Lending Club Case Study

Team Member: Baranitharan Masilamani

Facilitator: Dr. Kaushik Mukhopadhyay

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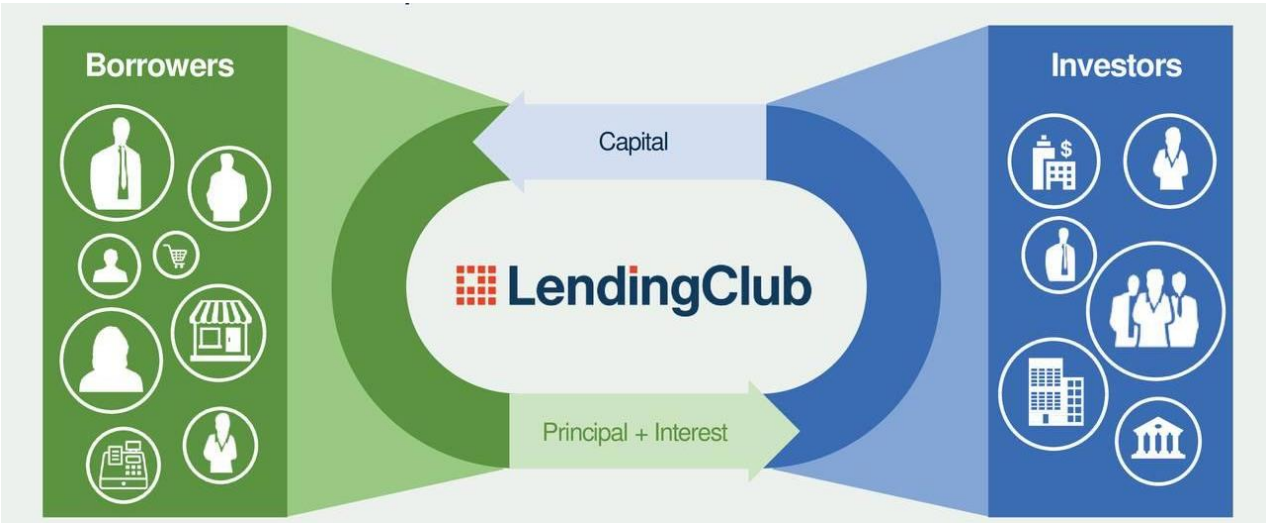
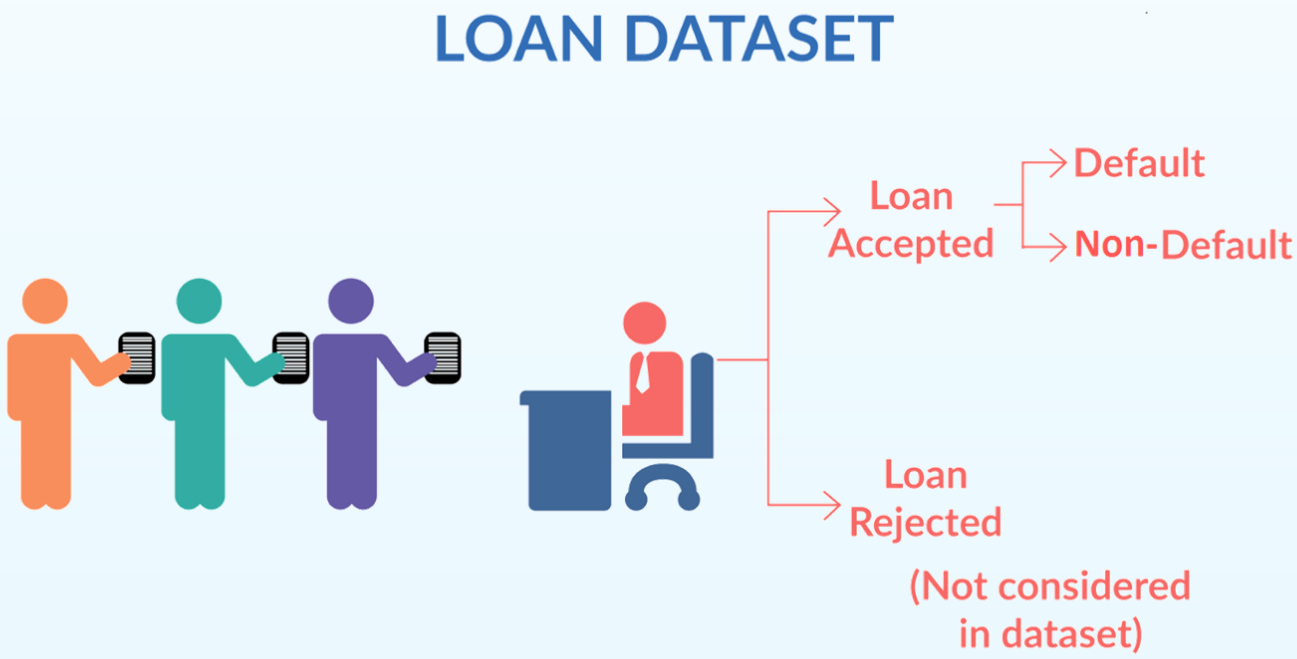
Background – Lending Club

- A **consumer finance company** which specializes in lending various types of loans to urban customers. When the company receives a loan application, the company must decide for loan approval based on the applicant's profile.



Case Study - Objective



- Use Exploratory Data Analysis to understand how consumer attributes and loan attributes influence the tendency of default.

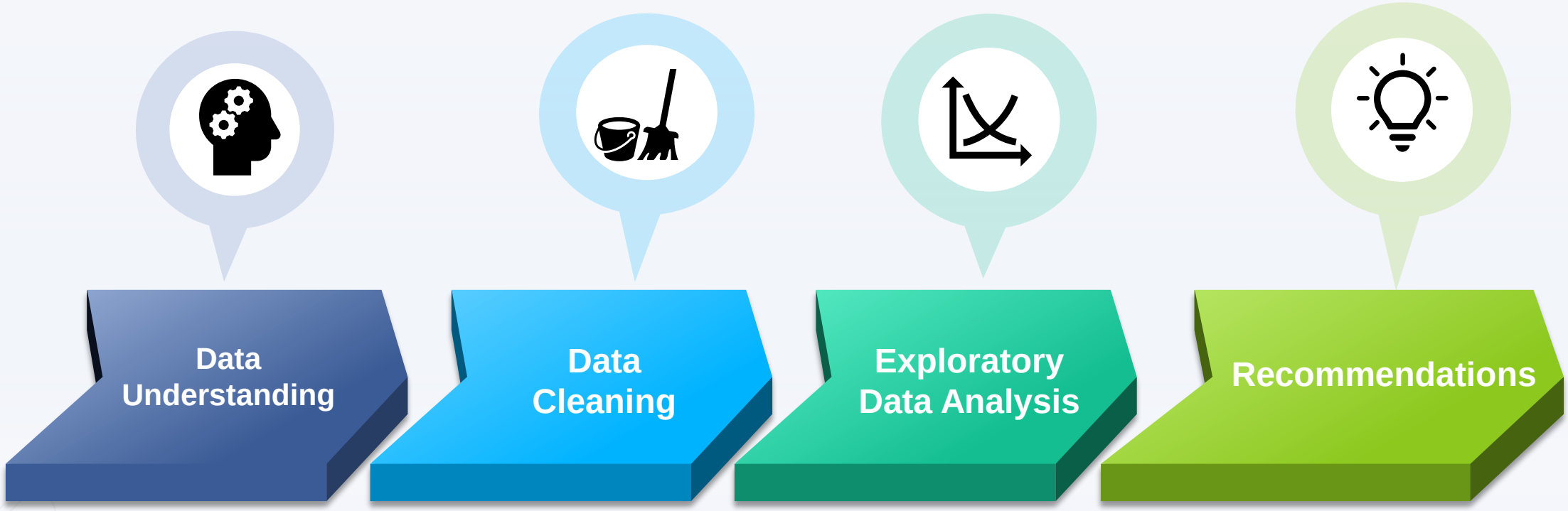
Problem solving approach..

