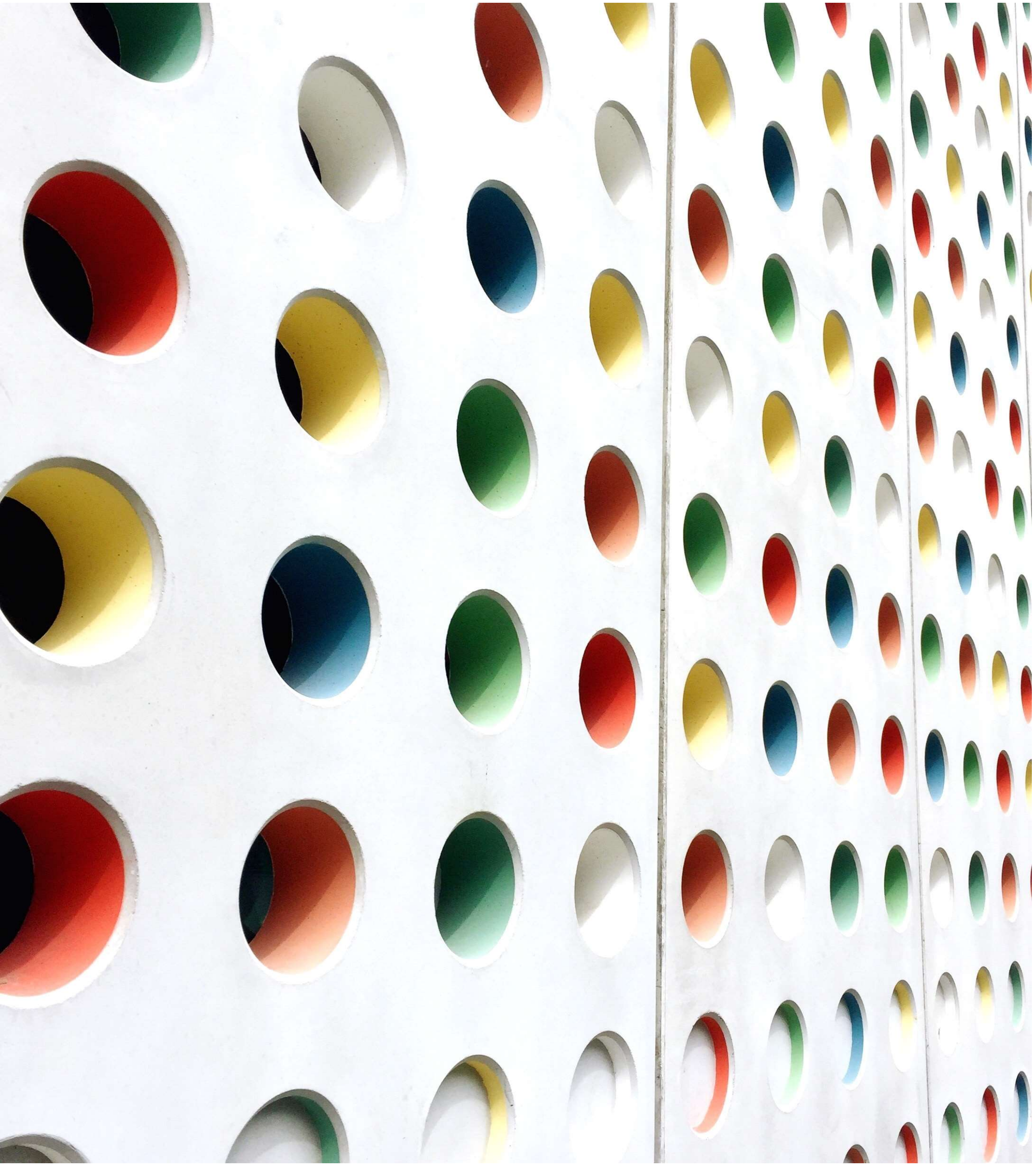


Credit EDA Case Study

PRANEETH GADDE

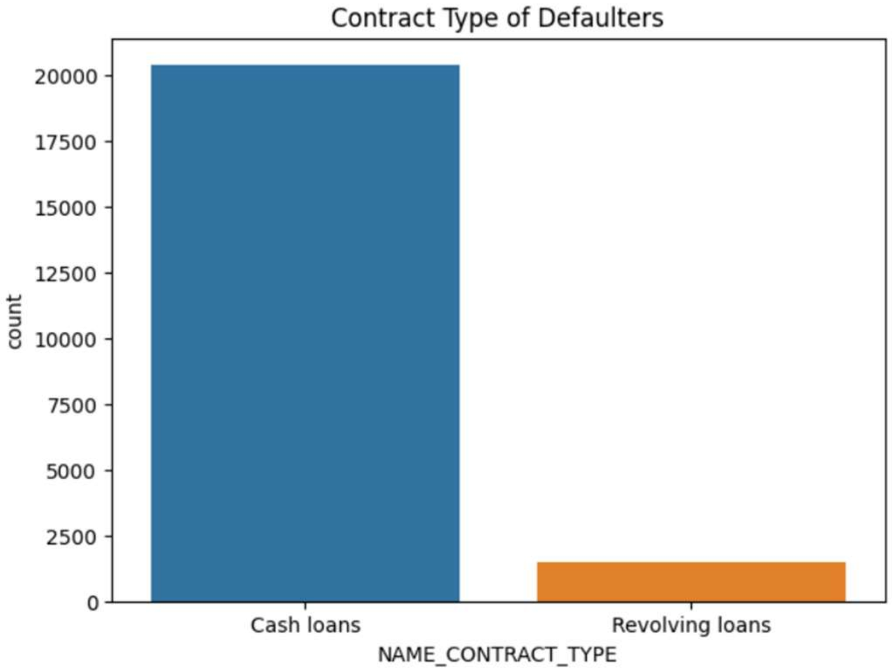
Problem Statement

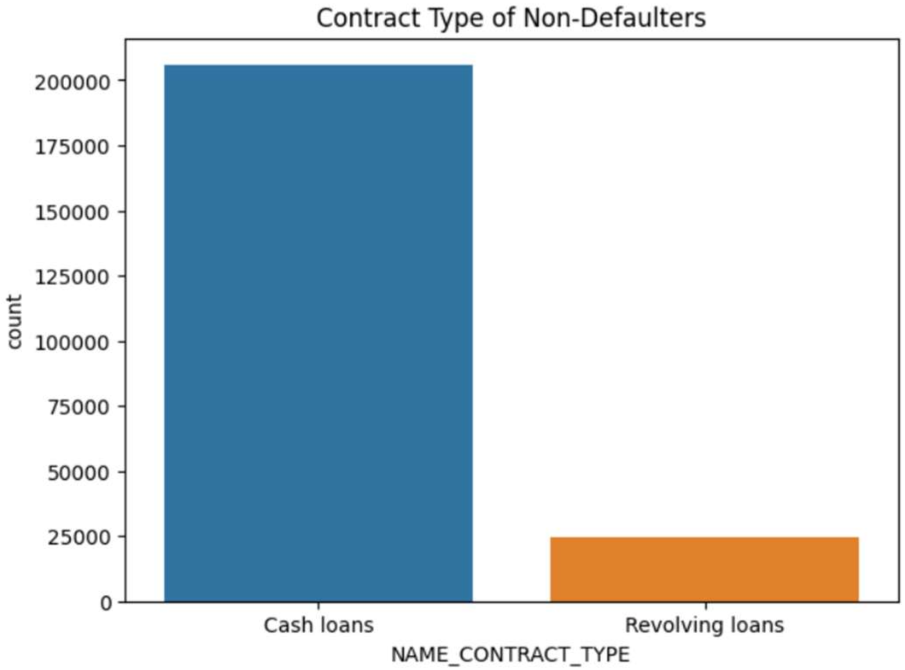
Understanding driver variables behind loan default and finding out which variables are strong indicators of a future default.

This is achieved by using EDA (Exploratory data analysis) on the bank data, wherein we analyse the pattern present in data and help bank in mitigating two types of risk associated with loan approvals.

