BANK LOAN RISK ANALYSIS

Credit EDA Assignment by Vinay Chutake

DS-C50

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BUSINESS OBJECTIVE

In this case study/assignment we aim to analyize the provided dataset and to find the patterns to indicate if user is able to pay his instalments which should help bank to take various business decisions regarding loan application of a client.

TOOLS USED

- Python with following libraries:
  - Pandas
  - Numpy
  - Matplotlib
  - Seaborn

- Jupyter Notebook to showcase code

APPROACH FOLLOWED

As we have 2 datasets provided to use "application_data.csv" and "previous_application.csv" which denote current application and previous application history of a client.

The general steps we followed are:

- Data cleaning of current application
- Analyzing the current application data individually to get idea what we are in for
- Data cleaning of previous application
- Analyzing the previous application data individually
- Merging these two data sets and analyzing it to see the full picture

Cntd…

APPROACH FOLLOWED

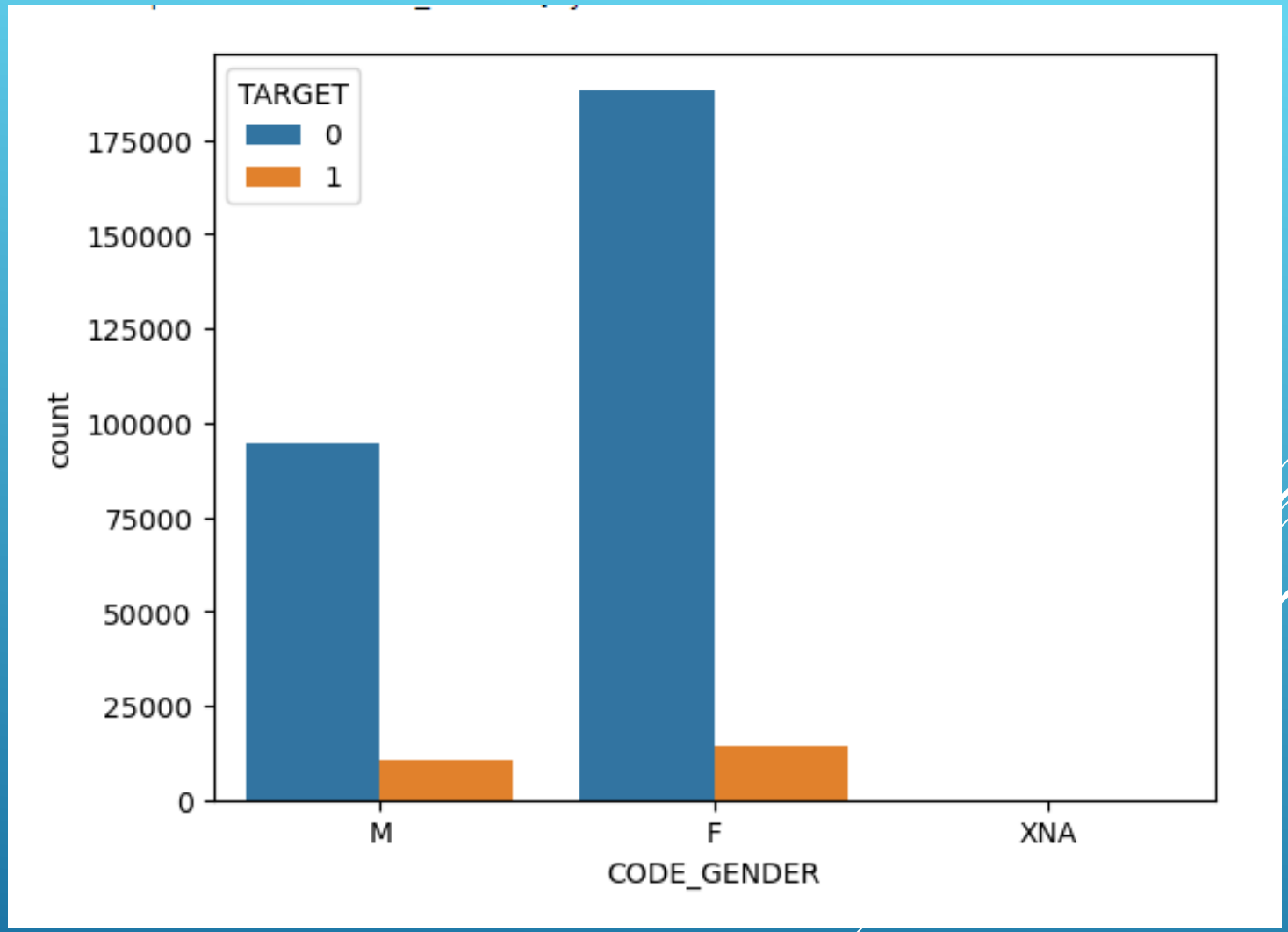
Each dataset is tackled by keeping below steps in mind:

