LENDING CLUB CASE STUDY

CONTRIBUTORS

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PROBLEM STATEMENT

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: 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.
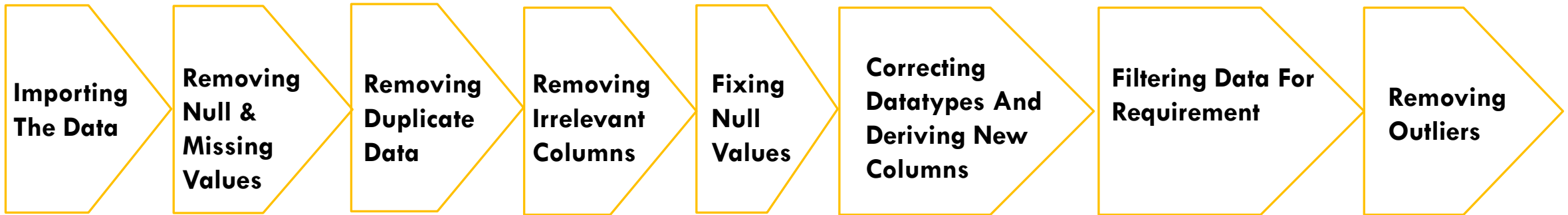
OBJECTIVE

The main objective of this case study is to implement the EDA technique on a real time problem and understand the insights.
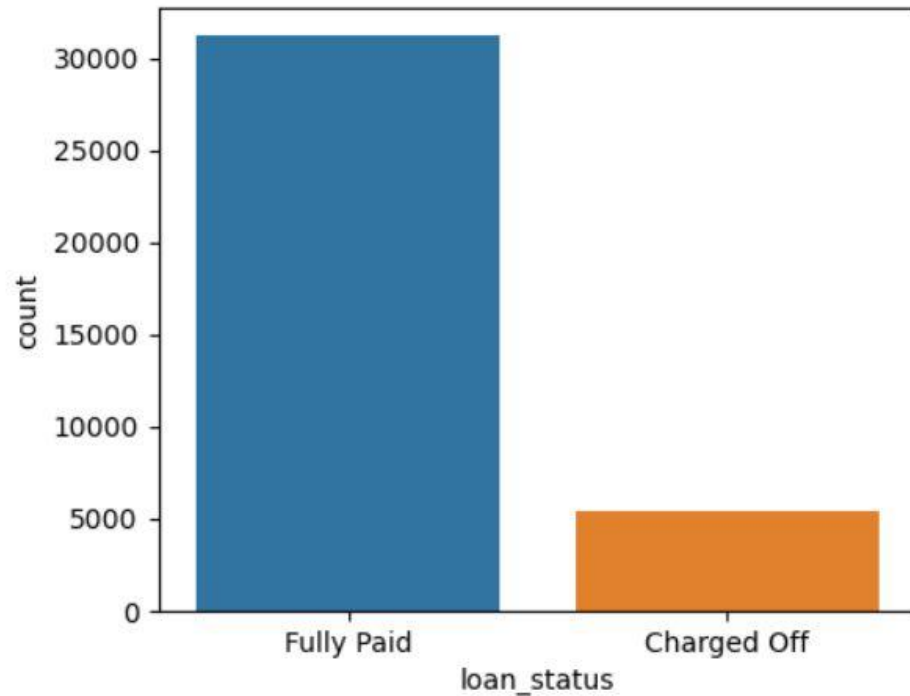
Benefits of the case study:

❖Gives idea about how EDA is used in real time business problems.

❖It also helps in develops in a basic understanding of risk analytics in banking and financial services.

❖It improves the understanding the visualisation of the data and use of charts for real life data.

