Lenden Club Case Study

By: Vasanth Kumar Gummadala

Business Understanding

Lenden Club is a consumer finance company that specialises in lending various types of loans to urban customers. 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

When a person applies for a loan, there are two types of decisions that could be taken by the company:

1. Loan accepted: If the company approves the loan, there are 3 possible scenarios described below:

    1. Fully paid: Applicant has fully paid the loan (the principal and the interest rate)

    2. 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'.

    3. 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

2. Loan rejected: The company had rejected the loan (because the candidate does not meet their requirements etc.). Since the loan was rejected, there is no transactional history of those applicants with the company and so this data is not available with the company (and thus in this dataset)

Approach

- Understand the data provided using the data dictionary
- Filter unnecessary data
- Remove unwanted data using multiple approaches – less availability, outlier treatment, high correlation
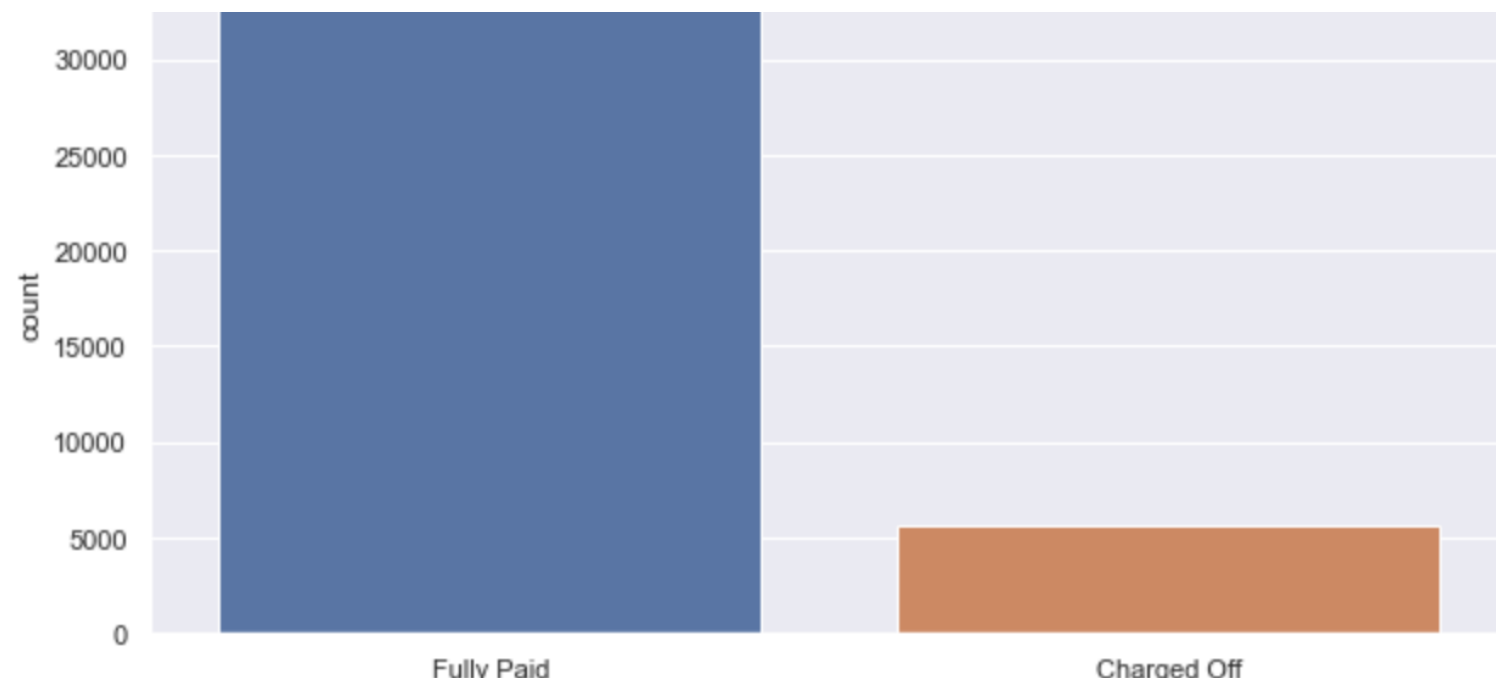- Impute the data wherever required
- Create bins for numerical columns to convert them
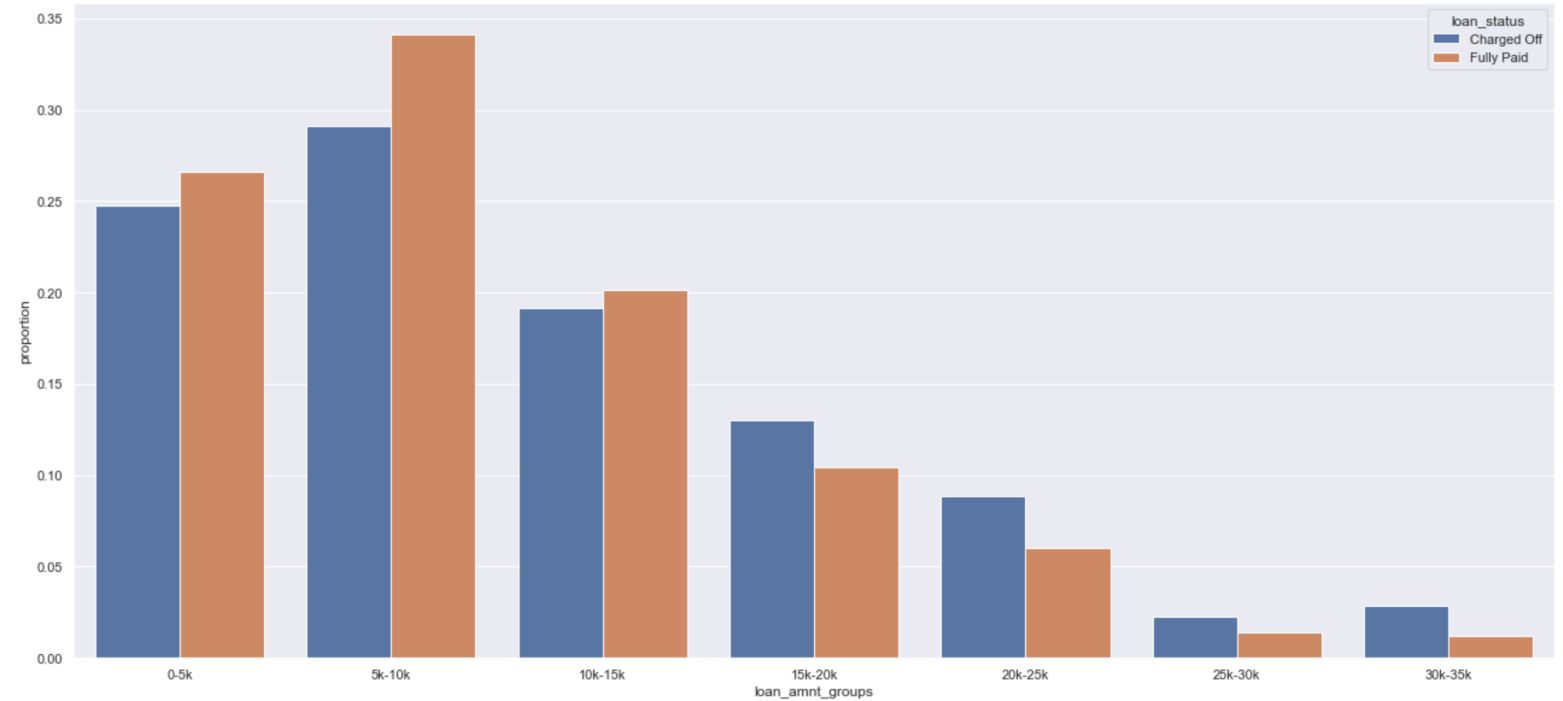- Conducted univariate analysis & bivariate analysis