- Data understanding
- Data cleaning
- Handling null values
- Handling outliers
- Dropping the extra columns
- Imputing (If needed)
- Typecasting data types
- Data visualization for univariate and multivariate

DATA ANALYSIS

Gender wise Defaulters

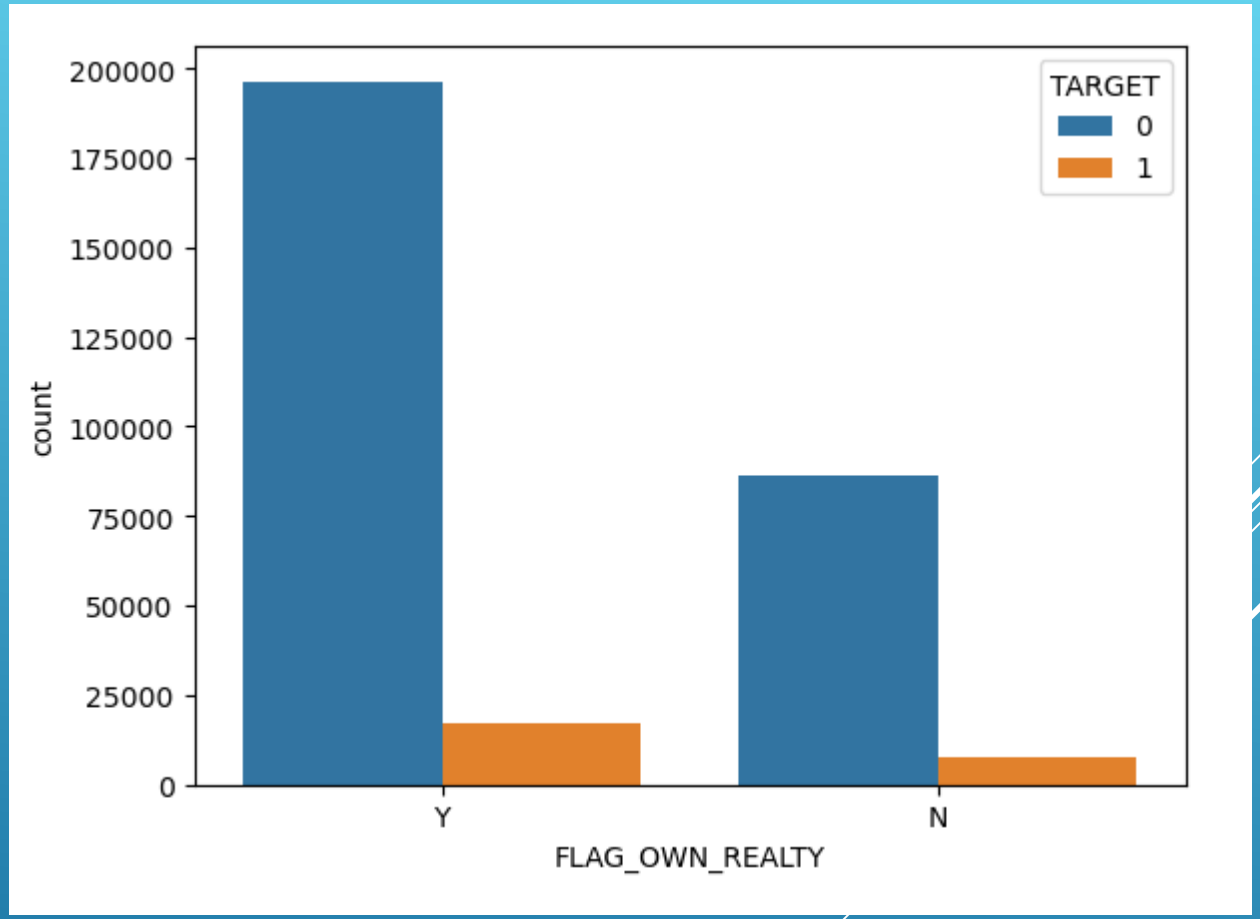
In chart we can clearly see percentage of Males are more likely to be defaulter than females. In other words females would be better candidate to give loan to.



Defaulters statistics against Immovable Properties (House/Flat)

People who own a house or flat which is immovable property are likely to pay off their debt than those who do not own house/flat.