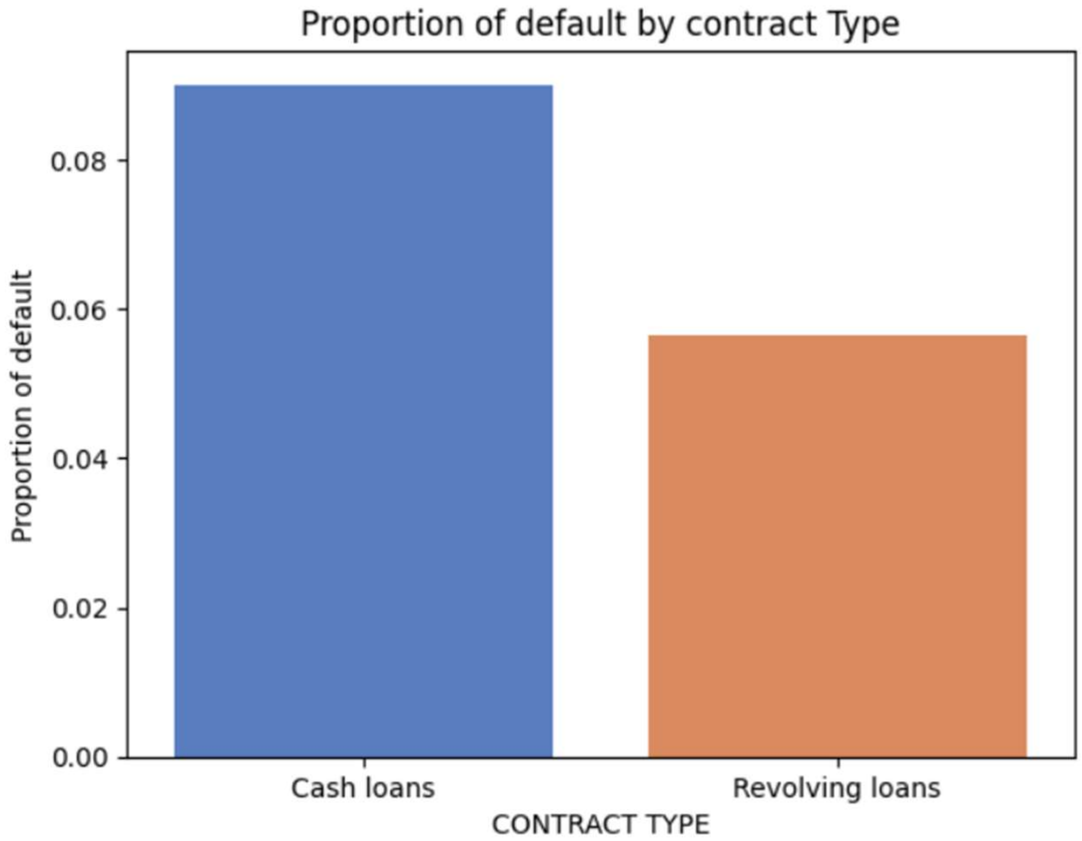
If the applicant is likely to repay the loan, then not approving the loan results in a loss of business to the company If the applicant is not likely to repay the loan, Le. he/she is likely to default, then approving the loan may lead to a financial loss for the company

Segment Wise Analysis

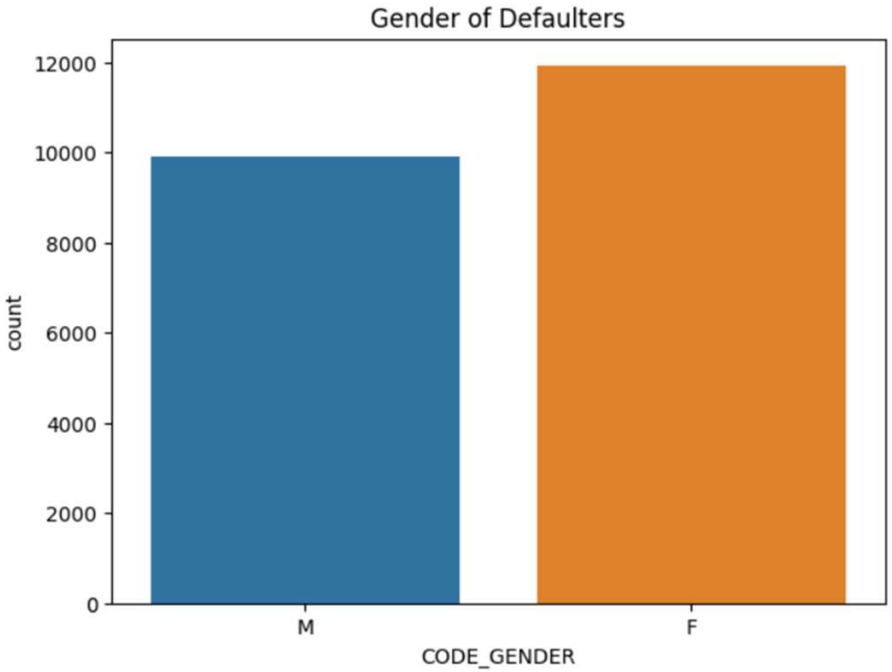


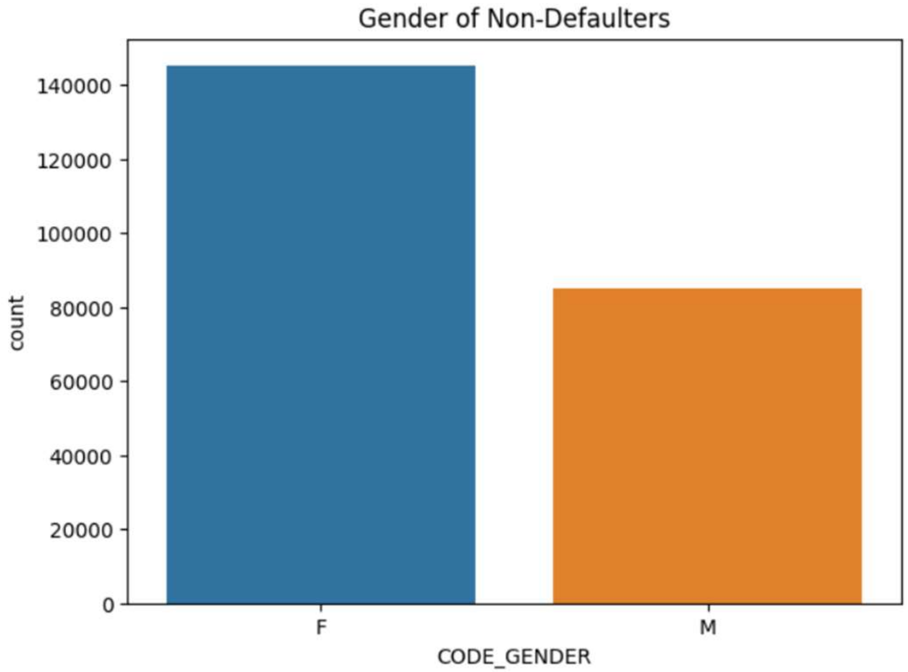


Cash loans, both defaulted and non-defaulted, outnumber revolving credits. Cash loans have higher default rates than revolving loans

