

# CREDIT EDA CASE STUDY

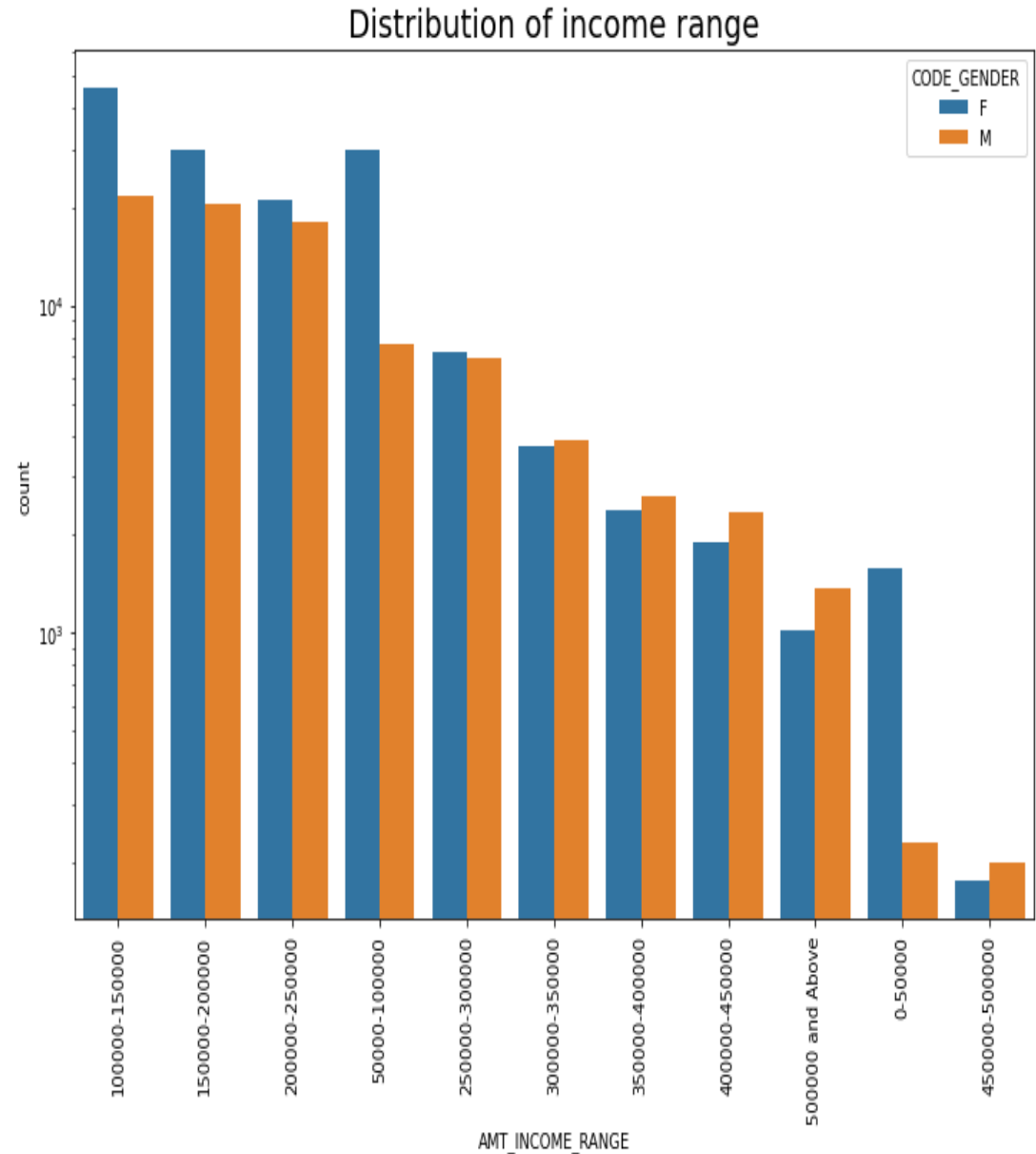
BY

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# **CATEGORICAL UNIVARIATE ANALYSIS - TARGET 0**

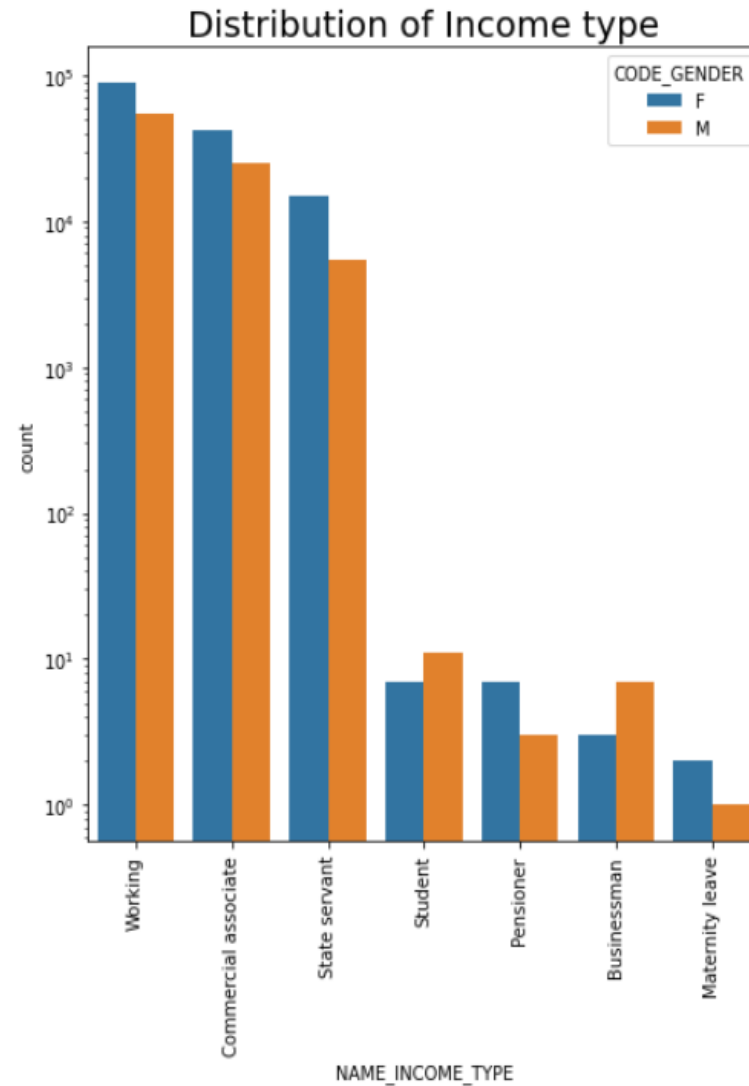
# DISTRIBUTION OF INCOME RANGE

- Income range from 100000 to 150000 is having more number of credits.
- Credit rating for females are more than males.
- For 450000 and above count is very less compared to others



# DISTRIBUTION OF INCOME TYPE

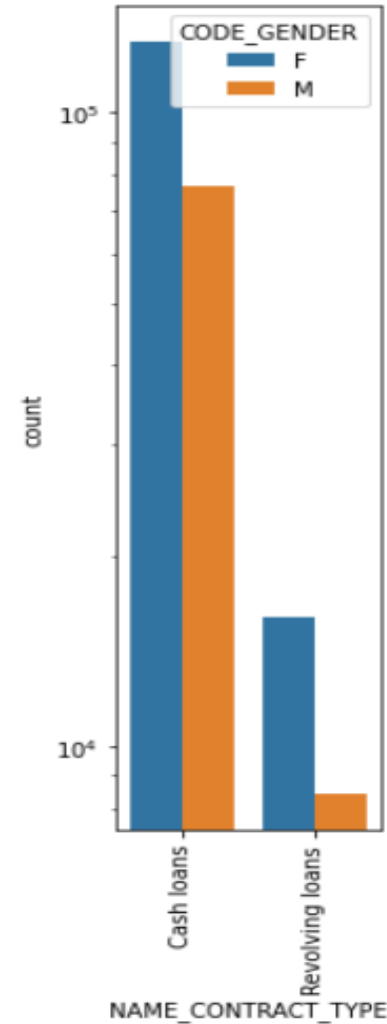
- Working professionals have the highest numbers
- Those who are on Maternity leave are least in numbers
- Those who are employed in one way or the other have better results



