Lending club case study

Group members

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Objective

Business Objective

To lend loans to borrowers with lower risk through a fast online interface.

This has a challenge like most other lending companies, lending loans to ‘risky’ applicants is the largest source of financial loss (called credit loss).

Objective is to *identify such risky loan applicants at the time of loan application* to reduce the amount of credit loss.

Assignment Objective

We need to *understand the driving factors (or driver variables)* behind loan default, i.e. the variables which are strong indicators of default**.**

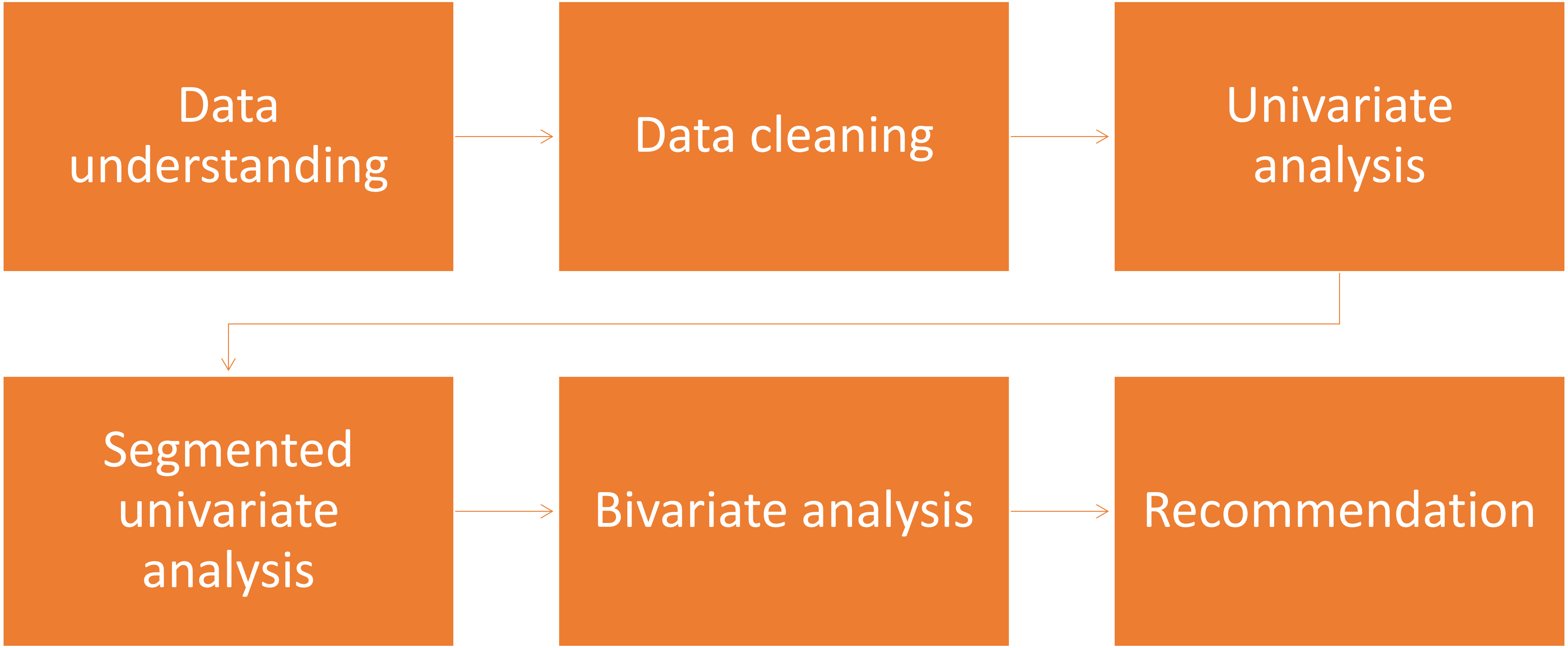
The company can utilise this knowledge for its portfolio and risk assessment in order to minimise the risk of losing money while lending to customers.

