Lending Club Case Study

SUBMISSION

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Group Facilitator Name: Akash Jambhulkar

Identify patterns for defaulters

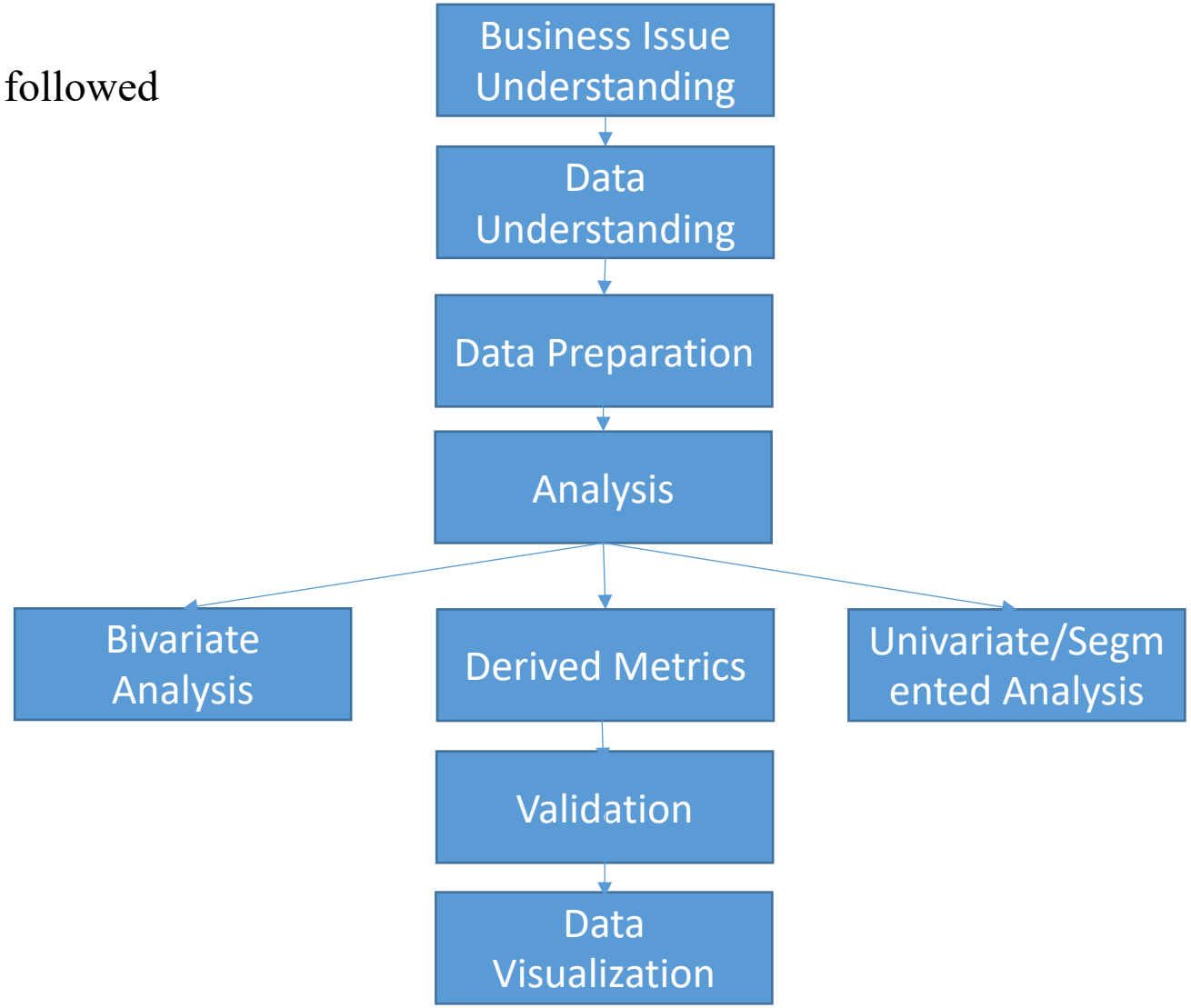
Business objective: The objective is to identify patterns which indicate if a person is likely to default, which may be used for taking actions such as denying the loan, reducing the amount of loan, lending (to risky applicants) at a higher interest rate, etc.

Types of Decisions:

- **Loan Accepted**
  - **Fully paid: Applicant has fully paid the loan (the principal and the interest rate)**
  - **Current: Applicant is in the process of paying the instalments, i.e. the tenure of the loan is not yet completed. These candidates are not labelled as 'defaulted'.**
  - **Charged-off: Applicant has not paid the instalments in due time for a long period of time, i.e. he/she has defaulted on the loan**
- **Loan Rejected**
  - **The company had rejected the loan (because the candidate does not meet their requirements etc.)**

