

LENDING CLUB CASE STUDY

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Case Study

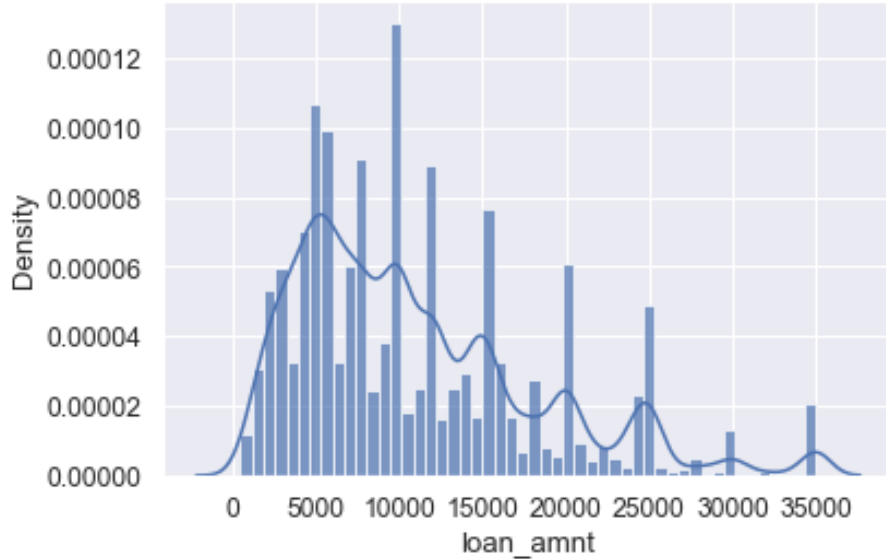
- **Business Objective**
 - Lending club is the largest online loan marketplace where Borrowers can easily access loans.
 - The company wants to understand the driving factors behind loan default, i.e. the variables which are strong indicators of default. The company can utilize this knowledge for its portfolio and risk assessment.
- **Problem Statement**
 - Borrowers who default cause the largest amount of loss to the lenders. In this case, the customers labelled as 'charged-off' are the 'defaulters'.
 - So, identify these risky loan applicants, then such loans can be reduced thereby cutting down the amount of credit loss.

Data Analysis Approach

- **Data Cleaning**
 - Drop column with null values
 - Remove outliers
- **Data preparation**
 - Convert to proper data types
- **Univariate Analysis**
 - Check distribution of numerical variables
- **Bivariate Analysis**
 - Analyse variable against another variable
 - Find correlation analysis
- **Multivariate Analysis**
 - Analyse with three variables

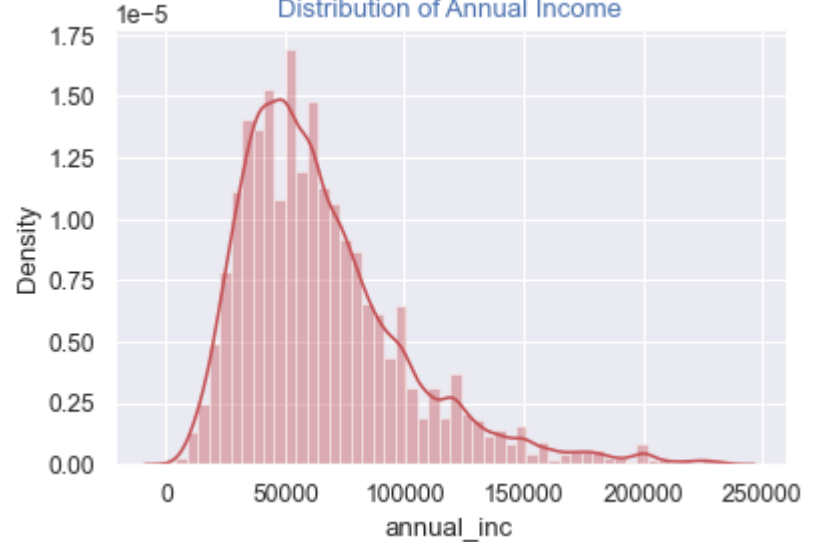
Univariate Analysis

Distribution of Loan Amount



1. At every round off value (i.e 5000,10000...) more number of loan are given. Similarly (7500,12500,..) small peak appears.
Most of loan amount given range from 5000 to 15000.

