LENDING CLUB CASE STUDY

INSIGHTS AND RECOMMENDATIONS ON LOAN DEFAULT

BY

JAYADEEPAN CR

INTRODUCTION

- What is Lending Club?
  - Lending Club is a marketplace for personal loans that matches borrowers who are seeking a loan with investors looking to lend money and make a return.
- When the company receives a loan application, the company must decide 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
- What is the objective?
  - The 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.
- What dataset is used?
  - Loan dataset that contains the complete loan data for all loans issued through the time period 2007 t0 2011 to be used for analysis.

APPROACH

- Data Understanding
  - Getting insight on the dataset provided and its variables along with the nature of data
- Data Cleaning
  - Data that cannot be utilized to be cleaned by removing null columns and rows that can be removed safely.
- Data Handling
  - Data type conversion and changing the values to usable form
- Data Analysis
  - Performing Univariate, Bivariate and Multivariate analysis on the clean dataset
- Recommendation
  - Based on the analysis recommendations to reduce Loan default to be suggested
  - Presentation to cover recommendation since other parts can be referred from notebook

ASSUMPTIONS

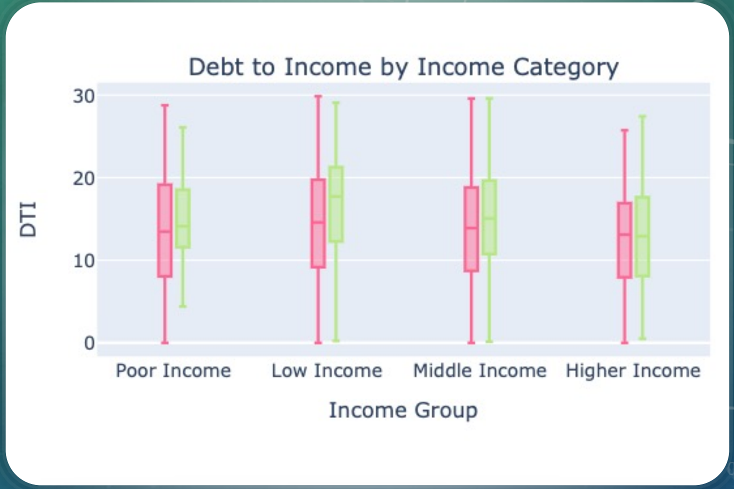
- High Value Loan
  - Investor Funded amount value by top 20% of all the loans granted is considered high value
- High Value Charge Off
  - Loan defaulted belong to the high value loan category
- Employment Category
  - No Info – experience info unavailable
  - Junior – 0 to 3 years of experience
  - Mid Level – 4 to 8 years of experience
  - Senior – Above 9 years of experience
- Income category (obtained from Georgia Washington University research)
  - Poor Income – Less than 32K
  - Low Income – Less than 55K
  - Middle Income – Less than 100K
  - High Income – Greater than 100K

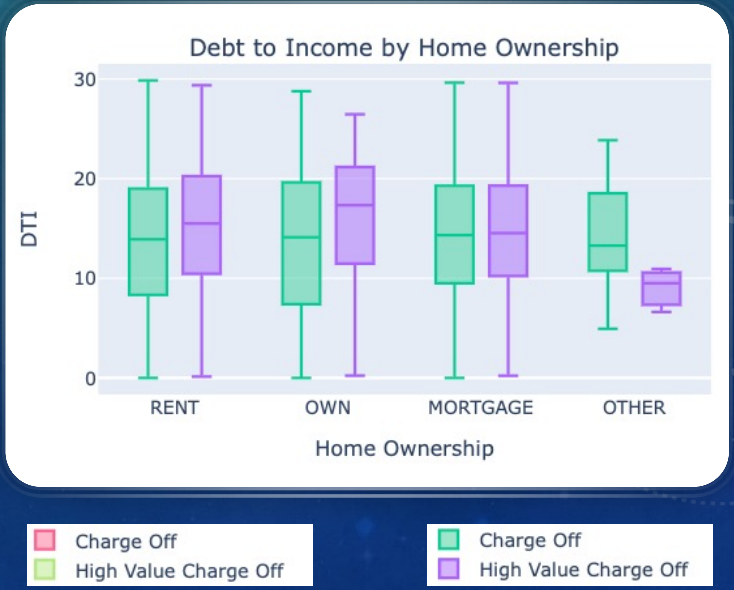
RECOMMENDATION - 1

Debt to Income Ratio is major driver for default

DTI ratio above 20 has very high value loans charged off

Hence it is recommended to not to grant loans above dti ratio of 20.



