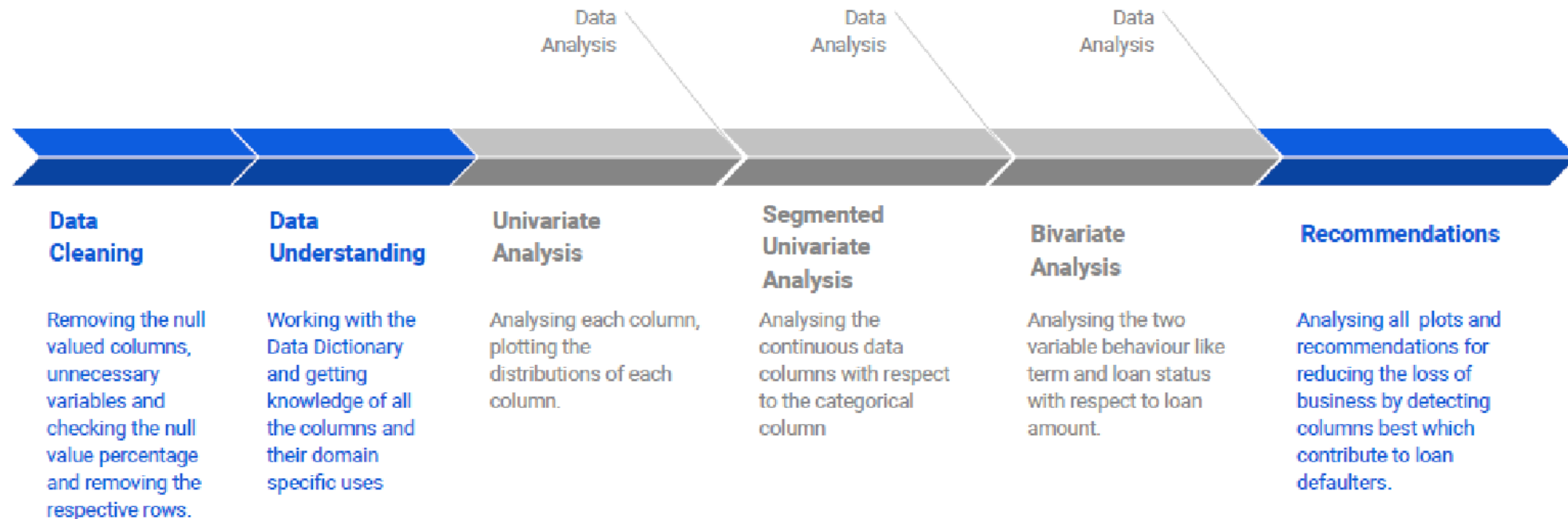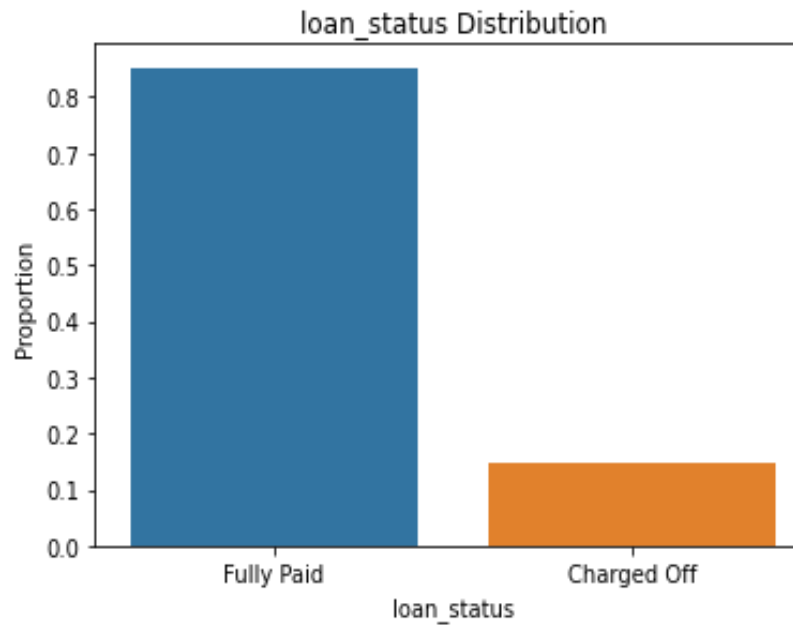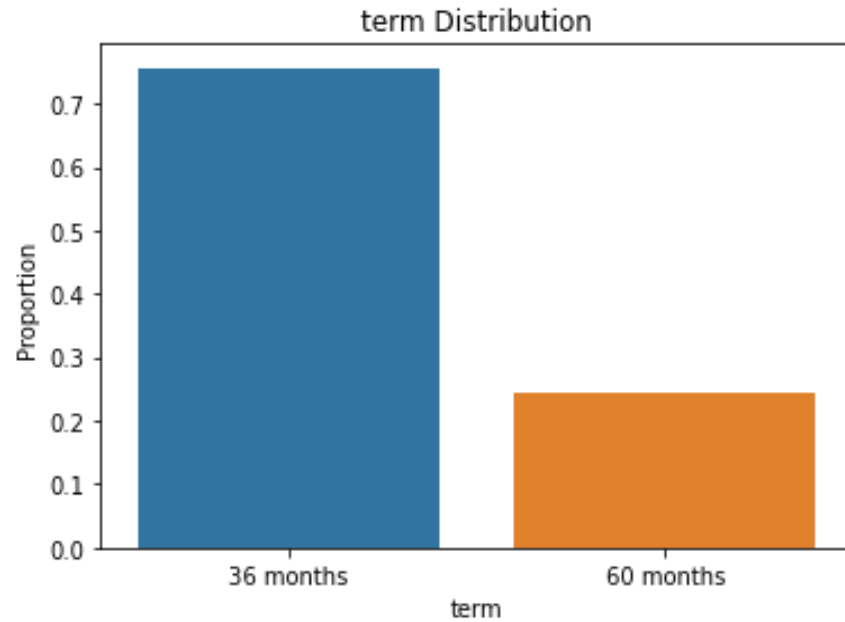# Lending Club Case Study
by
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Business Objectives