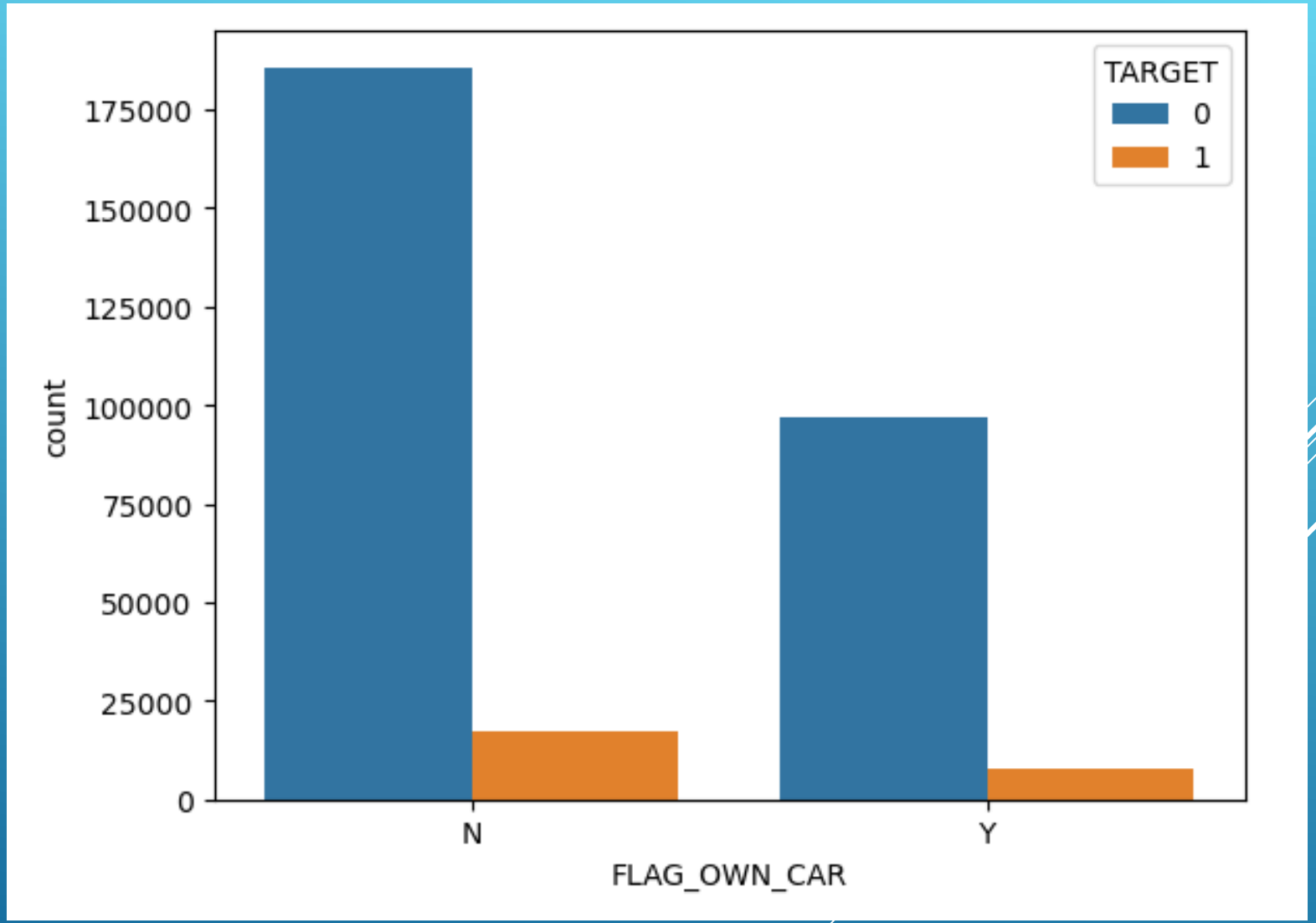
It is one of good insight we found, maybe who do not have house/flat think even if they become defaulter bank can not do much damage to them and they simply can move away anytime they want, Or another assumption we can make is who do not own a house have to pay rent and have more expenses