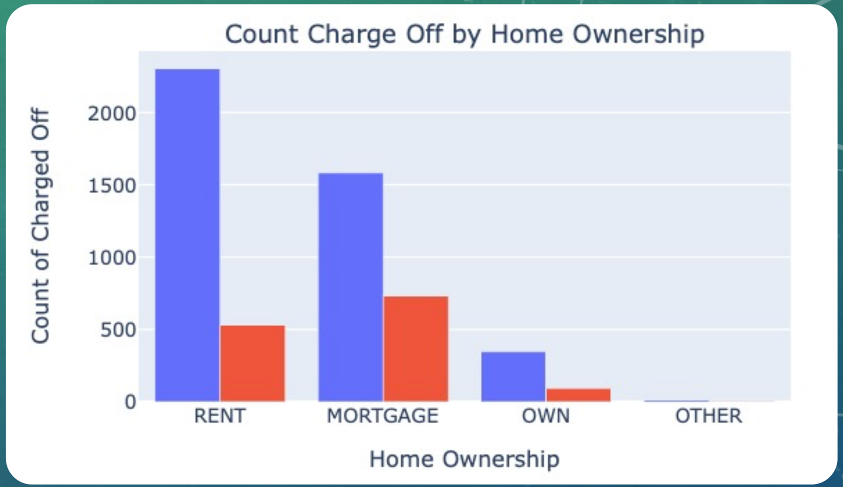


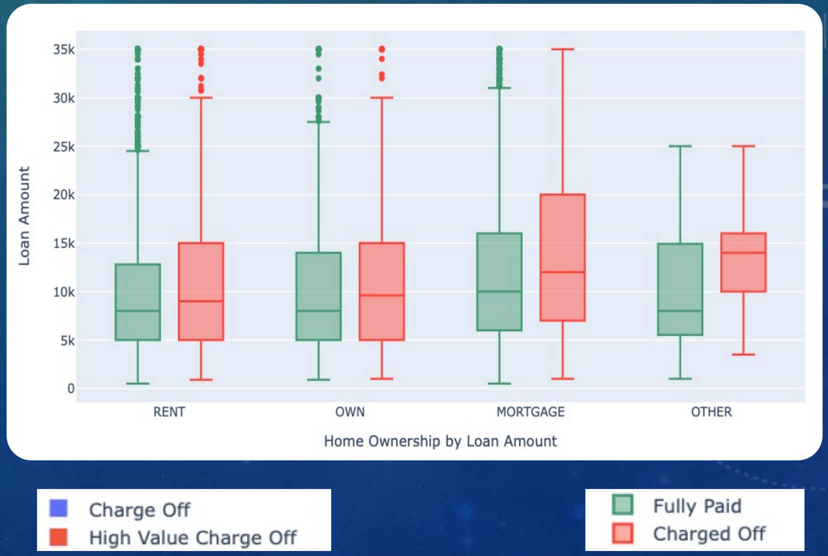
RECOMMENDATION - 2

Homeowners with Mortgage default the high value loans

Around 30% of charge-off comprises of high value loans.

