


# Credit EDA Case Study

An abstract graphic consisting of several overlapping, wavy, curved shapes in various shades of orange and yellow, creating a sense of movement and depth. The shapes are layered, with some appearing more prominent than others, and they sweep across the lower half of the slide.

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**DS C55**

# Business Objective

- Case study objective: Identify patterns indicating difficulty in loan payment for clients.
  - Potential actions based on patterns: Denying loans, reducing loan amounts, and offering higher interest rates to risky applicants.
  - Goal: Avoid rejecting deserving individuals capable of loan repayment.
  - Focus: Understanding the driving factors or variables strongly indicating loan default.
  - Utilizing the knowledge for portfolio management and risk assessment.
  - Enhancing risk assessment by identifying indicators of loan default.
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# Analysis Approach

## ➤ Data Understanding

- Analyzing the dataset, examining all the columns and their specific uses within the domain.

## ➤ Data Cleaning

- Eliminating columns with null values, removing unnecessary variables, and assessing the percentage of null values to delete the corresponding rows.


## ➤ Univariate Analysis

- Examining each column individually and creating distribution plots for each column.

## ➤ Bivariate Analysis

- Investigating the relationship between each variable and the target variable.

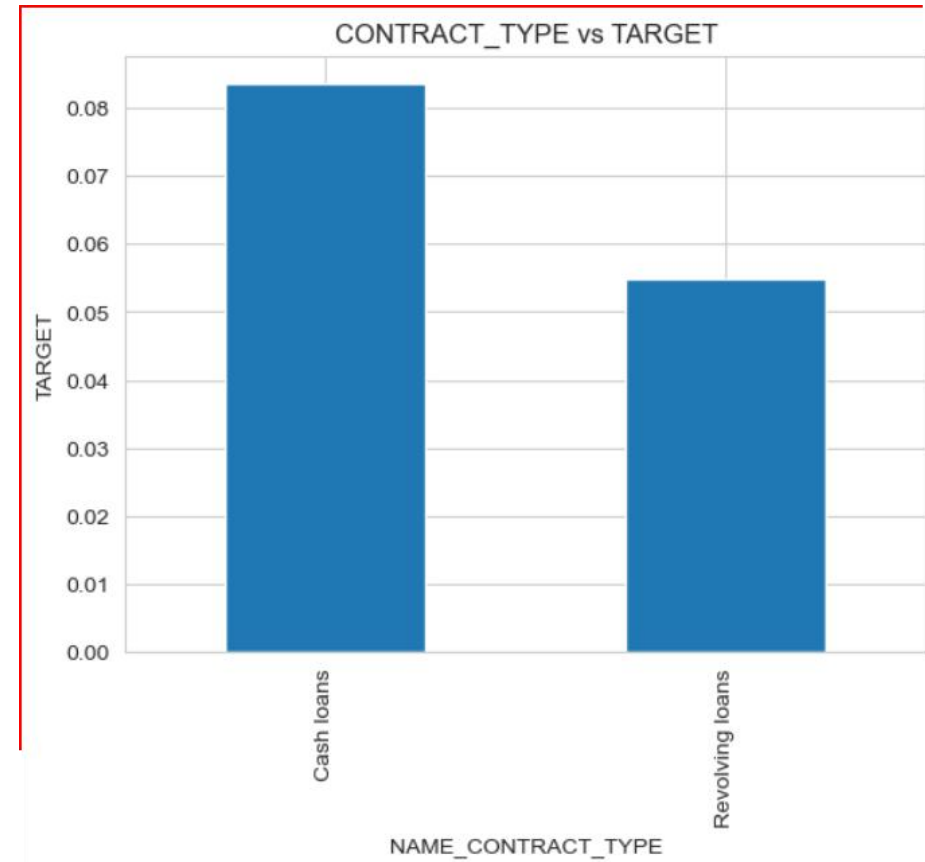
## ➤ Recommendations

- Analyzing all the plots and providing recommendations to minimize business losses or risks by identifying the columns that have the highest impact on loan defaulters.
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# Analysis: Contract Type & Target

## Observation:

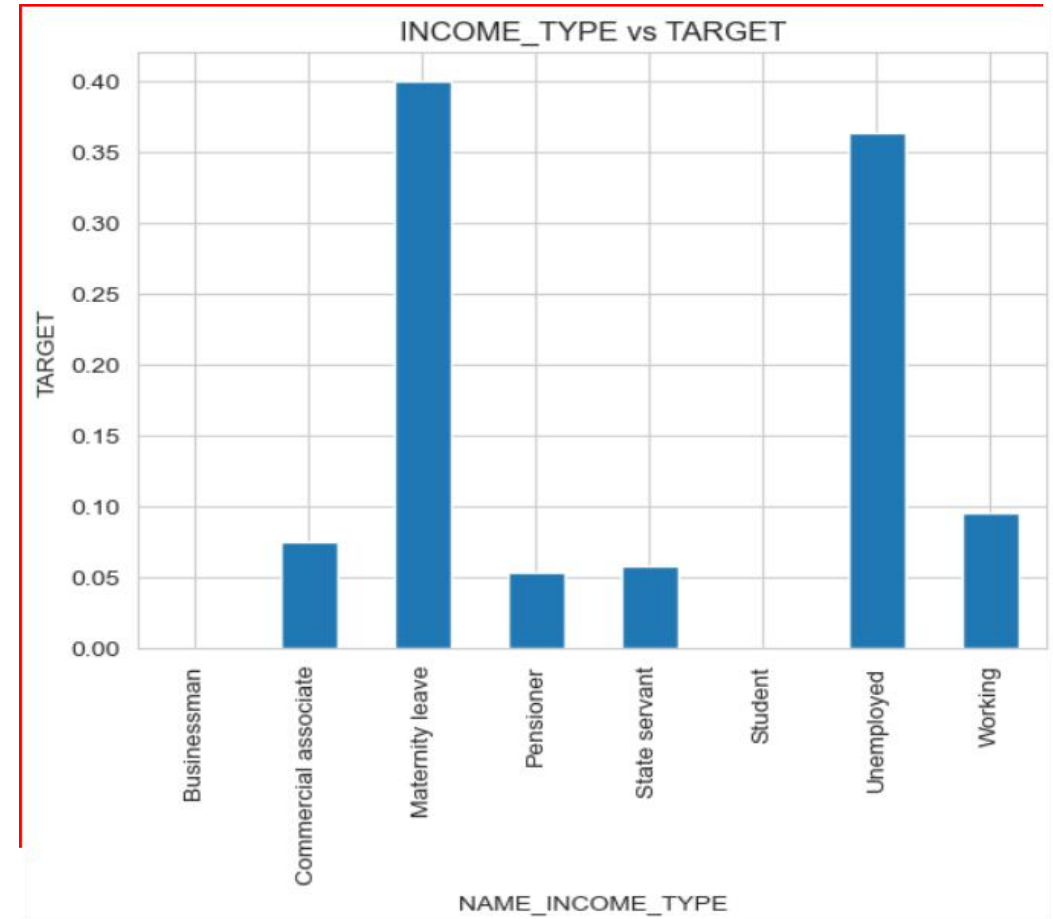
- Clients who have taken cash loans experience more challenges in making loan payments.



