



Lending Club Case Study

Team Members

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Problem Statement

Context

A consumer finance company which is specialized in lending various types of loans to urban customers. When the company receives a loan application, the company has to make a decision for loan approval based on the applicant's profile. Two types of risks are associated with the bank's decision:

- If the applicant is likely to repay the loan, then not approving the loan results in a loss of business to the company
- If the applicant is not likely to repay the loan, i.e. he/she is likely to default, then approving the loan may lead to a financial loss for the company

Business Objective

- The aim is to identify patterns which indicate if a person is likely to default, which may be used for taking actions such as denying the loan, reducing the amount of loan, lending (to risky applicants) at a higher interest rate, etc.
- As a data analyst team, we need to EDA to understand how consumer attributes and loan attributes influence the tendency of default.

Analysis Approach

- Dropping Null Column
- Formatting with correct data type

Data Cleaning

Univariate Analysis

- Univariate Analysis by :
- Loan Amount, Status, Interest Rate, State etc

- Affect of different variables of charged off status i.e. Purpose, Term, Interest rate

Segmented Univariate Analysis

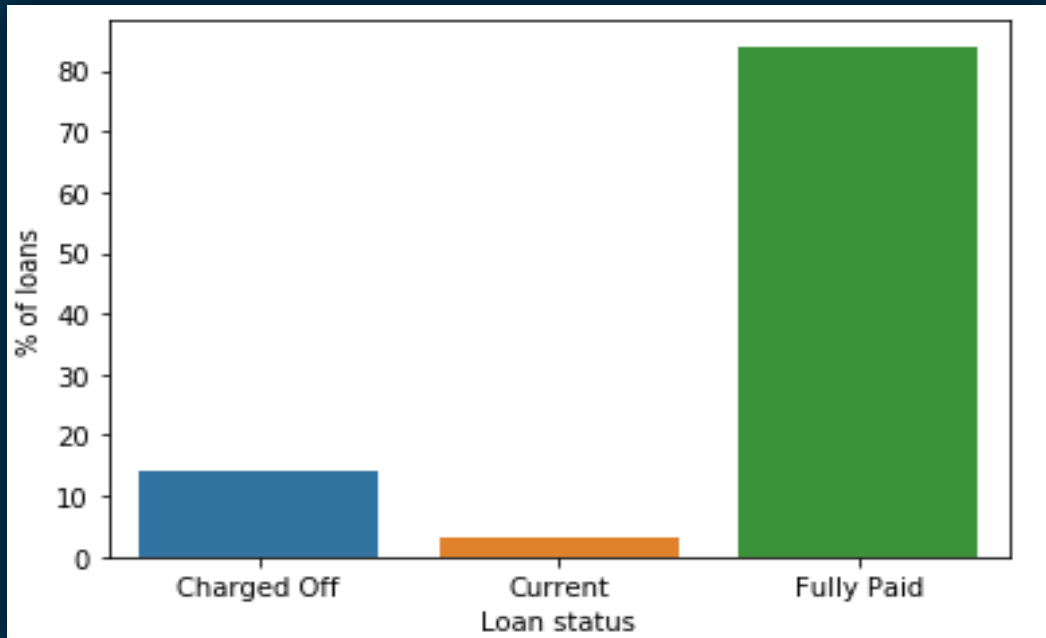
Bivariate Analysis

- Affect to 2 variables on loan status i.e.
- Purpose-Amount
- Term- Interest Rate etc.

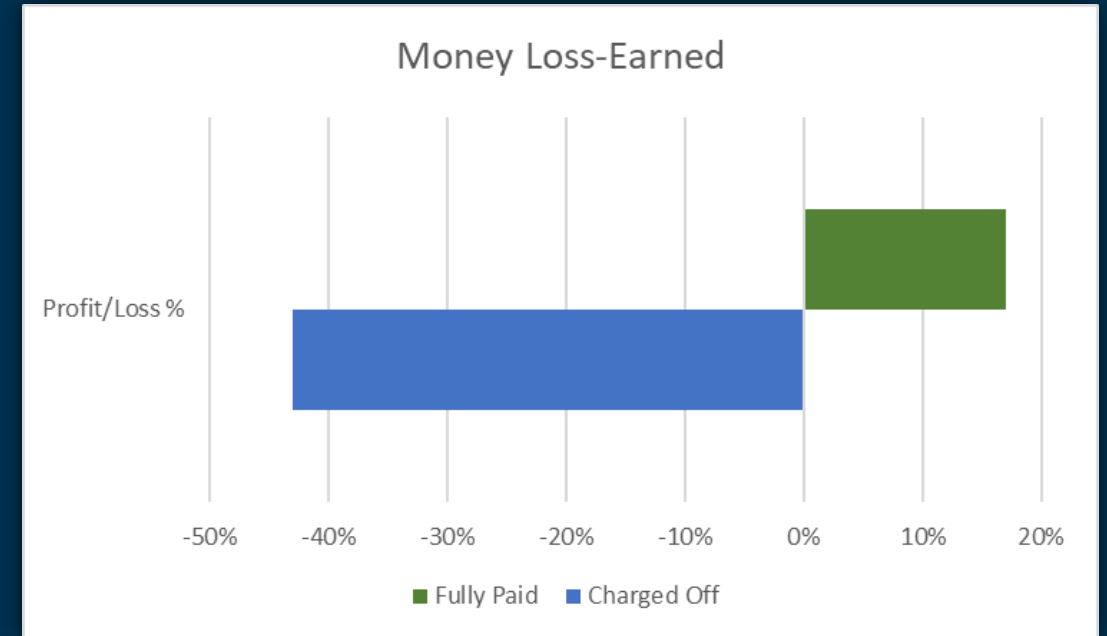
- Finding of EDA and what trends data is showing
- Suggestions to avoid financial loss and to gain business.