- Lending Club 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.

- lending loans to 'risky' applicants is the largest source of financial loss (called credit loss). 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'.

- Objective is to identify the risky loan applicants, understanding driving factors which are strong indicators of default based on the past loan.

Problem solving methodology

Data Analysis

Data Analysis

Data Analysis

Data Cleaning

Removing the null valued columns, unnecessary variables and checking the null value percentage and removing the respective rows.

Data Understanding

Working with the Data Dictionary and getting knowledge of all the columns and their domain specific uses

Univariate Analysis

Analysing each column, plotting the distributions of each column.

Segmented Univariate Analysis

Analysing the continuous data columns with respect to the categorical column

Bivariate Analysis

Analysing the two variable behaviour like term and loan status with respect to loan amount.

Recommendations

Analysing all plots and recommendations for reducing the loss of business by detecting columns best which contribute to loan defaulters.
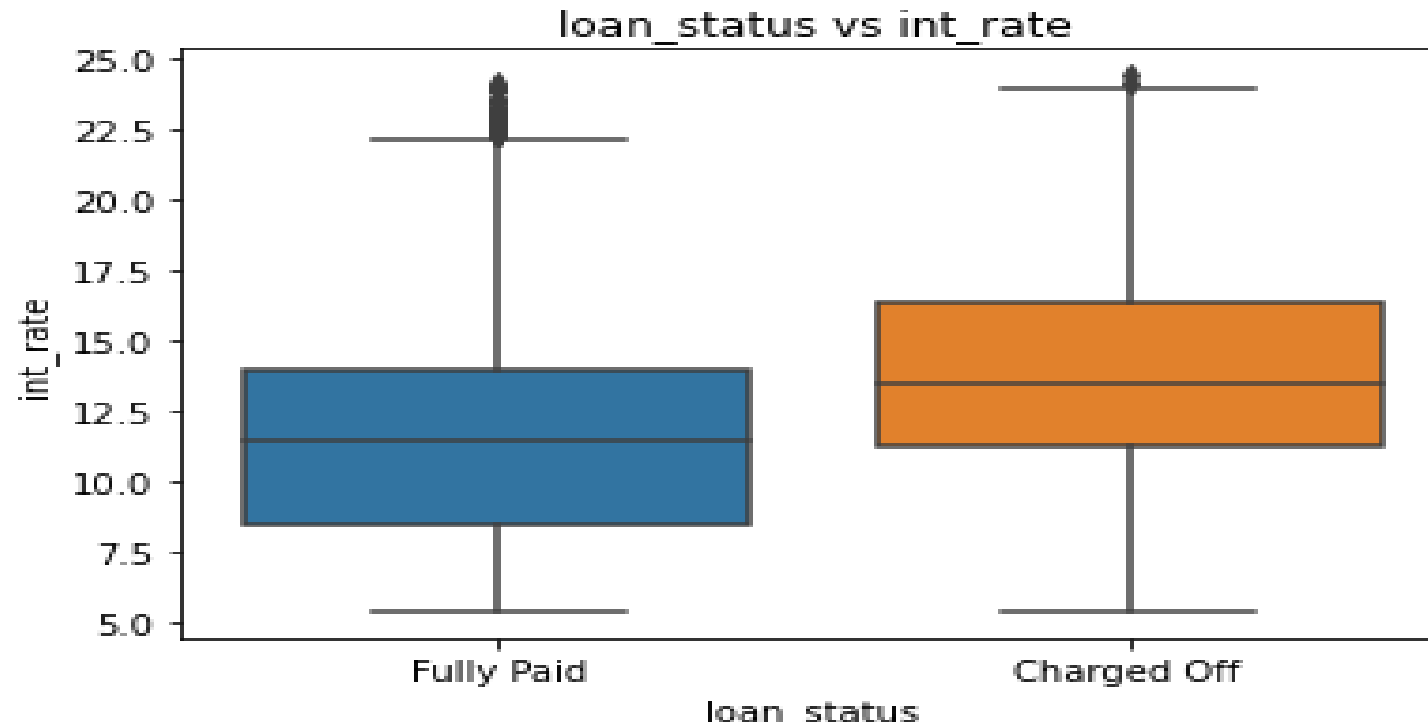
Term and Loan Status distribution

