



Exploratory Data Analysis - Loan Defaulter Segmentation – Analysis Presentation

Presented By :

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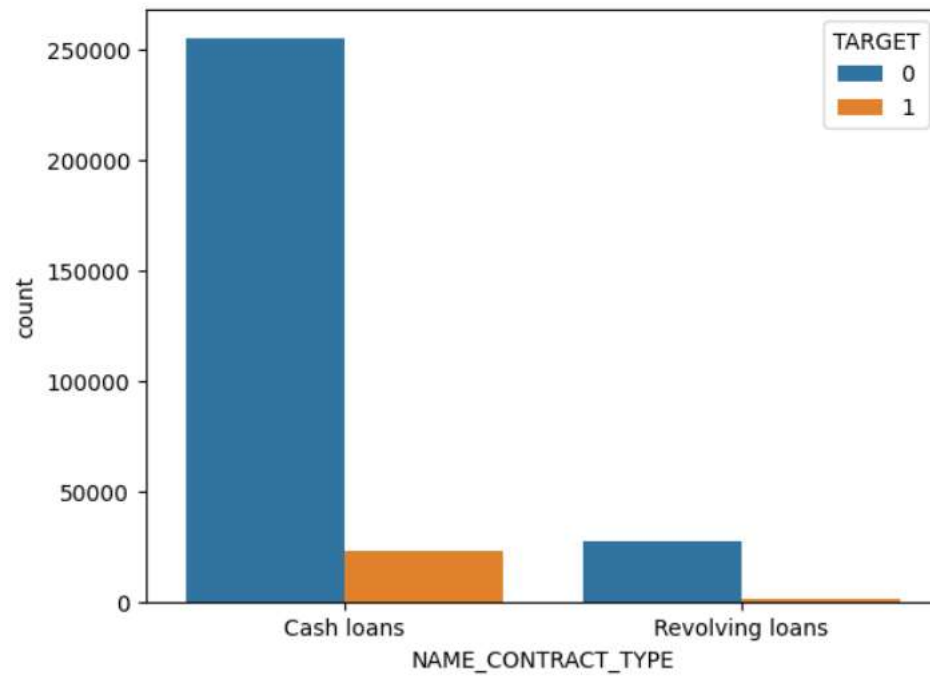
MS-Data Science

Problem Statement

Introduction

This assignment aims to give you an idea of applying EDA in a real business scenario. In this assignment, apart from applying the techniques that you have learnt in the EDA module, you will also develop a basic understanding of risk analytics in banking and financial services and understand how data is used to minimise the risk of losing money while lending to customers.