Analysis Summary & Suggestions

Analysis By Loan Status

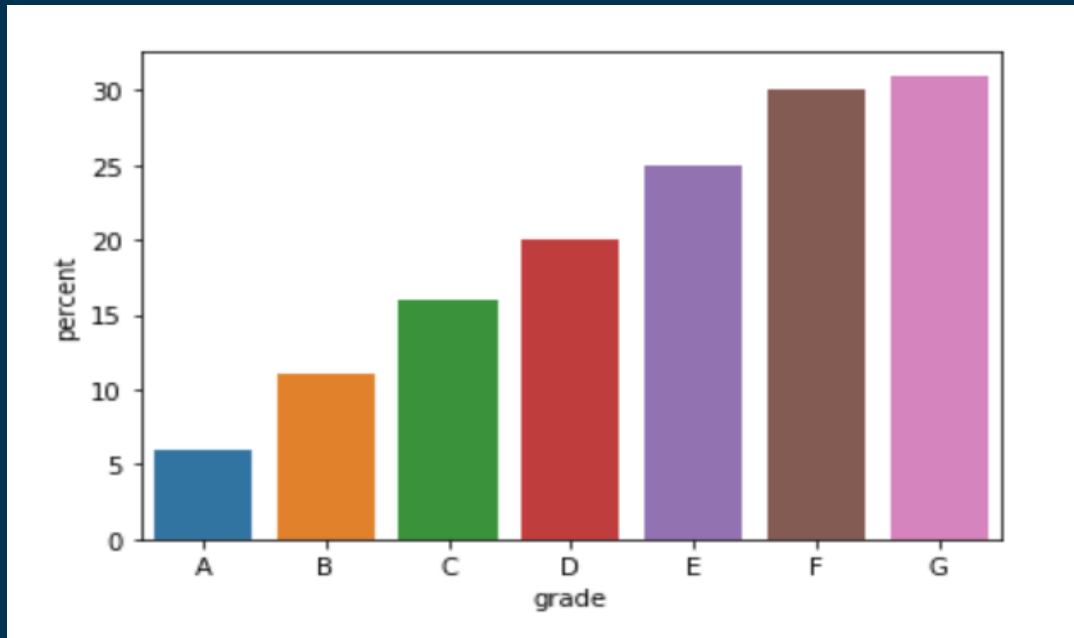


- Approximately 14% loans are charged off.
- In upcoming slides we will try to focus to factors which drives a customer to be defaulter and how identify these factors.

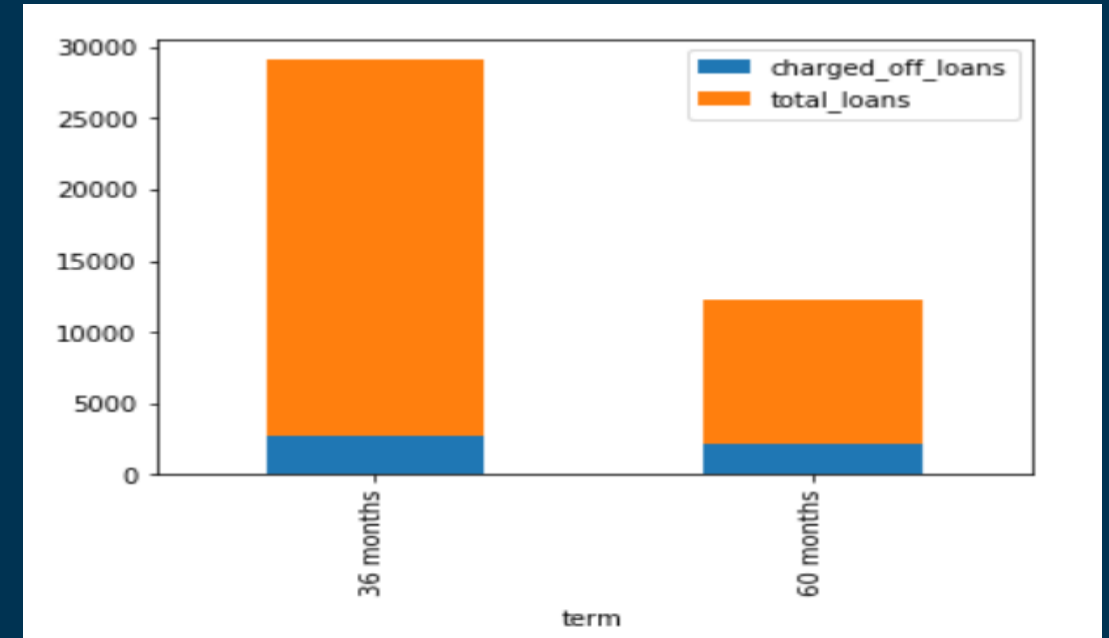


- When a loan is charged off then company loses around 43% of amount.
- When a customer fully paid is loan company makes 17% profit.

