Lending Club Case Study

Group Members:

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Company Profile, Objective & Problem Statement

1. **Company Profile:**
    - Company (Lending Club) 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.

2. **Objective:**
    - 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.

3. **Problem Statement :**
    - As data analysis with the Lending Club company, the aim is to identify patterns which indicate if a person is likely to default with the help of data that contains the information about past loan applicants and whether they 'defaulted' or not.

Overall Approach Of The Analysis

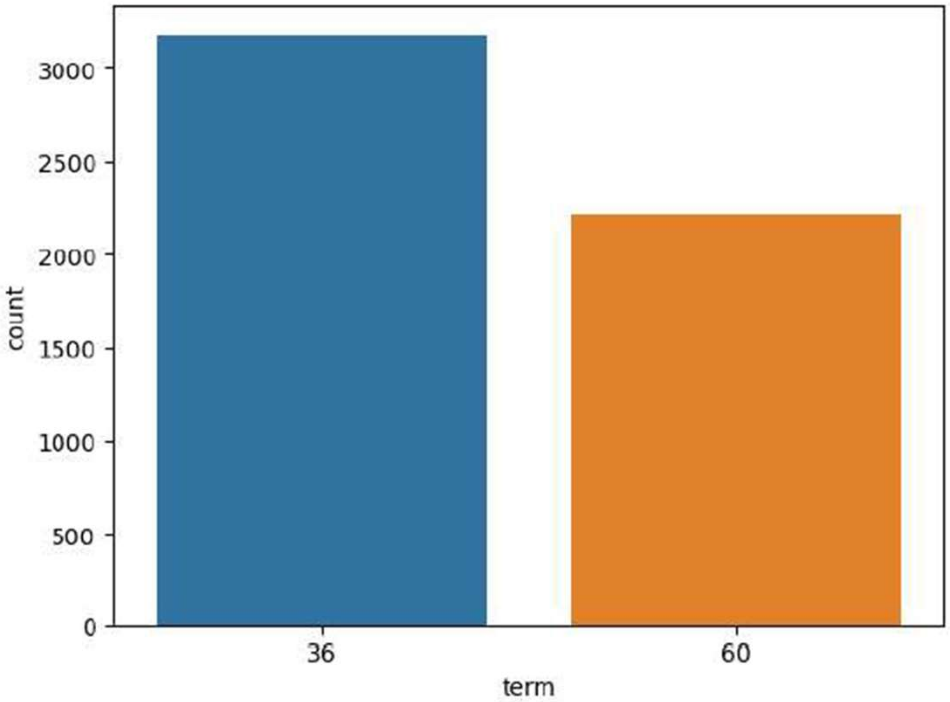
1. **Data Cleaning:**
    - Removing the variables having more 70% missing values and single unique value.
    - Converting the data type of variable as per the requirement of the analysis.
    - Upon accepting the loan, only two scenario considered for the analysis **"Fully paid" & "Charged-off"** to identify the defaulters.

2. **Univariate Analysis:**
    - Identifying the distribution of the variables (Numerical & Categorical).

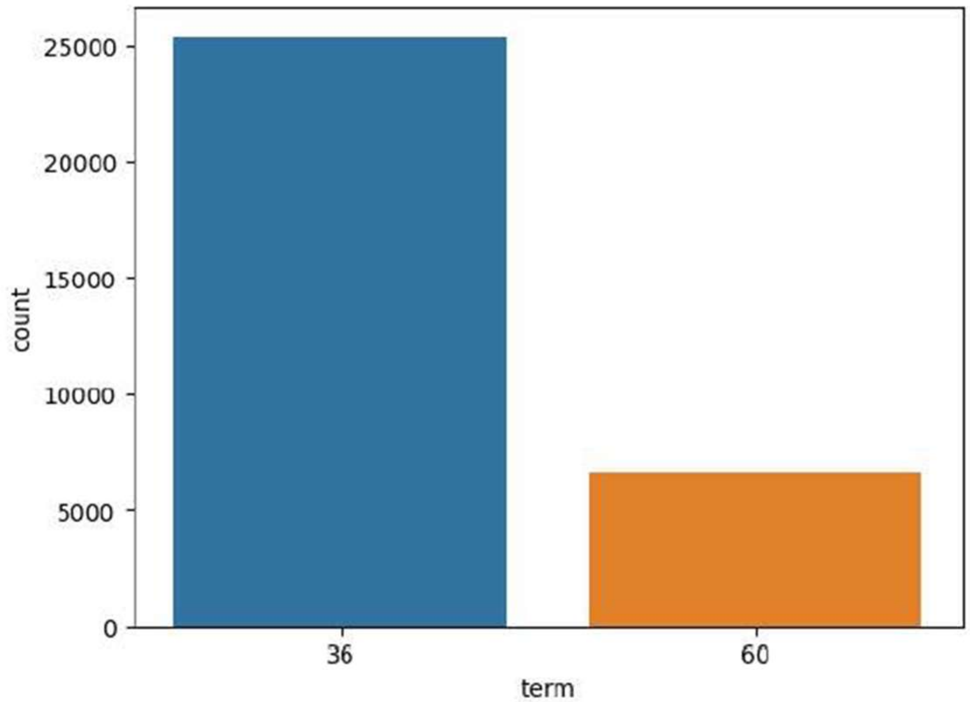
3. **Bivariate Analysis:**
    - Analzsing the correlation between two variable and finding out how they are impacting the analysis.