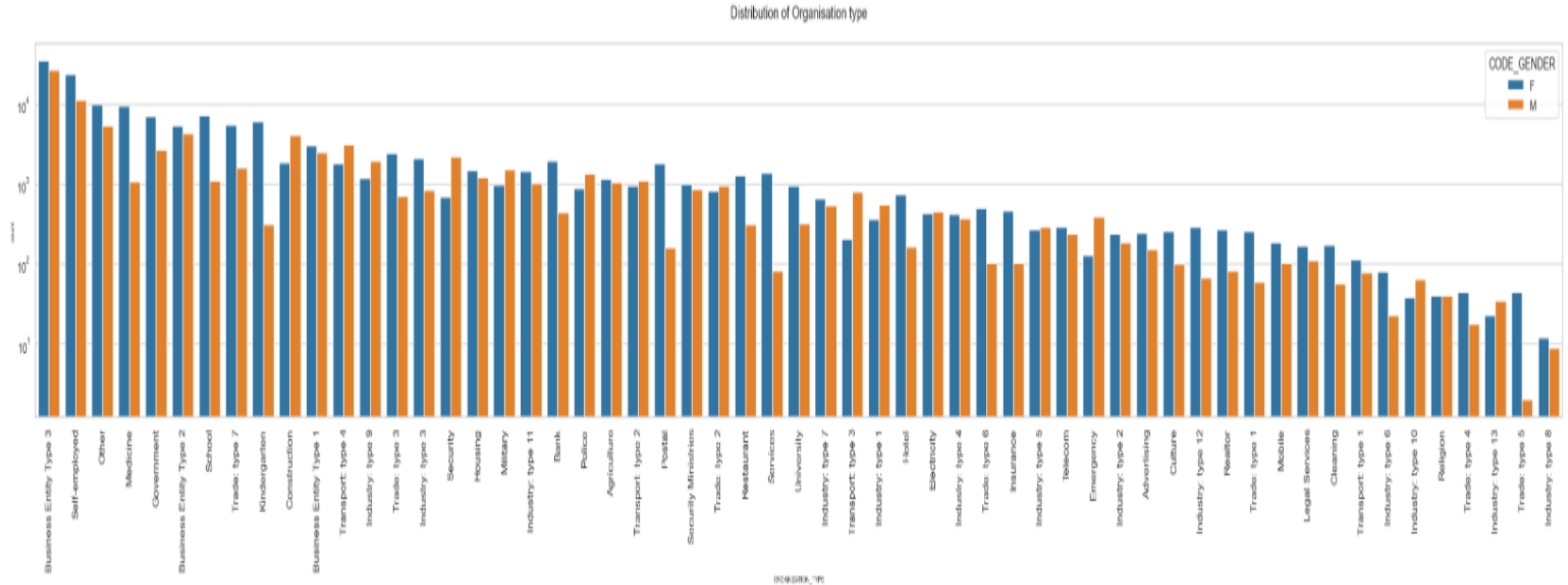
# DISTRIBUTION OF CONTRACT TYPE

- Cash loans contracts have more credit rating than the revolving loans.
- For this, also Female is leading for applying credits.

Distribution of contract type



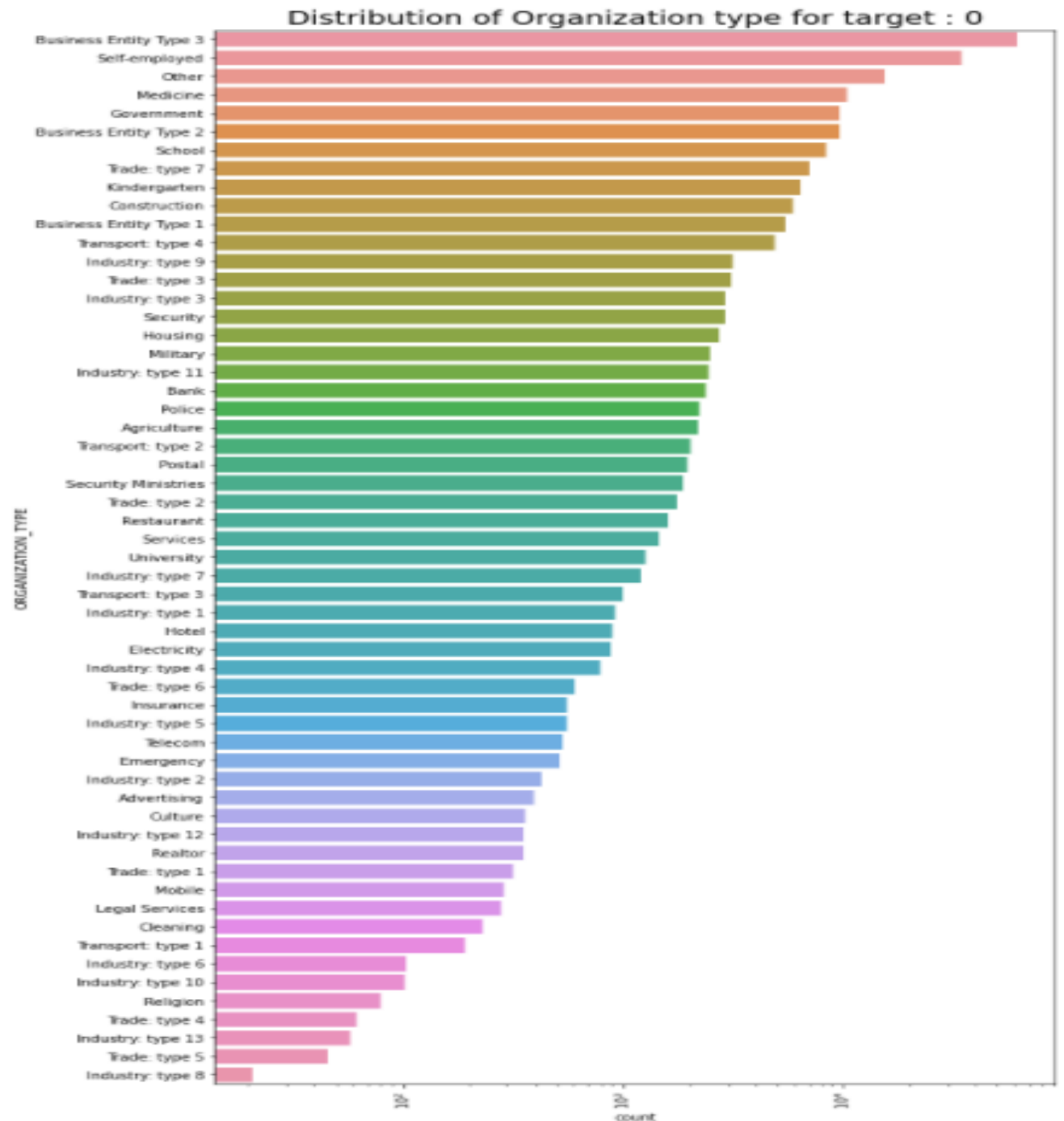
# DISTRIBUTION OF ORGANISATION TYPE



\_Since it is difficult to interpret from the above graph we will create a graph for Organization type separately.

# DISTRIBUTION OF ORGANISATION TYPE –TARGET 0

- There are 'Business entity Type 3' , 'Self employed', 'Other' , 'Medicine' org types have applied for more credits compared to others
- There are some few clients from 'Industry type 8', 'Trade type 5'