Applicant Count Analysis

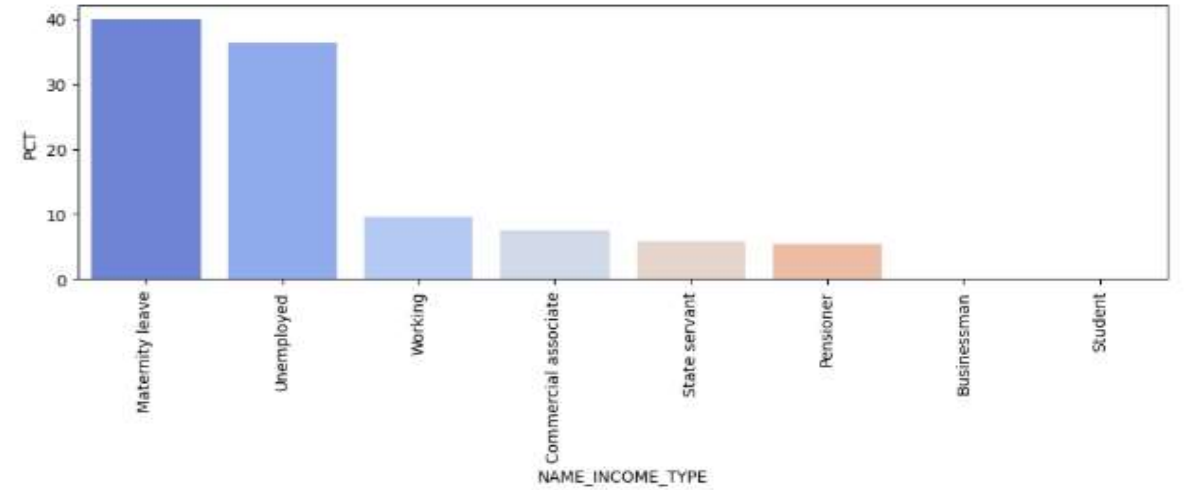
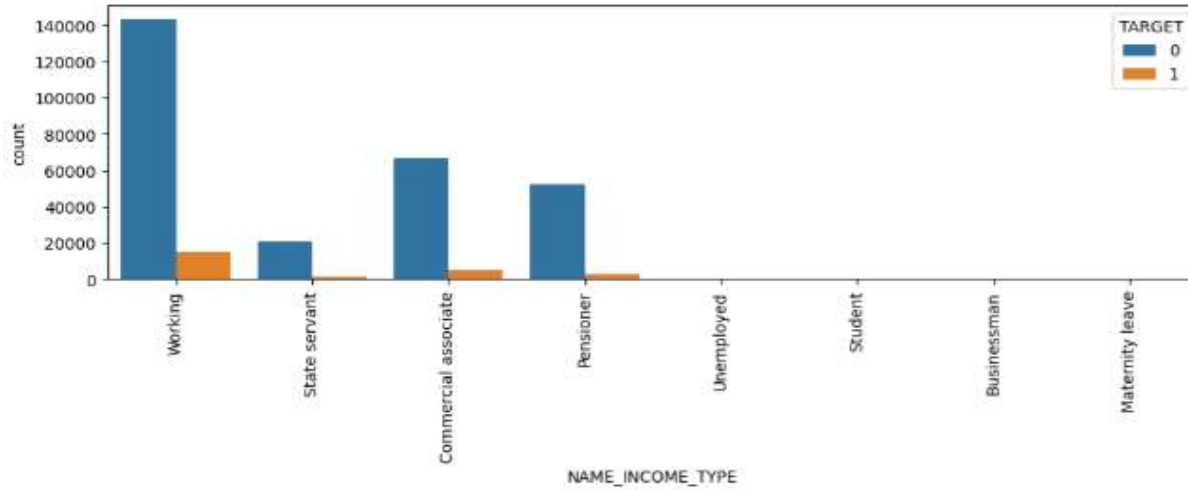


- Observations:-
 - most of the customers have taken cash loan
 - customers who have taken cash loans are less likely to default

Named Type Analysis

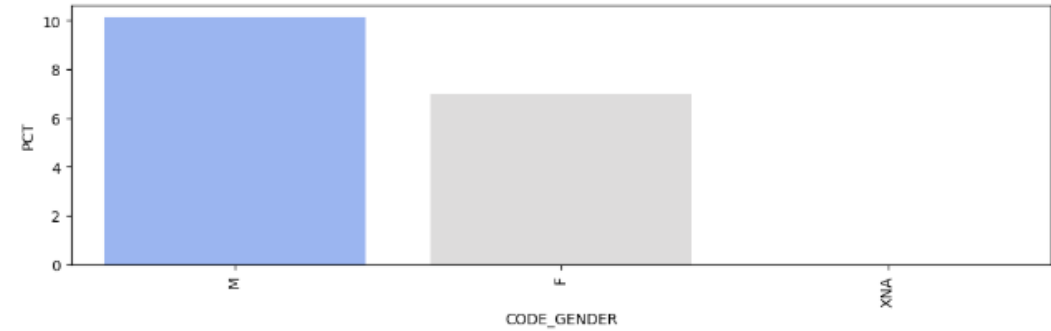
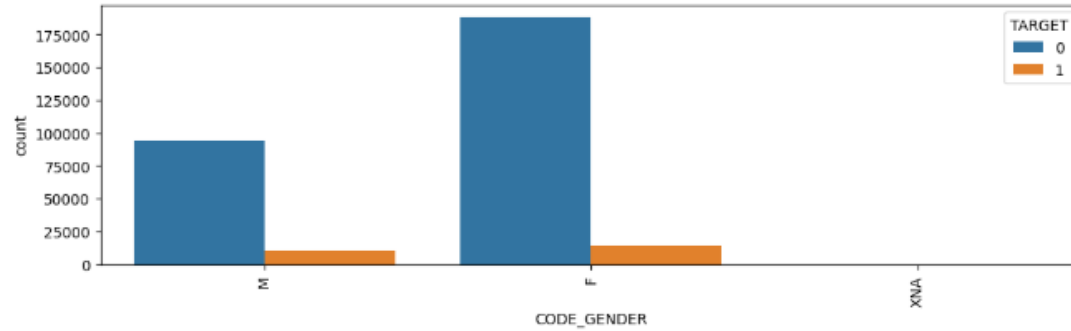
- Income Type Analysis
- Coad Gender Analysis
- Education Type Analysis
- Family Type Analysis
- Housing Type Analysis
- Occupation Type Analysis
- Organisation Type Analysis