Interpretation of data variables and identification of quality issues

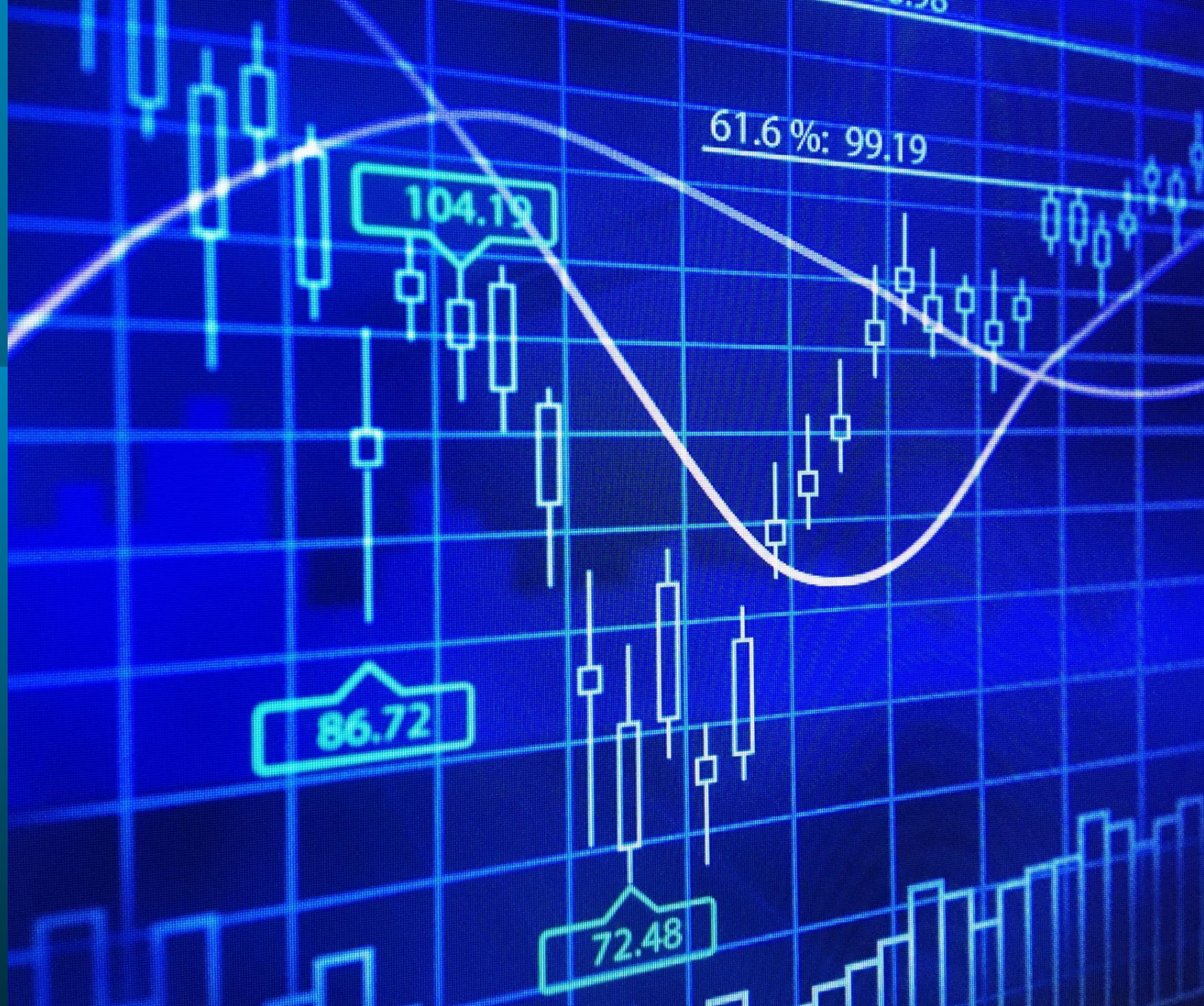
Address all Data quality issues and data manipulation, if required

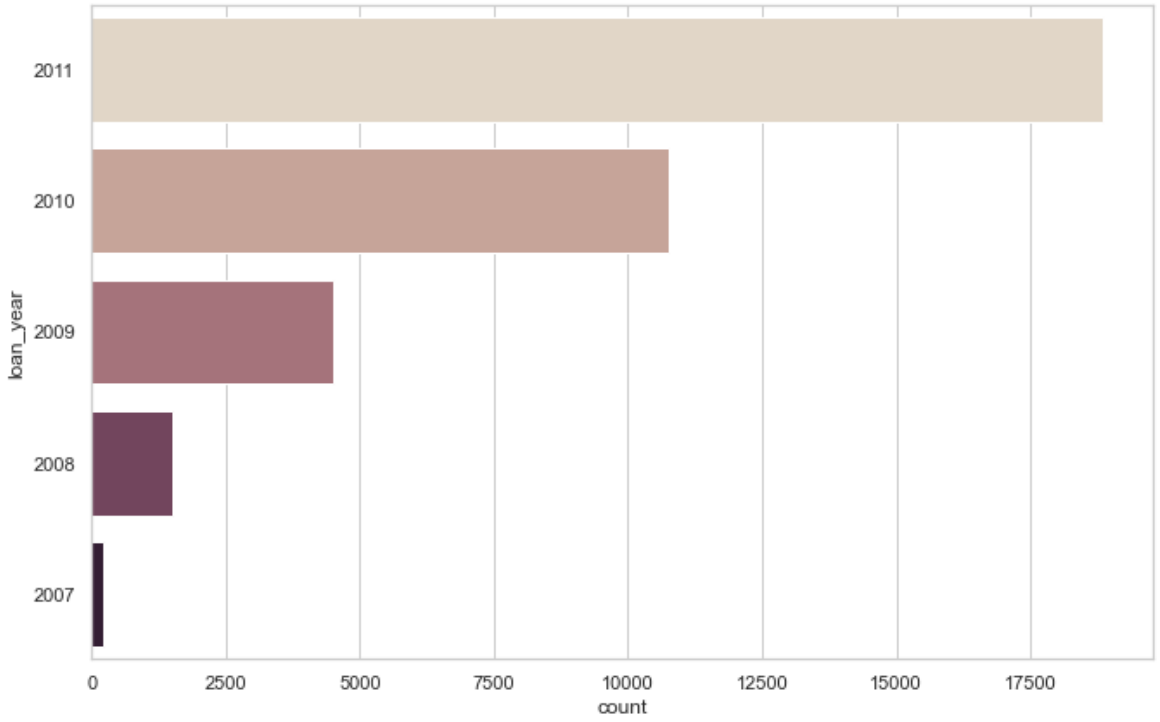
Univariate and Bivariate Analysis with visualizations

