Lending Club Case Study

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Abstract

● 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.

● The objective of analysis is to use the information about past loan applicants and find whether they 'defaulted' or not.

Problem solving methodology

| Data Cleaning involves removal of:	Data Understanding involves:	Data Analysis - Univariate Analysis	Data Analysis - Segmented Univariate Analysis	Data Analysis - Bivariate Analysis	Recommendations
• Null valued columns. • Unnecessary variables • Checking the null value percentage and removing the respective rows.	• Working with the Data Dictionary. • Getting knowledge of all the columns and their domain specific uses.	• Analyzing each column, plotting the distributions of each column. • Understanding the variation of data with respect to a specific variable (Column name).	• Analyzing the continuous data columns with respect to the categorical column.	• Analyzing the two variable behaviour like term and loan status with respect to loan amount.	• Analyzing all plots and recommendations for reducing the loss of business by detecting columns best which contribute to loan defaulters.

Analysis
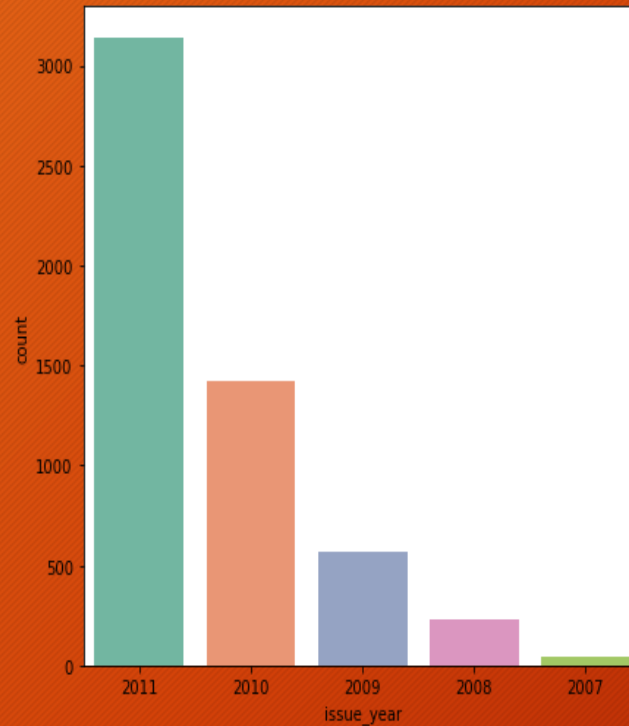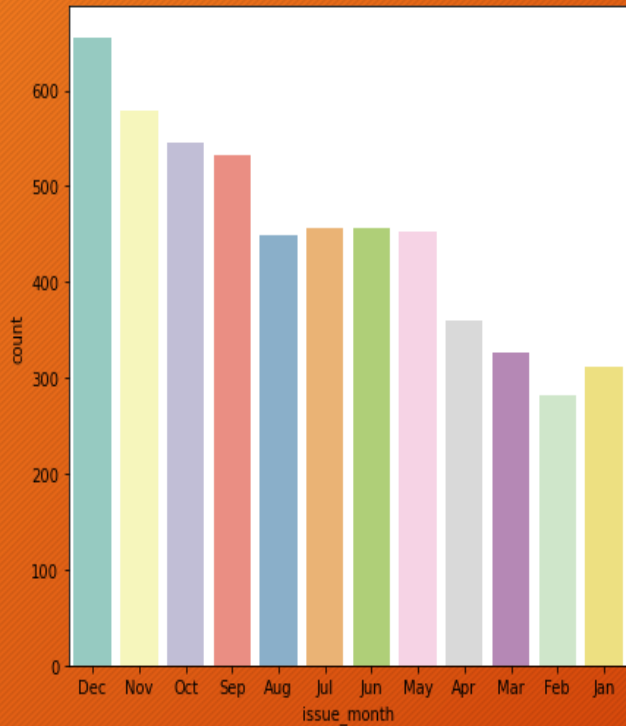
- Lending club has really expanded year by year, the number of loan issued are doubled every year.
- Also the issued month of loans is also increasing from January to December. In the final quarter