Income Type Analysis



- Income Type Analysis Observations:-
 - the safest segments are working, commercial associates and pensioners.

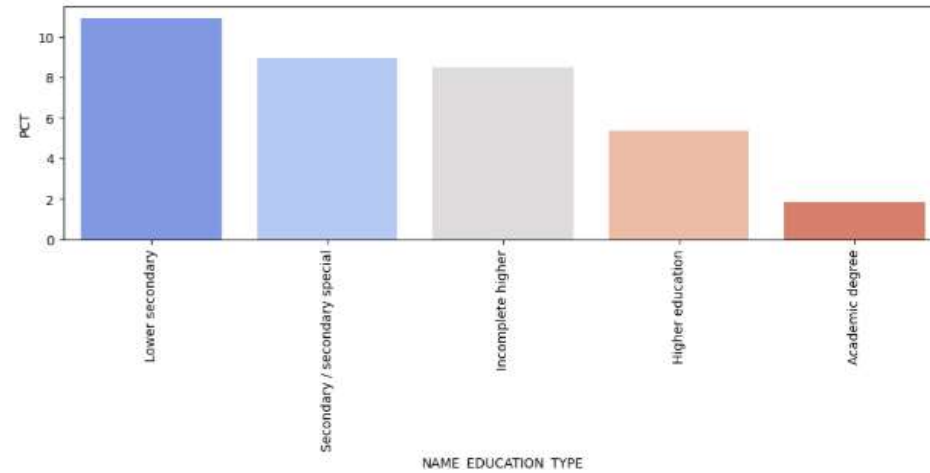
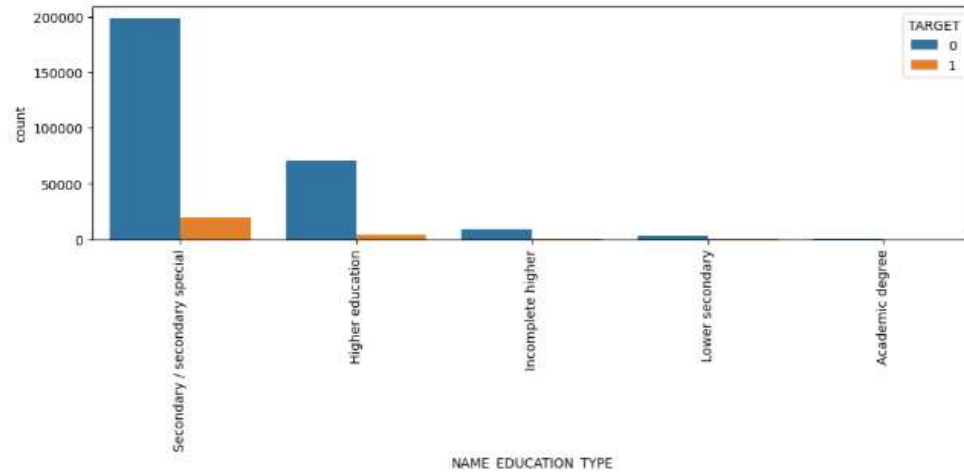
Coad Gender Analysis



