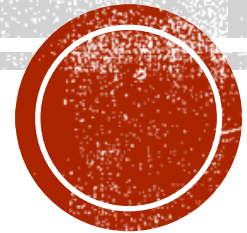# LENDING CLUB CASE STUDY

August-2022

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PROBLEM STATEMENT & OBJECTIVE

- LC grants loans to applicants for various , tenure, purpose, amount and interest rates.

- Some of the applicants are observed to be defaulting in paying off the loan which causes loss of business to LC.

- If one is able to identify these risky loan applicants, then such loans can be reduced thereby cutting down the amount of credit loss.

- Identification of such applicants using EDA is the aim of this case study.

ANALYSIS APPROACH

- Data cleanup
  - Identifying missing/null values and removing columns containing 80% of null/missing values.
  - Identification and removal of irrelevant columns.
  - Standardization of dataset
    - Filling null and missing values.
    - Cleaning up (removing %, converting categorical data to numeric (emp_length was changed from "10 years"-> 10))

- Data Analysis
  - **Univariate Analysis** – Relevant columns independently were analyzed to detect any outliers.
  - **Bivariate Analysis** – Columns in relation to other columns were analyzed to find correlation with Loan status being "Charged Off".
  - **Multivariate Analysis** – Here multiple (3) variables were analyzed to identify correlation with Loan status being "Charged Off".
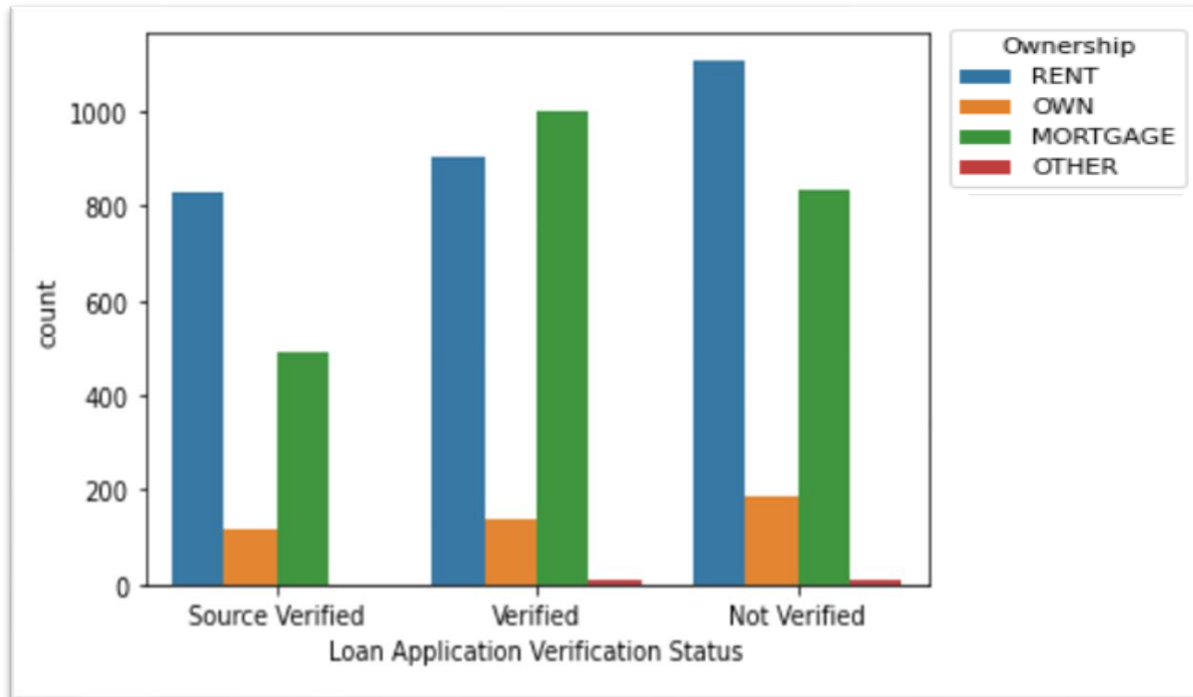
OBSERVATION

