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## **Loan Defaulter Risk Analysis(EDA)**

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# Purpose

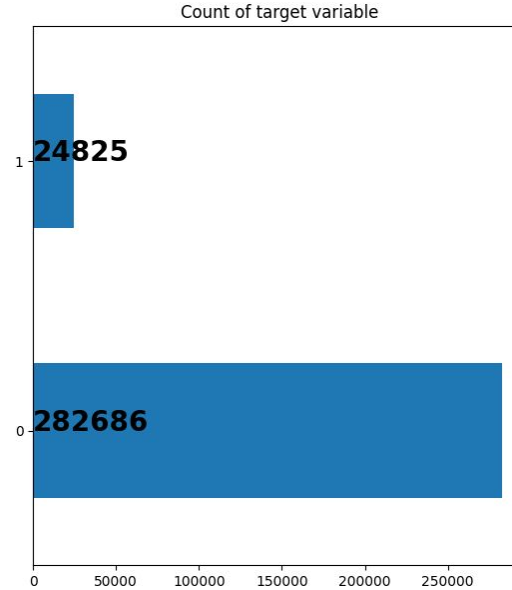
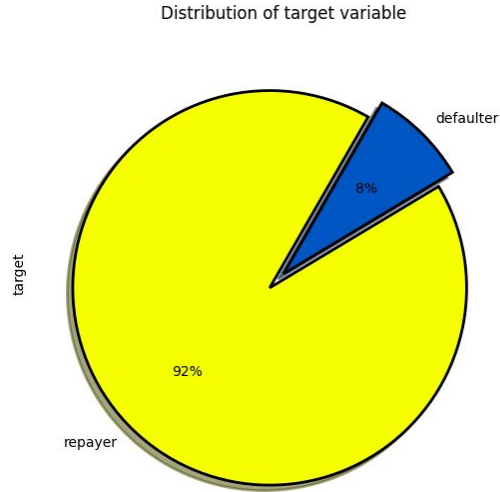
Credit risk analysis will help to make a decision for loan approval based on the applicant's profile .

Which controls loss of business to the company and avoid financial loss for the company .

## **Steps :**

1. Data Understanding and Sourcing
2. Check for missing values and duplicates
3. Imputing missing values
4. Inspecting Incorrect/Unknown Values
5. Features Selection
6. Standardization
7. Features Engineering
8. Data Visualization
9. Encoding
10. Prediction Model

# Distribution of Target variable

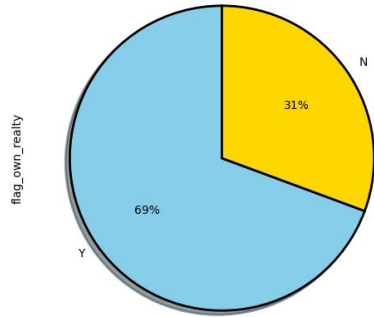


## Insight :

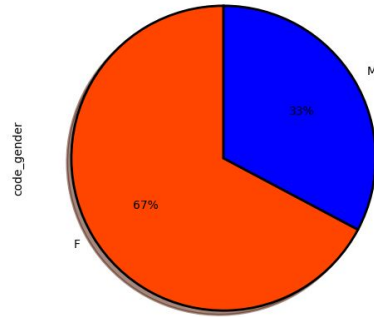
8% out of total client population have difficulties in repaying loans.

# Distribution of client owning a car and by gender

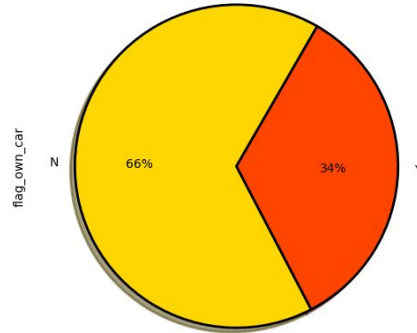
Distribution of client owns a house or flat