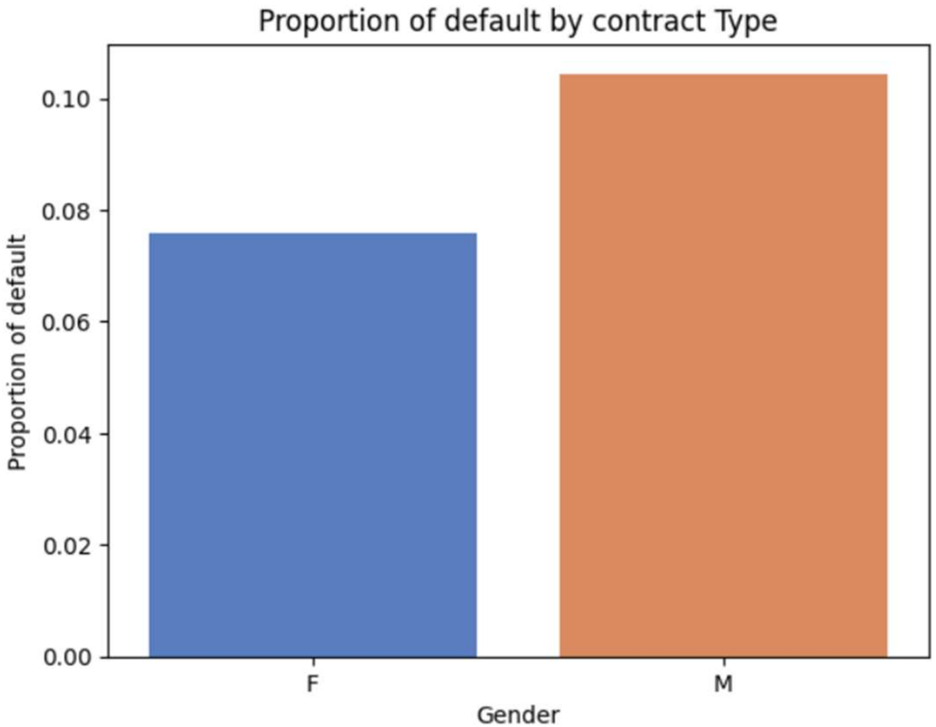


Segment Wise Analysis

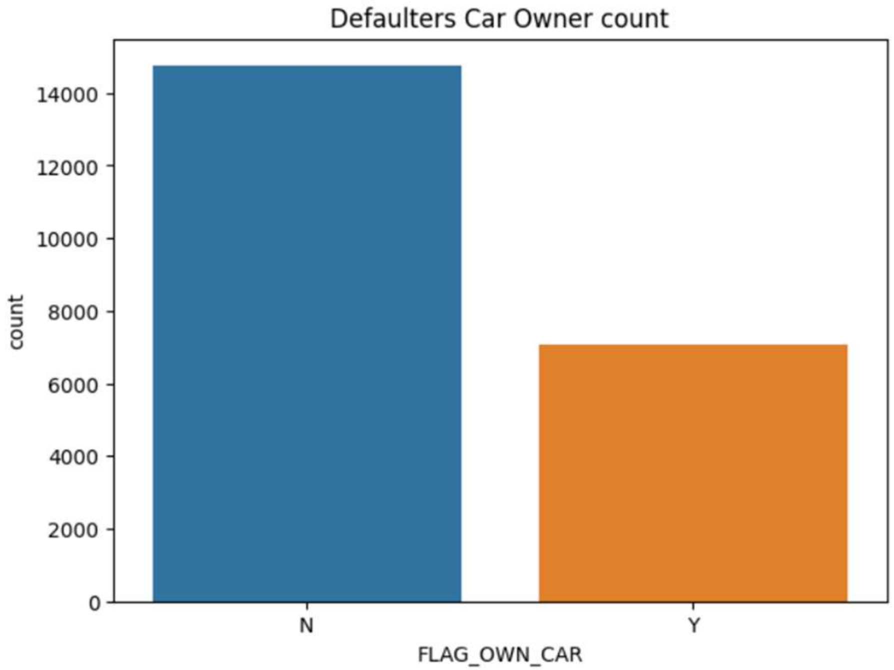


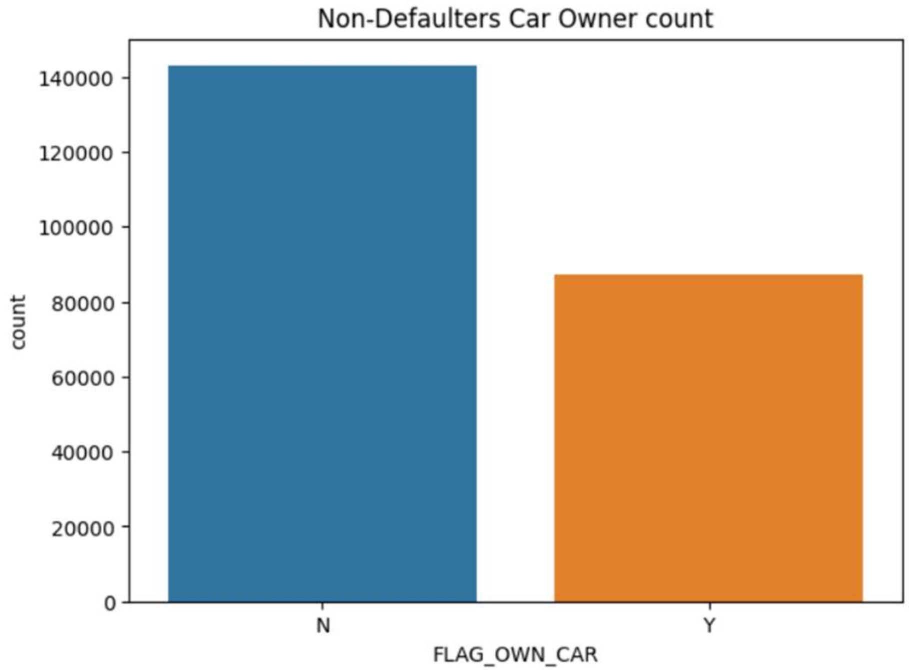


There are many female customers in both default and non-default. Also, female applicants have a lower dropout rate than male applicants.

