Lending Club case Study

SUBMISSION

Group Members:

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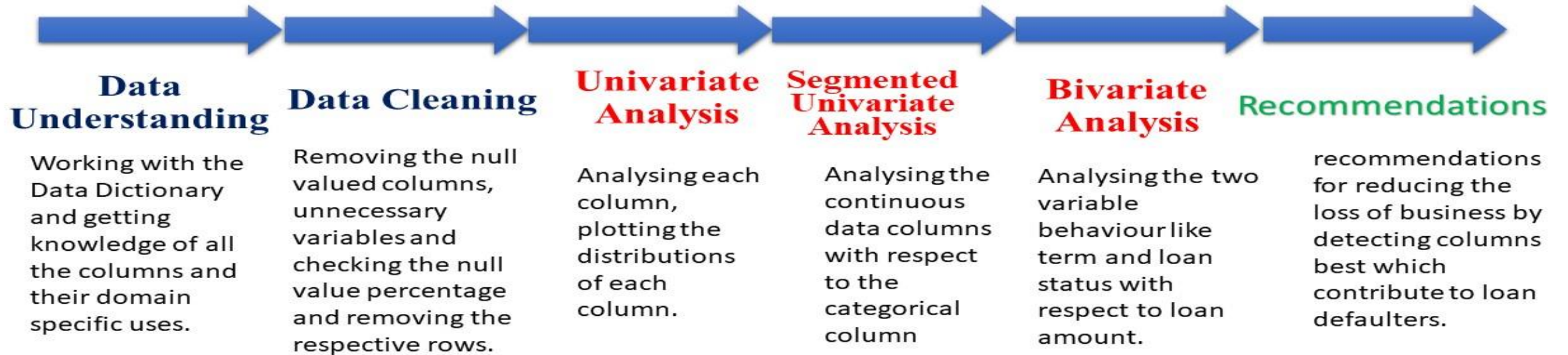2. Amit Walia

Lending Club Case Study Business Objective

- Lending Club is a marketplace for personal loans that matches borrowers who are seeking a loan with investors looking to lend money and make a return.

Strategy:

- 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 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 utilise this knowledge for its portfolio and risk assessment.

Problem solving methodology

Data Understanding

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

Data Cleaning

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

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

recommendations for reducing the loss of business by detecting columns best which contribute to loan defaulters.