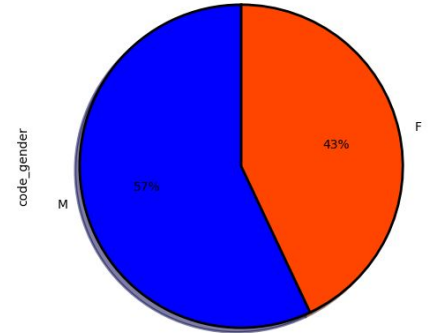
Distribution of client owning a house or flat by gender



distribution of client owning a car



distribution of client owning a car by gender

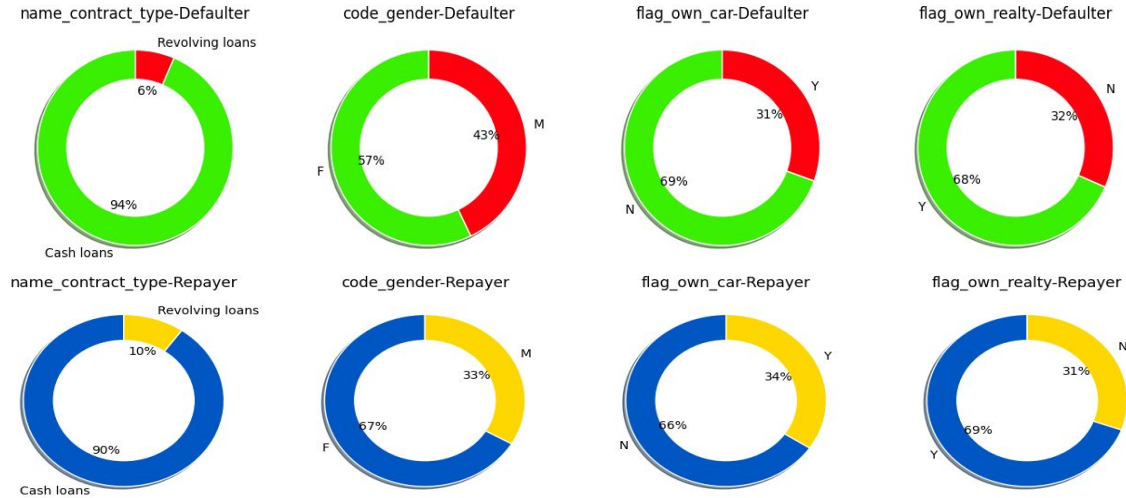


## Insight :

SUBPLOT 1 : Distribution of client owning a car. 34% of clients own a car .

SUBPLOT 2 : Distribution of client owning a car by gender. Out of total clients who own car 57% are male and 43% are female.

# Distribution of contract type ,gender ,own car ,own house with respect to target

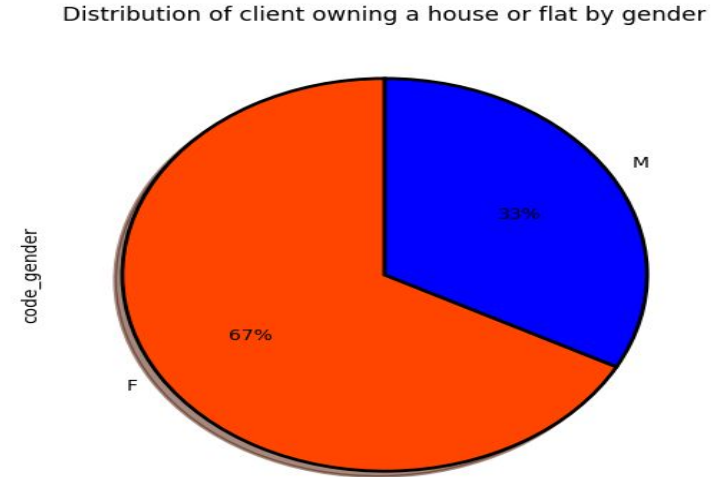
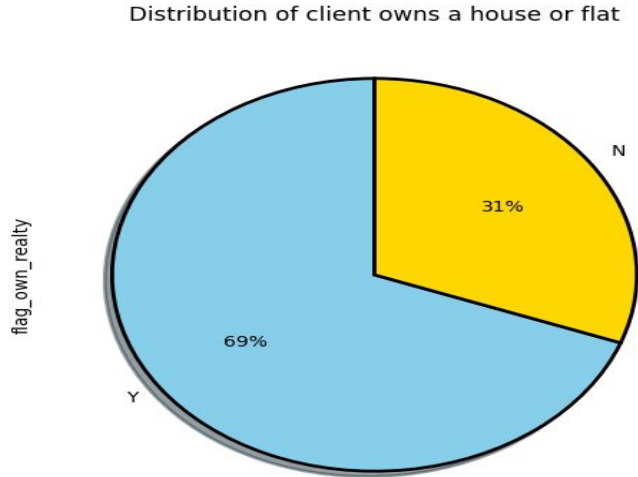


**Insight :**

Percentage of males is 10% more in defaults than non defaulters.