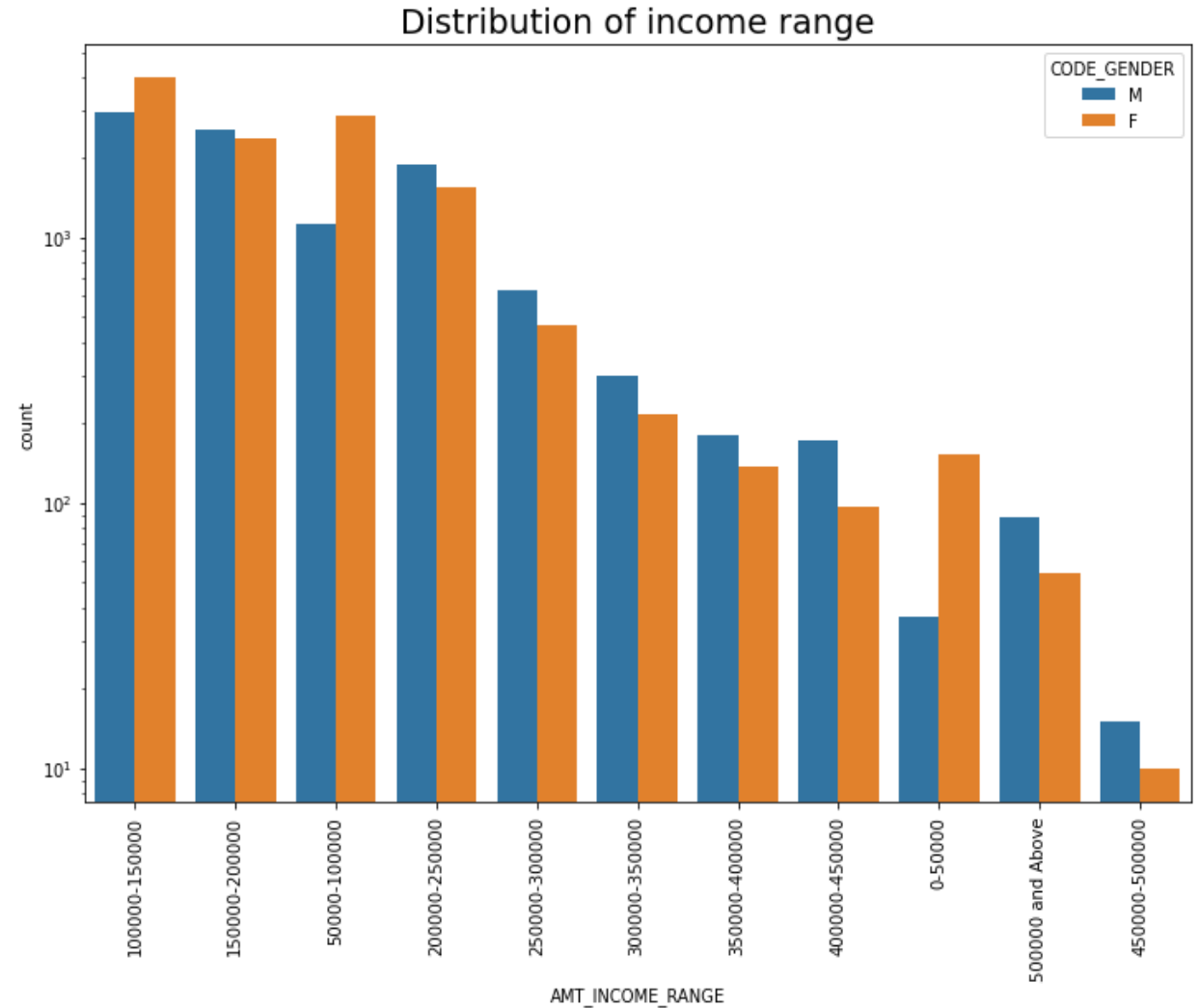


# **CATEGORICAL UNIVARIATE ANALYSIS - TARGET 1**



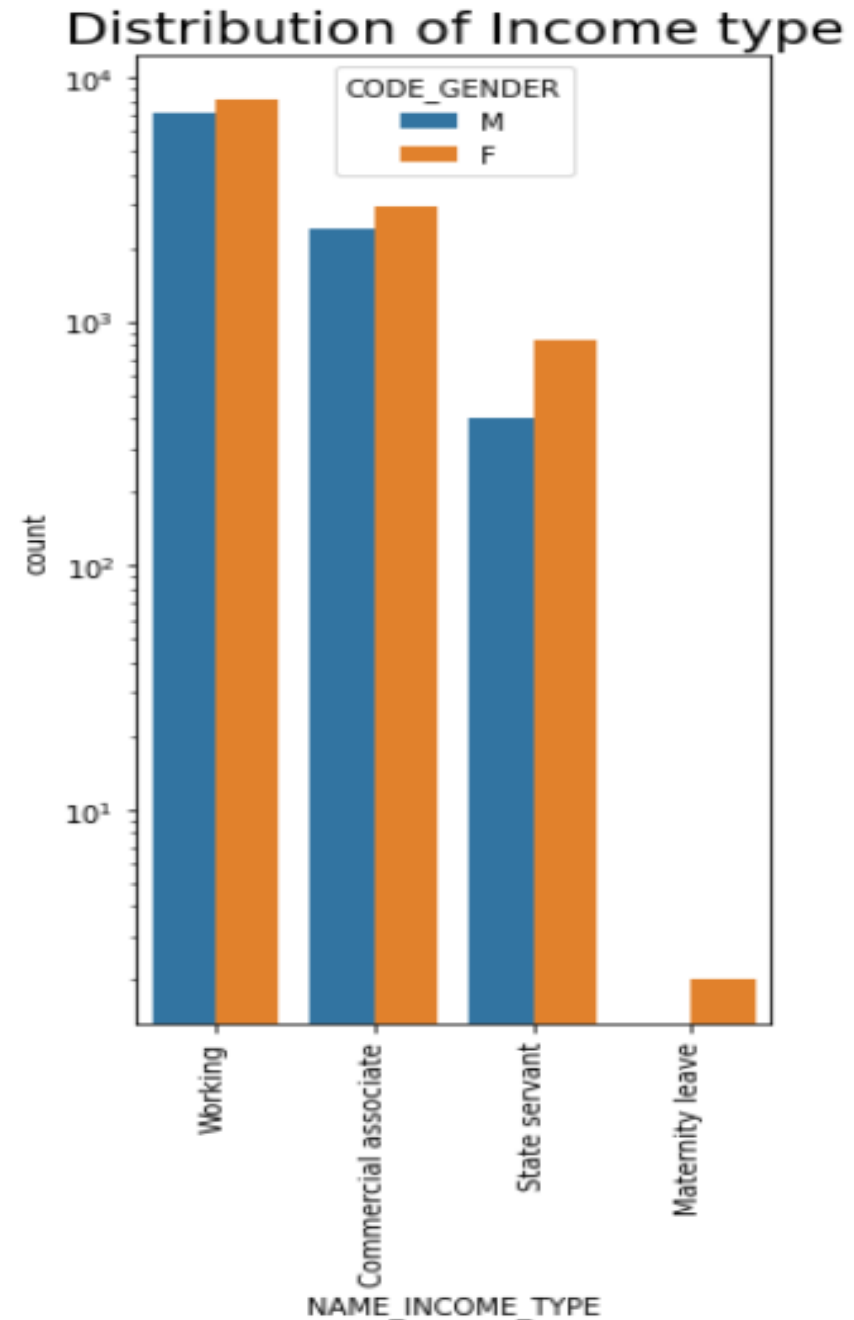
# DISTRIBUTION OF INCOME RANGE

- Female counts are higher than male.
- Income range from 100000 to 200000 is having more number of credits.
- This graph show that females are more than male in having credits for that range.



# DISTRIBUTION OF INCOME TYPE

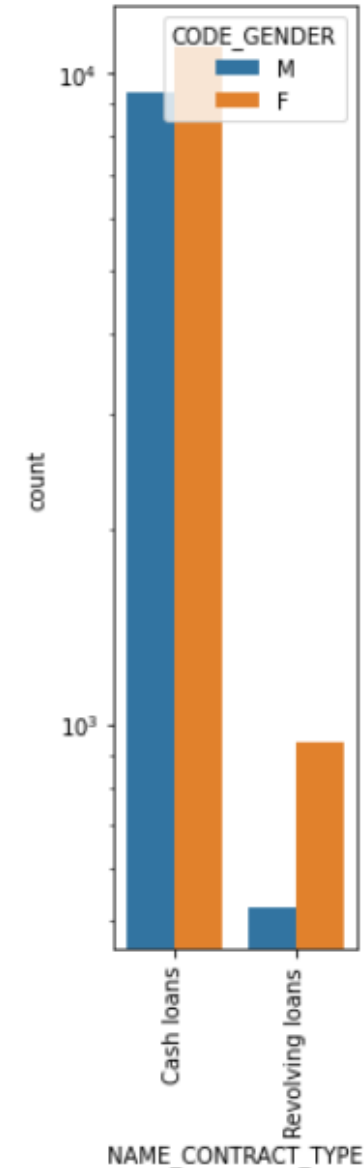
- For income type 'working', 'commercial associate', and 'State Servant' the number of credits are higher than others.
- The Females are having more number of credits than male.
- Less number of credits for income type 'student', 'pensioner', 'business person' and 'Maternity leave'.