Data Understanding and cleaning

1. Read the loan dataset and Checking the target variable.

2. Clean the data if we have any/all null values in the columns rows for the required columns

3. Deriving the new columns required from issue_d i.e. month and year

4. Analysing the data using univariate analysis to check the variable that impact the loans defaulted

5. Analysing the data using bivariate analysis to check the variable that impact the loans defaulted

Charged off proprtion of the prupose of the loans
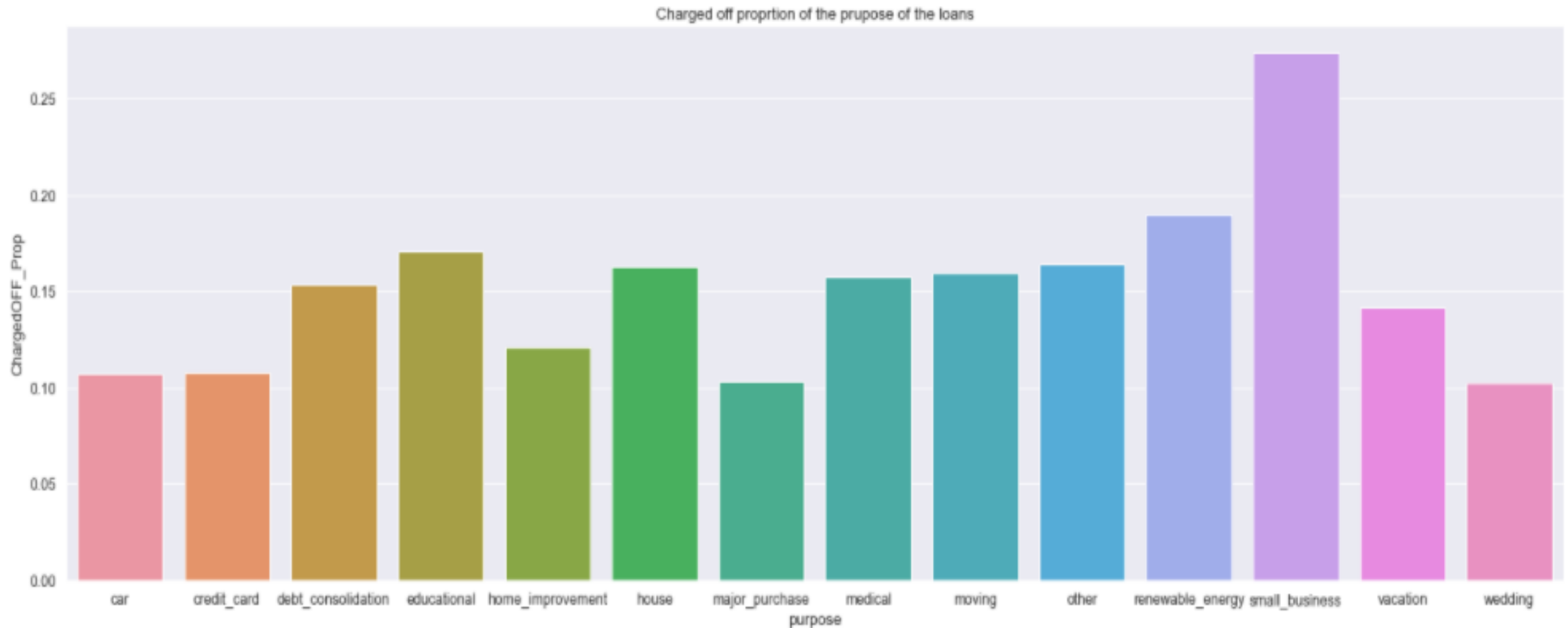
1. We have nearly 14% of loans are defaulted in the data set given.