4. **Conclusion:**
    - Outcome of the analysis.

Univariate Analysis – term vs charged off/fully paid



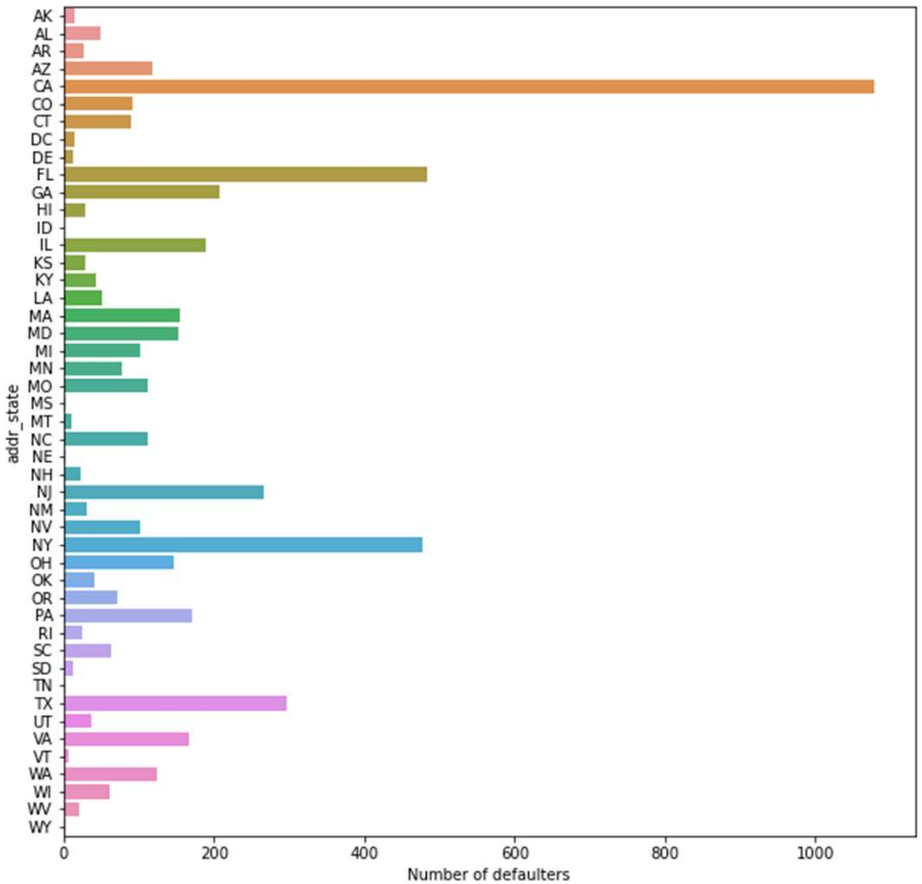
Loan term vs nos. of defaulters.