# DISTRIBUTION OF CONTRACT TYPE

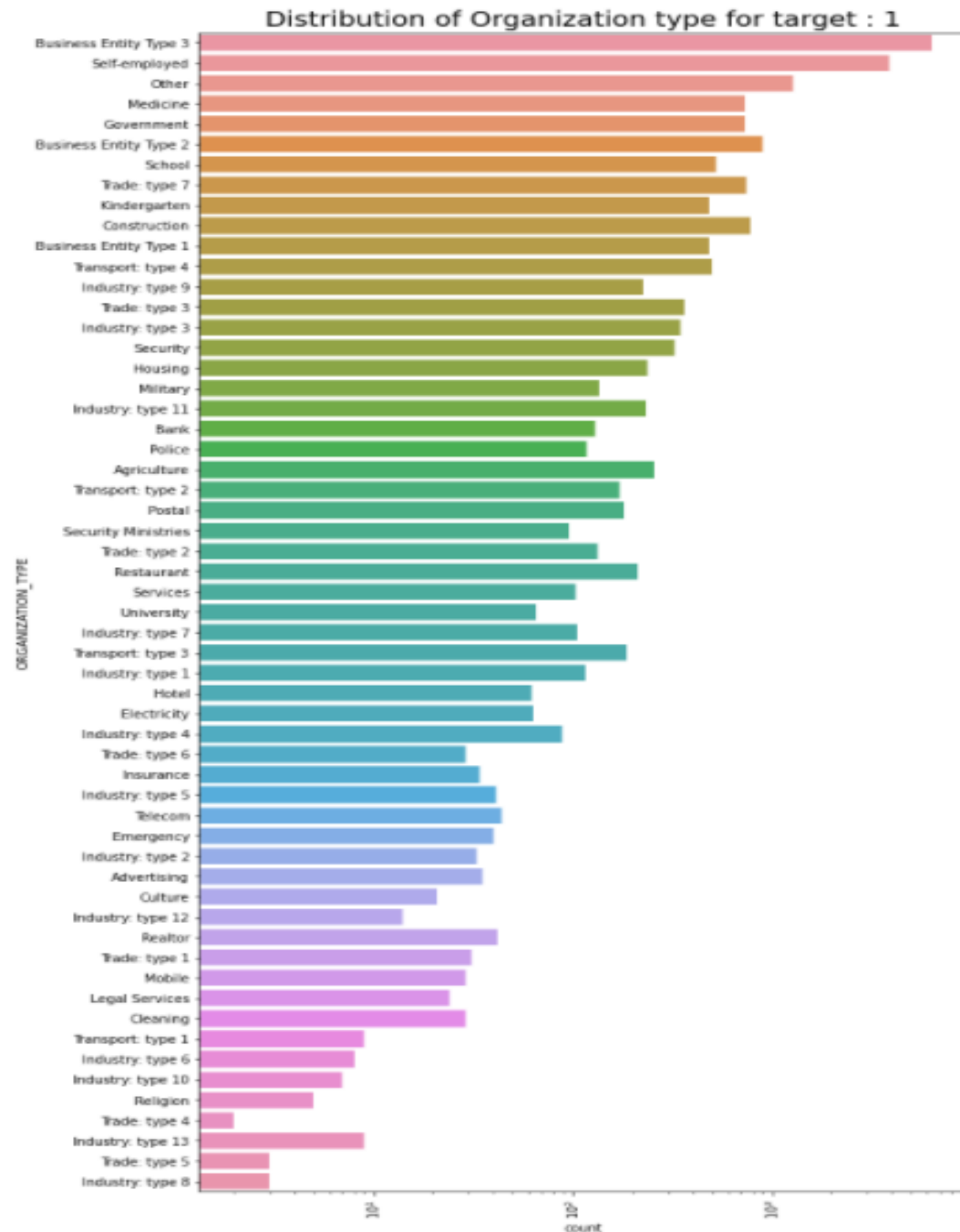
- For contract type 'cash loans' is having a higher number of credits than 'Revolving loans' contract type.
- For this reason, women are also leading the way in applying for credits.
- For type 1: there are only Female Revolving loans

Distribution of contract type



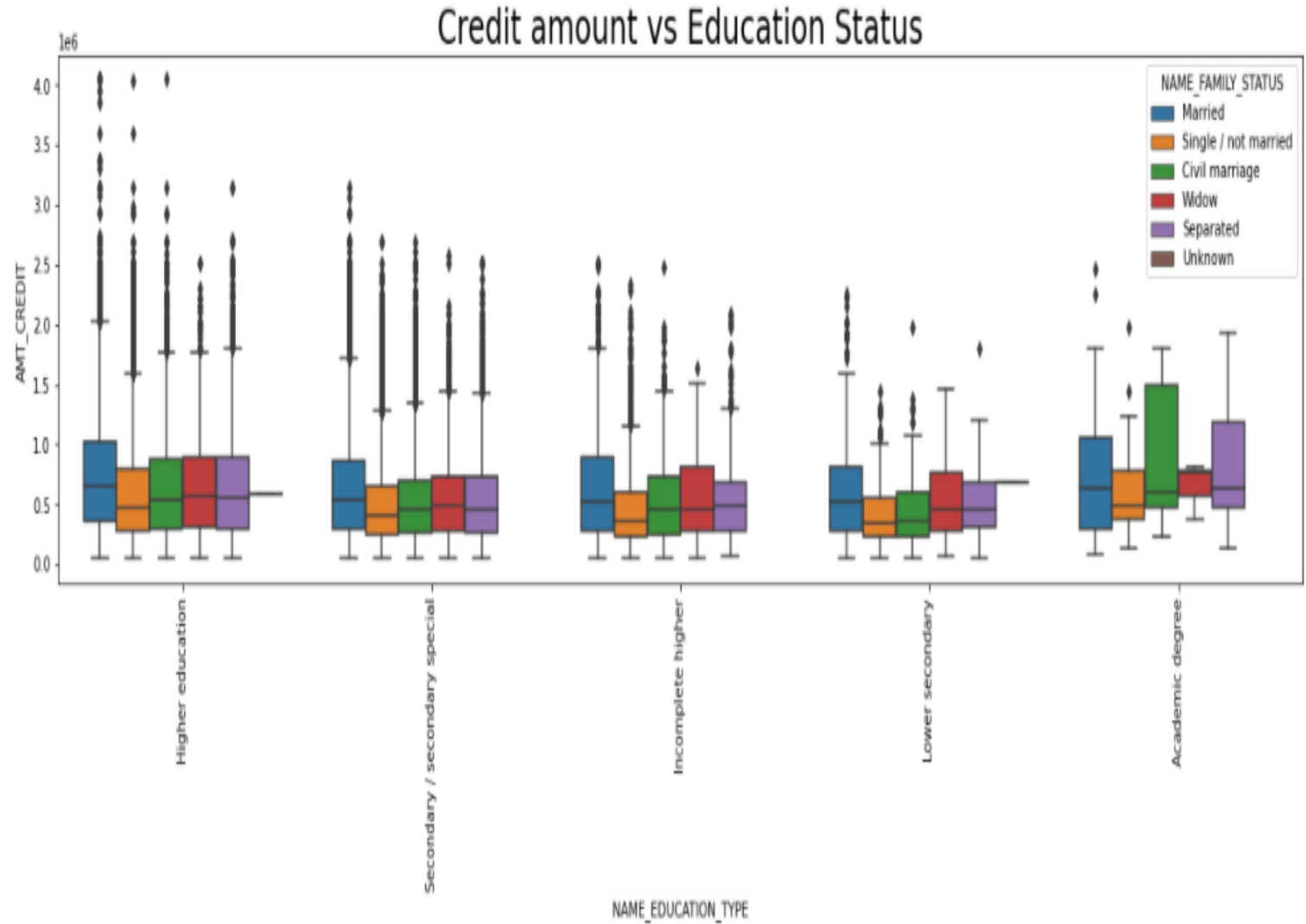
# DISTRIBUTION OF ORGANISATION TYPE –TARGET 1

- Clients which have applied for credits are from most of the organization type ‘Business entity Type 3’, ‘Self employed’, ‘Other’, ‘Medicine’ and ‘Government’.
- Less clients are from Industry type 8, type 6, type 10, religion and trade type 5, type 4.
- Same as type 0 in distribution of organization type.



# BIVARIATE ANALYSIS – TARGET 0

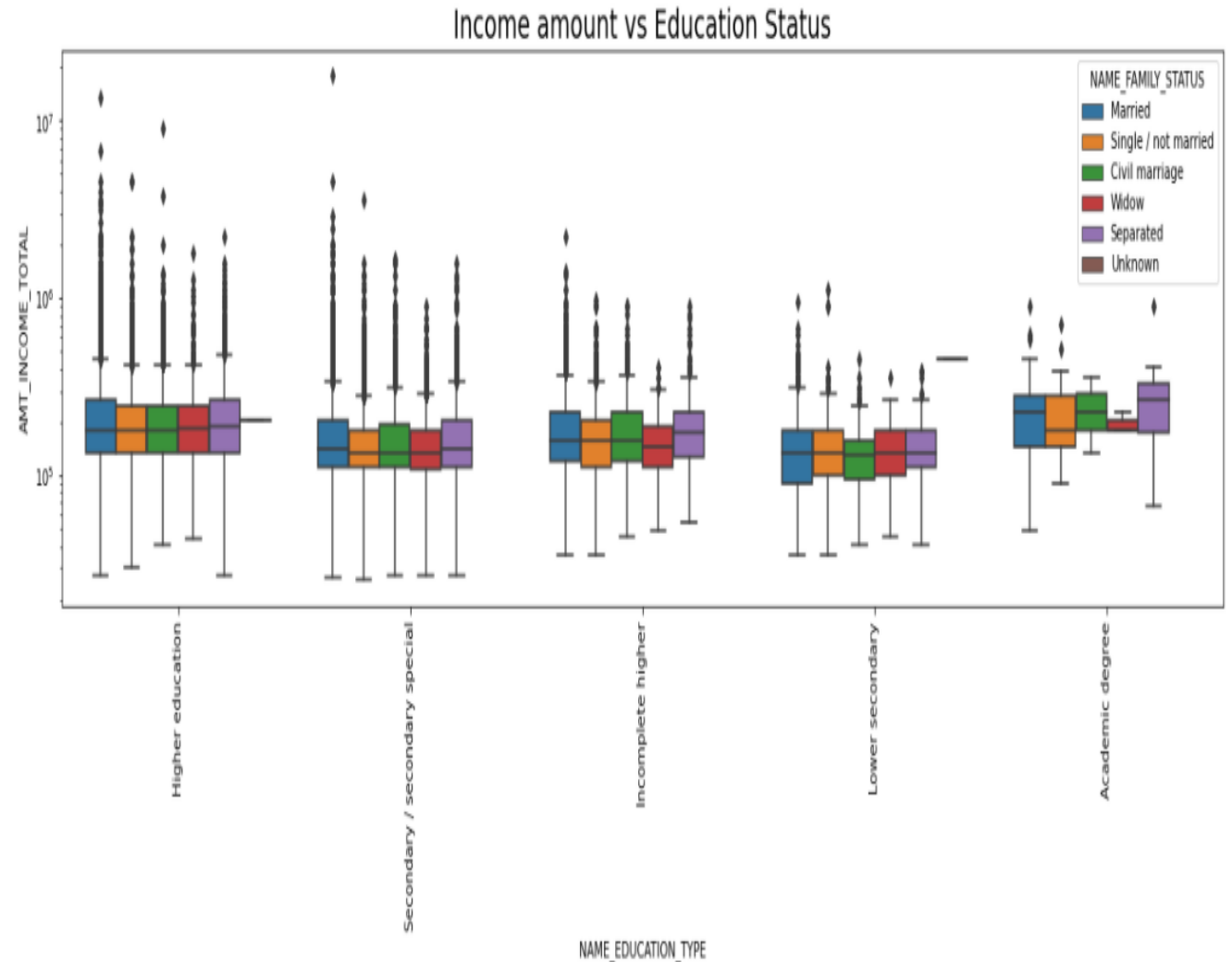
- From this box plot we are able to conclude that Family status of 'civil marriage', 'marriage' and 'separated' of academic degree education are having higher number of credits than others. Also, education of family status of 'marriage', 'single' and 'civil marriage' are having more outliers.
- Civil marriage for educational degree is having most of the credits within the third quartile.