Hence it is recommended to reduce the funded amount by investor to the requested loan amount for Borrowers with Mortgage



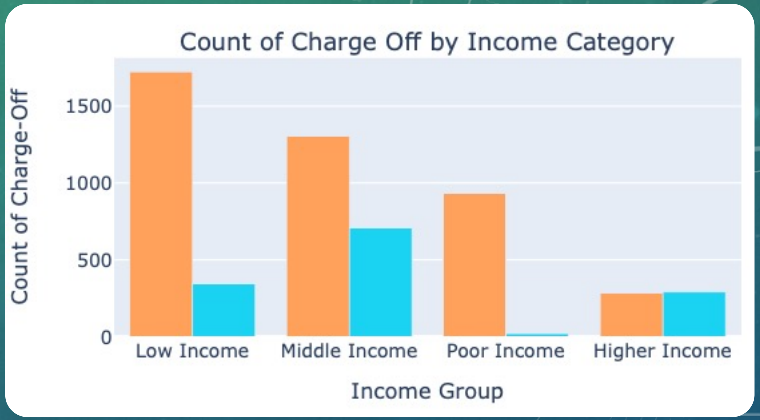


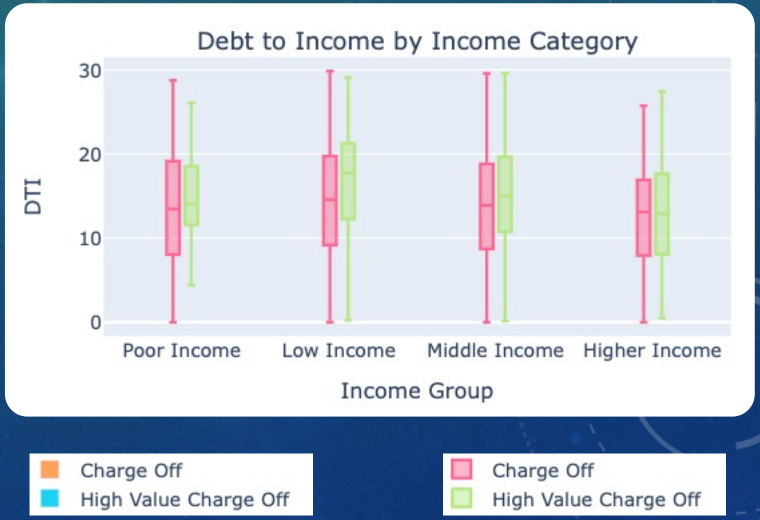
RECOMMENDATION - 3

Low Income Group has the greatest number of default

Poor Income group has the highest ratio of default to paid with DTI to default observation of very high default above 15

Recommended to grant loans only dti ratio less than 15 and whose income is verified to Low-Income and Middle-Income group to reduce default.



