

Case Study Analysis

Problem Statement:-

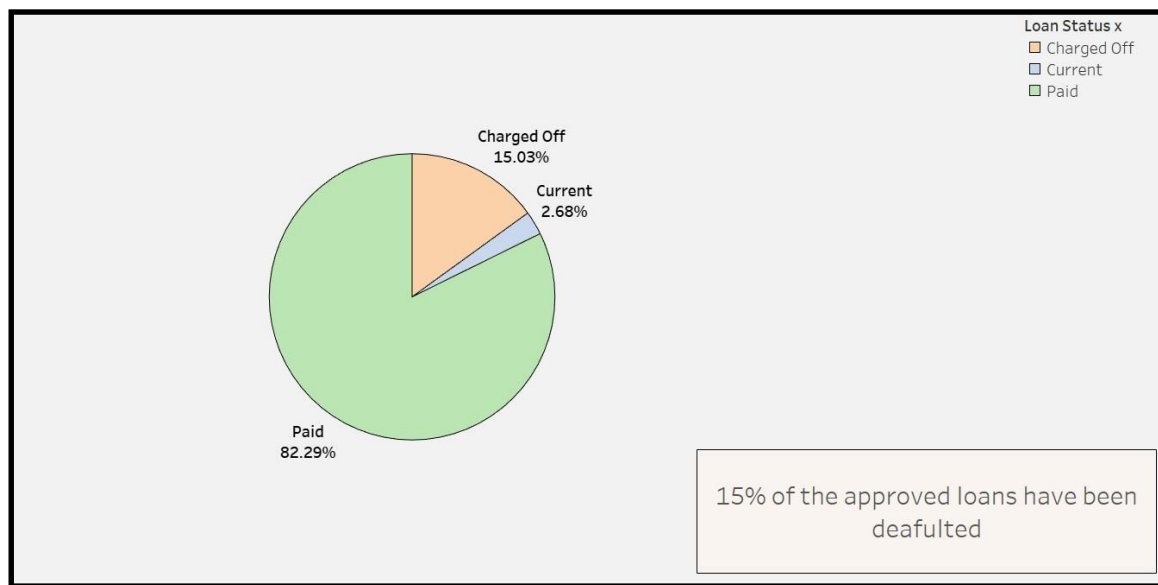
A finance company specialises in lending various types of loans to customers. When the company receives a loan application, the company has to make a decision for loan approval based on the applicant's profile. Two types of risks are associated with the bank's decision:

- 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

The data given contains the information about past loan applicants and whether they 'defaulted' or not. The aim is to identify factors which indicate if a person is likely to default, which may be used for taking actions such as denying the loan, reducing the amount of loan, lending (to risky applicants) at a higher interest rate, etc.

Analysis -

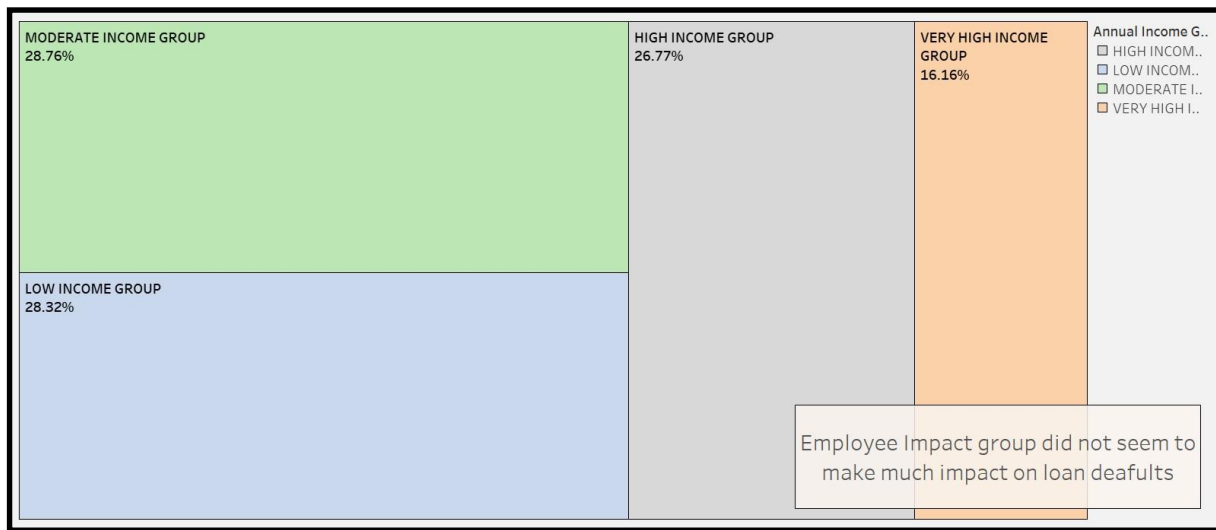
This case study begins with the understanding that 15% percentage of the total loan borrowers are the defaulters. The pie chart explains the percentages.