# BIVARIATE ANALYSIS

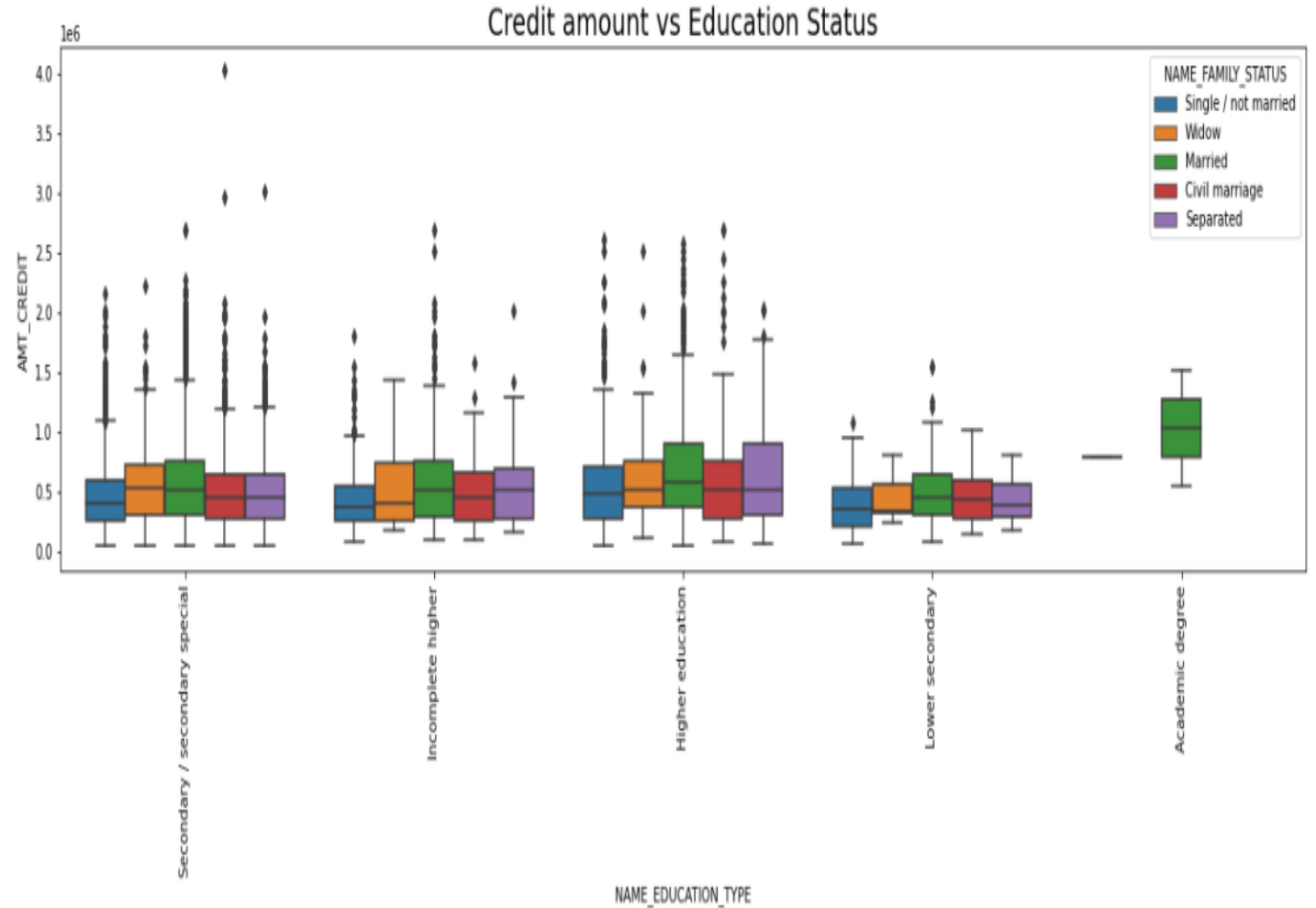
## – TARGET 0

- From this box plot we can say that Family status of 'civil marriage', 'marriage' and 'separated' of Academic degree education are having higher number of credits than others. Most of the outliers are from Education type 'Higher education' and 'Secondary'.
- Civil marriage for academic degree is having most of the credits in the third quartile.



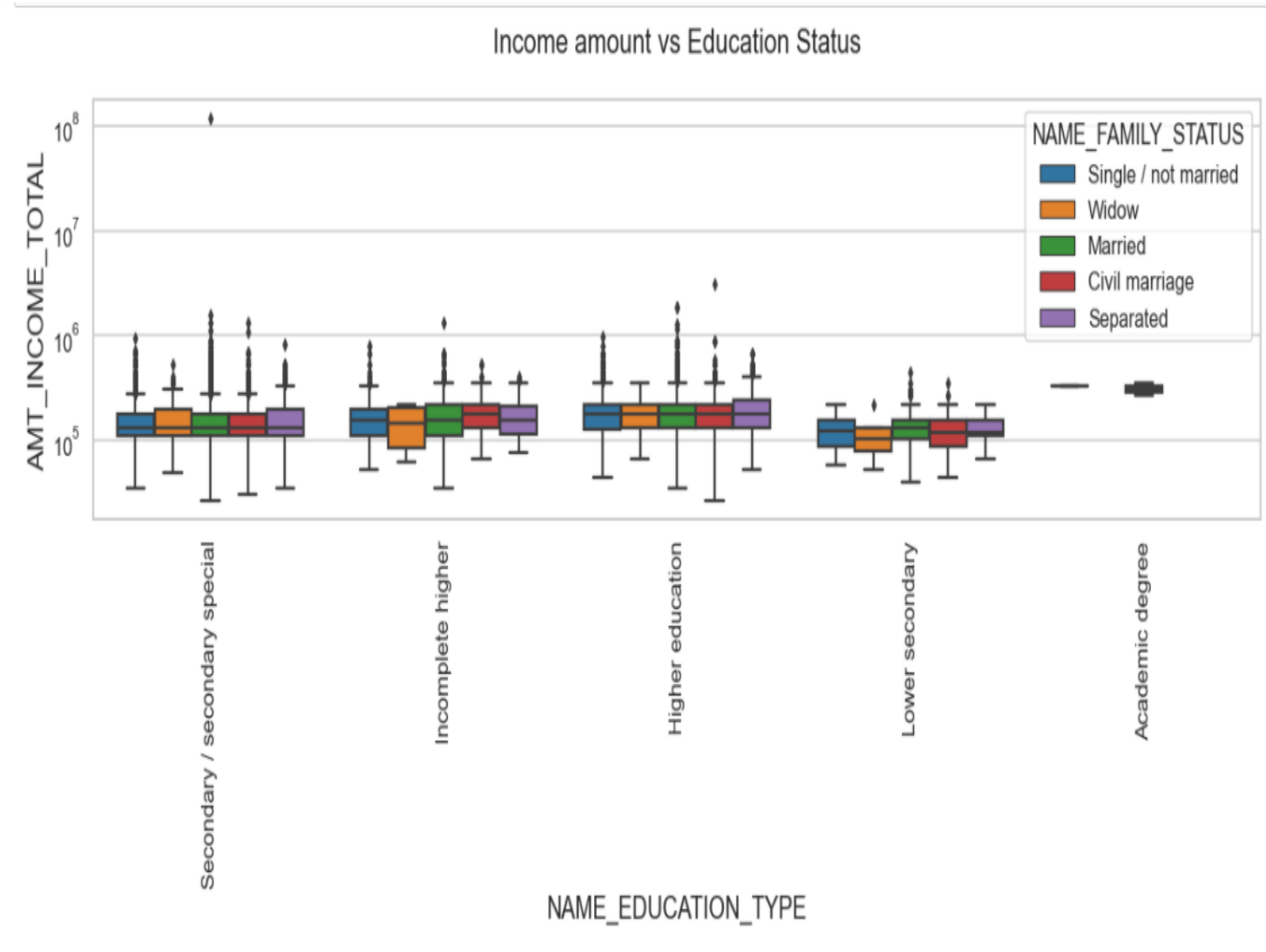
# BIVARIATE ANALYSIS – TARGET 1

- From the above box plot we can say that Family status of 'civil marriage', 'marriage' and 'separated' of Academic degree education are having higher number of credits than others. Most of the outliers are from Education type 'Higher education' and 'Secondary'.
- Civil marriage for academic degree is having most of the credits in the third quartile.



