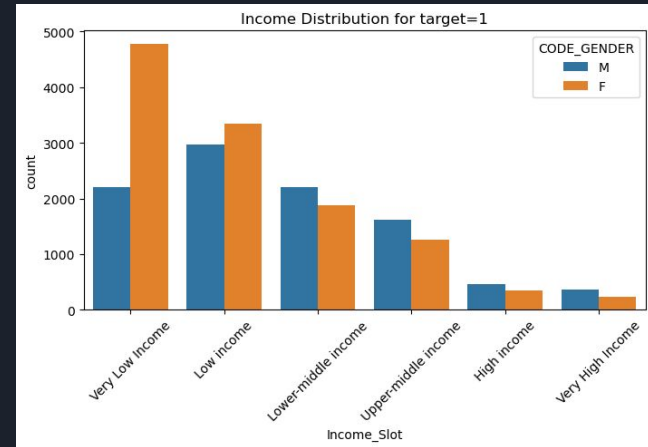
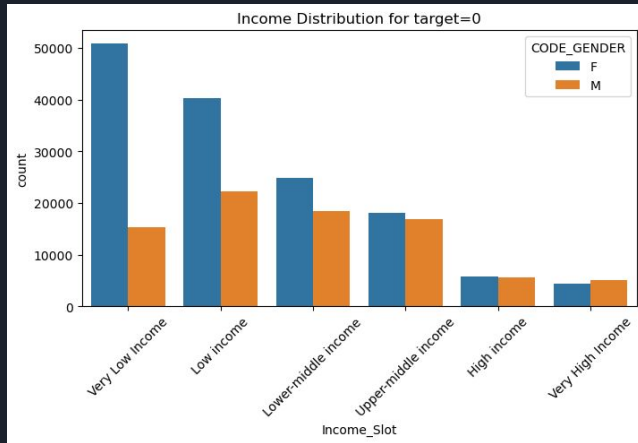


A decorative graphic on the left side of the slide consisting of two overlapping parallelograms. The front one is blue and the back one is a light green color. Both are tilted at an angle.

Credit EDA Assignment

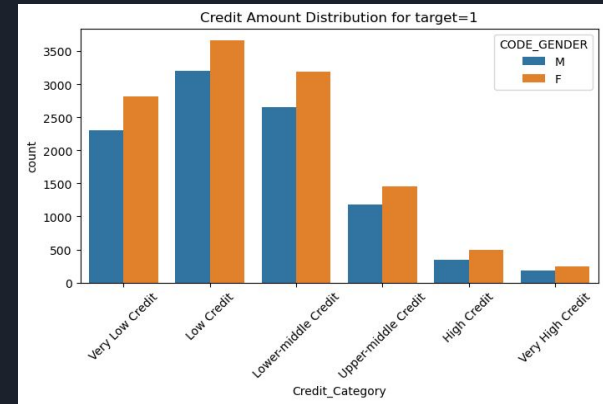
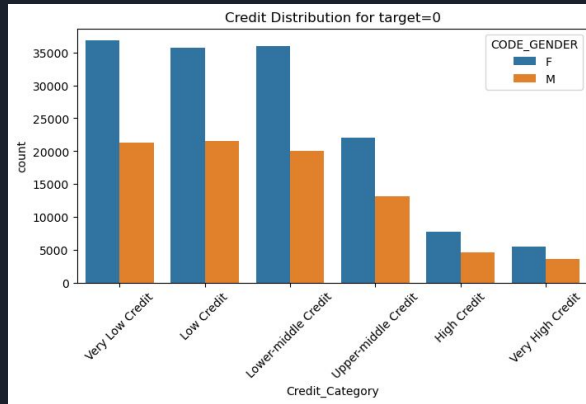
Harikrishnan R

Income Distribution and comparison of defaulters and non-defaulters



1. Target 0: Most applicants are Female and fall within the category of Very-Low income group.
2. Target 1: Most applications fall within the category of Very-Low income group and consists mostly of females.