Distribution of Annual Income

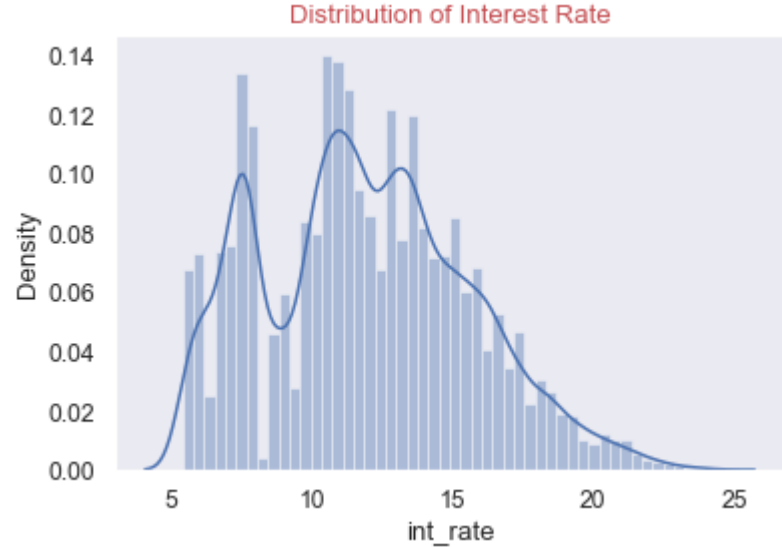


1. Most of borrower's income range from 25000 to 75000 appears.

Univariate Analysis

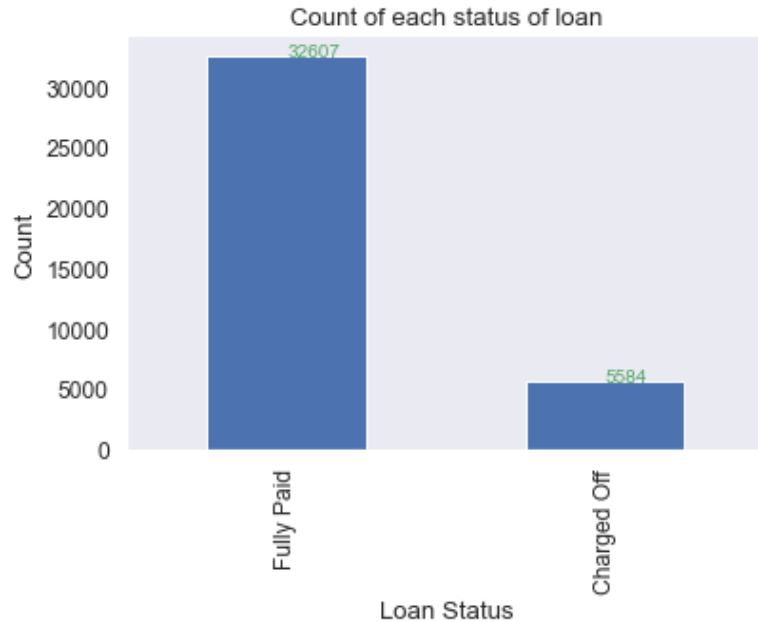


1. Majority of employees applying for the loan have more than 10 years of