- Observation of individual parameter on loan status.
  - Interest rate between 14% and 17% tend to be defaulters.
  - Loan amounts between 5K and 10K show the trend for defaulters.
  - Loan tenures of 36 months tend to default more.
  - People on RENT are risky for defaulters
  - Verification status as "Not Verified" have some chance to default.
  - Grade B loans are probable to default
  - Sub grades A3,A5,D5,A2 tend to be defaulters.
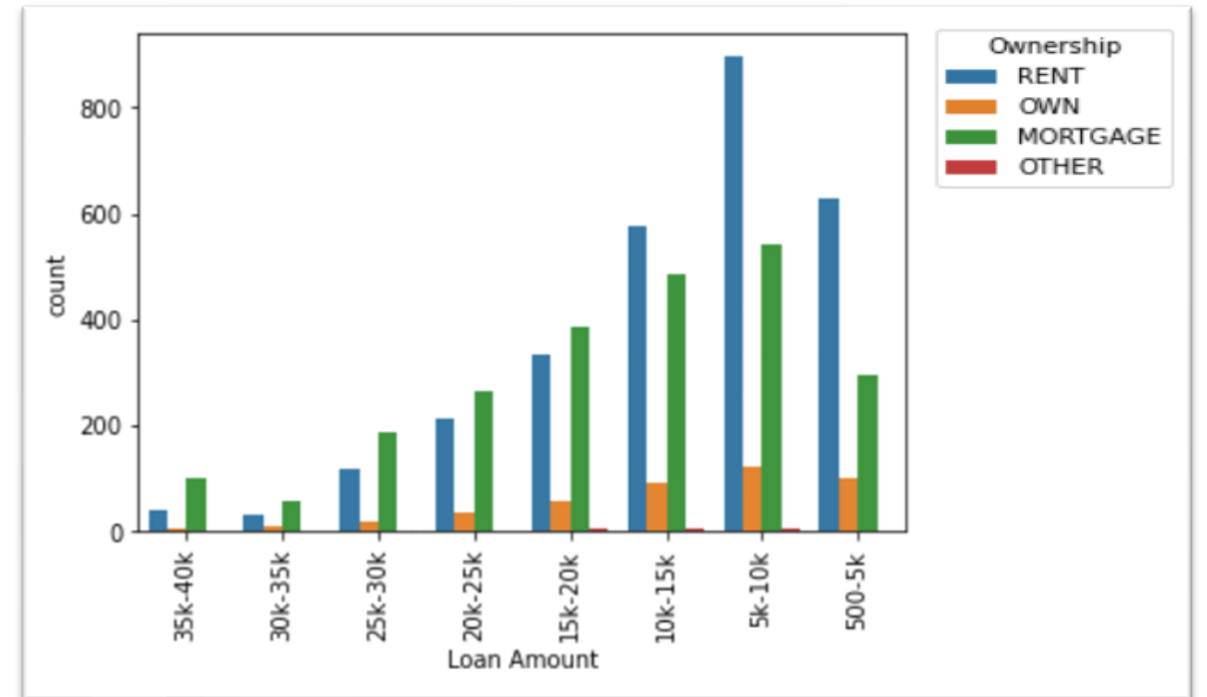 - DTI in range of 10 and 20 is little risky

OBSERVATION

Below graphs show the relation of various parameters in relation to loan status being "Charged Off"

1.Combination of Verification Status, Home Ownership and Loan Status.

2. Loan Amount and Home Ownership and Loan Status.

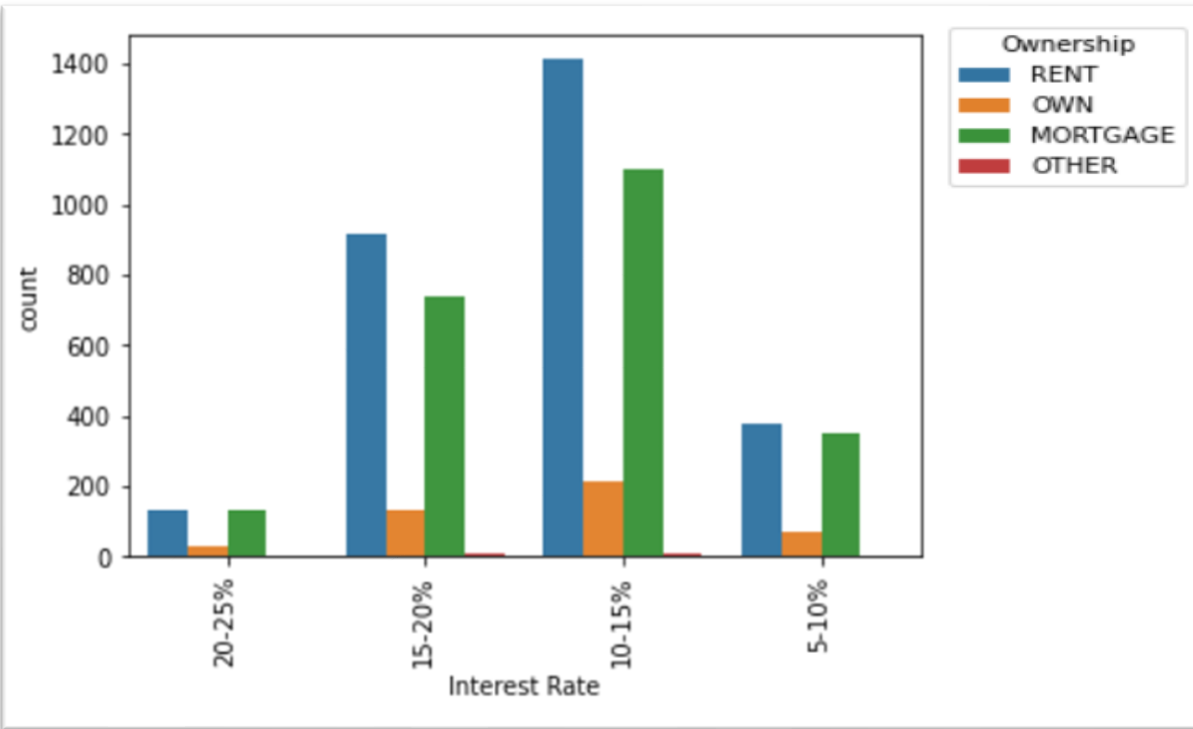Analysis - Not Verified with house ownership as RENTED is not good.