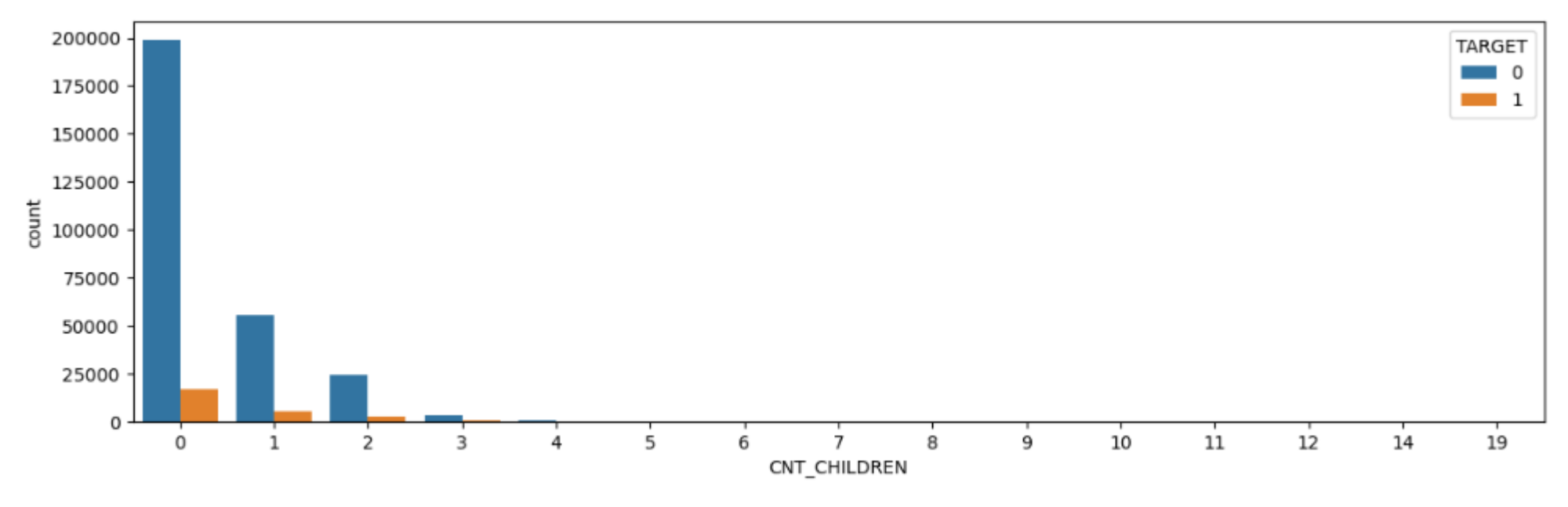
Defaulter against Car Ownership

People who own a car are more in percentage to become defaulter.

Not sure why... Do they have too many expenses? Do they show-off things and things which are hidden like credit score they don't care ?