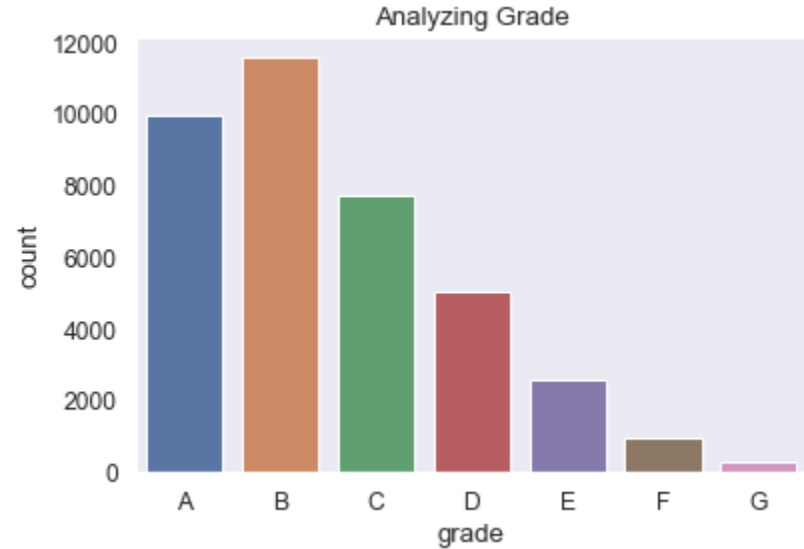


2. Most of loans are given with interest rate around 11 to 15, 7 to 8. experience.

Univariate Categorical Analysis

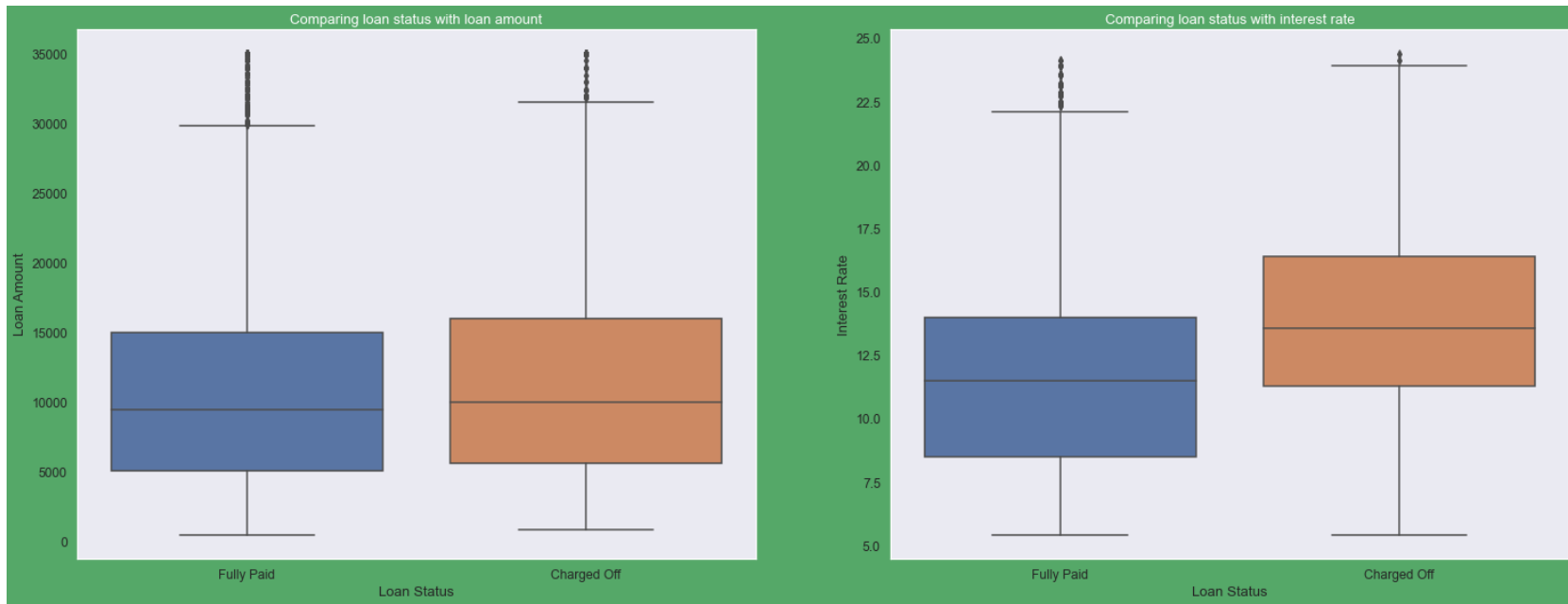


1. Most of the loans are Fully Paid.