Observations:-

- Most of the loans have been taken by female
- Default rate for females are just ~7% which is safer and lesser than male

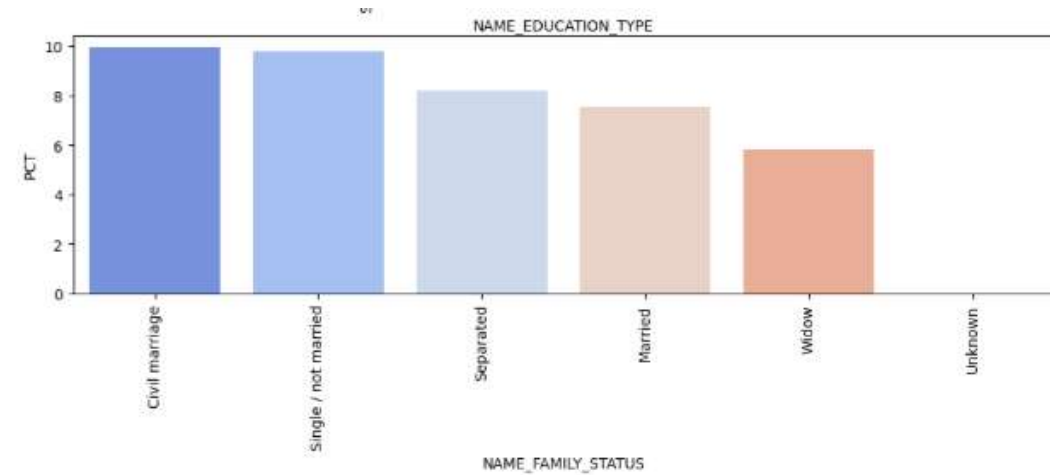
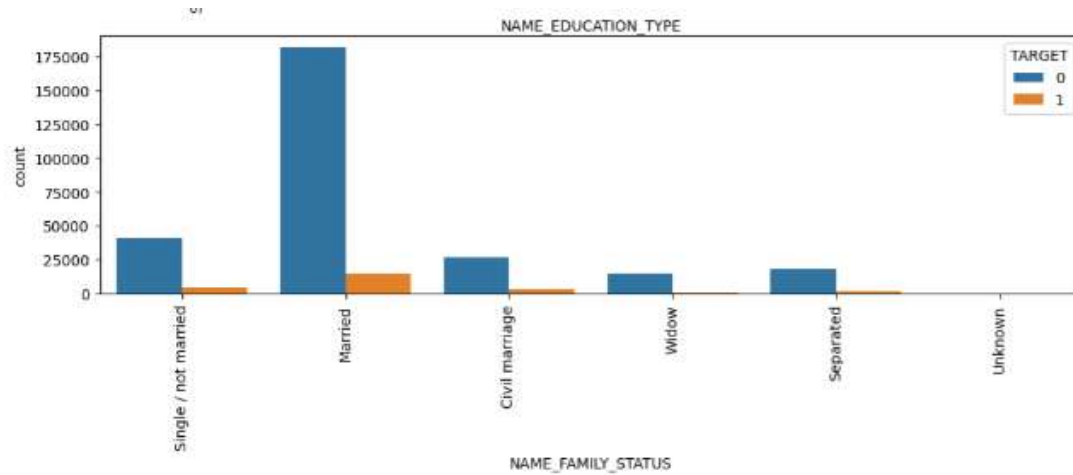
Education Type Analysis



Observations:-

- Higher education is the safest segment to give the loan with a default rate of less than 5%