Problem statement

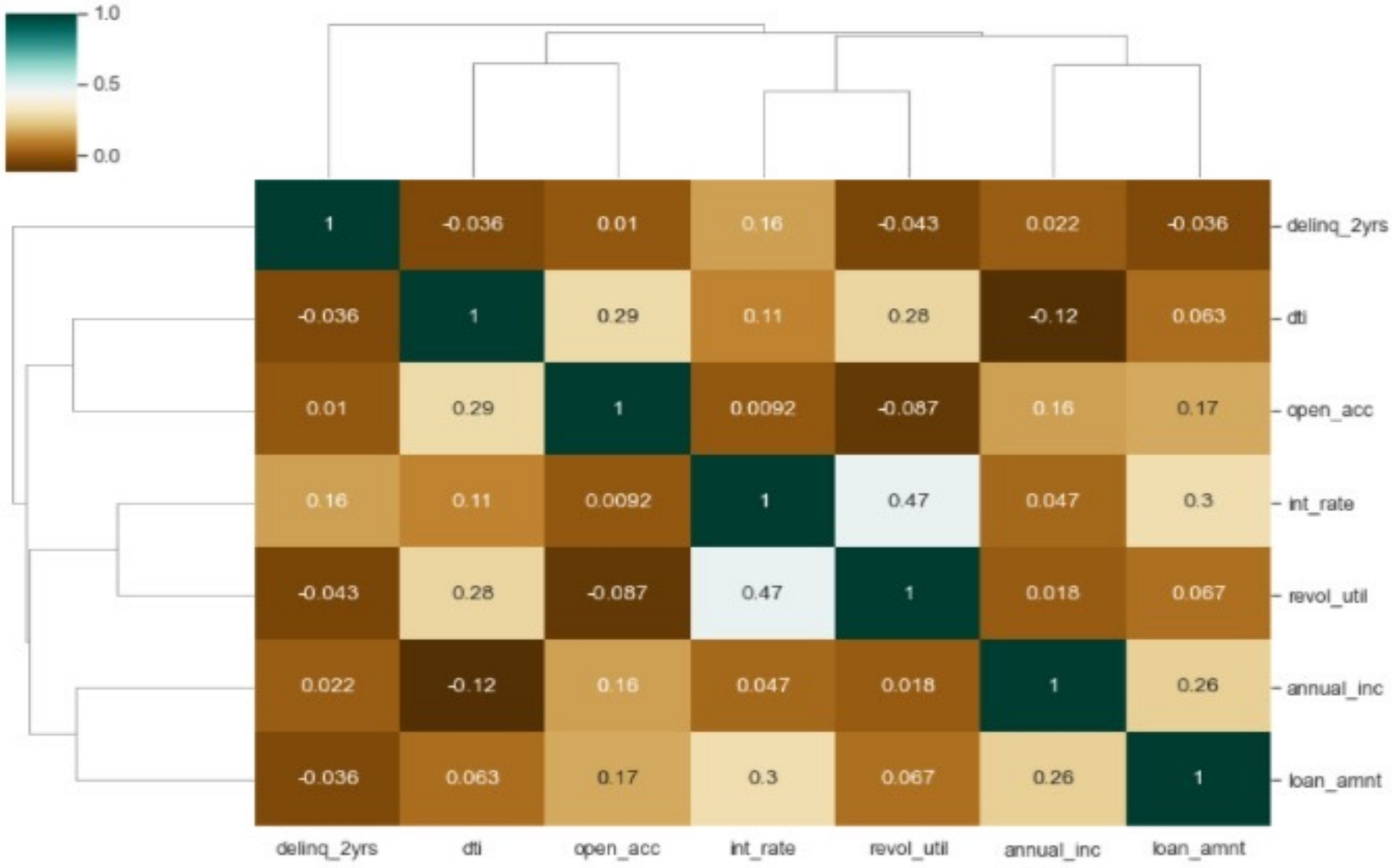
Using Exploratory data analysis, derive the driving factors and inferences on how each attribute / feature indicates the possibility of an applicant being a default using the loan data containing the historic data.

Using this inference, the lending club representative can accept or reject a loan application without causing any financial loss to the company

Approach


Data understanding
Data cleaning
Univariate analysis
Segmented univariate analysis
Bivariate analysis
Recommendation

Correlation matrix



1. Positive correlation:
   a. loan_amount and annual income.
   b. interest rate and revol_util.
   c. dti and open_acc.