Loan term vs nos. of fully paid

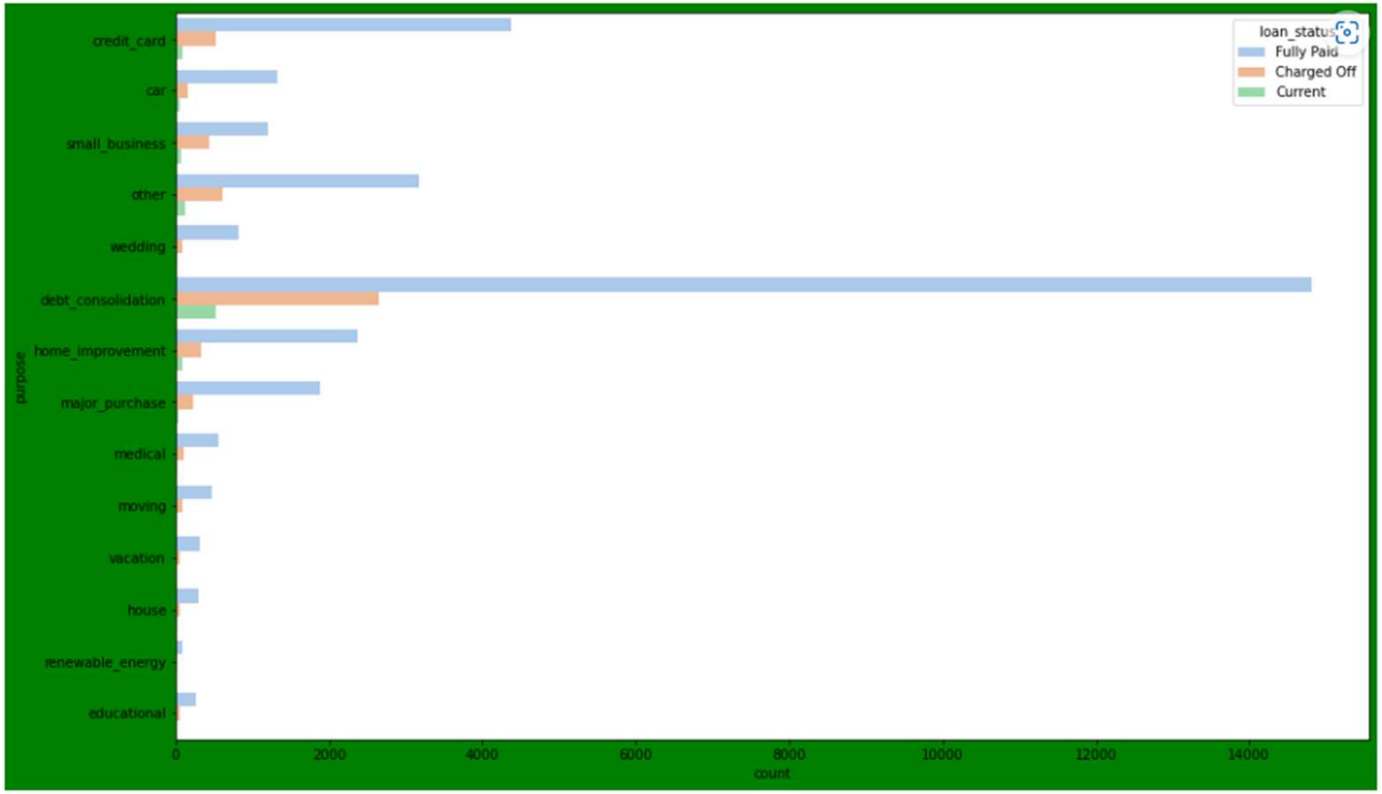
Conclusion: higher the loan term(60 months) chances of defaulters increases

Univariate Analysis – addr_state vs defaulters



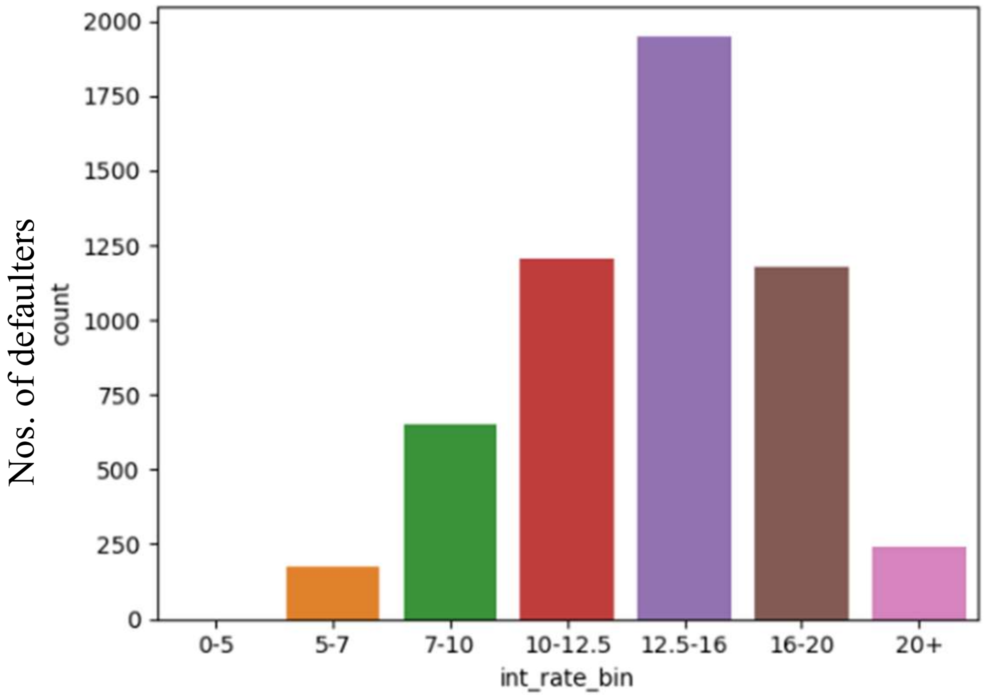
It can be seen that maximum nos. of defaulters are in California(CA)