85% of the customers have paid the loan and 15% have defaulted
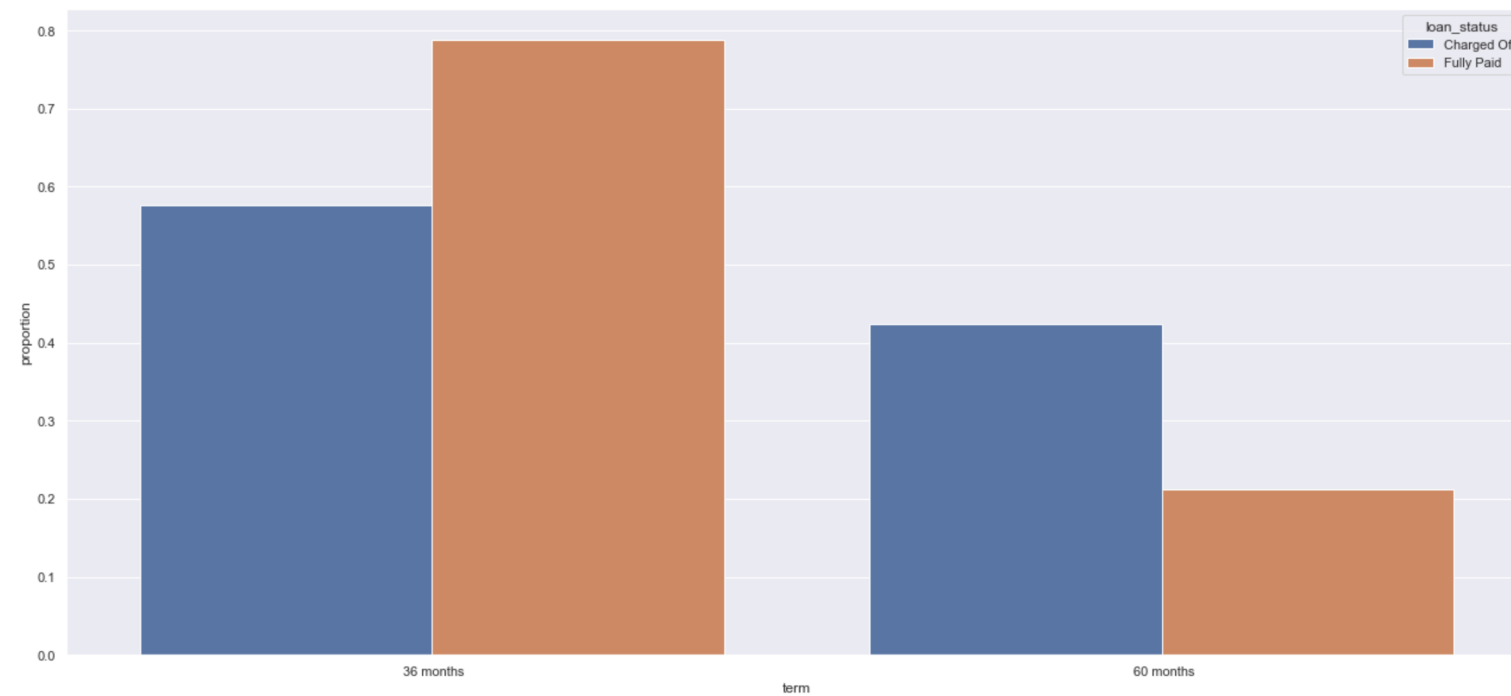
Loan status