Insights from data to make Realistic and Actionable Plan

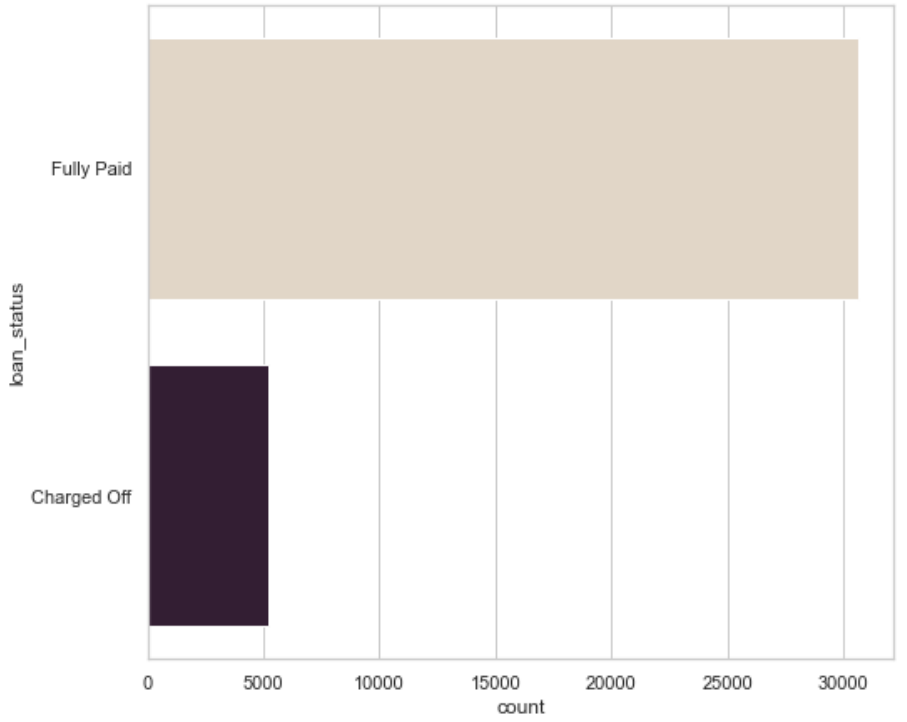


Univariate Analysis

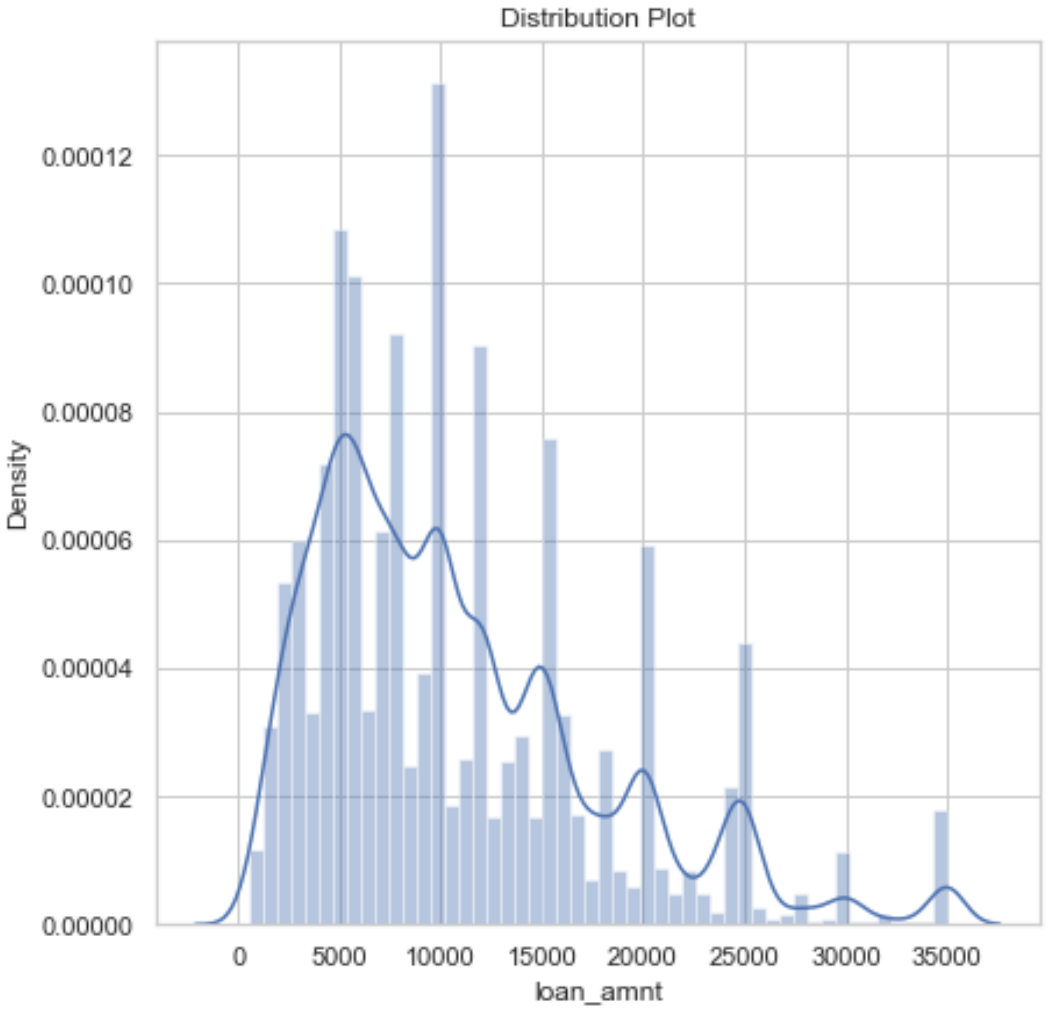


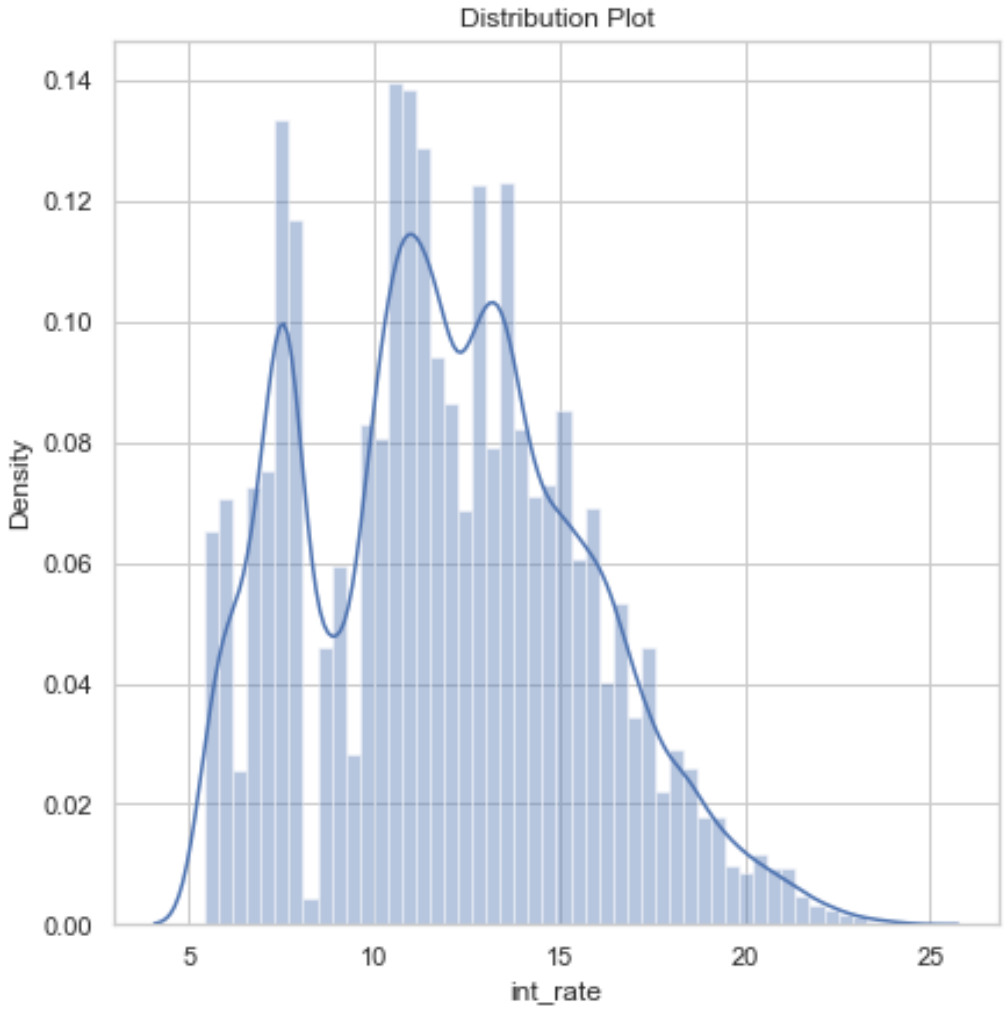


Number of successful loan disbursement steadily increases from 2007 to 2011



Out of all the 35814 loans, 14.53% loan cases were charged-off !