Analysis By Grades & Term

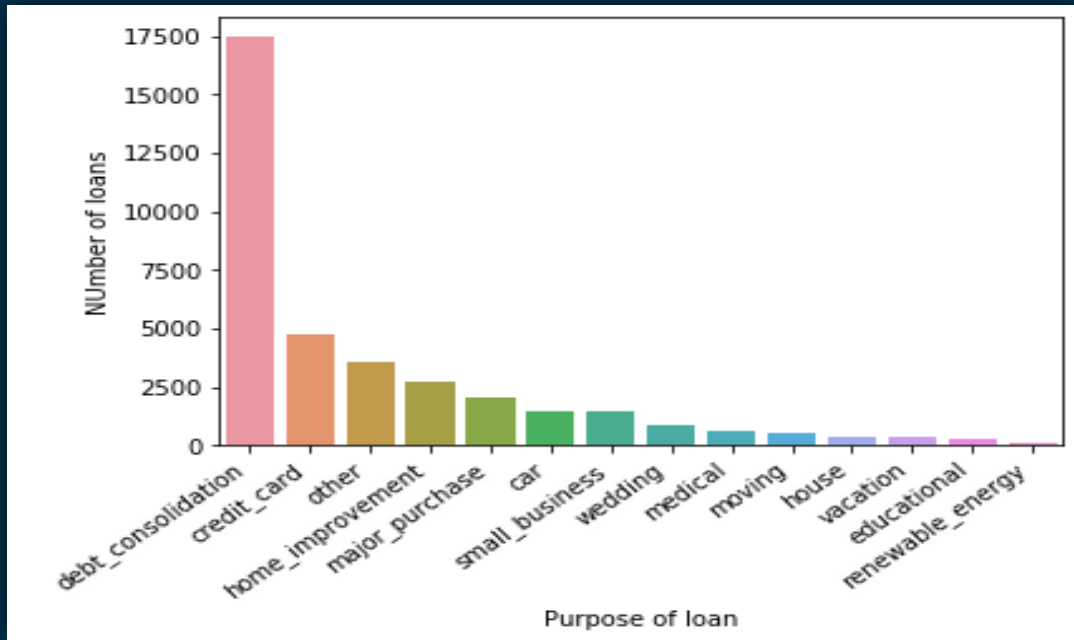


- Borrower with Lower Grades has more chances to be defaulters.

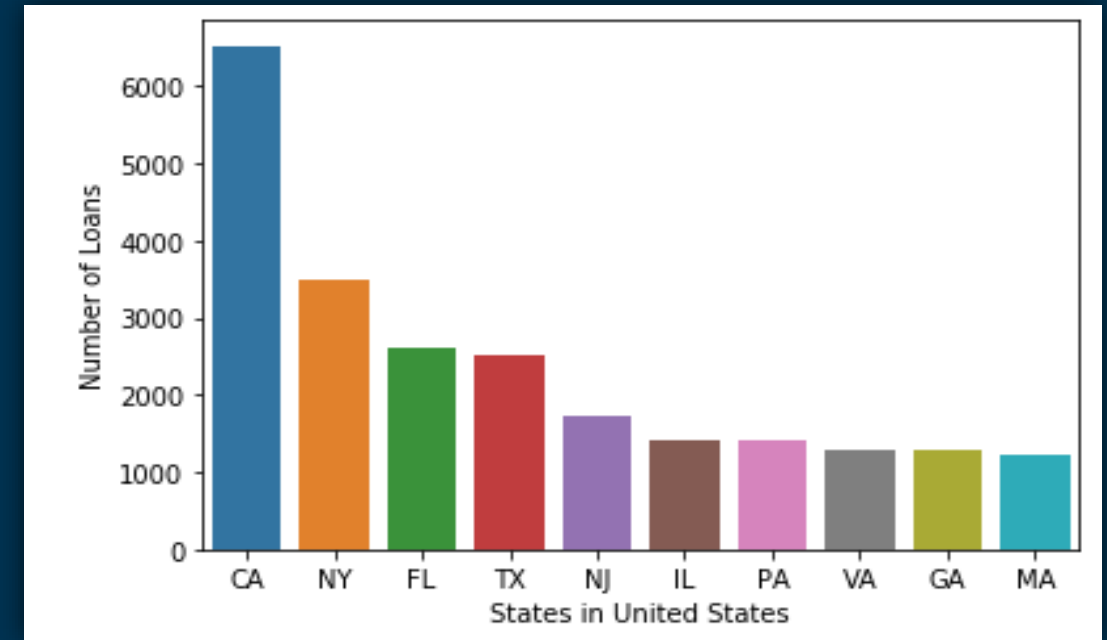


- Loan sanctioned for higher terms tends to charged off more.