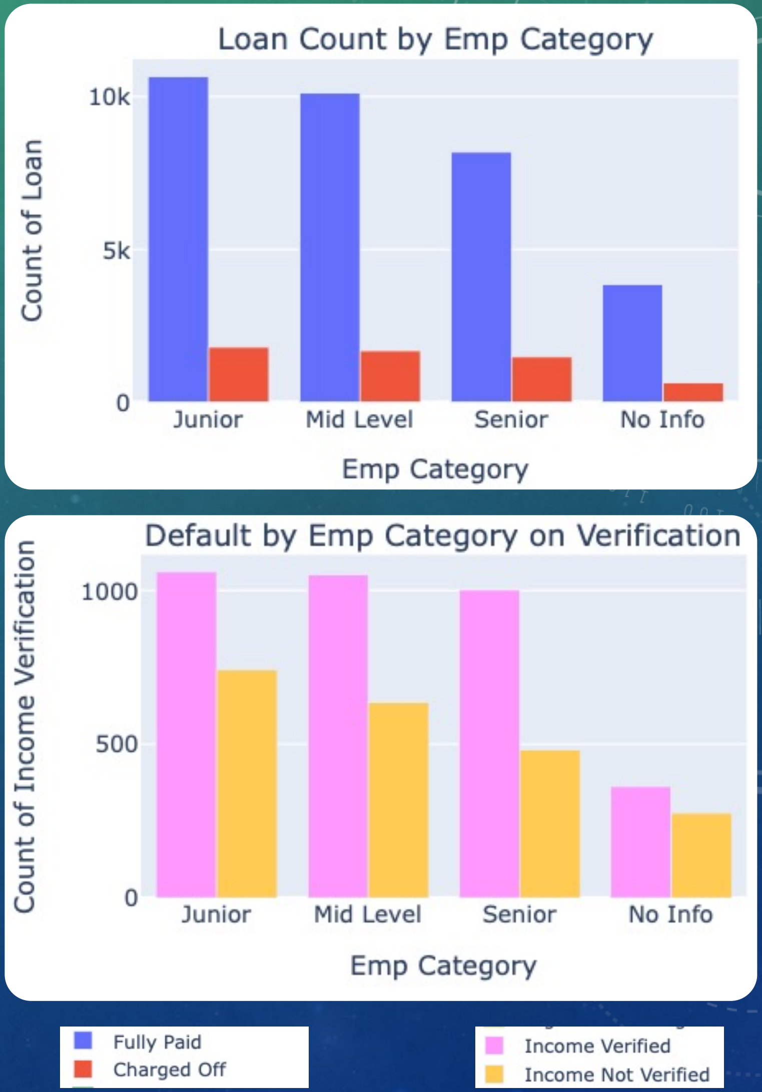


RECOMMENDATION - 4

Employees with less than 3 years of experience has the greatest number of default

Loan default of Junior employees fall into high not verified loans to default ratio

Recommended to grant loans only Junior employees whose income is verified.