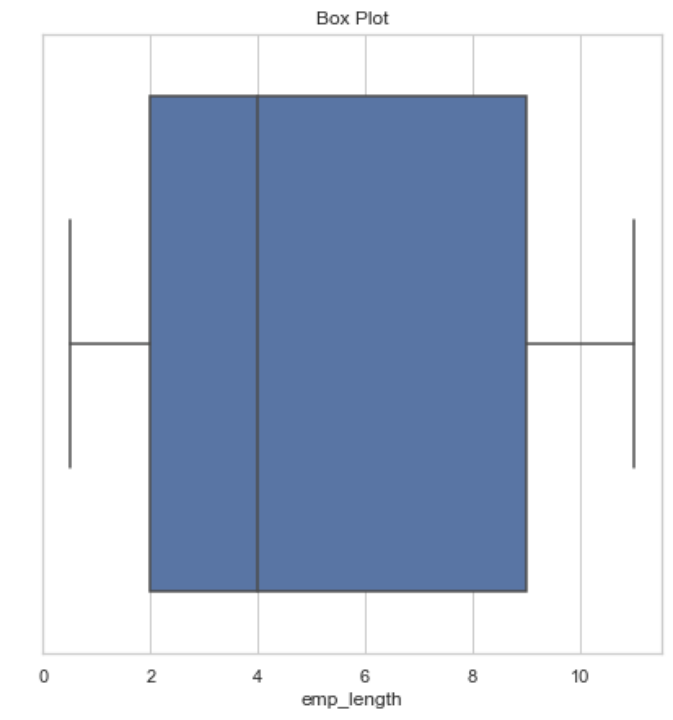


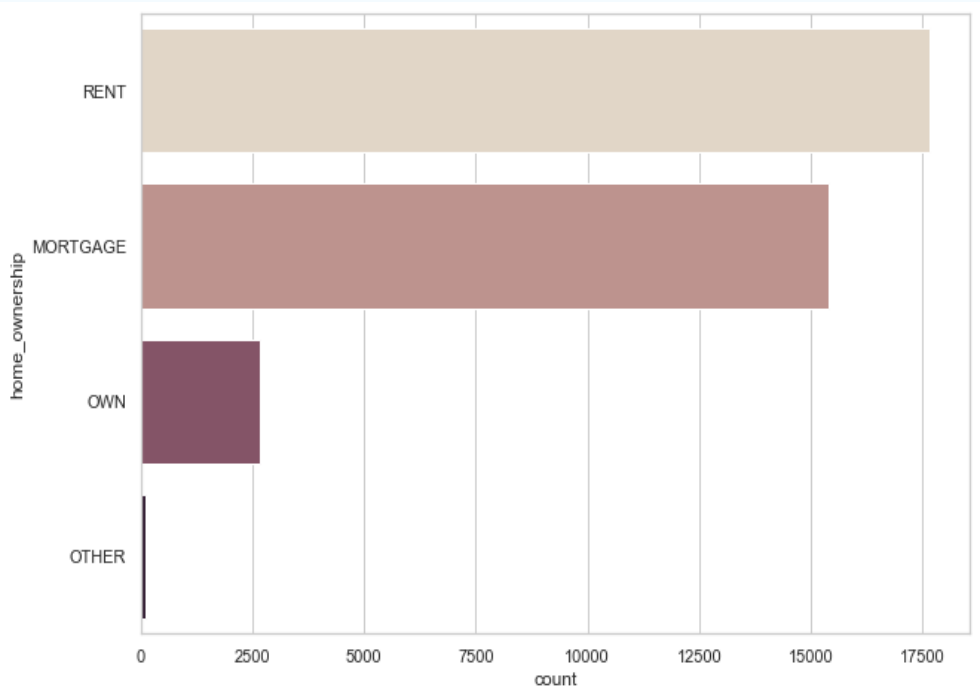


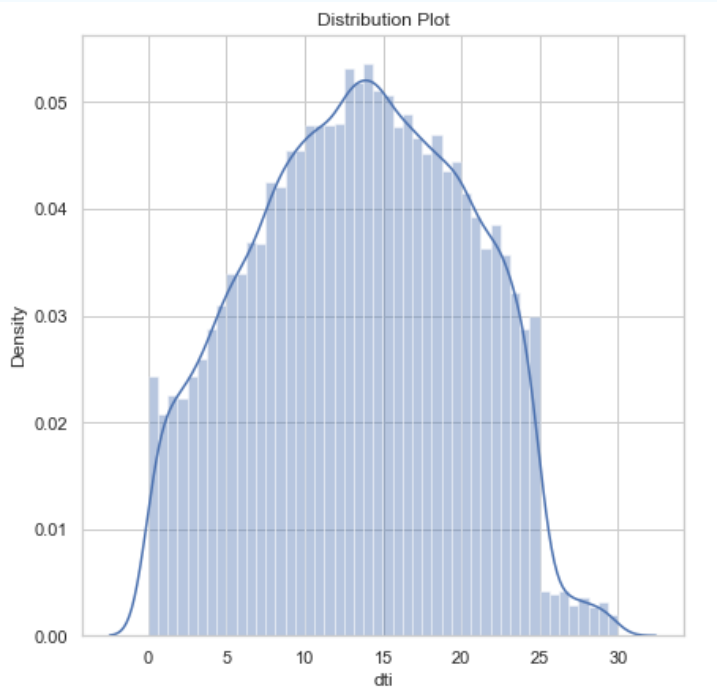
Majority of the loans had amount of less than 15000 USD.

Interest rate was between 10 to 15% for most of the loans

Know your Customer !!!



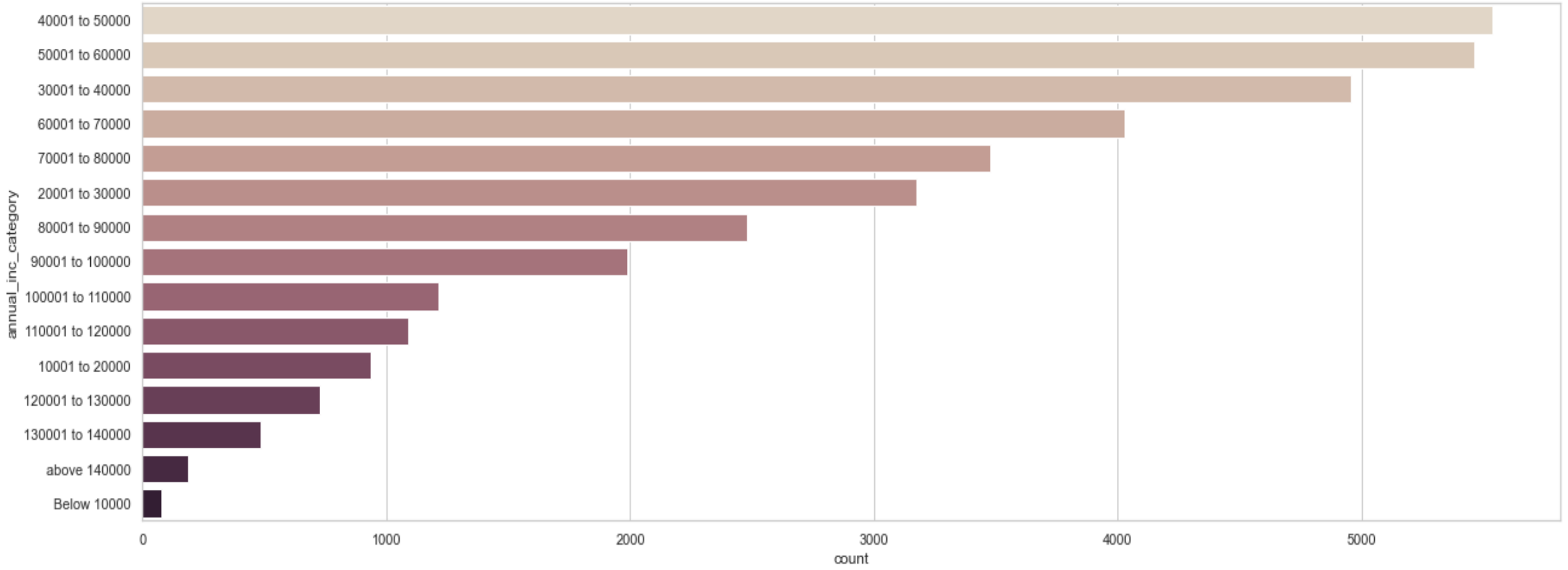




Employment length is about 4 to 5 years

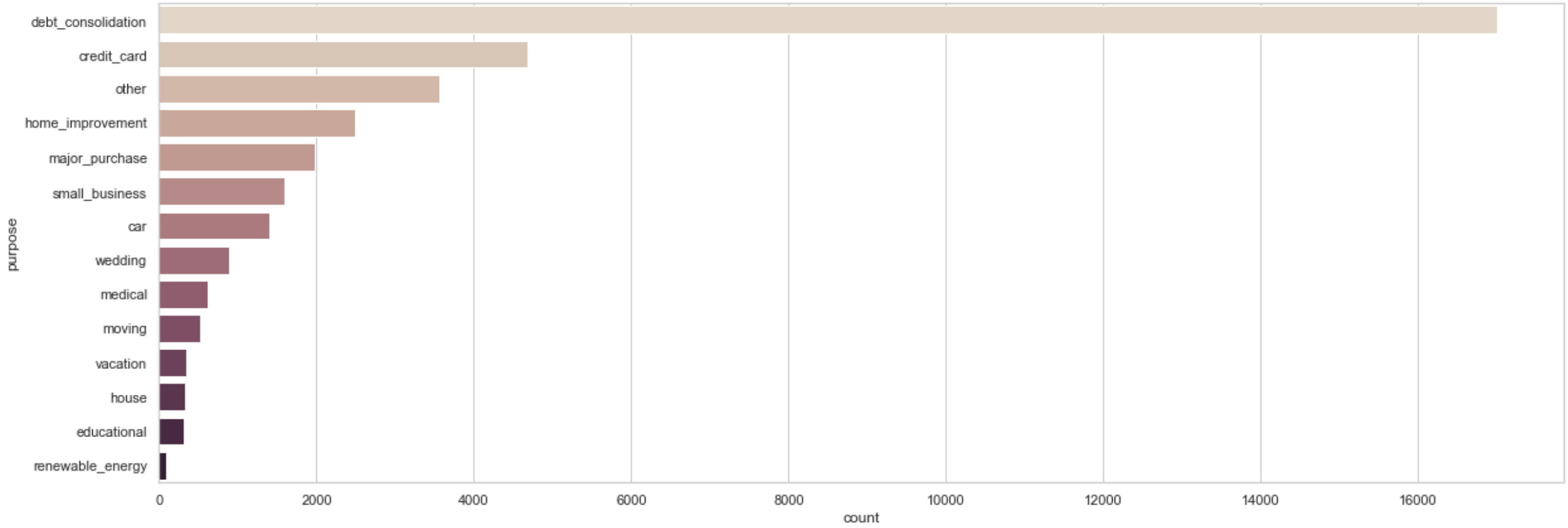
Majority of customers stay in rent or mortgage house

Debt to Income ratio is about 15



How much Do they earn?