Steps followed in solving problem

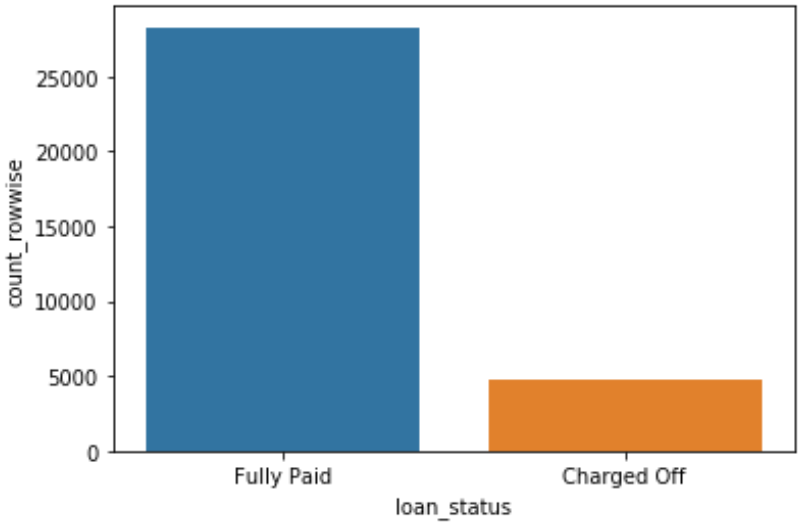
Steps followed



- Target Variable
  - Loan Status is our Target Variable
  - We have removed Loan Status with Current as we are interested in new loan applicants and for them past data will not be there
  - So we have taken Loan Status as “Fully Paid” and “Charged off” which are considered as Defaulters