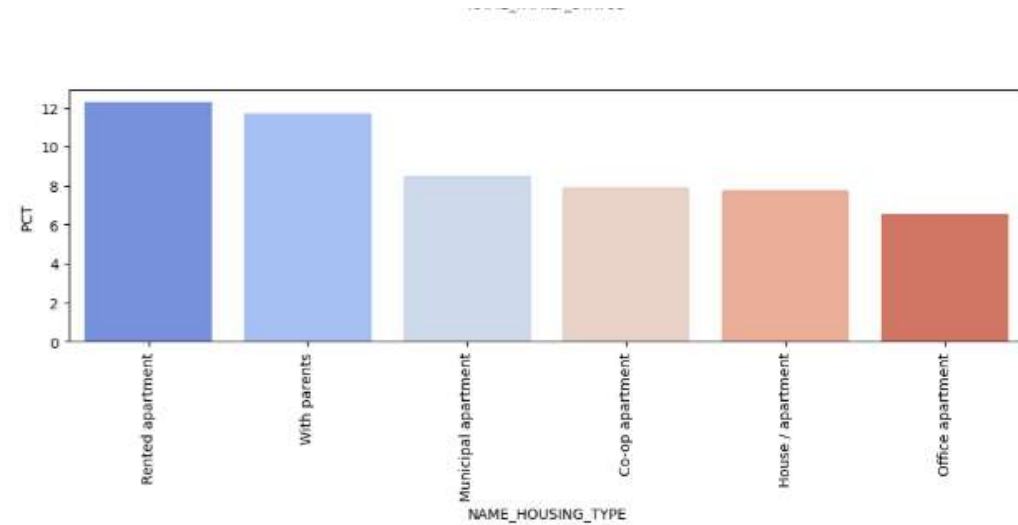
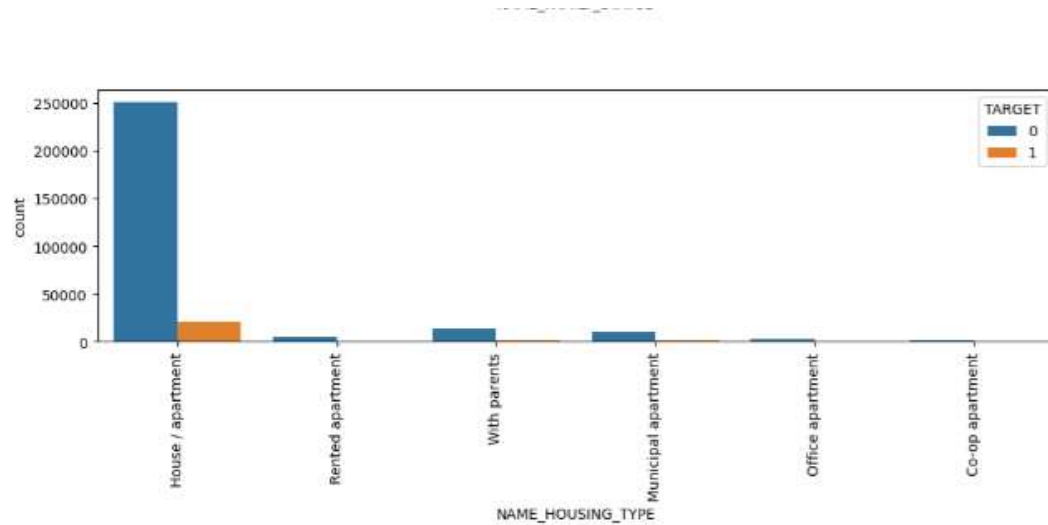
Family Type Analysis