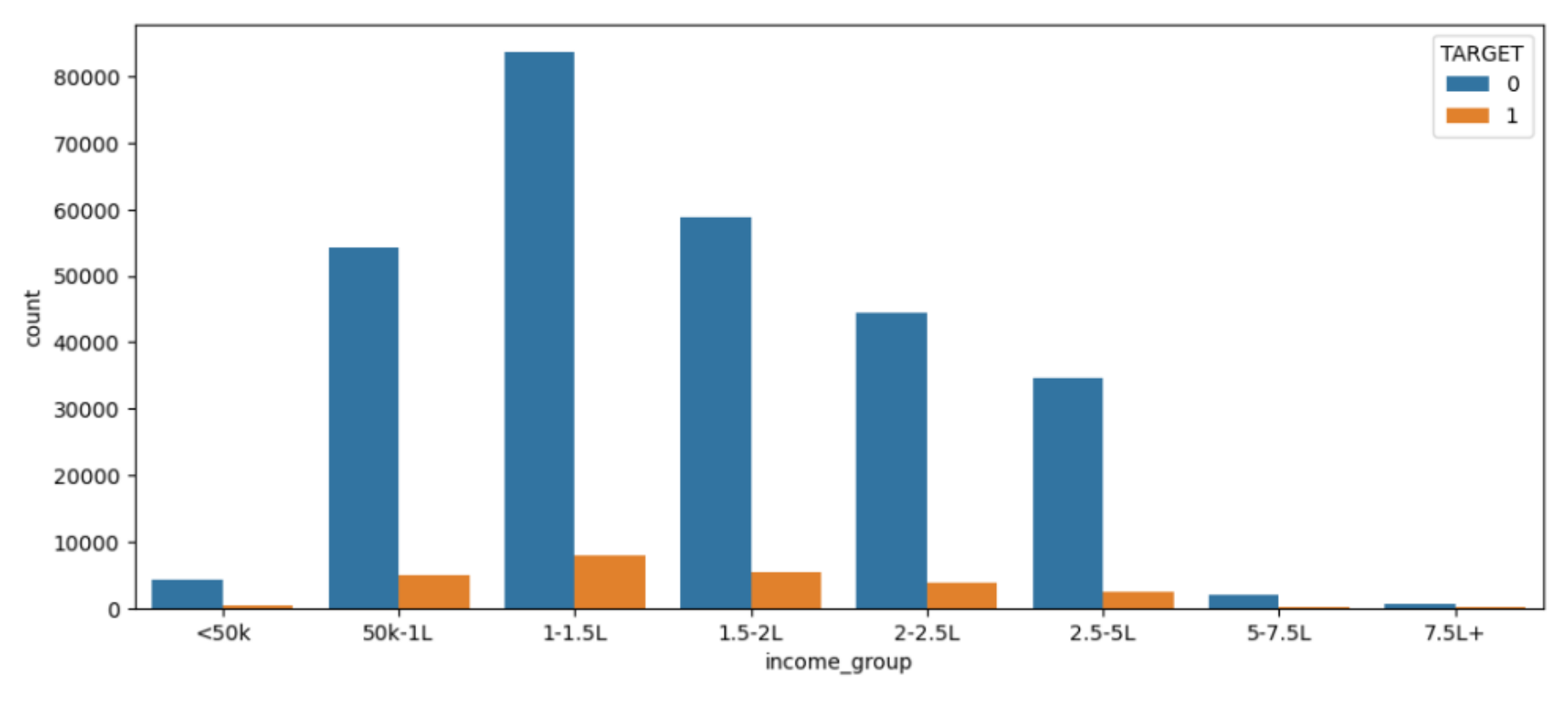


Defaulters vs Count of Children



Client who have less children are more likely to payoff their debts. Lower the number of children, higher is the probability of client being ideal candidate