Percentage of Cash Loans is 4% more in defaults than Revolving Loans.

# Distribution of client owning a house or flat and by gender

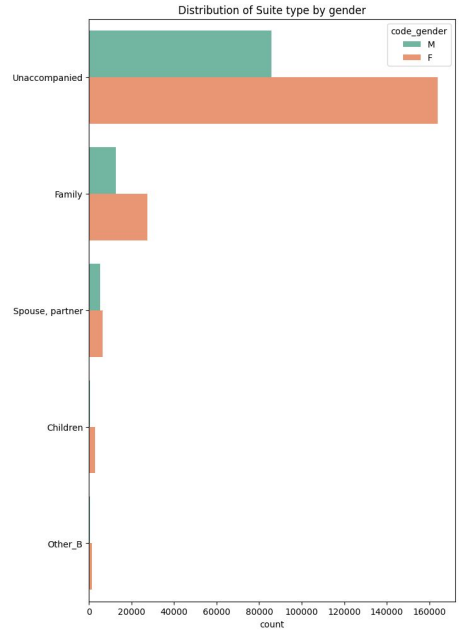
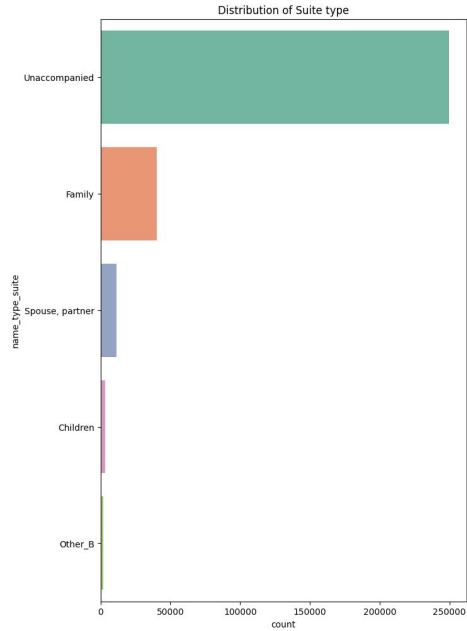
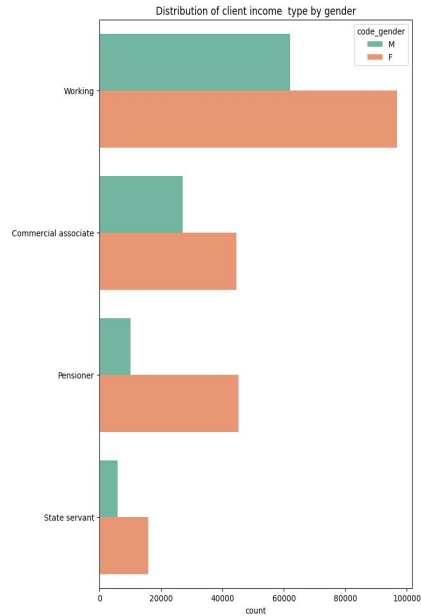
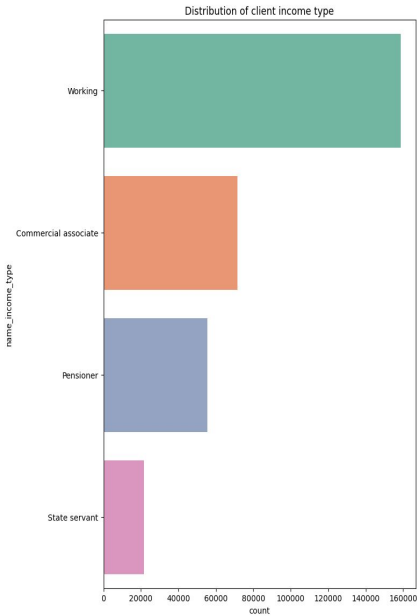


## Insight :

SUBPLOT 1 : Distribution of client owning a house or flat . 69% of clients own a flat or house .