DATA SOURCING AND DATA CLEANING

Importing The Data → Removing Null & Missing Values → Removing Duplicate Data → Removing Irrelevant Columns → Fixing Null Values → Correcting Datatypes And Deriving New Columns → Filtering Data For Requirement → Removing Outliers
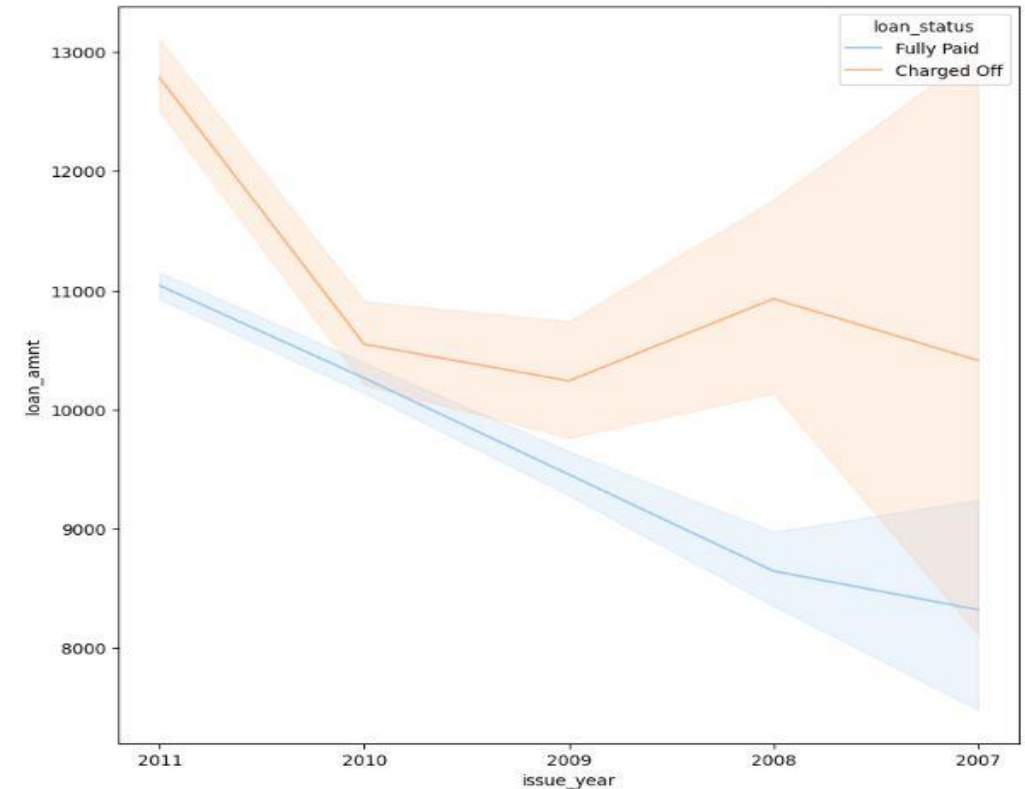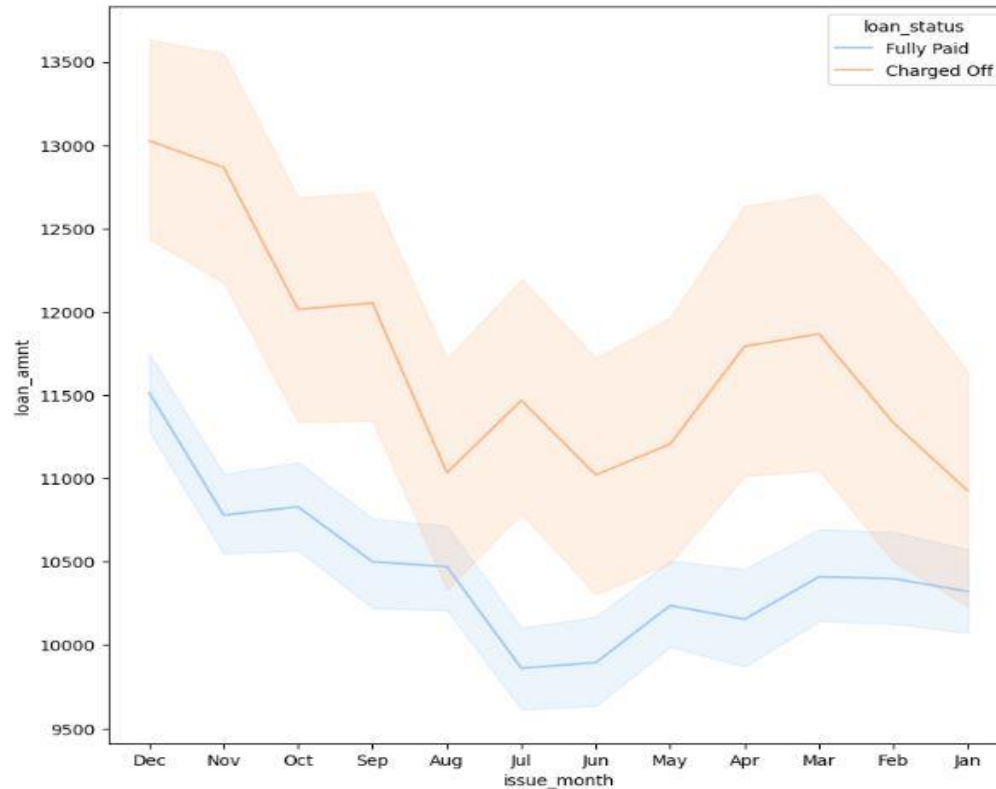
LOAN STATUS AND TERM