2. Negative Correlation:
   a. annual income and dti
   b. delinq_2years and revol_util

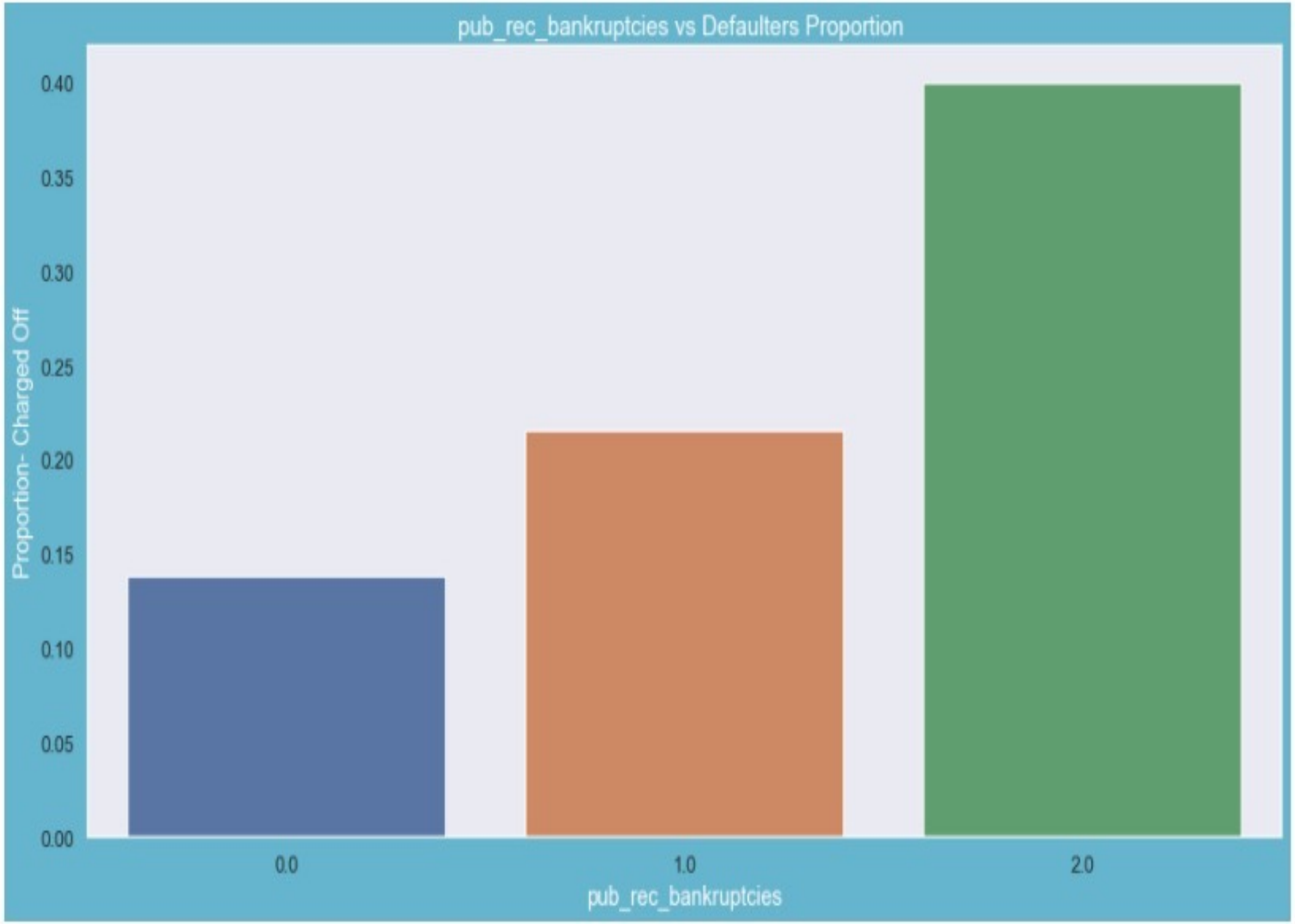
Univariate, Segmented univariate and Bivariate

- We are showing only the required graphs for analysis in this presentation for final analysis and recommendation.