Analysis By Purpose and State

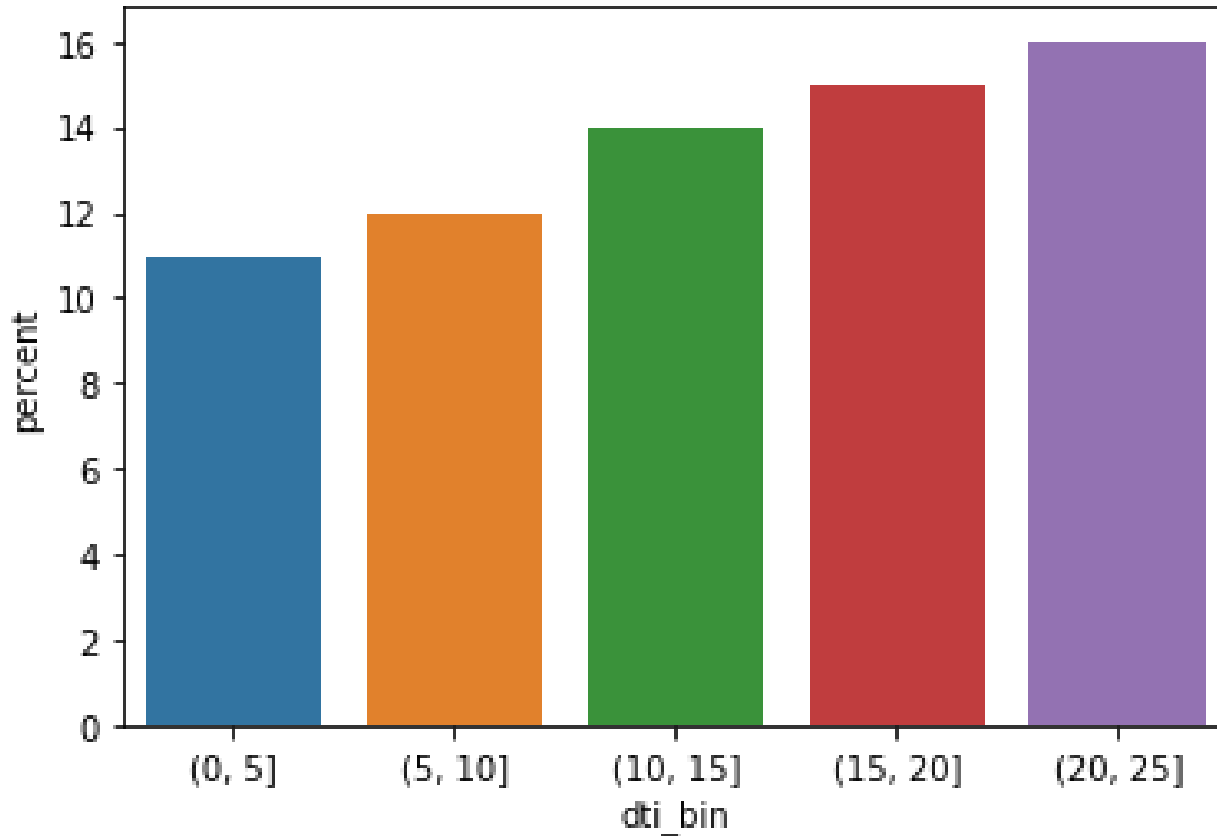


- Most number of loans are sanctioned for Debt consolidation and credit card.



- States with most loans are California, New York and Florida.

Analysis By Debt to Income Ratio

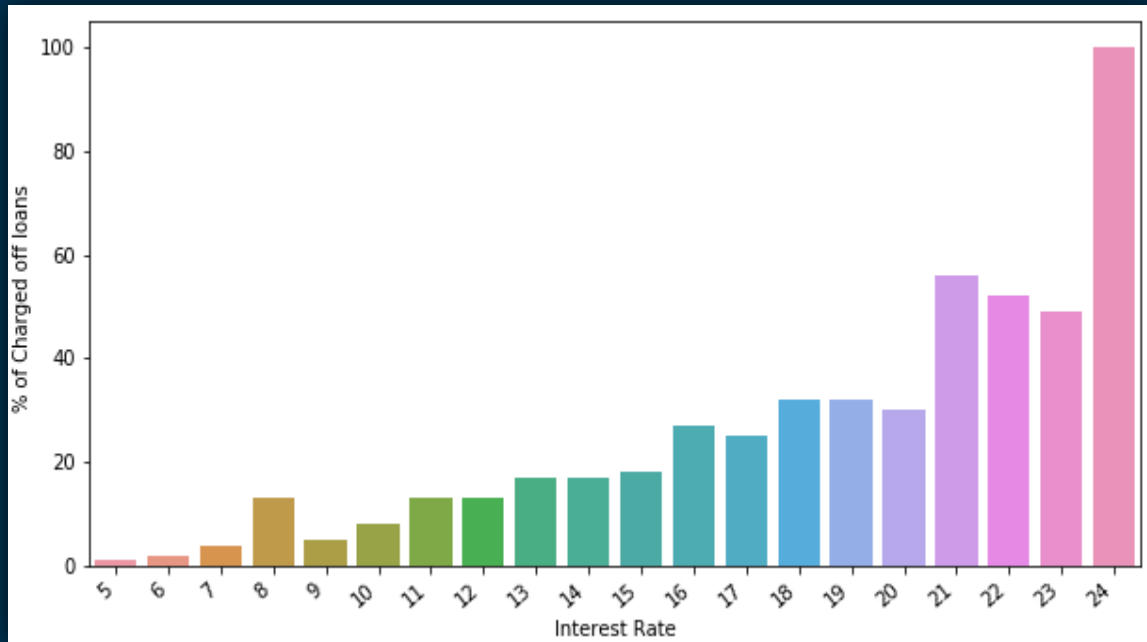


DTI is ratio between borrower's debt obligations and monthly salary.

When this ratio is increased, chances of loan being charged off also increase.