2. Around 14% of loan are having status as defaulters or charged off.



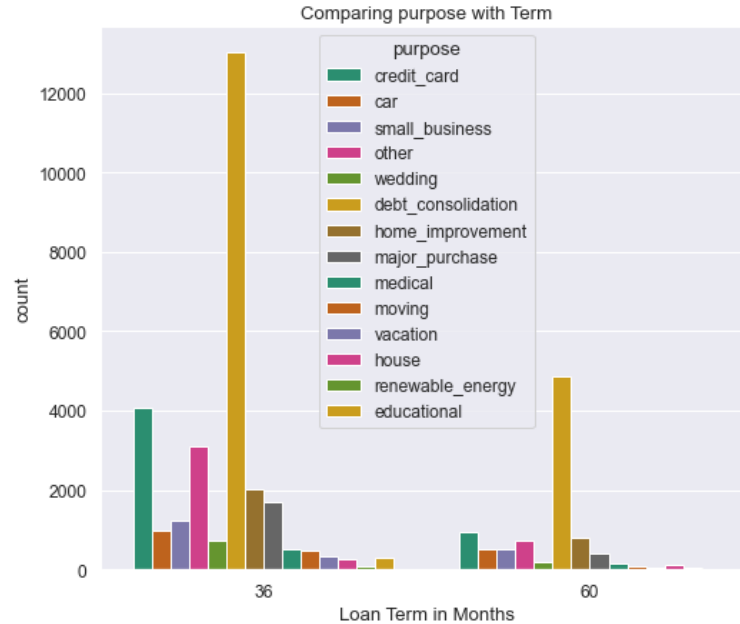
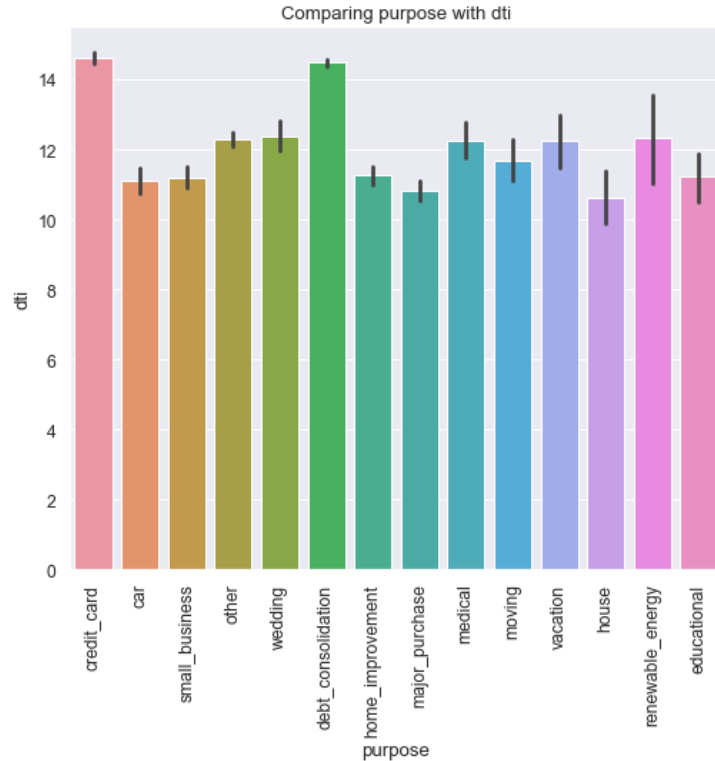
1. Most of the loans have grade of A and B.
2. Therefore stating most of the loans are high graded loans.