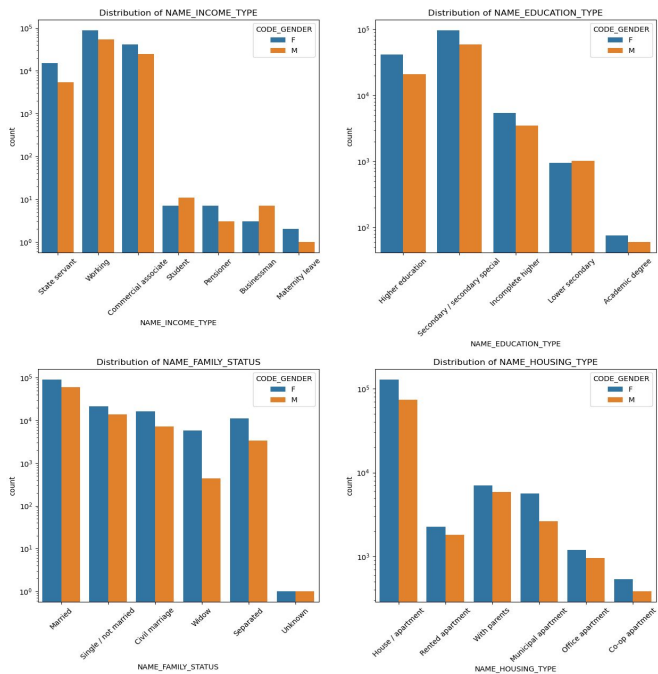
Credit Distribution and comparison of defaulters and non-defaulters



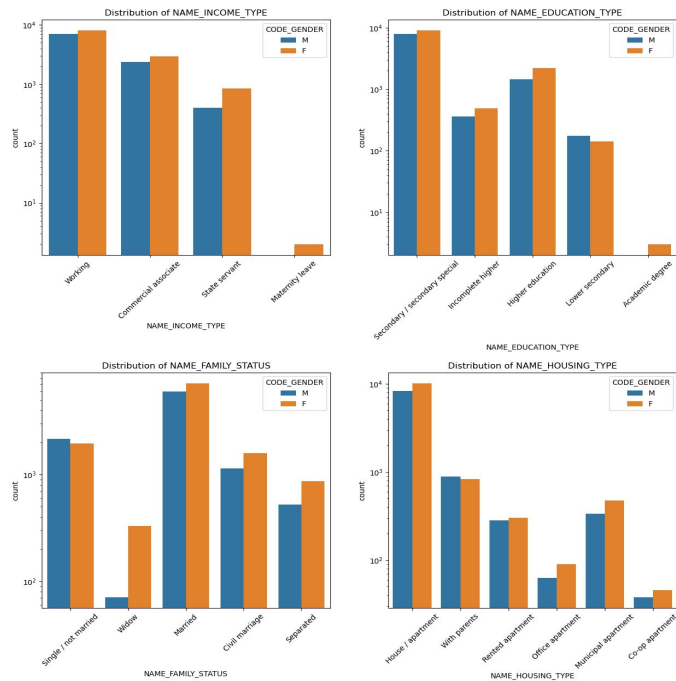
1. Target 0: Most applications fall within the category of Very-Low and Lower-Middle Credit group
2. Target 1: Most applications fall within the category of Low Credit group
3. Major applications are for cash loans

Distribution of other Variables

Target 0:



Target 1:





Summary of observations:

By Taking into account all patterns and trends shown by univariate analysis of the distribution of income, credit and other variables in the dataset we have the following observations:

1. Target 0 - Most applicants are **female** and primarily fall within the **very-low income** group. The majority also fall into the very-low and lower-middle credit categories. Most individuals are either working or commercial associates and own their house or apartment. **Cash loans** constitute the majority of applications, with top applicant types including **Business Entity Type 3**, **self-employed**, and those in **medicine** and **government**.
2. Target 1 : Most applicants are **female**, primarily within the **very-low income** group. The majority fall into the low credit category and are working individuals who own their house or apartment. **Cash loans** dominate the applications, with top applicant types including **Business Entity Type 3**, **self-employed**, and **Business Entity Type 2**, followed by those in **construction**.