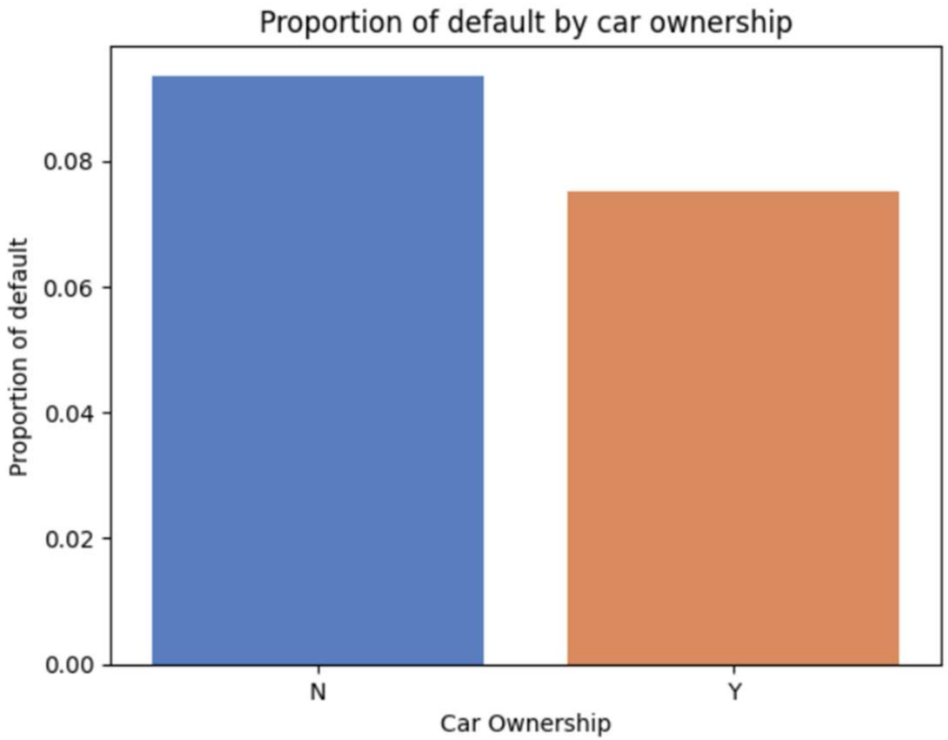


Segment Wise Analysis

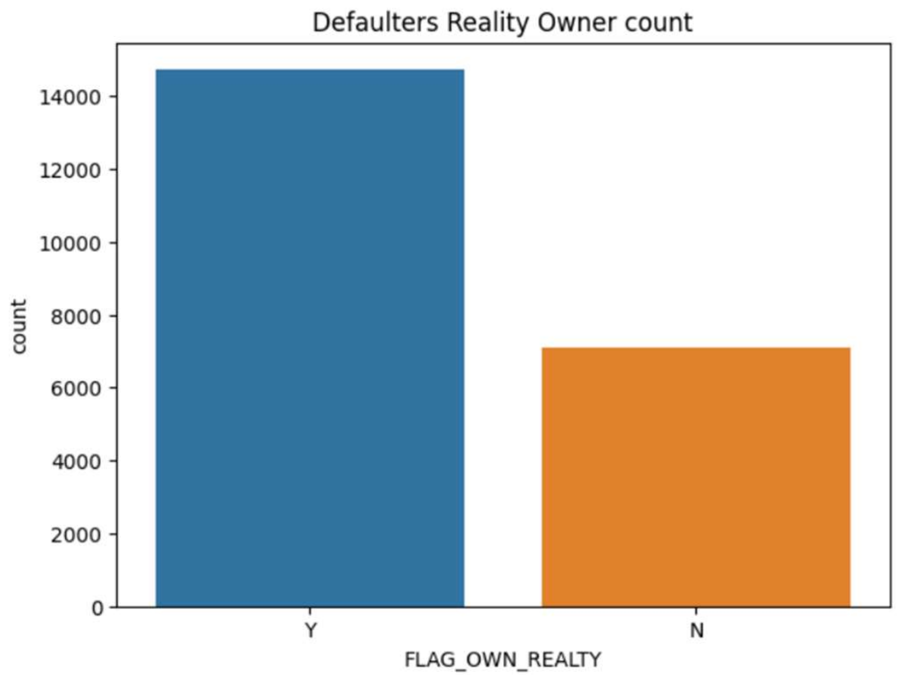


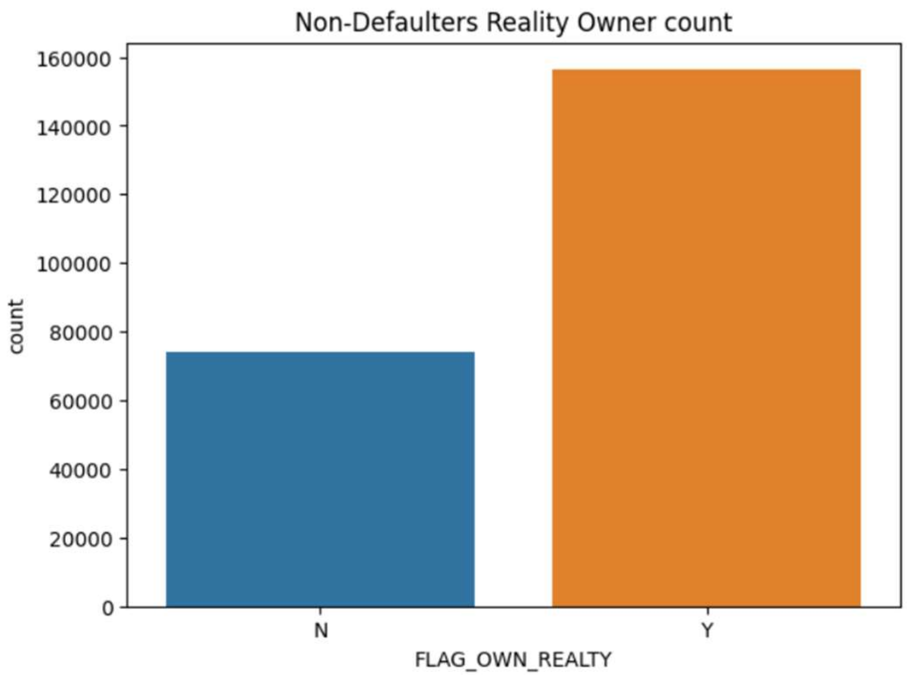


Not that big of a difference between defaults by carowners and non car owners



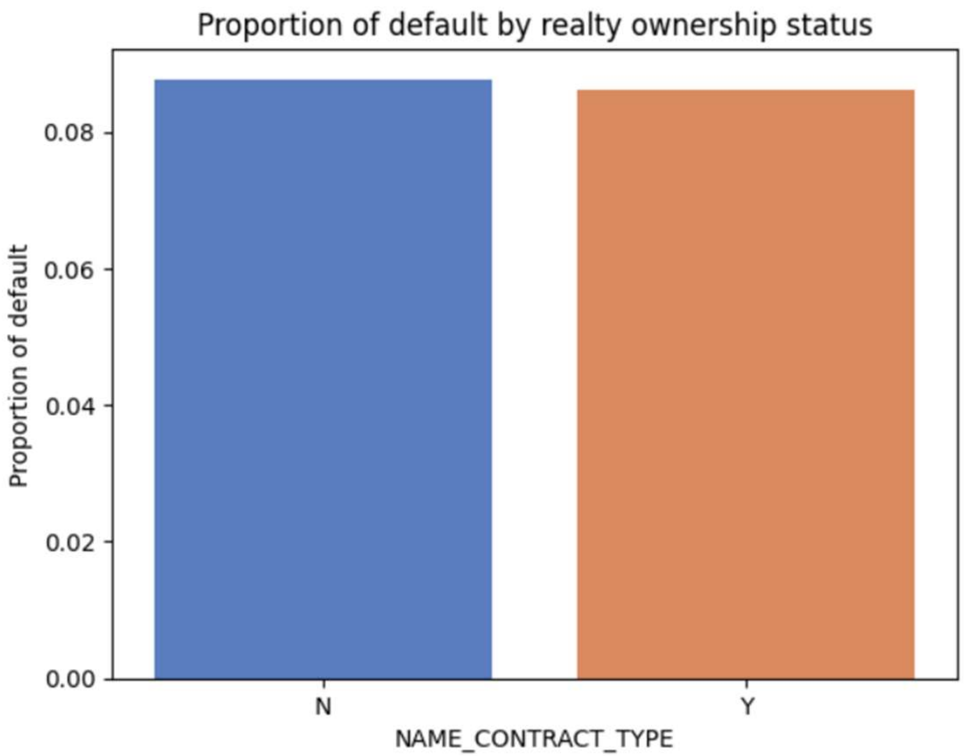
Segment Wise Analysis