Bivariate Analysis



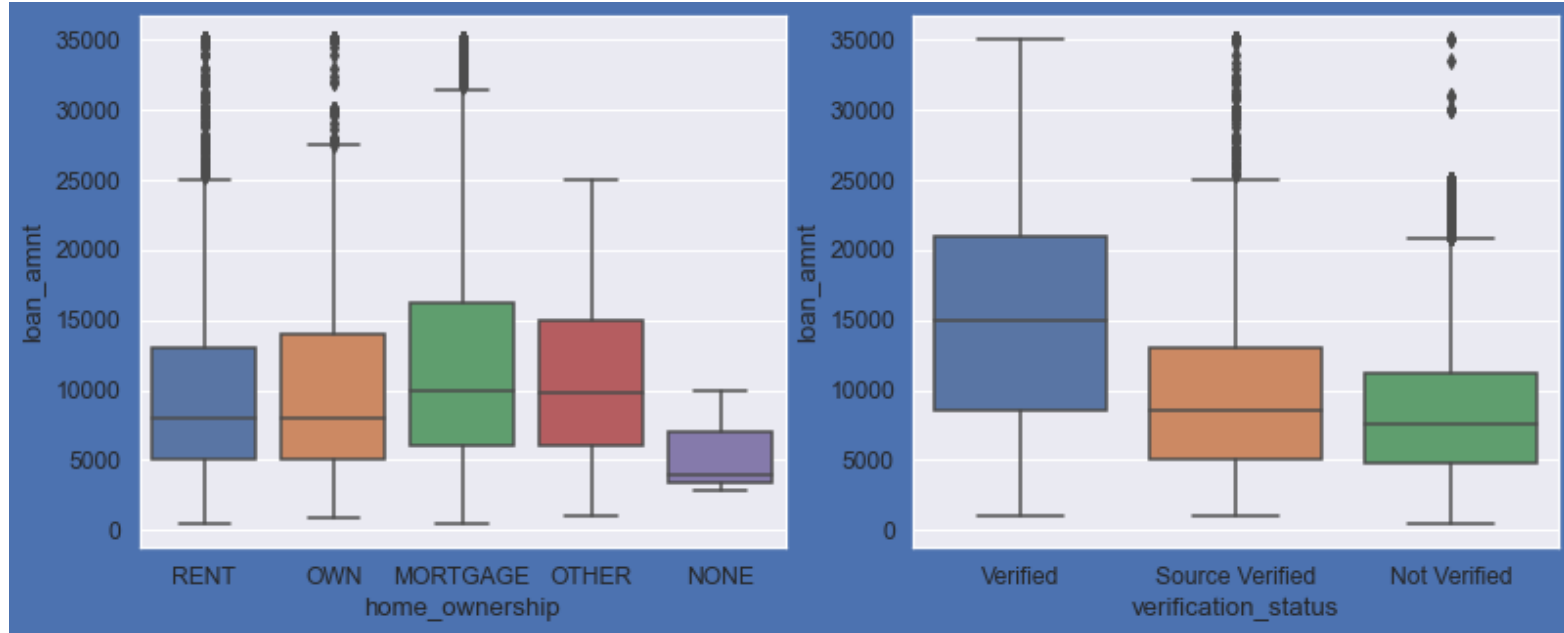
1. If the loan amount increases there is chance of charging off loan.
2. Overall, the interest rate varies from 5.42% to 24.4% with average interest rate of 11.8%.
3. The interest rate for Charged Off loans appear to be higher than for Fully paid. As, the risk increases the rate of interest imposed on the loan also increases.