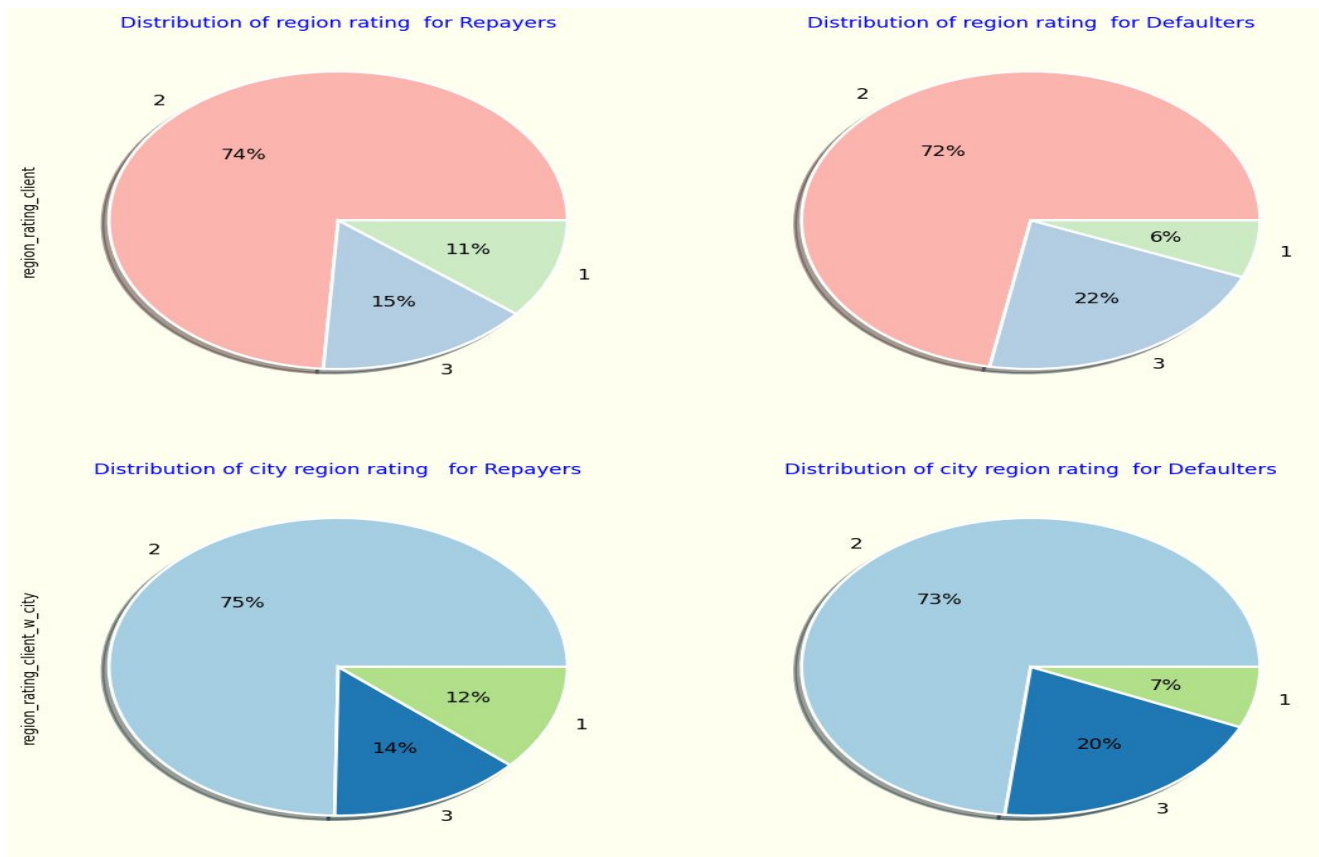
SUBPLOT 2 : Distribution of client owning a house or flat by gender . Out of total clients who own house 67% are female and 33% are male.