2. Mostly small business purpose loans are defaulted. So be care full while issuing the loans to small business purpose.
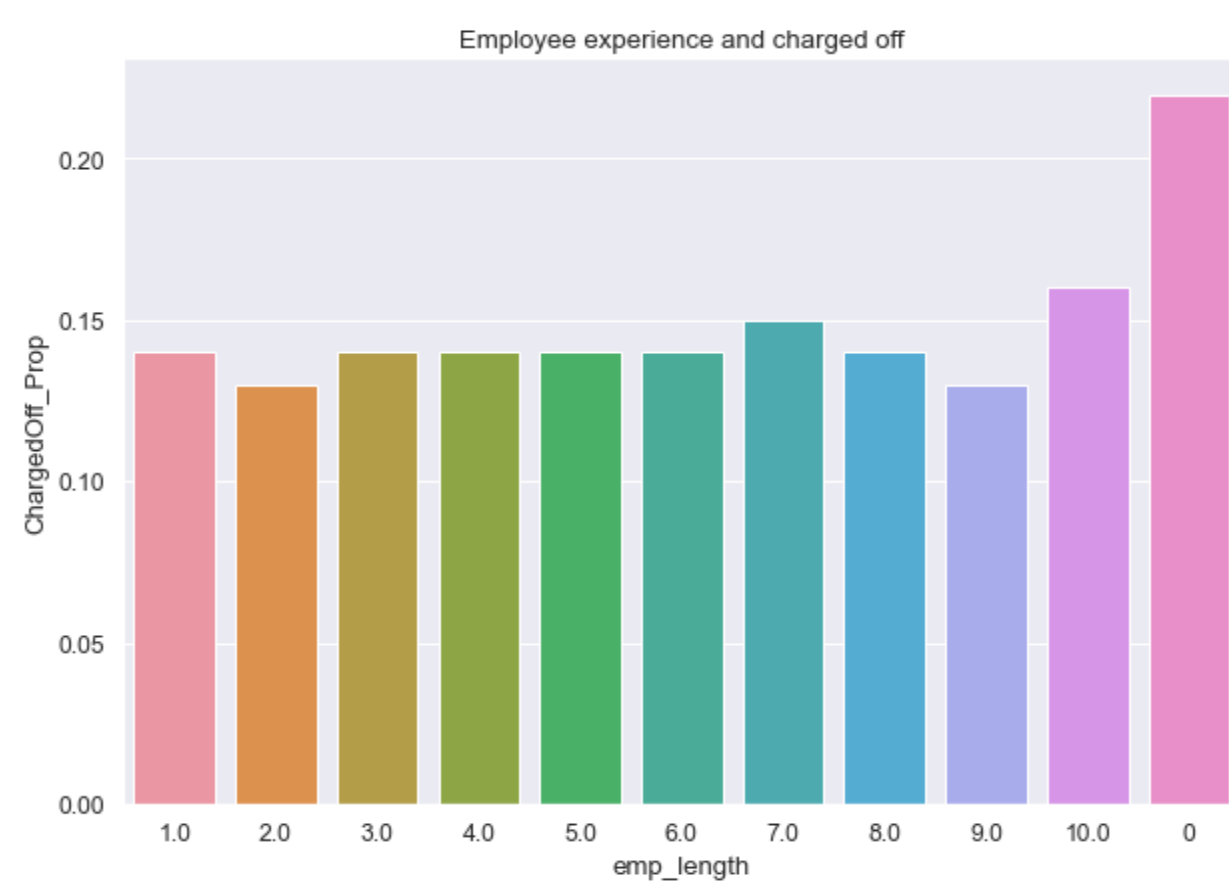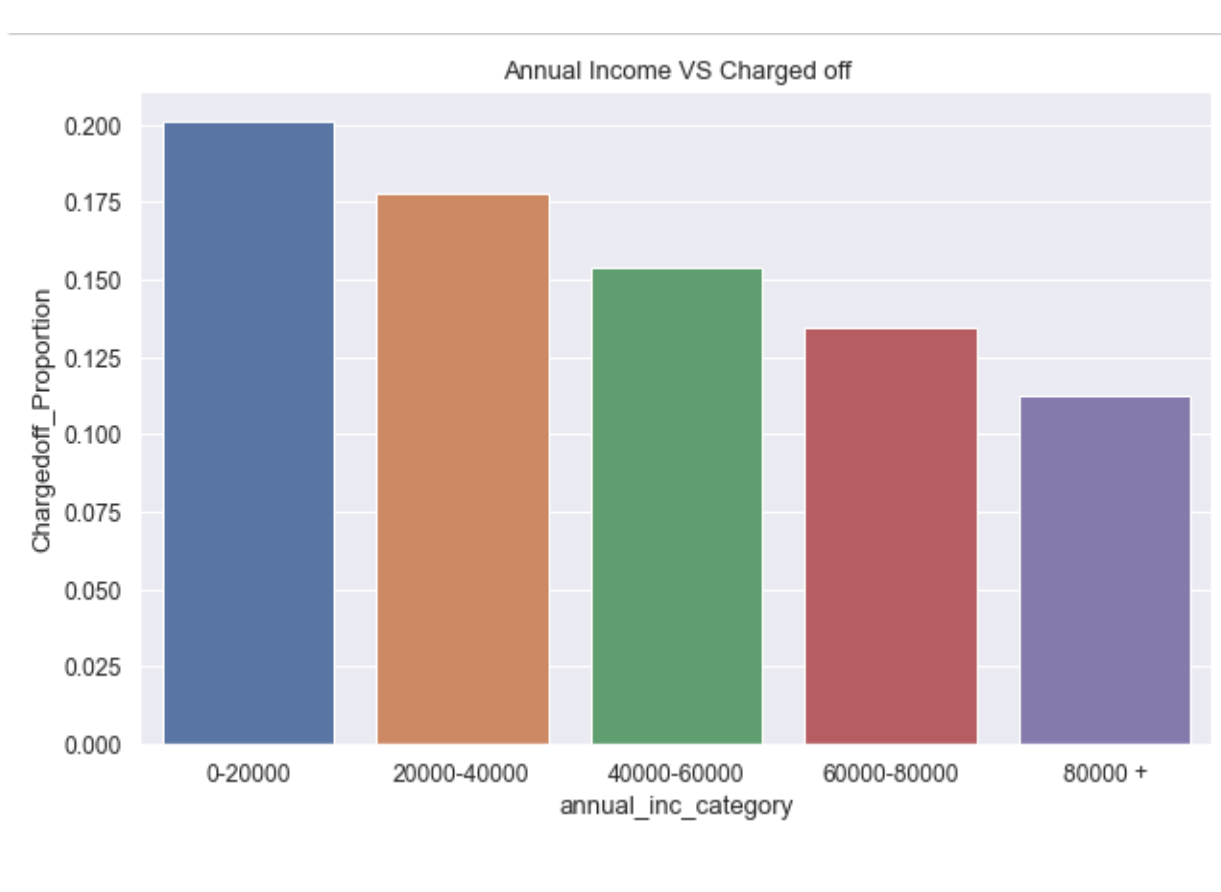
- Lending club has to take care Annual income while issuing the loans to borrowers, an increase in the annual income is decrease the defaulted loans
- Those who are not working or have less than 1 year of work experience have high chances of getting charged off. That makes sense as with less or no experience they don't have source of income to repay loan. Rest of the applicants have more or less chances of getting charged off.