Bivariate Analysis



1. Debt Consolidation has more defaulters in 36 months period.

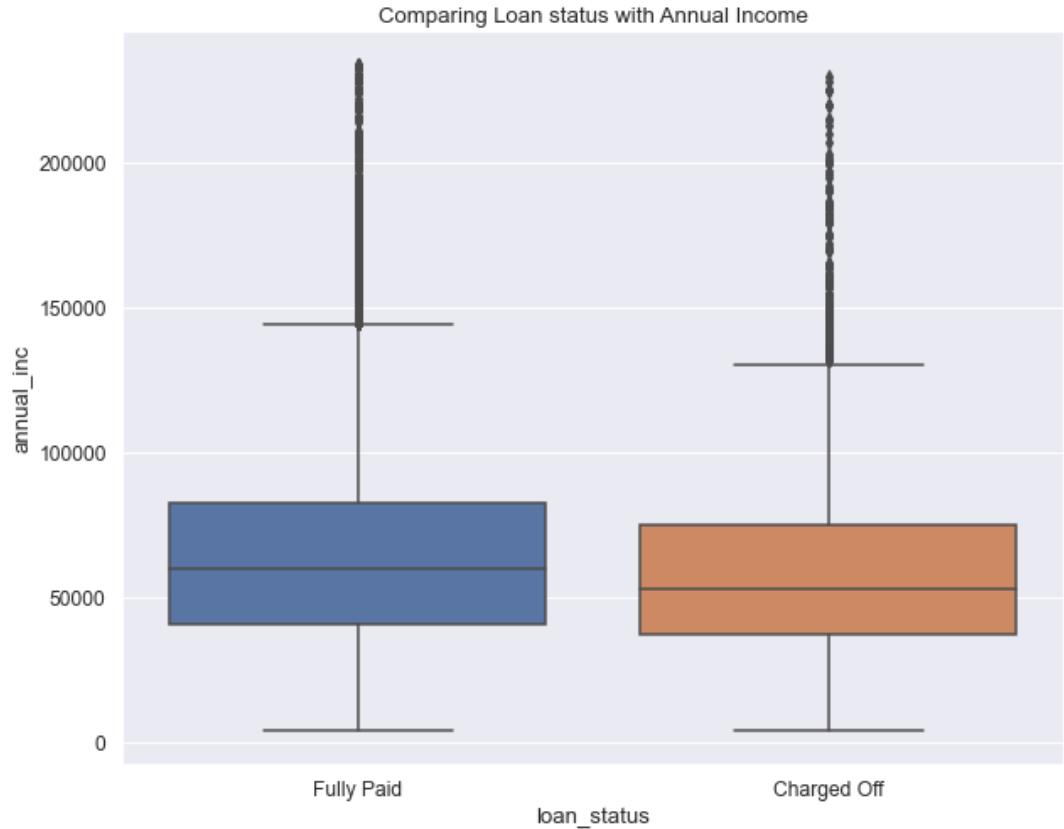
Bivariate Analysis



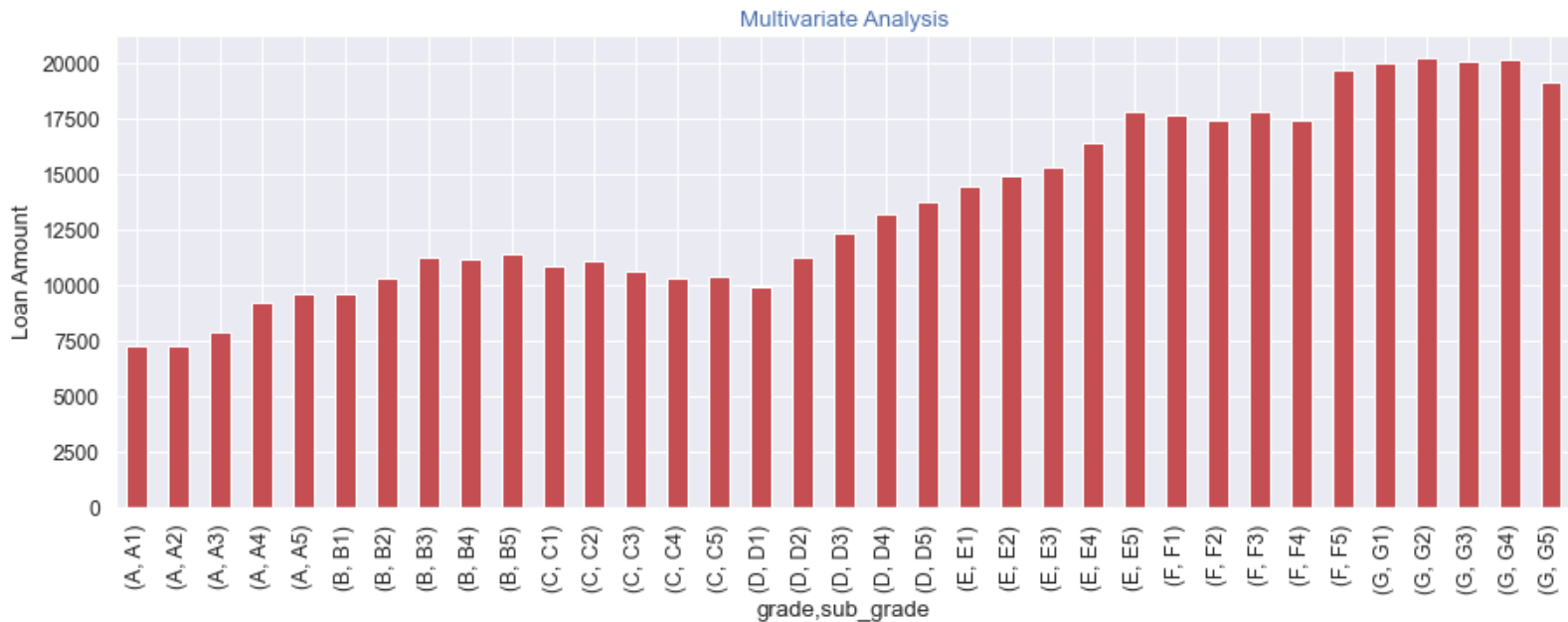
1. For verified persons loan amount is given higher.
2. For not verified persons loan amount is given lesser since charge off is more possible in this category.
3. People who are in mortgage home ownership bought loan amount higher.

