

Lending Club Case Study

Presented by
Doppalapudi Bhanu
Prakash

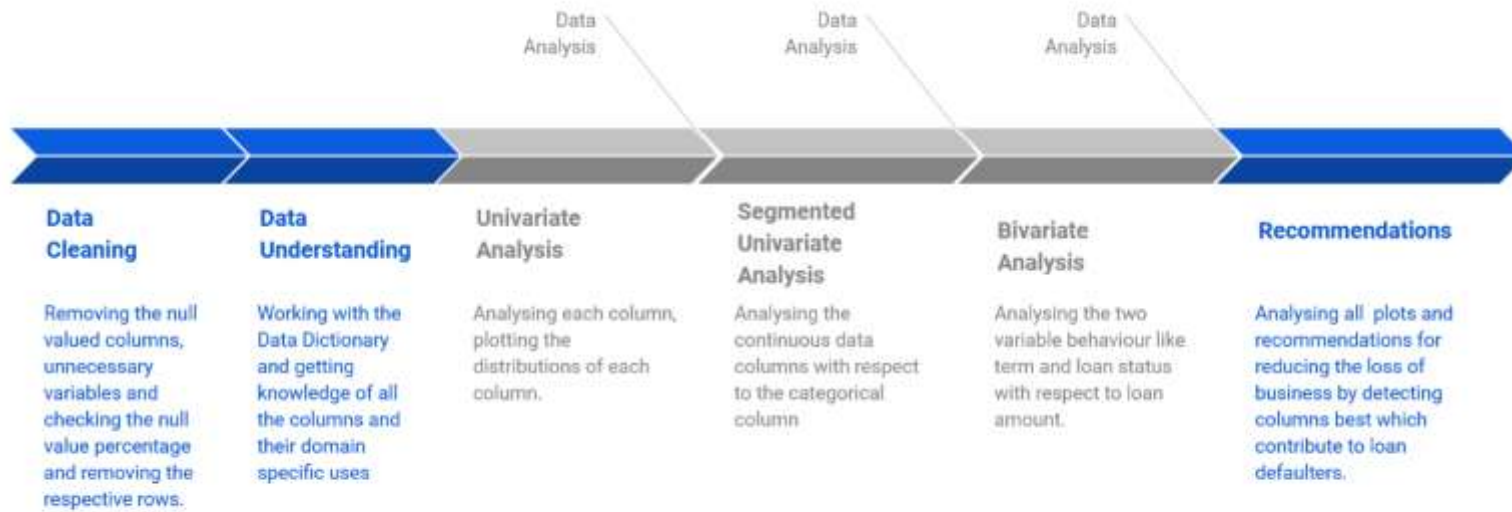
Agenda

- Problem Statement
- Methodology
- Univariate Analysis
- Segmented Univariate Analysis
- Bivariate Analysis
- Conclusions



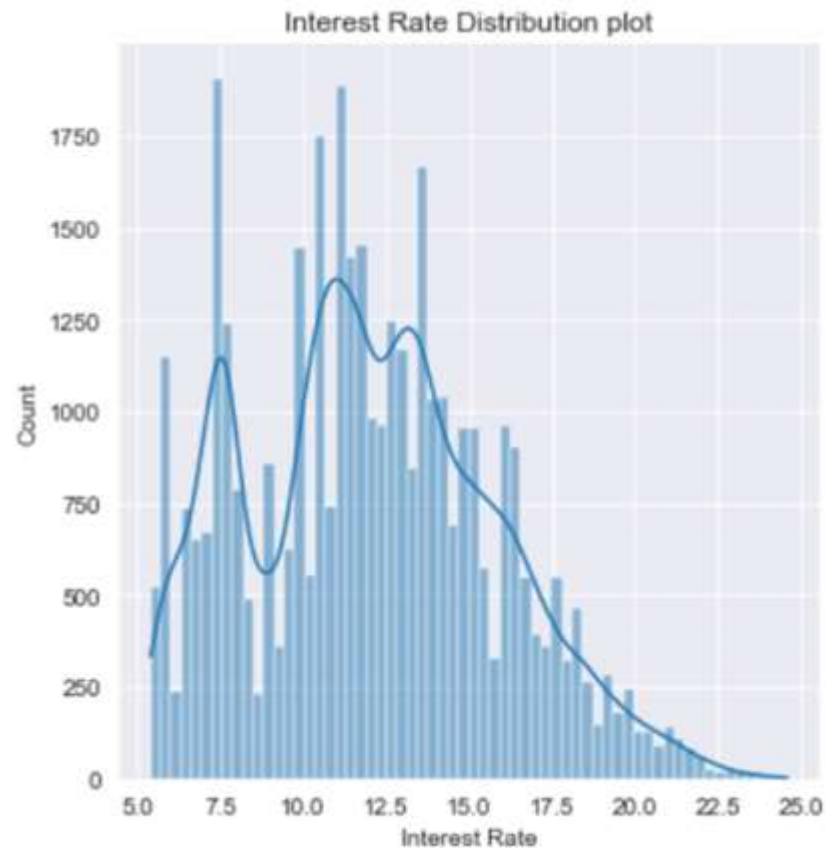
Problem Statement

A company is the largest online loan marketplace, facilitating personal loans, business loans, and financing of medical procedures. Borrowers can easily access lower interest rate loans through a fast online interface. Like most other lending companies, lending loans to 'risky' applicants is the largest source of financial loss (called credit loss). The credit loss is the amount of money lost by the lender when the borrower refuses to pay or runs away with the money owed. In other words, borrowers who **default** cause the largest amount of loss to the lenders. In this case, the customers labelled as 'charged-off' are the 'defaulters'. If one can identify these risky loan applicants, then such loans can be reduced thereby cutting down the amount of credit loss. Identification of such applicant's using EDA is the aim of this case study. In other words, 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 utilize this knowledge for its portfolio and risk assessment.