With increase in loan amount the default rate is also increasing
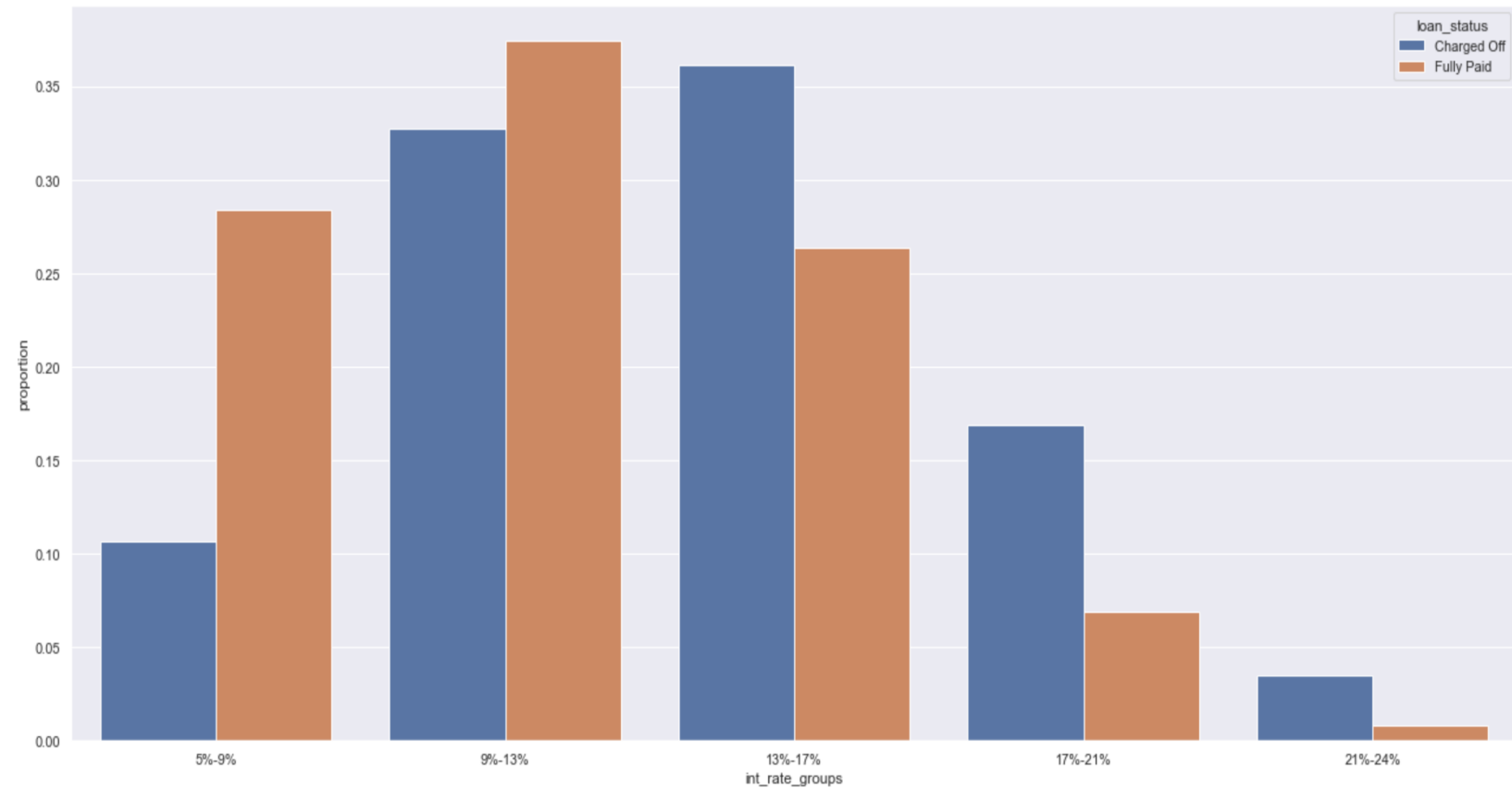
Loan amount groups

Term

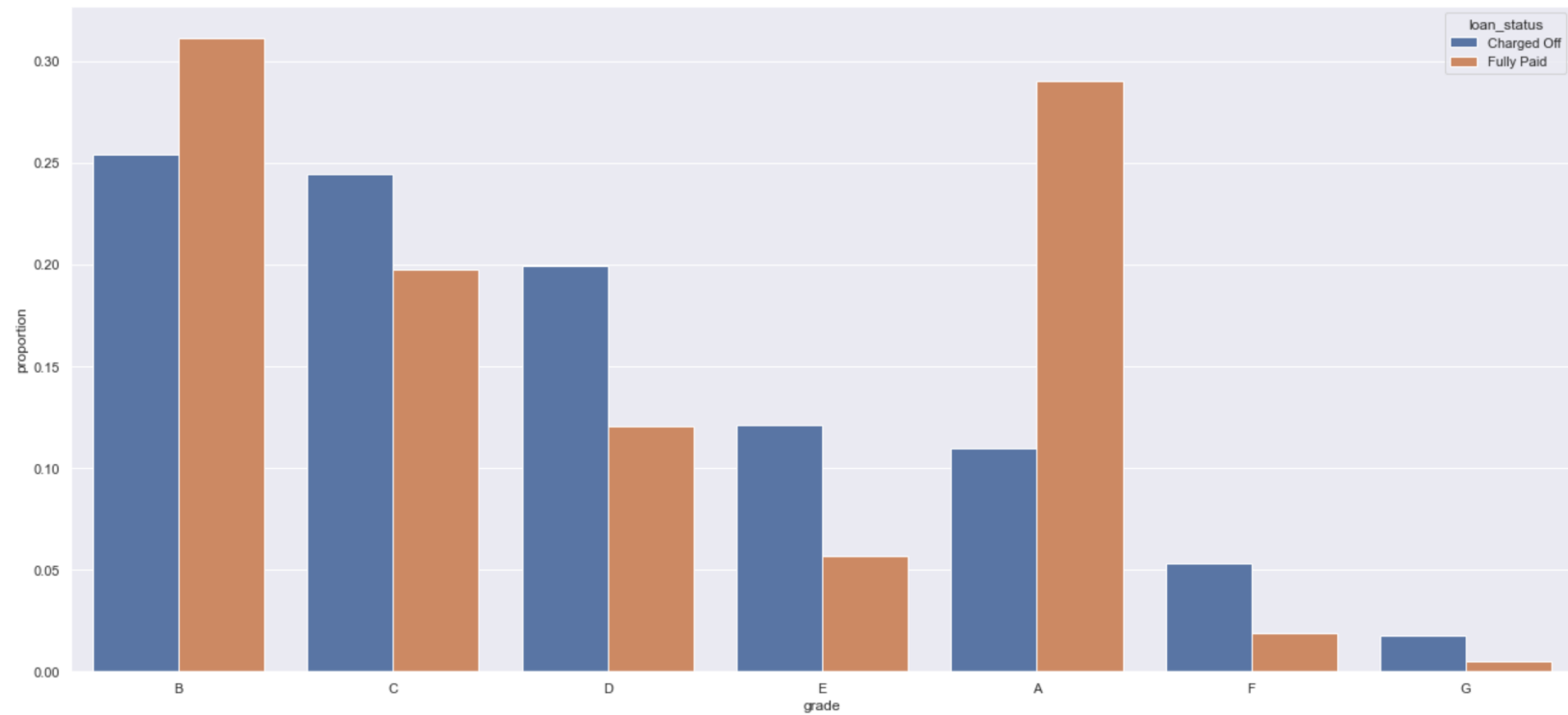Loans with higher term is more like to be defaulted