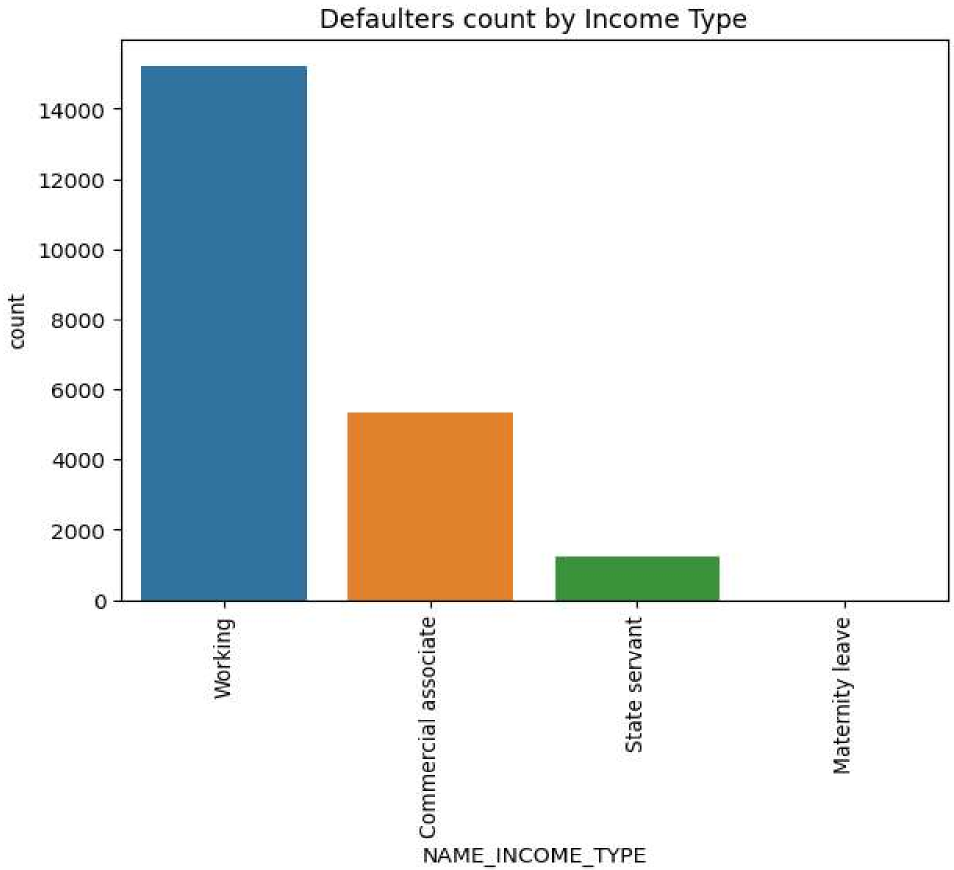


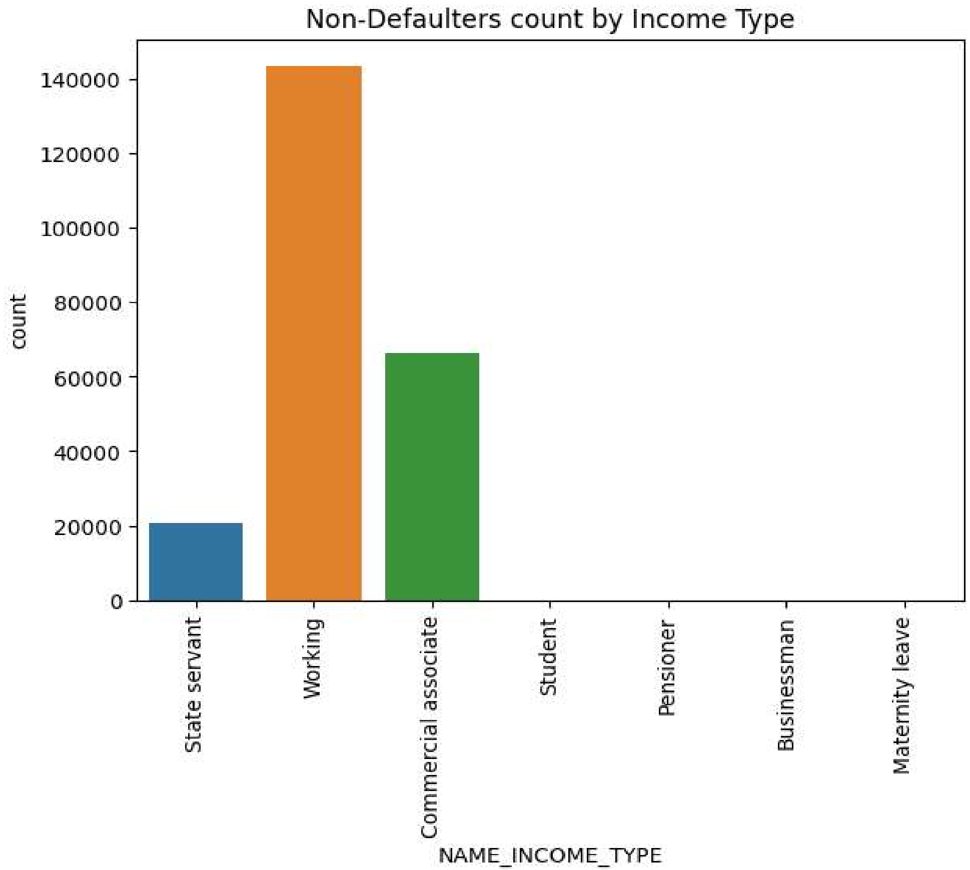
Default/Non-default both the cases, the count of client who do own real estate is higher than who has not.

Applicants with no realty ownership has a higher propensity to default than the clients who own real estate.