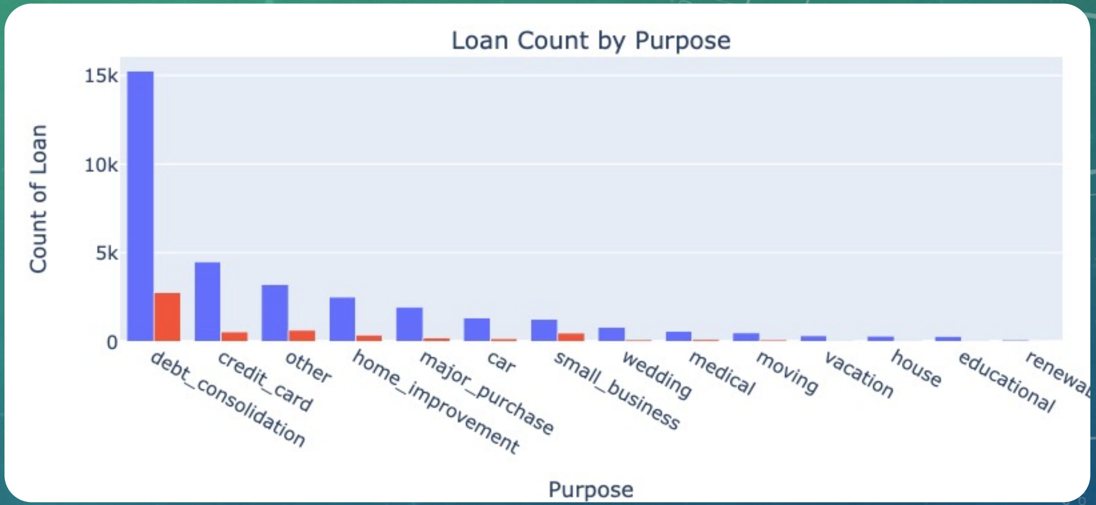


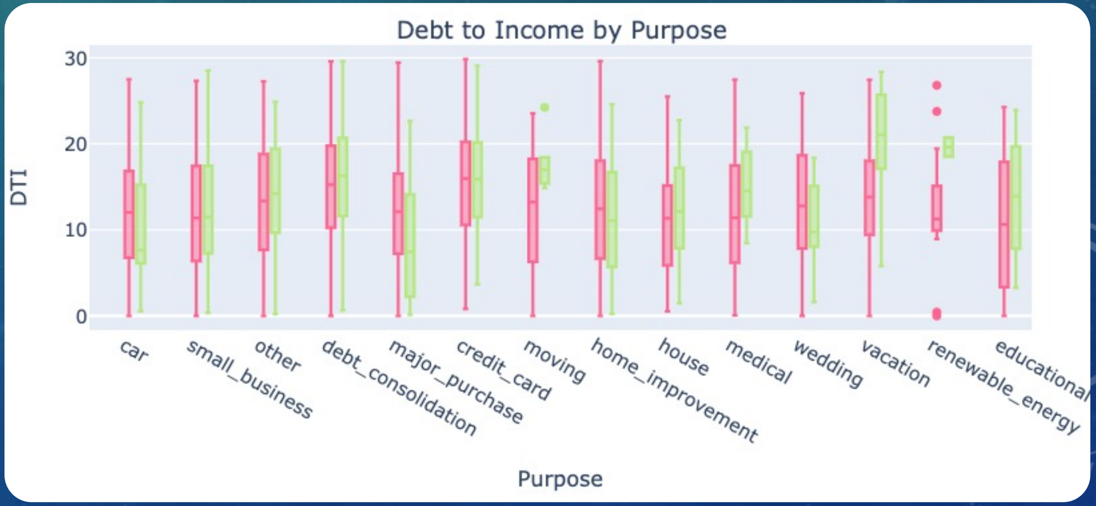
RECOMMENDATION - 5

Debt Consolidation and Credit Card are the most defaulted **purpose** of loan. Small business has the most loan default to paid ratio.

Credit card, Debt consolidation and small business have maximum high value loan charge-off above DTI 15

Recommended to grant loans only to dti less than 15 for purposes Debt Consolidation, Credit Card and small business.