Finally, Lower income range people and less experience people (0 or 1) who has not income are most likely to default
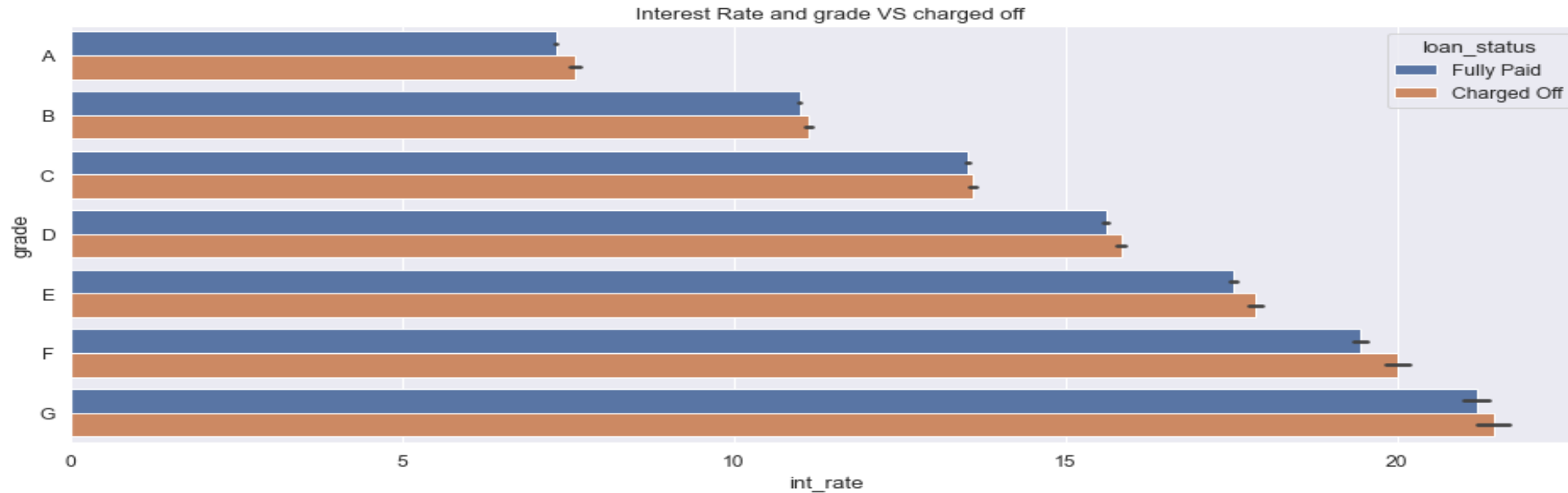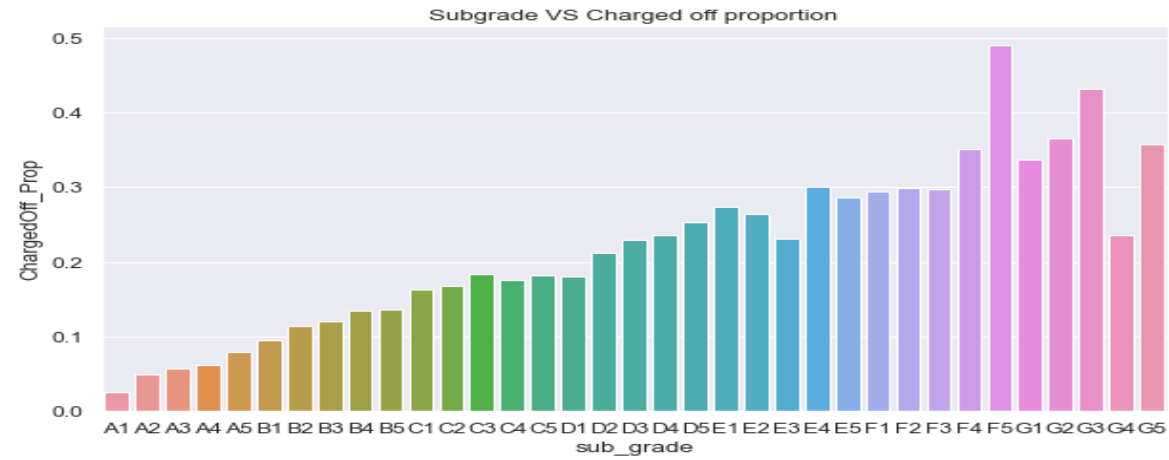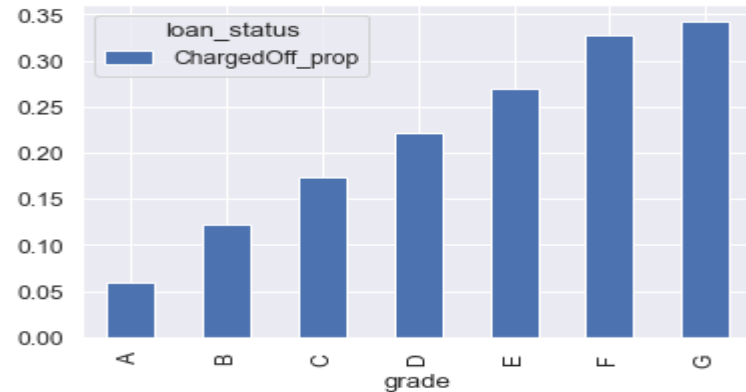
1. Grades are very good category to tell the borrower probability of defaulting the loan.