Majority of the customer earns between 30000 – 70000 USD bracket annualy

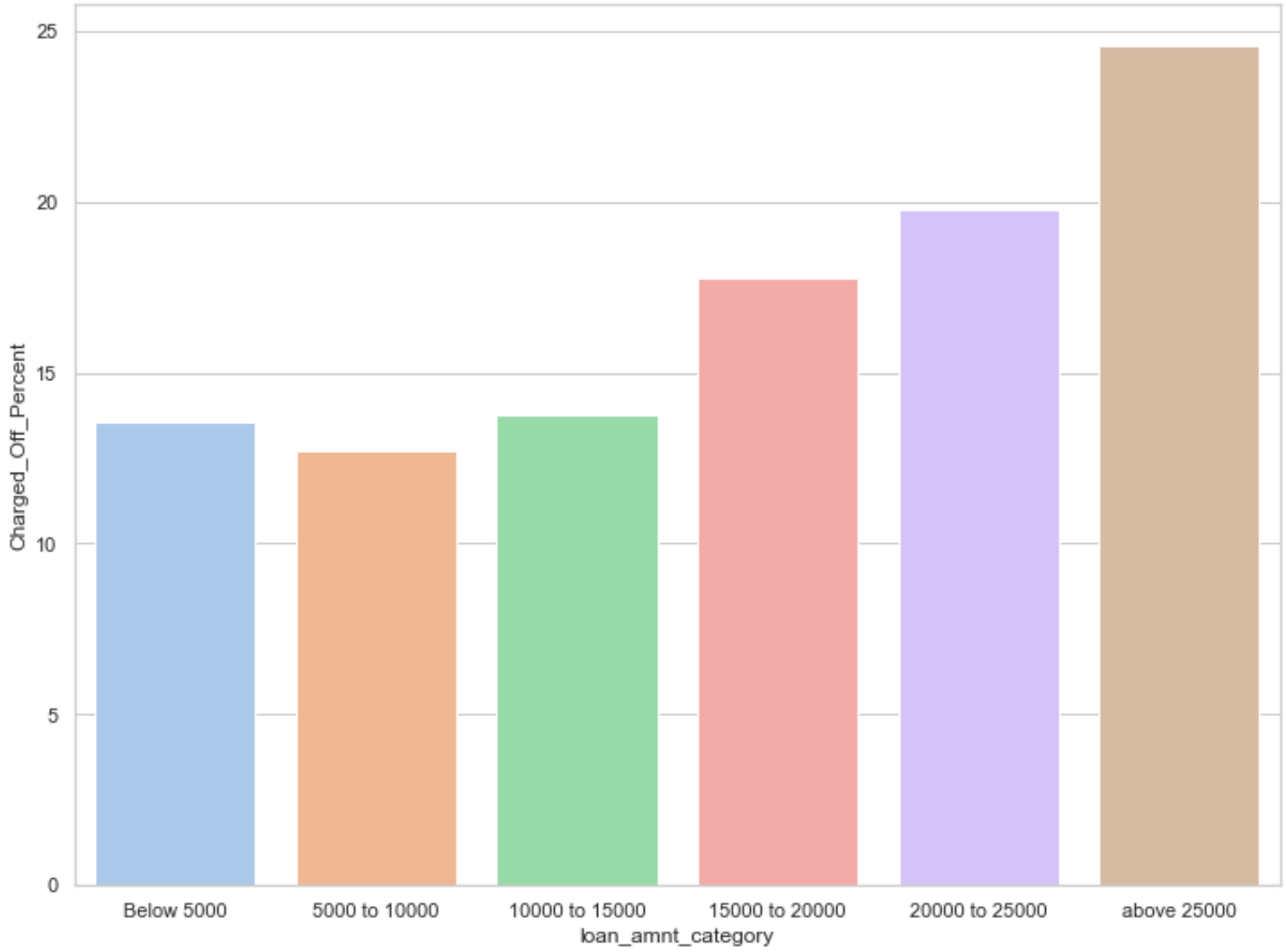


Why Do they take loan?

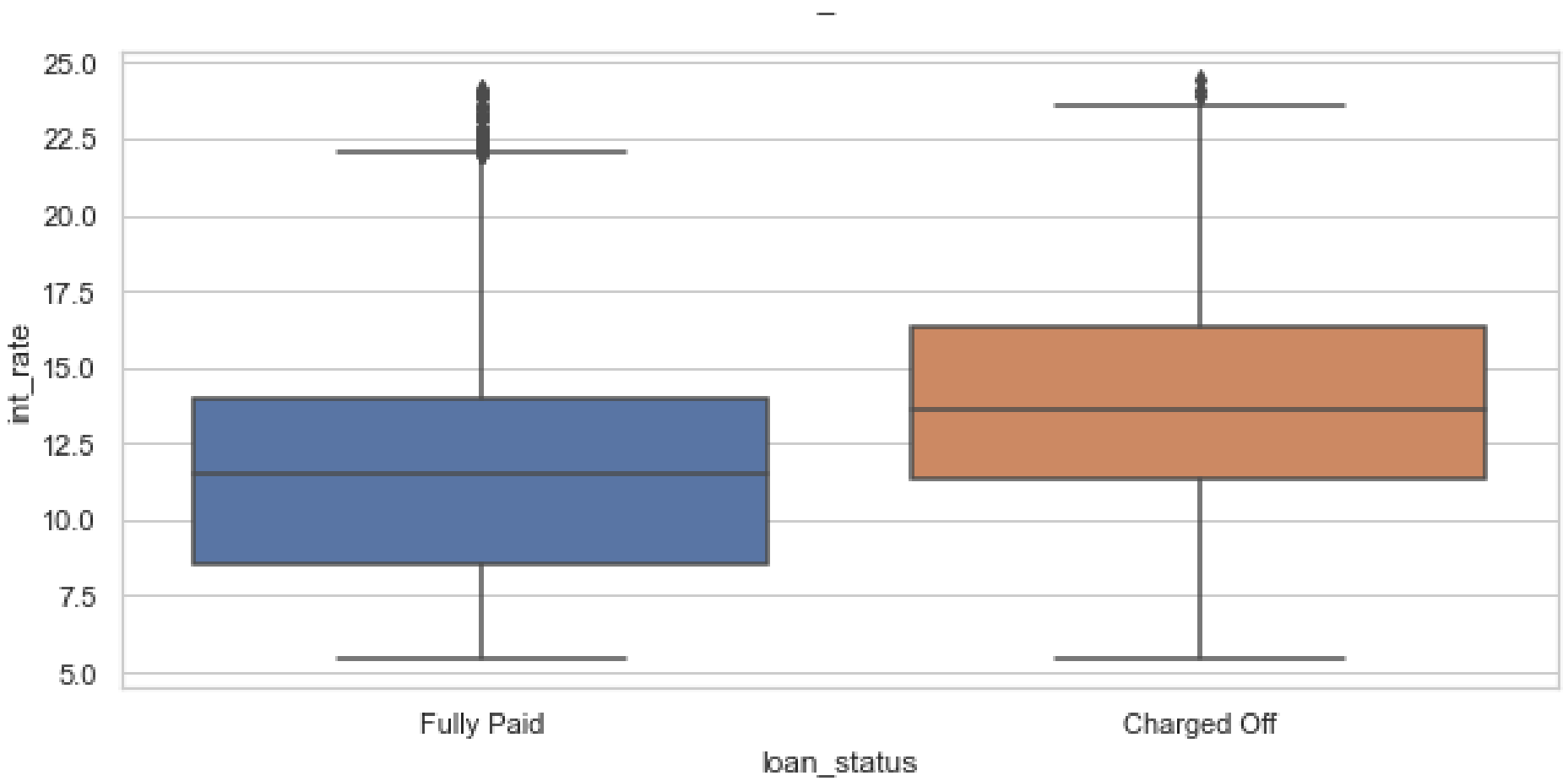
Debt Consolidation and Credit card payment is the commonest purpose