- There are only two loan terms 36 and 60 months. Around 75% borrowers took loans with 36 months term.
- The charged off borrowers are around 15% and fully paid is around 85% in the given dataset.
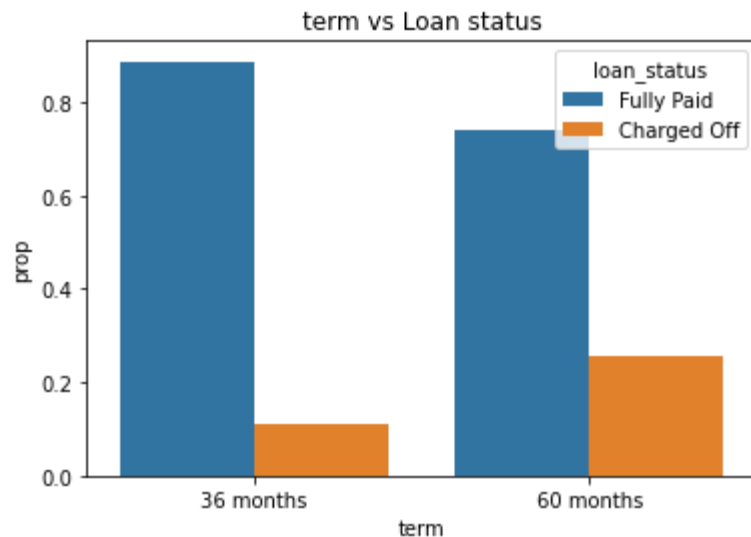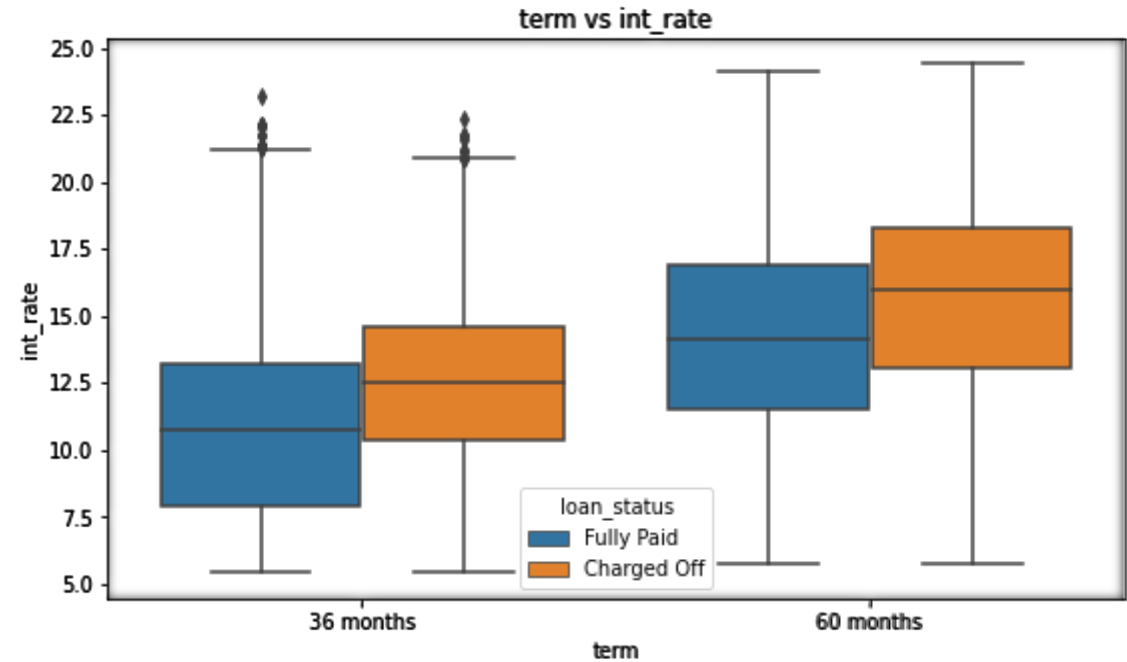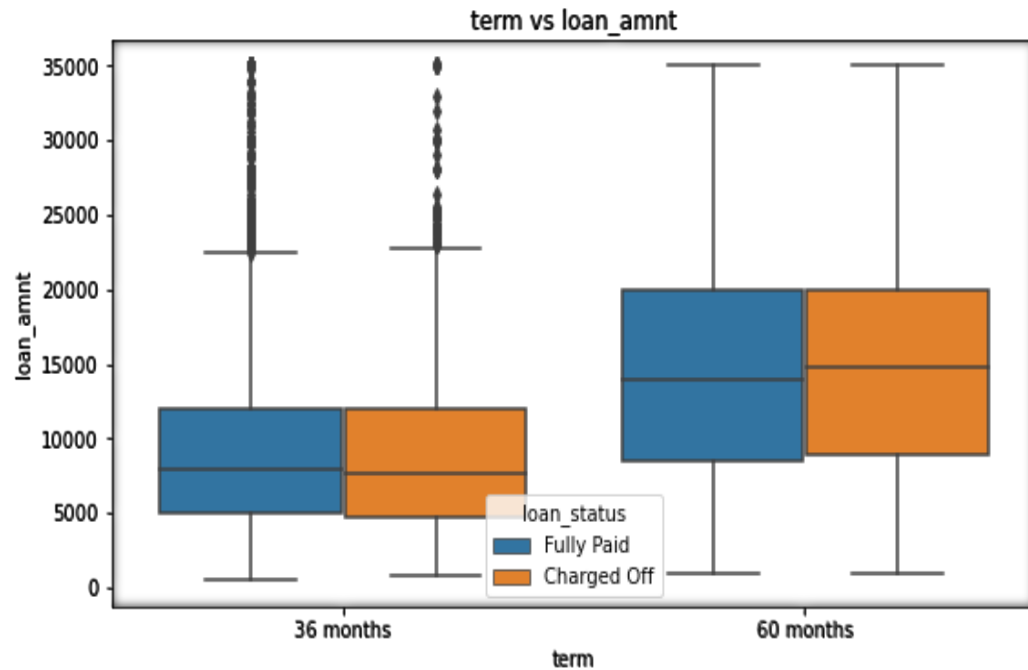
Loan status vs Interest rate analysis