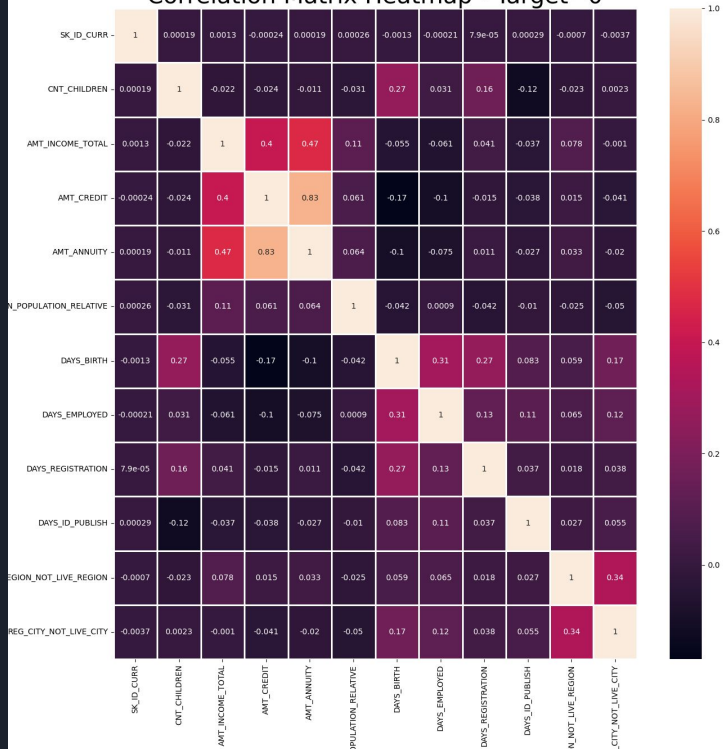


Key Takeaway:

In both application types, the top three organization types are the same. However, for applicants struggling with repayment, the remaining two organization types are **Business Entity Type 2 and Construction**.

Correlation Matrix and observations(Target 0)

Correlation Matrix Heatmap - Target=0



1. AMT_CREDIT and AMT_ANNUIITY (0.83): There is a very strong positive correlation between the amount of credit and the annuity. This suggests that higher credit amounts are associated with higher annuity payments.

2. AMT_INCOME_TOTAL and AMT_ANNUIITY (0.47): Income has a moderate positive correlation with annuity payments, indicating that higher income levels are linked to higher annuity amounts.

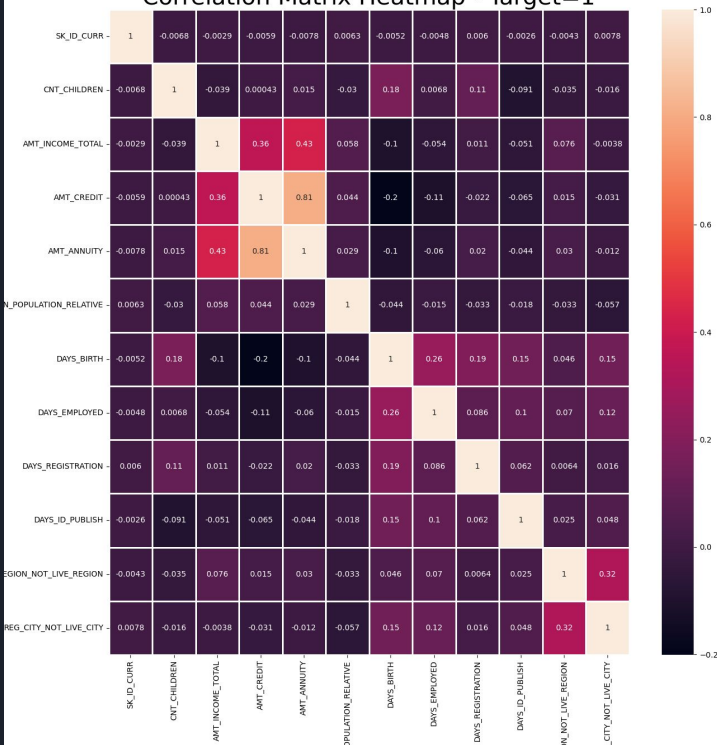
3. AMT_INCOME_TOTAL and AMT_CREDIT (0.40): A moderate positive correlation indicates that as income increases, the amount of credit tends to increase as well.