# Analysis: Income Group & Target

## Observation:

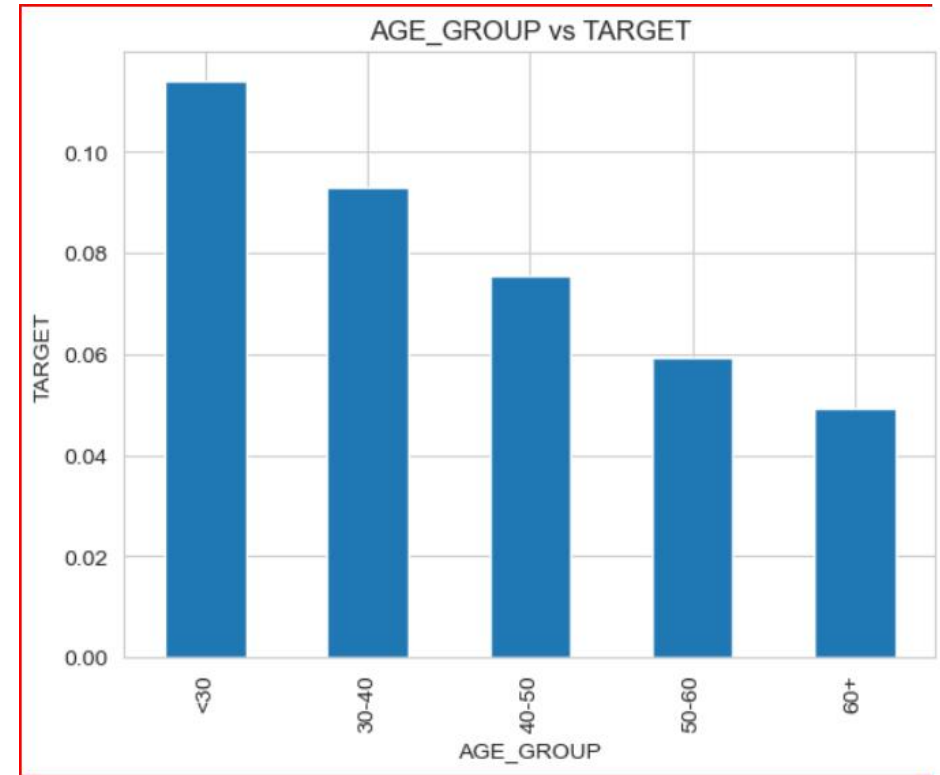
- Clients who are unemployed or on maternity leave experience greater challenges in making loan payments.



# Analysis: Age Group & Target

## Observation:

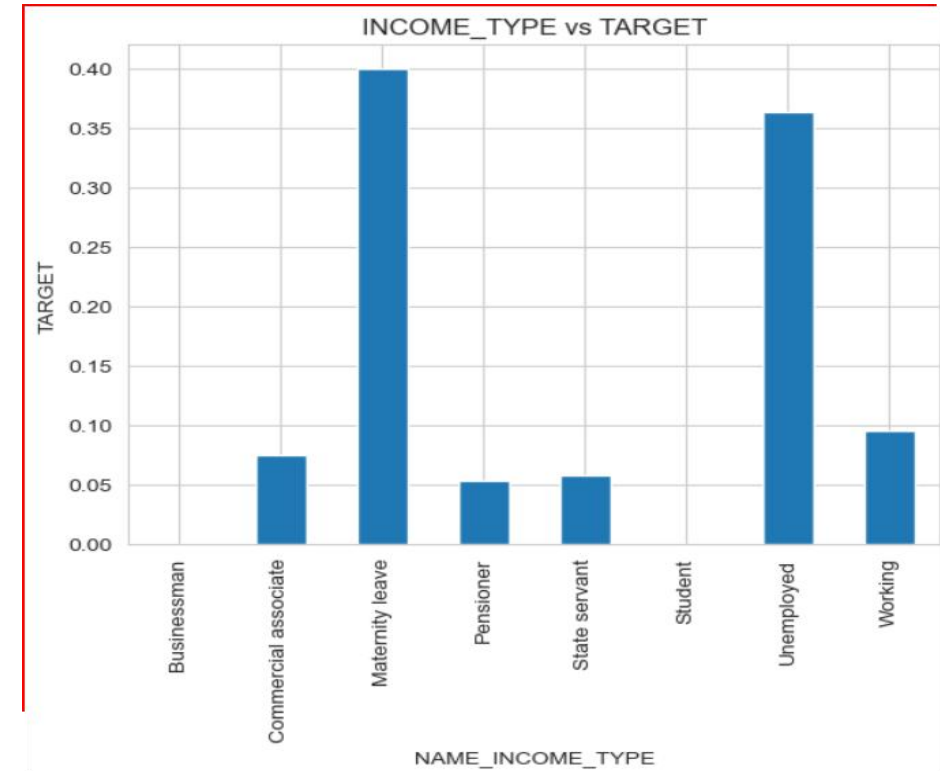
- It appears that clients below the age of 30 experience greater challenges in making loan payments.



# Analysis: Income & Target

## Observation:

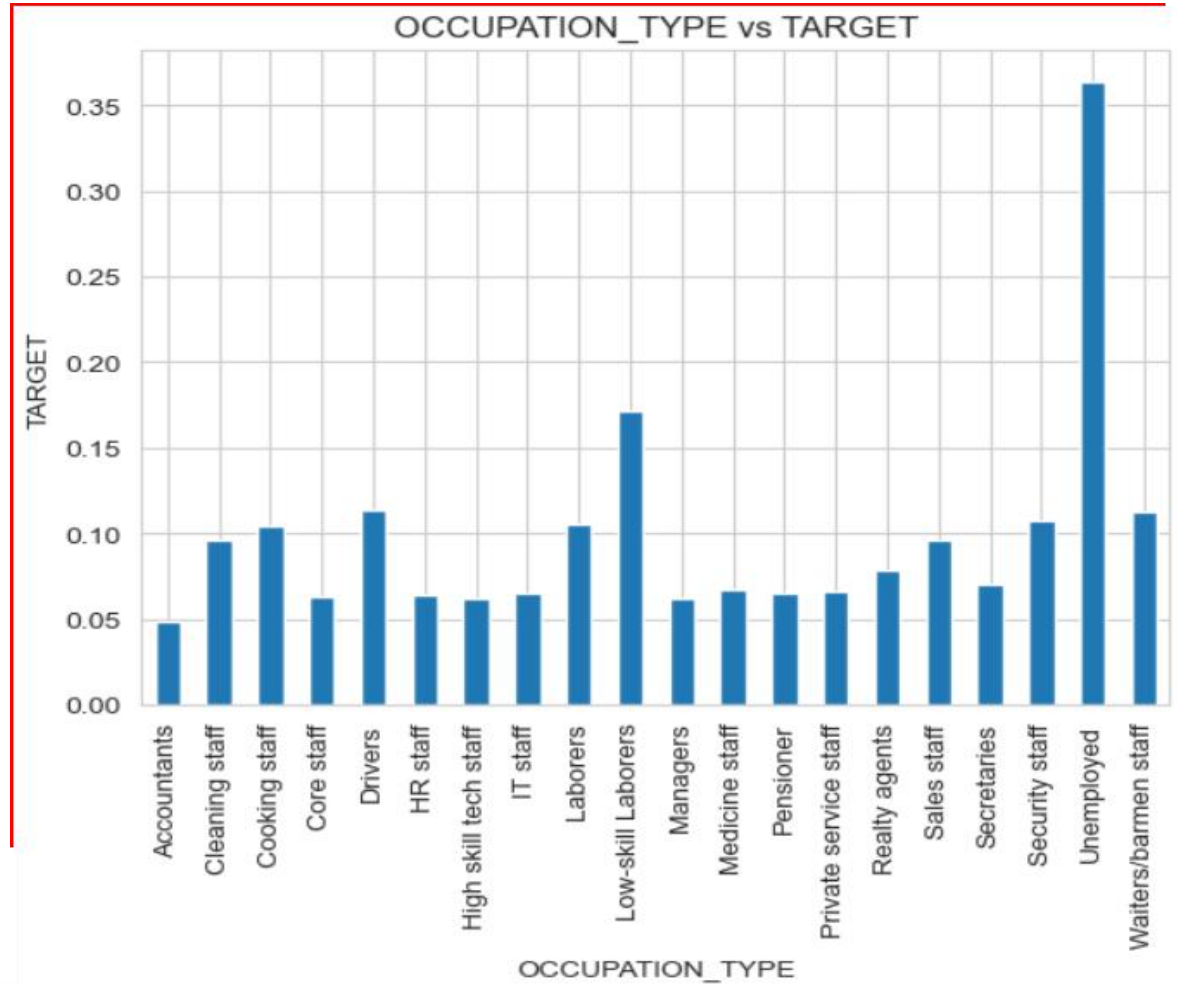
- Clients who are unemployed or on maternity leave experience greater challenges in making loan payments.