2. The Lower grades(E,F,G) have higher chances of defaulting the loan than Higher ones(A,B) and the Lower grades are getting loans for higher interest rates which might be the cause for loan default
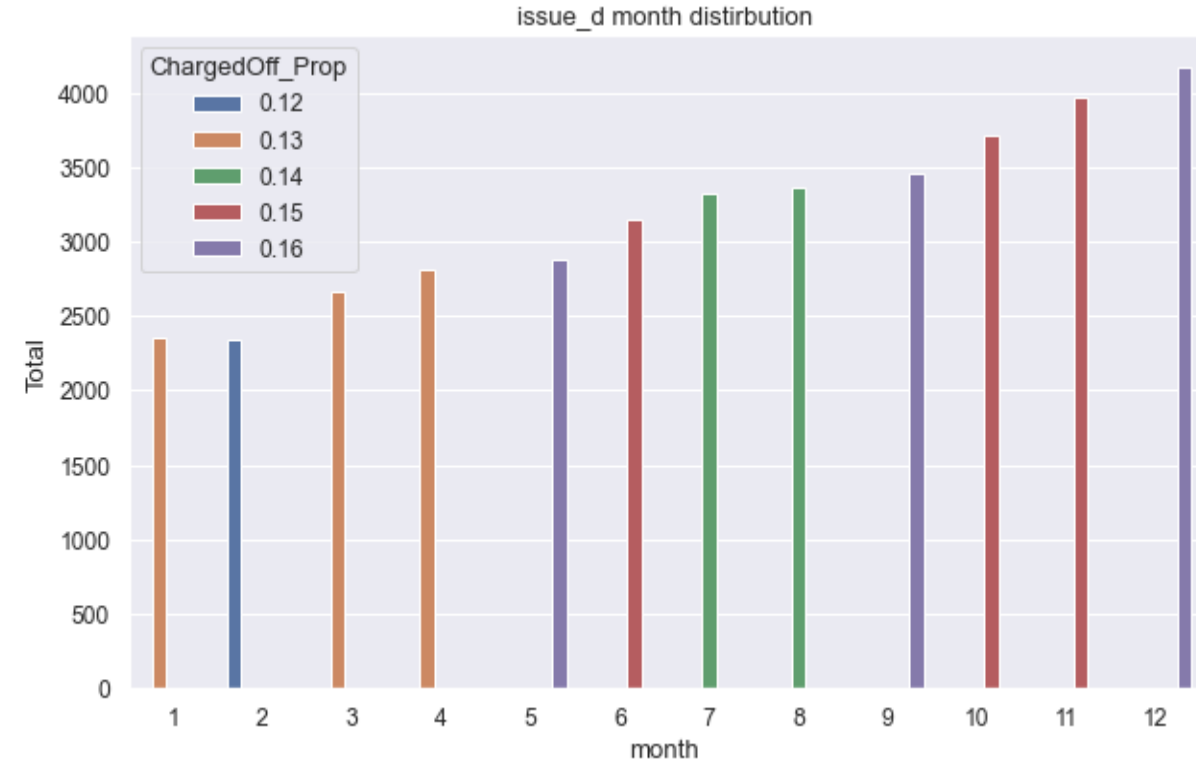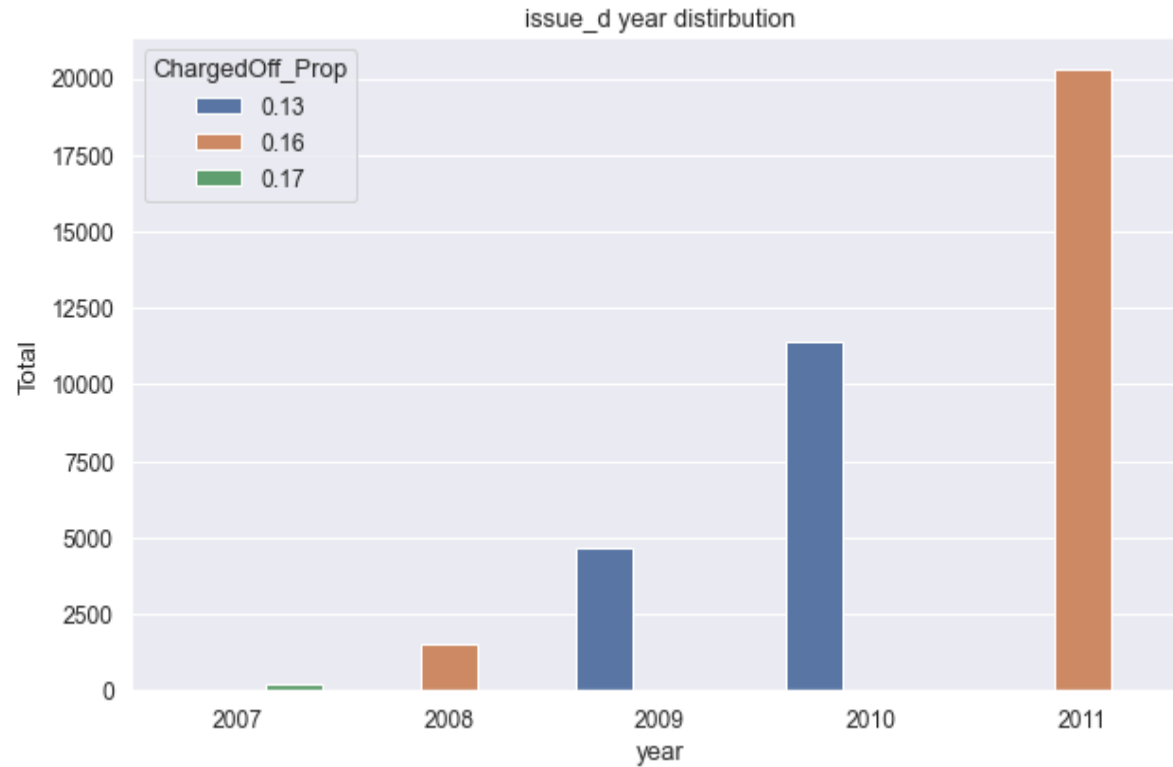