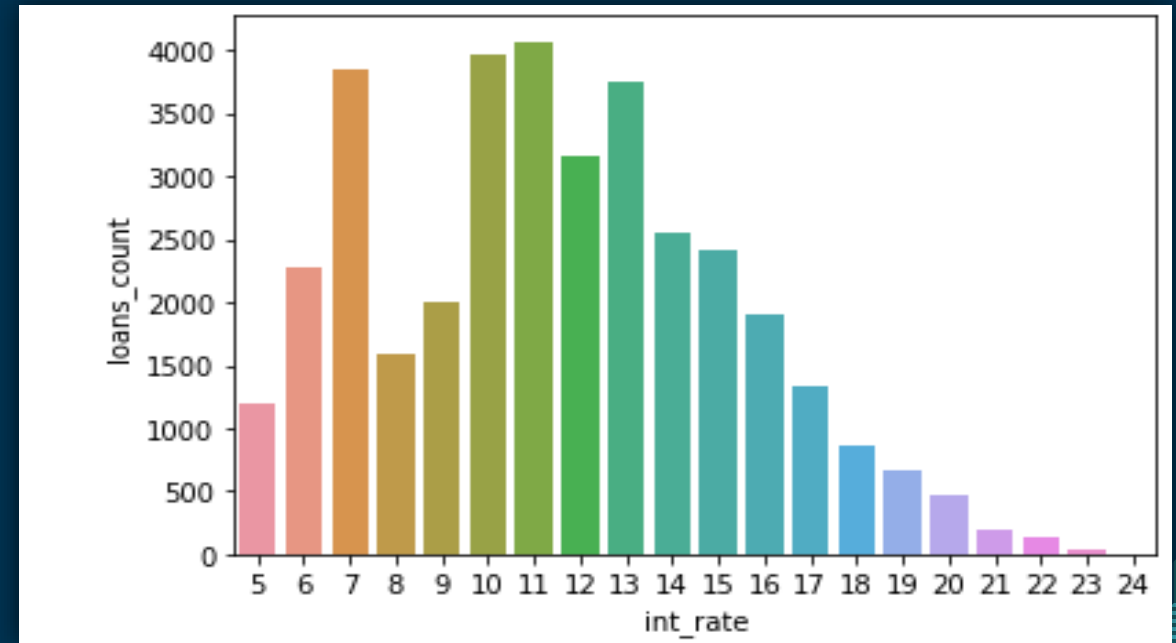
We have seen the trend in data, when dti is >20 then changes of loan being default are higher.

Analysis By Loan Status & Interest Rate

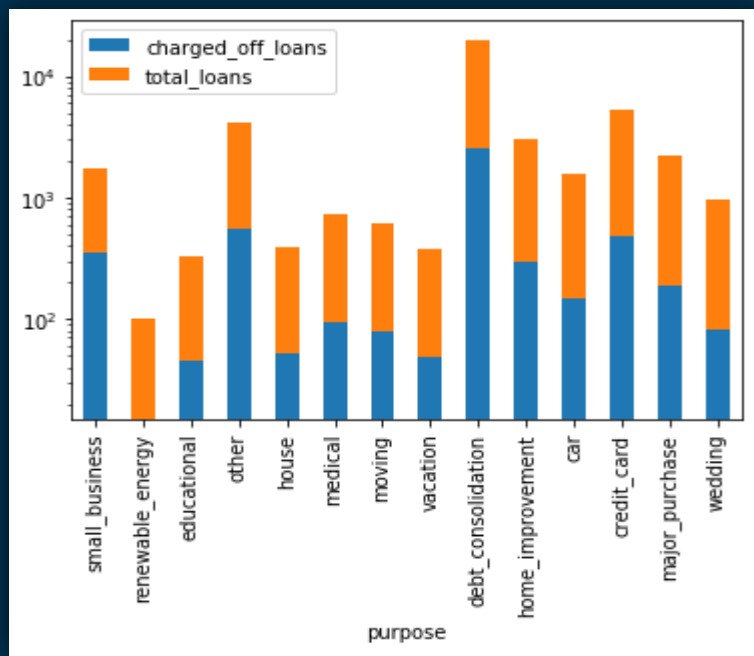


- Customer taking loans with higher interest rate tends more to default the loan.