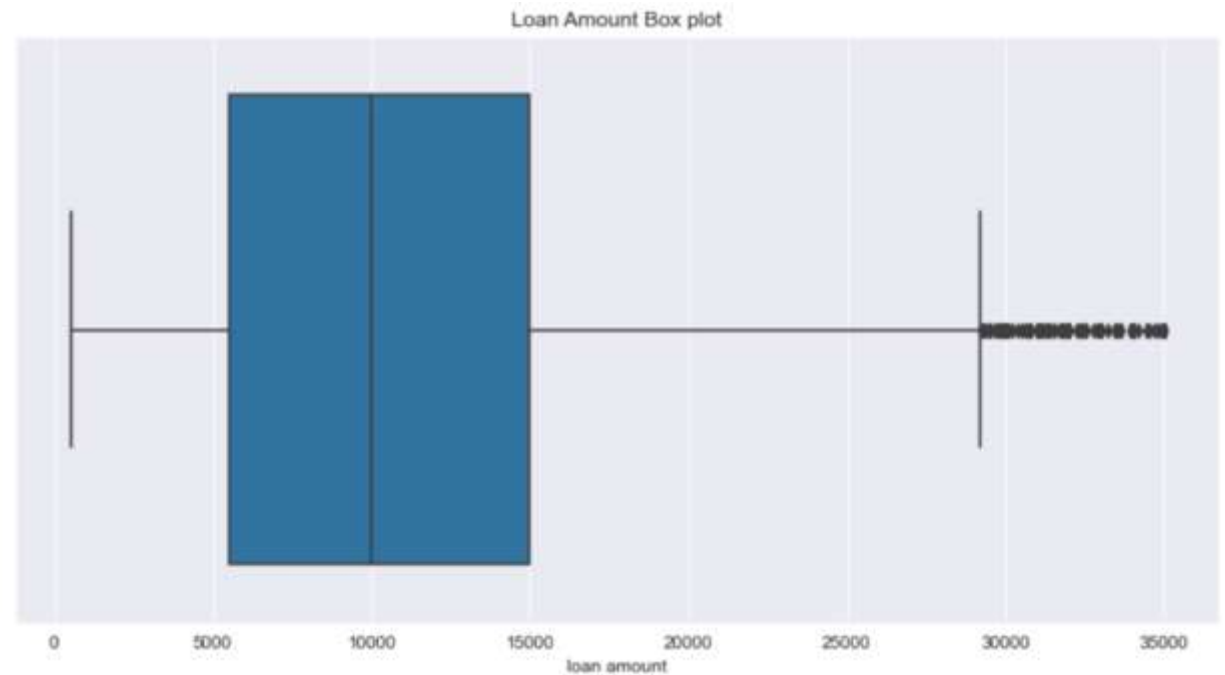
Methodology

Univariate Analysis



Observations:

- Majority of the borrowers are paying interest rates between 10-15 percent.
- Half of the borrowers applied loan for an amount of 10000 while least number of borrowers applied above 30000

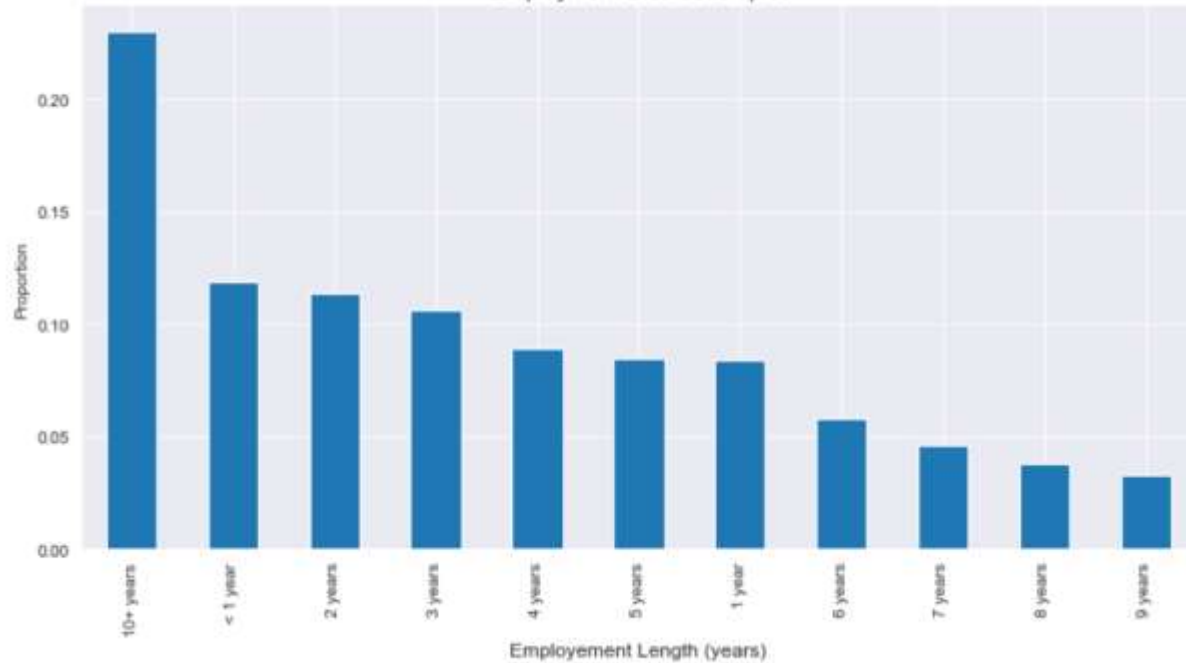


Univariate Analysis

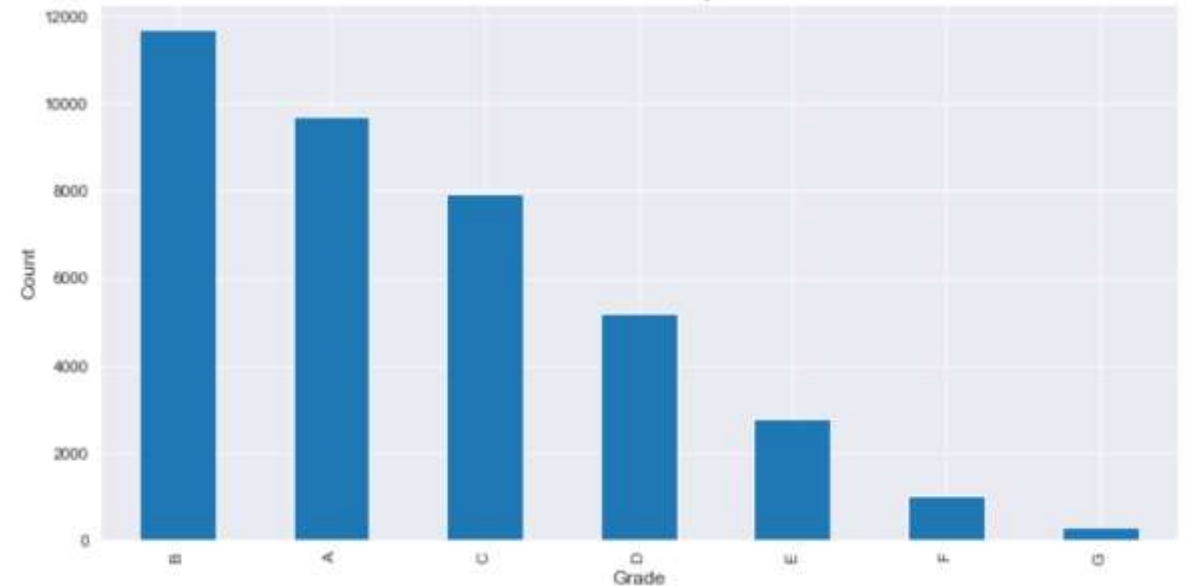
Observations:

- Most of the borrowers who took loan has more than 10 years of employment history.
- Most of borrowers are given B grade while least number of borrowers are given G grade.