- For more graphs, please refer to the iPynb file in the git hub

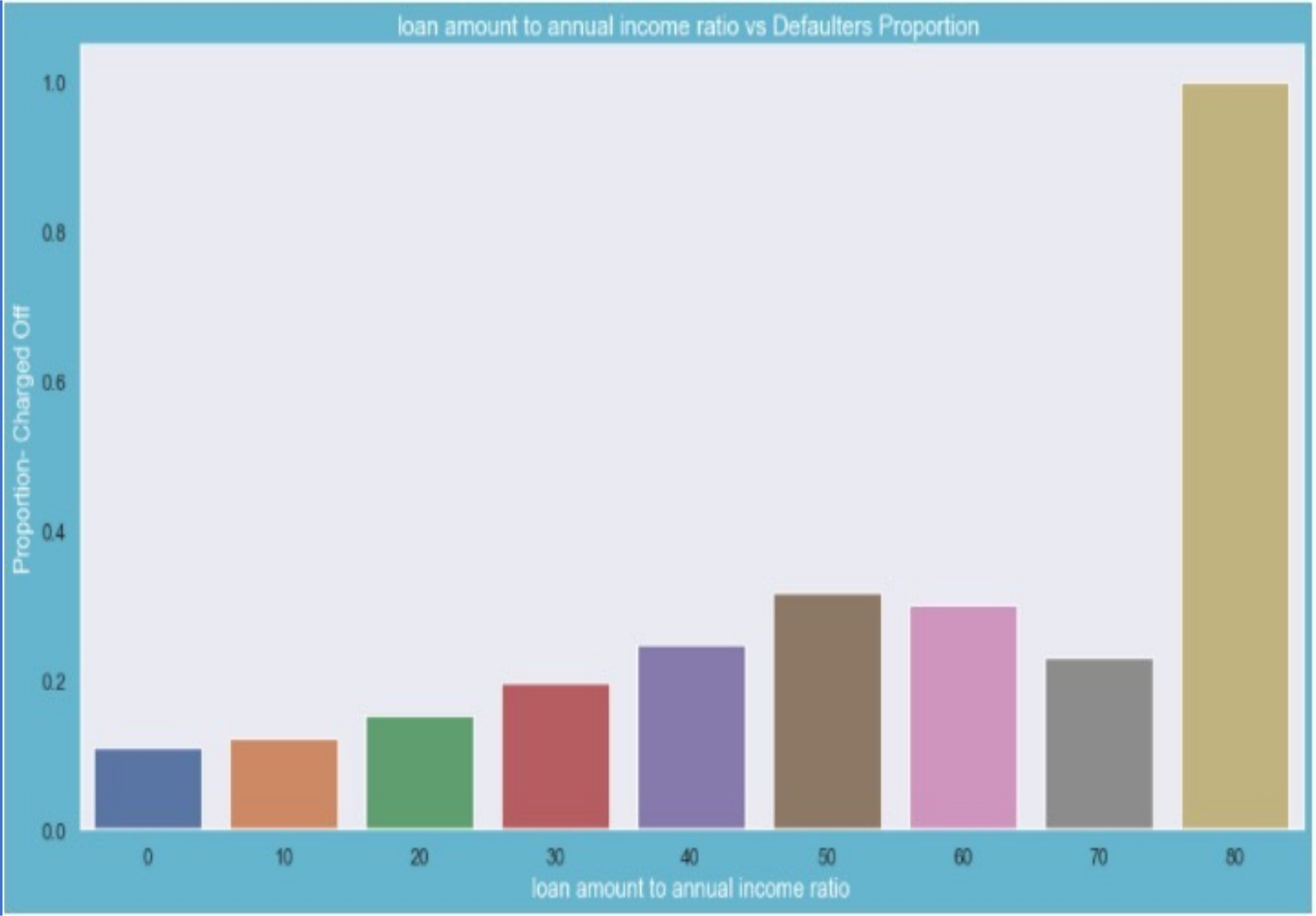
Analysis – Borrowers with bad credit

- Borrowers who have past bad credit history are likely to get charged off.