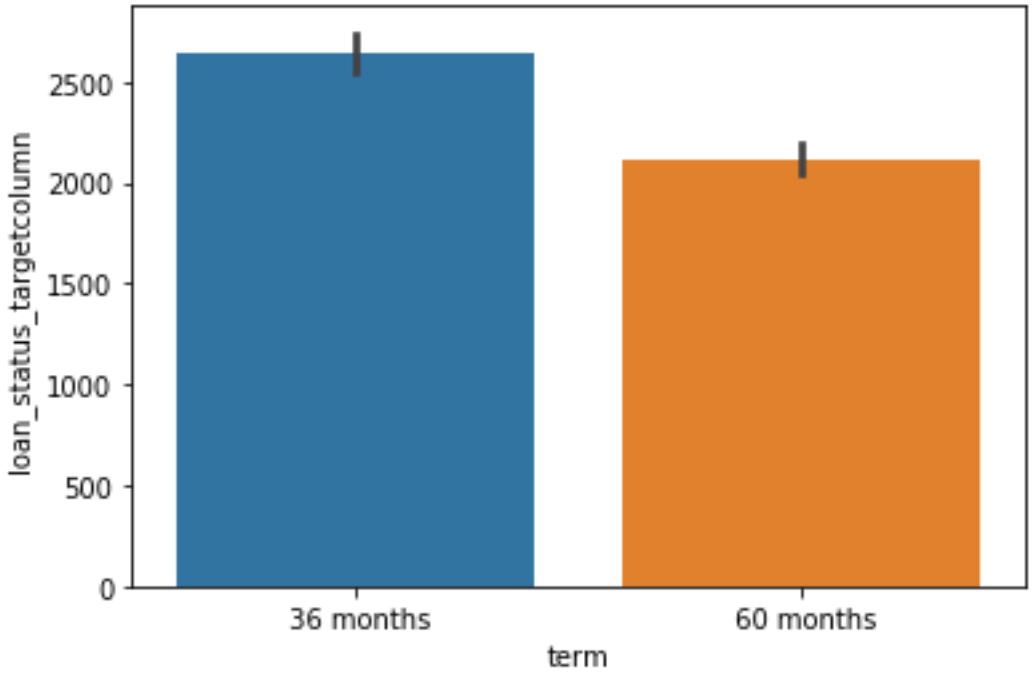
Univariate Analysis

Bar Plot – Loan Status vs Count



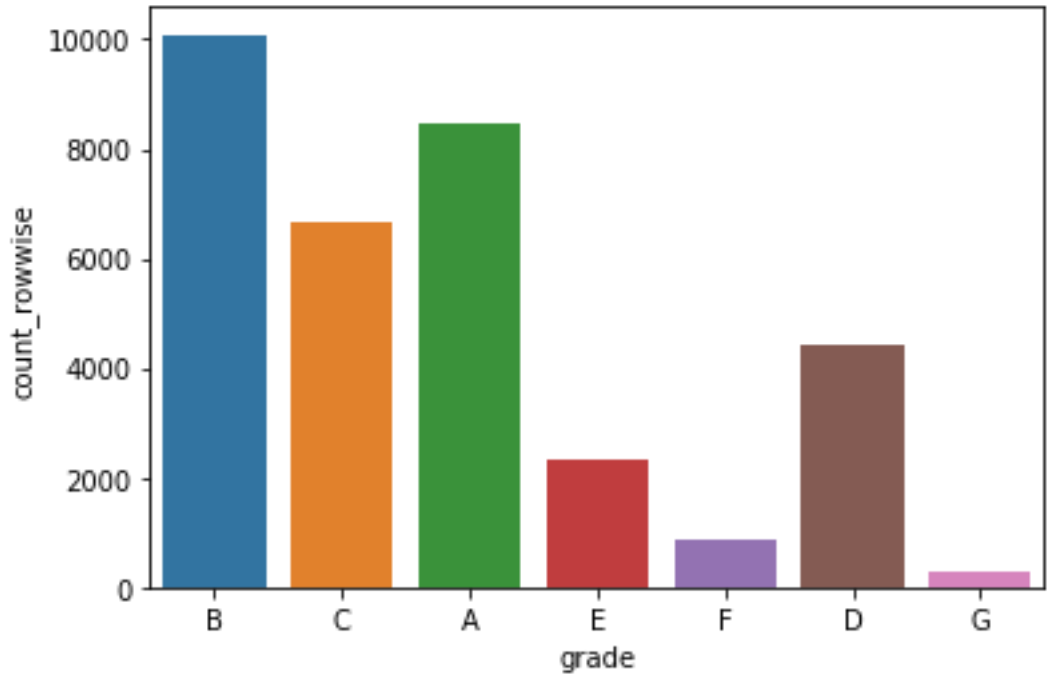
Univariate Analysis

Bar Plot – Term vs Count of Fully Paid , Charged Off



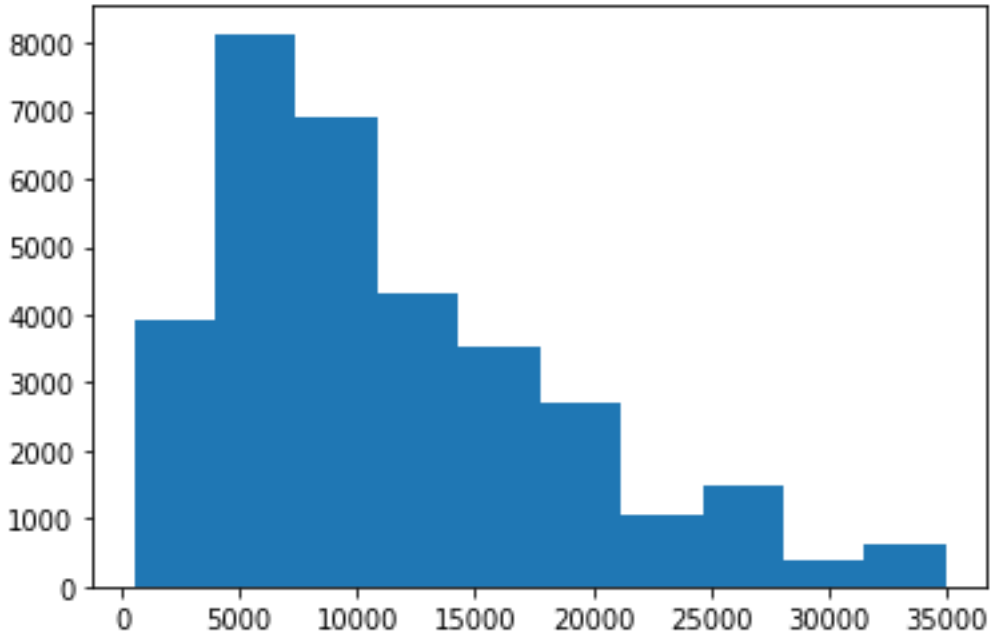
Univariate Analysis

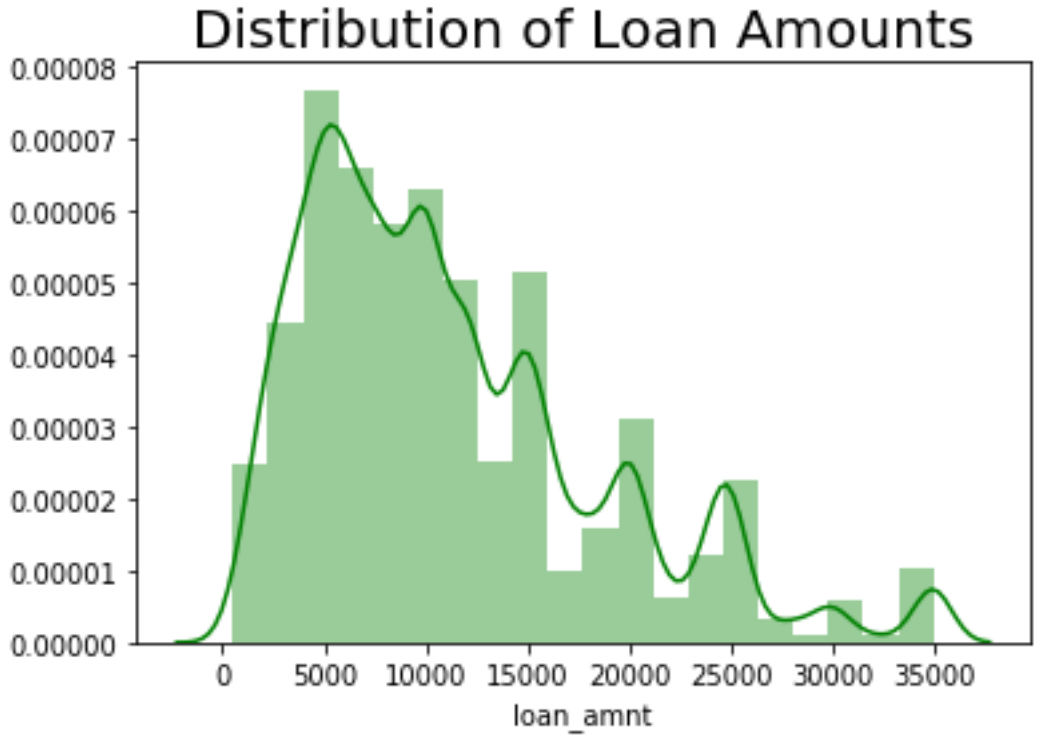