Employment Distribution plot



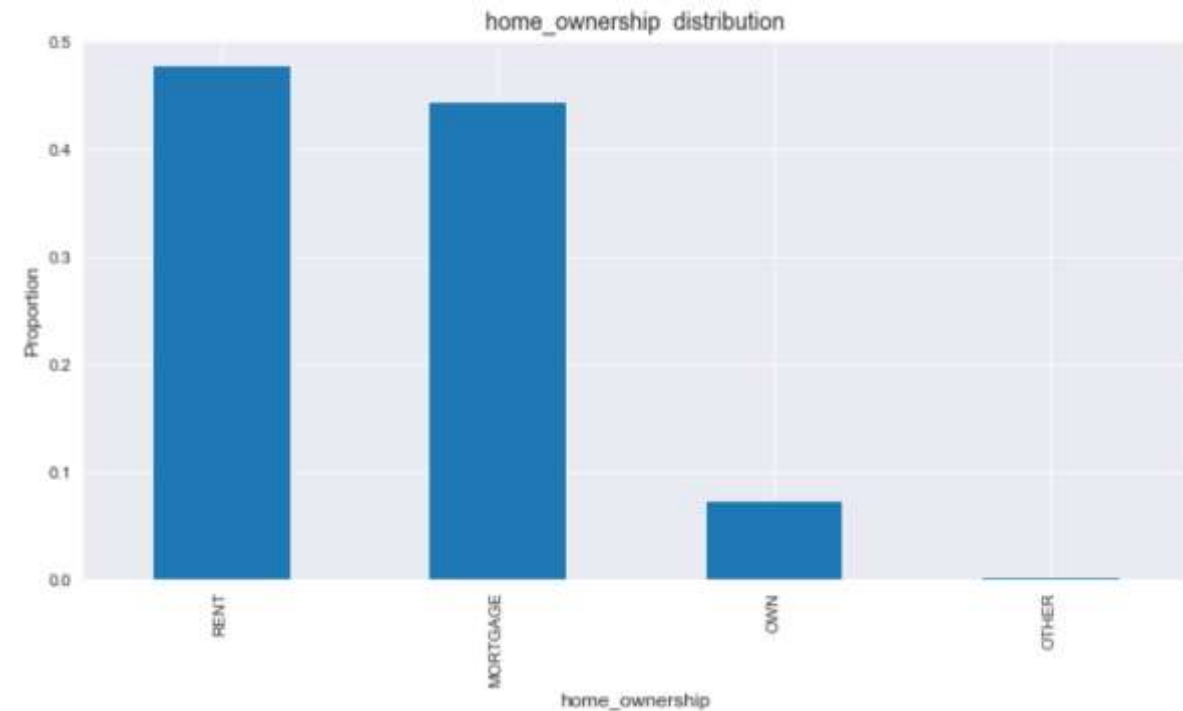
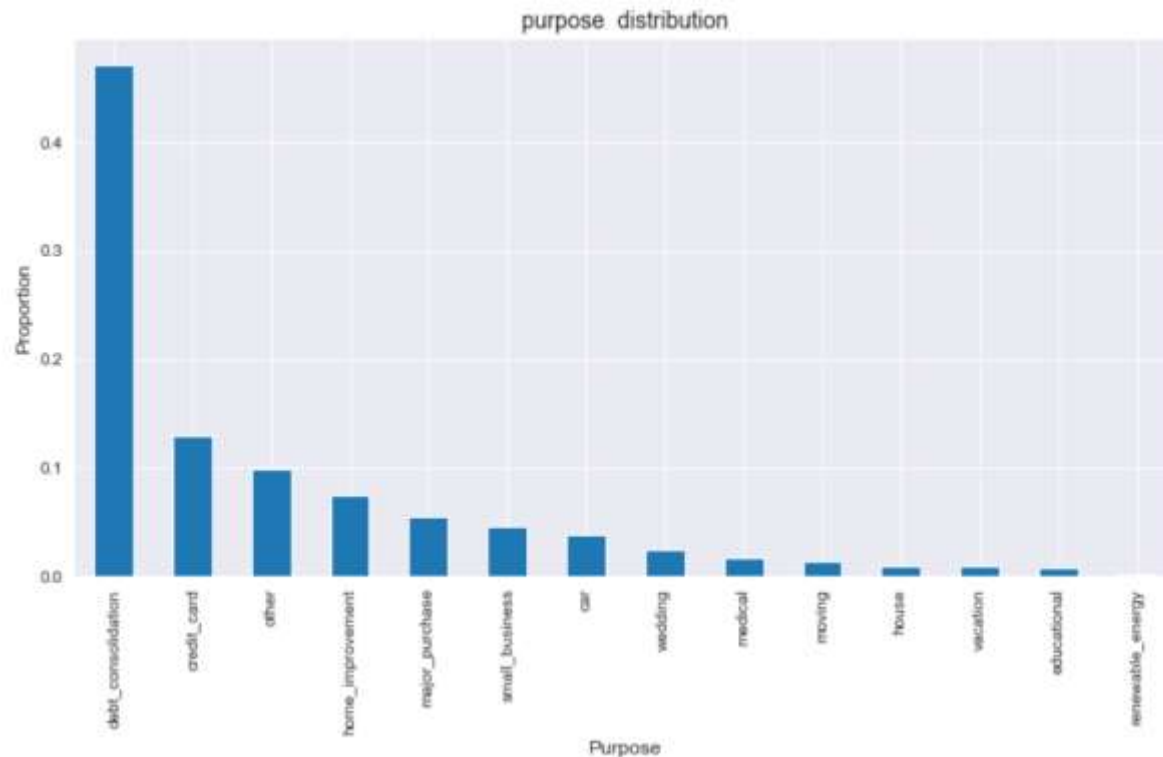
Count of borrowers by Grade



Univariate Analysis

Observations:

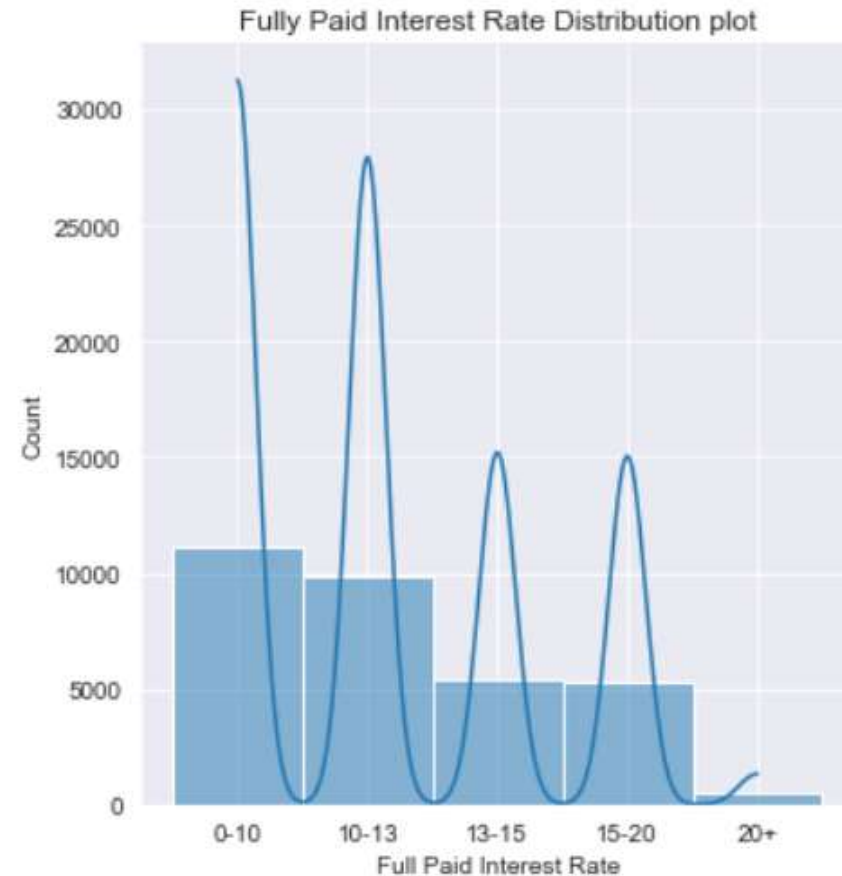
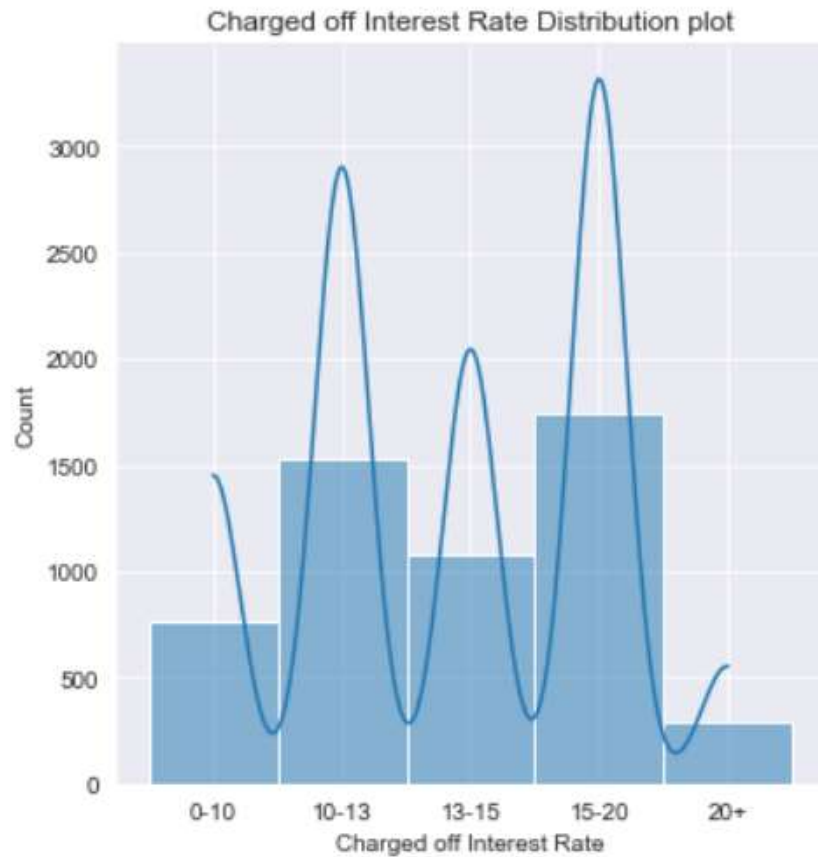
- Majority of the borrowers are paying interest rates between 10-15 percent.
- Half of the borrowers applied loan for an amount of 10000 while least number of borrowers applied above 30000



Segmented Univariate Analysis

Observation:

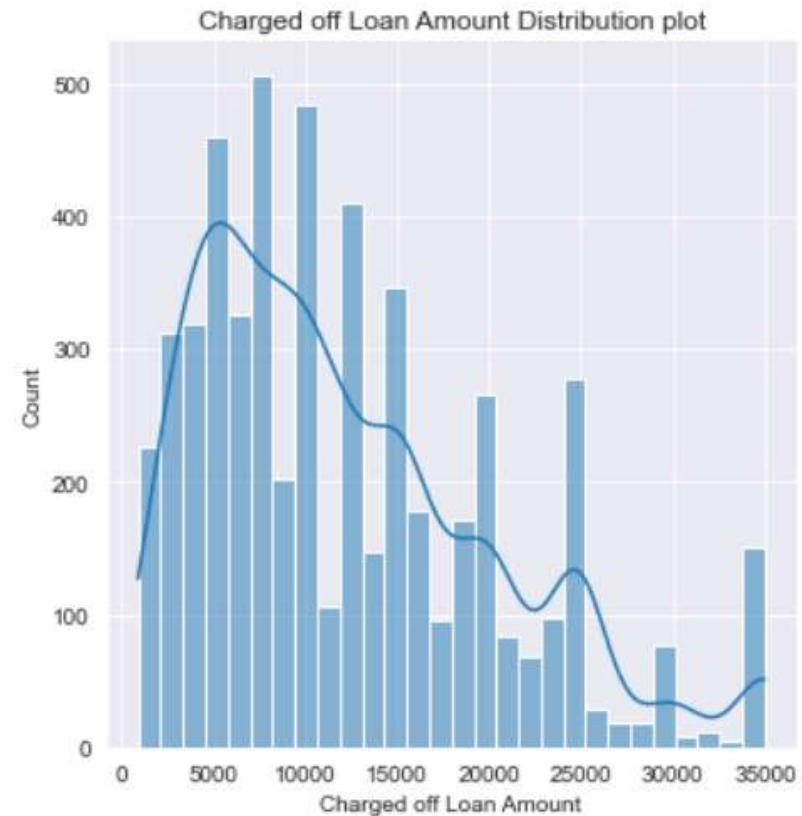
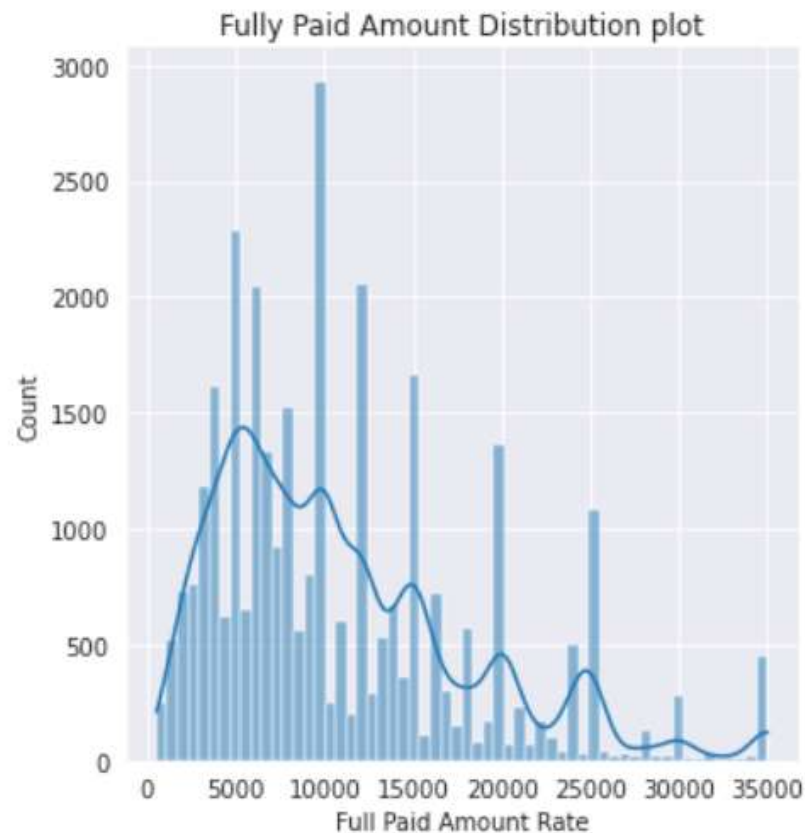
- Most of the borrowers who are charged-off are the ones who pay interest rates between 15-20% and Fully paid borrowers are mostly having interest rates below 10%