# Analysis: Occupation & Target

## Observation:

- Individuals who are unemployed or engaged in low-skilled labor face greater challenges in making loan payments.

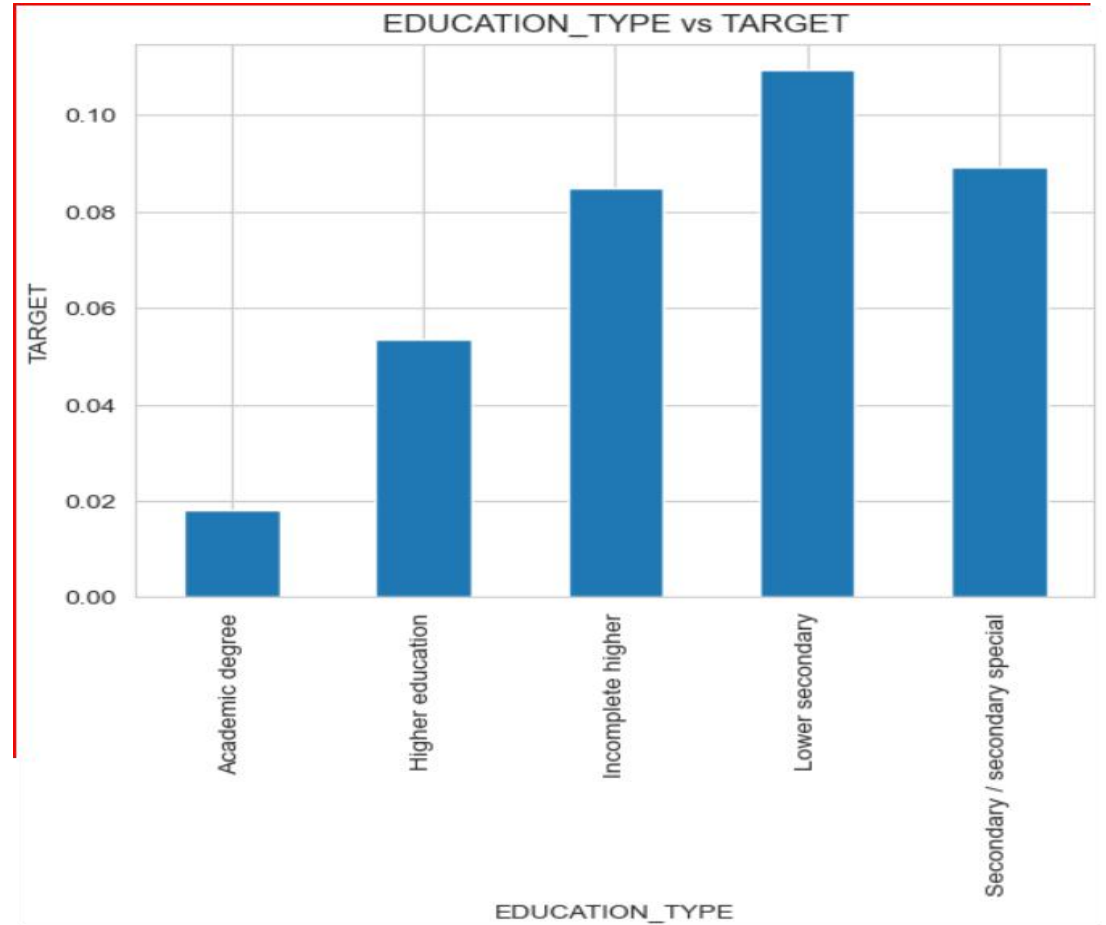




# Analysis: Education & Target

## Observation:

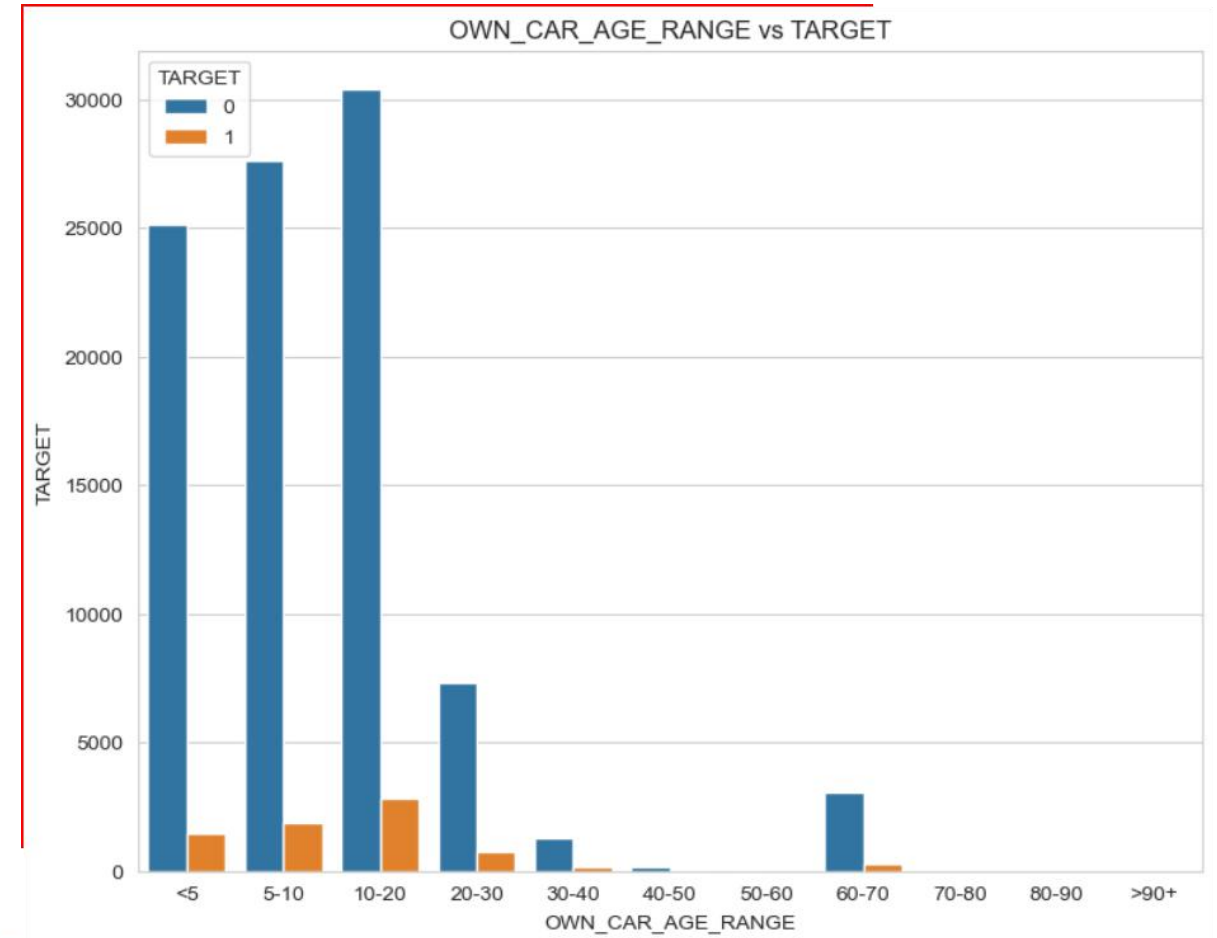
- Clients who have completed education up to the Lower Secondary level face challenges in making loan payments.