Bar Plot – Grade vs Count



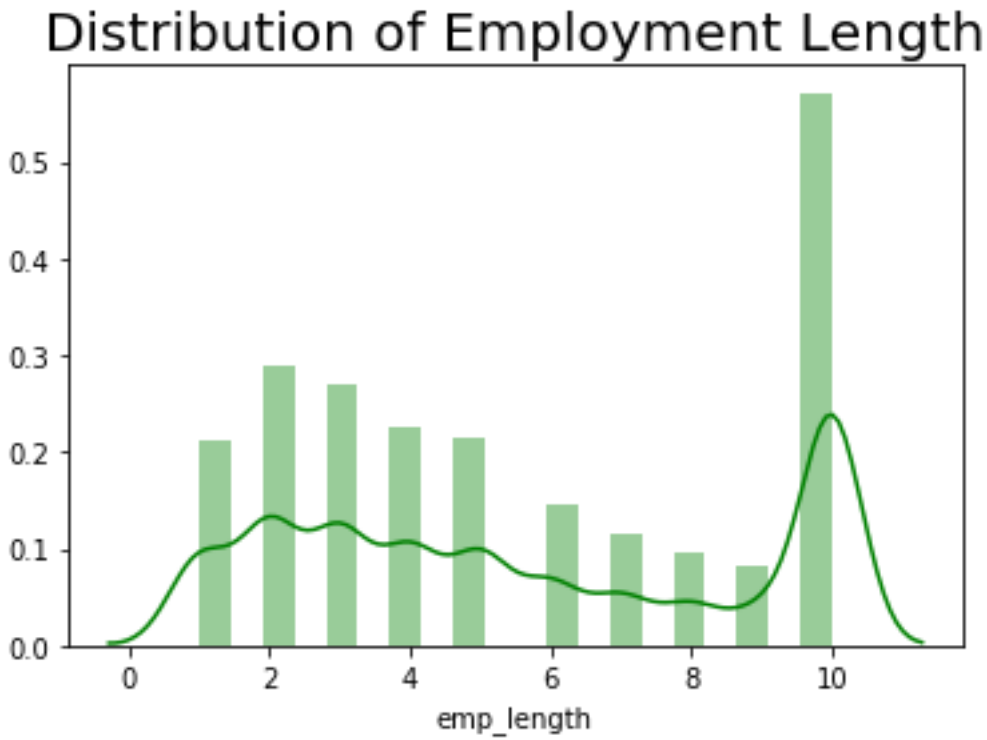
Univariate Analysis

Distribution of Loan Amounts

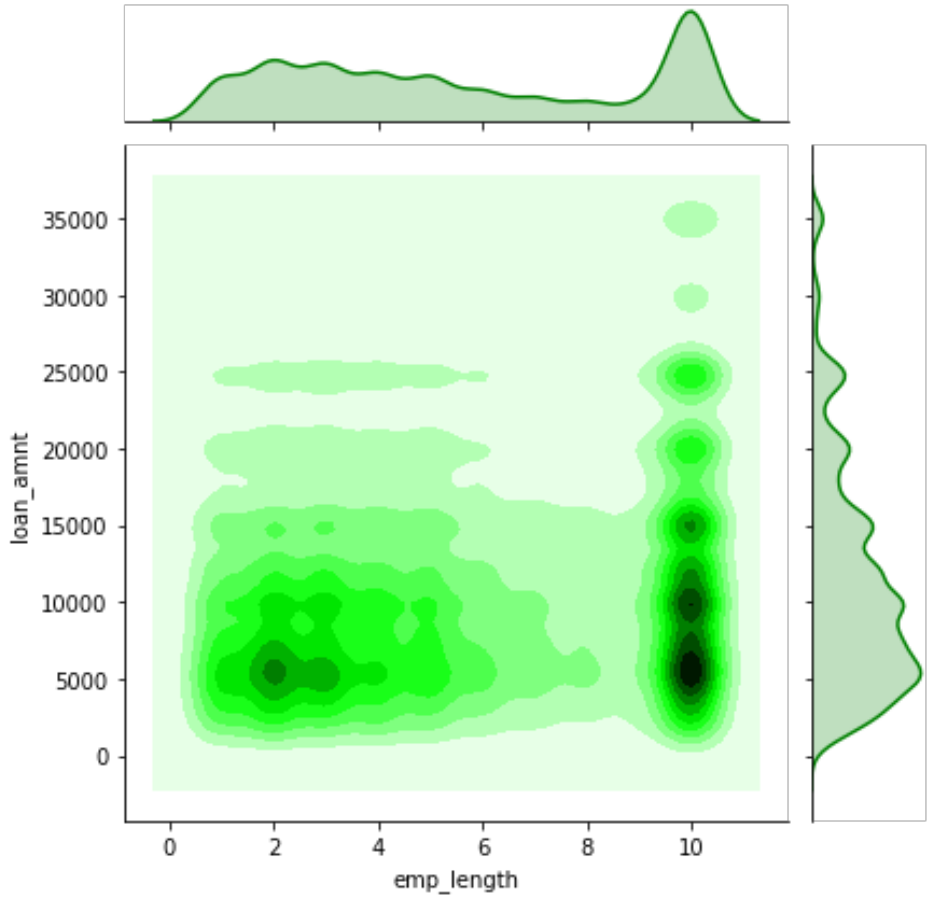




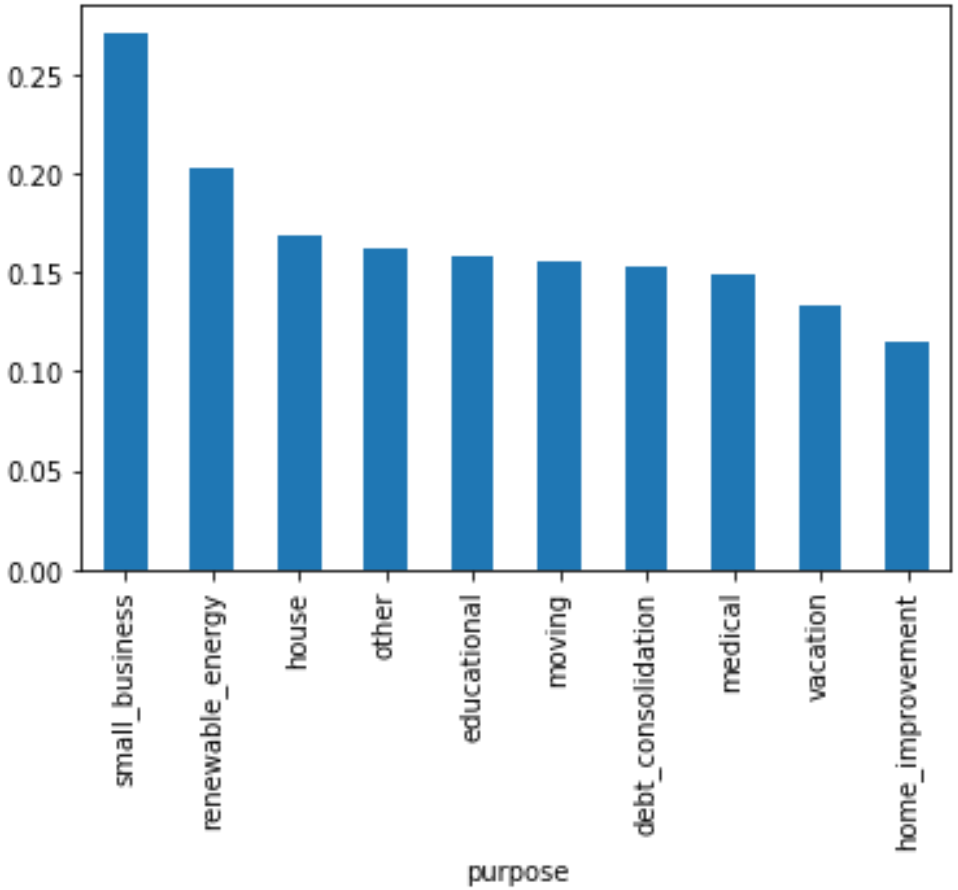
Univariate Analysis



Bivariate Analysis

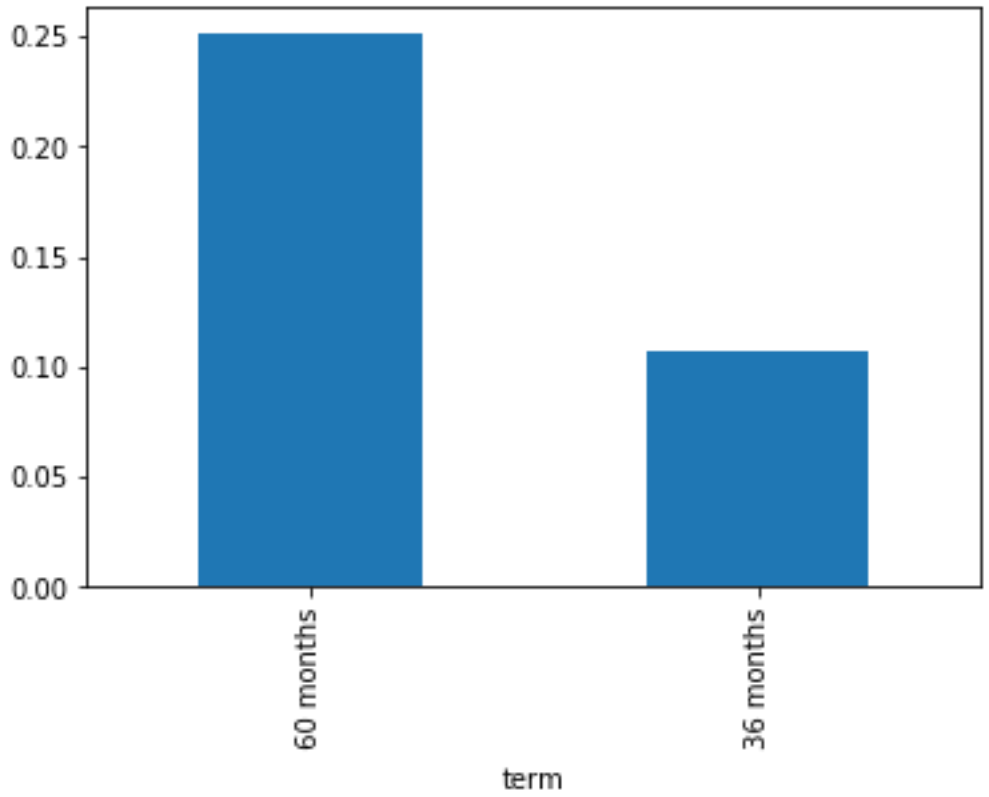


Bivariate Analysis