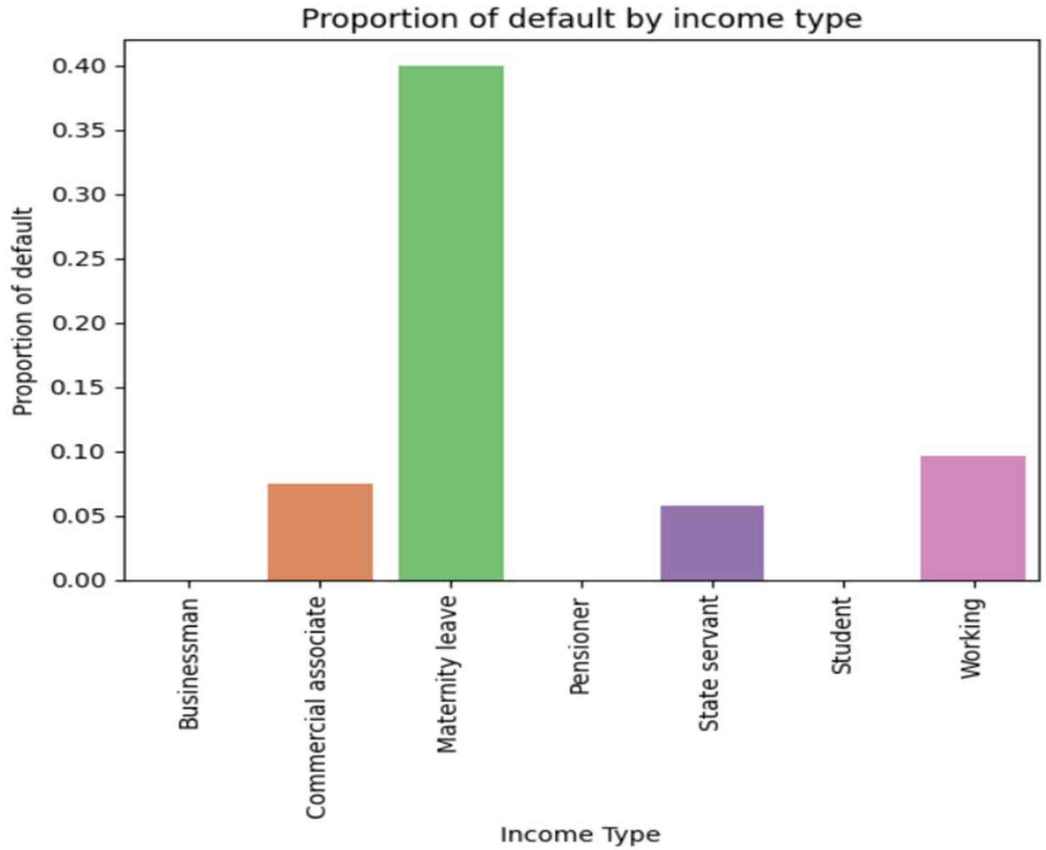
Segment Wise Analysis



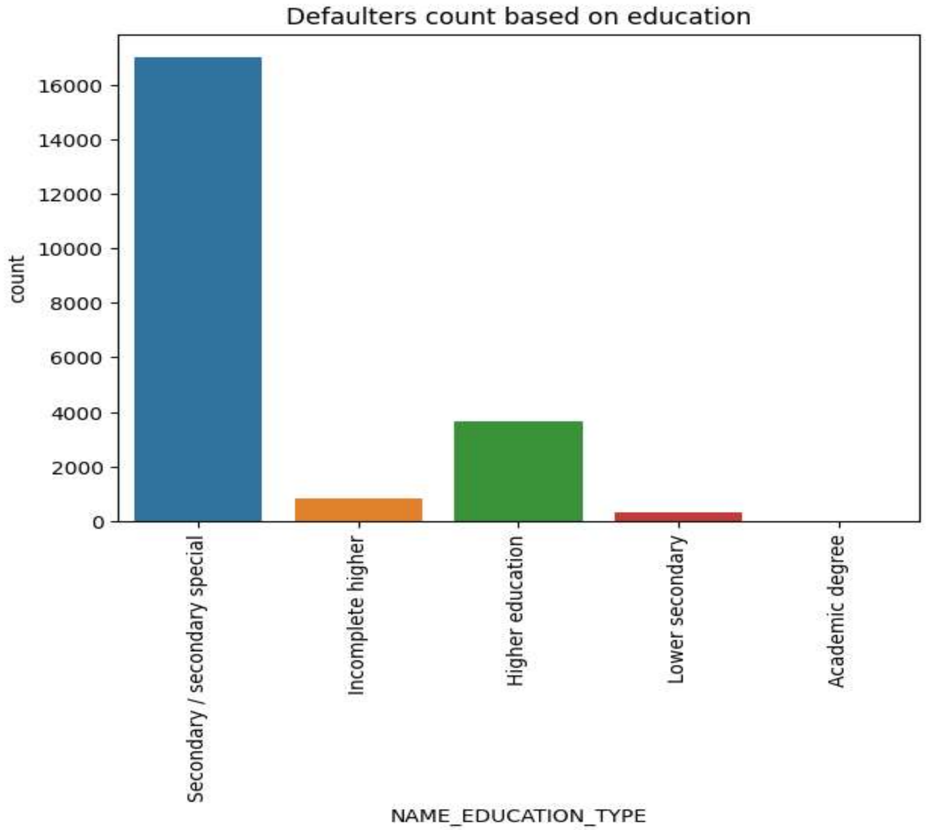


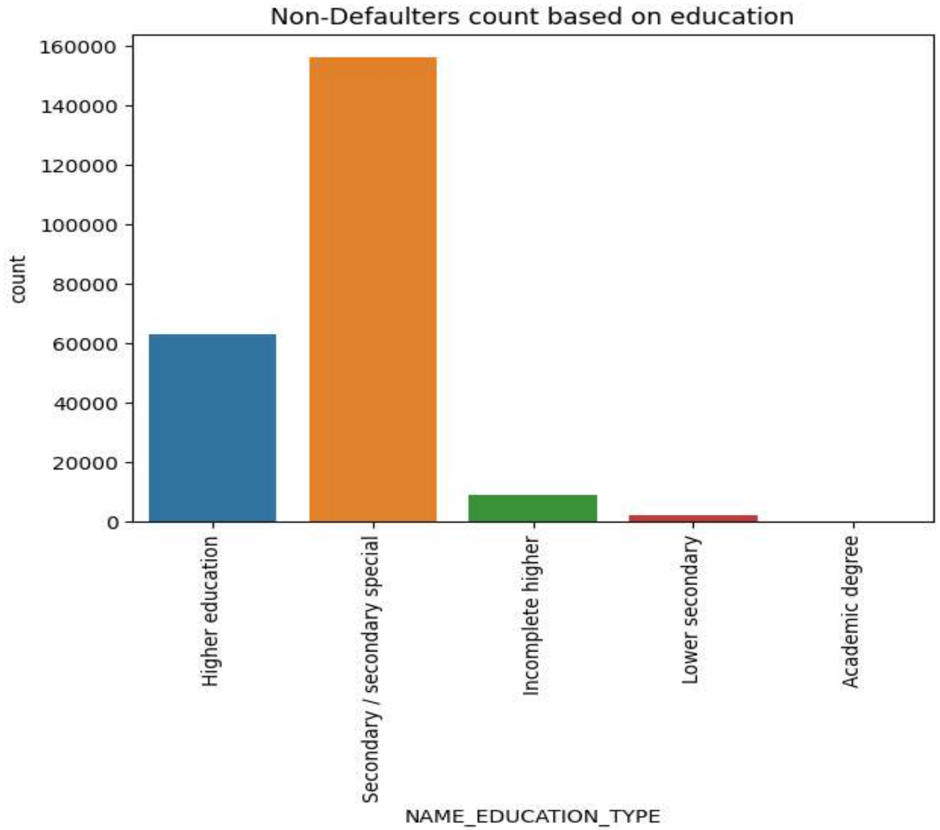
The majority of the applicants are from working, commercial associates, pensioners, and state servants.

The remaining categories of income types are minimal. Default rates are higher among working and commercial associates but relatively lower for pensioners and state servants.