Univariate Analysis – Purose of loan vs charged off/fully paid



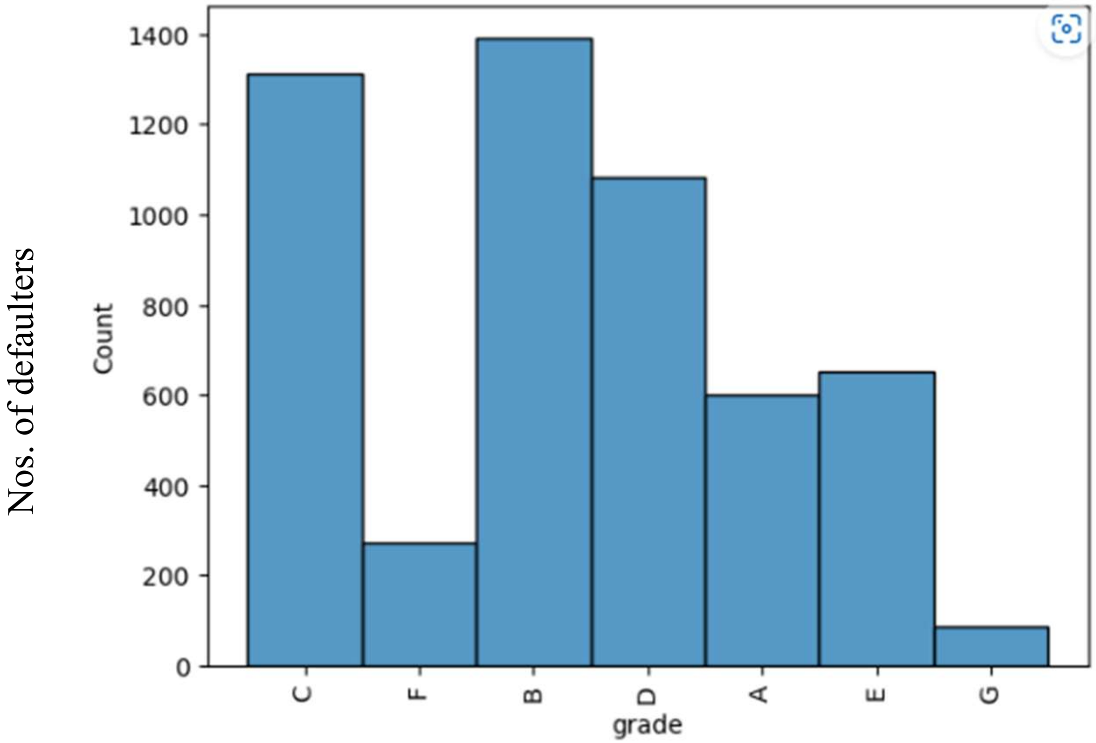
Most of the customers are taken loan for debt consolidation