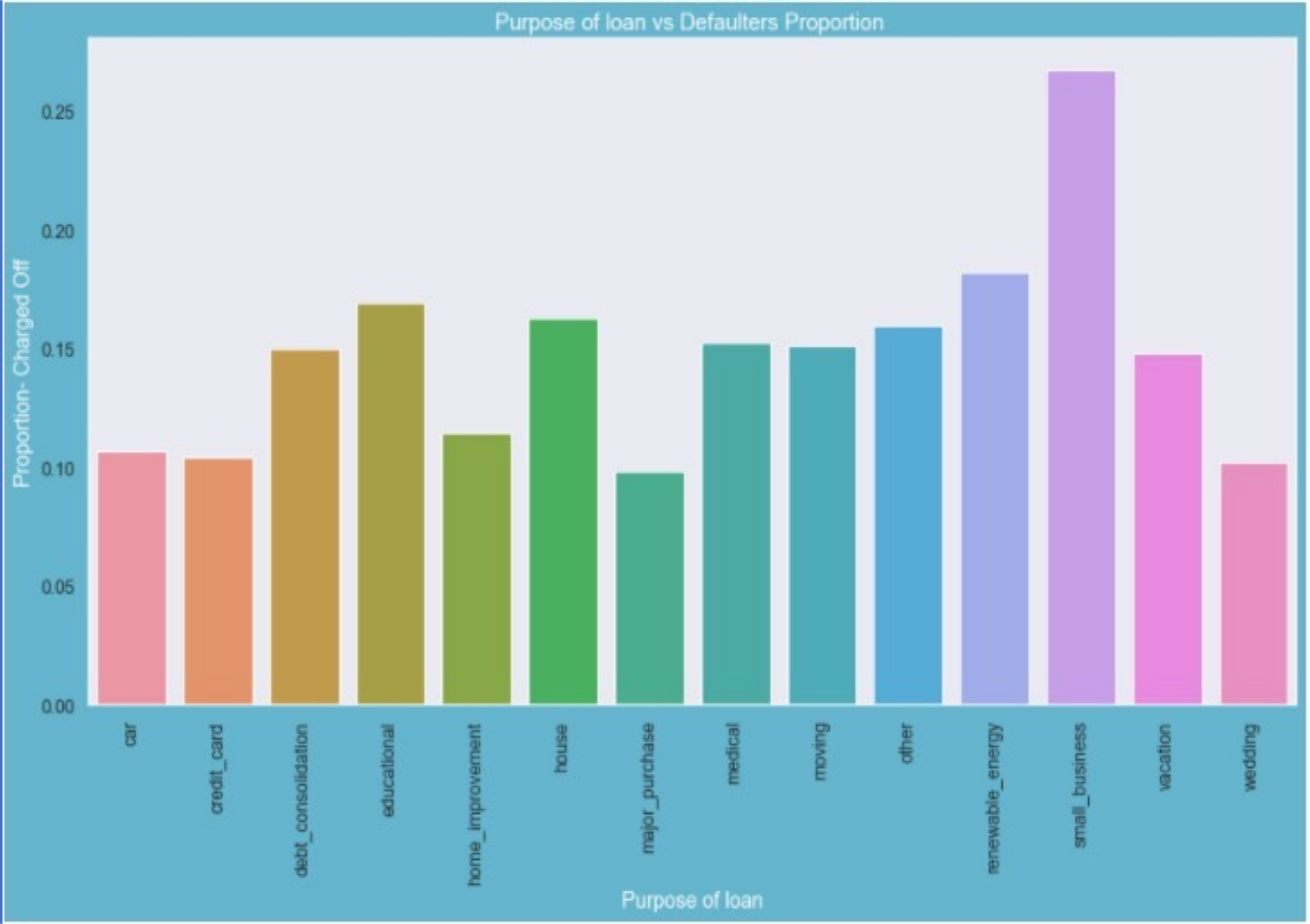
Analysis -

- If the loan amount to income ratio is greater than 30%, the borrower is very likely to default