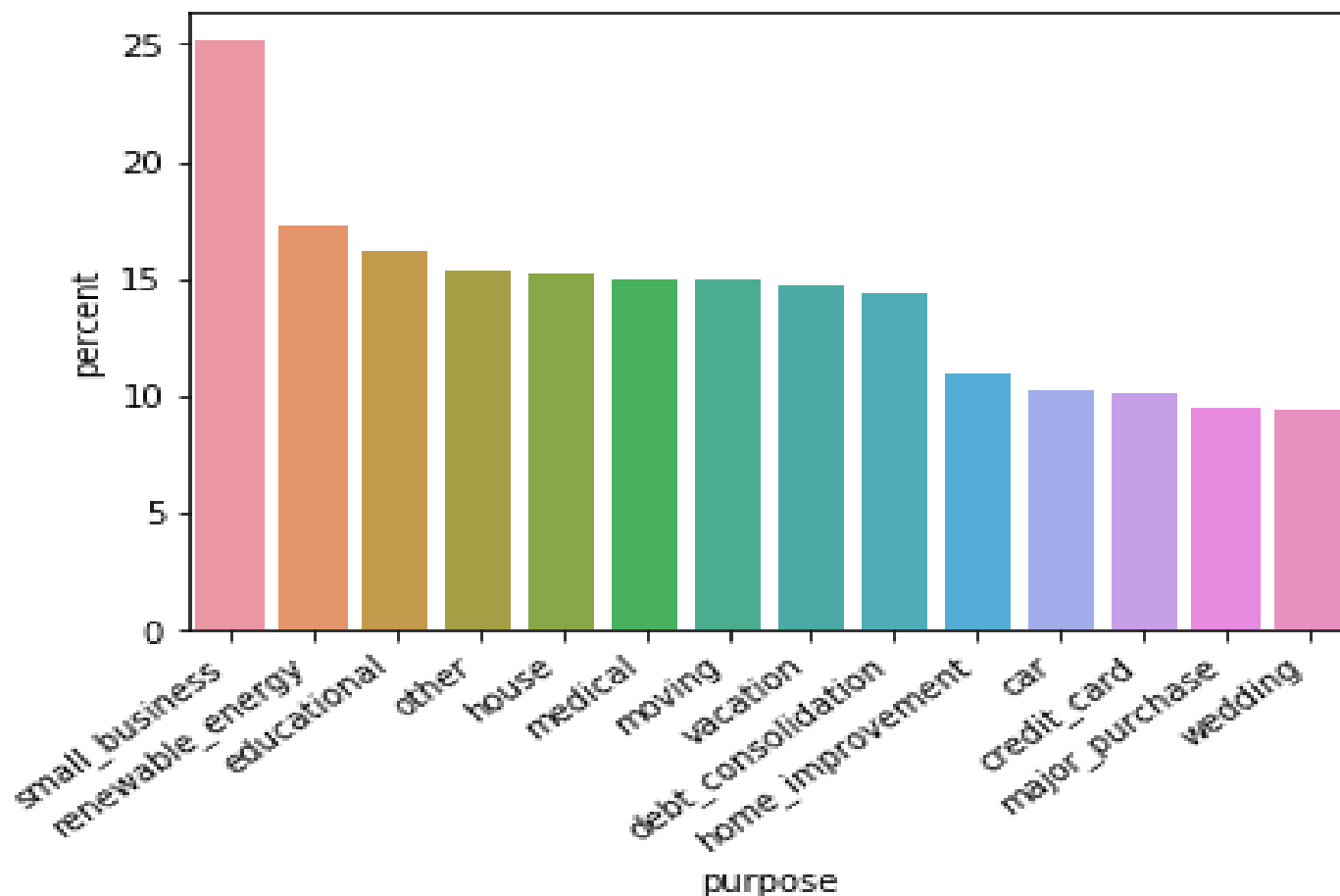
- Most number of loans are sanctioned with interest rate between 10-13%.



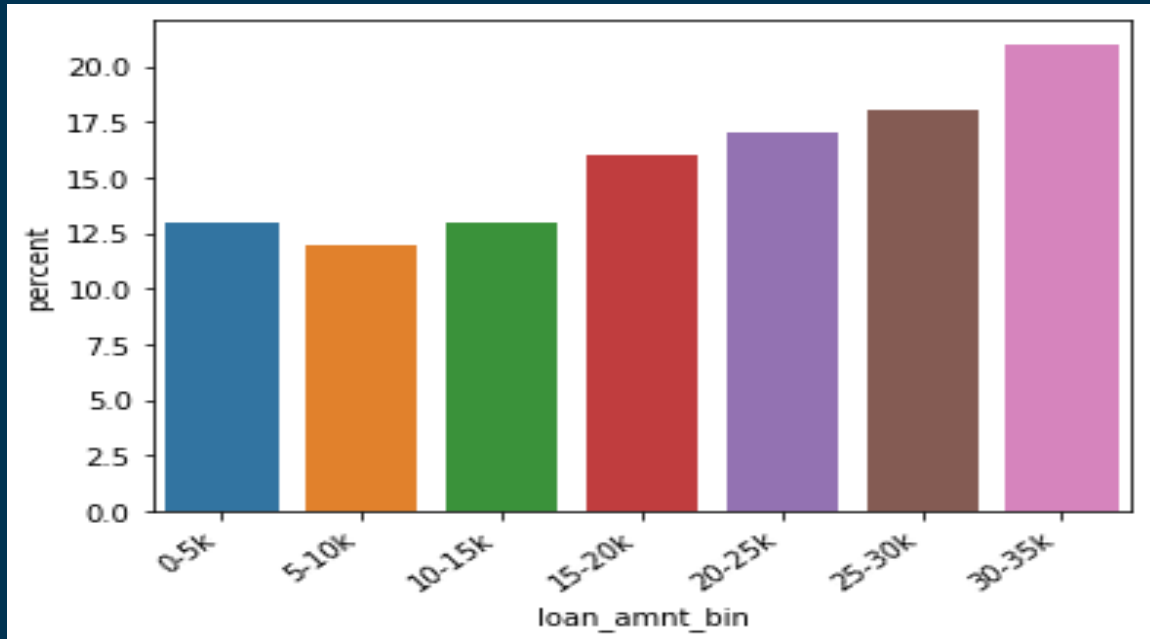
Analysis By Loan Status & Purpose



Loan taken for Small businesses and renewable energy projects are more likely to be charged off.