# Analysis: Own Car Age Group & Target

## Observation:

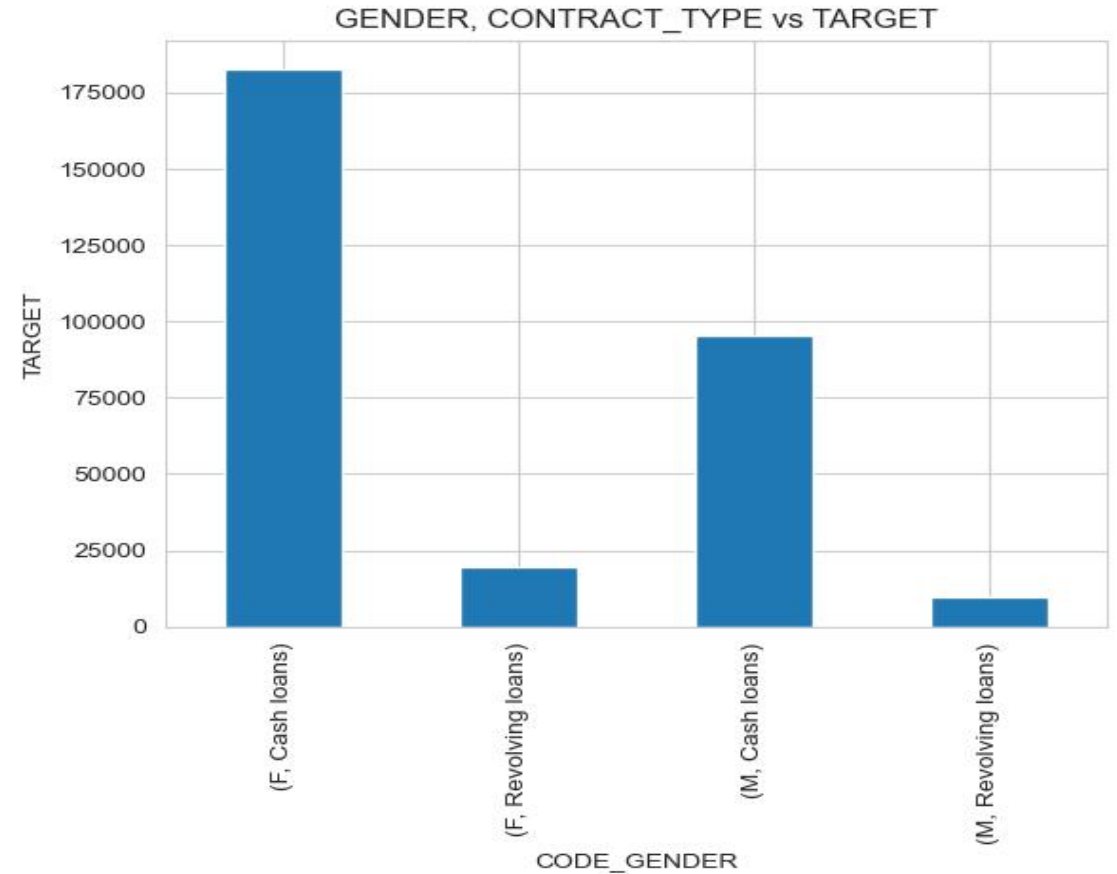
- Clients who are under the age of 30 and own a car tend to face difficulties in making loan payments.



# Analysis: Gender, Contract type & Target

## Observation:

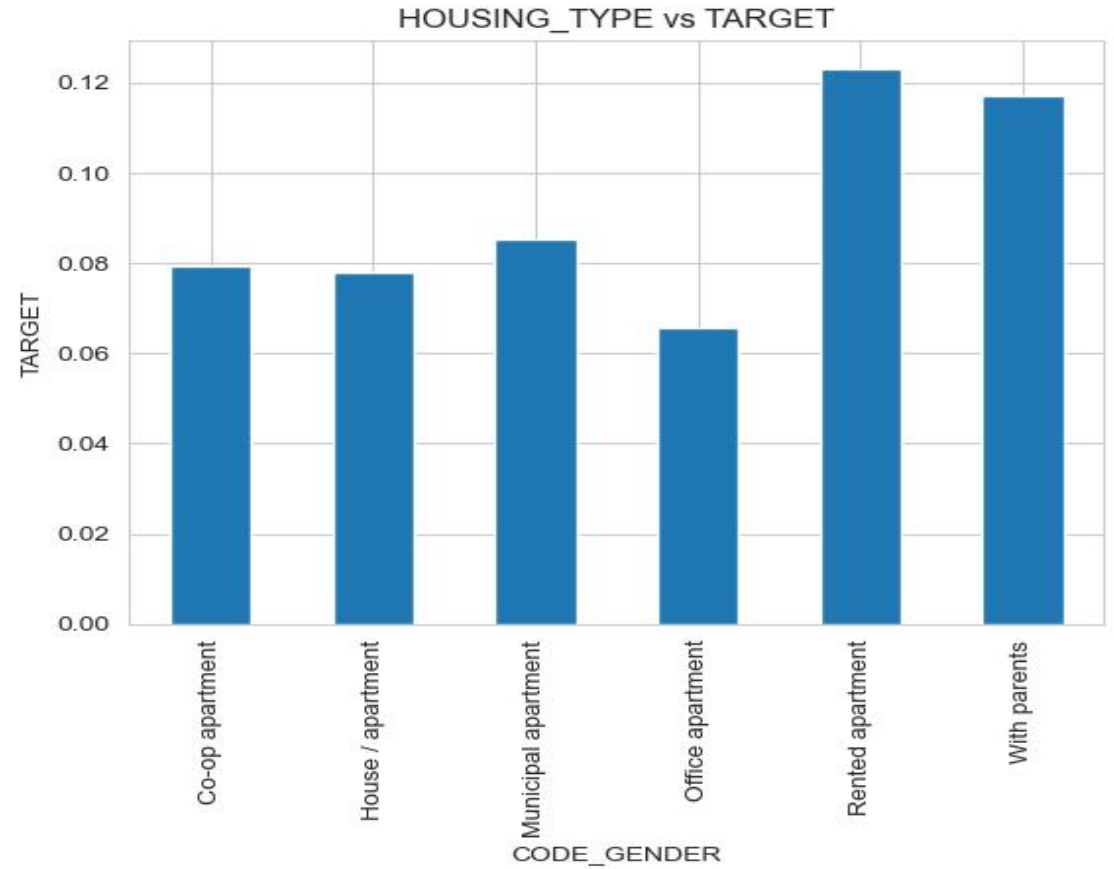
- Female clients experience higher difficulty in making payments for both cash loans and revolving loans.