- **Loan Status:** The number of charged off loan is much smaller(14.5%) compared to total count.
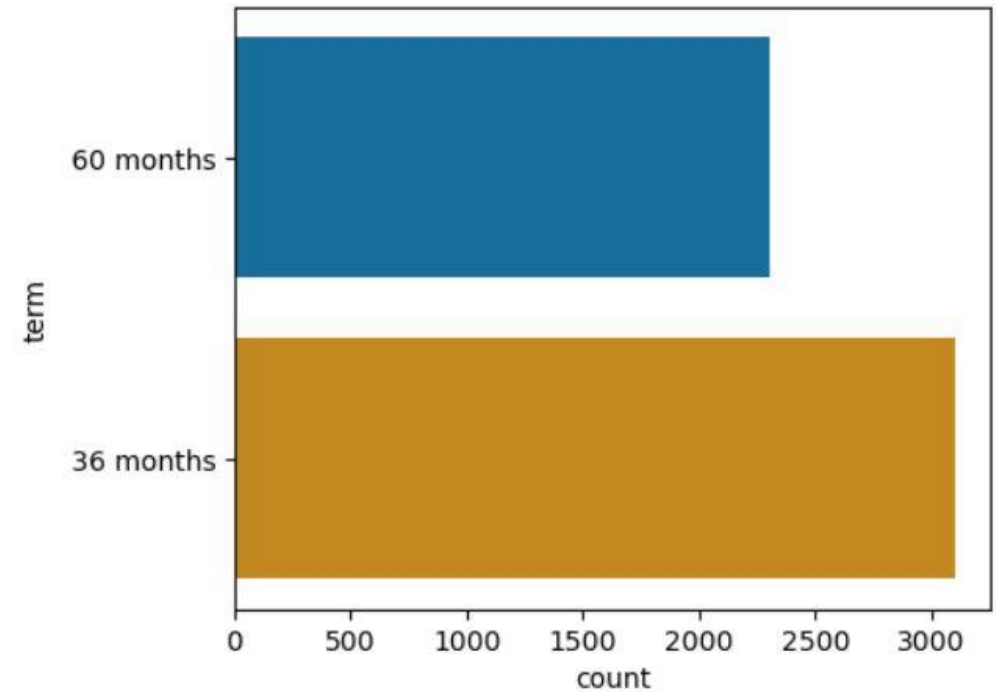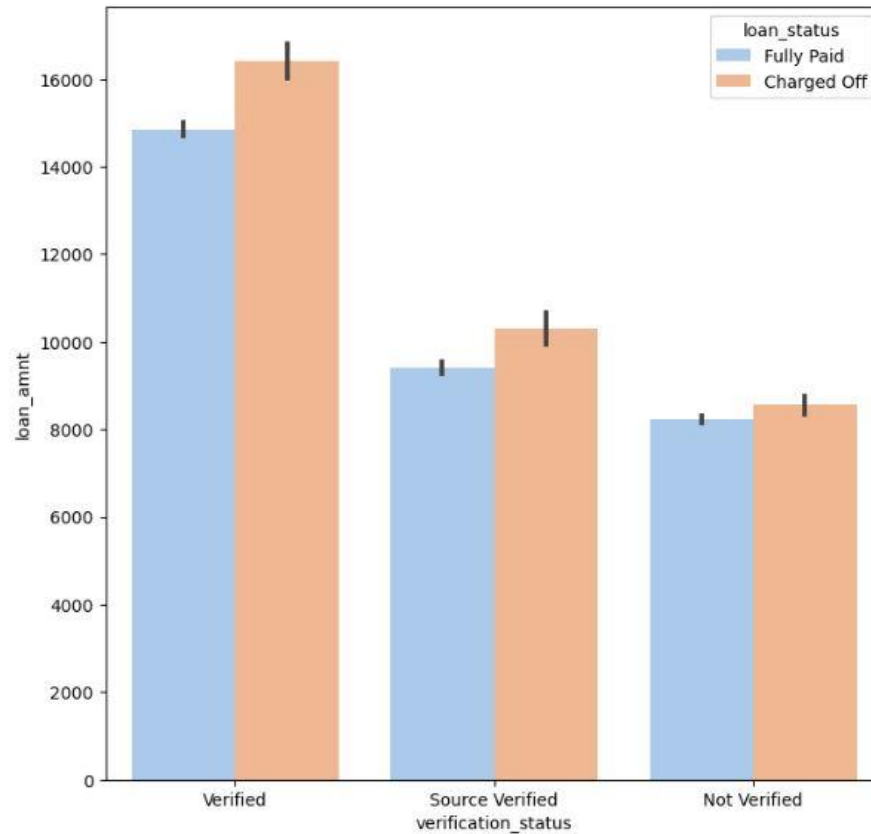