Analysis - Loan Amount between 5k-10k taken when house ownership is RENT is a risky loan.
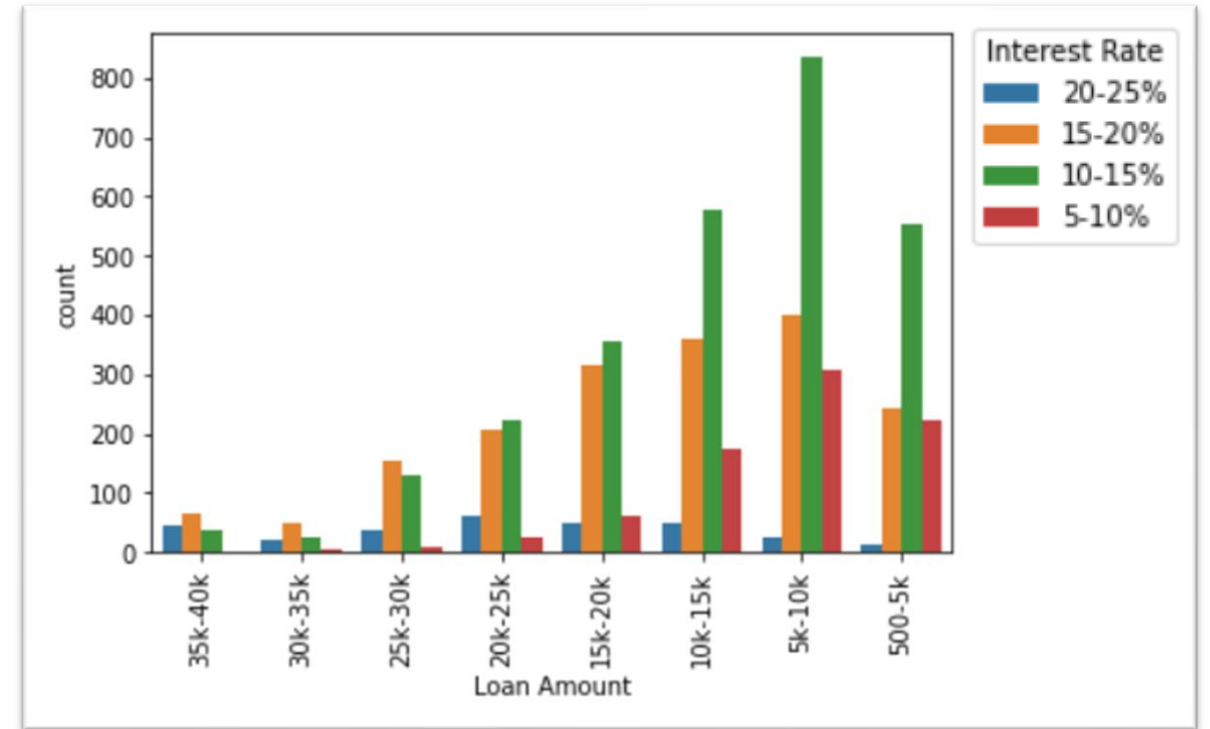
OBSERVATION