When loan interest is high, there is a high chance of loan getting defaulted
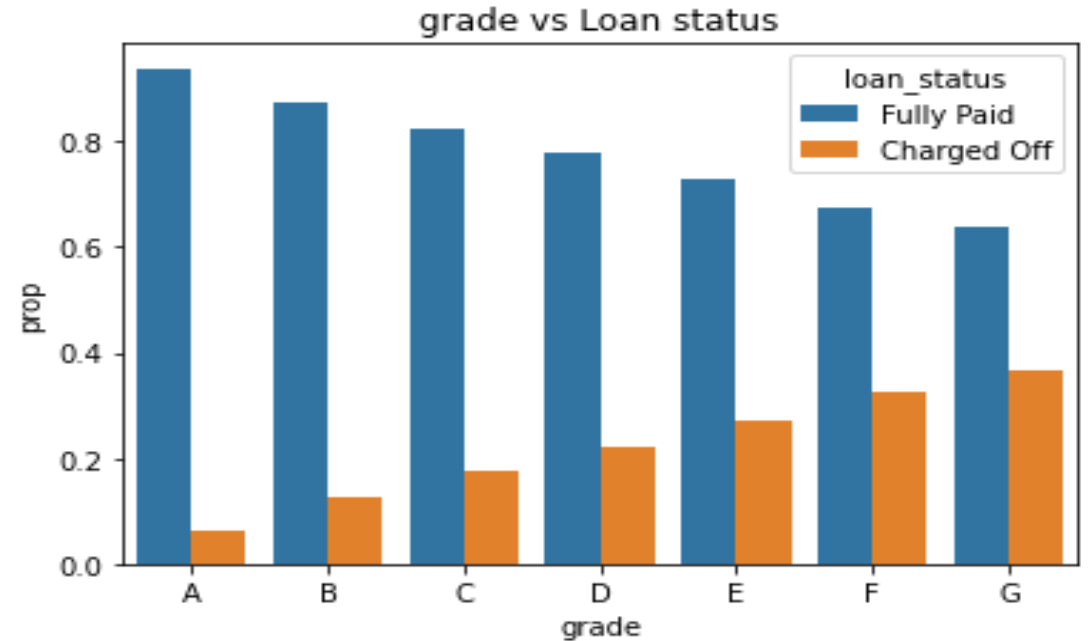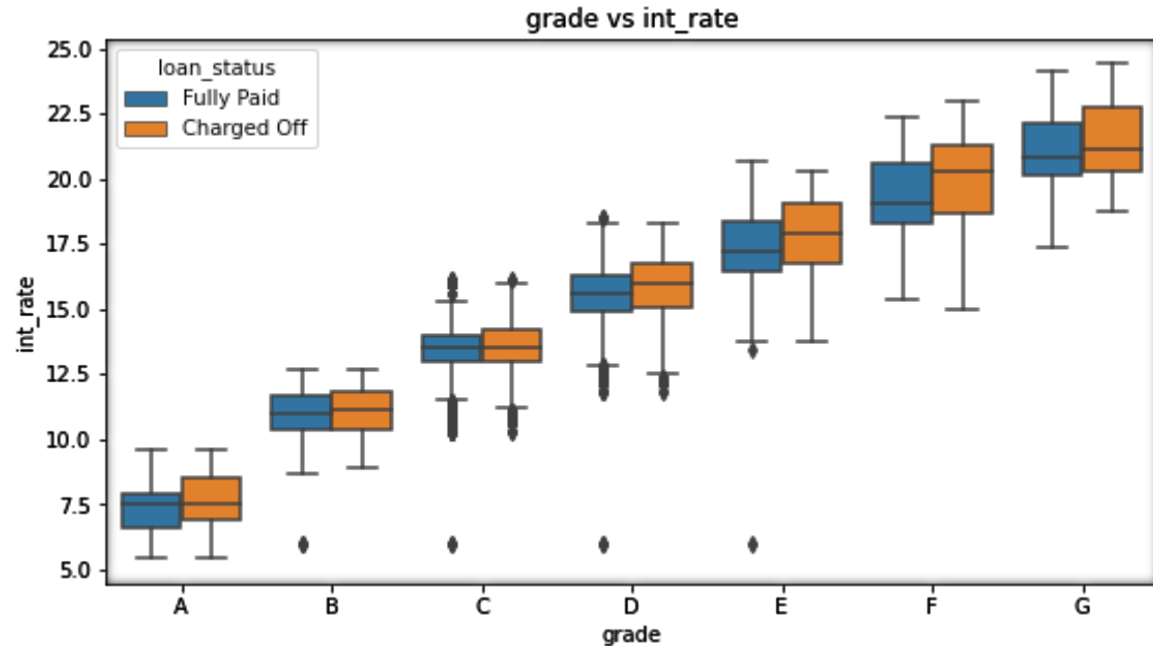
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Term vs loan default analysis