Observations:-

- Married people are safe to target, default rate is 8%

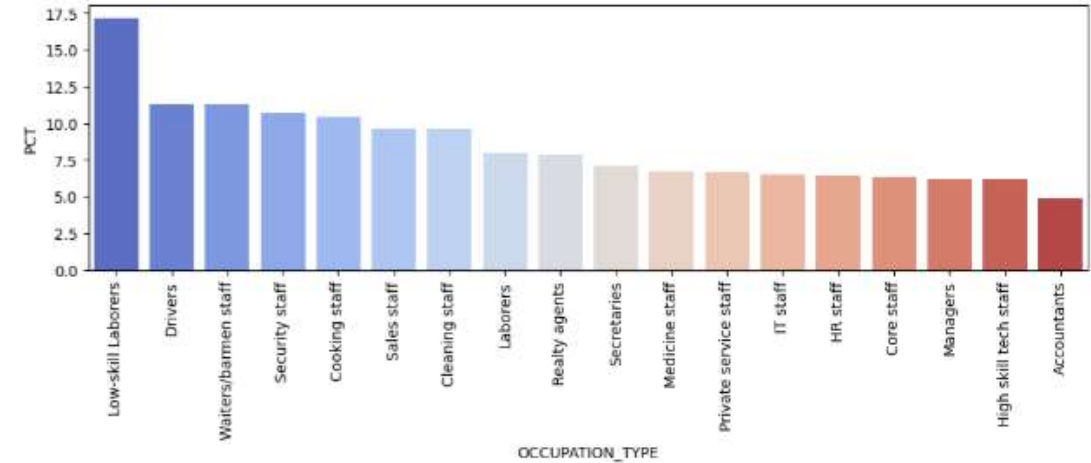
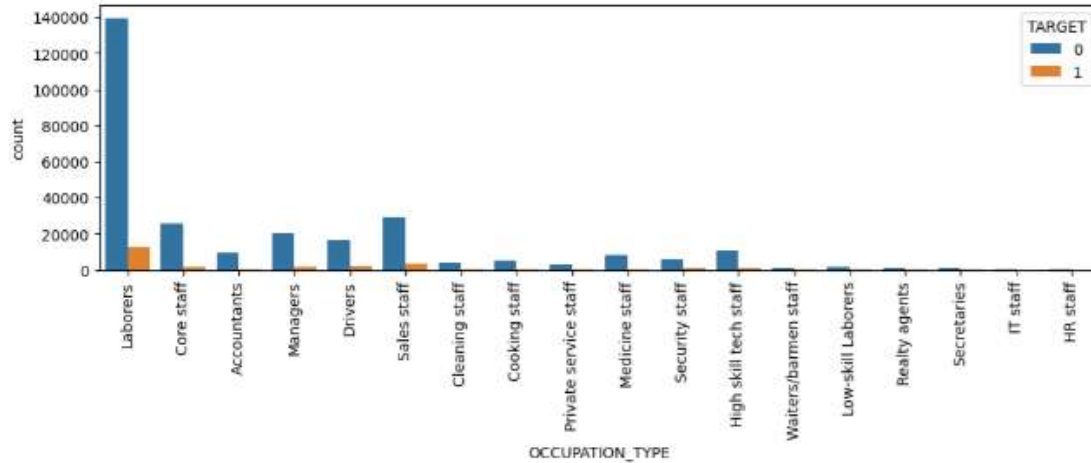
Housing Type Analysis



- Observations:-

- People having house/apartment are safe to give the loan with default rate of ~8%

