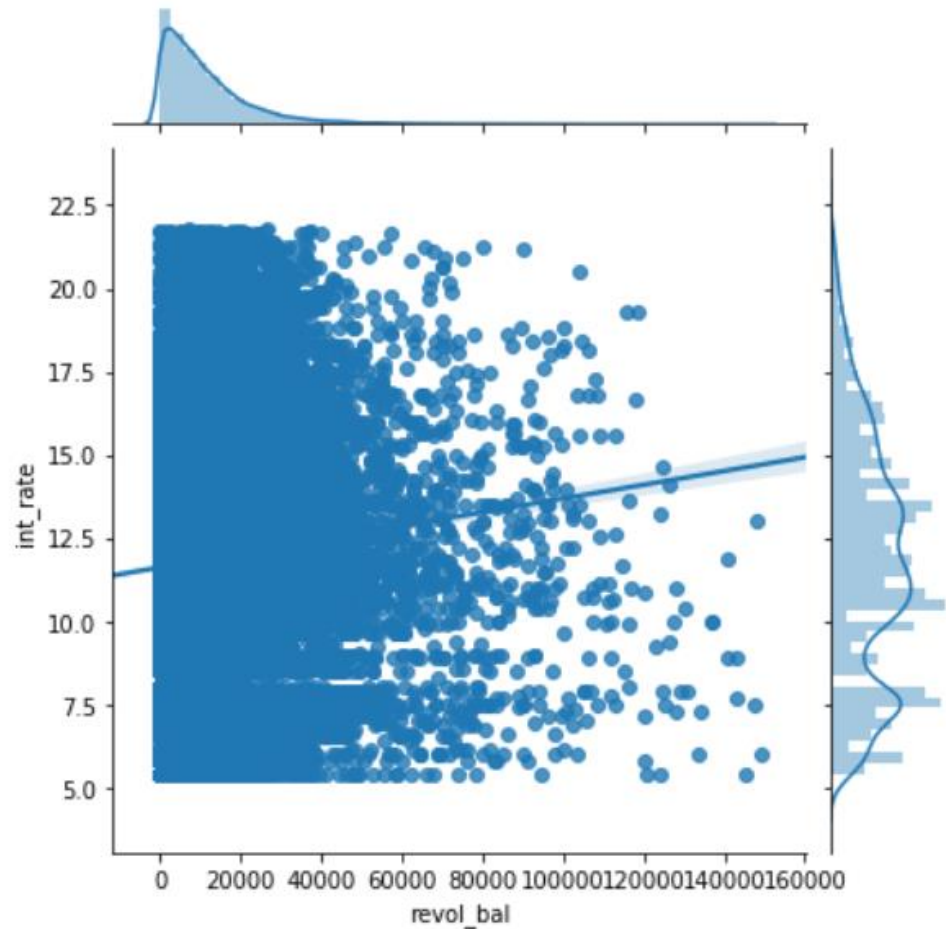
Heatmap between different variables

We tried establishing the heatmap between various variable to identify any correlation between them. However, we could not figure out any strong correlation between the variables that could lead us any strong conclusions.

Revol Balance Vs Int rate

It can been seen that the Revolving balance increases with interest rate and it is mostly concentrated around 12 % -15 %. to earn more profit.

Conclusion

- Customers having work experience more than 10 years as they apply for maximum loan amount.

- Customers who fall under Grade "B" tend to apply for more loans than the rest.

- Customers with home ownership "Mortgage" are the top-most applicants.

- Customers applying loan and falling under the purpose of **"Debt Consolidation"**.

- **55K** is the **mean income of customers** whose loans are approved.

- Interest should be in range **13% to 15**, Company **should not charge more than 15**% as it might lead to more charge-off.

- Average loan amount is **around 10K**.

- Customers having verification status as **not verified** are **riskier** and **Source-Verified** are **less riskier**

- Customers having term of six months as they apply for maximum loan amount.

- Customers those who issue for loan in December