# BIVARIATE ANALYSIS – TARGET 1

- From this boxplot for Education type 'Higher education' the income amount is mostly equal with family status. Less outlier are having for Academic degree but there income amount is little higher than Higher education.
- Lower secondary are have less income amount than others.

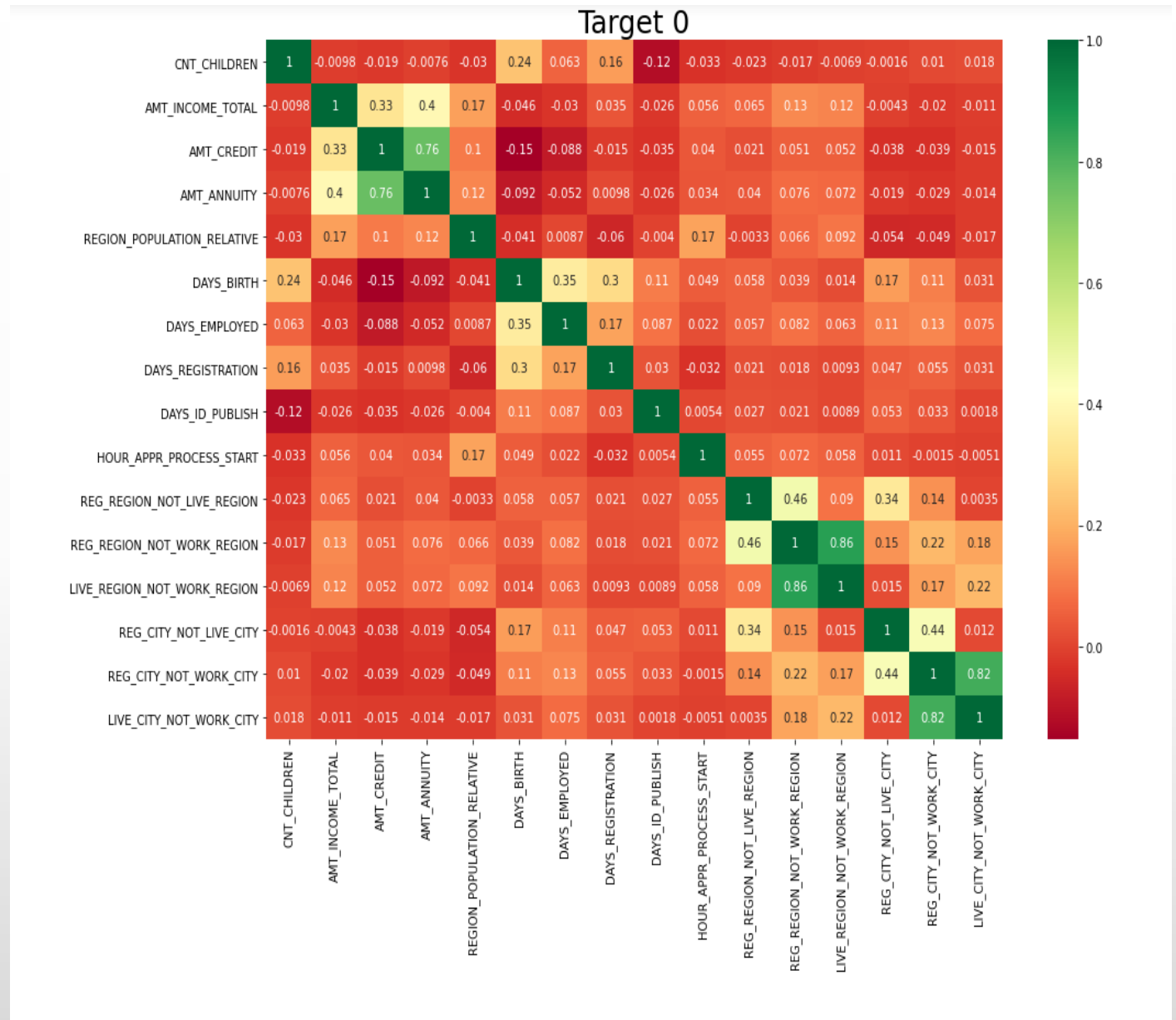




**CORRELATION FOR OTHER CASES (TARGET- 0) AND  
THE CLIENT WITH PAYMENT DIFFICULTIES (TARGET- 1)**

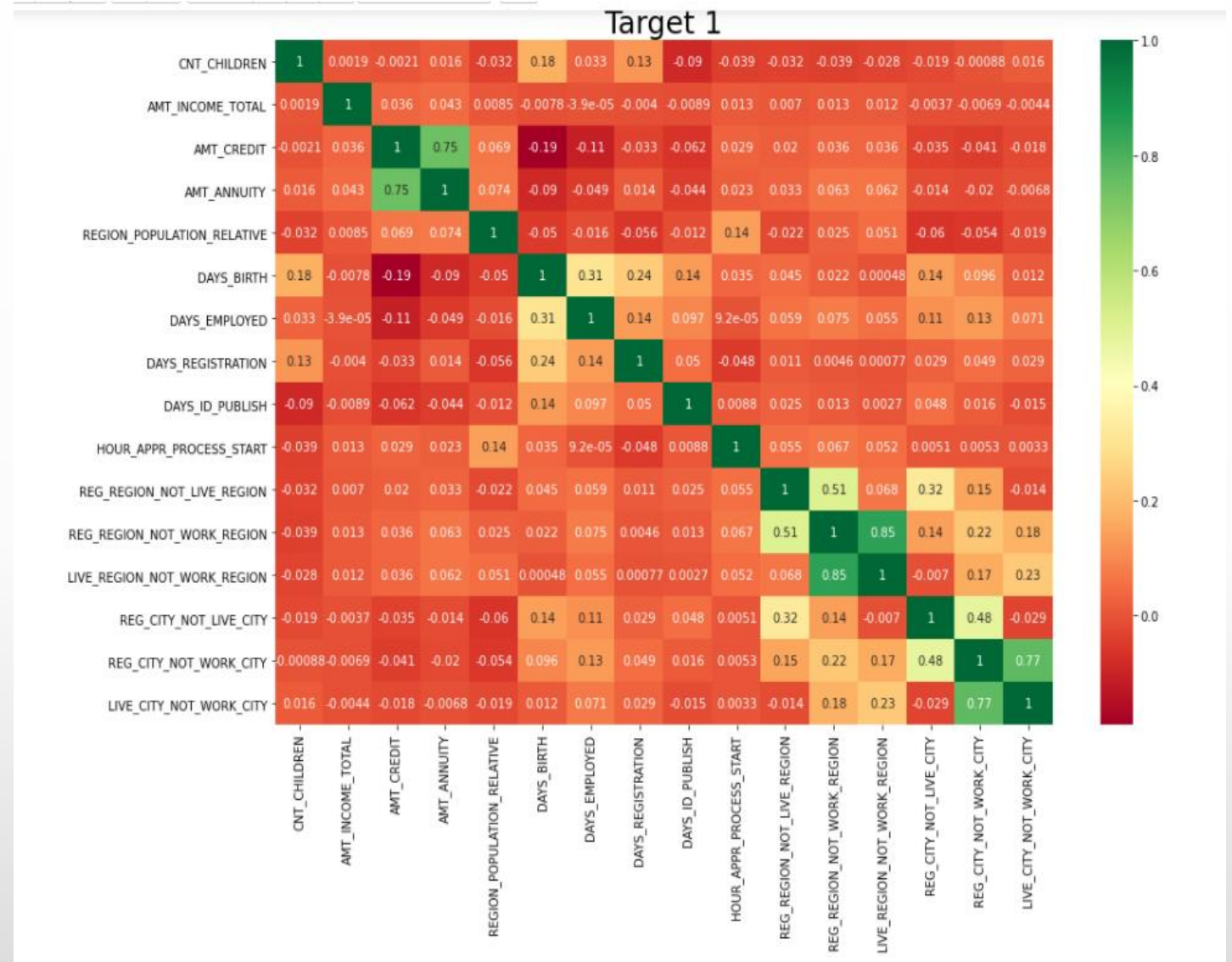
# CORRELATION FOR - TARGET 0

- Credit amount is inversely proportional to the date of birth, which means Credit amount is higher for low age and vice-versa.
- Credit amount is inversely proportional to the number of children client have, means Credit amount is higher for less children count client have and vice-versa.
- Income amount is inversely proportional to the number of children client have, means more income for less children client have and vice-versa.