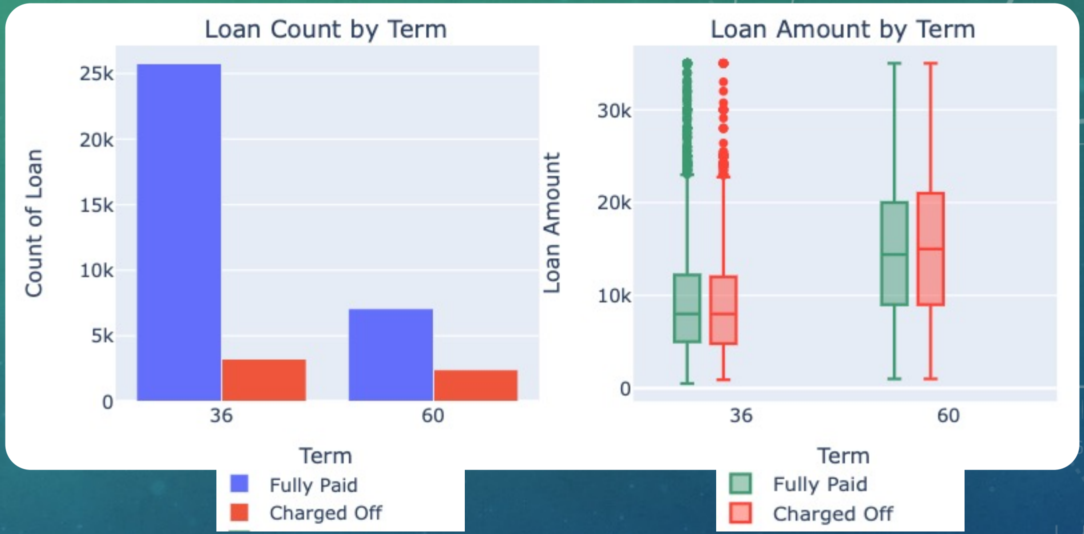


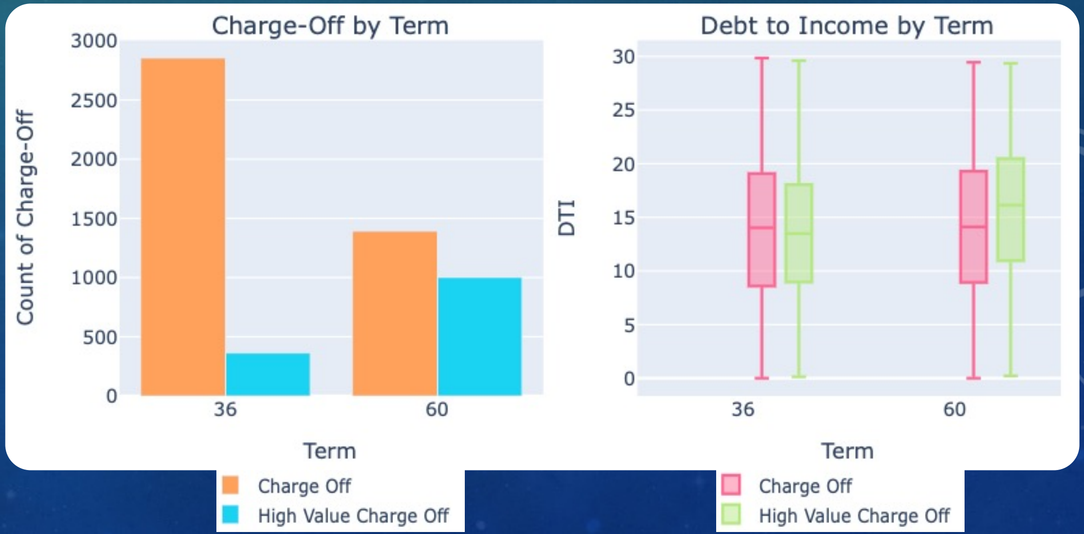
RECOMMENDATION - 6

25% of 60 months tenure loans are defaulted which makes it a very high-risk category

Around 40% of default in 60-month term is High value. Debt to Income above 15 for 60-month term is very risk category considering 25% of this category is defaulted

Recommended that Borrowers with DTI less than 15 to be granted of 60-month term loans since above that there is very high default



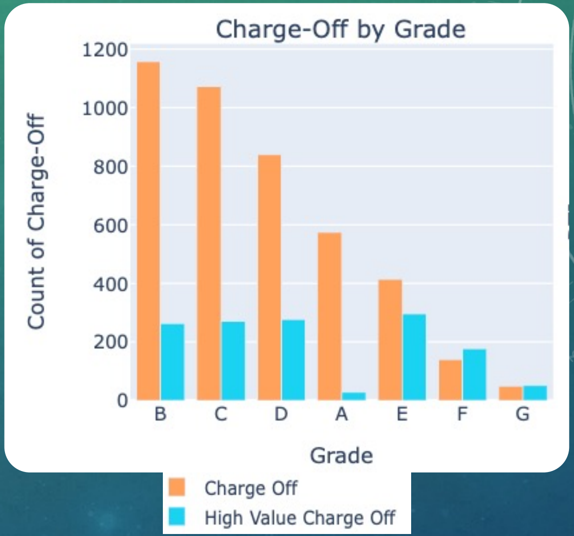


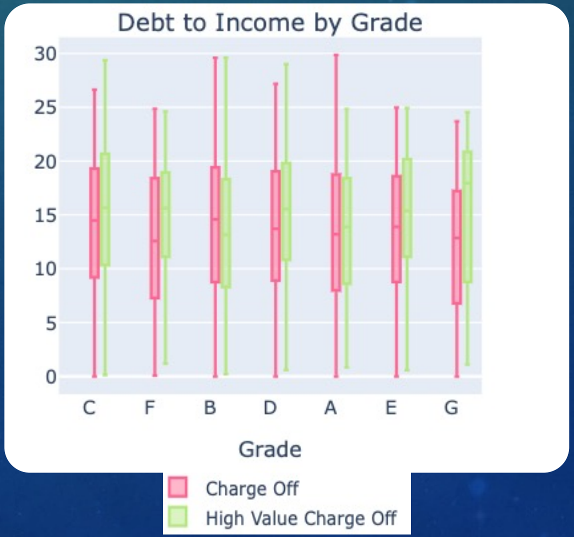
RECOMMENDATION - 7

Grade E,F,G categories default the most in High value loans

DTI ratio above 15 has very high default ratio

Recommended to grant only to dti less than 15 and whose income is verified.





Thank You