Bivariate Analysis

1. People with higher annual income paid loan successfully.



Multivariate Analysis



1. More loan amount is given for lower grade (F & G). Since lower grade have high interest rate, bank has more profit and high risk.
2. Less loan amount is given for Higher grade (A). Since higher grade have low interest rate, bank has less profit, so it is given less.

Multivariate Analysis

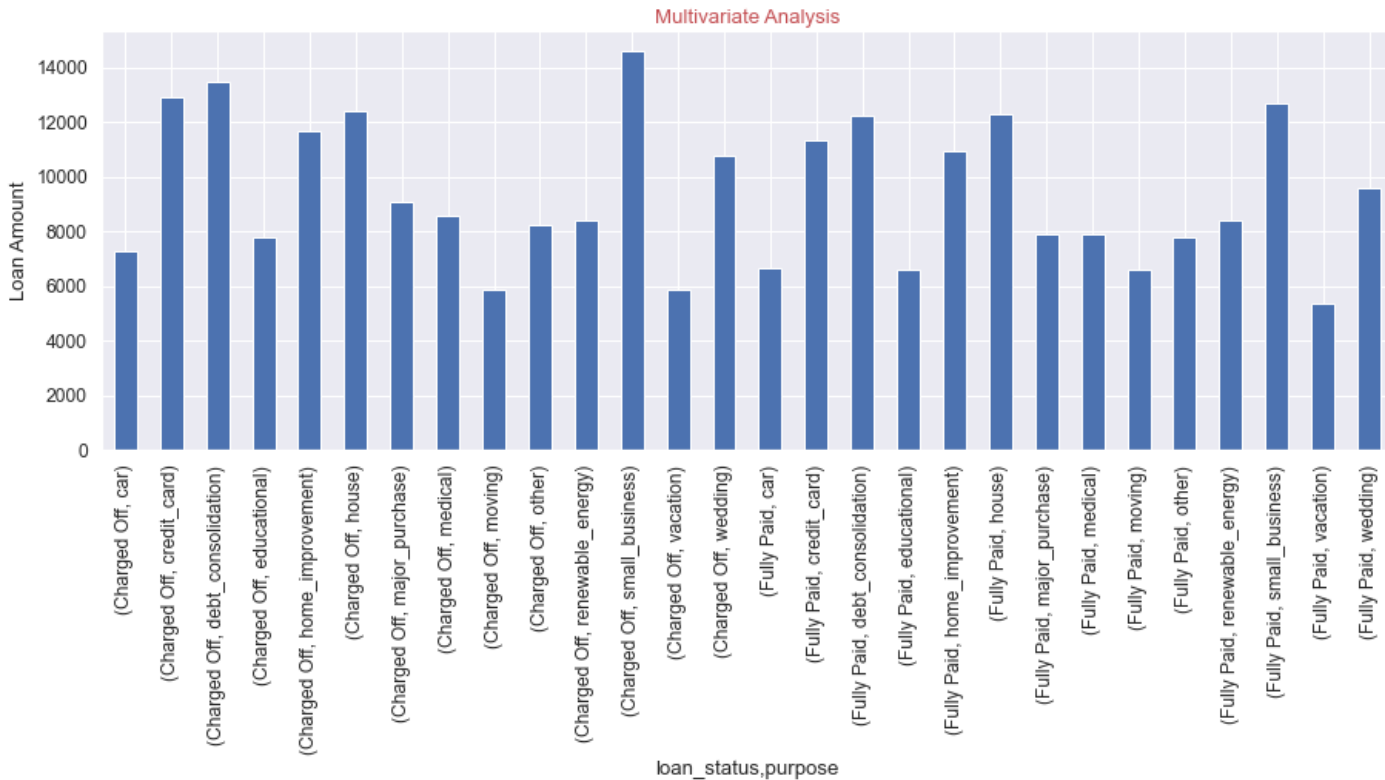
1. Even though borrower is verified there is a high chance of charging off.
2. We can't simply say only verifying a person means he/she does not charge off.