Segmented Univariate Analysis

Observation:

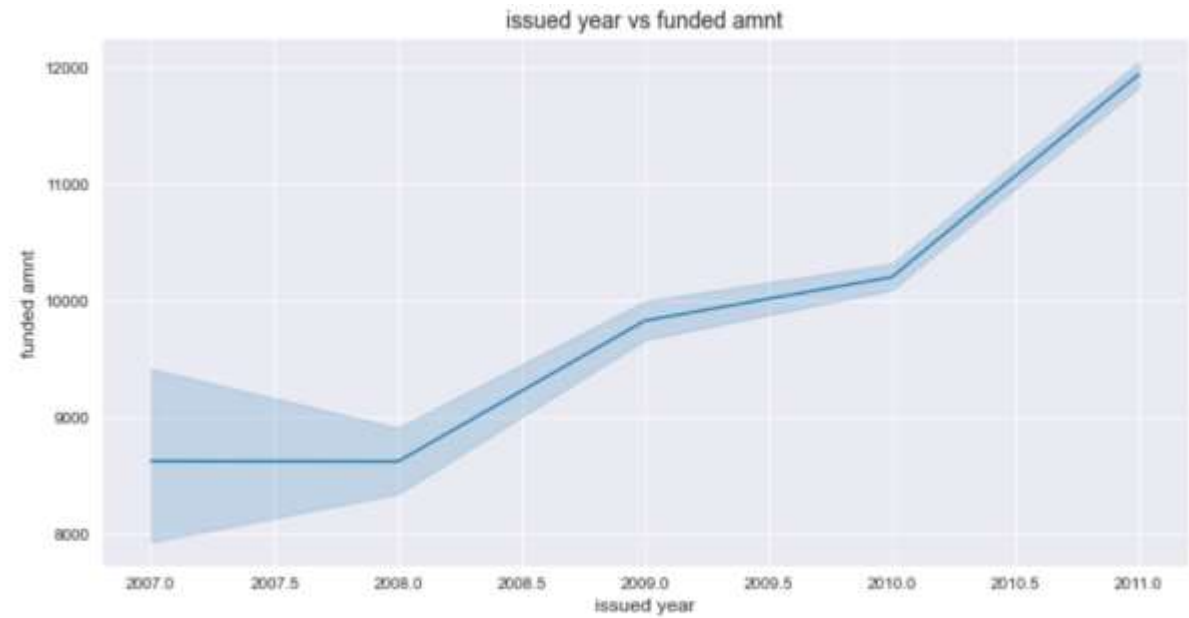
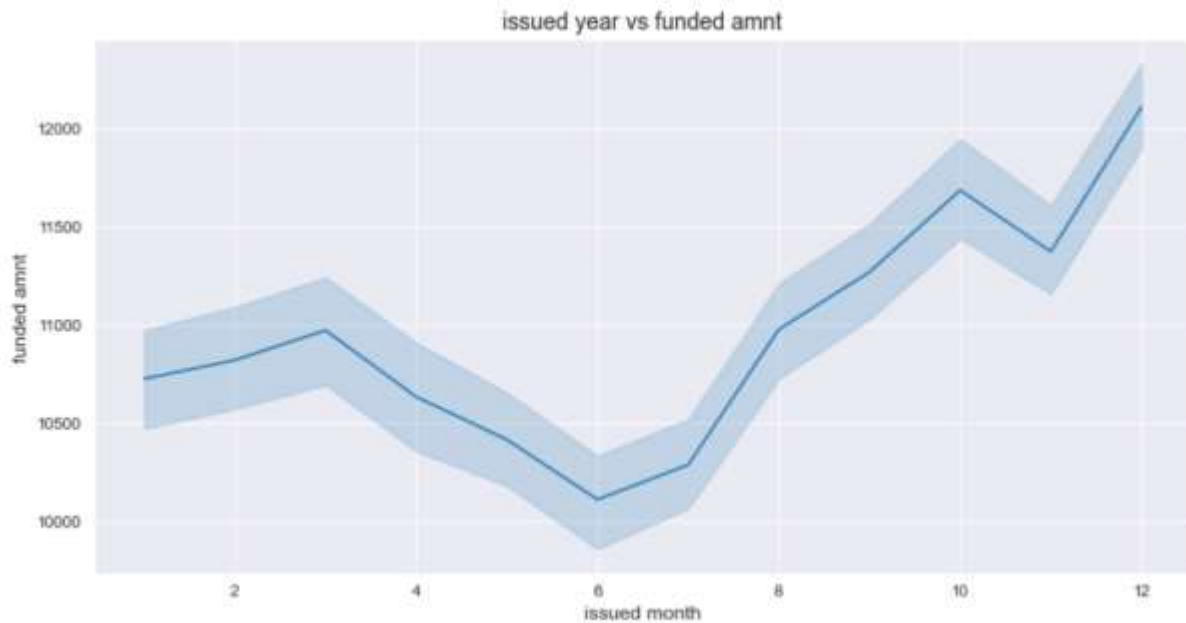
- Most of the charged-off borrowers applied for loan amount around 5000-10000 and fully paid borrowers applied mostly for 10000 amount