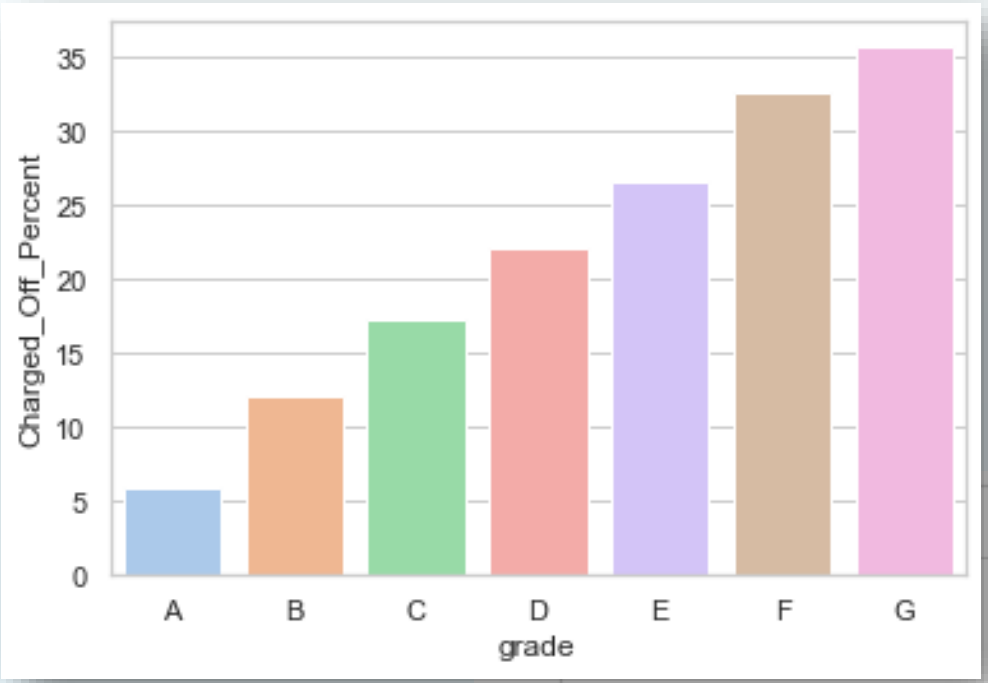
Bivariate Analysis

- **Loan amount above 25000 is more likely to default (24.55%)**

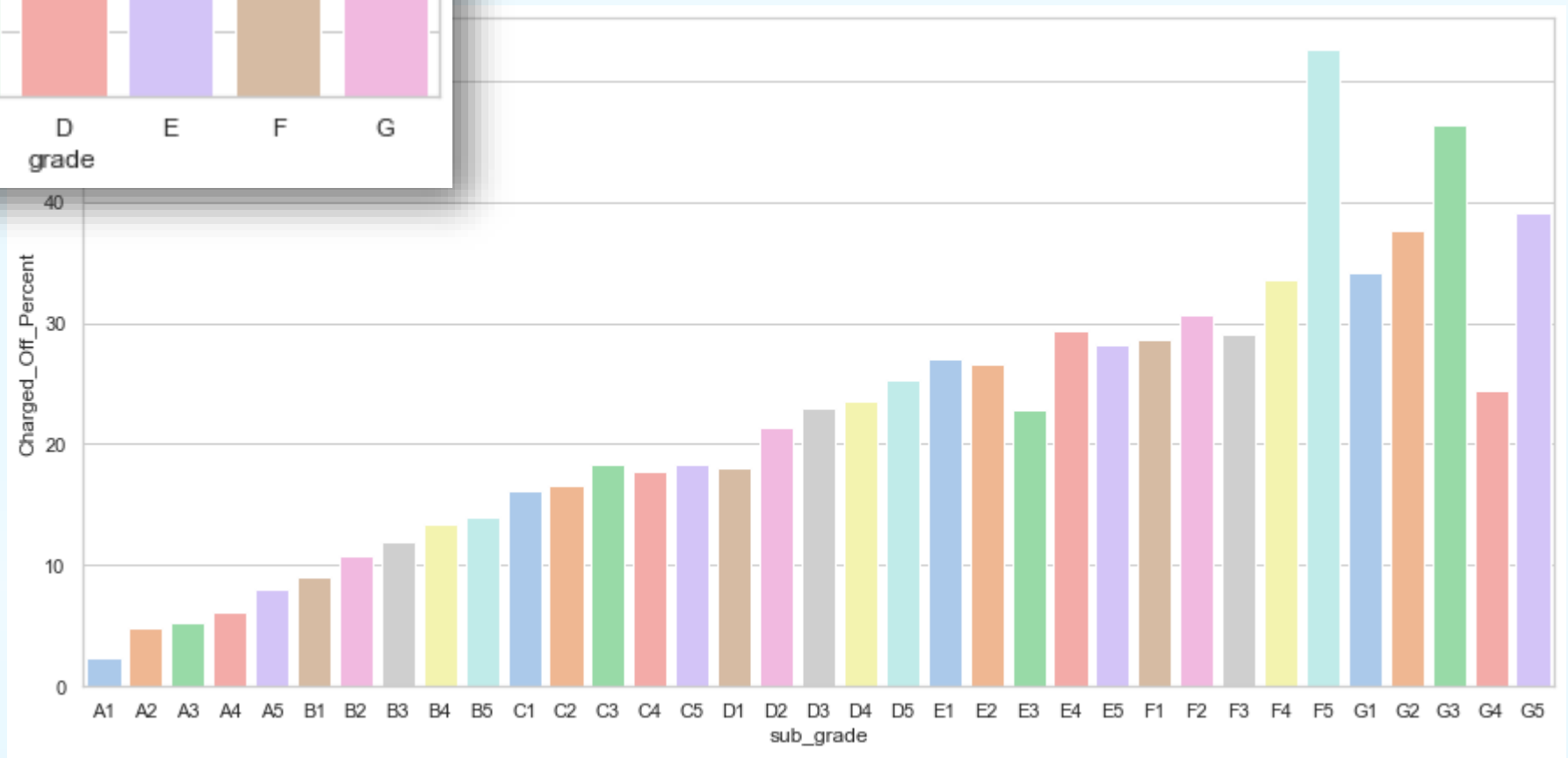


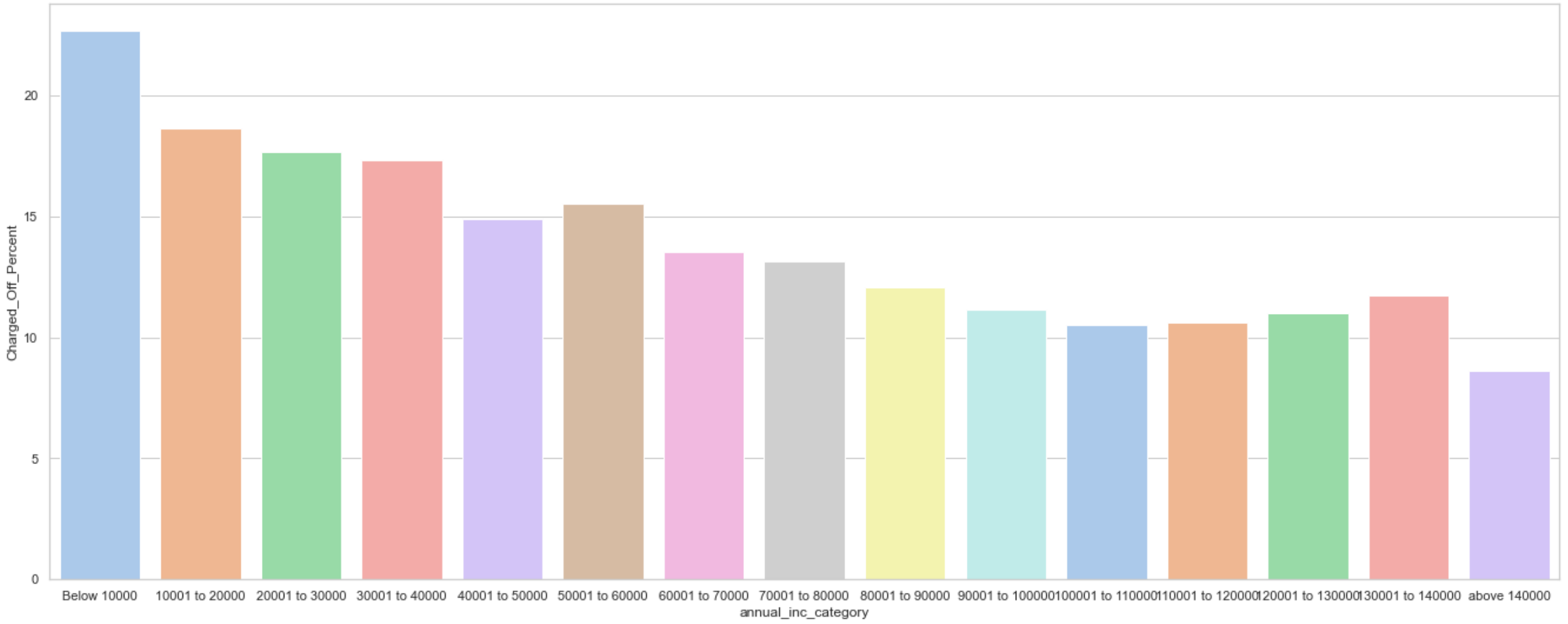
Higher interest rate is associated with higher chance of default