# Analysis: Housing type & Target

## Observation:

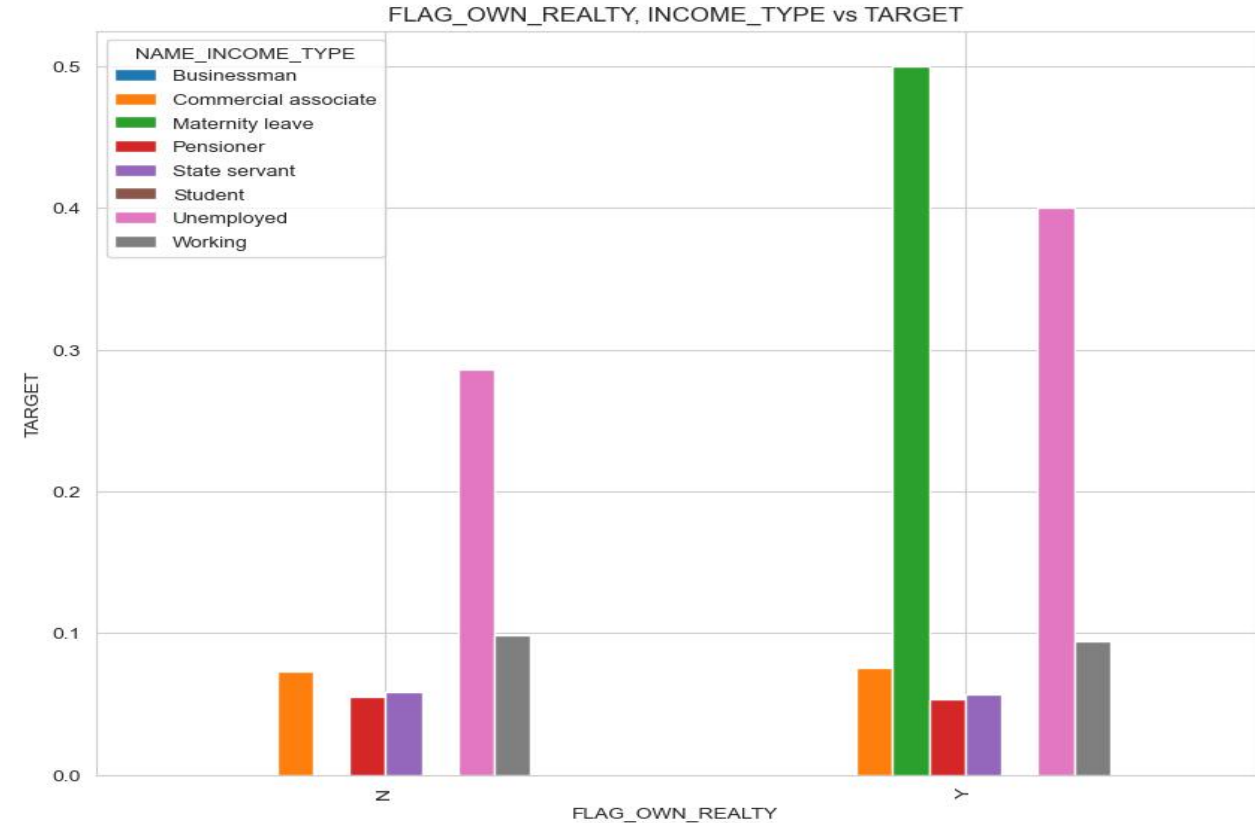
- Clients residing in rented apartments or living with their parents face higher challenges in making loan payments.



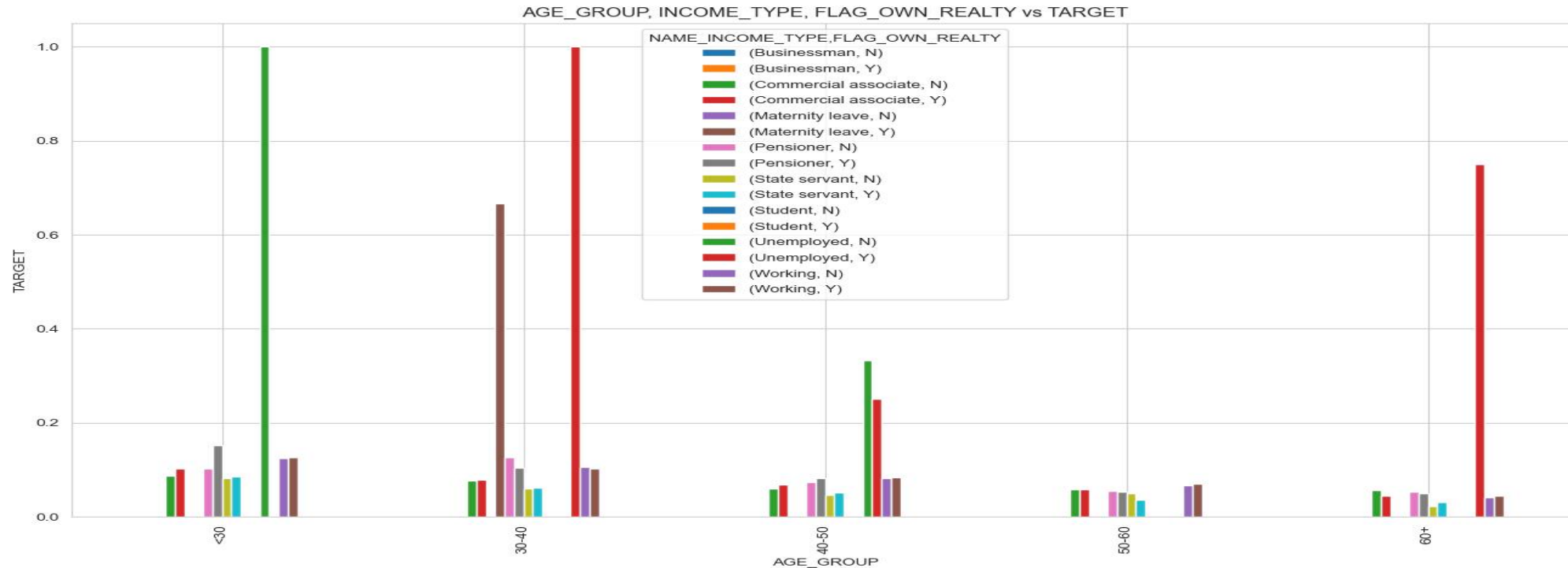
# Analysis: Own Realty, Gender & Target

## Observation:

- Clients who are on maternity leave and own realty
- Unemployed clients, whether or not they own real estate, are experiencing difficulties in making payments.