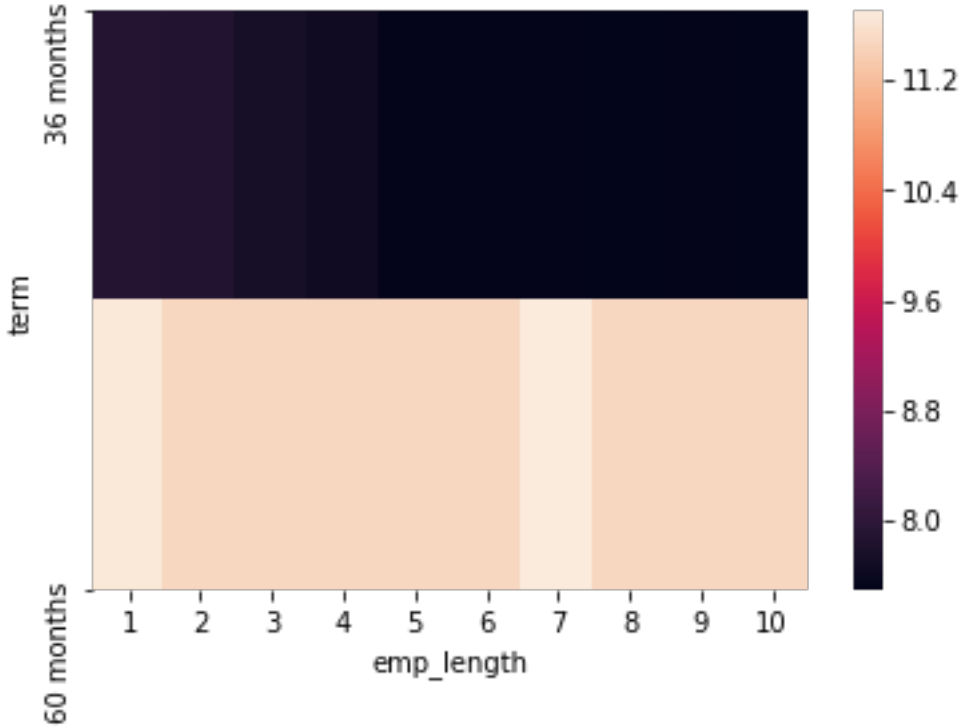


Bivariate Analysis

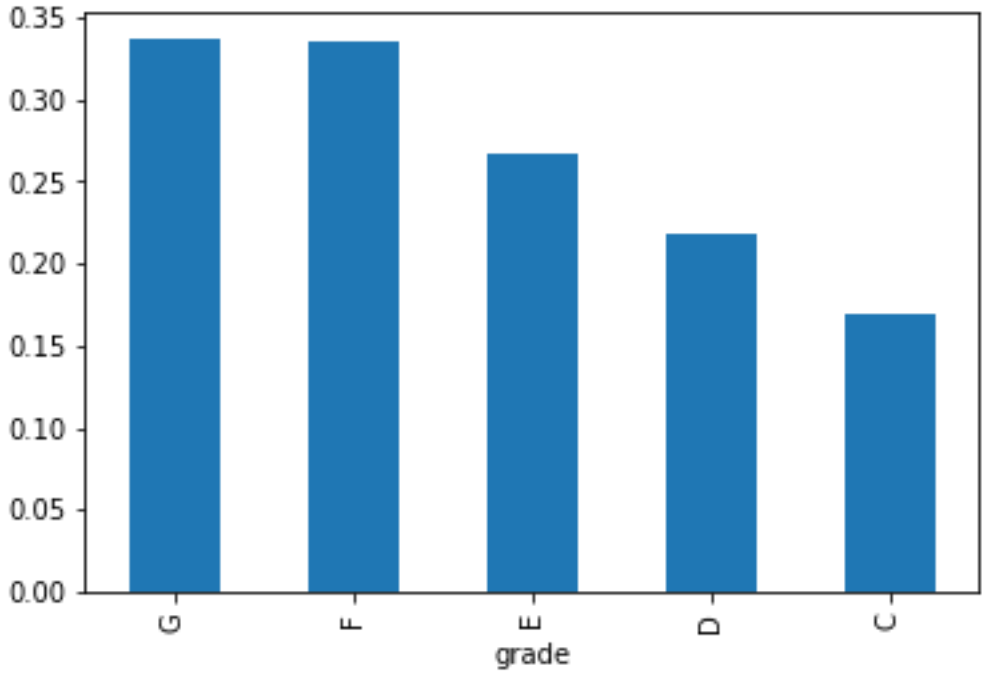
Plot of Term vs Target Column

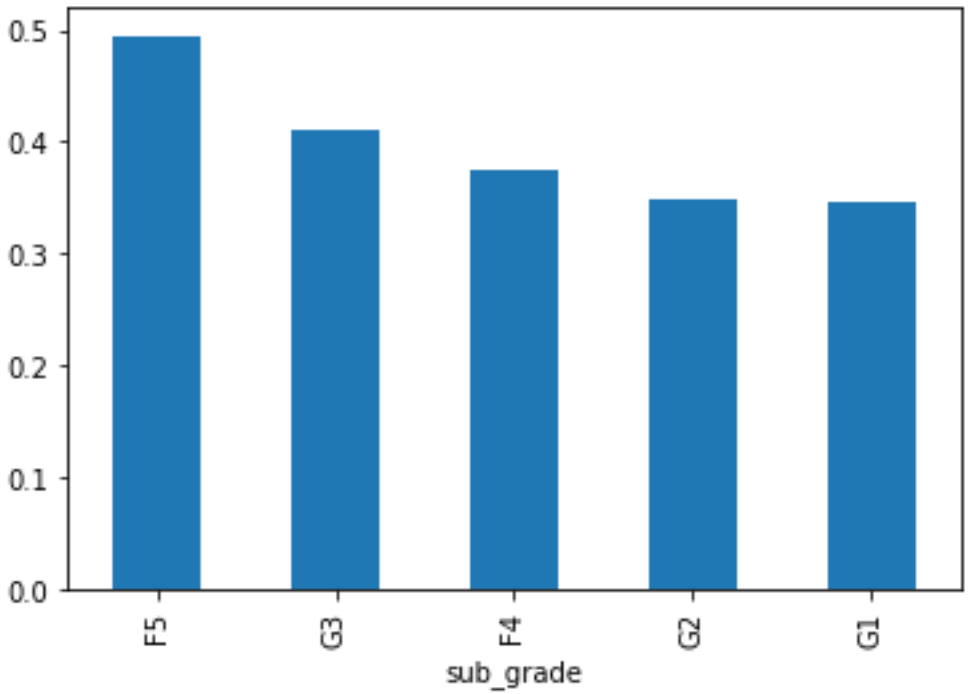


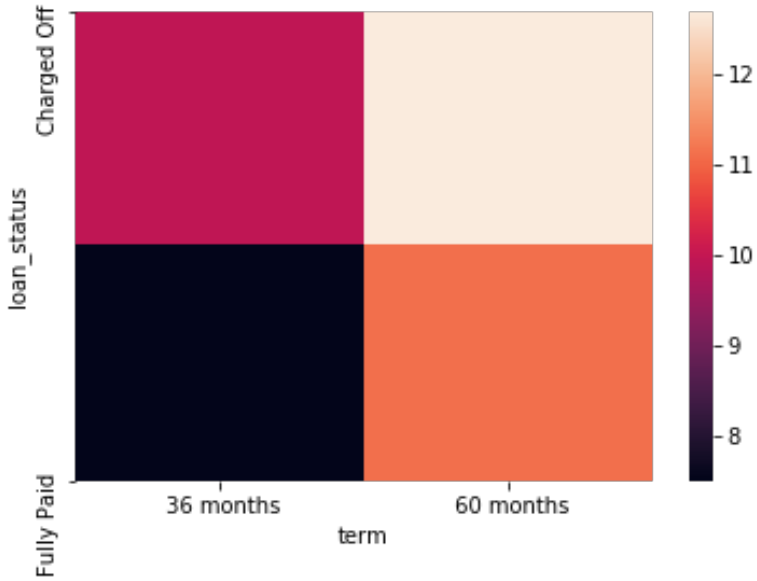
Bivariate Analysis

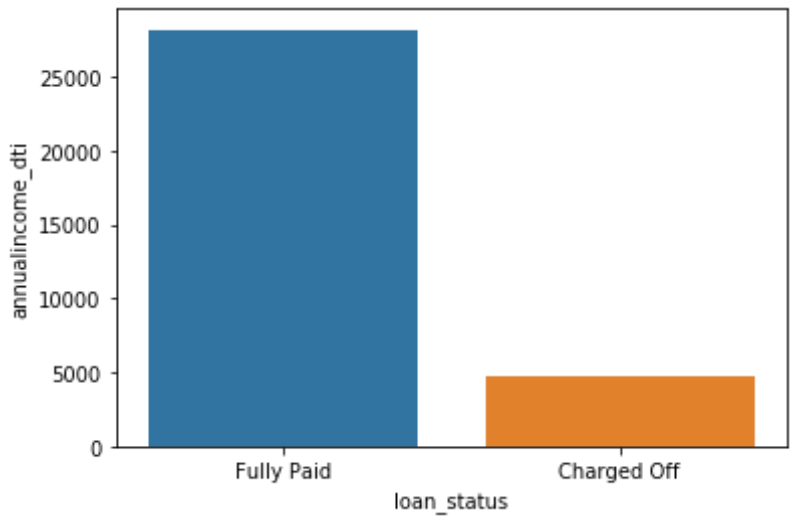


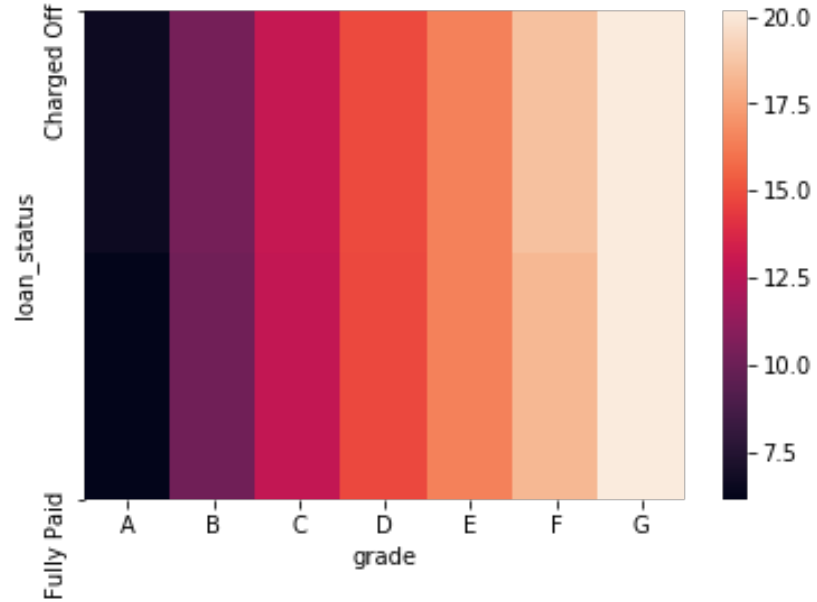
Bivariate Analysis