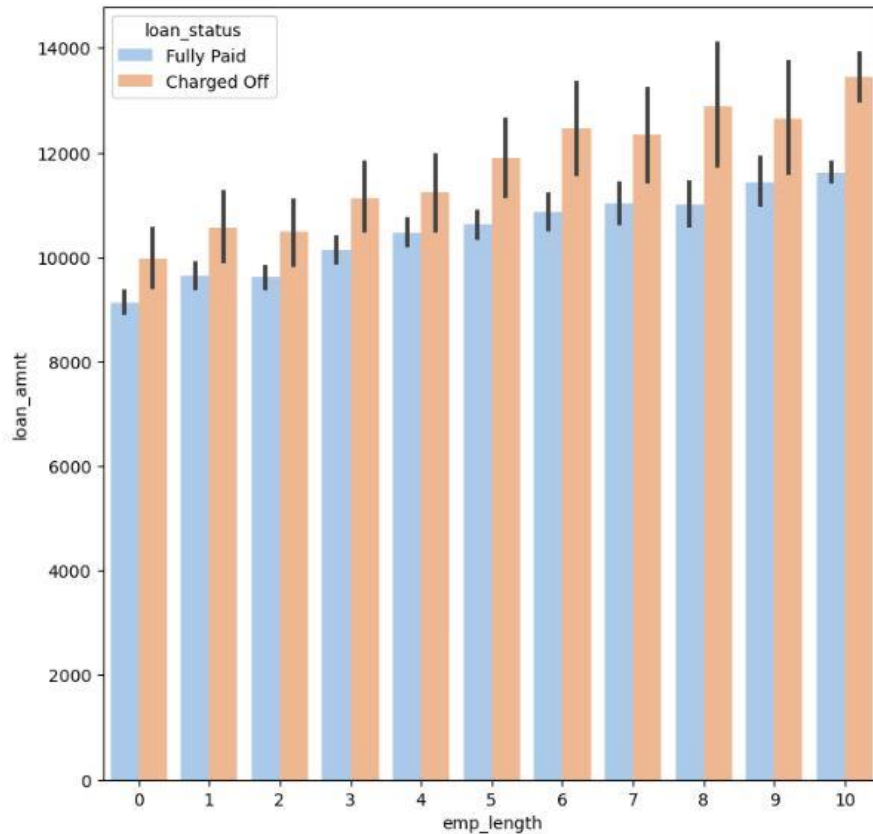
- **Term:** The term varies as the term for charged off loan is pretty much less than compared to the fully paid term.