Grade A is least likely to charge-off (5.91%) and probability of default increases linearly with worsening grade.



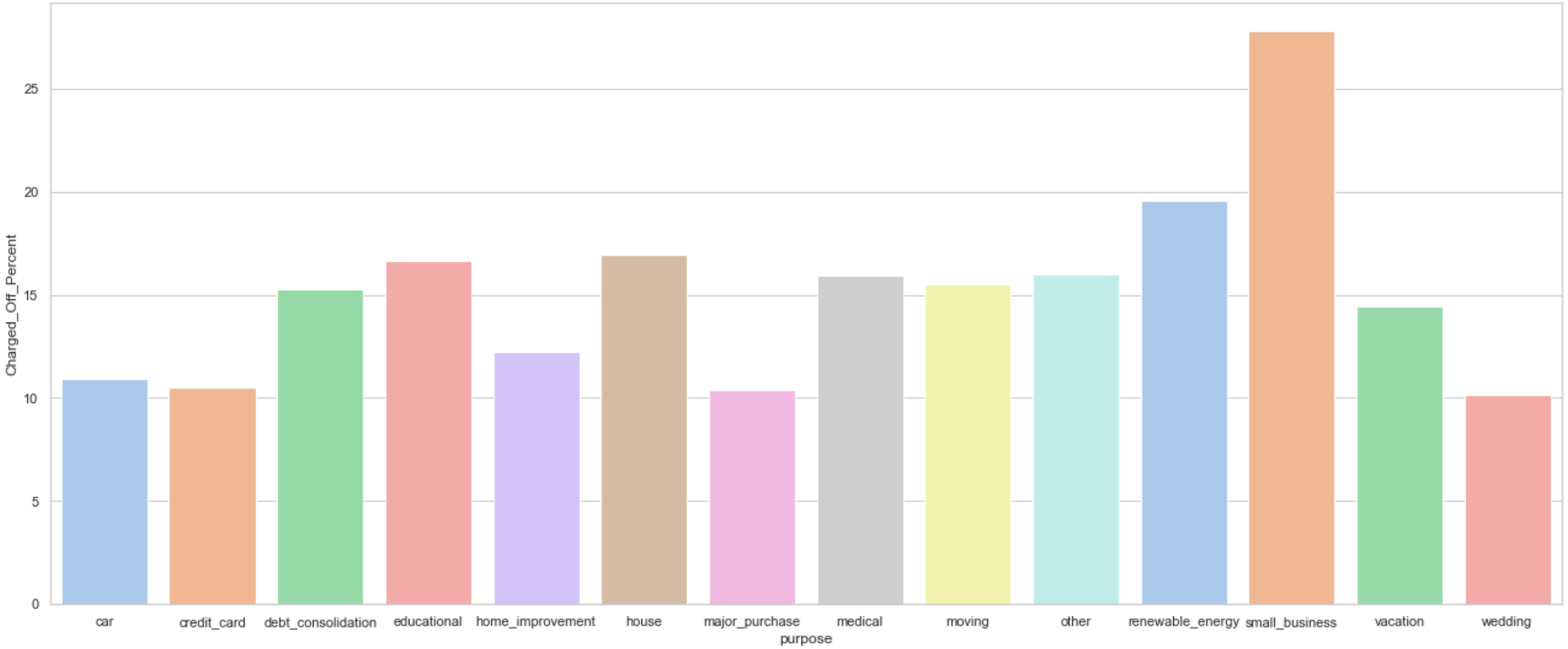


Annual Income

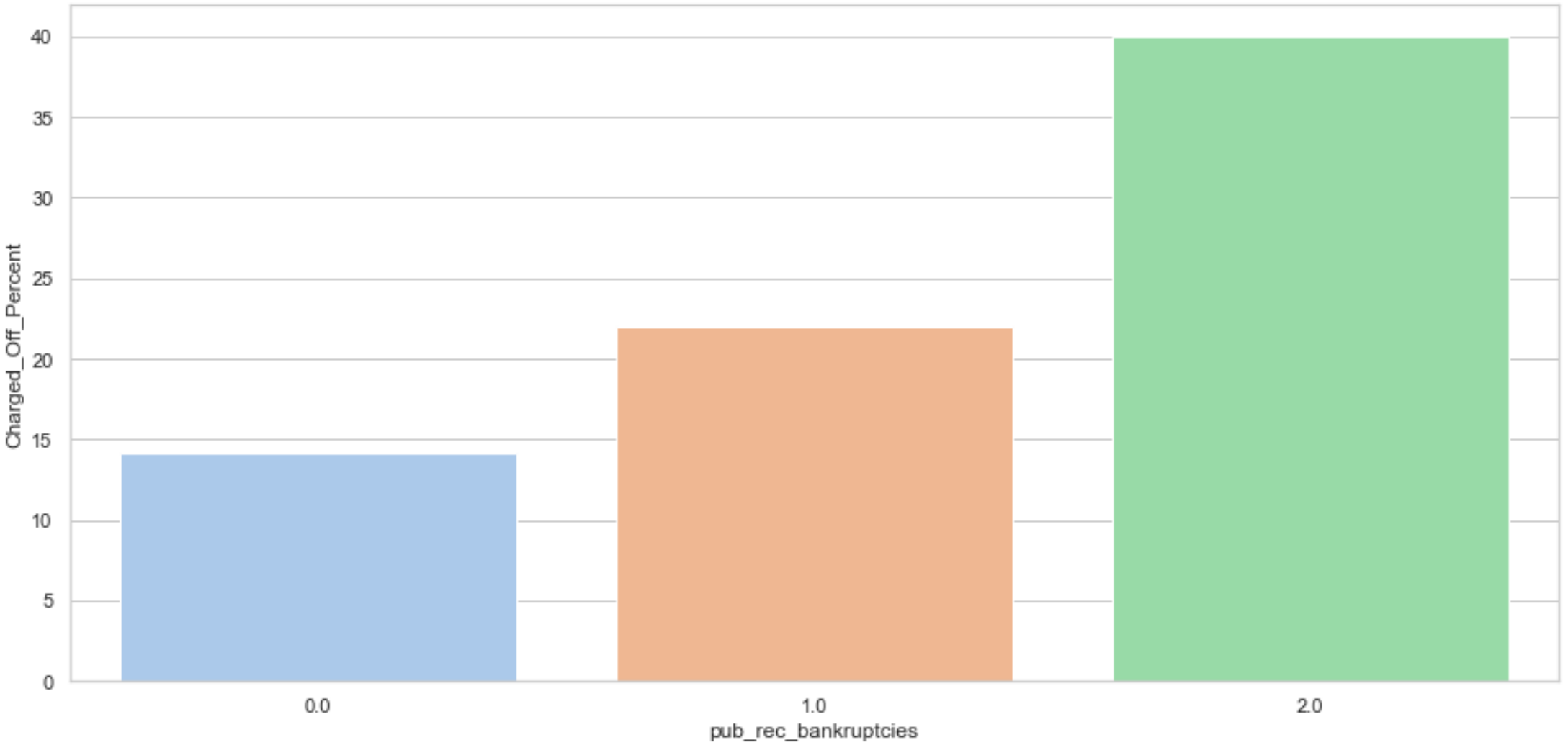
Annual income below 50000 USD has more than 15% probability of default