4. DAYS_EMPLOYED and AMT_CREDIT (-0.1): This indicates that as days employed decrease (or as unemployment increases), the amount of credit tends to decrease.

5. DAYS_BIRTH and AMT_CREDIT (-0.17): Older individuals might have lower credit amounts, potentially reflecting changes in credit needs as people age.

Correlation Matrix and observations(Target 1)

Correlation Matrix Heatmap - Target=1



1. AMT_CREDIT and AMT_ANNUIITY (0.81): There is a very strong positive correlation between the amount of credit and the annuity, indicating that higher credit amounts are associated with higher annuity payments.

2. AMT_INCOME_TOTAL and AMT_ANNUIITY (0.43): A moderate positive correlation suggests that individuals with higher incomes tend to have higher annuity payments.

3. AMT_INCOME_TOTAL and AMT_CREDIT (0.36): This indicates that higher income levels are linked to higher credit amounts.

4. DAYS_EMPLOYED and AMT_CREDIT (-0.20): This indicates that as days employed decrease (or as unemployment increases), the amount of credit tends to decrease.

5. DAYS_BIRTH and AMT_CREDIT (-0.20): Older individuals may have lower amounts of credit, which could reflect a shift in financial needs as people age.



Upon further analysis conducted on the income and credit parameters from the dataset, the following Insights were gained for applications that defaulted and the other group

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Insights gained for Target 0

1. Income trends reveal distinct patterns across demographic and social groups. Income is highest among individuals with an academic degree who are separated, while it is lowest among those with only lower secondary education who are in a civil marriage. Businessmen who are single generally have the highest incomes, contrasted by single pensioners who earn the least. Furthermore, people living in houses or apartments and municipal buildings tend to have the highest incomes, while widowed individuals residing with parents experience the lowest income levels.