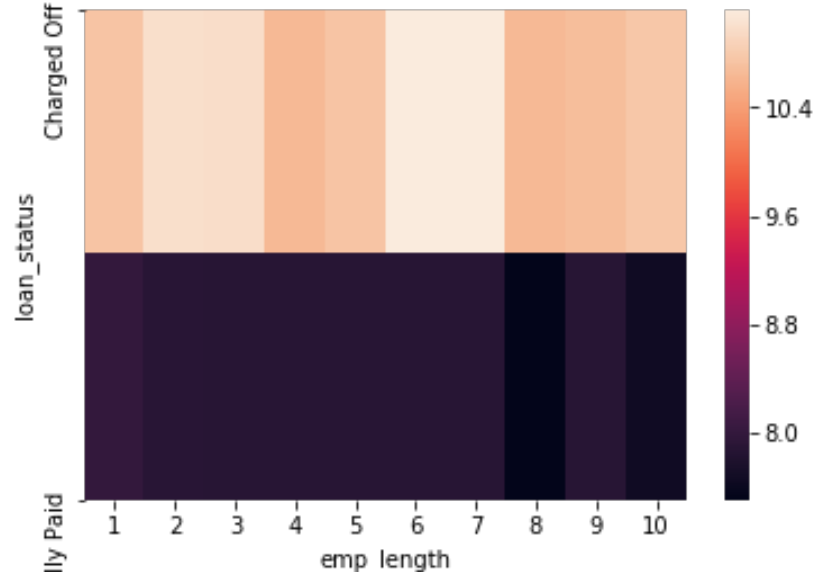





Charged Off
Fully Paid
loan_status
36 months
60 months
term
12
11
10
9
8


25000
20000
15000
10000
5000
0
annualincome_dti
Fully Paid
Charged Off
loan_status


Charged Off
Fully Paid
loan_status
A
B
C
D
E
F
G
grade
20.0
17.5
15.0
12.5
10.0
7.5


Charged Off
loan_status
1
2
3
4
5
6
7
8
9
10
emp_length
10.4
9.6
8.8
8.0

CONCLUSION AND RECOMMENDATINOS

- People with higher **Grade, Sub Grade** are less likely to be Defaulters.
- People with lower Grade, Sub Grade are more likely to be Defaulters and can be asked for more Interest Rate.
- People with **60 months term** can be applied with more interest rate than people with 36 months term.
- Top 5 purpose for which people are taking loans – **Small Business, Renewable Energy, House, Other, Educational.**
- People with more employment length are given more amount of loans.
- People with higher **DTI/Monthly Income ratio** are lesser likely to be defaulters.