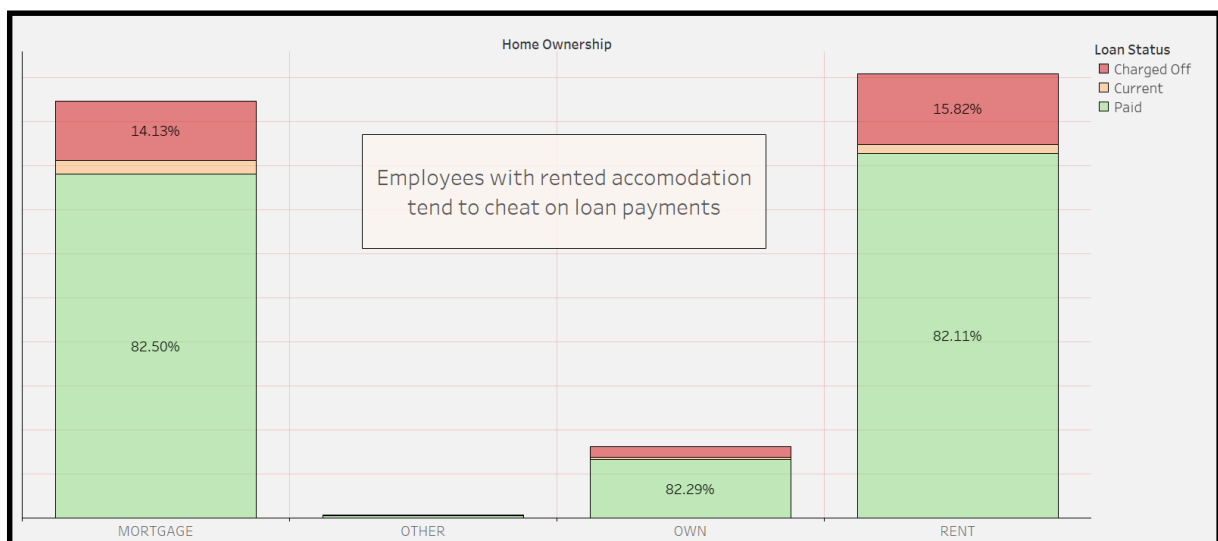
To analyse the trend in defaulting the loan payment, few loan and consumer attributes were identified. Further, the impact of these attributes on the loan defaulting is being analysed.

1. **Impact of Income Groups** - Based on the income structure each customer is categorised into an income group.
 - a. Low Income Group - Yearly salary < 40,000
 - b. Moderate Income Group - Yearly salary < 60,000
 - c. High Income Group - Yearly salary < 90,000
 - d. Very High Income Group - others

The tree map in the chart conveys that income groups does not make much impact on the loan defaulting