3. Interest Rate and Home Ownership and Loan Status.

4. Loan amount and Interest and Loan Status.

Analysis - Loans of 5-10k amount and interest rate between 10-15% can cause default loans.
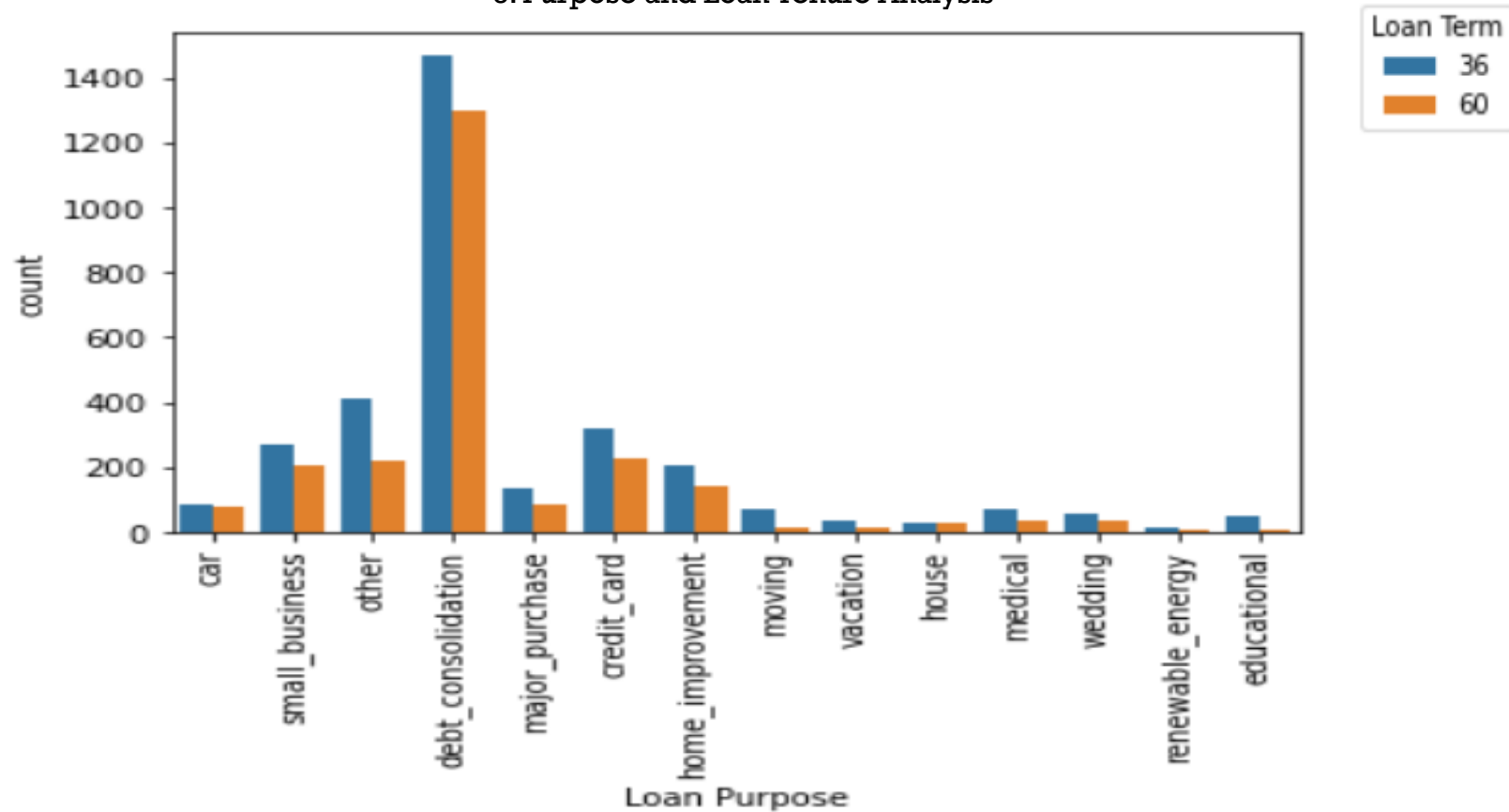
Analysis - Loans of 5-10k amount and interest rate between 10-15% can cause default loans.

OBSERVATION

5. Purpose and Loan Tenure Analysis

Analysis - People taking 36 months loan for debt_consolidation are defaulters.

OBSERVATION

- Observation of multiple(2) parameters in relation loan status.
  - 'Not Verified' with house ownership as RENTED is not good.
  - Loan Amount between 5k-10k taken when house ownership is RENT is a risky loan.
  - House ownership as RENT taking loan with interest rate between 10-15% can cause default loans.
  - People taking 36 months loan for debt_consolidation are defaulters.
  - Loans of 5-10k amount and interest rate between 10-15% can cause default loans.

RECOMMENDATION

- House ownership being RENTED should be verified properly.

- House ownership being RENTED and loan amount 5-10k also should be consider carefully.

- Loan tenures of 36 months and the type of the loan taken for should be well scrutinized.

- Grade B loans need good verification.

- DTI in range 10-20 should be well scrutinized.

- LC should ensure all applicant status are "Verified".