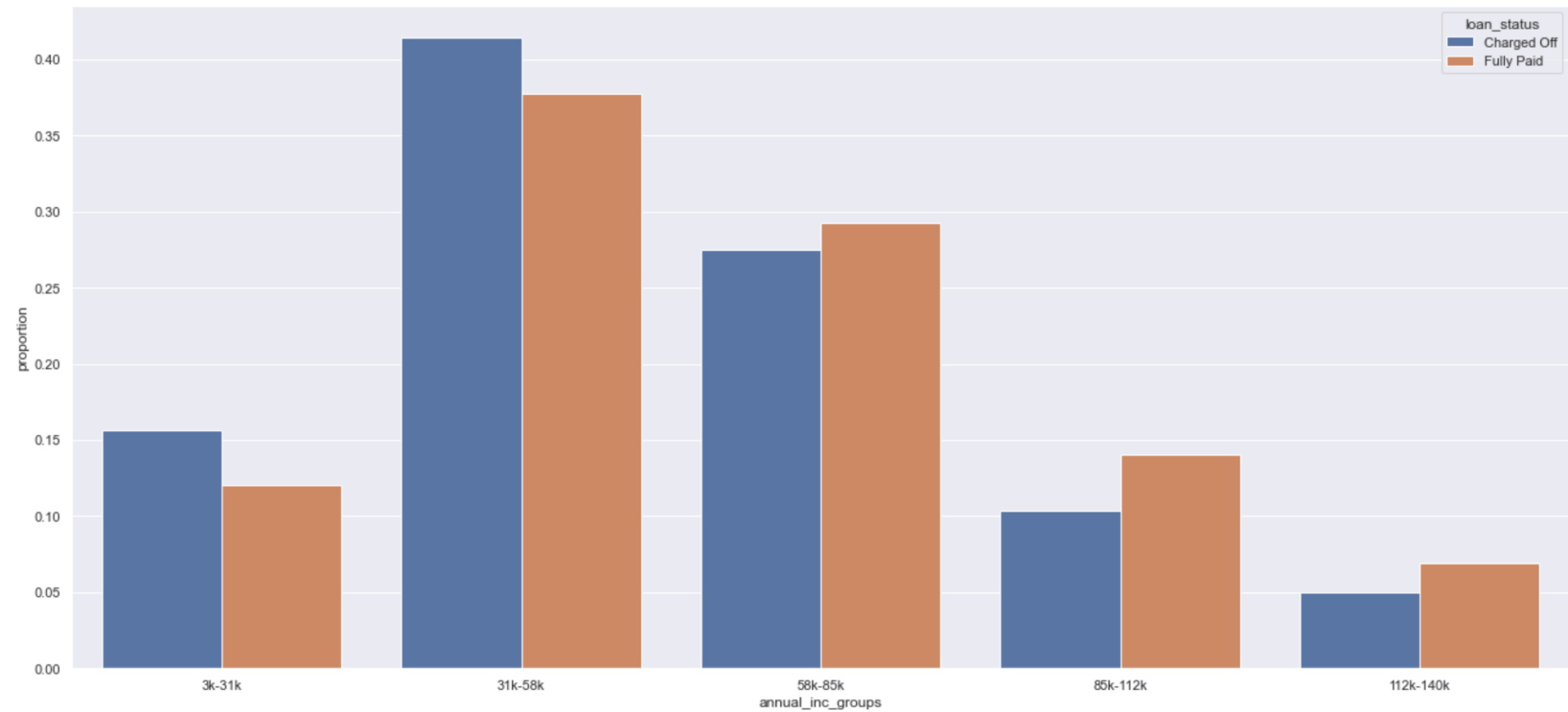The higher the interest rate the more the default rate

Interest rate groups

With loan grade the default rate is increasing – A with lowest default rate to G with highest default rate
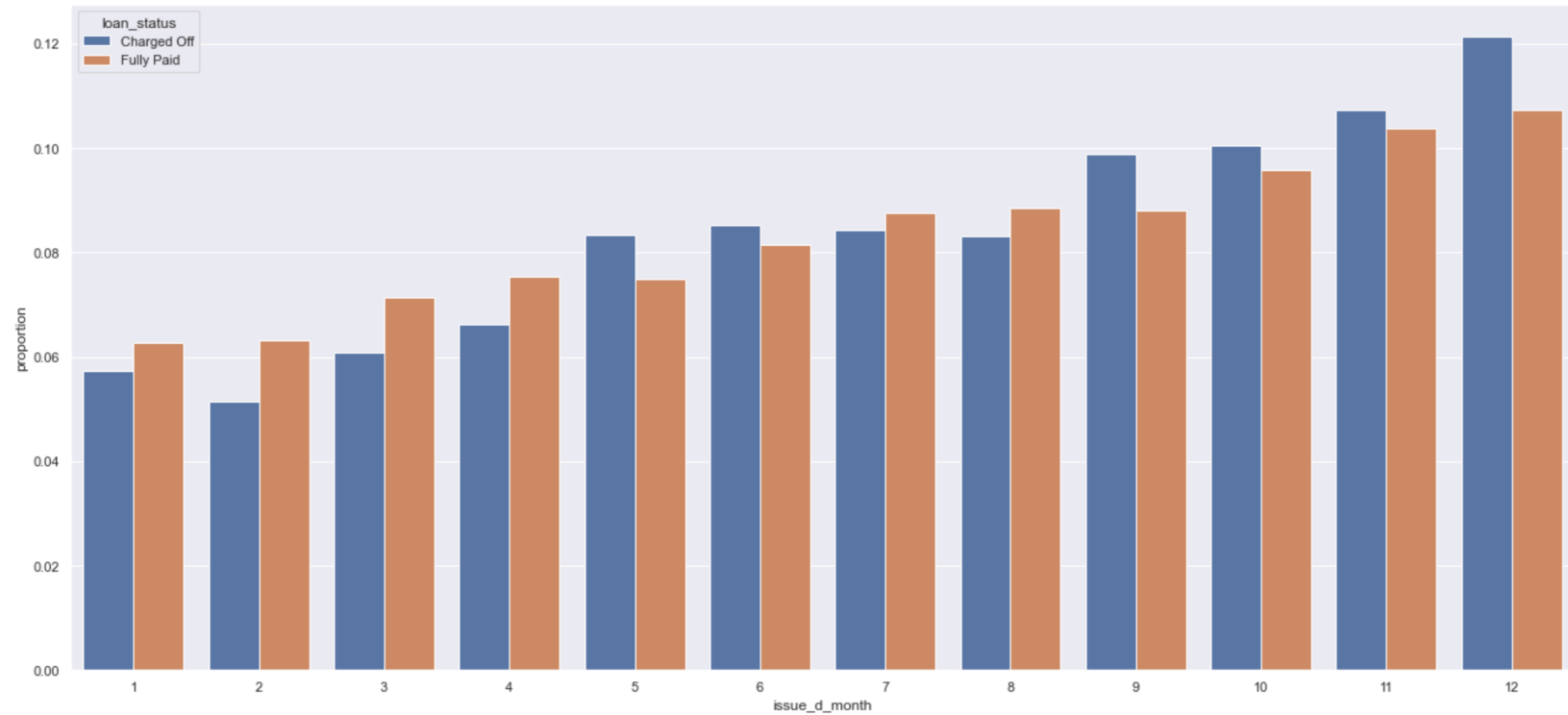
Grade