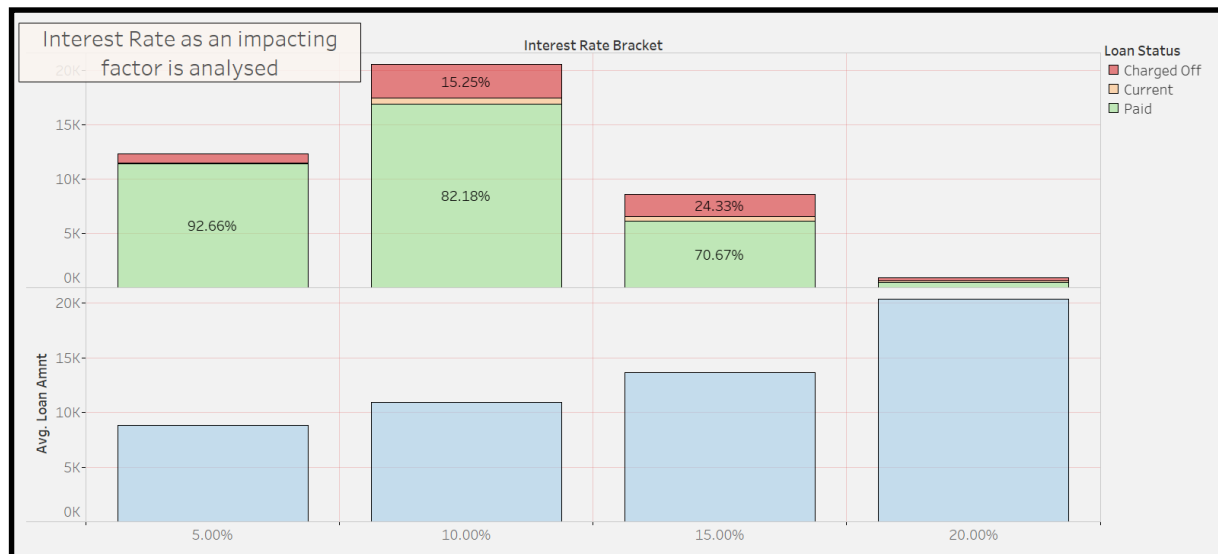


2. **Accommodation** - There are three types of customer accommodation (Rent, Mortgage, Owned). The bar chart shows that customers with rented accommodation tend to cheat more on the loan payments.

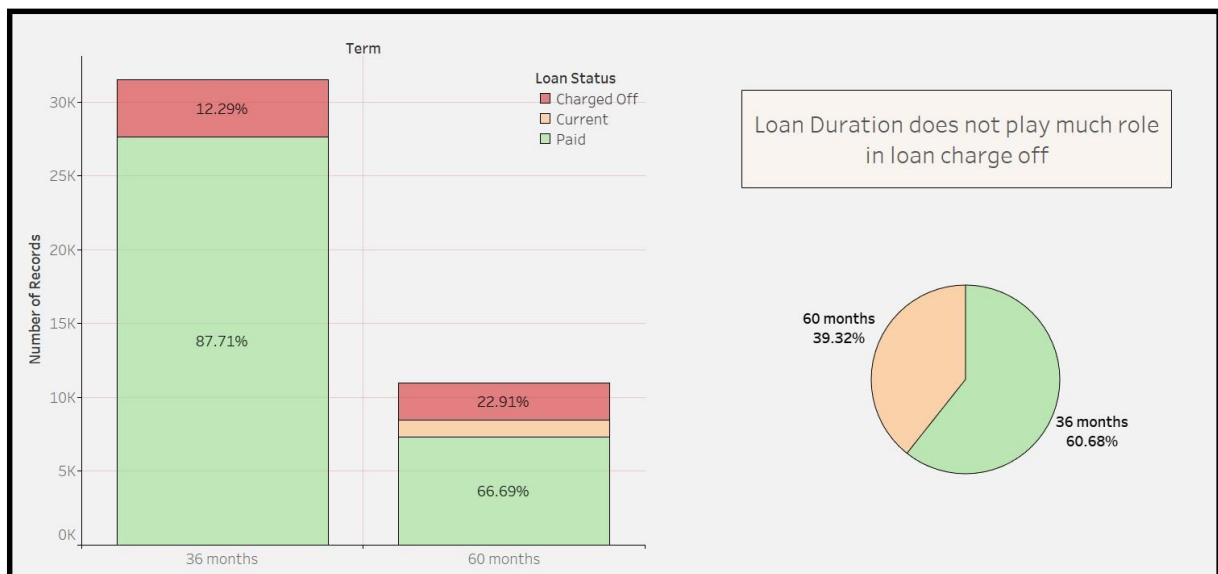


3. **Interest Rate and Loan Amount** - Interest rate is being analysed as an impacting factor with not so meaningful result.