# Analysis: Age Group, Own Realty & Target

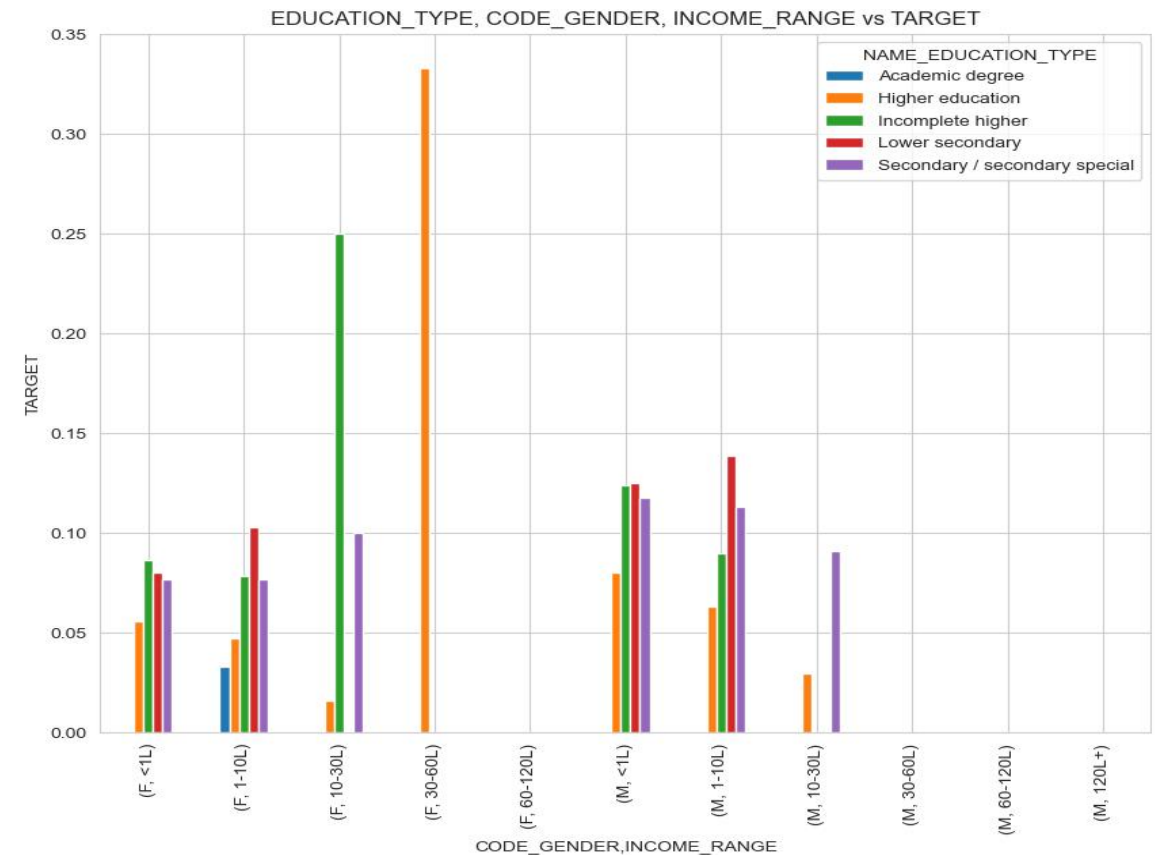


## Observation:

- Clients under the age of 30 who are unemployed and do not own real estate are at higher risk.
- Clients between the ages of 30-40 who are unemployed or on maternity leave are facing challenges in making payments.

# Analysis – Education, Gender, Income & Target

- Female clients who have attained higher education and fall within the income range of 30-60 lakhs encounter challenges in making loan payments.
- Female clients with incomplete higher education and income ranging from 10-30 lakhs experience difficulties in repayment.
- Male clients with lower secondary education and an income of less than 10 lakhs face issues in meeting their payment obligations.