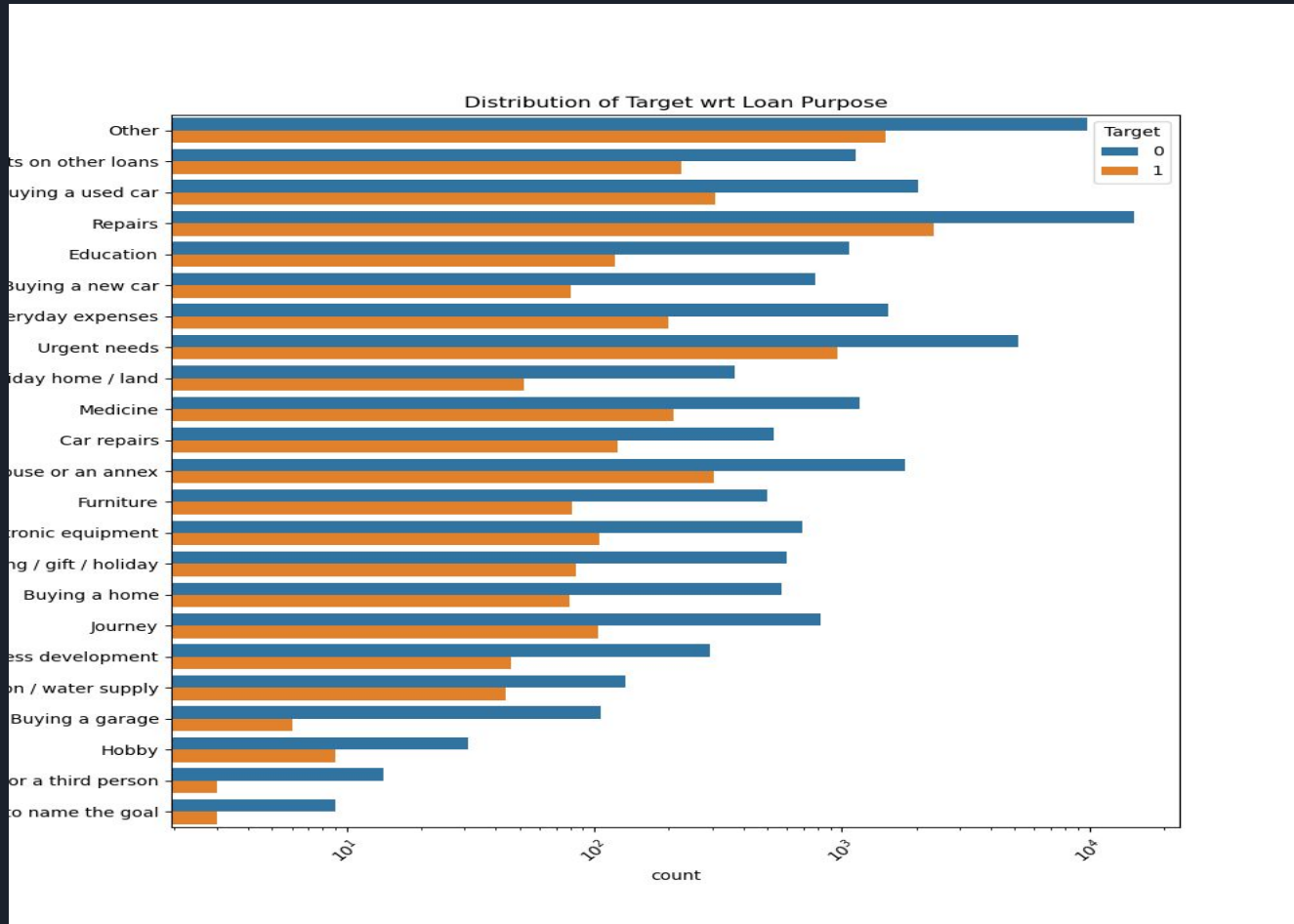
2. The amount of credit taken varies across education, marital status, and living arrangements. The highest credit amounts are associated with individuals who hold an academic degree and are in a civil marriage, while the lowest are among single people with only lower secondary education. Single businessmen generally take the highest credit, contrasting with separated pensioners who take the least. Additionally, married individuals residing in their own house or apartment tend to secure the highest credit, whereas single people living with parents take the lowest.



Insights gained for Target 1

1. Income levels show significant variation across marital status, education, and living arrangements. Married individuals with an academic degree have the highest income, while single individuals with only lower secondary education have the lowest. Among single individuals, those residing in co-op apartments report the highest income, whereas those living with parents have the lowest.
2. Highest credit is taken by married people with academic degrees