With increase in annual income the default rate is reducing

Annual income

Loans issued is increasing with each month. The proportion of default ratio is also to an extent.
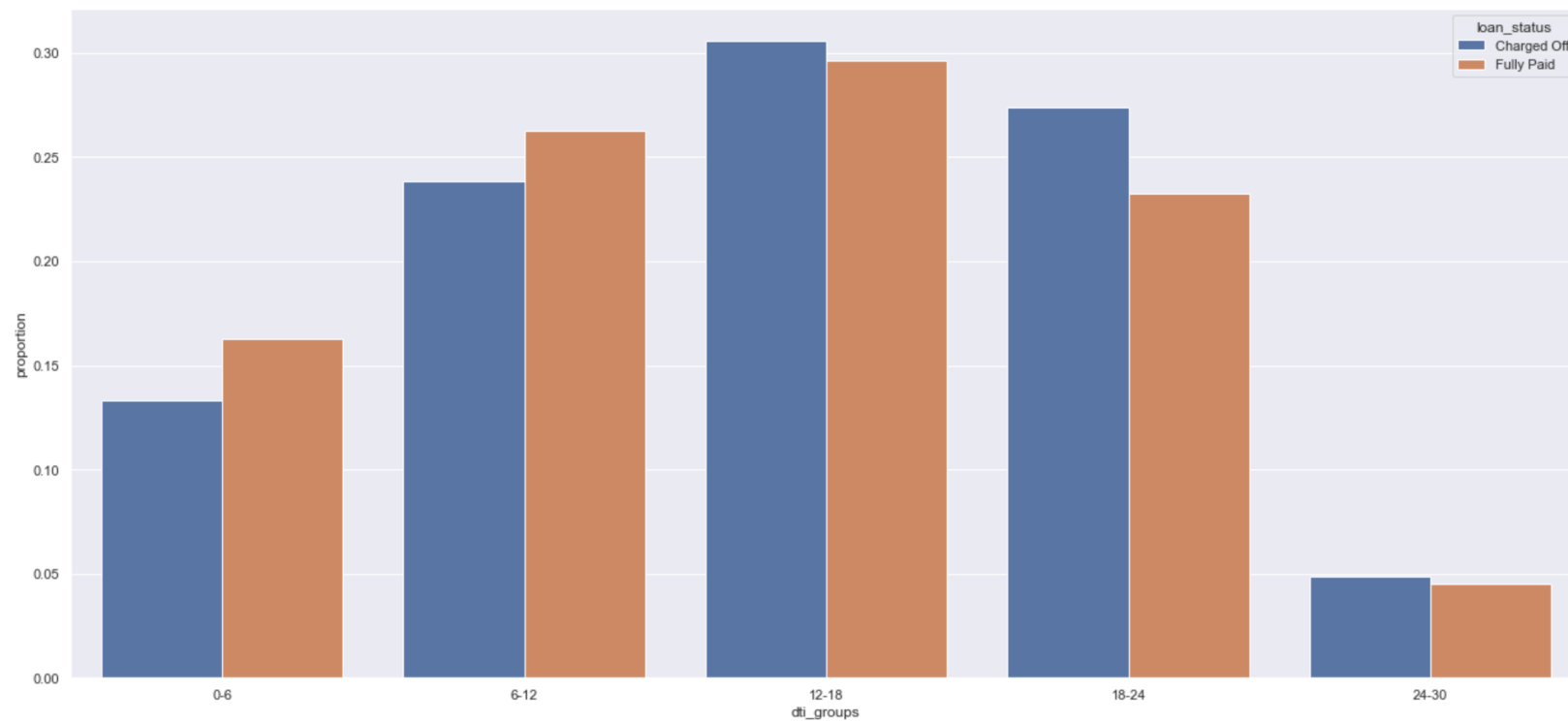
Issue month