Segment Wise Analysis

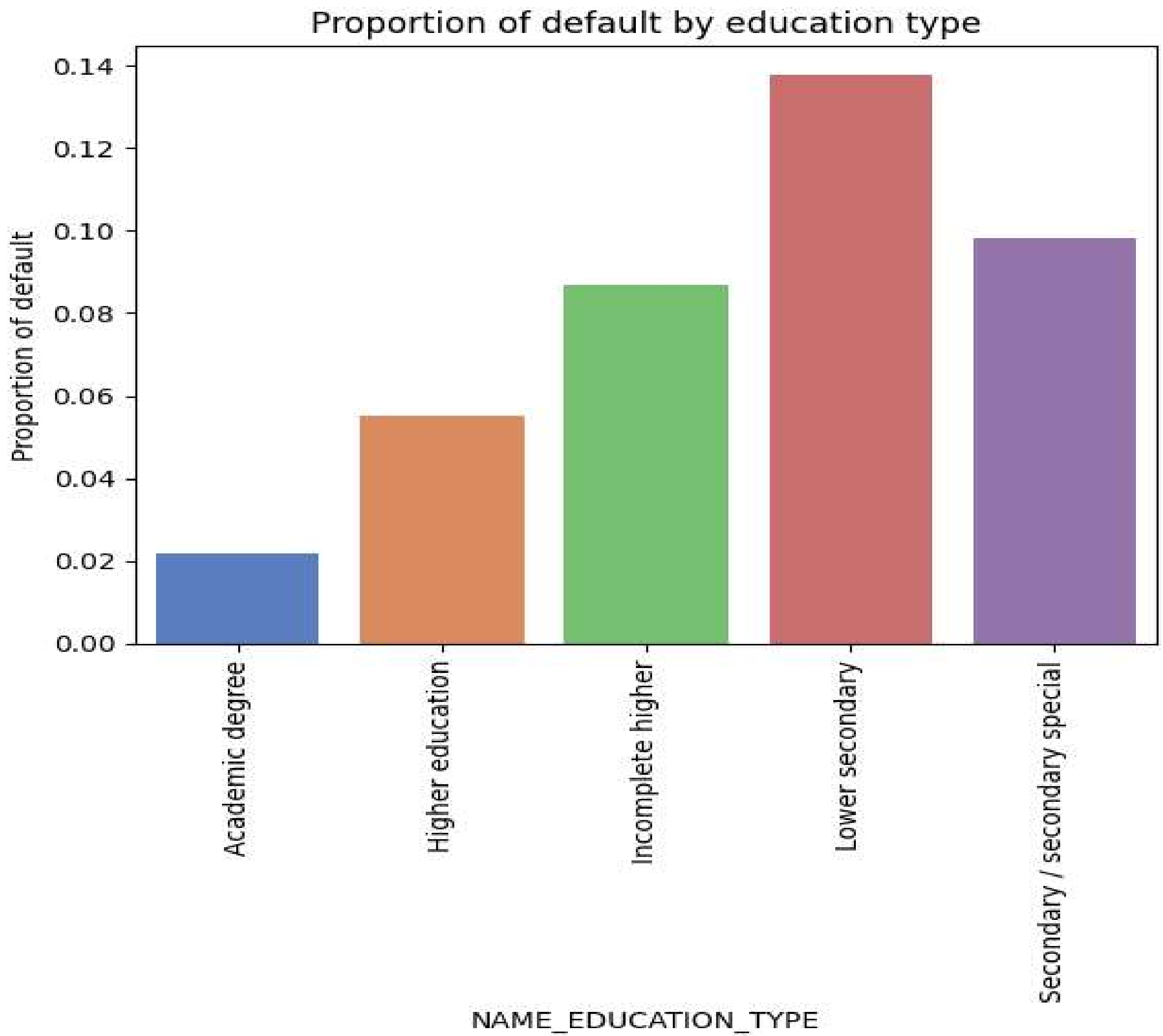




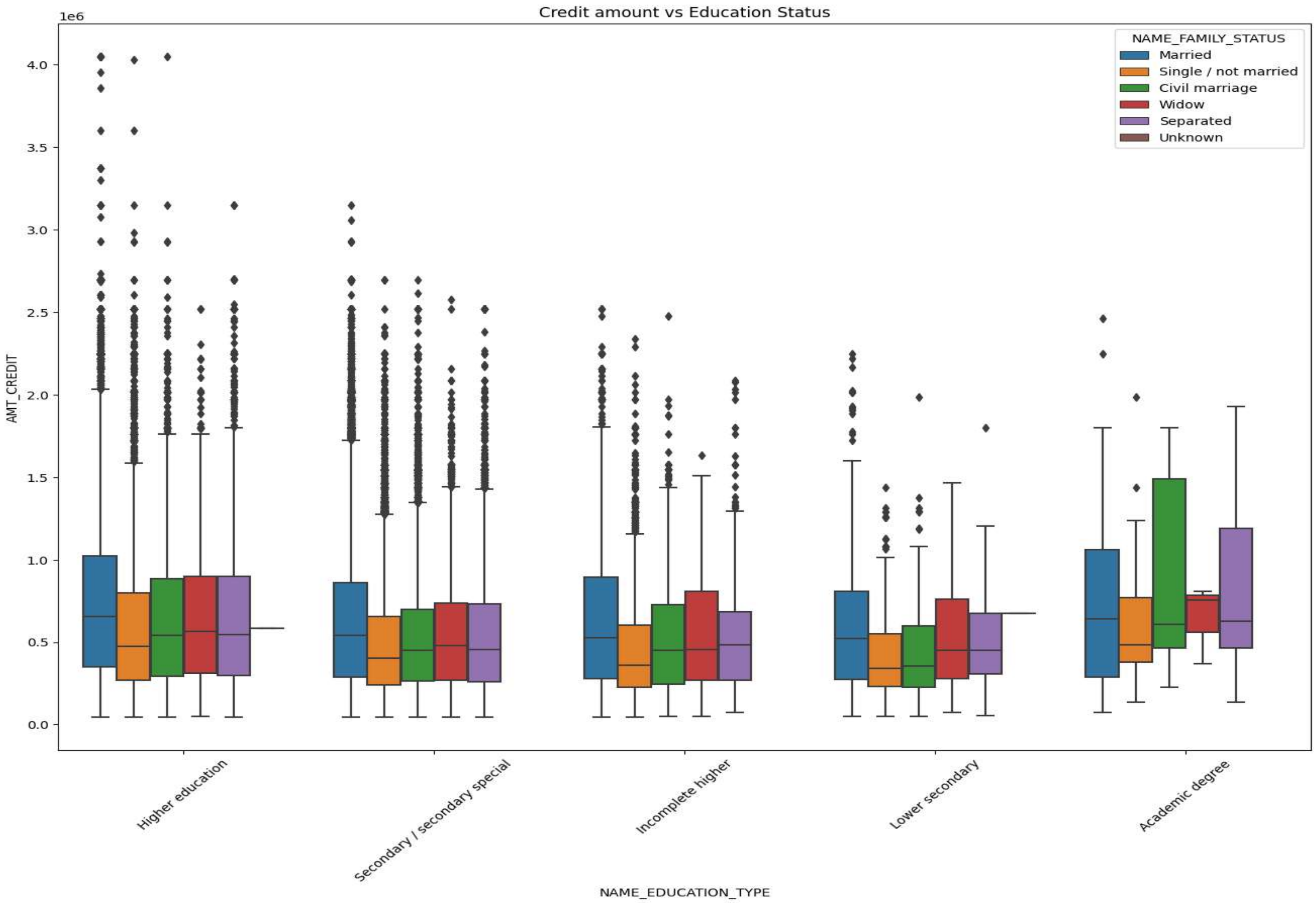
Applicants with a high school diploma are the most common and non-defaulters.

Graduate applicants are the smallest group of applicants who have applied for loans, and applicants with this background have no default record. From the figure above, we can see that a clear pattern emerges.

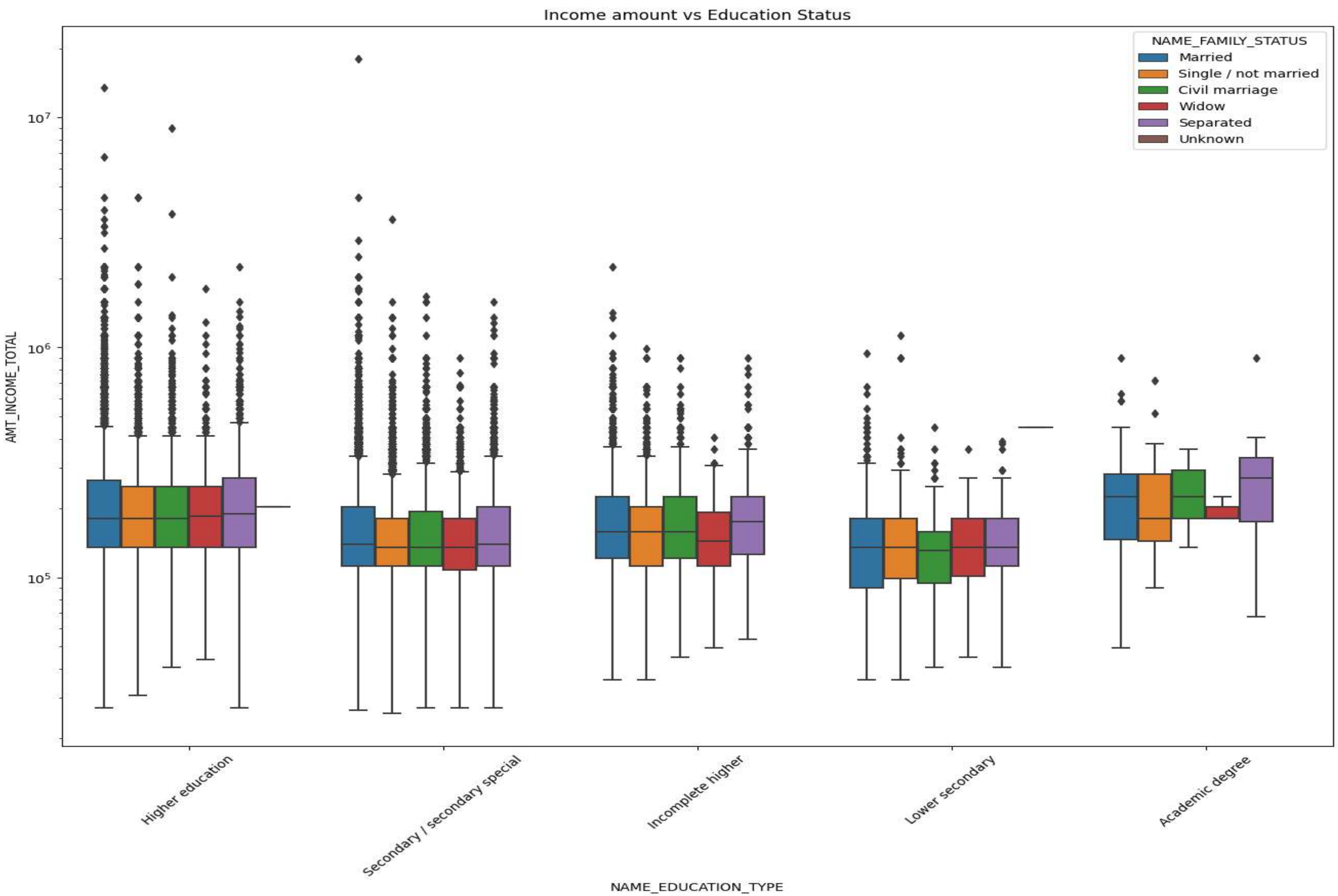
The more educated an applicant is, the less likely they are to drop out.