Bivariate Analysis

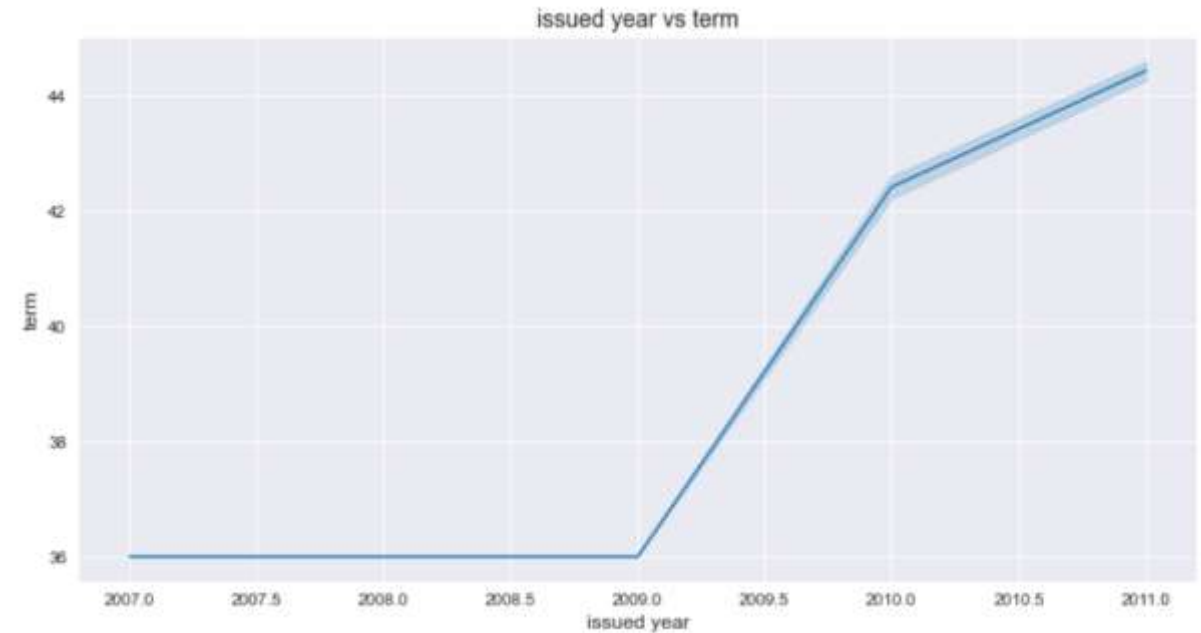
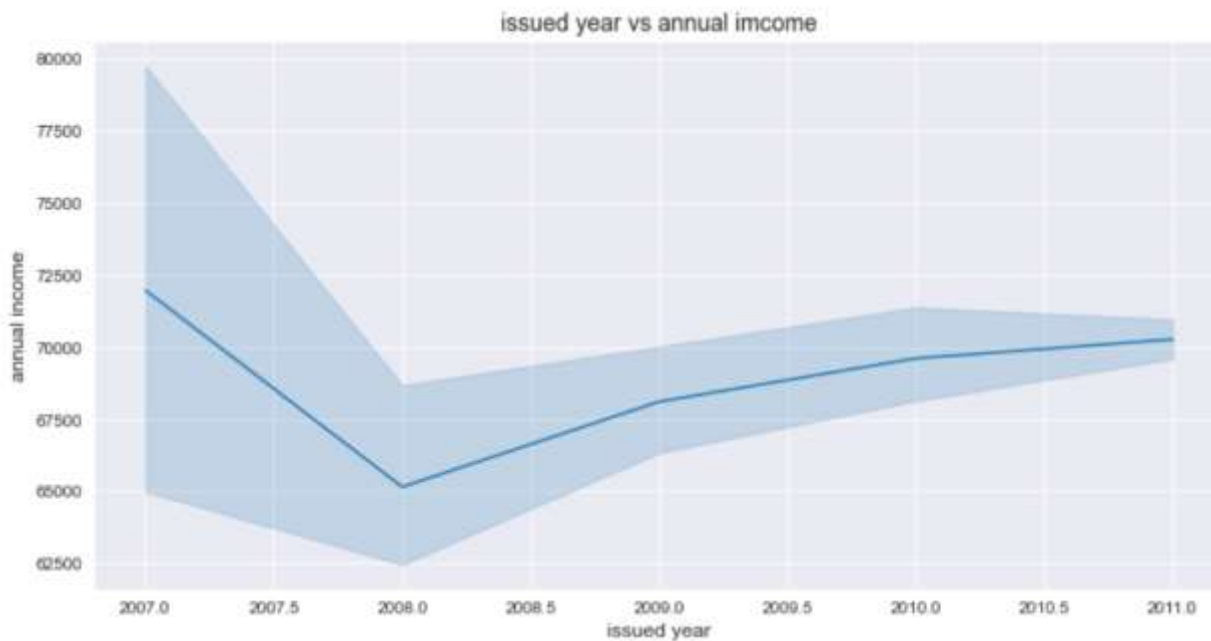
Observations:

- Highest number of loans were funded mostyle in the month of December and least in the month of June.
- Amount funded has increased gradually from the year 2007 to 2011.



Bivariate Analysis

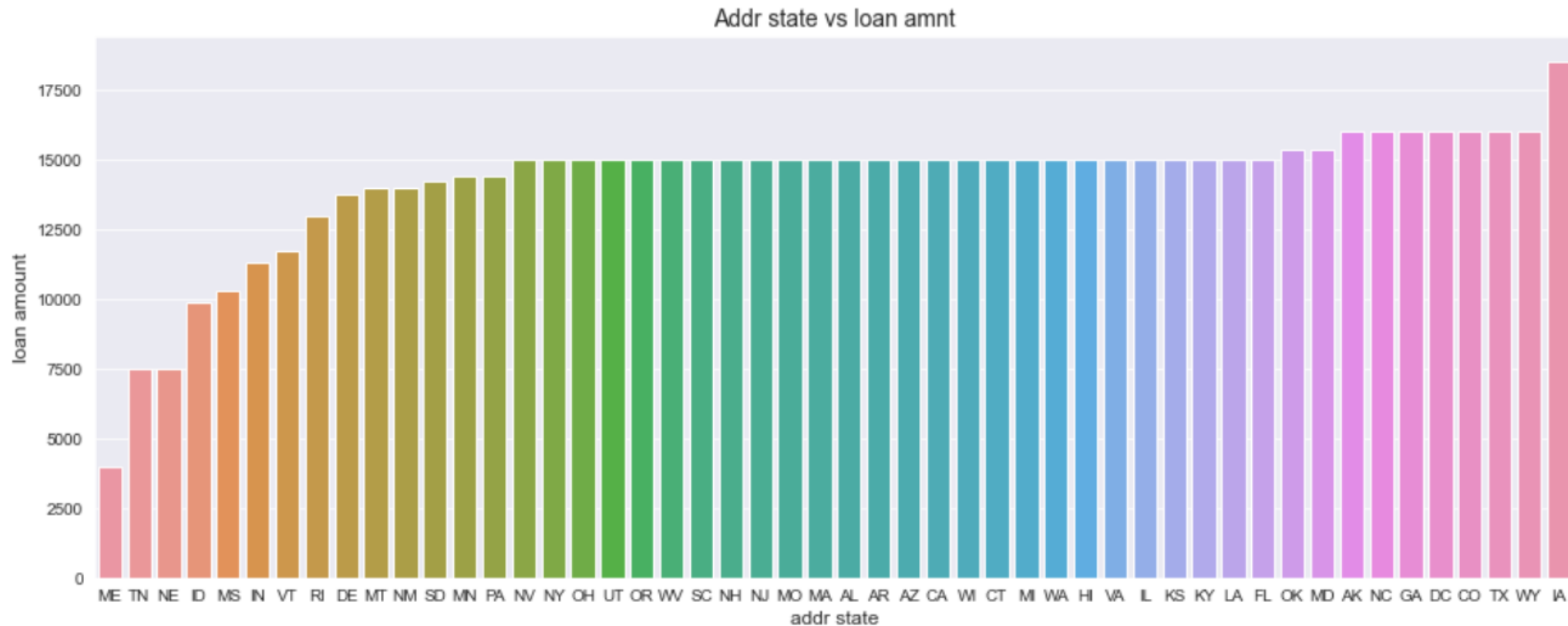
- Observations:
 - Annual income of the borrowers slightly dipped by the end of 2007 and gradually increased till 2011.
 - The term period of the borrowers increased gradually from the year 2009 as amount funded increased.