Multivariate Analysis

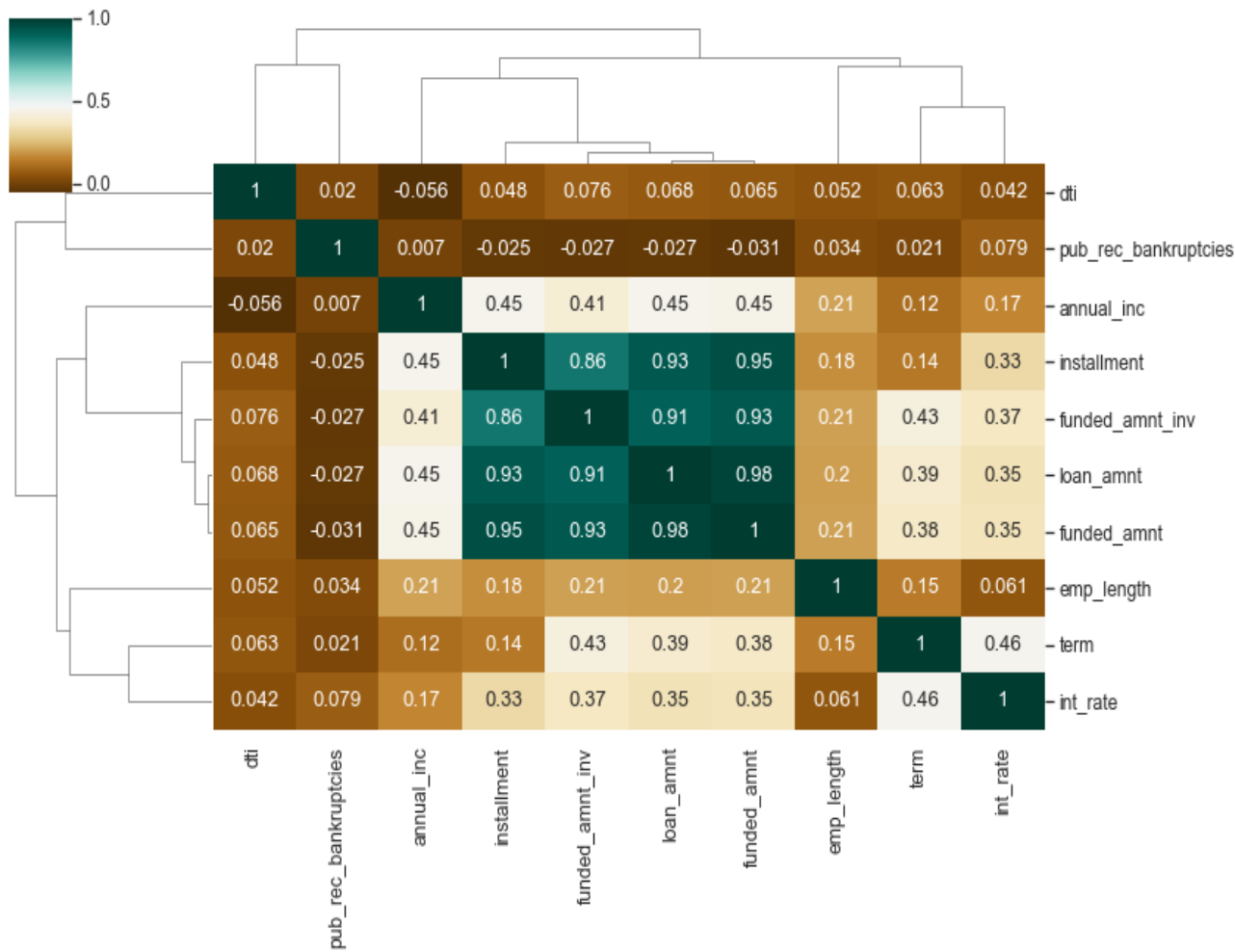
1. Charging off is higher in credit card, debt consolidation, small business.

2. So, while giving loan we must be careful in these categories.



Correlation Analysis

1. Number of installment have higher coefficient (0.98) with loan amount.
2. Interest rate is correlated to term(.44).
3. Loan amount is totally un-correlated with public record of bankruptcy.
4. Annual income and dti are negatively correlated.



Suggestion

1. As Loan amount increases defaulters increases. Study the customer thoroughly while approving higher loan amount.
2. Extra focus is needed while approving loan to small business, debt consolidation . Since there is more charging off in those purposes.
3. Even though borrower is verified there is a chance of charging off. Only with verification status loan shouldn't be an approved.
4. Low grade have high tendency to charge off for that reason high interest rate is given. This assumption work well here.