Univariate Analysis – Defaulters vs interest rate



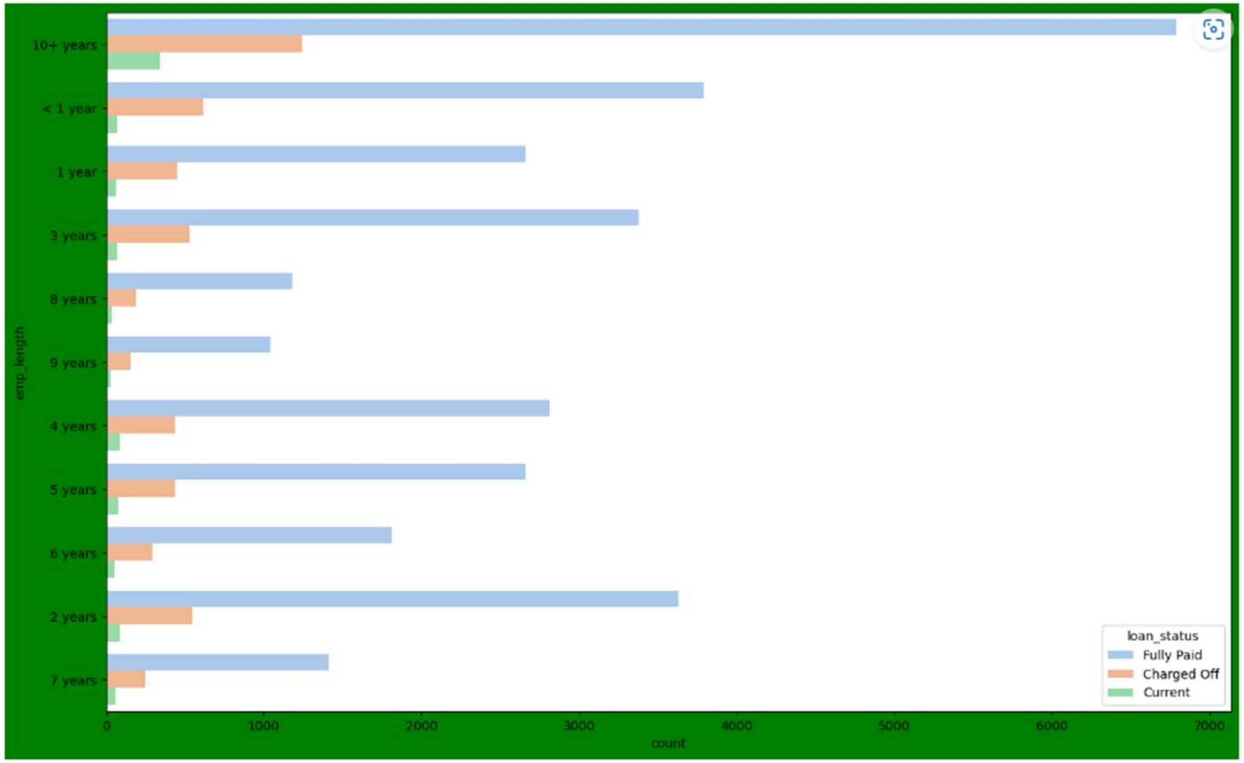
Customers having at the interest rate of 10-16% are likely to default

Univariate Analysis – ‘grade’ vs defaulters



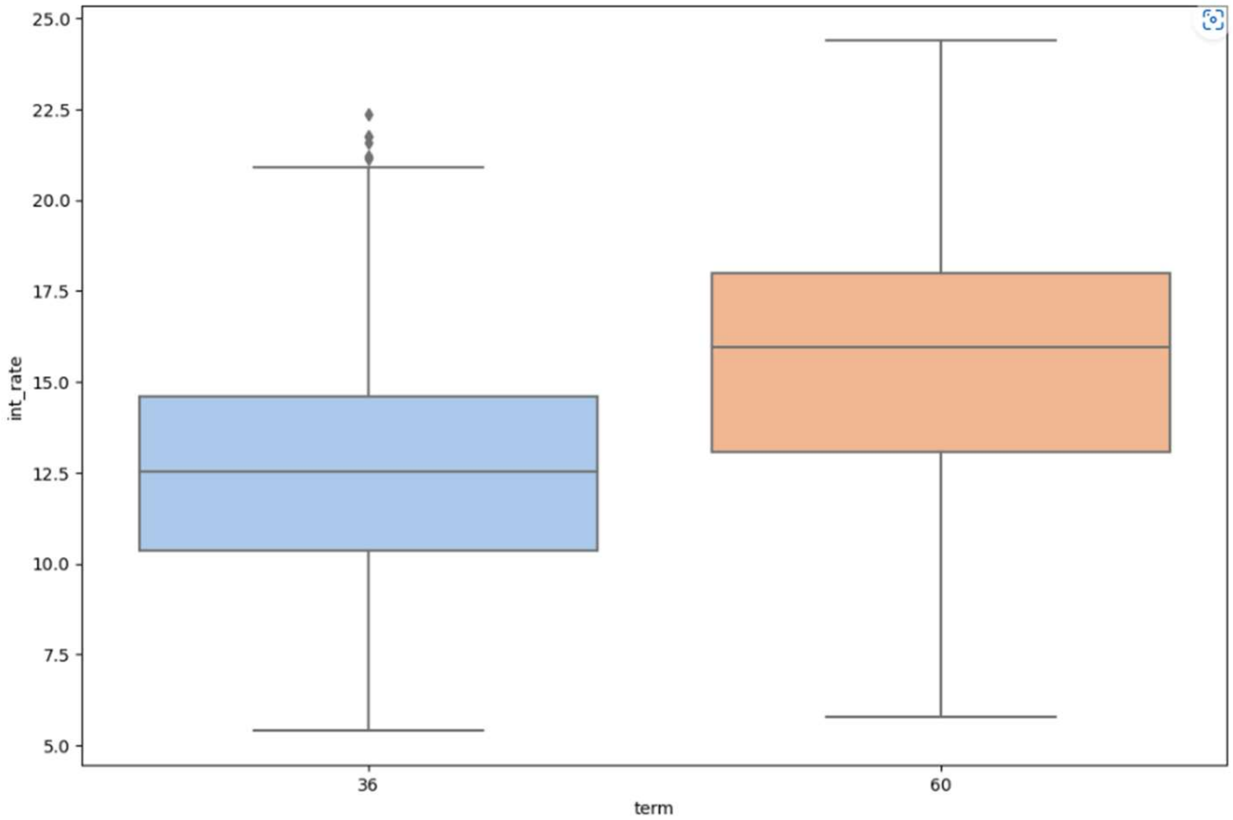
For grades B,C & D there are considerable Nos. of defaulters