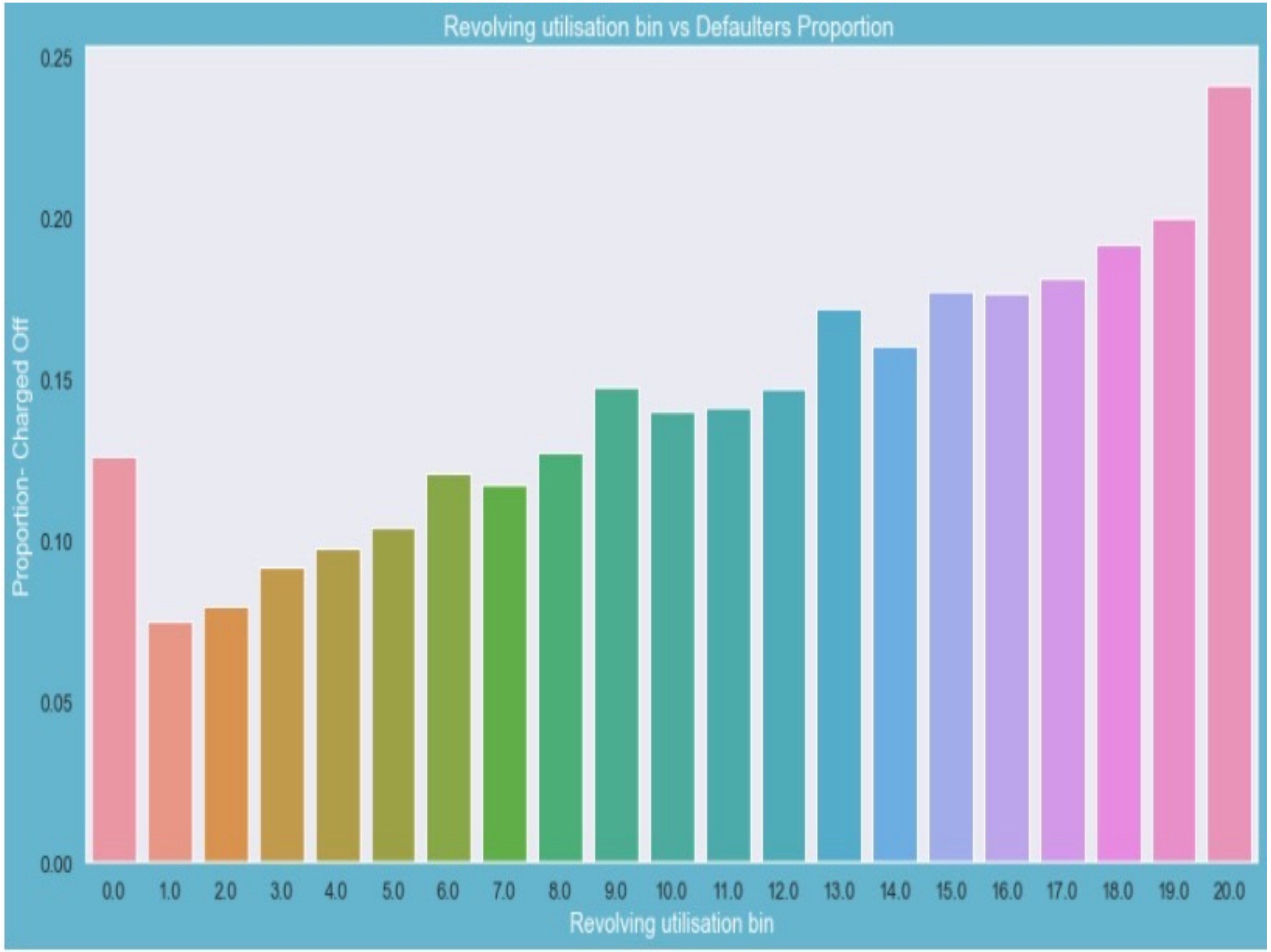
Analysis -

- If the purpose of loan is small business, the borrower is very likely to default