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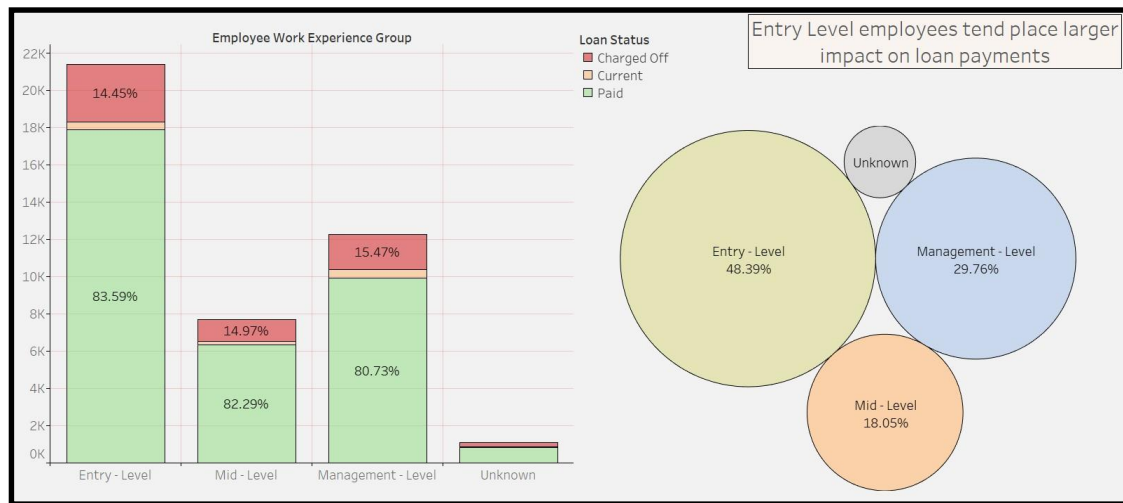


4. Loan Duration - Loan Duration does not play much role in loan charge off.

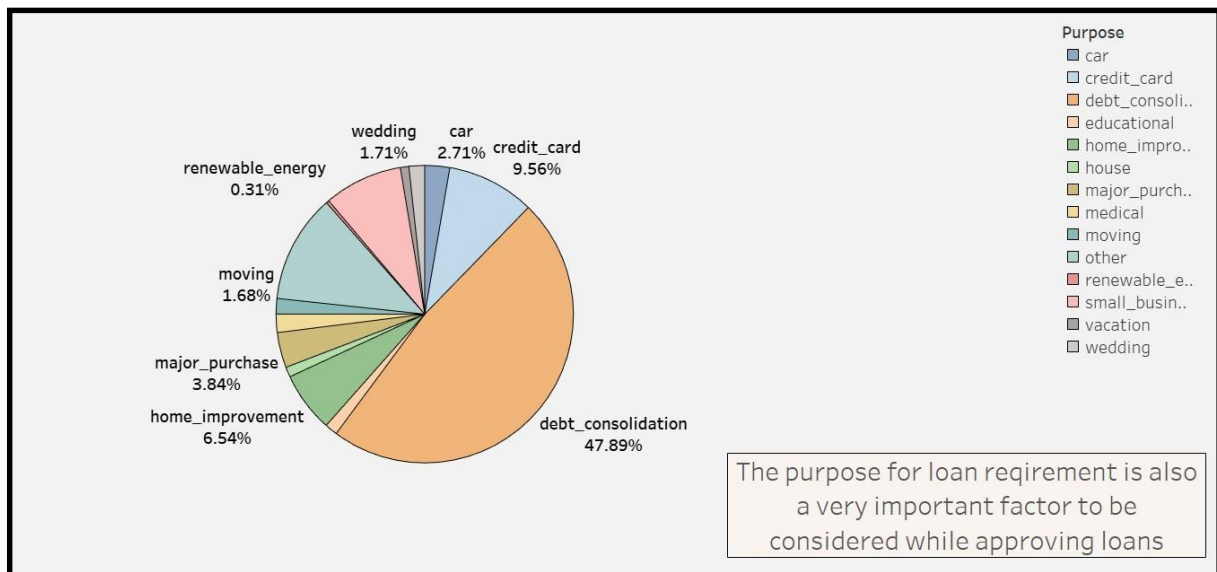


5. Customer Work Experience Group - Based on the work experience in terms of number of years, each customer is categorised into an work experience group.

- Entry Level - 0 to 4 years
- Mid-Level - 5 to 8 years
- Management Level - 8+ years



6. Purpose of loan application - Customers in debt, credit card loans and home renovations tend to default more.



Based on the visual exploratory data analysis, purpose of the loan, work experience group and accommodation type appears to be the impacting factors on loan defaults.