LOAN AMOUNT VS ISSUED BY YEAR AND MONTH

The charged off loans issued are more in **December** compared to the other months. Whereas the charged off loans issued is more from 2010.

LOAN AMOUNT VS VERIFICATION STATUS

- The charged off loans **tenure for employee** is more for **10 years** and even the fully paid is also more for 10 years.
- The most charged off loan are **verified.**

HOME OWNERSHIP AND INTEREST RATE
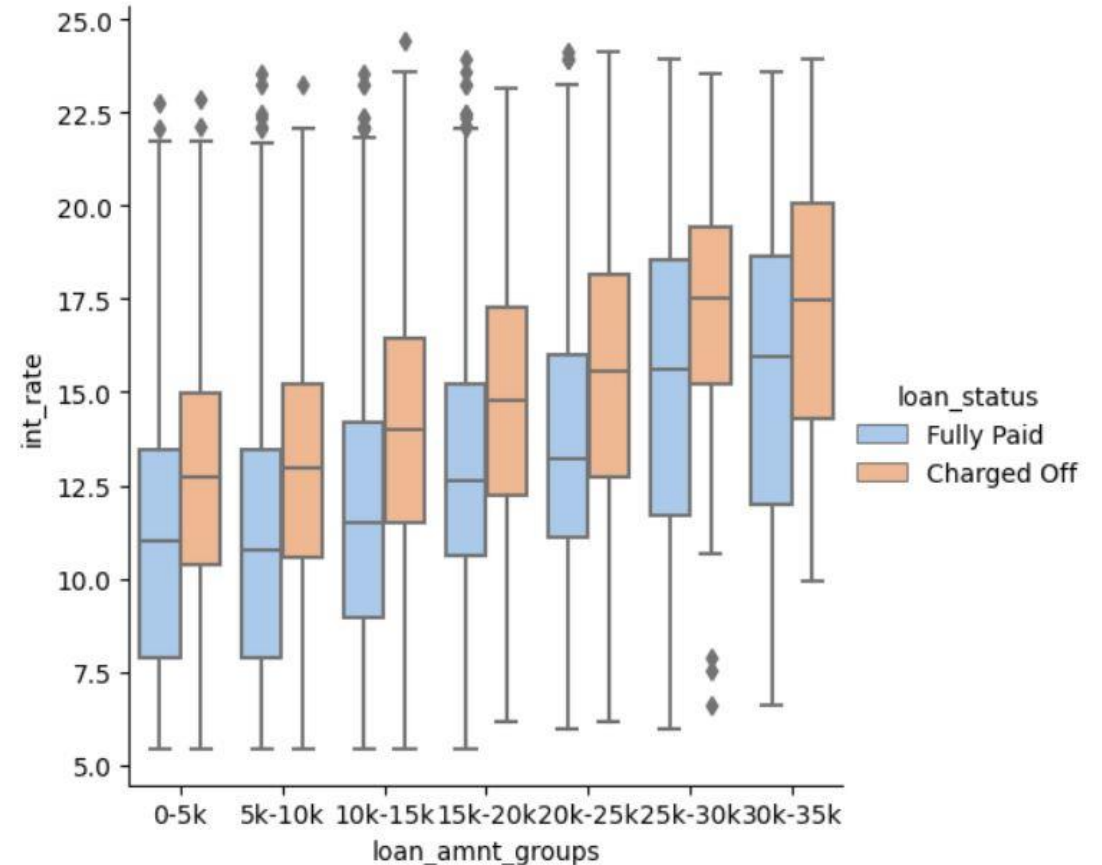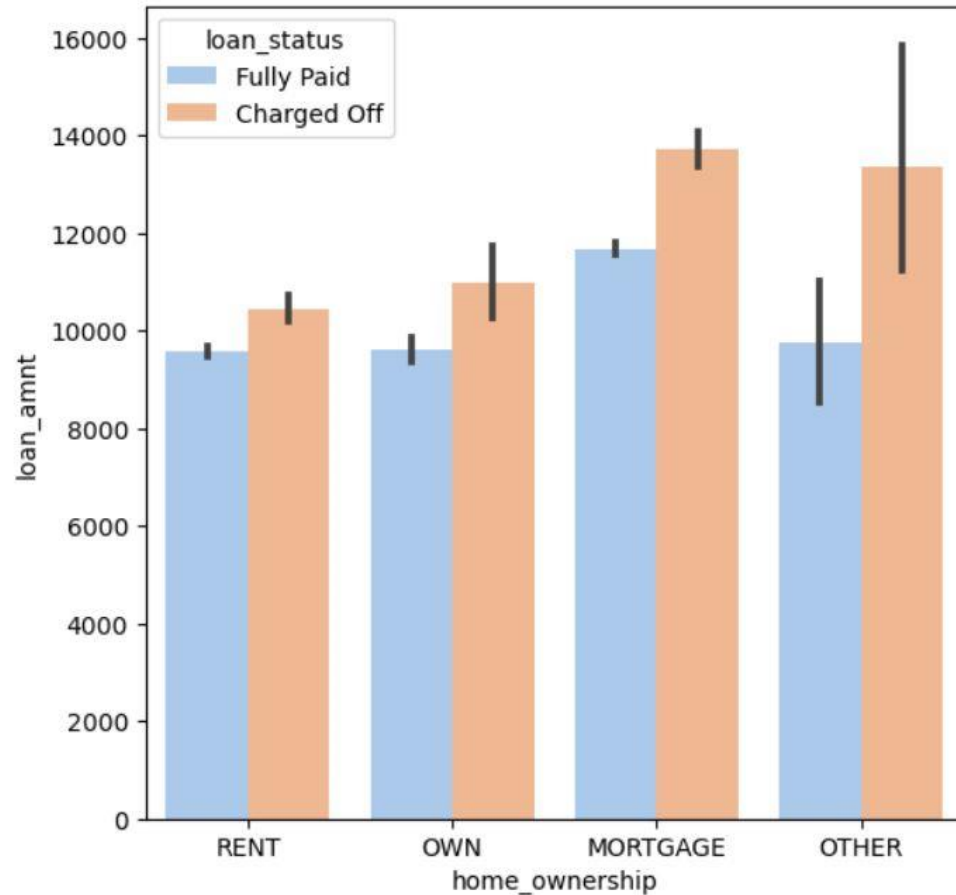
- The applicants with home 'Mortgage' took large loans and more chances for defaults.
- Applicants who have taken a loan in the range 30k - 35k and are charged interest rate of 15-17.5 %

OBSERVATIONS

There is a more probability of defaulting when :

➢Applicants taking loan for 'home improvement' and have income of 60k -70k

➢Applicants whose home ownership is 'MORTGAGE and have income of 60-70k

➢Applicants who receive interest at the rate of 21-24% and have an income of 70k-80k

➢Applicants who have taken a loan in the range 30k - 35k and are charged interest rate of 15-17.5 %

➢Applicants who have taken a loan for small business and the loan amount is greater than 14k

➢Applicants whose home ownership is 'MORTGAGE and have loan of 14-16k

➢When grade is F and loan amount is between 15k-20k

➢When employment length is 10yrs and loan amount is 12k-14k

➢When the loan is verified and loan amount is above 16k