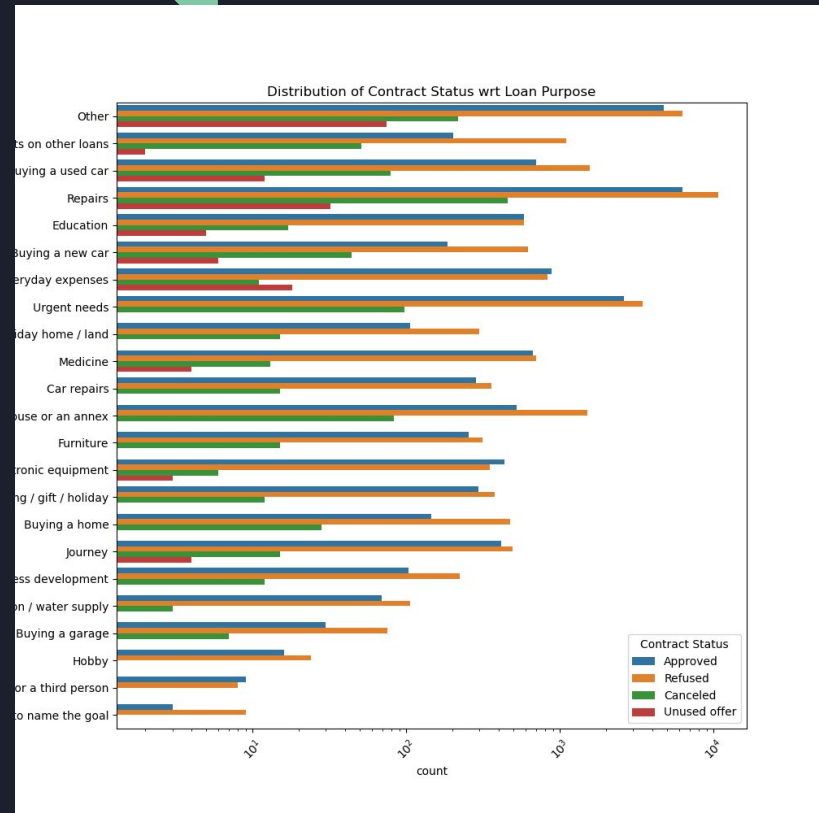
Distribution of Target wrt Loan Purpose



Distribution of Contract Status wrt Loan Purpose

Observations:

Most number of defaulters took credit in name of Repairs as their Purpose. The most number of loan rejections were also done for the same category.

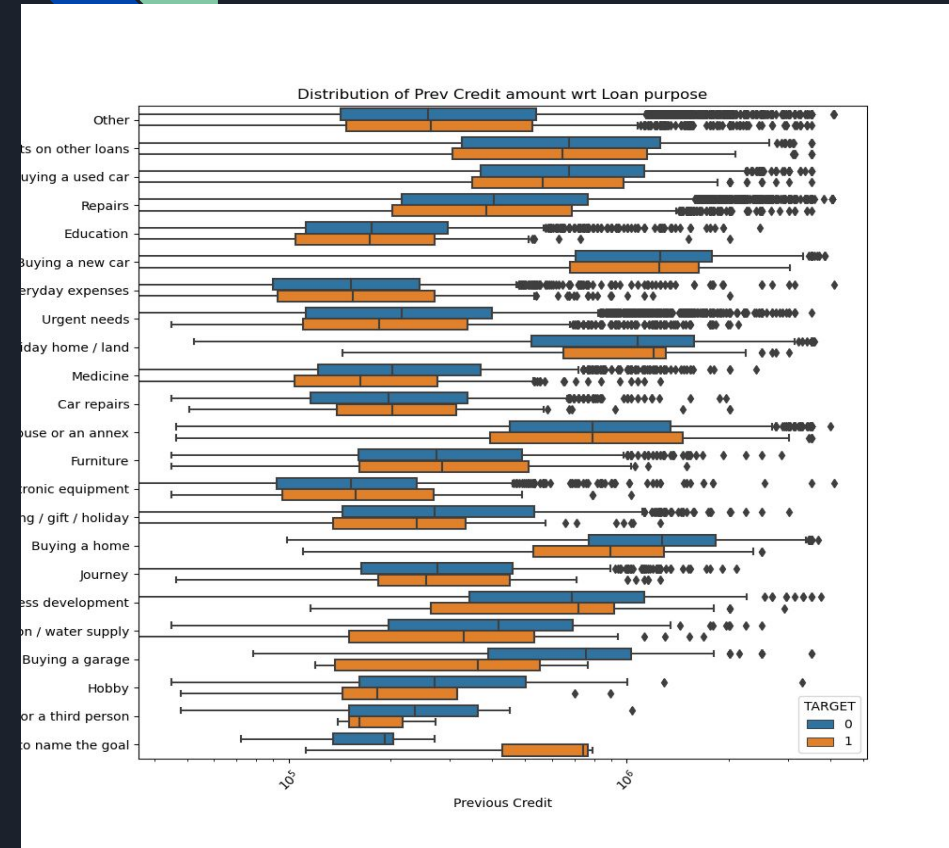


Distribution of Credit amount from past application wrt Loan purpose

Observations:

Loans were taken mostly for the purposes of Buying a home, Buying a new car and Buying a holiday home/ piece of land.