of year there are more loans issued this could be because of extended weekends due to festivals.
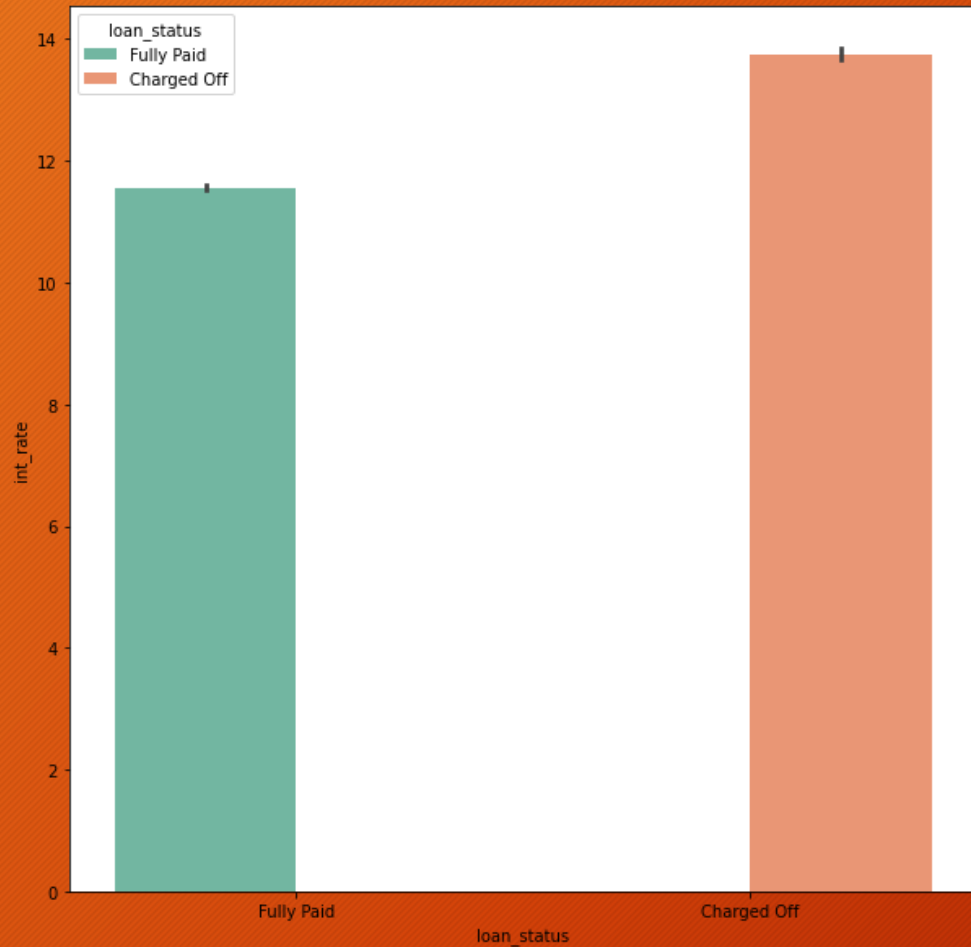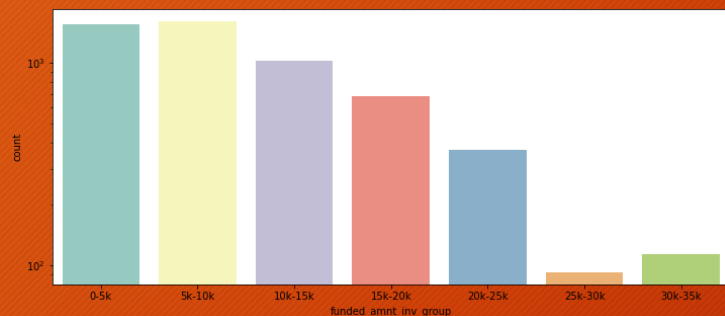
Analysis
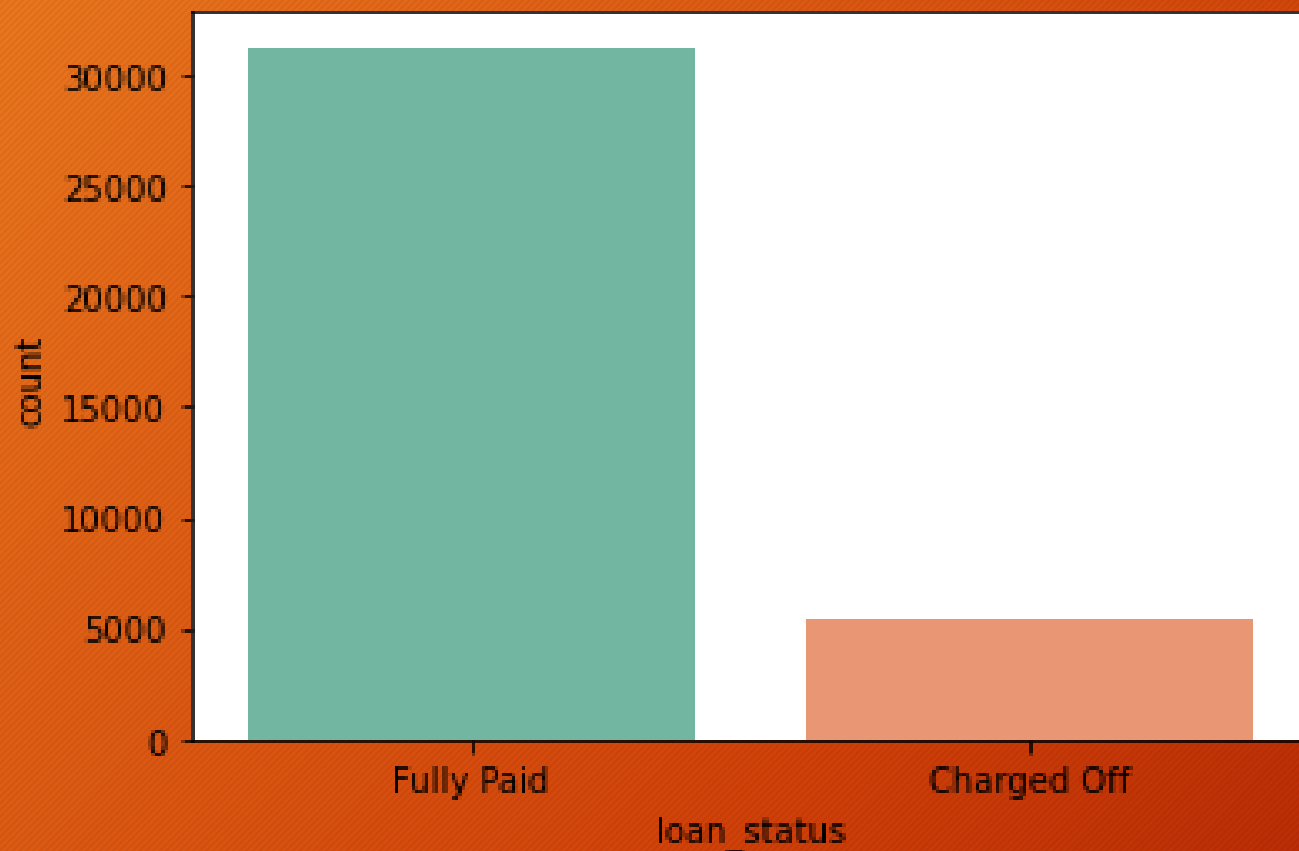
The charged off borrowers are around 15% and fully paid is around 85% in the given data set.
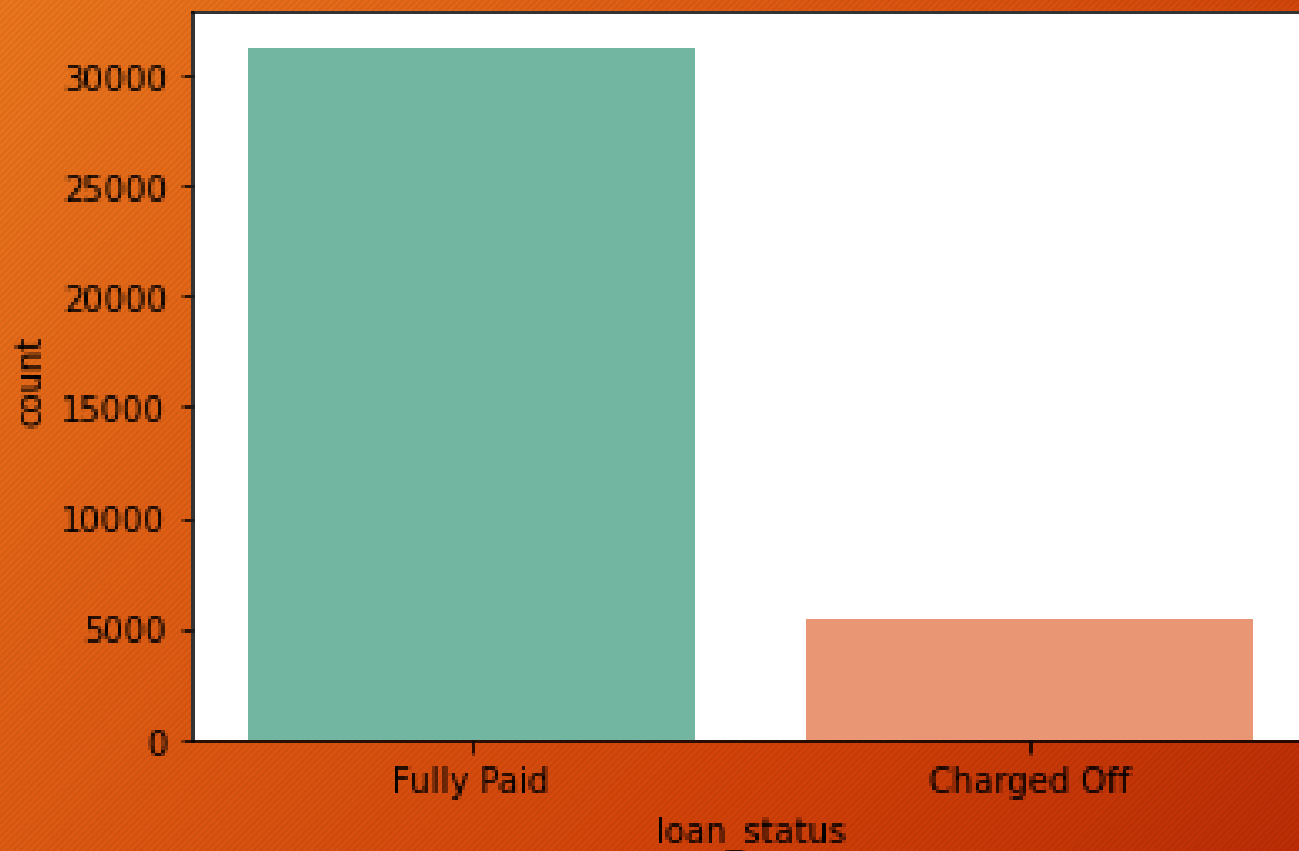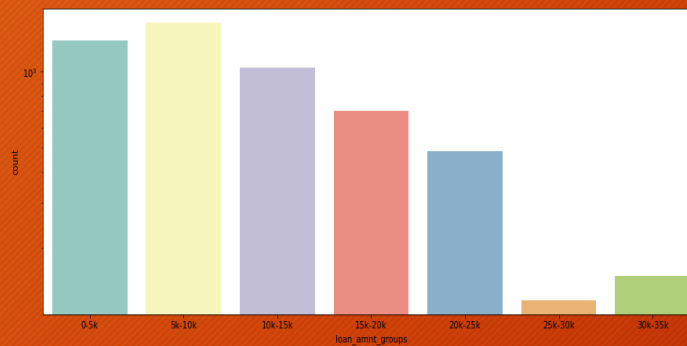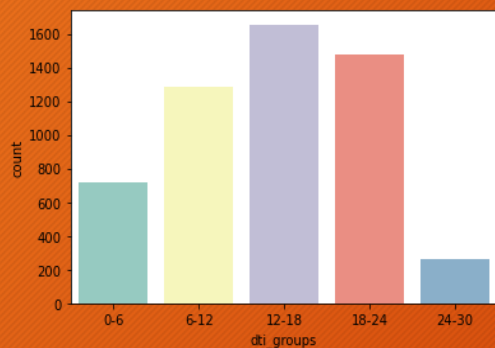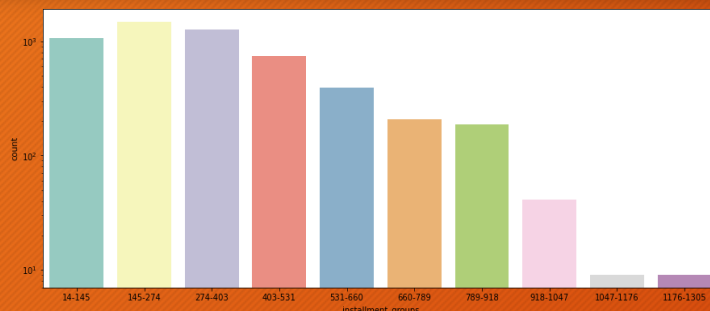
Analysis