Univariate Analysis – ‘Employment_length ’



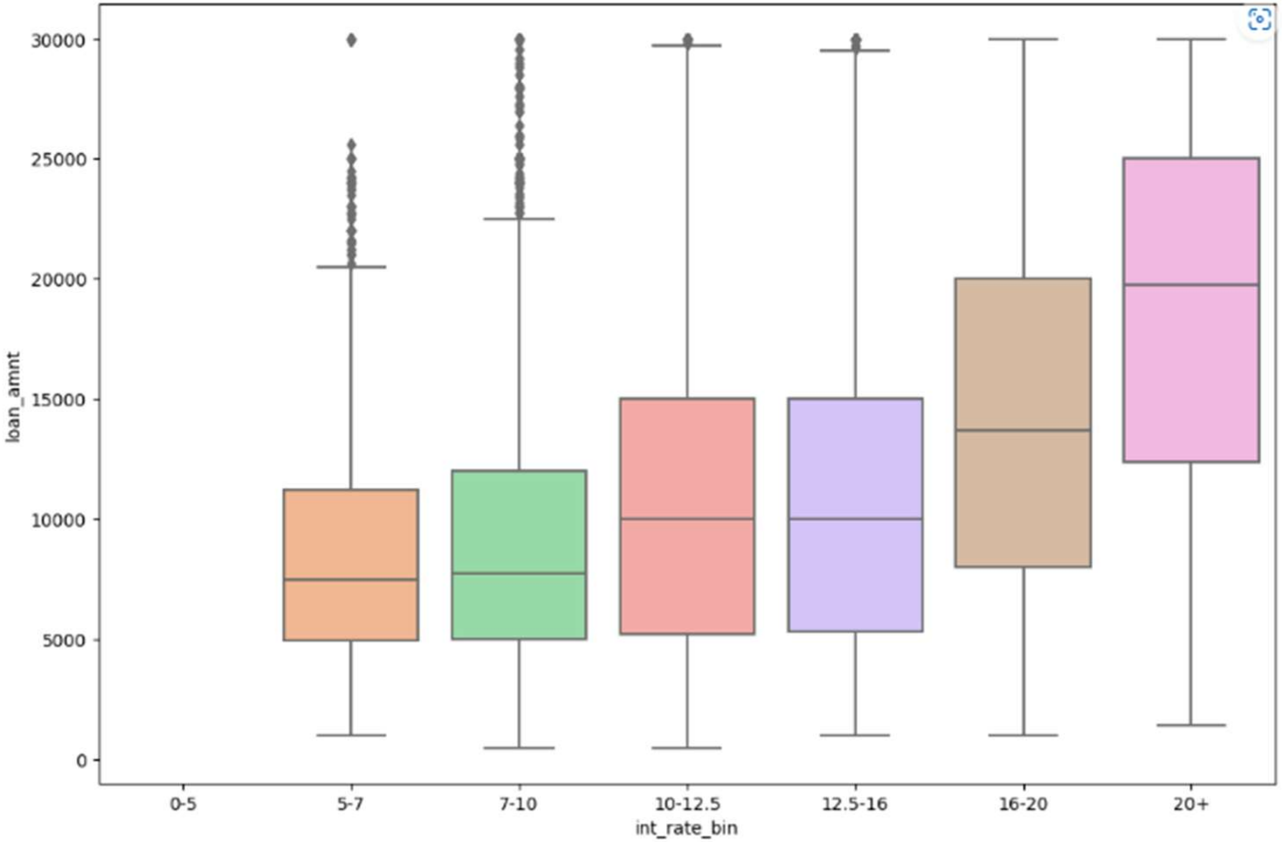
Customers having larger working experience can easily pay the loan, Their charge off/ fully paid ratio is least