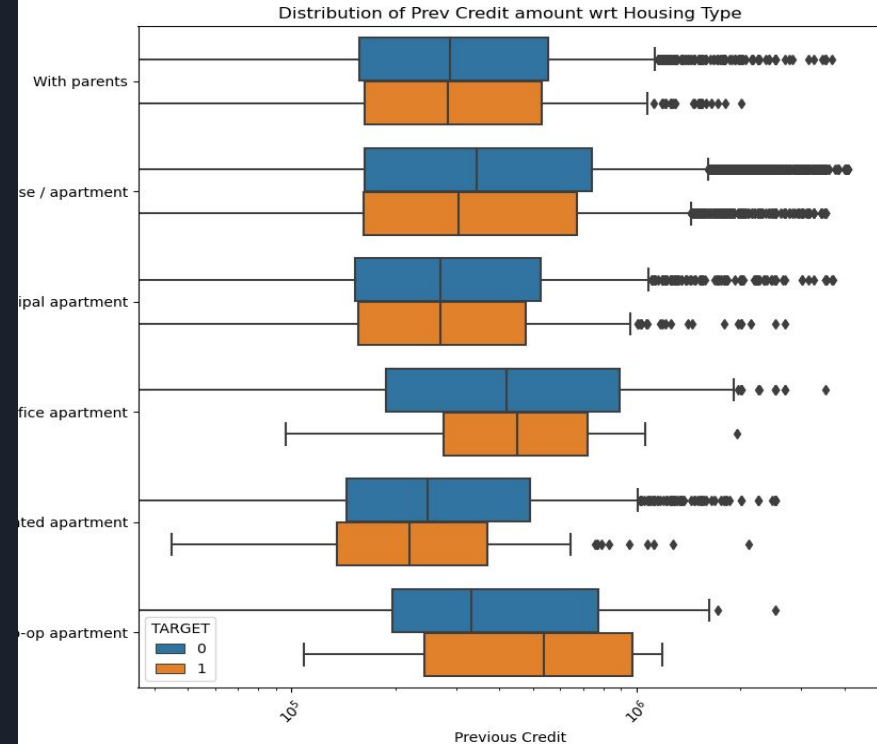
Amongst the people struggling to pay back, most of them took the loan for the purpose of Buying a new car and the ones who paid back successfully took for Buying a new home



Distribution of Credit amount from past application wrt Housing Type

Observations:

Here, highest credit taken by people who later struggled to pay back were from Co-op apartments and the ones who paid back were in Office Apartment.





Conclusions and Recommendations for Loan Approvals

- Focus on High-Education Applicants: Prioritize loan approvals for married individuals with academic degrees, as they exhibit higher income and repayment capacity.
- Evaluate Housing Type: Assess applicants' housing; those in co-op apartments show higher default rates, while those in office apartments are more likely to repay successfully.
- Loan Purpose Significance: Loans for repairs and buying new cars carry higher default risks. Consider stricter scrutiny or limits on these types, while loans for buying homes are more likely to succeed.
- Credit Amount Caution: Exercise caution when approving high credit amounts for applicants with lower secondary education or those living with parents, especially if the loan purpose isn't asset-building.
- Monitor Organization Types: Maintain oversight on applicants from Business Entity Type 2 and the Construction sector, as these groups show a notable association with repayment struggles.
- Implementing these strategies can improve risk assessment and enhance the bank's loan approval process.