The charged off borrowers are around 15% and fully paid is around 85% in the given data set.

Analysis

The charged off borrowers are around 12% - 14% and fully paid are for below 12% in the given data set.
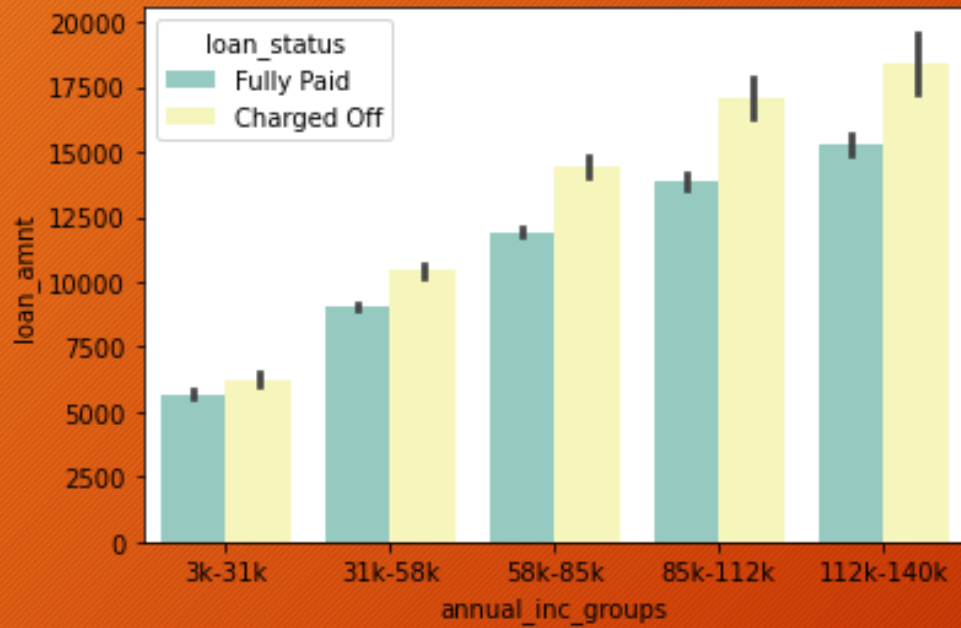
Analysis

The above analysis with respect to the charged off loans for each variable suggests the following. There is a more probability of defaulting when :

- Applicants having house_ownership as 'RENT'
- Applicants who use the loan to clear other debts
- Applicants who receive interest at the rate of 13-17%
- Applicants who have an income of range 31201 - 58402
- Applicants who have 20-37 open_acc
- Applicants with employement length of 10
- When funded amount by investor is between 5000-10000
- Loan amount is between 5429 - 10357
- Dti is between 12-18
- When monthly installments are between 145-274
- Term of 36 months
- When the loan status is Not verified
- When the no of enquiries in last 6 months is 0
- When the number of derogatory public records is 0
- When the purpose is 'debt_consolidation'
- Grade is 'B'
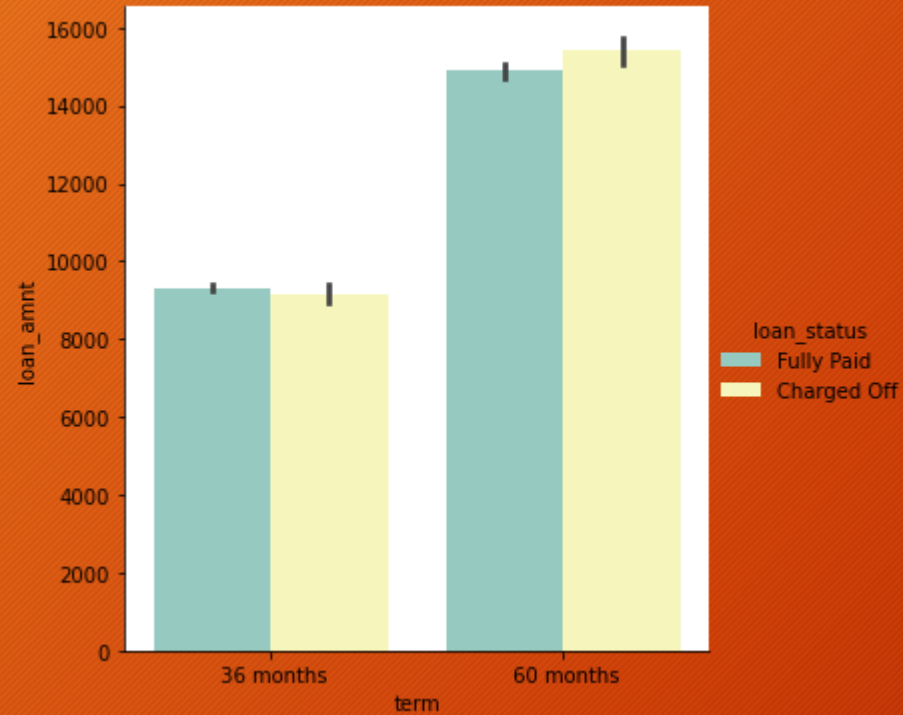- And a total grade of 'B5' level.