Bivariate Analysis

Observation:

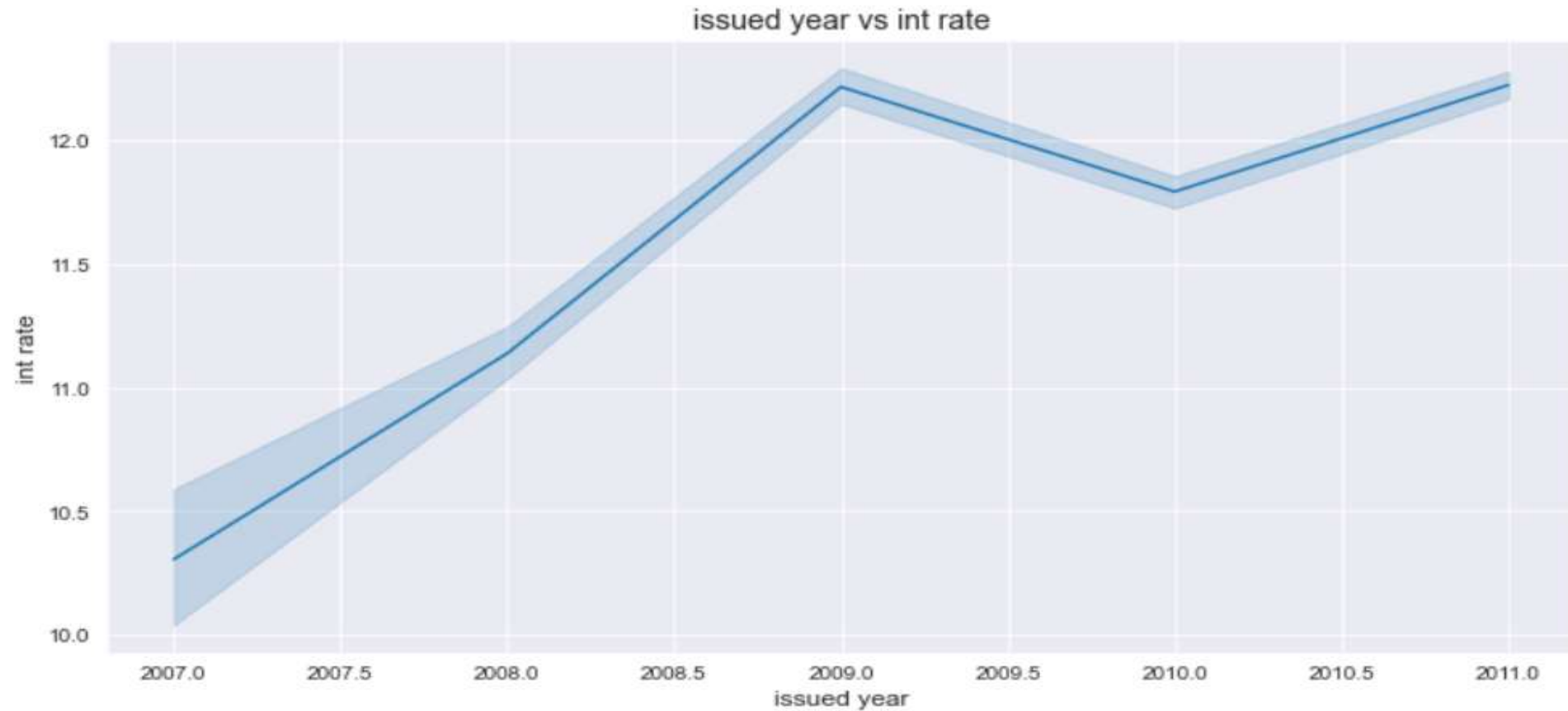
- Most of the Borrowers from ME State applied a less amount of loan and AK state borrowers applied highest amount of loan.



Bivariate Analysis

Observation:

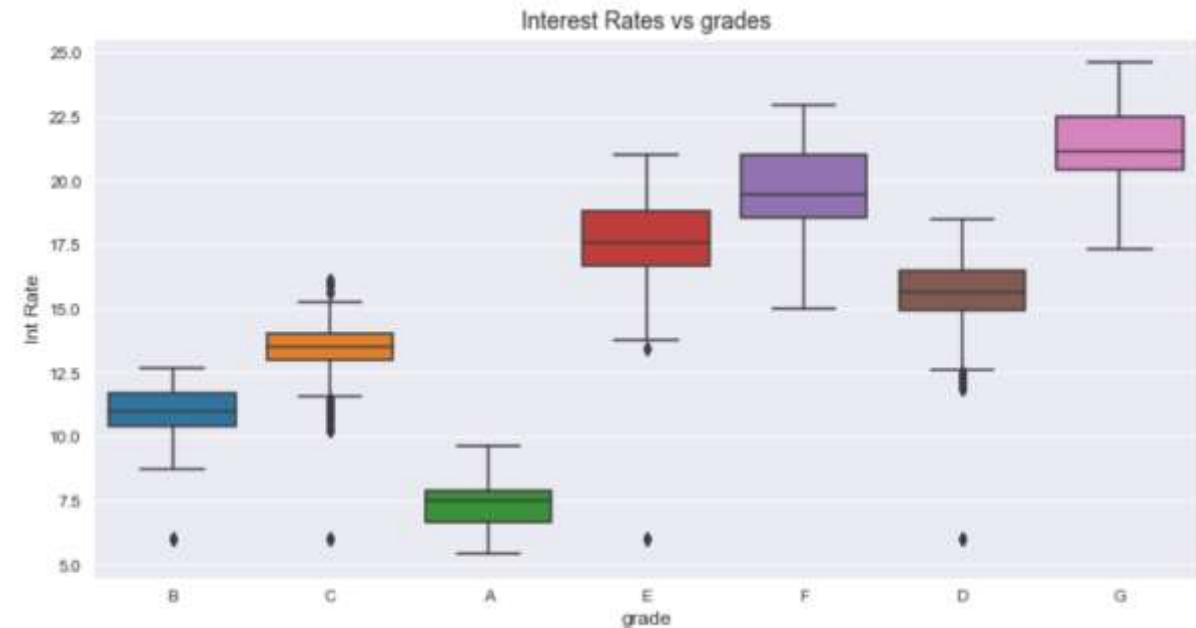
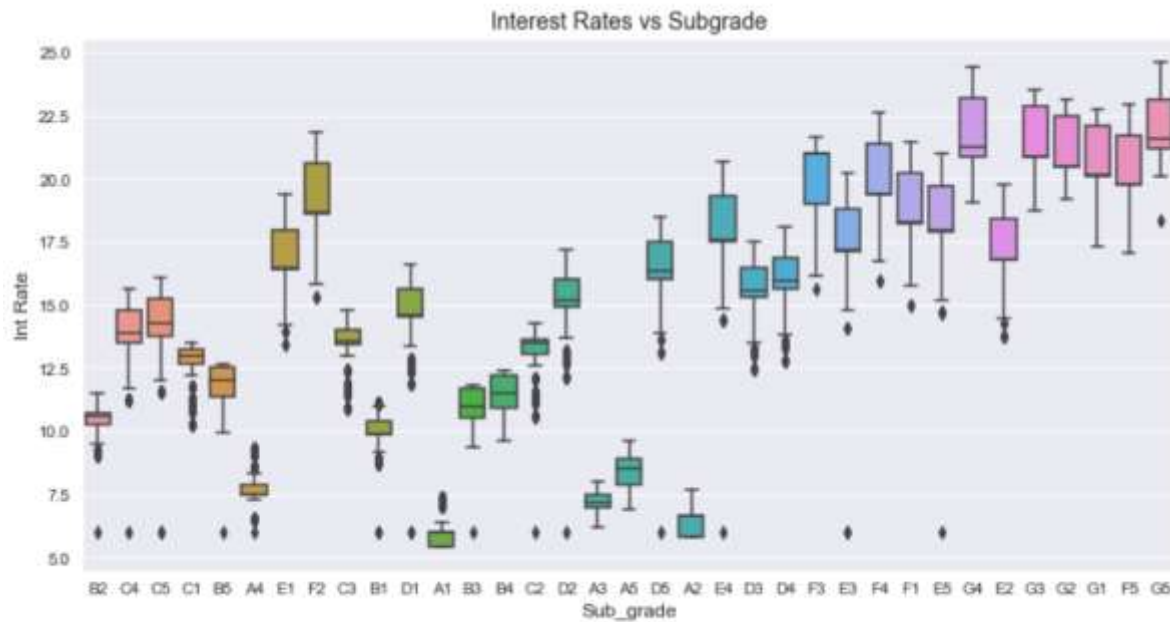
- Interest rates are increasing year by year starting from 2007 with slight decline in the year 2010