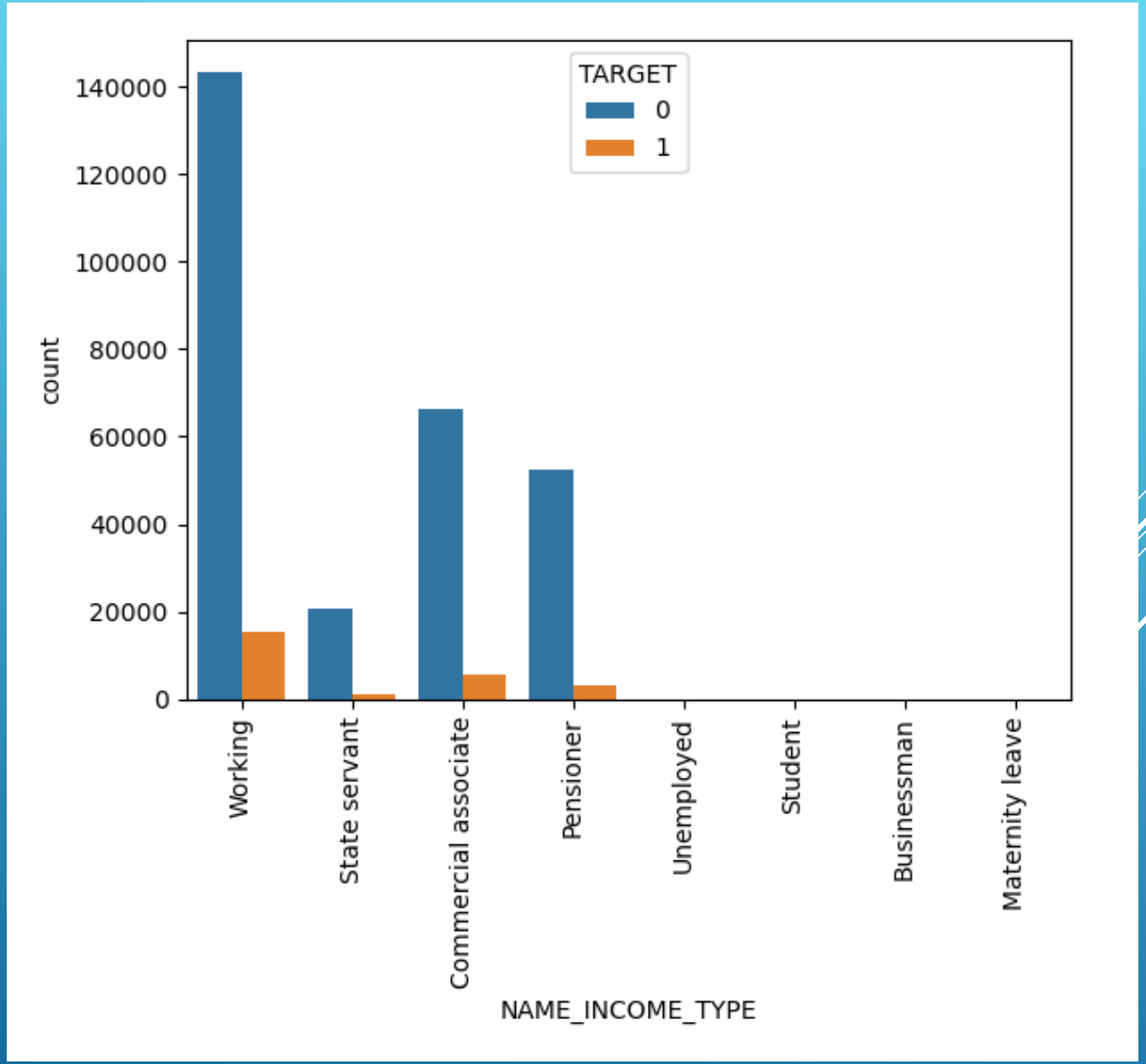
Income Range Effect



Most efficient income group is with income in range of 1 to 1.5 lakh who pay-off their debts

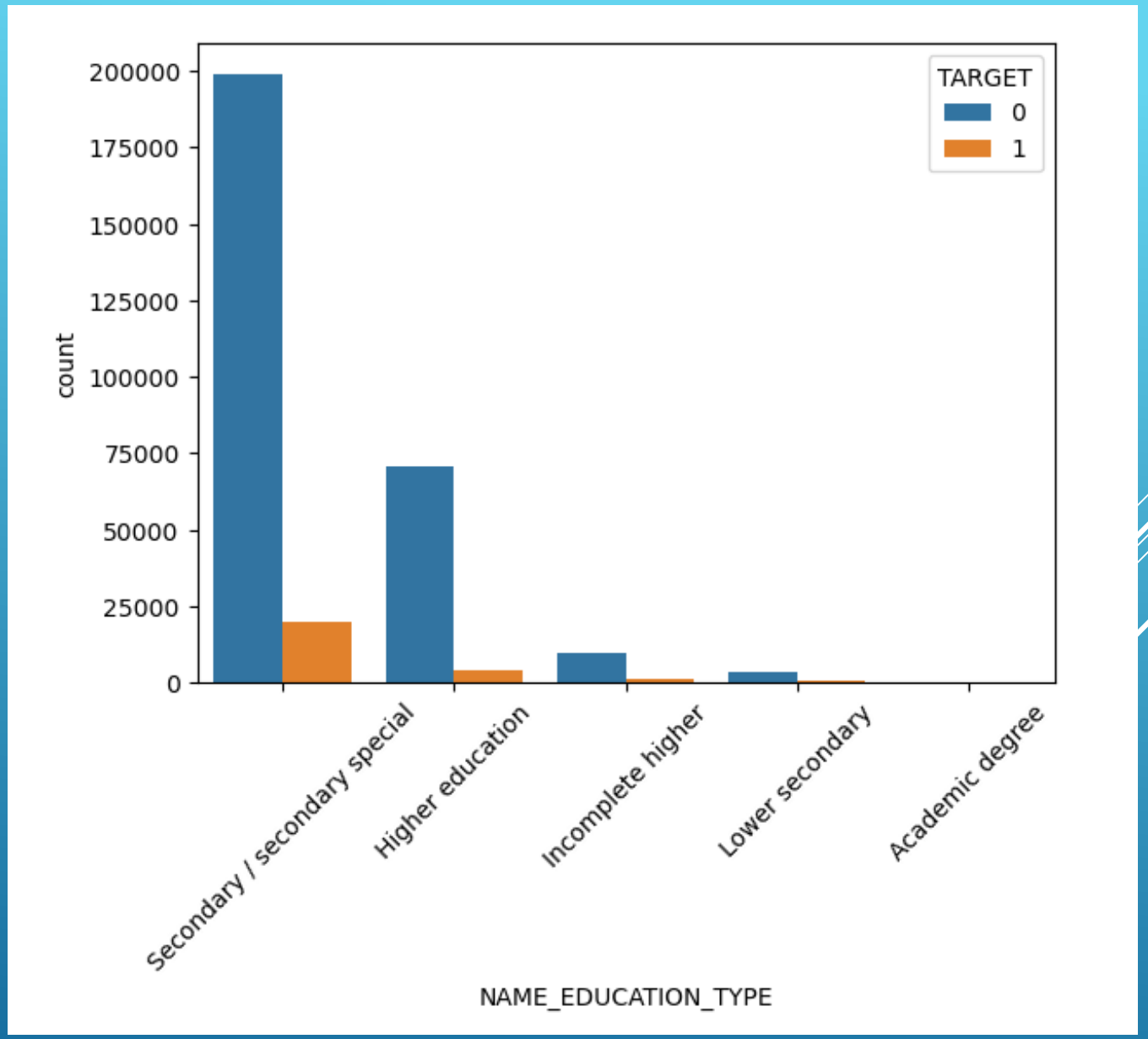
Income Type Area of Defaulters

As always, working people are being good citizen and paying off their debts.