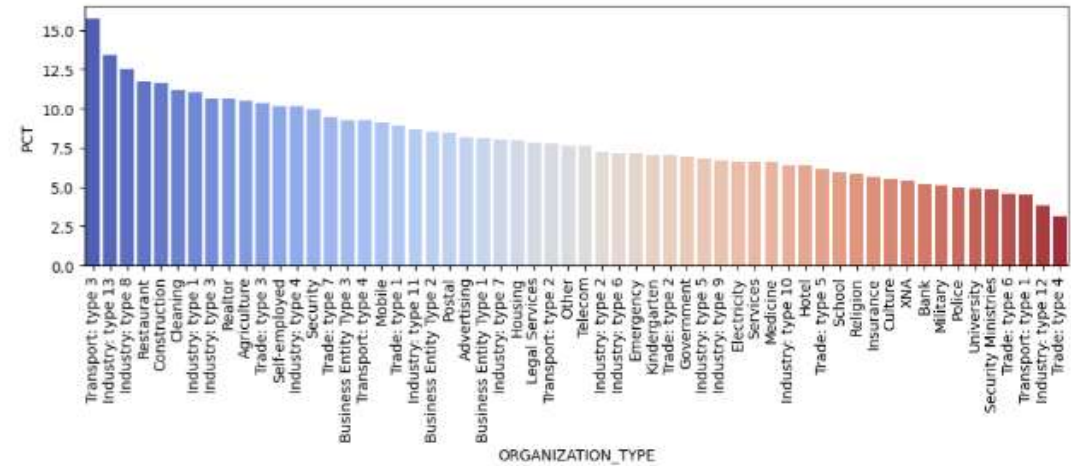
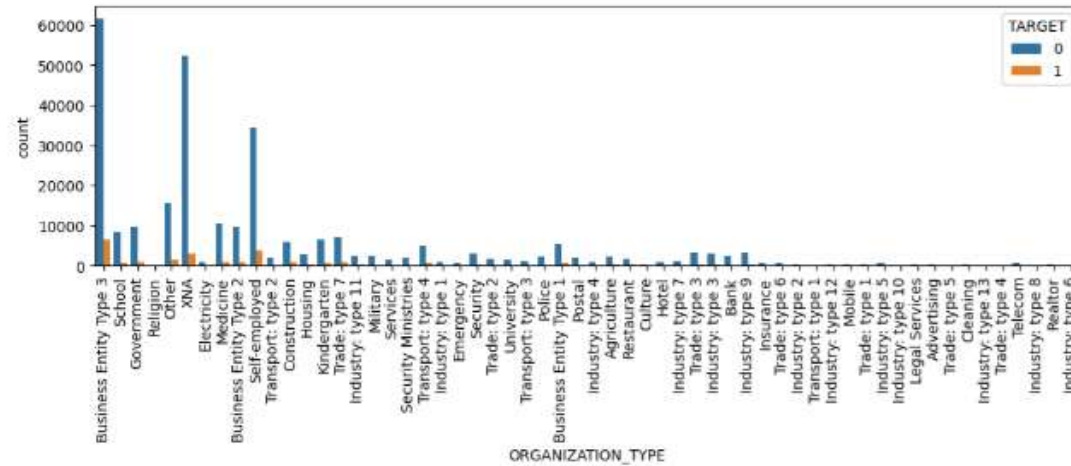
Occupation Type Analysis



Observations:-

- Low-Skill Laborer's and drivers are highest defaulters
- Accountants are less defaulters
- Core staff, Managers and Laborers are safer to target with a default rate of ≤ 7.5 to 10%