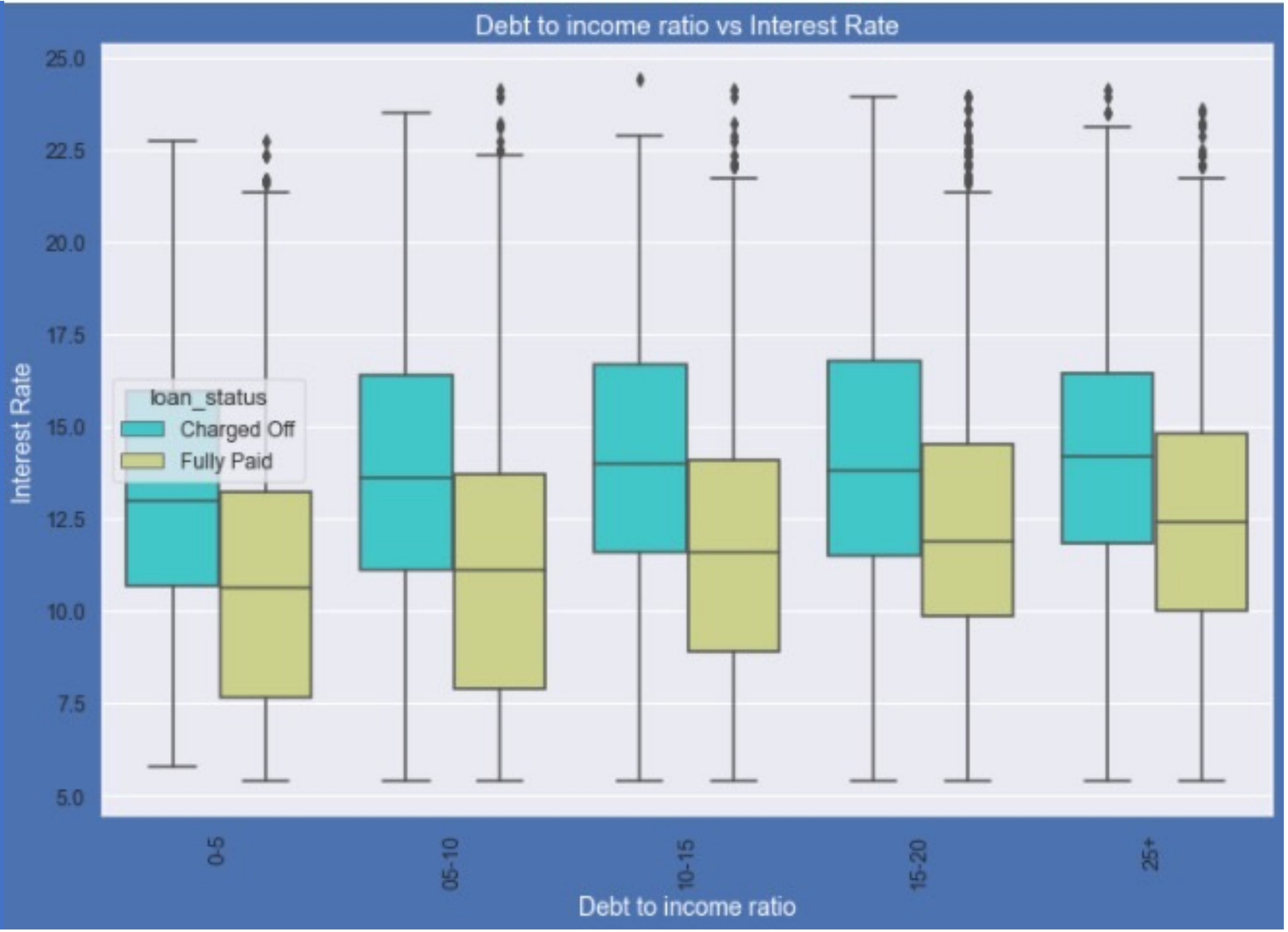
Analysis -

If revolving utilisation ratio is greater than 12, the borrower is likely to default



Analysis -

The dti ratio with lower interest rate is likely to get charged off



Key driver variables

- Term: Charged-off rate increases when term increases.
- Annual Income: Borrowers with lower annual income are likely to default.
- Interest Rate: Charged off rate increases when interest rate increases.
- Purpose: Charged off rate increases when purpose is small business.
- dti: Charged off rate increases when dti increases.
- revol_util: Charged off rate increases when revolve util increases.

Recommendations

1. Reject - If the borrower has a bad credit history i.e. borrower’s with public records bankruptcies > 1.

2. Reject - If the loan amount to income ratio is greater than 30% .

3. If the purpose of loan is small business.

4. If revolving utilisation ratio is greater than 12.

5. Accept - By increasing the interest rate if dti ratio is greater than 15.

End – Thank you