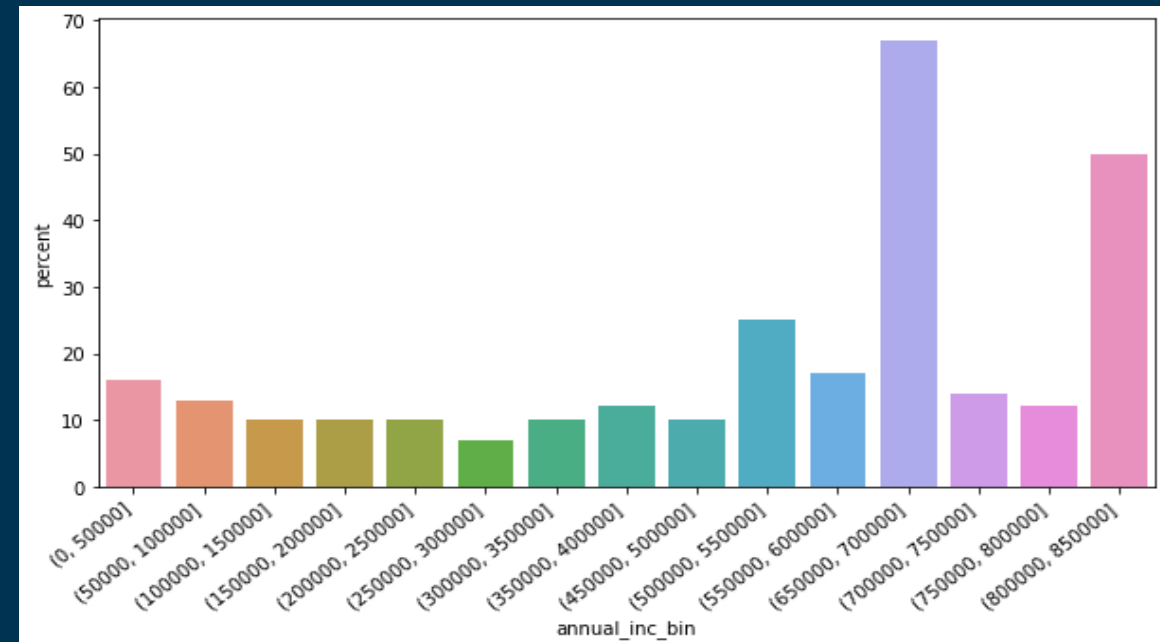


Analysis By Loan amount and Income

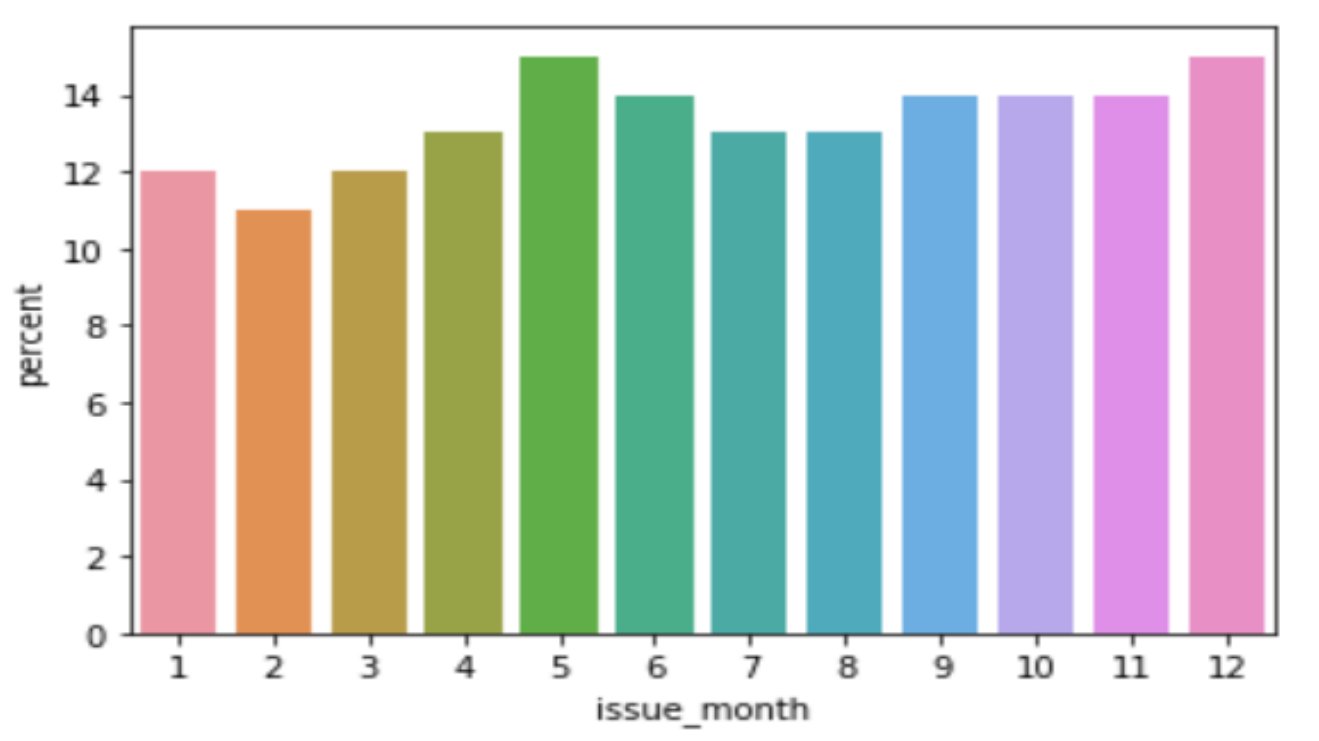


- Chances of loan being charged off when loan amount is higher than 15-20K range.

- Loan customers with higher salary more likely to be defaulters.