Bivariate analysis for non default i.e Type 0

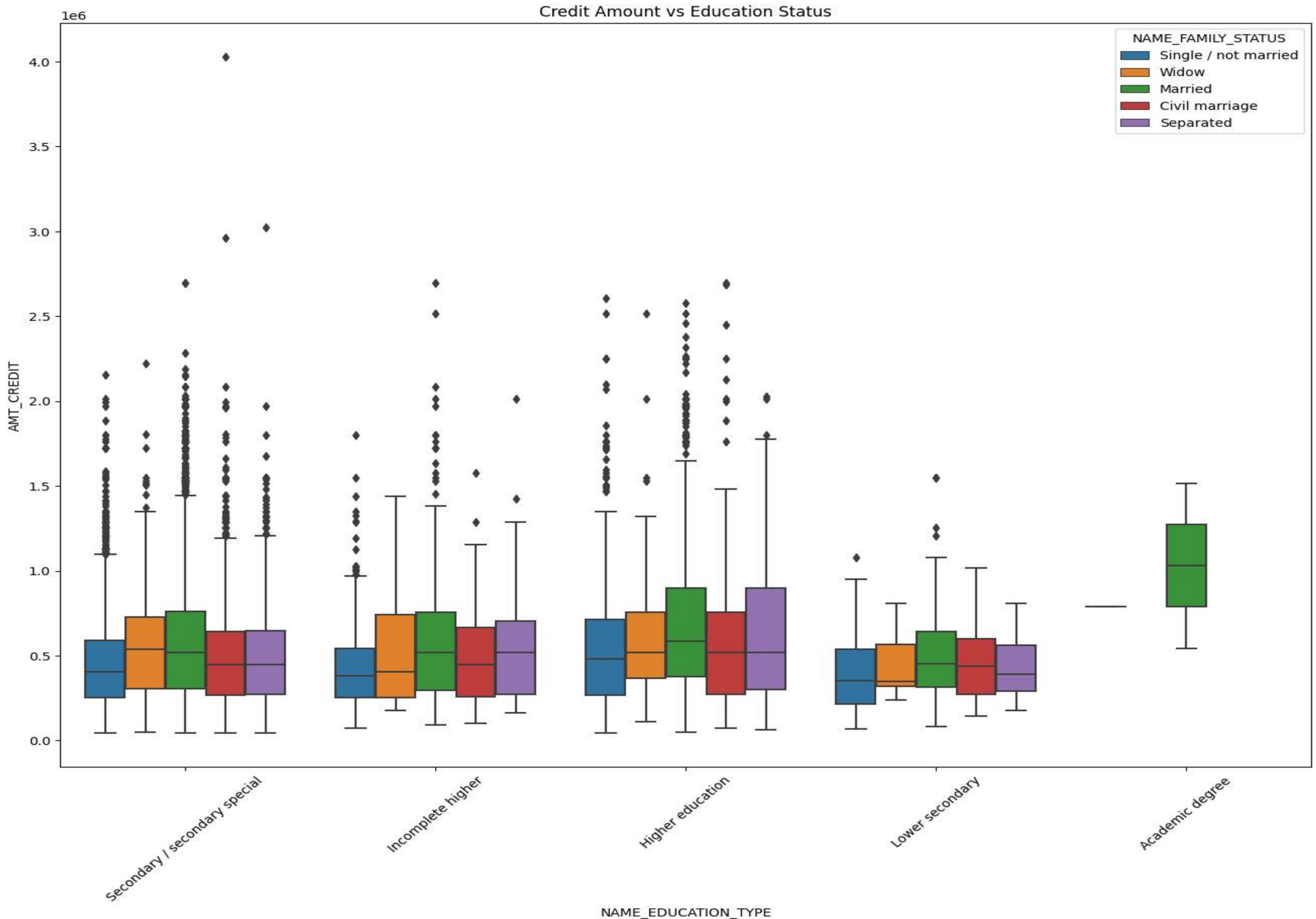


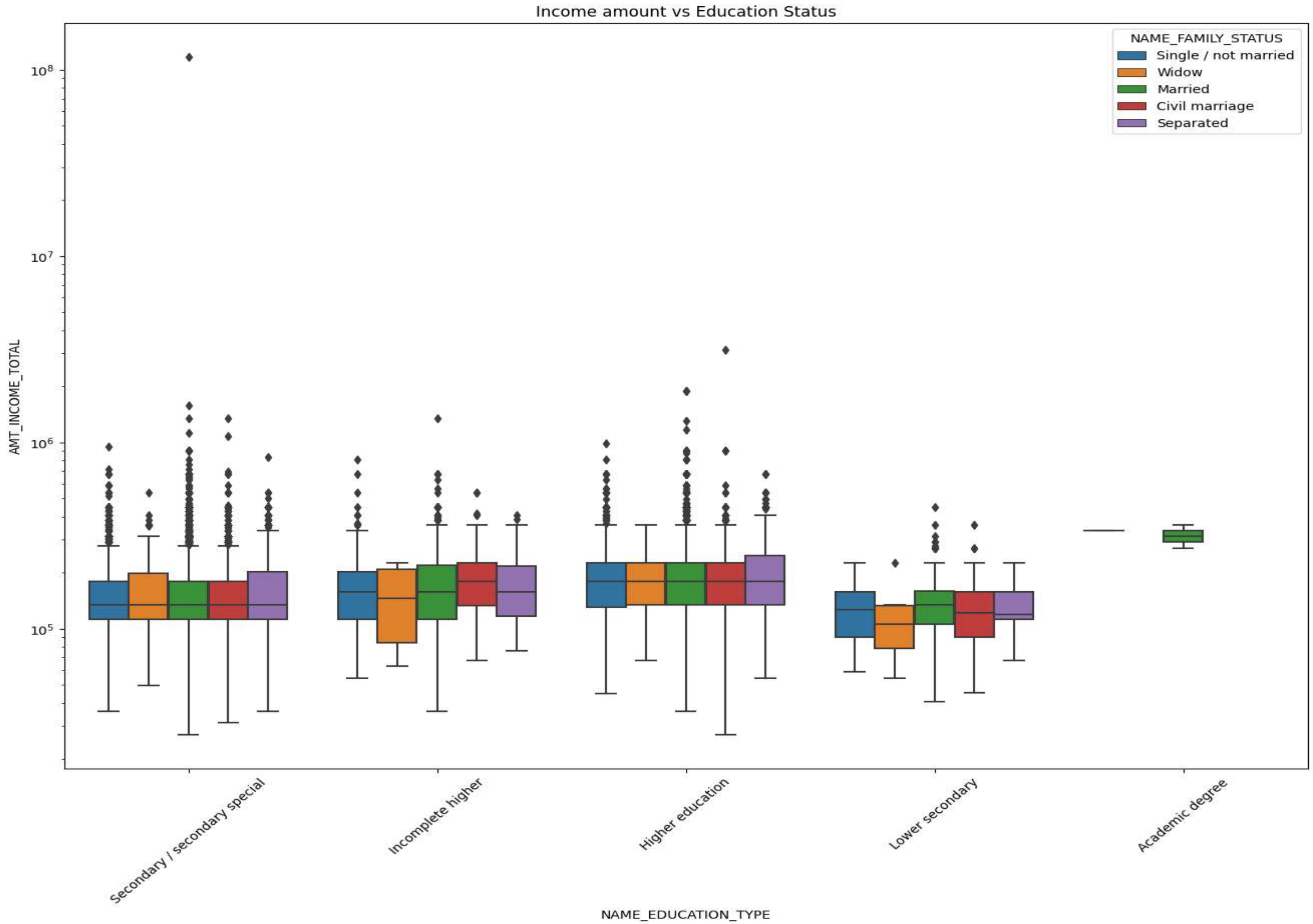
Credit amount vs Education Status
1e6
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
AMT_CREDIT
NAME_FAMILY_STATUS
Married
Single / not married
Civil marriage
Widow
Separated
Unknown
Higher education
Secondary / secondary special
Incomplete higher
Lower secondary
Academic degree
NAME_EDUCATION_TYPE



Income amount vs Education Status
NAME_FAMILY_STATUS
Married
Single / not married
Civil marriage
Widow
Separated
Unknown
AMT_INCOME_TOTAL
10^7
10^6
10^5
Higher education
Secondary / secondary special
Incomplete higher
Lower secondary
Academic degree
NAME_EDUCATION_TYPE

Bivariate analysis for type 1 i.e defaulters.


Credit Amount vs Education Status
1e6
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
AMT_CREDIT
NAME_FAMILY_STATUS
Single / not married
Widow
Married
Civil marriage
Separated
Secondary / secondary special
Incomplete higher
Higher education
Lower secondary
Academic degree
NAME_EDUCATION_TYPE



Income amount vs Education Status
NAME_FAMILY_STATUS
Single / not married
Widow
Married
Civil marriage
Separated
10^8
10^7
10^6
10^5
AMT_INCOME_TOTAL
Secondary / secondary special
Incomplete higher
Higher education
Lower secondary
Academic degree
NAME_EDUCATION_TYPE

Conclusions

Bank should give out more revolving loans as people with revolving loans are less likely to default.

Females are less likely to default than males and also present a greater market base for the bank.

Education level of a customer is a good indicator of a persons capability to pay back. Higher the education level more reliable is the customer.

Higher the income the less likely people are to default.

Ownership of realty is a big factor as it shows home owners are less likely to default.