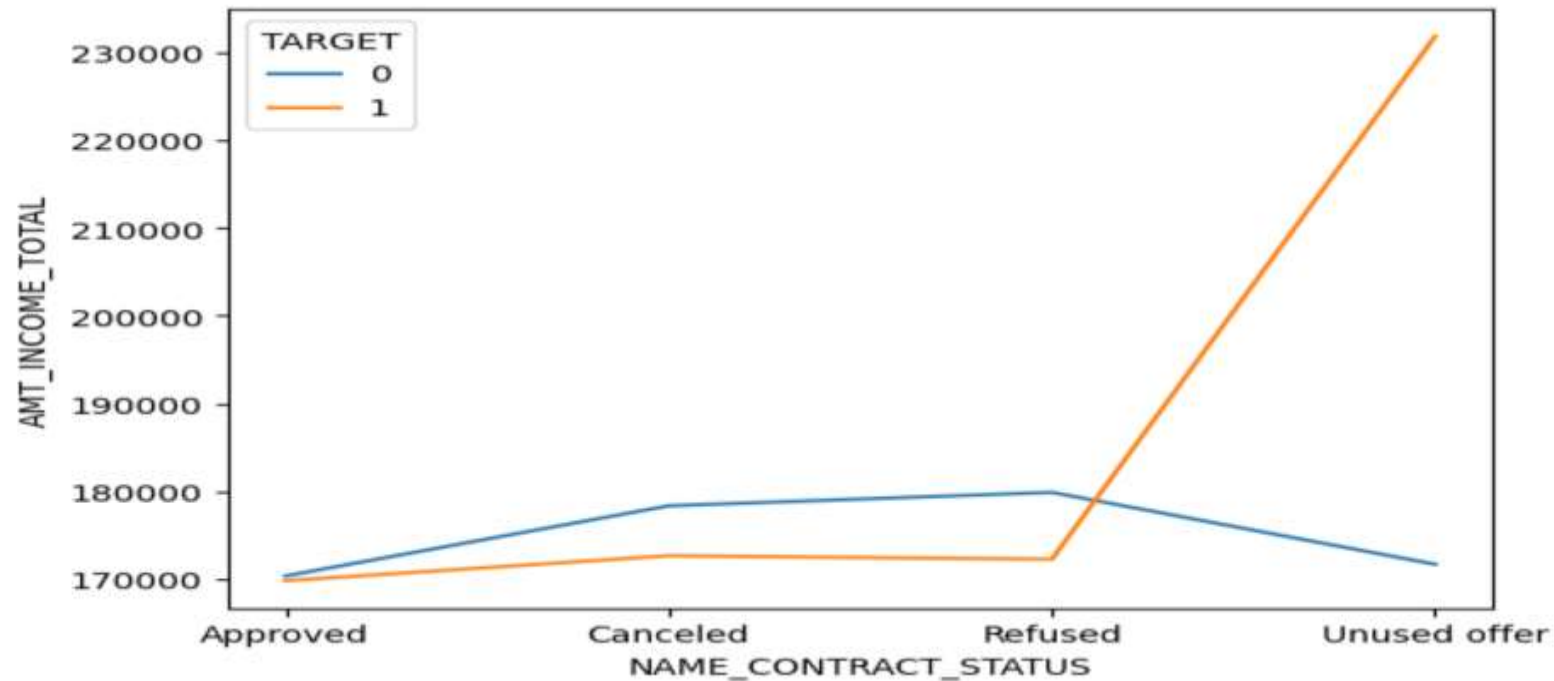
Organisation Type Analysis



Observations:-

- Transport type 3 highest defaulter
- Others, Business Entity Type 3, Self Employed are good to go with default rate around 10 %

Analysis on merged data



Observations:-

- for the repairing purpose customers had applied mostly prev. and the same purpose has most number of cancelations
- Most of the app. which were prev. either canceled or refused 80-90% of them are repayer in the current data
- Offers which were unused prev. now have maximum number of defaulters despite of having high income band customers

Conclusion

- The bank should focus on targeting specific customer segments to reduce default rates and increase loan repayment probabilities. The ideal customer profile includes individuals with low incomes below 1 million, specifically those working in sectors such as Others, Business Entity Type 3, or self-employed individuals. Target professions include Accountants, Core staff, Managers, and Laborers, who are highly educated, preferably female, married, with no more than five children, and residing in a house or apartment.
- For loan considerations, the credit amount should not exceed 1 million, with an annuity payment set at around 50,000, contingent upon their eligibility. The income bracket should remain below 1 million to qualify for the loan. Additionally, it's noted that 80-90% of customers who were previously canceled or refused loans became reliable repayers. This data suggests that the bank can conduct further analysis on these segments and consider extending loans to these individuals, possibly with tailored terms and conditions to encourage repayment.
- Moreover, the data implies that unaccompanied individuals might be safer loan recipients based on the lower default rate of approximately 8.5%. Therefore, considering this factor while assessing loan applications could be beneficial.
- In summary, by focusing on these specific criteria and customer segments, limiting credit amounts, and leveraging past repayment behavior, the bank can potentially reduce default rates and improve loan repayment rates among its target audience.

Precautions

- **Avoiding Certain Transportation Organizations:** The bank should stay away from working with a specific type of transportation group called Organization Type 3. This helps the bank to be safer when giving out loans.
- **Not Lending to Low-Skill Workers and Drivers:** It's better for the bank to not give loans to people who have jobs that need low skills or who work as drivers. This reduces the chances of having trouble getting the money back from these borrowers.
- **Being Cautious with New Customers with High Incomes:** The bank needs to be careful when offering loans to customers who have a lot of money but haven't taken loans before. Even though they earn a lot, there might be reasons they've never borrowed money. Being careful in these cases helps to avoid risks where these customers might not be able to pay back the loan.
- **By following these simple precautions,** the bank can be more careful and make better decisions about who to give loans to, reducing the chances of facing problems with repayment later on.