# CORRELATION FOR-TARGET 1

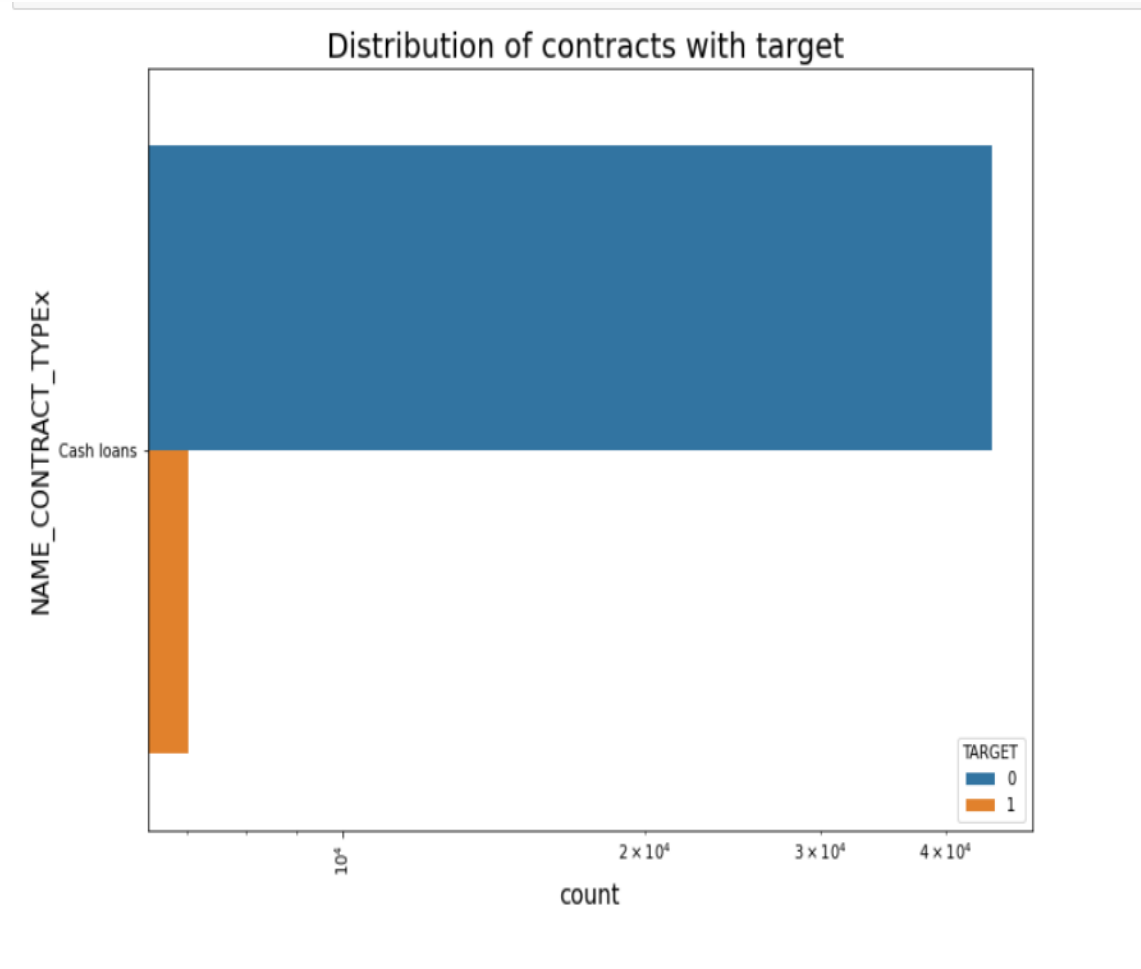
- The client's permanent address does not match contact address are having less children and vice-versa.
- The client's permanent address does not match work address are having less children and vice-versa.



# **MERGING THE DATASET WITH PREVIOUS DATA**

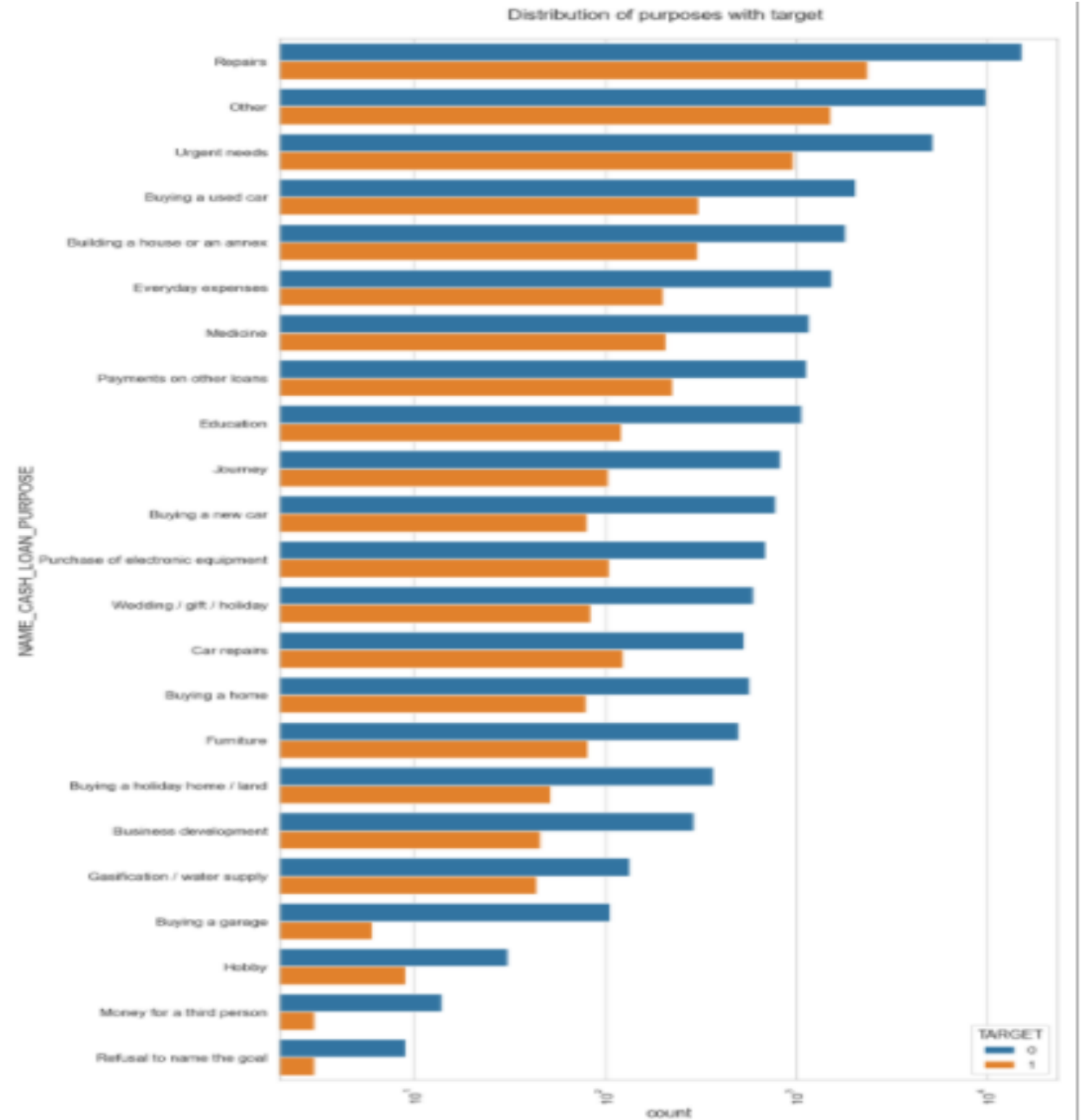
# DISTRIBUTION OF CONTRACTS WITH TARGET- UNIVARIATE ANALYSIS

- Most rejection of loans came from purpose 'repairs'.
- For education purposes we have equal number of approves and rejection.
- Paying other loans and buying a new car is having significant higher rejection than approves.