The default rate is high in 60 months tenure because most borrowers took a high loan amount with high interest rate and faced a difficulties to return the loan.

Grades vs loan default analysis

- Grades are very good category to tell the borrower probability of defaulting the loan.
- The Lower Grades(E,F,G) have higher chances of defaulting the loan than Higher ones(A,B).
- Also the lower grades are getting loans with high interest rates which might be the cause for loan default.
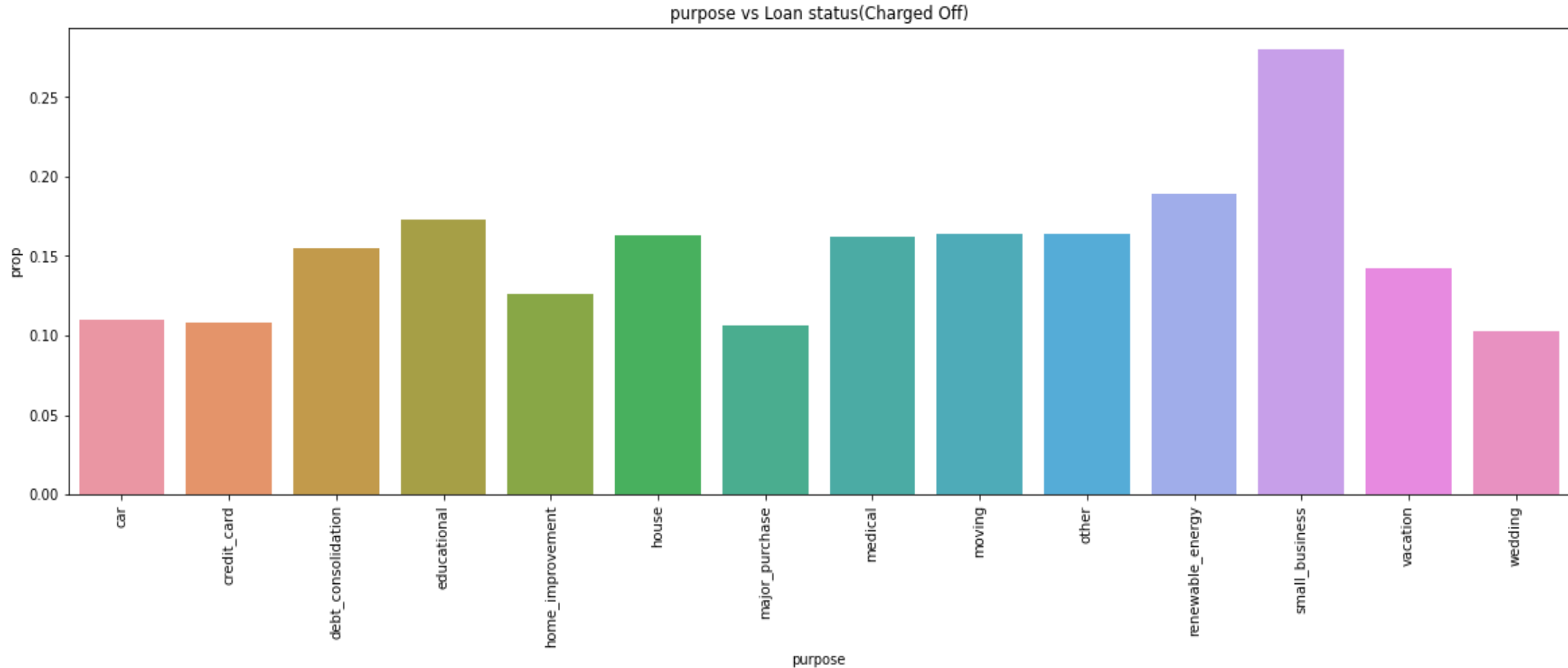
Address State vs loan default analysis