Clearly shows that loans taken for debt consolidation, other & small business has a higher chance to default. However, loans taken for credit card, home improvement, car and wedding has lower chance to default
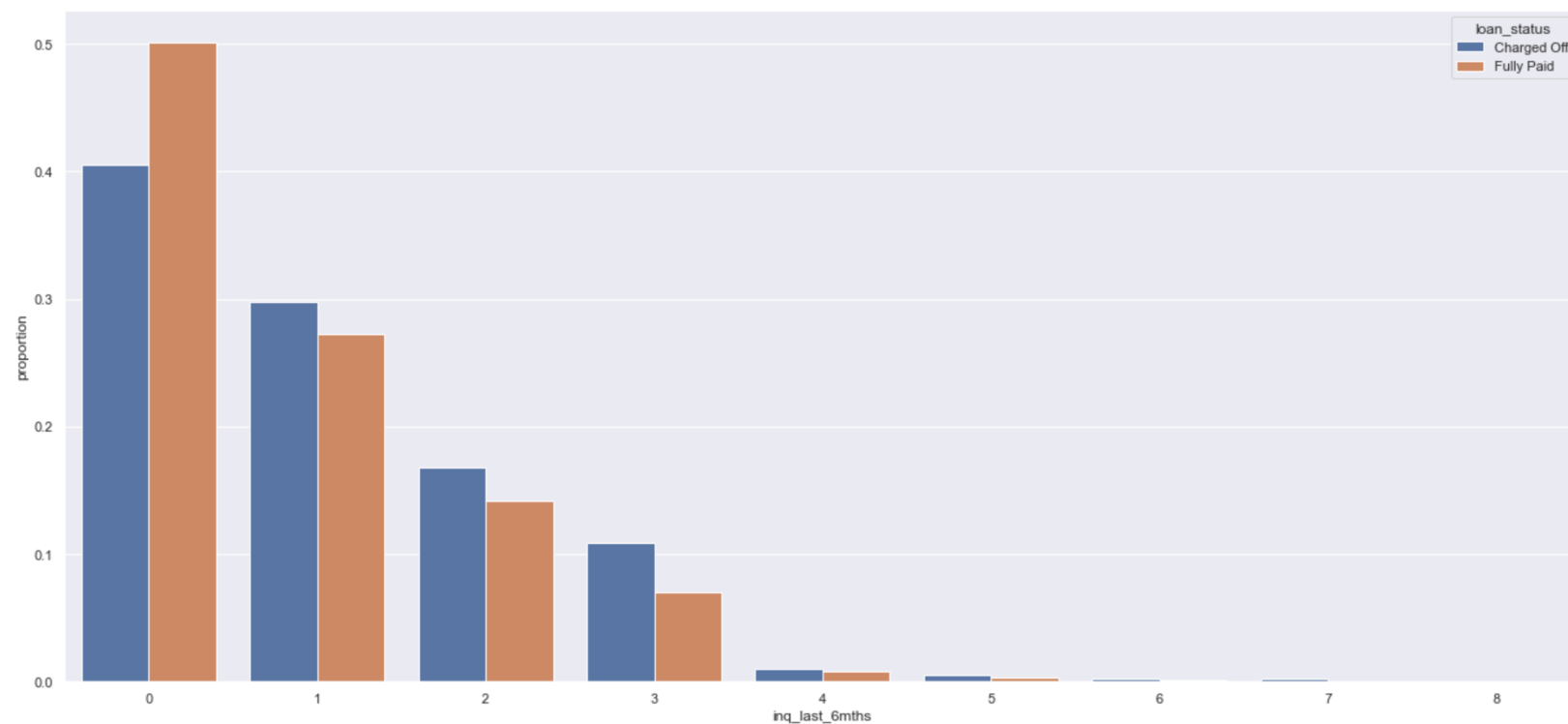
Purpose
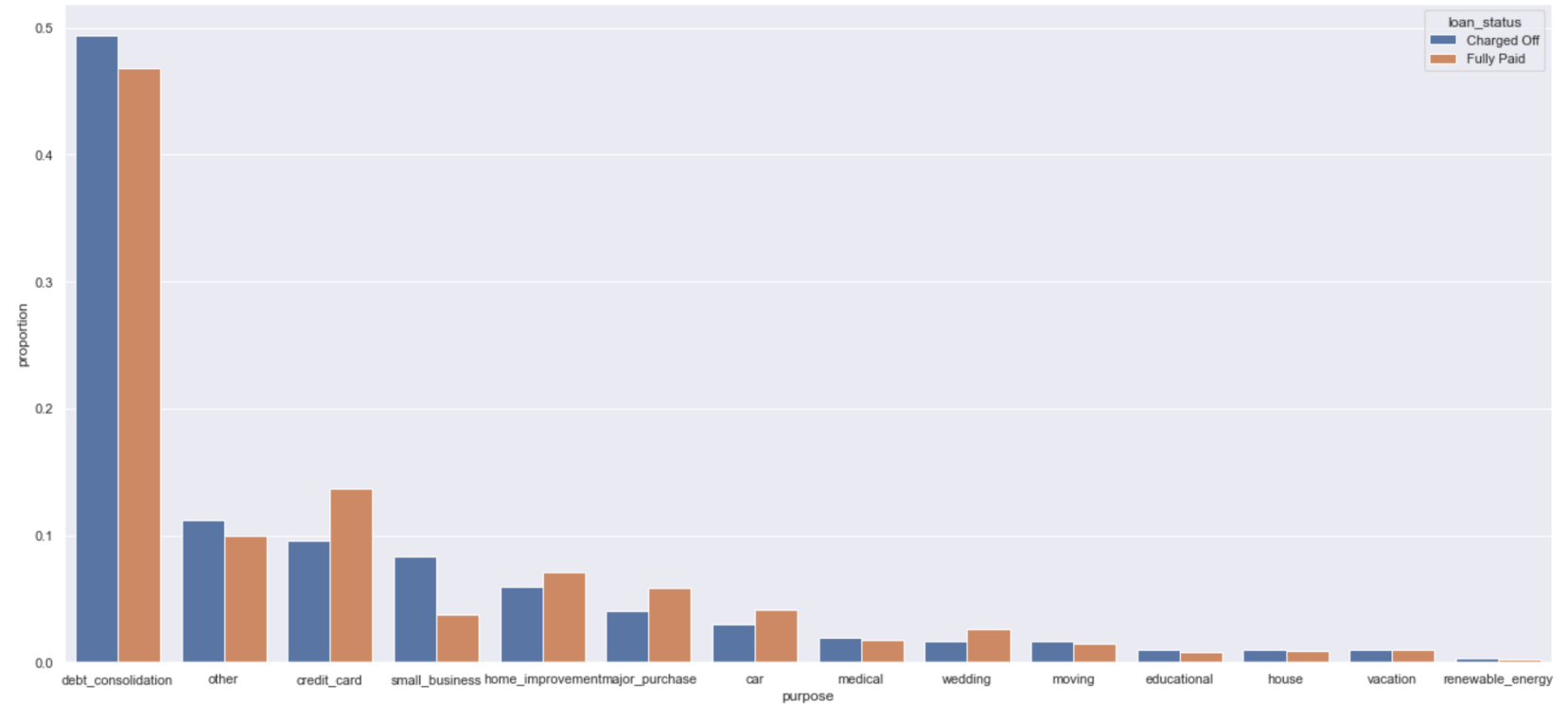
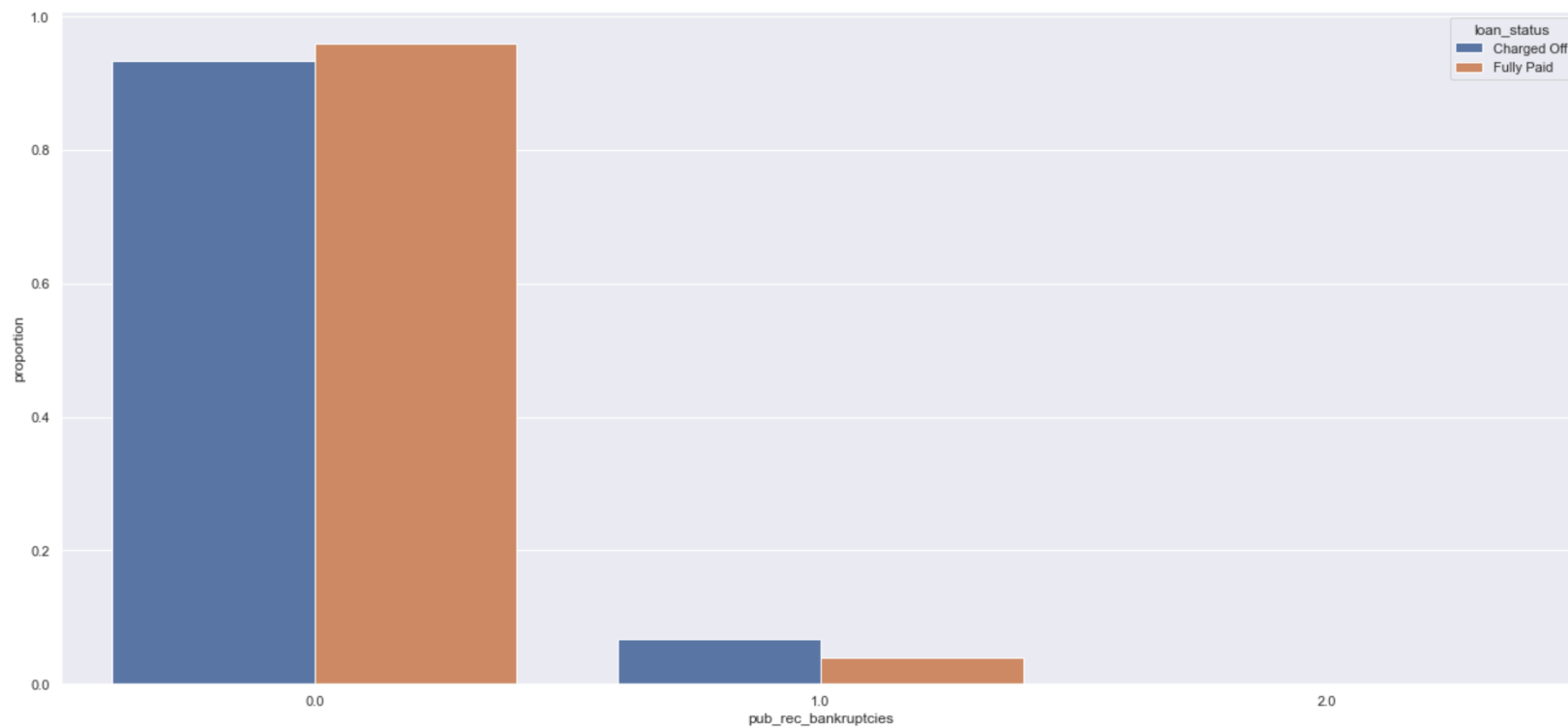With increase in DTI the default proportion is increasing