# Merged Dataset

## (Previous and Current Dataset)

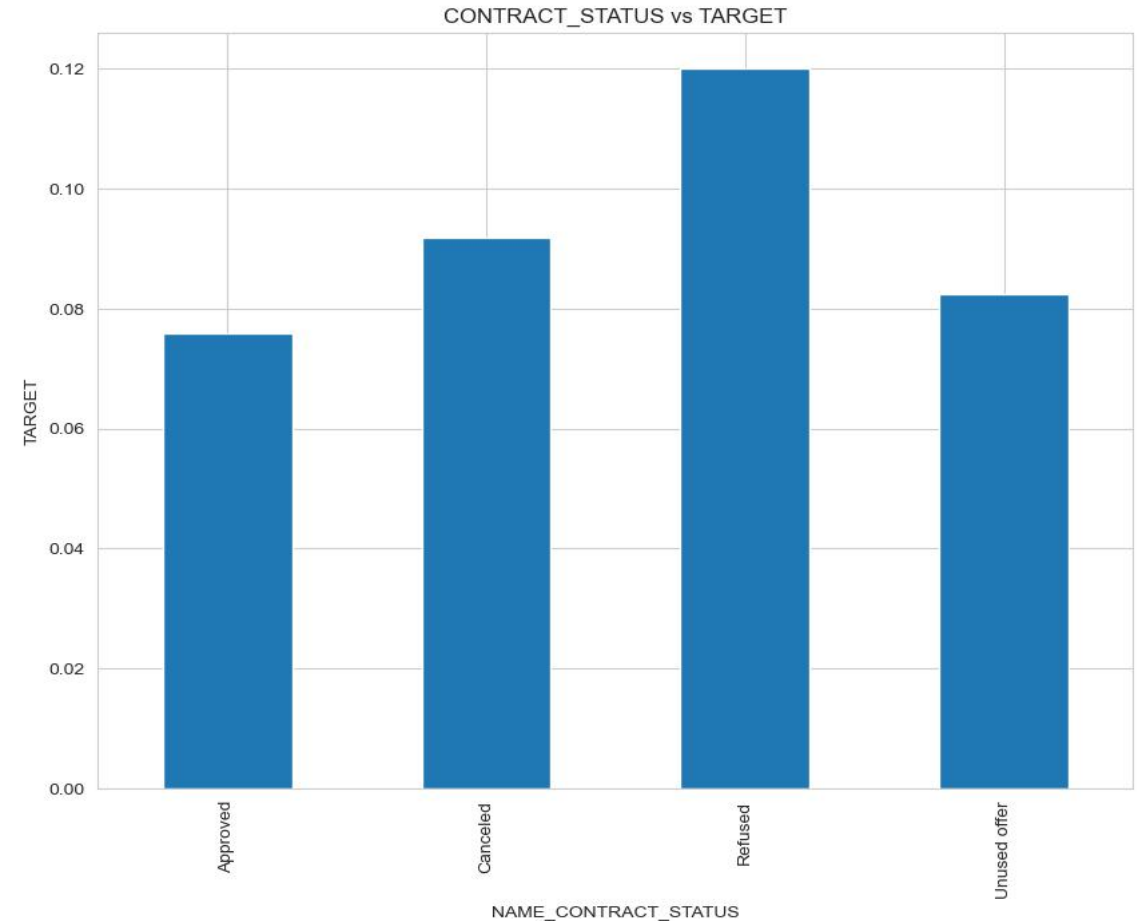




# Analysis: Contract Status & Target

## Observation:

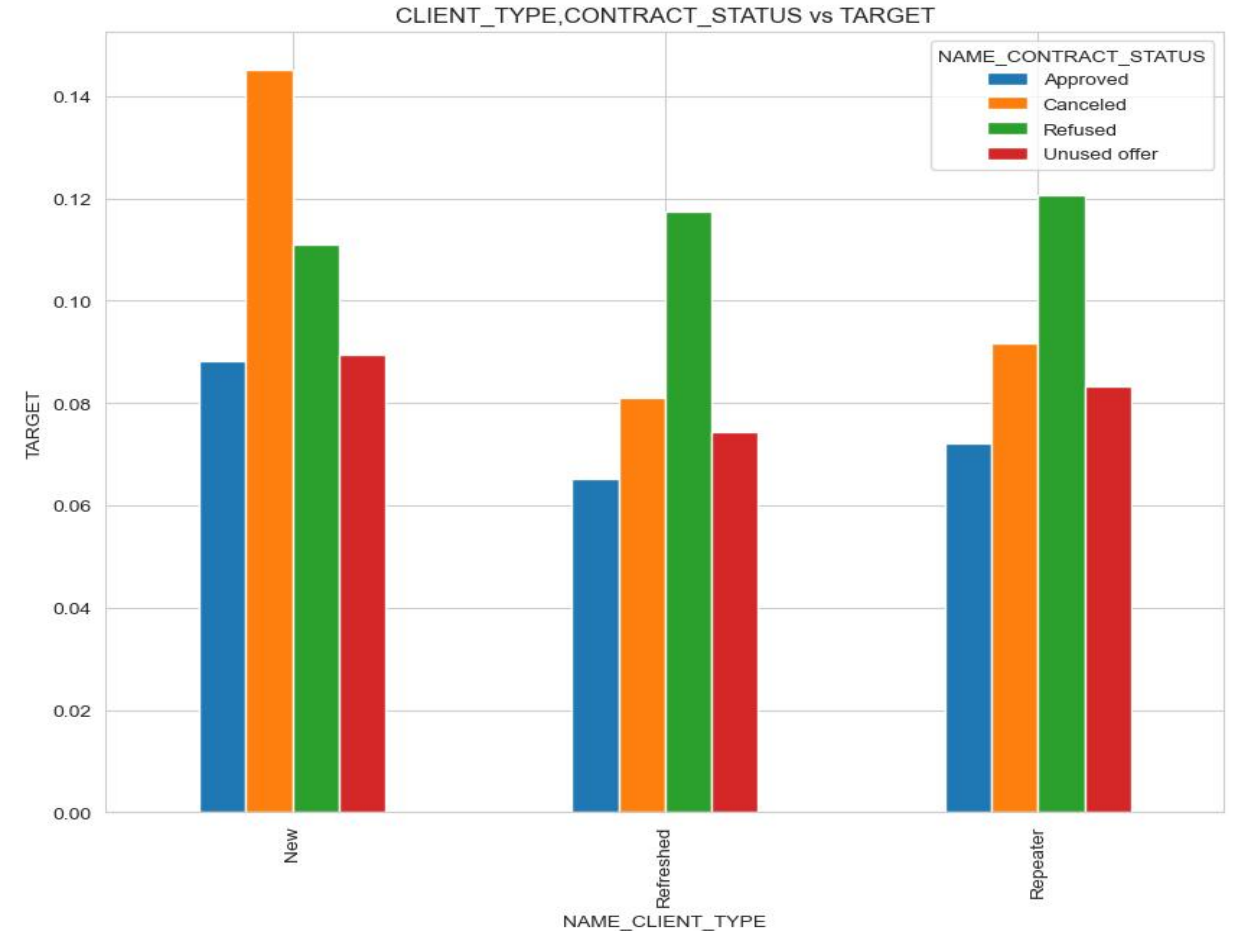
- Clients who had contracts refused in their previous loan application exhibit the highest percentage of loan-payment difficulties in the current application.
- On the other hand, clients whose previous loan applications were approved have a lower percentage of loan-payment difficulties in the current application.



# Analysis: Client Type, Contract Status & Target

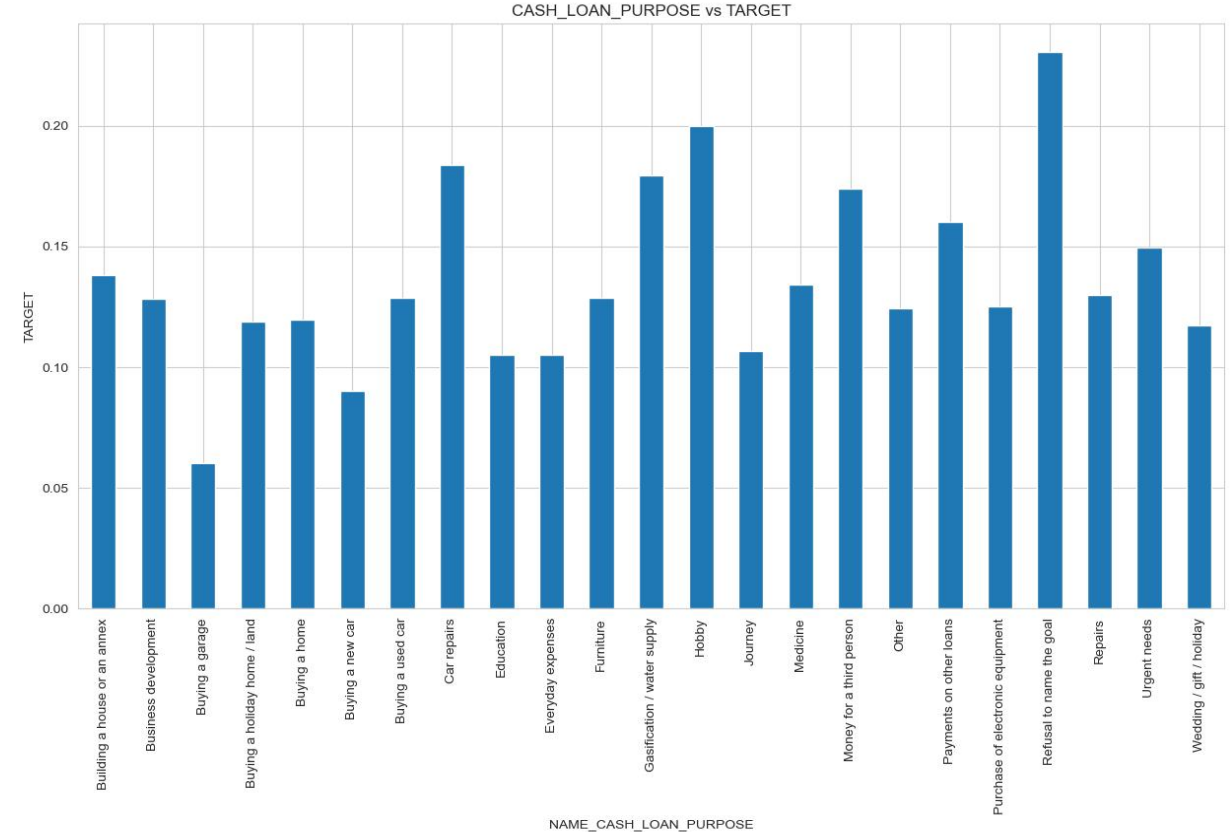
## Observation:

- New clients with a higher percentage of previously cancelled and approved applications are found to face difficulties in making loan payments.
- The number of refused requests remains consistent across all client types.