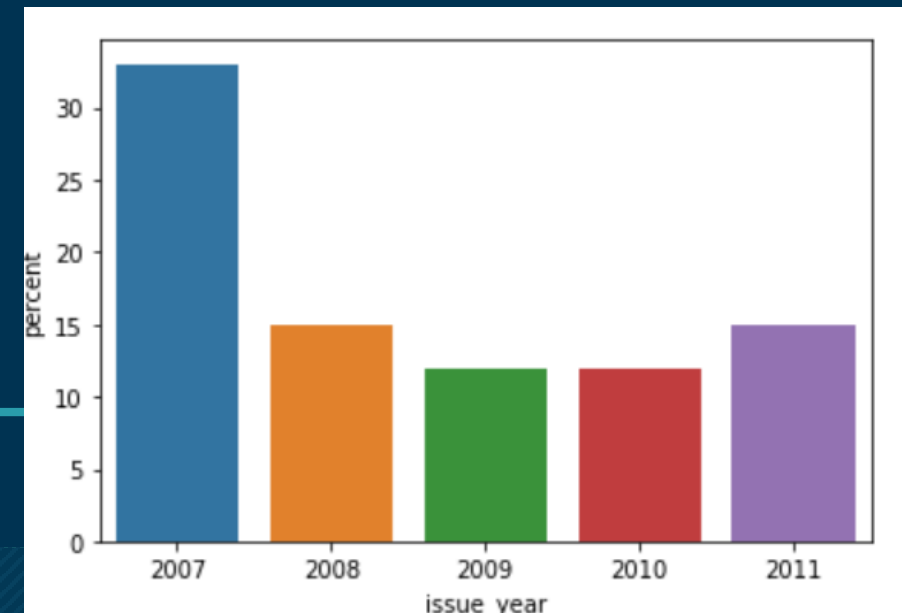


Analysis - Issue Year & Month

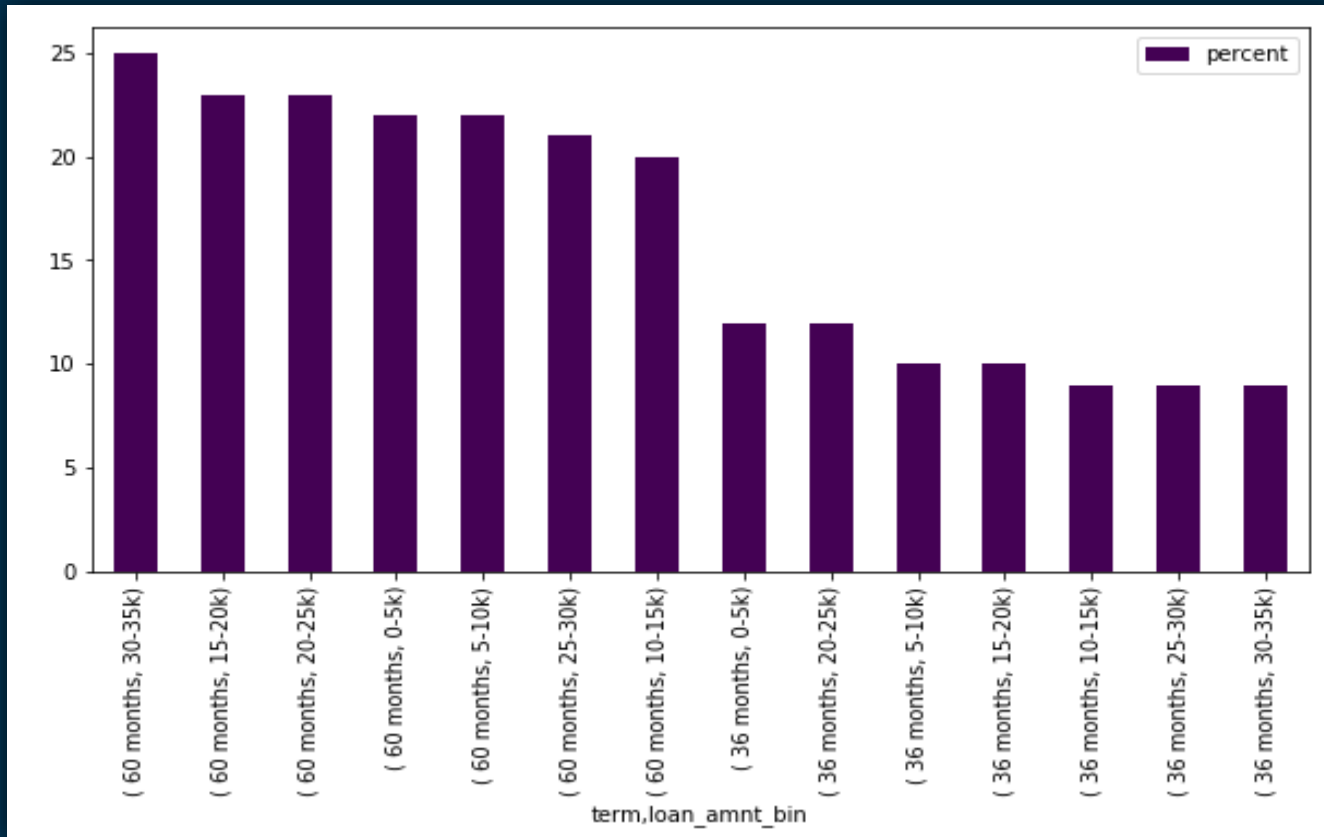


- Most loans are given before crisis years like 2007, 2008.

- No of approved loan is higher towards the end of the year.



Bivariate Analysis: Loan Amount & Term



When loan term is increased then chances of loan being charged off also increases.

Customers with higher loan amount with longer terms have higher chance of being defaulter.

Suggestions To Avoid Financial Loss & Improve Business



Reduce the number of loan approval for small businesses and renewable energy.



Try to reduce the interest rate when period is high (~60 month)



Stop approving higher amount of loan when debt to income ratio is high.



Higher loan amount can be approved for borrower with higher grade and low terms.



Stop approving loans with longer terms and higher loan amounts



Try to understand borrower's home ownership more clearly as it is one of the good factor .



Thank You.