Address state vs charged off
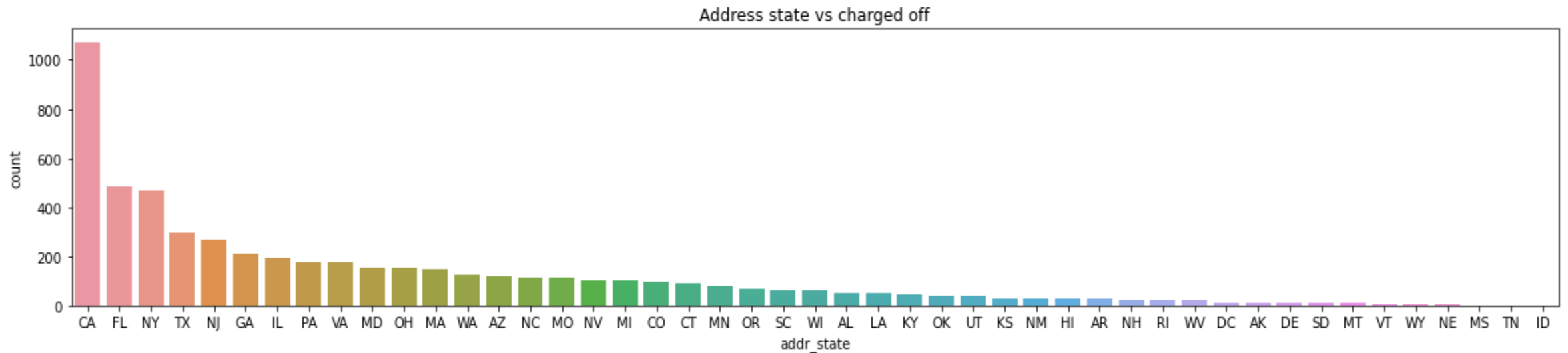
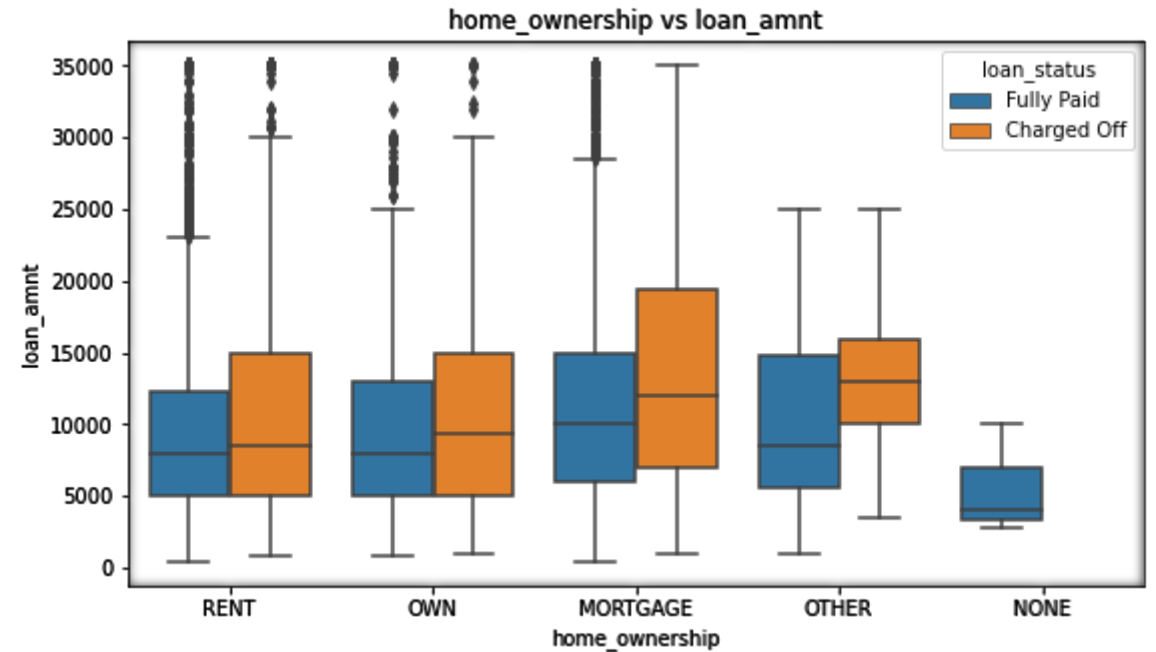- The loans which are given for CA,FL and NY state borrowers are defaulted more than other states.
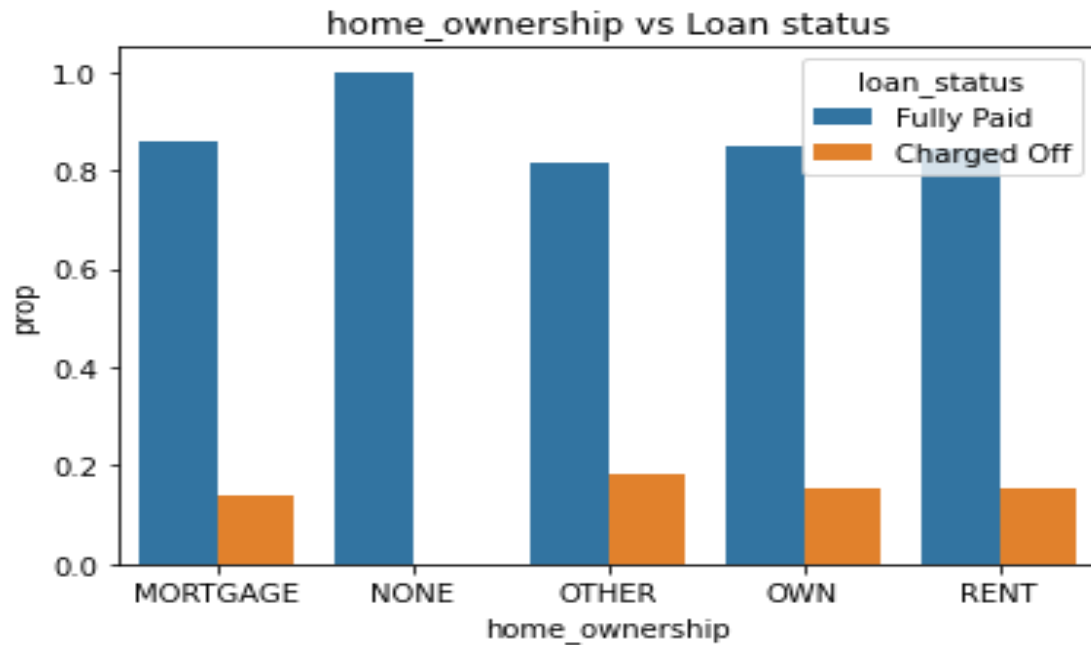
Purpose vs loan default analysis