Bivariate Analysis – term vs interest rate



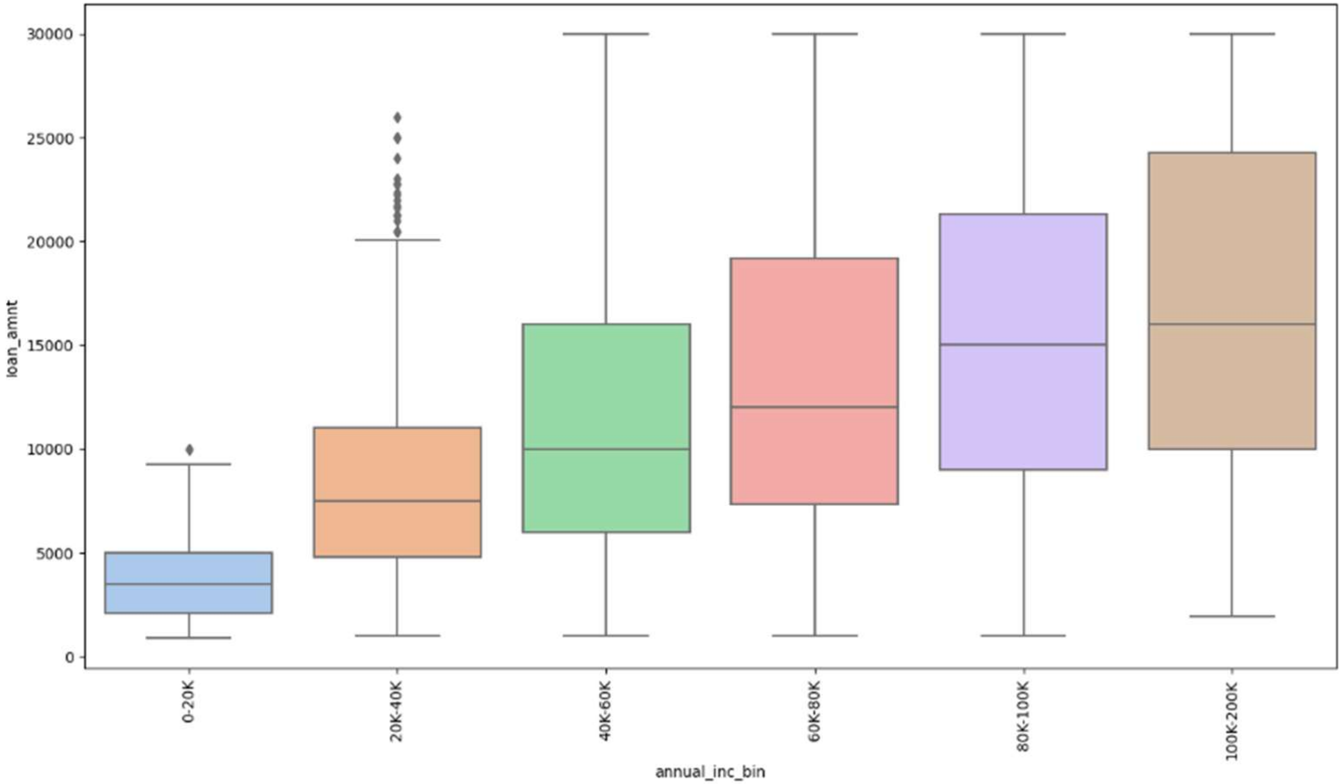
From the above, it can be concluded that the increase loan term lead to higher interest rate.

Univariate Analysis – int. rate vs loan amount



From the above plot interest rate increases with loan amount

Bivariate Analysis – annual income vs loan amount



From the above observation, it can be concluded people having more income will take higher principal amount and can lead to defaulters