Analysis

Across all the income groups, the loan_amount is higher for people who defaulted.

Analysis
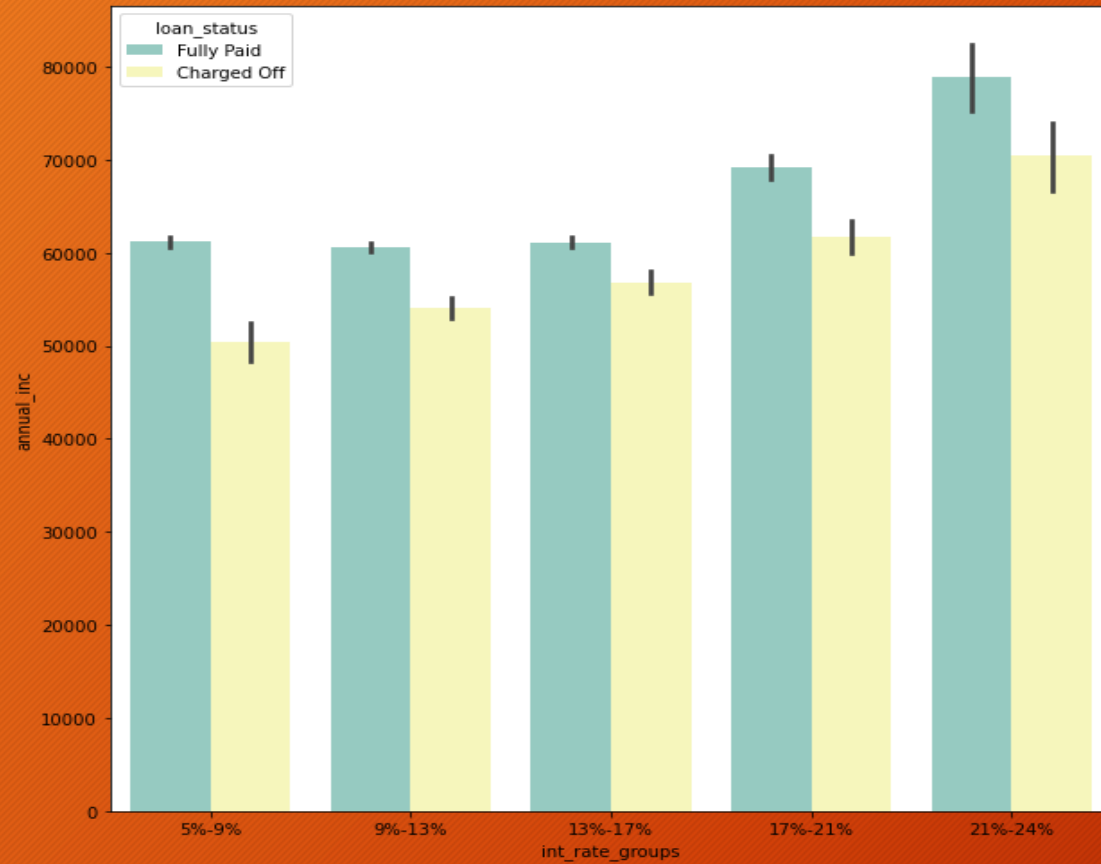
Across all the income groups, the interest rate is higher for people whose annual income is high.

Analysis

Applicants who applied and defaulted have no significant difference in loan_amounts. Which means applicants applying for long term has applied for more loan.

Conclusion

Observations for charged off loans

- The above analysis with respect to the charged off loans. There is a more probability of defaulting when :

- Applicants having income of 60k -70k are taking loan for 'home improvement' and thier home ownership is 'MORTGAGE'.

- Applicants whose income is in the range of 70k-80k, receive interest at the rate of 21-24%.

- Applicants who have taken a loan in the range 30k - 35k, are charged interest rate of 15-17.5 %

- Applicants who have taken a loan for small business and the loan amount is greater than 14k

- Applicants having income of 14k -16k have home ownership as 'MORTGAGE'.

- For loan amount ranging from 15k-20k, grade assigned by LC is F.

- For employment length of 10yrs, loan amount is generally between 12k-14k.

- Loan are generally verified for loan amount above 16k.

- For interest rate above 20%, grade assigned by LC is G.