DTI

Customers with no enquiries have lower default ratio
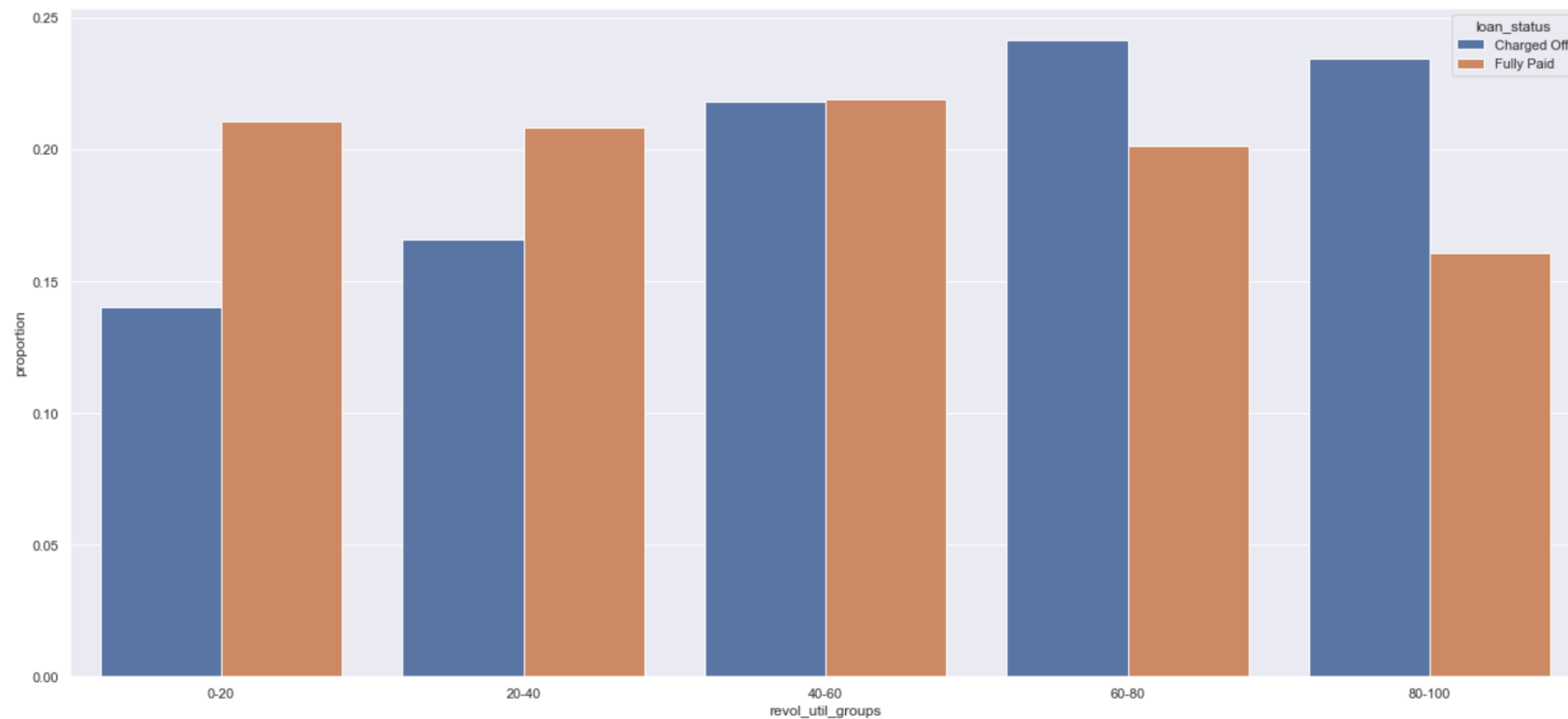
Inquiry in last 6 months