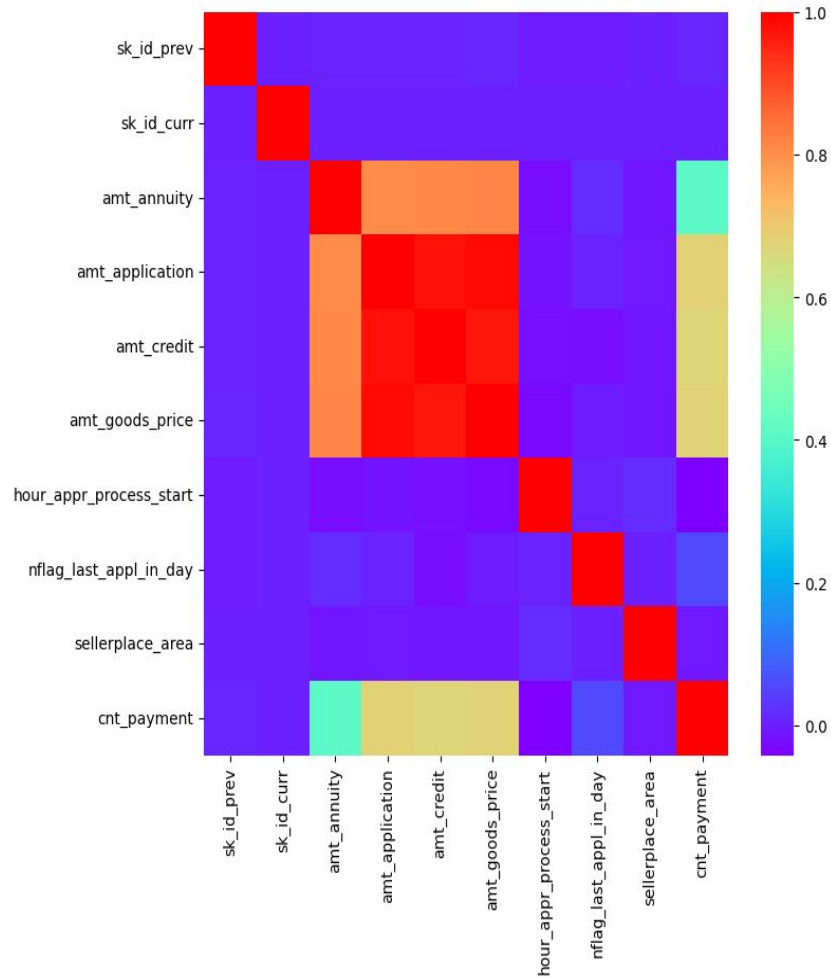
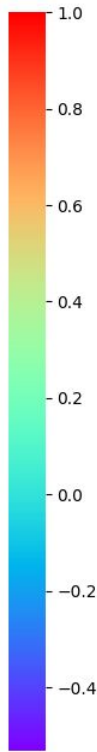
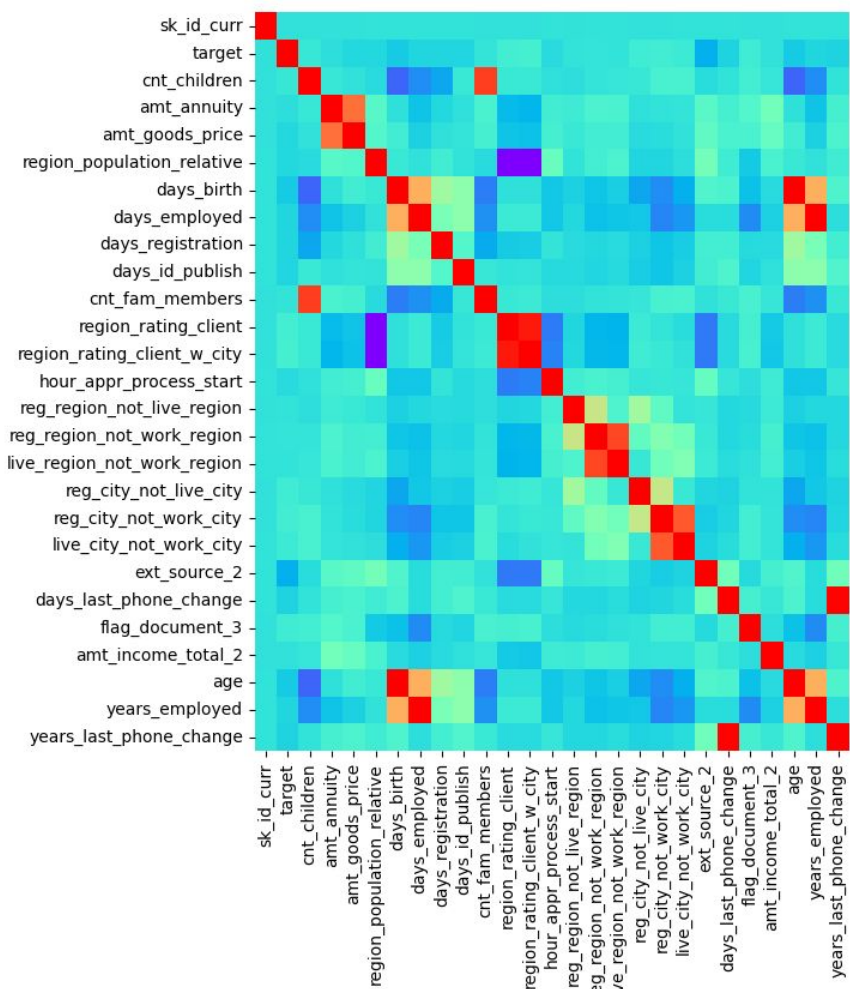
# Distribution of client income type