Purpose

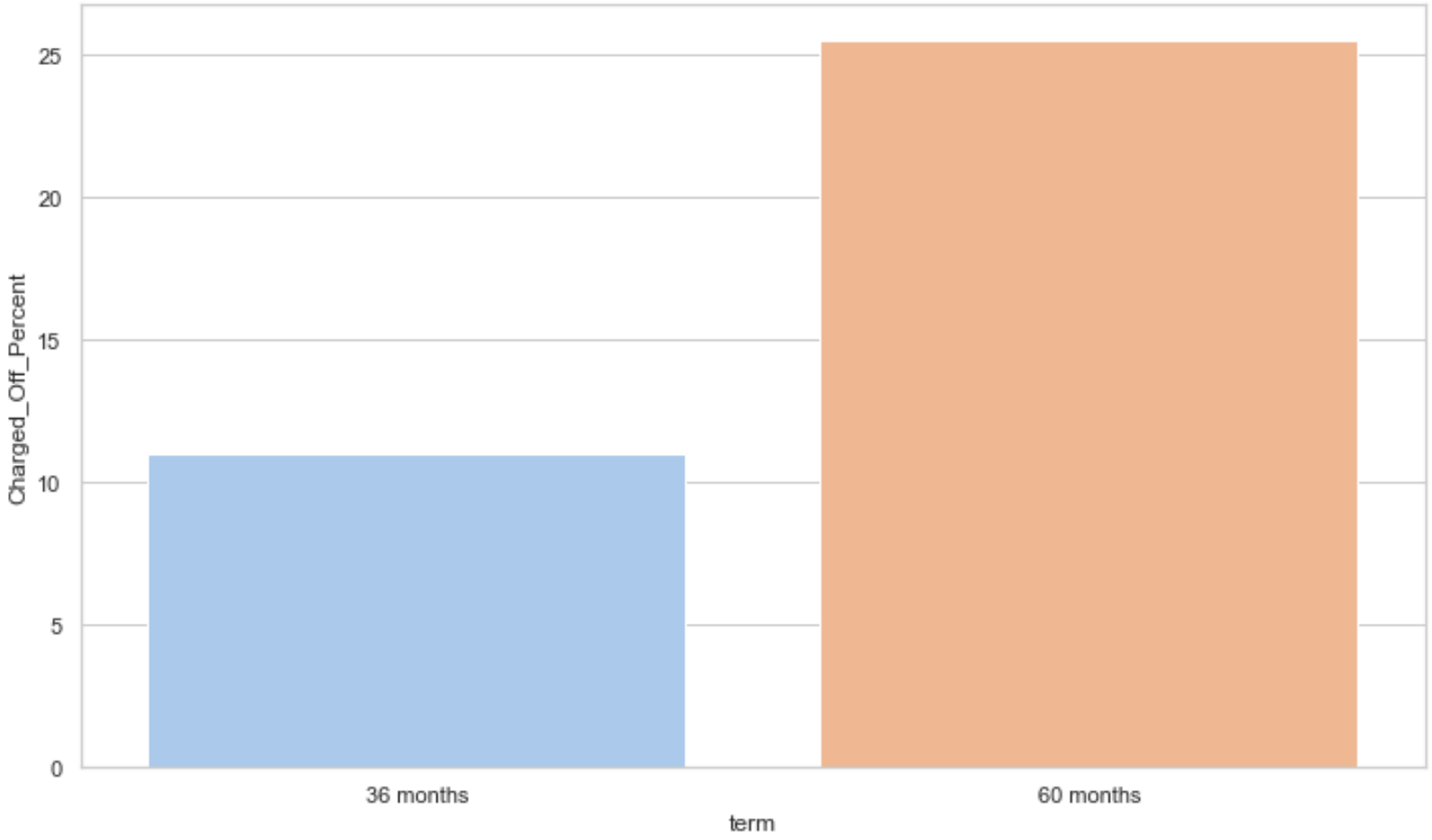
Person taking loan for small business purpose is high chance of default (27.7%)

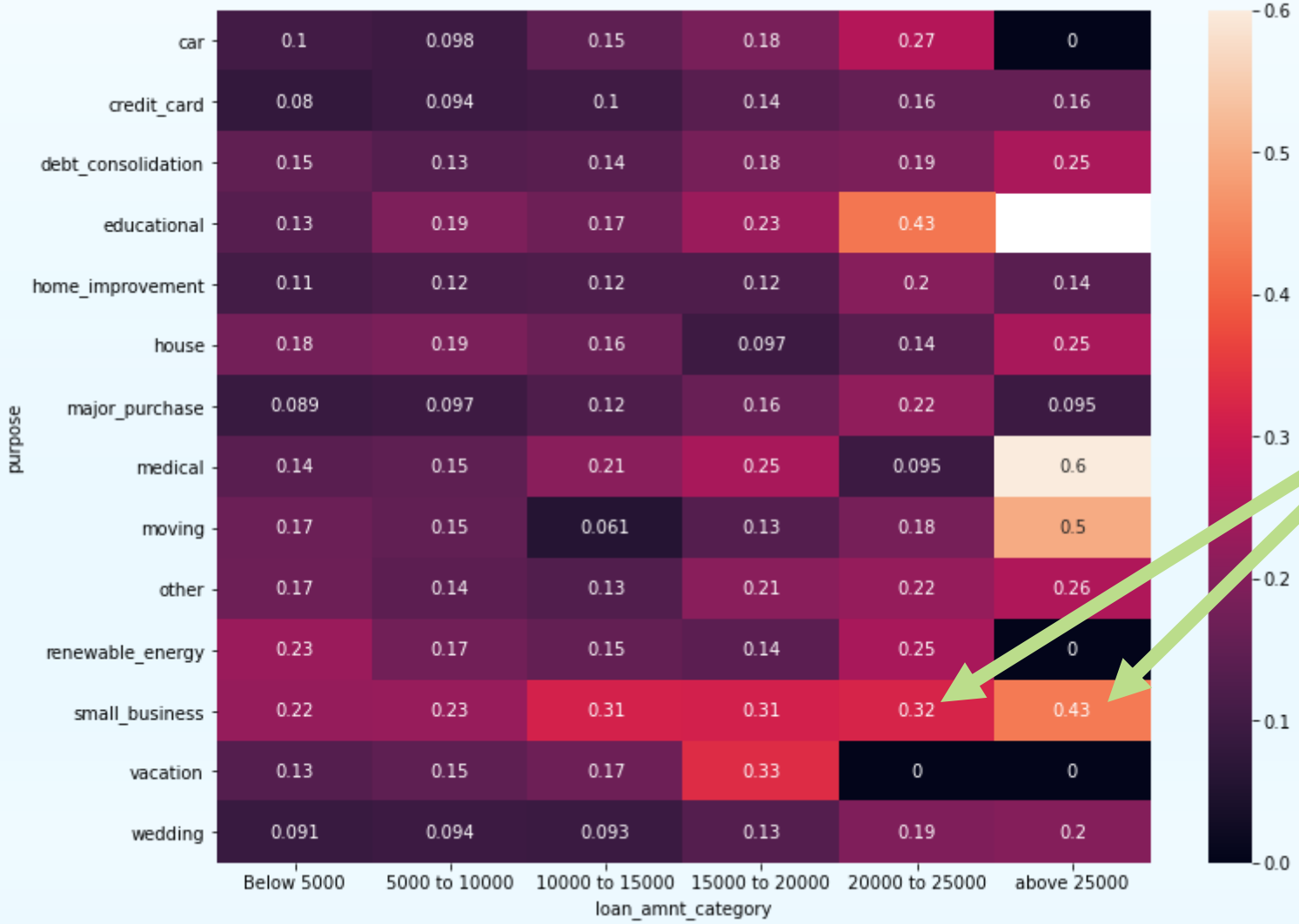


Presence of public record bankruptcy is more likely to default



Loans of shorter term is less likely to be default (10.98%) in comparison with long term loans (25.53%)





- We already discussed the higher risk of default for small business loans.
- This correlation plot is showing these loans are highly correlated with higher amount of loans also (more than 20000 USD)
- Company should be careful before loan approval of these customers.

Recommendations

Gradation system may be used as a reliable indicator. Probability of default increases linearly with worsening grade.

Loan should be approved after careful scrutiny for person with lower income, who opted for longer term loan and higher interest rate

Person taking loan for small business purpose is more likely to default

History of public record bankruptcy is an early warning sign of possible future default.

Loan amount above 25000 is more likely to default. It should be sanctioned only after considering grade and other mentioned indicators.

Thank You