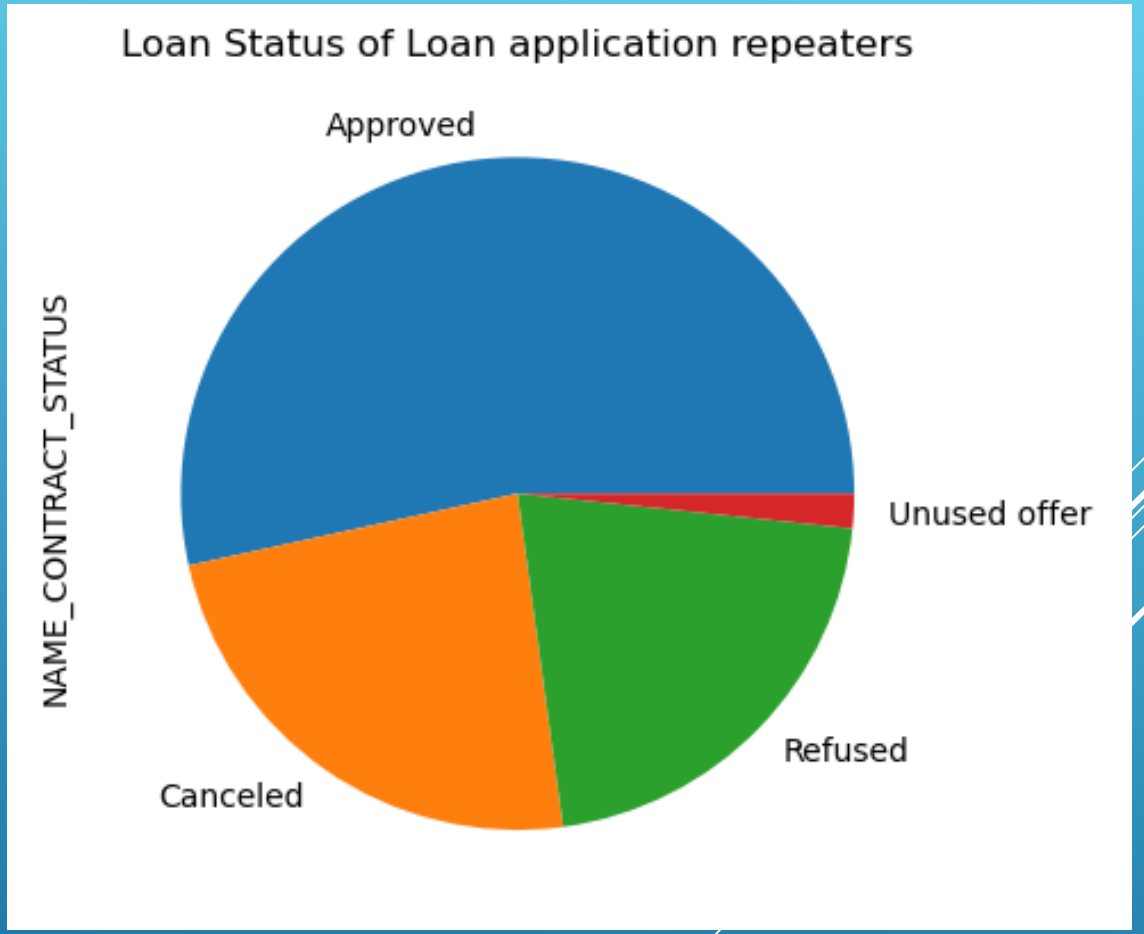
Education

Most efficient group to NOT become defaulters are Secondary / secondary special



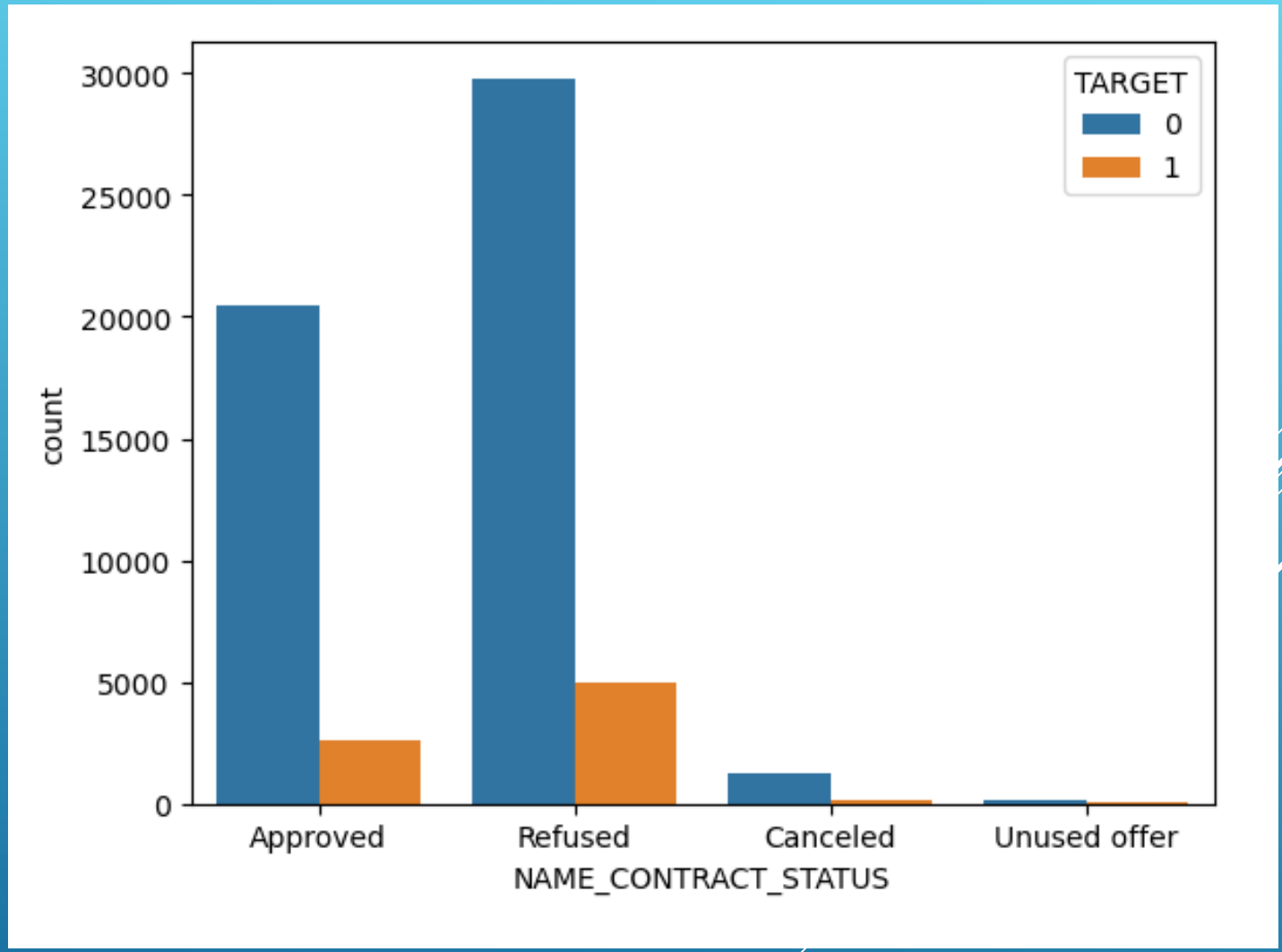
Loan Status of Repeaters

- Once people get loan they keep trying to get loans again. Most repeaters are the one who got loan approved.
  So customer retention is the key
- Very few people do not use the offer



Defaulters from current application vs Their Previous Application Status

Most defaulters clients are the the ones whos previous application was refused
But also the most good citizens are also the ones whos previous applications were rejected



CONCLUSION & RECOMMENDATIONS

- Males are more likely to be defaulter than females. In other words females would be better candidate to give loan to.
- People who own a car are more in percentage to become defaulter. Not sure why... Do they have too many expenses? Do they show-off things and things which are hidden like credit score they don't care ?
- People who own a house or flat which is immovable property are likely to pay off their debt than those who do not own house/flat.
- Client who have less children are more likely to payoff their debts

Most efficient income group is with income in range of 1 to 1.5 lakh who pay-off their debts

- As always, working people are being good citizen and paying off their debts.
- most efficient group to not become defaulters are Secondary / secondary special
- More defaulters are the people with lower income range
- Most repeaters are the one who got loan approved. So customer retention is the key
- Most defaulters clients are the ones whos previous application was refused