Bivariate Analysis

Observations:

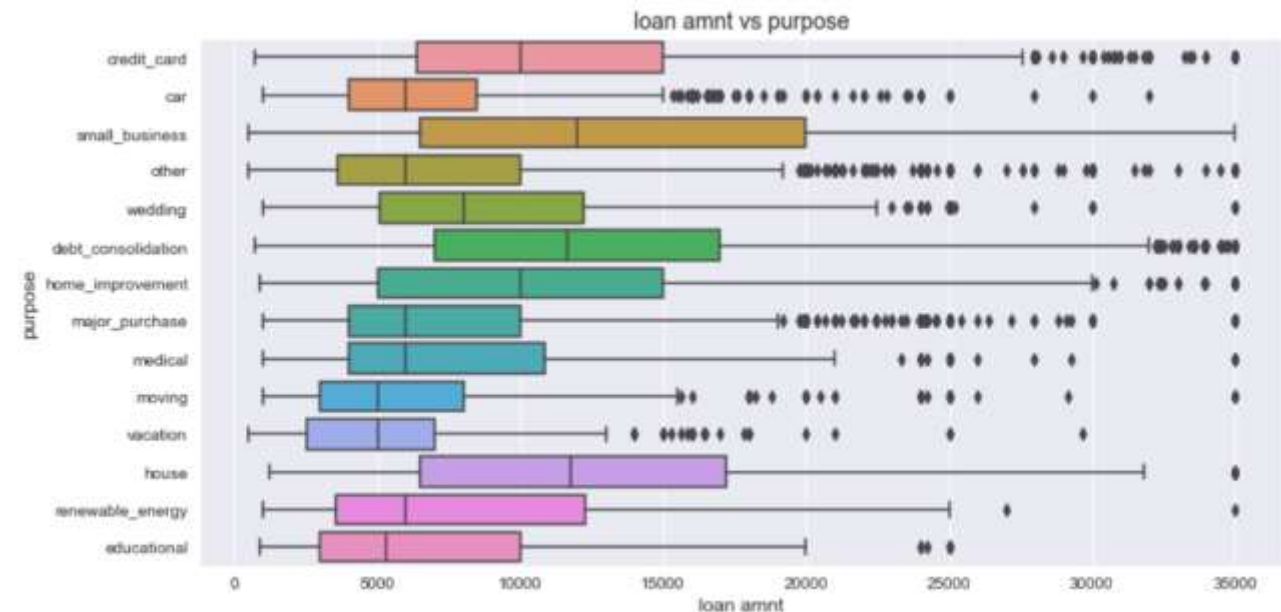
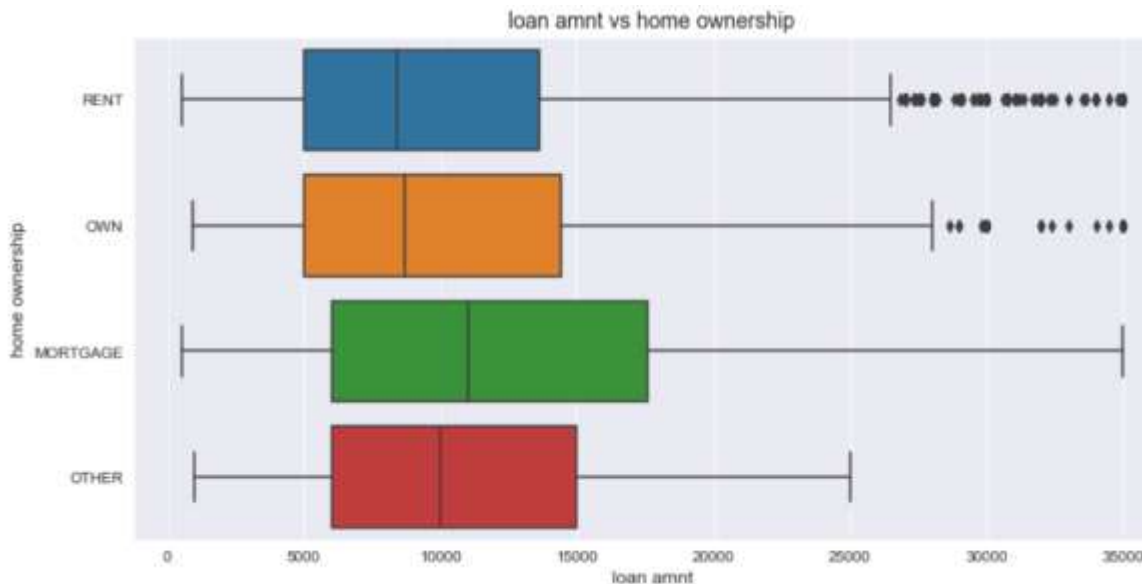
- Borrowers with grade G are paying highest Interest rates and grade A borrowers paying low interest rates.
- Borrowers with sub grade G4 & G5 are paying higher interest rates where as A1, A2 grade borrowers paying low interest rates.



Bivariate Analysis

Observations:

- Mortgage borrowers have highest median value for loan amount while RENT & OWN house borrowers has similar loan amount.
- Small business has highest proportion of loan sanctioned, while vacation has least amount sanctioned. Small Business house, renewable energy and educational loans have a smaller number of outliers



Conclusions

- Lending club should reduce the Loans whose interest falls between 15-20% which are more likely defaulted.
- Mortgage Ownership borrowers are availing higher loans and should be reduced.
- Debt consolidation loans must be reduced as there are a greater number of defaulters.
- Lending club should reduce the loans from AK,UT,WY to reduce the defaulters and make profits.
- Most of the borrowers who defaulted took 60 months tenure and are paying higher interest rates.
- More verification is needed for borrowers with 10+ years and below 1 year employment history.

THANK YOU