# Distribution of registration days for target variable.





# Decisive Factor whether an applicant will be Defaulter:

1	CODE_GENDER	Men are at relatively higher default rate
2	NAME_FAMILY_STATUS	People who have civil marriage or who are single default a lot.
3	NAME_EDUCATION_TYPE	People with Lower Secondary & Secondary education
4	NAME_INCOME_TYPE	Clients who are either at Maternity leave OR Unemployed default a lot.
5	REGION_RATING_CLIENT	People who live in Rating 3 has highest defaults.
6	OCCUPATION_TYPE	Avoid Low-skill Laborers, Drivers and Waiters/barmen staff, Security staff, Laborers and Cooking staff as the default rate is huge.
7	ORGANIZATION_TYPE	rganizations with highest percent of loans not repaid are Transport: type 3 (16%), Industry: type 13 (13.5%), Industry: type 8 (12.5%) and Restaurant (less than 12%). Self-employed people have relative high defaulting rate, and thus should be avoided to be approved for loan or provide loan with higher interest rate to mitigate the risk of defaulting

# Decisive Factor whether an applicant will be Defaulter:

8	DAYS_BIRTH	Avoid young people who are in age group of 20-40 as they have higher probability of defaulting
9	DAYS_EMPLOYED	People who have less than 5 years of employment have high default rate.
10	CNT_CHILDREN & CNT_FAM_MEMBERS:	Client who have children equal to or more than 4 default 100% and hence their applications are to be rejected. Client who have more than 4 children has a very high default rate with family including child count 9 and 11 showing 100% default rate
11	AMT_GOODS_PRICE	When the credit amount goes beyond 3 lakh, there is an increase in defaulters. Customer will be Repayer(Non-defaulter)-
12	EDUCATION	Academic degree has less defaults.
13	INCOME	Student and Businessmen have no defaults.
14	RATING_CLIENT	RATING 1 is safer.

# Decisive Factor whether an applicant will be Defaulter:

15	ORGANIZATION_TYPE	Clients with Trade Type 4 and 5 and Industry type 8 have defaulted less than 3%
16	Age group	People above age of 50 have low probability of defaulting
17	DAYS_EMPLOYED	Clients with 40+ year experience having less than 1% default rate
18	AMT_INCOME_TOTAL	Applicant with Income more than 700,000 are less likely to default
19	NAME_CASH_LOAN_PURPOSE	Loans bought for Hobby, Buying garage are being repayed mostly.
20	CHILDREN	People with zero to two children tend to repay the loans.