1. Lending club expanded year by year, and the no of loans issued also doubled every year.
2. Issued month of loans also increased from Jan to Dec, final quarter it is issued more loans may be of Christmas and charged of percentage is also high.
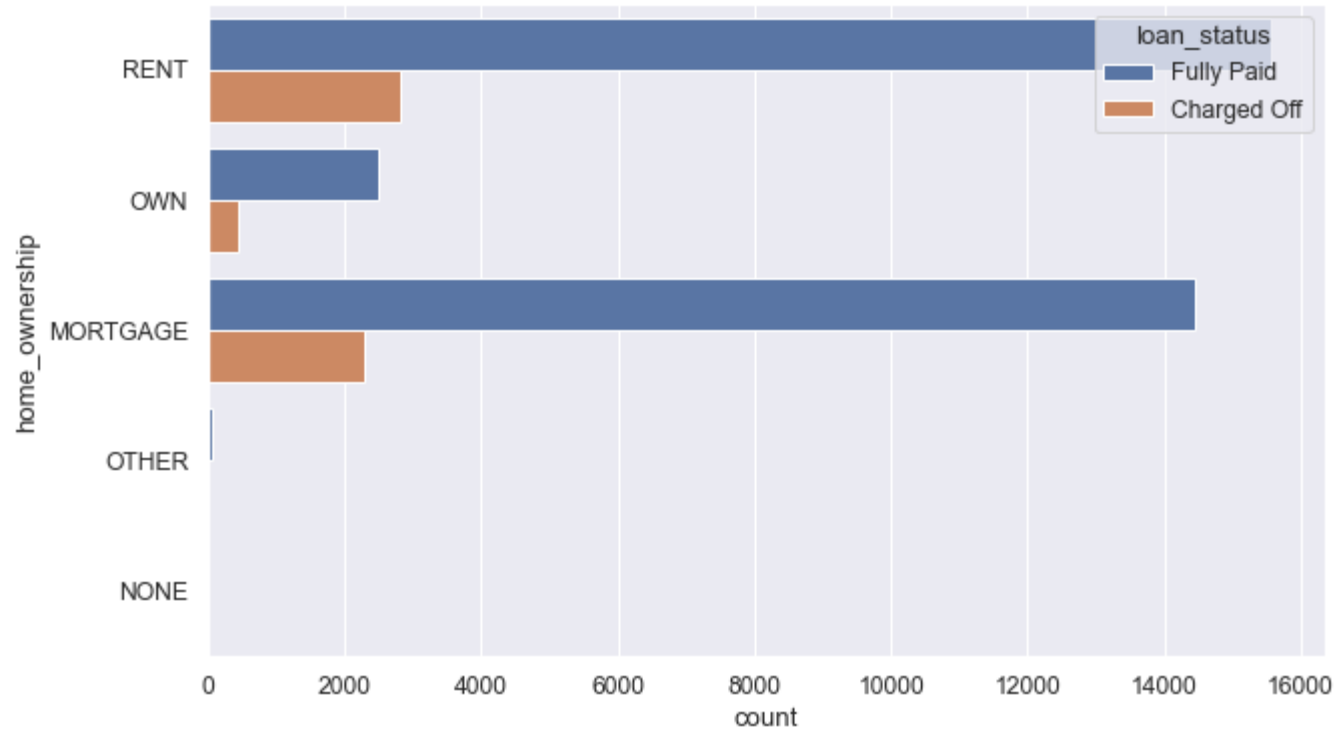
Analysis : State Vs Charged off proportion
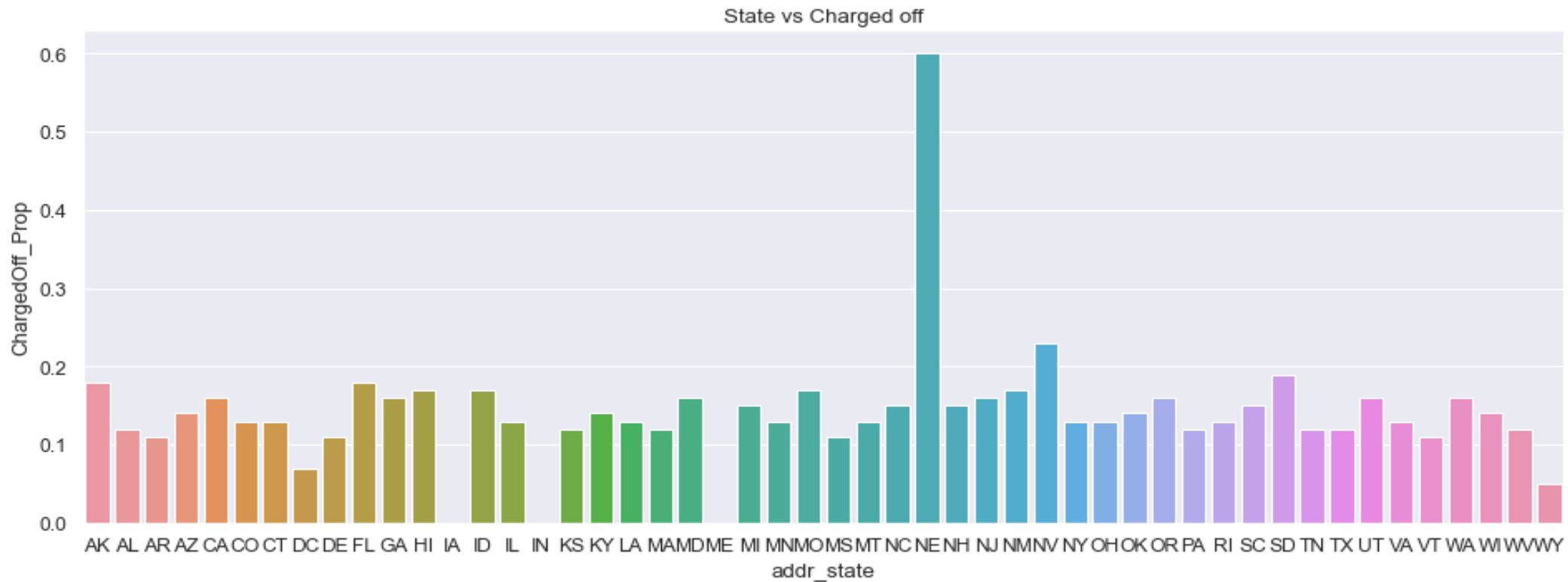
NV, CA, FL states has more number of applicants and more the defaulted loans.
And NE also highest proportion but it has less number of applicants