purpose vs Loan status(Charged Off)

- Borrowers who took the loan for small business purpose have defaulted more.

Home Ownership vs loan default analysis

- There is around 20% of chance of loan default in each home ownership category.
- From the second plot we can see the borrowers with higher loan amounts in mortgage home ownership has high default rate than others.

Issue date distribution
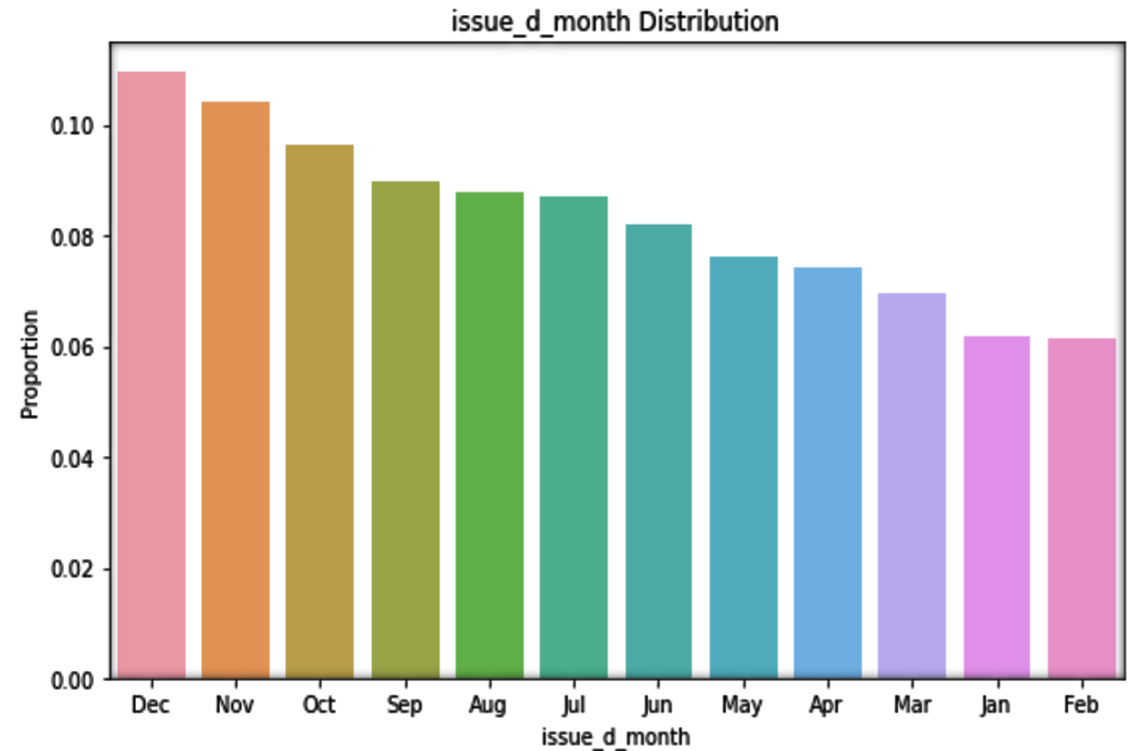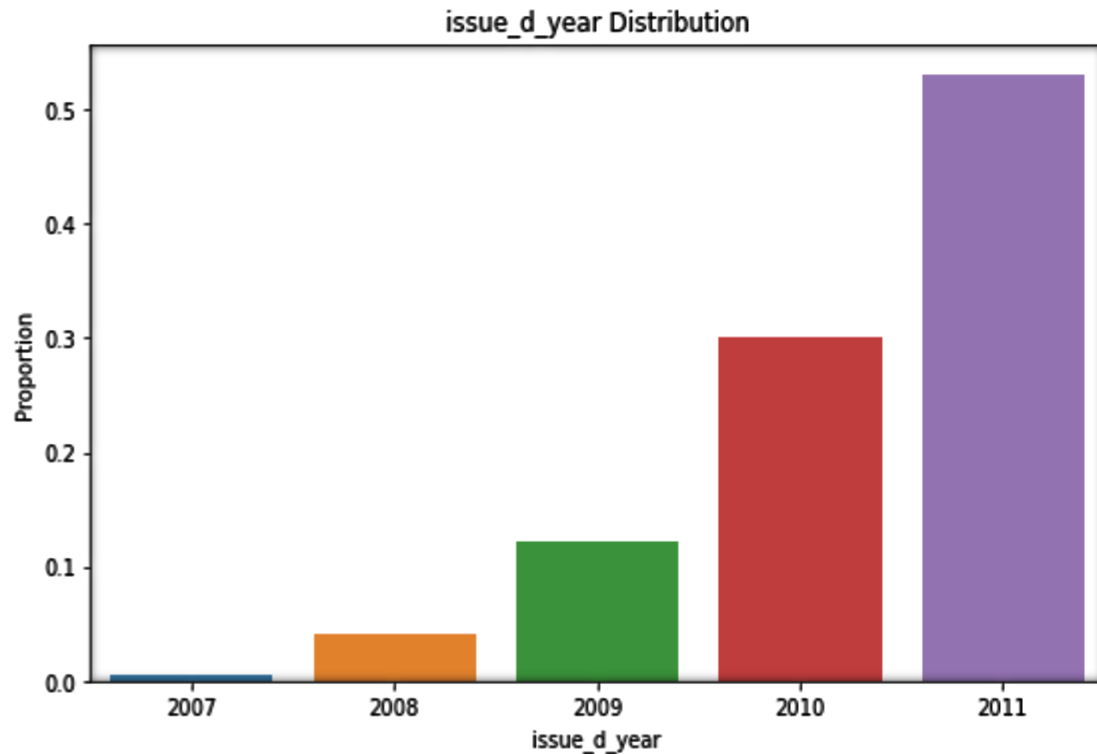
- Lending club has really expanded year by year, the number of loans is issued are double of previous year.
- Issued month is also increased from January to December. In the final quarter of the year the number of loans are issued more.

Recommendations

- Lending Club should reduce high interest rates for 60month tenures, they are prone to default

- Lending Club should not only provide a loan to Borrowers who has only good annual income, also to be provided who has less annual income to make a business/Profit. Irrespective of annual income borrowers' higher rates of Full paid than Charged-off.

- Grades are good metric for detecting defaulters. Lending Club should collect/examine more information from Borrowers before issuing a loan to Grades(G to A).Provide a Loan to the Borrowers who falls under Category G they are highest at full paid the loan and reducing the interest rate for them will be a company profit.

- Small business and debt consolidation are defaulted more. Lending Club should reduce issuing the loans to them and reducing interest rate for house purpose will be a profit as they defaulted loan more.

- Lending Club should control their number of loan issues to borrowers who are from CA,FL and NY states to make profits.

- Borrowers with mortgage home ownership are taking higher loans and defaulting the loans. Lending Club should stop giving a loans to this category when requested loan amount is higher than 12000.

- Lending Club should concentrate on income source of Borrowers because verified borrowers also defaulting a loan.

- Borrowers with more numbers of public derogatory records are having more chance of filing a bankruptcy. Lending Club make there are no public derogatory records for the borrower

- Lending club should reduce providing loan amount to Borrowers with highest professional experience has they are at highest defaulted the loan.

Thank You