Customers with bankruptcy
have higher default ratio
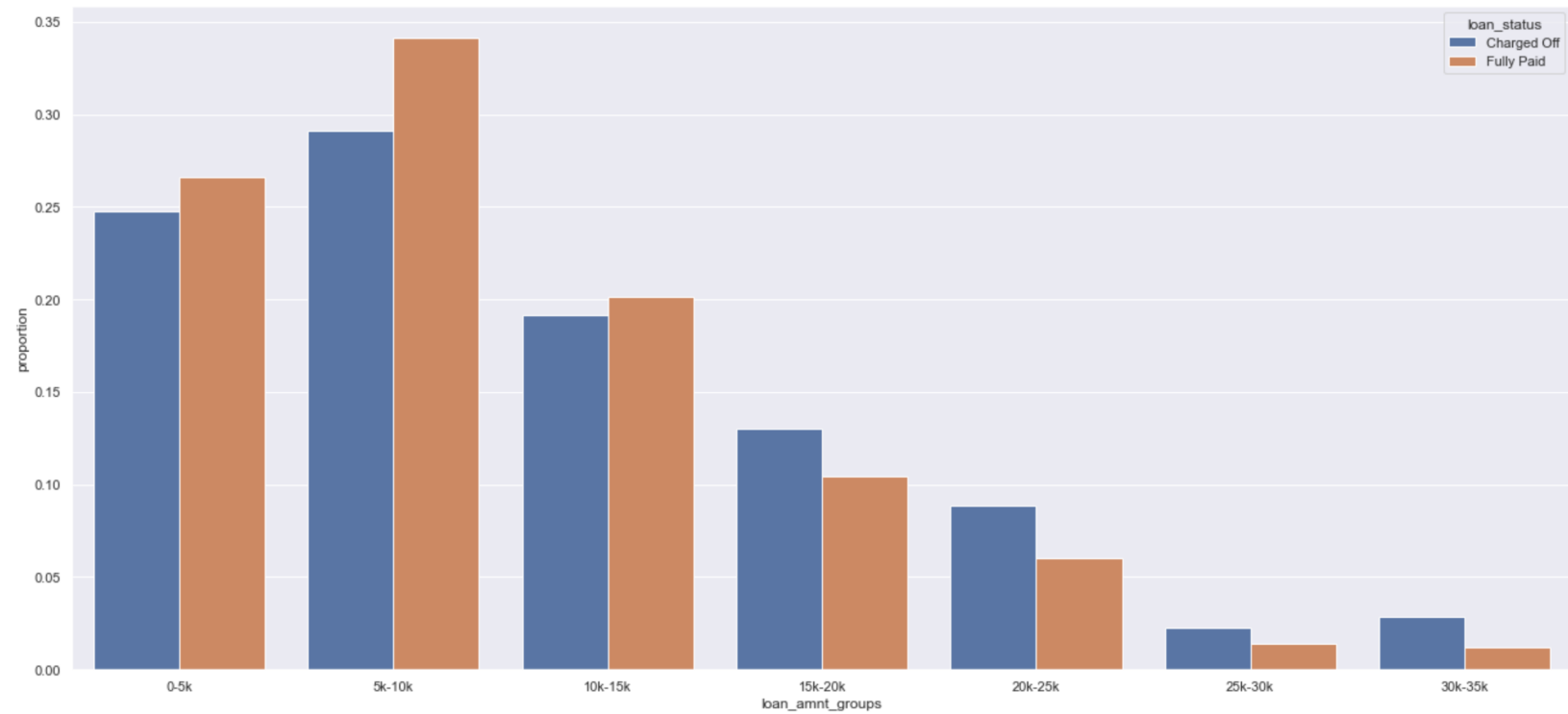
Public record bankruptcy

With increase revol util the default rate is increasing
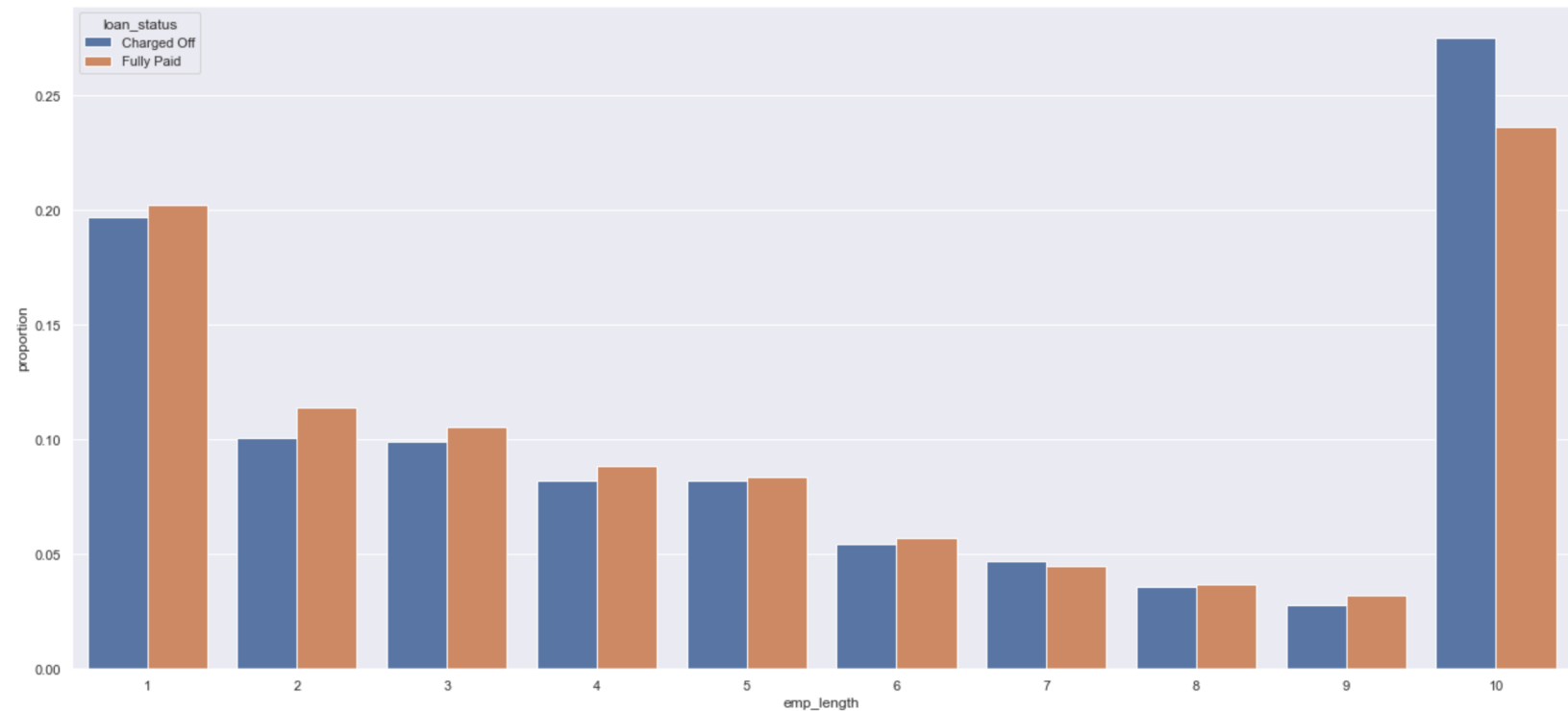
Revolving line utilization rate

Smaller loans are easy to repay – that's what the numbers depict

Loan amount groups

Employees with more than 10 years experience have taken more loans than other groups and seem to have higher default ratio

Employee length

Recommendations

Customers with below characteristics have higher chance to default:

1. Loan amount more than 15k
2. Higher loan duration - 60 months
3. Interest rate more than 13%
4. Lowers grades (lower the grade the more chance to default)
5. Annual income less than 58K
6. Purpose for loan is either debt consolidation, other & small business
7. DTI value greater than 12
8. Having more enquiries in the last 6 months – more credit hungry
9. Have bankruptcy record
10. Whose revolving line utilization ratio is more than 60%
11. Having 10+ years of experience