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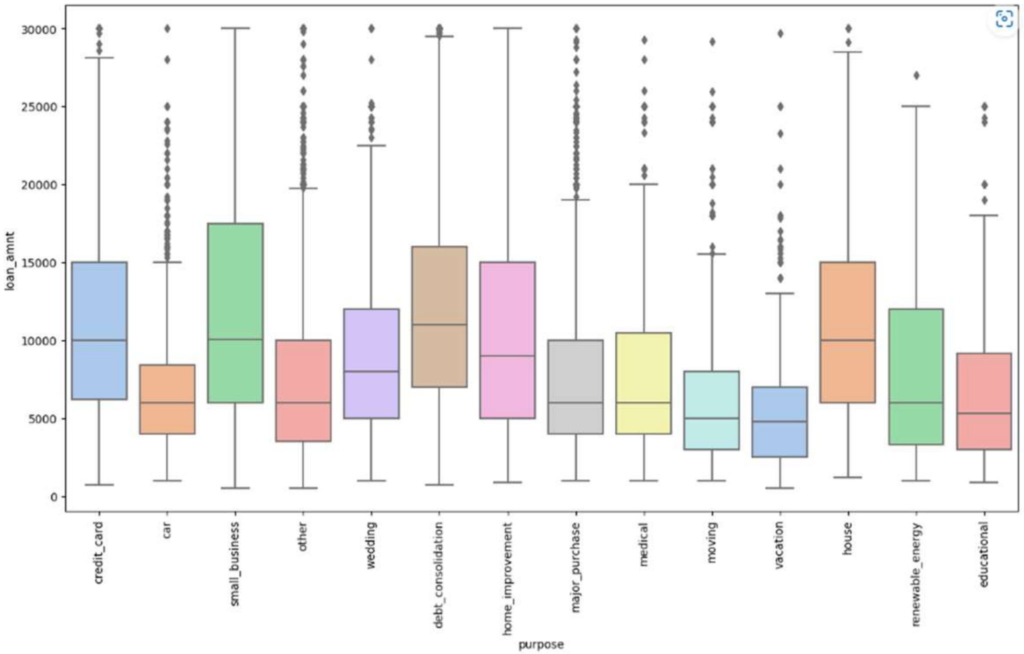
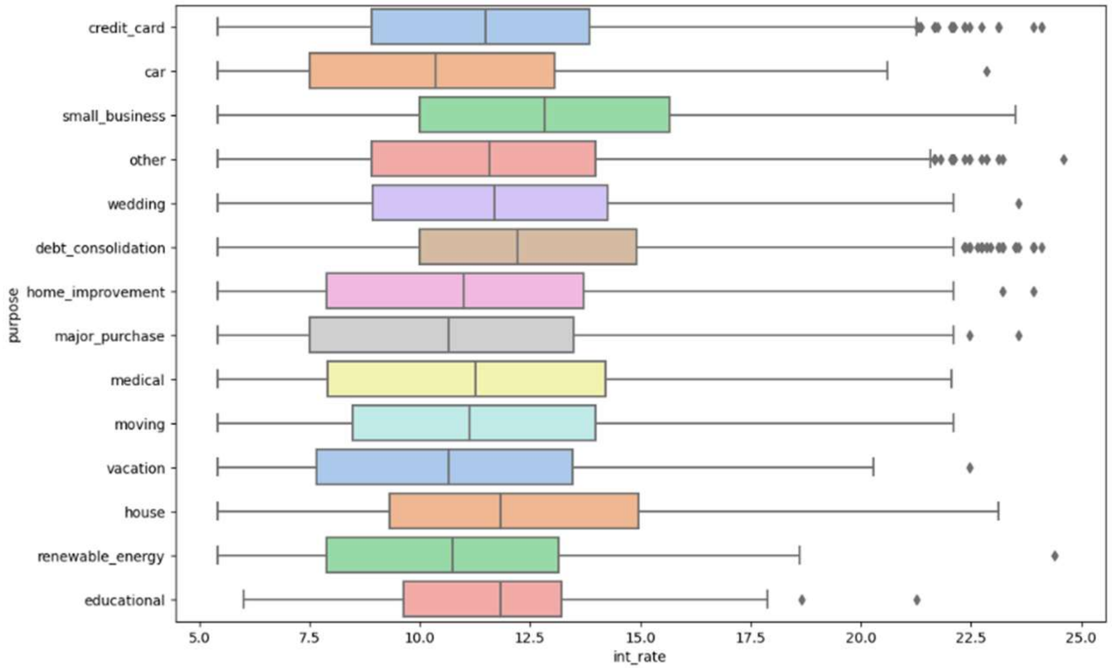
Bivariate Analysis – loan_amnt vs purpose & int. rate





From the above observation, it can be concluded that people doing small business tends to take higher loans that can lead to bad loans

Conclusion:

- higher the loan term(60 months) chances of defaulters increases.
- Most of the customers are taken loan for debt consolidation
- Maximum nos. of defaulters are in California(CA)
- For grades B,C & D there are considerable Nos. of defaulters
- Customers having larger working experience can easily pay the loan, Their charge off/ fully paid ratio is least.
- It can be concluded that the increase loan term lead to higher interest rate.
- Interest rate increases with loan amount
- It can be concluded people having more income will take higher principal amount and can lead to defaulter
- It can be concluded that people doing small business tends to take higher loans that can lead to bad loans

Thank You