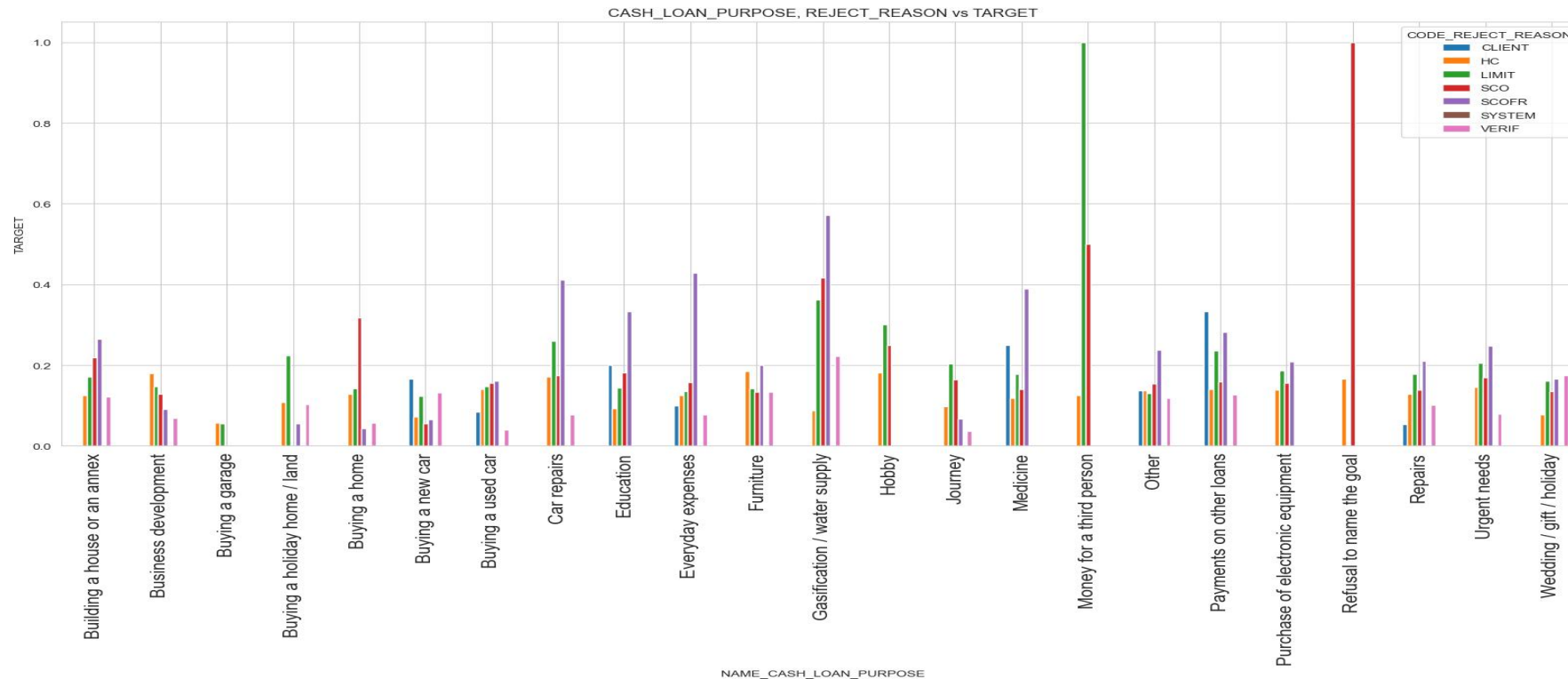


# Analysis: Cash Loan Purpose & Target

- **Observation:** Clients who have specified loan purposes as "Refusal to name the goal," "Hobby," and "Car repairs" tend to encounter challenges in making loan payments.



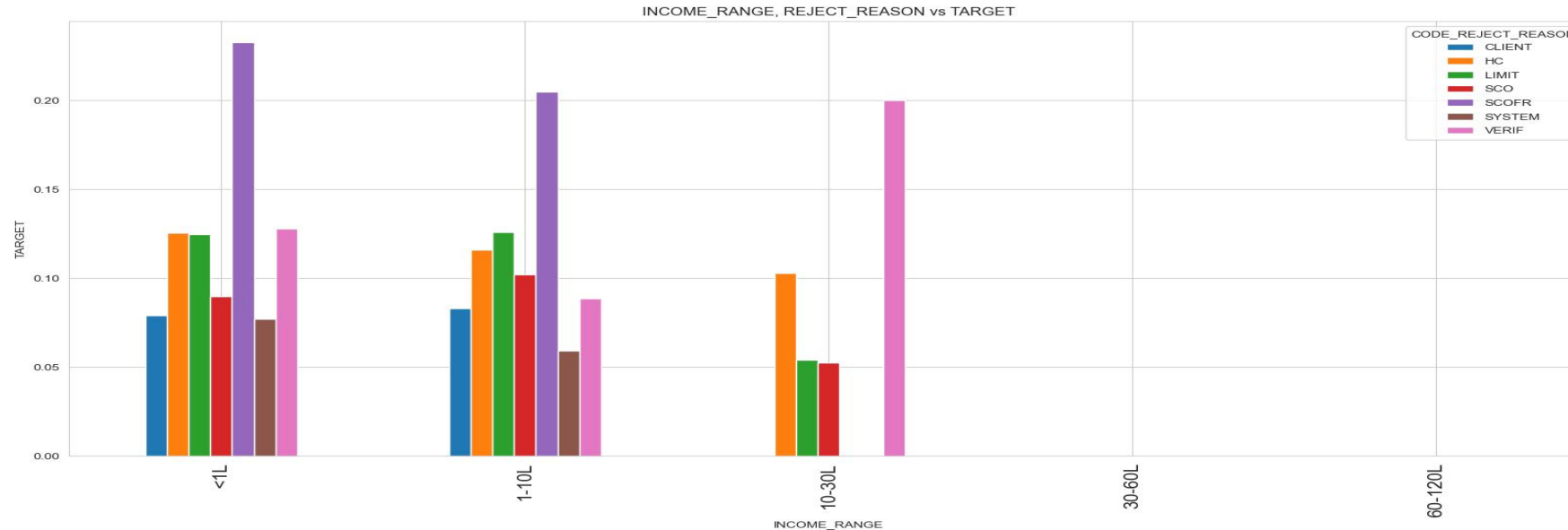
# Analysis: Cash Loan Purpose, Reject reason & Target



## Observation:

- Clients who have stated their loan purposes as "Refusal to name the goal" and have a history of rejected applications for SCO (Single Credit Obligations) with payment difficulties.
- Clients who have stated their loan purposes as "Money for the third person" and have a history of rejected applications for LIMIT (credit limit) with payment difficulties.

# Analysis: Income Group, Reject reason & Target



## Observation:

- Clients with an income range below 1 lakh who have previously had their application for SCOFR (Specific Credit Obligations for Retail Clients) rejected are experiencing payment difficulties.
- Clients with an income range between 1 lakh and 10 lakh who have previously had their application for SCOFR rejected are facing payment difficulties.
- Clients with an income range between 10 lakh and 30 lakh who have previously had their application for VERIF (Verification of Retail Clients) rejected are encountering payment difficulties.

# Conclusion

## **Recommended groups :**

- Clients with a positive history of approved applications.
- Clients with advanced education qualifications.
- Clients with higher income levels.
- Senior citizens across all categories.
- Male clients who exhibit more favorable characteristics compared to females.

## **Risky groups :**

- Clients who have been previously rejected, cancelled, or had unused offers.
  - Low-income groups with a history of previous refusals.
  - Unemployed clients.
  - Younger clients are considered relatively riskier compared to middle-aged clients and senior citizens.
  - Clients with lower secondary and secondary education levels.
  - Clients whose loan purposes include 'Refusal to name the goal', 'Hobby', 'Money for a third person', and 'Car repairs'.
  - Clients with shorter employment durations.
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