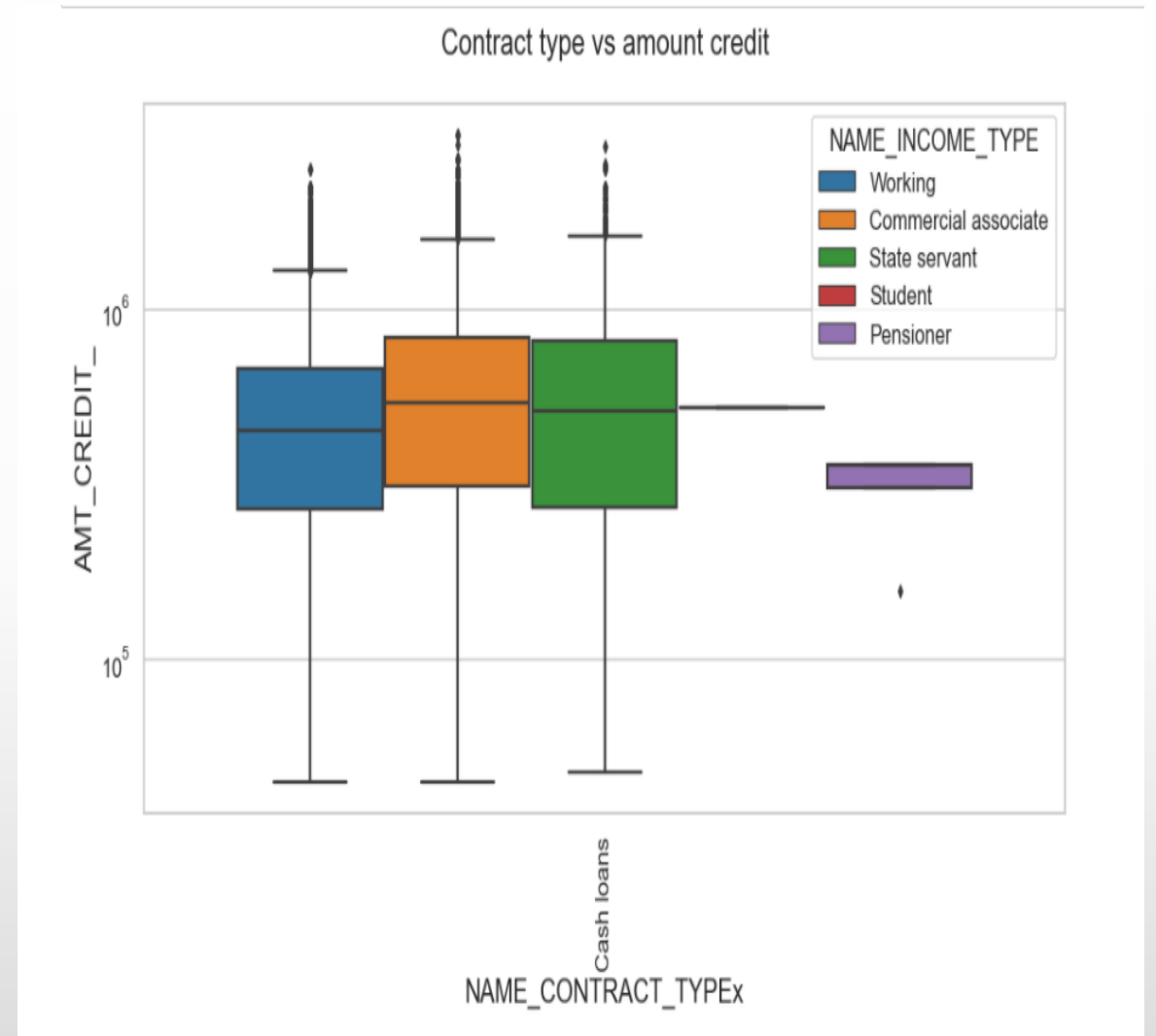
# DISTRIBUTION OF PURPOSES WITH TARGET

- Loan purposes with 'Repairs' are facing more difficulties in payment on time.
- There are few places where loan payment is significant higher than facing difficulties.
- They are 'Buying a garage', 'Business development', 'Buying land', 'Buying a new car' and 'Education'



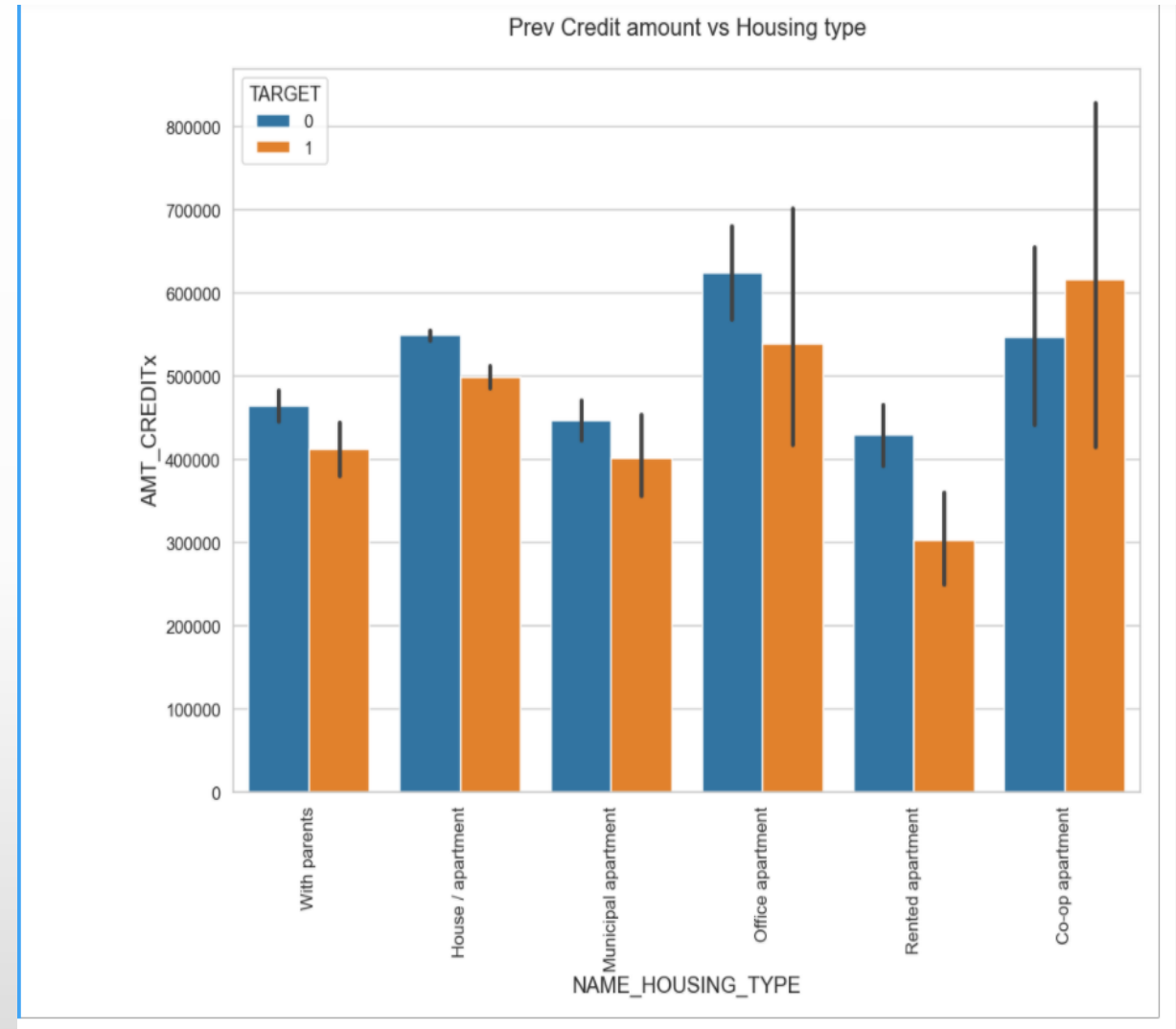
# CONTRACT TYPE VS AMOUNT CREDIT – BIVARIATE ANALYSIS

- The credit amount of Loan purposes like 'Buying a home', 'Buying a land', 'Buying a new car' and 'Building a house' is higher.
- Income type of state servants have a significant amount of credit applied.
- Money for third person or a Hobby is having less credits applied for.



# PREV\_CREDIT AMOUNT VS HOUSING TYPE

- Here , for Housing type, office apartment is having higher credit of target 0 and co-op apartment is having higher credit of target 1.
- So, we can conclude that bank should avoid giving loans to the housing type of co-op apartment as they are having difficulties in payment.
- Bank can focus mostly on housing type with parents or House\apartment or municipal apartment for successful payments.





# CONCLUSION

- Banks should focus more on contract type 'Student' , 'pensioner' and 'Businessman' with housing 'type other than 'Co-op apartment' for successful payments.
- Banks should focus less on income type 'Working' as they are having most number of unsuccessful payments.
- Also with loan purpose 'Repair' is having higher number of unsuccessful payments on time.
- Get as much as clients from housing type 'With parents' as they are having least number of unsuccessful payments.