DTI, Term Vs Charged off
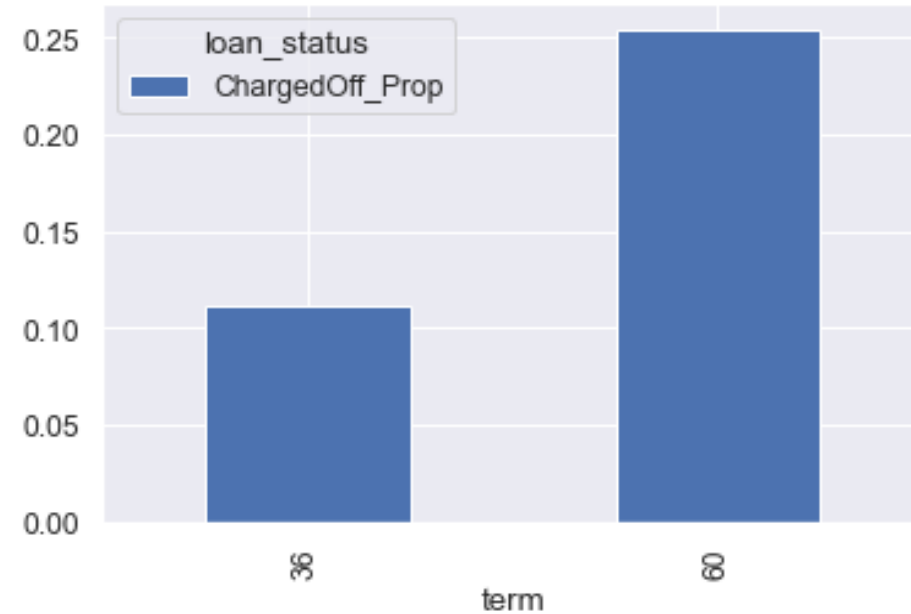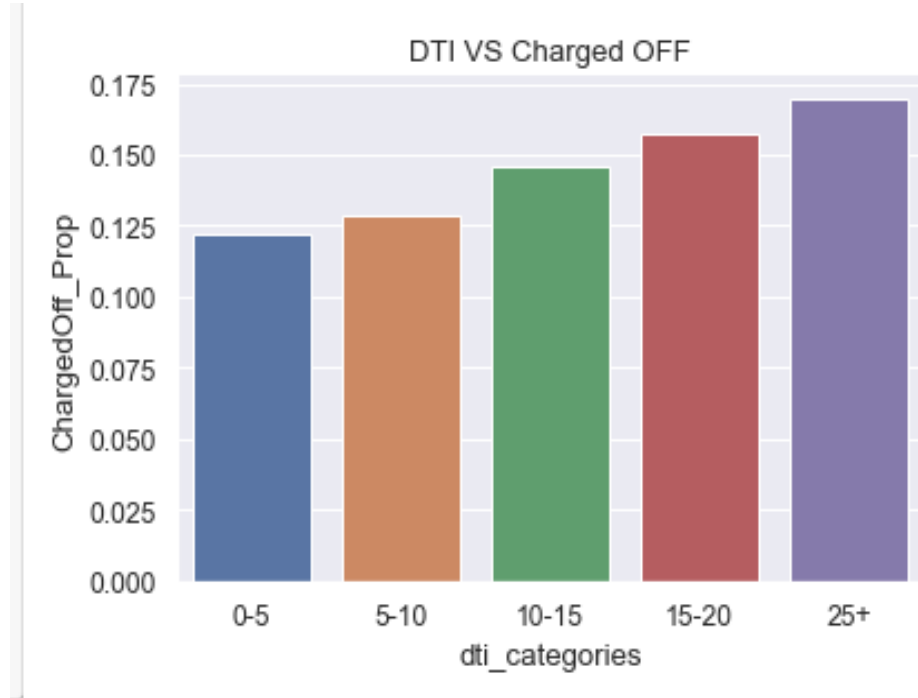
- Higher the DTI has the higher chances of risk.

- Charged off proportion is very high when the tenure is 60 months.

Home Ownership VS loan Status

- Mortgage and Rent home ownership has most of the loans defaulted than others

Conclusions of Lending Club case study

1. Higher the loan amount and higher interest has more chances to be default.

2. Higher the interest has the rate higher charged off ratio

3. 60 months term loans has higher interest and they prone to default

4. Lower income range people and less experience people (0 or 1) who has not income are most likely to default

5. Some grades has higher interest rate and from Low grade to higher grade has higher to lower chances of default.

6. Higher the DTI has the Higher chances of default the loans

7. Small business purposes loans are defaulted more. Lending club should take care while borrowing the loans for this purpose.

8. NV, CA, FL states has more number of applicants and more the defaulted loans